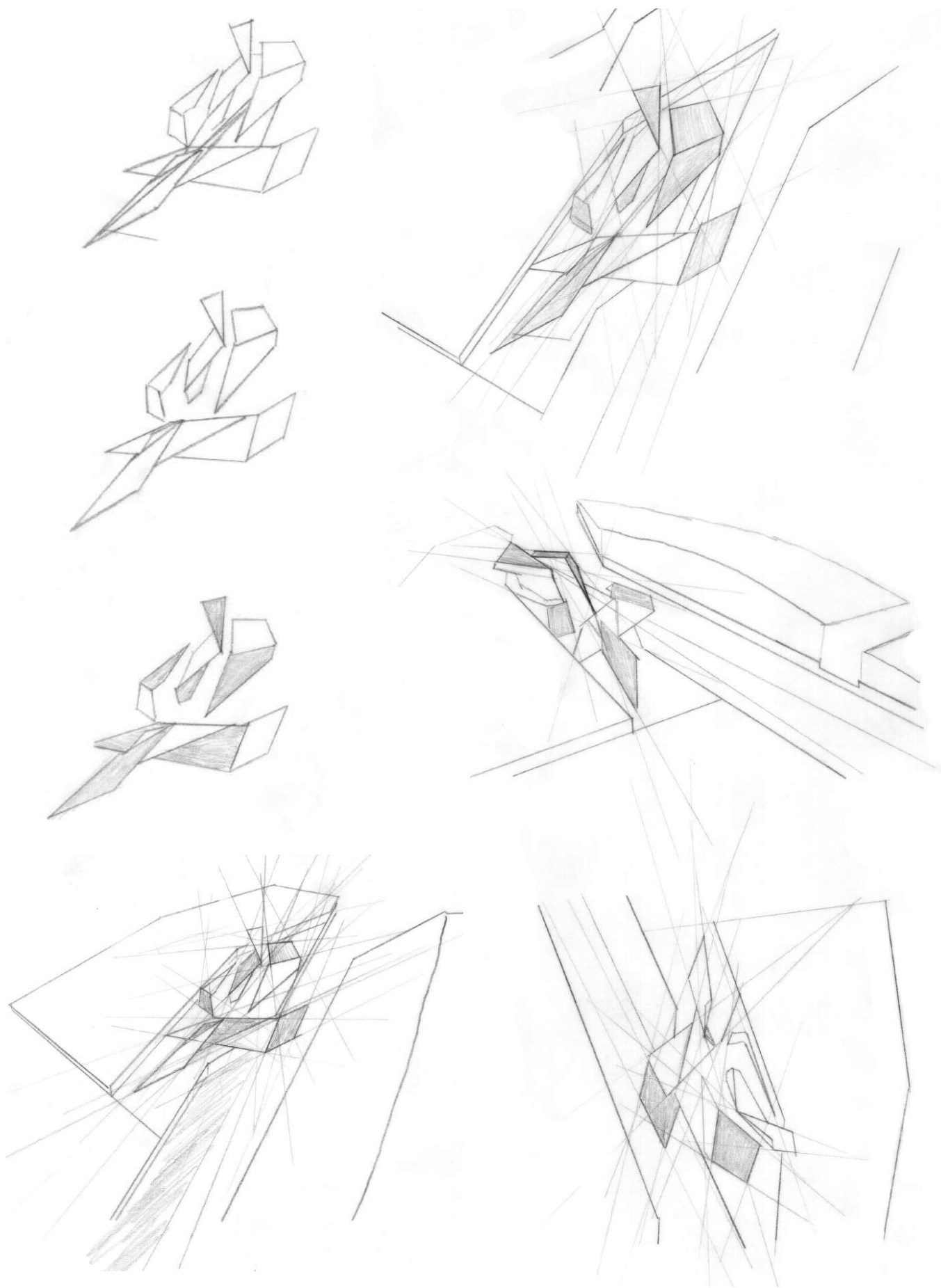


Atmosphere within the Artificial

By George Ahern

A 120 point thesis submitted to the School of Architecture and Design, Victoria University of Wellington, in partial fulfilment of the requirements for the degree, Master of Architecture (Professional)

2018



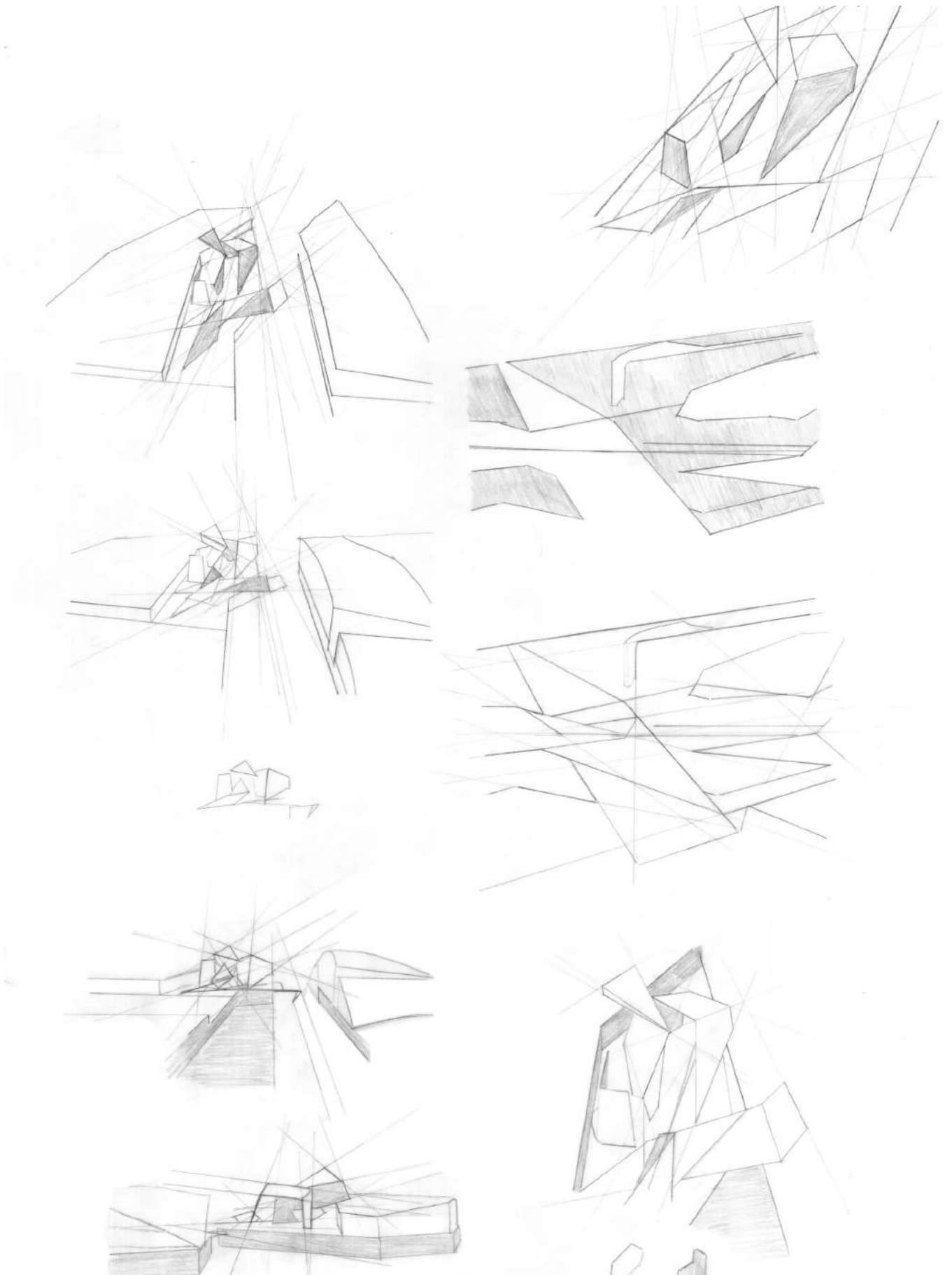


Fig 0.01. *Diagram images of Public Exploration*

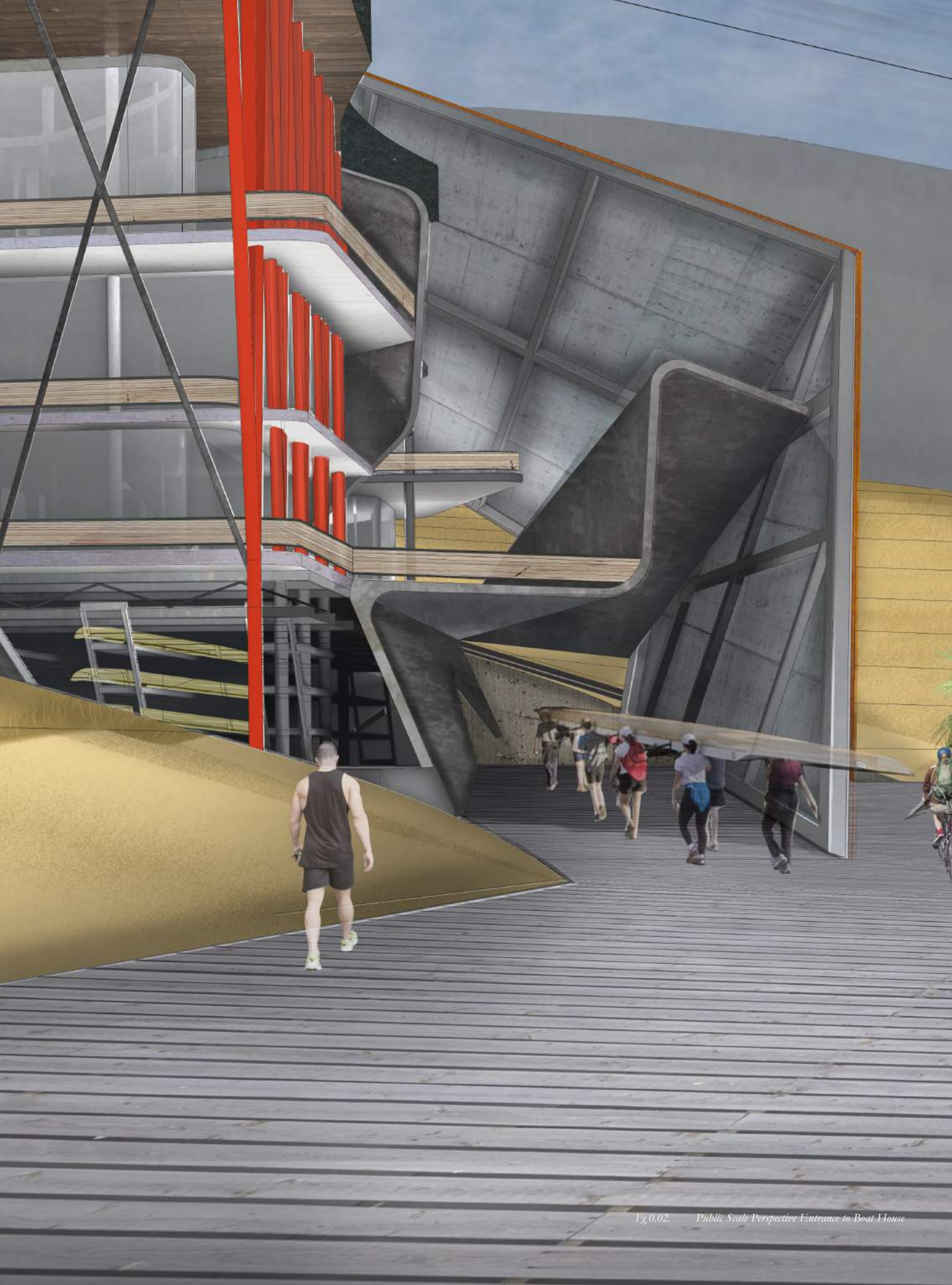


Fig 0.02. *Public Scale Perspective Entrance to Boat House*

Acknowledgements

from the Author

A big thank you to Jan and Simon for all your hard work throughout the year. I really appreciate the knowledge you have shared, and the time you have given.

Mum, Dad and Gran, thank you for the phone calls and continued support, this wouldn't have been possible without you.

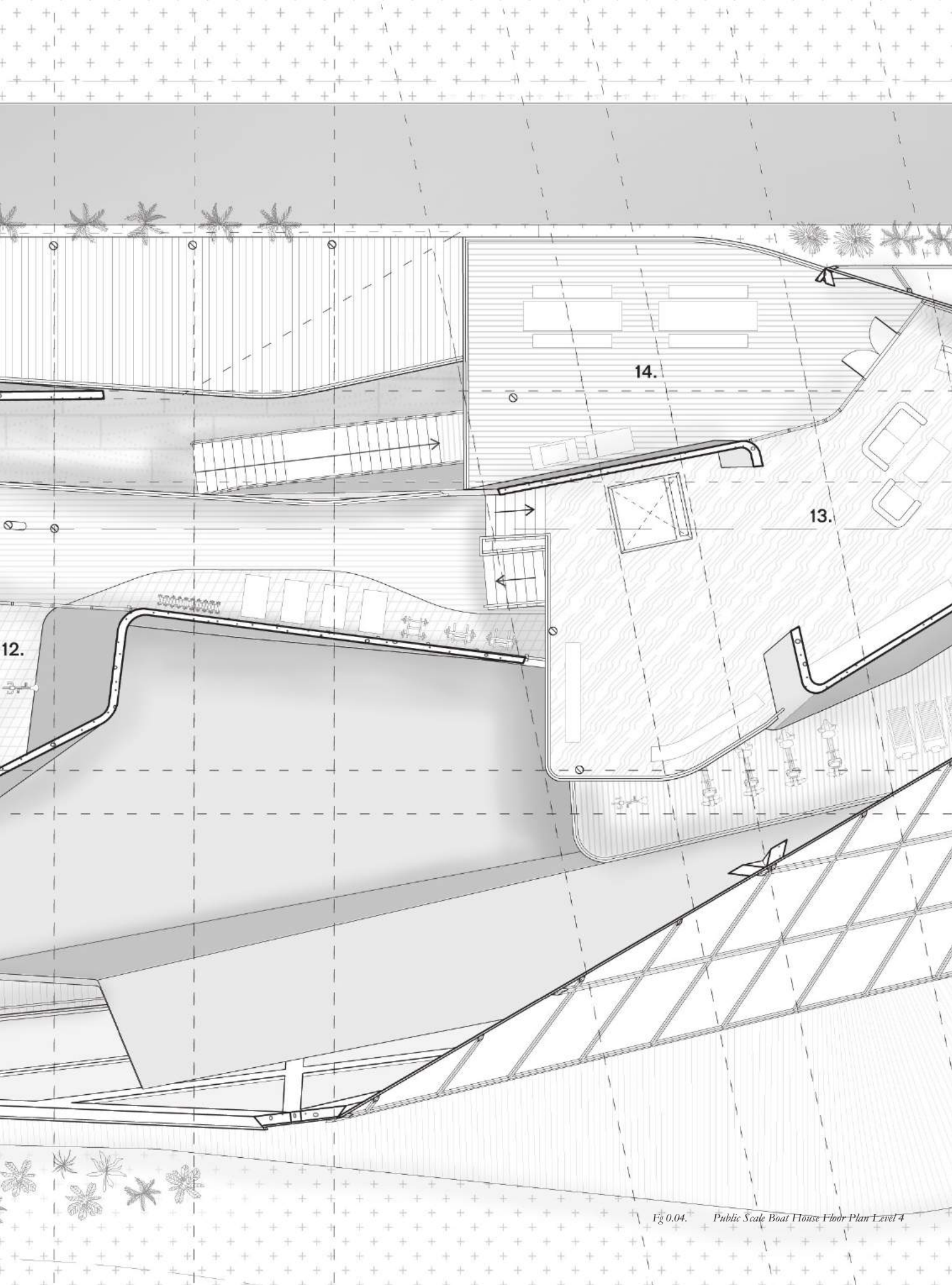
And thank you to my friends, both those who have gone through this, and those who get me away from this.

Abstract

The Olympic Games are celebrated around the world; however, each Games puts pressure on the host city and its infrastructure as well as the people that reside there, which was evident for the latest host country Brazil. This is a global and political topic and my design aims to provide a solution to the unsustainable construction of sporting infrastructure every four years. This thesis will investigate atmosphere through the design of an artificial Olympic island and the resulting architecture resolved within this artificial environment. The proposition that structures this thesis is how to amplify atmosphere within an artificial environment. The proposition of this research was resolved through materiality, light and threshold in order to amplify the atmospheric qualities of the architecture. This was explored through three scales; a design investigation, a domestic scale, and a public scale, using a 'design as research' methodology allocated to the research stream. The result of this research came through the development of a boat club for the Olympic Island, showing the rowing and canoe events at the Games. The architecture was resolved through the composition of atmospheric techniques from Zumthor and the formal strategies of Eisenman. The material qualities, juxtaposed with the formal structures generated thresholds through the change in material and lighting qualities. To conclude, it was found that amplifying atmosphere was achieved through a generative process based on the composition of design techniques.



Fig 0.03. *Public Scale Exploration Model*



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All images in this thesis document were presented at the 75% visual presentation and are here for the purpose of clarification



Fig 1.01. *Gym Interior Perspective Public Scale*

Chapter 1: Introduction



Fig 1.02. *Sen Barão and Tiago, Favela Vila Autódromo, Rio de Janeiro, 2013*



Fig 1.03. *Maracana stadium, Tama, Rio de Janeiro. 2016*



Fig 1.04. *Olympic Games Lacerda, Tama, Rio de Janeiro. 2013*



Fig 1.05. *Maracana stadium, Tama, Rio de Janeiro. 2016*



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Fig 1.08. *2004 - Barricades lie as junk, Athens, Banerji. 2016*



Fig 1.09. *2004 - Olympic Village, Athens, Banerji. 2016*



Fig 1.10. *Falirio Olympic Beach Volleyball Center, Athens, Tusk. 2016*



Fig 1.11. *1996 - Olympic stadium being demolished for a parking lot, Atlanta, Banerji. 2016*



Fig 1.12. *1936 - Swimming pool, Berlin, Campanella. 2016*



Fig 1.13. *2008 - Olympic mascots, Beijing, Banerji. 2016*

Introduction

The Olympic Games are celebrated around the world; however, each Games puts pressure on the host city and its infrastructure as well as the people that reside there, which was evident for the latest host country Brazil. Since the Olympics “Brazil has been living in a state of perpetual turmoil.”(Nardini, 2016. n.p) This is a global and political topic and my design aims to provide a solution to the unsustainable construction of sporting infrastructure every four years.

John Rennie Short, a professor at the University of Maryland suggests we should host the Olympics in the same place every time (Short, 2015 n.p.). He makes this argument because of the huge impact on the local community with each games, thousands of people are evacuated from their homes. Estimates show, the staging of the last 20 Olympic games displaced 20 million people (Short, 2015 n.p.). He also outlines further that “ [a]t least 750,000 people were displaced by the Seoul Games, when the government cleared low-income areas for stadiums. Thirty thousand - predominantly African Americans - were forced to move during the Atlanta Games, to make way for sporting venues; 1.25 million people lost their homes during the Beijing Games” (Short, 2015. n.p). And with the most recent games the Rio de Janeiro city government, 22,059 families have been removed from their homes and resettled between 2009 and 2015 (Nardini, 2016. n.p.).

The cost of each individual Games keeps rising. The 2012 London games cost the organizers \$14.6 billion, with more than \$4.4 billion from British taxpayers (Eisenhammer, 2015. n.p). The 2016 Games, in Rio, (\$13.1 billion), according to local newspaper Folha de Sao Paulo (Watson, 2017. n.p). As a solution to this Short advocate:

“[i]nstead of investing billions of dollars for a new city every four years, we could create a permanent Olympics city, with facilities and athlete housing. Though any city could take this one, I’d prefer a small island with few inhabitants. This way, we’d avoid the disruption and social dislocation and eliminate the often-massive costs to citizens in the host cities” (Short, 2015. n.p).

Even cities like Boston that have dropped out of the host city bidding process for the 2024 Games, due to financial concerns and backlash from its own residents. Short suggests selling a permanent site in Greece for the Summer Olympics the site could become an international convention centre for sports (2015. n.p).

The site would standardize the sporting element, providing a stable setting and climate. This could improve athletic performances over time. Hickman suggest the island would operate as a sort of independent city-state overseen by the United Nations (2016. n.p). Having a permanent site for the Olympics would also return the Games to their historic birthplace, and distribute with the economic insanity of cities leaving themselves with debts and underused infrastructure.

Atmosphere

Proposition

This thesis will investigate atmosphere through the design of an artificial Olympic island and the resulting architecture resolved within this artificial environment. The proposition that structures this thesis is how to amplify atmosphere within an artificial environment:

Atmospheres are susceptible to how the material environment changes, to changing human values and cultural premises. Not only does this testify to the historicity of atmospheres, but more importantly, to the fact that atmospheres emerge as multi-temporal tensions: they are at the same time a product of the past and future. Anticipation and recollection of atmospheres are at the extremes of these temporalities in staging atmospheres. (Billie, 2015. 34)

For Preston “ [w]e can think of architecture, for example, as a way of producing specific atmospheric effects and as a means of creating arrangements that allow certain ainations” (Preston 2008). Through these arrangements created, architects are able to generate specific atmospheres through design strategies. Anderson discusses the process of amplifying atmosphere through the work of Peter Zumthor where his use of “materials reinforce and strengthen one another producing a type of sympathetic coordination between elements and a type of ‘total effect’ that cannot be decomposed” (Anderson, 2014. 154). I want to take a critical look at how atmosphere is generated at the Olympic Games through design research. . This can be achieved by avoiding the cheap and temporary materials and focus on atmosphere based on materials, permanence and structure.



Fig 1.14. *Palm Jumeirah UAE, Carolina Sepúlveda. 2011*



Fig 1.15. *Durrat Al Babrain, Atkins. 2009*



Fig 1.16. *Fiery Cross Reef China, Giriş Tarihi. 2016*



Fig 1.17. *Peberholm Denmark, Charlie Golf. 2015*



Fig 1.18. *Deira Island UAE, Kam. 2017*



Fig 1.19. *Île Notre-Dame Canada, 2012*

Staging Atmosphere

The Olympic games are about staging atmosphere. Bohme writes idea of staging atmosphere to craft the experience of the Olympic Games:

The art of atmospheres, as far as it is used in the production of open-air festivals or in the build-up to large sporting events such as the Football World Cup or the Olympic Games, is their staging. The role of the generation of atmospheres in marketing is that of staging commodities... the generation of atmospheres has the function of staging personalities or political events (Böhme, 2013. 6).

Billie informs the staging of atmosphere as a marketing tool for promoting tourist sites and hotels (Billie, 2015. 32). For Zumthor Atmosphere is equally about the social intersections of people, places and what unfold through the staging of “more or less explicit power struggles and affective manipulations” (2006. 26). At these moments, architecture’s aesthetic and practical values, stylistic and historical significance are of secondary importance to the atmosphere conditions. The deliberate staging and manipulation of atmosphere also becomes a way of designing the conditions within the space both physically and emotionally. Moreover, staging atmosphere can motivate the understanding of environment, and contribute to the experience of a place.

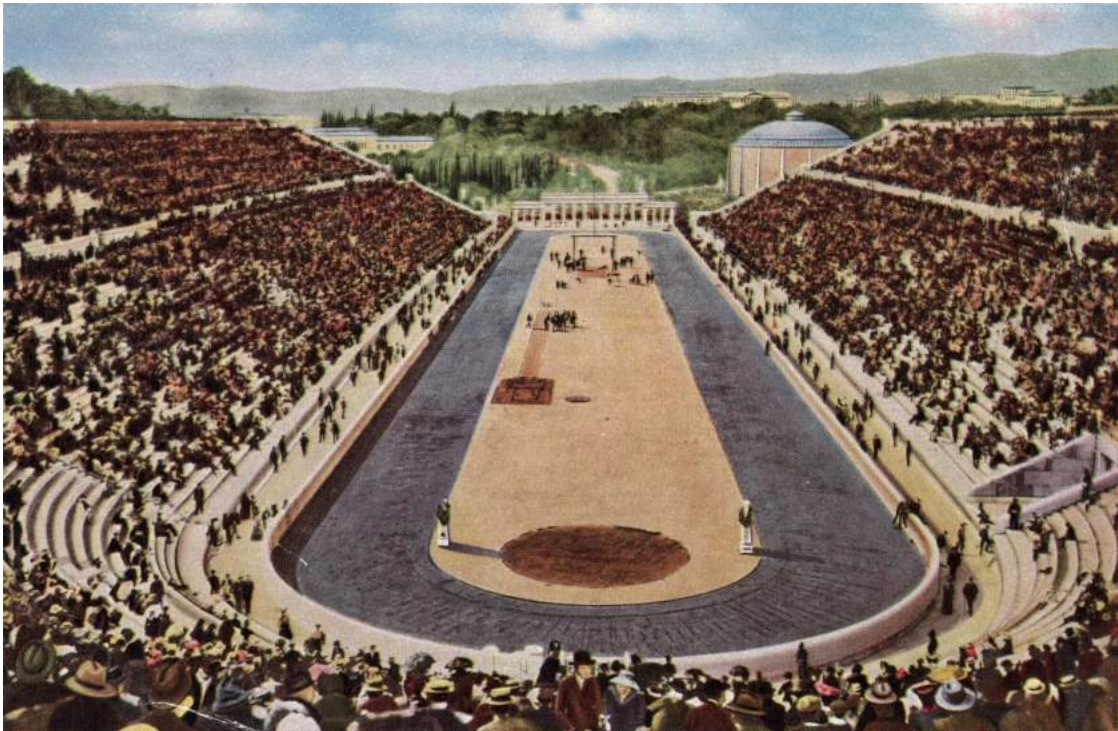


Fig 1.20. 1896: The Olympic stadium in Athens built by the Greek philanthropist Averof for a cost of one million drachmas, Athens, Hulton Archive. 2006

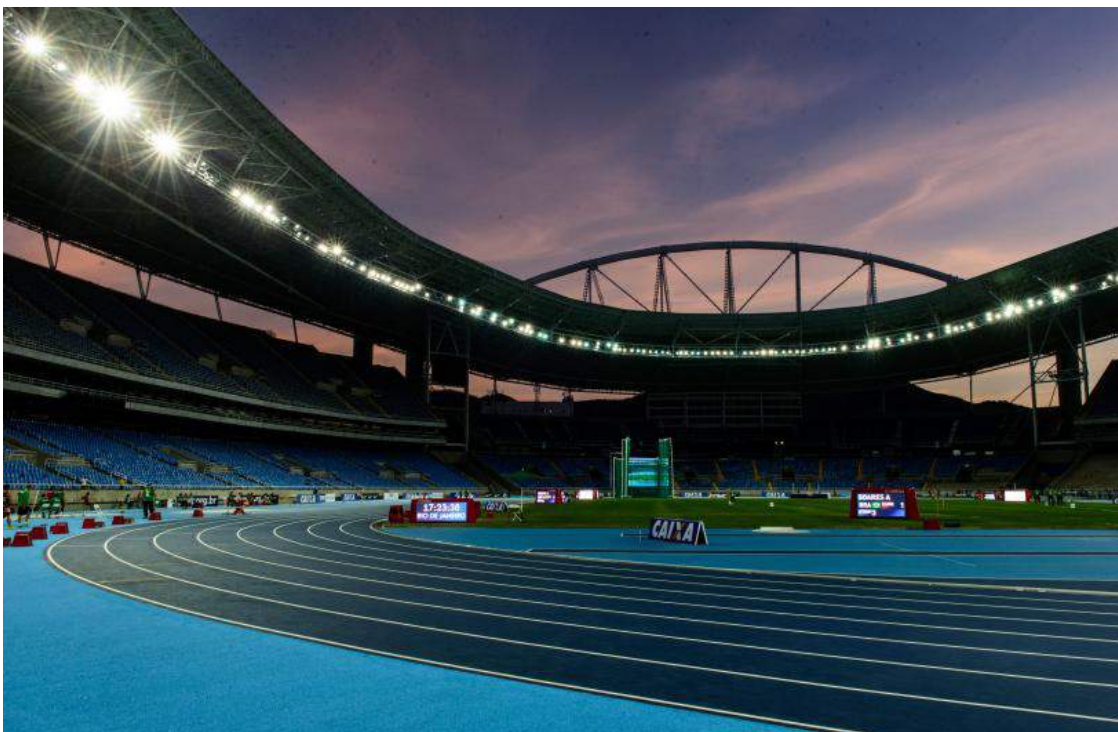


Fig 1.21. The Olympic Stadium during the Ibero American Athletics Championship, test event for Rio 2016 Olympic Games, in Rio de Janeiro, Yasuyoshi Chiba 2016.

Scope

This thesis focuses on 'design as research' as a means of directing the research. This speculative idea is not based on the functional and structural requirements of an artificial island. I have used the island as a tool to design with.

The scope and focus of this thesis are primarily limited to the research of amplifying atmosphere, specifically looking into categories to stage the environment such as material compatibility, threshold, and light on form. These categories of atmosphere come from Peter Zumthor book on atmosphere, titled: 'Atmospheres: *Architectural Environments - Surrounding Objects*' (2006) where he discusses nine categories of atmosphere. I looked at three categories to focus my time and also due to time limitations of the thesis. Other categories that I have not investigated are; body of architecture, the sound of space, the temperature of a space, surrounding objects, between composure and seduction, and, levels of intimacy.

The overall structure of this thesis as per the course outline set 75% on design (presented on the 14th of November 2017), and 25% on writing theory. The sheer scale of the artificial island and the complexity of the programme meant that certain areas of the designs could not be fully addressed within the time constraints, such as:

- Planning of surrounding infrastructure (transport systems and accommodation)
- The island detailed typography
- The construction phasing development
- The construction details of the architecture
- A development of a masterplan for the whole island

Methodology

The methodology employed in this portfolio is design-led research. This allows the process of design to take on an iterative and evaluative approach, where design tests are critically analysed with the intent of informing the complete design scheme. Jane Rendell describes design process as “producing works at the outset that may then be reflected upon later” (2013.117). In design lead research, process is as important as or even more important than the final outcome. As Downton argues “designing is not normally intended to produce a fully pre-conceived outcome, rather it is expected to produce change in the existing situation and hopefully offer fresh surprise” (Downton, 2003. 8).

A key method of the Performance Design research stream, led by Dr. Jan Smitheram and Dr. Simon Twose directed us to develop our work through three scales. The outcomes of each will be reflected upon to inform the research question and to develop a final outcome in a non-linear manner. The shift in scale also drives the design proposition to be challenged and adapted in line with changing limitations. The method of shifting scale structures the design chapters of this thesis as the proposition is tested through a series of three design experiments of increasing scale and complexity.

Key methods in this thesis include: drawing, modelling, and photography that produced layers of information which was analysed to inform the stages of design. This will help the objectives to generate atmospheric architectural spaces (material investigation, domestic and public) using analogue and digital techniques alongside research for design. The research from each scale contributed to the outcome of the public scale building.

Thesis Structure

The thesis is structured around eight chapters following the introduction chapter include:

2) Context:

In the first chapter a comparative literature analysis provides a contextual framework for atmosphere and techniques in which architects and theorists have approached ways to stage or amplify atmosphere within architecture and its surroundings.

3) Case Studies:

The second chapter builds upon this theoretical framework to investigate architectural strategies for staging and amplifying atmosphere.

4) Design Investigation:

The first design experiment investigates atmosphere through an iterative process. Paper models are photographed and manipulated, testing light, thresholds and layering of the landscape.

5) Mid-Scale:

Following the design investigation the second design experiment moves up to a domestic scale to design a T.V tower module, this tests ways in which the form can amplify atmosphere and the proximity to the landscape.

6) Artificial Island:

Generating the island through the process of drawing and modelling. This also experiments with programme and planning around the artificial island.

7) Public Scale:

The final design experiment shifts to the public scale, a boat house for the Olympic Games. The form is generated using strategies from Peter Eisenman and the atmosphere is generated using strategies from Peter Zumthor. This will test the proposition of amplifying atmosphere through design strategies. Atmosphere is staged through material compatability, light on form and, thresholds.

8) Conclusion:

The thesis concludes by providing a critical reflection on the design process, evaluating and concluding on future direction

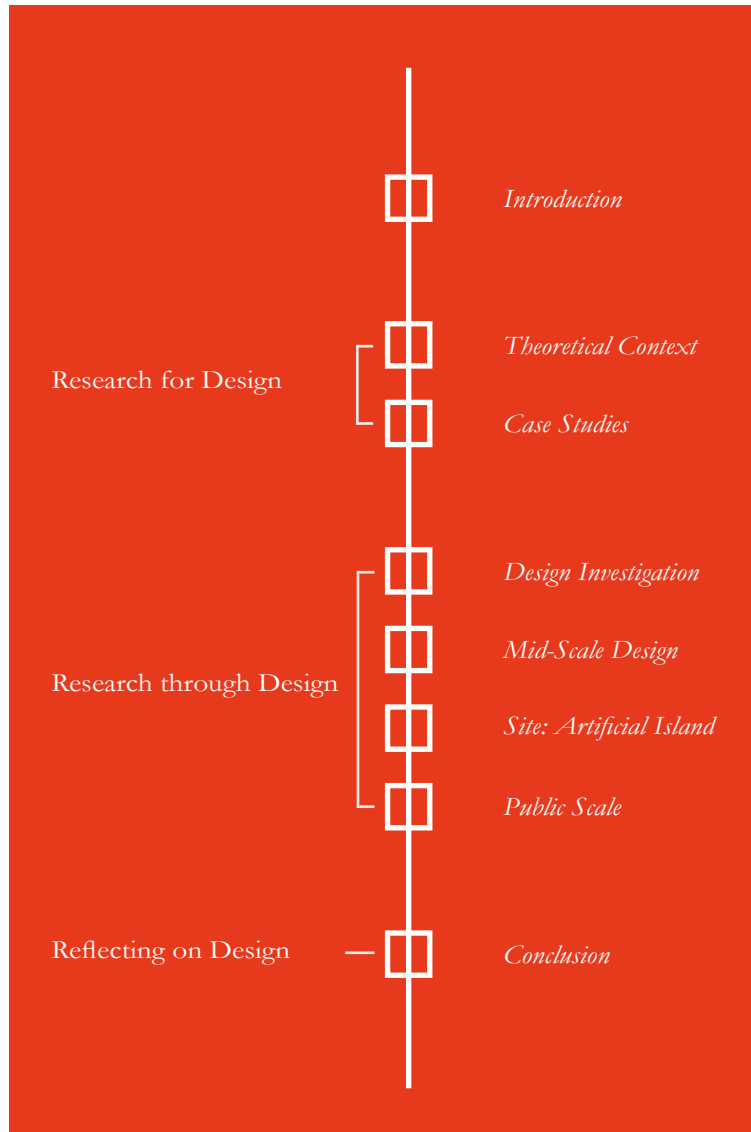




Fig. 201. Peter Zumthor 2007 Khayal Museum. Authors Photograph

Chapter 2: Theoretical Context

Research for Design



Fig 2.02. *The architect stages atmosphere through the relationship of the surrounding environment. Nishizawa, Tesbima Art Museum. 2010*



Introduction

The purpose of this chapter is to gain an understanding of atmosphere by drawing on contemporary writing from key thinkers such as Gernot Böhme and Ben Anderson, and frame it within an architectural perspective from Peter Zumthor. It is important to look at Zumthor for this thesis as he writes about atmosphere but also expresses atmosphere through his built works. The second part of this chapter focuses on staging or generating atmosphere with the writings of Mark Wigley, and will evaluate Zumthor's nine categories of atmosphere. The following research will define how atmosphere is interpreted and approached leading into the three design tests. This chapter focuses on key theoretical content relevant to my research, rather than a formal literature review.

What is Atmosphere

Atmosphere is researched through a range of mediums, including music, fine arts, performing arts, and architecture. However, even between this range of disciplines, defining atmosphere can be difficult, as it is a subject that has a broad interpretation. Böhme sets out to clarify atmosphere as “[s]omething beyond rational explanation and with an emphasis which suggests that only there is the essential, the aesthetically relevant to be found” (Böhme, 1993. 113). Contemporary notions of atmosphere range from intangible emotive spatial experiences, ambience and the mood of space, to the invisible and more physical processes that occur within air. This chapter discusses atmosphere first through, environment, body and, emotion. For the purpose of this evaluation, I have separated these categories. However, in reality, they are looked at holistically.

Environment

Anderson, Bille and Zumthor acknowledge the existence of atmosphere and its ability to affect humans within space, by asking through what process atmosphere comes to exist in architecture. Beyond the realms of individual experience, there is something that radiates out to the environment. The concept of atmosphere “holds a series of opposites – presence and absence, materiality and ideality, definite and indefinite, singularity and generality – in a relation of tension”

(Anderson, 2009. 78). This series of opposites build a relation to subject and object, as our experience with and through the environment, that amplifies atmosphere. Anthropologist Mikkel Bille, acknowledges that “[a]tmosphere constitutes a fundamental aspect of the human experience of the world and that it thus is an important part of the identities and conceptualisations of landscapes, architecture and homes”(2015. 31). Zumthor similar to Bille, but with a more of a focus on the built, often refers to the environment as a generator of atmosphere – the beauty of the object can be how it asserts itself in nature. As Zumthor outlines “[t]he building, city, house, or street seems consciously placed. It generates a place. – The result is an environment” (2006. 75). The environment has a presence that generates/ amplifies atmosphere.

Body

The character of an atmosphere is the way in which it communicates a feeling to us as participating subjects. As Böhme explains this “[a] solemn atmosphere has the tendency to make my mood serious, a cold atmosphere causes me to shudder” (2013. 2). Although the body discussed here is not a coherent body which is separated from the world. Atmosphere is communicated through the body and how we react to it. Atmospheres emerge, according to Böhme (1993. 119), as an intermediate position between subject and object, or rather

as the inherent unity characterised by the co-presence of subject and object. Atmosphere emerges through the body, it becomes part of an experience through and with the properties of an object.

Ben Anderson (2009. 79) looks at atmospheres as a property of objects and a property of subject and atmospheres as reducible to bodies affecting other bodies and yet exceeding the bodies they emerge from. As Anderson argues “the singular affective quality of an aesthetic object is ‘open’ to being ‘apprehended’ through bodily capacities and emotions” (Anderson, 2014. 144). The body becomes affected by the aesthetic qualities of atmosphere. Where architecture sets the stage for these active and intimate connections between human and non-human bodies to unfold.

Emotion

Atmosphere operates for Zumthor “through our emotional sensibility” (2006. 13) as he writes about an intimate relationship between our emotions and the things around us. “Creating that special moment when matter, the substance and form of architectural space, can truly be emotionally appropriated or assimilated” (Zumthor, 2006. 85). Zumthor refers to the relationship between emotions and the things around us as ‘the magic of the real’ as he designs his architecture to react to the human senses to engage with emotion in order to generate atmosphere.

By linking atmosphere to a certain material imagination, we reach an understanding of atmospheres as co-operative affects that are both ‘indeterminate and determinate’.

For Anderson “[A]ffective atmospheres are a class of experience that occur before and alongside the formation of subjectivity, across human and non-human materiality’s, and in-between subject/object distinctions” (2009. 78). Affect is charged through the connection and contrasts in the sensory experience of atmospheres, offering depth, texture, contour and form to places, which bridges the boundaries of humans and things. However, difference between Zumthor is he deals directly with emotions but Anderson considers that affect is not a personal emotion. (Anderson, 2014)

We experience atmosphere through different stages and interpret it differently. In this portfolio the focus will follow a more architectural perspective and consider how orchestration of atmosphere impacts on a person’s emotional sensibility. The next section looks at ways to stage atmosphere through drawing and building in architecture. This will provide insights into the potential to generate atmosphere through the creation of an architectural space.



Fig 2.03, Peter Zumthor, *Thermal Vals*, 1996

Staging/ Generating Atmosphere

As already alluded to in the introduction staging atmosphere investigates what roles certain elements play in the production of the atmosphere as a whole. As Bohme writes the staging of atmospheres is confined to set “conditions in which the atmosphere appears” (2013. 3). Billie discusses the social issues and interaction that are targeted through staged atmospheres “ [i]ntentionally shape the experience of, an emotional response to, a place through the material environment, seeking – with various degrees of success – to affect people’s moods and guide their behaviour for aesthetic, artistic, utilitarian or commercial reasons” (Billie, 2015. 33). People’s experience of the environment is manipulated in a variety of settings.

Two key voices that write about staging to create atmosphere, from two different perspectives are Mark Wigley and Peter Zumthor. Wigley states that all stationary objects generate atmosphere. What is experienced is the atmosphere, not the object as such. Whereas Zumthor believes that “the task of creating architectural atmosphere also comes down to craft and graft. Processes and interests, instruments and tools are all part of my work” (Zumthor, 2006. 21). He designs atmosphere through strategies that amplify the qualities of the architecture and

experience directly responding to human senses and emotions.

Exploring this further, Wigley writes about the staging of atmosphere through Architecture “is but a stage set that produces a sensuous atmosphere” (Wigley, 1998. 20) and the relationship between architecture and atmosphere. For Wigley “ [i]t is a kind of a sensuous emission of sound, light, heat, smell, and moisture; a swirling climate of intangible effects generated by a stationary object” (1998. 18). He argues about the important role of atmosphere as the central objective of architecture, and that atmosphere is what is experienced not the object as such. So atmosphere results from the built, and this invisible aspect of architecture are what will effect inhabitants on multiple sensory levels. This allows us to think of architecture more than just form, it’s actually about the things in-between.

Architects can use the form of a building to amplify the effects of atmosphere or to mould the atmosphere rather than the other way around. Wigley reflects that “atmosphere occupies the space between a building and its context, as well as defining the space” (1998. 24). He reflects that the atmosphere of a building seems to be produced by

the physical form and can manipulate the environment and dominate over atmospheric secondary to traditional priorities such as form and function. The physical can be easily manipulated and understood. The invisible is harder to grasp, and indeed, design for.

Framework

This section expands on the work of Zumthor, a key voice that write about staging atmosphere; and, also because his work is critical to defining the thesis. It is critical to defining the thesis. Peter Zumthor is an architect who celebrates atmosphere through our emotional sensibility “a form of perception that works incredibly quickly, and which we humans evidently need to help us survive” (Zumthor, 2006. 13). Zumthors stages atmosphere within a buildings to offer an experience and perspective into architecture.

As an architect he is able to stage atmosphere through his craft and knowledge of design. This is reflected in his writing where he expresses categories of atmosphere through nine chapters. “system of atmospheric factors dwells on material presence coupled with an actual and sensing body to include sound, light, temperature and objects operating within a spatiotemporal context hinged on a tension between the interior and exterior” (Preston,

2008. 9). Peter Zumthor book on atmosphere, titled: ‘Atmospheres: *Architectural Environments - Surrounding Objects*’ (2006), Zumthor provides an account of how atmosphere might be generated within architecture. Zumthor identifies this through nine categories:

- 1.) *Body of architecture,*
- 2.) *Material compatibility,*
- 3.) *The sound of space,*
- 4.) *The temperature of a space,*
- 5.) *Surrounding objects,*
- 6.) *Between composure and seduction,*
- 7.) *Tension between interior and exterior,*
- 8.) *Levels of intimacy,*
- 9.) *The light on things*

In Zumthor’s writing, all nine categories overlap one another. There is not a single category that is more important or dominant than another. It is through these relationships atmosphere can be generated. However, for the purpose of this thesis, and to focus my design research, I have investigated three of these categories, being; ‘material compatibility’ and ‘tensions between interior and exterior’ (that I have defined as ‘thresholds’) and “the light on things” (defined as ‘light on form’). These categories will help frame and evaluate how staging atmosphere can be generated through the built environment.

Material Compatibility

Material compatibility speaks to how materials react to one another and the understanding of material properties related to each other. As Zumthor articulates “[m]aterials react with one another and have their radiance so that the material composition gives rise to something unique” (2006. 25). You can combine different materials in a building, and there’s a certain reaction point where you’ll find they’re too far away from each other to build affect. This is a critical proximity between materials, depending on the type of material.

Threshold

Zumthor defines threshold as the tension between the interior and exterior is can be a contrast that is obvious or something that is hard to separate “the almost imperceptible transition between the inside and the outside an incredible sense of place” (Zumthor, 2006. 45). The tension between inside and outside, to amplify a sense of arrival or journey. Architecture is what connects the atmospheres to each other that could inform the circulation, circulation or scale of a building.

Light on Form

The light on things discusses the way light travels through space, and how it can be used as a tool to design with. “To plan the building as a pure mass of shadow then, afterwards, to

put in the light as if you were hollowing out the darkness as if the light were a new mass seeping in” (Zumthor, 2006. 57). Zumthor also looks at the different surfaces that can enhance the way light reflects or spreads. In a similar way Wigley states that ‘light can construct its own atmosphere... Every small choice of representational technique defines atmosphere’ (Wigley, 1998. 27). Furthermore Zumthor argues that light amplifies atmosphere within the architecture. For example in the case of the Therme Vals the building building grows out of the mountain and into the light (Hauser & Zumthor, 2007. 58).

The manipulating of, material conditions, thresholds, and, light on things, can adapt and overlap with one another to strengthen the environmental experience. But atmosphere itself is not a thing or a form; but rather something which operates between and through subjects and objects.



Fig 2.04. *Peter Zumthor at his studio / residence. Laura J. Padgett 2005*

Conclusion

This chapter has identified atmosphere in three separate ways; environment, body and emotion. However, in reality, they are looked at holistically to form an atmospheric experience. I then discussed how Wigely and Zumthor discuss how to stage atmosphere. I finished by focusing on material compatibility, thresholds, and light on form, I can generate atmosphere through my architectural designs.

The next chapter identifies and discusses three case study projects from the architecture discipline. A project for each scale of intervention (design investigation, mid-scale and public scale) is evaluated in relation to these three terms relating to atmosphere in order to amplify the artificial. These case studies are not based on aesthetic precedent rather than architectural techniques used in the design process in order to generate form and amplify atmosphere within the architecture.

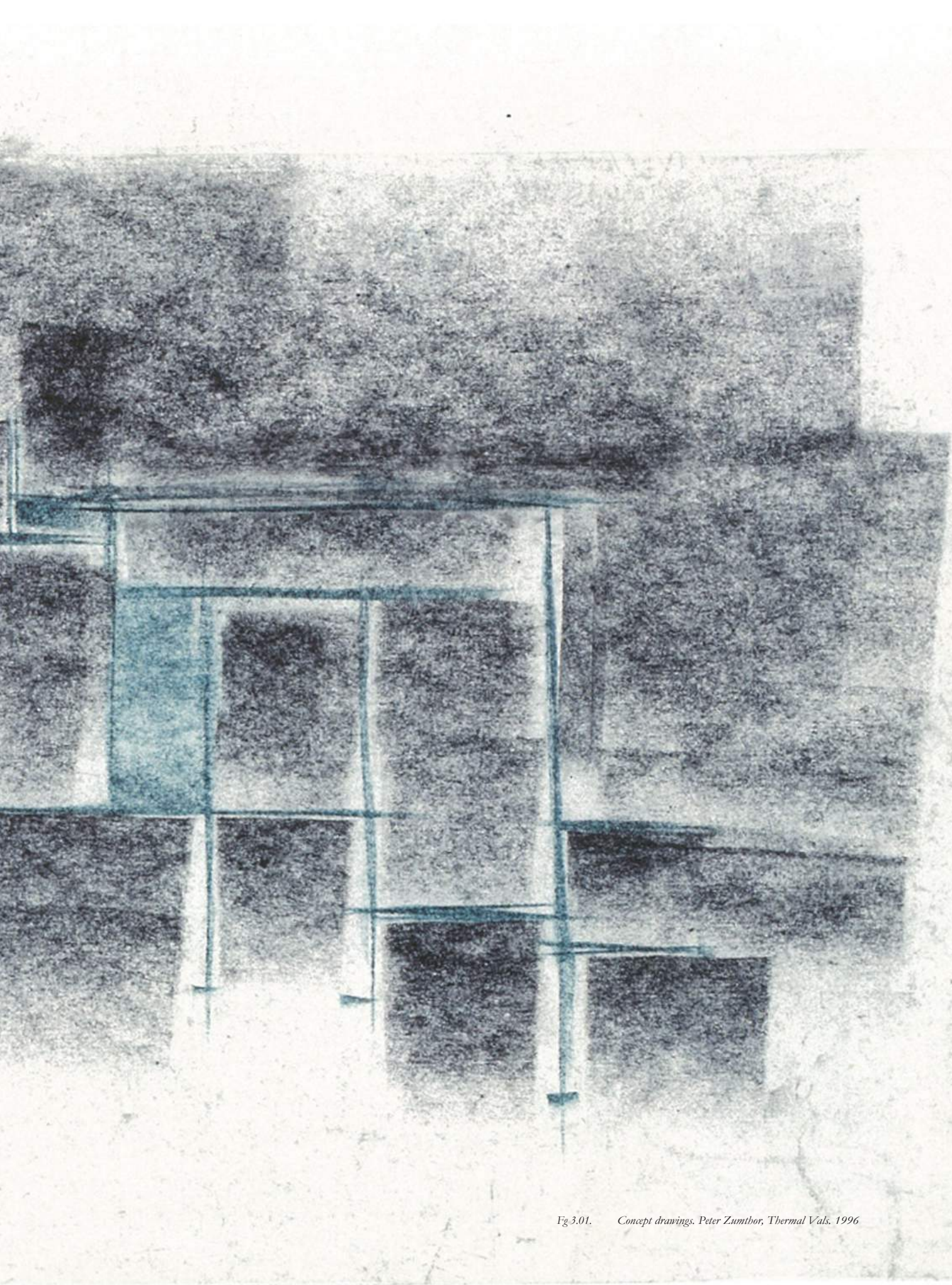


Fig 3.01. *Concept drawings, Peter Zumthor, Thermal Vals, 1996*

Chapter 3: Case Studies

Research for Design

Introduction

This chapter analyses three case studies the first three explore how architects, and an artist, have created atmosphere within architecture. The final study reviews the final case study design method which was critical to the development of my public building. This Performance Design research stream analyses a new case study appropriate to the research for each scale.

This thesis specifically looks at the way atmosphere is staged through different design techniques and strategies used. The first case study is for the design investigation that looks at Zumthor's Thermal Vals. The next case study is for the mid-scale design. I analyse Richard Serra's East-West/West-East sculptural design. This investigates how the form and environment affect the atmosphere. The final case study investigates atmosphere at a public scale. Peter Eisenman uses strategies of superimposition to develop the design of the City of Culture of Garcia. This case studies will compare atmosphere created through the use of different programmes and scales. I conclude by looking at Peter Eisenman's strategies to generate by layering site context.



Fig 2.02. Peter Zumthor, *Thermal Vals*, 1996

Thermal Vals Bathhouse

Case Study: Peter Zumthor

The Therme Vals Swiss bathhouse was designed by Swiss architect Peter Zumthor. It was built in the vast mountainous landscape of Val Graubünden, Switzerland in 1996 (Weston, 2004. 210). The thermal bathhouse is a place where people come for relaxation and meditation. This atmosphere is reflected through materiality within the bathhouse surroundings. While I acknowledge, it is problematic to be evaluating the Zumthors work from his own framework. I will be investigating the way Zumthor has amplified atmosphere through material compatibility, thresholds, and light on form.

Materiality is shown through the building presence is the architectural object. The interior and exterior is one material “gneiss, sourced from a local quarry and exquisitely laid in narrow, stratified bands – but structurally it is a complex hybrid of in-situ concrete and load-bearing stone walls” (Weston, 2004. 210). This strengthens the building’s relationship to the site by using the materials of the surrounding area. All secondary elements – doors, rails, signage, even the sipping cups and their chains are of bronze, described by Hauser as the “jewellery of the building” (2007. 142).

The topography of the location and the character of the surrounding landscape and expressed through the architecture, as it “grows out of the mountain and into the light” (Hauser & Zumthor, 2007. 58). The architecture fits within the landscape as if it has always been there. The building resembles a vast monolith, an orthogonal version of the kind of cave-pocked cliffs that loom large in books of ‘natural architecture’ (Weston, 2004. 210). This is due to the demand that the new building should communicate the feeling of being older than its existing neighbour, of always having been in this landscape.



Fig 2.03. Peter Zumthor, *Thermal Vals*, 1996

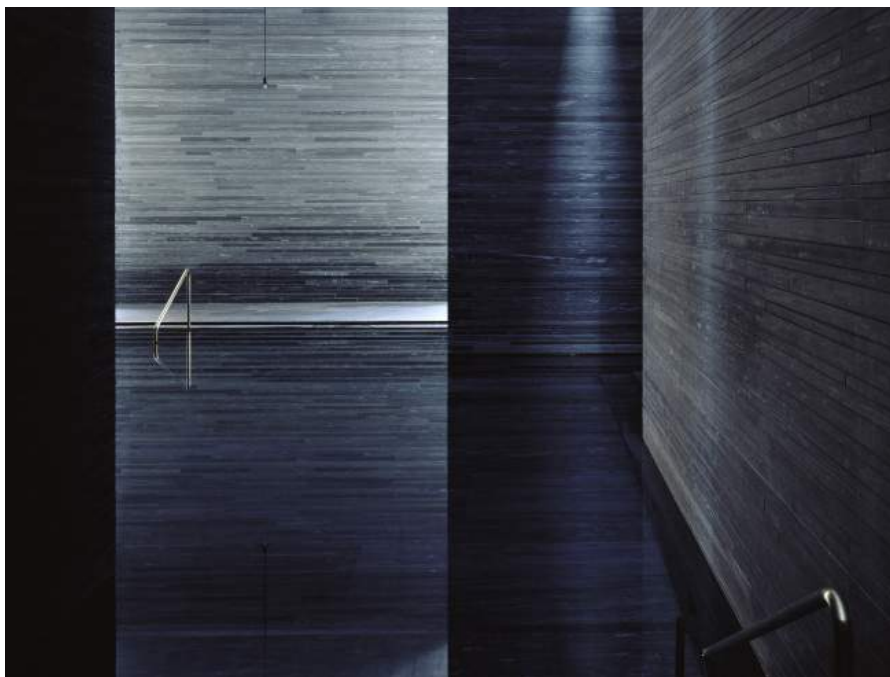
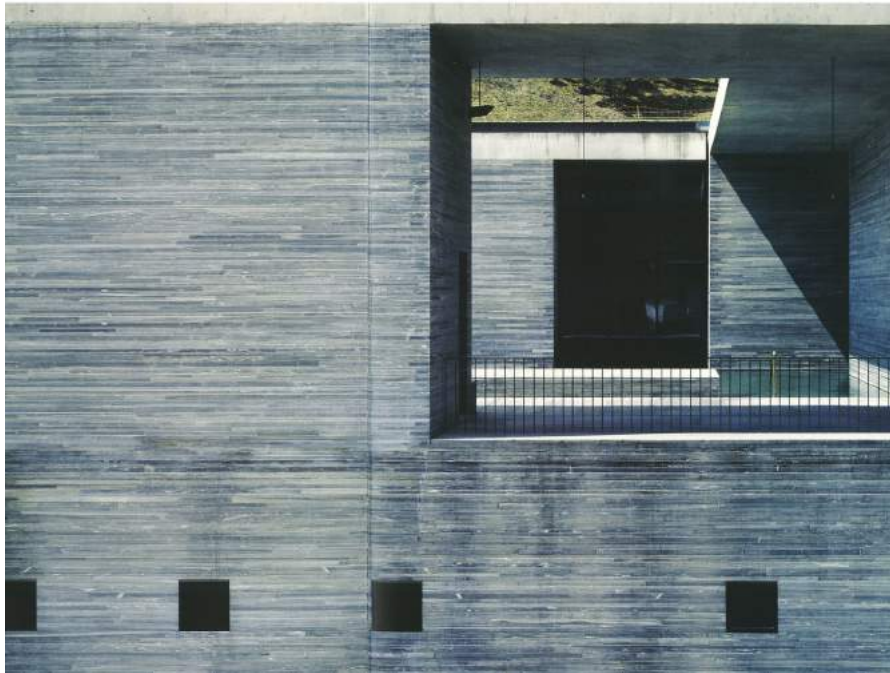


Fig 2.04. Peter Zumthor, *Thermal Vals*, 1996

Material Compatibility

Zumthor takes great care in the craft of atmosphere through his architecture through the development of interiors, landscapes, places: for it is the relating of 'things' in this building Zumthor uses, stone, concrete, glass which is at the core of Zumthor's architecture. In staying with key materials from his body of work, Zumthor once more is able to communicate how "[m]aterials react with one another and have their radiance, so that the material composition gives rise to something unique" (2006. 25). He considers how the materials work together to generate atmosphere.

Threshold

Zumthor considers threshold during his design process. "I give thought to careful and conscious staging of tension between inside and outside, public and intimate, and to thresholds, transitions, and borders" (Zumthor, 2006. 87). Atmosphere is amplified through thresholds that push the tension between interior and exterior. However the interior walls are of the same material type. Different wall types could be considered to amplify the atmosphere and contrast further the spaces between the public and the private.

