A New Cruise Ship Terminal & Urban Waterfront Proposal for the Settlement of Lyttelton

Timothy J. Daniel

Figure 1 view from the harbour
The aim of this project was to design a cruise ship terminal and urban waterfront master plan for the settlement of Lyttelton. My design acknowledges the existing environment and historic urban form but does so in a contemporary design solution. This is a two level solution that has first identified and addressed problems in the existing urban fabric and restored connections to the historic waterfront. Secondly it has delivered an iconic design for a new cruise ship terminal, aimed at generating public support for a well designed solution.

I have studied a wide written history of Lyttelton’s architecture and settlement to understand how the existing urban fabric and architectural styles have evolved to what exists today. I have studied literature from various sources, including Sir Miles Warren and Peter Beaven, who are widely considered as authorities on Canterbury architecture. Their responses to designing contemporary buildings in a historic fabric are of interest to my design problem.

I undertook a chronological / evolutionary investigation to comprehend the evolution of Lyttelton’s urban development and architecture. This enabled me to understand how the local conditions produced the current urban layout and architectural typologies and then appropriately respond in a contemporary design. This methodology ensured that my design is appropriate for, and acknowledges, the character of Lyttelton.

The site has been carefully selected to ensure good urban connections between the township and its waterfront. I concluded in my historical investigation that there exists a history of liberty in style in Lyttelton enabling a contemporary design response. To answer my research question, the design acknowledged the historic nature and urban character of Lyttelton, not through style but in appropriate massing in a tentative master plan that reflects the urban town, pattern and scale.
• My primary supervisor Dushko Bogunovich
• My secondary supervisor Branko Mitrovic
• Peter Beaven architect
• Kevin Crawford, Up High Photos Christchurch
• Melanie McAtamney, Lyttelton Port Company
• Joanna Mackenzie, The Christchurch Civic Trust
• Gary Tibble & Kyle Dow, Christchurch City Council
• Royal Caribbean Cruises

• Special thanks to my partner Sarah James, my employer Phil Blackwood ANZIA, my family, friends, and architectural colleagues for their support and encouragement throughout this year
# TABLE OF CONTENTS

- **INTRODUCTION - MY RESEARCH PROBLEM & QUESTION** .......................................................... 1  
  - Project Background ........................................................................................................... 1
- **LITERATURE REVIEW OF THE CURRENT STATE OF KNOWLEDGE** .................................... 2  
  - Literature Background on the Architectural History and Heritage of Lyttelton .................... 2  
  - Literature Background on Acknowledging the History & Heritage of Lyttelton .................... 2  
  - Architectural Precedents for Acknowledgement of History in Design ................................. 3  
  - Architectural Precedents for Waterfront Projects & Terminals ......................................... 4
- **OBJECTIVES & METHODOLOGICAL APPROACH OF THE PROJECT** .................................... 4  
  - Methods of Data Collection and Analysis ........................................................................ 5  
  - Research by Design Method ............................................................................................. 5
- **PROJECT DEVELOPMENT & RESEARCH PROBLEM** ......................................................... 5  
  - Brief formulation - Site Analysis & Selection ...................................................................... 5  
  - The Architectural and Urban Heritage of Lyttelton and a Contemporary Design Response in an Appropriate Vernacular ............................................................. 6  
  - Materials, Construction, and Time, Contrasted to Style, Form, and Expression .................. 6  
  - Development of the Present Urban Fabric's Form and Present Shoreline ............................ 7  
  - A Contemporary Design Response and My Chronological Investigation to Acknowledge the Historic Nature and Urban Character of Lyttelton ...................................................... 8  
  - Expert Advice with Peter Beaven 14 April 2009 ................................................................. 8  
  - The Possibility of a Regional Design Response for Lyttelton Based on the Local History .... 9  
  - Lyttelton and its Connection to the Port ............................................................................ 9
- **FORMULATION OF THE DESIGN BRIEF** ............................................................................. 9  
  - Design Guidelines for Urban Waterfront Proposal Master Plan ......................................... 9  
  - Waterfront Master Plan Requirements .............................................................................. 10  
  - Design Guidelines for New Cruise Terminal ...................................................................... 10  
  - Cruise Terminal Spatial Requirements for up to 7000 passengers .................................... 10  
  - Technical Requirements for Vessels .................................................................................. 10
- **DESIGN DEVELOPMENT** ........................................................................................................... 11  
  - Preliminary Design at Interim Critique One ....................................................................... 11  
  - Developed Design at Interim Critique Two ....................................................................... 11  
  - Developed Design at Student Conducted Critique .......................................................... 12  
  - Developed Design at Interim Critique Three ..................................................................... 12
- **CONCLUSION – Critical Appraisal of the Finished Work & its Theoretical Framework** ........ 13
- **ANNOTATED BIBLIOGRAPHY** ............................................................................................ 14
- **APPENDIX A** ......................................................................................................................... 17  
  - Chronological Development of Significant Lyttelton Buildings ...................................... 18  
  - Expert advice from Melanie McAtamney of the Lyttelton Port Company ............................ 21  
  - ‘Lyttelton declared historic area’, article from the Christchurch Press September 2 2009 ... 22
- **APPENDIX B Design Proposal** ............................................................................................ 23
- **APPENDIX C Design Process** ............................................................................................... 68
<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ii</td>
<td>Entry from Promenade</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>Lyttelton Harbour</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>The urban character of Lyttelton</td>
</tr>
<tr>
<td>4</td>
<td>26</td>
<td>Response</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
<td>Response</td>
</tr>
<tr>
<td>6</td>
<td>28</td>
<td>Response</td>
</tr>
<tr>
<td>7</td>
<td>29</td>
<td>Port Plan Erskine Bay</td>
</tr>
<tr>
<td>8</td>
<td>30</td>
<td>Sketch by W. Holmes</td>
</tr>
<tr>
<td>9</td>
<td>30</td>
<td>1860 urban form and foreshore analysis</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
<td>Erskine Bay</td>
</tr>
<tr>
<td>11</td>
<td>31</td>
<td>1900 urban form and foreshore analysis</td>
</tr>
<tr>
<td>12</td>
<td>31</td>
<td>Erskine Bay</td>
</tr>
<tr>
<td>13</td>
<td>32</td>
<td>1927 urban form and foreshore analysis</td>
</tr>
<tr>
<td>14</td>
<td>32</td>
<td>Erskine Bay</td>
</tr>
<tr>
<td>15</td>
<td>33</td>
<td>1960-2009 urban form and foreshore analysis</td>
</tr>
<tr>
<td>16</td>
<td>33</td>
<td>Lyttelton harbour</td>
</tr>
<tr>
<td>17</td>
<td>34</td>
<td>Lost Lyttelton 1927</td>
</tr>
<tr>
<td>18</td>
<td>34</td>
<td>Lost Lyttelton Norwich Quay 2009</td>
</tr>
<tr>
<td>19</td>
<td>34</td>
<td>Lost Lyttelton 1970 demolition on Norwich Quay</td>
</tr>
<tr>
<td>20</td>
<td>34</td>
<td>Lost Lyttelton Norwich Quay 2009</td>
</tr>
<tr>
<td>21</td>
<td>35</td>
<td>1985 demolition century old Sinclair Engineering</td>
</tr>
<tr>
<td>22</td>
<td>35</td>
<td>1987 Sir Miles Warren headquarters for the Lyttelton Port Company</td>
</tr>
<tr>
<td>23</td>
<td>36</td>
<td>1950 Meeting the Interisland Ferry</td>
</tr>
<tr>
<td>24</td>
<td>36</td>
<td>1966 Interisland ferry terminal (demolished 1960’s)</td>
</tr>
<tr>
<td>25</td>
<td>36</td>
<td>1973 Cruise ships visiting inner harbour</td>
</tr>
<tr>
<td>26</td>
<td>36</td>
<td>2008 No.2 wharf with redundant ferry vehicle ramp</td>
</tr>
<tr>
<td>27</td>
<td>37</td>
<td>1900 Oxford Street &amp; Norwich Quay intersection</td>
</tr>
<tr>
<td>28</td>
<td>37</td>
<td>Refreshment rooms on the No.2 wharf</td>
</tr>
<tr>
<td>29</td>
<td>37</td>
<td>Norwich Quay 1900</td>
</tr>
<tr>
<td>30</td>
<td>37</td>
<td>1902 Passenger train arrival</td>
</tr>
<tr>
<td>31</td>
<td>38</td>
<td>1911 Oxford Street on Regatta day</td>
</tr>
<tr>
<td>32</td>
<td>38</td>
<td>1914 No.7 wharf troops depart for WW1</td>
</tr>
<tr>
<td>33</td>
<td>38</td>
<td>1938 Imperial Airways flying boat service</td>
</tr>
<tr>
<td>34</td>
<td>38</td>
<td>1940 wartime troopship departing</td>
</tr>
<tr>
<td>35</td>
<td>39</td>
<td>Site Analysis</td>
</tr>
<tr>
<td>36</td>
<td>40</td>
<td>Master Plan</td>
</tr>
<tr>
<td>37</td>
<td>41</td>
<td>Urban sections</td>
</tr>
<tr>
<td>38</td>
<td>42</td>
<td>Urban sections</td>
</tr>
<tr>
<td>39</td>
<td>43</td>
<td>Perspective</td>
</tr>
<tr>
<td>40</td>
<td>44</td>
<td>Perspective</td>
</tr>
<tr>
<td>41</td>
<td>45</td>
<td>Perspective</td>
</tr>
<tr>
<td>42</td>
<td>46</td>
<td>Perspective</td>
</tr>
<tr>
<td>43</td>
<td>47</td>
<td>Perspective</td>
</tr>
<tr>
<td>44</td>
<td>48</td>
<td>Perspective</td>
</tr>
<tr>
<td>45</td>
<td>49</td>
<td>Service level plan</td>
</tr>
<tr>
<td>46</td>
<td>50</td>
<td>Promenade plan</td>
</tr>
<tr>
<td>47</td>
<td>51</td>
<td>Terminal level plan</td>
</tr>
<tr>
<td>48</td>
<td>52</td>
<td>Elevations</td>
</tr>
<tr>
<td>49</td>
<td>53</td>
<td>Elevations</td>
</tr>
<tr>
<td>50</td>
<td>54</td>
<td>Short environmental section</td>
</tr>
<tr>
<td>51</td>
<td>55</td>
<td>Long section</td>
</tr>
<tr>
<td>52</td>
<td>56</td>
<td>Perspective</td>
</tr>
<tr>
<td>53</td>
<td>57</td>
<td>Perspective</td>
</tr>
<tr>
<td>54</td>
<td>58</td>
<td>Perspective</td>
</tr>
<tr>
<td>55</td>
<td>59</td>
<td>Perspective</td>
</tr>
<tr>
<td>56</td>
<td>60</td>
<td>Perspective</td>
</tr>
<tr>
<td>57</td>
<td>61</td>
<td>Perspective</td>
</tr>
<tr>
<td>58</td>
<td>62</td>
<td>Perspective</td>
</tr>
<tr>
<td>59</td>
<td>63</td>
<td>Perspective</td>
</tr>
<tr>
<td>60</td>
<td>64</td>
<td>Perspective</td>
</tr>
<tr>
<td>61</td>
<td>65</td>
<td>Perspective</td>
</tr>
<tr>
<td>62</td>
<td>66</td>
<td>Perspective</td>
</tr>
<tr>
<td>63</td>
<td>67</td>
<td>Perspective</td>
</tr>
<tr>
<td>64</td>
<td>69</td>
<td>Design process sketches</td>
</tr>
<tr>
<td>65</td>
<td>70</td>
<td>Design process sketches</td>
</tr>
<tr>
<td>66</td>
<td>71</td>
<td>Design process sketches</td>
</tr>
</tbody>
</table>
1. INTRODUCTION- MY RESEARCH PROBLEM & QUESTION

