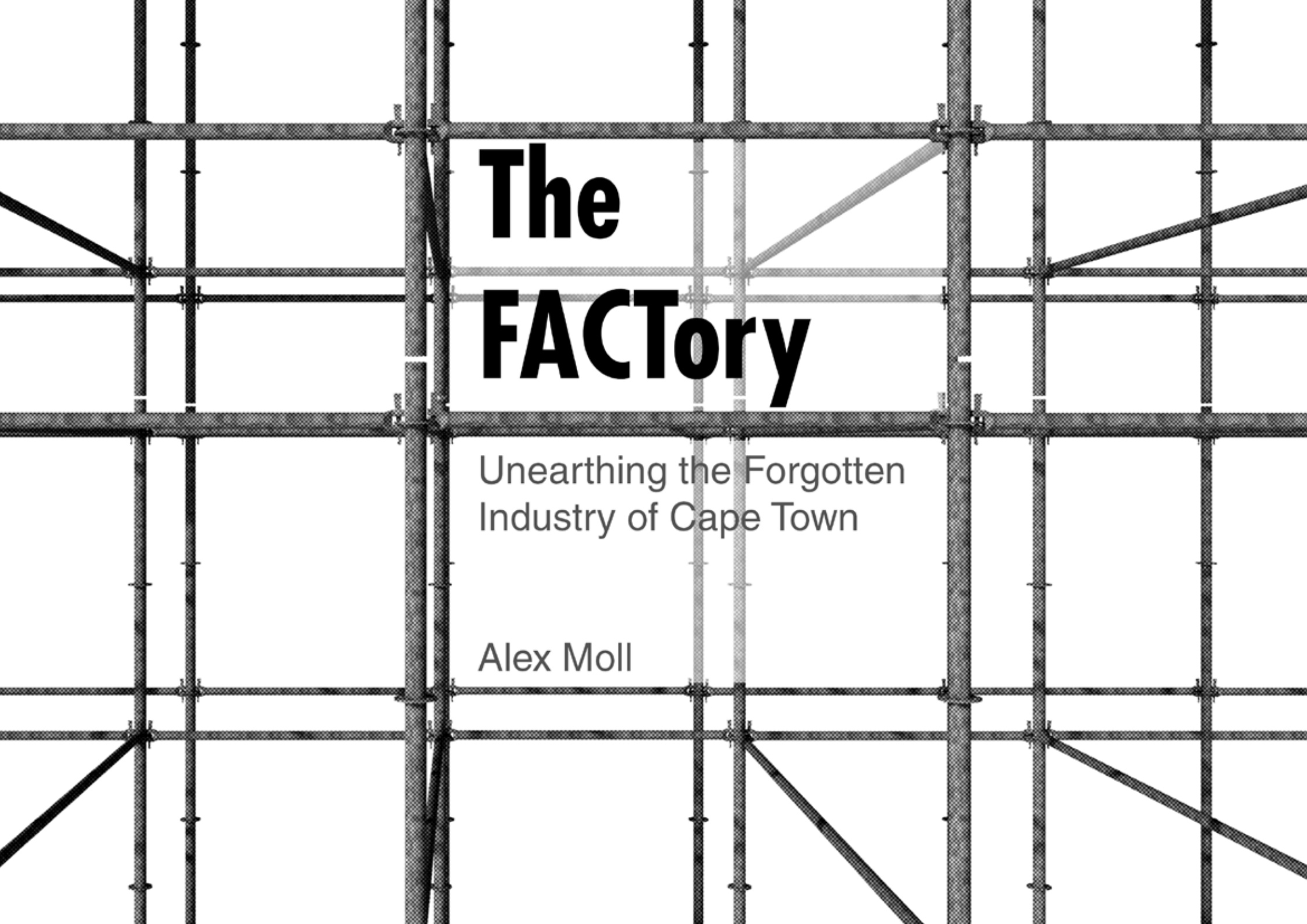


The FACTory

Unearthing the Forgotten Industry of Cape Town

Alex Moll

The FACTory: Unearthing the Forgotten Industry of Cape Town

Alex[andra] Moll

This dissertation is presented as part fulfilment of the degree of Master of Architecture (Professional) in the School of Architecture, Planning and Geomatics, University of Cape Town

06 November 2017

"I hereby:
a. Grant the University free license to reproduce the above dissertation in whole or in part, for the purpose of research
b. Declare that:
i. The above dissertation is my own unaided work, both in conception and execution, and that apart from the normal guidance of my supervisors, I have received no assistance.
ii. Except as stated below, neither the substance or any part of the dissertation has been submitted for a degree in the University or any other university
iii. I am now presenting the dissertation for examination for the degree of Master of Architecture (Professional)"

Plagiarism Declaration:

i. I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own
ii. I have used the Chicago convention for citation and referencing. Each contribution to, and quotation in, this report from the work(s) of other people has been attributed, and has been cited and referenced
iii. This report is my own work
iv. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work

Signature 

ETHICS APPROVAL

The research for this dissertation has been approved by the University of Cape Town Ethics Board

Plagiarism Declaration / *ethics approval*

Fig 1. Site Photo

Acknowledgements

The FACTory
Unearthing the Forgotten Industry of Cape Town

Convenors:
Associate Prof. Nic Coetzer (Semester 1)
Melinda Silverman (Semester 2)

Supervisors:
Stella Papanicolaou
Mike Louw

Firstly, I would like to thank Stella and Mike for their continual support and encouragement.

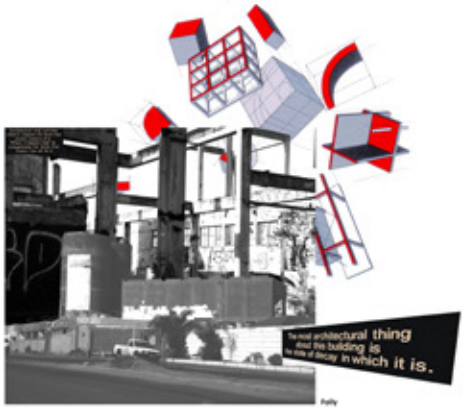
Thank you to the University of Cape Town, for financial assistance.

Thank you to my fantastic studio group, who in equal parts offer advice, support and fun.

Thank you to my editor, my sister Tyla, for catching all my horrific spelling mistakes and not laughing too loudly at them

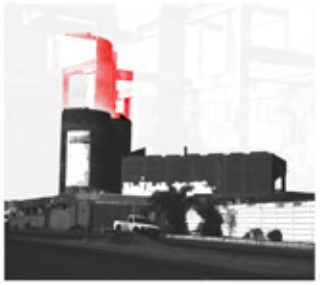
And lastly, thank you to my amazing parents. The word limit on this dissertation doesn't allow me to list all the ways in which they've helped see me through this degree. Thank you for every which way you have helped me not only this year, but through my entire academic journey. Thank you for all the creative advice I have stubbornly not taken, and for all the emotional support, be it in person, or over the phone at an unearthly hour.

I dedicate this dissertation to them.



Folly

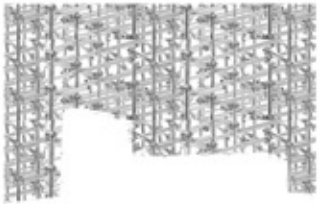
Industrial Archaeology



Landmark

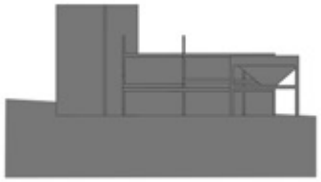
Material Layering

Relic as Museum



Ghost

Problem Building



Abstract

Found Space

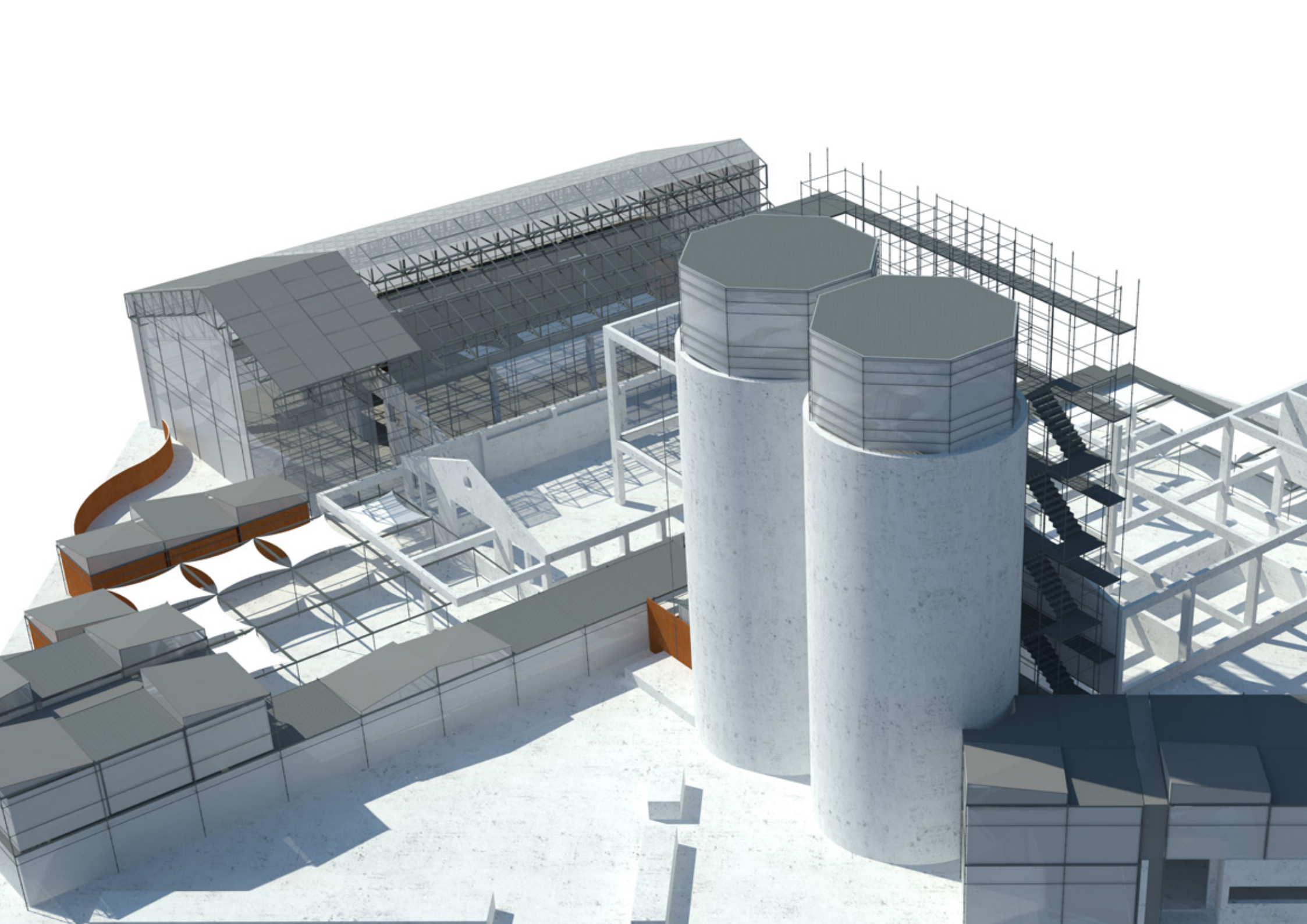
Fig 2. Collection of collages

“Time and the materiality of the past, in the present”

- Nick Shepherd, Ruin Memory: a Hauntology of Cape Town

“What a tremendous, marvellous place it was!”

- Charlie and the Chocolate Factory



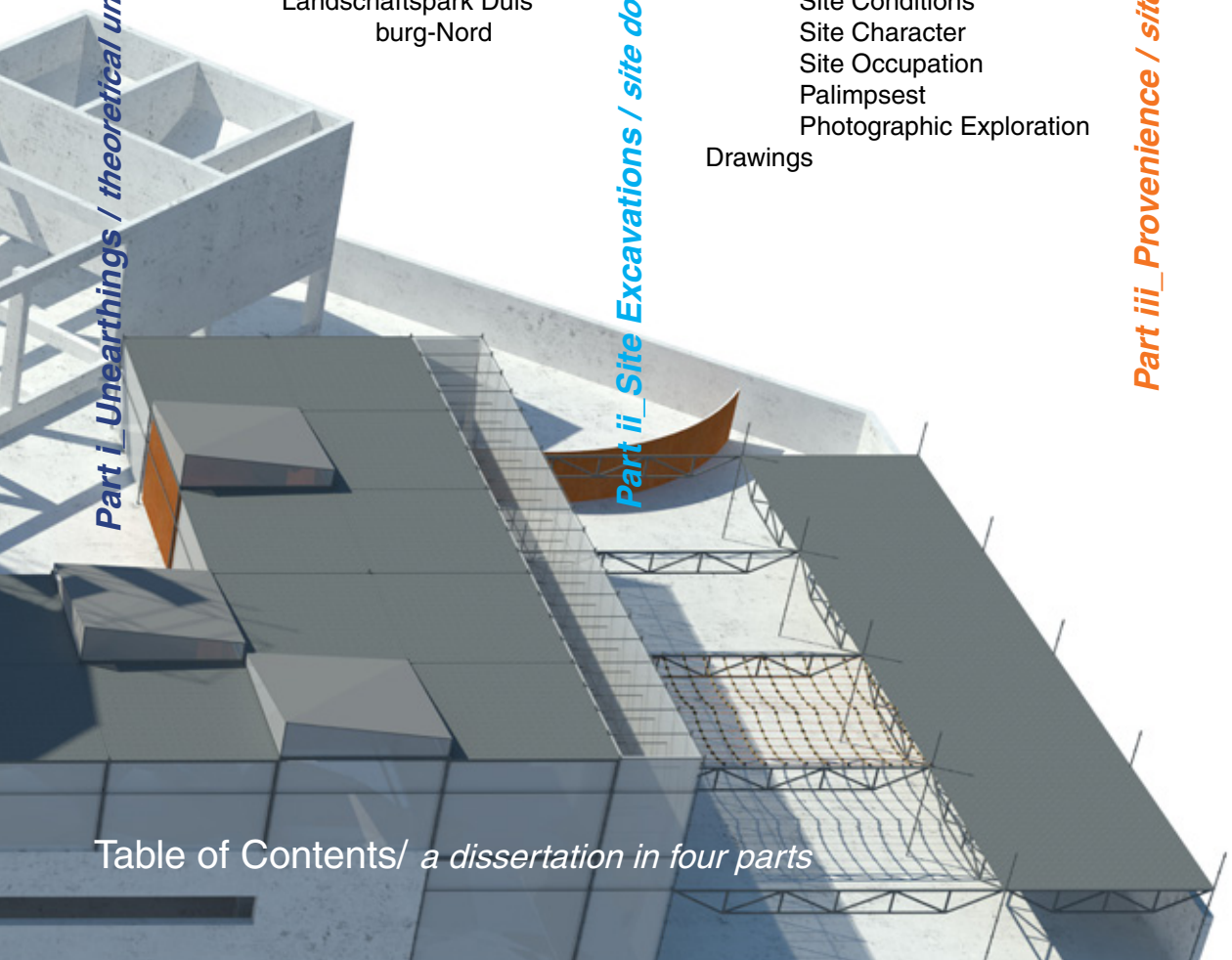


Table of Contents/ *a dissertation in four parts*

Fig 3. Early rendering of site

Architecture is defined by the actions it witnesses as much as by the enclosure of its walls. Murder in the Street differs from Murder in the Cathedral in the same way as love in the street differs from the Street of Love. Radically.

Problem Building

Table of Figures/ *and graphs*

Relic as Museum

The FACTory is a research-based design project which explores the synergy between the material and the memory of a site of former industry.

The setting for this scene is an abandoned concrete works in Salt River, Cape Town; which has been left to deteriorate. This dissertation proposes that, through a new architectural intervention, the concrete ruin can be assisted in telling its own story. This is a project in which the existing found object will uncover, narrate and reclaim its own industrial past, through its reprogramming, and will act as an urban catalyst within its otherwise stark context.

Industrial Archaeology is the study of material evidence associated with the industrial past, and the heritage significance thereof. It is the documentation of the tangible and intangible. It is the reason a new construction method can have both material and memory value. It is a lesson that can be applied to architectural projects. Cape Town has a haphazard approach to the preservation of its industrial memory, and this project could identify a new approach in dealing with that.

Through the introduction of a series of temporary spaces, *The FACTory* will reprogramme the site into a hub of educational leisure which unearths the industrial history of the site through haptic moments. In an area of the city which is almost certain to be regenerated in the not too distant future, this intervention will see itself as a single moment in the site's history.

Abstract / *keywords* / *programme* / *site*

title: the title of this dissertation is a play on the industrial nature of the site, as well as the idea that the reprogramming introduces an element of learning and education to the site. It also hints at the archaeological nature of this project, by referencing the artifact.

keywords: industrial archaeology
material | memory
learning | reclaimation

programme: A centre for educational leisure

site: abandoned cement works, salt river
33°55'32.3"S 18°28'19.7"E

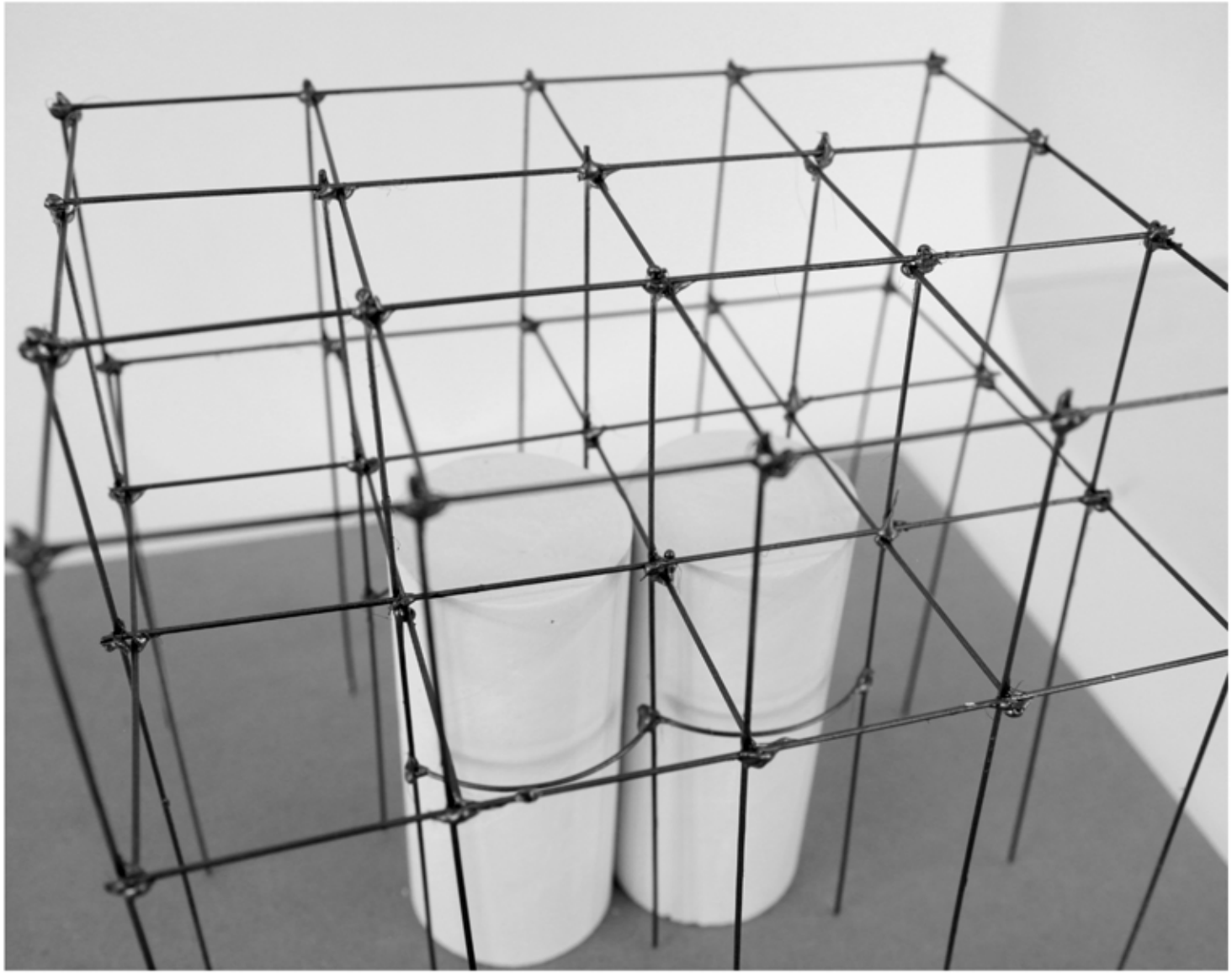
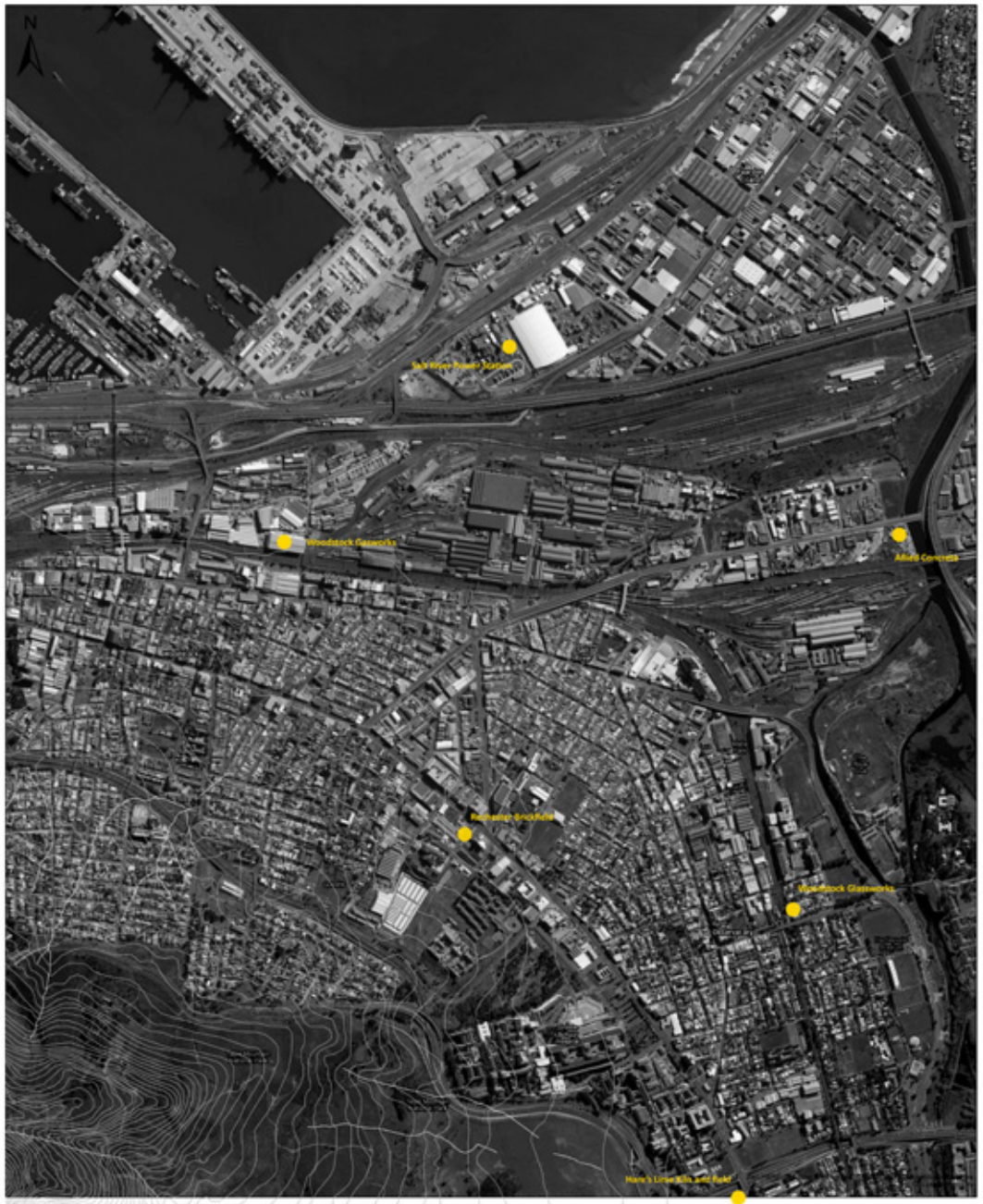


Photo of model showing a new relationship between structure and support. The plaster work, which represents the existing architectural object gives form to the new intervention. This was the beginning of an idea to overlay a scaffolding grid system over the existing ruin, which would be tested further along in the design process.













Historic Industry buildings within the city limits


Existing traces of industry




Fig 7 + 8. First Mapping Exercise

This project began with a mapping exercise that sought to uncover and record traces of the industrial history of Cape Town. This was short-lived, however, as it quickly became evident that large moments of this history had been erased, living only in memory- rather than in the physical. I found this to be an intriguing discovery, and one that seemed highly relevant in the conversation between Adaptive Reuse and heritage, which deals with the fine line between preservation of the existing and the alteration of it. Many projects deal with memory in the abstract, and this discovery hints at one of the reasons why. My intention however, was to find a site that still had traces of the physical memory of industrial history, within the city limits.

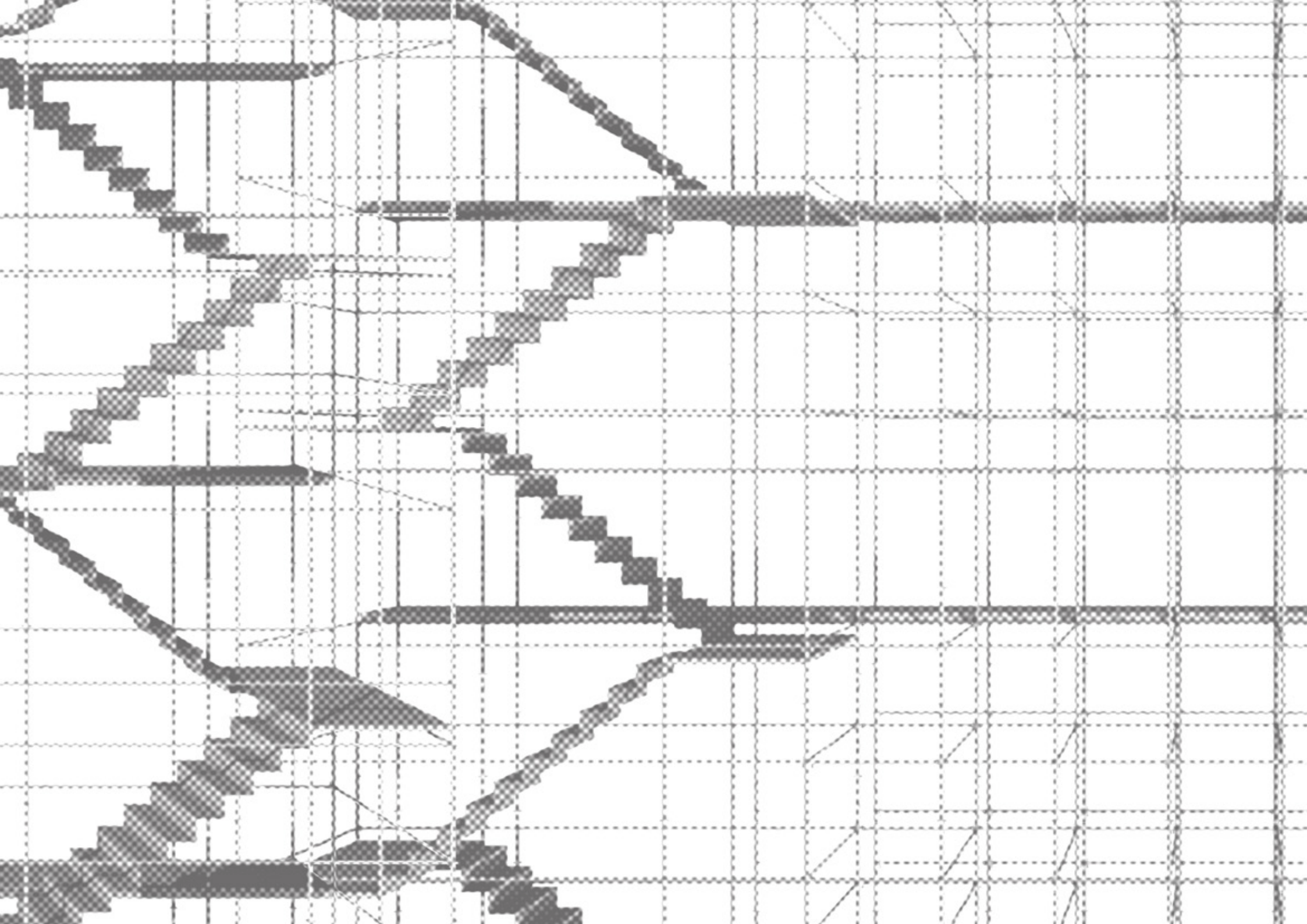
While there are many realistic and practical applications for Adaptive Reuse projects (issues that revolve around sustainability and embodied energy), there is an inherent romanticism to the concept, which when paired with notions of heritage, can lead to powerful projects, full of meaning. Adaptive Reuse involves an investigation into history - whether it is the everyday history of a house, or the monumental history of a civic building. It processes that history, understands what that means for the present, and adapts it for the future. It distinguishes and preserves the significant, quite plain and simply put.

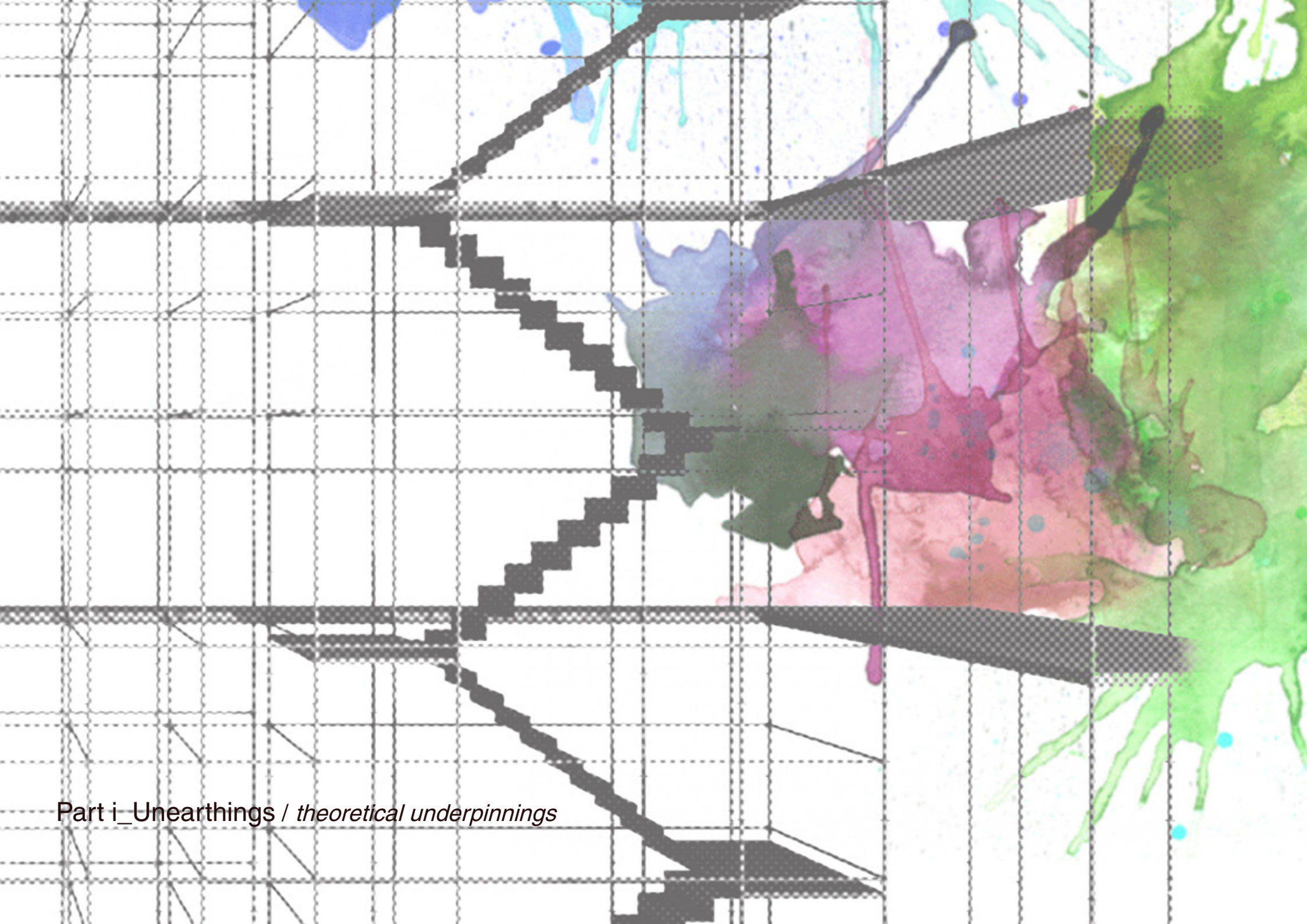
This dissertation will focus largely on exploring an architectural project that applies the understandings brought forward through the study of Industrial Archaeology, which is the material study of evidence associated with the industrial past. I have an interest in the relationship between the material and the memory, which this project will attempt to prove- can be a symbiotic one. This will manifest itself as a series of temporary spaces, rooted in the existing site, which will aid the existing architectural object- in presenting its industrial history. The makeup of these spaces will be through the introduction of a new material onto the site – which itself has memory value harkening to both the site's programmatic history as well as that of the industrial (in this case, the construction industry and the technologies still used).

But I am getting ahead of myself. Before we can speak of any physical manifestations of site, it is paramount we review the theoretical underpinnings of this dissertation. While Industrial Archaeology is our primary instructor, this project will also explore the ideas behind what we consider to be heritage in a post-colonial South Africa. It will examine what clues can be extracted from the relic, and the formation of industrial sites for adaptive reuse. We will look at what makes a 'Site of Manufacture' and a 'Manufactured Site', which will lead into the idea of 'Found Space'. Rounding this section off will be a brief thought piece on silo architecture and the Iconic, with specific mention of the newly completed Zeitz MOCAA Silos at the Waterfront and the Old Biscuit Mill, in Woodstock, and how these projects interplay between being adaptive and iconic in their design. To summarise our understanding, specific reference will be given to the Landschaftspark Duisburg-Nord by LATZ + Partners, as a theoretical precedent, which also introduces us to the term 'Post-Industrial'.

