LIGNIFICATION: 
the demise and rise of a seed warehouse

Master Thesis Explanatory Document

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To my parents, thank you for all the support and patience throughout the years. I will be forever grateful.

To my family, my partner and my friends, thank you for all your support through the years.

To my supervisor, Kerry Francis, thank you for your knowledge, criticism and support. For challenging me to push my ideas.

To my architecture friends, thank you for your support, encouragement and the laughs. Your ideas, criticisms, tech support and proof reading have been invaluable. You have made the past five years an awesome experience.

To the Unitec Faculty of Architecture thank you for all the knowledge you have shared and your support throughout my architectural education.
Change is a fast-paced revolution. City blocks and buildings are transformed over a short period of with often no residue. The short transformation period shortens the transition between the past to the present without any evidence of the passage of time. The history of the site, its past life and decay has been disguised. Whilst it is common to create new buildings and modern architecture, it is also important to acknowledge the past of a site or building and to express the different layers of architecture as they capture the state of the society at the time of their creation, each layer representing a different problem and solution.

Another product of this rapid revolution is the creation of the terrain vague, or spaces that have been disconnected from the framework of the city. These are often results of people moving their businesses and functional spaces to newer areas within the city creating unbounded spaces that are decayed and reclaimed by nature over time.

There is a duality in the character of the terrain vague, these forgotten areas allow an alternative society to flourish. They become spaces where people can perform activities that would otherwise be unacceptable. These areas represent freedom from modern society.

The main focus of this research project is to reactivate a subcategory of the terrain vague; abandoned buildings that have been left to decay over years of disuse. Weave these spaces back into the urban fabric without compromising it’s character. The expression of the different layers of architecture over time and to acknowledge the past, present and the future by embracing decay and ruination as opposed to a restorative approach.¹

The architecture allows an overlap of the old and the new allowing it’s users to experience the changing terrain at a humanistic scale through the process of decay and the lignification of a new structure.

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INTRODUCTION
Urban growth has two faces, the projected reality of economic development and the residue. The terrain vague are the spaces that have been left abandoned, derelict and decayed. The fast-paced evolution of architectural development contributes to the creation of these spaces. The demolition of old buildings and the development of certain areas through the construction of new buildings have left certain spaces of the CBD vacant thus lowering their value.²

Ignasi de Solà-Morales Rubio, a professor in Architectural Composition, defined the terrain vague as the obsolete spaces and buildings that have been left unused and underutilised within the metropolitan areas in every city. These areas are seen within the city but seem external in terms of function as they are forgotten and abandoned.

Spatially, the terrain vague is indeterminable as there are no clear borders and indicators as to where it stops and starts. It is a place that is disconnected from the urban fabric yet it is still located within it. Because these areas are deemed to be marginalised and substandard, people tend to disregard it and abandon it, occupying new areas and other places within the city.

The definition of terrain vague does not always have to be applied to vast open spaces within the CBD. There are also spaces that have the characteristics as the terrain vague such as abandoned buildings, urban cavities and interstitial spaces that are also obsolete, abandoned and derelict. Their vagueness and lack of borders can be related to the atmosphere that these buildings and spaces project on to their surrounding areas.

These are the areas that are viewed as flaws of the city’s image where standardisation and ‘newness’ are symbols of order and prosperity.³ They are often turned into parking lots, service lanes, rubbish areas or abandoned and left for nature to overrun creating an urban wilderness. But as Luc Levesque proposes “It is also possible to approach the interstitial condition of the terrain vague as an urban resurgence of the wild”.⁴

In this way, the terrain vague offers a place of freedom away from society’s view of ‘normal’. It provides a space for the alternative of modern society, a place for artistic freedom, illegal activities and the taboo. Its decayed and derelict qualities expose the impermanence of buildings and the resilience of nature as it occupies the terrain vague to form ‘urban wildernesses’. The preservation of its qualities exposes the layers of the building’s history, its passage through time, the different transformations it has undergone and eventually its abandonment and decay.

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³ Ibid.
⁴ Ibid.
The main focus of this research project is to reactivate the terrain vague and weave these spaces back into the urban fabric. To acknowledge their past, the decay and weathering over time as well as expressing the impermanence of buildings.

The methodology applied in the design process of the project will be in keeping with Lebbeus Woods’ theory of the reactivation of society’s ‘walls’. He believes that architects should be creating architecture that adapts to the dynamics of change in today’s society through inventiveness and learning from the mistakes made in the past. His strategies for eliminating disguise, illusion and passivity of these ‘walls’ will be applied to the project.

See the Appendix 7.1 for descriptions of the strategies used.

Gordon Matta-Clark’s art work and the strategies he has employed will also be used, focusing on the exposure of the internal environments within abandoned structures to expose their potential and incite ideas as opposed to leaving them to decay and disuse.

To create the formal language of the architectural project, the analogy of a vine and its relationship with the built form is used. The analogy expresses the idea of a parasitic growth benefiting from the decay of the host eventually overpowering it, yet remaining co-dependent. The analogy of the vine also relates to the building’s past as a seed warehouse storing seeds and plant matter for agriculture.

The architectural intervention will provide a platform for reflection and observation of the decay and the effects of urbanisation on the existing buildings whilst remaining as an independent structure.

This experience of the city will allow city users to view the potential in abandoned buildings as opposed to viewing them as unwanted spaces ready for demolition. This approach to the architecture also allows for the coexistence between the old and the new in the transition period that leaves an imprint of the existing building that will eventually decay. Memory of its existence is not totally erased from the site, which would be the case if the buildings were to be demolished over a short period of time.

It will be transformative over time and accommodate a variety of uses, as well as being flexible and open to modification. In doing so, the architecture created will not be complete in itself, thus embracing the possibilities of the unexpected and provide a richer experience of the different components in the city.
INTRODUCTION

DEFINITIONS

“disguise” - n
According to Lebbeus Woods, is the masking of reality in every society. One of the three elements that affect architecture today.5

“free spaces” - n
According to Lebbeus Woods, are the spaces that are free from the conventions of society, with no specified programme and free from traditional conventions of occupying space.6

heterarchy (heterarchical) - n
The non heirarchical approach. Derived from “heteros” which has become the rule “arche” as each self has become an “other” in the dynamics of change. Spaces created in sequence without a pattern as opposed to the creation according to rules set by convention.

host (existing) - n ²
(Biology)
An animal or plant on or in which a parasite or commensal organism lives.

lignification - n (lignify - v) 8
(Botany)
To make rigid and woody by the deposition of lignin in cell walls.

parasite (new) - n²
(Biology)
An organism which lives in or on another organism (its host) and benefits by deriving nutrients at the other’s expense

terrain vague (“walls”) - n
(French)
Derived from the definition of “terrain” in French which means plot of land and “vague” which translates to empty or unengaged. These are the spaces that are located within the city but exist outside it’s effective circuits. The terrain vague are the abandoned, obsolete and undefined spaces that have been left behind by society.¹⁰
Described by Lebbeus Woods as “walls” within the city.

6. Ibid.
8. “lignify”. Ibid.
9. “parasite”. Ibid.
2

LITERATURE SURVEY
Luc Levesque, in his article “The ‘terrain vague as material’: some observations,” shows the possibilities for architectural interventions within the terrain vague. His view on how these areas should be addressed is to build up from what exists within the site, and use its character to create something new, that is an amalgamation of the different influences around it.

“It is often this question that attracts the attention of artists to these areas as they are also often strangers within their own city. Their reaction is to preserve these areas and allow them to continue to exist as uncontrolled and alternative spaces.

In this case, according to de Sola Morales Rubio, the role of the architect becomes difficult as it is often the nature of architecture to colonise, impose limits and transpose a programme into a vacant area. Architecture should focus on the forces of energy as opposed to imposing forms, the incorporated instead of the distant and for the other senses rather than focusing on the visual.

However, it is important that the architecture created embraces the character of the terrain vague and aim for its continuity rather than impose a rational plan and efficacy in its function. Architecture should continue and enhance the rhythms of the areas’ transformation, as well as the flow of energy established by its loss of limits. It is important that we treat the terrain vague with a contradictory complicity that allows it to maintain its elements and character through time.

The reactivation of the terrain vague will not only allow the city to be more aware of these forgotten areas, but also to appreciate its potential. It will allow people to experience the city in an alternative way by seeing the disordered and the unbounded terrain vague as opposed to limiting themselves to the orderly and standardised areas in the city.

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11 Levesque, “The ‘terrain vague as material’: some observations,”
12 de Sola Morales Rubio, “Terrain Vague”. 
Lebbeus Woods' states that there are three elements that affect architecture and the development of architecture in society today: disguise, illusion and passivity. Disguise is the masking of the reality of every society. Woods uses war torn countries as an example of societies disguising their recovery from the war and the hardships that they have endured through the rebuilding of cities deleting the ravages of war for the 'new' and improved. They are bombarded with consumerist propaganda that promote fashion trends, architectural trends and technological developments as it is the 'norm' dictated by society giving the illusion of success and independent thinking. Their passivity to this is caused by the pacification of their consumption.

"...the way to control people is not with pain (the modus operandi of the police state) but with pleasure."^{14}

In doing so, people have a sense of satisfaction in themselves and their lifestyle, to be continually pacified that they do not feel the need to question what is dictated to them.

Woods wanted to eliminate the triad of disguise, illusion and passivity with a new triad of radical sites, methods and notions of ethics and morality. Sites will no longer be disguised and the method will find its way out of illusion and through ethics and morality, one will face passivity.\textsuperscript{15} He proposed an architecture that will efface the old boundaries of architecture, questioning “functionalism” as dictated by modern architecture. He also proposed architecture that encompasses the body, to acknowledge the body and show the possibilities of occupation rather than making it obvious. In this way, people occupy the space with thought and determination as opposed to the 'functionalist' designs that society has been used to, thus promoting passivity through the pacification of comforts.

He proposed the use of radical locations which he calls the ‘walls’ of every community, not only in a literal sense but also metaphorically. These walls as he described them are the peripheries and the edges of the community where the disguise of peace and order fall apart as they are always neglected at the limits.\textsuperscript{16}

The disguise of these areas is not always limited to peace and order as is found in war torn societies. It is also the effects of consumerism in society. Society is being convinced that in following these trends, a sense of cultural unity is achieved.