How can the design for a new cruise ship terminal and waterfront development acknowledge the historic nature and urban character of Lyttelton while enabling a contemporary design response?

The heart of Lyttelton, a township built on strong maritime beginnings, has become disconnected from its waterfront. As the port continues to grow, public access is being increasingly denied. This project has re-established the lost connections in the urban fabric of Lyttelton restoring the historic waterfront connection in a contemporary design.

This research project firstly investigated the history of Lyttelton and its current urban design issues. Secondly, the outcome of this investigation provided a basis for the research by design, delivering a master plan for the redevelopment of the waterfront. The master plan acknowledges the historic nature and urban character of Lyttelton and sets the intermediate context for the design of a new contemporary cruise ship terminal. Together the two designs demonstrate that Lyttelton’s alienation from its waterfront is not inevitable. On the contrary a full spatial and functional connection is possible.

The investigative methods used include an evaluation of the existing urban fabric and architecture in a chronological / evolutionary study. This project did not intend to explore existing academic responses or modern interpretations and reproductions of historic styles. It was an exploration of history and design specific to Lyttelton’s local conditions and history, independent but not disconnected from exterior influences and theories. This approach has practical and academic merit for approaching a design task from a well informed position of local context. Too often buildings don’t fit within their surroundings, or arrogantly oppose them. To respect the character of Lyttelton, a thorough local investigation was an appropriate first step to design a new cruise terminal and urban waterfront development for Lyttelton.

Project Background

Lyttelton has a strong maritime history but over time this has become lost mostly due to robust commercial development of the port. Lyttelton has seen the passing of its electric passenger train services and the demolition of many notable buildings including its Ferry Terminal for the service to Wellington. The strong urban grid remains as well as a significant number of historic buildings.

Nowadays, Canterbury has a significant tourist industry supported by over sixty cruise ship visits to the port of Lyttelton each year. Lyttelton port currently has the ability to berth only one large cruise ship at any given time. Due to this limited capacity as well as container ship priorities, any additional cruise ships are forced to dock at Timaru. This is a significant loss for Lyttelton and its port.

Larger cruise ships are required to dock alongside the container terminal as there are no dedicated facilities available. A visitor’s first experience of arriving in Lyttelton by luxury cruise ship should be composed of both the impressive landscape of Banks Peninsula and the urban landscape of the town. Instead it is overshadowed by views of the container operations of the port. This is not acceptable and requires an architectural solution that is not merely functional, but also respectful to the architectural heritage and history of Lyttelton. First impressions form part of a lasting memory of a visitor’s holiday experience to New Zealand and the port of Lyttelton requires a new terminal to facilitate this. A pleasant arrival experience encourages repeat visits and boosts New Zealand’s reputation internationally as a tourist destination.

In the year to April 2008, cruise ship passengers arriving through Lyttelton totalled 64,000. This is forecast to grow to 110,000 passengers in the year to April 2009. At present the capacity to process this volume of visitors is marginal at best and sub-standard. There is an urgent and pressing necessity for a passenger terminal to meet existing and future needs. My new terminal proposal will have the capacity to attract additional cruise ships that will support the increase of tourism regionally and nationally.

Lyttelton Port Company chief executive Peter Davies has stated that it is likely that future funding will be available from unspecified sources for between 15 to 30 million. If an attractive solution can be presented to shareholders in the Lyttelton Port Company it is assumed that there may be additional funding contributions.

This potential project is generating public interest through recent media attention in the Christchurch Press. A well designed and graphically illustrated proposal would certainly have the ability to generate public support.

---

for the project. At the very least, a debate of relevant design issues for a new facility would still provide real benefit for the people of Canterbury & Lyttelton. It can be argued that this project currently has insufficient momentum because a preliminary investigation of urban design and architectural issues had not yet been undertaken until now. Therefore my project is born out of an identified need.

**LITERATURE REVIEW OF THE CURRENT STATE OF KNOWLEDGE**

**Literature Background on the Architectural History and Heritage of Lyttelton**

There is a concise written history available of Lyttelton’s architecture and its settlement which has been summarised in the annotated bibliography. To gain a thorough understanding of my research question, information was sought on how the existing urban fabric and buildings evolved.

- The story of the first settlers of Lyttelton from England
- The architectural history of Lyttelton
- Notable buildings
- The Influences of English and Scottish heritages
- The influence of the new environment, climate, landscape and the availability of building materials
- The constraints of technology and skilled labour
- The logistical planning issues for Lyttelton
- An analysis of the existing and historic urban form
- The history of public transport connections

This information has been used to produce chronological urban form drawings and a chronology of notable Lyttelton buildings (see Appendix A). The analysis of this research is included later in this document.

**Literature Background on Acknowledging the History & Heritage of Lyttelton**

The historical importance of Lyttelton has been nationally recognised by the New Zealand Historic Places Trust recently declaring the majority of Lyttelton (excluding the waterfront area of my master plan) as one of the largest historic areas in the country. It is noted as having a significant number of historic places condensed within the greater township.⁴

The historic nature of Lyttelton is considered unique and therefore an investigation of a local response is considered paramount. However, little has been written specifically addressing my research question so a thorough investigation was required.

The only written document on designing specifically within the historic fabric of Lyttelton is the Design Guideline in the Banks Peninsula District Plan.⁵ This document strives to protect the character of Lyttelton through encouraging a replication of the existing shapes, proportions, materiality and colours. I appreciate the intentions of this guideline, however by encouraging replication it does not consider the role that contemporary design can play. It includes several post modern interpretations of historical styles that I consider detrimental to the character of Lyttelton. One of these examples belongs to Sir Miles Warren in a modern interpretation of the classical style, out of character with his other works.

Peter Beaven and Sir Miles Warren are widely considered as authorities on Canterbury architecture. They have explored the question of a local vernacular and have been influenced by history in their own works both written and constructed.