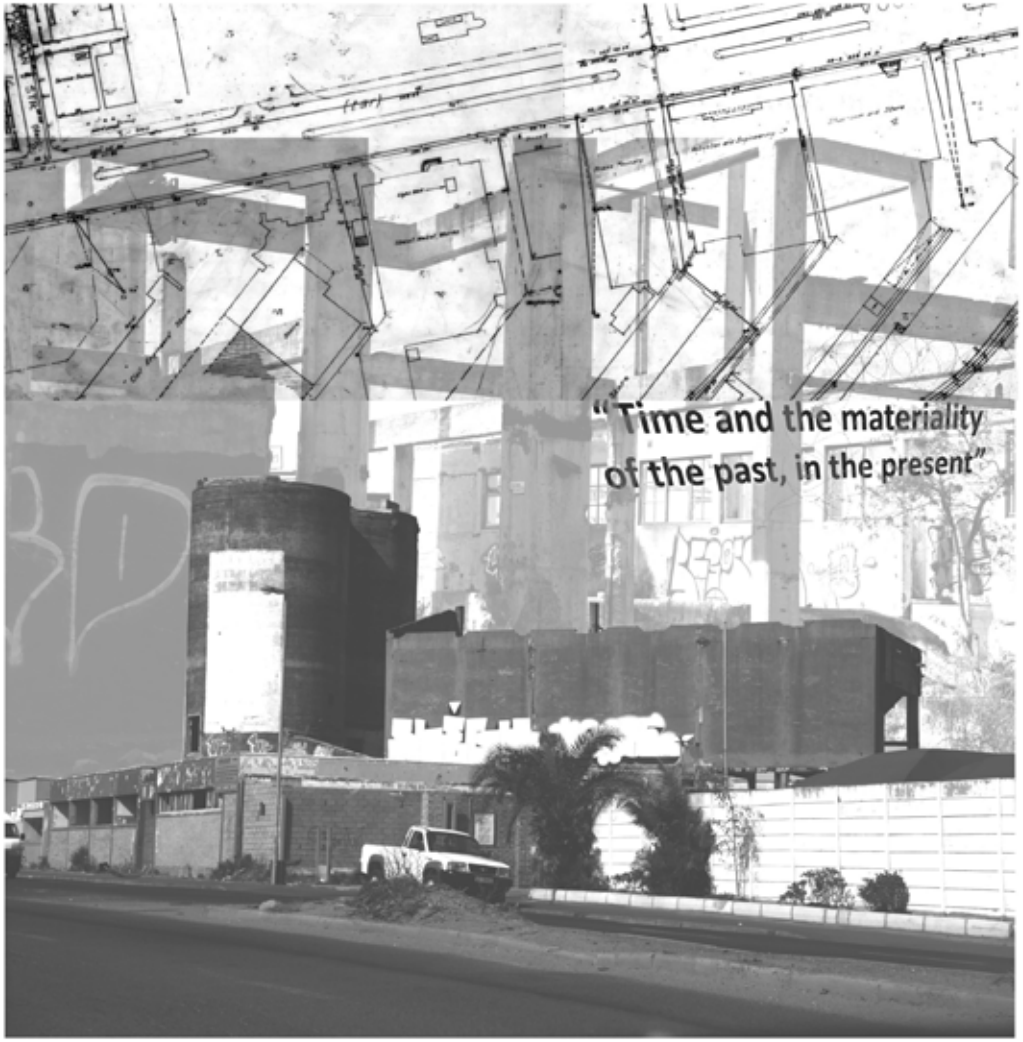
Following this, we will delve into site excavation through the exploration and analysis of site, starting at the macro scale of the Salt River/Maitland boundary, down to street level, down to the existing site conditions. Site and area history obviously play a large role in this project, which will be explored through found drawings, plans and surveys. From here, this dissertation will introduce the new architectural intervention, through the conventional exploration of urban strategy, programme and a few programme precedents. This will be concluded by the technological development and exploration of the new intervention system, namely that of modular scaffolding, which culminates in a design (that is in progress) which relates to the site's past, as a temporary moment of its present, and the starting point for the future.

The work within this dissertation is split into four sections, each described using an archaeological term. 'Terminus post quem' refers to the earliest time an event may have happened – it is the starting point for the future, in relation to the past. And within the extents of this exploration, my design intervention is that point.





Part i_Unearthings / *theoretical underpinnings*

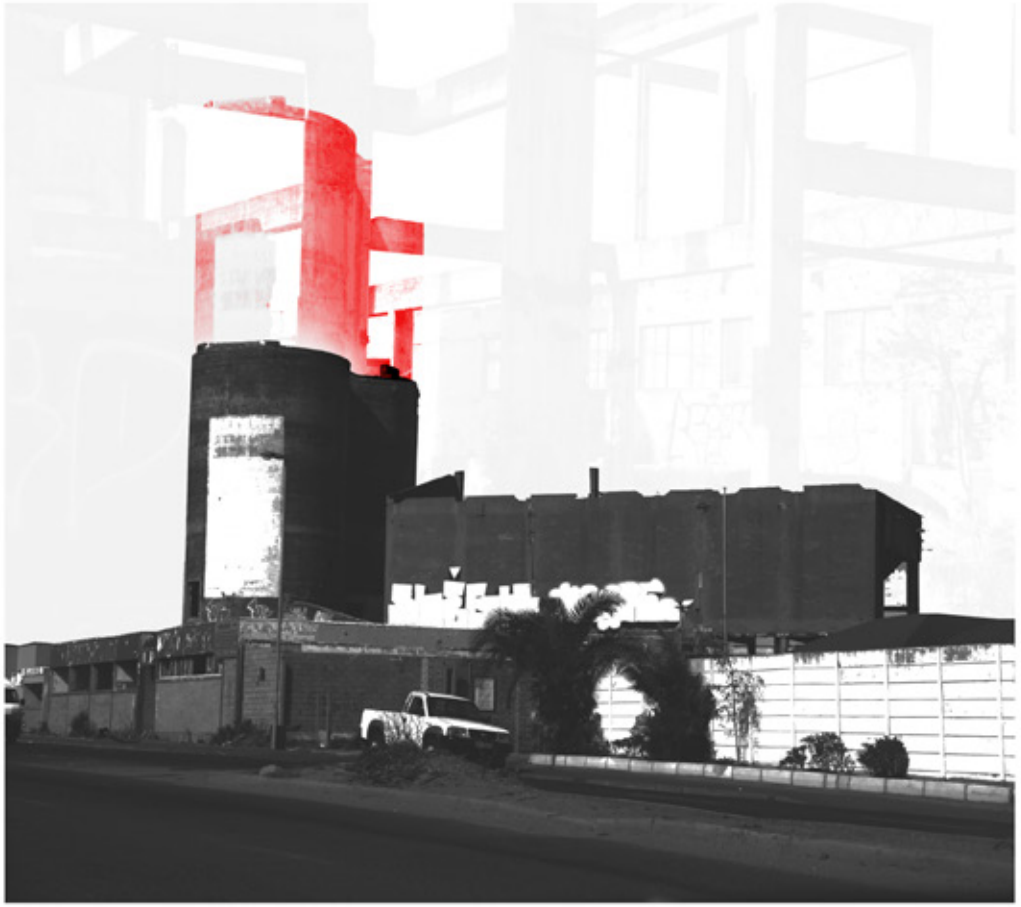


Industrial Archaeology

Industrial Archaeology is, as I have said before, the material study of evidence associated with the industrial past, and its heritage value. It is on the boundaries of the arts and sciences, as well as being a social science. It is a little bit of everything, and that is why collaboration between professions is so vital in projects of Industrial Archaeology. While the concept originated in Britain and was initially related only to the study of artefacts and buildings of the Industrial Revolution, it has morphed into a general term relating to findings from any industrial artefact from the past, in most (but not all) cases. For a time, the majority of these fell within the time frame of the Revolution. This has seen much debate, and many contemporary examples of industry do not seem old enough to be archaeology, but both this subdiscipline and its concepts are open to discourse, and alteration of thought. And this is the case of Cape Town – most of its examples of industrial archaeology are from the last century, and do not seem of industrial importance due to their modern sensibility. What started as a hobbyist's approach to cataloguing tangible objects, evolved into a more serious study of industrial artefacts in their entirety - including both the tangible and intangible, the material and the social history, and understanding the experience of work.

While there is much debate about what period Industrial Archaeologists cover, so there is debate about *what* they cover. As stated above, the discipline has slowly grown from a cataloguing exercise, to one of academic thought and research, but this can be pushed further. In *Industrial Archaeology: Future Directions*, author and research fellow, David Cranstone, is invited to present his thoughts on the future directions of industrial archaeology, with the contentious position that it is an outdated term, and offers no future directions. I will not be engaging with this proposition here, but will rather look at one of the more poignant points Cranstone makes. Whether we call it 'Industrial Archaeology' or something else, the fact remains that the studies of industry in all future endeavours should explore (both in scientific data gathering and a social sciences approach of more cognitive research) the historical archaeology of invention, innovation and technical development [Casella and Symonds, 2005: 87]. There is a dialogue between the historical record of what people said, and the archaeological record of what people did. The other important point that Cranstone makes – and this is largely his reticence to continue to use the term Industrial Archaeology, is that industrial history should not be looked at in isolation of itself – whether that be by era, material, record etc. There needs to be an overlaying of historical discovery, with industrial research – because when the two (or more) work in conjunction, a clearer image is produced.

Kate Clark, in her essay about Industrial Archaeology and Heritage Practice, in *Industrial Archaeology: Future Directions*, highlights the fact that heritage can be hugely valuable as a learning resource or as a social resource that actively involves people or '…as part of the environment, and as something that contributes to the economy.' [Casella and Symonds, 2005: 96] Heritage stops being a narrow field of study, to something that has relevance in everyday life. She urges that a blurring of disciplines when surveying a site – architecture, landscape and archaeology - gives you a fuller read of the place, and allows you to read the layers of the site better – seeing where spaces were adapted in the past, for one. Often these are the spaces that have survived the effects of time. The Burra Charter, the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance, talks about the idea of significances – we need to understand why a place mattered, before we discuss how to conserve it. One must identify the formal qualities, the associations (or intangible memories) of the place and finally, what that place's ability is, to demonstrate its significances. The latter is the one we architects should identify with, and find inspiration in.



Landmark

What is heritage? Or more specifically, what is heritage when we refer to it with regards to archaeology or architecture? How do we identify significances? And can one outcome ever satisfy all parties? In *New South African Keywords*, edited by Nick Shepherd and Steven Robins, Shepherd looks at the context of heritage within a new, post-apartheid South Africa - with an exploration, which leans towards the understanding of heritage and archaeology. Shepherd argues that the concept of 'heritage' has changed in the context of South Africa - over the years. Where it used to refer to only tangible examples, we now accept that heritage is less stringent, and covers the ideas of the intangible being a part of our heritage too. Initially, heritage was routed in the cultural, which now seems problematic. This concept of heritage is nostalgic, as it seems to refer to a 'former greatness'. Tying heritage to culture also brings forth questions of whose culture, and a separation of ethnicities and identities, which starts to drift into a nationalist notion of heritage. In the last two decades, the concept of heritage has shifted between that of the culturally routed, to one where heritage is 'always in motion' [Shepherd and Robins, 2008: 123]. It's tied to the present, but opens itself up to be exploited for commercial gain, or to become gimmicky, as such the example Shepherd provides, the V&A Waterfront. Heritage starts to merge with tourism, which in itself is not inherently a negative thing, and could form its own research topic entirely.

SIDE NOTE: As a proponent of the positive impact of heritage and tourism, in the book *Loose Space* it is argued that, [on industrial ruins and informal tourism]: 'The contrast with the highly regulated and commodified landscapes of contemporary tourism draws individuals and groups to explore ruins where they may conjecture and imagine what which they behold' [Franck and Stevens, 2013: 247]

Shepherd also states:

'… the notion of heritage hovers uneasily between individual and collective conceptions of history. It also sits uneasily between past and present. Heritage is of the past in the present, but the exact nature of this relationship seems unclear.' [Shepherd and Robins, 2008: 117]

In a post-colonial South Africa, Shepherd comes to the conclusion that heritage is perhaps somewhere between the two extremes stated above. We still recognise that heritage is rooted culturally, yet it is also constructed. Heritage is a place for discourse. He warns that heritage just is – there is a danger that, much like the museum effect in which 'ordinary things become special when placed in museum settings' [Kirschenblatt-Gimblett, 1991: 410], claiming something as being of 'heritage value' can exaggerate its level of importance. Heritage opens us up to discussion and opportunities to re-examine concepts and ideas relating to our shared past and future. It is a tool for learning.

Material Layering

Theory / *'site of manufacture' or 'manufactured site'*

Siting a project is no small feat, and when engaging with the themes of Industrial Archaeology, it seems pertinent to look at what an industrial site could entail, or whatmay offer, thematically. Niall Kirkwood's book, *Manufactured sites: rethinking the post-industrial landscape*, explores the ideas of the post-industrial era of design – largely in terms of landscape and rehabilitation, but with reference to architectural ideas also. He introduces to the reader - the idea of the manufactured site.

There are three types of manufactured site:

1. A site whose present condition is a result of manufacturing and industrial processes. These conditions become their identifying and prevailing character [Sites of manufacture]

2. The presence of an environmentally-challenged site and the relationship to processes used to clean up these conditions [Manufacture of sites]

3. An interdisciplinary approach to reclaiming sites altered by industrial activity. [Manufactured sites as an integrated redevelopment process]

[Kirkwood, 2003: 1-11]

In the case of Manufactured Sites, the 'Post-Industrial' as a concept refers to a specific movement in Landscape Architecture to inhabit sites of an industrial nature - which no longer serve their purpose, and to give them new meaning and life through the introduction of landscape design, which often leaves the industrial artefacts untouched. This can apply too - to an architectural approach, whereby the architectural intervention can be introduced while leaving the remnants of the past intact, with a legible difference between the old and the new. It is perhaps more of a synthesis between the two, but conceptually - can yield a similar result.

Found Space

Which brings us to the concept of ‘Found Space’. While ‘Post-Industrial’ describes the specific nature of a certain space, ‘found space’ is a more holistic understanding of the quality of the specific space. Often associated with theatre or performance, ‘found space’ is space which can be stripped of its initial purpose, which has the potential to be used for a difference purpose. The reason this space is appealing to the new user - is the spirit or character this found space has. What theatre-makers call ‘ghosts’, and architects call ‘Genius Loci’. It is that unique feeling or energy that creates the atmosphere. An example of this, is the Infecting the City Festival held annually in Cape Town. Performers take over the city with art that is freely accessible to the public. The range of works is all site-specific. Sites including everything from the central Train Station, to the Long Street Baths, which serve the purpose of backdrop (often) as subject matter as well.

Another interpretation of this, is from the book *Loose Space*, in which Leanne Rivlin defines ‘found space’ as ‘places intended for other uses that people have occupied to meet their public life needs.’ [Franck and Stevens, 2013: 38] There’s a sense of discovery to these spaces. These spaces give people the freedom to decide how to use them, and often offer them the perfect opportunity for just that. Because utilising found space means that one is using the space not as it was intended for, people are free from the usual rules or expectations associated with formalised public space. There is a freedom of choice.

For the sake of brevity on such a large subject, I will be referring to two examples of local Iconic architecture. Both of these projects are silos conversions, but at two different scales. I am equating the Iconic with landmark architecture, an easily identifiable piece of architecture, rather than something that is necessarily 'ground-breaking'.

The first project is the Zeitz MOCAA, in the waterfront of Cape Town. Former grain silos, they now house an art museum. One of the major pitfalls of adaptively reusing industrial buildings (and this is in the opinion of industrial archaeologists) is that it take the structure at face value and effectively aestheticises industrial architecture. This being said, I think the Zeitz MOCAA navigates this potential problem masterfully, through the details of the building.

Thomas Heatherwick incorporated some elegant ideas and tricks to preserve the history of the building rather than just giving lip service. The infamous atrium space, carved out of the silos, mimics the shape of a mielie – giving a nod to what was stored in said spaces. The Dust House, an auxiliary space off the main structure, is the only part of the site left relatively untouched – no new paint or plaster, with traces of machinery still there - and is used as an installation room which clearly gives you an idea of what this room used to be like. And then finally, while plenty of the internal machinery has been removed or repositioned in the entrance yard, strategic pieces have been left in place, offering further insight into the operational history of the grain elevator.

In actual fact, I think this project IS an example of Iconic Architecture, especially within the realm of local examples. It is ground-breaking, and it is a project of huge scale. It is easily identifiable, and becomes a landmark in the scattered skyline of Cape Town.

The second example is a much smaller one, and one that is quite contentious in the sense that people have labelled it the 'poster child' of the gentrification of Woodstock. Whether this is true or not is up to debate, but it does strengthen our argument about designing a building that is easily identifiable – because of its imagability, it is being

This page: Fig 13. Zeitz MOCAA
Opposite: Fig 14. Old Biscuit Mill

made an example of. The building in question is the Old Biscuit Mill, in Woodstock. Home to a few small businesses, institutions, retail spaces, restaurants and, of course, the Saturday market.

This building was renovated in two phases: the first phase was an overall renovation of the site – mostly the smaller buildings and the public spaces, leaving the actual silo renovation for a later date. The second phase saw the interior of the silos being completely renovated – the interior walls of the nine silos were removed to allow for functional floor levels. On top of the silos, a new floor was added, built completely out of steel and glass, with an external elevator to the top, which now houses a restaurant. The difference between old and new is very clear with the choice to use a different material, and the shaping of the roof of the top floor references back to the positioning and size of the silos. This is not as subtle an intervention as the Zeitz MOCAA, however their approach to differentiate the new and the old is quite simple and clear.

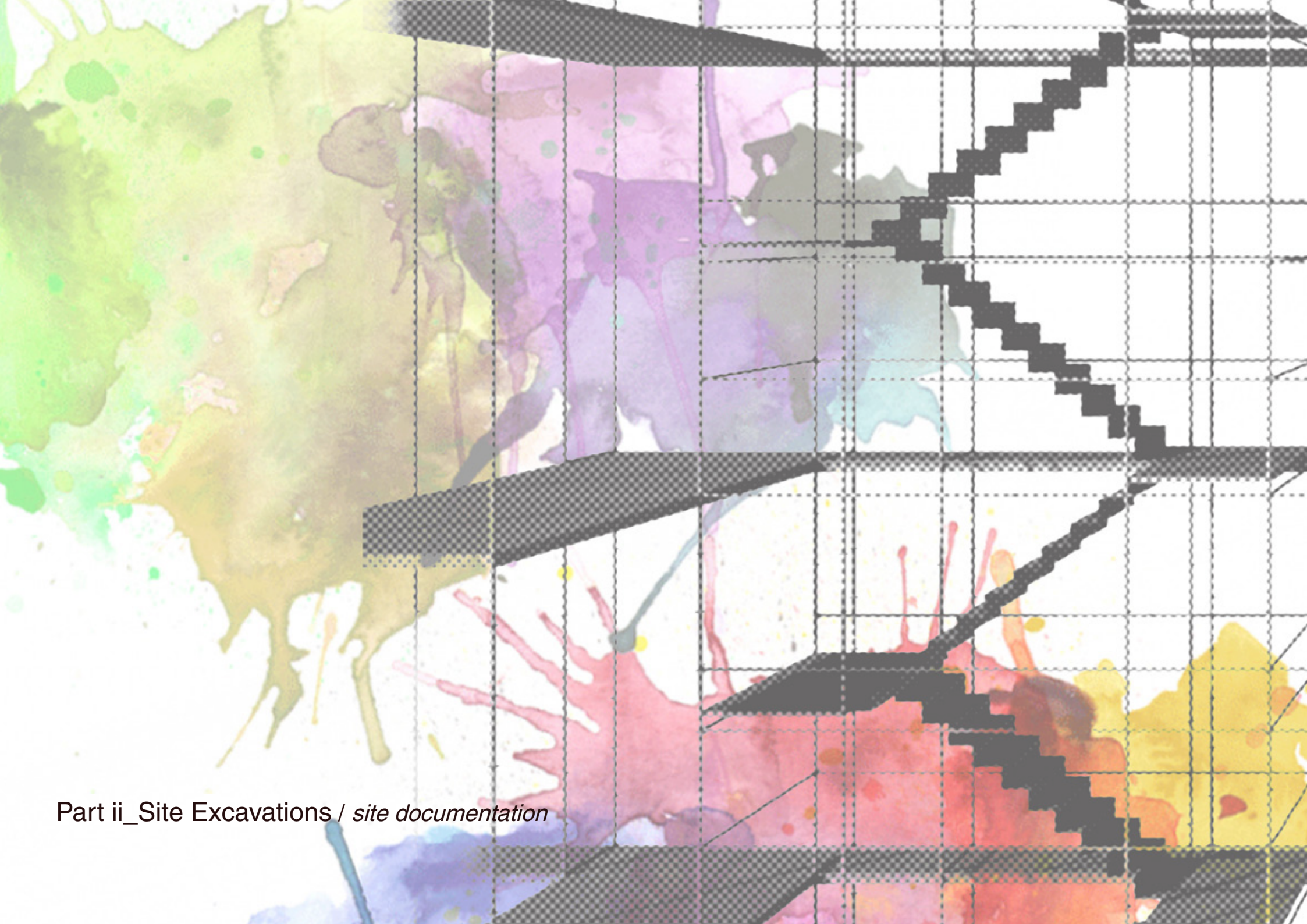
There is an obvious connection between silos having height, and these structures being converted into Iconic buildings. However, silos usually have an interesting relationship with the spaces that surround them, and they tend to form functional precincts. For the purposes of my work, I do not consider either of them as precedents, but rather it is an interesting thought to keep in mind – this landscape of renovated silo projects within Cape Town.

Fig 15-23. Detail images of Landschaftspark Duisburg-Nord
Fig 24. Aerial view of Landschaftspark Duisburg-Nord

In the Emscher district in Duisburg, Germany, an abandoned coal and steel production plant was given new life in 1994. Because of the former industrial nature of the site, the area was left badly polluted. In an effort to revitalise not only the former plant, but the entire district, Peter Latz and his team transformed the plant into a public park, careful not to lose its industrial aesthetic. One of the key concepts of the designers was that of 'utilization of the place and park.' [Kirkwood, 2003: 150] By identifying the unique characteristics of certain structures, they were able to allow them to function in new ways, and add a sense of playfulness. Furnaces become dragons, bunker walls become places to climb, and lofts become caves. Stones which had not been contaminated were ground up to be used as new soil and even concrete. As proof of my earlier comments about found space and theatre, the park also features an amphitheatre. An old transformer serves as a stage building.

Adaptive reuse projects have been around for ages (Latz refers to this, in bleak terms, as the idea to develop the future out of human destruction) [Kirkwood, 2003: 159], but what this project in particular does - is emphasise the importance of memory for reclamation projects – and to imbue the new project with the existing Genius Loci of the site.

This project is considered to be one of the first examples of Post-Industrial design, and still, offers relevant lessons today. Especially within city limits, there is a dire need to convert brownfield or abandoned sites instead of destroying greenfields, and this project goes to show how imagination and abstraction can both work to create new possibilities, rather than seeing obstacles.



Part ii_Site Excavations / *site documentation*

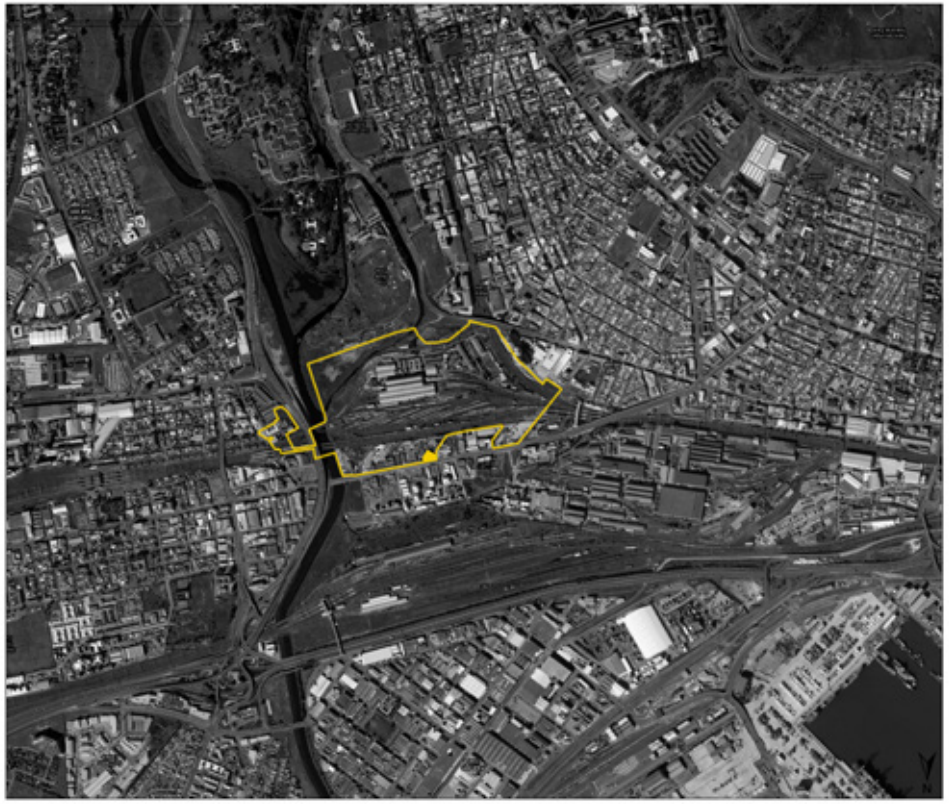
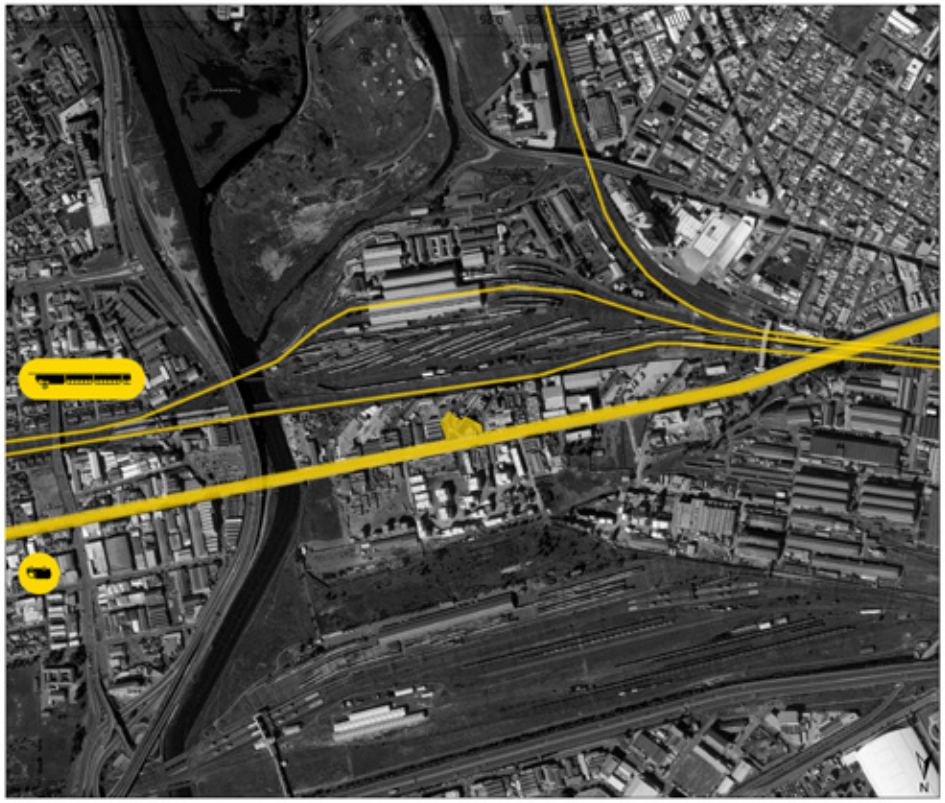


Fig 25-28. Aerial views of Voortrekker Road

The site is owned and managed by the Passenger Rail Agency of South Africa, and has been abandoned completely since 2015. It has been identified as a Problem Building by the City of Cape Town.

These images show the site in its context, at a macro scale. The first image shows the extent of the erf, as per the city's records. My chosen site is a sublet portion of the entire site, and it sits on Voortrekker Road, initially backing onto the railway line too. The extent of the site covers Metrorail, the Voortrekker Road strip (excluding a substation and a few erven) and Koeberg Train station, across the river. My site is indicated by the solid yellow, and sits halfway between the Salt River Circle Bridge and the Black River Parkway.

This image shows the surrounding land uses as a simplified study. We can see the site is surrounded largely by railway land - and the related offices, as well as light industry, such as metal work and scrapyards. Shipping container storage is plentiful in the area too. Not indicated in this image - is the slow adaptation of former industrial buildings on this strip - to commercial use, mainly motor related. Beyond this, to the left is Salt River with a dense residential grid and framework. To the right of the Black River is Maitland, again with its own urban grain. My chosen strip of Voortrekker Road is a stitching element between these two parts of the city.



The site was shaped by its positioning between the major transport routes, as indicated in this next image. Each allotment that sits between Voortrekker Road and the railway line (more on this later), has a front building that runs parallel to Voortrekker Road, which changes orientation toward the back of the site, running at a 45° angle to the railway. The reasoning for this was to allow for the tracks to diverge from the major lines, onto said allotments, for ease of access to materials available on the allotments.

Lastly, this image shows a closer view of the site, clearly showing the relationship to Voortrekker Road, and the lost connection to the rail.

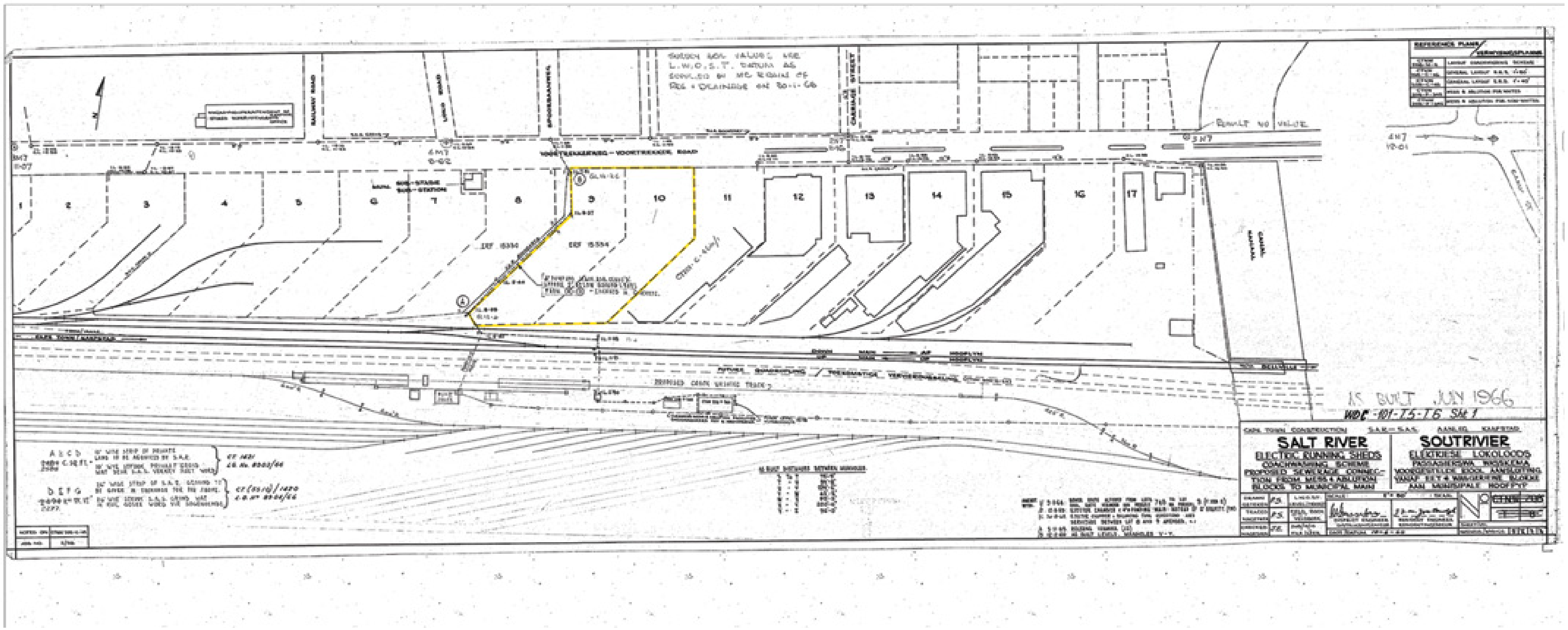

AS BUILT JUN 1966
SALT RIVER
ELECTRIC RUNNING SHEDS
SOUTRIVIER
ELEKTRIESE LOKOLOODS

Fig 29. 1940 Survey of Cape Town
Fig 30. Diagram of allotments along the railway

The site is a disused concrete works on Voortrekker Road, on Salt River Railway land, believed to have been built in the 1930s. The site has elements that suggest the site was a cement depot, with a hall for some form of manufacturing.

Old maps for the area and Archived correspondences show that once the Salt River Cement Works stood a few plots away, while we can still see the lasting ruins of Allied Concrete- there's an implied relationship between them, as well as the other forms of construction/industry that used to be found on this land.

This can be seen in the 1940 city survey overlay, from the City of Cape Town's website. The information from the website was incomplete, but from this small sliver, we can get a good overview of the industrial past of this strip of the city. The site is highlighted by the yellow outline, with the annotation 'Civil Engineer Store'. Archived correspondence between the City and the site owners indicate that the site was leased by the Cement Corporation of South Africa over this period. Further along the strip, we have 'Sheet Metal Works', 'Brass Foundry' (which is still in existence), 'Asbestos and Engineering', ending with 'Cement Works', which was owned by Allied Concrete. Now we can begin to see how this strip related to the city, through its connection to construction and access through the railway system.

As mentioned earlier, this 1964 plan shows the original railway allotments, with further indication as to where the railway lines peeled off onto these sites. Lot 9 and 10 (indicated in yellow) show the extents of the original site, which have since been sub-divided, for reasons unknown. The back of the site is currently lease by MSC Shipping, which is on the neighbouring erf – one of the few on this side of the road not owned by PRASA.