\textsuperscript{13} Woods,\textit{ Radical reconstruction.}
\textsuperscript{14} Ibid.
\textsuperscript{16} Woods,\textit{ Radical reconstruction: 13.}
Lebbeus Woods’ definition of the ‘walls’ of communities and cities can be interpreted as the terrain vague which are often the neglected areas of the city as well as existing on the periphery of society. It is where people seek freedom from the ‘norm’ that is dictated to them.

“There are always people who come to inhabit the difficult spaces of the “wall”. They are the people of crisis, pushed usually unwillingly to confrontation with the limits.. people who cannot, or have not been allowed to, fit in elsewhere.”

The terrain vague are the areas where the disguise of order and financial security falls apart as they are often abandoned and disused caused by voluntary dysfunction or functional ‘obsoletion’.

In architecture, disguise is often the superficial use of modern technology and materials. It has been done in the belief that in doing so, value has been added to the building, as well as giving the illusion of progress. This to the practice of destruction in order to make way for progress. By giving way to destruction as a way to progress, people have the inability to see the world differently without destroying these areas. Thus, society is limits the possibilities of these areas.

Architecture in spaces within the ‘wall’, according to Woods, should not be reliant on established conventions. Architects should invent geometries and new methods of construction to provoke new ways of moving and resting within these places to provide a transformed relationship between people and things. It does not need to be ‘new’ knowledge or technologies as it would be another form of consumerist illusion, but an extension or the adaptation of learned knowledge from the past.

Architecture is a combination of knowledge and activities within society. Therefore a heterarchical approach must be taken in creating architecture within the walls as the hierarchical approach does not combine knowledge and activities from different disciplines. A hierarchy is fixed rather than fluid as there is an order to which things must fall under, for example in a hierarchical composition there are ‘servant’ and the ‘served’ spaces. This is also evident in modern ‘functionalist’ architecture where labels dictate the functions and how people occupy a space. The heterarchical approach is able to absorb the hierarchy thus providing a more complex and layered architecture where spaces are used and reused and knowledge from the past and the present are

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17  Ibid.
18  Wagner, “The Nature of Demand.”
19  Woods, Radical reconstruction.
woven together into a living tissue. This was evident in the old cities — it has only changed through war where old cities have been levelled through by violence and destruction. Mass media and the promotion of modern architecture has also stripped the complexity of architecture to an abstracted simplicity.

“Modernist architecture was too classical in its knowledge, too tied to cause-and-effect conceptions of process, too slavish in its worship of the machine (and its deterministic processes)”

The modernist approach to designing spaces was focused on the abstraction of functions. The rectilinear grids that follow Cartesian rules do not deliver on their aim of providing a space designed for human use. Rather it is a space designed to accommodate the machine, and human habitation is being shaped to satisfy the designed space.

Design has been used as a means of controlling human behaviour to provide peace and orderliness. Labels for otherwise meaningless spaces are used to dictate how they are to be used and how people should behave within them, pacifying people through comfort and giving them the illusion of being free thinkers within a controlled space.

“social order must be maintained so that individual freedom (which is largely the freedom to conform to social norms) can be maintained”

While it is ideal to replace or restore buildings that have been destroyed or neglected by war (and humanity’s war against nature), it also celebrates the past and the social order that has resulted in their destruction. Rather than learning from the past and expanding the knowledge gained from the past, to restore them is a backwards step, going back to the past to make the same mistakes.

Therefore the restoration of historic sites ends up as a folly that is worthy of admiration banking on sentimentalism rather than development. The act of restoration also by claiming the past and its past state erases the memories of tragedy and loss endured by the building.

20 Ibid.
21 Ibid., 15.
22 Ibid.
23 Ibid., 23.
24 Ibid.
Recovery and restoration back to the building’s original state is the natural reaction after destruction, it is important to also respect the tragedies suffered by the buildings. Rather than delete these experiences completely, it would be more successful to accept these with pride and expand on the knowledge that has been gained. To expand on these buildings would be to acknowledge what has happened and expose its strengths as well as the weaknesses that has caused it to decay. Woods proposed an architecture that can be injected into the ashes of the old, complete in itself, existing as spaces within the spaces without trying to fit into the voids of the old. 25

“Existence continuously begins again, by the reinvention of itself.” 26

The architecture comprised of ‘free spaces’ that are free from the conventions of society. These spaces do not pacify and promote passivity by encouraging or compelling people to find new ways of occupying it. Spaces only acquire the meaning or ‘label’ of their function only when they are occupied. He states two different ways of installing ‘free spaces’ firstly there is the ‘scab’ which aims to protect exposed internal structures or voids whilst it is undergoing transformation. Secondly there is the ‘scar’ which is a deeper level of reconstruction that tries to combine the old and the new without compromising the existence of both. 27 In doing so, it bears the rise and decay of the building with pride rather than trying to disguise it through cosmetic restoration. Examples of these concepts can be seen in Appendix 7.1

Woods’ ‘free spaces’ are to be occupied by people that have the desire to transform their way of living away from the norm or the people from the ‘walls’ that are seeking freedom from society. Because of the spatial forms of the ‘free spaces’, their inhabitation is a continuous process of inventing new ways of occupying space forming a stronger relationship between the person and the architecture rather than having a predetermined function for the use of each space. By following Woods’ approach to architecture, one can expand the knowledge gained from the past rather than going back to them and repeating the same actions.

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25 Ibid.
26 Ibid., 16.
27 Ibid.
Time in today’s society is an important commodity. The development of science and technology is often aimed at beating the fastest time. Pallasmaa argues that in human society today, there is a great fear of time as it is the one thing that has the human race at its mercy. Through technology and the development of science, architecture has been able to shape matter and structure space, but not alter the course of time.  

The focus on time is especially evident in the modern era. There is an anxiety or fear of time originating from our obsessive rejection of ageing, decay and death. The rejection of the passage of time to project an image of permanent youth is evident in architecture through the design of ‘timeless’ buildings, where building materials and elements are replaced and constantly maintained before they acquire traces of use or age. This is then sold like a commodity in today’s society, like the need for something new and novel treating architecture like any other material object that can be replaced in an instant. This has led to the mass production of under-designed objects and buildings that have been created with the efficiency of production in mind rather than its designated function and aesthetic beauty which requires craftsmanship and labour, and therefore time.

The scale of time is important as it allows humans to connect themselves to their roots, to the past and allows for the imagination of the future.

“As time loses its depth and resonance in the archaic past, man loses his sense of self as a historical being and is threatened by time’s revenge.”

The natural satisfaction of life is the awareness of forms of life and times that extend beyond the boundaries of a person’s existence.

Buildings are museums of time as they allow us to see and understand the processes of history, enabling us to participate in time cycles that are beyond our existence. Although this does not mean that architecture should be primarily designed as ruins, it is to state that architecture should follow the rhythm of biological time in relation to humans but also aim to frame the human existence in the present technology, as opposed to being timeless.

Architecture should mediate between the art of permanence in time and the impermanence of architecture. Permanence in time, where buildings serve as museums of history, allows us to imagine the past and be aware of our roots to learn from them and continue to develop.

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29 Ibid., 309.
30 Ibid., 309.
31 Ibid.
32 Ibid.
The impermanence of time expresses our place in the continuum of time. Buildings frame the society's situation, what ideas and technologies fuelled its creation as well as allowing the future society to contemplate and reflect on the past and their own present. It is important to be aware that we are part of time as humans not only inhabit space, but also dwell in time.\textsuperscript{33}

\textsuperscript{33} Ibid.
3

PRECEDENT ANALYSIS
3.1 THE HIGHLINE PROJECT

FIG 1: The Highline in the 1930’s,
FIG 2: The Highline Project,
FIG 3: The Highline in the 1990’s before reclamation,
FIG 4: An overview of The Highline Project after construction.
The Highline, constructed in the early 1930’s in New York, was an important urban infrastructure as its surrounding area was predominantly occupied by factories and warehouses forming the former Meat Packing District. Freight trains allowed the transport of heavy products and large quantities efficiently, the former railroad was located on the street level causing many accidents with people and horses.\textsuperscript{34} This led to the design of an above ground track that could run in between buildings, blocks and through buildings without disrupting street level traffic. It also allowed the trains to be able to stop right into some of the factories’ loading zones for easy access. During the 1950’s freight train usage declined with the rise of the trucking industry. Eventually the Highline fell into disuse in the 1980’s.\textsuperscript{35}

Since then, the area has been transformed into a residential sector. Residents campaigned to reclaim the structure to create an urban park as there was a lack of green space within their community. Architects Diller Scofidio + Renfro together with James Corner Field Operations were commissioned with the creation of an urban park using the reclaimed structure.

Its design was inspired by the melancholic and the unruly beauty of post-industrial ruins, where a once vital piece of urban infrastructure has been reclaimed by nature.(fig. 3)\textsuperscript{36} They designed a planting program that translated the biodiversity that thrived in the site’s urban micro-climates, created by the surrounding buildings or the exposed structure. The architects have encouraged the growth of wild grasses through the paving system that is made out of individually cast concrete pavers with open ended joints.(fig. 2 & 6)\textsuperscript{37} The paved areas taper out to form plant beds, forming an unscripted landscape and encouraging the public to walk with a slower pace. The emphasis on a slower paced experience was also done through the durational access points to the Highline which aimed to prolong the transition between the frenetic street-scape to the slow landscape above.\textsuperscript{38} However in practice, this concept was unsuccessful as it is being used as a shortcut by pedestrians as it eliminates their time wasted from waiting at the traffic lights on the street below.