In *South Island Architecture⁶* Beaven talks of the abundance of local concrete materials allowing an architect “to cast his building on the site in the very form he wishes”.⁷ This application is displayed in Beaven’s famous tunnel building in a metaphorical fifth ship played out in a sculptural expression of history in form. He criticises the opposing response and described “...the use of concrete in the traditional sense, the precast elements read as formal elements... This wish for classicism is brought about by the isolation of New Zealand – the feeling in Canterbury of the necessity of English association and in some sense a lack of confidence in creating new traditions.”⁷ His application of heritage and history as shown in his tunnel building is a metaphorical response in the contemporary modern style.

---

⁷ Ibid.
Sir Miles Warren in *Style in New Zealand Architecture*⁶ admits to his early domestic architecture having a colonial character, a modern translation of a simple cottage. This is an indirect and perhaps unintentional expression of history in his modern designs.

David Mitchell explains that “Warren... is inclined to simplify functions and forms. Beaven strives to make them complex, to fractionalize them, and to find within each architectural task distinctions that can be displayed in the fabric of the building”⁹. These are directly opposite approaches to the expression of history in design showing that different positions are held in regard to my design problem.

Of importance to my research question is a contemporary design response to the character and context of Lyttelton. The critical regionalism theory as proposed by Kenneth Frampton in *Towards a Critical Regionalism*¹⁰ is relevant for a responsive acknowledgement of history in design. Whilst critical regionalism does not specifically acknowledge history or heritage, Frampton calls for a progressive modern architecture that values responses particular to the context. He asks that architects should “mediate the impact of universal civilization with themes drawn indirectly from the individual peculiarities of a particular site...”¹¹. He did not advocate revivals of the greater historical styles. This can be taken as drawing inspiration from heritage and history contextually without any direct application. This allows a non universal response unique for Lyttelton in a contemporary form valuing the local context. “Of course in the times and societies we live in, a literal return to the materials and techniques of the past would make little sense”¹².

Vincent Canizaro, editor of *Architectural Regionalism*, critiques the ability to design within local circumstances. He states that “without painstaking research... an outsider has little chance of truly understanding those local circumstances”¹³ and asks if critical regionalism “functions as critically regional work for the locals?”¹⁴. Fortunately I have the benefit of personal knowledge and local experience of Lyttelton combined with thorough research to overcome this obstacle.

The functionalist grid of Lyttelton’s urban form leaves a greater role for its buildings to play in creating its character. If this township was to exhibit streets of modern architecture, lacking ornament, there would be a great loss of interest in the urban spaces. For this historic model of urban space to continue its success the nature of the character must be researched.

Lyttelton’s character, established in its unique collection of buildings, should not be fraught with any inappropriate architectural additions to its streetscape. Gordon Cullen, in *The Concise Townscape* introduces his assessment of the nature of successful towns as “one building standing alone in the countryside is experienced as a work of architecture, but bring half a dozen buildings together and an art other than architecture is possible.”¹⁵ The quality of the urban environment in Lyttelton is brought about by the relationships between its buildings. Any new building must respect the existing relationships.

Cullen explains that there is “an art of relationship just as there is an art of architecture”²⁶. In order to understand our emotional reaction to our environments Cullen defines three ways in which this happens. Concerning optics, place and content. Of particular interest to our functionalist grid pattern is its content. He explains this as being the fabric of towns found in colour, texture, scale, style and character. He explains that we must resist the urge to create symmetry, balance, perfections and conformity. Content must not be fine and perfect, towns must manipulate their content. My waterfront proposal must not stand alone but must be willing to take on some of the characteristics of Lyttelton’s content.

### Architectural Precedents for Acknowledgement of History in Design

Architectural precedents that have considered history, historical context, or local vernacular responses in their designs have been researched to explore what they may offer my project:

**Lyttelton Road Tunnel Administration Building, Christchurch NZ. Peter Beaven**

In 1964 architect Peter Beaven placed this magnificent building in the motif of a marooned ship anchored to the landscape. The design pays respect to the colonial heritage and maritime beginnings of Canterbury. This modernist building is a sculptural gateway to the Lyttelton tunnel. It allows the coming and going of people who would once have had to walk the Bridal Path over the Port Hills, a new ship enabling a journey that was previously so difficult. This is a building rich in meaning expressed in a modern contemporary form.¹⁷ This building stands as a precedent to my project as the built result bears no resemblance to historical forms, yet it was strongly influenced by historical events.

---


¹⁶ Ibid P8.

Olympic Arena, Tokyo, Japan. Kenzo Tange

The Olympic Arena of 1964 by Kenzo Tange is a reinterpretation of the soaring roofs from the ancient Ise Temple that originally developed from the form of tents. This was a new prototype for Japanese architecture with a strong historical reference to architectural form. The building demonstrates an exploration of a historical form in a modern rendition with no obvious revival of architectural style.

College House University of Canterbury, Christchurch, NZ. Sir Miles Warren

Architect Sir Miles Warren designed Christchurch College in 1964. This residential boarding complex utilises a vocabulary undoubtedly associated to Canterbury. The Brutalist movement has touched this building with raw and solid materials expressive of the rugged nature of the Canterbury plains. In my project I have also considered local materials linked to the landscape.

Architectural Precedents for Waterfront Projects & Terminals

Olympic Sculpture Park, Seattle USA. Weiss Manfredi Architects

Located on a former industrial site, this park is connected to an art museum and is the only green space in downtown Seattle. It integrates landscape, architecture, and urban design. The seductive Z shaped green bridge dives across three parcels of land to form one landscape bridging a busy motorway and railway lines. Patrons journey across a green landscape dynamically bridging the heavy infrastructure to emerge in a waterfront park. It also addresses environmental issues including brownfield development and sustainable design. This project demonstrates the feasibility of forming high value public spaces whilst preserving existing infrastructure fundamental to the operation of the city. 18 It is an example of high value to my project as I had to bridge the existing infrastructure of a port and create a new connecting public space.

Maritime Terminal, Selerno, Italy. Zaha Hadid

A concrete shell in a small Italian port accommodates the spatial requirements for up two cruise vessels and a ferry terminal. It sits low to the water possessing a smooth flow of circulation as cruise passengers navigate a leisurely journey up ramps to the cruise liners. Zaha describes this journey “an intensified, smooth transition between the land and the sea, an artificial land form that is solid melting into liquid”. 19 This project is relevant as I considered the journey from land to sea and integration with the landscape.

Portsde Wharf Precinct, Queensland, Australia

This development includes a waterside promenade on the Brisbane River with cruise ship facilities. It includes a ferry terminal, many restaurants, cafes, markets, shopping, apartments and cinemas. Portside Wharf is marketed as a destination and draws in people from Brisbane creating a new vibrant zone. It is an exemplar to my project as it demonstrates an effective master plan focused on a cruise terminal. Architecturally it resembles an urban village with dynamic streetscapes centred on pedestrian environments separated from vehicle movements. This concept is paramount to the pedestrian friendly nature of my promenade.

Yokohama International Port Terminal, Japan. Foreign Office Architects

This port terminal creates a precious piece of open space acting as a mediator between a busy city and its harbour in an extension of the landscape. The design challenges preconceptions and technical requirements of terminal design and encouraged my project to make bold moves. 20

Sydney Opera House, Australia. Jørn Utzon

The Sydney Opera House of 1956-1974 by Jørn Utzon has wind filled sails in an emotional response reaching out to Sydney Harbour in a waterfront setting. This project is also relevant to my proposal as it is an iconic response confronting the harbour.

OBJECTIVES & METHODOLOGICAL APPROACH OF THE PROJECT

Lyttelton is a port township grown from arrivals and departures of people and goods. Its many buildings (inclusive of existing and destroyed) form a story of how it evolved. By examining these buildings, in the context of the local history and the settlement of Lyttelton, I am in an informed position on its character. I now understood immigrant’s responses to a new climate and environment. I was then able to carefully consider and apply this knowledge as part of my design process to provide an answer to my research question.

The objective of my project was to provide a quality architectural and urban design proposal for the Lyttelton waterfront. Within a master plan, I have aimed to achieve a building with high architectural merit, complementing the architecture of Lyttelton and acknowledging the existing urban fabric and form. This is a two level solution, which has first addressed problems in the urban fabric connection between the township of Lyttelton and the waterfront, then delivered a buildable design for the cruise ship terminal. I will seek to publish the final proposal in a manner aimed at generating public support for a new cruise ship terminal.


I have undertaken a chronological / evolutionary methodological method (see Appendix A) to comprehend the evolution of Lyttelton’s urban development and architecture. This enabled me to gain an understanding of how the local conditions produced the current urban layout and architectural typologies. I have gained new knowledge of how today’s conditions can influence a contemporary urban and architectural design whilst paying respect to the local character. It has also helped me to understand the present structure of the waterfront and the reasons why it has become separated from the township.

Methods of Data Collection and Analysis

- Advice from local architects and historians
- Chronological investigation from written sources and visual observation
- Discussion with supporters of a new terminal facility
- Discussions with the Lyttelton Port Company
- Observation, recording, and analysis of the local architecture and urban fabric of Lyttelton through site visits on land and sea
- Reading relevant literature as summarised in the annotated bibliography

Research by Design Method

To ensure my project fits within the character of Lyttelton a full three dimension computer model inclusive of Banks Peninsula, Lyttelton and its buildings has been constructed. This has allowed my design development to be tested and evaluated in a virtual context / design environment.