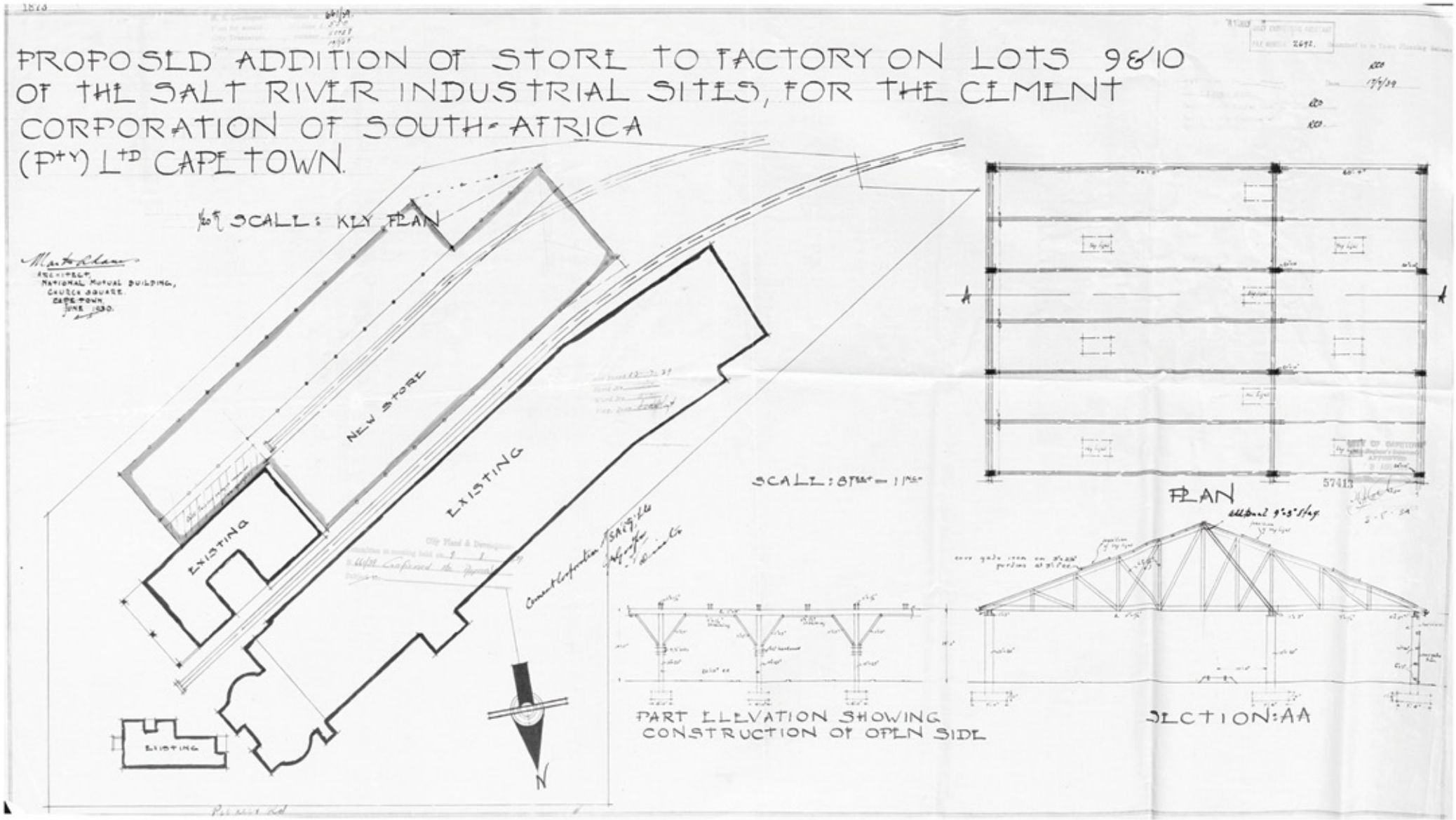
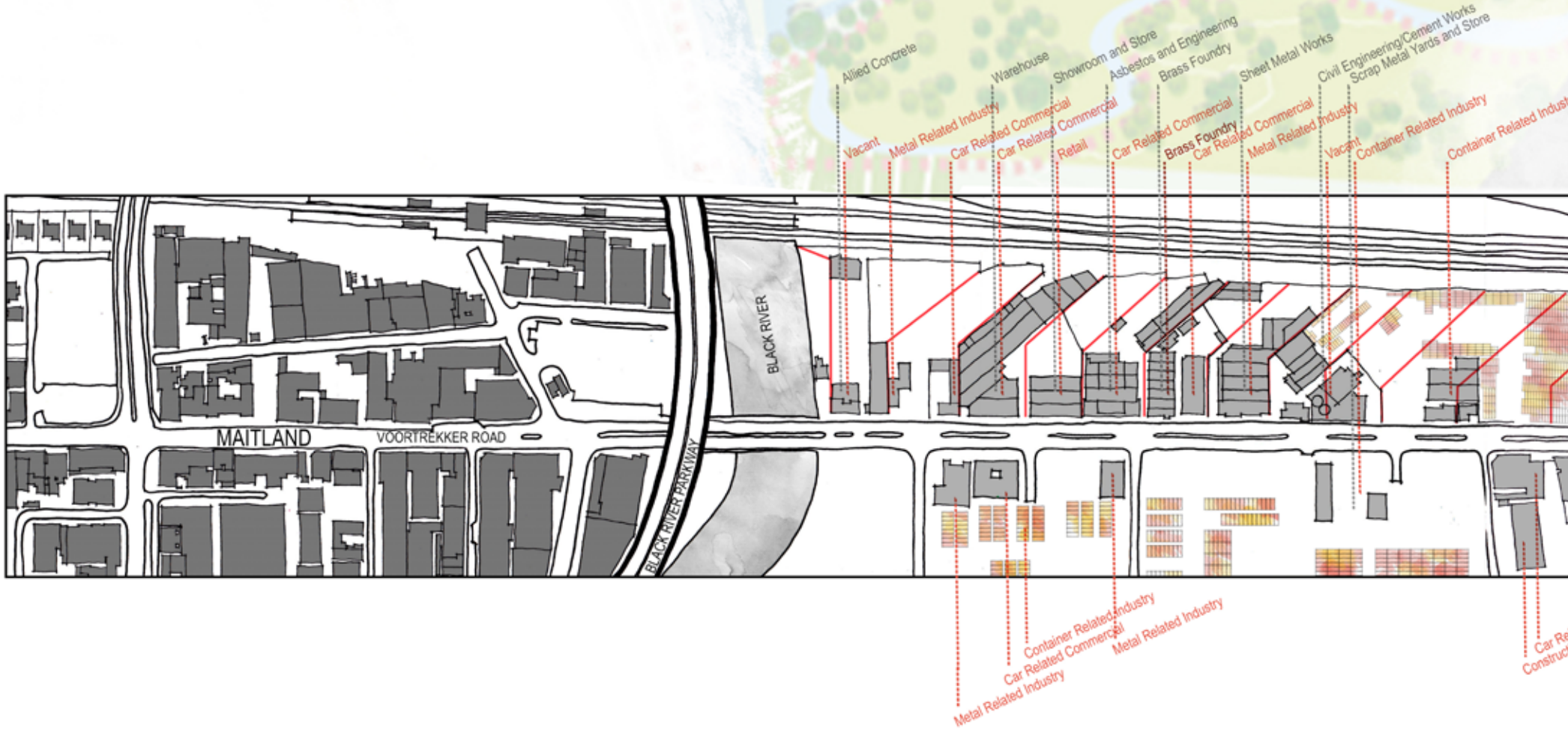


Fig 31. Archived drawing of buildings onsite

In 1940, the addition of two warehouse buildings was constructed. Between that time and the present, the initial front building was demolished, and two new ones were erected, which will be reviewed in further detail overleaf. This site plan shows the extents of the original structure onsite. The warehouses still hold the scars of being cut in half, somewhere in their history. The other clue this plan gives us about the history of the site, is that it shows us where the two railway lines accessed the site. There are no material traces of these on site today.


Allied Concrete
Warehouse
Showroom and Store
Asbestos and Engineering
Brass Foundry
Sheet Metal Works
Civil Engineering/Cement Works
Scrap Metal Yards and Store
Vacant
Metal Related Industry
Car Related Commercial
Car Related Commercial
Retail
Car Related Commercial
Brass Foundry
Car Related Commercial
Metal Related Industry
Vacant
Container Related Industry
Container Related Industry
MAITLAND
VOORTREKKER ROAD
BLACK RIVER PARKWAY
BLACK RIVER
Container Related Industry
Car Related Commercial
Metal Related Industry
Metal Related Industry

Site Analysis / *'the strip'*

Maitland

The specific area is shaped by physical boundaries, namely the large scale institutional and industrial activities to the south and south east, the railway line to the north and east, and the Black River Parkway to the west.
Maitland is a unique, mixed use area containing business/ industrial and residential activities. This suburb is located at the intersection of the three major business corridors:

- the business area along Main Road;
- the Voortrekker Road business strip, from Salt River to Bellville;
- and the less-developed business areas associat ed with Koeberg Road.

The area is located close to the harbour and Central Business District, and is also central to the inner city industrial areas such as Epping and Ndabeni.

The current revitalisation framework for this part of the city aims to upgrade the Voortrekker Road corridor as an opportunity for densification - in the form of new housing and business opportunities by bulking up the built form along this corridor. A major advantage for this area are the well-established public transport systems – there are both ample bus routes, and train stations.

Salt River

Salt River and Woodstock share the same revitalisation framework, as they share many of the same qualities, and the boundary between the two suburbs is not definite. To the north and south, the areas are defined by physical boundaries – the N1 to the north, and the M3, or in places the mountain, to the south. To the west, the boundary is roughly Salt River Circle, which feeds into Voortrekker Road.

Salt River is a mixture of specific characteristics: there is a mix of both city and suburban living conditions, mixed level income households and communities, small to large businesses as well as industrial activities. Salt River's history is connected to the railway, as the city's major railway industry started here.

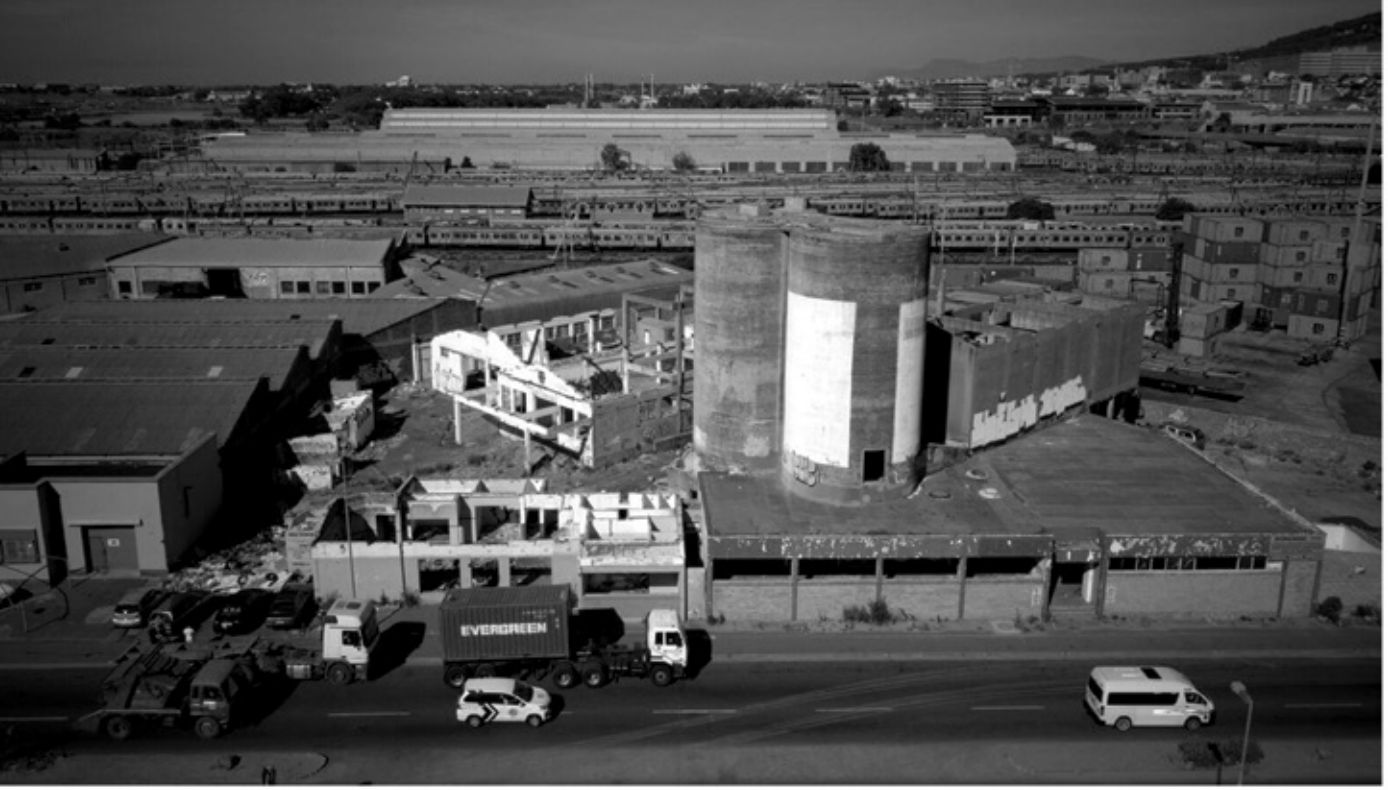
Major transport routes included Main Road, which is by and large a business area, and Albert Road, another business strip, which is now seeing signs of gentrification.

The framework proposes the protection of the distinct nature of the area – be it the examples of Victorian architecture, or the mixed level income communities. The area is currently active with community-led protests, trying to protect the area from the negative effects of gentrification.

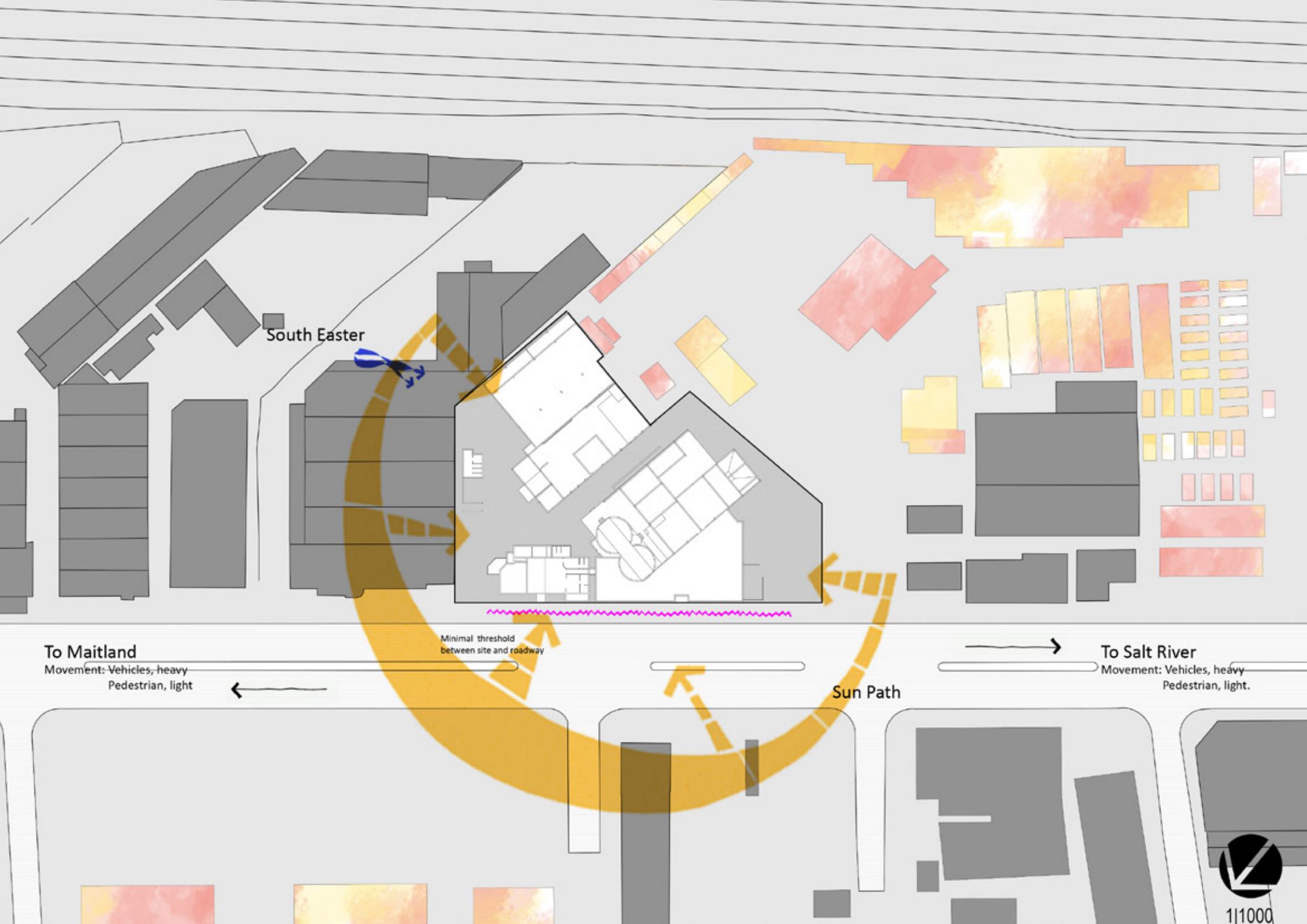
Two Rivers Urban Park

The Two Rivers Urban Park proposal ends just short of the south of the site, and is an ecological endeavour to revitalise the land between the Liesbeek and Black Rivers to create a large green lung within the city of Cape Town. It aims to conserve the cultural landscape and encourage environmental education.

This proposal concerns itself mainly with the open land to the south of the railway lines, however, the urban planning proposal suggests that the strip of Voortrekker Road where my site is found - could be developed as an edging to the project, which would mean my site could be included within the cultural route - as an historical destination point.


EVERGREEN

Site Documentation / *drone footage*


South Easter
Minimal threshold
between site and roadway
To Maitland
Movement: Vehicles, heavy
Pedestrian, light
Sun Path
To Salt River
Movement: Vehicles, heavy
Pedestrian, light.
1|1000

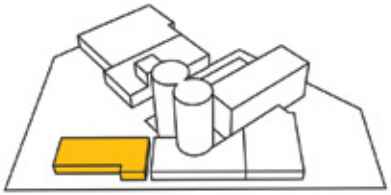
The site has two orientations: one perpendicular to Voortrekker Road, and another at 45 degrees to that, which means there are two different responses to the elements in most cases.

- The silos and warehouses are orientated toward north on their short faces, while the front buildings have a north westerly orientation. Keeping this in mind, any interventions on the street edge of the site should not be too tall, to allow light into the deeper areas of the site.

- The site is well protected from the often raging south-easterly wind, due to the fact that the back of the site is at an angle, which means the site is protected by the neighbouring structures. The silos are also orientated so that their short side faces the wind, minimizing their exposure.

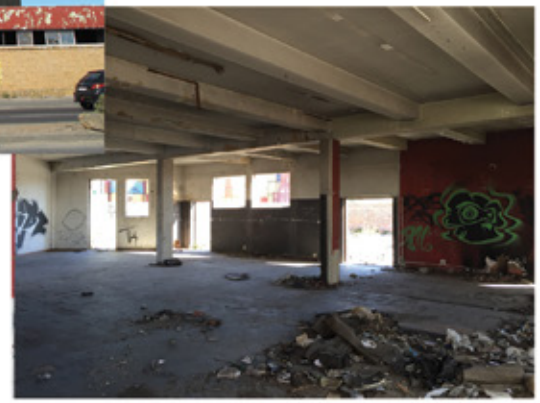
- Rain and climate are naturally both conditions that need to be taken into account. However, these are very easily controlled through thoughtful design, and a mixture between usable outdoor and indoor spaces.

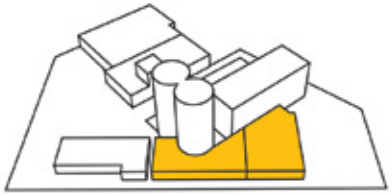
There is little pedestrian movement across the site, as the area is not well-populated, and is situated between two train stations. As a result, there is very little space between the road and the site, and due to a general lack of parking in the area, many cars can be found parked on the side walk. Motor movement is continual in both directions, and is in particular, truck-heavy (in part due to the sheer volume of shipping containers in the area).



Small Front Building

These diagrams serve as an introduction to the site as well as a visual analysis of the present conditions on and of the site. These photos show the state of the small front building, which is probably in the worst state of disrepair – it's been stripped of windows and doors and fixtures as well as the roof. While there is some interesting paintwork, there is little else of value. This building was built later than the rest of the structures, and has no heritage value. Useful to note, perhaps is the presence of a serving window, for a small café. This is possibly a useful relationship with the pedestrians and the street to try and resurrect.

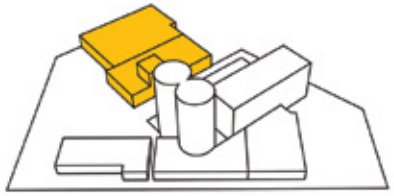




Large Front Building

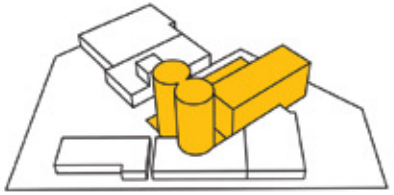
The windows have been stripped in this building, but the structure is in good condition. For whatever reason, this one storey building has been over structured, which does allow from more opportunities to build upon. The small portion in front of the silos has a higher floor level from the rest, and with the use of an internal ramp, connects to the silo platform toward the back of the structure. While this structure too, is not of any heritage importance, on a sustainablity front, this structure is highly suitable to include in a new design.

Fig 40 + 47. Photos taken onsite to document the existing conditions



Warehouse

The warehouses at the back are again, in a state of disrepair – the roof is missing, but the structure still stands. Somewhere in the site history, when the site was divided, these buildings were semi demolished, and this is evident in the remnants of the structure – part of the warehouse is missing a back wall, which is closed up with a neighbouring shipping container. Mostly, the warehouses were built on as an alternation in 1940, building from the existing concrete frame structure, as seen in the photo. There is a one meter floor height difference between the two warehouses. Not much remains, structurally, but the intangible significance is relevant.



Concrete Works

Lastly, we have the oldest structure on site, the cement store and silos. Again, it is mostly just the frame, but we can see elements of the original 'mechanics' of the building: the funnels, as well as the silos themselves. This is also the only section of the site that rises above one storey – which one can see in the photos – part of the structure is two storeys, while the silos tower over everything. This site is ungraded by Heritage Western Cape, though arguably, these structures hold many significances in the exploration of the industrial history of the city.

2009 | Powder coating studio, Glass repair, site partially empty

2013 | Second hand car dealership, Steelwork engineers, Cafe

2015 | Site empty, but clean

In the above series of Google Streetview images , the occupation of the site has changed frequently. From 2009 to now, the site has housed a glass repair works, a second hand car dealership, a café and a steel engineering workshop. Traces of these can still be found onsite, in the architecture as well as in old signage. While most of the site has been utilised in this period, evidence shows that none of these businesses used the actual concrete frame structure building (and the silos) – so it has been deteriorated for much longer than the rest of the site.

Site Analysis / *recent site occupation*

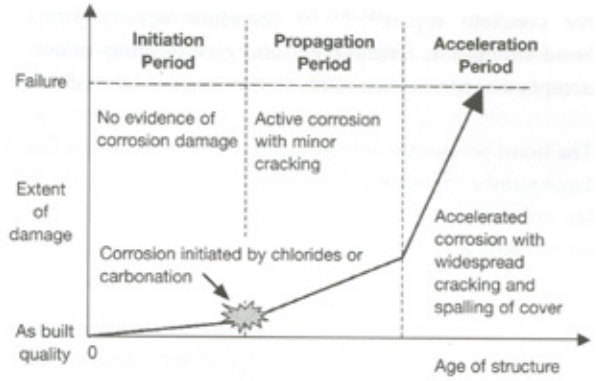
Fig 49. Images showing the palimpsest layers: Site stripping, graffiti and debris

In *Loose Space*, Tim Edensor talks about industrial ruins, in the chapter 'Social Practices, Sensual Excess and Aesthetic Transgression in Industrial Ruins' and he makes some interesting points about how these ruins relate to public space and the people. He points out that ruins give people a freedom to explore with wild abandon, but he makes some poignant observations about site palimpsest as well. Layers of the palimpsest are not only found in the architecture. Especially on an abandoned industrial site, in an urban context like ours, vandalism plays a large part.

Building deterioration is exacerbated by thieves stealing windows and doors, roofing parts and tiles. Sanitary fixtures and all furniture too have been removed, adding another layer (albeit a subtractive one) to the site's history.

The next natural progression (transgression) is graffiti. An abandoned site, which no longer serves its purpose or is occupied, is prime real estate for budding graffiti artists to hone their skills and leave their mark. Not only is this a physical layer, but it is also a trace of where someone accessed the site, often in a way that it has not been accessed before.

And the last layer of the palimpsest, and the one the site is currently experiencing, is the site as a rubbish dump. The argument (I imagine) is that you cannot spoil an eyesore further, so why not? The site is hidden below a collective layer of debris, filth and possibility.



Graph showing the three-phase corrosion damage model

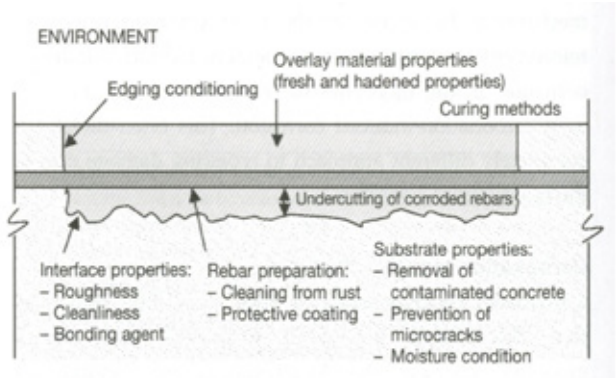
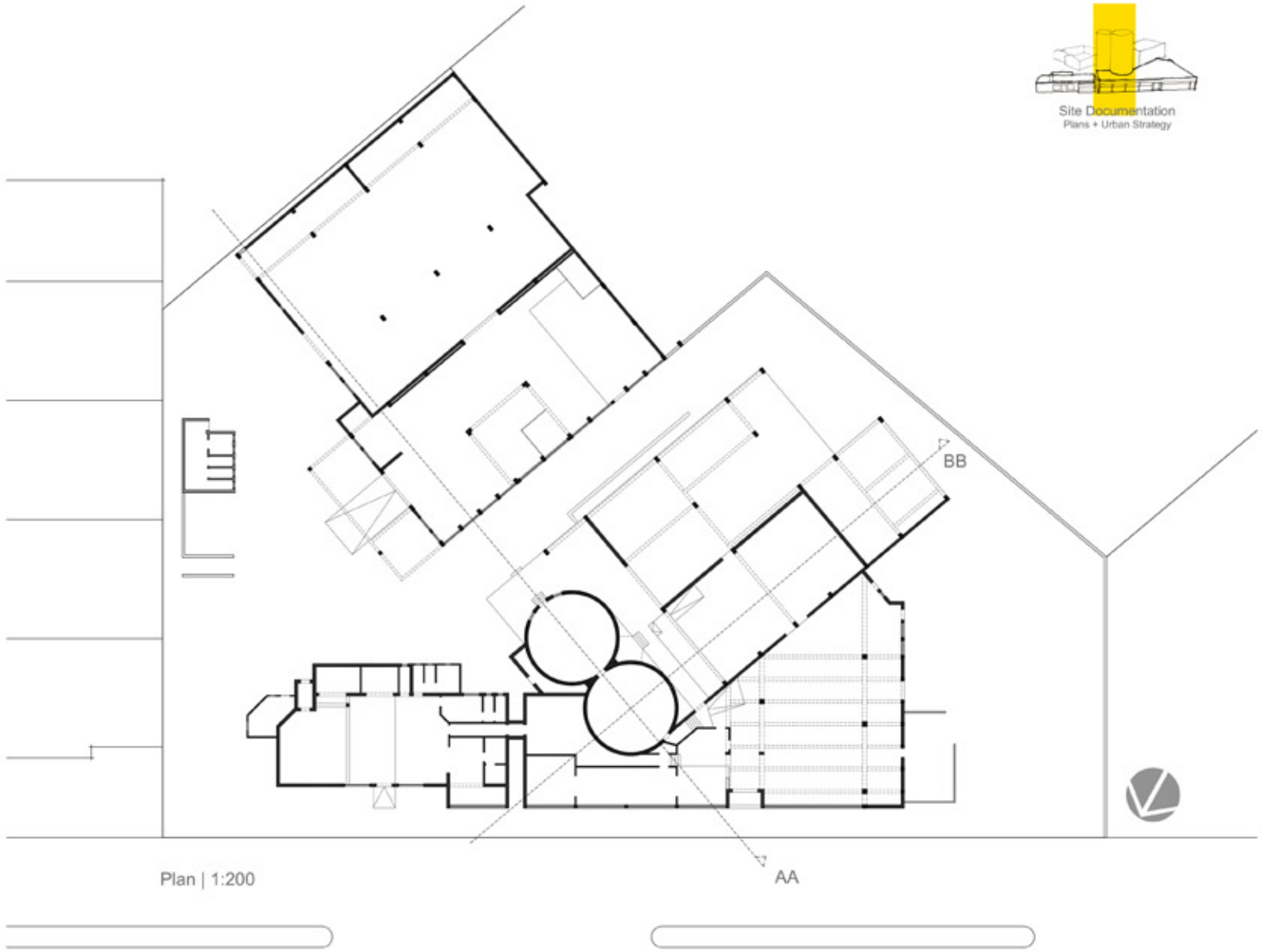


Diagram showing an overview of factors to be considered in the design and application of bonded overlays and patch repairs

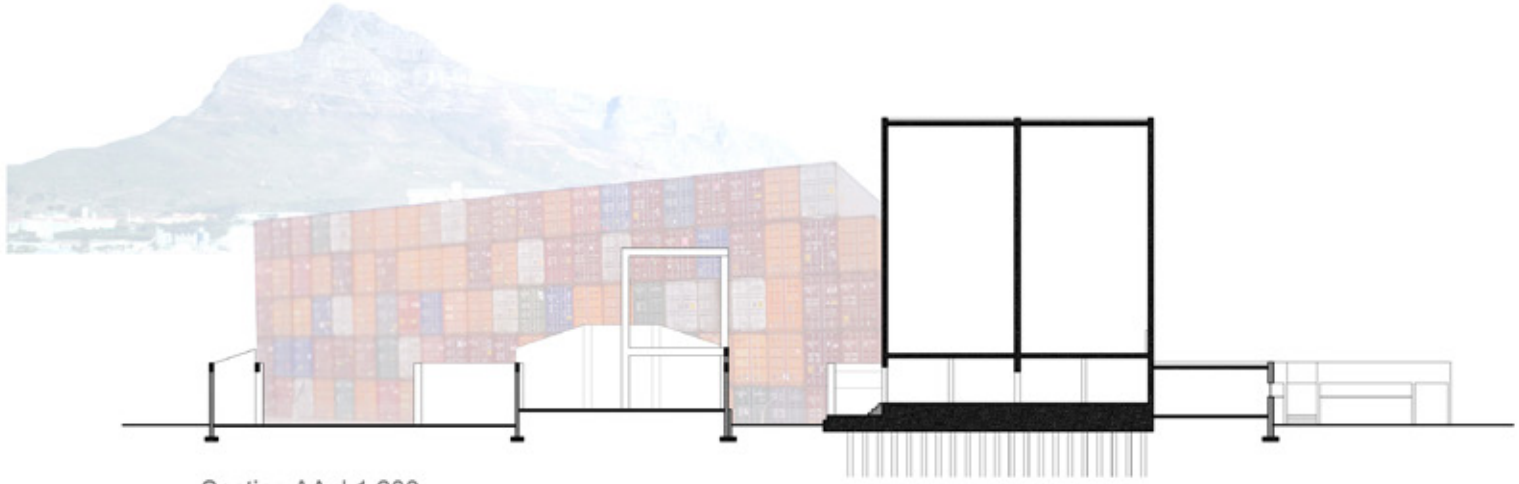
In these photos of the site, one can see that, by far, the largest problem is that of spalling and reinforcement corrosion. To the left is a graph, showing the three phases of corrosion. Corrosion actively begins in the Propagation period, or at the end of the Initiation period. This often results in the cracking of the cover concrete, which in turn accelerates the rate of corrosion (in the Acceleration period), as it is now easier for water and oxygen to get through. This can also result in the spalling of the concrete. These photos show evidence of this.

For small problem areas, the simplest solution to combat corrosion is to administer a patch repair, which is a small, bonded overlay on top of the problem area. This is applicable for small cases of corrosion, and requires specific conditions to allow the overlay to be most effective.To the left is a diagram, showing the ideal conditions or things to consider when repairing with a patch.

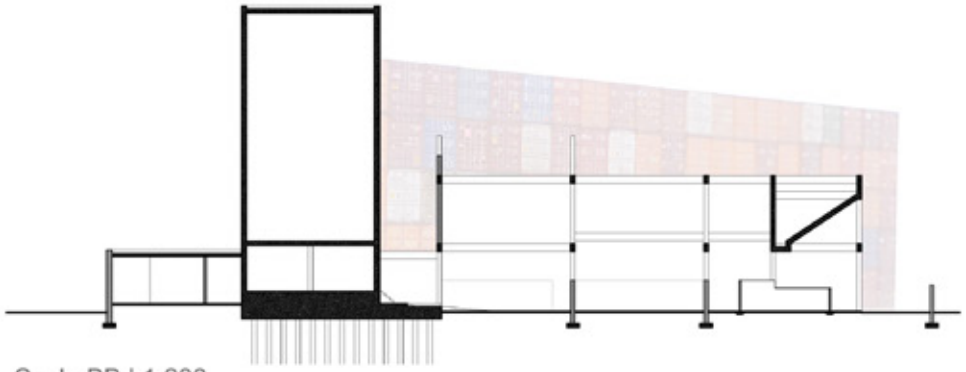


Existing drawings for the site were non-existant (with the exception of the proposed warehouse site plan found in the National Archives). The set of drawings produced show the current state of the site - crumbling walls and roofless areas in all their glory.

They were produced by the author, using a mixture of Google Earth, site photos, drone footage, sheer will power, site measuring, and the archived drawing on hand.



Section AA | 1:200

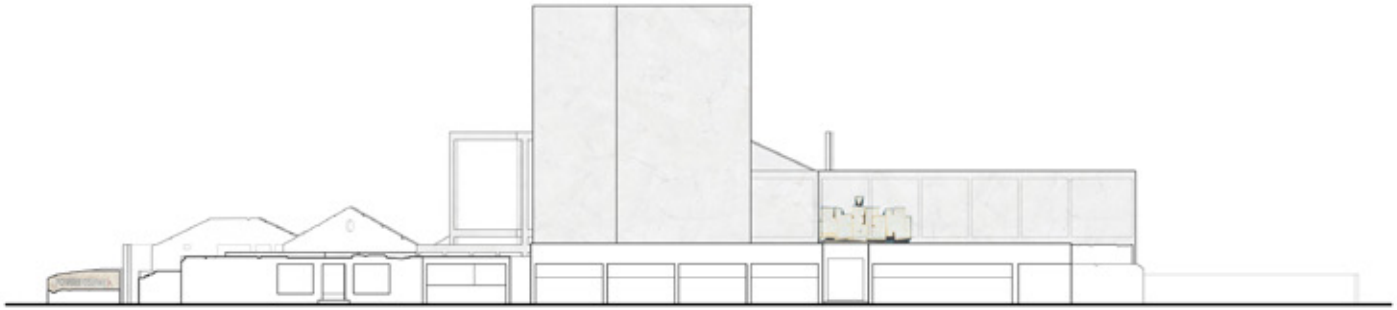


Scale BB | 1:200

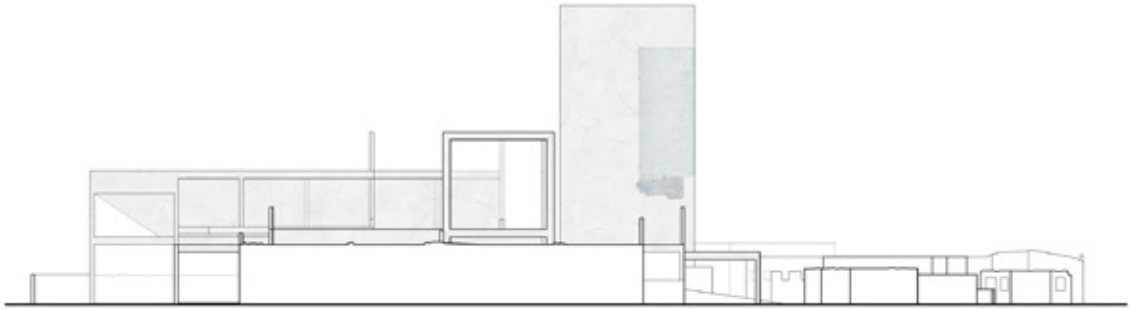
Site Documentation / *existing site*

Please note, drawings have been reduced to fit in this document, and the scales listed apply only when at full size.