\textsuperscript{34} “The Highline,” Friends of The Highline http://thehighline.org.
\textsuperscript{35} Ibid.
\textsuperscript{37} Ibid.
\textsuperscript{38} Ibid.
Jacky Bowring criticised The Highline Project in her article *Lament for a Lost Landscape*. She criticised the new architectural intervention which she described as “a kind of landscape Prozac” for erasing the memory of the site’s melancholic qualities, as it alleviated the gloom of the landscape and recasting it with a euphoric glow that aimed to improve the surrounding area.\(^{39}\)

The site’s overgrown and the deserted state of decay where ruderal vegetation and graffiti formed an impression of a place that was outside time and unaffected by society’s pursuit of happiness through ‘feel good designs’.\(^{40}\) She felt that the new design was a ‘corrected’ version of nature as what naturally grew on the site, thus erasing the memory of its former state. In doing so, it succumbed to society’s consumption of orderliness and the ‘new’ with visitors queuing to access the area which has now turned into another plaza.\(^{41}\) The intervention has changed the ability of the site to demonstrate architecture’s impermanence and providing a place for contemplation on time and the changing urban landscape.

She believed that architecture and landscape architecture should resuscitate the meaning of melancholy and recognise the need for places of solitude and reflection within the busy urban landscape.

However, while it is important to acknowledge the site’s past and express the qualities of decay it is also important to consider safety of the site’s users without compromising the melancholic qualities of the space. Jacky Bowring’s criticism of the Highline Project’s lack of melancholic qualities could also be because the article was written on the year of Phase One’s completion in 2009. At that stage, the newly planted plants may have not been established enough to blur the lines between architecture and nature. (Fig. 5 & 6) However, after the establishment and growth of the plants, a melancholic quality has been achieved through the softening of the architectural edges. The overgrown plants have also created intimate spaces within the park for reflection and solitude. (Fig. 7)

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\(^{39}\) Bowring, “Lament for a Lost Landscape”.

\(^{40}\) Ibid.

\(^{41}\) Ibid.
These images illustrate Bowring’s view on The Highline’s design of being “landscape prozac” for it’s lack of melancholic references by using new materials making the space look sleek and “trendy” in certain areas as (shown on Fig. 5). The wilderness was also controlled by allowing the grass to grow around the pavers but only at certain points and assigned to specified areas: (shown on Fig.6), rather than allowing it to take over naturally.
3.2 LANDSCHAFTSPARK
The site of Landschaftspark in Germany was formerly a rural landscape, however it was changed during the 19th century with the northern migration of industrialisation from the Ruhr Valley. In August 1901, Thyssen Meiderich an iron and steel works company built a blast furnace plant located in the vicinity of their newly acquired coal fields.

In 1985, the plant was decommissioned due to the overcapacity in the European steel market. As a result, a 200 acre industrial wasteland was created due to the abandoned plant. As time passed, natural overgrowth developed on the once fertile grounds. It was due for demolition until a group of interested citizens intervened. From 1990-1999, a country park was developed by the city of Meiderich and Hamborn with Latz and Partner, where nature and the abandoned industrial structures connected with each other.

Memory was used as the main driver for the design. The concept was to enable a person from the past that used to work at the plant to be able to take a ‘new comer’ through the site and show them exactly how it used to work and what the atmosphere was like at the time. They can also demonstrate the passing of the time and the changes that the area has gone through using the existing structures and their ‘natural’ decayed state.

The surrounding landscape was designed with the existing conditions of the site in mind, such as the existing roads, railways and the wild plant species that grew on the site forming a natural wilderness. In doing so, the areas have retained their character. Walkways and waterways have been woven through the landscape to create a connecting dialogue between the structures on the site. The architects also used specific programmatic elements to allow for a place of contemplation and reflection about the site, such as the use of the concrete bunkers to create intimate gardens amidst the industrial surroundings. There is also a “piazza” in the middle of the park where the architect has used the existing structures as well as the found materials on site such as iron plates used to cover casting moulds, respecting and acknowledging the memory of the existing structures.

Although the plant has been extensively renovated, the feeling of melancholy and the ruins left by the industry is still visible and is present in the journey through the park. The structures in their decayed state have been preserved to express the memory of what used to be there. The juxtaposition of the nature in the industrial structures also allows people to contemplate and reflect on the changes that the site has undergone over the years.

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43 Ibid.
45 Ibid.
4

DESIGN PROCESS
The aim of the project has been to reactivate the terrain vague without destroying its inherent qualities. By embracing the decay and melancholic qualities of site and to express the layers of history and time.

This approach argues for the continuation of the site’s current state rather than the conservation or renovation approach where the site is cleaned and renewed, thus erasing the layers of history that have occurred over time the rise and fall of the building.

In doing so, people are given the opportunity to experience the city in a way that they do not only experience the new and modern but also the perceived to be less-than-orderly part of the city. The exposure of these areas will show people the potential of these spaces as well as enlightening them about the after effects of urban development.

The approach to the continuation of the site and the buildings was to create an architectural intervention that provides people with a point of view to observe and reflect on the melancholy of the building’s reality. The architectural intervention provides a separation from the site therefore allowing the building to remain in its current state and allow nature to take its toll. When the building eventually decays and becomes a ruin, the new architectural intervention will remain standing with an imprint of the building that used to occupy the site.

Through the architectural intervention, the memory of the buildings that occupied the site is not completely erased. By allowing the buildings to decay naturally, enables people to observe the process at a biological scale. It also allows for the reflection on the impermanence of an architecture over nature.

Like nature, the architecture is an evolution of the past form. It has adapted to its current surroundings to ensure its progress into the future.
4.1 SITE SELECTION

Map indicating the sites surveyed within The Auckland City Central Business District.
A survey taken within the Auckland CBD, as defined by the Auckland Council, was done to find suitable sites for the project. Each site defined in red, has been analysed to find the most suitable one for the project.

The analysis was done against the definition of terrain vague as a place that is obsolete by choice of its owners and occupants as it is no longer in the ‘ideal’ condition or aesthetic, is dysfunctional as a building as its original function is no longer relevant, and therefore the functional design prevents the building from being adapted to another use.

The varying degrees of abandonment were analysed to define the site's importance as well as establishing its need for architectural reactivation.

The use of terrain vague and the analysis of the different sites against its definition has provided the project with a good starting point in selecting a variety of sites and finding the most appropriate for reactivation through architectural intervention.

Results for the analysis of the other sites found around The Auckland CBD can be seen in the Appendices, section 8.3.
4.1 SITE SELECTION

THE LINK HOUSE
&
THE YATES BUILDING
The site has two ‘abandoned’ industrial buildings on the corner of Albert Street one of the Auckland CBD’s main streets. The site has been ‘abandoned’ since the late 90’s due to seismic maintenance issues due to the buildings’ ageing structure.

They were both built in the early 1900’s as retail buildings. The Yates building once served the Yates Seed Company as their flagship store as well as their warehouse. It was also one of New Zealand’s first steel reinforced buildings as well as the country’s first irregularly shaped building (in plan).

The Link House was built before the Yates building which was the reason for its irregular shaped plan. It was originally owned by Henry Berry and Coy Salt merchants and it served as their retail shop and offices.

The buildings have been transformed over the years to suit different functions and were eventually being abandoned in the late 1990’s as the building required extensive renovations to meet the current seismic standards.46

Part of the Yates building facing Federal Street is being used as a car park occupying the first two levels, however much of the building remains blocked off from people and unused. The concrete structure and the façade is showing visible decay caused by water exposure, the glass windows and the interior of the building also shows evidence of vandalism.

The Albert Street façade of the block has been painted by The Auckland City Council in an attempt to beautify the area in time for the Rugby World Cup in 2011.47 The street level access and views into and of the buildings are blocked by plywood walls plastered with promotional posters.

This site is considered as a terrain vague as it is within the limits of the Central Business District, is obsolete as the majority of the buildings’ area is unused except for a section of The Yates building functioning as a car park located on the Federal Street frontage. It has also been abandoned voluntarily by its owner as the costs for maintaining the buildings are far greater than their return.

The Yates building has received a heritage category B status which means that it is not a protected building, therefore it may be demolished if the building is deemed unfit for occupancy. The Link house, did not receive any protection from the council. This may be one of the incentives for the owner to cease maintenance in order to be able to demolish the buildings. Doing would leave the site free for a new development project that is currently being proposed to the Council.48

46 Auckland Archives, “Series Number: ACC024, Item 9e”, Record ID 556108.
The Yates Building Closed
1998

The Link House Closed
1990's

federal street

wolfe street

albert street
4.2 SITE ANALYSIS
Fanshawe Street, Customs Street West and Albert Street are some of the CBD’s busiest streets used by up to 200,000 vehicles per week. Some of the City’s premier hotels and office buildings are also located on the same block with The Quay West Suites on the right, Tower and The West Plaza to the left.

>>RIGHT: A map showing the different programmes of the surrounding buildings.

The different colours also represent the different gradients of occupation in each building around the site, from less than eight hours to occupation for more than eight hours of the day. ‘Occupation’ is in reference to human occupation of the building. Car parking areas have been classified as less than 8 hours of occupation.
Auckland Transport Vehicular Traffic Count (reviewed on 26/07/2012)
Vehicular Traffic Counts for the surrounding streets to show the importance of the site and it’s reactivation.

In order from left to right:
FANSHAWE STREET (ALL DIRECTIONS EAST OF BEAUMONT STREET)
FEDERAL STREET
WOLFE STREET
ALBERT STREET (ALL DIRECTIONS NORTH OF WYNDHAM STREET)
CUSTOMS STREET WEST (ALL DIRECTIONS EAST OF ALBERT STREET)
When examining the data collected from the site analysis, the site on the corner of Wolfe and Albert Street is in prime position for architectural reactivation. The building frontages are on Albert Street, one of the Auckland CBD's busiest streets with a traffic count of 26,971 on average per week. Albert Street is also within close proximity to Queen Street, which is a heavily pedestrian street and also experiences high traffic counts. Therefore the re-integration of the site back into this urban fabric would accelerate its reactivation and development.

From the data gathered about the occupation of the surrounding buildings, the site is in the centre of fully functional buildings. Making it a disconnected hole in the urban fabric. It also projects its disused aura over the surrounding sites. This is especially evident on Wolfe Street, which is a subsidiary street to Albert Street and Fanshawe.

It is important that there is a pedestrian link between Albert Street and Federal Street through Wolfe Street as the subsidiary streets are seemingly overlooked and ignored with all the attention given only to the main street frontages. The street would benefit from this reactivation of the abandoned buildings.