PROJECT DEVELOPMENT & RESEARCH PROBLEM

Brief formulation - Site Analysis & Selection

Site selection criteria to achieve my research intentions:

- Good urban connections to existing historic centre.
- Logistical planning issues required by a new terminal.
- Provide public access to the waterfront.

The areas under consideration for site selection initially included both inner and outer harbour options located on the waterfront of Lyttelton in New Zealand’s South Island.

In discussions with Melanie McAtamney of the Lyttelton Port Company (LPC) its internal discussion document (unpublished) recommends Cashin Quay container berth as the most feasible location for a new cruise ship terminal. I considered this option and established that this location did not meet the required outcomes of my research proposal. Cruise ships would be overshadowed by container ship operations and there would be a continued disconnection of the waterfront from the township. As per my objectives, my project had to provide a successful architectural and urban design proposal for the Lyttelton waterfront. This could not be achieved by the proposed site location of the LPC and more complex issues had to be addressed to provide an ideal solution.

My proposed site is located within Lyttelton’s inner harbour selected to provide excellent urban connections to the existing as built environment. This location allowed new connections from the waterfront to the historic downtown area at the eastern end of Lyttelton. I consider this paramount to the success of this project. It has allowed an architectural / urban solution to reconnect the waterfront to the township of Lyttelton uninhibited by the robust commercial nature of the port. Historically this location is of significance as a modernist designed glass ferry terminal was a previous tenant for the Christchurch to Wellington overnight service. Furthermore LPC envisages that any future expansion of the container port will be to the north east, therefore my proposed site would be unaffected.

McAtamney has considered the internal harbour option and concluded that providing a berth for a 350m vessel could be accommodated by a complete rationalisation of all operational berths in the inner harbour. This has been considered as part of my proposal and has allowed me to address the current urban design issues with a framework for the future. (see Appendix A for expert advice from Melanie McAtamney)

This internal harbour location in the heart of Lyttelton provides a dramatic environment for the new cruise terminal harbour by the natural amphitheatre bowl of the volcanic Port Hills.
The Architectural and Urban Heritage of Lyttelton and a Contemporary Design Response in an Appropriate Vernacular

To assist in answering my research question I undertook a chronological / evolutionary investigation *(see Appendix A)* of buildings that I consider significant for their heritage and / or architectural value. I have used this investigation to identify what may be considered a regional vernacular for Lyttelton through form and materials and examined how this vernacular has evolved over time to the present day.

Lyttelton is fortunate in that it contains a significant number of heritage buildings which tell the story of its settlement. Each building’s historical character can be read to tell us not only an architectural genre but also which materials were available during their period of construction, the current needs of the town’s growth, and architectural fashion or influences. By forming a model of historical and cultural context I have ensured that my urban waterfront proposal and cruise terminal fits appropriately within the character of Lyttelton and belongs to its site.

Materials, Construction, and Time, Contrasted to Style, Form, and Expression *(see Appendix A for chronological investigation of Lyttelton’s buildings)*

In 1850 the first 773 European settlers arrived at Lyttelton aboard the Canterbury Association’s famous first four ships. They built a township of raupo huts and tents on the tussock hills beside the beach that is now the port of Lyttelton.  

Early cottages were built of the plentiful and cheap pit sawn local timbers with iron roofs brought from Britain, along with some examples of cob cottages in rammed earth construction. The early domestic architecture is an eclectic mix of inherited styles with many of the early timber cottages in the Georgian style. The cottages have a common character in their material palette.

Early church architecture was formed in a carpenter’s gothic. There were some initial failures arising from the unfamiliarity of new materials, including the infamous failure of Benjamin Mountfort’s first Anglican Church for Lyttelton of 1851 due to its construction in green timber. After this failure, the gothic church architecture of St Joseph’s Church and St John’s Church were built of locally quarried stone and imported slate. This gothic architectural style was short lived, only extending to other public examples of the Union Bank and the Lyttelton Gaol. Stone also proved difficult with the locally quarried scoria for the Lyttelton Timeball Station in 1876 proving to be too porous. An application of a plaster render for waterproofing was required.

Most early public buildings were predominately built out of local timber including the Wesleyan Methodists Church and the Lyttelton Hospital. On the 24th of October 1870 The Great Fire of Lyttelton destroyed the many colonial Georgian buildings in the central area. This initiated a shift to new building materials by the late 19th century. Buildings were predominantly built from brick with stone facings or plaster, largely abandoning the earlier colonial timber construction of public buildings. However timber with iron roofs remained the key material for domestic dwellings with this material palette still being prevalent today.

After the Great Fire, public buildings and domestic dwellings in the late 19th century now emerged in an array of styles that could be described as Victorian, Italianate, Edwardian and Classical Revival. This trend continued into the 1930’s, however notable examples exist in the Spanish Mission style with Art Nouveau influences, including the Harbour Light Theatre of 1916. These architectural genres could easily be attributed to British influences although there is no clear evidence from the chronological investigation that any specific style can been directly associated with a particular period. I propose that it is more probable that the early architectural style picked up on some of the current trends in Britain but also took on a personal familiarity of different forms from varying periods and locations that do not necessarily reflect the changes that occurred in Great Britain at the time. The use of these styles and materials continued well into the 1930’s when new buildings became a rare occurrence. This has left a diverse range of charming historic buildings in the central area untouched in a time capsule of yesteryear.

Up until the 1930’s a common character for public buildings could be said to exist not in style but in a common material palette and a respectful play of scale between neighbours. This provided a diverse range of buildings actively confronting the streetscape. These buildings offer excitement from modest materials in fine proportions.

Following the 1931 Napier earthquake, national building standards required commercial brick and stone constructions to be replaced by steel framed and reinforced concrete constructions.

In 1959 following international trends in post war construction the Lyttelton Harbour Board commissioned their new premises in the form of a glass and steel box. Today this remains the only example of multi-storey curtain wall construction in Lyttelton. The Interisland Ferry Terminal *(now demolished)* built some seven years later was also notable for its steel and glass construction reminiscent of Joseph Paxton’s Crystal Palace. These buildings illustrate a willingness to explore new construction methods but perhaps were also an attempt by the Lyttelton Harbour Board to demonstrate that they were looking towards the future and a new direction for Lyttelton.

---


In 1964, architect Peter Beaven’s Road Tunnel Administration Building connecting Christchurch to Lyttelton was placed as a fifth ship moored to the landscape. Its design pays respect to the colonial heritage and maritime beginnings of Canterbury. It is considered to be one of the finest examples of the modern movement in New Zealand, constructed in a contemporary modern concrete shell resting on concrete beams. The monumental symbolism shows a strong respect for our heritage.

The 1980’s did not spare Lyttelton from being scarred by post modern architecture. A new post office in 1980 and the new Lyttelton Harbour Board building of 1987 stand in modern reinforced concrete. The top heavy Harbour Board building stands abruptly at the entrance of Lyttelton and feels out of place and disconnected from the theme of Lyttelton’s scale.

The new McSherry building sits sympathetically adjacent to the historic 1880 Lyttelton Harbour Board building and is the only recent addition to the Lyttelton streetscape. Locally quarried stone conceals modern pre-cast concrete construction in a contemporary response linked through material to the local context.

Today rising on the spurs above Lyttelton sits a myriad of new responses as modern pole houses enabled through engineering advances have allowed the original settlement’s footprint to expand from what was previously contained to the lower slopes. Increasing land reclamations have permitted continued expansion of the port away from the protection of the inner harbour as Lyttelton continues to change and evolve. Design Guidelines attempt to preserve the character of a specified conservation area by asking for simple forms with contextually shaped roofs but without requesting the architectural trimmings of the past. Many streets still possess an eclectic mix of architecture in a juxtaposition of form and/or style.

Development of the Present Urban Fabric’s Form and Present Shoreline
(see figures 7-16 inclusive in Appendix B for graphical analysis of evolutionary investigation of urban form)

In 1809 Captain Chase of the Pegasus became the first European to sail into Lyttelton Harbour, 39 years after Captain James Cook had wrongfully declared Banks Peninsula as Banks Island. In March of 1848 in England, the Canterbury Association had been established and appointed Joseph Thomas of Worcester as surveyor.

By September Thomas’s assistant Edward Julie drew the first street plan and established the major streets named after English dioceses which still form the heart of Lyttelton today. In July 1849 the migration of the natural line of the foreshore to its current location began with the levelling of Erskine Bay and the construction of a 150 by 15 feet jetty. Norwich Quay, today over a hundred metres from the natural shoreline, previously laid nestled at the water’s edge. None of the original buildings from this period of the Canterbury Association, (including the immigration barracks), remain in existence today.