South Elevation | 1:200



North Elevation | 1:200



East Elevation | 1:200

Site Plan | 1:1000

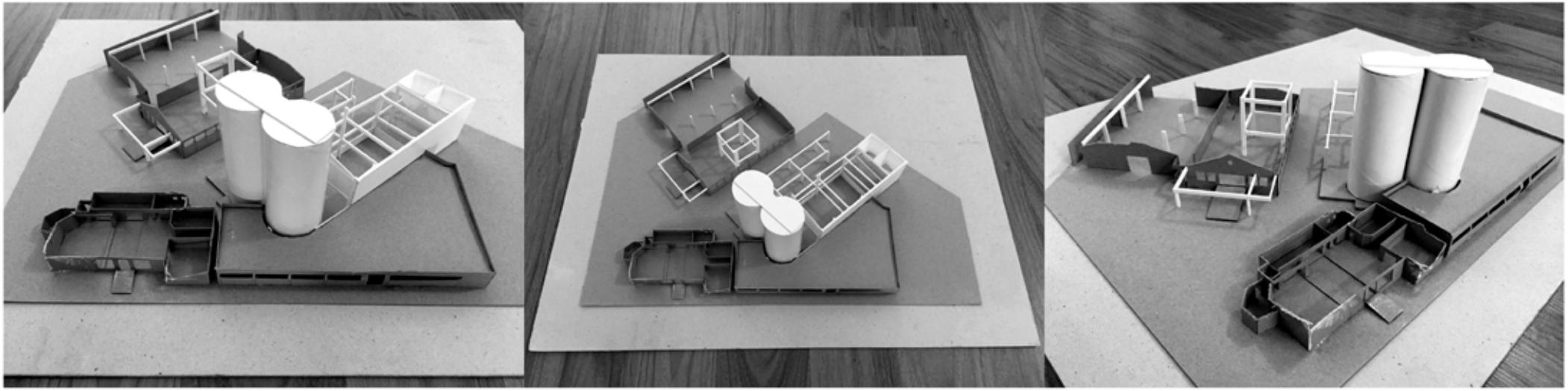
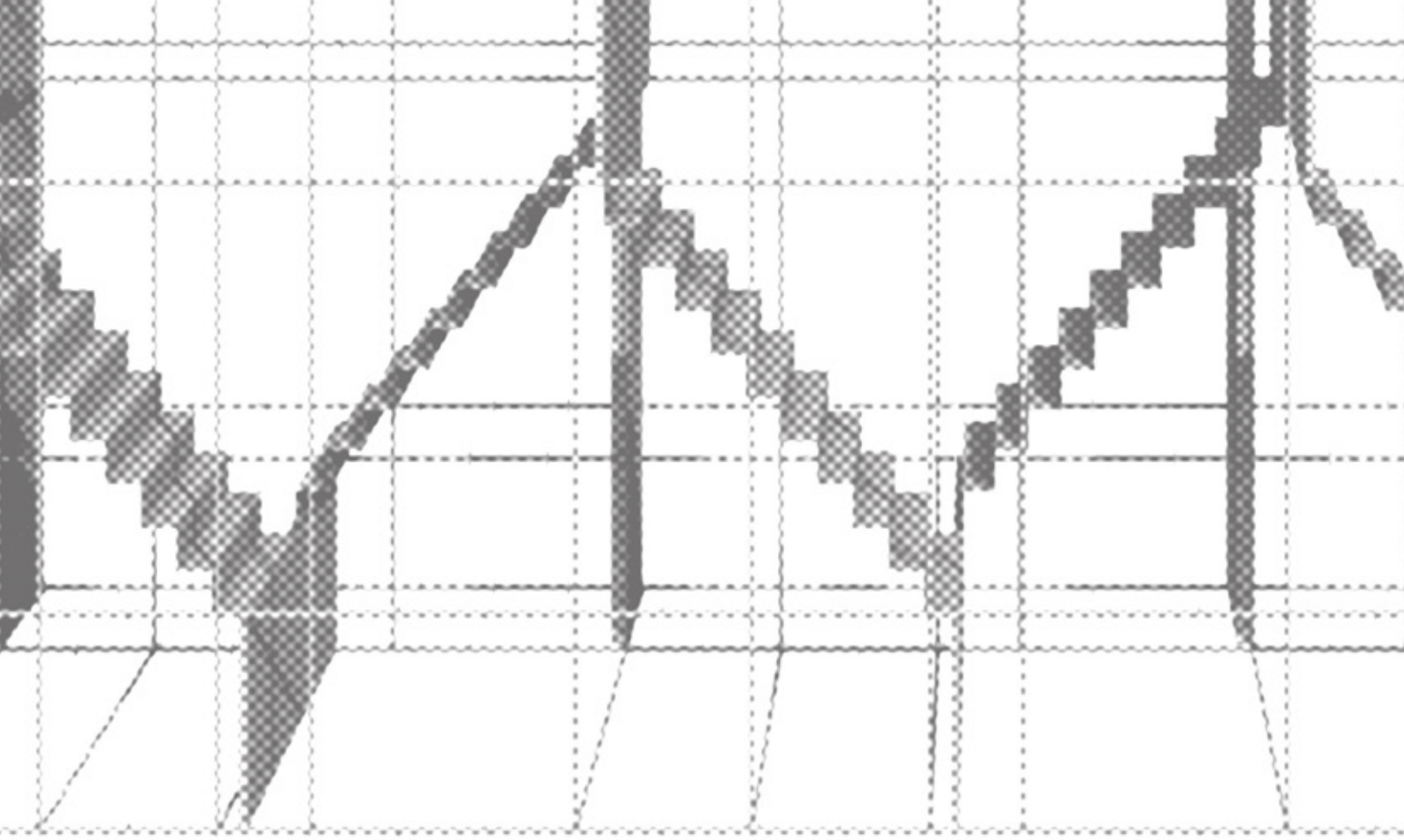
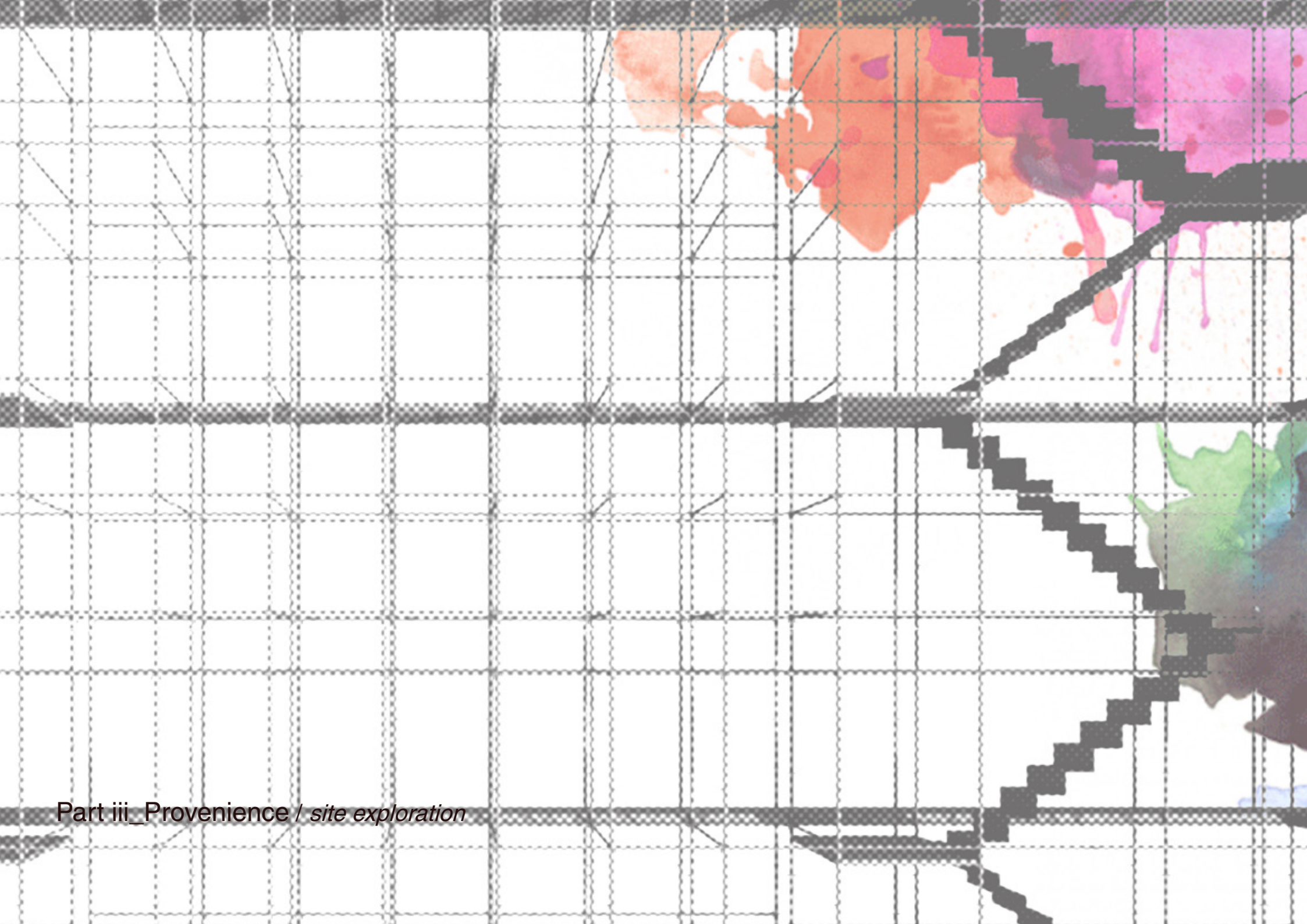
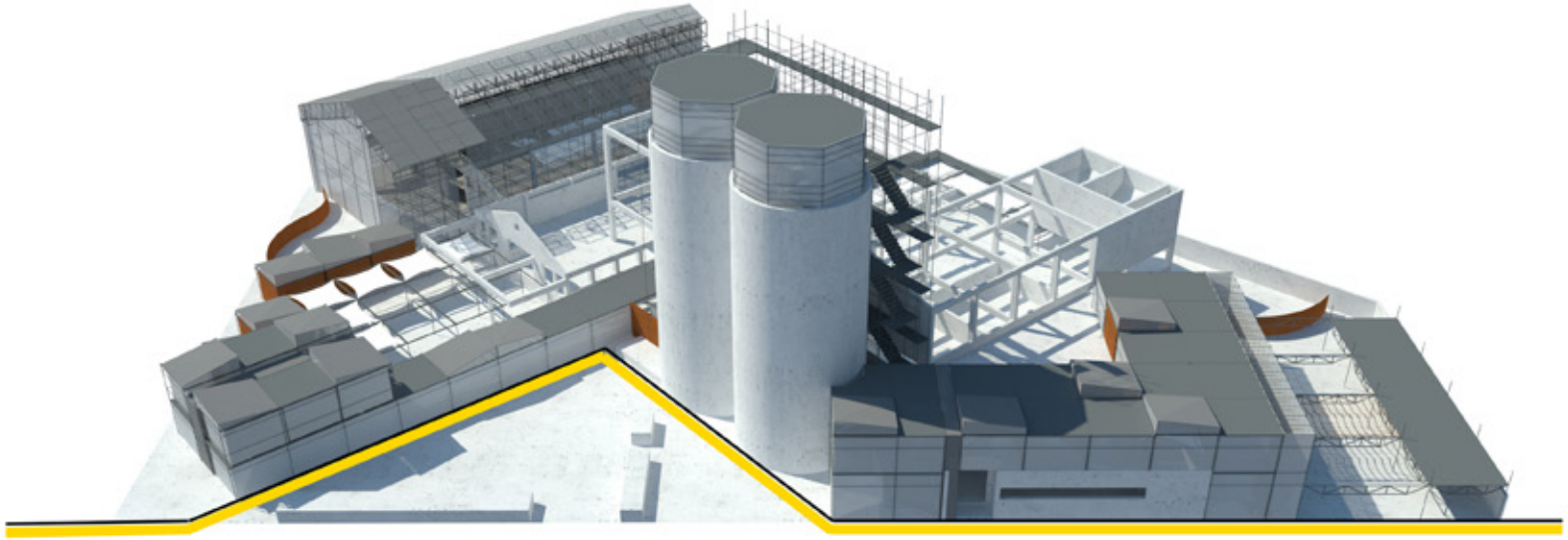


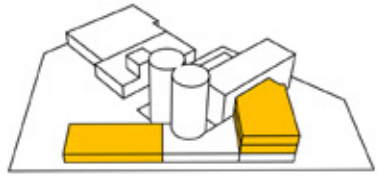
Fig 51. Images of model showing site as found



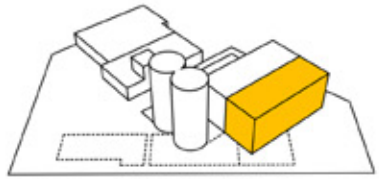


Part iii_Provenience / *site exploration*

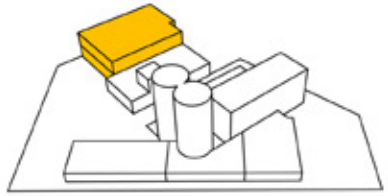




Design Proposal | Reinforcing the Edge

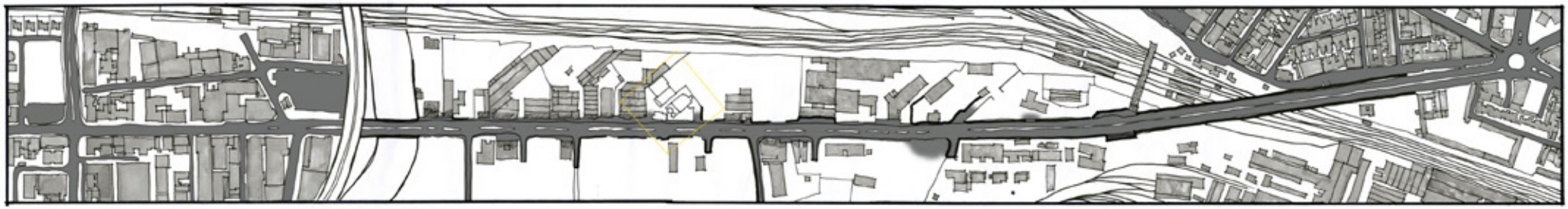


Design Proposal | Adding Relief



Design Proposal | Buildable Areas

Voortrekker Road Thresholds | Adding relief to the strip



Voortrekker Road Thresholds | Strengthening the hard edges of the strip

Voortrekker Road is a bustling corridor in this part of the city, which in parts is quite harsh, and in others, stark. One of the overriding characteristics it has, though, is the fact that it is not geared toward the pedestrian – side walks (where existent) are narrow, and there is little relief for the pedestrian along the way. In my initial investigation into the responses my proposal could have on an urban scale, I saw two conflicting possibilities:

The first approach is to strengthen the hard edge typical of Voortrekker Road and allow for softer or more secluded uses to the back of the site. This is in fitting with what the current edge condition is like - along this street.

The second approach is to level the front buildings, creating a large forecourt on Voortrekker Road, which offers a bit of relief to the pedestrian movement. This also allows an opportunity to play with the axis of the site.

These initial investigations are shown in the strip drawings opposite, and the first two diagrams.

The last diagram looks at the buildability of the site. Building up the back of the site, as well as strengthening the strong edge parallel to Voortrekker Road, I find the juxtaposition between the axes one of the interesting things about the site.

These initial instinctual responses have been explored and developed further, into a proposal that takes the best ideas from both: continuing with the pattern that is seen in Voortrekker Road, I propose to strengthen the street elevation of the site by building up to the street edge for most of the site, while allowing for a generous forecourt to the entrance of the structure. This forecourt does two things:

- Allows for a briefing space for pedestrians, as well as a space to gather before entering the site.

- It also puts the focus onto the silos on approach – pulling back the structure makes them front and centre when you first experience the site

Urban Strategy / *response to street edge*

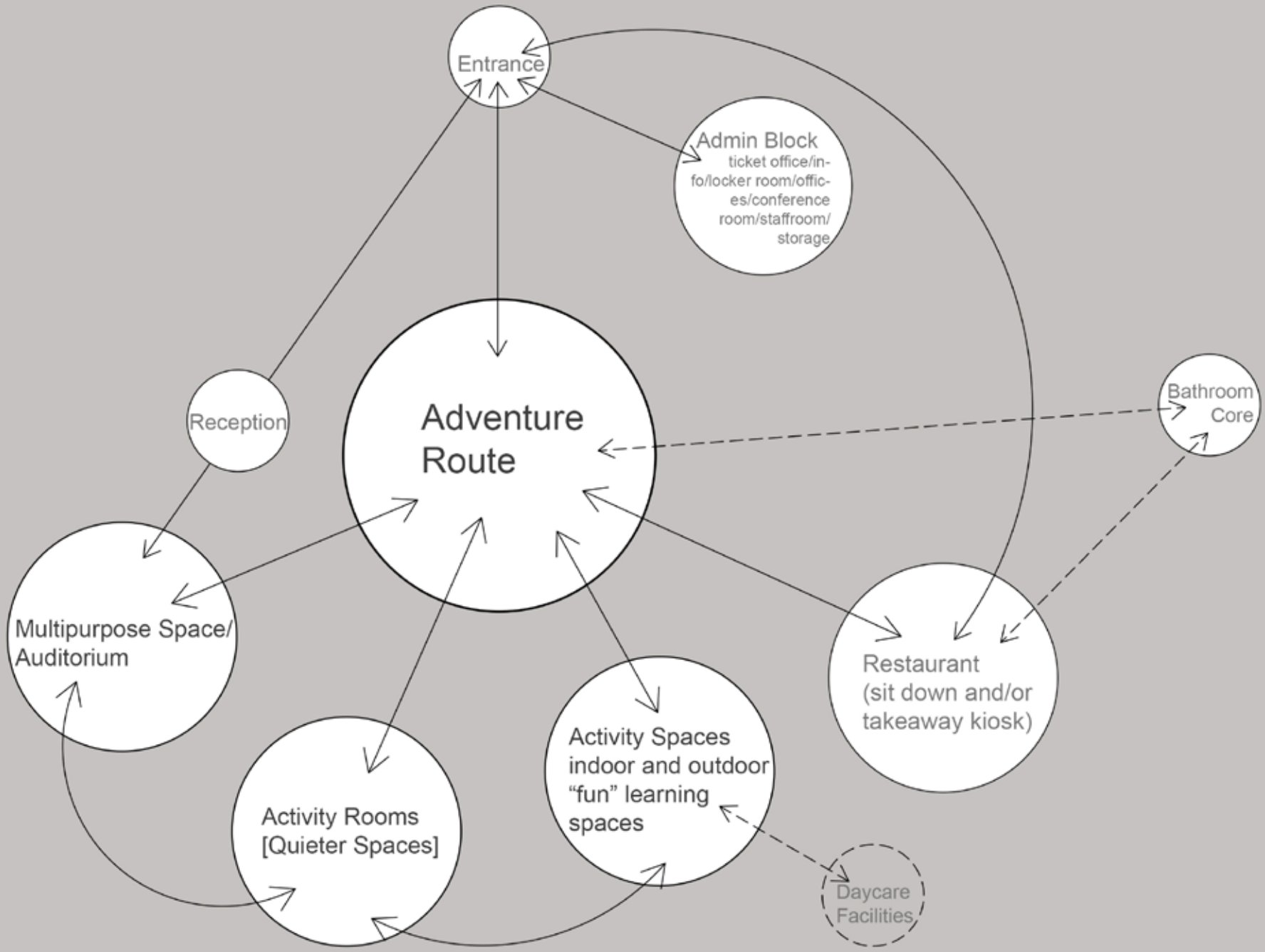

Entrance
Admin Block
ticket office/in-fo/locker room/offic-es/conference room/staffroom/ storage
Reception
Adventure Route
Bathroom Core
Multipurpose Space/ Auditorium
Restaurant (sit down and/or takeaway kiosk)
Activity Spaces indoor and outdoor “fun” learning spaces
Activity Rooms [Quieter Spaces]
Daycare Facilities

Fig 54. Programmatic mind map

Programme / *a centre for educational leisure*

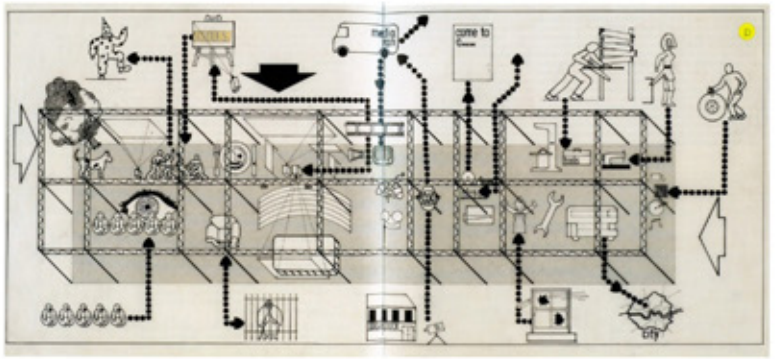
It was important for this dissertation that the new intervention did not just become a museum. There is an expectation when one hears the word ‘museum’ – it is a formal space, where information is exchanged through exhibits. The intention for this dissertation is that the concrete relic can narrate its history physically, and where necessary, assisted by the new intervention.

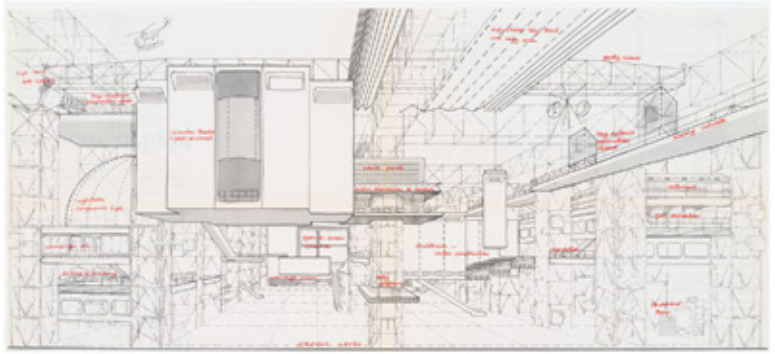
With this in mind, it made sense to have a programme where the site could be experienced through movement, and this translated to an educational function, with a leisure or fun edge to it. It is not a concept that is easy to sum up, but my best approximation- is a centre for educational leisure. Due to the nature of the site, the focus is on learning about construction and cement processes, and the way these products would move across the site.

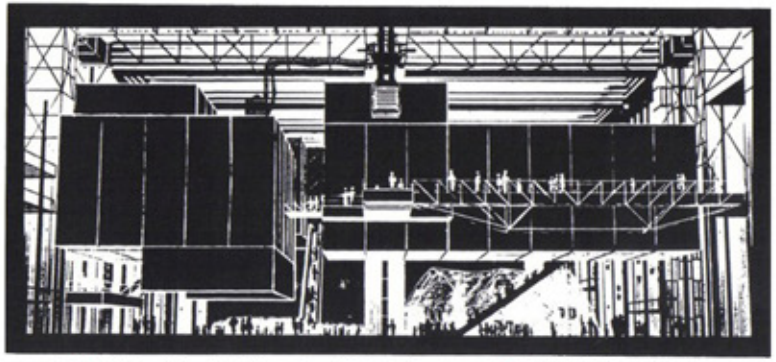
On the opposite page is a breakdown of the different functions of the invention, and the relationship they may need to have. It is not indicative of space. At the heart of the building is the ‘adventure route’ which is the journey a visitor can take across the site, which follows specific routes, dictated by the moment that cement and cement products would have had across the site. To support this function - are a series of other spaces, with specific spatial qualities: be they dark (for projection), quiet, flexible, indoor, outdoor, covered, transparent – the list goes on. These spaces are all held in place by service or private spaces, like admin areas and restrooms, and a restaurant.

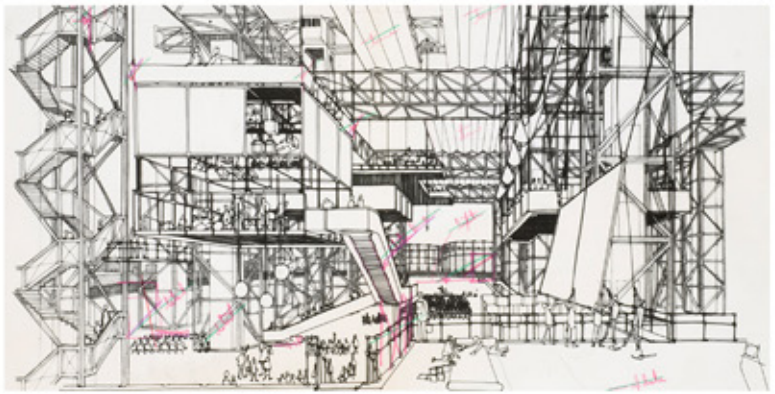
The flexibility of some of the spaces allows for a variety of functions, whether that be the large multipurpose space which could be hired out privately in the evening, or the possibility to include day-care facilities during the day, in the more private and secure spaces.

The site was subdivided somewhere in the history of the site – not officially, but the back of the site is hired out to the neighbouring shipping container company. There is a possibility that part of the site could be reclaimed in the future, and a phase two to this project could be instigated, perhaps with a transportation theme, as it has direct access to the rail- and Cape Town does not currently have a transport museum. This is purely speculative, and not a part of this dissertation, however.









City Museum / Bob Cassilly

The City Museum is an eclectic collection of spaces, housed in an old shoe factory, in St Louis, USA. Bob Cassilly, an acclaimed artist, conceptualized and curated this museum, using many discarded and unusual found objects, including two airplanes, one bus, 10 slides, and an infinite amount of old doors and windows. The museum is a mixture of playground, funhouse, surrealistic pavilion and event space. The emphasis is put on learning through fun and experience.

Programmatically, this is a useful precedent as (even though it is an extreme example) it provides us with ways of looking at education through fun. This is a building that is experienced through movement. The shoe factory that used to occupy all ten storeys still exists in a smaller capacity, and so the industrial nature of this building has not been lost in its reprogramming. The following quote sums it up rather nicely:

“The point is not to learn every fact, but to say, ‘wow, that’s wonderful. And if it’s wonderful, it’s worth preserving.” Bob Cassilly, City Museum

Merida Factory Youth Movement / Selgas Cano

The programme for this project is all encompassing: it is a skatepark, concert area, internet hub, a space for urban art, Street Theatre, tightrope walking, circus activities, Video Art, Electronic Music, Acrobatics, Performing Arts, Parkour, Audiovisual Art, and dance.

This project is designed for change – allowing for a variety of activities, through the design of a variety of types of spaces. It is a large canopy that is open to the city, and is available to all. The goal for the project is that none of the above functions will ever be displaced.

The lesson to take from this precedent is that by offering a variety of spatial types, you can plan for both the now, and for the future. This project makes one sweeping gesture in its canopy, which embraces and welcomes you to occupy the space as you so wish.

Fun Palace / Cedric Price and Joan Littlewood

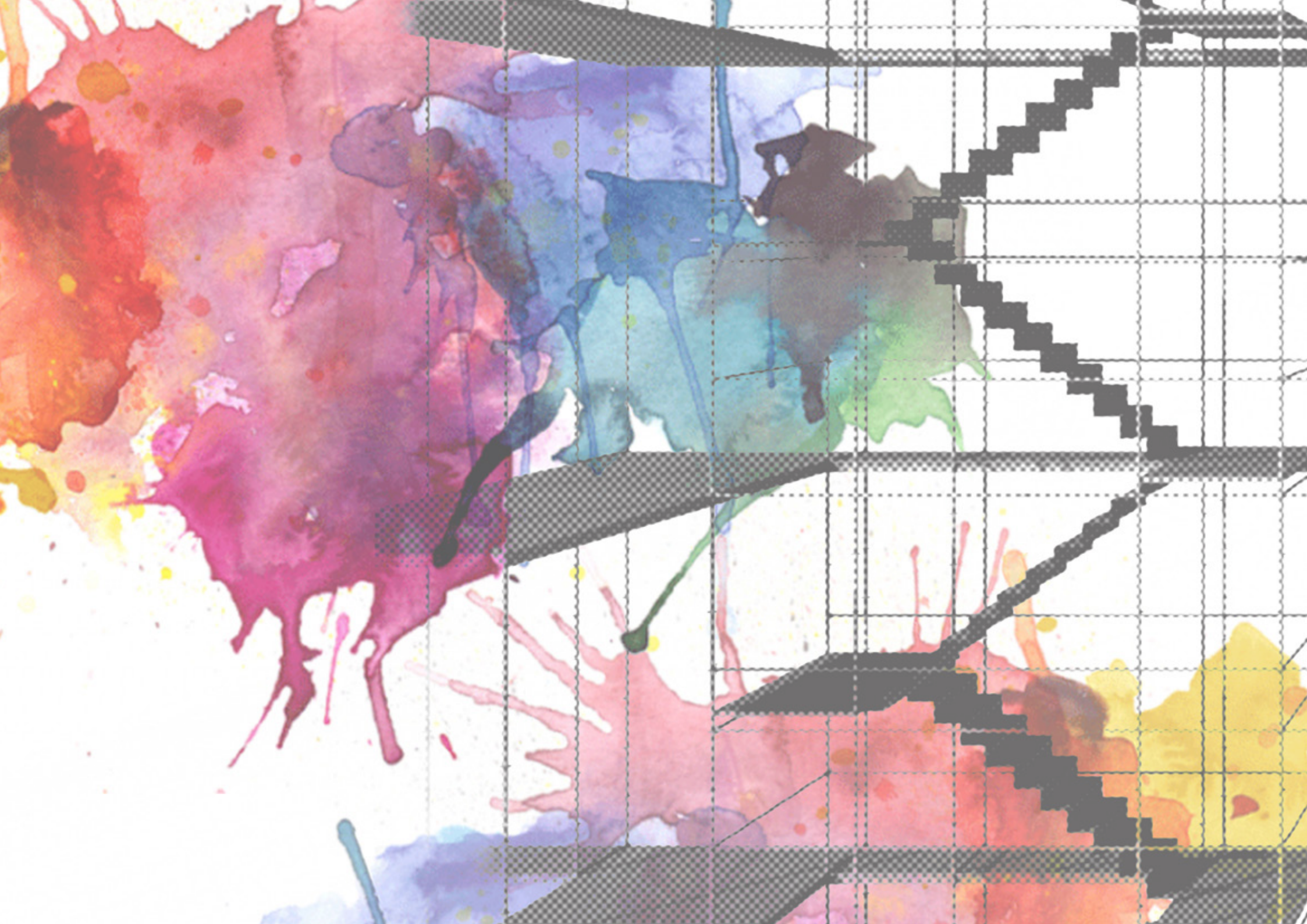
The Fun Palace was a theoretical project by architect Cedric Price, and theatre director Joan Littlewood. Their brief for the project was to create a space where people in the community could come together to celebrate arts, science and culture. Here you could choose what you wanted to do, or watch someone else do it. You could eat, drink, talk, dance, and learn how to paint or how to work with tools. The idea was that it would be a ‘university of the streets’ and was modelled on the idea of the traditional pleasure garden.

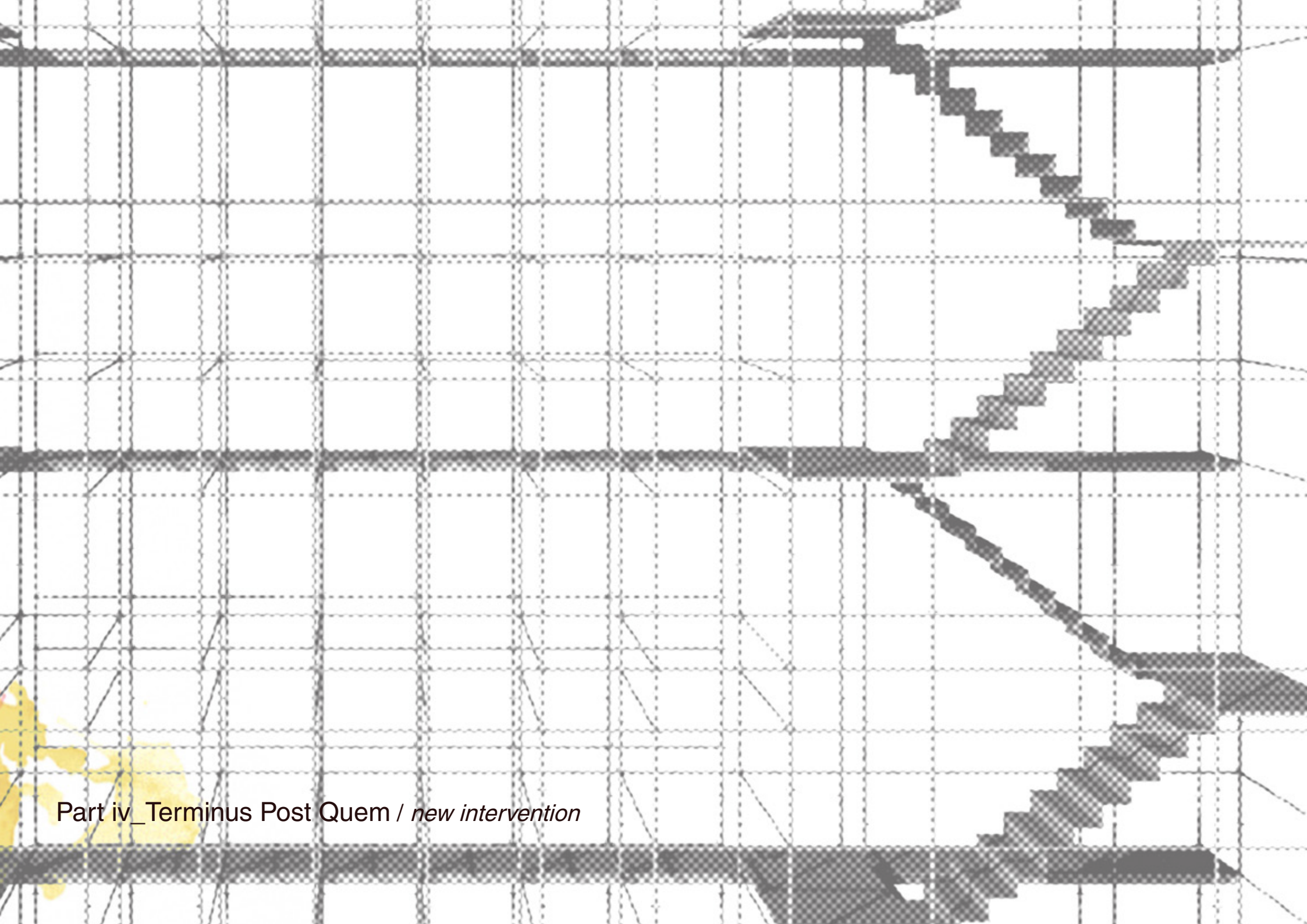
The proposed design was a skeletal structure, which allowed not only for visibility, but for flexibility.

Fig 55-59. City Museum
Fig 60-63. Merida Factory Youth Movement
Fig 64-67. Fun Palace

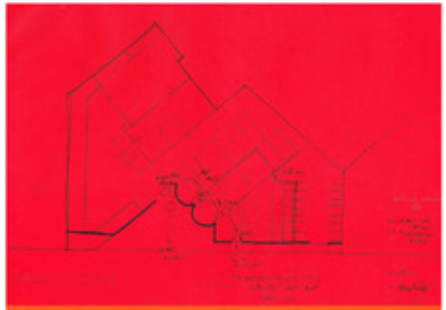
All these projects flirt between being places of leisure and being places of learning. And they use the moments where they clash or where they combine - to create a variety of spaces. There is a sense of kinetic energy to all these precedents – the feel that one just wants to get up and participate.