Light on Form

Light enters the building from the valley, daylight makes its way through the indoor bath; and a special kind of atmospheric illumination created by slits in the ceiling, through which shafts of light wash certain walls. Due to the linear forms of the building, light is blocked within the interior rooms. For example, Los Angeles County Museum of Art, is a larger scale building where he employed the use of curves to amplify the atmosphere. If the walls curved further, then light could seep further into the rooms.

The Thermal Vals represents atmosphere through the materiality of the bathhouse surroundings. Zumthor uses these design strategies in his architecture to engage with the senses and amplify atmosphere. For the purpose of evaluation I have separated these design strategies from Zumthor, however, in reality, they work holistically to generate and amplify atmosphere within the complexity of Zumthor's architecture.



Fig 3.05. Elevation of structure. Richard Serra, *East-West/ West-East*. 2014

East-West/ West-East

Case Study: Richard Serra

East-West/ West-East is a sculptural piece of art made by Richard Serra. It was constructed in Zekreet, West Qatar 2014 (Byrnes, 2014. n.p.). In this case study, I evaluate this sculpture exploring how Serra has amplified atmosphere through material compatibility, thresholds, and light on form.

The sculpture is part of the Brouq Nature Reserve and spans over a kilometre. It comprises of four steel plates, two of which rise 14.7 metres above the ground and the others 16.7 metres, which, adjusted for the topography, means that they are all level with each other (Byrnes, 2014. n.p.). The steel plates all reach the old sea level of this barren desert and placed in relation to the fall of the landscape.

The steel plates are a point of reference to their almost eerily barren surroundings. The verticality contrasts amplify the atmosphere within the desert planes to orientate and alter the perspective of the viewer to the site. A vast setting such as the Qatari Desert enhances the formal qualities and intimacy of the solid sculpture. The scale and form of the sculpture entice viewership through the presence and emotional affect of the atmosphere.



Fig 3.06. Richard Serra, *East-West/ West-East*, 2014



Material Compatability

The plates are made of steel that will oxidize, changing from grey to orange and eventually a dark amber. The material compatability amplifies atmosphere through the contrast with the landscape.

Threshold

The intimacy of the sculpture contrasted with the vast landscape has an affect on the viewer. This is a good example of the theoretical relationship between subject and object and how the environment can generate an atmosphere from this. The tension between the forms come from the scale contrast of the elevations. This is a different approach to threshold suggested by Zumthor which is a “tension between inside and outside, public and intimate, and to thresholds, transitions, and borders” (Zumthor, 2006. 87). This project offers a different way of considering threshold as a relationship between forms.

Light on Form

All these forms are linear and straight which contrast to Serra’s previous designs with corten steel. Zumthor articulates to “choose the materials in the knowledge of the way they reflect and to fit everything together on the basis of that knowledge” (2006. 59). Light reflects off the changing textures within the steel plates.

East-West/ West-East sculpture has amplified the conditions of the landscape through the contrast in form and material. Through evaluation of Serra’s work, I am able to employ these design strategies within the design of my mid-scale T.V tower module.



Fig 3.07. Richard Serra, *East-West/ West-East, Zekreet*, 2014

City of Culture of Galicia

Case Study: Peter Eisenman

Peter Eisenman designed the City of Culture of Galicia, Spain. That finished construction in 2010 (Eisenman, 2011. 72). The public infrastructure is a strong precedent in the design process of form generation for the public scale design. In this case study, I evaluate this building has amplified atmosphere through material compatibility, thresholds, and light on form. However, in this case study I also investigate the design process used to generate form.

Material Compatibility

Materials within the design represent the surrounding landscape. This is used to amplify the atmosphere from this monolithic architecture. However, these material types are very similar. Zumthor communicates how “[m]aterials react with one another and have their radiance, so that the material composition gives rise to something unique” (Zumthor, 2006. 25). He considers how the materials work together to generate atmosphere.

Threshold

Atmosphere is amplified through thresholds from the building being extracted from the landscape. “the topological surface of the original hillside site projected into a three dimension”(Noever, 2005. 146). The building rises from the ground to become both landscape and architecture. This can be compared with Zumthors methods of carving out the building from the landscape to create a defined threshold.

Light on Form

This monolithic form has generated a curvilinear mass from the landscape. “The topological surface of the original hillside site projected into a three dimension”(Noever, 2005. 146). Through Eisenman’s formal design strategies, abstract forms are produced. Artificial lights are used to direct people around the building. The change in materials reflects the lights off the form. The form blurs between horizontal and vertical planes. This allows light to disperse onto the building mass.





Fig 3.08. Peter Eisenman, *City of Galicia Spain*, 2010

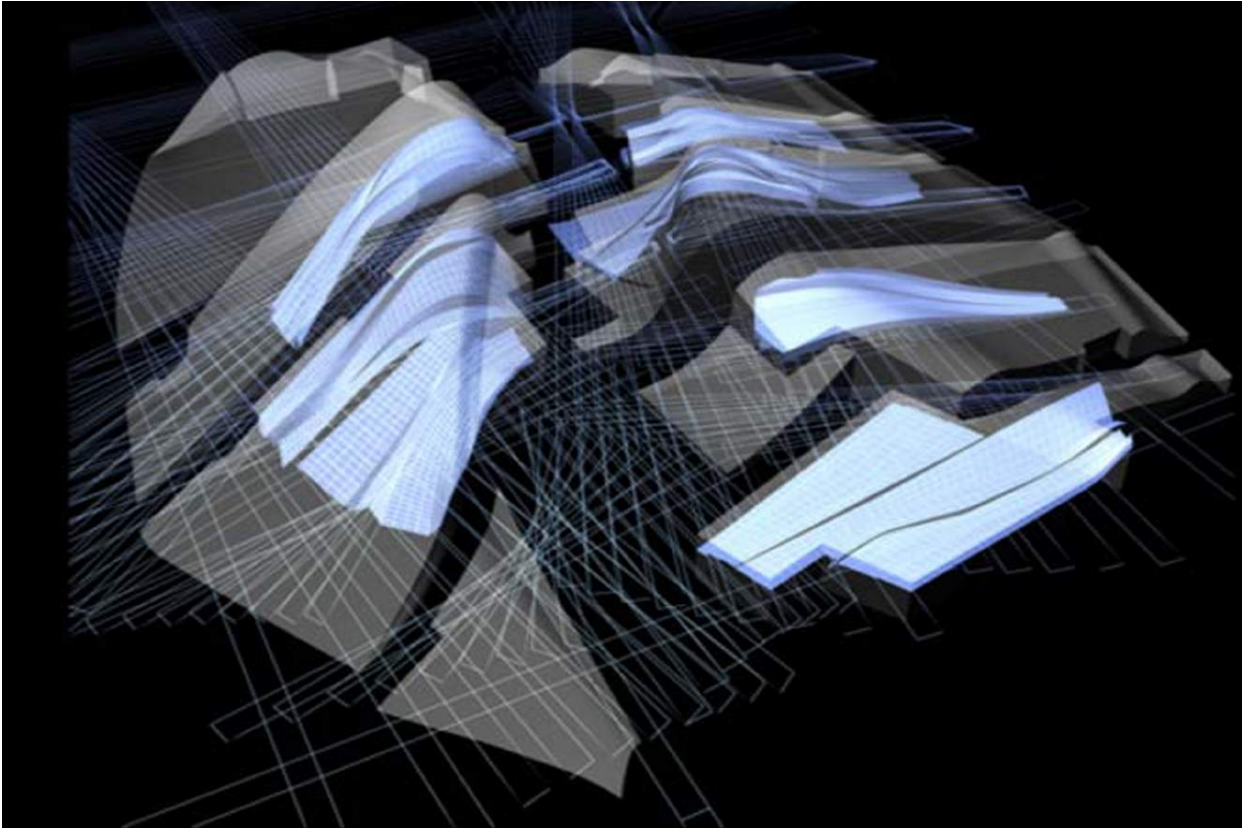


Fig 3.09. The deformation diagram identifies the internal volumes inside the building, Peter Eisenman, *City of Galicia Spain*. 2010

Generating Form

Eisenman explores how a process of overlaying diagrams that represent site information can generate affective architecture, as Noever explains, “an original tartan grid produced by the palimpsest overlay of three plans: the medieval street pattern of Santiago, the abstract Cartesian grid, and the topological surface of the original hillside site projected into a three dimension” (2005. 146). It is a landscape design laid down by the pilgrim shell; of mimesis, the intermittent reflection of Santiago’s streets.

This process of design is a diagrammatic, non-conventional technique of superimposition generates form through layering information from the site. Eisenman generates form through the original tracks made through the historical reference of the site. Using design processes as Gregroy explains, “Peter Eisenman explored the phenomena of accumulation, condensation, folding and shifting of surfaces or superimposed layers in complex palimpsests” (2003. 27). This process is

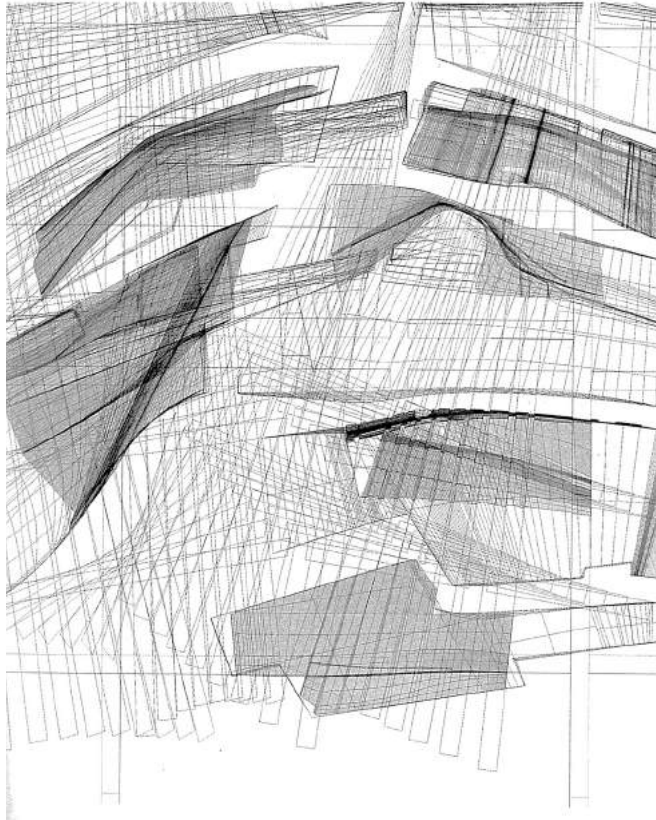


Fig 3.10. *Diagram of the area of Santiago. Peter Eisenman, City of Galicia Spain. 2010*

critical to the design and generates two-dimensional information into a three-dimensional form. “The deformation of the first diagrammatic layer (the city grid) by the superposition of the two latter ones, and final torquing process induced by the introduction of deformation and flow lines creates an internal genetic program which transforms them” (Cassara, 2006. 164).

When evaluating the design process of Eisenman, I found some of the layers made to add site context hard to follow. This is due to the lack of structure within the process of what layers are more important to extract information from than others. However, it offers a different way to generate the form and has worked with this monolithic structure. Using similar methods in my architecture, I can generate forms from the site that represent spatial absences rather than only geometric presences. This will help build the relationship of architecture with the site, and by an iterative process, amplify the atmosphere through my design.



Fig 3.11. Peter Eisenman, *City of Culture of Galicia*, 2010



Conclusion

The three case studies analysed – Thermal Vals, East-West/West-East, and City of Culture range in scale from domestic space and public architecture. Although the architectural instances used in this analysis explore different design issues, they help to reinforce the case I have made regarding my proposition.

In the next three design chapters I develop my design by following Zumthors theories of atmosphere and applying them to Eisenman's formal design process, I can amplify atmosphere within my architecture designs.

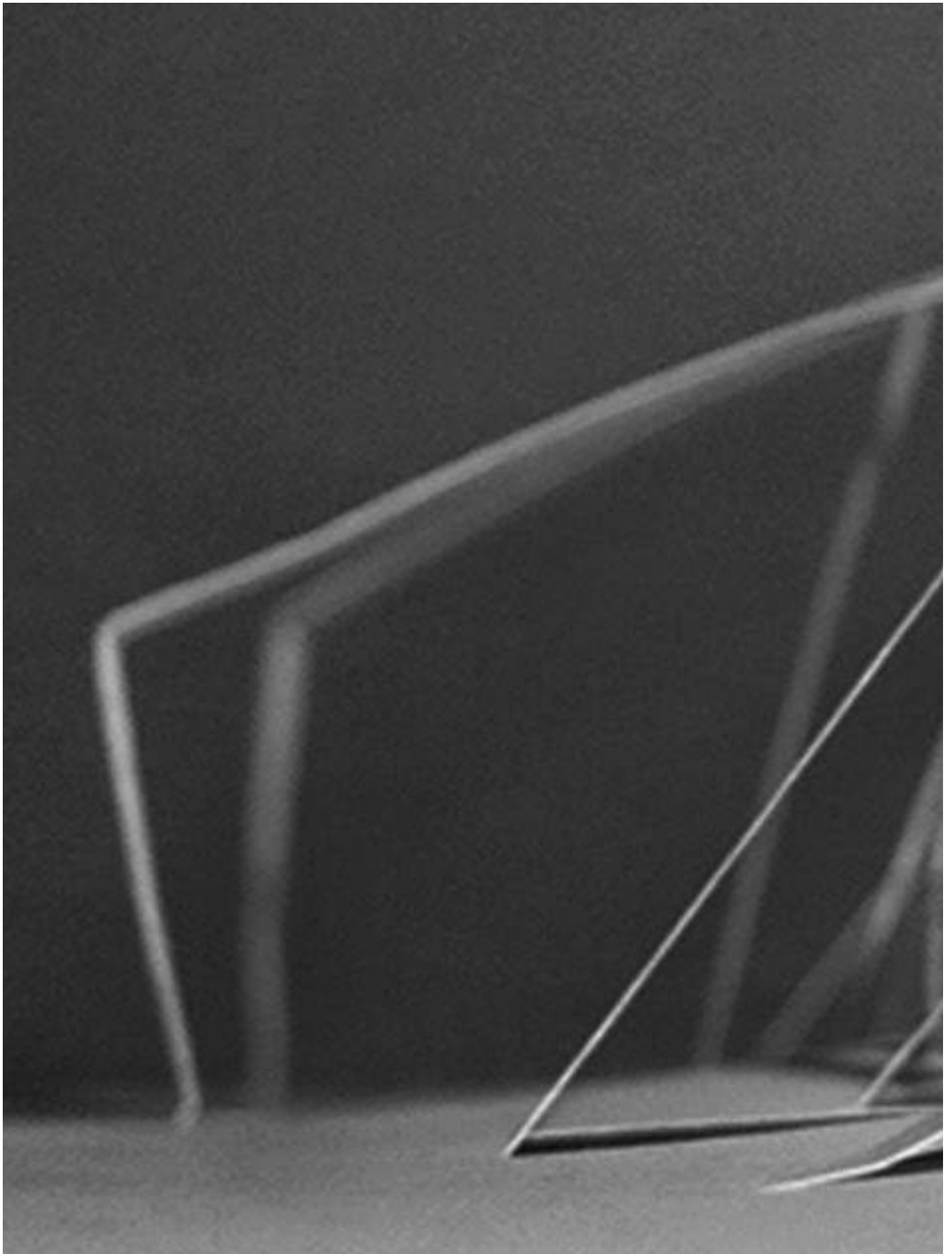
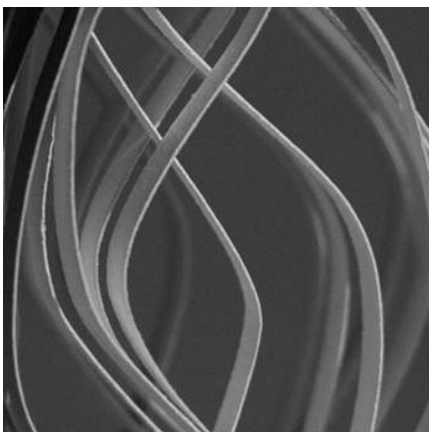
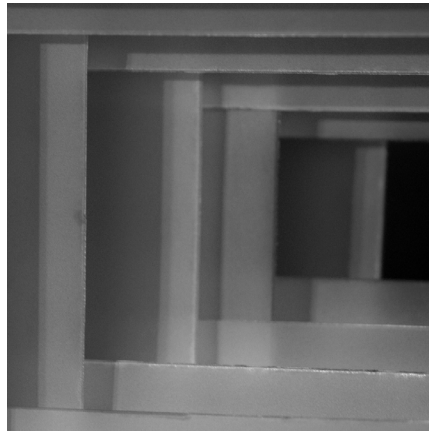
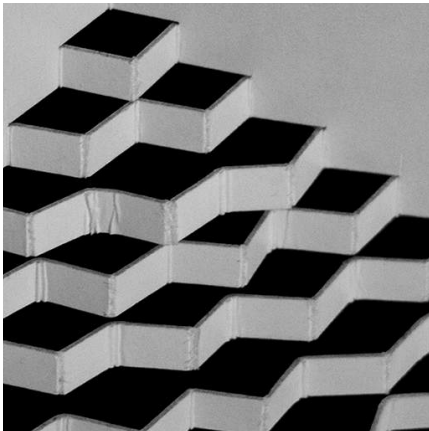
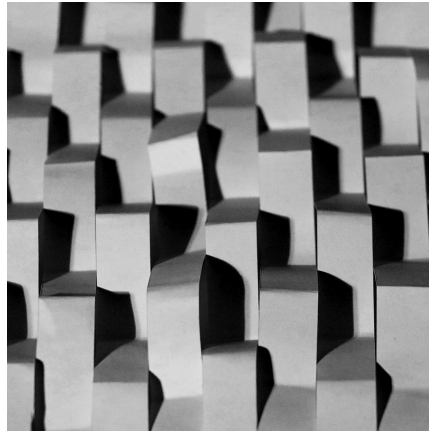
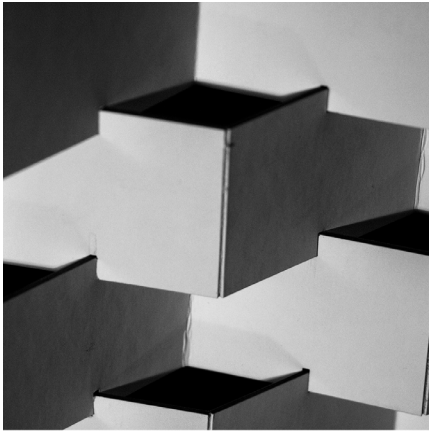
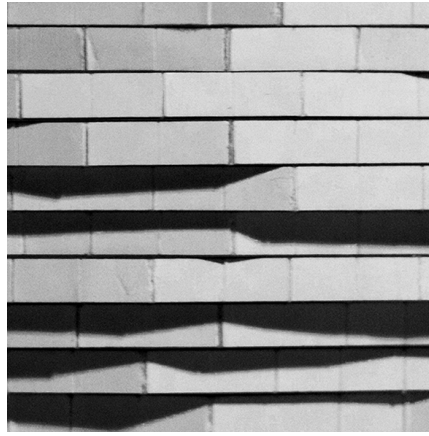
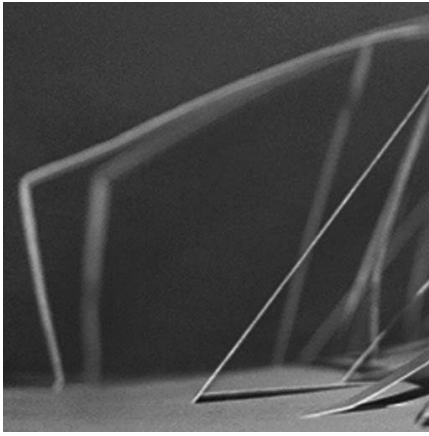


Fig 4.01. *Design Investigation Experiment*

Chapter 4: Design Investigation

Research through Design: Stage One



Introduction

This thesis seeks to find ways to create atmosphere within an artificial environment, tested through different scales. As my research looks at atmosphere through three scales, this first design chapter address a design investigation that experiments with atmosphere. At this stage of my thesis, the research question was still broad, as I explored the relationship between atmosphere and architecture. Design experimentation is conducted to look at ways of generating atmosphere. This did not lead to a final outcome, but rather a series of iterations that will influence my research at larger scales.

Aim

The aim of this study was to investigate, how architecture intervention could amplify atmosphere within an artificial environment. This design investigation explored and extracted design properties to develop outcomes and qualities that were reflected towards at the larger scale design within a generative design process.

Method

The installation chapter follows the same methodology outlined in the introduction. I look to the work of Downton and Rendell 'research through design'. By doing so I will be exploring material properties that amplify atmosphere iteratively, where I evaluate Peter Zumthor's book, titled: 'Atmospheres: *Architectural Environments - Surrounding Objects*' (2006) looks at nine categories of atmosphere. In this design investigation I chose to look at paper; the artificial by-product of wood. I wanted to see how manioulating the paper could resemble wood types. I tested material three aspects; light/shadow, transparency, and malleability/durability.

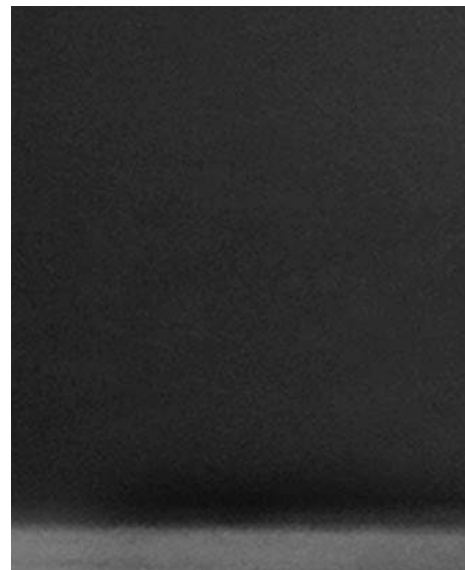
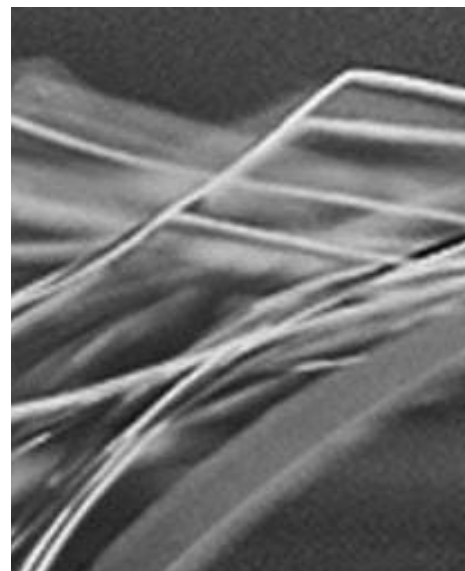
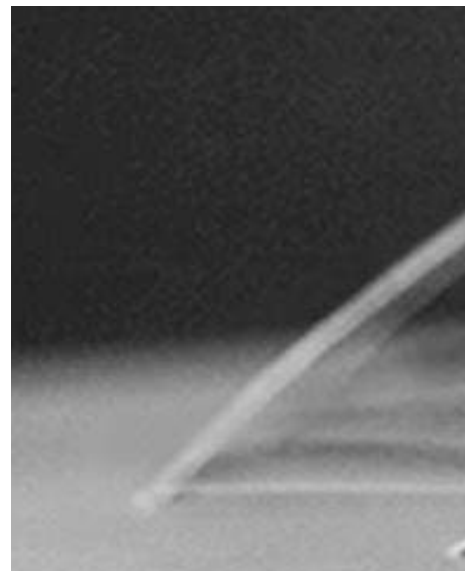
Test 1

Exploration One: Paper

The aim of this investigation is to test the way light reacts on paper. This test model is made from one piece of paper with straight line cuts across the centre fold. I folded the model and tested how the strands of paper would react to the stress put on the paper at each end. In this motion, I looked at the flexibility of the paper and the tension that could act on the paper before tearing, exploring the material qualities.

This lead me to look into the light and shadow qualities that came from the cuts in the paper. I started to look at the positive and negative forms of the paper, and how they reacted to the light.

Manipulating the model through photography focused in on the light and shadow aspects of the model. I found when I laid the paper flat and lowered my camera angle; the paper started to look like artificial landscapes. This is due to the shadows made from the variation of each crease fold from the paper. The light within the test model gives an illusion of human scale at certain angles due to the distortion of space. I found that the intersection between material, form and light are important to create atmosphere.



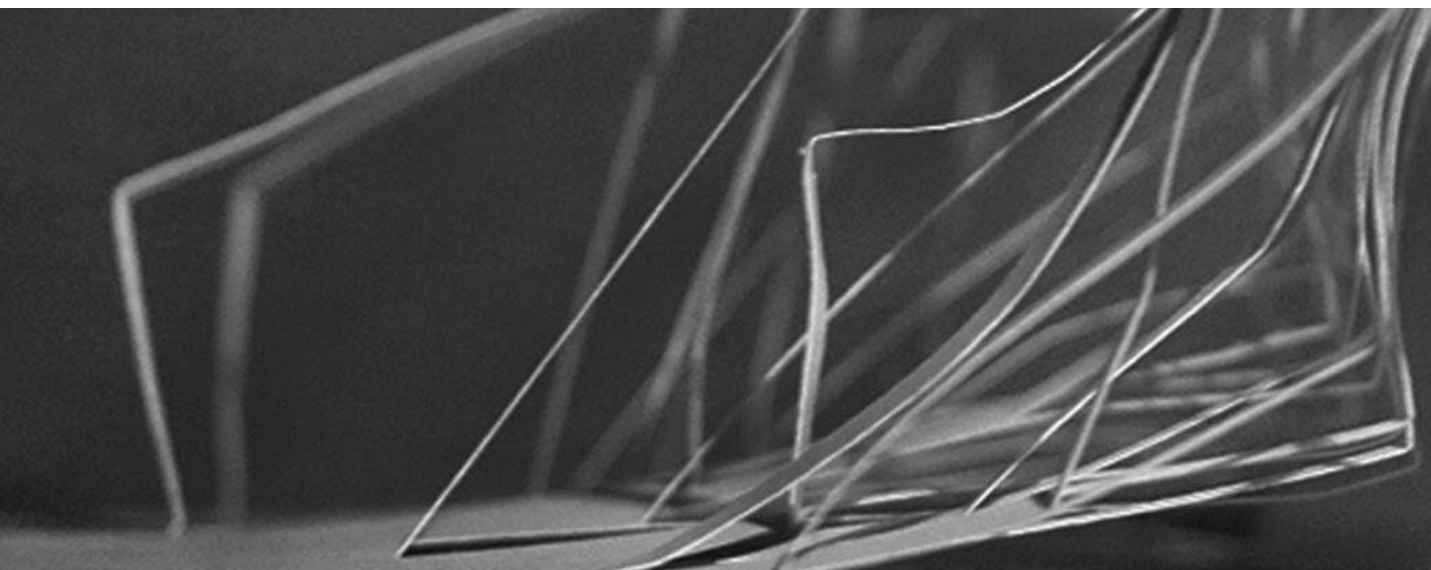
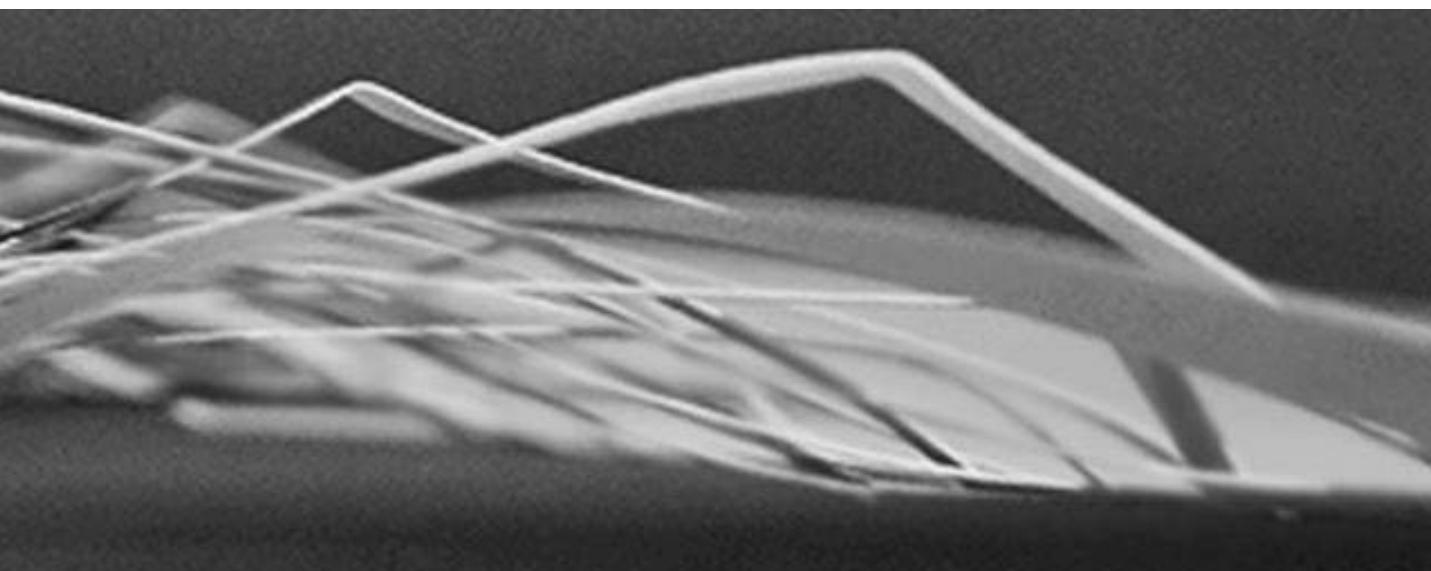
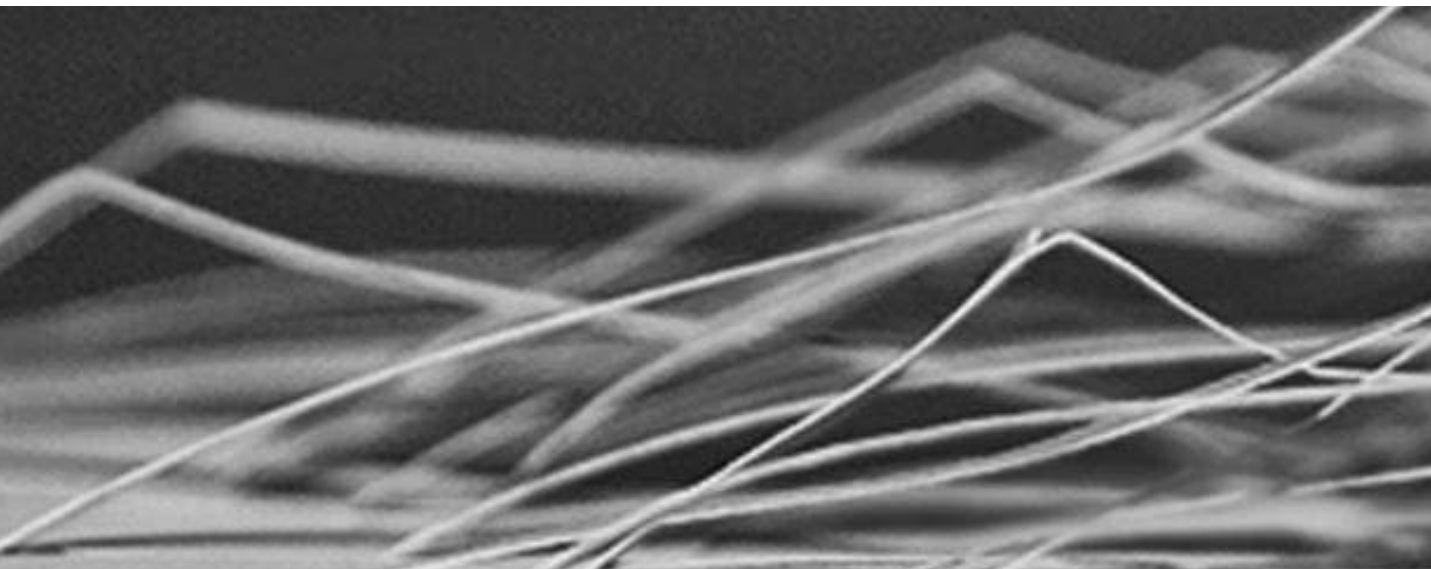


Fig 4.03. *Design Investigation: Test 1 - Paper model*

Test 2

Exploration One: Paper

In this test, I looked at the way the light could amplify the atmosphere of the model by enhancing the shadows. I tested the durability of the model by pulling at the ends of the paper and holding the model in tension.

There is a strong contrast of light and shadow within the model. The shadow within the negative space seems to give a depth to the thin materiality of the paper. I found that the interplay between light on form contributes to the creation of atmosphere through a separation of elements.





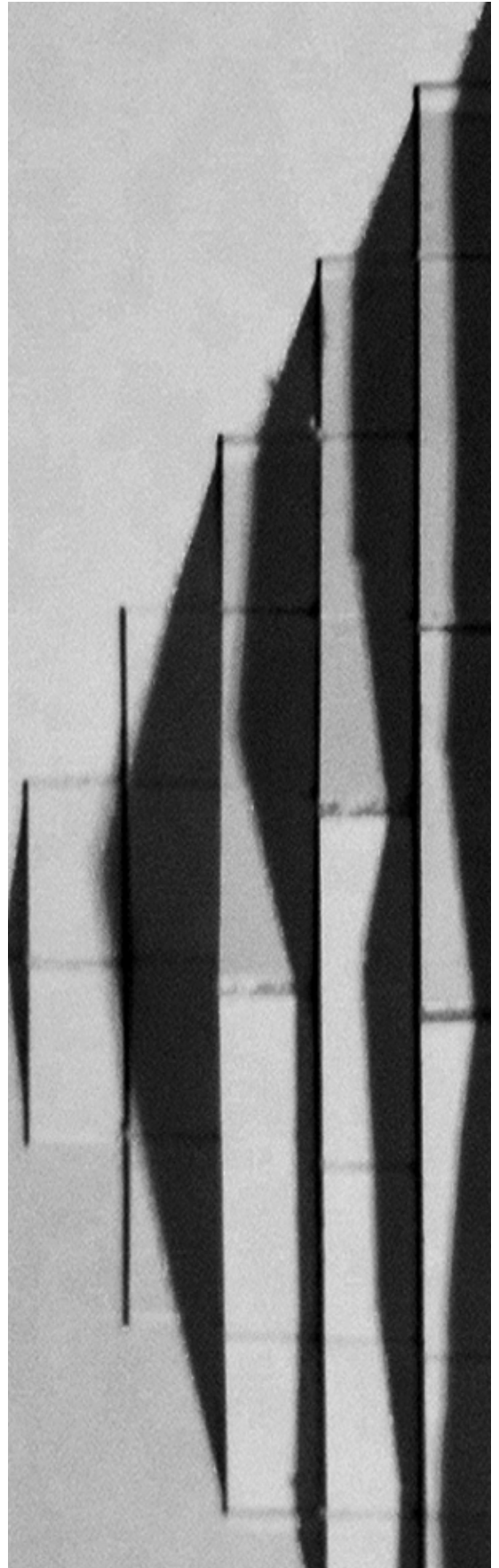
Fig 4.04. *Design Investigation: Test 2 - Paper Model*

Test 3

Exploration Two: Card

This test aims to investigate the material principles of card and ways in which the model reacts to light. I am also testing the durability and flexibility of the material, comparative to the paper tests.

By scoring the card I could make folds without stressing the material. The model plays with light and shadow but what stands out is the inherent flaws/cut marks of the material, through its inconsistency; actually work to amplify the atmospheric material qualities of the card. These atmospheric qualities are amplified from the structural properties of card over the thresholds of paper. I found that the inherent flaws added texture to the material that reflects light slightly differently, this is a minor detail that could be used as a technique throughout the investigation.



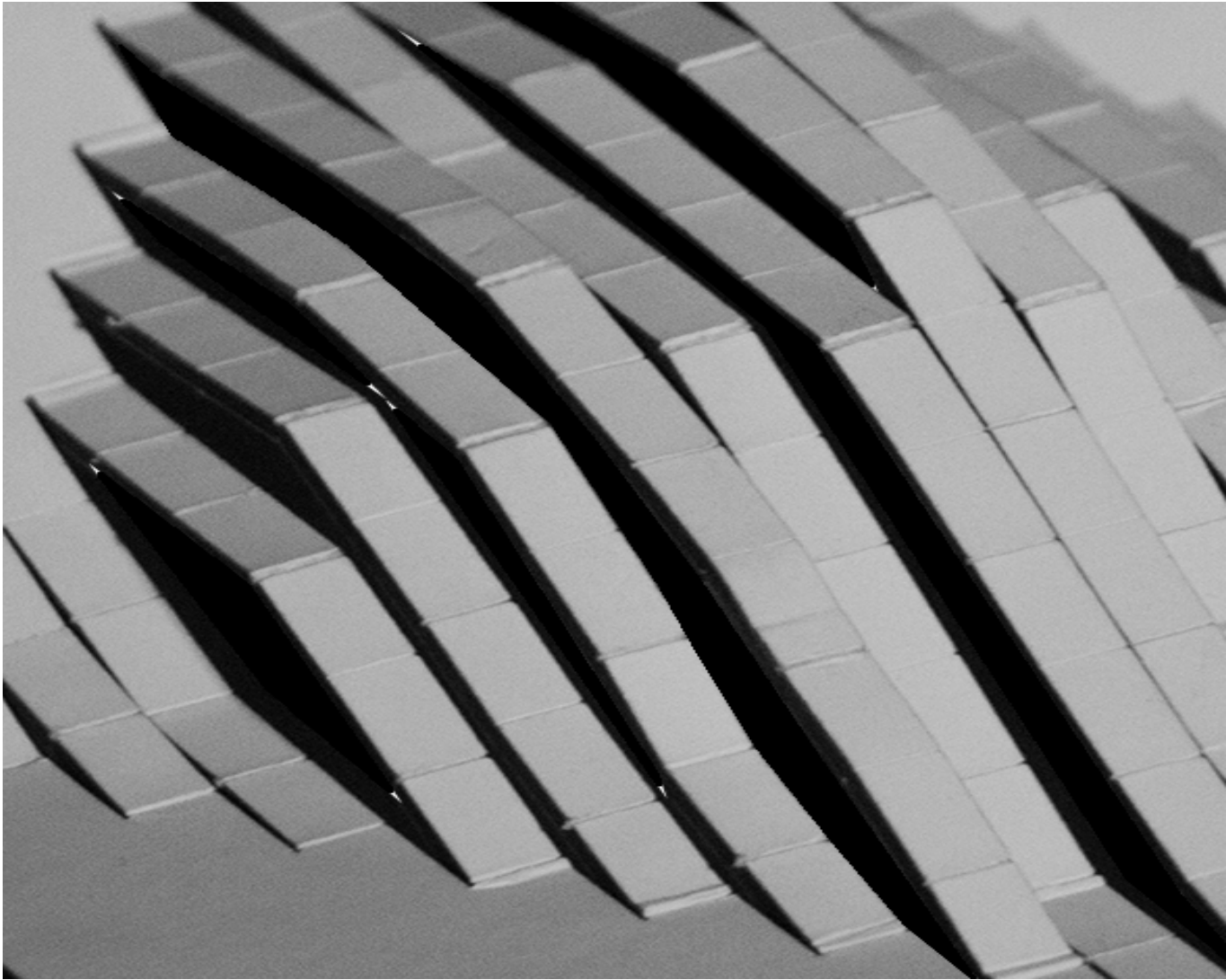
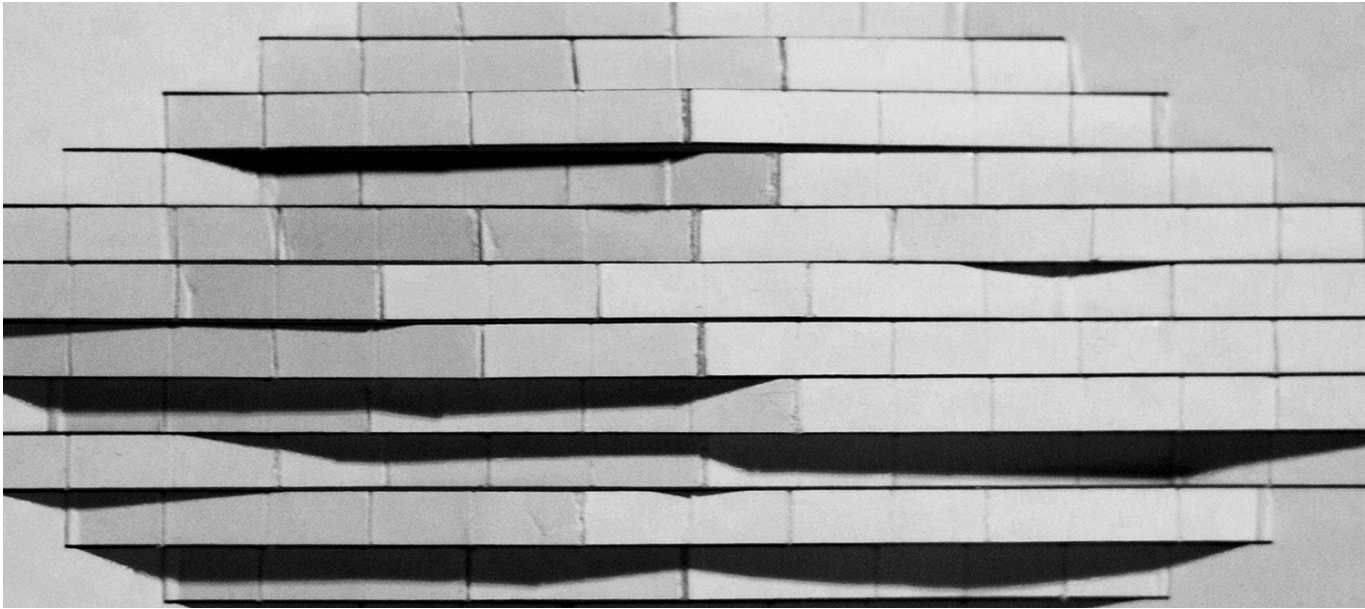


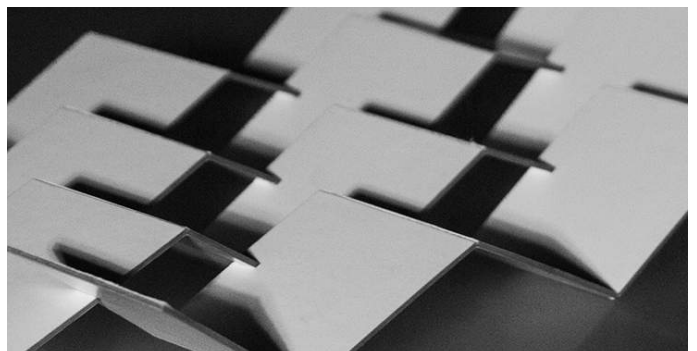
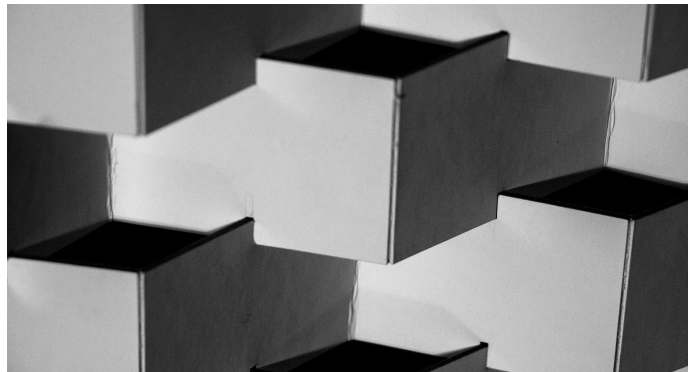
Fig 4.05. *Design Investigation: Test 3 - Card Model*

Test 4

Exploration Two: Card

The test model aims to investigate the way light is cast over the rigid surface. This card test model was laser cut to ensure accuracy. The rigid form has generated a sharper contrast between light and dark compared to the previous tests.

The manipulation through photography has captured the light and shadow from the negative space within the model. This negative space starts to create an interesting form. Thresholds from light and shadow created atmosphere through the contrast and connection of the material. Thus this experiment started to resonate with Zumthor's insight in how to test materials "lighting materials and surfaces systematically and to look at the way they reflect the light" (Zumthor, 2006. 59).



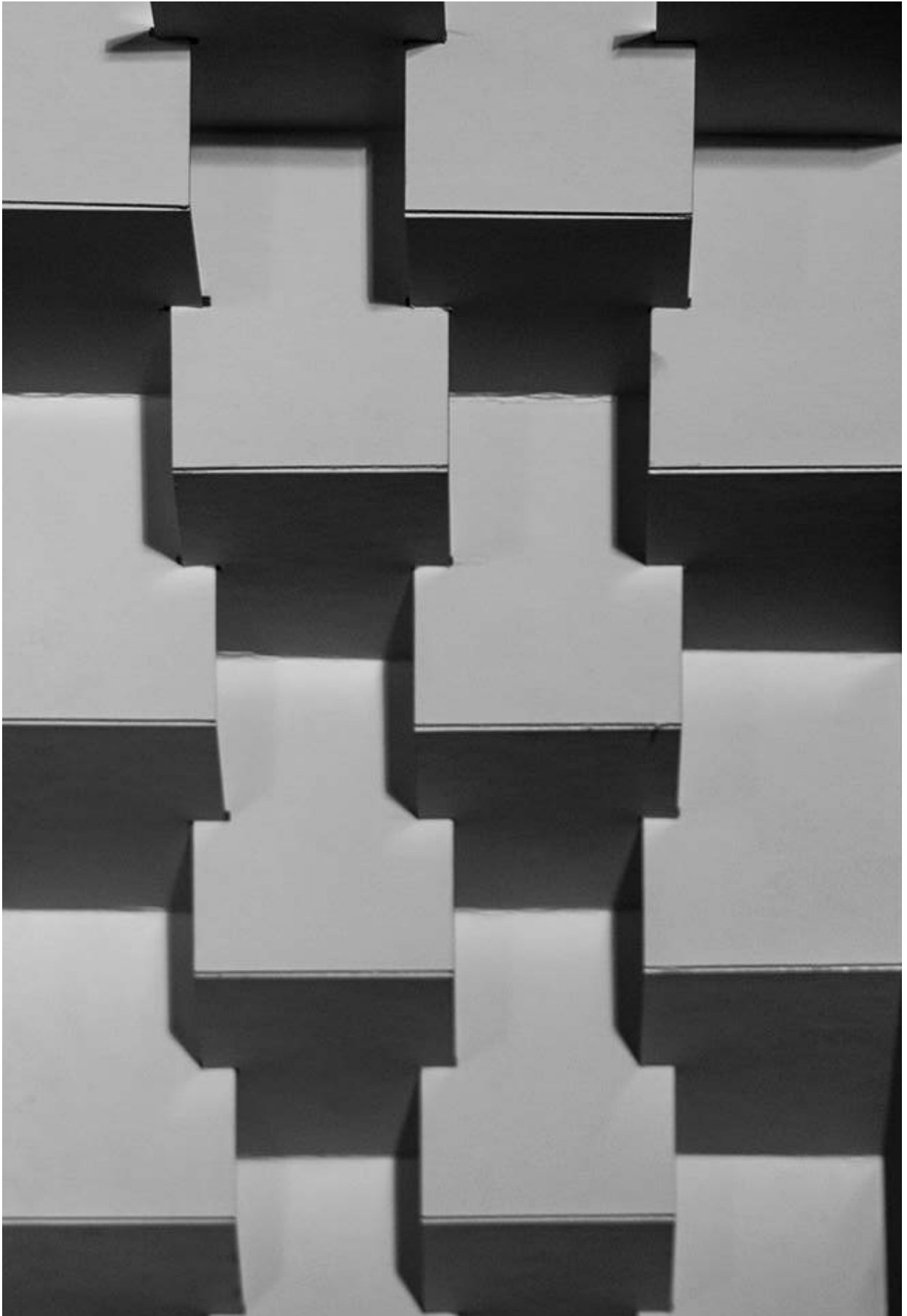


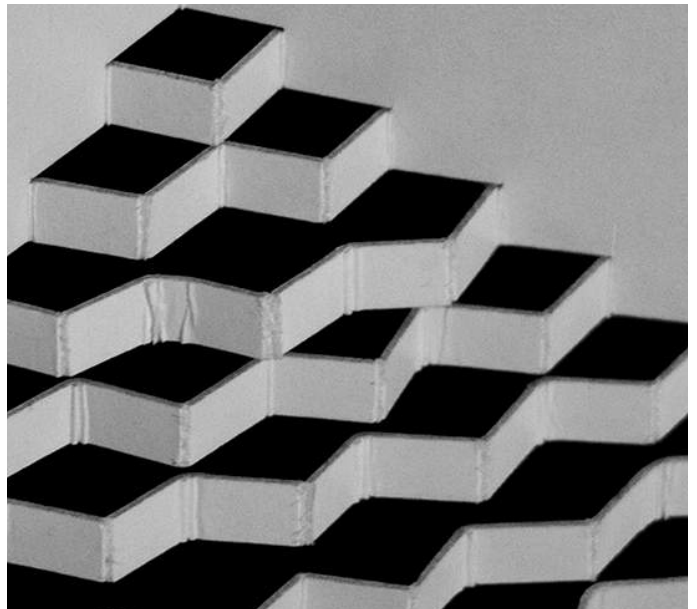
Fig 4.06. Design Investigation Test 4 - Laser cut model lighting test

Test 5

Exploration Two: Card

The aim of this investigation is to test the durability and flexibility of card. This test model was made from cutting and scoring evenly spaced lines to create a third dimension from the card. The card was used to hold a more durable form of these fine cutouts. The photography of the test model begins to test the light through the negative elements of the form.

Card loses the ability to hold its own form within the narrow strands. I found that the clean folds, repeated form, and linear design give a clear contrast between light and dark, to accentuate the form. The manipulation of the model through photography distorts the idea of scale. It also gives a depth to the material. The voids contrast with the form and generate layers. However, I found a threshold to the durability, and the card started to lose form after it was folded too often.



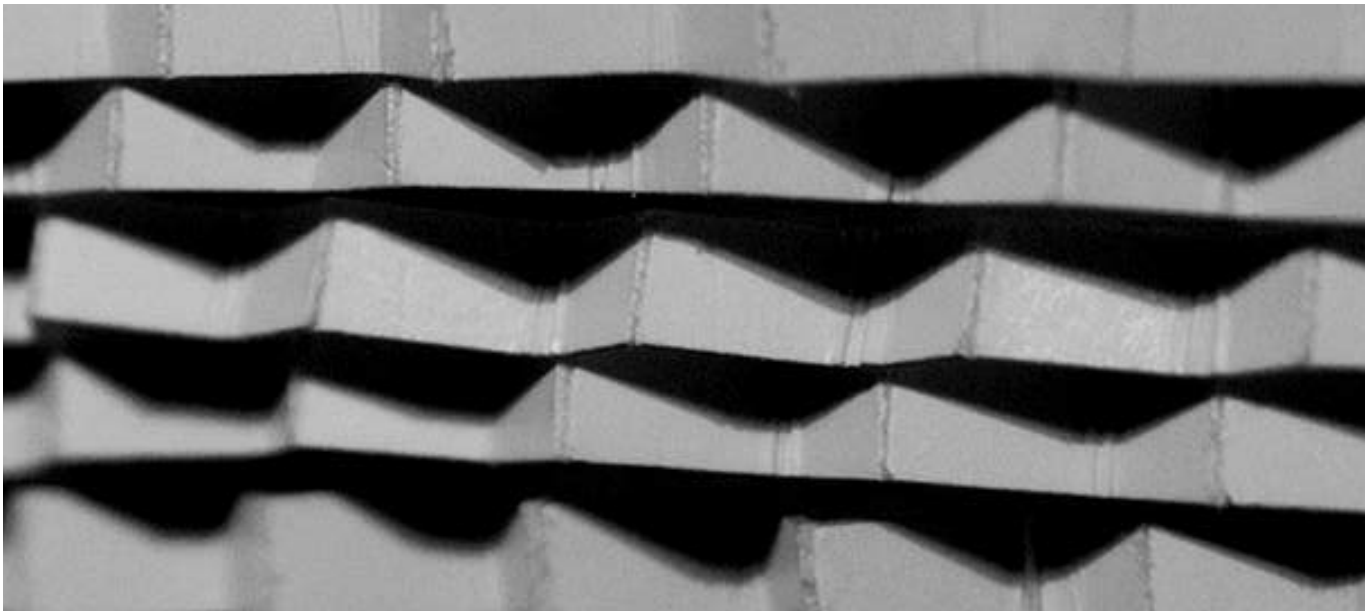
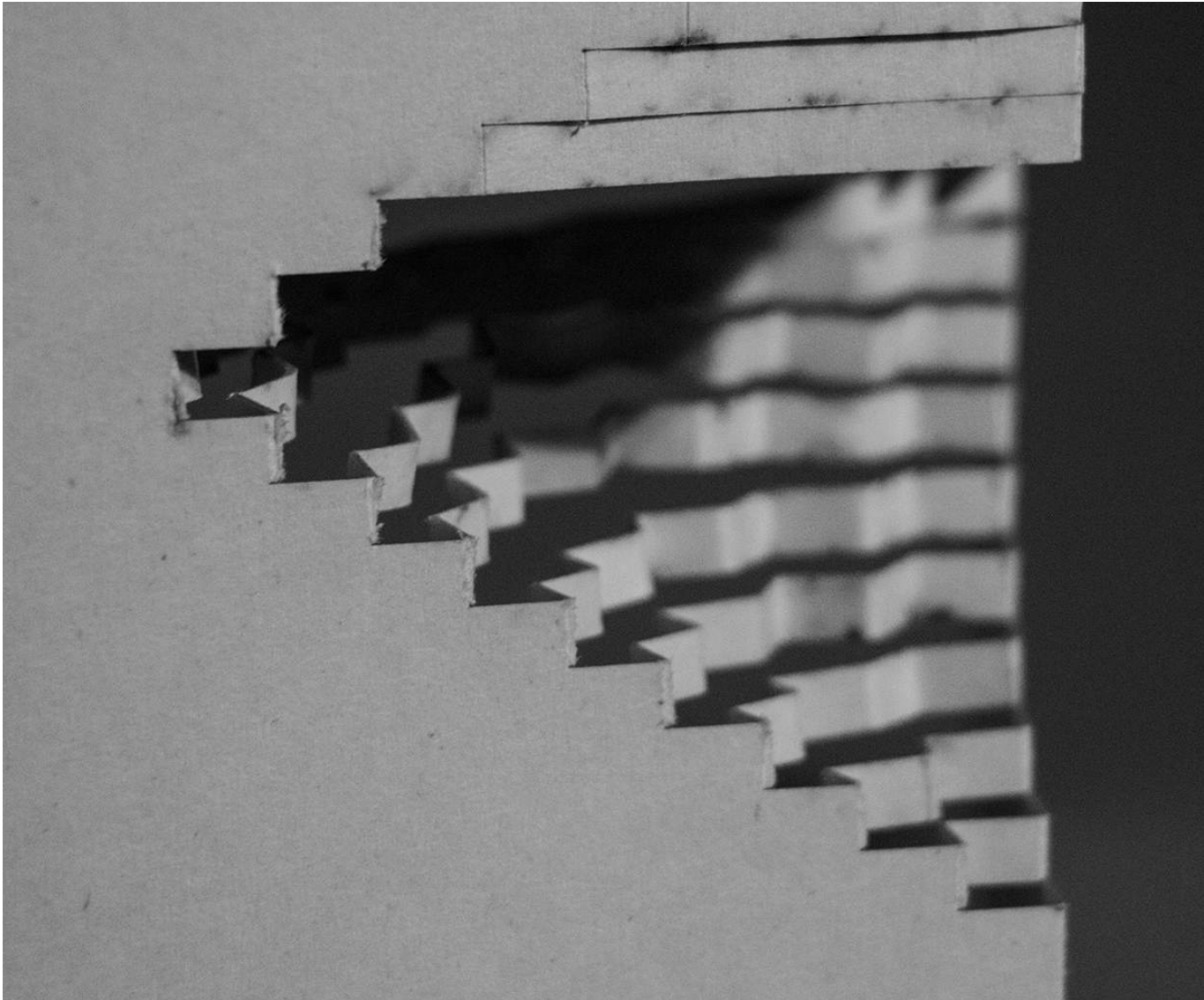


Fig 4.07. *Design Investigation: Test 5 - Card Model*



Test 6

Exploration Three: Layers

The aim of this investigation was to test transparency, and what happened when the light is cast on the material. The model was made from rhino plastic; a flexible transparent plastic. The frames varied in sizes at linear spacings in order to test how light passes through different levels of transparency.