By the turn of 1860 Lyttelton resembled a lively Victorian township but lacked any public sanitation or any paved roads. In 1871 hard labour gangs from the local gaol worked on improving the living standards in Lyttelton by covering up gullies and levelling and metalling the streets.

In 1876 the line of the inner harbour was formed with the construction of the breakwater moles. That same year Norwich Quay was pushed further away from the shoreline with the reclamation for railway yards. The subsequent opening of the railway tunnel to Christchurch ensured the future of Lyttelton as a port.

In 1897 the borough council took over responsibility of 23 private streets and a year later London Street and Norwich Quay were tarred and had gas lights installed.

Land reclamation projects were continual and Sandy Bay, a previously popular swimming spot, was lost to oil storage tanks in 1907. A photograph in the Weekly Press of 31st July 1918 shows the oil storage area at Naval Point in the process of even further reclamation which was completed by 1925. By this time the inner harbour and Naval Point resembled much what it is today.

The 1960’s saw more big changes for Lyttelton. In 1964 the Lyttelton Road tunnel opened and a year later the Cashin Quay container terminal was completed after the reclamation for railway yards. Traffic could now cross the railway lines over a concrete bridge to a new ferry terminal (since demolished).

In the 1970’s progress turned to demolition and a number of historic buildings were tragically lost. The demolition of the New Zealand Shipping Company building and the Sailors’ Home on Norwich Quay opened

31 Ibid P18.
32 Ibid P123.
gaps in the street façade not seen since before 1900 on this important street. In 1980 this was exacerbated by the demolition of Cunningham’s Grain Store. This loss of uniformity in this key street façade that was historically prevalent in the townscape has not been recovered.

In 1984 the inner harbour escaped a reclamation proposal to fill in the inner harbour that would have dramatically altered the seaside environment of Lyttelton forever.

The 1980’s loss of the ferry terminal building and the Banks Peninsula Cruising Club signalled a change in nature of the port. In 1987 this loss of heritage continued as a new office tower for the Lyttelton Harbour Board replaced the historic Sinclair Melbourne engineering works. I consider this building to be out of character, standing in a post modern classical style, implying dominance, perhaps unwittingly, over the residents of Lyttelton.

1994 saw the closure of the wharves to the public and the port became formally separated from the township.

Future plans by the Lyttelton Port Company include extending container operations to the east at Te Awaparahi Bay, an area that is currently utilised for stockpiling coal.

Lyttelton’s fabric sits contained in the natural volcanic amphitheatre of the port hills. The heart of the township’s main streets run from east to west on contour with connecting streets rising steeply up the hillside. This has lead to the level streets becoming the most desirable locations with the majority of the historic buildings located here. Un-designed roads that originally started out as walking tracks to residential dwellings outside the town centre were formed more naturally on contour. They take on quite a different appearance from the rigid grid-like pattern of the town centre. Later development has continued this pattern as pole houses climb up the hillside on the previously un-built cresses less suitable for building.

The grid pattern of urban fabric of Lyttelton has remained largely unchanged throughout its history. Continual land reclamation and restricted public access is leading the township to drift further from its shorelines and creating a disconnection in the fabric. The many sad losses of historic buildings have left gaps in the streetscape, notably along Norwich Quay. Fortunately the significant number of remaining notable buildings has preserved much of the architectural and urban form of Lyttelton preserving the historic character.

A Contemporary Design Response and My Chronological Investigation to Acknowledge the Historic Nature and Urban Character of Lyttelton

After a chronological assessment of Lyttelton’s architecture no dominant trends have been established across the decades attributable to architectural trimmings. Any given style may be found scattered throughout Lyttelton’s history, with few particular links to trends in Britain. However Lyttelton does possess a unity in its buildings, found not through styles, but through respect of scale between neighbouring buildings.

My chronological investigation therefore concludes that Lyttelton has a history of liberty in architectural styles with a unity of scale. Therefore, a contemporary architectural solution expressed with a liberty of style is appropriate for Lyttelton’s character as long as its design is guided by appropriate contextual influences. These influences are an acknowledgement of the historic continuity and urban character of Lyttelton. Appropriate massing is necessary in order to show respect for the existing urban form and scale.

My design has been influenced by today’s conditions (economic, technological, and cultural) and must demonstrate a respect for the existing fabric through appropriate materials and massing. The distance of the site from the historic downtown provides more freedom for the terminal design than the control required for the scale and form of the master plan. It must retain a sense of place and not disrupt the urban fabric. In fact it must restore it.

Building materials were also studied as part of the chronological investigation. I have concluded that timber is the prevalent palette. However, many surfaces are plastered or painted masonry. Timber holds the strongest connection to Lyttelton’s early beginnings, as it was readily obtainable.

Expert Advice with Peter Beaven 14 April 2009

After the completion of my chronological investigation I met with Christchurch architect Peter Beaven to consider my conclusions. We discussed the various architectural styles found in Lyttelton. Beaven concurred with the liberty found in my investigation proclaiming that “Lyttelton is a complete litter of style and the scale is small”. He put this down to an eclectic response upon settlers coming ashore. He felt that the scale of buildings must be restricted to be acceptable for Lyttelton. Beaven was generally despondent by the lack of respect for architectural heritage shown by Cantabrians, demonstrating the value he sees in New Zealand’s architectural heritage. This confirmed the necessity for my project to be handled with particular care and respect.

33 Geoffrey Rice. Lyttelton: Port & Town an illustrated History (Christchurch, New Zealand: Canterbury University Press, 2004), P140.
34 Ibid P138.
The Possibility of a Regional Design Response for Lyttelton Based on the Local History

The first settlers to Lyttelton arrived on the Canterbury Association’s First Four Ships and found themselves in a foreign environment that had little to offer; the comforts of home they had deserted were now a distant memory. After an initial stay in the immigration barracks they were faced with the prospect of traversing the Bridle Path over the Port Hills to Canterbury, many carrying all their worldly possessions.

This dramatic experience of arriving at Lyttelton as a new immigrant could be relived through an architectural response in the surface and structure of the terminal design. The experience of the vastly different environment that greeted new immigrants is expressed in the roughness of the lines of the terminal building juxtaposed against the vastly different interior environment of cruise liners. This is a regional vernacular created from the history of Lyttelton’s people and their new-found alien environment, an unexpected experience not found in traditional terminal design.

Lyttelton and its Connection to the Port

Identity (definition) “The collective aspect of the set of characteristics by which a thing is definitively recognisable or known.”

Whilst many towns may look to a prominent landmark or building for a sense of identity, Lyttelton’s residents have looked to the waterfront and their port throughout the townships history. Here the residents find a sense of place and local identity to define the very nature what it is to live in Lyttelton.

The port is easily seen from many vantage points throughout the township and buildings are generally orientated towards it to observe the comings and goings. Picture post card imagery typically focuses on the port with the township beyond nestled in the natural amphitheatre formed by the port hills. Other picture post card features considered iconic to Lyttelton include the protective castle-like structure of the Timeball Station standing guard over Lyttelton since 1876 and the Volcano Café on London Street. In the town centre the Spanish Mission towers of the Harbour Light Theatre built in 1916 stand tall as a reminder of how the residents of Lyttelton once made bold moves investing in the future of Lyttelton. This became a popular meeting place and a key building of the main street where no other building challenges the dominance of its height.

The port of Lyttelton, a place responsible for the very existence of Lyttelton and Christchurch, now stands disconnected from the township, a break in the urban fabric. It could be said that the very nature of Lyttelton is the port. The port once played a greater role in the town with freedom of access in an almost intimate relationship with the township and residents. This relationship between the port and the residents provided a sense of place, belonging, and identity. However, it is now fraught with friction and the friendship between people and port has gone. Lyttelton identifies itself with an old friend now passed.

By repairing the break in the urban fabric and reconnecting the waterfront to the people of Lyttelton I propose that identity can be restored for Lyttelton. The new cruise ship terminal and waterfront development will act as a mechanism for strengthening Lyttelton’s connection to its port. The waterfront will be reclaimed for Lyttelton and its residents in an expressive landmark design.

FORMULATION OF THE DESIGN BRIEF

The Process leading to an Architectural Solution

I have designed a new cruise ship terminal and urban waterfront proposal bridging the break in the urban fabric between the township of Lyttelton and its waterfront. This terminal and accompanying waterfront development will be a traveller’s first and last impression of Lyttelton.