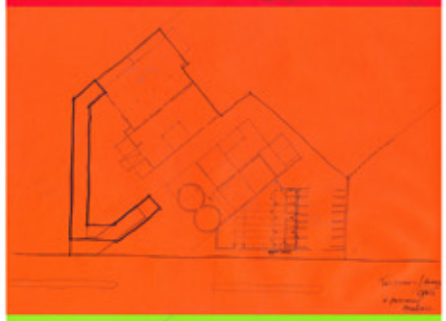
Programme Precedent / *spaces of learning and recreation*

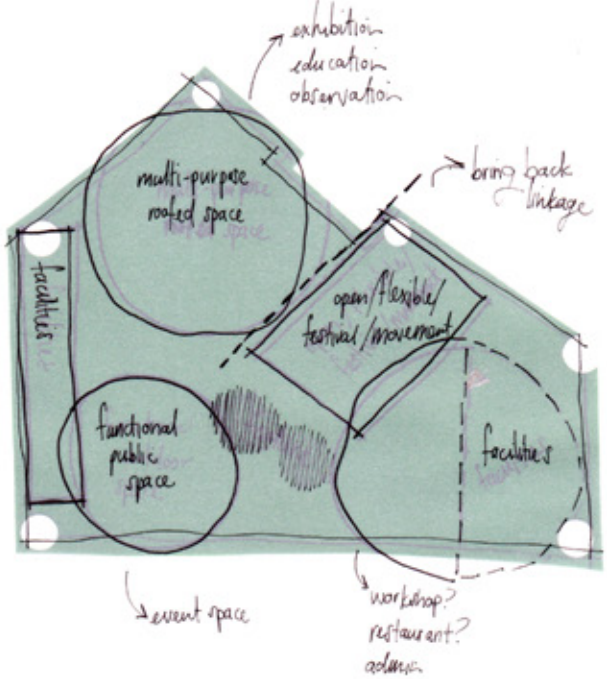




Part iv_Terminus Post Quem / *new intervention*



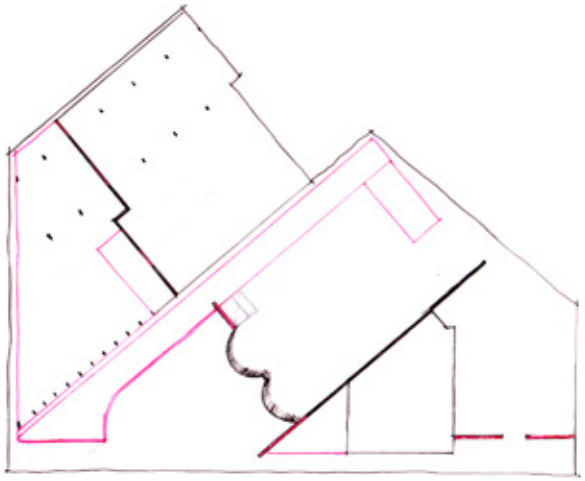


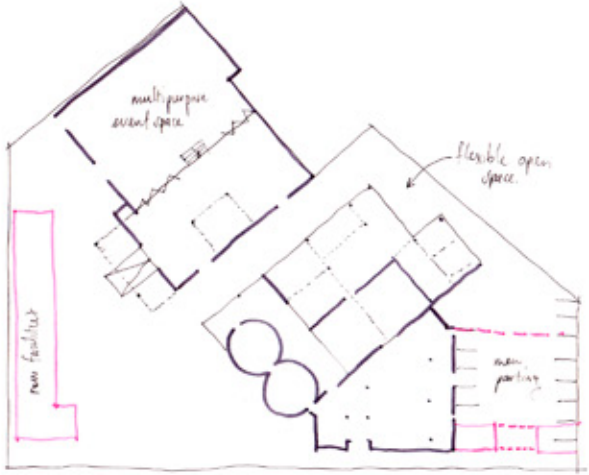


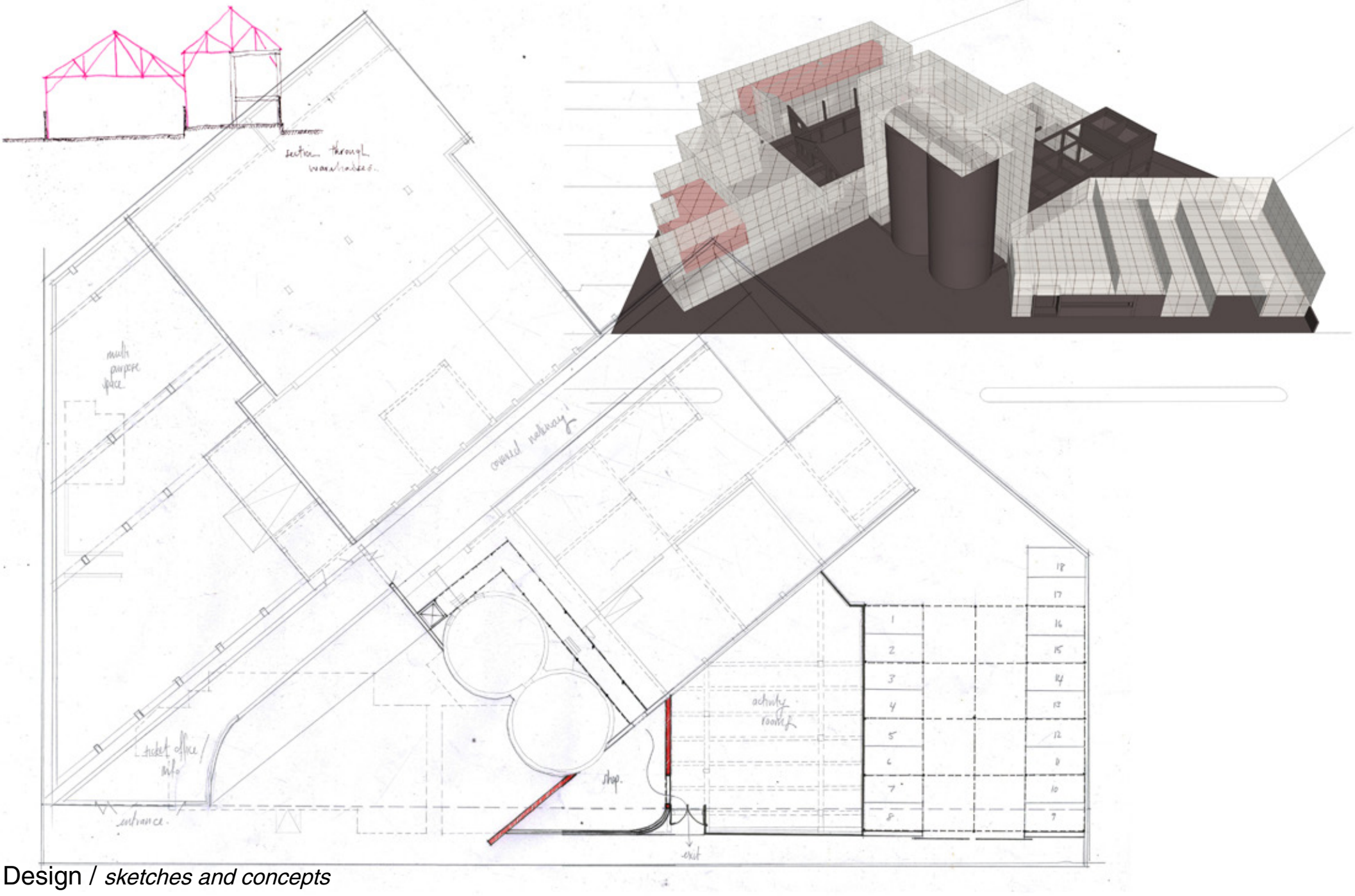
Knowing that from the get go, I wanted to pull back the structure to put emphasis on the silos, the next natural progression would be to have the entrance to the site feed of the open space that created. While the shaping of that space went through numerous redesigns, the overall layout of the space stayed pretty much in place. The idea would be to have a large, multipurpose space toward the back of the site, to 'hold' the open interior spaces, and give an edging to the site. A central restroom area would suffice as the walking distance of the site is not too great, and the existing from building could be taken advantage of to create quiet, flexible activity rooms.

On the left are a serious of diagrams exploring different aspects of the site. The red looks at the edge condition created by the intervention and the orange at the (early) proposed layout of the new structure. The green is a step by step breakdown of the movement across the site that cement and cement products would have taken – which is also the movement of the Adventure Route. The blue looks at the existing feature elements of the site, and finally, the yellow indicates service spaces.

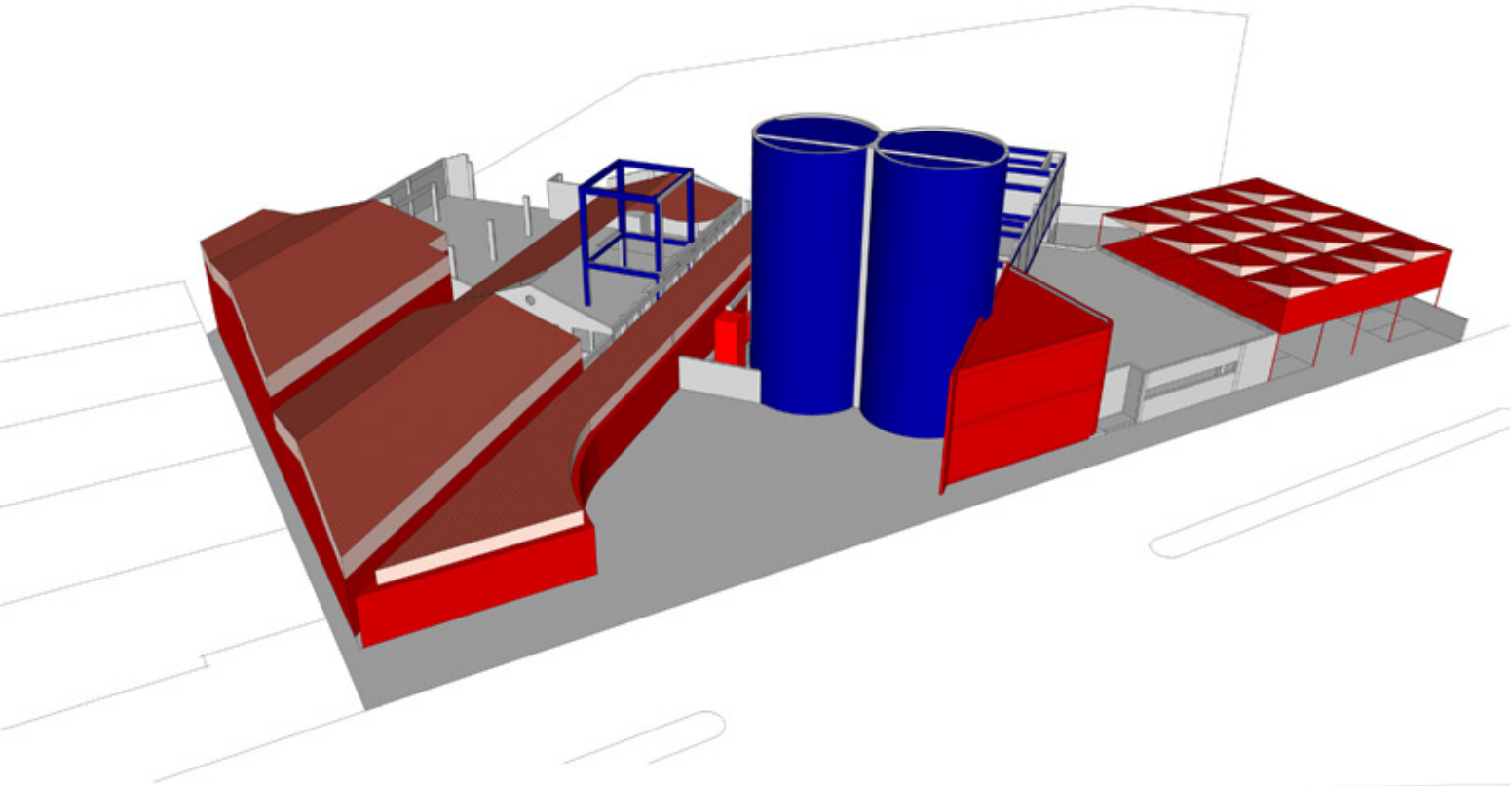
My proposal is for an entirely temporary series of structures. According to TICCIH, which is the international charter for Industrial Heritage, adaptive projects should approach the existing with a light hand, and should be reversible, if possible (see appendices). This plays into the idea that this area of the city is to see change in its future, however uncertain that change is. The idea of temporariness also plays into the choice of material for the intervention, which is scaffolding. Scaffolding on a surface level, has obvious associations to construction and is temporary by nature. But another benefit to scaffolding as a construction method is its ability to ghost the existing structure, and work as both propping tool, and framing device. The image to the far right indicates this intent.

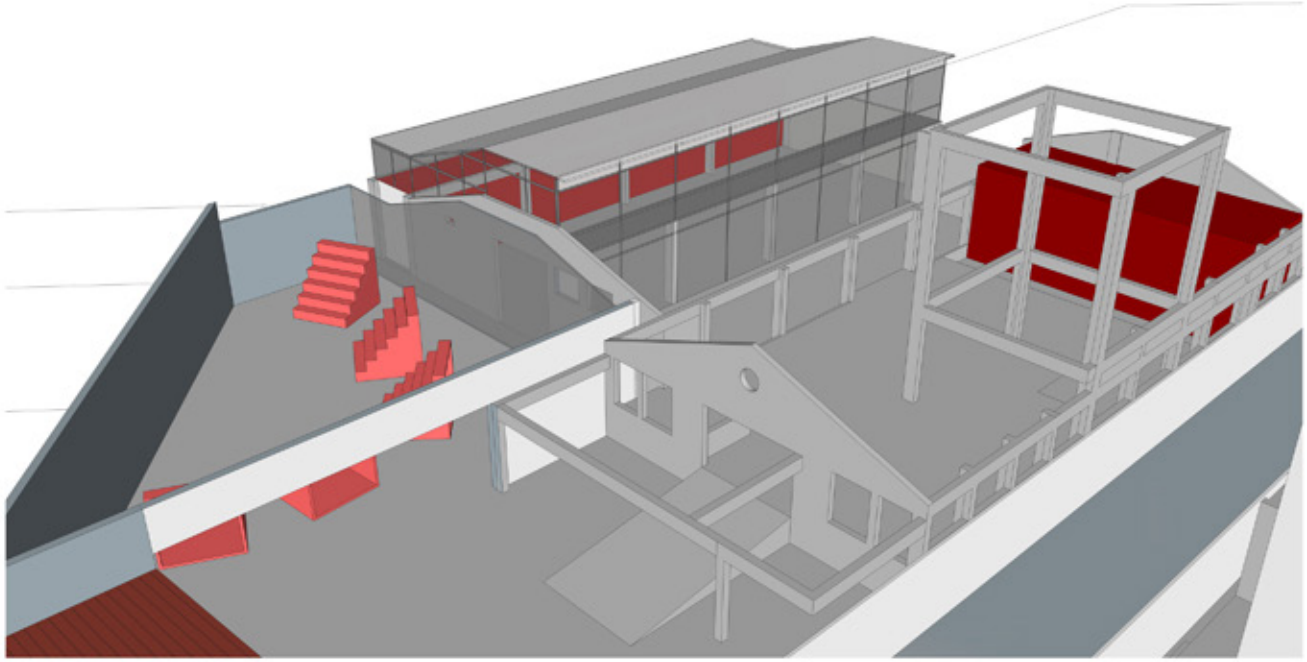






Design / *sketches and concepts*



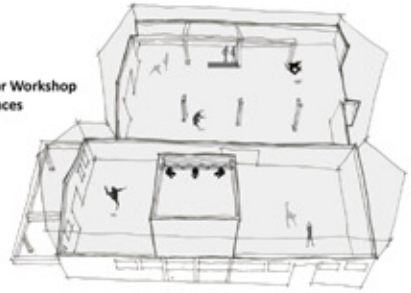


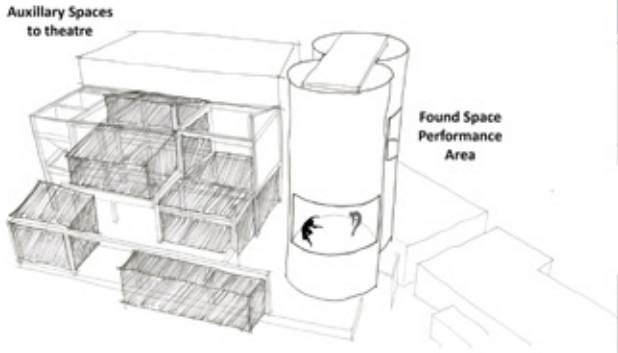
Another opportunity working with scaffolding provides, is levels of transparency – with a skeletal structure, and clip in sections of transparent, semi-transparent and solid surfaces, I could begin to design a series of spaces that hold and intertwine with the existing found space. My current occupation is detailing these modular nodes, which can be inserted into the grid system at the appropriate moments.

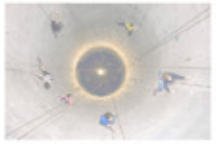
My approach to the design has been twofold – create a series of temporary spaces, which inhabit and frame the site – creating protected outdoor spaces. These proposed spaces focus themselves around my second approach to the design, which is to create an access route through the site, which follows the journey that cement or cement products would take across the site. This pathway is in the form of an 'adventure route' – an interactive, engaging journey through the existing elements of the site, starting from the silos, ending in the warehouse space. The main circulation route also follows along where the railway track once sat on the site.

To the left are two further developed proposal for the site, before the decision was made to work solely with a scaffolding system. However, both of these sketches show the proposal for a combination of indoor and outdoor spaces, and how one could inform the other.

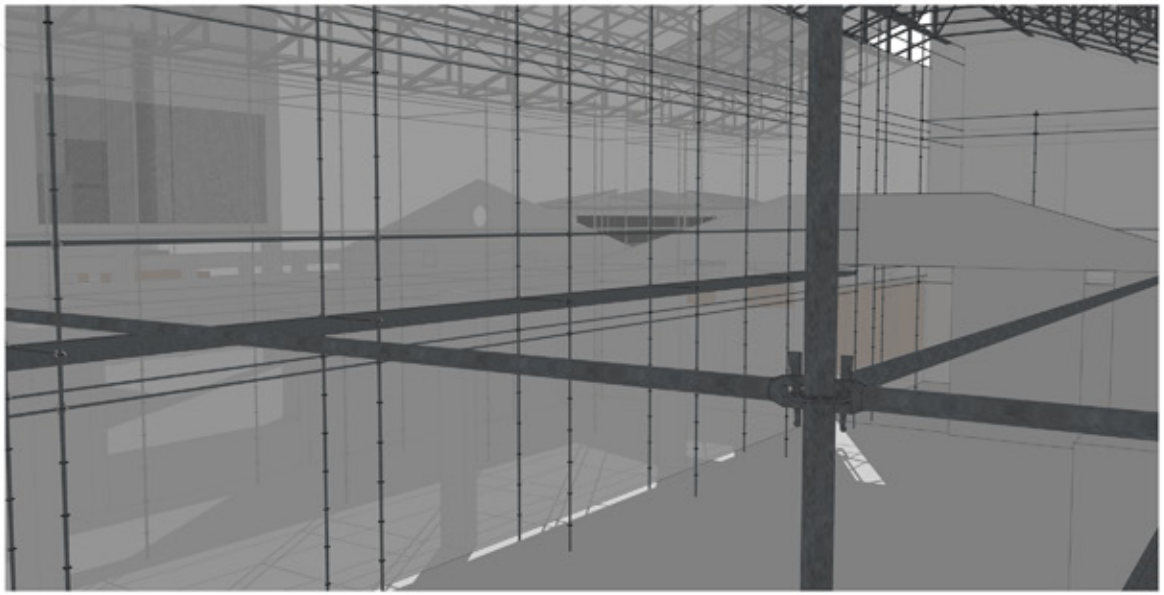
To the right, are some early sketches showing how new functions could fit into the site, and what those spaces could be. This was an exercise in the abstraction of space, and seeing what could work or what could work with a little adjustment. The two images to the right are quick snapshots indicating what the qualities of some of these spaces could be: even when you are outside, you are somewhat protected from the elements in places, and even when you are inside, the views of the site are clearly visible, and you get a sense of the layers of transparency.







courtyard view

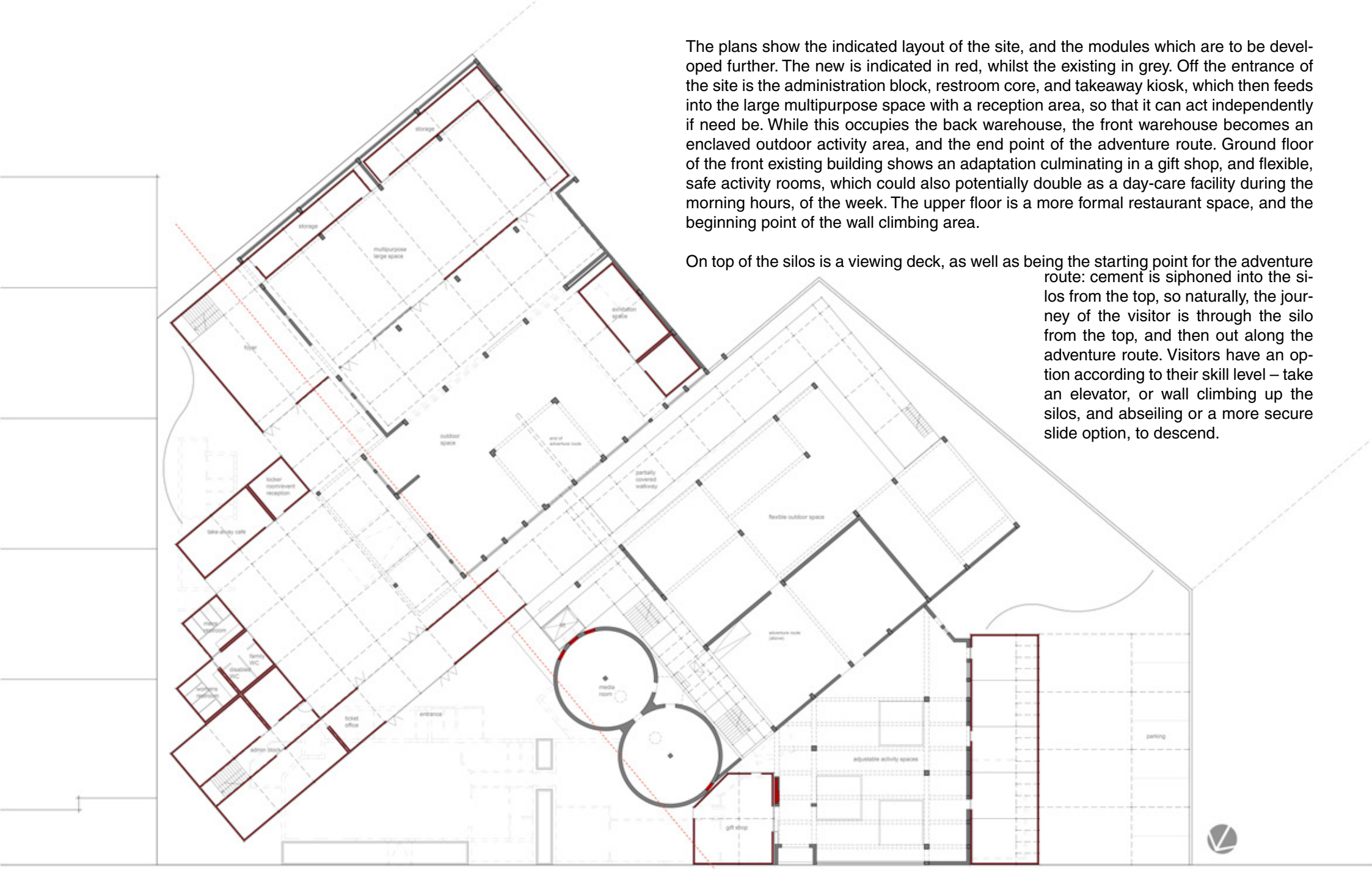


multipurpose space

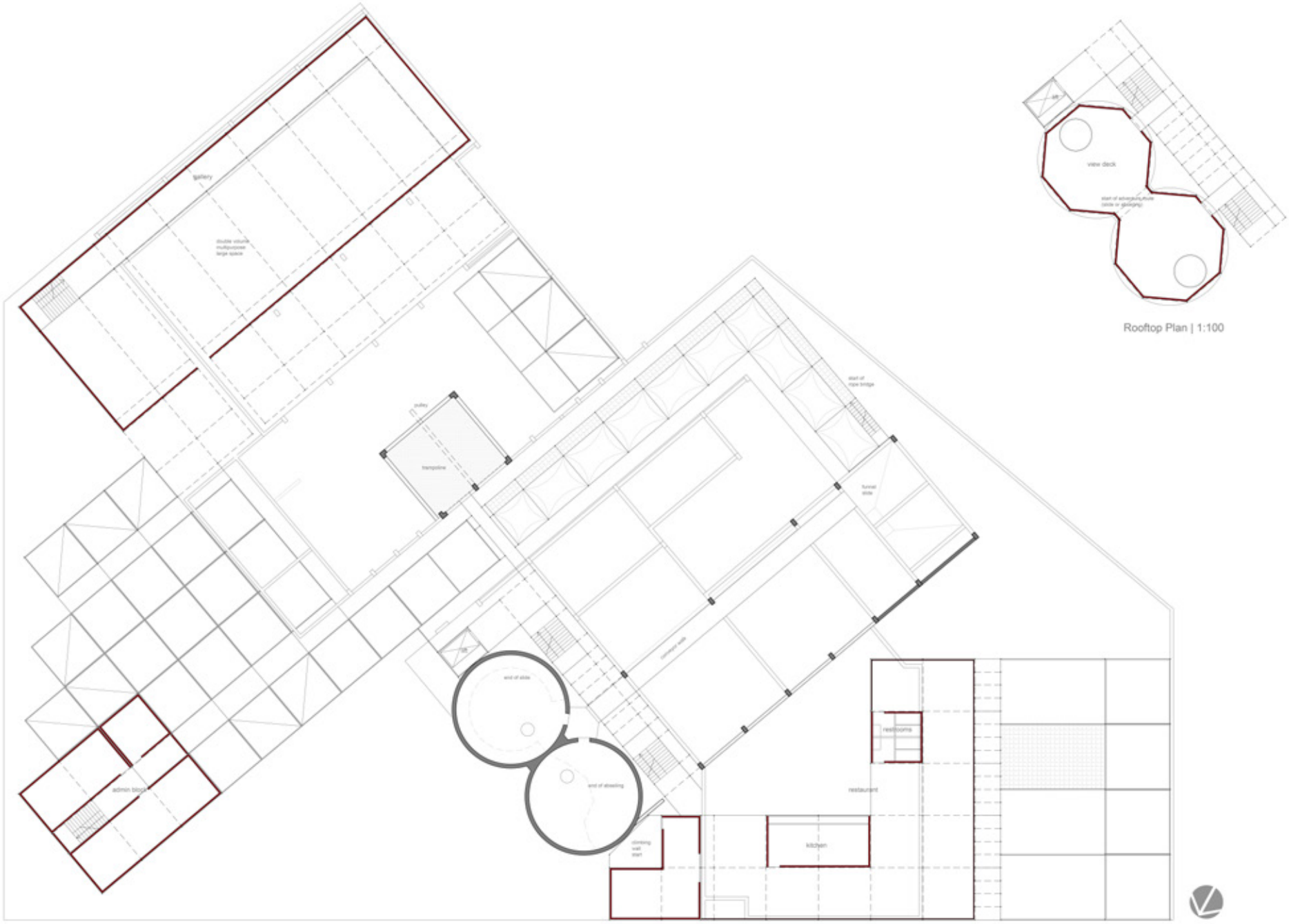
Drawings / *site moments and characters*

The plans show the indicated layout of the site, and the modules which are to be developed further. The new is indicated in red, whilst the existing in grey. Off the entrance of the site is the administration block, restroom core, and takeaway kiosk, which then feeds into the large multipurpose space with a reception area, so that it can act independently if need be. While this occupies the back warehouse, the front warehouse becomes an enclaved outdoor activity area, and the end point of the adventure route. Ground floor of the front existing building shows an adaptation culminating in a gift shop, and flexible, safe activity rooms, which could also potentially double as a day-care facility during the morning hours, of the week. The upper floor is a more formal restaurant space, and the beginning point of the wall climbing area.

On top of the silos is a viewing deck, as well as being the starting point for the adventure route: cement is siphoned into the silos from the top, so naturally, the journey of the visitor is through the silo from the top, and then out along the adventure route. Visitors have an option according to their skill level – take an elevator, or wall climbing up the silos, and abseiling or a more secure slide option, to descend.