Light and shadow are evident in the staggered layering of the model. The transparent plastic dilutes and absorbs the light through the layers of sheets. The change in angle manipulated the perspective of the test model and the way the light was cast upon the form. I found that the light and shadow qualities create new layers within the plastic sheets and give the test model more depth in its perspective.

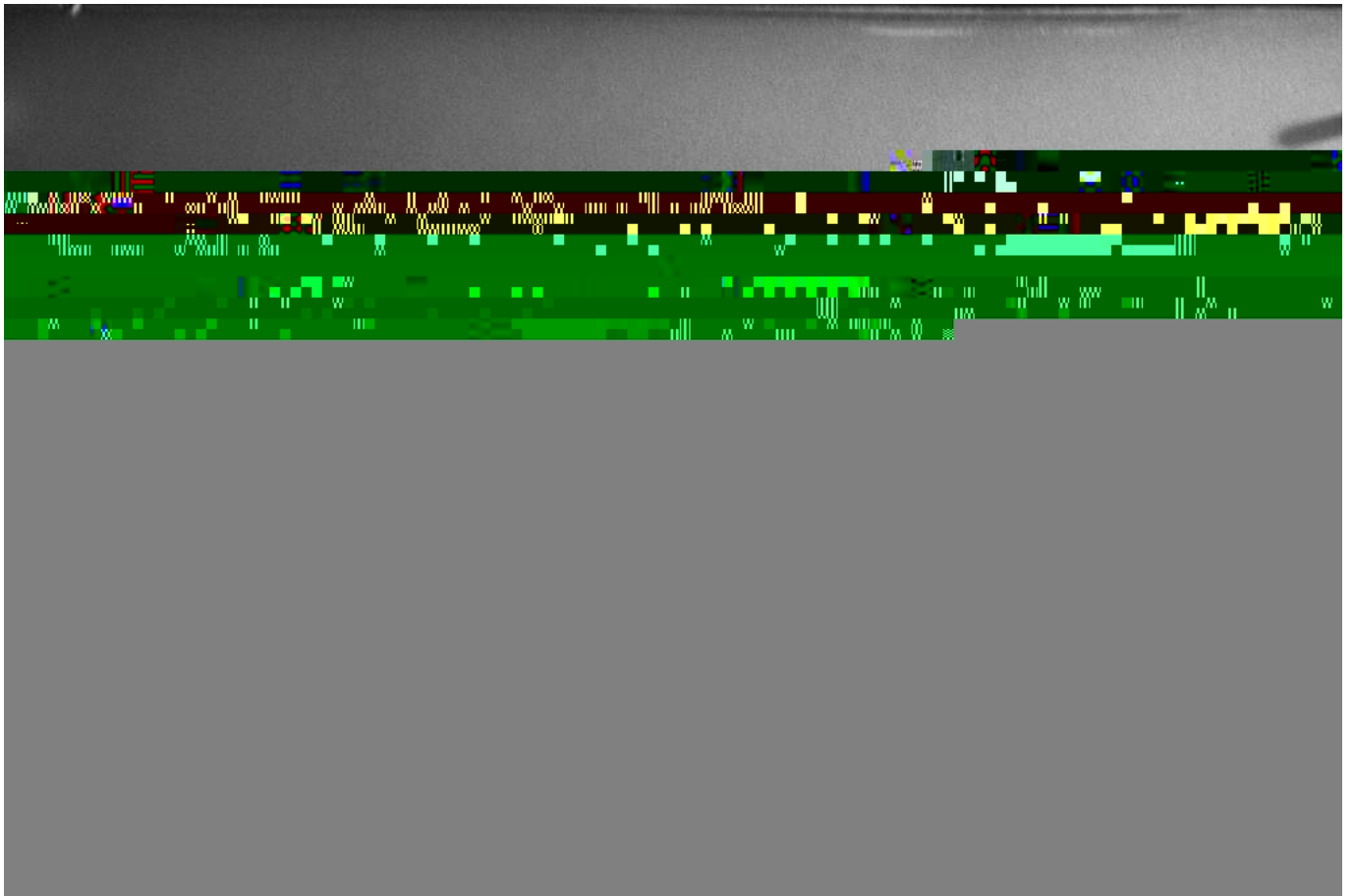


Fig 4.08. Design Investigation: Test 6 - transparency test with plastic sheets

Test 7

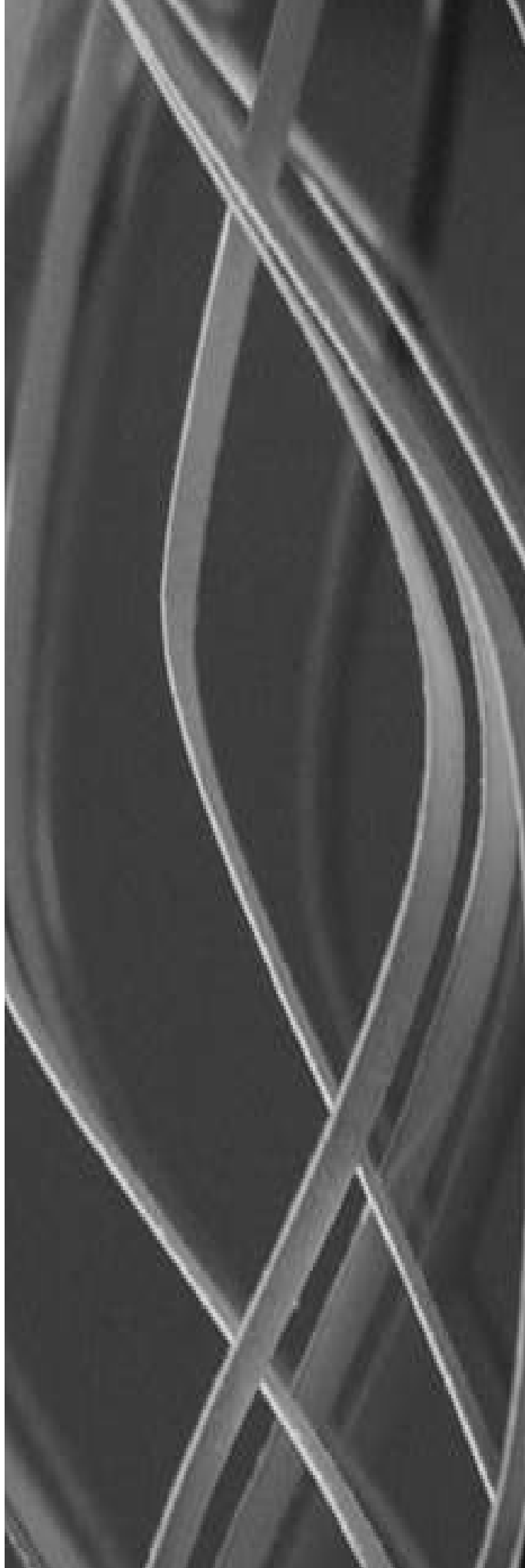
Exploration Four: Material and Fold

The aim of this investigation is to compare through modelling the constraints of materials. This material test looks at paper, card and plastic with the same form. Modelling the same form, from three different materials will test durability and materiality. Anderson writes about “retaining a tension between the structural and the ephemeral, the formed and the formless, the determinate and the indeterminate, and the subjective and the objective” (Anderson, 2014. 141). Following from this I tested test how the different materials react to tension and aspects that effect the atmosphere. The form was laser cut to guarantee accuracy between the different materials. The flexibility constraints of each material are evident in how the model moved from folds.

This identified the flexibility and constraints that lie within each material. The card and plastic test models were a lot more rigid than the paper and difficult to manipulate. The plastic was a lot more restricting to compress, where the paper had no reaction at all and would just fold.

This investigation has lead me to interpret durability through this test model and the limitations to each material from the form they create. This was evident when testing the durability of the different materials within the same form.





Test 8

Exploration Four: Material and Fold

In this test model, I aimed to investigate the material qualities of paper, testing transparency. It is made with one piece of paper with straight line cuts across the centrefold. However, with this paper, I didn't make a fold or crease. The paper simply formed a curve from the reaction of the cut.

Light does not reflect off the transparent paper in the same way as the paper I had used previously. This creates a more ephemeral quality. The paper is less rigid without the creased fold at each strand. The layers of strands add density to the model and gives depth within the strands of paper.

By drawing over these images and identifying the forms, I started to extract information that could be used at larger scales. I found that when manipulating photographs of the model I could start to visualise an artificial landscape due to the organic movement found within the curved form.

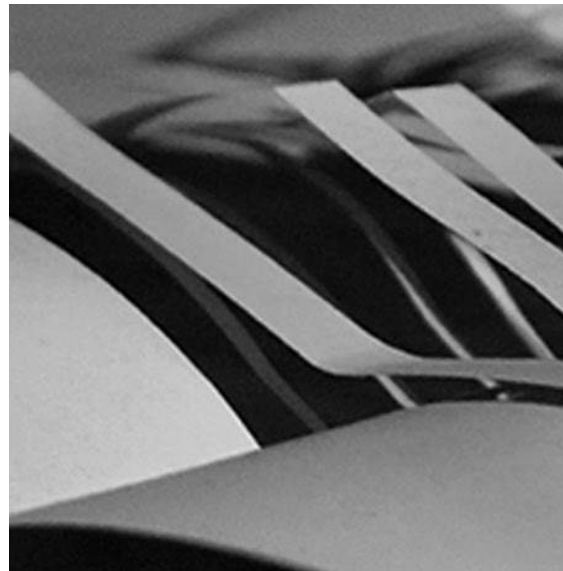
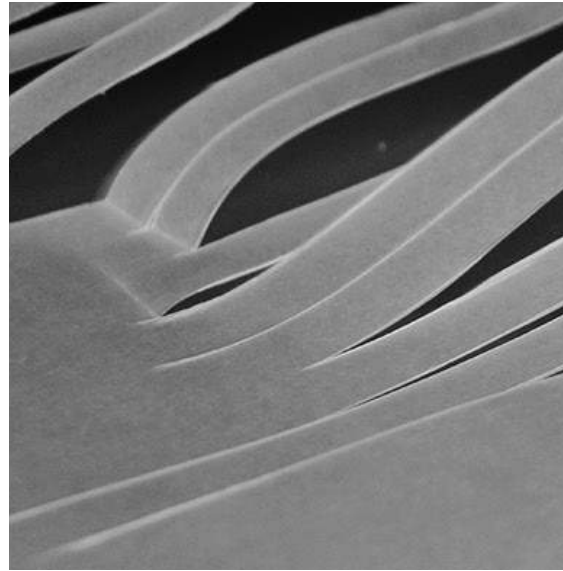
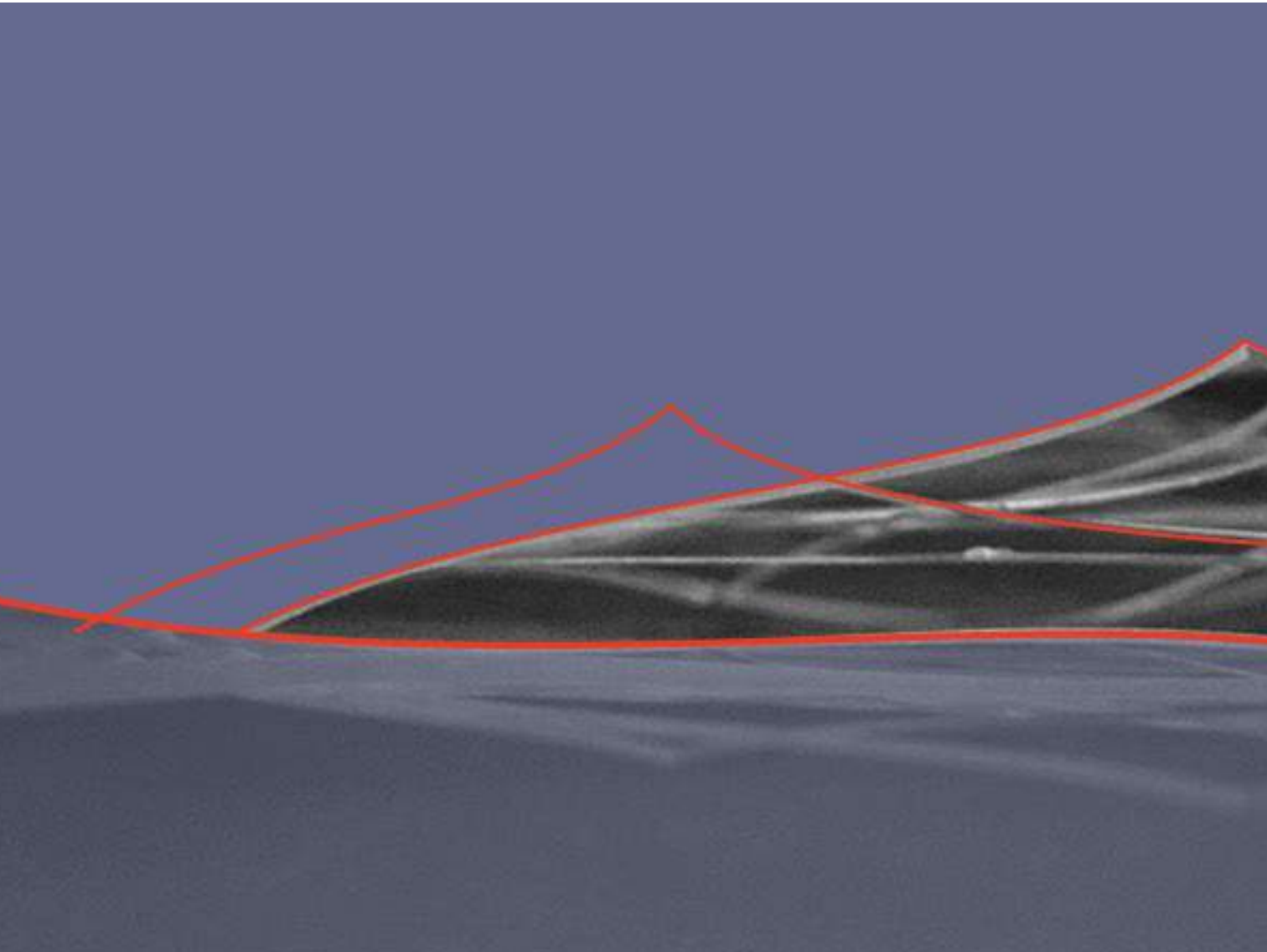




Fig 4.10. *Design Investigation: Test 8 - paper models testing different material qualities*

Test 9

Exploration Four: Material and Fold



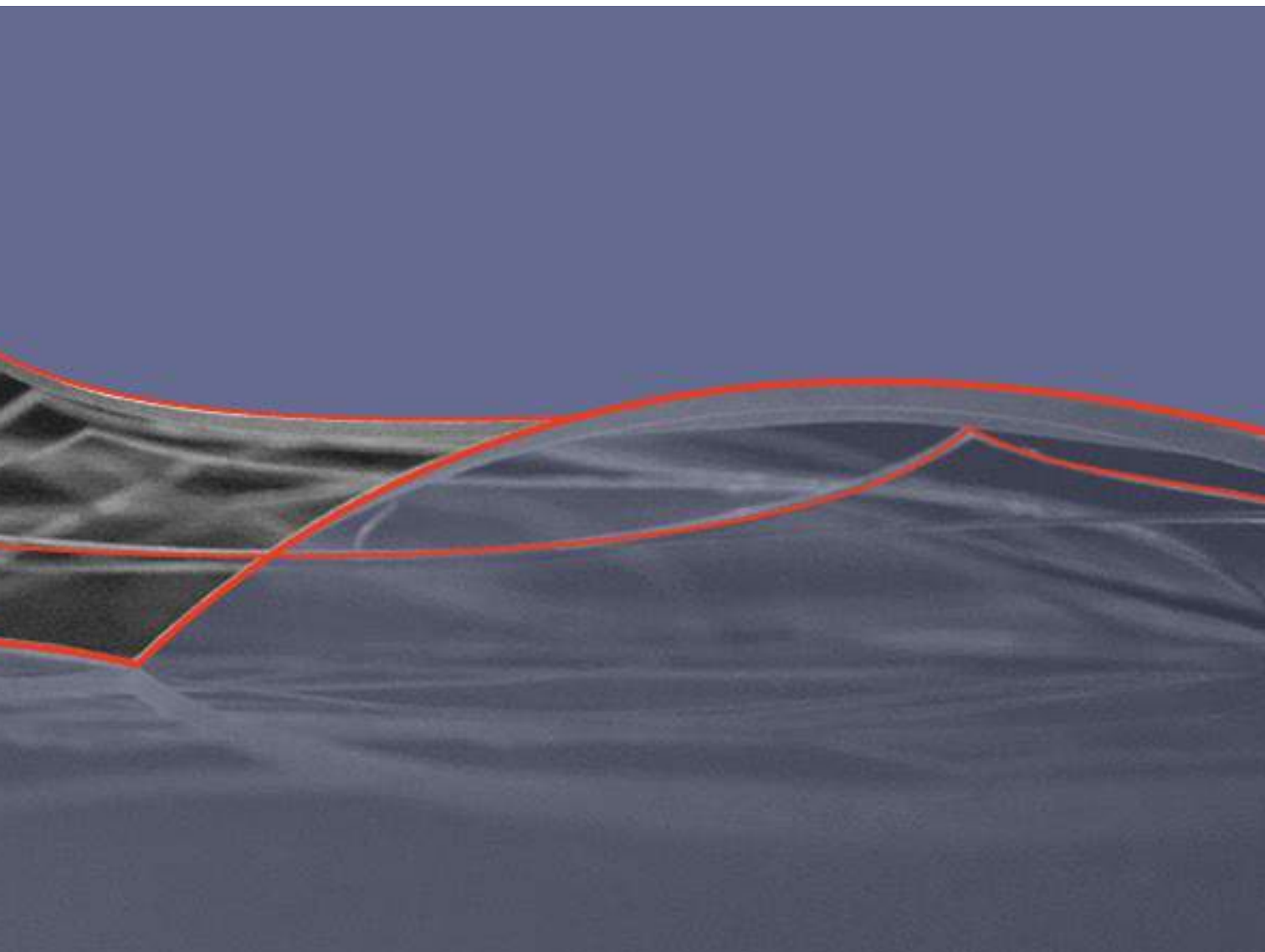
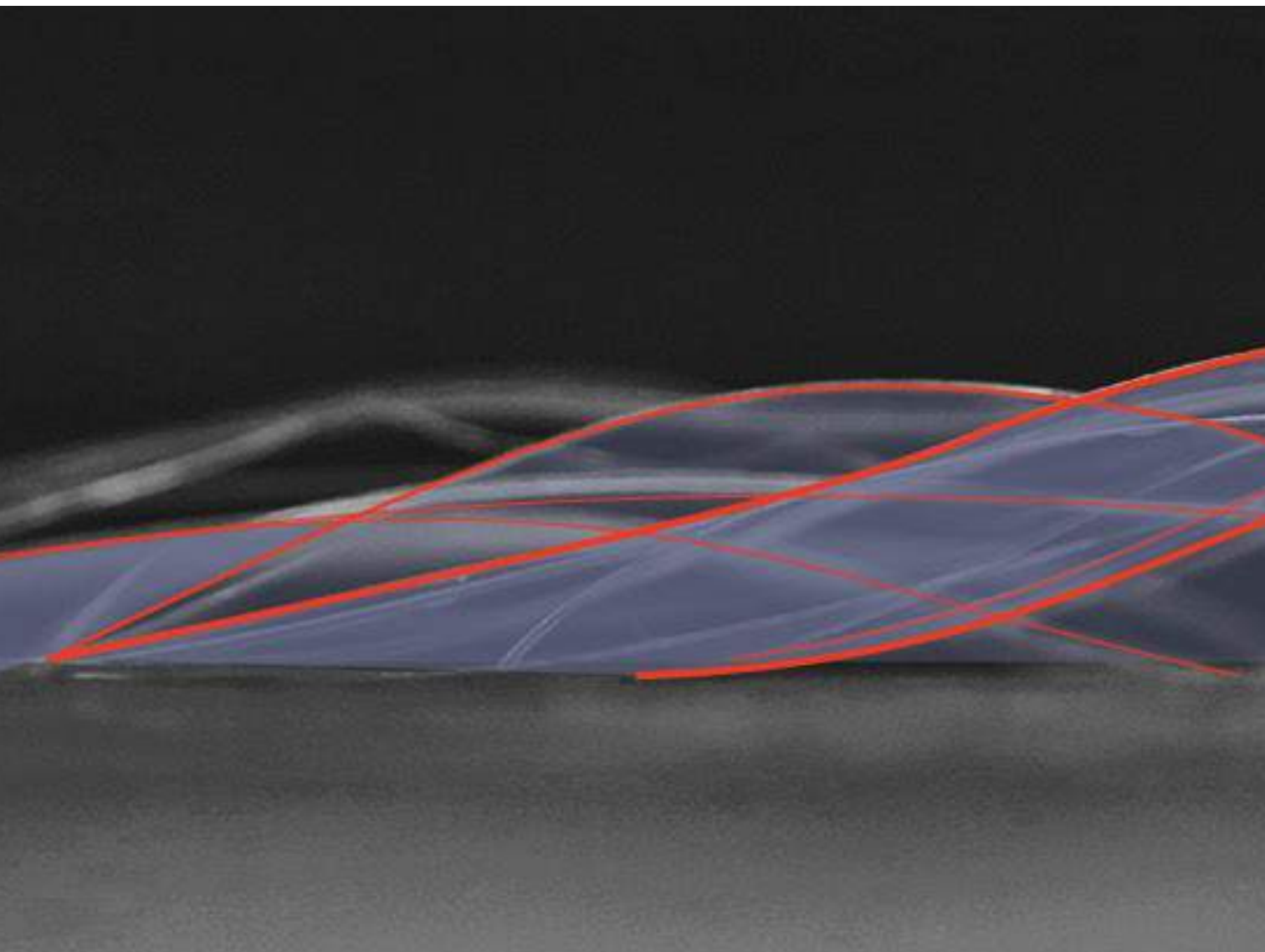


Fig 4.11. Design Investigation: Test 9 - Paper model Photographed and manipulated. Drawing diagrams the movement of the paper folds

Test 10

Exploration Four: Material and Fold



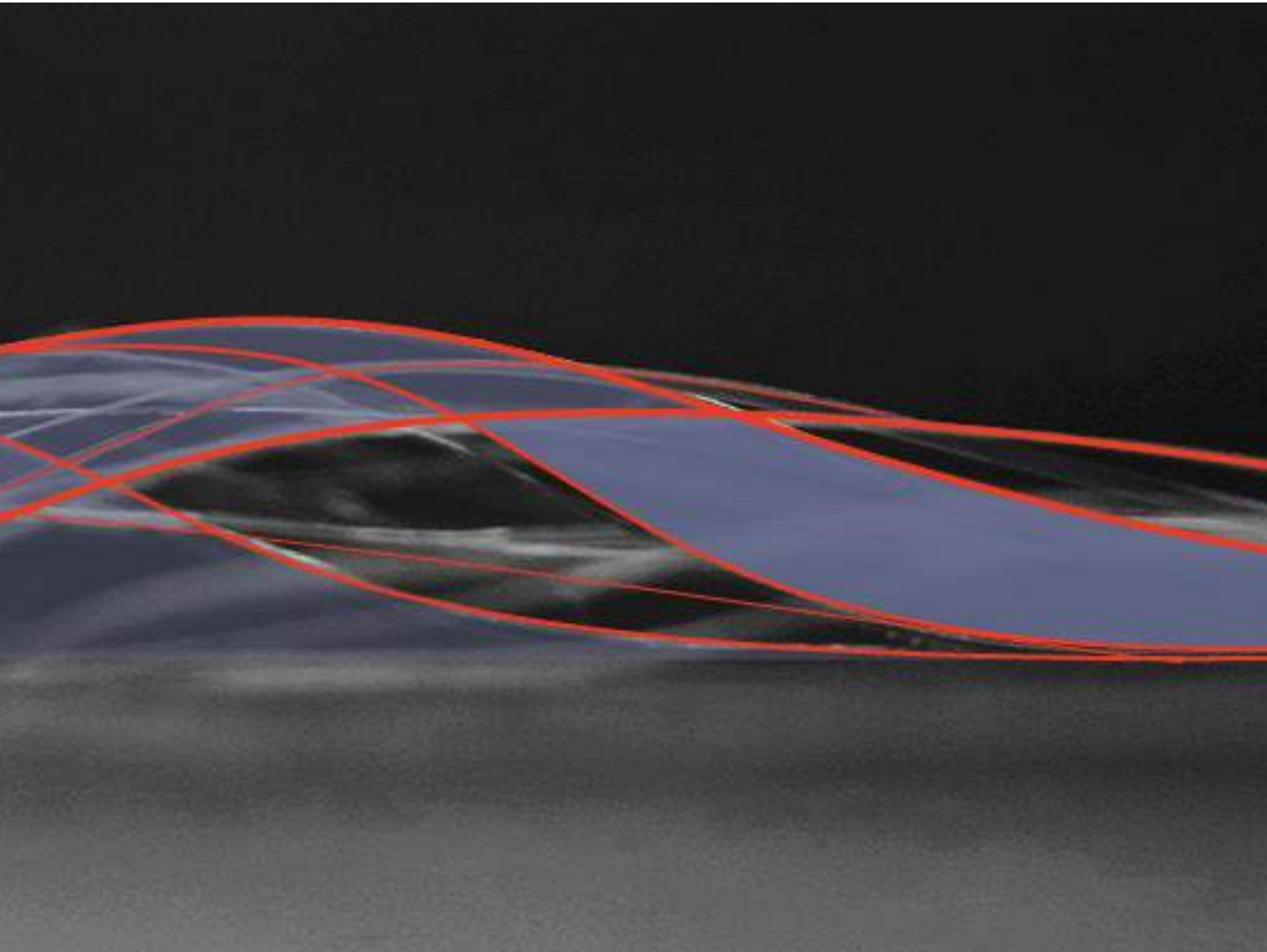
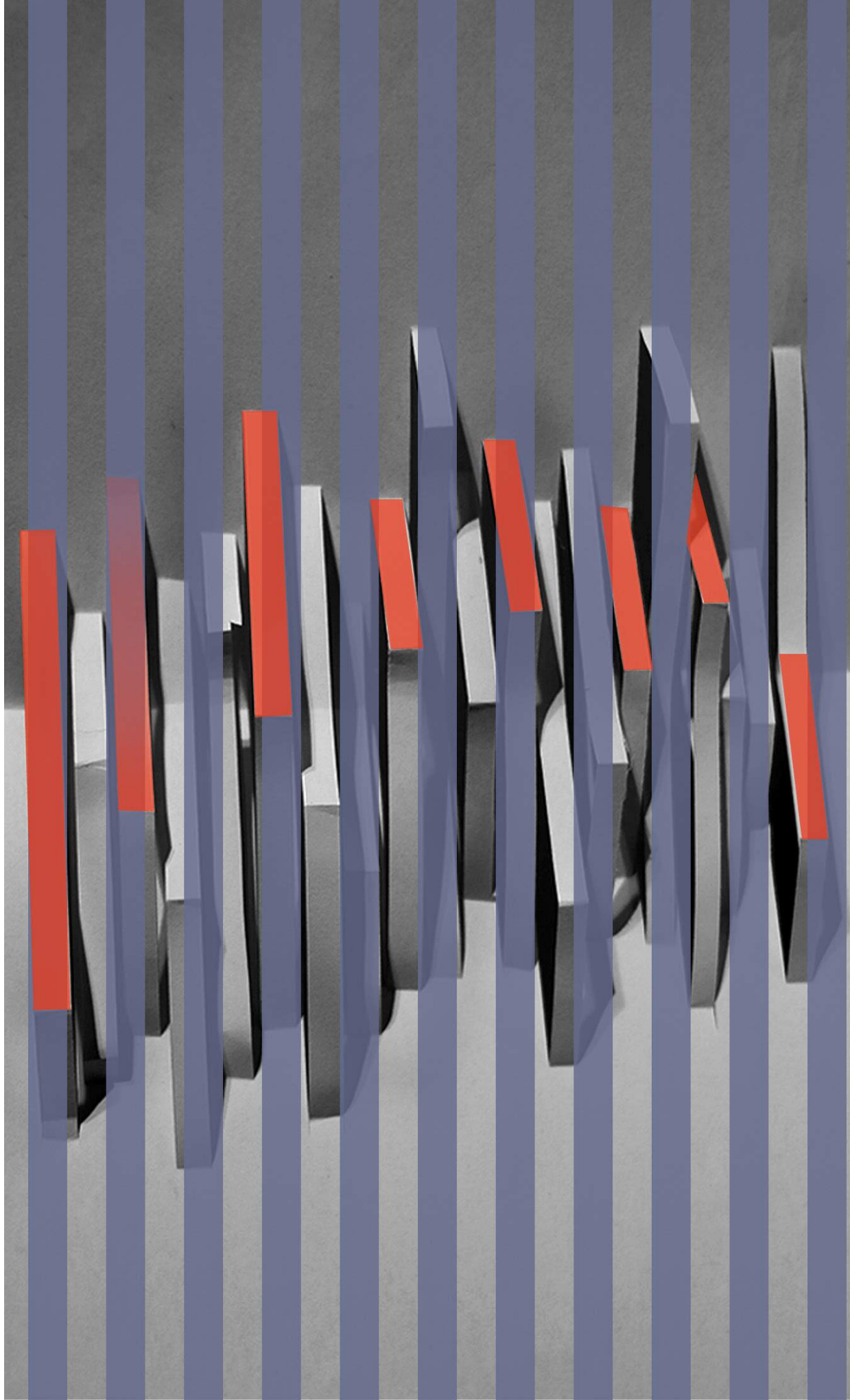


Fig 4.12. *Design Investigation: Test 10 - Paper model Photographed and manipulated. Drawing diagrams the movement of the paper folds*

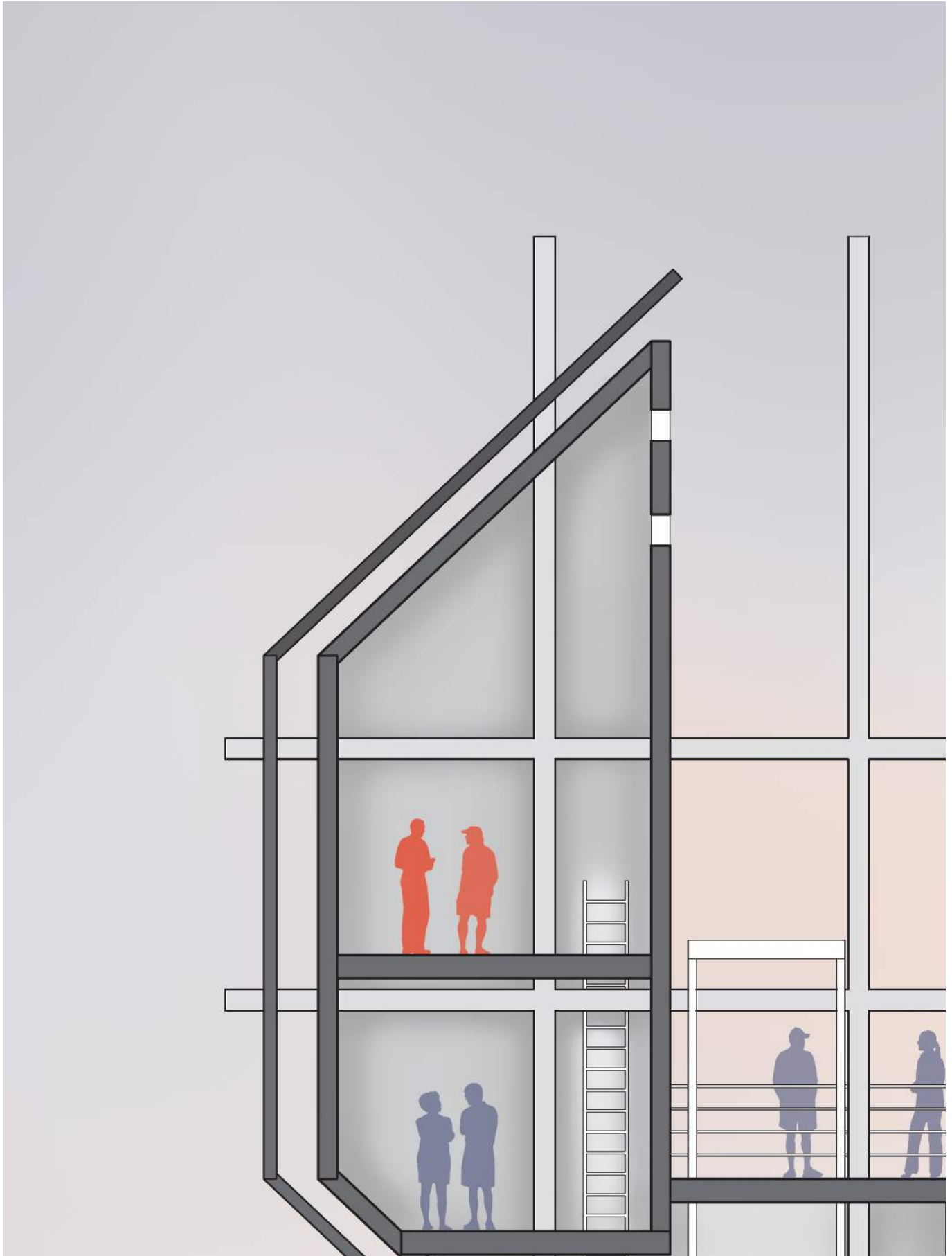


Reflection

Stage One

These tests investigated how light and shadow, transparency, and the durability and malleability of a material, could generate atmosphere. The contrast of dark and light came through the forms of the test models. The denser the material was the more it supported a contrast between the form and the negative space around it. Card was the least malleable material, and would often split when folded. However, the plastic would bend then retract, where the paper would fold with little force needed. This design investigation did not lead to a final outcome. However, the process of modelling paper as a tool to generate atmosphere was resolved through the manipulation of photography and graphic diagrams. Atmosphere was present in the two-dimensional images rather than the models.

After reflection on my research, I think the paper models related more to thresholds, light and layering of the landscape. Manipulations, of these experimentations, appears more like the beginning of a soft integration, imperceptible borders between light and shadow, thresholds and layers of the landscape. This leads into the next chapter that investigates atmosphere at an architectural scale.



Chapter 5: Mid-Scale

Research through Design: Stage Two

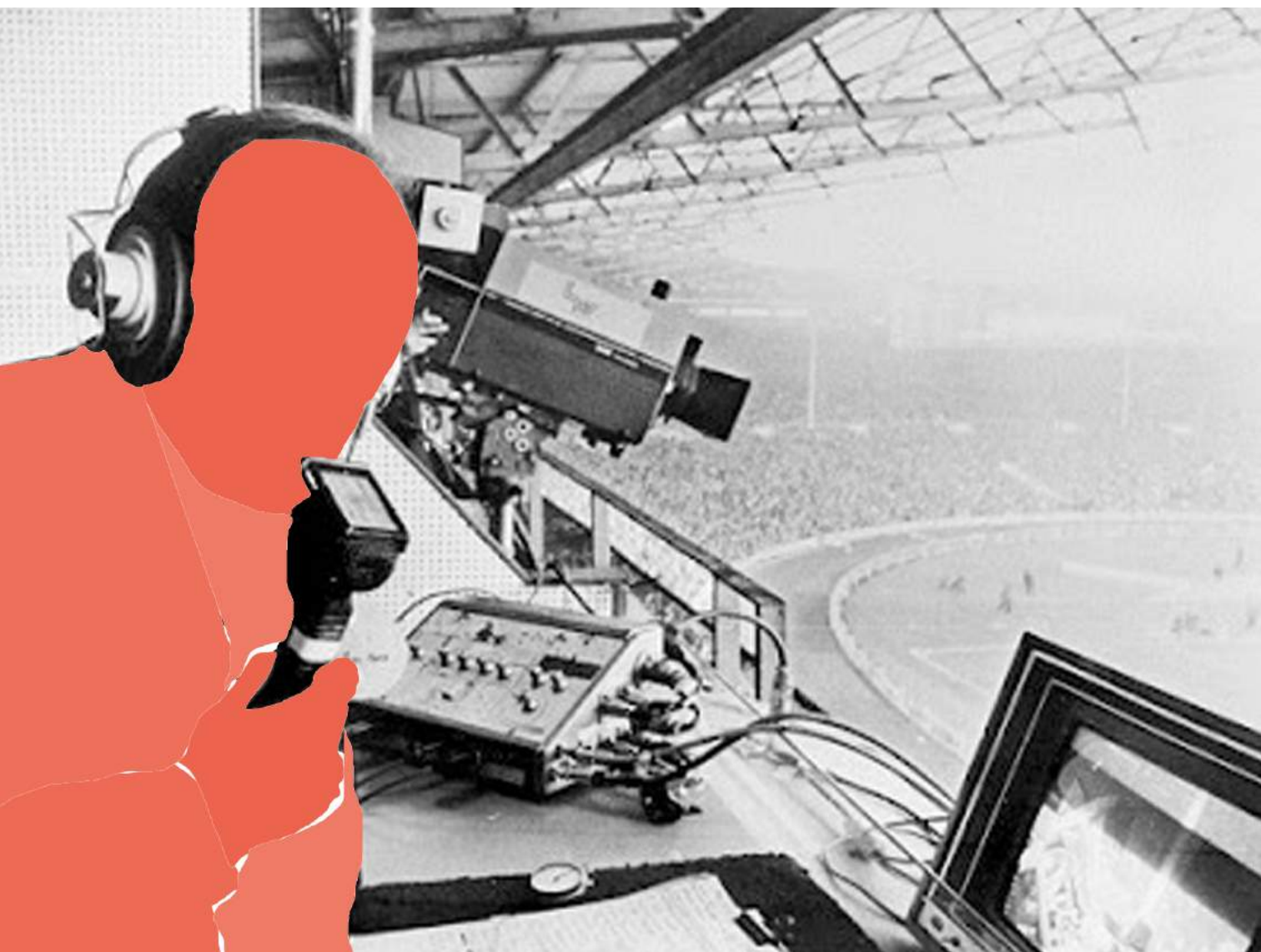


Fig 5.02. T.V. tower commentary box collage

Mid-Scale Design

Stage Two

Introduction

This thesis seeks to find ways to amplify atmosphere within an artificial environment, tested through different scales. In this chapter the investigation shifts to a mid-scale design to explore how architecture can amplify atmosphere. The previous design experiment lacked a definitive programme or set atmosphere type, so the sense of direction and ability to amplify atmosphere was limited. Through the design of a mid-scale T.V. tower module, I have tested ways to generate atmosphere through form. At a mid-scale I was able to investigate the relationship between atmosphere and architecture further. As a result, architecture qualities drawn from this T.V tower were evaluated, and influential towards the larger scale buildings.

A series of design explorations were carried out, that engaged form with programmatic and spatial massing strategies. This chapter concludes by evaluating the design and reflecting on the use of form strategies.

Research Proposition

This chapter explores how the form of architecture can amplify atmosphere.

Aim

The aim that framed this design exploration was to design intimacy within the vast environment by using T.V. towers as a module form around the island.

Method

Downton and Rendell's 'research through design' methodology is again applied through an experimental process of design. By doing so I explored form and atmosphere, while looking at the principles of staging atmosphere as set out by Gernot Böhme who writes about staging atmosphere "through work on an object" (1993, p.123). The proposition was tested through an iterative process of drawing, modelling and digital graphics.



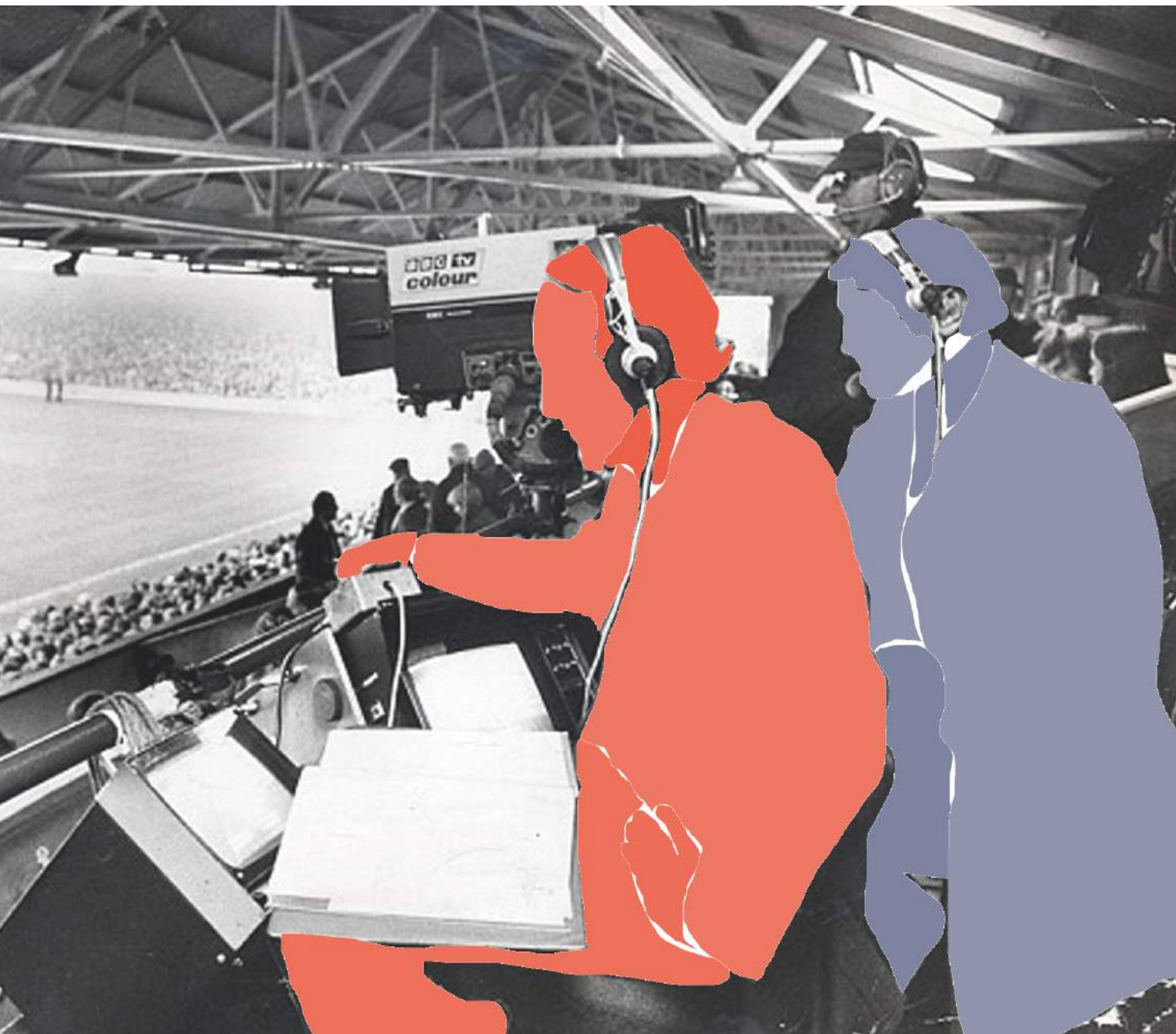


Fig 5.03. T.V. tower commentary box collage

Programme

The programme of T.V. towers supports the thesis narrative of an Olympic Island. The T.V. tower looks at the way sport can be filmed and broadcasted in a way that does not involve the interference of media within sports events. It allows the viewer at home to be a part of the atmosphere of the Olympics that is staged throughout the island.

The T.V. towers offer a range of programs to support viewership and broadcast the artificial environment. This includes filming, commentary boxes outside the stadium and public viewing towers.

As the T.V. tower modules will be scattered around the island, it will give the guests on the island an indication of their location and help orientate to direct their way around this island. The architecture of the T.V. towers becomes part of the atmosphere, drawing comfort within these vast landscapes.



Fig 5.04. Collage of existing commentary box



Fig 5.05. T.V. tower commentary box collage investigates what the programme of these T.V. towers can offer to the Games

Form and Atmosphere

Exploration One

Exploration One explores the influence form has at amplifying atmosphere. The design of the T.V towers will generate atmosphere from the form of the mid-scale building. At this stage Giedon's ideas that "Forms are not bounded by their physical limits. Forms emanate and model space" informed my exploration (1941). The proportions of a formal structure have an influence on the atmospheric qualities of the design. This is generated by the height and size of the building volumes. And this respect, speaks to classic affective qualities of 'nobility, fervour, majesty [and] tranquillity' of architecture (Dufrenne, cited in Anderson, 2014. 132). Through my experiments, I found that the surrounding influence of the landscape accentuates atmosphere; rather than Giedon and Dufrene who focus on the form of buildings in their arguments. These factors will guide me through the process of staging atmosphere.

In reflection, the forms did not apply enough space requirements necessary of the programme. The forms were based on expanding moments from paper exploration in the last chapter. The forms were scaled up in this test.



Fig 5.06. *Investigating the atmospheric qualities form generates*

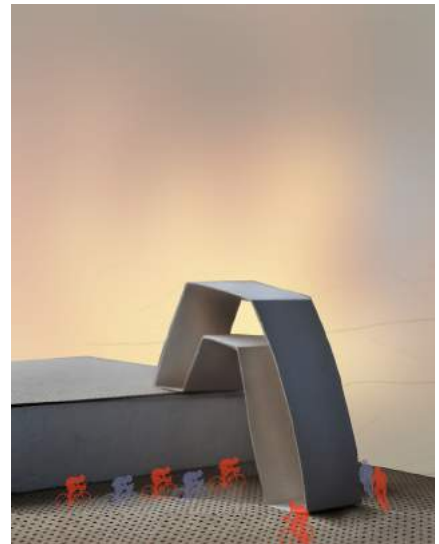
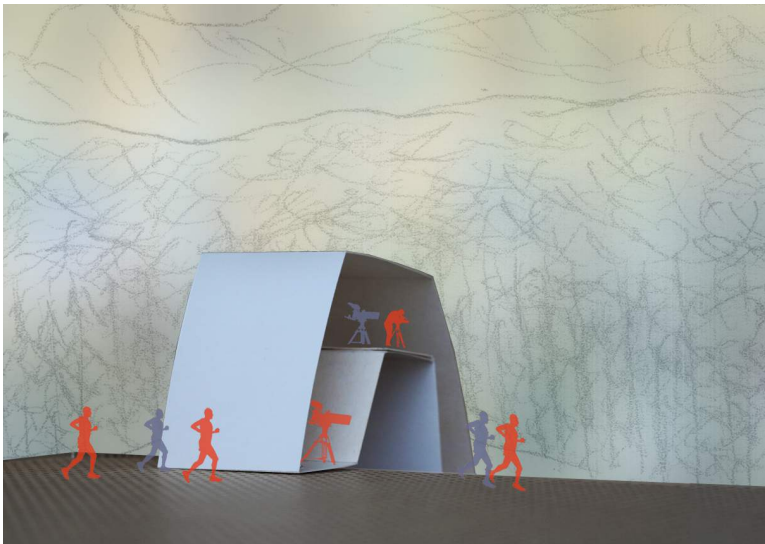
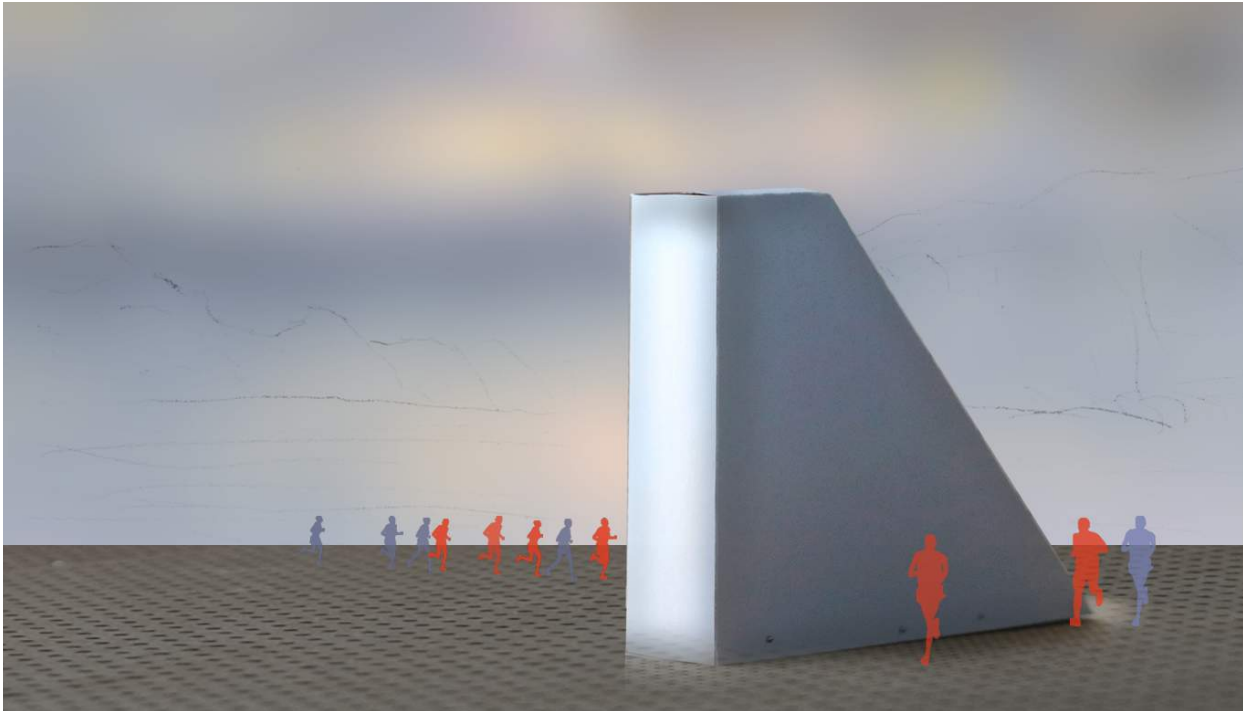


Fig 5.07. Mid-Scale: Exploration One - I scaled up forms from the from the previous design investigation to start the mid-scale design.

Form Development

Exploration Two

The form of the T.V. tower reacts to the relationship it has with the public and determines form from function. The T.V. towers are scattered around the island as landmarks to the public as well as offering viewership to the people watching from home.

The form also influences the way the athlete may use or pass through the building; this questions how the architecture can be influenced by the sport and programme. This test looked at shaping the form like a camera stand. The sports event could pass right through the T.V. tower.

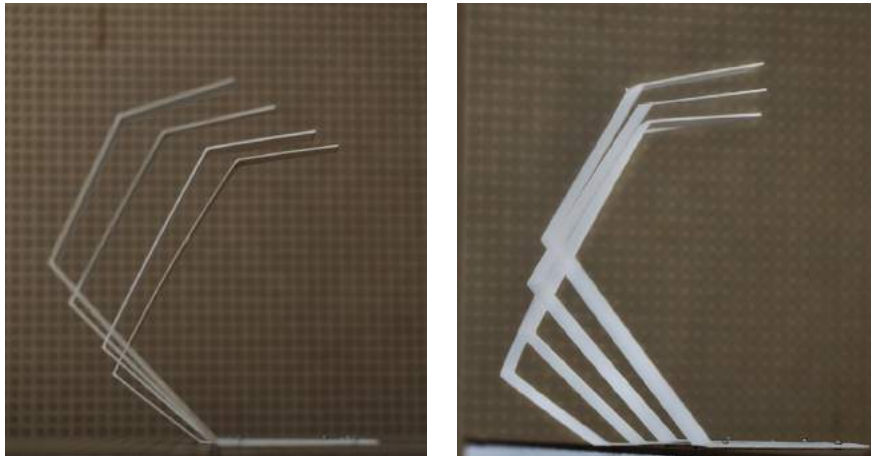


Fig 5.08. Mid-Scale: Exploration Two - Forms were designed to accommodate the programme of filming

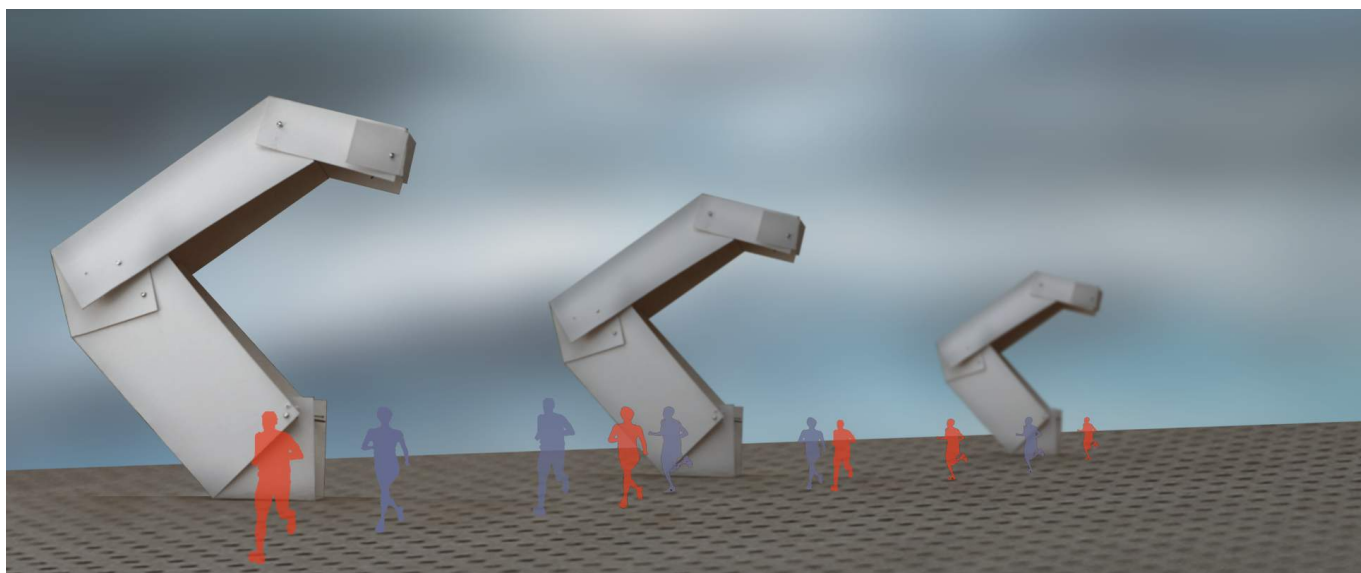
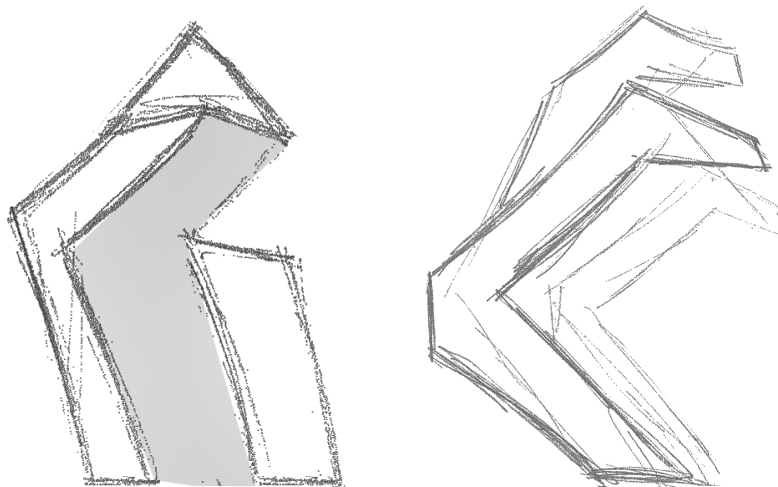


Fig 5.09. Top: Mid-Scale: Exploration Two - Conceptual drawings of tower form
 Fig 5.10. Bottom: Mid-Scale: Exploration Two - Concept models developed further with greater volumes

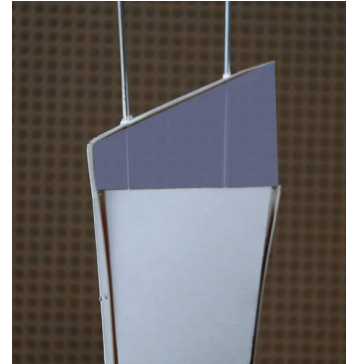
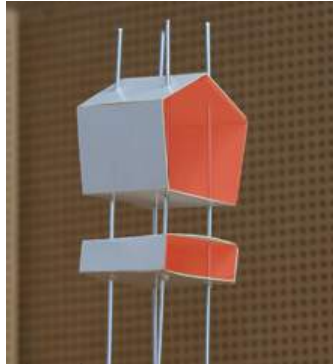


Fig 5.11. Mid-Scale: Exploration Three - Concept models testing functional viewing screens

Form and Height

Exploration Three

The height will influence the form directly from the programme. Height is needed as part of the viewing and filming from the T.V towers. The form also responds to the cross programme of filming, commentary boxes, and viewers stand and can be used as part of the sports tracks, for example as boundaries or checkpoints.