Design Guidelines for Urban Waterfront Proposal Master Plan

As I researched the history of the settlement of Lyttelton inclusive of the local architecture and urban fabric, I developed an understanding of how the specific local social and physical conditions created the present waterfront. This informed the urban design framework for:

- What should be retained (for functional or heritage value)
- What should be deleted or changed (because it is functionally redundant or disrespective of heritage values)
- The extent of the waterfront that must be recovered for the township of Lyttelton

• The urban design of the recovered waterfront and its connections (both pedestrian and transport) into the existing urban fabric
• An acknowledgement of the existing as-built environment
• The future shape and form of the Lyttelton waterfront
• Pedestrian / automobile interactions

**Waterfront Master Plan Requirements**

• A key public open space
• A waterfront promenade
• Integration of the Diamond Harbour passenger ferry service
• Integration of the Black Cat Cruises and future cruise operators
• A berthing facility for the historic Tug Lyttelton

**Integrated Transport Nodes**

• Commuter bus station
• Pick up and drop off area for commuter ferries
• A public walkway / cycleway connecting the cruise ship terminal to the township
• A new vehicle bridge for car and coach access (existing bridge to be demolished)
• Commuter station for light rail connection to Christchurch City

**Design Guidelines for New Cruise Terminal**

• Allow two cruise ships to be docked simultaneously
• Create new connections in the urban fabric of Lyttelton
• Generate a new public space on the waterfront
• Attract visitors to the terminal through supporting functions
• Create a regional vernacular suitable for the local landscape utilising contemporary materials and building technologies
• Create a structure that is expressive and an obvious component of the architectural form
• Be environmentally sustainable
• Dual use design for economic support in the off season
• Express the local landscape and an appropriate architectural vernacular
• Be an iconic building for the people of Lyttelton and Canterbury to be proud of

**Cruise Terminal Spatial Requirements for up to 7000 passengers**

• Twelve Passenger processing / passport control kiosks
• Arrival and departure lounges including kiosks - 7000m² minimum
• Secondary function as an event / exhibition public space - 4000m²
• Public and staff toilet facilities
• Customs administration offices with quarantine
• Office facilities for staff and the Lyttelton Port Authority
• Baggage collection and freight handling facilities
• Freight and truck facilities for cruise ship servicing
• Four mobile passenger gangways with the ability to be parked remotely to liberate the quay for other port activities

**Supporting Functions**

• Tourist information
• Ticketing facilities for cruise ship operators
• Cafe and/or restaurant
• Commercial operators including tour operators and car rentals etc.

**Other considerations**

• Public exterior decks and viewing area

**Integrated Transport Nodes**

• Car parking for staff and visitors
• Coach parking or queuing for up to 3500 passengers (50%) - Twelve spaces and queuing area
• Taxi stand
• Pick up and drop off area

**Technical Requirements for Vessels**

• Primary design vessel (Oasis of the Seas) of 350m length, 41m beam (5400 passengers and 2000 crew).
• Secondary design vessel (Carnival Pride) of 240m length, 36m beam (2700 passengers and 1200 crew).
• Black Cat Cruises:
  • Canterbury Cat 15m long
  • Cat Two 12.5m long
  • Three smaller vessels up to 9m long
• Passenger ferry services:
  • Black Diamond 12m long
  • Onawe 12m long


Preliminary Design at Interim Critique One

The preliminary design and investigation identified that my project must mitigate a paradox of scale and history. Visually the township of Lyttelton can in no way compete with the massive scale of a modern international cruise liner carrying between 4000 and 7000 passengers. The scale of the cruise ship is embraced as a temporary dramatic appearance. Thus the task at hand was to navigate a large scaled building into the delicate fabric of Lyttelton mitigating the impact of scale on the existing architectural fabric. The design of the new terminal must achieve a delicate play in scale and it must not dominate the existing streetscape at eye level from the historic downtown area.

My research question then concluded that the application of history to my project was not specific to the terminal design but instead was imperative to the task of preparing an urban design master plan for the waterfront. This master plan would act as a mediating mechanism connecting the old to the new, repairing the break in the urban fabric. The massive scale of modern cruise ships could only be challenged by the scale of the entire inner harbour and the natural amphitheatre of Lyttelton’s surrounding hills. Therefore the clash of scales in this project could only be resolved with references to the entire regional and urban landscape and not to the history of Lyttelton and its architecture. The grain of Lyttelton is too small. The design cannot completely mitigate the intrusion of the cruise ship and therefore a pragmatic approach was adopted.

To apply the architectural history and urban heritage of Lyttelton to my project I acknowledged this at the level of a master plan for the waterfront redevelopment, while at the same time allowing an uncompromising contemporary approach to the design of a cruise ship terminal on that same waterfront. The character can be respected in an urban form and pattern. It would have been naive to directly apply a historical style to the terminal design. This approach was appropriate as my chronological investigation concluded that Lyttelton has a history of a liberty in style. The scope of my research question now embodied how the existing architectural fabric could be used to shape the design of a connection between the township of Lyttelton and its waterfront; hence an urban design master plan inclusive of a contemporary cruise ship terminal was proposed. Lyttelton and Canterbury were settled by some people dissatisfied with their home conditions and others simply seeking adventure or new experiences. The new terminal must embrace this pioneering attitude and not adopt traditional terminal design.

Developed Design at Interim Critique Two

To evaluate the impact of the natural and urban environments paradoxes against the proposed terminal an investigation of scale was conducted. A 3D CAD model of Lyttelton and Banks Peninsula was constructed as a design tool to access the greater issue of scale. This model was constructed by obtaining two-dimensional contour information in shape file format from Land Information New Zealand and exported into a 3D CAD package using software developed by the Environmental Systems Research Institute, Boston, Massachusetts. The key streets and buildings were massed from aerial photography and site photographs to compose a virtual urban model or design environment. A total of four software packages were used in this process.

To enable the building to belong to its site, the original model of a more traditional medium rise terminal was discarded for that of a low rise design. The parallel linear form of traditional terminals shaped by the technical requirements of passenger gangways was also discarded. This was achieved by splitting the circulation of the terminal space from the parallel nature of the gangways to independent interconnecting structures standing independent from each other. This allowed greater freedom in the terminal design, less constrained by technical requirements prevalent in traditional terminal design. The design must break from the governed standards and preconceptions of the traditional terminal design solution.

The urban issues were then addressed in an indicative master plan for the waterfront. The objectives of the master plan were to restore urbanity to the waterfront and to create the environment for the cruise terminal, inclusive of:

- Introduction of new pedestrian promenades to recover pedestrian access to the waterfront
- Restoration of the historical streetscape and a continuation of the historical urban grid form to the new waterfront urban master plan
- New vehicle and pedestrian links connecting the new waterfront master plan to the existing urban form in a continuation of the historic grid pattern
- Heavy rail traffic pushed underground / trenched with a pedestrian bridge embracing the railway
- Consideration of the scale of the project with and without the scale of the ship
- Acknowledgement in the master plan of the existing as built environment even though the terminal is forward thinking and a show of eco-tech
- An open, accepting and bold design embracing the liberty in style found in Lyttelton
- A restoration of density

The CAD virtual urban model clearly indicated that the design must be created to embrace the landscape with a vertical scale not impacting on the existing fabric. Design inspiration has been found from various sources and architectural precedents with deliberate ambiguity.

An exploration of the roof form was explored through physical modelling and CAD for a contemporary design response. Outcomes of tactile design converted to digital through 3D scanning would be used for structural analysis and further exploration of design. I physically modelled the roof form and imported it digitally in a 3D scan using Scan Studio H2 Pro software.

To reduce the impact of the footprint of the spatial requirements, a broken roof form resembling a collection of smaller forms is composed in a single conceptual approach. It hugs the landscape and does not overwhelm the township with vertical scale.

**Developed Design at Student Conducted Critique**

The building mass had now taken on more ambiguity and increased complexity with the roof form no longer inspired by a single concept. By breaking up the form into smaller elements the impact of the plan size required for a terminal was reduced and more in keeping with the collections of smaller forms found in Lyttelton.

This roof form has been carefully crafted to control view and light at the interior edges and create dramatic forms at the exterior. The application of texture to this form is an ideal environment for exploration of the ‘eco-tech’ and new precedents of sustainable design were explored. These precedents were explored for their structural systems, tectonic surface, generation of energy, and their ability to control the internal environment.

Building integrated photo voltaic panels (BIPV) capable of being printed on film were included to supplement energy requirements. Passive air intake at a lower level with expulsion to the upper cones further explored ecological design.

This is a design that has carefully considered the contexts of history, urban form, and natural landscape while boldly embracing the paradox in scale of cruise ships and the terminal to the township, mitigated by the master plan.

With the progression of my research through design it became clear that my research question had to be refined to meet the conclusions of the current outcomes: The architectural heritage of Lyttelton is best applied to the master plan yet acknowledged indirectly in the design of the terminal, allowing the design of a contemporary maritime gateway.

**Developed Design at Interim Critique Three**

The building was next refined within my established architectural language and material palette. This language is largely shaped by embracing the expression of the substantial structure required for a large building of extensive single spans. Small plays in the roof form were explored to shape the internal landscape with varying openings to the outside being considered as part of the overall external expression of the building.

I consulted and worked with a Unitec engineer to ensure my structural system was feasible. Laminated timber veneer was selected for the main structural system with varying depths from 750mm to 1750mm to cater for different spans. This material has been embraced to reflect the historic use of timber in the early colonial buildings of Lyttelton and will be exposed as a key component of the design. Its low embodied energy also makes it desirable from an ecological perspective. Due to the large loadings the central columns have been sized in steel at 50mm thick with a maximum diameter of 1800mm.