Pedestrian access and use of the abandoned building which acts as an anchor between the two streets will bring more awareness and use of the site. This is done by slicing the site and allowing pedestrians to filter into the block from different paths. These paths provide different views and experiences of the building. With the provision of gardens and public spaces within the site, the occupants of the surrounding area will also benefit from the reactivation.
The approach to the architectural intervention is influenced by certain aspects and qualities from the architectural precedents studied.

The architectural reactivation of the terrain vague is not limited to vast open spaces. Disused buildings and structures can be considered as terrain vague as they are often obsolete, under-utilised and abandoned such as The Highline. Vagueness can be applied to the atmosphere that these structures project onto their surrounding environment as their existence often influences the perception of their surroundings. The future of their existence and use are often vague as they are commonly perceived as neglected spaces that cannot be reused and reactivated. The architectural approach to The Highline Project was to preserve the qualities of the wilderness and the reclamation of nature on the site through the micro-climates created by the buildings around the structure. Embracing and encouraging the reclamation of nature within the site is important as it is one of the many acknowledged qualities of terrain vague. As human contact leaves the site, it is slowly given back to nature. It also expresses the impermanence of architecture and the resilience of nature as plants and weeds aggravate decay in man-made materials such as concrete and steel. The preservation of these micro-climates also references the history of the site, how it has journeyed from its creation, use and eventually its decay and the return of the wilderness.

Latz and Partner’s Landschaftspark project and the architectural approach of preserving the memory of what the structure used to be and what it has become in the present. This approach can be applied to this project as terrain vague are often places that were once actively used by people but has fallen into disuse over time through dysfunction by choice or design. The preservation of memory and the expression of the different layers of time affecting the site, gives people an insight into its history. The unchanged architecture of the industrial site allows the public to experience an alternative way of utilising it. The architect’s approach to the project was to weave the existing patterns, determined by the site’s former use with a new pattern. These patterns are independent from each other and connect only at certain points, thus preserving the natural state of the industrial site but also integrating the new intervention into it forming a new architectural language. In doing so a visitor can experience the park and experience the industrial site independently and collaboratively without compromising the memory of the existing structure and integrating its present state with the new intervention and using it in an alternative way.
The architectural language of this project is influenced by the works of Gordon Matta-Clark such as Bingo, Splitting and Day's End. His interventions on architecture through his art aimed to expose the internal qualities of abandoned buildings. Blurring the lines between the public sphere and the internal environment of the buildings. In doing so, he enables people to see the building from a different perspective. Through this, he aimed to incite the viewer’s imagination to create ideas for the building’s re-use. 

See Appendix 7.2 for the description and images of his work.

Lebbeus Woods’ work and his approach to architectural interventions in the terrain vague were applied to this project as it aims for the continuation of the existing qualities of the site rather than renewing it. Lebbeus Woods also encourages the move away from the Cartesian Grid, as this is in the language of Modernism which he believed references the movements and conditions for machine movement rather than human movement through space. He believed that a new architectural language must be established which correlates to human movement and human occupation. In doing so, lessons learnt from the past are expressed and by establishing a new architectural language, progress can be achieved.
The analogy of the parasite as a vine was taken from the resilience of nature, weeds taking over the site creating an urban wilderness despite the lack of soil or nutrients around the area.

Angkorwat in Cambodia is one of the examples of nature overcoming architecture. Some buildings at the site are evidently overcome by the once parasitic trees. Over time, these parasites have grown stronger eventually cracking and decaying the existing buildings through their adaptability to different growth conditions. Eventually these roots are the structures that hold the architectural elements like columns and walls together.
Vines attach themselves to an external structure in four steps. The first step involves a stem and a helical tendril that grows until it encounters a suitable structure. The vine’s helical structure serves as a suspension system as it allows the tendril to move with the “host” structure in the next stage of vine growth (2). The helical tendril then coils around the “host” to establish the connection between the vine and its host structure. The third stage is the growth of leaves on the tendril, this allows the plant to gain more nutrients through photosynthesis allowing the plant to grow and strengthen the trunk. The final stage is the lignification of the tendril. The lignification process packs the external cells of the vine tendril to pack closer together strengthening the stem transforming it from being supple to a hardened structure. Eventually the vine becomes the host with an imprint of the original host by the way it has taken shape and the direction of its growth.

Decay is a significant characteristic of the terrain vague, therefore it is also an important aspect to consider in the preservation of the qualities of the terrain vague. Retaining the decayed characteristics of a building gives the viewer an insight into the various states that the building has gone through, from its peak to its decline.

One of Bowring’s criticisms of The Highline Project is that its revival has turned the formerly unkempt plateau into a smart urban plaza “bathed in a glow of conspicuous consumption” which was the opposite of the site’s former unkempt beauty. She believes that although we need urban plazas within the city, places for solitude and reflection on the passage of time and history are also needed. Architects and Landscape Architects, according to Bowring should train themselves into accepting that in renovating and reactivating places, we do not always need to do everything but rather do “almost nothing”.

Aldo Rossi also believed that a building should not only serve its prescribed function but should also act as a silent monument in the city. Buildings are like rocks within the landscape, unchanging through time with different uses washed over it.

Ruins of buildings are important within the city as they leave an imprint of history for future generations. It gives an insight to the building’s past, present and future, giving an aspect of temporality, a building going through a constant process of changing. In contrast to a preserved building which like a corpse, “...preserved and maintained in an attempt to keep it beyond the reaches of time: the Villa Savoye,”

The results of ruination allow different views of the building and out from the building providing a different perspective of its perception.

Louis Kahn believed that ruins are able to give a more honest expression of the building rather than when it was newly completed. The process of ruination, commonly caused by the loss of enclosure or protection, exposes the internal structure of the building. The exposure of the building projects a view of how the building was made by exposing tectonic details that were previously inaccessible information. Kahn believed although the duplication of the past’s ruins is irreconcilable, architects and architecture should take the tectonic and technological lessons from the past and use their essence as a basic platform for future developments through science.

Therefore, to allow a building to decay as it is gives an honest expression of its past history and its present condition. The loss of its enclosure allows the building to be transparent exposing its tectonic characteristics, thus giving the viewer an insight into how the building was made and how much energy was put into its creation.

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50 Bowring, “Lament for a Lost Landscape”.
51 Fred Scott, On Altering Architecture (USA and Canada Routledge, 2008).
52 Ibid.
53 Ibid.
Knowing this information is vital as it allows people to realise the importance of memory and the past which would otherwise be lost with the buildings when they are demolished or restored.

**MATERIAL DECAY**

The two buildings have been built using concrete, timber and steel. The Link House, which was built before the Yates building, used concrete masonry for the primary structure and the external enclosure and timber for the internal structure of the building. The Yates building was constructed using steel reinforced concrete as a result of the irregularly shaped site. As the traditional concrete masonry structure would have been too thick at the narrowest point on site.

Currently, the roof cladding of both buildings is badly damaged exposing the upper levels to weathering and water damage. Windows have been knocked out exposing the interior of the buildings which is especially damaging in the Link House as it has a timber interior.

Initially, Matta-Clark’s approach to his art was used to aggravate the ruination process of the buildings. Through the use of section cuts in the building’s envelope the internal environments of the buildings are exposed to the street-scape. However, this process proved to be quite difficult at a large scale in comparison to Matta-Clark’s art. The structure of the buildings also need to be considered for the safety of its users. Therefore rather than splitting the existing structure and locating the new building within it, the new building is being used to split the existing and project out onto the street. Thus pushing the boundaries between the public realm and the site boundaries as well as speeding up the decaying process.

As the two buildings have been primarily constructed with concrete, water and exposure are the two most important aspects in aggravating or encouraging its decay.

*A study in the problems and defects of concrete can be seen in the Appendices, Section 7.4*

This is done by splitting the facade to make way for the new building. Plants around the seed bank and vines growing on the structure will also help to retain moisture around the concrete structures aiding its decay.
5

DESIGN RESPONSE
5.1 PROJECT AIM

The aim of this project is to weave the terrain vague back into the urban fabric. This is done through the reactivation of abandoned buildings by providing a function for the space that encourages people to visit the site and experience an alternative from the fast paced city.

To express the different layers of architecture on the site and buildings. These layers are then used as the ‘terrain’ for the new building. This is done through the exploration of the different possibilities for decay and aggravated decay of the existing building and integrating the new building within it. Biological decay will allow the transition period of change to be longer therefore leaving a remnant of the past in people’s memory rather than deleting it completely over a short period of time. In doing so, the existing building or site tells the story of its past and its demise whilst also revealing a new layer of building. This is done through the expression of decay within the existing building and the development of the new architectural intervention. The new building is an expression of the state of our society’s technology, methodologies as well as the way we perform certain functions in order to capture the last ‘layer’ of the present for the future to learn from.
5.2 DESIGN RESPONSE

Initial iterations exploring the concept of a parasitic structure. The first two figures are exploring the concept of inserting a structure within the limits of the existing building. The hexagonal shape of the parasitic structure has been driven by the concept of installing the building in modules which can be added to when needed or dismantled and moved around adapting to the conditions like a vine.

This exploration then progressed to the third figure where a “clip-on” structure was used using the concepts of a helical vine tendril being wound around the parasitic structure.
The idea of suffocation was explored in these iterations as it is one of a parasite’s main attributes. This effect is evident on buildings that have been taken over by plants and trees, such as Angkor Wat in Cambodia.

An exploration of a modular system that can be structurally independent on its own. The module can also be clipped together to form a cluster as needed (Fig. A & B). This idea follows the concept of Woods’ ‘free spaces’ as the modules can be manipulated and installed by people wanting to occupy the space. The idea of the suffocation concept is that the parasite is a direct reflection of the demand for space within the building as the clusters can expand and retract accordingly.
The use of triangulated forms (Fig. C) was to provide a contrast from the Cartesian grid of the host buildings. It is also a module that can be replicated to continue the development of the parasite whilst also remaining structurally independent. The installation and modification process of the members creates a *heterarchical* in the pattern of use and functions as opposed to a hierarchy of spaces. The structural members that are exposed on the lower half of the building to represent the trunk of the vine or the branches that do not have leaves. Eventually the structure will then take over the host as it decays and eventually gives way to the architectural intervention.