The height responds to the programme and the relationship with architecture. The atmosphere generated from the form has an affect against premised on Dufreene's to convey through scale a sense of majesty. When reflecting on this the forms seem disconnected from the landscape, this was a lack of intimacy.

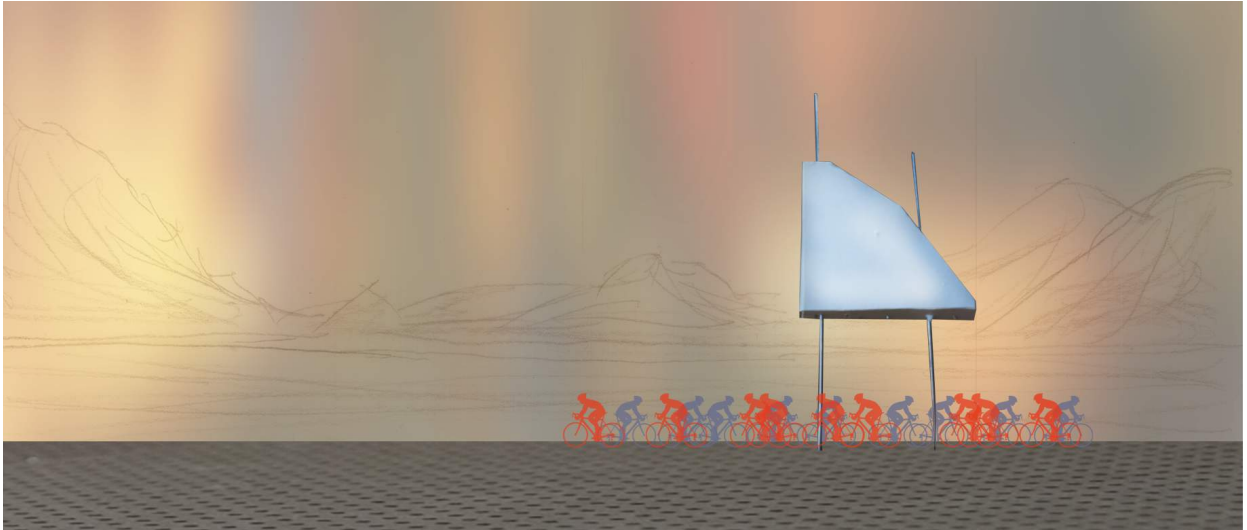


Fig 5.12. Mid-Scale: Exploration Three - Concept models testing elevated forms at different heights.

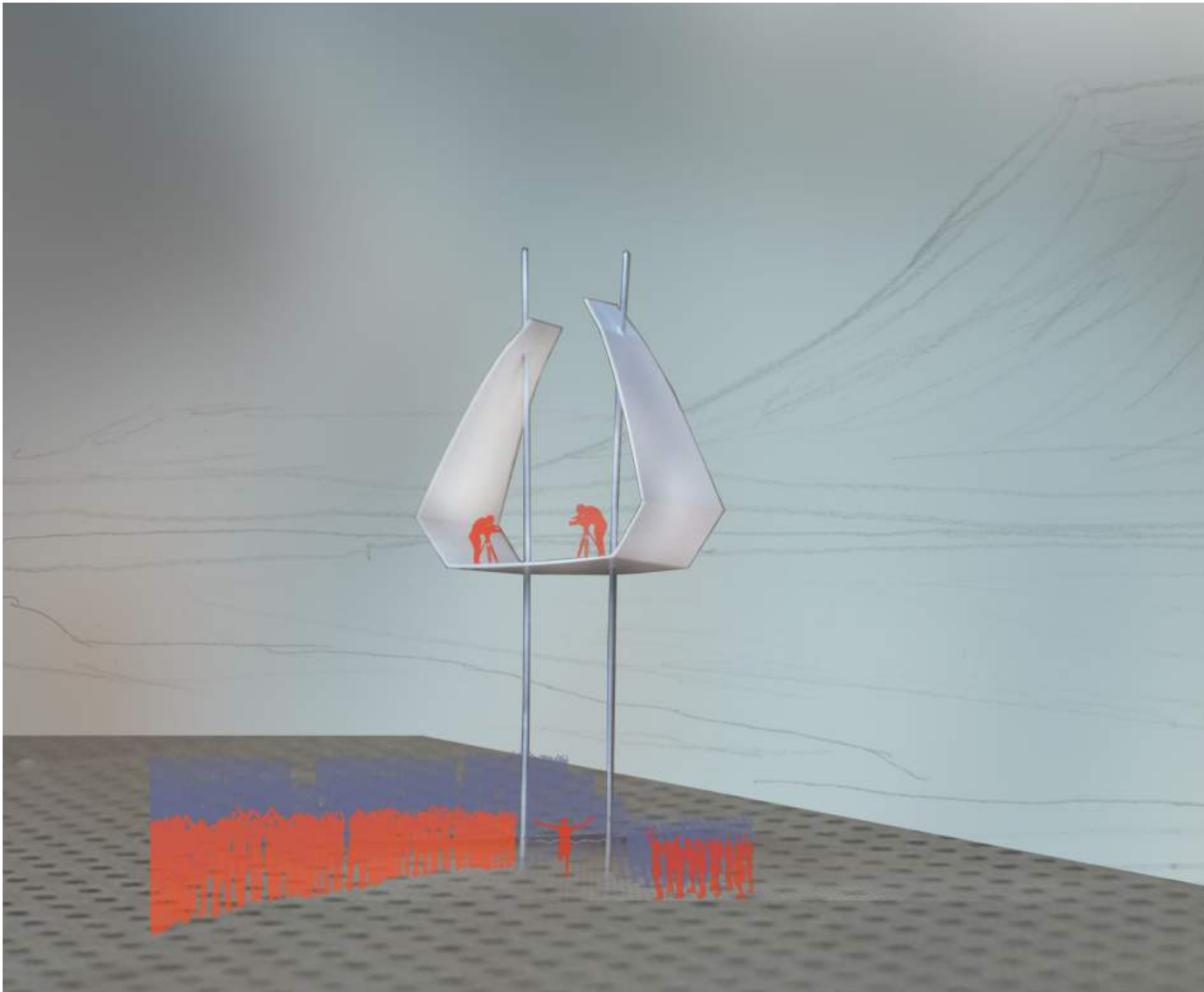
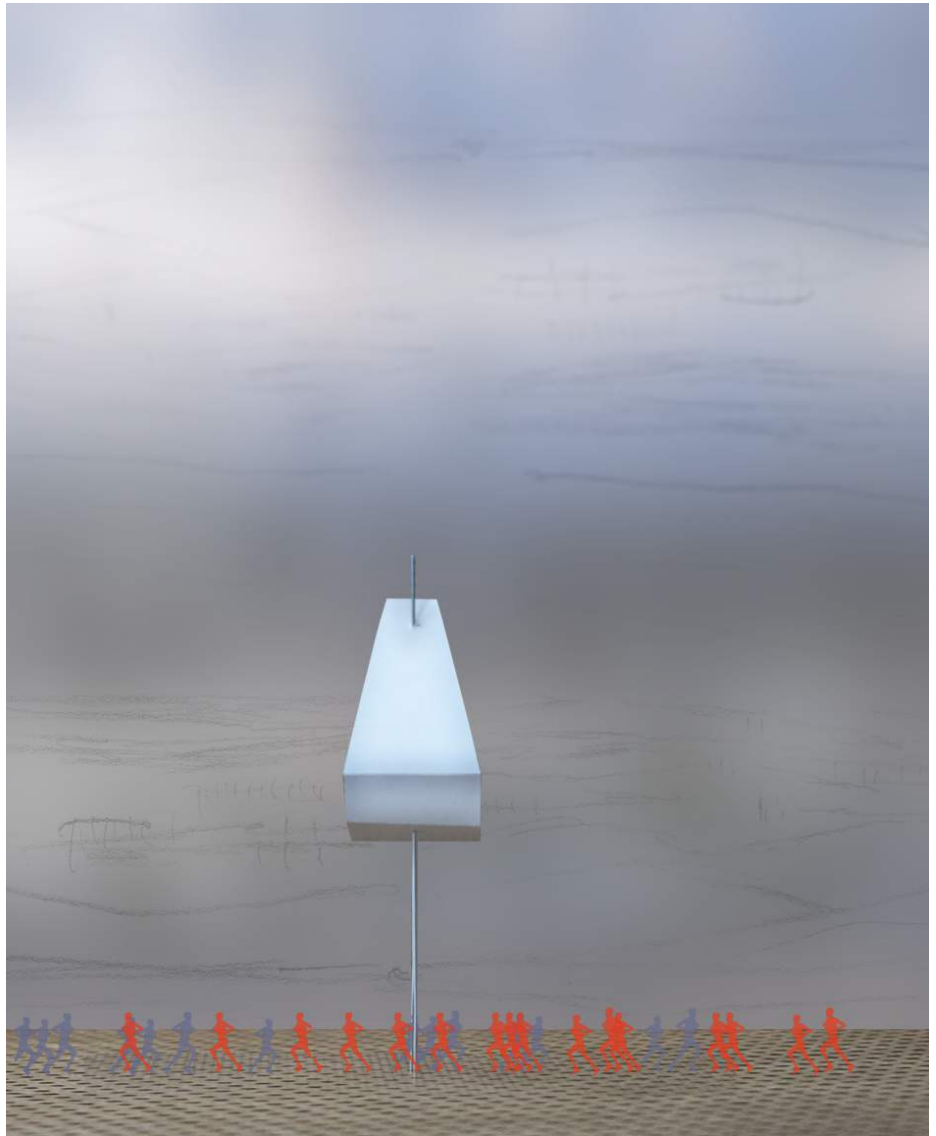


Fig 5.13. Mid-Scale: Exploration Three - Concept models testing elevated forms at different heights.



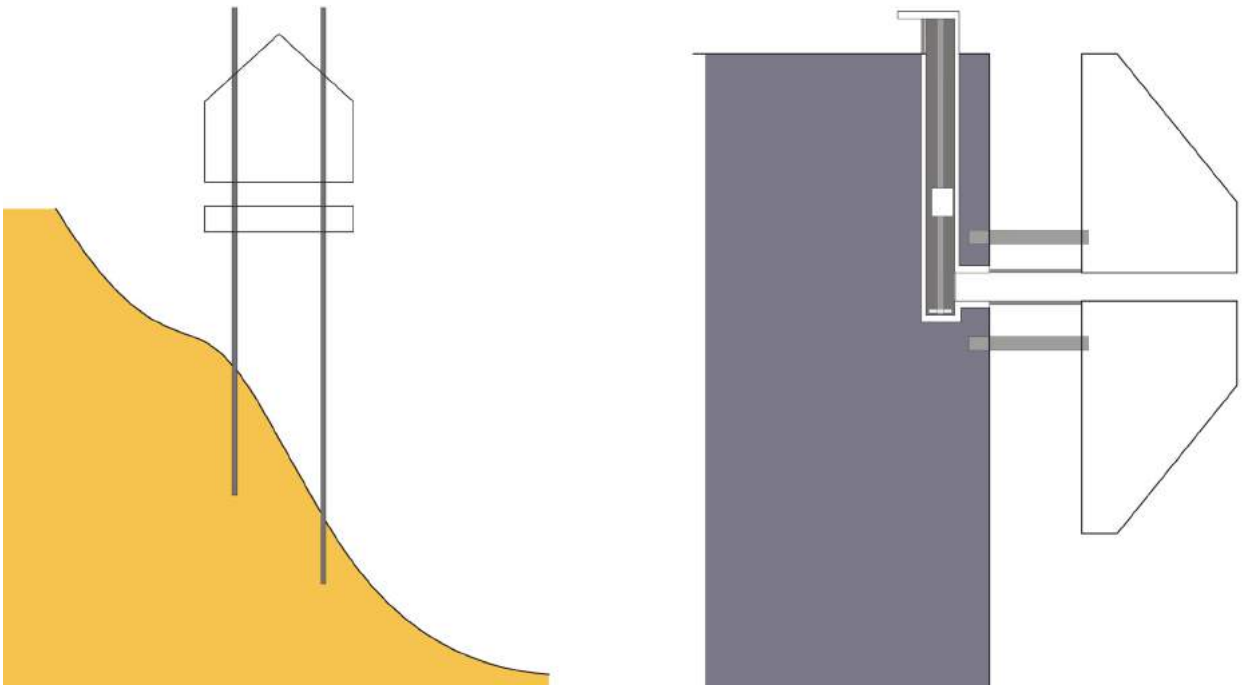


Fig 5.14. Mid-Scale: Exploration Four - Landscape and Form diagrams to test at different terrain types

Form and Landscape

Exploration Four

The relationship form has with the landscape will be determined by the T.V. tower module. In this exploration, I have looked into how the building will react to the different landscape around the artificial island (at this stage I had to speculate on what this landscape might be). Exploring further the ideas that direct link to staging atmosphere. I tested my ideas of form with two different terrain types. This was successful in testing the atmosphere qualities to produce a sense of intimacy within the vast environment.

Placing the form on stilts can allow for adaption to any landscape terrain. It also brings up the possibilities of a cantilever support at a higher gradient. The tested would cling to the landscape or adjust to heights over the terrain within the conditions of the sport.

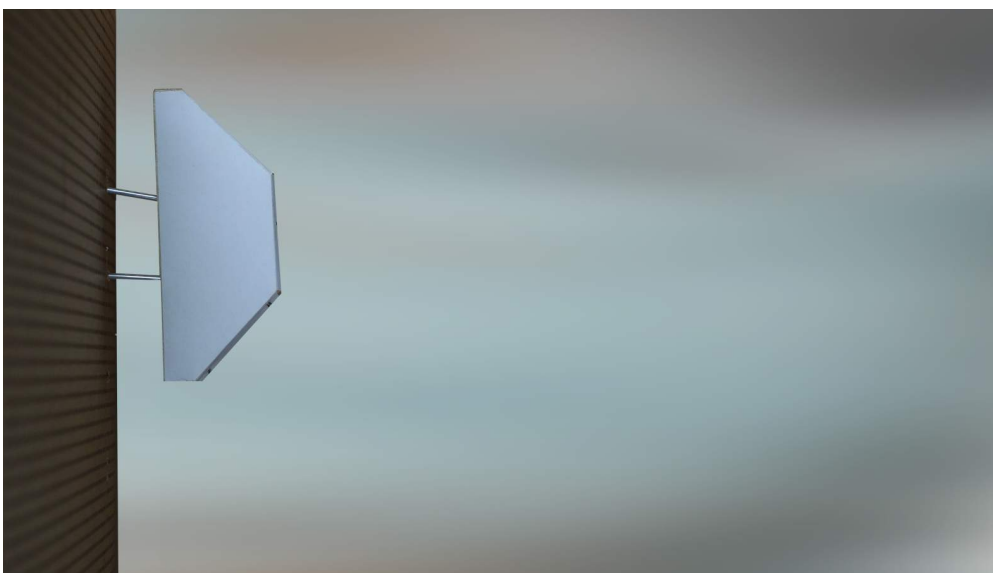
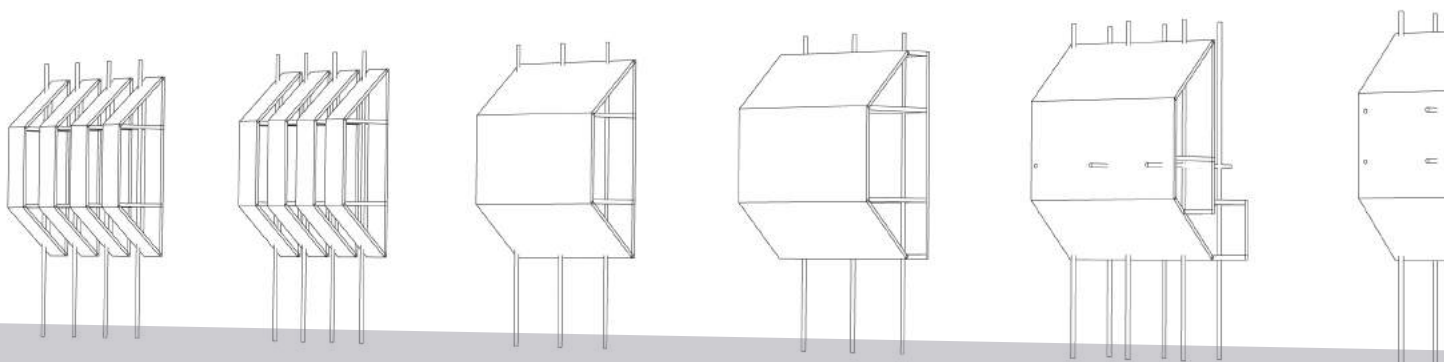


Fig 5.15. Mid-Scale: Exploration Four - Concept models testing the different terrain types, both horizontal and vertical planes.

Development

The form of the T.V. tower is generated through an iterative process that has investigated ways that form can amplify atmosphere. When working through the four explorations I have developed my design further through modelling, sketching and computer graphics. Combining these explorations I have come up with a form that can be developed further with the programme. This programme development includes integrated circulation routes and functional spaces into the design. Technical aspects of this tower module have been considered. This includes the facade as well as ways in which the module adapts to the landscape terrain.



Forms generated from paper models were developed. The spaces between these forms were considered

Forms is extruded to allow space for the programme. Structure is also developed as the form increases in size

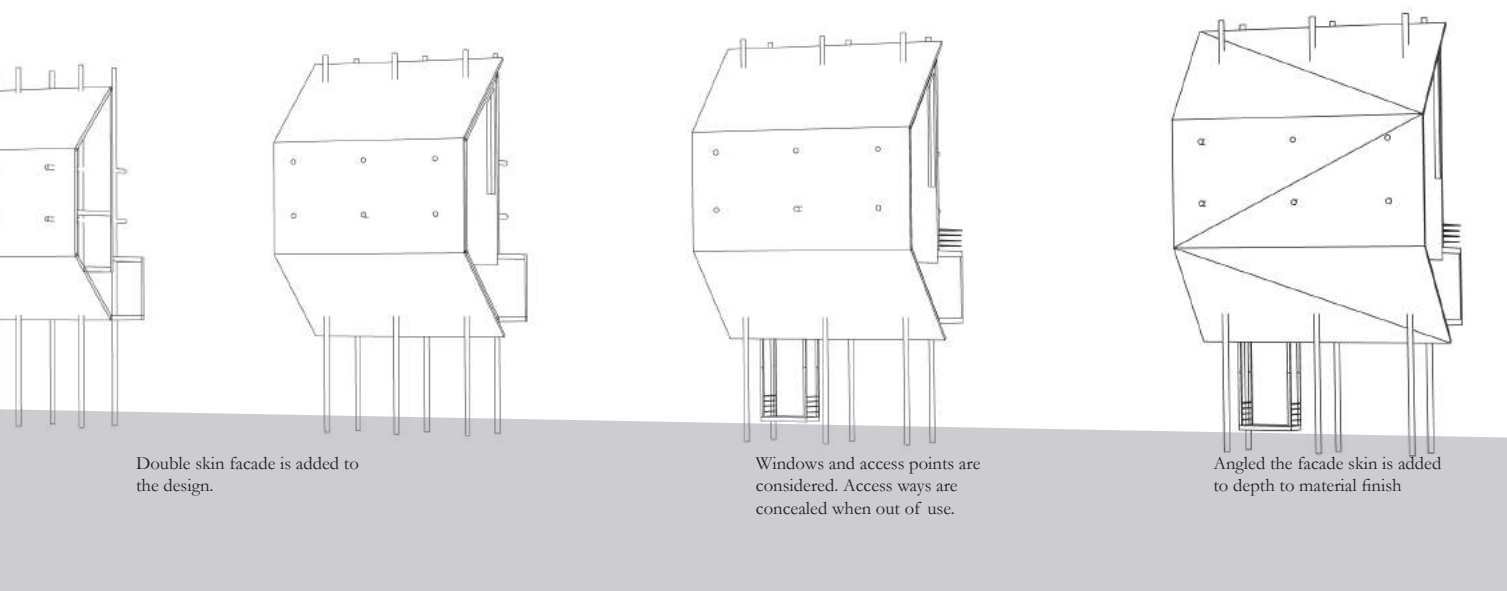


Fig 5.16. Iterative Process of Design Development

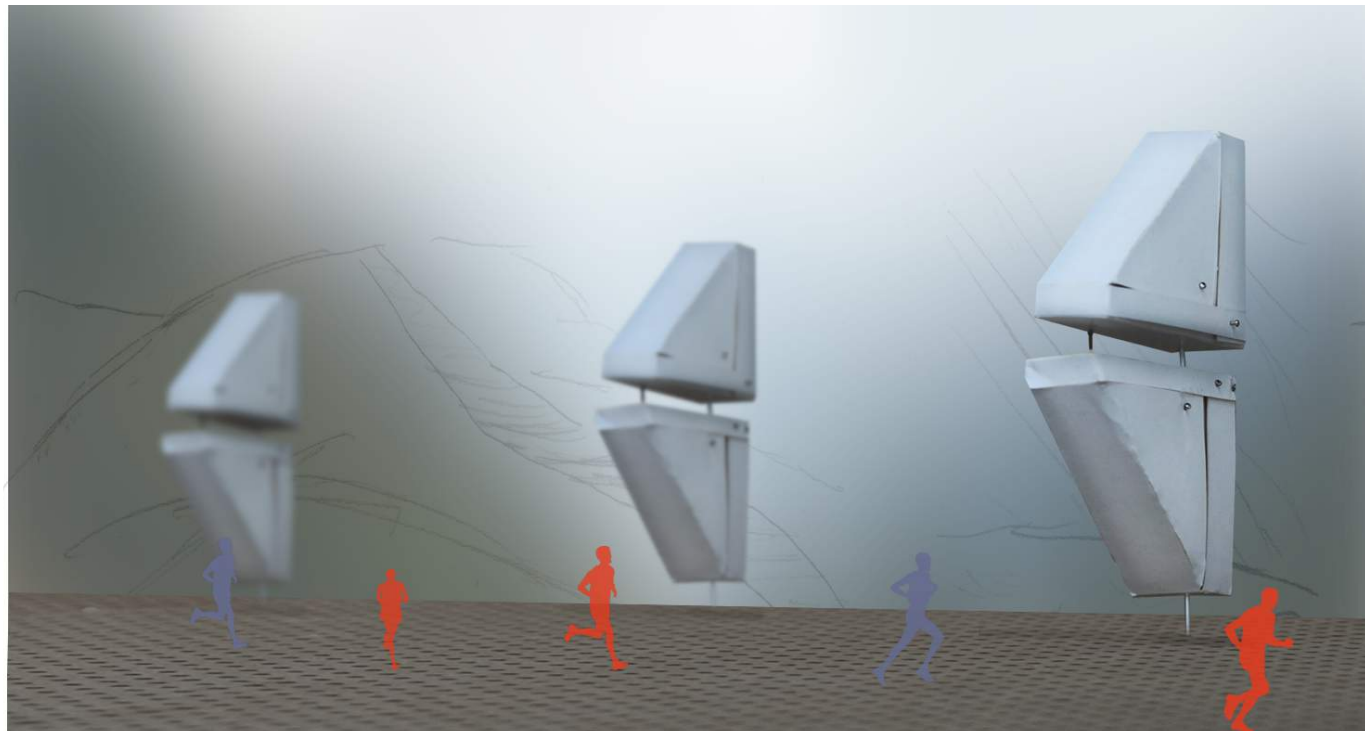
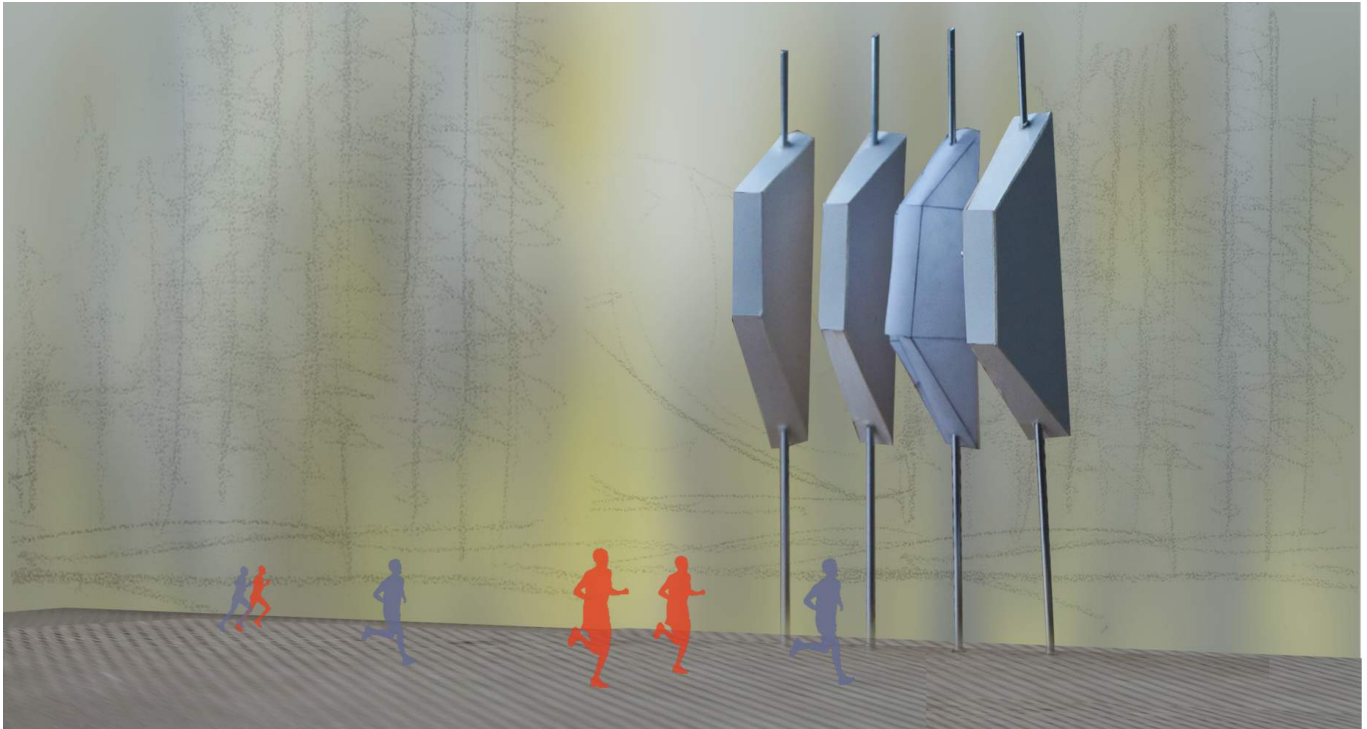


Fig 5.17. Mid-Scale: Development - Forms are developed through modelling different volume types

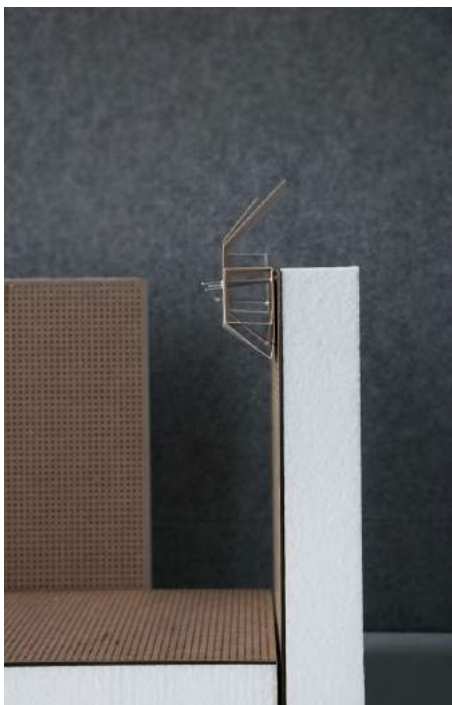


Fig 5.18. *Mid-Scale; Developing the way the forms fit to the different landscape terrains. I consider the way the T.V. towers are accessed.*

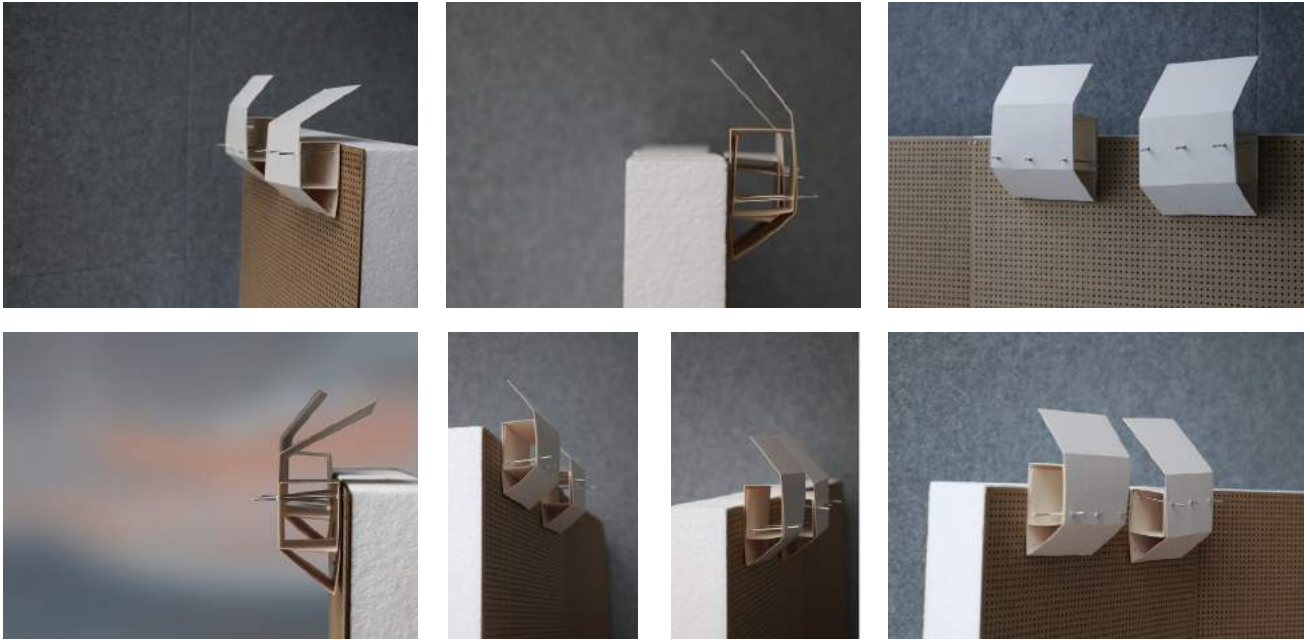
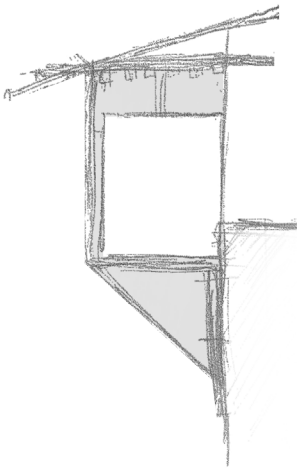


Fig 5.19. Mid-Scale: Developing through modelling the way the forms fit to the different landscape terrains.





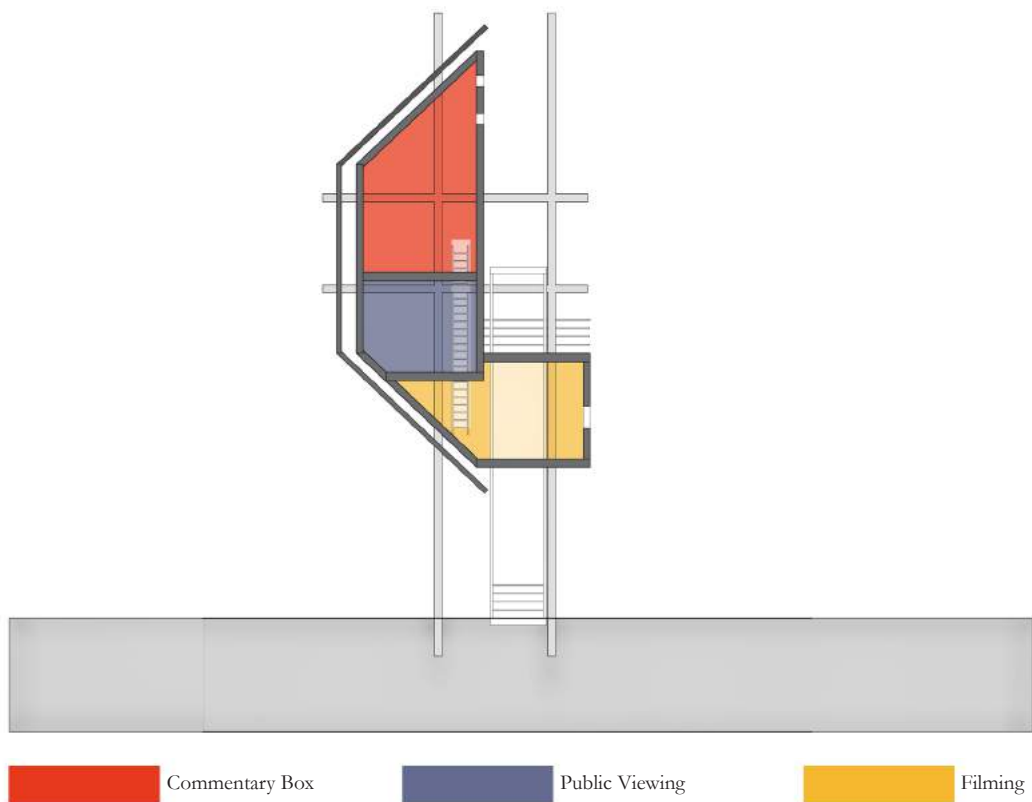
The module design was developed to suit the different conditions around the artificial island. Through the iterative process, it became clear that the atmosphere would be generated not only through the form of the architecture but in which the form related to the landscape. By designing in section developed the programme and interior exterior transitions.

One aspect that I tested was the way the entrance would effect how the module design would cling to the landscape. I originally thought I would have the entrance level to the terrain, however, this could have affected the distance the tower would be from the sport. In the end, I chose to use elevators that would transport the camera crew to the tower, going underground so I could have the T.V. towers closer to the games. This also makes it easy to transport the filming equipment.

The facade front was developed to become part of the landscape. The intention of this design was for the architecture to look part of the landscape. This was successful and benefited the programme functional requirements of filming the sports because of the angle the camera would be directed, leaving little need to pivot the camera.



Fig 5.20. Mid-Scale: Development considers how the module works within a range of heights through the landscape for the island



Programme Development

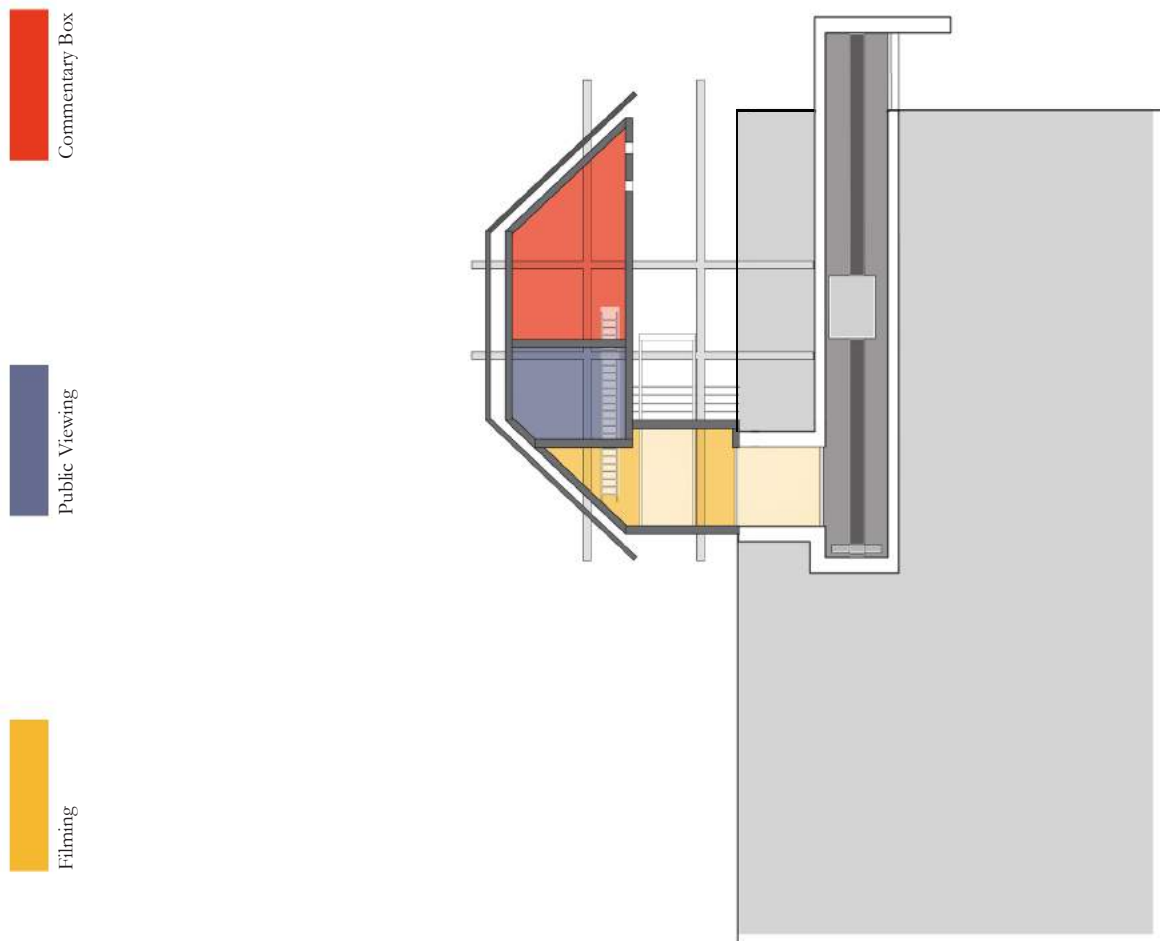
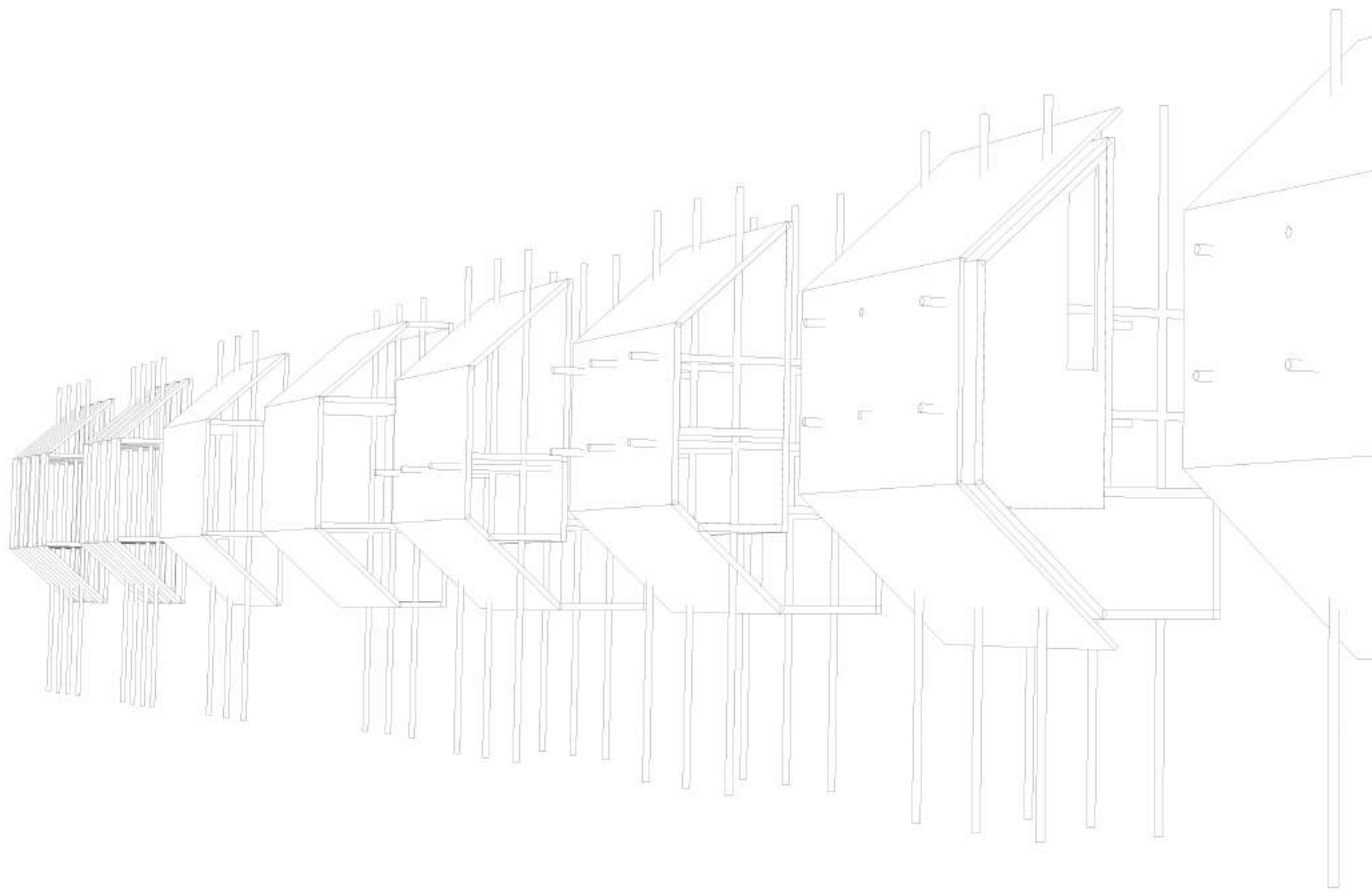


Fig 5.21.
Fig 5.22.

Right - Design is developed through section and investigates the programme of the module design on flat terrain.
Above - Programme Development of Module design on vertical terrain



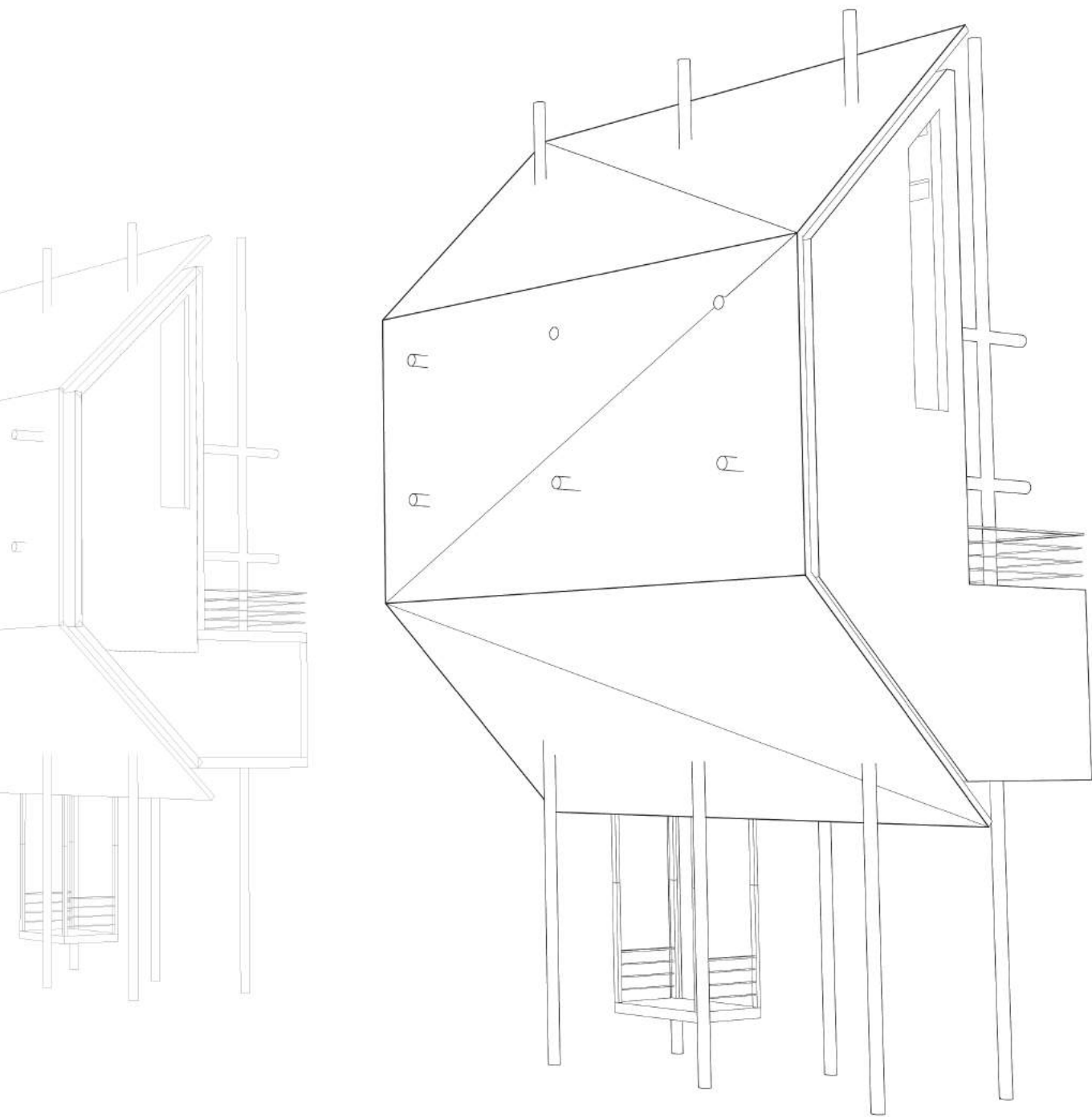


Fig 5.23. Iterative process of Developed Design

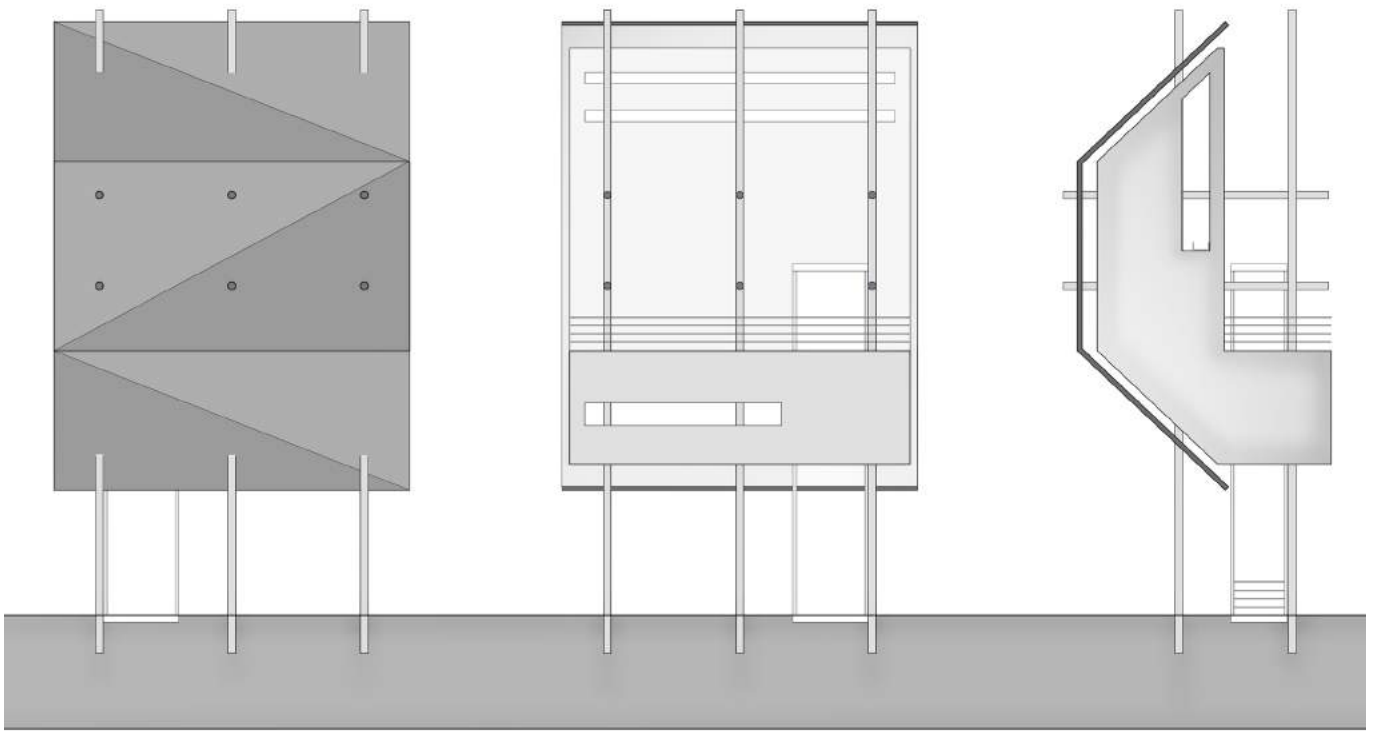


Fig 5.24. Mid-Scale Design in Elevation. This reveals the way the windows have been designed to start to consider threshold

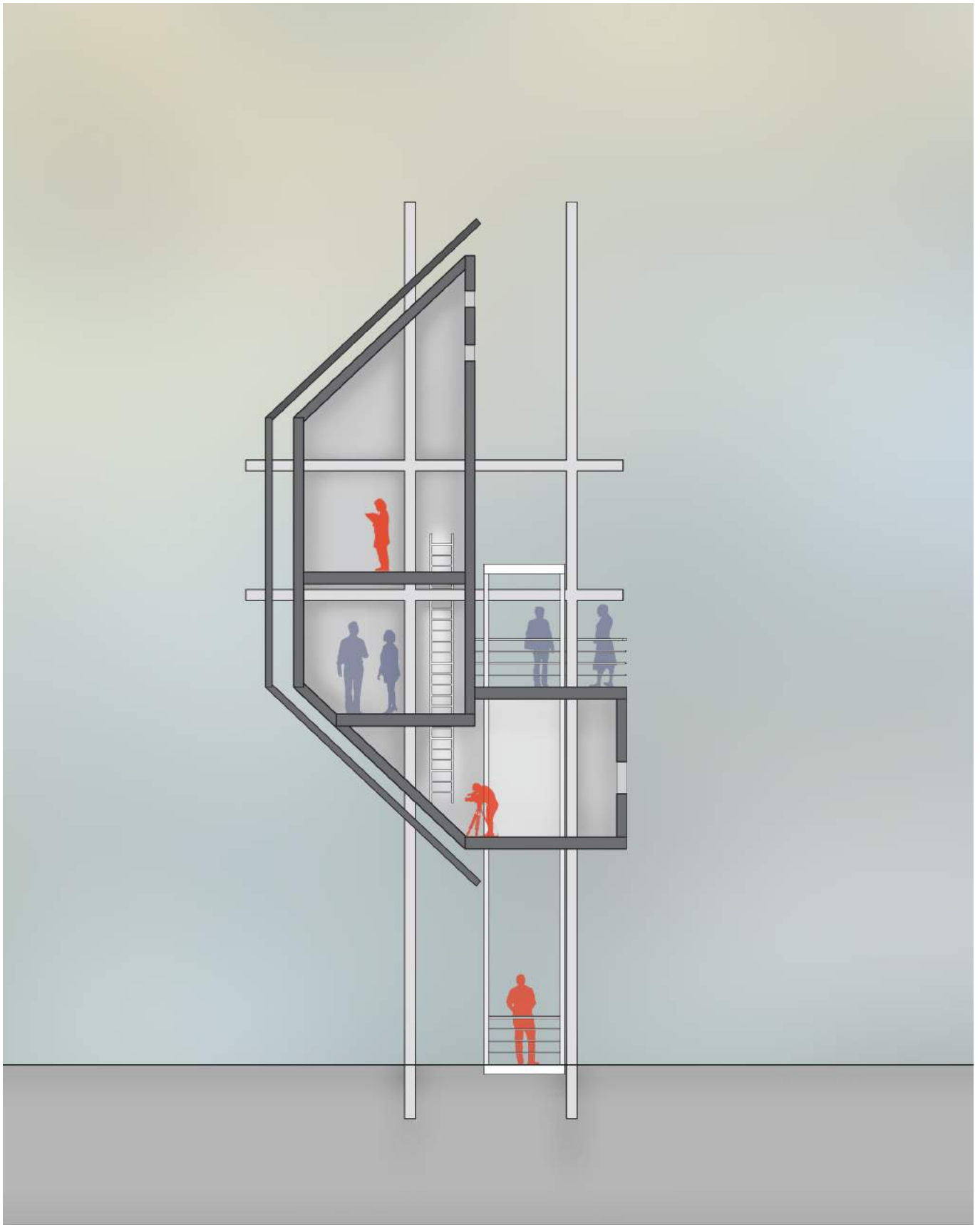
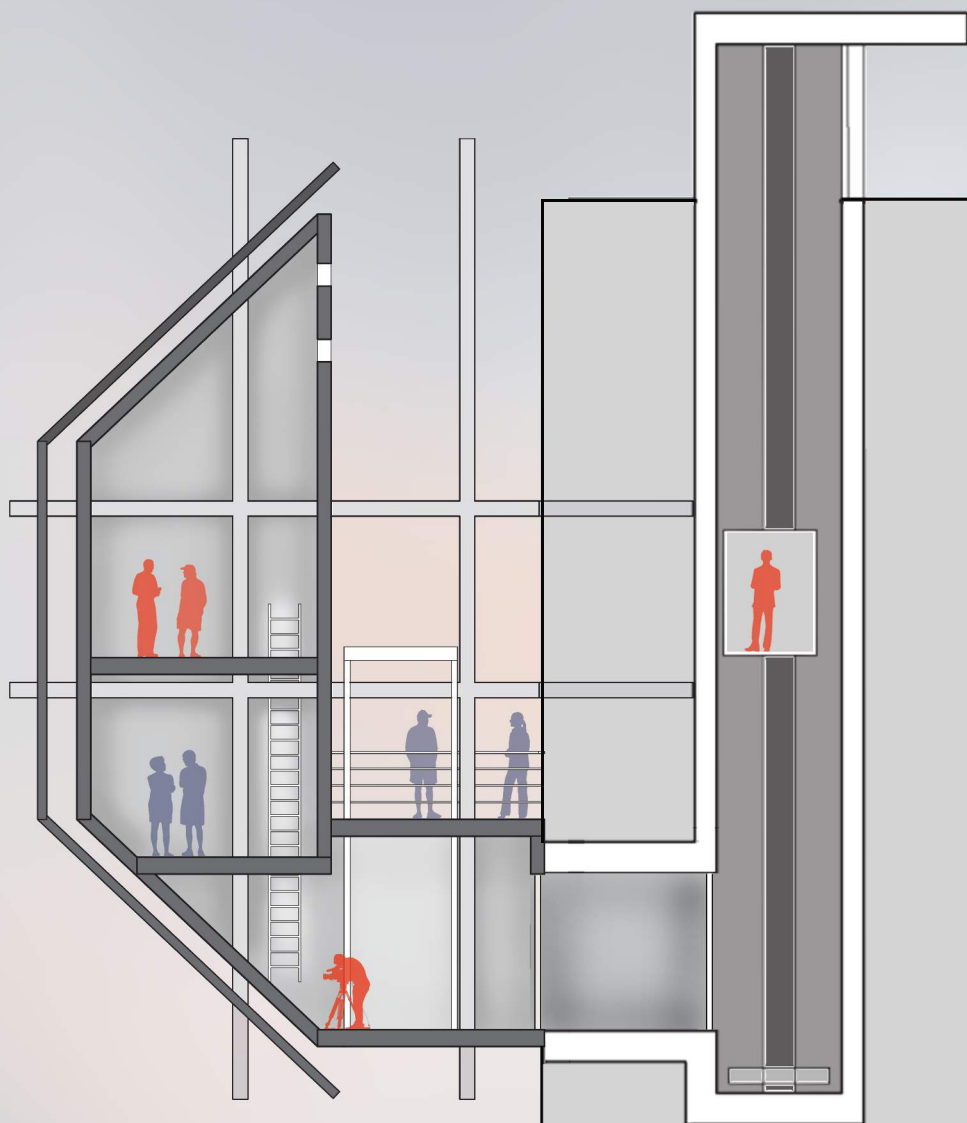


Fig 5.25. Mid-Scale: Flat Terrain Design in Section showing the way the T.V. tower is used

Scale 1:100



Reflection

Stage Two

The design of the T.V. towers investigates ways in which form can amplify the atmosphere of architecture. Exploring my forms through modelling helped me discover structural proportions that I want from for my T.V. towers. I have placed my exploration models within a vast landscape to test how they react to the range of sites, and what architecture qualities may inform atmosphere.