I explored a strategy for heating and ventilation of the building. The buildings’ form made it ideal for the main terminal level to use the high level cones to expel used and hot air through passive ventilation. They are also ideal for providing natural light to the circulation cores.

For the exterior structural system structural glazing was considered. I concluded that this was not appropriate as it did not continue the structural expression of the roof framing, and a more traditional approach of columns has been selected to transfer the roof loads to ground in a single language. This structure could be described as ‘sticks of timber’.

The roof skin is currently being explored as a separate element of architectural tectonic expression from the exposed structure. Non traditional modern materials including composites are proposed for a modern technological juxtaposition, forward thinking and eco-tech. Steel cables supporting cantilevered roof sections provide further play for the roof surface.

The large expanse of floor supported on Double T’s is proposed in polished concrete as a raw expression of material embracing the rich aggregate resources of the nearby Canterbury Plains.
This research project has achieved an expressive contemporary design for a new cruise ship terminal for Lyttelton, while acknowledging its close relationship to Lyttelton’s historical centre through a carefully configured master plan for the waterfront.

A chronological investigation was an ideal starting point for researching the evolution of Lyttelton’s urban form and ensuring a thorough understanding of the parameters my design must respect. This historical investigation concluded that there has always existed a strong liberty in architectural styles, however with unity through scale. This presented me with the architectural problem of how to design a building of significant scale within this delicate fabric of small individual forms. A large building placed on the waterfront without consideration for the existing built environment and historic nature of Lyttelton would be detrimental to the township’s character.

The final version of the design was achieved by an iterative design process, whereby each tentative major design decision was tested against a digital model of the urban form of Lyttelton. The end result was a dramatic weaving form of the roof stretched across a medium rise terminal, thus reducing the visual impact of the terminal’s considerable volume.

This ensures that the terminal building is not presented as a singular object but as a collection of smaller connecting forms. Kenneth Frampton (author of the highly esteemed critical regionalism theory) would support this response, as the design is directly responsive to its context without resorting to a revival of the many historical styles found in Lyttelton. The need for a respect of scale, not style, is shared by Peter Beaven’s assessment that Lyttelton is “a complete litter of style and the scale is small”.

The interior architectural language provides a modern response in the familiarity of traditional materials meshed to a modern, expressive skin. Here again is an expression of the liberty in style found in Lyttelton, this time in a contemporary design embracing both modern and traditional materials. It is also a dramatically different experience from the internal environment of the modern cruise ship and an experience unique to Lyttelton.

The urban response proposed in the master plan is paramount to the success of this project in order to restore the lost physical connection of Lyttelton to its waterfront. The master plan directly acknowledges the historic architectural scale and urban form of Lyttelton and mitigates issues of scale between the new cruise terminal to the existing town fabric. It restores the lost integrity of streetscapes in a contemporary continuation of the historic urban form and architectural scale. Lyttelton requires this restoration of a physical urban connection to the waterfront to acknowledge the very nature of its existence. Further exploration and detailed design of the master plan would be of benefit in an additional design project considering aesthetics to ensure the continued character.

I believe this final design is an appropriate answer to my original research question. It acknowledges the historic nature and urban character of Lyttelton while enabling a contemporary design expression. New buildings often reject their surroundings. Alternatively they slavishly mimic them. In the design for this cruise terminal I have avoided these approaches. Instead, I have chosen to apply a combination of a contemporary design response in the architecture of the building itself with a master plan of the wider area which fully acknowledges the architectural history of a small port town. This design is responsive to Lyttelton’s character and restores the waterfront for future generations.
ANNOTATED BIBLIOGRAPHY

A clear definition of critical regionalism compiled from reputable sources including Kenneth Frampton. The article describes the argument by Frampton that architects should seek regional variations to avoid a style of global uniformity.

Christchurch Architect Peter Beaven examines the landscape and material palette of the Canterbury Plains and Banks Peninsula in early Christchurch architecture in South Island Architecture. This will has assisted me in evaluating the question of local vernacular.

Dushko Bogunovich explores ecological sustainability in urban form and reiterates the importance of the aesthetic in today’s world. He calls for an inclusion of ecological issues in functional design ‘eco-functionalism’ and asks that this must be considered on the merits of regional requirements to achieve regional identity.

Nerida Campbell in Regional Responses has studied the first Anglican Bishop to arrive in New Zealand, Bishop Selwyn. She examines Selwyn’s architectural commissions in an unfamiliar landscape. This article portrays the issues faced by early immigrants when building in a new unfamiliar landscape with unfamiliar materials.

This book brings together 40 seminal essays surveying architectural regionalism. This is of benefit to my project as I wish to consider issues of identity and place.

This appendix to the Christchurch City Plan explores the character of Lyttelton’s buildings and the variations in style. It details in design guidelines how new buildings may be built in Lyttelton that respect the older historic buildings.

This pioneering book defines the concept of townscape to understand how buildings, streets and space form an exciting urban environment.

The software available on this website allows the rationalisation of geographic data for importation into computer aided design software allowing an accurate three dimensional model of Lyttelton to be created as a design tool.

Kenneth Frampton asks how we can adopt modern architecture but remain responsive to the context. He explains that we must embrace modern architecture for its progressive qualities but that the architecture must be focussed on topography, light, climate and tectonic form rather than the purely visual.

This article defines the boundaries of the recently declared historic area of Lyttelton. (see Appendix A)

Jones has compiled a thorough analysis of 36 international contemporary transport projects inclusive of air, road, water and rail. This book explores what may be considered leading edge design solutions for today’s transport requirements.

‘A Dream of Spires’ written by Ian Lochhead looks at the life and works of Christchurch Architect Benjamin Mountfort. He arrived in Christchurch as the city was being founded and is famous for his Gothic Revival buildings in the heart of the city. The book outlines the issues Mountfort faced in an unfamiliar climate with unpredictable materials. These were issues facing the settlers of Lyttelton.


Lyttelton historian Lisa Rossie has researched many historic buildings in Lyttelton and made this available through the Christchurch City Council. Her research has assisted me in my chronological investigation.


Joanna Mackenzie in ‘The Parsonage’ tells the history of The Parsonage in Lyttelton. Of particular interest is the failure of the original commission and additionally the failure of Montfort’s wooden cathedral on the same site. This demonstrates the problems immigrants faced with new environmental conditions and materials.


Stephen Marshall asks why modern cities are ugly and contrasts them against traditionally evolved older cities. It is a valuable tool for understanding and attempting to resolve the fractionalisation of today’s cities and how their urban environments are less attractive than traditional cities.


Mitchell and Chaplan explore the development of New Zealand architecture since 1945 searching for what may be considered a New Zealand style. This book is of particular interest for an analysis of works by Peter Beaven and Sir Miles Warren and their different approaches to design.


Geoffrey Rice has compiled the most concise written history to date or Lyttelton. No other publication has provided such a detailed description of events that shaped Lyttelton. This provides and insight into how Lyttelton evolved from its original settlement in the 1850’s. This is inclusive of social change, the ports roll in the town and its architecture.


The newspaper article ‘Toll Booth a City Treasure’ from the Christchurch Press tells the story of the Lyttelton Road Tunnel Administration Building by local Christchurch Architect Peter Beaven. This building’s design pays respect to the colonial heritage and maritime beginnings of Canterbury.


This timeline of Captain Joseph Thomas gives an insight into the establishment of the original urban form of Lyttelton and how it evolved from his original explorations in 1848 to the establishment of the first European settlement.


This article describes a difficult project bridging a transit corridor to connect the Seattle Art Museum with the waterfront in a functional ecosystem. This is of importance to my project as it has allowed a new public space whilst not compromising the existing transport infrastructure.


This resource provides a wide definition of ‘identity’ for consideration in my project.


Christchurch Architect Sir Miles Warren in Style in New Zealand Architecture explores the question of style. He examines the principal that ‘form is symbolic of function’ in selected examples of New Zealand architecture. This is a concept which could be applicable in my project and will help me investigate what can be considered a local Canterbury vernacular.


Gavin Willis provides a brief summary of a variety of architectural works in Christchurch and Lyttelton. This book is of particular interest as it details the New Zealand Institute of Architects' citation given to Peter Beaven’s Tunnel Building.

John Wilson in ‘City and Peninsula’ provides a summary of the key historic buildings of Christchurch and Banks Peninsula and will help me establish my chronology. Of particular interest are the chapters on Lyttelton and the Harbour Basin. I consider this book of notable significance to my research project as not only does it describe architectural landmarks but it also considers the local lives of the residents including Maori and the first Europeans. It is a concise and well researched book that will provide me with direction for further research.


This article outlines the Lyttelton Port Company’s position on a new cruise ship terminal for Lyttelton and outlines the real possibility of such a project and potential support.
Chronological Development of Significant Lyttelton Buildings

1849-1994 (now demolished), John Godley’s House, Sumner road, iron roof with rusticated weatherboards two gabled cottage, Georgian.

c.1850-60 (now demolished), Early Workers Cottages, St David Street, Georgian.