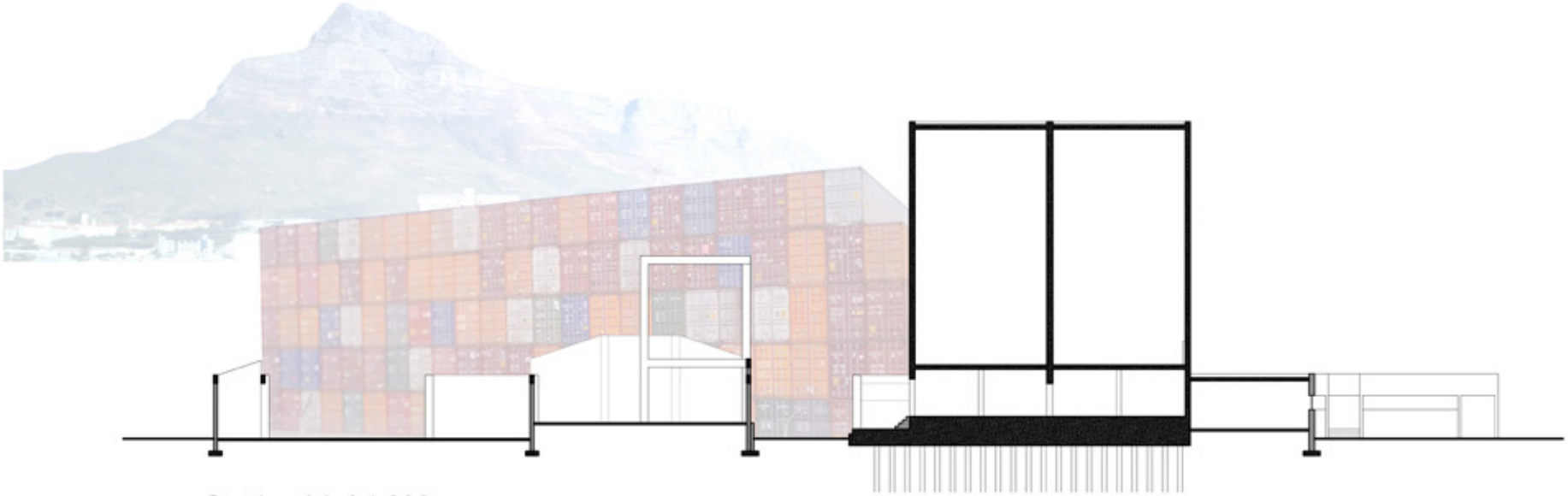


Ground Floor Plan | 1:100

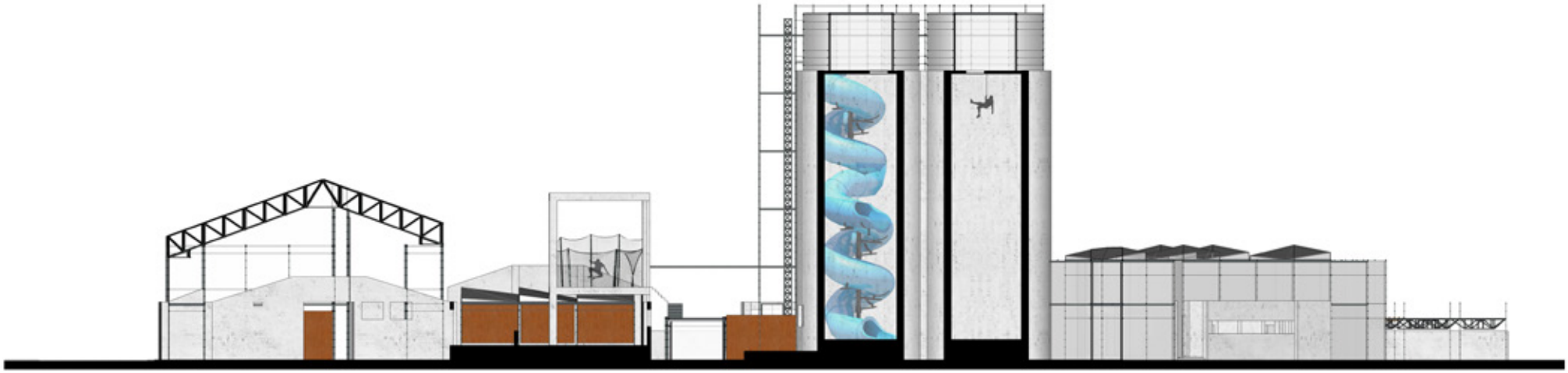


Rooftop Plan | 1:100

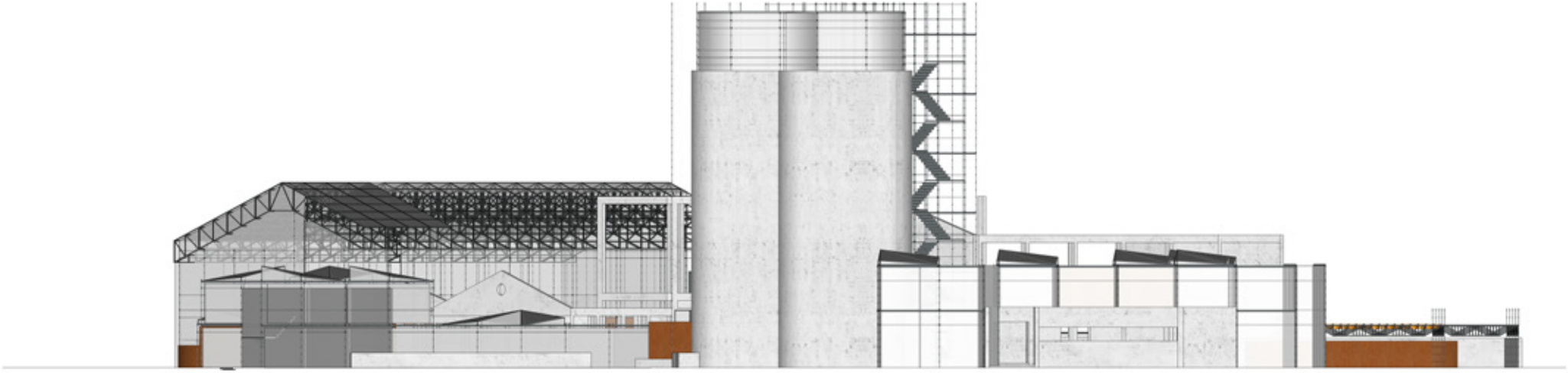
First Floor Plan | 1:100

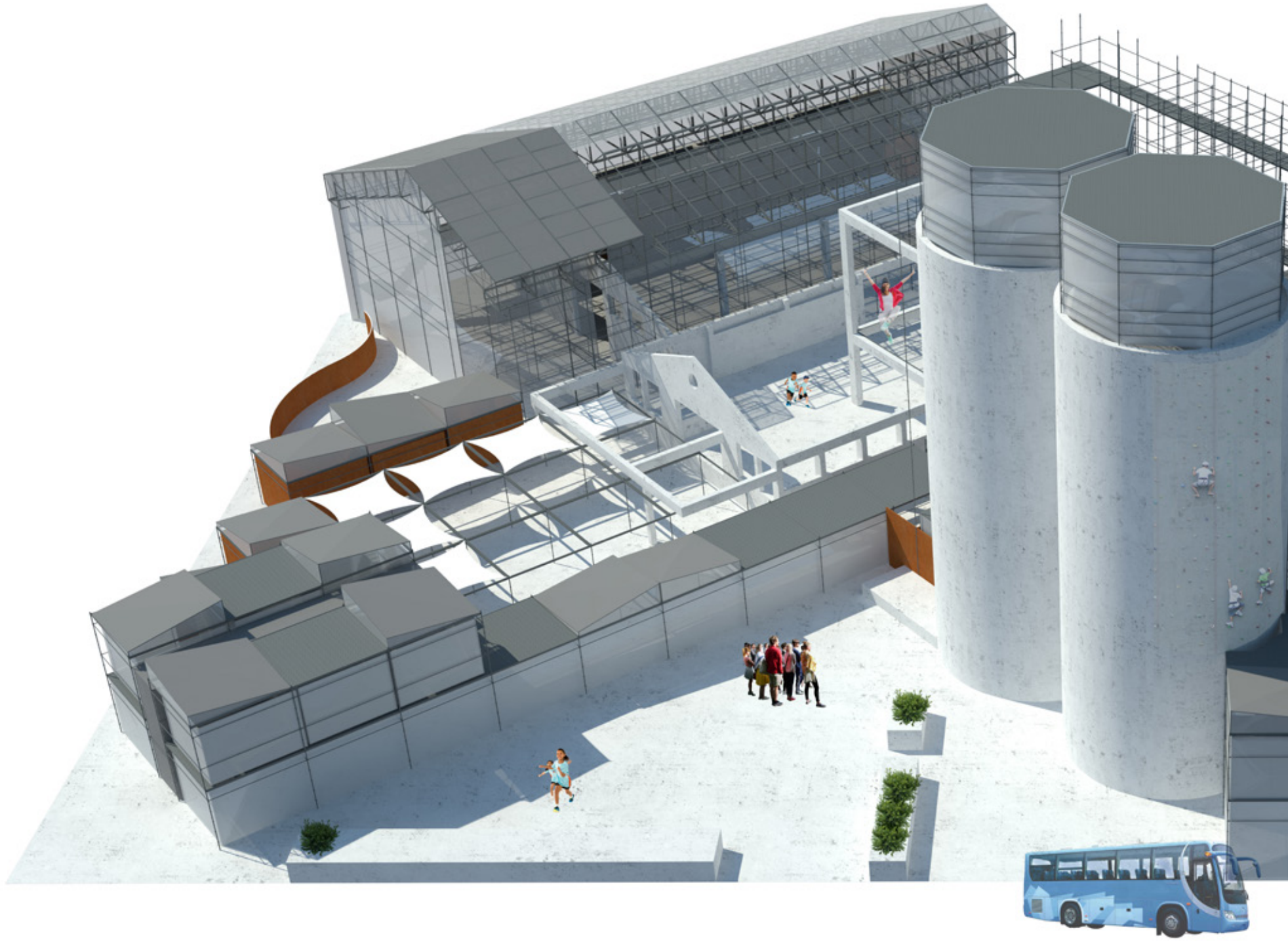


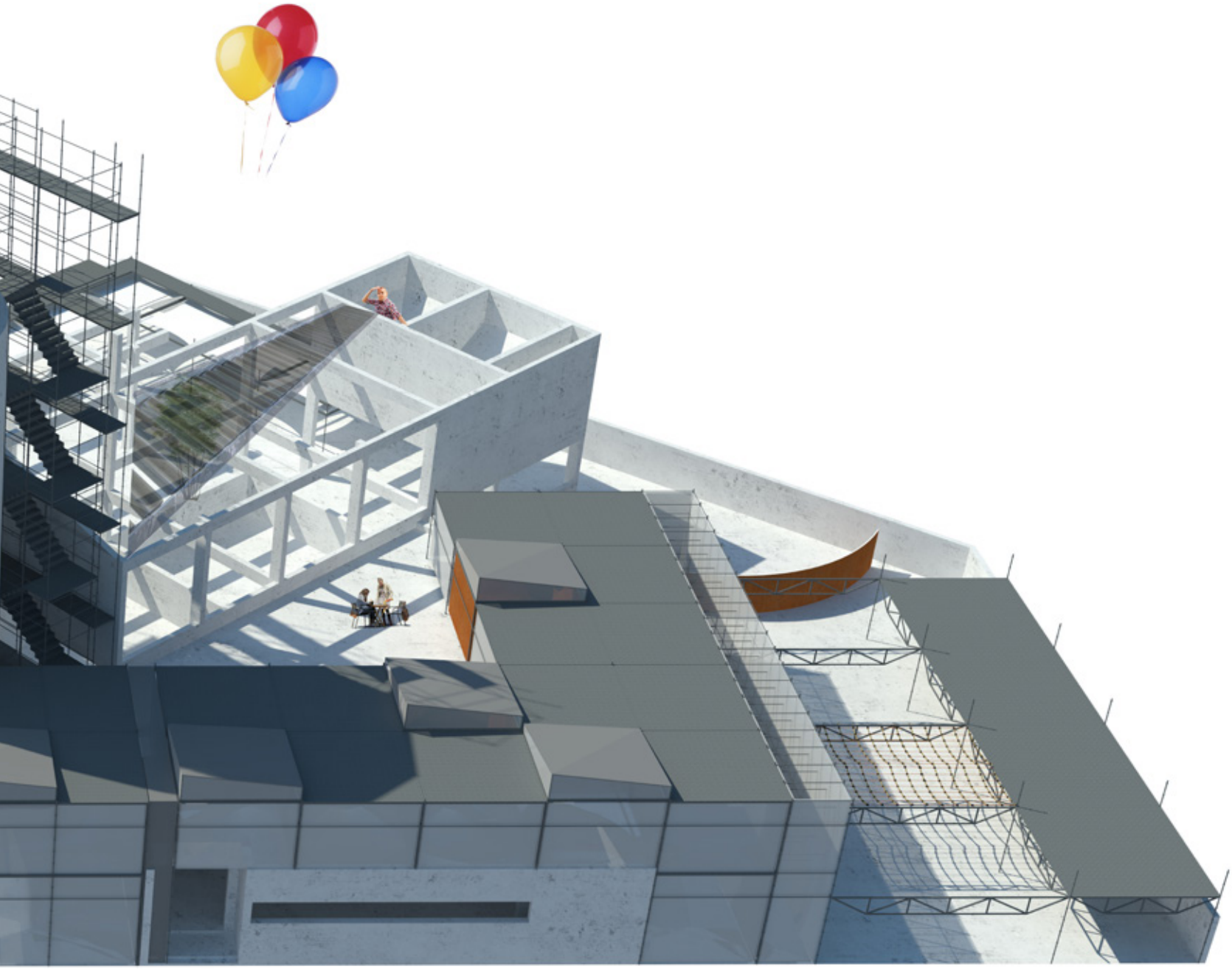
Section AA | 1:200



North Elevation | 1:200

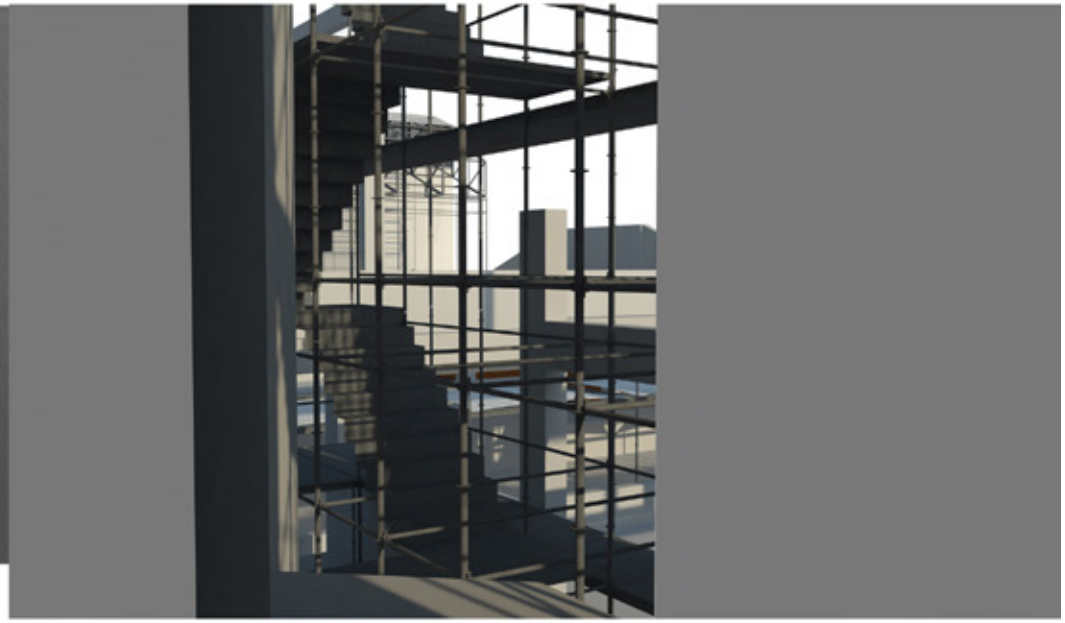






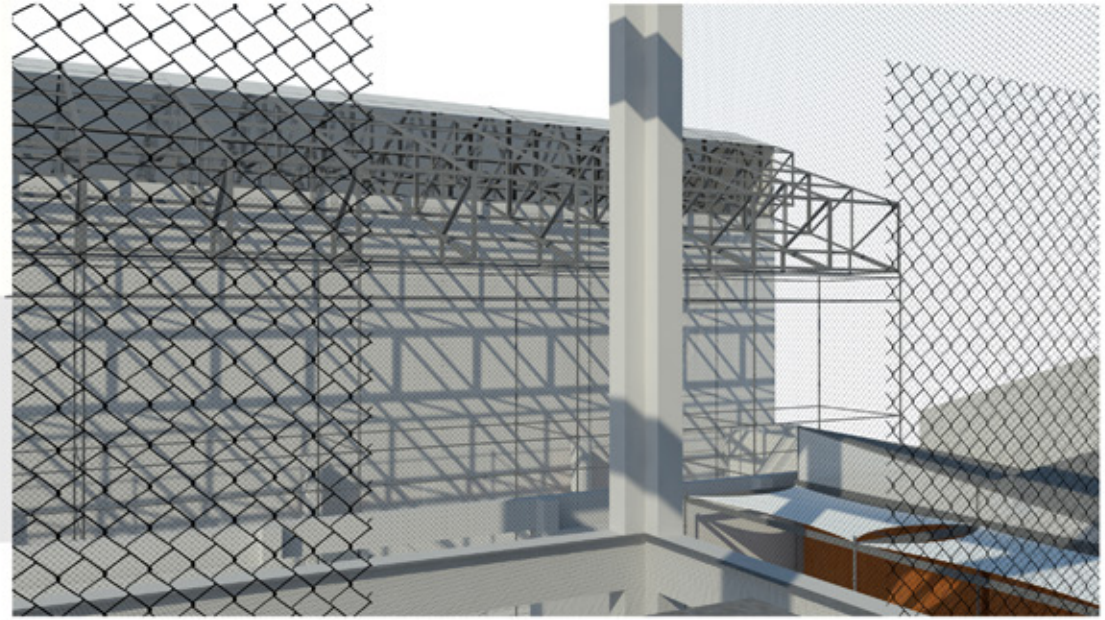
Drawings / *latest design: work in progress*

inside silo 2



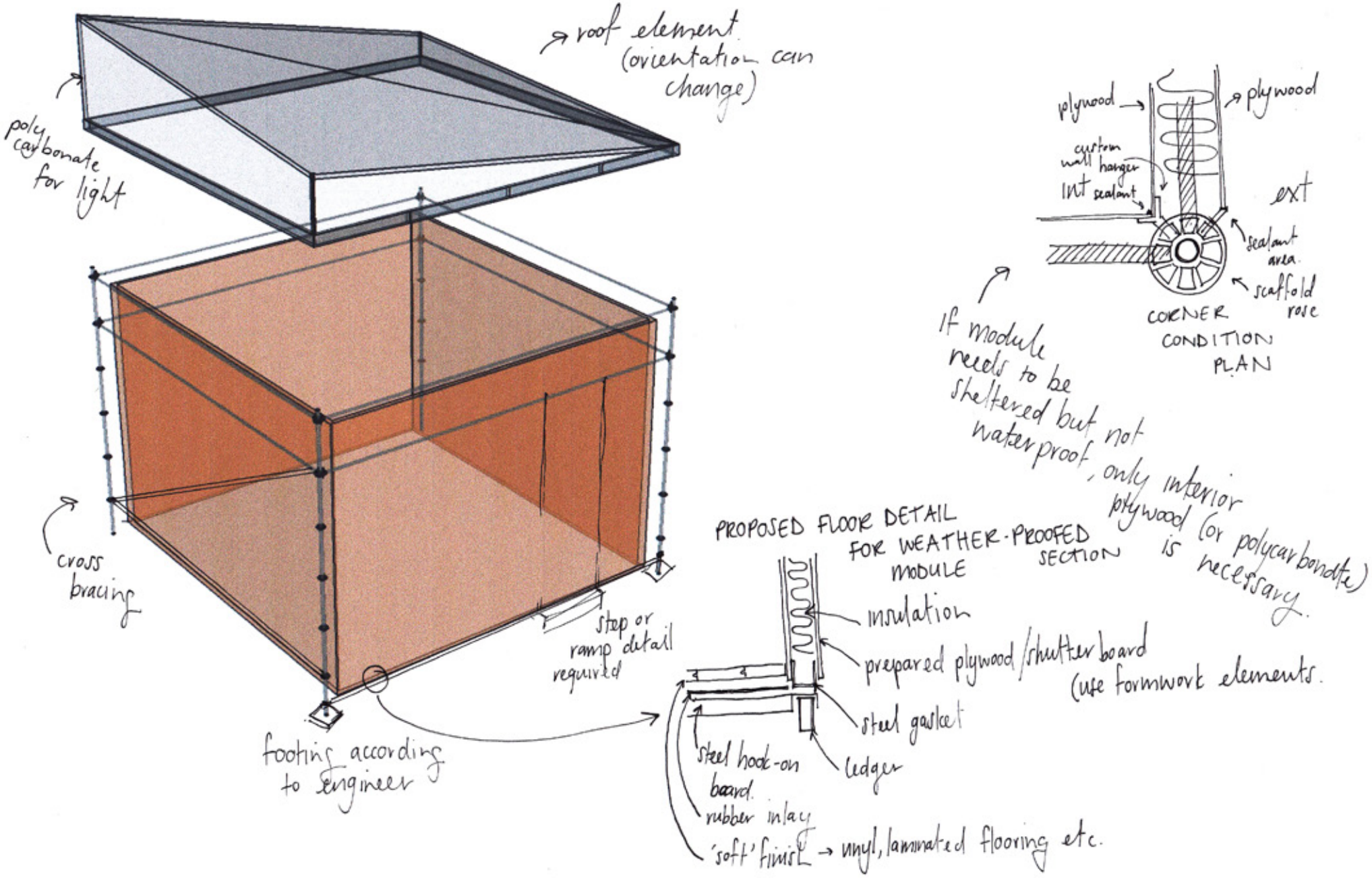
view out from the silo adventure route

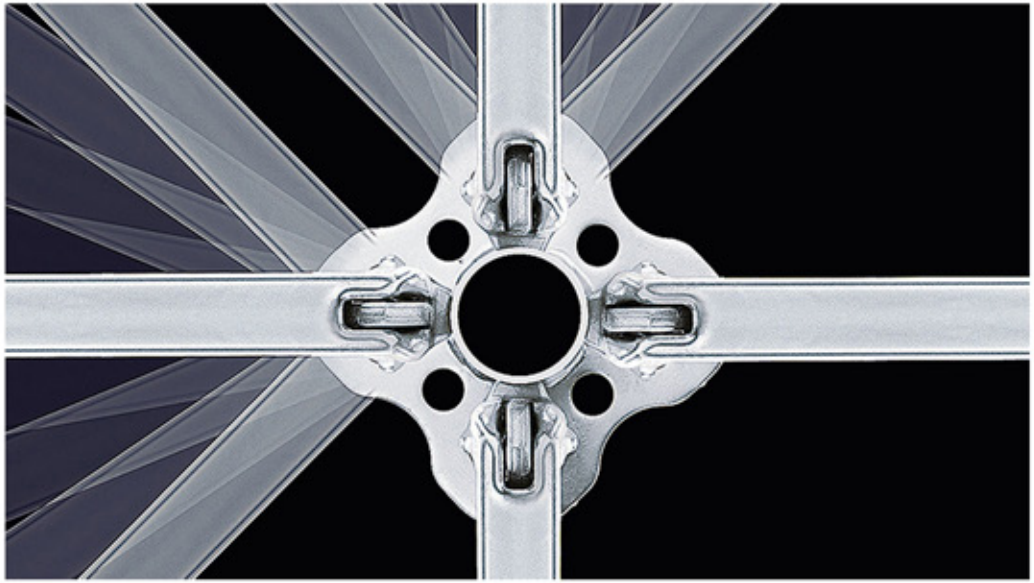
view from adventure route

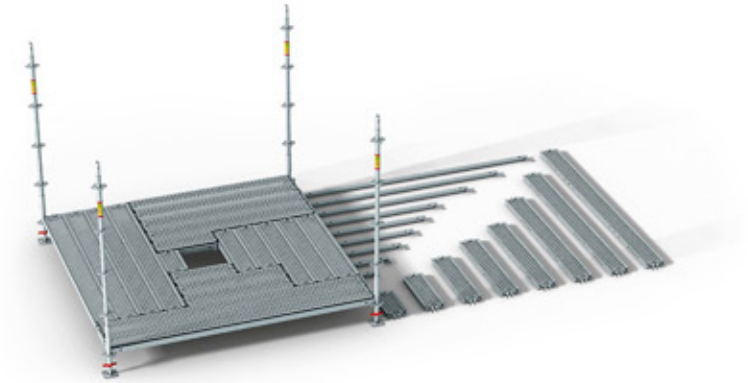


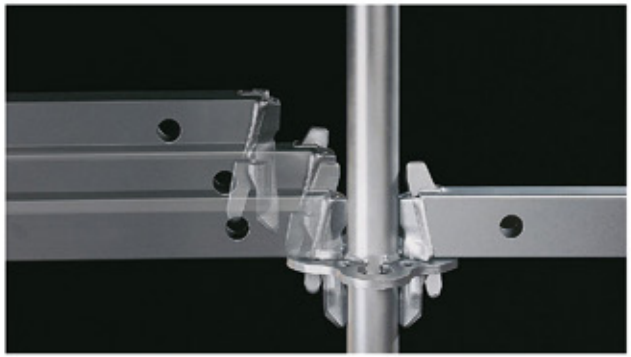
view from end of adventure route

Initial exploration into a clip-in modular system. This system can allow for both weathertight and semi protected modules, with an adjustable (in design) roof. In keeping with the proposed palette of materials, the walling would be formwork, or where transparency is desired, polycarbonate sheeting.









There are a myriad of scaffolding systems available in the market, and I have chosen to work with a system that offers great flexible when interacting with existing structure. The aforementioned system is a multidirectional system with a connection rose that allows for connections in eight different directions, with a 'gravity lock' to keep the elements in place. The system has a maximum span of four metres per section, and can be broken up into smaller increments of that.

This system is the base for my intervention, and will allow for a series of modular surfaces to be custom designed by me, to attach to this system, in order to allow for sealed spaces where necessary.

Scaffolding Technology Details / *modular systems*











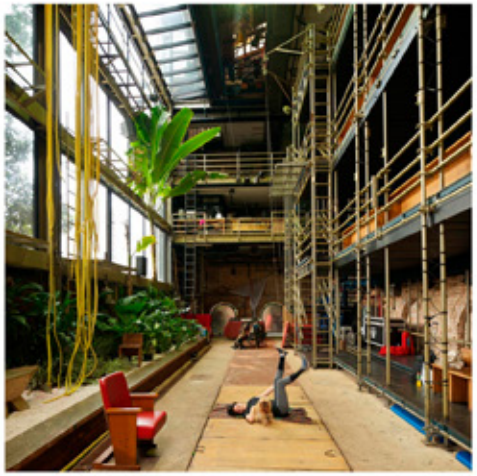


Fig 72-75. Urban Staircase
Fig 76-79. Louisiana Pavilion 2016
Fig 80-83. Teatro Oficina
Fig 84. Reveal the Absence

In 2016, MVRDV unveiled their 'Urban Staircase' – a temporary intervention in the centre of Rotterdam, at the Rotterdam Centraal Station. This 180-step staircase, made entirely out of scaffolding, connected the forecourt in front of the station - to the rooftop of the neighbouring Groot Handelsgebouw building. The material here - not only lends itself well to quick and temporary construction, but is a 'nod' [Taylor-Foster, 2016] towards the history of the city.

2016 saw the 75th anniversary of the rebuilding of Rotterdam - after the Second World War, and as a way to give mention to this, MVRDV decided to use scaffolding – a form of construction synonymous with renovation, as we have mentioned before. Here, the association we have with scaffolding - creates the memory.

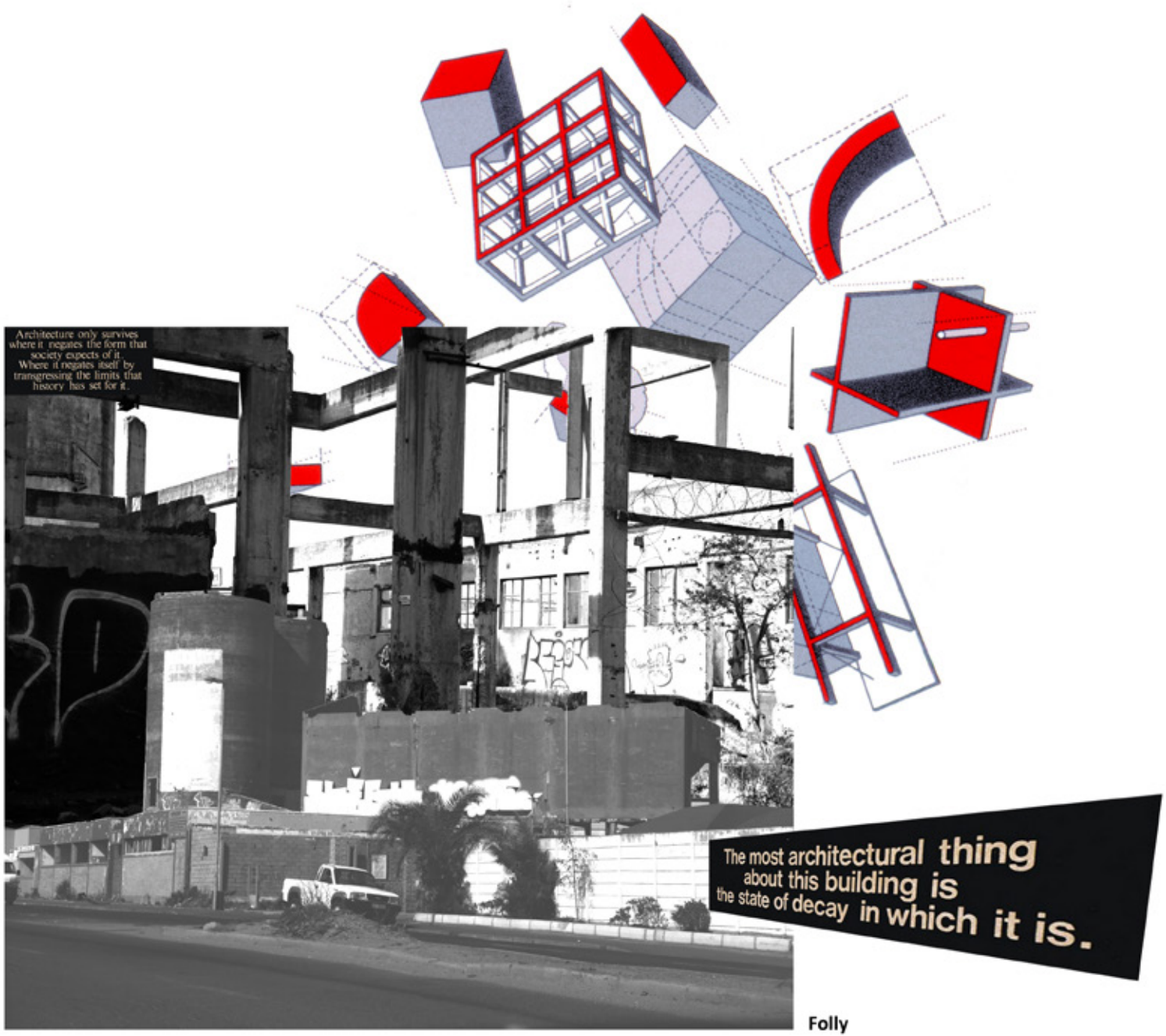
This next project saw its start in life as the Louisiana Museum's 2016 summer pavilion. Selgascano, the architect duo, wanted to design a pavilion that would have life after it was no longer needed, and to do some social good at the same time. So they designed a cheap, lightweight and easy to construct structure which could be disassembled and reconstructed in Nairobi, this time as a school. This quiet, unassuming project makes use of chipboard, polycarbonate plastic and scaffolding – all which could easily pack up into a shipping container to transport.

In 1984, Lina Bo Bardi designed the Oficina Theatro in Brasil, which was the adaptation of an old office building, into a theatre. Or more specifically, this was the third time this space was turned into a theatre.

The theatre is unusual - in that it presents itself as a street – it is non-traditional and means that the actors have to adapt to a different sort of space. In some ways, this theatre is the embodiment of found space, and has formalised it - though I use this term lightly.

But our interest is in the audience seating. In the shell of the existing, in a narrow space, scaffolding was used to create multiple levels of seating. Not only was this a practical and inexpensive way of construction, but it is reminiscent of how sets were previous constructed in this space. The scaffolding acts as a continuation of stage – actors swing off the supports, and intermingle with the audience on it. The scaffolding also continues out into the street, as it forms the walkway up to one of the building's two entrances. This is a new type of theatre, with a new type of stage. Here, the construction embodies the production and its energy.

And lastly, the example here celebrates the unbuilt work of architect El Lissitzky. Present day architect, Guillaume Mazars proposes a structure made entirely out of scaffolding to recreate Lissitsky's Wolkenbügel. The architect takes advantage of the skeletal nature of scaffolding – structure you can see through, but can also appear as a solid. It is haunting, and it abstracts.


Architecture only survives where it negates the form that society expects of it. Where it negates itself by transgressing the limits that history has set for it.
The most architectural thing about this building is the state of decay in which it is.

Folly

The tangible and intangible. The material and memory. By thoroughly exploring both aspects in an industrial adaptation, can a synergy that results in a project with meaning, be found? The answer is yes, it can. To prove this, we ask the question: can *Industrial Archaeology aid architecture in projects of Adaptive Reuse*? How do this, and other disciplinary approaches help the architect? Could materiality be a common denominator?

To begin to engage with these questions, we looked at what Industrial Archaeology is today, and what it once was, and time and time again, the answer was the same: Industrial Archaeology may have been something else in the past, but what it should be, and where it is headed is not a sub-discipline focusing in on itself, but rather part of an holistic approach to site, including not only historical archaeology, but architecture, landscape, legislation, the list goes on. There is a strengthening of the project, when these disciplines work together.

The industrial archaeological approach, is our starting point. The artefact in question that we are preserving is a moment of the industrial history of Cape Town, crystallised as a cement works factory. The archaeological importance of this object is negotiable – it will mean different things to different people. However, we can argue that the importance here is that whatever the individual's position, the fact that this artefact has been preserved, starts a dialogue – which is arguably the intention of Post-Colonial heritage. We learn from history – and it is this very idea, which carries this entire dissertation. The parting of knowledge through the built form. It is vital we understand *why* a place mattered, and how overlaying history onto a site can enrich our experience of it.

The landscape architect's approach to this project is through the analysis of the site, knowing that it was a formal site of industry – what does this mean for the site, and what does this mean for the designer? According to Kirkwood's classifications, this site can be categorised as a Site of Manufacture: a site whose present condition is a result of manufacturing and industrial processes. These conditions become their identifying and prevailing character. As a designer we can elevate this by using these characteristics to create something new, which heavily references the old. With this concept, one can breathe new life into the site, while leaving the industrial artefacts untouched.

Finally, the architect's approach to this project is to firstly, take the above viewpoints, and mould them into a cohesive design. To find the ideas that mesh, and those that juxtapose, and to see what can come from this. It is the approach that understands the Genius Loci of found space, and what opportunities a site of decay can offer. There is a sense of discovery to these spaces. It is this approach that can see the potential for a landmark design, which uses the nature of silo architecture, to create a catalytic project. It sees the potential.

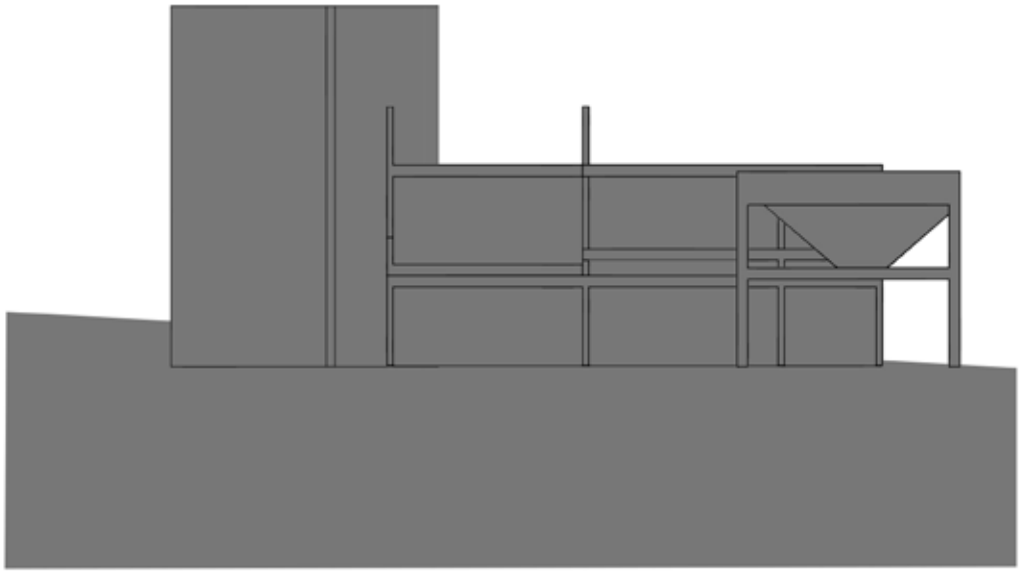
Shifting the gear to a more tangible (dare I say, *concrete*) reading of the site, which relates back to materiality, it is appropriate to base our knowledge in site specifics, and from this, explore the site – in terms of history (largely industrial), site occupation and the palimpsest layers of the space. As Clark stated earlier, identifying the opportunities for the site to demonstrate its significances, and offer inspiration. In this case, the ruin serves as both.

With this in mind, the natural progression of this project, now that the existing has been explored and understood, is to investigate the new intervention on site, and the new material. To hold the concrete ruin in place, (literally in the case of propping) a grid system of scaffolding was placed over it. This new material system has both material value and memory value. Scaffolding is a construction technology – it is temporary by nature, and designed to form around existing structures. It is a skeletal system which allows for the opportunity to add moments of solidity and transparency to the design – to assist the existing relic, without detracting from it.

Preserving the historical is a means of educating the present.

This is the multidisciplinary approach to adaptive projects of an industrial nature. Or at least, as argued in this dissertation, it should be. As in this design proposal, where theories interlace, one material supports the other, and programmatic responses do the same, this is the theme from conception to completion. From memory to material. *From silo to warehouse.*

Conclusion/ *endpiece*



Abstract

Books

Alfrey, Judith, Judith Alfrey Nfa, and Tim Putnam. The industrial heritage: managing resources and uses. Routledge, 2003. (Page 1-39)

Casella, Eleanor and Symonds, James. Industrial Archaeology: Future Directions. Springer, 2005.

Stratton, Michael, and Barrie Trinder. Twentieth century industrial archaeology. Taylor & Francis, 2014. (Page 1-18)

Kirkwood, Niall, ed. Manufactured sites: rethinking the post-industrial landscape. Taylor & Francis, 2003. (Page 1-11, 150-161)

Moholy-Nagy, László. The new vision and Abstract of an artist. New York: Wittenborn, Schultz, 1947. (Page 161-205)

Brand, Ronald E. Falsework and access scaffolds in tubular steel. McGraw-Hill Companies, 1975. (Page 18-37)

Franck, Karen, and Quentin Stevens, eds. Loose space: possibility and diversity in urban life. Routledge, 2013. (Page 38-53, 234-252)

Shepherd, Nick, and Steven Robins, eds. New South African Keywords. Ohio University Press, 2008. (Page 116-128)

Bibliography

Online

Archeyes. 2016. Teatro Oficina / Lina Bo Bardi [online] Available at: http://archeyes.com/teatro-oficina/ [Accessed on 19/07/17]

Taylor-Foster, J. 2016. MVRDV to Install a 180-Step Urban Staircase Outside Rotterdam's Central Station [online] Available at: http://www.archdaily.com/785140/mvrdv-to-install-a-180-step-urban-staircase-outside-rotterdams-central-station [Accessed on 19/07/17]

Campbell-Dollaghan, K. 2014. A Ghostly Memorial to Lost Architecture Recreates It In Scaffolding. [online] Available at: https://www.gizmodo.com.au/2014/02/a-ghostly-memorial-to-lost-architecture-recreates-it-in-scaffolding/ [Accessed on 19/07/17]

Fairs, M. 2016. SelgasCano's Louisiana Pavilion to be reused as a school in Kenya's Kibera slum. [online] Available at: https://www.dezeen.com/2016/02/11/selgascano-kibera-school-pavilion-louisiana-art-museum-copenhagen-kenya-nairobi-slum-humanitarian-architecture/ [Accessed on 19/07/17]

Frearson, A. 2017. Selgascano-designed pavilion transformed into school for Kenya's Kibera slum. [online] Available at: https://www.dezeen.com/2017/01/05/selgascano-designed-pavilion-transformed-into-school-for-kenyas-kibera-slum/ [Accessed on 19/07/17]

Other

Moholy-Nagy, Laszlo. "In Defense of" Abstract" Art." The Journal of Aesthetics and Art Criticism 4, no. 2 (1945): 74-76.

Shepherd, Nick. "A hauntology of Cape Town." Reclaiming archaeology: beyond the tropes of modernity (2013): 233.

Epigraphs

Shepherd, Nick. "A hauntology of Cape Town." Reclaiming archaeology: beyond the tropes of modernity (2013): 233. (page 1)

Dahl, Roald. Charlie and the chocolate factory. Penguin, 2016.

Images

Fig 1 - 7 Author's own, 2017

Fig 8 Author's own, and historical images accessed from the Independent Newspapers Archive, available at http://www.digitalcollections.lib.uct.ac.za/independent-newspapers-archive [Downloaded on 02/04/17]

Fig 9 – 12 Author's own, 2017

Fig 13 ZEITZ MOCAA, photographer unknown, 2017. Available at: http://www.architectmagazine.com/project-gallery/zeitz-museum-of-contemporary-art-africa-mocaa_1_o [Accessed on 17/10/17]

Fig 14 OLD BISCUIT MILL EXTERIOR, 2015. Company's own Available at: https://www.kbarchitects.co.za/project/the-silo-exterior/ [Accessed on 17/10/17]

Fig 15-23 NODU DUISBURG NORD LANDSCAPE PARK, DE (n.d) Company's own. Available at: http://www.latzundpartner.de/en/projekte/postindustrielle-landschaften/landschaftspark-duisburg-nord-de/ [Accessed on 01/08/17]

Fig 24 RALPH RICHTER | PHOTOGRAPHY AND FILM (n.d) Available at: http://www.ralphrichter.com/aerial/landschaftspark-duisburg-nord [Accessed on 10/08/17]

Fig 25 - 28 Created by author, 2017

Fig 29 CITY MAP VIEWER SURVEY OVERLAY (n.d) Available at: https://citymaps.capetown.gov.za/EGISViewer/ [Accessed on 05/04/17]

Fig 30 Origins unknown, supplied to author by Metrorail, 2017

Fig 31 Accessed from the National Archives by author, 2017

Fig 32 Created by author, 2017

Fig 33-38 Drone images captured by Daryl Henning

Fig 39 - 47 Author's own, 2017

Fig 48 Cape Town, SA. Map. Google Maps. Google, 2017. Available at: https://www.google.co.za/maps/@-33.9252586,18.472225,3a,60y,169.79h,89.27t/data=!3m6!1e1!3m4!1sdPRtVaz8L6Iil-iH4WGtVw!2e0!7i13312!8i6656?hl=en [Accessed on 05/04/17] Collage by Author.