The iterative process of designing in section allowed me to interpret the form a lot more generatively. The T.V. tower was designed with the ideas of angles it could be viewed from rather than the special arrangement of the plan. I have also considered the tension between interior and exterior by using architectural techniques such as stripped windows to create a threshold that could generate atmosphere.

The Performance Design research stream was divided by scale but also by time. We were given a short time frame to work on the mid-scale so we could focus more on the public scale. If I had more time to work on the mid-scale design, the T.V. towers would be a lot more resolved further at the moment the outcome is more diagrammatic. I could have also investigated what materials qualities could be used to amplify the architectural atmosphere of the T.V. towers. Also, absent from this stage was a direct testing of light on form, the next chapter to strengthen the design exploration will focus on these qualities of atmosphere.

There was a lack of a clear method for the form development within the mid-scale design. A stronger structure to this would have resulted in a clearer understanding of form. This is reflected on and addressed in the public scale. In the next chapter, I investigate atmosphere at a public scale. The architecture is refined further by looking at Zumthor and the techniques he uses to amplify atmosphere.

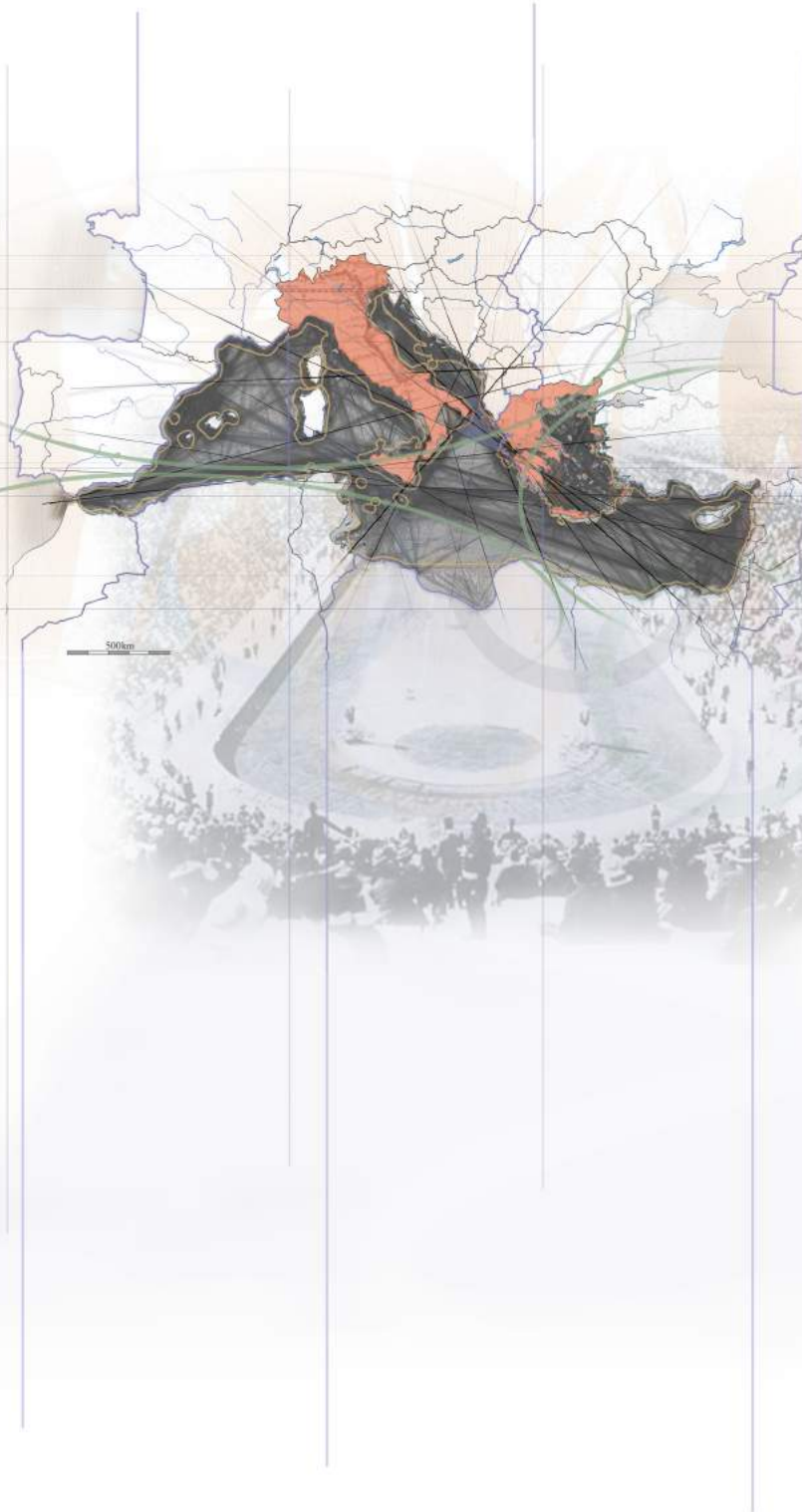


Fig 6.01. Site Context Drawing One

Chapter 6: Site - Artificial Island

Research through Design



Fig 6.02. *Form Diagram of Artificial Island*

Artificial Island

Stage Three

Introduction

This chapter provides an analysis of the formation of the artificial island as a site for the final design. The approach taken to generate the artificial was to draw from the local context in the wider site.

The Mediterranean Sea was chosen for the wider site location in order to draw atmosphere from the history of the Olympic Games and their relationship to the Mediterranean. The Mediterranean Sea has always provided a source of transport for surrounding countries of Europe, Africa and the Middle East. Staging atmosphere can motivate the understanding of environment, and contribute to the experience of a place through the history of site.

Method

The island is used as a tool for design. Following drawing and modelling techniques of layering from the works of Perry Kulper I draw from information from the local region to amplify the atmosphere of the island.

Through methods of drawing and modelling I was able to extract information from site to generate form, and test possible ways of building the landscape. This layering technique provided voids within my drawings that I could start to use as forms on site. This was identified from drawing at different scales.

The island was then modelled to focus on the atmospheric qualities of the vertical planes. This looked into techniques of superimposition that related to the work of Peter Eisenman.

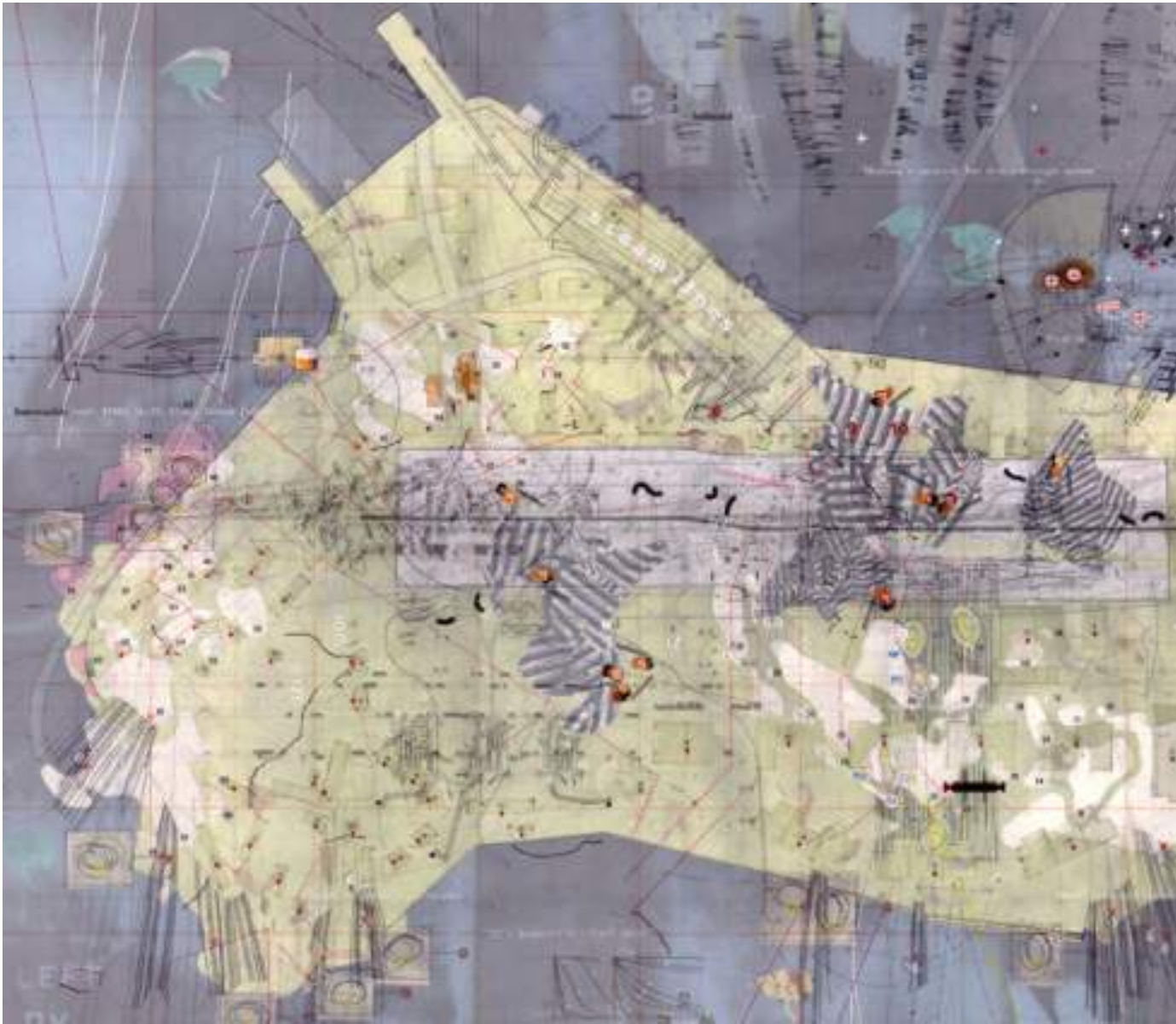


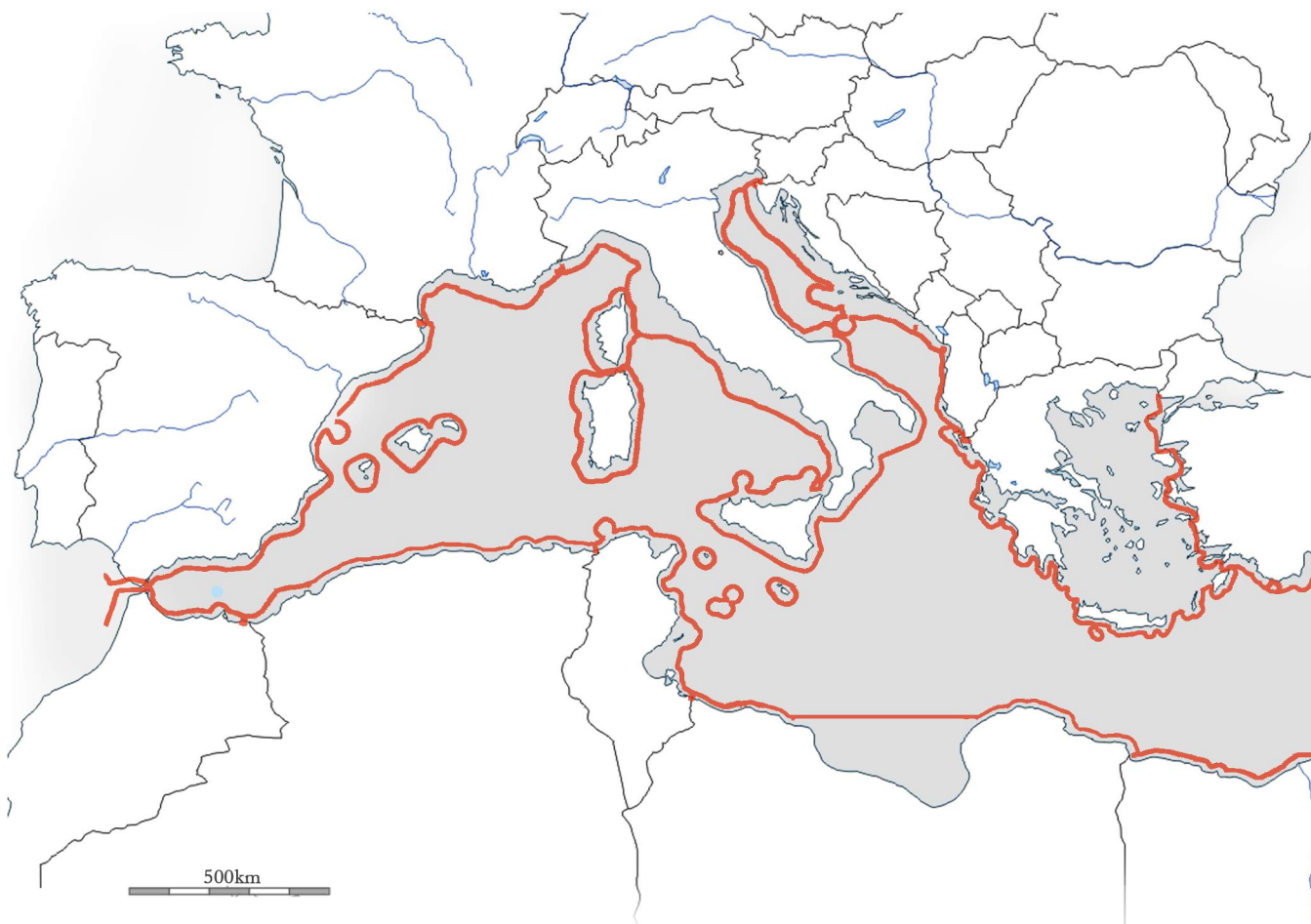
Fig 6.03. Perry Kulper's 'strategic plot' for David's Island overlays notations, drawings and diagrams relating to place.



Perry Kulper

Drawing Strategy

Kulper's approach to drawing and architectural design is speculative and experimental. In David's island Strategic Plot Drawing (1997) Kulper articulates a range of material and immaterial qualities of a proposed site to illustrate active conditions rather than a static representation. Kulper uses a technique he calls a 'Strategic Plot' to extract and document ephemeral qualities of place. Specific tactics through the medium of analogue drawing, which oscillate between concrete spatial proposals and notations of further development (Kulper, 2009. 274). Although this approach appears to operate as diagram, Kulper's Strategic Plot overlays multiple diagrams and notations that communicate information at multiple scales simultaneously. Kulper is not only a key author but his drawings and design strategies as precedents to generate the form of my artificial island.





Island Development

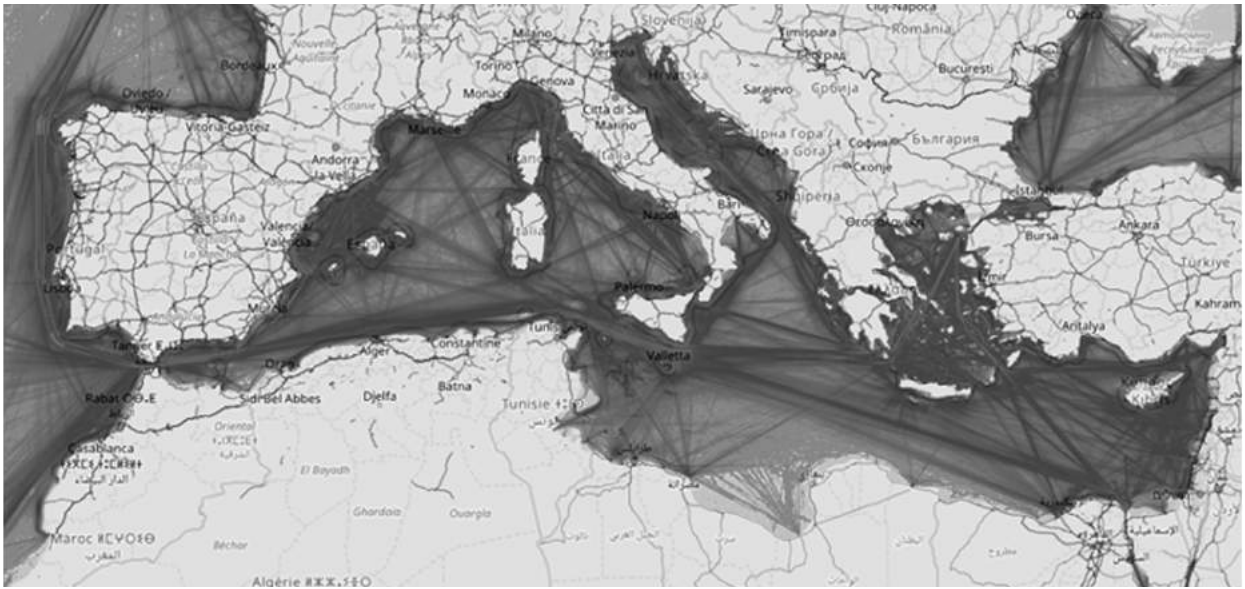
The layering technique offers two outcomes; it will provide rational to the placement of the island within the Mediterranean, as well as influence the form development of the island. It is a way of implementing site analysis into the design process. The first drawing layers analyse the external information of the site gathered to generate the island's form development. This technique is a "general form" where generation beginning with local relations (Gregory, 2003, 26). The context of site informs the development of form.

The first layer of the site looks at the marine borders sharing the Mediterranean. Each country that borders the Mediterranean has their own area of the sea before it becomes shared space. By identifying this layer I have avoided interfering with any other countries land or sea.

The second layer analyses the external geometric cross patterns of the bordering countries. I identified lines of site that opposed the Mediterranean and what they meet with. The area between Italy and Greece that offers a cluster of movement between the lines of site I have identified. These layers also become important to the historic reference that Italy and Greece have in the Mediterranean that could amplify the atmospheric qualities of the Olympic Island.

Fig 6.04.
Fig 6.05.

Above - External Layer of marine borders of the Mediterranean Sea
Below - External Layer Cross geometric patterns of bordering countries in the Mediterranean



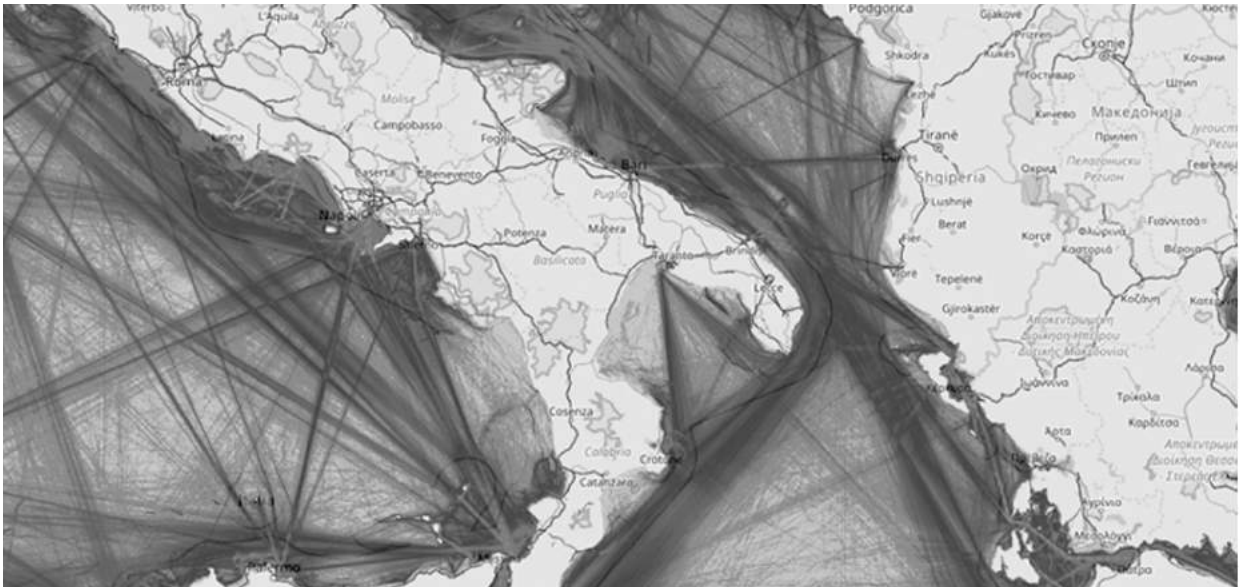
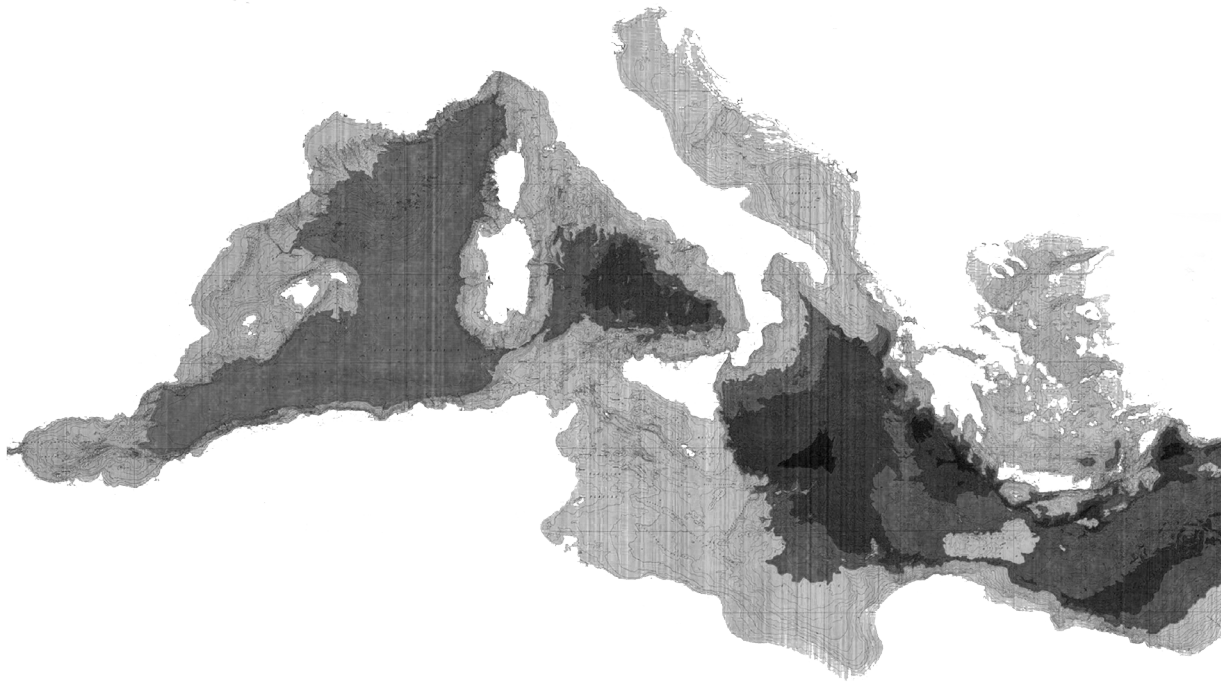


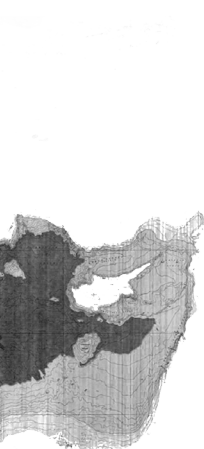
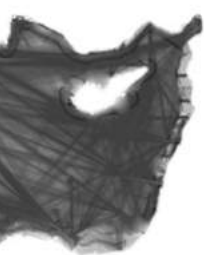
Fig 6.06. Marine Shipping Patterns of the Mediterranean Sea zoomed in at different scales



500km



500km

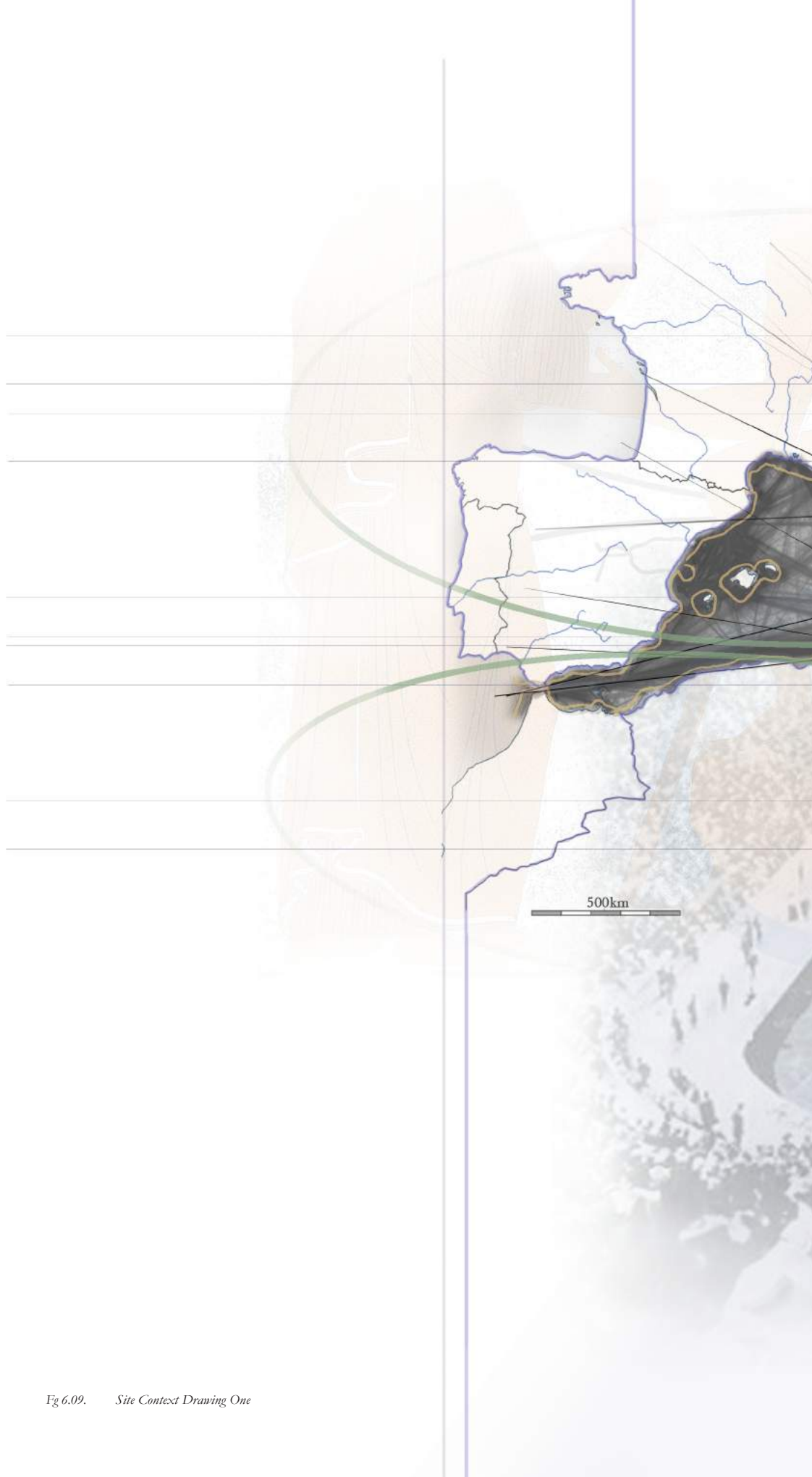


Island Development

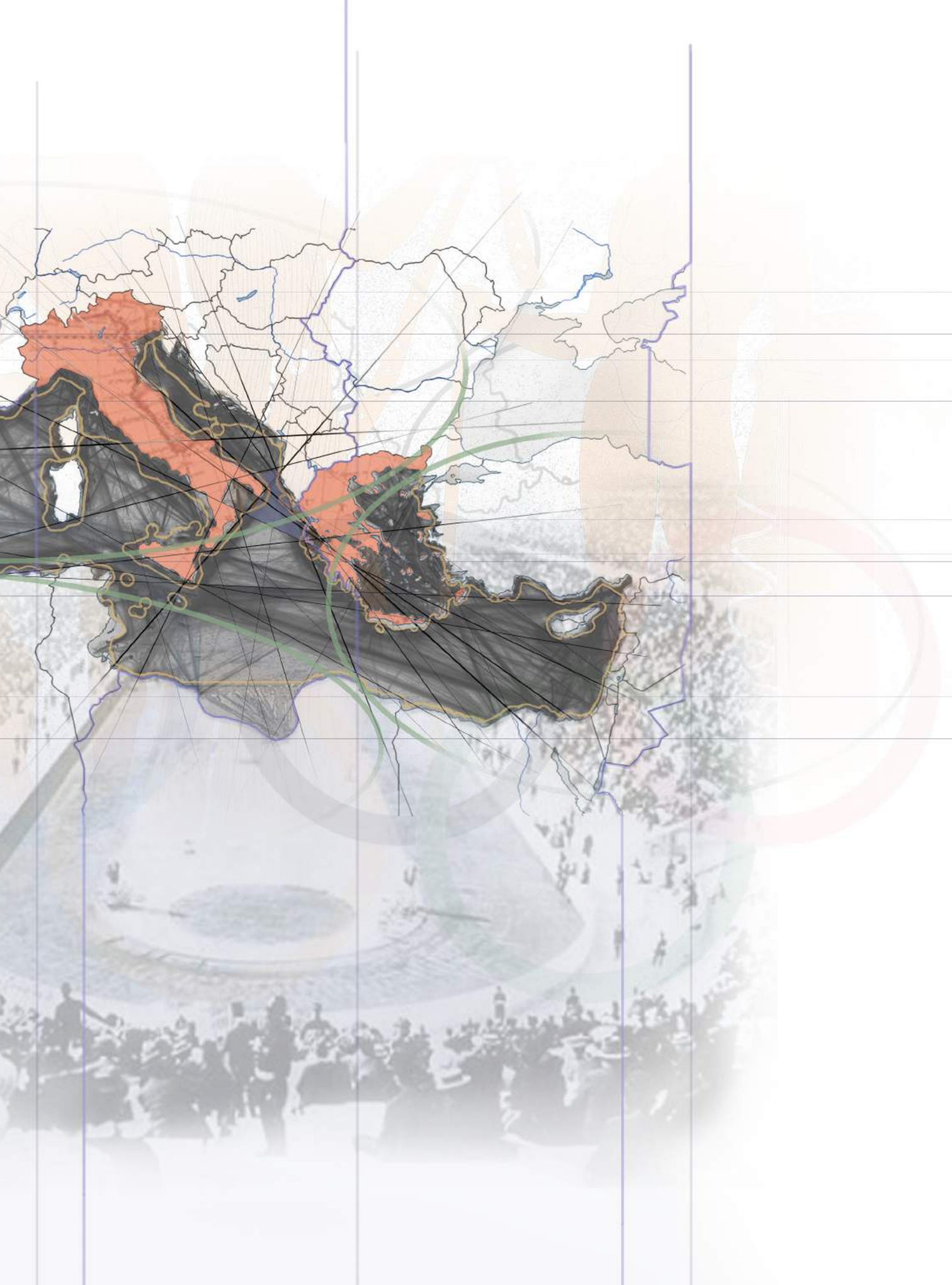
The two internal layers of the drawing look at the information necessary to provide rationale to the placement of the island within the Mediterranean, and also influence the form development of the island. The internal layers include data collected from marine shipping patterns that occur on site and sea depths. This would allow me to avoid disruptions with any current activity on site.

From the data I collected on the marine patterns, I was able to identify the paths and distances covered within the Mediterranean. This way I was able to avoid placing the island in a busy area that could cause congestion. However, part of this data includes cruise ships, so there are benefits of placing the island next to a busy pathway.

The next layer looks at the sea depths of the Mediterranean Sea. This helps to provide a practical rationale for how the island may be constructed, whether it be by extracting the land up from the earth, moving earth or tying the island to surrounding landmass. I also considered this in relation to other artificial islands I researched such as the Palm Jumeirah UAE (Features, 2018 n.p.). The artificial island will have to be within a shallow area, close to a bordering country for construction purposes. I also plan to generate information from the sea depth to influence the form of the island in order for it to become part of the sea's landscape.



Fg 6.09. Site Context Drawing One



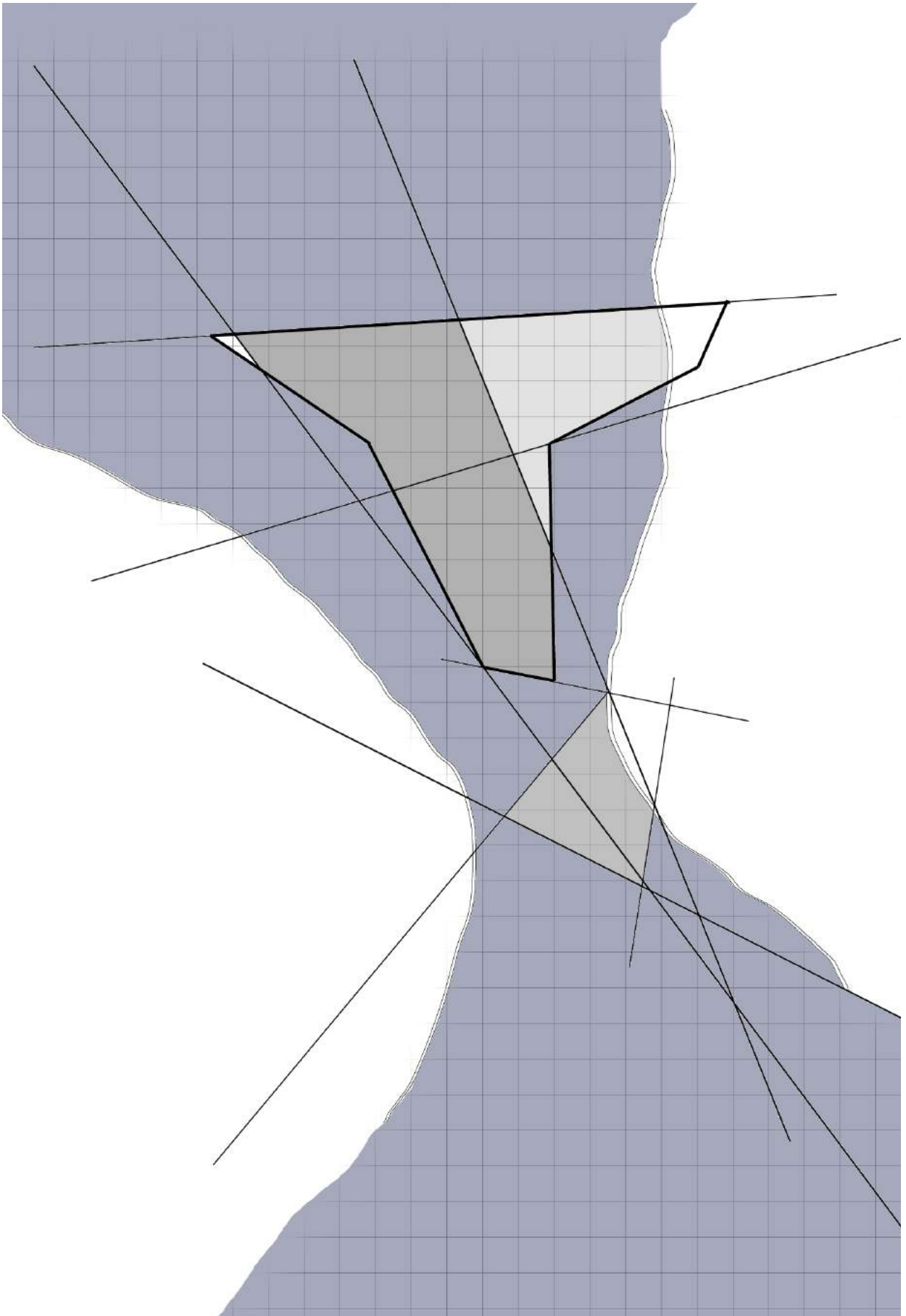


Fig 6.10. *Development of Island Form*

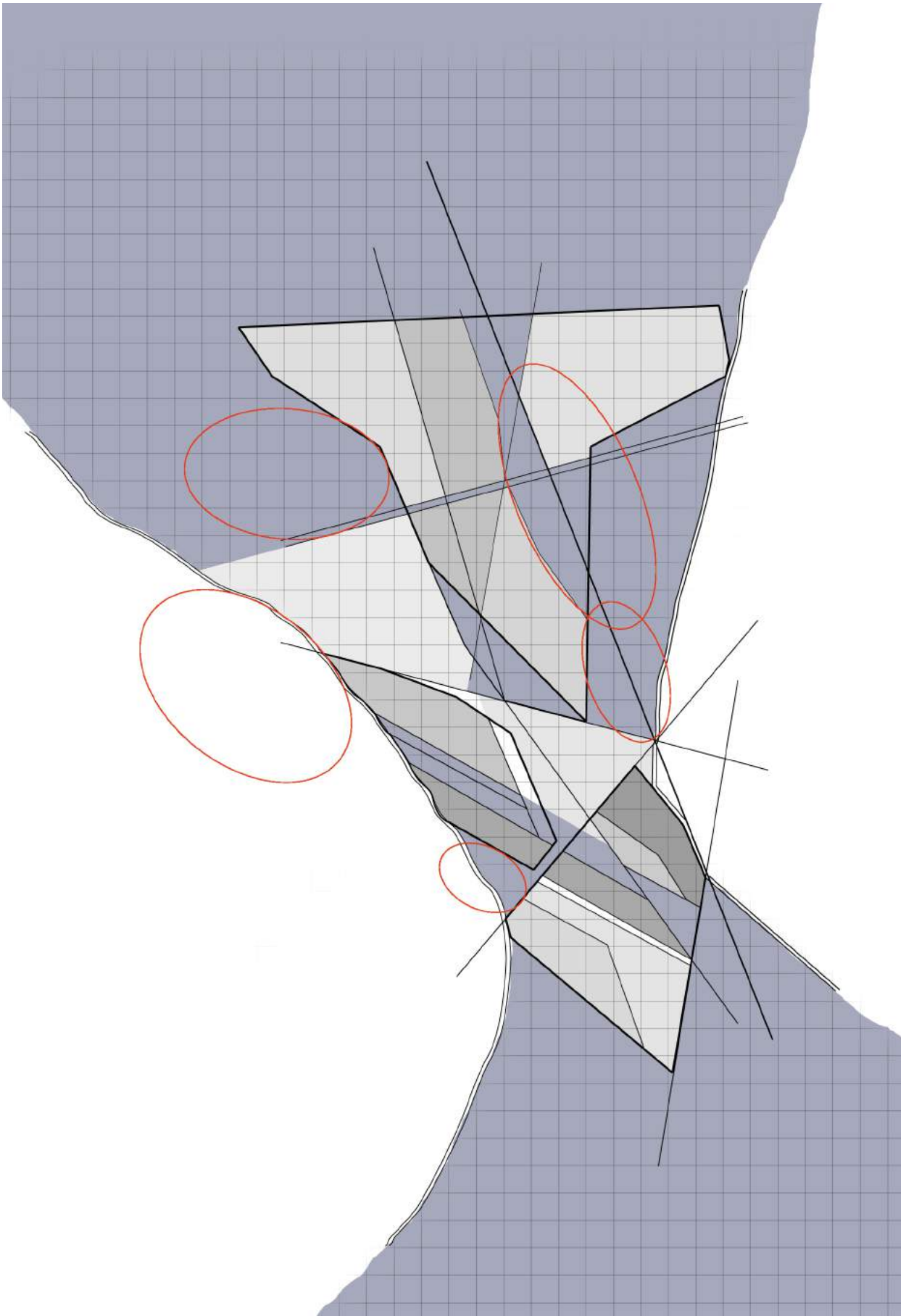


Fig 6.11. *Development of Island Form*

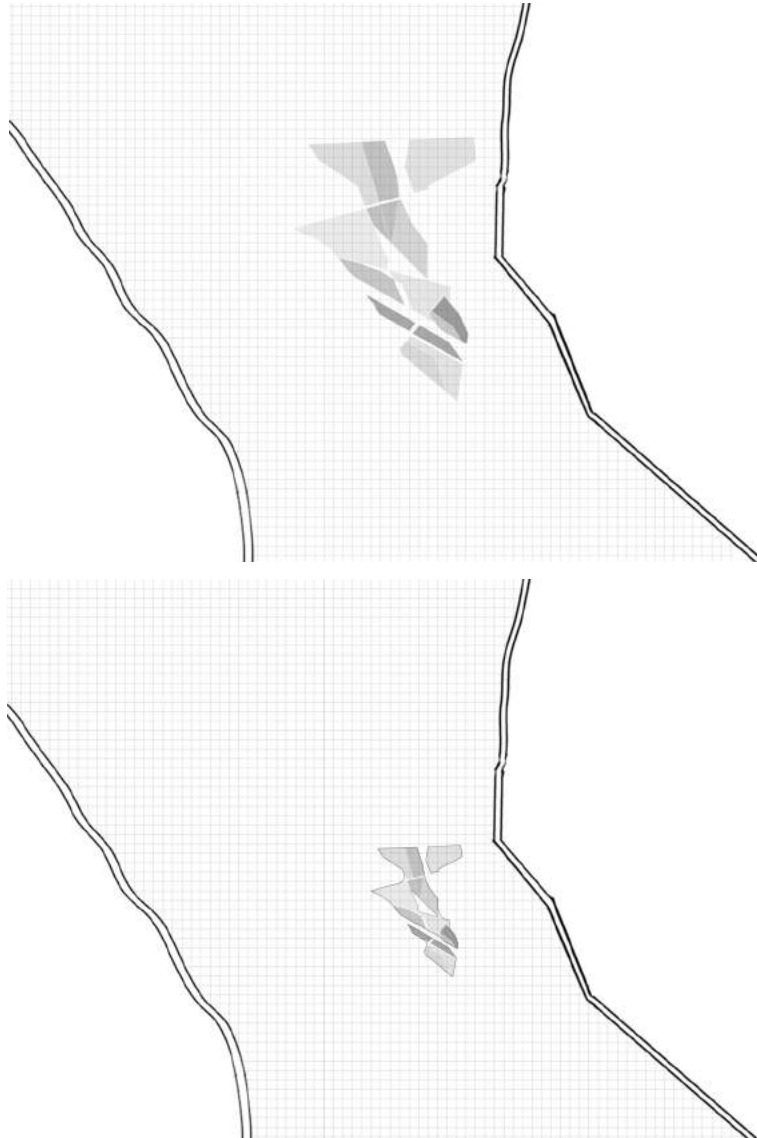


Fig 6.12. Development of Island Size on 500m grid

Scale 1:1,000,000

Scale

At this stage of the drawing process the scale of the island was difficult to determine, while constantly thinking about size for programme function. While drawing I was always working with scale. The contingency of scale at 1:100,000,000 to 1:1,000,000 differentiates metres to kilometres. The scale became important when I started to form the island and the distance from the local context. Drawing with the guidance of a 500m grid allowed me to identify scale as it became an influential part of my design process.

I had to look at programme to work out the size of the island. I did a comparative analysis with previous cities that hosted the Olympics, and the size of their Olympic areas, however all were very different compared with city and country population.

But after this analysis, the island size reduced from a 30km span to a 15km span. Once scaled, and the form had been generated from site, I looked at placing the island between Italy and Greece, close to the voids made from the layers of site information gathered by my earlier drawing investigations.

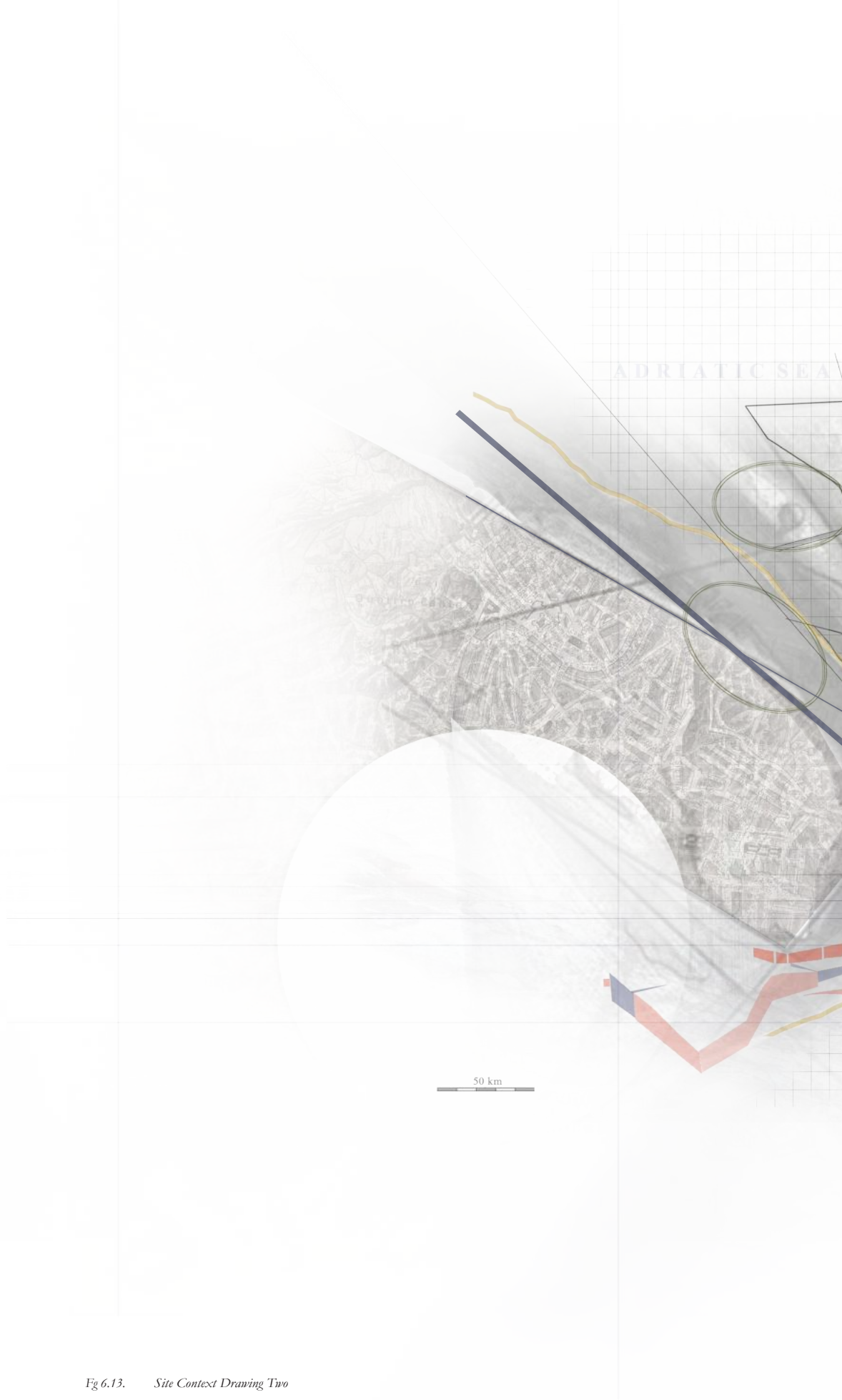
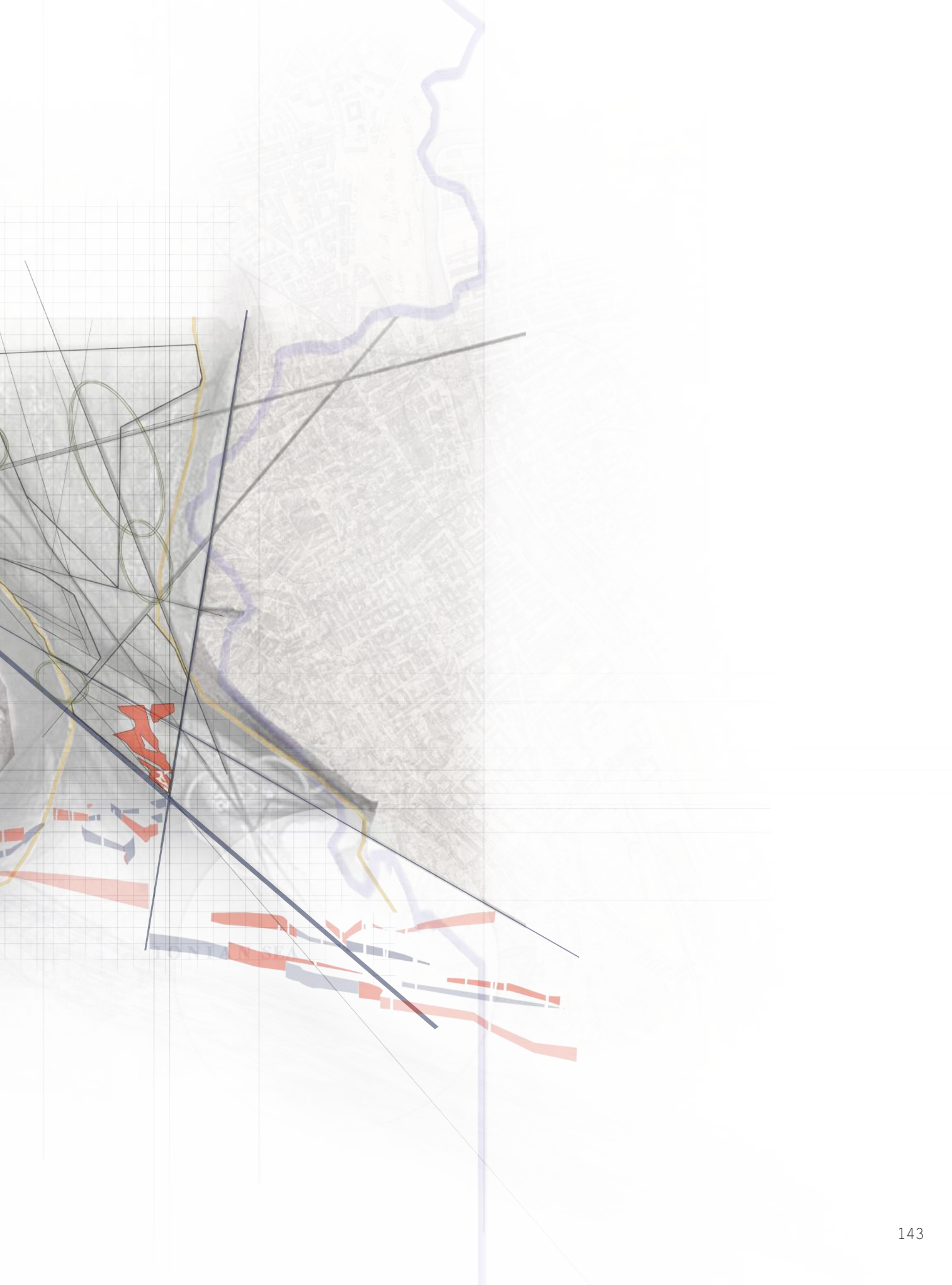


Fig 6.13. Site Context Drawing Two



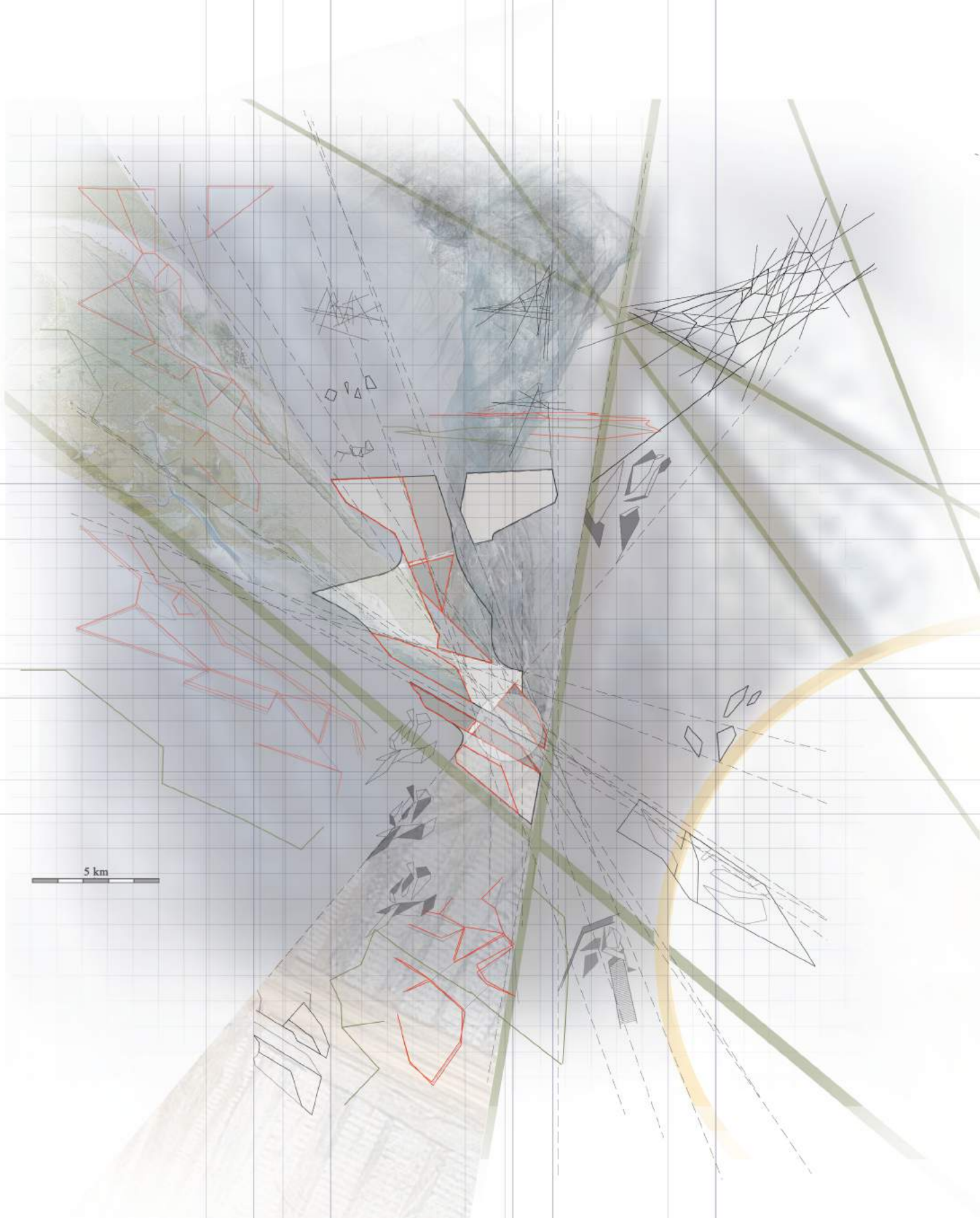


Fig 6.14. Site Context Drawing Three starts to develop the atmosphere conditions around the island

Drawing Reflection

Reflecting upon the drawing process I started to see “relationships through abstract means, implicating spatial composition indirectly while supporting a range of ideational, conceptual, and perhaps even temporal frameworks.” (Kulper, 2012. 272). This is where moving from a two dimensional drawing to a three dimensional form builds stronger relationships to the atmosphere of the Mediterranean Sea and the functions within the island. The two dimensional diagrammatic drawings can only express atmosphere from the surface of the drawing. The third dimension involved allowed me to investigate how height would effect the different areas of the island. It can investigate the relationship the form has with the water and the proximity over heights.

Compositional-design techniques such as layering, scaling, folding, and warping, were used in the drawing process. The combination of techniques have allowed me to investigate ways of generating form through different methods of design.

After generating information from drawing I decided to physically model the form. Investigating site by modelling allowed me to explore atmosphere further through explorations. These explorations were based on physical layers that made up the island. This allowed me to use the information gathered from the drawing explorations and apply this to physical forms.

Form Typography

Exploration One

The aim of developing a vertical geometry is to amplify atmosphere within the island's landscape. Developing the island by modelling has facilitated the communication from drawings. It has transformed two dimensional images that have restriction on the vertical elements, this later becomes part of the island form.

Exploration one looks at the three separate islands and the way height can challenge form. This became apparent with the relationships between the three forms. I had to think about how the different heights of the islands would respond to the formal qualities. Reflecting on this, I needed to break the island into zones, divide the spaces and elevate areas to open up opportunities to develop atmospheric qualities.