Although the concept of suffocation actively adds another layer of architecture over the existing ‘layer’. It does not leave an imprint of it’s memory. This also means that the internal structure of the existing building needs to be strengthened in order to support the additional loads. Doing so, would be a backwards step for this project as it aims to let the existing decay to continue rather than stopping it.
The analogy of the vine as the “parasite” is important to the project so the idea of conveying this analogy in the architectural language not only in the whole building but also with the details.

Further explorations were done of a clip-on structure and how it could be attached to the main structure of the ‘host’ building. Figure A and B is an exploration of the possibility of a tensile structure that is attached to the host building at certain points using the idea of vine tendrils. This structure is a suspension system that is fixed to the existing facade of the building.
Figure C is an iteration that explores the option of having a rigid structure that is also clipped onto the existing facades.

Although these structures convey the idea of a parasitic building over the 'host'. The structural capacities of the existing building for carrying these loads are questionable as it has already been deemed to be seismically unstable. Therefore the attachment to the building will aggravate the rate of decay, but it is to the detriment of the 'parasite'. Like suffocation, this concept also does not show the 'layer' of architecture as the parasite aims to smother the existing structure eventually. This led to the design of an 'injected' space, integrated with 'scabs' and 'scars'.

C
5.2 DESIGN RESPONSE
‘FREE SPACES’

plan

section

scar
injection
scar
scar
Using the non-Cartesian concept of Woods’ ‘free-spaces’ the plan of the new architectural intervention has been designed to direct the flow of pedestrians and views into the building from different points. This also allows people to intersect through the building onto the street rather than bypass it altogether. The reason behind this move has been to encourage people to occupy the buildings and interact with it at different scales. Pedestrian traffic can interact with the building at a close-up scale at a slower pace. The new building also projects out onto the street thus making vehicular traffic more aware of it’s presence and raising awareness of the buildings.

The Albert Street elevation (A) aims to direct the flow of pedestrian traffic from Albert Street into the building and to Wolfe Street. On the Wolfe Street elevation, there are two projections, B shows the connection between the two levels of The Link House and C shows the internal section of the Yates Building. These cuts into the buildings also allow for views into the building as well as making the block visually porous as pedestrians will be able to see the corner of Wolfe Street and Federal Street from the Albert Street point.

In section, the non-Cartesian approach has also been applied.

The concept of the ‘scar’ is used on the projections on the elevations of the building as it makes people more aware of the architectural movement. The internal space is treated as the ‘injection’ into the buildings as it is an independent “free-space”

The levels of the new architectural intervention are not dictated by the original levels. Rather they are being dictated by the movement through the site. The level changes allow the viewers to experience the space at different conditions. In doing this, it contrasts and differentiates itself from the original buildings. Through this move, the passage of time and the present situation of the buildings are obvious to the viewer. People will then be able to see the history of the surrounding buildings, and their present condition of decay and abandonment and the site’s new architecture.

The structural idea for this iteration, is that the new architectural intervention is dependent on the ‘host’ building’s primary structure for support. However, to do that would mean that the architectural intervention would have to provide protection
This section shows the internal atmosphere of the new intervention, to show the space and quality of light within the building.

It also shows some possible structural ideas to support the intervention through the use of the ‘host’s’ primary structure.

The internal space of the new intervention is a very narrow space which would be difficult occupy, therefore only a few programmes will be able to utilise the space successfully. This defeats the concept of ‘free’-spaces’ as it cannot be adapted very easily.

The plan is also closed off from the site like a tunnel, as it transports people from one area to another. However, it does not allow them to meander and filter through the site. This was one of Bowring’s criticisms of the Highline Project as it had become too commercial by losing its melancholic beauty, rather than a place for reflection and solitude.

Another problem that this iteration has encountered is the issue of structure, dependence on the ‘host’s’ primary structure could be flawed as it would have to ensure it’s protection and maintenance. To do this would be to defeat the purpose of allowing the ‘host’ building to decay.
This was an attempt at resolving the problem of structural dependency on the 'host' building. This concept explores an independent structure that can be manipulated and changed for the changing needs of the new building, without affecting or depending on the existing 'host' structure.

The suspended structure system was ideal as it allowed for a longer span with minimal internal structure, therefore allowing the internal space to be undisturbed and adaptable.

The suspended structure relates to the structure of the vine, where the helical tendrils act as suspension systems. It allows the host tree or branch to move without causing damage to the vine or the tendril before it becomes lignified.

This concept was unsuccessful as the space within cannot be easily adapted in the future. As the suspension system is a fine balance therefore any changes to it could be to the detriment of the new building.
The decay of the host building is an important part of the project, therefore the projection of how the existing building will slowly decay to reveal the architectural intervention is necessary.

Through the study of concrete, it has been deduced that the ruination of the existing buildings can be aggravated through the exposure of the structural concrete to water and the weathering process.

To do this, concepts from Matta-Clark’s work has been used to create cuts and splits into the facade of the Link House and the Yates Building from different points in the elevation. In doing so, the concrete is exposed and therefore more susceptible to water penetration and damage. The following study is of the existing buildings’ exposure to water and the weather over five stages during a 40 year period. Planting will also be used to aid the process of decay with the use of vines and other parasitic plants that flourish in “terrain vague” environments.

The cuts and splits are made to the existing structure
Plants are established.
2 10 Years of exposure

3 20 Years of exposure
4 30 Years of exposure

5 40 Years of exposure
A revised iteration of the plan is an integration of the Matta-Clark concept and Woods’ twenty tactics. It aimed to open the new building up and allow people to filter in from different points as well as allowing them to explore the abandoned building. This has been done through the fragmentation of the architecture on the ground floor and having gaps to let the old architecture filter into the new intervention.

The splits on the elevations and what views can be seen through them are indicated in red. The placement of the ‘splits’ for this concept was limited to the Wolfe Street frontage of the building. On the Albert Street frontage will be the new building projecting out onto the street. In doing so, it confronts the pedestrians by visually crossing the boundaries between the building and the footpath. It also allows the new building to distinguish itself from the old.

One of the problems encountered by this plan is the lack of direction in the journey through the architecture. This is caused by the multiple entries into the site as well as into the old architecture.

A clearer distinction is needed between the old architecture and the new architecture. This is to emphasise the purpose of the project, which is to provide a point-of-view for observing the effects of nature and time onto the old architecture.

The section is still influenced by Wood’s idea of a non-Cartesian ‘free-space’ however, the idea of the suspended structure has been changed. The structural system explored in this iteration is still independent from the surrounding buildings, but is a system that has more connections to the ground to incorporate the decaying surroundings with the new allowing people to experience the dual aspects of the site together.
The image on the right is showing the short section of the building on the Albert Street frontage. This drawing represents the new architectural intervention as a projection out onto the street. By doing this, the design attracts attention to itself as well as the site from the motorists, as Albert Street is one of the city’s busy roads. Currently, the building is painted in beige and has been blocked off from view on the street level. The site does not draw the eye of many motorists that drive past because of its muted colour. In the past, the building was covered in brightly coloured graffiti and the vivid colours attracted the eye of motorists drawing attention to the site, albeit negatively.

Through this projection, the concept rather than the approach of Matta-Clark’s art has been applied. Allowing the viewers to perceive the building from a different perspective, as a cross section much like an architectural drawing. In doing so, the interior environment of the new building is exposed as well as its relationship with the old building. To expose how the structure of the new building interacts with the structure of the old, the restriction placed on the new building by the old and how the old building affects the form of the new building.

This has been done to emphasise the relationship between the vine and its host and how it tries to overcome its host while still remaining dependent on it for survival.
A sectional detail showing the concept of growing vines coming out of the new building’s facade to assist in the decaying process. Most vines damage concrete surfaces and other porous surfaces as the roots and the tendrils try to penetrate every crevice in search for new areas for growth and sunlight collection. The foliage will also help to retain moisture and therefore causing the concrete to expand and become brittle.
One of the challenges encountered by having an *insidious* building is its structural component.

The new building must be able to stand independently from the existing building and the existing building must only be assisted in its decaying process rather than being demolished and destroyed.

A study of the molecular structure of plants and vines, one of the recurring patterns of their structure has been the molecular packing of each cell. This type of packing is evident in other natural structures such as honey combs and soap bubbles.

By packing closely together in a hexagonal pattern, each cell is dependent on each other for structural support whilst being independent in itself.

This is relevant to the project as it’s structure has the same concept of the new building and its relationship to the existing
The hexagonal concept is applied to the project as a group of hexagonal structures at differing sizes to be joined together as a whole building in an attempt to resolve the issue of structural independence.

Each cell is structurally dependent on the neighbouring cell, yet is able to stand on its own. Every cell also has a dual purpose, to support the neighbouring cells as well as being able to support the structure of the existing building as it decays around the new building.

The hexagonal concept shown in the building’s cross section (fig. B).

Bigger cells represent shared spaces where people gather and meet to do shared activities. These big cells are then surrounded by smaller stairs representing private areas or offices.

This arrangement of spaces applies Louis Kahn’s concept of served and servant spaces, which normally a hierarchical arrangement. But in the application to this project it is heterarchical as the spaces are being manipulated as they are needed, much like the triangulated concept of suffocation.
This image shows the development of the hexagonal concept in plan.

In this plan, are the main structural cells in dark which are the base structures for the additional cells on top. They will then be connected to each other to form a holistic structure that supports independent cells as a whole as well as support the existing building as it decays.

However, the direction for the journey through the building is still lacking from this plan as it is still fragmented.
In developing the project, it was deduced that the concept of a 'free space' was not enough to reactivate the abandoned building. This was because, in order to drive people into a site or place, a purpose must be given to it. Although Albert Street is one of Auckland CBD's busiest streets, the reactivation of the building as a 'free space' will have the same effect as The Highline Project. The space within will be used as a short cut rather than slowing down the city dwellers' pace.

Thus, an assigned programme was needed to drive people into the site by providing them with a purpose for being there. The discovery of the potentials of the building and its melancholic beauty will be when they arrive into the site to visit the facility.