Fig 49 - 50 Author's own, 2017

Fig 51 - 54 Created by author

Fig 55-59 CITY MUSEUM (n.d) Company's own. Available at: https://www.citymuseum.org/ [Accessed on 01/10/17]

Fig 61-63 MERIDA FACTORY YOUTH MOVEMENT, photographer: Iwan Baan. 2011 Available at: https://www.archdaily.com/148708/merida-factory-youth-movement-selgas-cano [Accessed on 01/10/17]

Fig 64-67 1964: FUN PALACE, all drawings by Cedric Price, 1964 Available at: http://www.cca.qc.ca/en/issues/2/what-the-future-looked-like/32737/1964-fun-palace [Accessed on 01/10/17]

Fig 68 - 70 PERI SCAFFOLDING (n.d) Company's own. Available at: https://www.peri.co.za/products/scaffolding.html [Accessed on 01/10/17]

Fig 71-75 MVRDV TO INSTALL A 180-STEP URBAN STAIRCASE OUTSIDE ROTTERDAM'S CENTRAL STATION. 2016. Images courtesy of Laurian Ghinitoiu. Available at: http://www.archdaily.com/785140/mvrdv-to-install-a-180-step-urban-staircase-outside-rotterdams-central-station [Accessed on 19/07/17]

Fig 76-79 SELGASCANO'S LOUISIANA PAVILION TO BE REUSED AS A SCHOOL IN KENYA'S KIBERA SLUM. 2016. Photographer unknown. Available at: https://www.dezeen.com/2016/02/11/selgascano-kibera-school-pavilion-louisiana-art-museum-copenhagen-kenya-nairobi-slum-humanitarian-architecture/ [Accessed on 19/07/17]

SELGASCANO-DESIGNED PAVILION TRANSFORMED INTO SCHOOL FOR KENYA'S KIBERA SLUM. 2017. Photographer unknown. Available at: https://www.dezeen.com/2017/01/05/selgascano-designed-pavilion-transformed-into-school-for-kenyas-kibera-slum/ [Accessed on 19/07/17]

Fig 80-83 TEATRO OFICINA / LINA BO BARDI. 2016. Photographer: Inigo Bujedo Aguirre. Available at: http://archeyes.com/teatro-oficina/ [Accessed on 19/07/17]

Fig 84 A GHOSTLY MEMORIAL TO LOST ARCHITECTURE RECREATES IT IN SCAFFOLDING. 2014. Image courtesy of architect. Available at: https://www.gizmodo.com.au/2014/02/a-ghostly-memorial-to-lost-architecture-recreates-it-in-scaffolding/ [Accessed on 19/07/17]

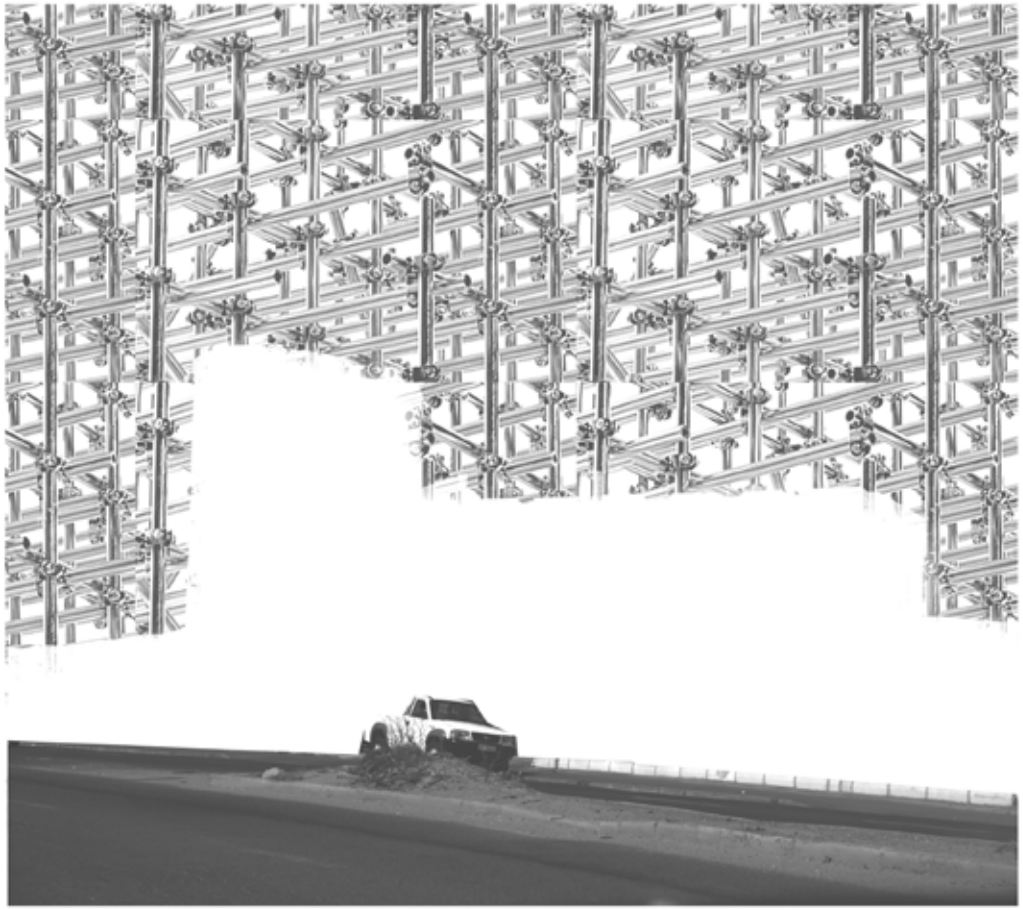
Fig 85 Author's own, 2017

Fig 86 Author's own, 2017

Fig 90 Author's own, 2017

Graph 1 THREE-PHASE CORROSION DAMAGE MODEL [Fig 27.7] Owens, Gill, ed. Fulton's concrete technology. Cement & Concrete Institute, 2009. Page 401. [Scanned on 15/05/17]

Graph 2 OVERVIEW OF FACTORS TO BE CONSIDERED IN THE DESIGN AND APPLICATION OF BONDED OVERLAYS AND PATCH REPAIRS [Fig 27.10] Owens, Gill, ed. Fulton's concrete technology. Cement & Concrete Institute, 2009. Page 402. [Scanned on 15/05/17]



Ghost

i. The Repair and Rehabilitation of Concrete – excerpt from previous Theory and Technology paper, August 2017
ii. Archived drawing – proposed site plan
iii. Archived drawing – blueprint for warehouse roof
iv. Design exploration – abstraction of space, and functions
v. The International Committee for the Conservation of the Industrial Heritage (TICCIH)
vi. Context drawing of Voortrekker Road, at a larger scale
vii. Ethics clearance
viii. Final Presentation drawings

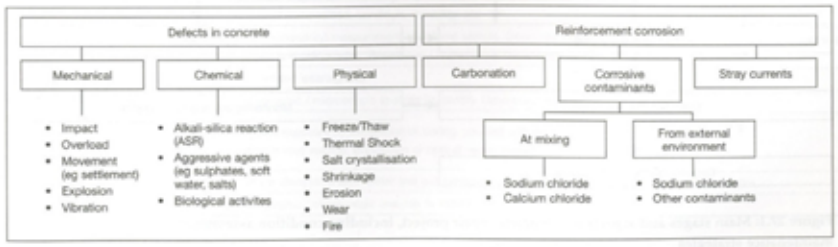
Appendices

Concrete rehabilitation methods

One of the most common reasons for concrete work to deteriorate and require repair is an insufficient amount of concrete, covering the reinforcing steel. A thorough assessment of the concrete must be conducted, usually by an engineer, and this usually requires on-site testing or examinations of samples in a laboratory. Repair work can also be designed to pre-empt further deterioration in the future. Repair work can also do two things: it can be designed to stop deterioration completely, or be designed to slow down the deterioration process for a certain amount of time. In most cases, repair work isn't a 'once-off'. It requires a carefully conducted maintenance strategy. This section will serve as an overview on this topic. We will briefly cover such matters as Condition Assessment Strategies, test methods as well as repair principles, methods and materials.

Condition Assessment Strategies and Test Methods

One of the first things that needs to be identified, is whether the defects are in the concrete itself or whether it's a result of defects causes by the corrosion of the reinforcing. This is in part, why thorough assessments are so crucial.



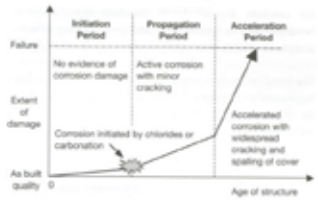
Common defects in concrete

Depending on the type of defect, and the experience of the repair team, assessments may be as simple as assessing the area, visually (for example, understanding ways in which cracks occur could lead to a diagnosis) or could require further material investigation in a laboratory. A myriad of tests can be conducted on concrete to check for defects, this includes tests on concrete strength and uniformity, tests on reinforcement corrosion and the rate thereof and presence of chemicals and the depth of carbonation of the concrete. Most of these are conducted through cored samples. It is not imperative for our purposes to go into too much depth about test methods, but it may be useful to know that other than testing core samples, there are a number of in-situ and laboratory test that can be conducted to get a better understanding of the conditions at hand.

Repair Principles, Methods and Materials

After the appropriate testing have been conducted – whether it be a small work that can be assessed visually on site, or a more in depth analysis via sampling – a strategy can now be put in place. Guidelines and standards have been put in place for such work. For example, in Europe, the EN 1504 puts in places concrete protection and repair method actions to follow. [Owens, 2009: 399] At present in South Africa, there are no set standards for concrete repair methods. There are plenty for concrete construction however. SANS 50206:2015 Concrete - specification, performance, production and conformity is the most applicable to this situation.

In the photos of the site to follow at the end of the chapter, one can see that by far the largest problem is that of spalling and reinforcement corrosion. To the right is a graph, showing the three phases of corrosion. Corrosion actively begins in the Propagation period, or at the end of the Initiation period. This often results in the cracking of the cover concrete, which in turn accelerates the rate of corrosion (in the Acceleration period) as it is now easier for water and oxygen to get through. This can also result in the spalling of the concrete. The photos show evidence of this, and due to the age of the structures, and the evident damage, it is safe to say the concrete is in the Acceleration period, possibly reaching the point of structural failure. This likely means that more serious forms of repair work will have to be done, if we wish to save the concrete structures on site. The tables at the end of this chapter, from *Fulton's Concrete Technology*, in accordance with EN 1504, show a breakdown of possible situations, and the appropriate methods with which to address said problems.



Graph showing the three-phase corrosion damage model

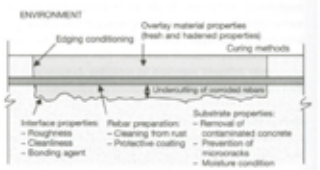


Diagram showing an overview of factors to be considered in the design and application of bonded overlays and patch repairs

For small problem areas, the simplest solution combat corrosion is to administer a patch repair, which is a small bonded overlay on top of the problem area. This is applicable for small cases of corrosion, and requires specific conditions to allow the overlay to be most effective. Below is a diagram, showing the ideal conditions or things to consider when repairing with a patch.

Surface protection systems and coatings are another means to maintain and protect the repaired concrete, rather than utilising it as part of a system, than by itself. Coatings come in a variety of forms, and target key issues, whether it be appearance, anti-corrosion, preventive of chemical or physical attack and to enhance safety.

Table 1: Deterioration processes and remedial actions according to EN 1504

	Observation	Cause of defects	Principle of remedial actions (see Table 27.4)
Defects in concrete	Cracks. Spalling. Delamination. Disintegration of the matrix.	1. *Mechanical*: Impact. Overload. Movement (settlement). Explosion. Vibration. Seismic.	Concrete restoration (CR). Structural strengthening (SS).
		2. *Chemical*: Alkali-aggregate reaction. Aggressive agents (sulphates, soft water, acids, salts). Biological activities.	Protection against ingress (PI). Moisture control (MC). Increasing resistance to chemicals (RC).
		3. *Physical*: Freeze / thaw. Thermal - fire. Salt crystallisation. Shrinkage. Erosion. Wear.	Protection against ingress (PI). Moisture control (MC). Increasing physical resistance (PR). Structural strengthening (SS).
Reinforcement corrosion	Uniform corrosion. Pitting corrosion. Stress corrosion. Cracking.	Carbonation of concrete.	Preserving or restoring passivity (RP). Control of anodic areas (CA).
		Corrosive contaminants: Sodium chloride, calcium chloride, others.	Cathodic control (CC). Cathodic protection (CP). Control of anodic areas (CA). Preserving or restoring passivity (RP).
		Stray currents.	Increasing resistivity (IR).

Table 2: Principles and remedial actions according to EN 1504

	Principle (see Table 27.3)	Methods based on the principle (examples)
Surface protection	*Protection against ingress (PI)*: Reducing or preventing the ingress of adverse agents, e.g. water, other liquids, vapour, gas, chemicals, and biological agents.	Surface impregnation. Surface coating. Bandaging cracks. Filling cracks. Converting cracks to joints. Erecting external panels. Applying membranes.
	Physical resistance (PR): Increasing resistance to physical or mechanical attack.	Overlays. Coatings. Impregnation.
	Resistance to chemicals (RC): Increasing resistance of the concrete surface to deteriorations by chemical attack.	
	Moisture control (MC): Adjusting and maintaining the moisture content in the concrete within a specified range of values.	Hydrophobic impregnation. Surface coating. Sheltering or overcladding.
Repair	*Concrete restoration (CR)*: Restoring to the originally designed shape and function.	Hand-applied mortar. Recasting with concrete. Spraying concrete or mortar. Replacing elements.
	Cathodic control (CC): Creating conditions in which potentially cathodic areas of reinforcement are unable to drive an anodic reaction.	Reducing oxygen supply at the cathode by saturation or surface coating.
	Preserving or restoring passivity (RP): Creating chemical conditions in which the surface of the reinforcement is maintained in, or is returned to, a passive condition.	Increasing cover with additional concrete or mortar. Replacing contaminated or carbonated concrete. Electrochemical realkalisation of carbonated concrete. Realkalisation of carbonated concrete by diffusion. Electrochemical chloride extraction.
	Cathodic protection (CP)	Applying electrical potential
	Control of anodic areas (CA): Creating conditions in which potentially anodic areas of reinforcement are unable to participate in corrosion reaction.	Painting reinforcement with coatings containing active pigments (eg zinc). Painting reinforcement with barrier coatings. Applying penetrating corrosion inhibitors to the concrete surface.
Structural strengthening	*Structural strengthening (SS)*: Increasing or restoring the structural load bearing capacity of an element of the concrete structure	Adding or replacing embedded or external reinforcing steel bars. Installing bonded rebars in preformed or drilled holes in the concrete. Plate bonding. Adding mortar or concrete. Injecting cracks or voids. Filling cracks or voids. Prestressing - post- tensioning.

The state of the concrete work on site. One of the biggest issues is spalling

Structural strengthening

There are a number of reasons a concrete structure might need to be strengthened – largely because of the degradation of the structure over the years, or if a design needs to be revised – but when looking at a project with historical or industrial importance, it may be necessary to strengthen a structure purely so that one can keep the structure viable, for preservation. Methods of strengthening include the addition of reinforced overlays, steel plates or composite sheeting.

Concrete repair and rehabilitation is an extension of site analysis – it's preparing the groundwork for the new intervention, but reinforcing the significant elements of the site's industrial past, and prepping them for new life. *Fulton's concrete technology* offered us some insight into this, and gives the springboard from which we can use to decide on what the most appropriate construction method is for the new intervention.

1873

PROPOSED ADDITION OF STORE TO FACTORY ON LOTS 9&10 OF THE SALT RIVER INDUSTRIAL SITES, FOR THE CEMENT CORPORATION OF SOUTH-AFRICA (PTY) LTD CAPE TOWN.

SCALE: KEY PLAN

ARCHITECT,
NATIONAL MUTUAL BUILDING,
CHURCH SQUARE,
CAPE TOWN.
JUNE 1930.

NEW STORE

EXISTING

EXISTING

EXISTING

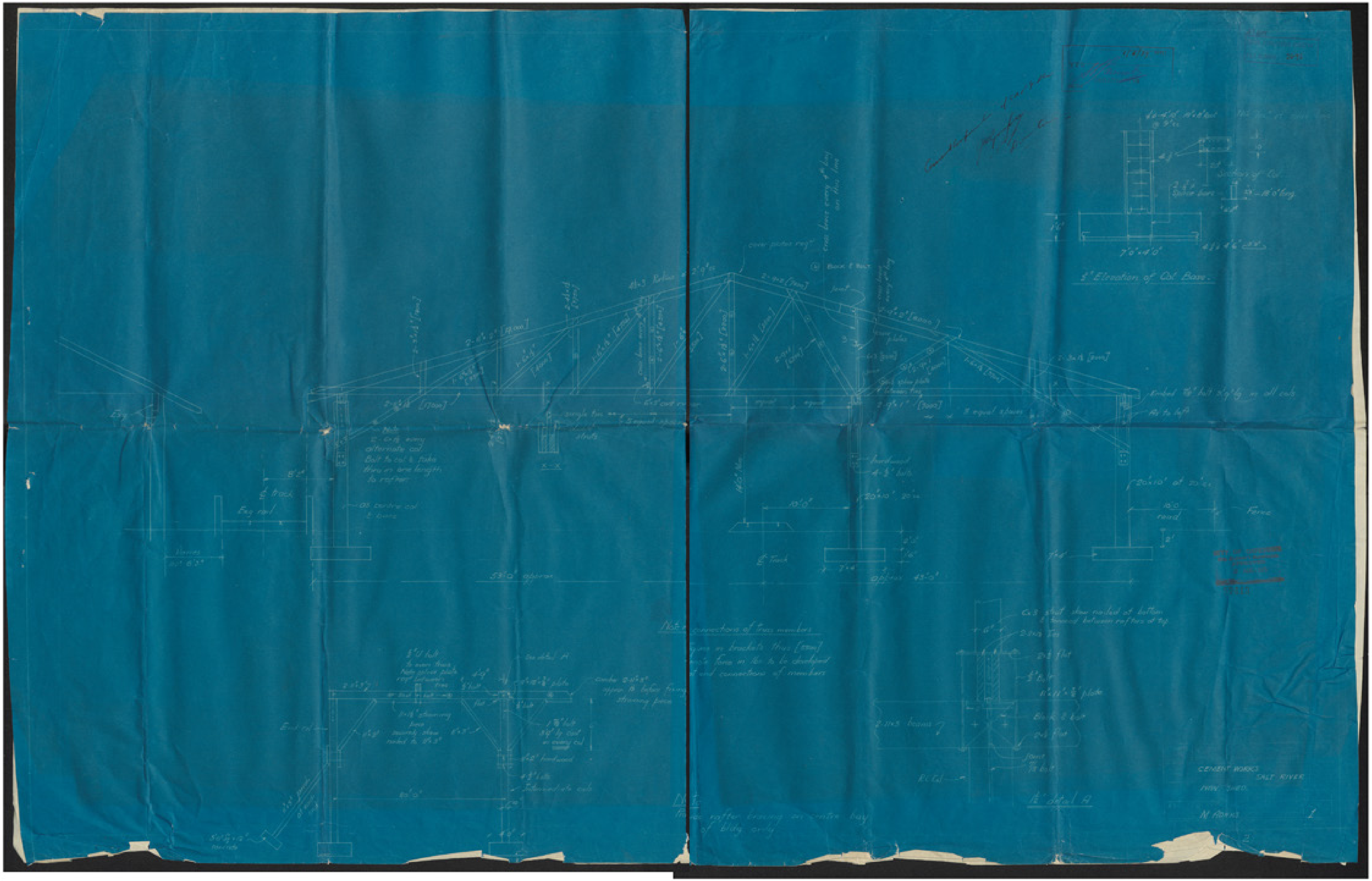
N

SCALE: 8'0" = 1"

PLAN

PART ELEVATION SHOWING CONSTRUCTION OF OPEN SIDE

SECTION: AA



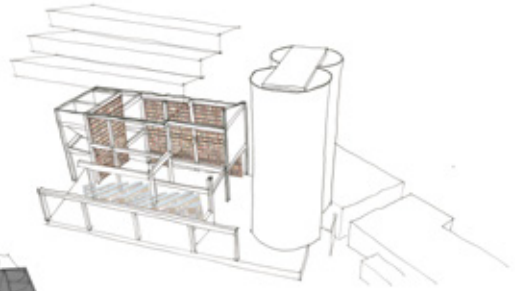
Elevation of Col. Base
Notes: connections of truss members
53'0" approx
CEMENT WORKS
SALT RIVER

Programme that fits into space and strategy

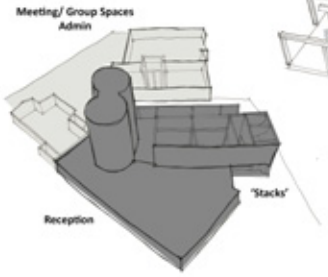
Commercial/ Offices
Sports Orientated Activity
Hospitality [Restaurant and/or Hotel]

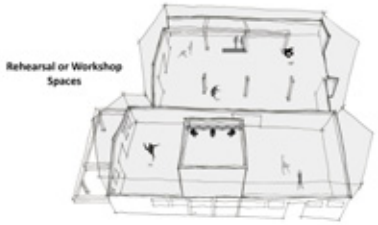
Housing
Sports Orientated Activity
Theatre/ Performing Arts
Museum
Library

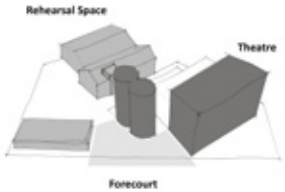
Housing
Healthcare
Theatre/ Performing Arts
Museum
Library
Education



Found Space as Library



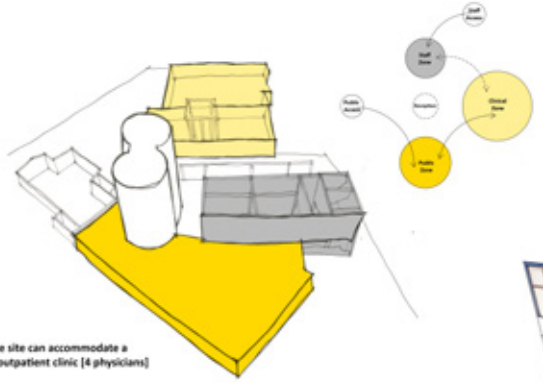




The spaces on site can facilitate for:
+/- 250 seat Theatre
Rehearsal/Workshop Spaces
Front of house | Back of house

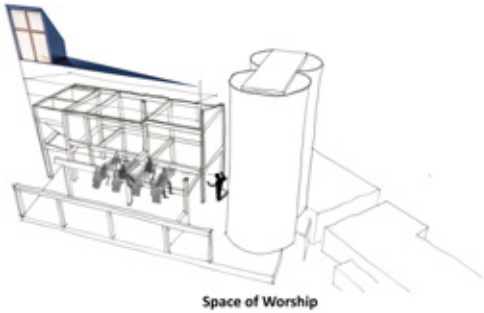
Performing Arts

Design Intentions
Abstract | Programme

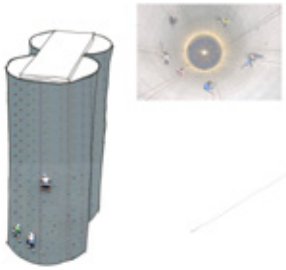


The site can accommodate a small outpatient clinic [4 physicians]

Healthcare



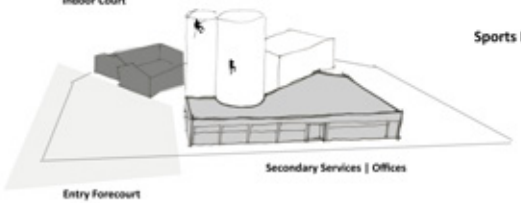
Space of Worship



How big is a standard indoor sports court? 28m x 15m

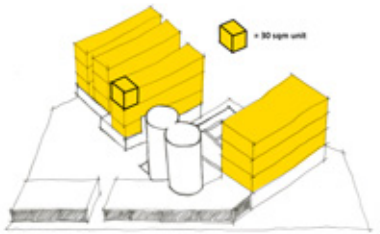
Sports Facilities

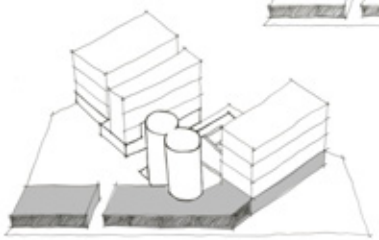
Indoor Court



Secondary Services | Offices

Entry Forecourt





Commercial Opportunity

Housing Potential on site:
+/- 70 (30sqm) units or a mixture of unit types

Commercial use on ground floor

Short term accommodation is also a possibility on site, with communal facilities on the ground floor

Housing

The Nizhny Tagil Charter for the Industrial Heritage

The International Committee for the Conservation of the Industrial Heritage (TICCIH)

17 July, 2003

TICCIH is the world organisation representing industrial heritage and is special adviser to ICOMOS on industrial heritage. The text of this charter was passed by the assembled delegates at the triennial National Assembly of TICCIH held in Moscow on 17 July, 2003.

Preamble

The earliest periods of human history are defined by the archaeological evidence for fundamental changes in the ways in which people made objects, and the importance of conserving and studying the evidence of these changes is universally accepted.

From the Middle Ages, innovations in Europe in the use of energy and in trade and commerce led to a change towards the end of the 18th century just as profound as that between the Neolithic and Bronze Ages, with developments in the social, technical and economic circumstances of manufacturing sufficiently rapid and profound to be called a revolution. The Industrial Revolution was the beginning of a historical phenomenon that has affected an ever-greater part of the human population, as well as all the other forms of life on our planet, and that continues to the present day.

The material evidence of these profound changes is of universal human value, and the importance of the study and conservation of this evidence must be recognised.

The delegates assembled for the 2003 TICCIH Congress in Russia wish therefore to assert that the buildings and structures built for industrial activities, the processes and tools used within them and the towns and landscapes in which they are located, along with all their other tangible and intangible manifestations, are of fundamental importance. They should be studied, their history should be taught, their meaning and significance should be probed and made clear for everyone, and the most significant and characteristic examples should be identified, protected and maintained, in accordance with the spirit of the Venice Charter[1], for the use and benefit of today and of the future.

[1] The ICOMOS 'Venice Charter for the Conservation and Restoration of Monuments and Sites', 1964.

1. Definition of industrial heritage

Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education.

Industrial archaeology is an interdisciplinary method of studying all the evidence, material and immaterial, of documents, artefacts, stratigraphy and structures, human settlements and natural and urban landscapes[2], created for or by industrial processes. It makes use of those methods of investigation that are most suitable to increase understanding of the industrial past and present.

The *historical period* of principal interest extends forward from the beginning of the Industrial Revolution in the second half of the eighteenth century up to and including the present day, while also examining its earlier pre-industrial and proto-industrial roots. In addition it draws on the study of work and working techniques encompassed by the history of technology.

2. Values of industrial heritage

i. The industrial heritage is the evidence of activities which had and continue to have profound historical consequences. The motives for protecting the industrial heritage are based on the universal value of this evidence, rather than on the singularity of unique sites.

ii. The industrial heritage is of social value as part of the record of the lives of ordinary men and women, and as such it provides an important sense of identity. It is of technological and scientific value in the history of manufacturing, engineering, construction, and it may have considerable aesthetic value for the quality of its architecture, design or planning.

iii. These values are intrinsic to the site itself, its fabric, components, machinery and setting, in the industrial landscape, in written documentation, and also in the intangible records of industry contained in human memories and customs.

iv. Rarity, in terms of the survival of particular processes, site typologies or landscapes, adds particular value and should be carefully assessed. Early or pioneering examples are of especial value.

[2] For convenience, 'sites' will be taken to mean landscapes, complexes, buildings, structures and machines unless these terms are used in a more specific way.

3. The importance of identification, recording and research

i. Every territory should identify, record and protect the industrial remains that it wants to preserve for future generations.

ii. Surveys of areas and of different industrial typologies should identify the extent of the industrial heritage. Using this information, inventories should be created of all the sites that have been identified. They should be devised to be easily searchable and should be freely accessible to the public. Computerisation and on-line access are valuable objectives.

iii. Recording is a fundamental part of the study of industrial heritage. A full record of the physical features and condition of a site should be made and placed in a public archive before any interventions are made. Much information can be gained if recording is carried out before a process or site has ceased operation. Records should include descriptions, drawings, photographs and video film of moving objects, with references to supporting documentation. Peoples' memories are a unique and irreplaceable resource which should also be recorded when they are available.

iv. Archaeological investigation of historic industrial sites is a fundamental technique for their study. It should be carried out to the same high standards as that of sites from other historical or cultural periods.

v. Programmes of historical research are needed to support policies for the protection of the industrial heritage. Because of the interdependency of many industrial activities, international studies can help identify sites and types of sites of world importance.

vi. The criteria for assessing industrial buildings should be defined and published so as to achieve general public acceptance of rational and consistent standards. On the basis of appropriate research, these criteria should be used to identify the most important surviving landscapes, settlements, sites, typologies, buildings, structures, machines and processes.

vii. Those sites and structures that are identified as important should be protected by legal measures that are sufficiently strong to ensure the conservation of their significance. The World Heritage List of UNESCO should give due recognition to the tremendous impact that industrialisation has had on human culture.

viii. The value of significant sites should be defined and guidelines for future interventions established. Any legal, administrative and financial measures that are necessary to maintain their value should be put in place.

ix. Sites that are at risk should be identified so that appropriate measures can be taken to reduce that risk and facilitate suitable schemes for repairing or re-using them.

x. International co-operation is a particularly appropriate approach to the conservation of the industrial heritage through co-ordinated initiatives and sharing resources. Compatible criteria should be developed to compile international inventories and databases.

4. Legal protection

I. The industrial heritage should be seen as an integral part of the cultural heritage in general. Nevertheless, its legal protection should take into account the special nature of the industrial heritage. It should be capable of protecting plant and machinery, below-ground elements, standing structures, complexes and ensembles of buildings, and industrial landscapes. Areas of industrial waste should be considered for their potential archaeological as well as ecological value.

II. Programmes for the conservation of the industrial heritage should be integrated into policies for economic development and into regional and national planning.

III. The most important sites should be fully protected and no interventions allowed that compromise their historical integrity or the authenticity of their fabric. Sympathetic adaptation and re-use may be an appropriate and a cost-effective way of ensuring the survival of industrial buildings, and should be encouraged by appropriate legal controls, technical advice, tax incentives and grants.

IV. Industrial communities which are threatened by rapid structural change should be supported by central and local government authorities. Potential threats to the industrial heritage from such changes should be anticipated and plans prepared to avoid the need for emergency actions.

V. Procedures should be established for responding quickly to the closure of important industrial sites to prevent the removal or destruction of significant elements. The competent authorities should have statutory powers to intervene when necessary to protect important threatened sites.

VI. Government should have specialist advisory bodies that can give independent advice on questions relating to the protection and conservation of industrial heritage, and their opinions should be sought on all important cases.

VII. Every effort should be made to ensure the consultation and participation of local communities in the protection and conservation of their local industrial heritage.

VIII. Associations and societies of volunteers have an important role in identifying sites, promoting public participation in industrial conservation and disseminating information and research, and as such are indispensable actors in the theatre of industrial heritage.

5. Maintenance and conservation

I. Conservation of the industrial heritage depends on preserving functional integrity, and interventions to an industrial site should therefore aim to maintain this as far as possible. The value and authenticity of an industrial site may be greatly reduced if machinery or components are removed, or if subsidiary elements which form part of a whole site are destroyed.

II. The conservation of industrial sites requires a thorough knowledge of the purpose or purposes to which they were put, and of the various industrial processes which may have taken place there. These may have changed over time, but all former uses should be examined and assessed.

III. Preservation *in situ* should always be given priority consideration. Dismantling and relocating a building or structure are only acceptable when the destruction of the site is required by overwhelming economic or social needs.

IV. The adaptation of an industrial site to a new use to ensure its conservation is usually acceptable except in the case of sites of especial historical significance. New uses should respect the significant material and maintain original patterns of circulation and activity, and should be compatible as much as possible with the original or principal use. An area that interprets the former use is recommended.

V. Continuing to adapt and use industrial buildings avoids wasting energy and contributes to sustainable development. Industrial heritage can have an important role in the economic regeneration of decayed or declining areas. The continuity that re-use implies may provide psychological stability for communities facing the sudden end a long-standing sources of employment.

VI. Interventions should be reversible and have a minimal impact. Any unavoidable changes should be documented and significant elements that are removed should be recorded and stored safely. Many industrial processes confer a patina that is integral to the integrity and interest of the site.

VII. Reconstruction, or returning to a previous known state, should be considered an exceptional intervention and one which is only appropriate if

it benefits the integrity of the whole site, or in the case of the destruction of a major site by violence.

VIII. The human skills involved in many old or obsolete industrial processes are a critically important resource whose loss may be irreplaceable. They need to be carefully recorded and transmitted to younger generations.

IX. Preservation of documentary records, company archives, building plans, as well as sample specimens of industrial products should be encouraged.

6. Education and training

I. Specialist professional training in the methodological, theoretical and historical aspects of industrial heritage should be taught at technical and university levels.

II. Specific educational material about the industrial past and its heritage should be produced by and for students at primary and secondary level.

7. Presentation and interpretation

I. Public interest and affection for the industrial heritage and appreciation of its values are the surest ways to conserve it. Public authorities should actively explain the meaning and value of industrial sites through publications, exhibitions, television, the Internet and other media, by providing sustainable access to important sites and by promoting tourism in industrial areas.

II. Specialist industrial and technical museums and conserved industrial sites are both important means of protecting and interpreting the industrial heritage.

III. Regional and international routes of industrial heritage can highlight the continual transfer of industrial technology and the large-scale movement of people that can be caused by it.

Eusebi Casanelles
President TICCIH

Eugene Logunov
TICCIH XII International Congress

Nizhny Tagil, 2003

APPLICATION FORM

Please Note:
Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form **before** collecting or analysing data. The objective of submitting this application *prior* to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the EBE Ethics in Research Handbook(available from the UCT EBE, Research Ethics website) prior to completing this application form: http://www.ebe.uct.ac.za/usr/ebe/research/ethics.pdf

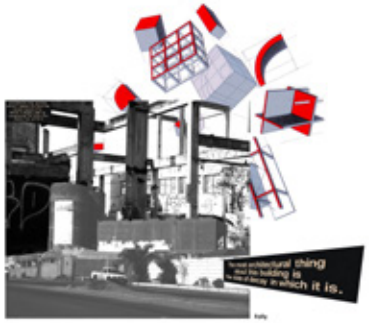
APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant		ALEXANDRA MOLL
Department		Architecture, Planning and Geomatics
Preferred email address of applicant:		alexmoll91@gmail.com
If a Student	Your Degree: e.g., MSc, PhD, etc.,	March (Prof)
	Name of Supervisor (if supervised):	Stella Papanicolaou
If this is a researchcontract, indicate the source of funding/sponsorship		/
Project Title		ADAPTIVE REUSE - INDUSTRIAL ARCHAEOLOGY IN CAPE TOWN

I hereby undertake to carry out my research in such a way that:

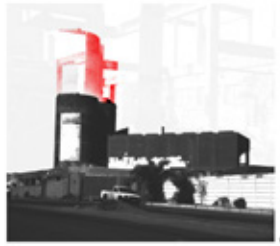
- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

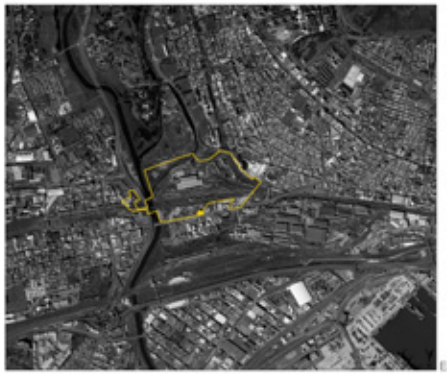
SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	ALEXANDRA MOLL		Click here to enter a date. 23/03/2017

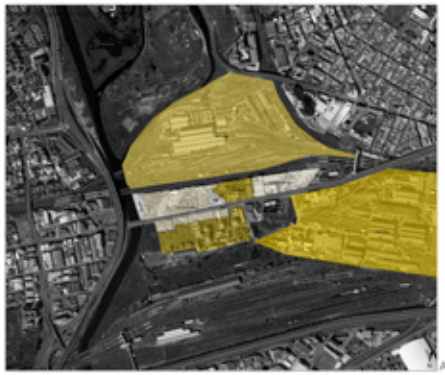
APPLICATION APPROVED BY	Full name	Signature	Date
Supervisor (where applicable)	STELLA PAPANICOLAOU Click here to enter text.		23.03.'17 Click here to enter a date.
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section1; and for all Undergraduateresearch (Including Honours).	TONA BERLANA Click here to enter text.		24.03.17 Click here to enter a date.
Chair : Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.	Click here to enter text.		Click here to enter a date

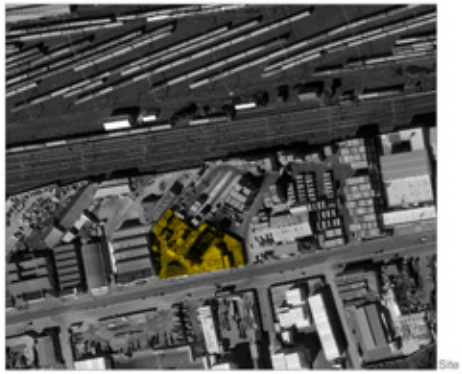

thing
building is
which it is.