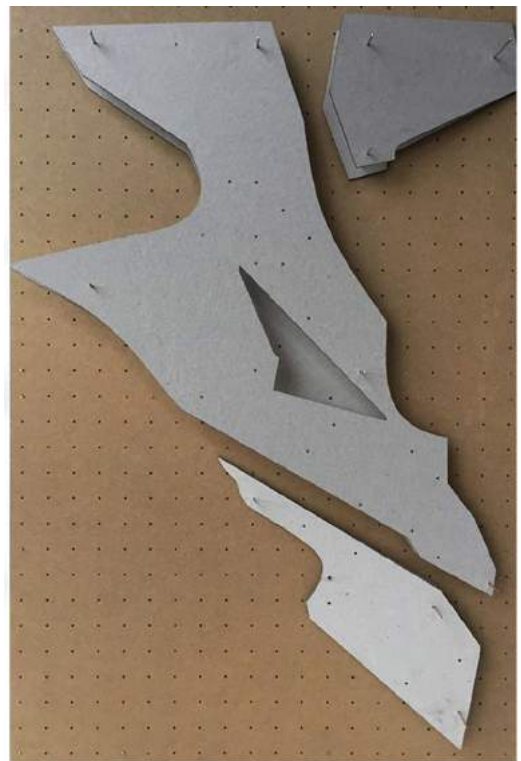


Fig 6.15. *Exploration One Site Model Plan*

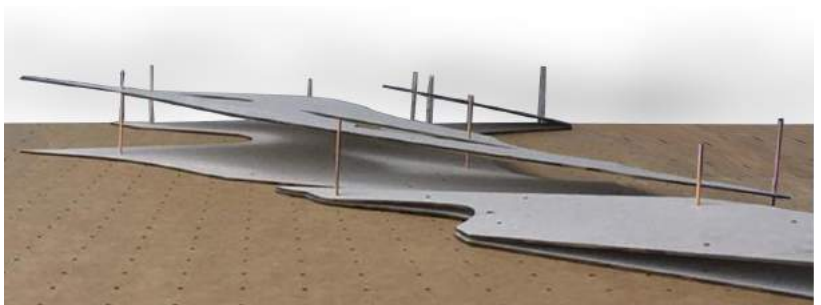
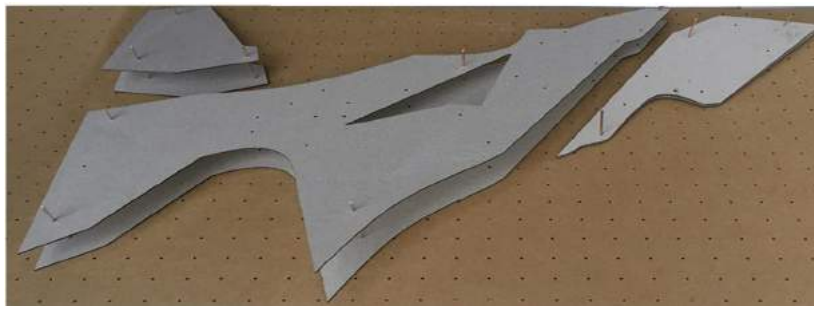


Fig 6.16. *Exploration One Site Model*

Zones

Exploration Two

To develop the islands landscape I needed to break the geometry into zones. I decided to zone the island from the original forms created in the two dimensional drawings. By developing these two dimensional patterns I was able to investigate the relationship between the horizontal and vertical geometries.

The aim of this exploration is develop the heights of proximity to each zone. As I was modelling to scale, I had to use card at different thicknesses. The material I used manipulated the vertical form. The result was not clear due to the vast difference between the horizontal dimensions when compared to the vertical elements, it was difficult to detect where atmosphere could develop within the vast landscape.



Fig 6.17. *Exploration Two Site Model Plan*

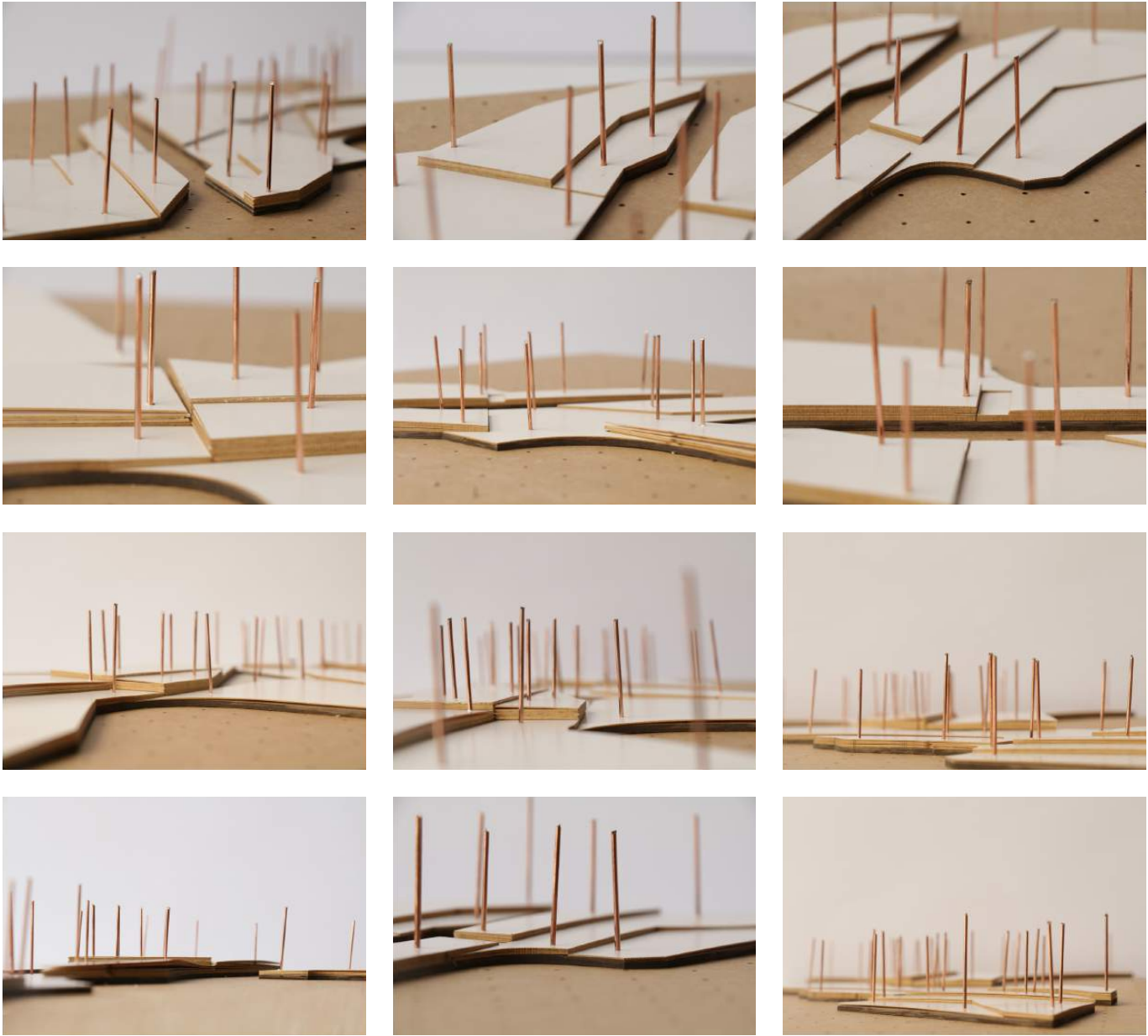


Fig 6.18. Exploration Two Site Model with layered card

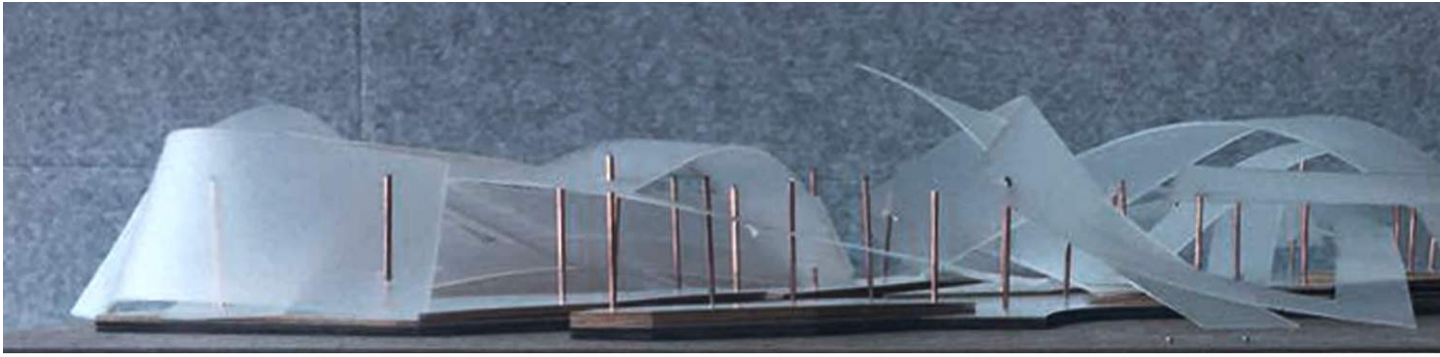


Fig 6.19. *Exploration Three A Site Model Elevations*

Zone Formation

Exploration Three A

Exploration Three A, was a failed attempt at developing the form of the islands landscape. By disassembling one of the experimentation models from the design investigation, I attempted to layer the sheets randomly over the top of the island model. The aim of this was to generate a form that amplified the atmospheric qualities of the landscape.

Although the model generated some interesting forms and opened up strong viewpoints it did not resolve a framing or divide the island zones to allow for further development of the islands landscape and heights.



Fig 6.20. *Exploration Three A Site Model Plan*

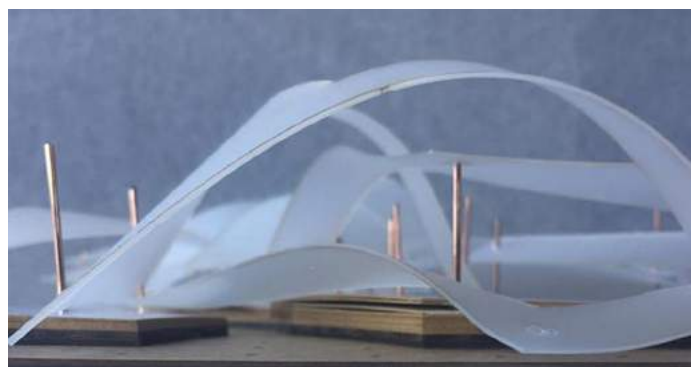
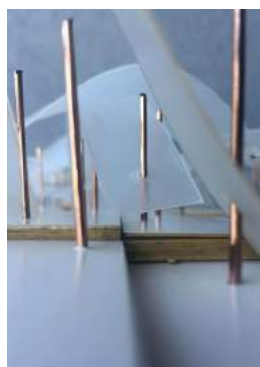
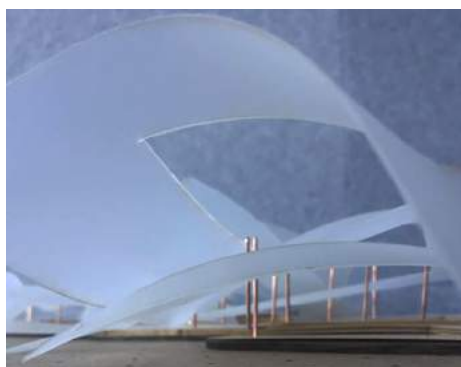
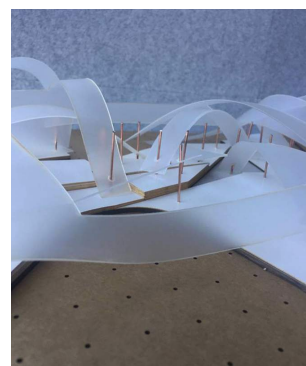


Fig 6.21. *Exploration Three A Site Model testing zone formation*

Typography and Atmosphere

Exploration Three B

The aim of this exploration was to generate atmosphere, a sense of grandeur, through the different heights of proximity to each zone. After this was not resolved in the last experiment I realised conventional modelling was not communicating the vast landscape as the heights did not express the dramatic scale I was after. This led to my experiments on superimposing the heights of the island, as indicated in the case study chapter I drew from Eisenman as a precedent. In particular by extracting elements of a design at different moments to generate more information from the design.

Operating at such a large scale made it hard to get an accurate reading of the typography, so by superimposing the geometry I could test atmosphere qualities within the site. Each area of the island has a defined atmosphere that can be experienced through the threshold of crossing zones.

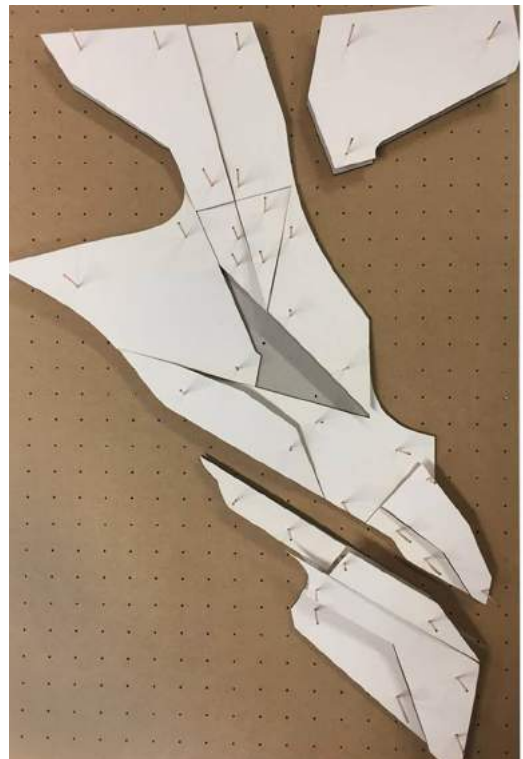


Fig 6.22. *Exploration Three B Site Model Plan*

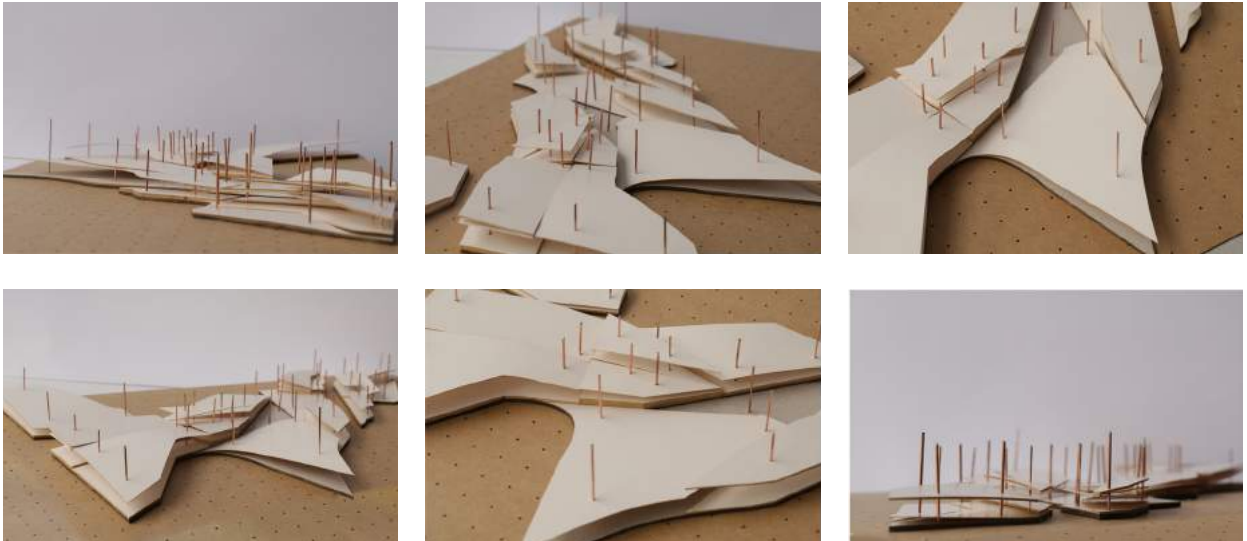


Fig 6.23. *Exploration Three B Site Model Typography Development Superimposed*

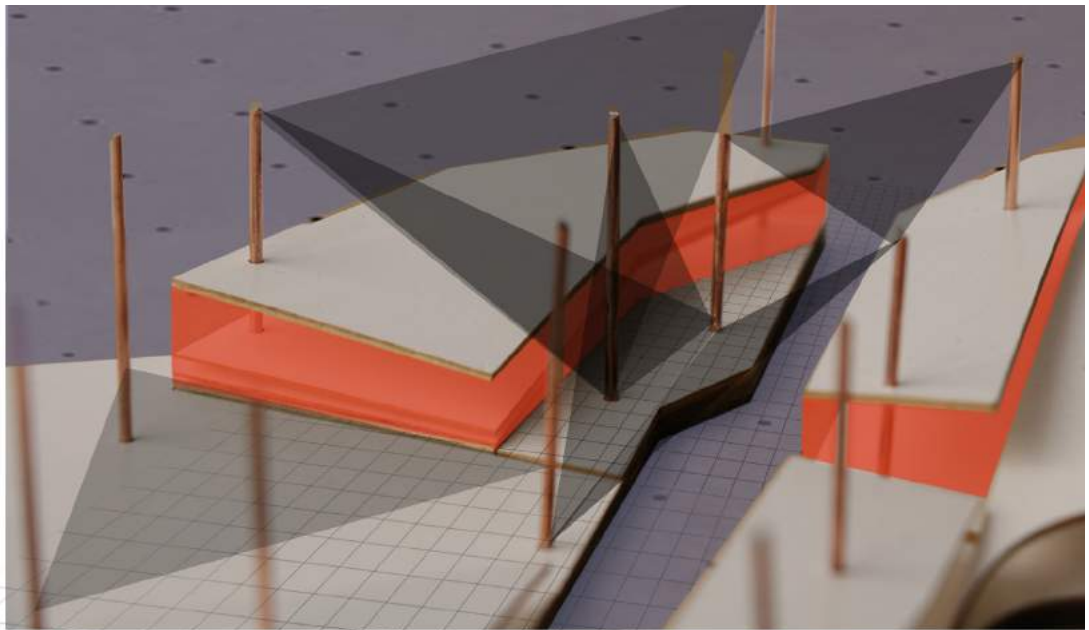


Fig 6.24. *Exploration Three B Site Model Typography Development*

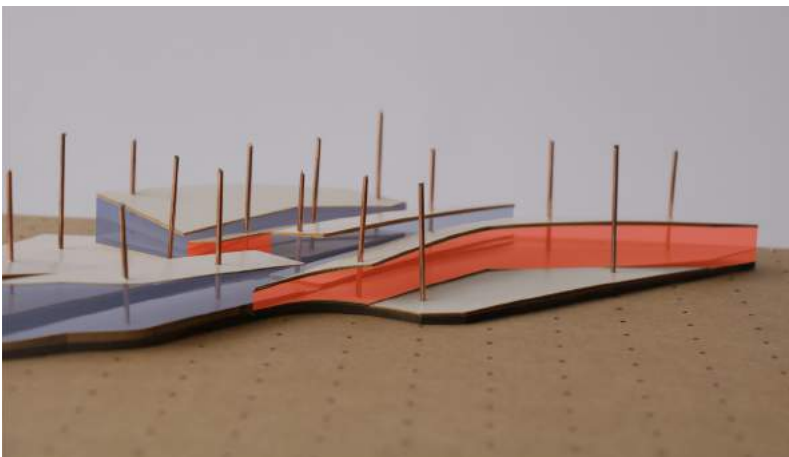
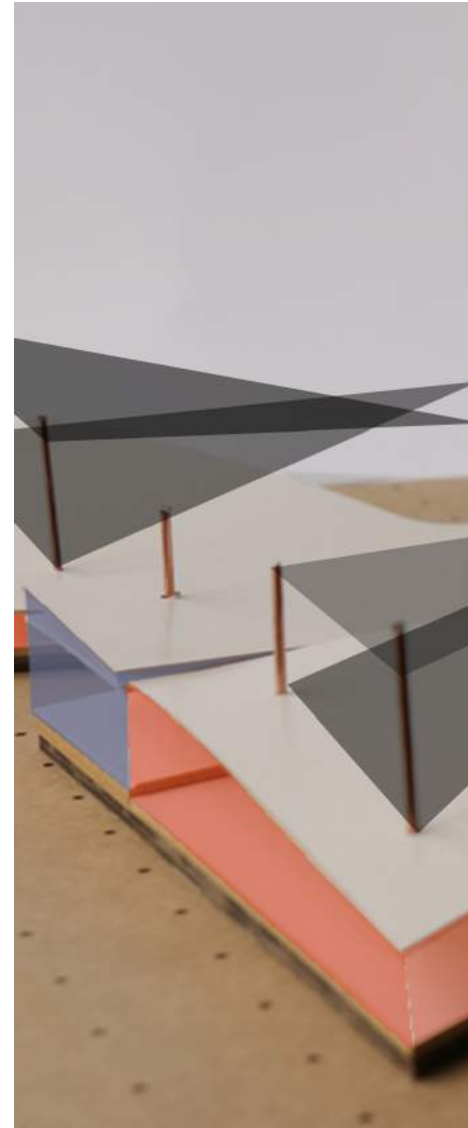
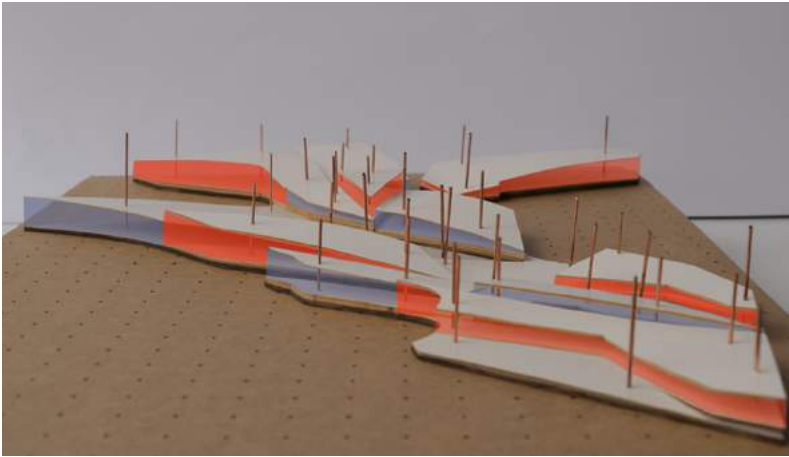


Fig 6.25. Exploration Three B Site Model Typography Diagram Development Superimposed

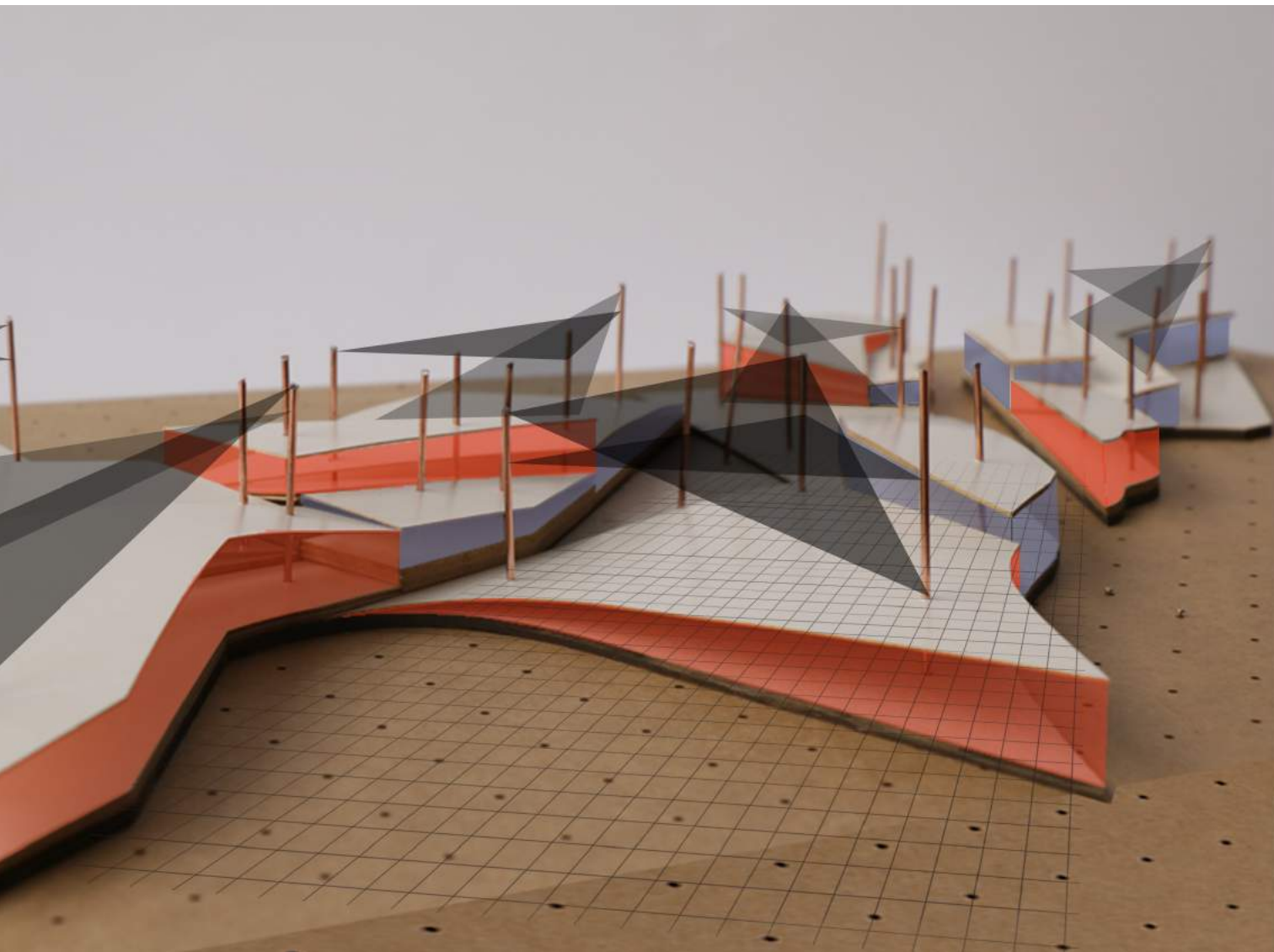


Fig 6.26. Exploration Three B Site Model Typography Diagram Development Superimposed

Experimenting with these zones opened up opportunities within the landscape both above the forms and within the landscape. The relevant contexts and activating new conditions of interrelation open to the building and place, of open spaces and in-between spaces either cut or pushed out by the compression of the layers. Reflection on this exploration I found that the diagram as a superimposed map retains the multiple series of traces, offering architecture the verticality of another space, perceptive and intuitable beyond the visible. “Landscape becomes a conforming matrix of the design process, not only from a formal point of view, but also as a generative field of tensions developed in the complex interaction between nature and artificial.”(Gregory, 2003. 16). The extraction of the different heights opened up opportunities within the zones.

Future Site Development

Exploration Four

The aim of this exploration investigates circulation through layers. I test how the movement through the island might influence the atmosphere in more congested areas.

By experimenting with string I was able to develop a generative reflection of the circulation systems throughout the island. This was thought of in relation to programme within the different zones of the island. The different coloured string represents a different transport type. Red as motorways, Blue as a subway system and green as a ferry route. I looked into underground transport systems due to the lack of accessibility to motor transport for the public.

Reflecting on this exploration, the circulation would be more clear if the programme was more defined through the model.

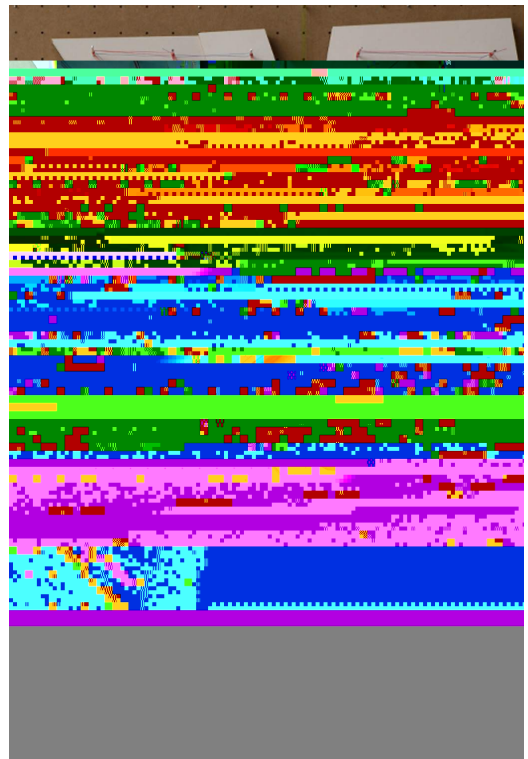


Fig 6.27. *Exploration Four Site Model Plan*



Fig 6.28. *Exploration Four Site Model Circulation Development*

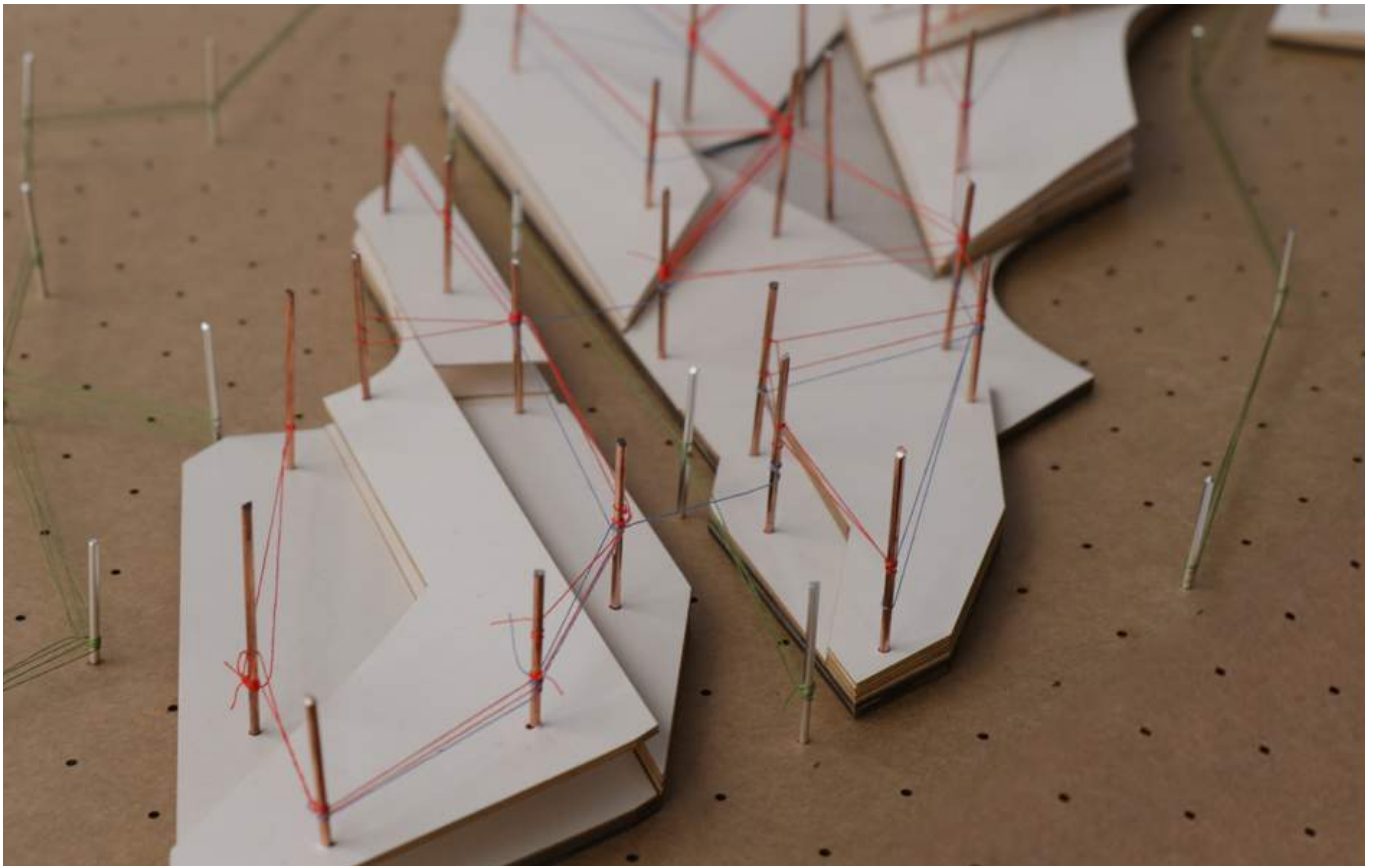


Fig 6.29. *Exploration Four Site Model Circulation Development of site*

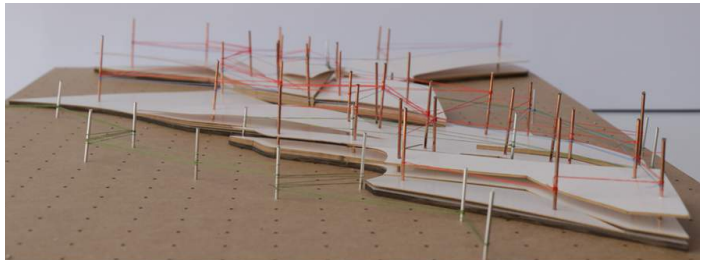
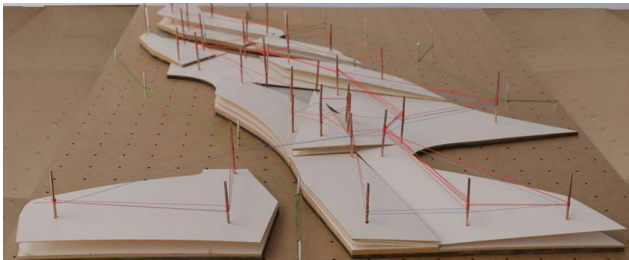
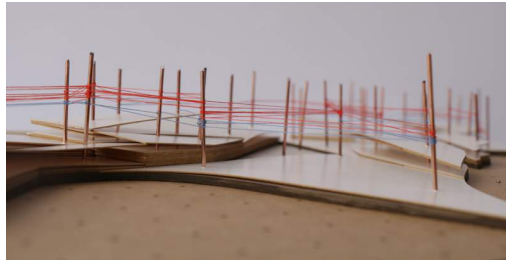
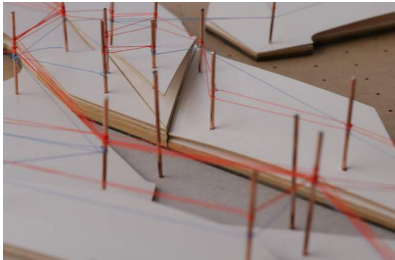
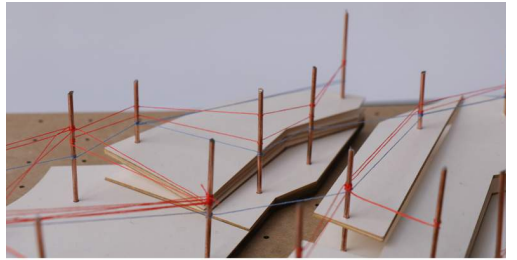
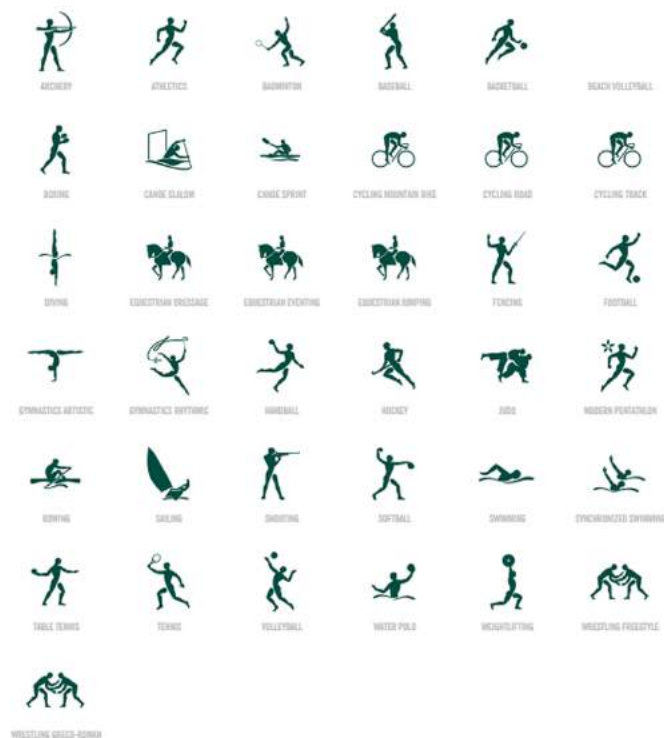


Fig 6.30. *Exploration Four Site Model Circulation Development*

Island Programme Development

GAMES RESULTS

Go to Atlanta 1996 Results

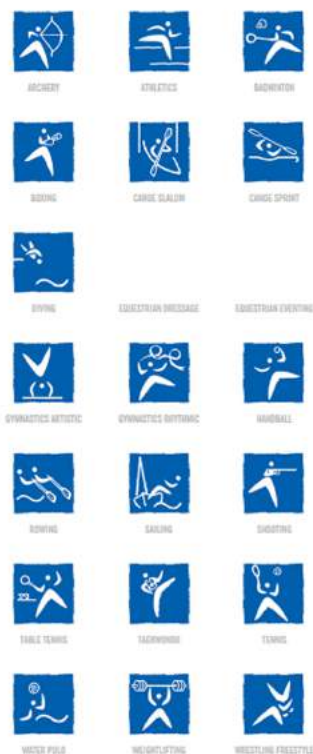


GAMES RESULTS

Go to Beijing 2008 Results



GAMES RESULTS



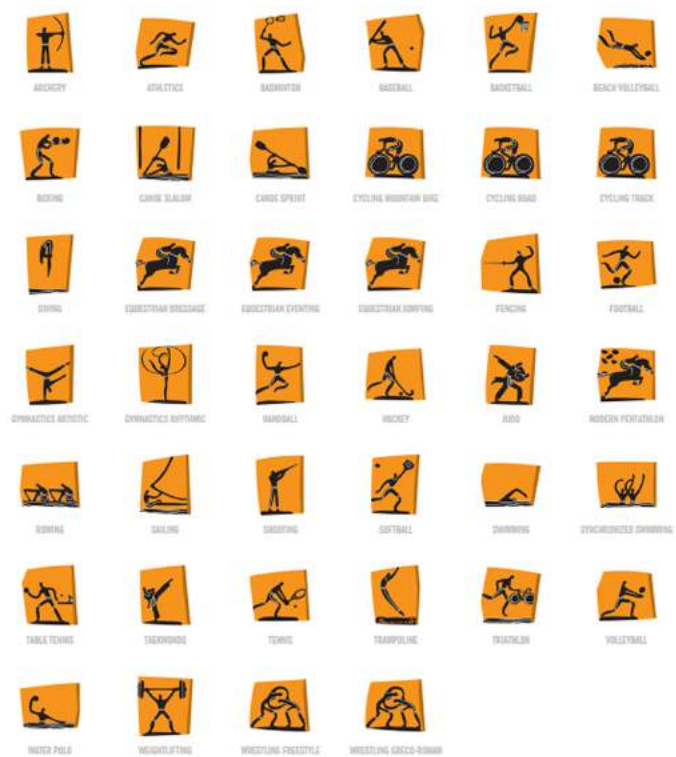
GAMES RESULTS



Go to Sydney 2000 Results

GAMES RESULTS

Go to Athens 2004 Results



Go to London 2012 Results

GAMES RESULTS

Go to Rio 2016 Results



Fig 6.31. Olympic Sports Icons from past Games

Island Programme Development

Exploration Five

Exploration Five aims to develop the programme by separating the zones into categories. I first separated the zones from public and private. By doing so I analysed the necessary sports and functions within the spaces. I identified five different zone types;

Accommodation,
Amenities,
Open Arena,
Closed Arena,
Leisure.

I then looked at the special relationships between the zones and how they could potentially dictate the outcomes. For example, what area types would support each other, or rely on the other zones. This was communicated through icons. These icons were used to represent programme types necessary at each zone. These tests on the different areas were successful at dividing the island spaces but did not reflect the particular sports types and stadium areas clear enough.

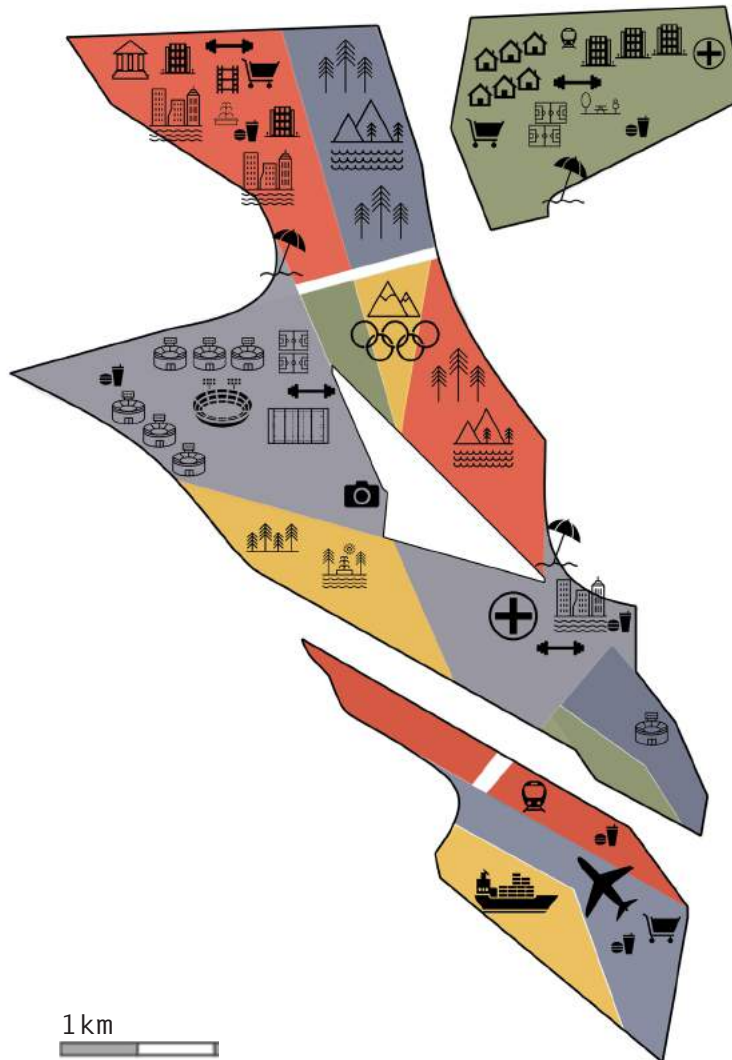


Fig 6.32. Exploration Five Zone Development Planning

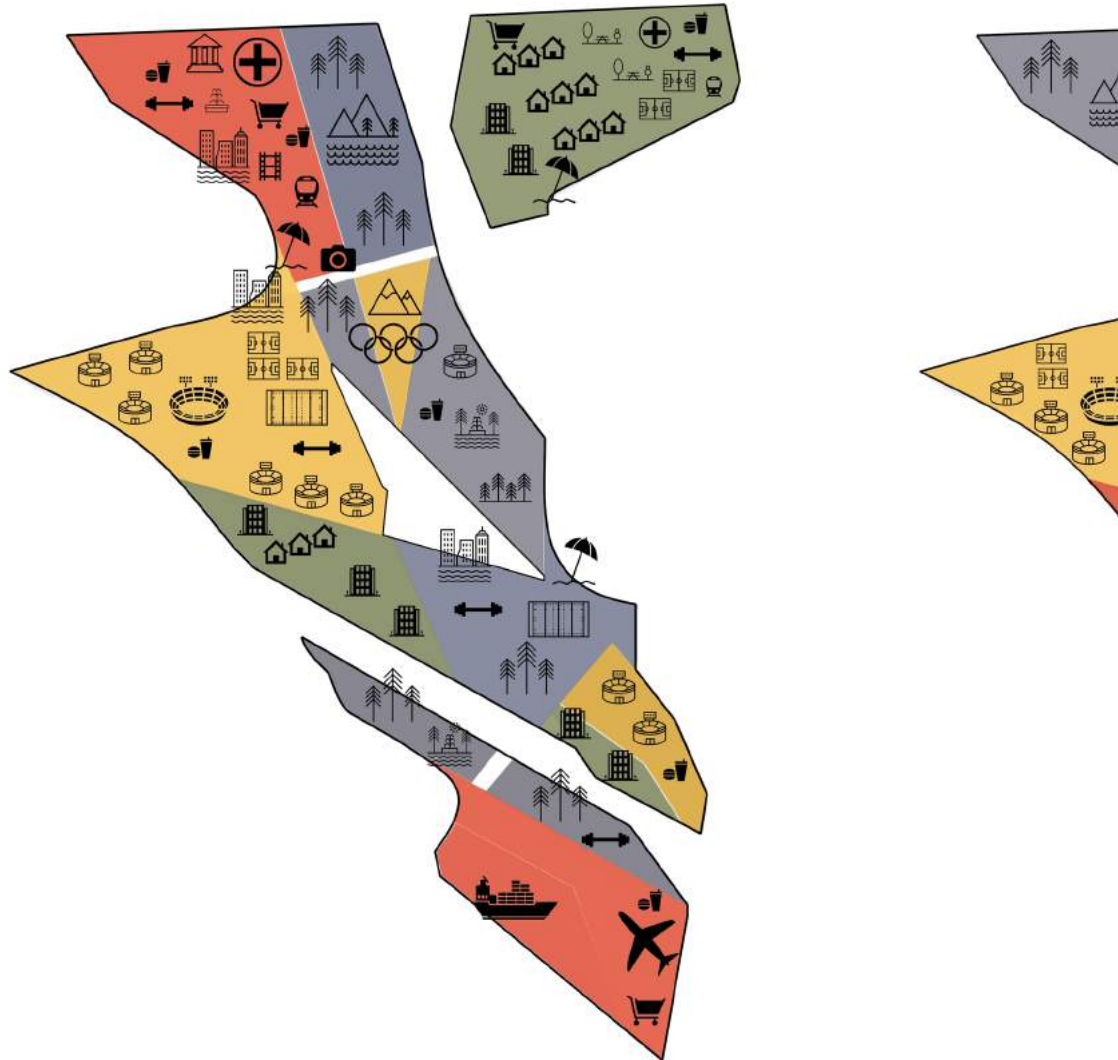
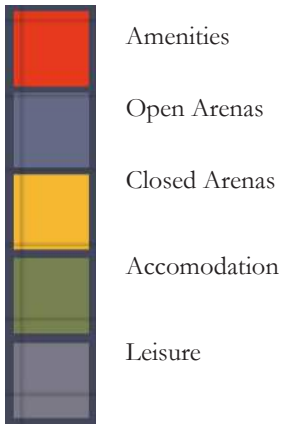


Fig 6.33. Exploration Five Zone Development Planning



1 km

Island Programme Development

Exploration Six

The Sixth Exploration investigates the different stadiums needed for the Olympic Games. This exploration aims to arrange the planning of stadium types suitable for the different island zones. The different stadium programmes relate to the atmospheric conditions of the area, which was determined by the use of open or closed arenas.

I identified the range of sports in the Games and paired them with 18 different stadium types. I then placed them on the island. These locations were chosen from the results of my previous exploration. The design of the island considered different sporting types during development. This exploration aims to place the stadiums in areas that would suit the typography.

This exploration identified the cluster groups necessary for the infrastructure areas. Investigating previous Olympic Parks to see what stadium types have been placed together (see figures 6.34). I found grouping the indoor stadium types together would form the main stadium group. These sporting types did not involve as large crowds individually. These spaces would need outdoor crush areas that could hold large crowds of people between stadiums. The outdoor sports that involved using the island roads were placed with different starting lines in order to spread the crowds and spectators apart. Stadiums for sports such as football and baseball were placed out of the main areas because of the overflux of people attending these events.

The result of this was successful in maximising different areas of the island for different sporting types. This also allowed for areas of different programme types to be separated. Working with clusters of stadiums would make it easy for the spectators to move between stadiums without it becoming too congested.

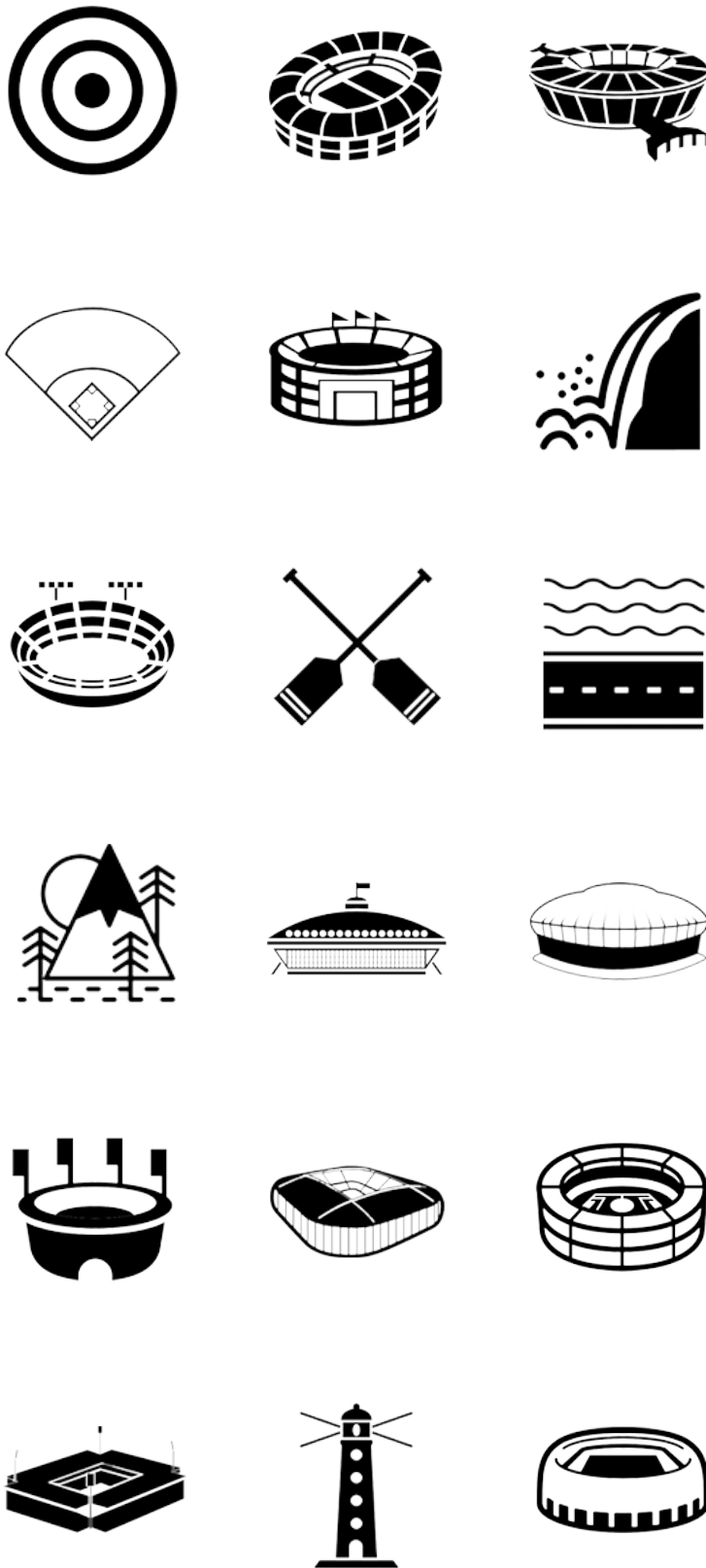
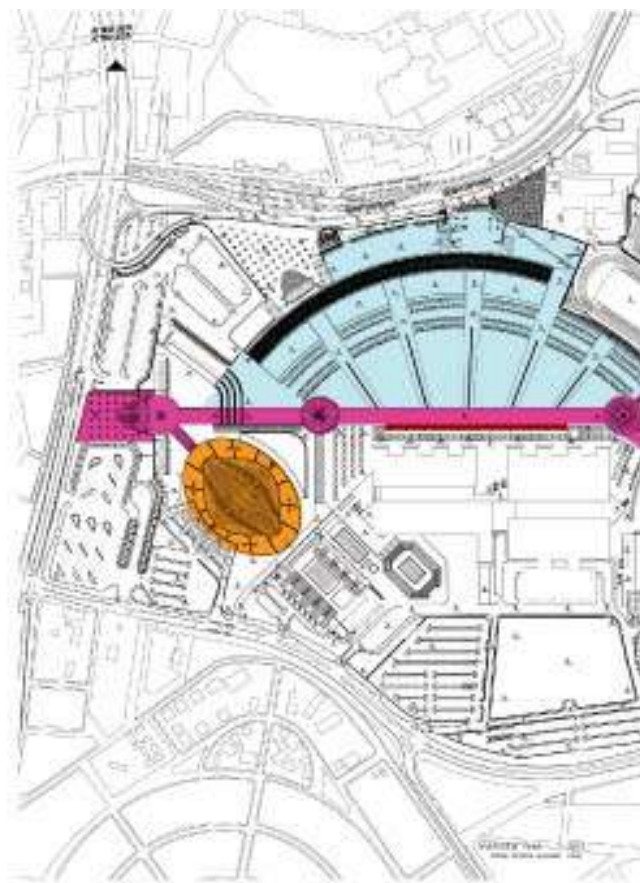


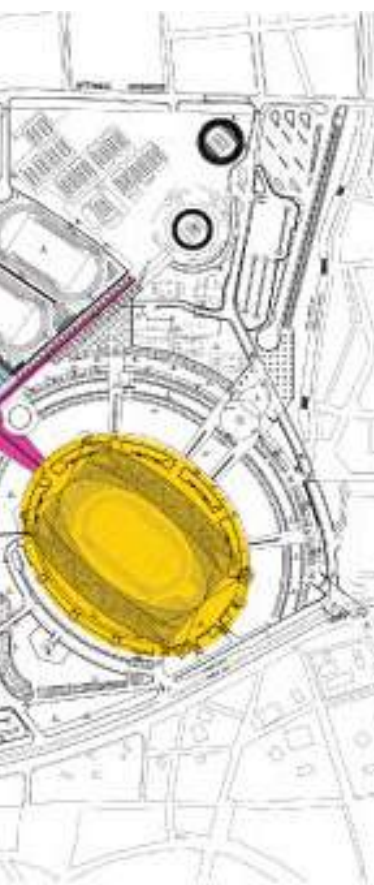
Fig 6.34. Exploration Six Stadium Icons for programme development



Fig 6.35. Left - Sydney Olympic Park 2000
 Fig 6.36. Below - Athens Olympic Park 2004
 Fig 6.37. Right - Beijing Olympic Park 2008

- Entrance and main axis
- The Plaza of the Nations
- Main stadium
- Velodrome
- The Nations Wall
- The Agora





Olympic Parks

Olympic Parks from previous Games were analysed simply to see the different ways the parks had been arranged. Here I considered what stadium types were next to each other, and any cluster groups.

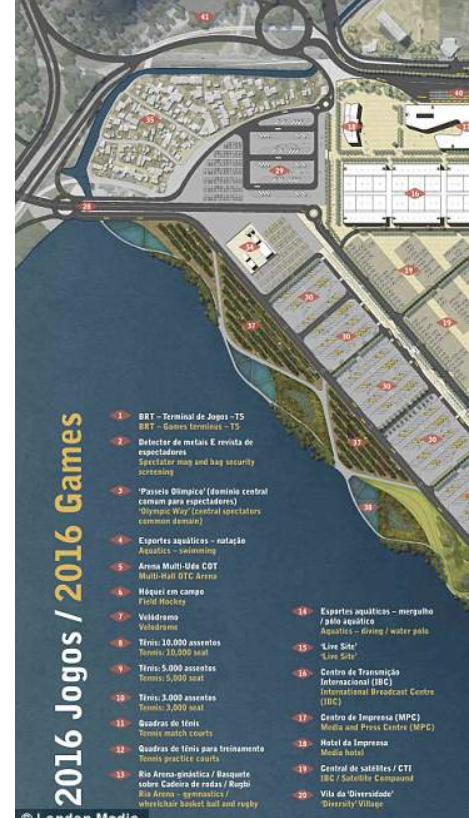
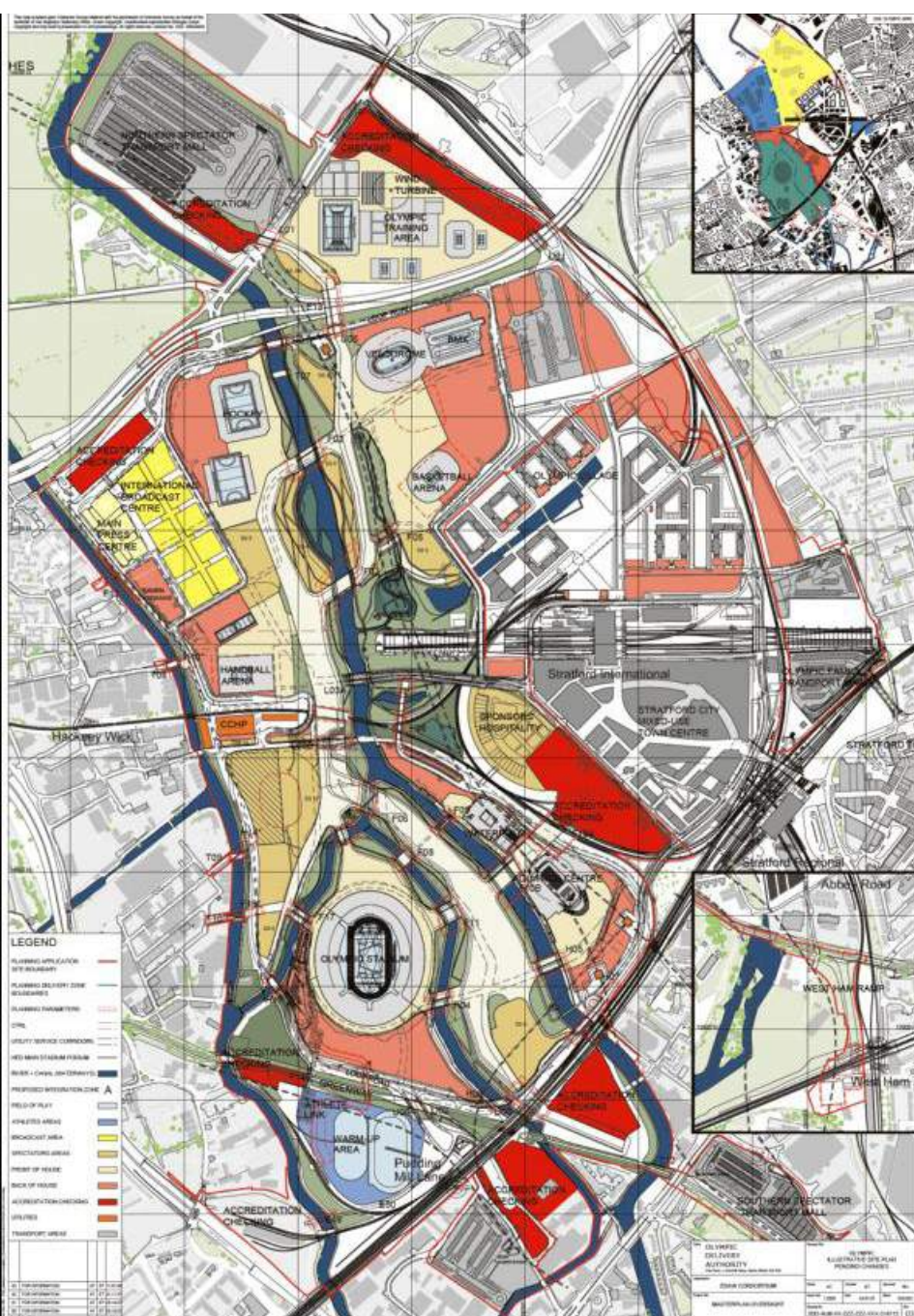


Fig 6.38.