Keeping with the project's aim of remembering the past to inform the future, the new intervention is a seed bank for the storage of important seeds. This programme relates to the existing site as the Yates Building was once the Yates Seed Company's main showroom and warehouse. The site is also at a perfect location as it is in the middle of the CBD making it easy to access, as well as being easy for people to visit and learn.

The seed bank will be used to store seeds of plants that are vital to New Zealand's ecology and agricultural economy. Seed banks are important in the case of an environmental catastrophe such as earthquakes, typhoons and tsunamis where agricultural crops are affected and destroyed; there is a system in place to provide a replacement for replanting and re germination. Seed banks are vital to our ecology as the changing environment and the introduction of various animals have affected our plant species and has pushed some of them to the brink of extinction making it important that their seeds are preserved for the future.

The building will also serve as a visitor centre to expose the functions of the seed bank and its importance to our environment. It is important to inform people of the significance of seeds and their ability to change our ecological system. The visitor centre will show the different processes used to prepare the seeds for storage as well as showing people the varieties of plants being stored at the seed bank. On their visit they will also learn about the history of the site, the existing building and the relationship of the old and the new. The building will provide them with a platform to enjoy the melancholy of decay and ruination and appreciate the passage of time.
5.2 DESIGN RESPONSE

HEXAGONAL STRUCTURES
SPATIAL REQUIREMENTS

- A delivery and sorting area for unpacking seeds.
- Initial drying room to remove moisture and external variables that could affect the quality of the seed.
- Research area for the identification and data recording
- Seed storage processing area for cleaning, quality control and packaging
- Sterile drying room as seeds need to be dried for a final time before entering the vault.
- Cold storage vaults that provide a temperature of -40°C
- Conservatory areas for re-germination and re-planting
5.2 DESIGN RESPONSE

THE MILLENNIUM SEED BANK

ARCHITECTURAL PROGRAMME PRECEDENT
The Millennium Seed Bank in West Sussex, United Kingdom, designed by Stanton Williams Architects, is a facility designed to store over 300 million seeds from all around the world in an effort to preserve the diversity in the planet’s ecosystem. It also functions as a visitor centre, as well as a research and processing centre for the seed bank.

The building was designed as a museum turned inside-out, where the research labs and offices are located around the public exhibition which is located in the centre of the plan. A reason for this design move was to enable the visitors to feel inspired and express the importance of the facility scientifically as well as environmentally. Exposing the inner workings of the research labs shows the visitors the effort and the complexities surrounding the act of preserving a seed.

The building’s form was inspired by the surrounding landscape, which the architect translated into soft barrel vaults that are exposed above the ground in some areas and burrowed into the ground in other areas. This allowed them to play with the different volumes of the different spaces and their functions. The heavy set materials of the research labs and the offices contrast with the light construction of the public areas and the conservatories.

The arrangement of the plan allowed them to locate lighter volumes such as the conservatories and the open spaces surrounded by the heavier volumes of the offices and the research labs. This approach to the design expresses the idea of protecting a delicate material which relates to the building’s function as a seed bank.

Sustainability was another key factor in the building’s design. Stanton Williams Architects have used the site’s land formation to their advantage by locating the seed vault within the burrowed barrel which allowed the space to have the thermal insulation from the ground preventing thermal energy from the sun from penetrating into the space as the temperature needs to be a constant ~40°C.

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The plan of the Millennium Seed Bank shows how the two programmes within the building are integrated by pushing and pulling spaces into each other resulting in visual and spatial awareness. This gives the visitors to the museum a glimpse of what goes on within the seed bank as they are able to watch the researchers work in their offices (fig. 25, previous page).
The section shows the integration between the public and private programmes over different levels. From this, it is evident that the museum is mainly on the upper level of the building and the majority of the space has been allocated to accommodate the seed bank. A reason for this may be because the seed bank is aiming to store all the seeds for plants from around the world and therefore needs to occupy a bigger area of space not only for storage but also for research and re-germination.

Further integration could be done on different levels, perhaps by giving the public an opportunity to see the seed vault underground rather than limiting their experience to one level.
The development of the hexagonal plan resulted in an integrated system of hexagonal ribs rather than hexagonal cells. (fig. A)

Through this, the structural system allows the spaces within the new building to be free and adaptable to different uses and functions. It is no longer designed as a ‘free space’ but the approach to its design is still using the concepts of a heterarchical space formed by movement.

The form of the building is more directed and is able to show different points of view and different experiences for its users. The internal environment is a series of movement flows and catchment pools to direct people to explore different aspects of the building.

The movement flows into the building are indicated in fig. C.

This plan shows the pathway flows intersecting and fragmenting the building’s form.

In section, the pathways are shown across all the different levels of the building. Where at some points two paths may intersect at different levels creating a shared space. Thus, the creation of spaces is influenced by how people move through the site, rather than a labelled hierarchical composition.

The interaction with the ground plane relates to the project as a seed bank rather than building upwards. It also has sustainable benefits as the underground location of the vaults will assist in the maintenance of the vault’s temperature.
section
This section explored the idea of how the seed vault would be organised in section and the structural system to be used for the new building.

The structural system for the hexagonal concept is a combination of the is a steel portal frame system. The portal frames support the existing structure freeing up the space underneath for the new building. The seed vault facility will supported by a concrete panel system. Concrete was chosen for the enclosure as it is resilient to damage and provides the thermal mass needed to maintain the temperatures within the vault.

The steel structure is exposed at different outdoor areas within the site to expose it’s relationship with the existing structure. Informing the viewer about the tectonic nature of the facility. It also expresses the different layers of protection around the seed vault from the existing building, the supportive frame and the concrete panels.

A critique of this concept is the lack of integration between the steel structural layer and the concrete panel system. As they are independent structures, the system is perceived as two ‘layers’ rather than one.

Another issue with the design is the amount of lighting needed for plant growth as the building is south facing. Therefore lighting solutions were needed for the greenhouses and re-germination areas. This was done through the design of light shelves and light-wells located strategically throughout the building.
5.2 DESIGN RESPONSE
STRUCTURAL DEVELOPMENT
CONCEPTS
Concepts exploring the idea of a ribbed structure forming a structural frame which supports the existing building as well as providing a structural frame for the new building.

The frames will be hexagonal in form which is a reference from the hexagonal packing concept.

The drawing to the right also shows an atrium space which will be where the pathway flows intersect.

The space will also open and serve as a light-well, atrium and green housing area for the plant re-germination.

The space will provide an area for people to interact with the new building and the existing building.
The ribbed frame concept for the building's structure developed as a steel portal system.

The concept works as a developing structure during the building process. First, the steel hexagonal portals will be bolted on to the existing concrete frames of the original building. This then transfers the vertical loads down to the new hexagonal portals therefore allowing the frame to be trimmed.
5.2 DESIGN RESPONSE
STRUCTURAL DEVELOPMENT
STRUCTURAL DIAGRAM
This design resolves the issue of structural integration from the previous concept. (page 84.) As shown in the section to the left, the steel structure is embedded into the concrete columns which also form the primary structure of the seed vault. Through this, both of the structural systems have a common base. It also expresses the idea of the vine; being the steel structure, growing out of the ground. The steel structures are pinned to the existing primary structure of the old building, altering the load paths.

The steel structure is weaved through the concrete structure to support the existing building.

The support provided by the steel structure ensures that the existing building does not completely decay, thus leaving a layer of it overlapping with the new structure. The new building will then be enclosed by the concrete panels cladding.

From a critiquing session with fellow students and supervisors, it was pointed out that the structure that holds the existing structure does not completely alter the load paths. Because the steel structure is pinned to the existing, this joint then becomes a pressure point pushing the loads down vertically (fig. A) Therefore, another solution needed to be made that allows the steel structure to support the existing structure.

Other Issues that needed to be resolved from this concept are circulation, services and the relationship between the museum and the research facility.
5.2 DESIGN RESPONSE
STRUCTURAL DEVELOPMENT
The structure of the building developed after a critiquing session with fellow students and tutors concerning the ability of the bolted portal frame in fig. A to support the existing structure.

Further exploration was done through modelling the frames supporting the existing structure and the concept of figures B-E was conceived. By supporting the concrete beams through the compression of the new frames (shown in red fig. D-E) the columns can then be eliminated as all the loads are transferred down onto the new frames.

However, after a consultation with Stacey Millar, Structures Engineer, the structural frames developed from a box-beam construction to a trussed frame. This will allow them to support the existing structure without bending moments as a result of the compressive pressures on the frame from the existing
structures. (fig. F) Further bracing was also needed across the frame to offset the effects of the compression forces pushing the frames out wards (fig. G).

This development has resulted in the integration of all the structural systems supporting the existing frames. Therefore the exposed rib structure will be braced internally by the structure of the seed vault which has been changed from a panelised structure to a concrete clad steel framed structure, which can then act as moment resisting braces.

The lengthwise structure has also been connected to the crosswise structure to ensure maximum strength as opposed to functioning as independent structures.
5.2 DESIGN RESPONSE
PROCESS OF BUILDING LIGNIFICATION
The process of constructing the building reflects the lignification process of vines. The method of constructing a truss is similar to a vine’s growth, how a small tendril is strengthened by other overlapping tendrils to for a rigid element. The trusses are then installed on site to support the horizontal beams in the existing buildings in order to free the space from columns.

Step One:
Concrete Columns are installed on site according to specified heights.

Step Two:
Pre-constructed steel trusses are then installed and secured onto the concrete columns.

Step Three:
After all the horizontal beams have been supported, the load paths of the existing buildings are then re-routed to the new structure.

Step Four:
The structure of the building is strengthened with the steel structure of the seed bank acting as the bracing system to stop the new concrete columns from buckling. Through this process, the new structure is Lignified to support the existing structure to allow the seed bank’s construction.

Step Five:
The columns are then deconstructed and construction of the seed bank can occur.
5.2 DESIGN RESPONSE
PROGRAMME DEVELOPMENT
As shown on the plan, the lack of integration between the public and private spaces has been ameliorated through interlocking the spaces together connected by the main atrium.

In reference to the design strategy of the Millenium Seed Bank, the public areas border the research facility through pathways as well as the museum space.