**1851, Grubb Cottage, 62 London Street, gabled cottage with weatherboards and iron roof constructed in black pine and red pine with pit sawn heart kauri, light ornamentation suggests a Victorian influence.

c.1851, Islay Cottage, 1 Ticehurst Road, gabled cob cottage (rammed earth walls) with pit sawn wood and stone foundations. 37

1851-1918 (demolished due to use of green timber), First Anglican Church, carpenters gothic, architect Benjamin Mountfort.

c.1853, 3 Brittan Terrace, rusticated weatherboards and shingle roof.

***c.1853-60, 6 Godley Quay, pit sawn vertical board and batten timber, triple gabled villa.38

c.1858, 3 Coleridge Terrace, Police House, twin gabled rusticated weatherboards, style?

c.1857, Brenchley Farm House, 27 Brenchley Road, timber weatherboard cottage.39

***1858-1960, Union Bank, Norwich Bank, slate roof with red stone quarried from Sumner, Gothic.

Pre 1860, Cob Cottage, 10 Godley Quay, cob with wooden shingles.

c.1860, 44 Cornwall Road, iron roof single gabled cottage with dormers clad in straight sawn clapboard with kauri framing.40

***c.1860, The Lyttelton Gaol, Oxford Street, stone and concrete, gothic revival, architect Benjamin Mountfort.41

1861, The Wesleyan Methodists’ Church, rusticated weatherboards, carpenters gothic.

c.1861, Cornish Miners’ Cottages, Exeter Street & Cornwall Road, single gabled rusticated weatherboards Georgian cottages.42

1863-1904 (destroyed by fire), Lyttelton Hospital / Orphanage, wooden structure of totara and kauri.

1864, 23 Exeter Street, large timber weatherboard Victorian home.43

1870 - 1980 (demolished), The Lyttelton Club, Dublin Street, large 2 storey timber building.

1865, St John’s Church, 44 Winchester Street, locally quarried stone with imported slate roofs, gothic, architect Benjamin Mountfort.

1865, Dalcroy House School, 16 Godley Quay, timber weatherboards with carved bargeboards and shingled gables, wooden fretwork in Gothic style.44

1865 - 1963 (demolished), Lyttelton Railway Station, iron roof with rusticated weatherboards.

1867 - 1943 (demolished), The Colonists Hall, Oxford Street, 2 storey timber building with a feature rose window, Dutch influence.45

24th October 1870 The Great Fire of Lyttelton.46

1870 - 1980 (demolished), The Lyttelton Club, Dublin Street, large 2 storey timber building.

---

41 John Wilson, City and Peninsula The Historic Places of Christchurch and Banks Peninsula (Christchurch, NZ: The Christchurch and Akaroa Civic Trusts, 2007), P60.
### Historic Lyttelton Buildings

<table>
<thead>
<tr>
<th>Address</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10a Bridle Path</td>
<td>Dr Upham’s Residence, 28 Winchester Street, rusticated weatherboard villa of undecorated style, Victorian.</td>
</tr>
<tr>
<td>15 Oxford Street</td>
<td>Lyttelton Band Rotunda, Bridle Path, stone foundations with iron roof and ornate iron posts.</td>
</tr>
<tr>
<td>16 Brittan Terrace</td>
<td>Victoria Light Theatre, brick with stucco, Spanish Mission / Californian style with Art Nouveau detailing, architect J.S. &amp; M.J. Guthrie.</td>
</tr>
</tbody>
</table>

---

58 Ibid P68.
****1924, J.D. Bundy Shipping & Family Butchers, 29 London Street, Spanish Mission style in plastered brick, architects Greenstreet & Anderson.

***1927, The Mitre Hotel, Norwich Quay, assumed plastered brick, Spanish Mission / Art Deco.66

c.1930, Convent of Mercy, 23 Exeter Street, two story brick with slate roof and colonnaded porch, Classical Colonial Georgian style. 67

1931 Napier Earthquake

***1959, Lyttelton Harbour Board, glass and steel box, modern.

***1964, Lyttelton Tunnel Entrance, steel, modern industrial with Le Corbusier feel.

1963, New Railway Station, contemporary design.

***1964, Toll Plaza Lyttelton Road Tunnel, concrete, contemporary modern, architect Peter Beaven.

***1966-c1980’s (demolished), Interisland Ferry Terminal, glass and steel, modern.68

c.1970 -c1999 (demolished), Banks Peninsula Cruising Club, contemporary, architect Peter Beaven.

c.1980, New Post Office, London Street, concrete, post modern.69

***1987, Lyttelton Harbour Board, Norwich Quay, glass and concrete, post modern classical, architect Sir Miles Warren.70

2003, McSherry Building, Norwich Quay, pre-cast concrete and local stone, architect Richard Hayman.

67 John Wilson, City and Peninsula The Historic Places of Christchurch and Banks Peninsula (Christchurch, NZ: The Christchurch and Akaroa Civic Trusts, 2007), P65.
69 Geoffrey Rice, Lyttelton: Port & Town an illustrated History (Christchurch, New Zealand: Canterbury University Press, 2004), P127.
70 Ibid P143.
Expert advice from Melanie McAtamney of the Lyttelton Port Company

What are the intentions of the port company to accommodate the increasing numbers of visiting cruise ships?

LPC is currently looking at extending the Cashin Quay (CQ) and developing a dedicated cruise berth at the end of CQ4, it will be dedicated in terms of the following:

- During the cruise season, cruise ships will have a priority on the berth, over any other trade / vessel
- However, during the off season the port would look to utilise the berth with any other trade it can.

What is the current position of the Lyttelton Harbour Company on a future cruise ship terminal?

As above, LPC is currently looking at extending the CQ and developing a dedicated cruise berth at the end of CQ4, however there is still questions around the funding of the development and this will dictate to some extent how far the port is prepared to develop & invest in the infrastructure.

Prior to this a dedicated cruise berth was also proposed for Naval Point; however preliminary costings detacted LPC away from this option.

Is there a proposed location for a future cruise ship terminal and is there any preliminary documentation available? I understand that the LPC has been investigating options.

Yes – I have attached the DRAFT business case I prepared on the cruise berth development, for confidentiality purposes I have left out the indicative costs initially provided by OPUS.

What is the feasibility of a modern cruise ship to berth at the number 2 or 3 wharf or other location in the internal harbour? Would the Z berth present a manoeuvrability problem?

The maximum operational vessel length for the inner harbour is currently 225m. The design vessel at 350m exceeds this by a significant amount.

Note, when we talk about a design vessel we have made an assumption that as a new dedicated cruise berth structure is expected to have a life of 30 – 50 years.

A realistic design vessel (for the future) would be 350 LOA, 41m beam and10.0m draught. This would accommodate one of the world’s largest vessels which is the Queen Mary II which visited Auckland in 2007. The fender system should be capable of coping with vessels in the range of 180m to 350m LOA.

The current 225m limit for the Inner Harbour is determined by the ability to manoeuvre such a vessel through the inner harbour entrance as well as the subsequent requirement to turn or orient the vessel within the inner harbour (turning circle). A third tug may be required to assist safe movement within the confines of the inner harbour in certain wind conditions.

Overall, the ability to safely navigate a vessel and provide a berth for a 350m vessel could be accommodated by complete rationalisation of all operational berths in the inner harbour; this is outside the scope of this study.

For these reasons, the inner harbour option is not considered further.

What is the largest vessel currently capable of berthing in the inner harbour and what is preventing larger vessels? Some modern cruise ships are now up to 340 metres in length.

Hopefully the above explanation explains the above…

What changes would need to be made to make it feasible for a large vessel to dock in the inner harbour?

See comment above - “Overall, the ability to safely navigate a vessel and provide a berth for a 350m vessel could only be accommodated by complete rationalisation of all operational berths in the inner harbour; this is outside the scope of this study”.
Lyttelton declared historic area

The historic importance of Lyttelton's steep streets, weatherboard cottages and stone churches has been officially recognised.

The New Zealand Historic Places Trust has declared the majority of the port township one of the largest historic areas in the country.

The formal recognition will not impose new planning constraints on Lyttelton, but it does mean that when new developments are considered, new schemes.

The recognition also means the trust will be consulted on any major schemes in the area.

The Lyttelton historic area covers the majority of the township from Norwich Quay in the south to Brenchley Rd in the north and Reserve to the east to Coleridge St in the west.

The area includes heritage buildings such as St Joseph's Church on Winchester St, Godley Cottage on London St and the Timball Station.

Lyttelton has a unique character with steep streets, weatherboard cottages, churches and volcanic stone walls.

Local residents and heritage advocates would have been keen on the recognition of the historic character of the township but would have been disappointed by the process of consultation.

The trust has been asked to comment on the project as it goes through the planning process.

"It would have been a great day for all of us if Lyttelton had been declared a historic area," said a resident.

"It's a great day for Lyttelton and it's a great day for the community."