Fig 6.39.

Fig 6.40.

Left - London Olympic Park 2012

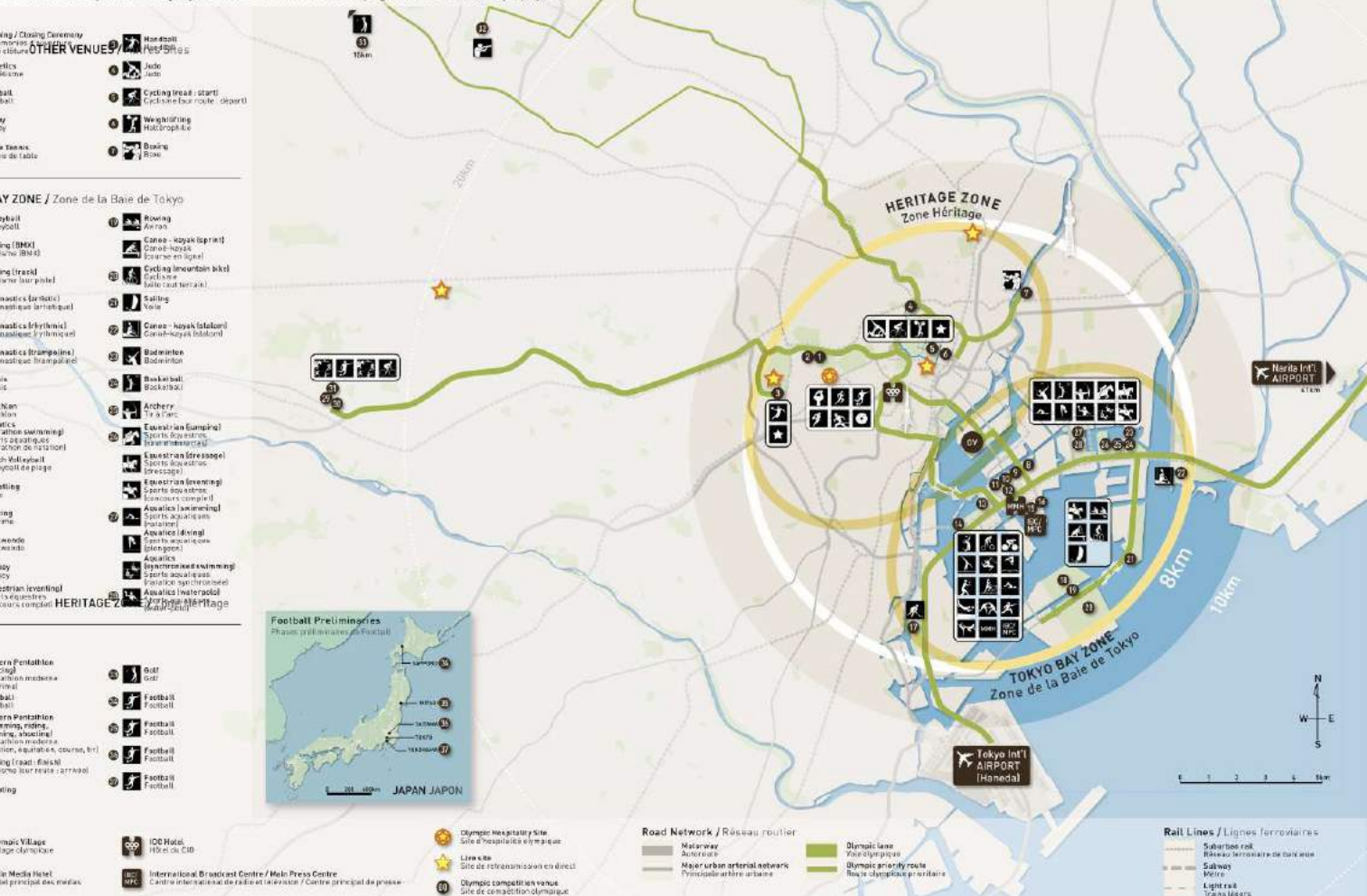
Above - Rio De Janeiro Olympic Park 2016

Right - Tokyo Olympic Park 2020





Overall concept of the Olympic Games / Plan A - Concept général des Jeux Olympiques





ARCHERY



SHOOTING



ATHLETICS



BADMINTON



BASKETBALL



BOXING



HANDBALL



TABLE TENNIS



VOLLEYBALL



JUDO



SOFTBALL



BEACH VOLLEYBALL



CANOE SLALOM



CYCLING BMX



CANOE SPRINT



ROWING



CYCLING ROAD



FENCING



CYCLING MOUNTAIN BIKE



CYCLING TRIATHLON



DIVING



SWIMMING



SYNCHRONIZED SWIMMING



WATER POLO



EQUESTRIAN



MODERN PENTATHLON



FENCING



GYMNASTICS ARTISTIC



GYMNASTICS RHYTHMIC



JUDO



KARATE



TAEKWONDO



TRAMPOLINE



WEIGHTLIFTING



WRESTLING



FOOTBALL



RUGBY



HOCKEY



SAILING



SQUASH



TENNIS



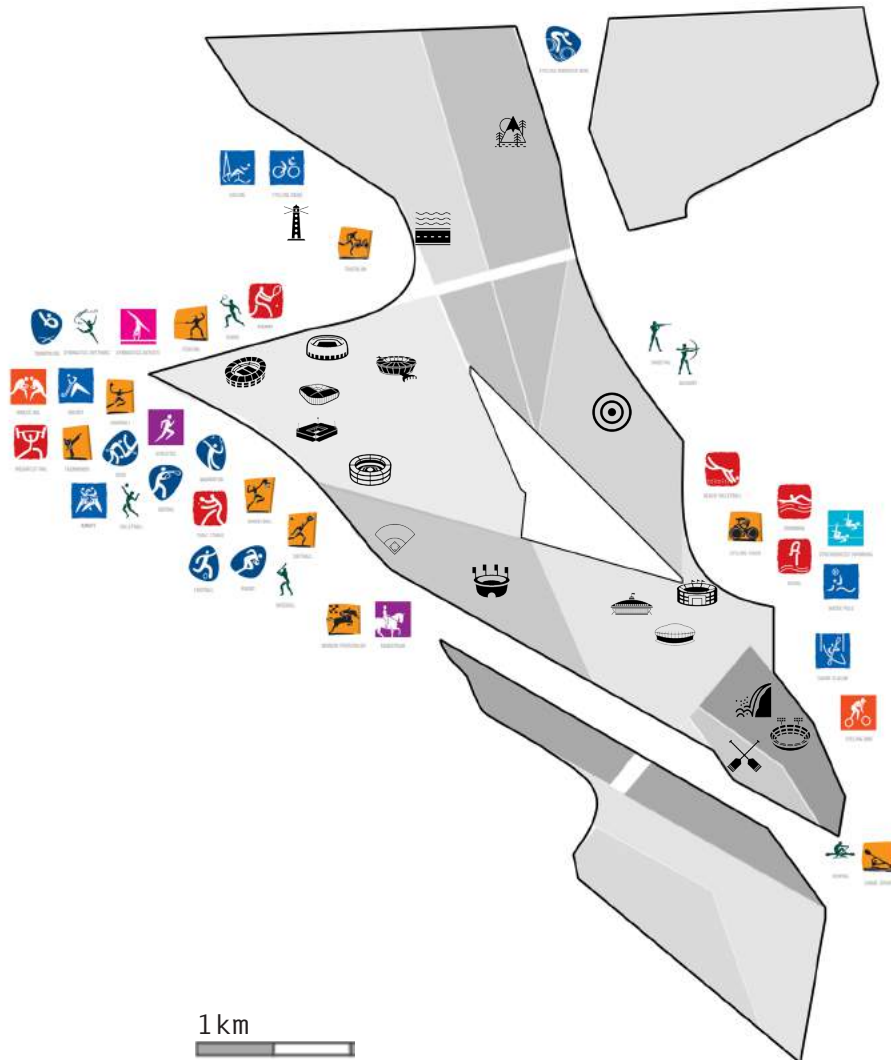


Fig 6.41. Left - 18 Stadium types with Sports logos
 Fig 6.42. Island map developed to stadium types. The stadium types were supported in clusters with surrounding amenities. The rest of the island will be used for accommodating the Olympic Games

Reflection

Site

The formation of the island progressed through the combination of drawing and modelling. These methods combined would extract more information through the different layers and information added to the island. The drawing strategies from Kulper allowed me to extract information from the surrounding topography at different scales to generate the form of the island. This technique also worked with the different zone types. Superimposing the levels of the island through modelling was a good method to develop the island heights. This abstraction of zones would also generate atmosphere through the contrasting heights within the vast landscapes.

Programme was introduced within the planning of zones on the artificial island. This was a valuable exercise to understand how the island would function and circulate. The different stadium groups would make up different atmospheres within the island. this was still at an abstract level as there was no consideration of scale, at this stage.

Originally I had planned to design a master-plan for the island. However, with time constraints I decided to focus on a single building. As this gave me more opportunity to refine my proposition. This means that the island - provides a platform for design, but it is not developed further. For the final design chapter, I have chosen to focus on one site on the island in order to develop the atmosphere within the environment. The atmosphere is generated from the landscape's relationship to the architecture.

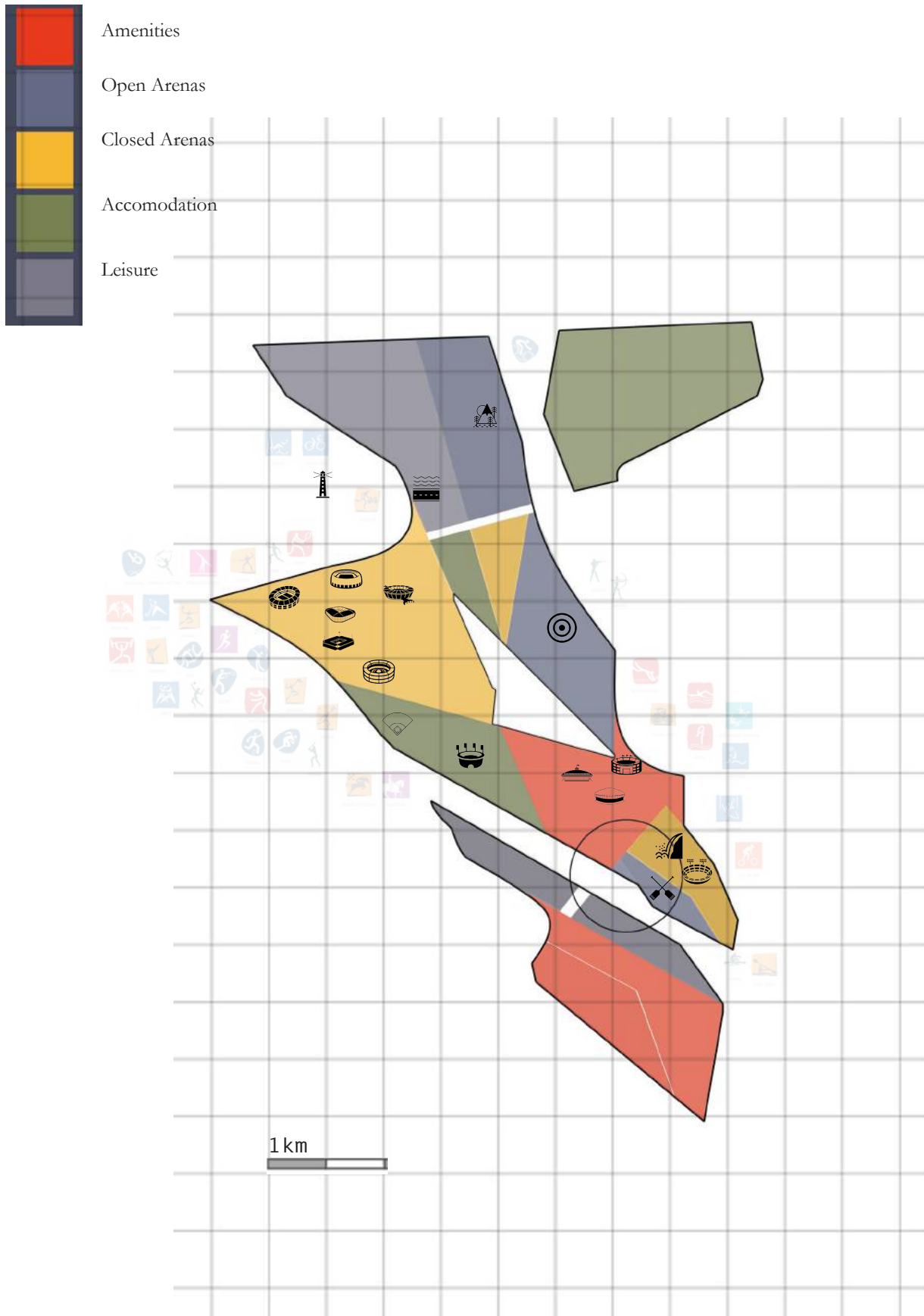


Fig 6.43. Artificial Island Planning development of zones and arenas

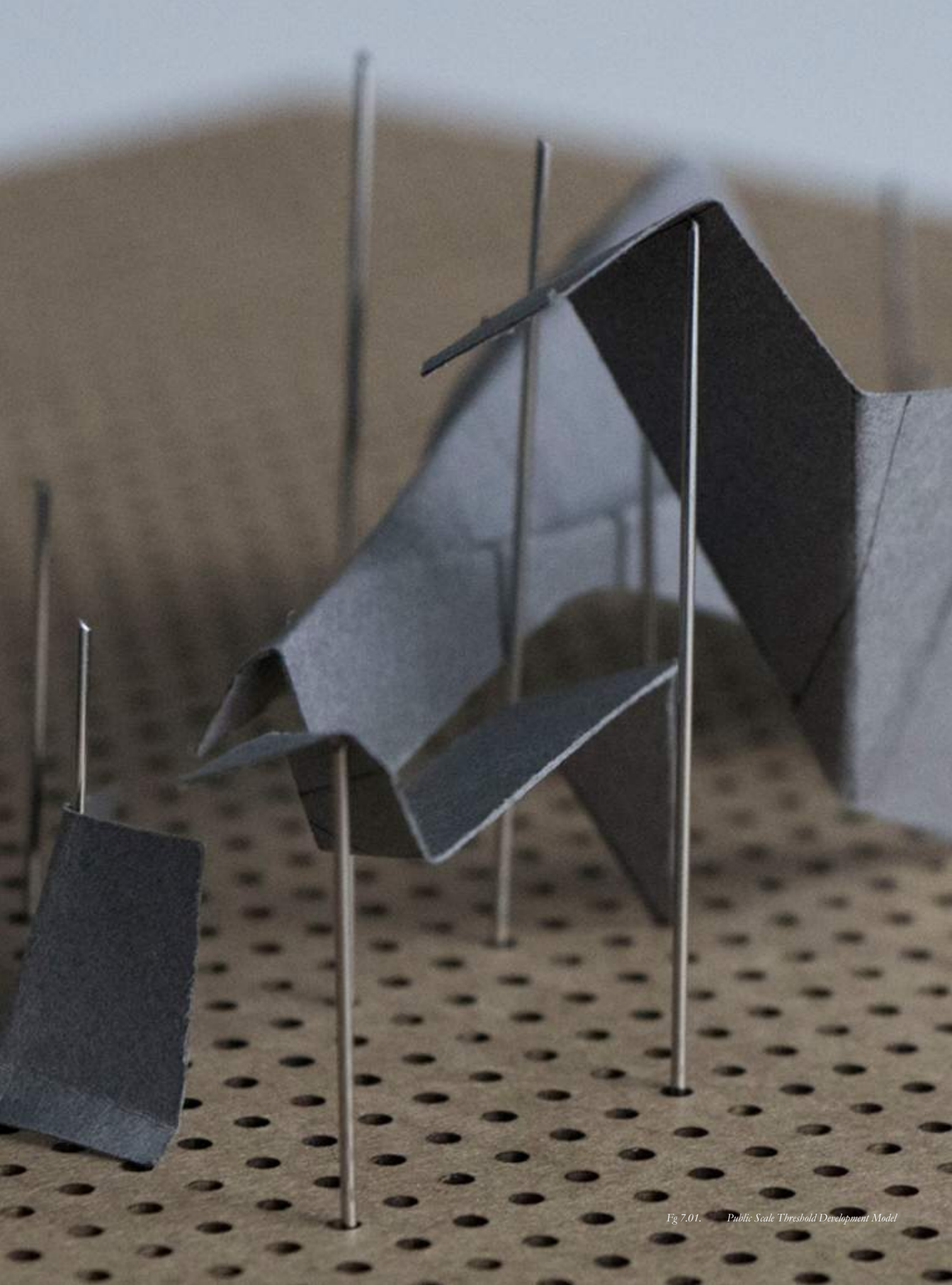


Fig 7.01. *Public Scale Threshold Development Model*

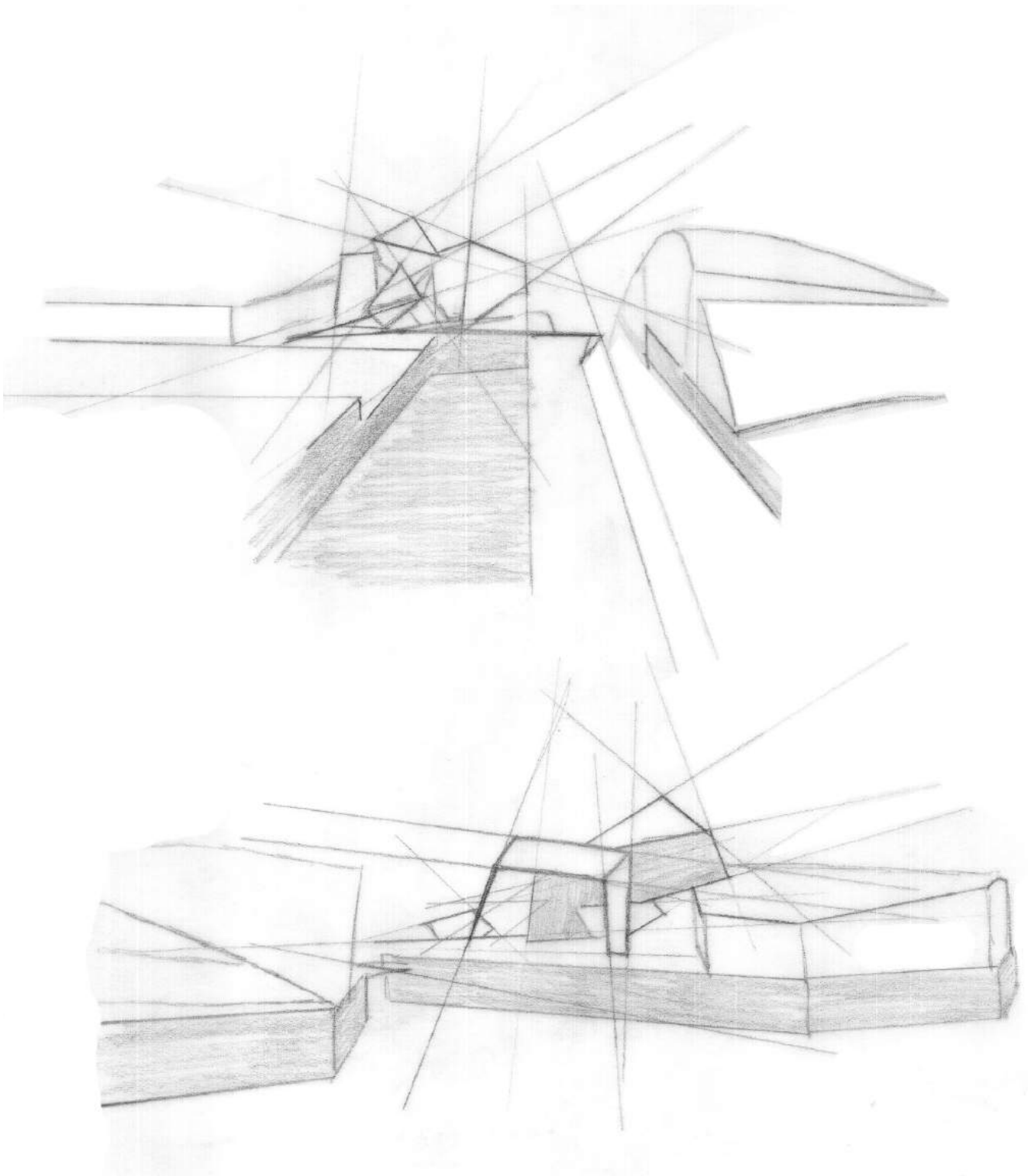


Fig 7.02. *Public Scale Infrastructure form development drawings diagrams*

Public Building

Stage Three

Introduction

Moving forward to the public scale building and my research into atmosphere, I chose an area of the island to design for in order to focus on my proposition, rather than planning the artificial island. The architecture would reflect the method and aesthetic intent of the rest of the island.

In order to amplify atmosphere within the artificial island, I would need to build relationships with site. As this project is “dealing with ‘active fields’, characterized by a complex mix of programmed elements and telluric topographies capable of generating different strategies of ambiguity and dislocation: between space and surface, interior and exterior”(Gregory, 2003. 38). The shift from site to architectural form to the masterplan and the relationships between scales will also contribute to the atmosphere generated by the designs.

The design process is carried out through a series of explorations that employ scale, site and form proximity to test my proposition. The chapter concludes with a reflection of the design process and whether by working under the guidelines of my proposition.

Research Proposition

I am proposing to resolve my research through atmospheric qualities of, thresholds, material compatibility, light on form, within this constructed landscape.

Aim

The design experiment investigated the main proposition of the thesis: how to amplify atmosphere within an artificial island. The aim was to apply the same methods as set to form the island, and establish a more interrogated relationship between architecture and the site in order to strengthen the qualities of architecture.

Method

The research proposition has been considered through the design process by testing the atmospheric techniques developed through research as design, as outlined in the introduction. The proposition is tested through an iterative process of design. The methods of design shift between drawing, physical modelling, photography and digital modelling.

Programme

I chose to design the Rowing and Canoe boat club for my public scale building. This was chosen because of my knowledge and experience in the sport by establishing the relationships and understanding of programme from personal experience. The primary programme for this public scale was to provide a new architectural infrastructure that allowed the public to view the boating sports in the area of the site. This is then broken down into the necessary building types, suitable for the programme functionality. The aim of the chapter was extended to consider design a space that public engagement with the architecture and the relationship it has with the site.

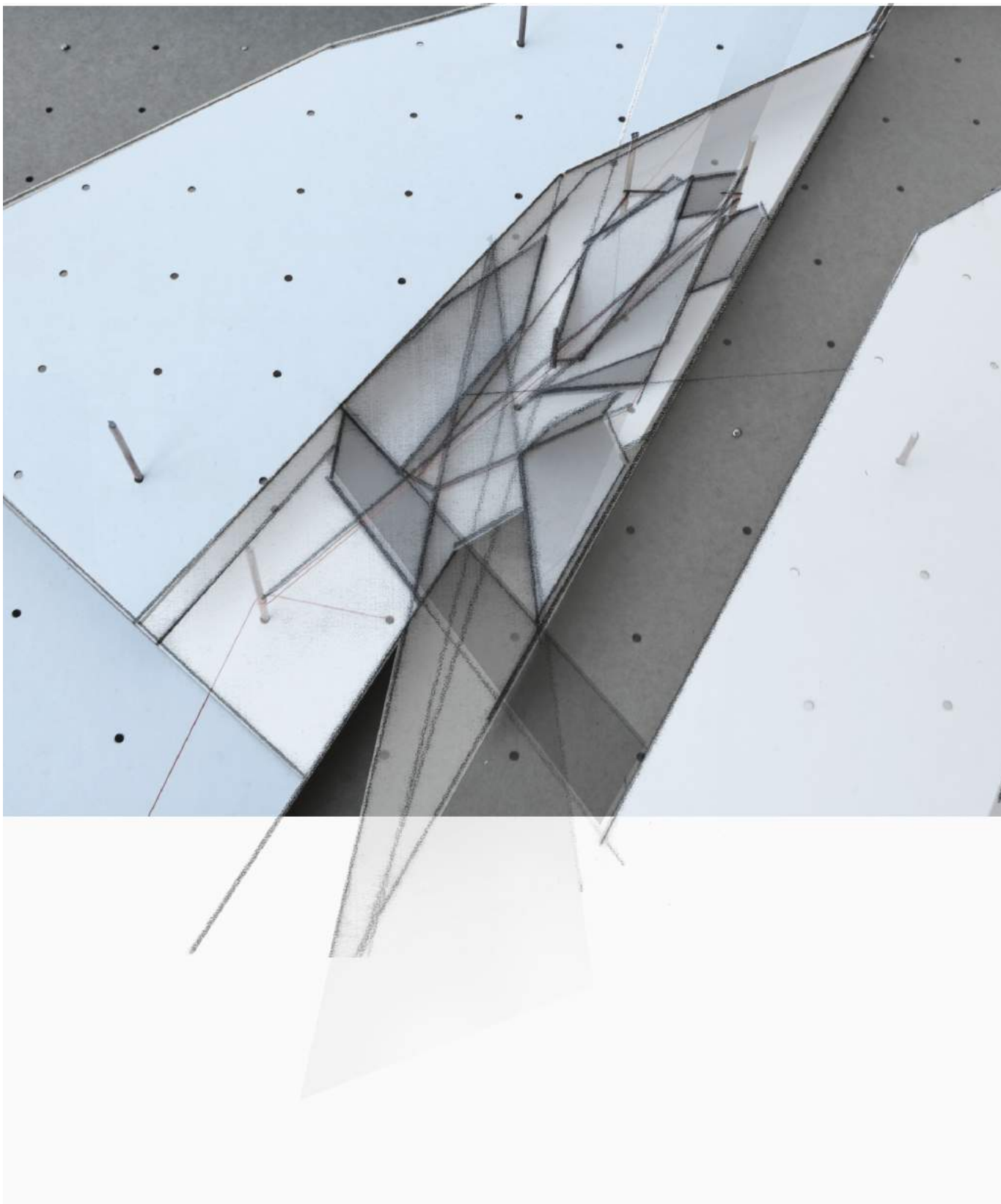


Fig 7.03. *Public Scale Infrastructure form development model with drawings diagram overlay*

Site development

Analysis of Site

I began with similar methods as the previous chapter, by analysing the site and creating a larger scale model of the site. Superimposing the site from the plan, generated 2D information into a 3D model that helped test the site through typographic forms. Analysing the model through similar methods of drawing and manipulating the photographs allowed me to identify the connections between levels, and the solutions of continuity created between the levels can only emerge in model form.

As one moves through the site, it is intended that the contrasting heights of the changing levels will offer the buildings intimacy within the site and enrich one's experience. The architecture forms are enhanced through the relationships between land and sea.

The site stretches the length of the 2km rowing race, with the finishing line part of the area I am choosing to design for.

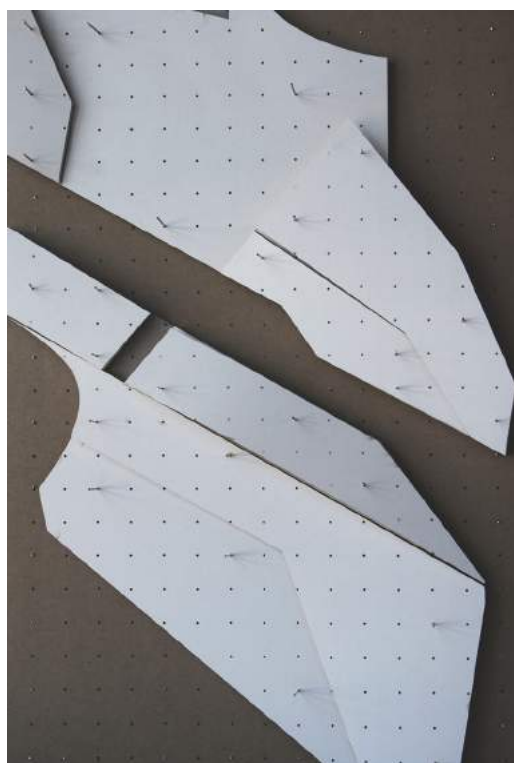


Fig 7.04. *Public Scale: Site model in Plan*

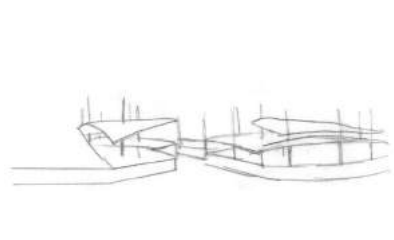
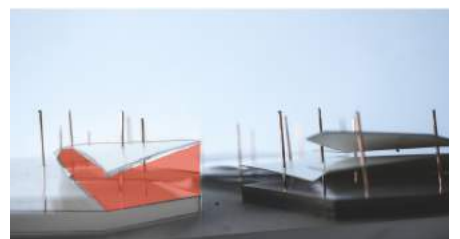
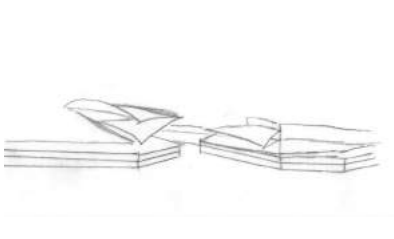
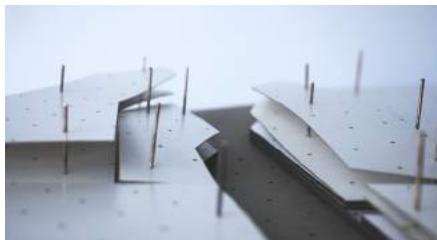
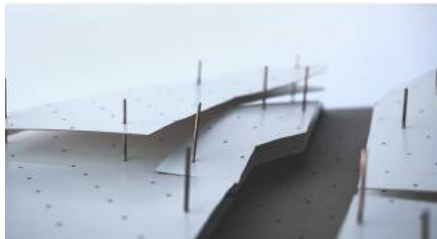
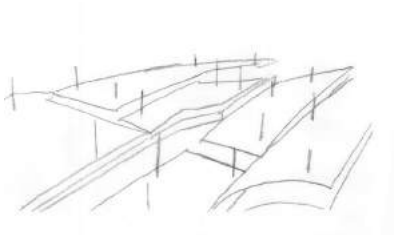
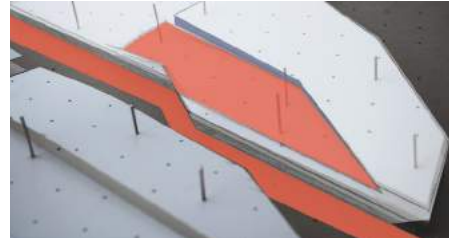
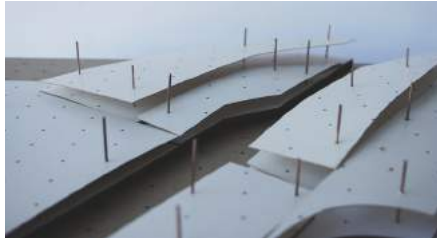
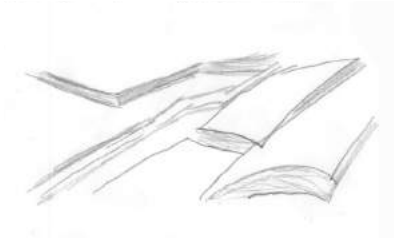


Fig 7.05. *Analysing Site through modelling typography and manipulating photography to identify areas of the site to design for.*

Form within Voids

Exploration One

The aim of this investigation is to explore elements of form on site. By experimenting with string I aimed to generate forms that could dictate the architecture on site. After photographing this I could manipulate the images and identify voids and opportunities.

This was not very successful as it only took information from a site that was so undeveloped. I found that the two-dimensional graphics did not generate enough information from the three-dimensional model.

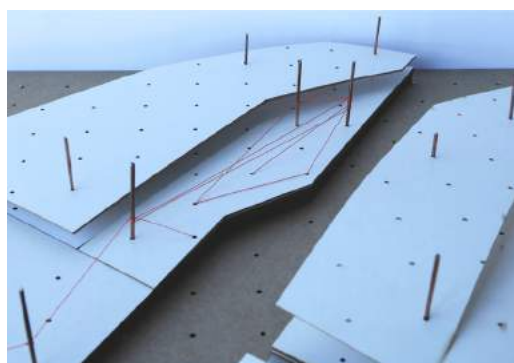


Fig 7.06. *Exploration One: Generating form through string model*

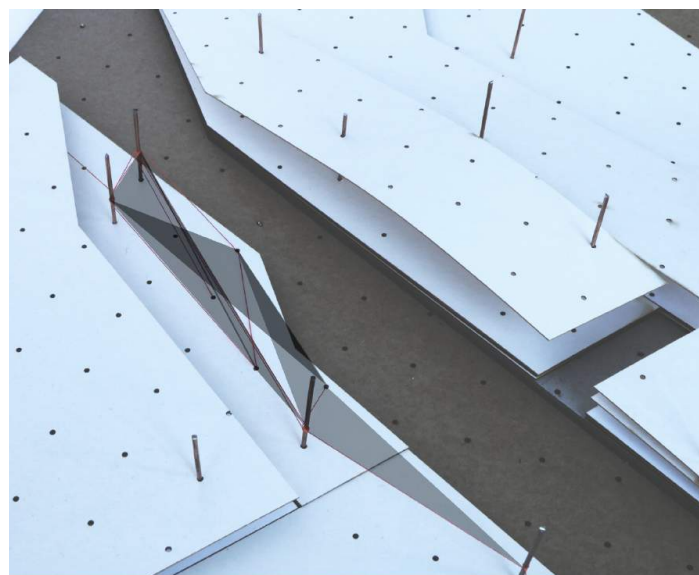
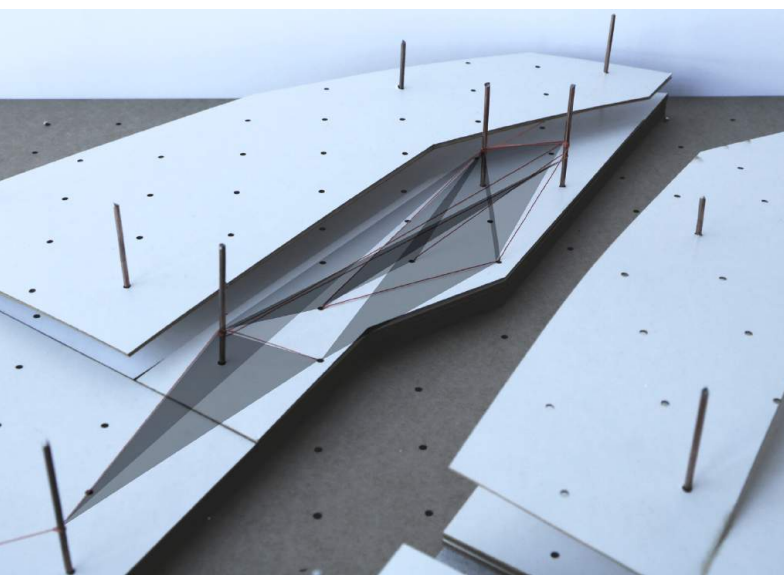
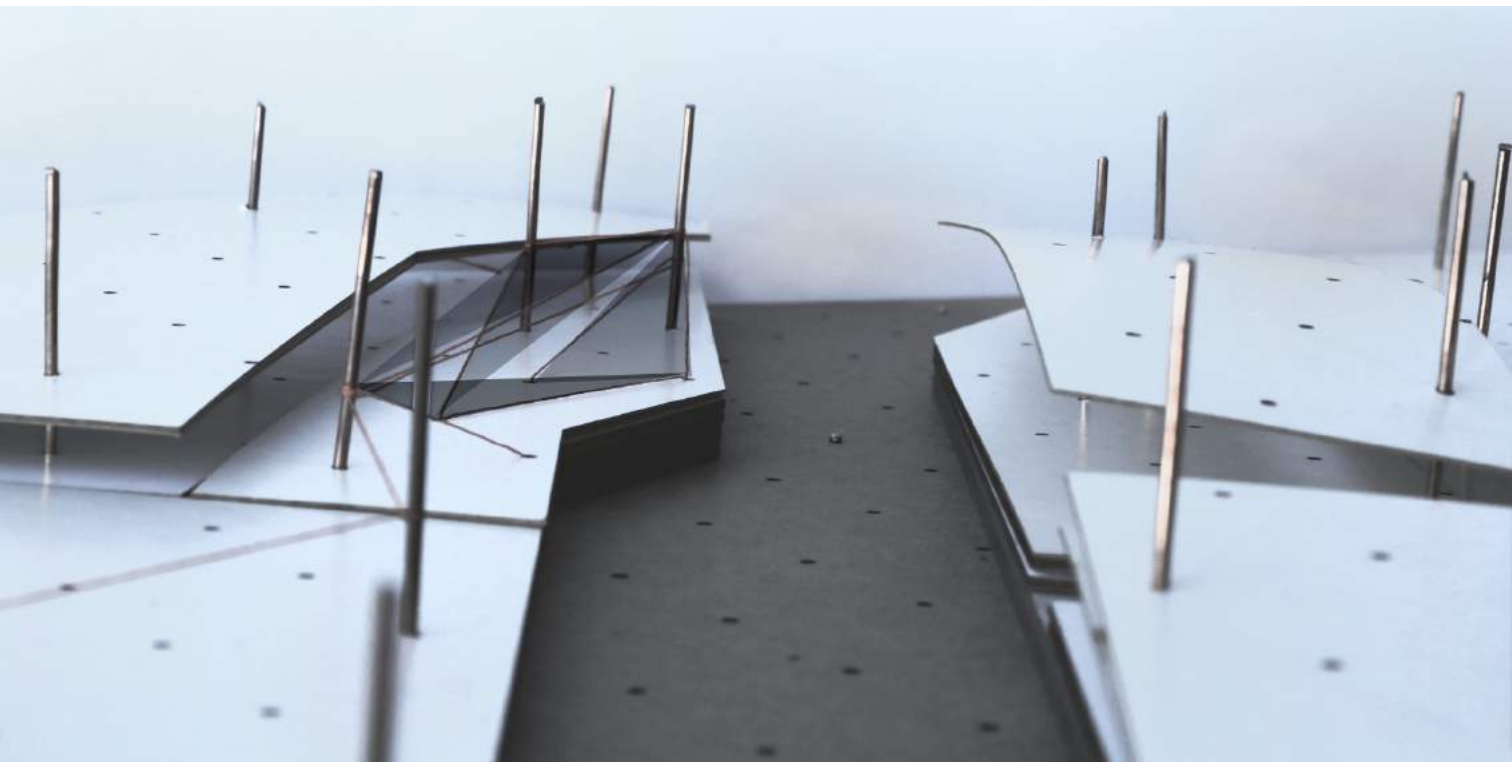


Fig 7.07. *Exploration One: Manipulating photographs to generate form*

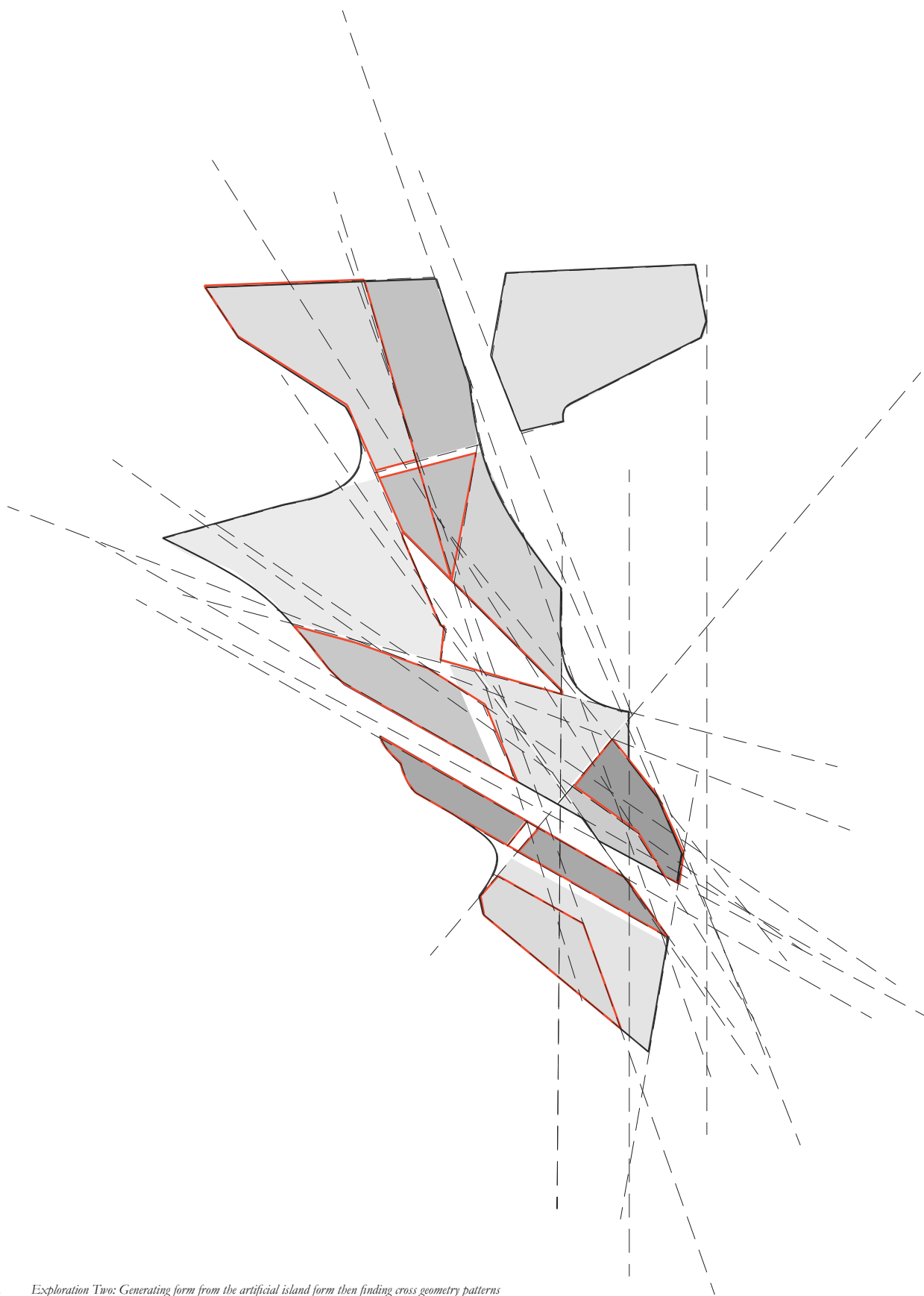


Fig 7.08. Exploration Two: Generating form from the artificial island form then finding cross geometry patterns

Form from Typography

Exploration Two

The aim of this investigation is to explore elements of form. Going back to the methods to form the artificial island, I use the cross geometry patterns of the landscape that formed the island shape. Transforming drawings into models I used the lines that I extracted from the site, and set them up as guidelines for folding the card; this would then define the forms.

The development of the architecture form will generate from the original zones of the island so the land and the architecture are treated as integrated, rather than the architecture being imposed on the landscape. The alignment of the islands geometry dictated the fold of each shape.

Reflecting on this experiment I was happy with the transformation of a two-dimensional diagram into a three-dimensional form because of the use of the fold, on different scales. This test would transition typography into architectural form. The forms generated shared a similar design language.

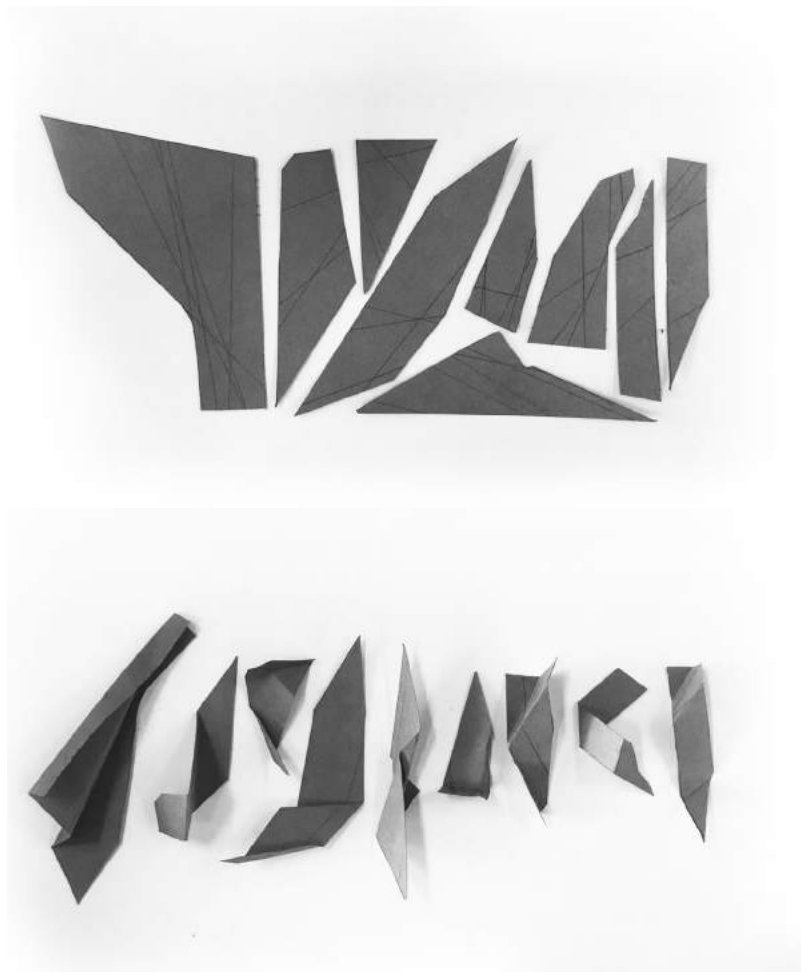


Fig 7.09. *Exploration Two; folds are dictated by the cross geometry lines of site*

From from Typography

Exploration Two

This test would transition typography into architectural form before any introduction to programme. The forms generated shared a similar design language. Working with three paper forms I found close proximity and folds to strengthen the formal qualities. The redefinition of the ground surface through the transformation of a two-dimensional diagram into a three-dimensional topography; and the use of the fold at different scales, attracts variations and transitions. Looking at the forms through Plan and elevation, I could see an opportunities for inhabitable spaces. However, the forms need to is it arranged or assembled site to generate alignment and relation to the site.



Fig 7.10. *Exploration Two: Form are placed in clusters of three. This investigates proximity of forms that correspond with each other.*

Form One



Fig 7.11. *Exploration Two: Form One in plan*



Fig 7.12. *Exploration Two: Form One in elevation and perspective*

Form Two



Fig 7.13. *Exploration Two: Form Two in plan*



Fig 7.14. *Exploration Two: Form Two in elevation and perspective*

Form Three



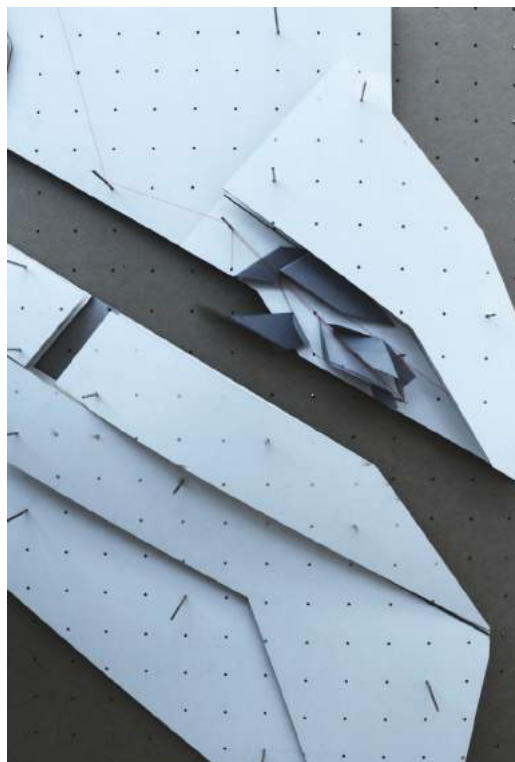
Fig 7.15. *Exploration Two: Form Three in plan*



Fig 7.16. *Exploration Two: Form Three in elevation and perspective*



Test One



Test Two



Test Three



Outcome

Fig 7.17. Exploration Three: Forms were placed onto site testing proximity of forms on site

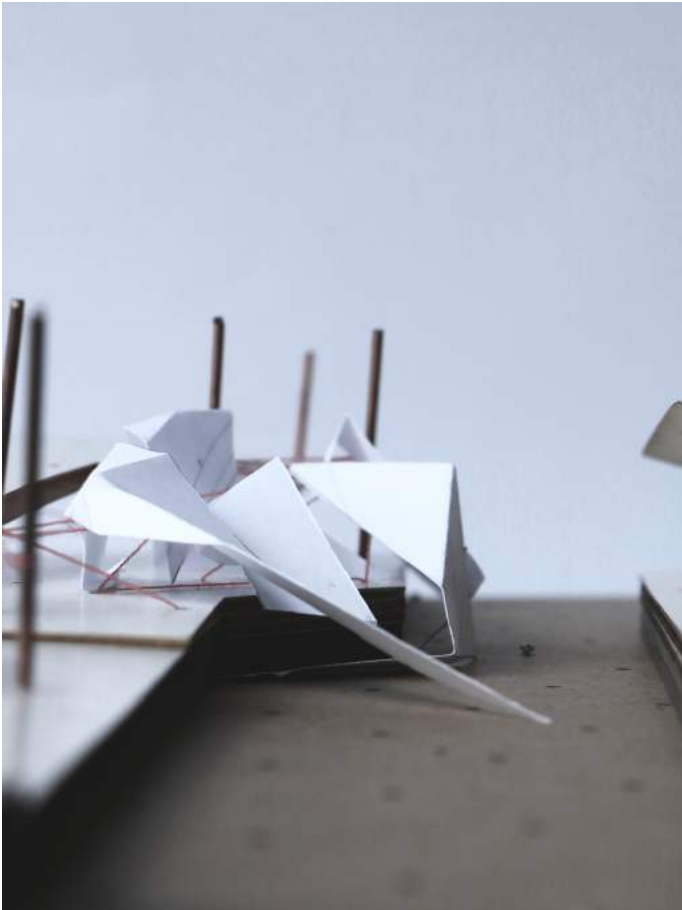


Fig 7.18. *Exploration Three: Forms tested ways to move the forms from the landscape to the water*

Architecture to Land

Exploration Three

The aim of this investigation is to move the architecture from land to also connect with the sea. In this exploration, I tried to experiment with the same forms from previous explorations but place on site to test the architecture relationship to site and bridge between land and sea. Exploring through this the idea that “the rock is a literal edge between the sea and the land, and the building that inhabits it merges and blurs the boundary so that in essence the architecture becomes part of the geological and topographical landscape” (Allen, 1996, 10). I worked on the movement from land to sea which is integral to a programme which bridges between the two.

Using the paper forms I experimented with the proximity of each form by altering the orientation and positioning on site. The paper forms are superimposed onto the site to reveal hidden relationships “like a complicated fabric of events in which different types of relationships alternated, superimposed and combined, determining the structure of the whole” (Werner Heisenberg, 1962). Superimposing the geometries can influence the proximity of form on site. The models were photographed from different angles to show the proximity and physical relationships between each of the overlapping panels. This stacking effect reveals the varying interpretative opacities whilst defining the edges of the models geometry. This was tested three times before reaching an outcome. The proportions of each geometry will influence the programme and the circulation in further design development.

Test One



Fig 7.19. Exploration Three: Test One in plan

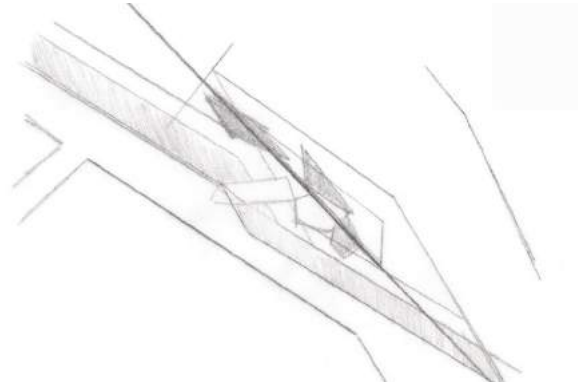


Fig 7.20. Exploration Three: Test One in drawing diagram of proximity within the plan

This test investigated proximity through overlapping forms. By placing forms over the top of each other I could find the connection between forms. The proximity of the forms were placed around the site to have an entrance from the north.

Reflecting on this test model I found that the forms did not interact with the site. They did not offer enough space between forms. The heights of the forms do not respond to each other. The cluster of forms does no suggest movement throughout the site.