Entrances into each space are located on Albert Street for the public and Federal Street for the staff members. Although their entrances are on opposing sides of the site, the two groups are integrated through a visual connection. Physical connection is not ideal within the project as the people in the research facility have to be in highly secured conditions to prevent the seeds from being contaminated.

Through the visual connections, the users of the museum have the opportunity to see the inner workings of the research labs. The visual connection also allows them to relate and understand the purpose of the facility to the plants and seeds within the museum.

Open interaction occurs in the shared space of the atrium as well as the gardens and conservatories. The gardens located on the ground floor and on the roof top will serve as public areas for reflection and observation of the different flora and fauna. These areas also give them the opportunity to talk to the staff about the plants and what can be done to preserve them.
level one & vault (underground)

level two

level three
1. Delivery area
2. Initial Drying Room
   Seed Processing
3. Research Areas
4. Cleaning Area
5. Packaging Area
6. Final Drying Room
7. Storage Vault
5.2 DESIGN RESPONSE

VIEWS
1. The user’s view at the Albert Street entrance, this view will show the existing structure first, before revealing the new building within. This allows the viewer to see the building in chronological sequence.

2. Focuses on showing the seeds in the museum. The clear panel on the floor allows people to look into the vault underground. Doing so, exposes the seed vault and allows the viewers to relate the information they are getting at the museum to the storage of seeds below.

3. View three uses the concept of Matta-Clark by giving the viewer a cross sectional view of the research facility, the seed vault and the conservatory area.

4. View four is taken from the same area as view three, it shows the relationship of the new building and the existing structure. The exposed structure informs the viewer about the nature of the building.

5. The view from the staff entry. It contrasts with the experience of view one, as it is open and exposed. This has been done to allow the staff to see the gardens and the vines interacting with the existing structure. As they interact with the building on a daily basis, dynamism and change in the building happens through the effects of the season on the plants providing a different atmospheres within the building.
5.2 DESIGN RESPONSE
JOURNEY THROUGH THE BUILDING
The entrance main entrance into the museum and the site is located on Albert Street. Because Albert Street has a more prominent frontage with the a high number of traffic count and pedestrian activity, this was a logical spot.

The journey to the entrance is a transition from dark to light. The gradient of transparency in the materials allows the interior of the structure and the nature of the building to be revealed once the viewer is inside the building. Thus adding an element of surprise and discovery. It also provides a direct east-west axis through the existing building and the new structure. From this point, the movement flows are then fragmented taking the pedestrian through to different points in the building.
The staff entrance conditions tell a different story from the public entry. At this point, the entrance allows the maximum amount of light into the space. The staff also walk through a garden before entering the air lock. From this area, an elevator will take them to various levels according to designated research areas.

The elevator will be clear glass to allow the scientists to see a cross section of the building and to be able to see the plants in the gardens on their journey.
6

CONCLUSION
Weaving The terrain vague Back Into The Urban Fabric:

The initial concept of designing a ‘free space’ was unsuccessful in the reactivation of the terrain vague. A purpose was needed to attract people into the site to reactivate it which is the Seed Bank. Through the Seed Bank’s placement within the existing building, people engage with it and the nature of the interventions first before arriving into the facility. The journey through these paths serve as a narrative for the architectural intervention and its relationship with the existing building. Each pathway that intersects with the site, takes the user into a different space within the building or weaving on to the adjacent streets. The pathways are surrounded by garden spaces for a natural wilderness to flourish amongst the ruins of the existing building. By allowing the public to access these gardens, the intersecting pathways weave the spaces into the urban fabric without compromising the melancholic qualities of the site. These gardens will serve as points of reflection where people can withdraw from the fast pace of the urban environment. Therefore, the urban environment is improved through weaving the site into it.

A Humanistic Approach to Shaping Space:

Woods believes that buildings should be designed with the flow of human movement in mind. To use a non–Cartesian approach to planning is a more humanistic approach as people do not move in grids like a machine.

Movement of people influenced the design of the museum. The directional paths encourage people to move from one catchment pool to the next, to experience different aspects of the building.

The museum serves as a catchment pool encouraging people to linger and learn about the seeds and the facility before moving on to the conservatory and the gardens. Its geometries are influenced by the expected movement of people from the entrance. From this catchment pool, people are drawn out to the conservatory area where they can see the building’s section as a whole, a view that would not be seen in a traditional building. The geometries of the processing area and the vault have been influenced by the flow of movement and the journey of the seed from its delivery to the final drying room. The seed vault: the final storage, was designed as a static space as it is where the seeds are at a standstill waiting for future re germination.
The Expression of Time:

The expression of time and decay is an important aspect to the development of the architectural intervention. Pallasmaa believes that the scale of time is important as it connects humans to their roots.

The renovation of historic buildings, often strips the layers of time from the architecture as they are restored to their original state. Whilst allowing people to imagine life during a different time, it alters the memory of the building through the deletion of the passage of time.

Decay is used in the project to express the passage of time and allow the building to tell its story. The different layers of architecture are used as 'terrain' for the new intervention overlapping with each other coexisting for a certain period of time. While the existing building decays, the new architecture is being created much like the development of a parasitic vine from being a tendril to a lignified stem to a lignified plant that has overpowered the 'host'.

The overlap of the new building with the existing building enables people to keep the past in their memory as opposed to the demolition of a historic building. To allow its natural decay as a building as opposed to demolition expresses the melancholic truth of the impermanence of architecture. Following the cycle of biological time, leaves an imprint of the architectural memory enabling people to have a better connection with the past.
The Future Direction:

The problem of urban sprawl encroaching onto green spaces outside the city, calls for the densification of urban areas. This can be done through the architectural reuse of the residual spaces within the city and the terrain vague. However, this also poses a problem to all the heritage buildings within the city that are now defunct and abandoned waiting to be restored or at the risk of being demolished.

An issue that could be explored further is the development of a structural system that has minimal impact on the existing structure. The invention of a structural system that can recognise the weakest points in the existing structure will be able to minimise the amount of architectural intervention on the building. Technology and the invention of stronger materials will play a big part in the creation of the project especially in the creation of stronger materials.

Whilst it is ideal to preserve all the heritage buildings within the city, space is becoming a scarce commodity. Architects must continue to strive for inventiveness and challenge tradition to be able to provide alternative solutions that enable progress. However, it is also important to acknowledge the past and the reality of decay in the creation of new architecture.

The coexistence of the decaying past and the budding present enables the building and the site to tell a story, leaving an imprint of what used to be.
“Make great plans, realise small ones.”

Lebbeus Woods
Lebbeus devised a set of twenty tactics for architecture to follow in order to eliminate the disguises imposed by society on its “walls”. The tactics that have been elaborated are the tactics that apply to this specific project.

Initiate Projects –

War or economic instability can drive away clients, thus leaving the people of the city in charge of rebuilding it and creating new projects. The architect is one of these people and it is the architect’s responsibility to act in the void left by disruption or the collapse of institutional authority. According to Woods, this should be done through the proposal of new projects that serve the public’s interests.

Instigate Change –

Destruction causes the motion of reformation of the city, both radical and irreversible. However, destruction also sets a new form of stability. One of survival and the ability to respond and adapt to changes in the surrounding environment quickly and effectively. A destroyed city that adapts through destruction can be used as a model for other cities suffering unpredictable and violent changes. Through the changing environments of politics, economics and technology the new dynamic stability of adaptation is a perfect time for the making of architecture. As this is when different energies; mental and material, are brought together rather than being opposed to one another.

Engage Paradox –

Contemporary design has been embedded in the concept of providing “flexibility of use” however, to describe and design a building according to its function defeats the purpose of being a “flexible” building. Architects and architecture need to engage in the language of dynamism, which has become the essence of modern existence.
Make Second-Order Designs –

Before destruction and change, architects were called on to make “first order” designs on a site. Design was dictated by a certain set of rules and standards. However, after change and the development of time these rules and standards have also changed and architecture needs to adapt for these changes. “Second-order” designs are designed with the “rules for the rules” as they change. An architecture developed from the lessons learned from the past applied onto the present.

Be alone, be together –

A community is formed when each person within that community becomes an individual. While it is comforting to become a part of a mass as an anonymous component of the whole, but it is important to be responsible for oneself and ones actions. Architects must become individuals to initiate change, concepts and living them. As architecture is the idiosyncratic language of conceiving and inhabiting one’s own space.

Be Human First –

Titles and distinctions are symbols of authority. One does not become an individual by citing these distinctions, as in a city stripped down by destruction and change human essentials are revealed and there will no longer be roles of authority in which to hide from. The architect must initiate projects for construction that embody the actualities of the damaged city or the actualities of change.

Fragment, then flow
Stay on the Move –

An architect without an ideology (as destruction and change would have destroyed what was previously known) will know that inventiveness, acuteness of perception and compassion are important skills to have to enable them to adapt to the new dynamism.

Let it go –

The architect must learn to let go of history, but not forget it. To learn to love history for the forms and hope it offers, but it must not revere it like a religion by elevating it into such high importance. To preserve history allows the past to pervade into the present preventing us from moving forward. Architects must be able to love history, to change the remnants of history and transform them in a way that they become disposable remnants for the future.

Challenge old ideas of shaping space, thus living

After destruction it is not possible to simply restore ones old way of living. It is important to keep the spirit of invention alive as it makes the prospect of survival possible. Without inventiveness and adaptability man would not be able to survive extreme conditions. The dynamics of change and destruction does not always mean that construction is eliminated, there is always an interplay between construction, change and construction after the changes.

The architect is the designer of space, not living as habitation and how one “habitates” a space is according to one’s personal autonomy. The architect codifies the understanding of space, only with references to habitation. The spirit of invention demanded by the transformation of our world thrives best in spaces that have been created by invention.
Recycle, re-form

Rather than collaging materials left by destruction and change, the architect must be able to transform and metamorphose the materials and intellectual detritus into the genuinely new. To see the old as it has never been seen before and the technical practicalities should follow.