Endless problems
To really appreciate architecture you may even need to commit a murder.



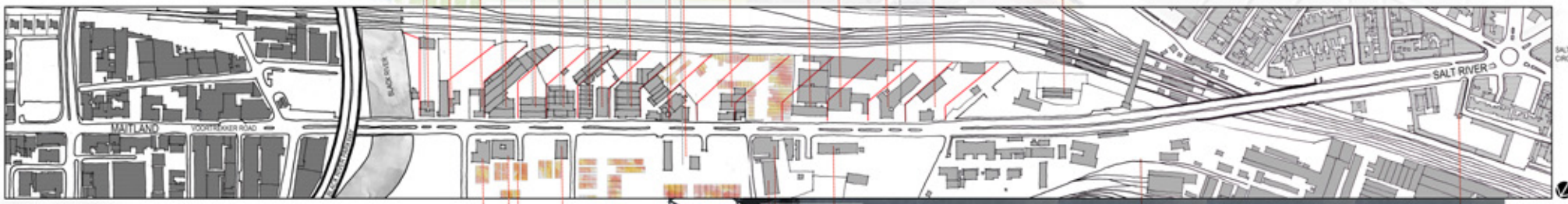






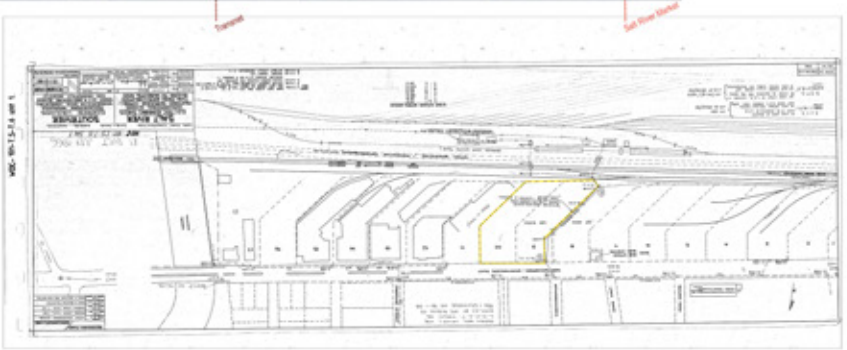

Collages

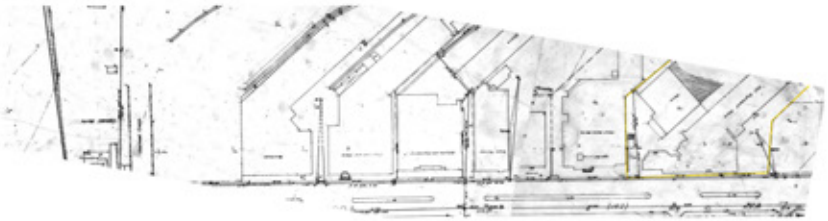
Context + Conditions

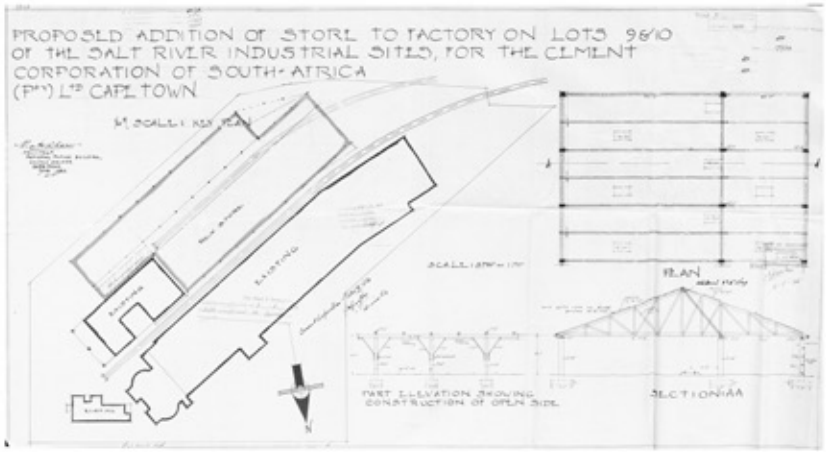


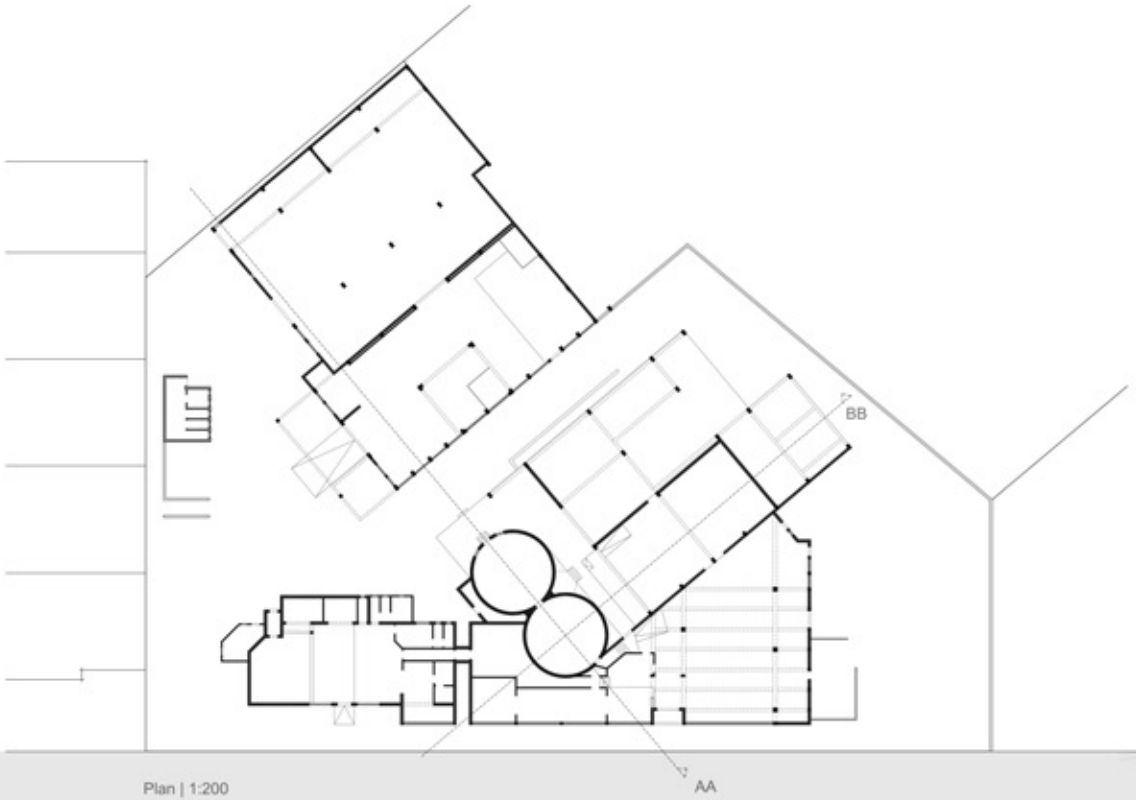
Voortrekker Road

The FACTory is a play on the industrial nature of the site, as well as the idea that the reprogramming introduces an element of learning and education to the site. It also hints at the archaeological nature of this project, by referencing the artifact.







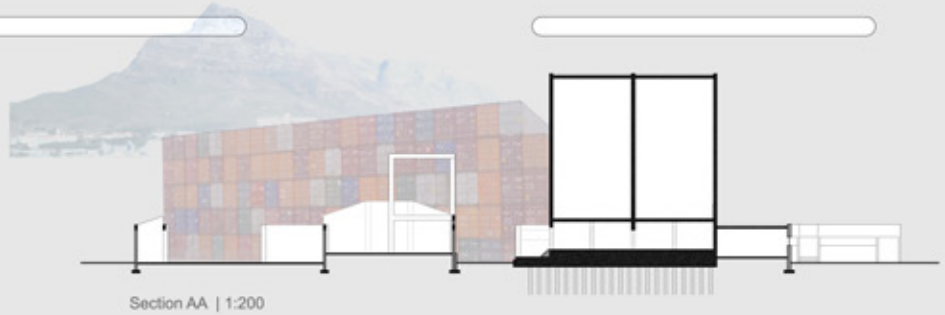


Plan | 1:200

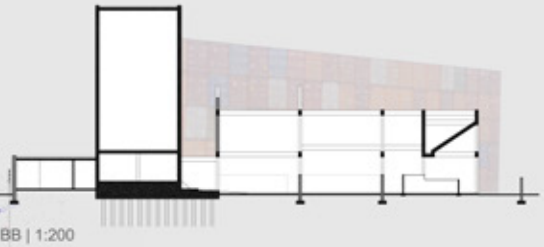
South Elevation | 1:200

North Elevation | 1:200

East Elevation | 1:200



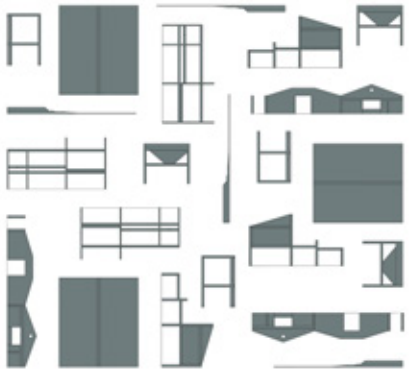
Section AA | 1:200

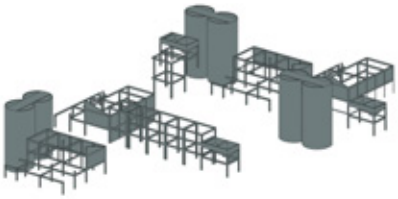


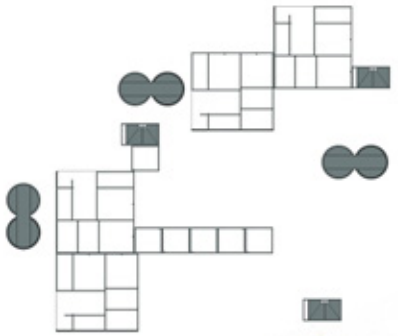
Scale BB | 1:200

Site Plan | 1:1000

Existing Site







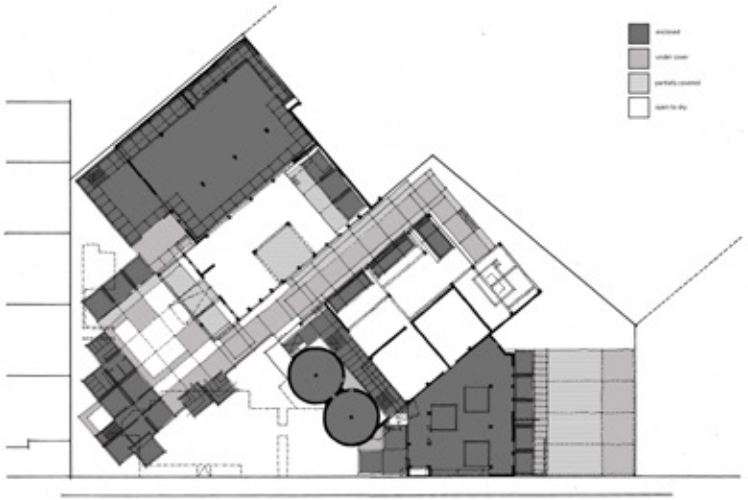

Abstraction


On Approach

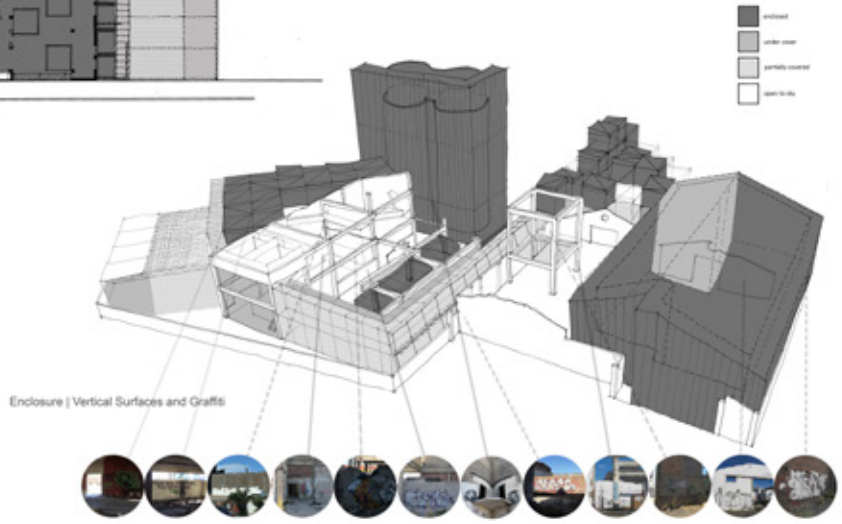
Found vs New | Structure

Found vs New | Surfaces

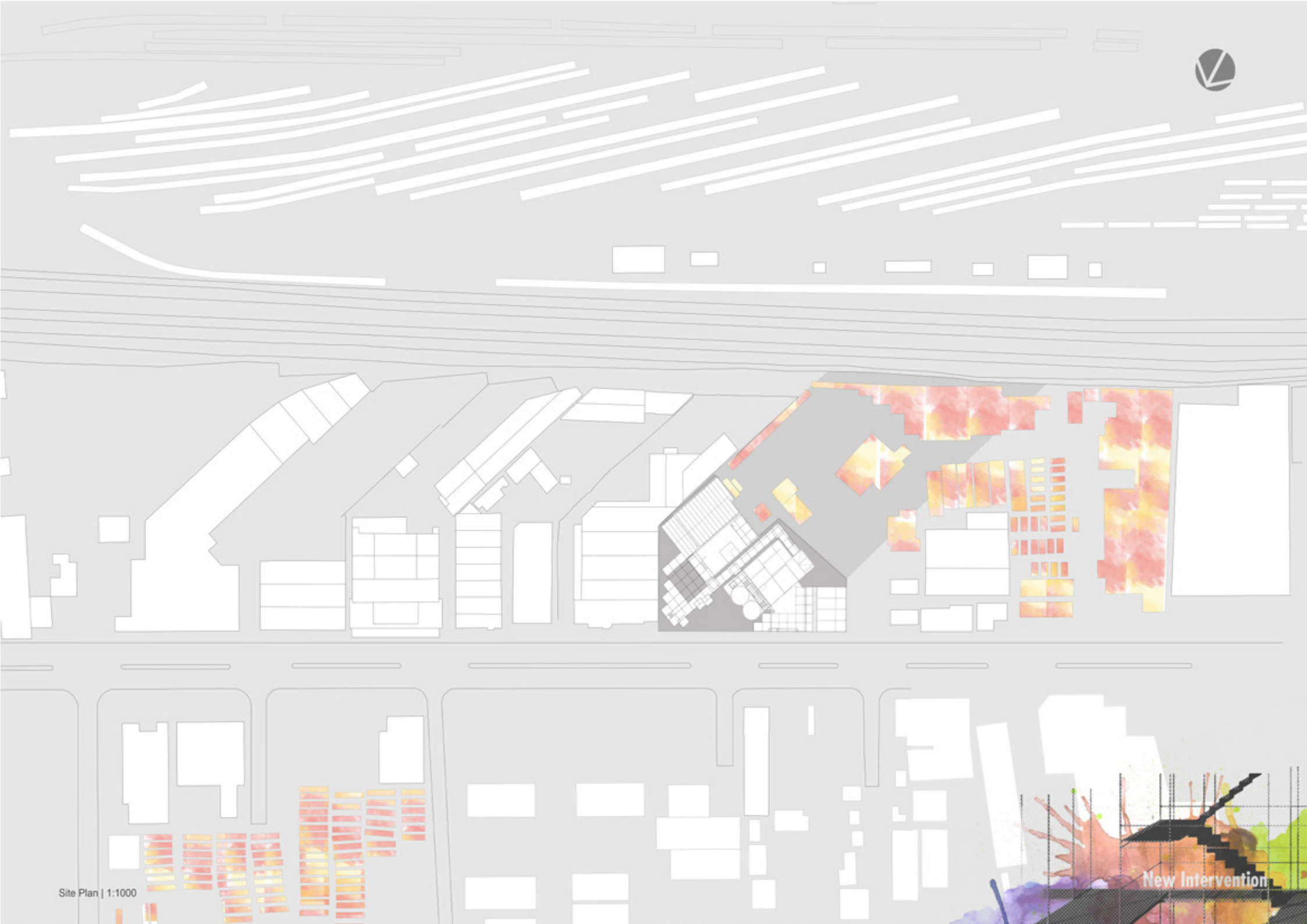
Programme | Movement, Narrative and Activity



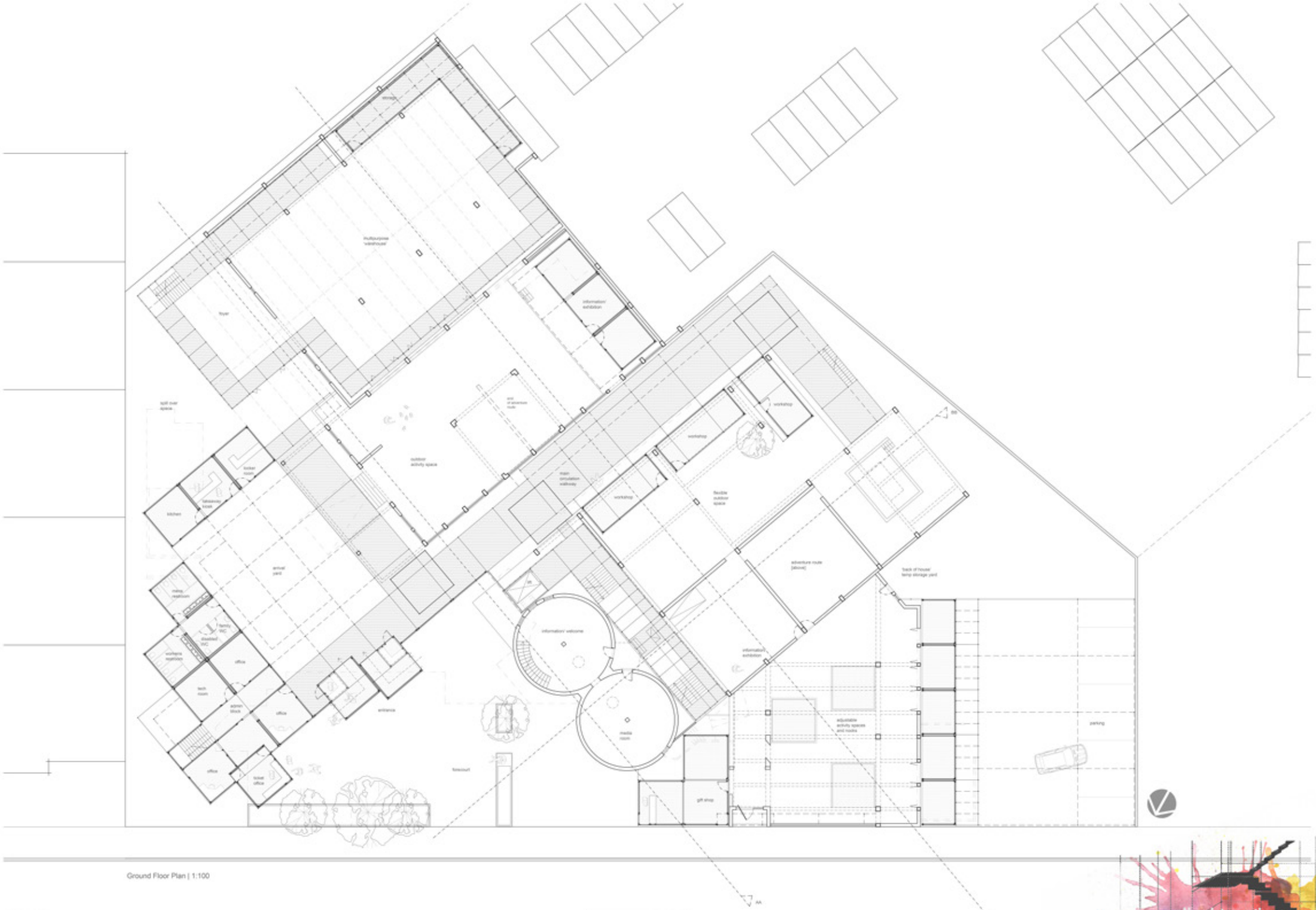
Enclosure | Floor Plane



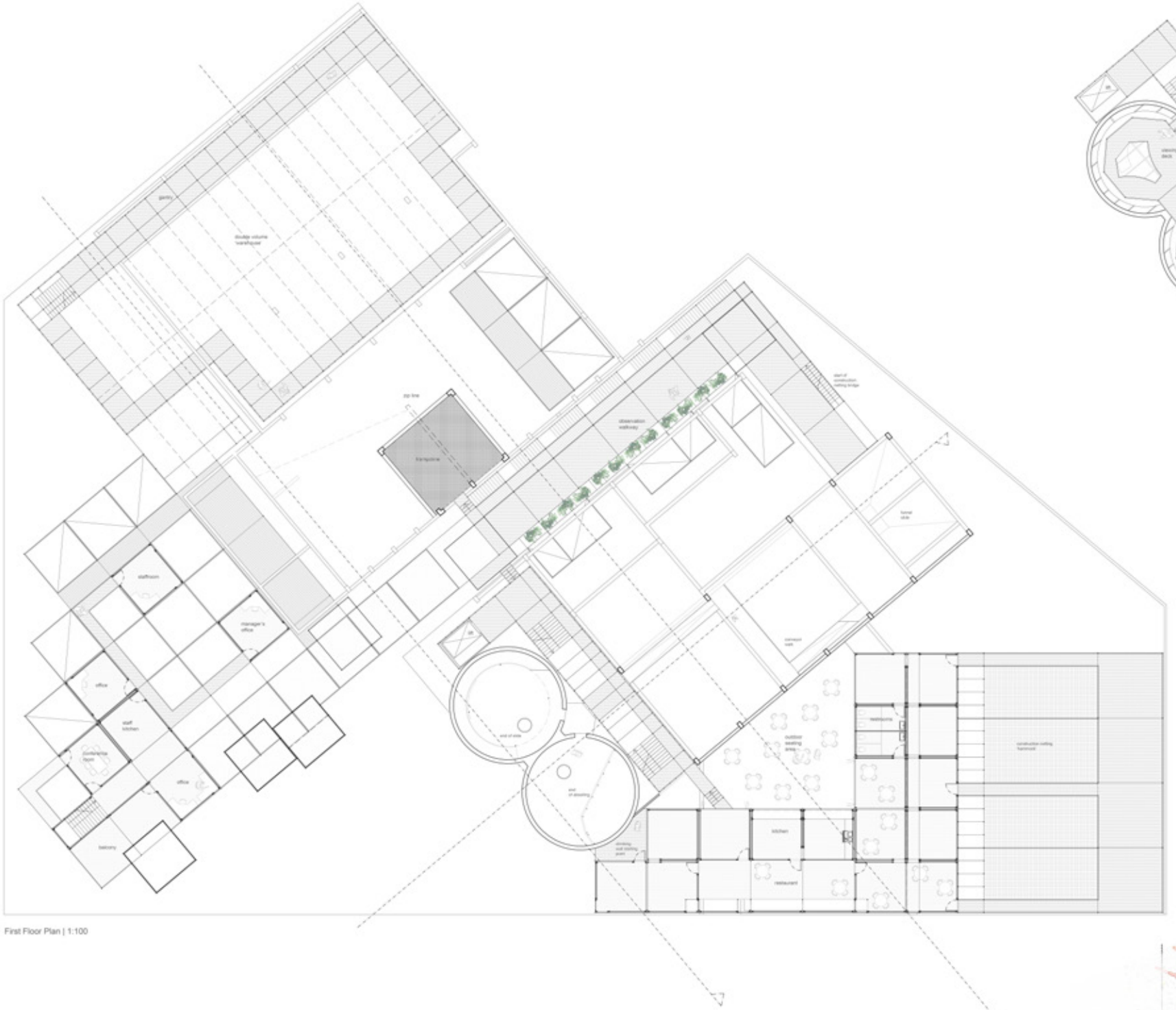
Enclosure | Vertical Surfaces and Graffiti



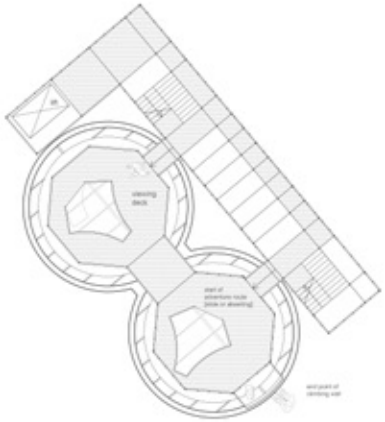
Site Plan | 1:1000



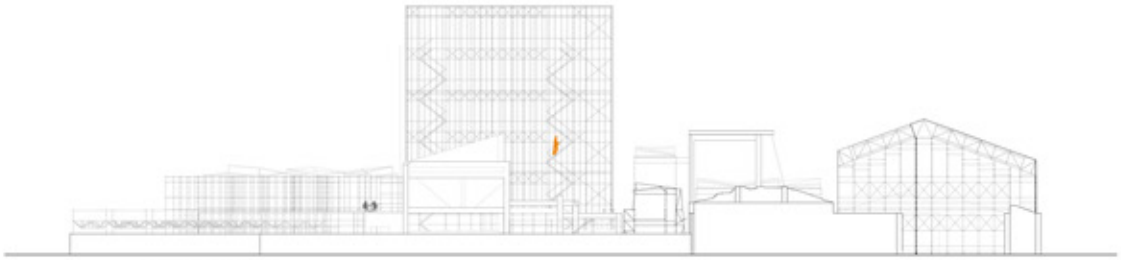
Ground Floor Plan | 1:100



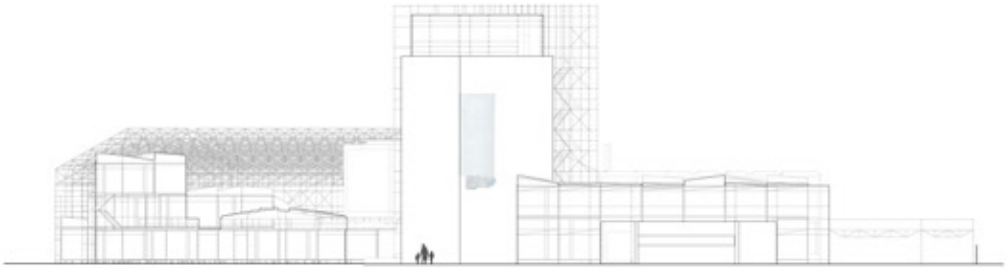
First Floor Plan | 1:100



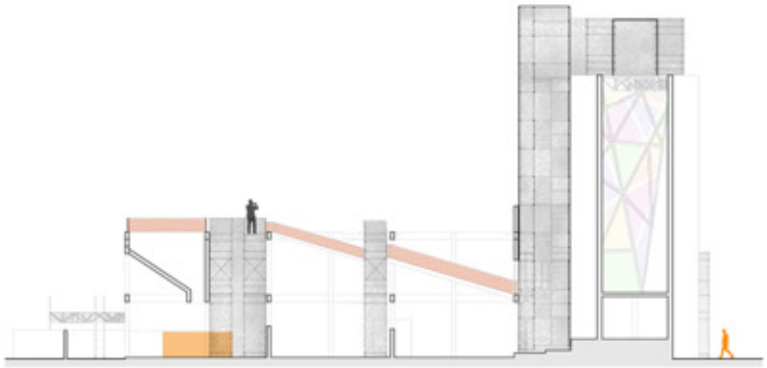
Rooftop Plan | 1:100



South Elevation | 1:200



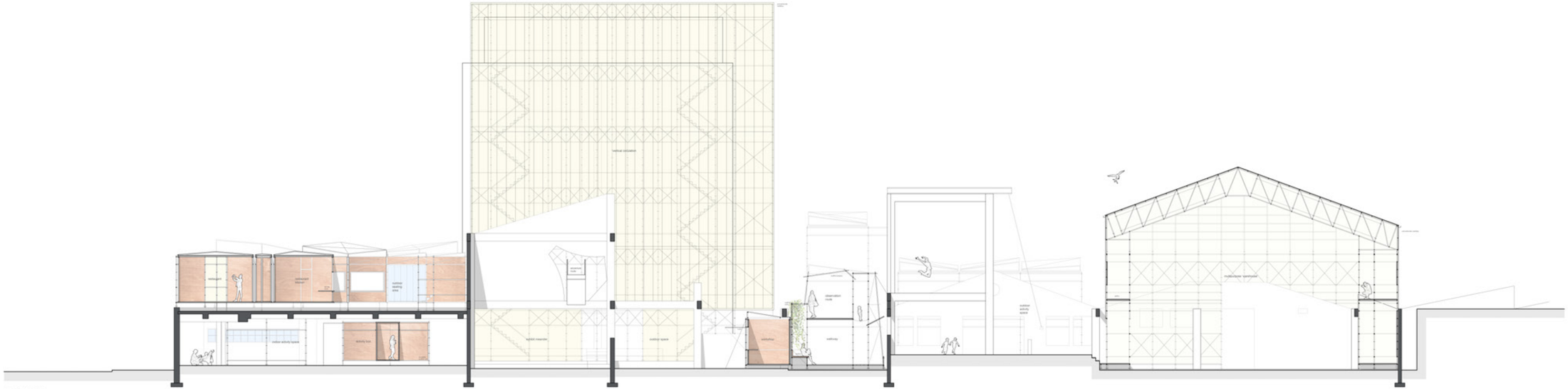
North Elevation | 1:200



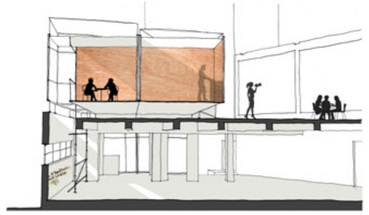
Section BB | 1:150

Section AA | 1:100

New Intervention

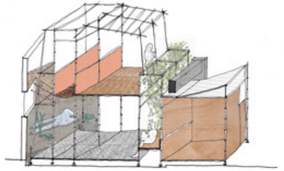


Section CC | 1:50



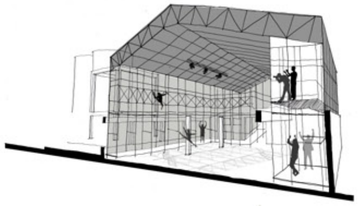
Section through facade of restaurant | letting in light

Silos at night | experienced from below



Walkway textures and relationships

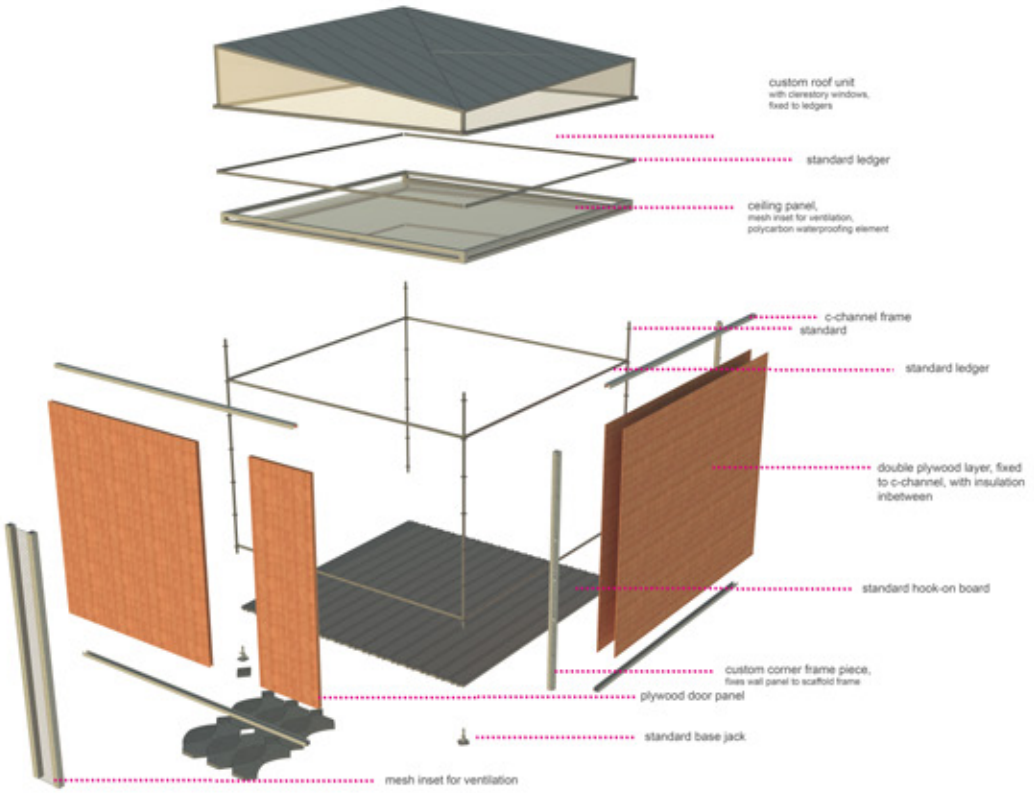
New on old | shadows and layers



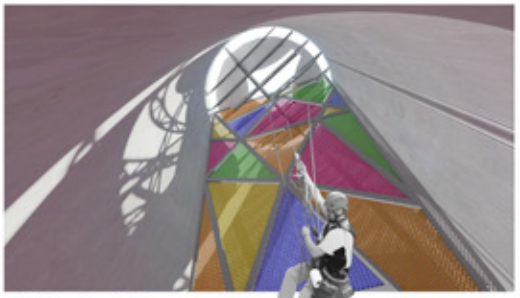
Visual layers | space making in the 'warehouse'

Modular System Axonometric

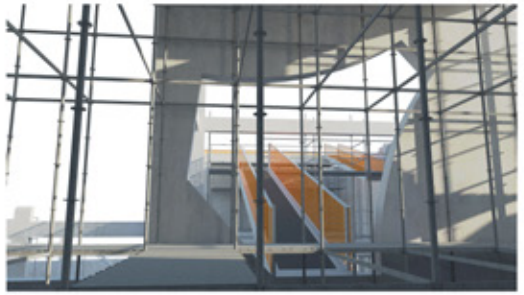
Customisable to be waterproof where necessary.
Wall panels can be plywood or polycarbonate.



Preserved Graffiti:
the last view before leaving the site



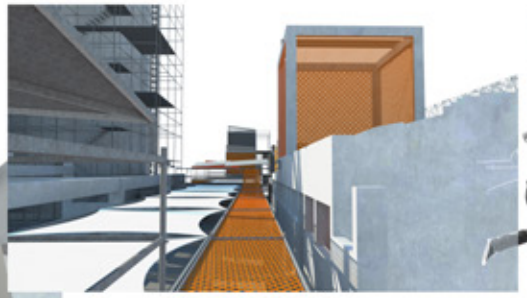
start of adventure route | silo



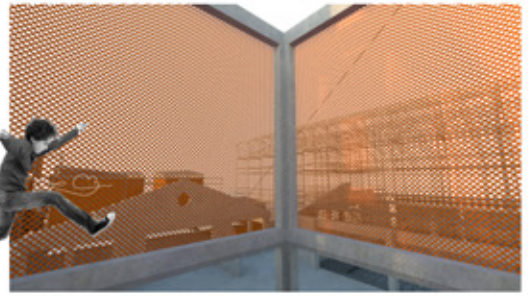
the journey of concrete | frame

view back across over site

from the funnels to the silos | funnel



following the on-site movement | railway track



end of adventure route | tower