Be political, not ideological

Design heterarchy of spaces, not hierarchy of space

“heteros” has become the rule “arche”, because each self has become an “other” in the dynamics of change. Therefore the city is constantly in the process of change and spaces are just a sequence of patterns unfolding without a pattern.

Speak and write

Draw

Seek plasticity

Draw architecture as though it were already built

Build architecture as though it had never been drawn

Create the vernacular, not monuments –

In the ruins, there is nothing left to symbolise or express. Architecture freed by destruction from having to codify meaning and purpose allows it to become an individual. Purpose and meaning is achieved through the rejection of the past codes.
Make great plans, realise small ones –

Comprehensive ideas nourish small ones, the architect should re-design or design the whole city and therefore the building, the room and the chair are comprehended from the whole.
28 scab

29 injection

30 scar
Gordon Matta-Clark’s work provides a dialectical compliment to the expenditure of buildings by society. Through the use of “non-production” methods as artistic social play. He uses structures and sites that are approaching social exhaustion in order to expose their possible potential for reclamation, a retrieval of lost spaces or a re-imagination of a lost community. “only our garbage heaps are soaring as they fill up with history” Matta-Clark believed that because of society’s focus on progress and the future, our past and history is being thrown away or erased from memory. In his destruction, he brought awareness back to the past the history despite the short term existence of most of his projects as they were always condemned buildings.

In Splitting Matta-Clark wanted to expose the temporality in architecture by the stripping the house of the debris left by its former occupants. The splitting open of a domestic dwelling is a criticism of America’s suburbia, destroying the iconography of the security, stability and the permanence of architecture and the home.

Bingo deals with the cult of privacy and notion of seclusion within suburbia. From the beginning of American colonisation suburbia has always been viewed as second cities separated from the realities of industrialisation and the urban landscape of the city. The exposure of the internal environment of the domestic house aimed to blur the boundaries between the public realm and the private realm.

Gordon Matta-Clark works are mainly in the realm of sculpture and art. However, his approach to architectural sculpture can be applied to an architectural intervention to the terrain vague which in this project are a group of abandoned buildings. His use of splits and cuts as a means of exposing the internal qualities of abandoned buildings in America, through this exposure a cross section the building is presented to the viewer like a sectional drawing. In doing so, it exposes its potential for use and the relationships of every space vertically and horizontally. The exposure of the internal environment within the terrain vague blurs the boundaries between what is private and public visually thus making the site more prominent. Its exposure will allow people to see the potential as well as opening up for more exploration and use.

Map defining the Central Business District of Auckland City, supplied by The Auckland Council. The coloured sections defines the areas covered, and the potential sites for this project.
Disconnection is one of the causes and definition of “Terrain Vague” it is disconnected from the urban fabric often because its functional design is unable to be adapted into a different use once its original use is obsolete. Thus leaving gaps within the urban fabric that eventually develops into a ruin where the wilderness takes over. It is often overlooked because of the negative perceptions associated with decay, disconnection and disuse.

Obsolete: no longer in use, or useful.

In the defining the terrain vague, obsolete spaces can be seen as the areas that are not used at all, hardly occupied by people and used in a way that does not contribute to its surrounding environment.

Another quality of terrain vague often found in buildings or sites that have been designed for a specific function. The site then becomes dysfunctional when the function it has been designed for is removed from the site. These sites often fail to be adapted into a different function thus becoming dysfunctional. Technology is also another contributing factor. As technology develops, buildings that were designed with an older “fit out” become outdated and it becomes an obsolete building by choice, owners often cease the maintenance of these buildings as the cost is greater than the economic return.

Upon surveying and visiting the potential sites, various degrees of obsoleteness were found. These were then assigned to a corresponding letter:

A – Spaces that are not used at all
B – Residual Spaces and Interstitial Spaces that are overlooked as useful spaces
C – Service Areas and Back Alleys
These areas are often overlooked under-designed as these spaces will be able to provide a combination of different functions that contributes to the surrounding environment.
D – Spaces occupied by people less than 8hrs a day.
8 hours was used as a gauge as it is the conventional working number of hours for a person to stay in a space within a business, study and living situation.
Abandoned: to leave completely and finally; forsake utterly; desert

In defining the terrain vague space can still be in use although minimally, they have been forsaken in terms of maintenance and care thus allowing nature to take over without resistance. Like the process of becoming obsolete, abandonment of a space is done intentionally or through its dysfunction.

Various degrees of abandonment were found within the sites surveyed around the Auckland CBD. A scale of 1-4 has been used to compare the differences:

1 – Abandoned and unutilised spaces
2 – Minimal use (only a part of the site is used)
3 – The space is occupied by people for less than 8 hours a day
4 – A fully utilised building or space
7.3 AUCKLAND CITY CBD
THE STRAND TRAIN STATION
SITE ANALYSIS

http://www.aktnz.co.nz/2010/08/05/strand-emergency-stop-confirmed/

OBSOLETION: D
ABANDONMENT: 2
The Strand Train Station Platforms were formerly the Auckland CBD's main port of transport. It was the platform for trains coming into the CBD from the Western Line and the Eastern Line. However, since the development of the Britomart Transportation Station, it has been left abandoned and unused. The site is a terrain vague as its location is at a pivotal point between the CBD, Parnell, The Auckland Ports and Mission Bay. Developments around the site are also minimal as the area is still along the train route making it hard to build residential areas. The site is also bordered by two main roads, Quay Street which is mainly a vehicle street and unoccupied by pedestrians for most of the day, and The Strand in Parnell. The site is currently occupied as a car park and recently the train platforms have been reopened as an emergency platform area for The Rugby World Cup on September 2011.
7.3 AUCKLAND CITY CBD
AUCKLAND CITY WORKSHOPS
SITE ANALYSIS

OBSELECTION: D
ABANDONMENT: 3
The site was formerly the Auckland City Council Workshops, where the bus depot was originally located. It is a terrain vague as the building is now abandoned and is currently listed for demolition to make way for a new mixed-use development. It is currently occupied as a car park during the day and lies empty at night. The site is located between the Auckland CBD and the Victoria Quarter. It is also within close proximity to the motorway as Nelson Street is one of the main gateways into the CBD from the Western Motorway and the Southern Motorway.
7.3 AUCKLAND CITY CBD
NUMBER 20, SHORTLAND STREET
SITE ANALYSIS

OBSOLETION: D
ABANDONMENT: 2
Two terrain vague sites that are within close proximity to each other. Number 20 Shortland Street is an empty lot that is currently undeveloped, occupied as a car park day and night. The site is missing tooth as it is between two high-rise buildings. It is a double ended site having access points by foot from Shortland Street and the car entry located on Fort Street.

The Fort Lane site is a small street being used as a thoroughfare to get from Fort Street to Customs Street. It is also where the service entries of the surrounding buildings are located. However, recently the Imperial Lane complex has been opened connecting the lane to Queen Street. It is also frequently occupied by people at night as they socialise outside the clubs that are open at night.
There are two major damages in concrete that causes it to deteriorate, concrete spalling and cracking.

Concrete spalling is when the surface layer of concrete erodes to expose the internal steel structure system, this is usually caused by poor curing times and poor quality concrete used which therefore allows water to penetrate and corrode the metals.

Concrete cracking is caused by the expansion of the steel rebars within the concrete thus causing the surrounding concrete to crack and allow water penetration.

Weathering also affects the quality of concrete especially in the winter season, when the water within the cracks freeze, expand and thaw which has the same effect as salt and chloride. Typically concrete has an expected life expectancy of 50-60 years.

Concrete is a porous composite material, it is made out of aggregate which can be of limestone, sand, gravel or recycled concrete and a binder which is the cement paste. The cement paste used in concrete is also an alkali and therefore anything of acidic property will be able to erode the binder and expose the aggregate.

Water does not actively erode the concrete binder but the salt and chloride in the water causes efflorescence and steel corrosion.

Efflorescence is the deposit of soluble compounds carried by water onto the surface of the building. These compounds are mainly salt and chloride carried by the wind, in the aggregates used or present in the ground base of the concrete structure. Although at first it appears to be harmless white residue on the surface, when left unattended the salt crystals hard and bond to the concrete's surface causing corrosion of the surfaces.57

Corrosion is also another factor that causes extensive concrete damage especially in steel reinforced concrete. It is important that the steel reinforcing within the concrete is protected and embedded in adequate concrete to prevent exposure to the elements.58

Corrosion is not only caused by water penetration, additives in the concrete mixture can also cause steel corrosion. An example of these negative additives is Calcium Chloride it was introduced as an additive agent in concrete as it made curing time faster for concrete which was especially useful in low temperature construction and pre-casting.59 However, in the 1960’s it was discovered that the chlorides increased the risk of concrete corrosion as it attacked the oxides that protects the steel reinforcing. This then allows water penetration through the cracks and the pores in the concrete to cause further damage.

58 Ibid.
59 Ibid.
39 Spalling

40 Corrosion
level 0
level 2 & 3
short section (Albert Street frontage)
short section (Federal Street frontage)
exterior perspective (Albert Street frontage)
interior perspective (Seed Bank)
7.4 Final Presentation
Projected Development Over Time

Year One

Year Ten
7.4 FINAL PRESENTATION
MODEL
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1. Auckland, Archives, Series Number: ACC024, Box 9, Item 9e, Record ID 556108.


9 IMAGES
All images in this document has been produced by myself, unless otherwise stated in the document list as follows. In order of appearance:

Cover Image: Ennos, Roland, 2011, Solid Biomechanics


10. Landschaftspark, landschaftspark.de

11. Landschaftspark, landschaftspark.de


29. Woods, Lebbeus, Injection, Radical Reconstruction. pg. 81

30. Woods, Lebbeus, Scar, Radical Reconstruction. pg. 75


33. Matta-Clark, Gordon, Bingo, Gordon Matta-Clark. pg. 87

34. Matta-Clark, Gordon, Bingo, Gordon Matta-Clark. pg. 89

35. Matta-Clark, Gordon, Days End, Gordon Matta-Clark. pg. 17

36. Matta-Clark, Gordon, Days End, Gordon Matta-Clark. pg. 10


40. Loughram, Patrick, Concrete Corrosion in Failed Stone: Problems and Solutions with Concrete and Masonry. pg. 92.