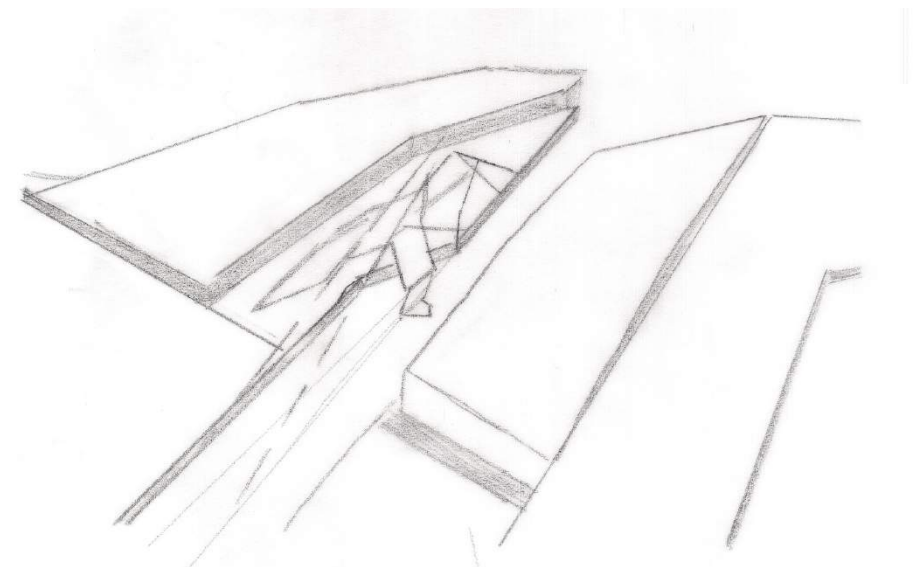


Fig 7.21. Exploration Three: Test One perspectives of photograph diagrams of site and architecture

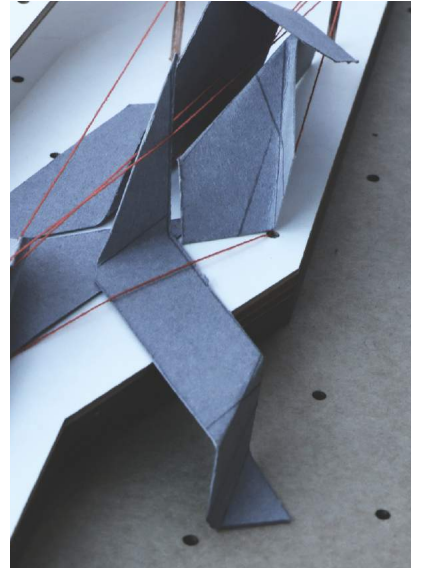


Fig 7.22. *Exploration Three: Test One model images of points of interest within the model that could translate into architectural form*

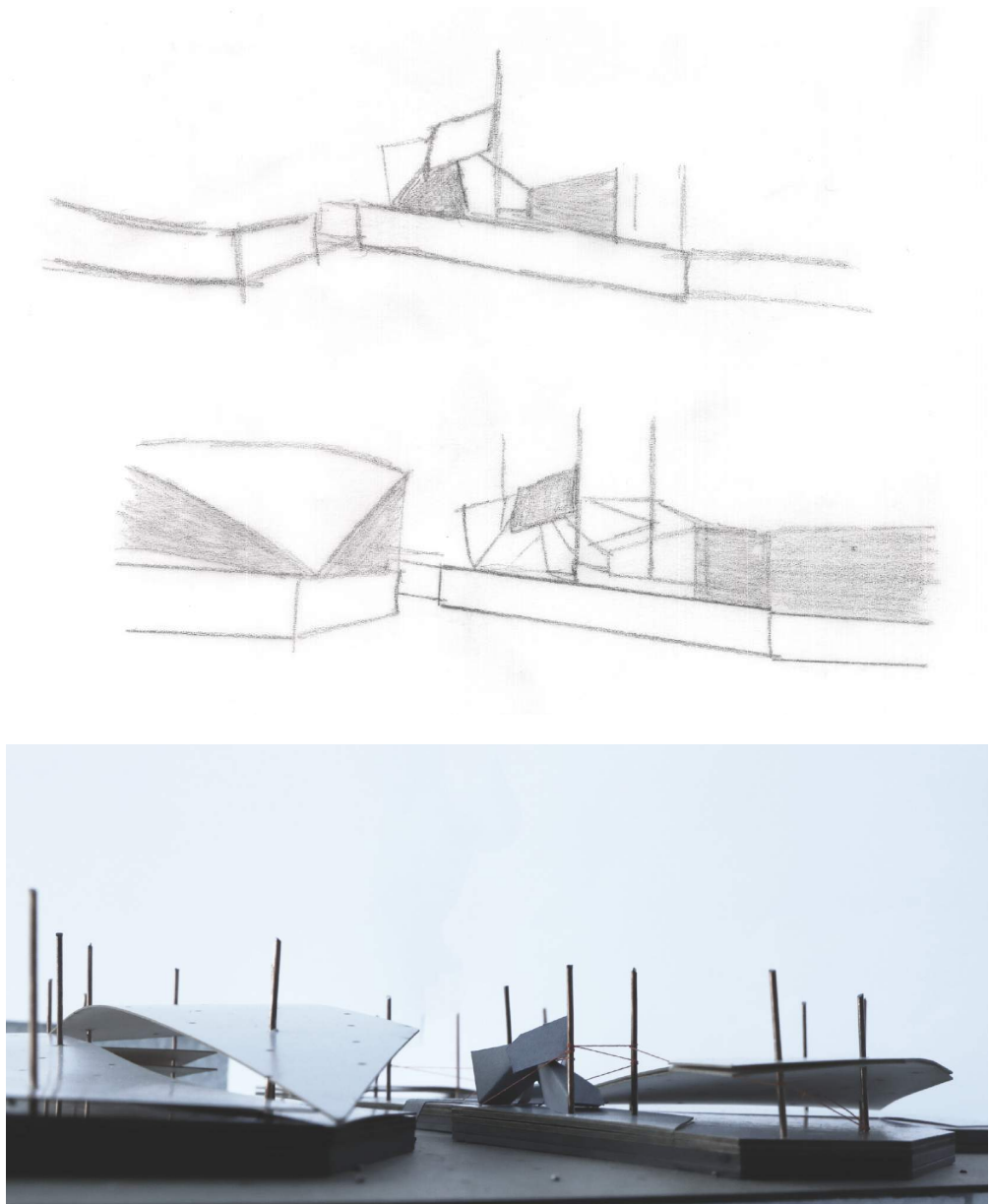


Fig 7.23. Exploration Three: Test One perspectives of photograph diagrams of site and architecture

Test Two



Fig 7.24. Exploration Three: Test Two in plan

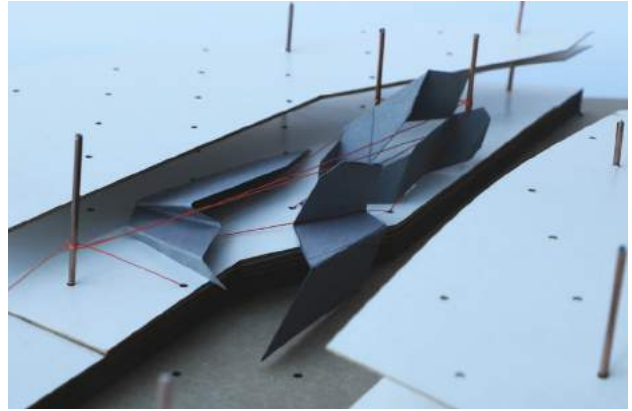


Fig 7.25. Exploration Three: Test Two perspective photograph of forms on site

The aim of this test model was to space the forms apart to explore proximity between solid and void. The model represents spatial absences rather than only geometric presences. At this stage of the modelling process, I was considering how the programme and how the forms are directed towards the finish line.

Reflecting on this test model I found that the spaced forms directed the user, however, they could be arranged to move further into the water as part of the programme.

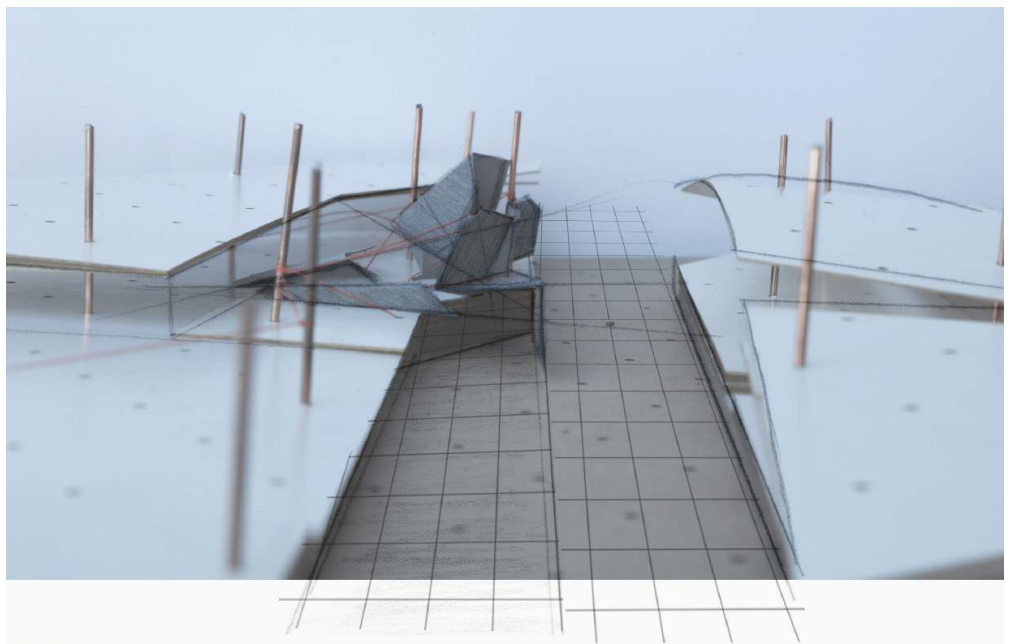
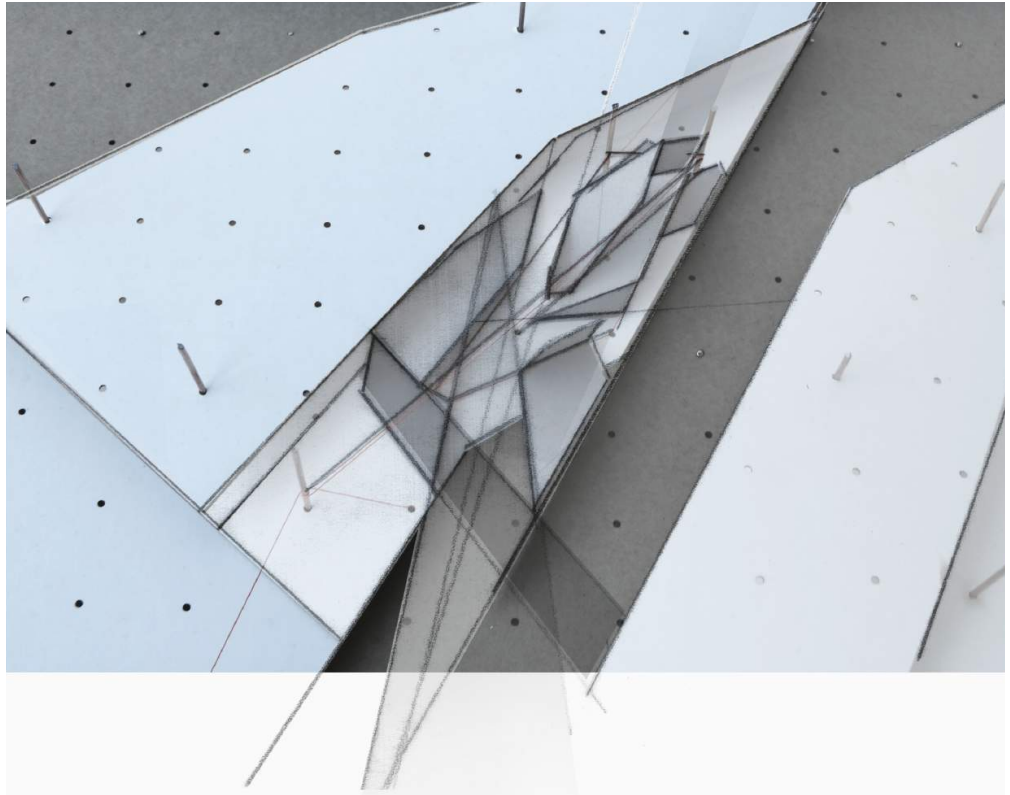


Fig 7.26. Exploration Three: Test Two perspectives of photograph diagrams of site and architecture

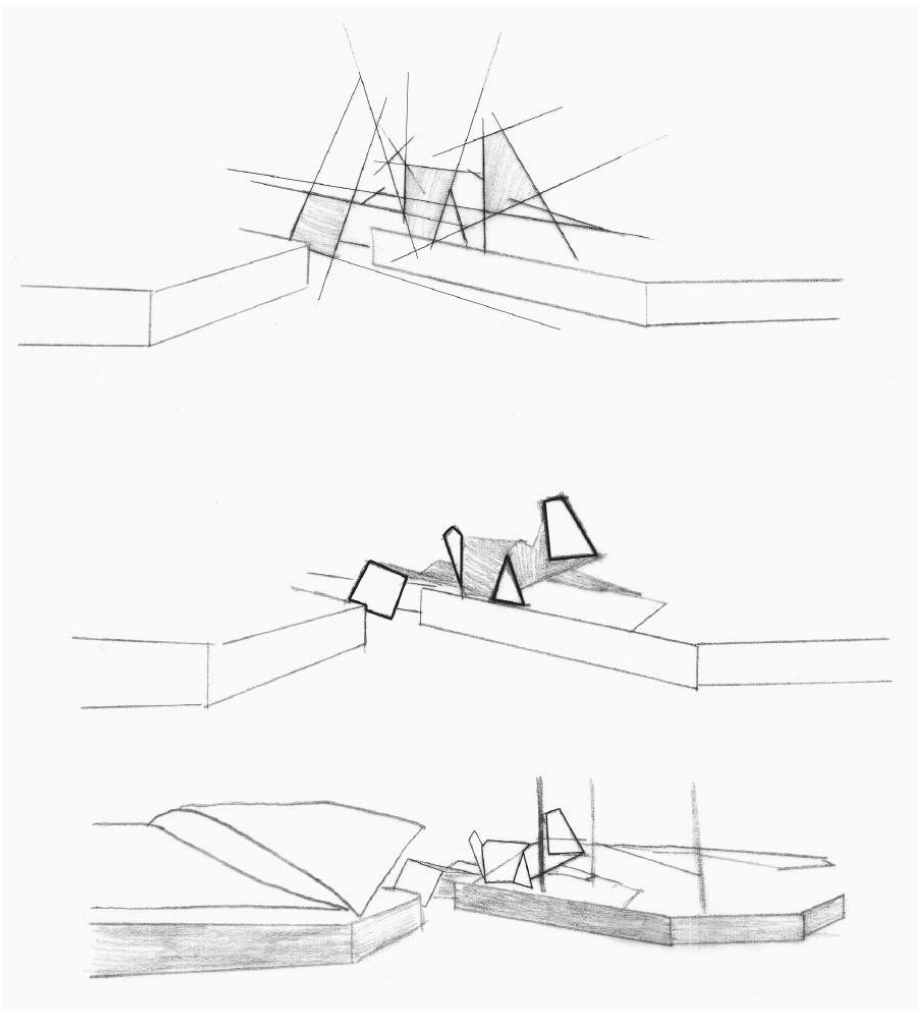


Fig 7.27. Exploration Three: Test Two perspectives of photograph diagrams of site and architecture

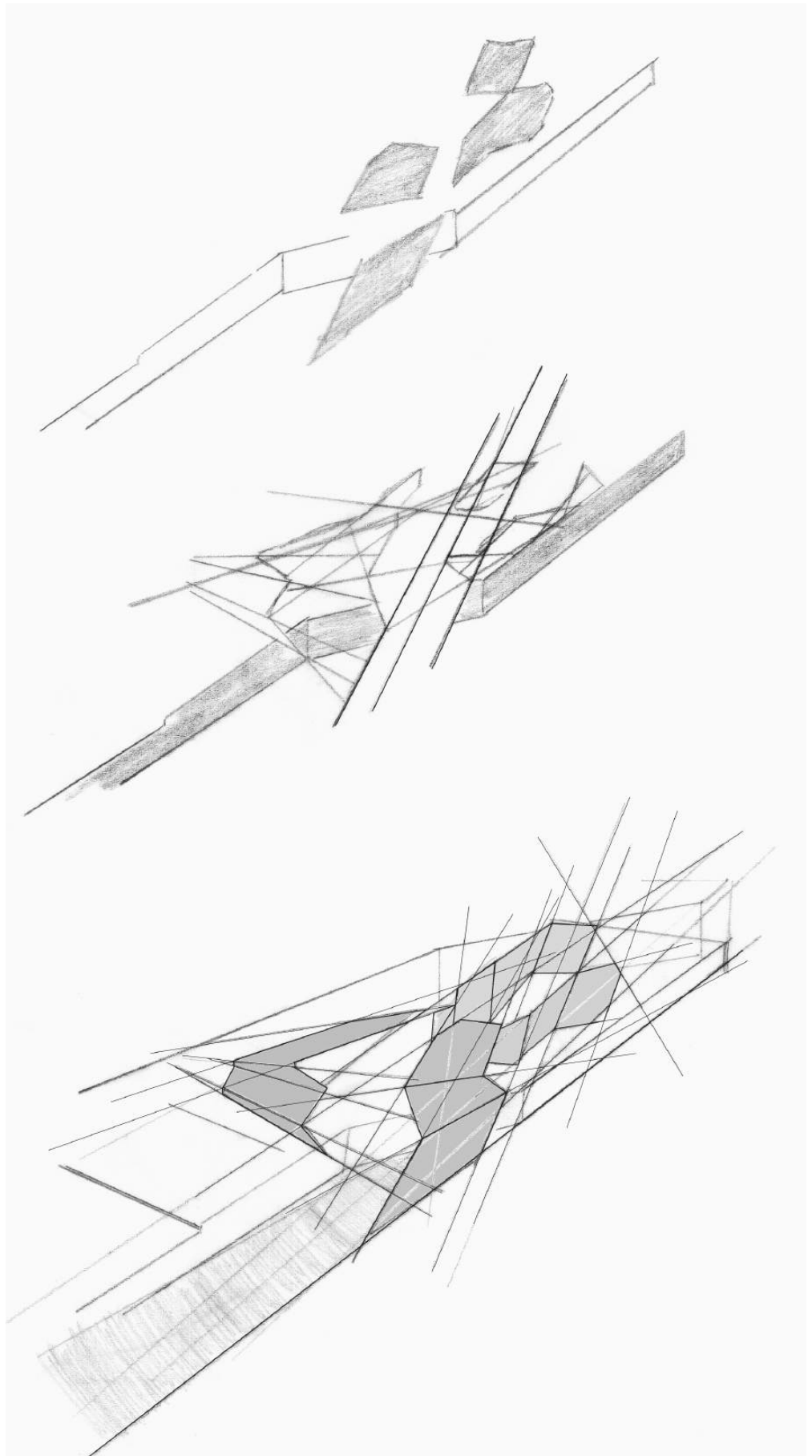


Fig 7.28. Exploration Three: Test Two perspectives of photograph diagrams of site and architecture

Test Three



Fig 7.29. Exploration Three: Test Three in plan

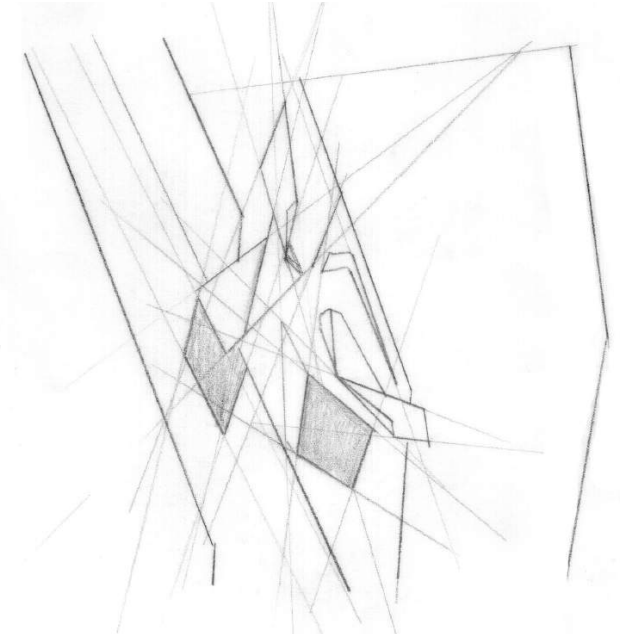


Fig 7.30. Exploration Three: Test Three in plan drawing diagram

The aim of this test model was to investigate how the surfaces made from the paper models could interact with each other through proximity.

This was even used through the wider site level heights by moving the forms from the extended site levels down to the water. In reflection, the arrangement of proximity through the different surfaces of the forms directed the way space was made through the model.

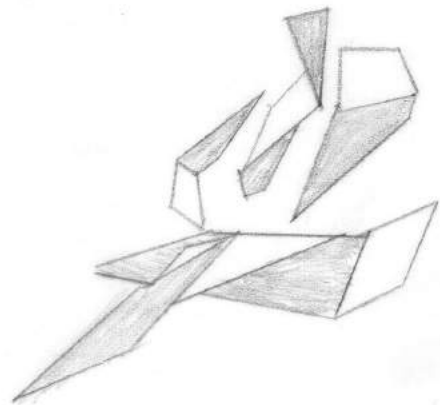
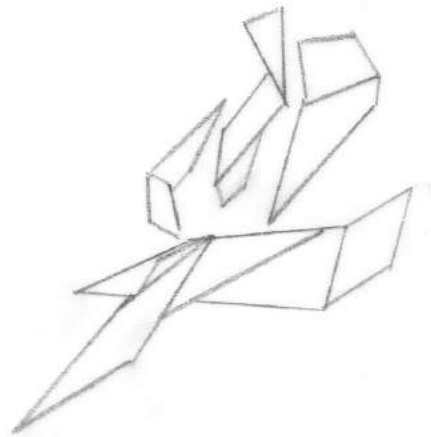
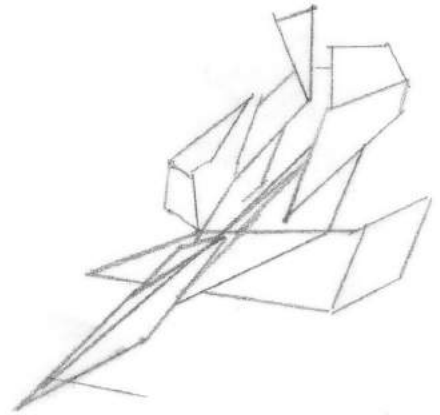
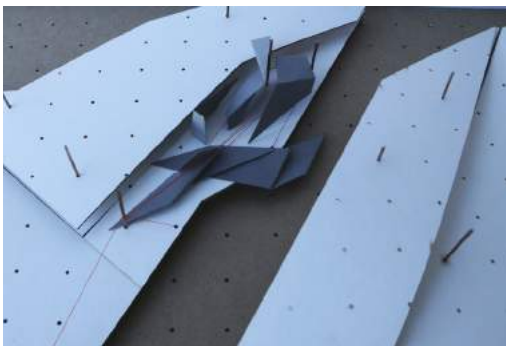
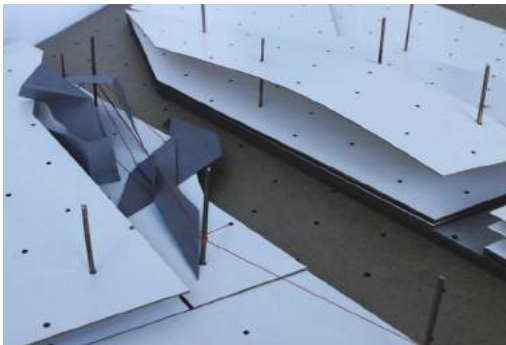
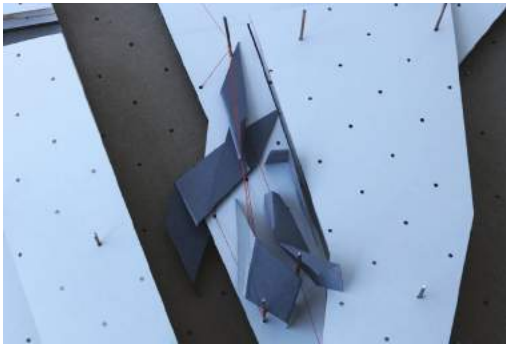


Fig 7.31. Exploration Three: Test Three perspectives of photograph diagrams of site and architecture. Investigating proximity through different surfaces from made from the forms.

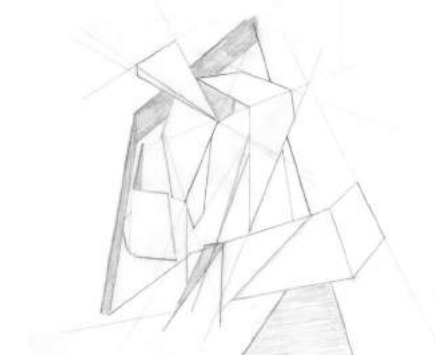
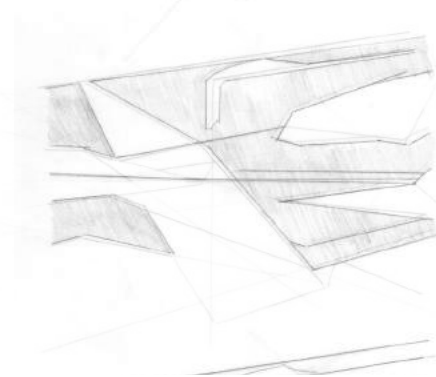
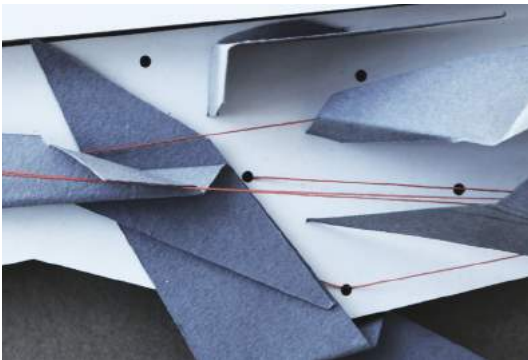
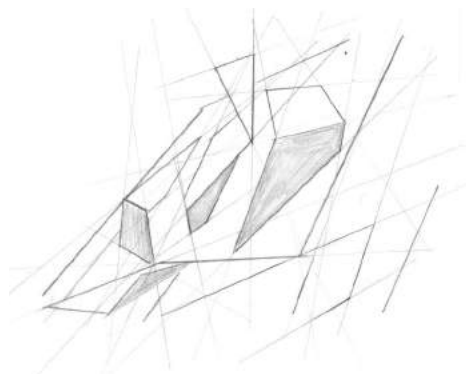
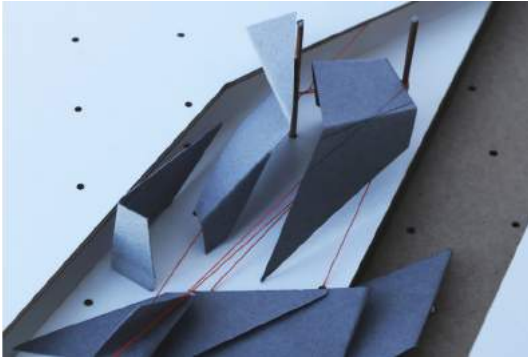


Fig 7.32. Exploration Three; Test Three model - Photographs and diagrams that identify points of interest where proximity could amplify atmosphere

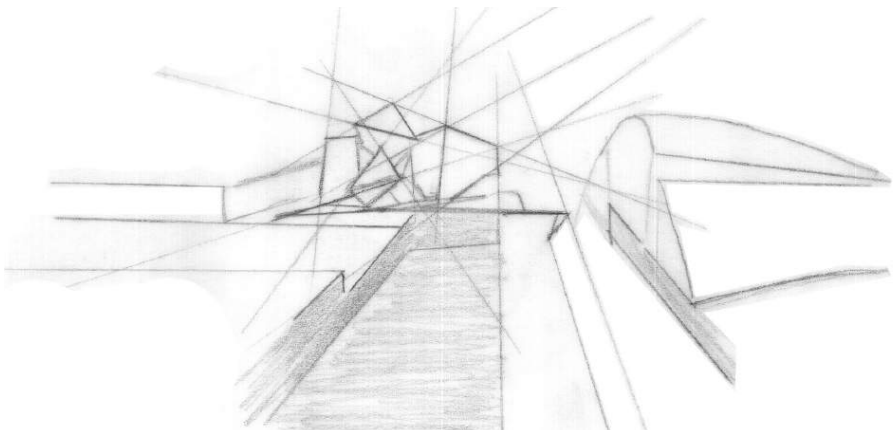
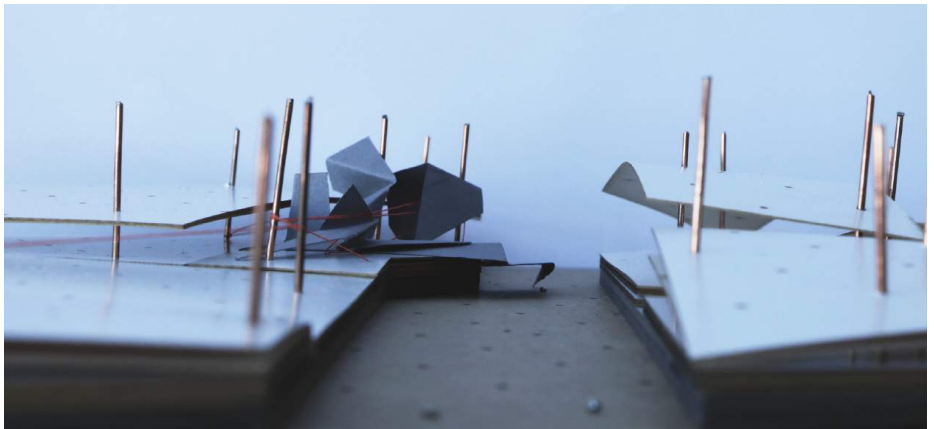
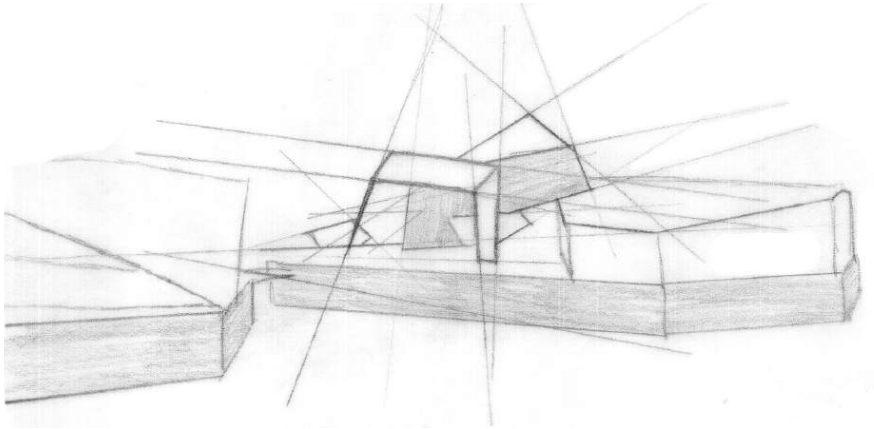


Fig 7.33. Exploration Three: Test Three perspectives of photograph diagrams of site and architecture

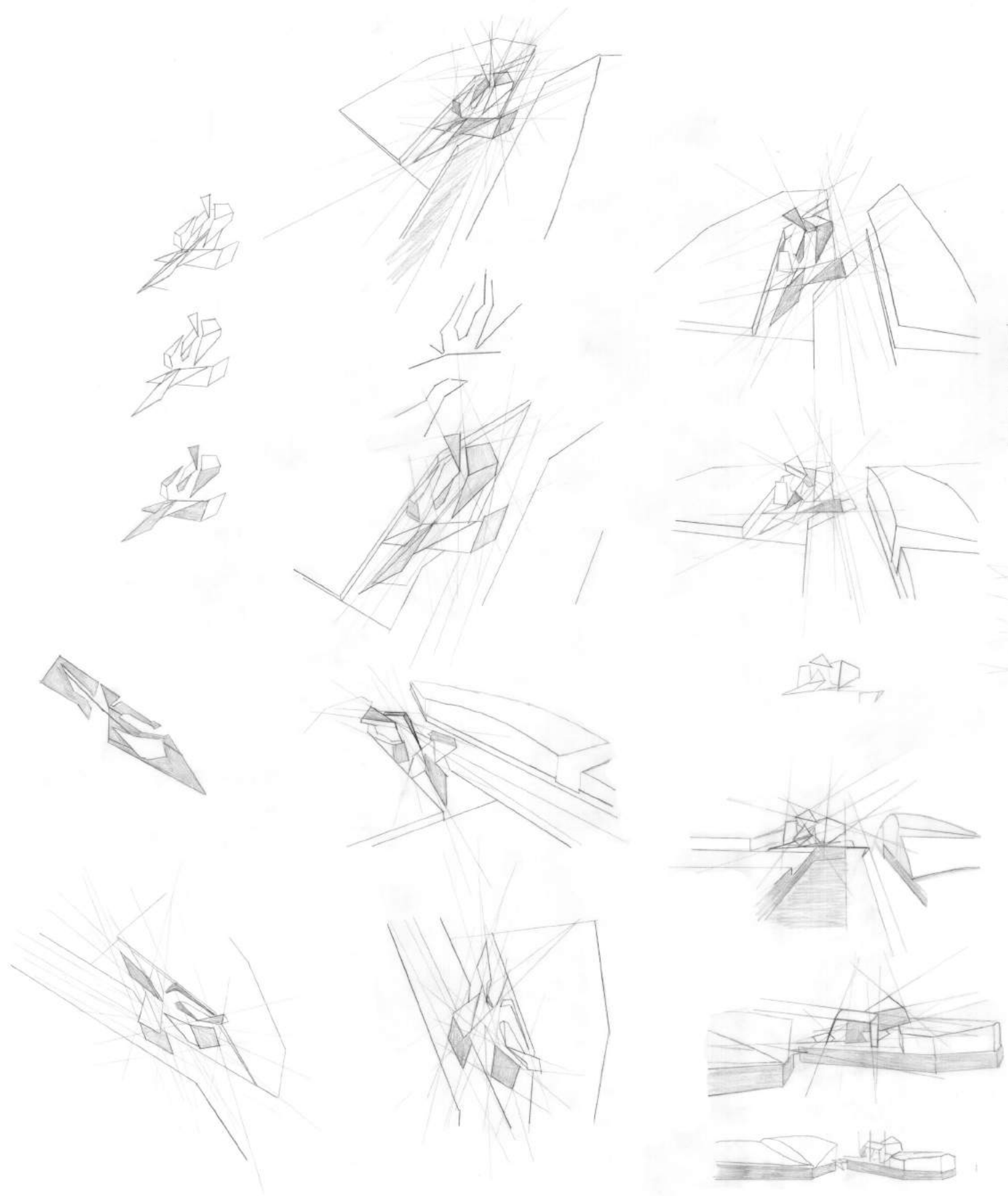
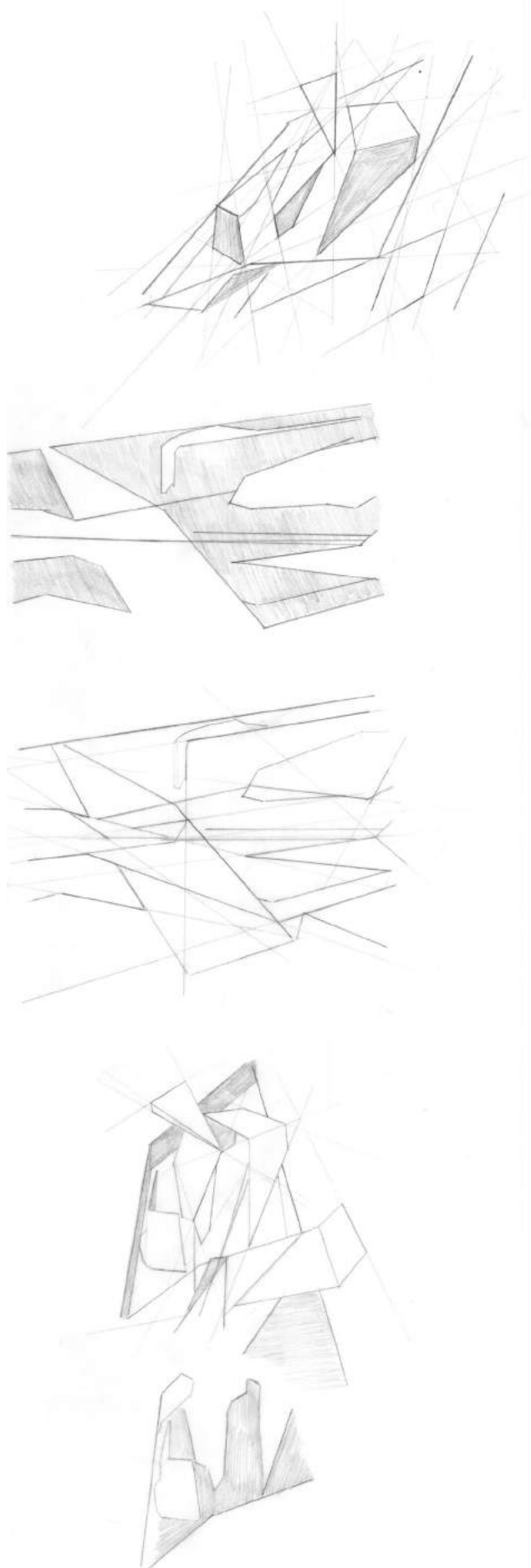


Fig 7.34. *Public Scale Infrastructure form development drawings diagrams*



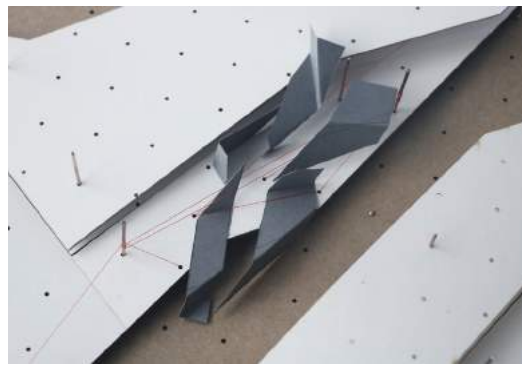
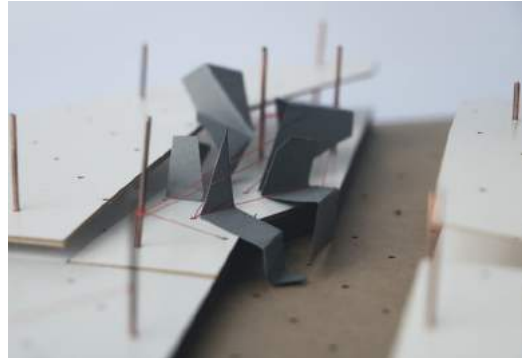


Fig 7.35. Exploration Three: Outcome to proximity test investigation

After I had determined the physical project elements to be arranged in forming his design, the manner in which these are clustered or grouped into larger families is important to the success of the project. Through the test models, I could explore different arrangements techniques that consider proximity. Combining these techniques lead to a final outcome.

The physical interaction of manipulating the folded objects explored the various surface compositions generated, this interactive and intimate experience based understanding of the surface. This was represented in the composition variations and sensitivity to the relationships between each folded object. Through the different surface proximity, I could develop the relationship to the water and surrounding landscape.

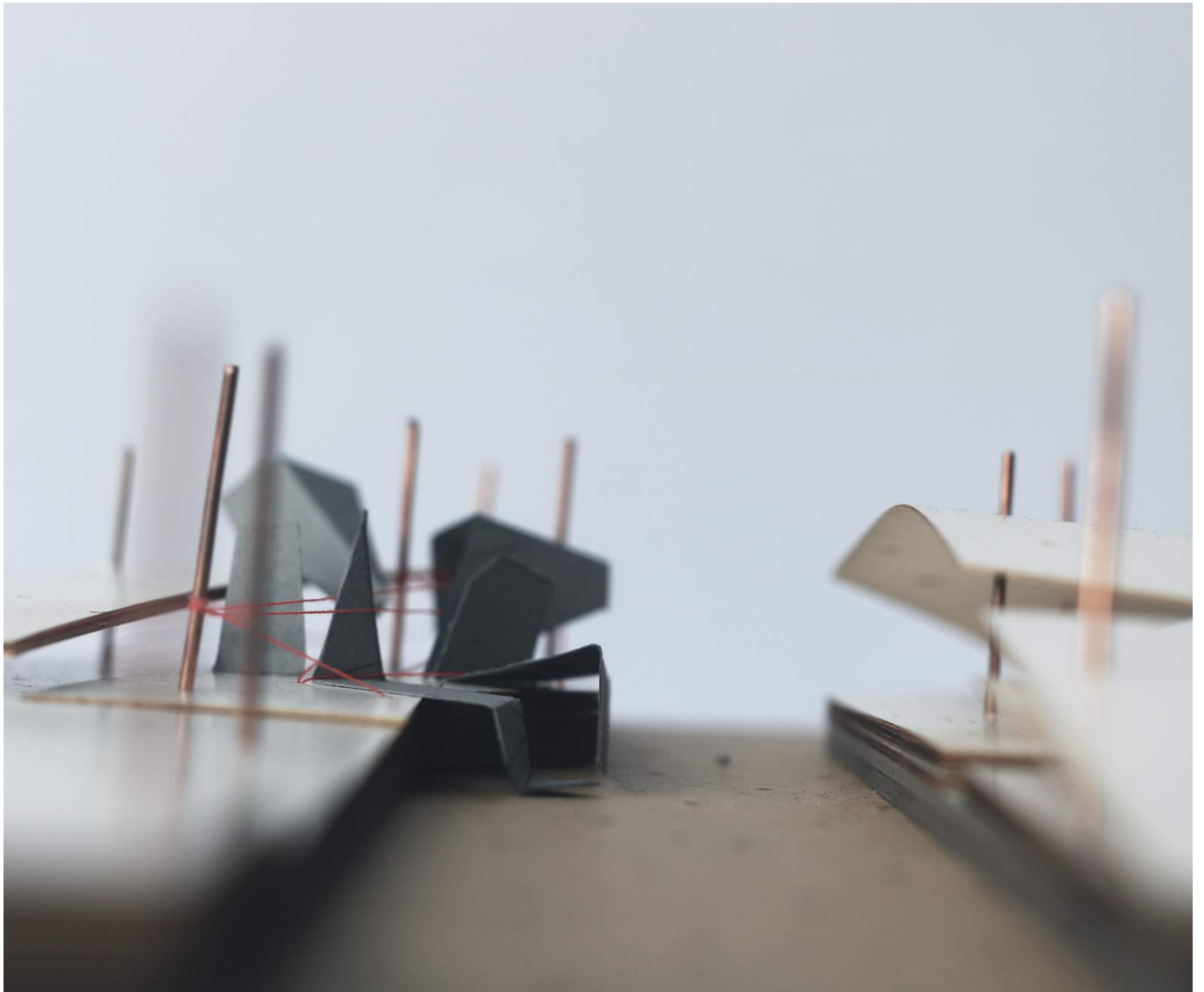


Fig 7.36. *Exploration Three: Final outcome directs the forms to the water. The proximity of the forms start to reflect the programme requirements of the architecture.*



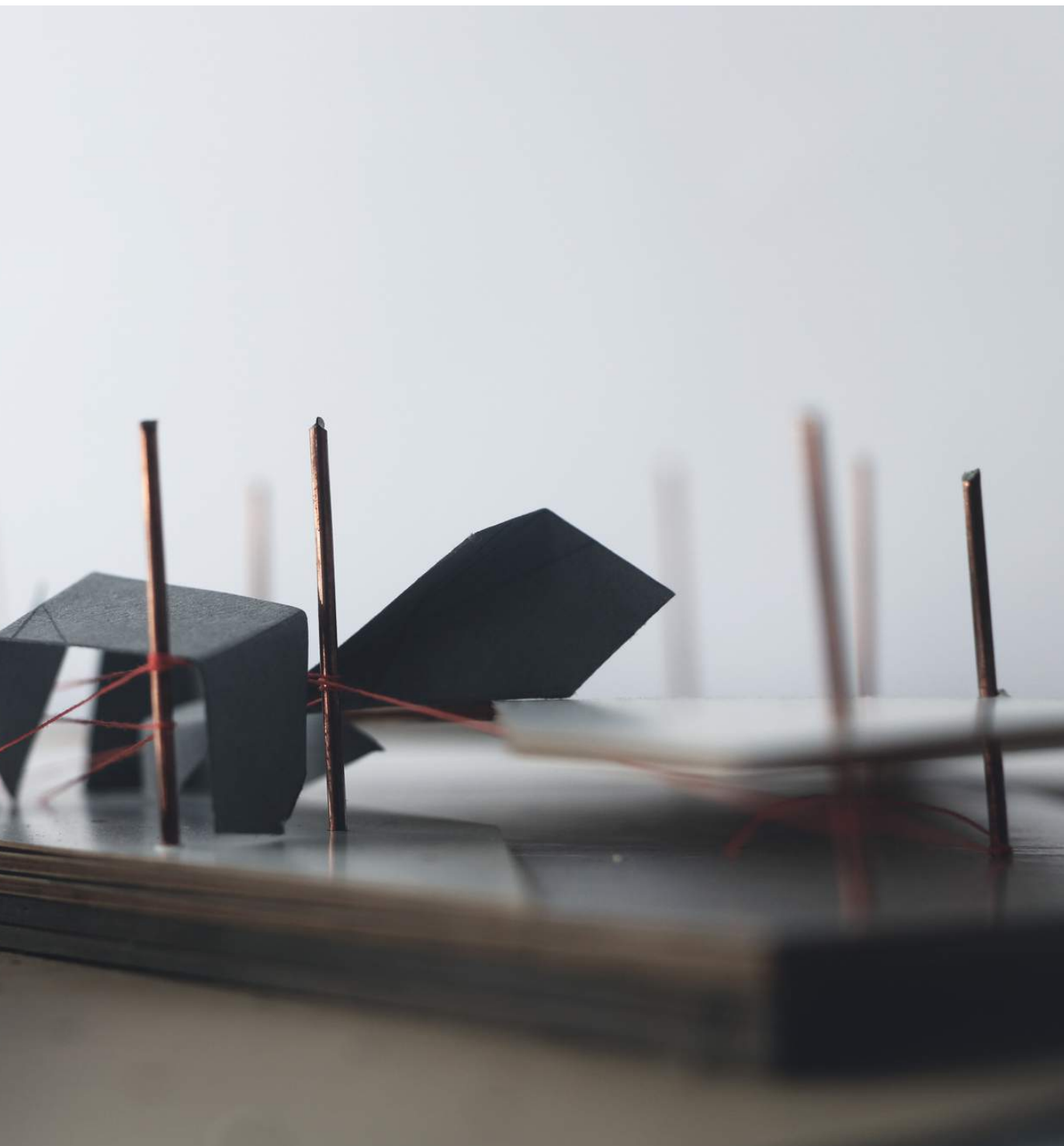


Fig 7.37. *Exploration Three: Final outcome directs the forms throughout different levels of the site. The proximity of the forms amplifies atmosphere through the orientation of surfaces that frame the forms through the site.*

Building Types

Racing Facilities

12 x 14m 2000m lanes for rowing or canoeing sprints, buoyed course		350km2
Warm up track 4 x 14m 2000m bay lanes		150km2
Start line towers and platforms		500m2
Race checkpoints towers marks at: 4x60		240m2
250m – 500m – 1000m – 1500m – 2000m		
Cycle lanes for viewers 14m X 2000m		28km2
Podium		60m2

Grandstands

Seating area	15x20	4500m2
Seat tread	0.86x0.54	
Toilets	5x2x6x10	600m2
Eating facilities	2x15x6	180m2
Race equipment storage		300m2
Finish line Box		60m2

Boat Clubs

Boatsheds – number of boats		800m2
Rowing boats 70%	canoes 10%	coach and official boats 20%
Boat repair bay		300m2
Equipment storage		150m2
Clubrooms		250m2
Pool (with boats)/ rowing tank		240m2
Gym		400m2
Sports medical Rooms		120m2
Changing facilities/ toilets	2x12x10	480m2
Erg/multipurpose room		200m2
Launch pontoons and boat ramps	4 x 8m x 25m	2000m2

Media and Events

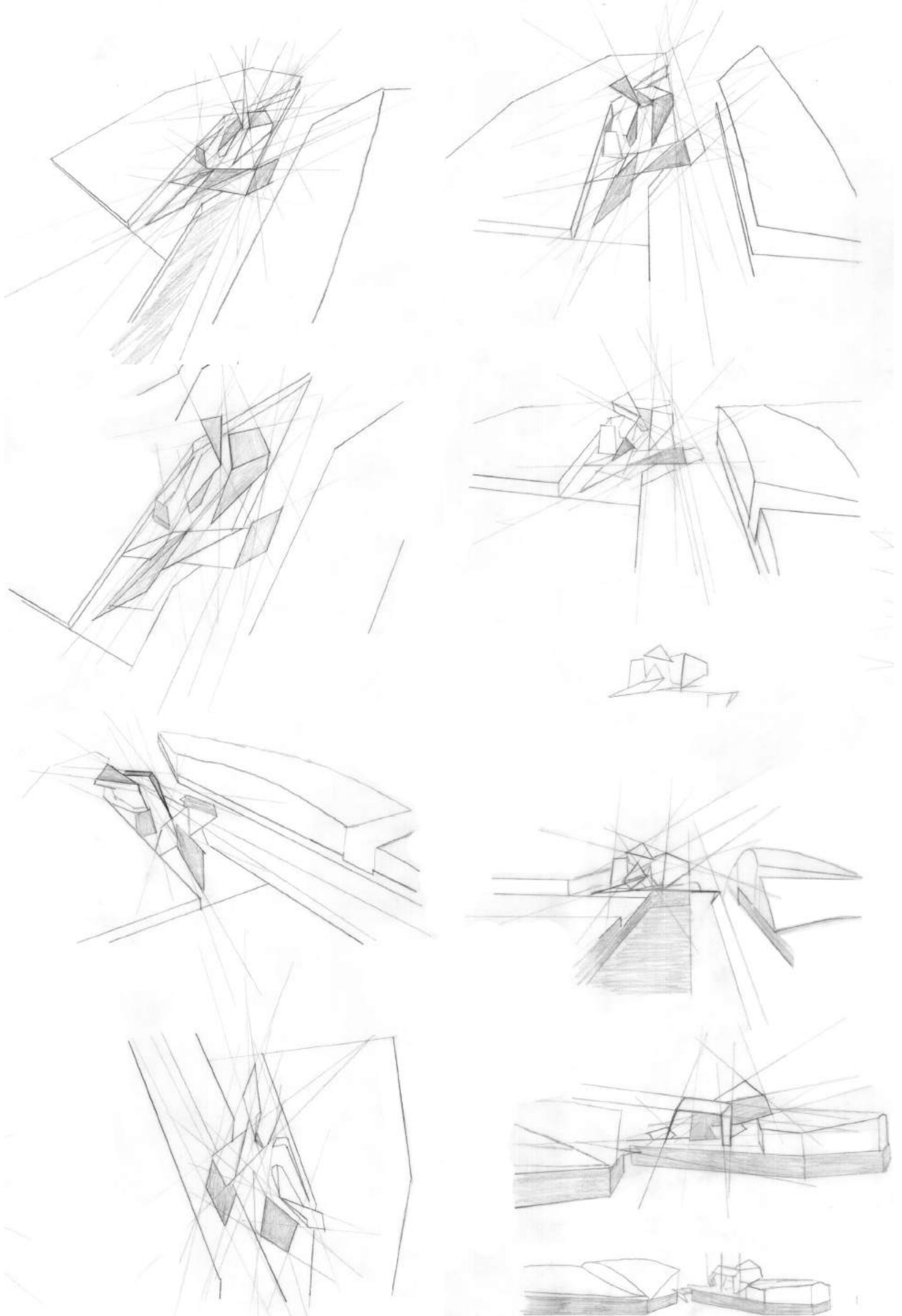
Meeting and office rooms		300m2
Media		180m2
Restaurant and kitchen areas		250m2
Lobby		40m2
Exhibit gallery		60m2
Community/conference room		200m2
Storage		30m2
Toilets		80m2

Programme Development

In the need to develop programme I have identified the necessary building types to be a boathouse, grandstand, and media and events building. The scale of each building can already be determined by the programme of the sport. There are recommended sizes (IRF, 2015 n.p.) from precedent rowing clubs, however, because this is an international Olympic regatta, there will need to be a larger quantity of area and facilities to host for. My research is based off the International Rowing Federation standards made in 2015.

The whole design of the Olympic rowing park needs to consider the programmes 2km race and lane widths. These factors contribute to the dimensions of the site. Scale and programme can also be determined on a domestic scale, with the lengths of the rowing boats. This was considered in the programme through the movement of these large boats and how they can be directed around the buildings.

The programme was developed through the separating the boathouse with the grandstand. Keeping the public away from the Olympic athletes is important for race preparation and security. This is also necessary for the media and events building, as privacy is important for the athletes.



Scull boats



1x Single scull
1 rower
Average length: 8.2 m
Minimum weight: 14 kg



2x Double scull
2 rowers
Average length: 10.4 m
Minimum weight: 27 kg



4x Quadruple scull
4 rowers
Average length: 13.4 m
Minimum weight: 52 kg

Sweep boats



2- Pair
2 rowers
Average length: 10.4 m
Minimum weight: 27 kg



2+ Coxed pair
2 rowers with cox
Average length: 10.4 m
Minimum weight: 32 kg



4- Four
4 rowers
Average length: 13.4 m
Minimum weight: 50 kg



4+ Coxed four
4 rowers with cox
Average length: 13.7 m
Minimum weight: 51 kg



8+ Eight
8 rowers with cox
Average length: 19.9 m
Minimum weight: 96 kg

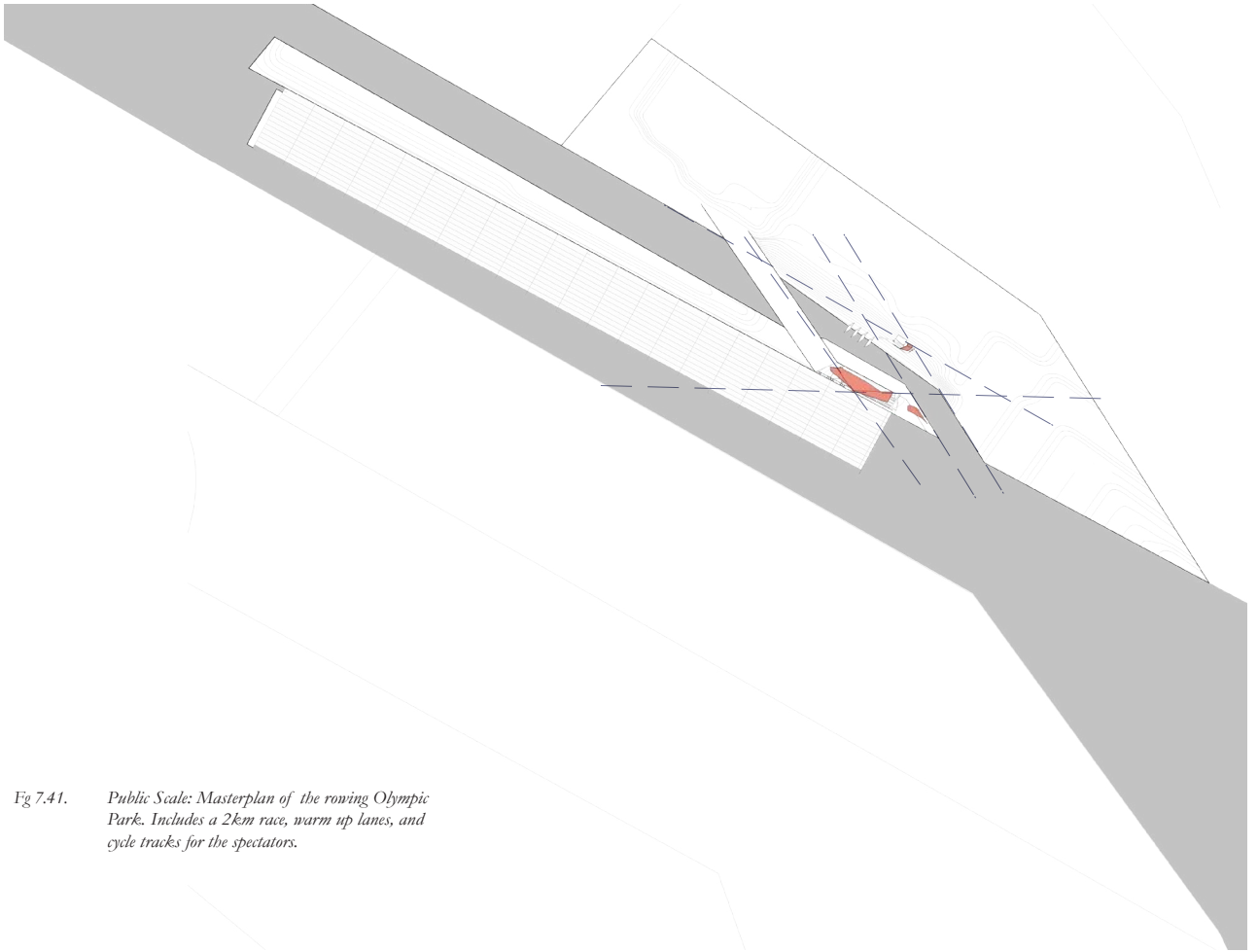


Fig 7.41. *Public Scale: Masterplan of the rowing Olympic Park. Includes a 2km race, warm up lanes, and cycle tracks for the spectators.*

Development

The masterplan is developed through the arrangement of building types. The buildings are at different levels of the topography. This will develop the forms generated by layering them throughout the landscape. As Geraint John and Rod Sheard note, form in Greek stadia, “dictated by site, and stadia either occupied the floor of a valley with the spectators using the natural slopes for seating, or they were built into the shoulder of a hill,” with spectators positioned on the upper slopes. Greek stadia were in essence built as elements of topography, designed to provide a view not only of sporting events but the landscape itself as well (Sheard, & Vickery, 2013. 3). Using the landscape as part of the architecture can amplify atmosphere.

Visitors’ experiences of any given building will be affected, first and foremost, by the relationship to its immediate partner. As one moves through the site, the rhythms of the other pairs of buildings will further complicate and enrich one’s experience.

The development of the public scale architecture is shown on the next pages.

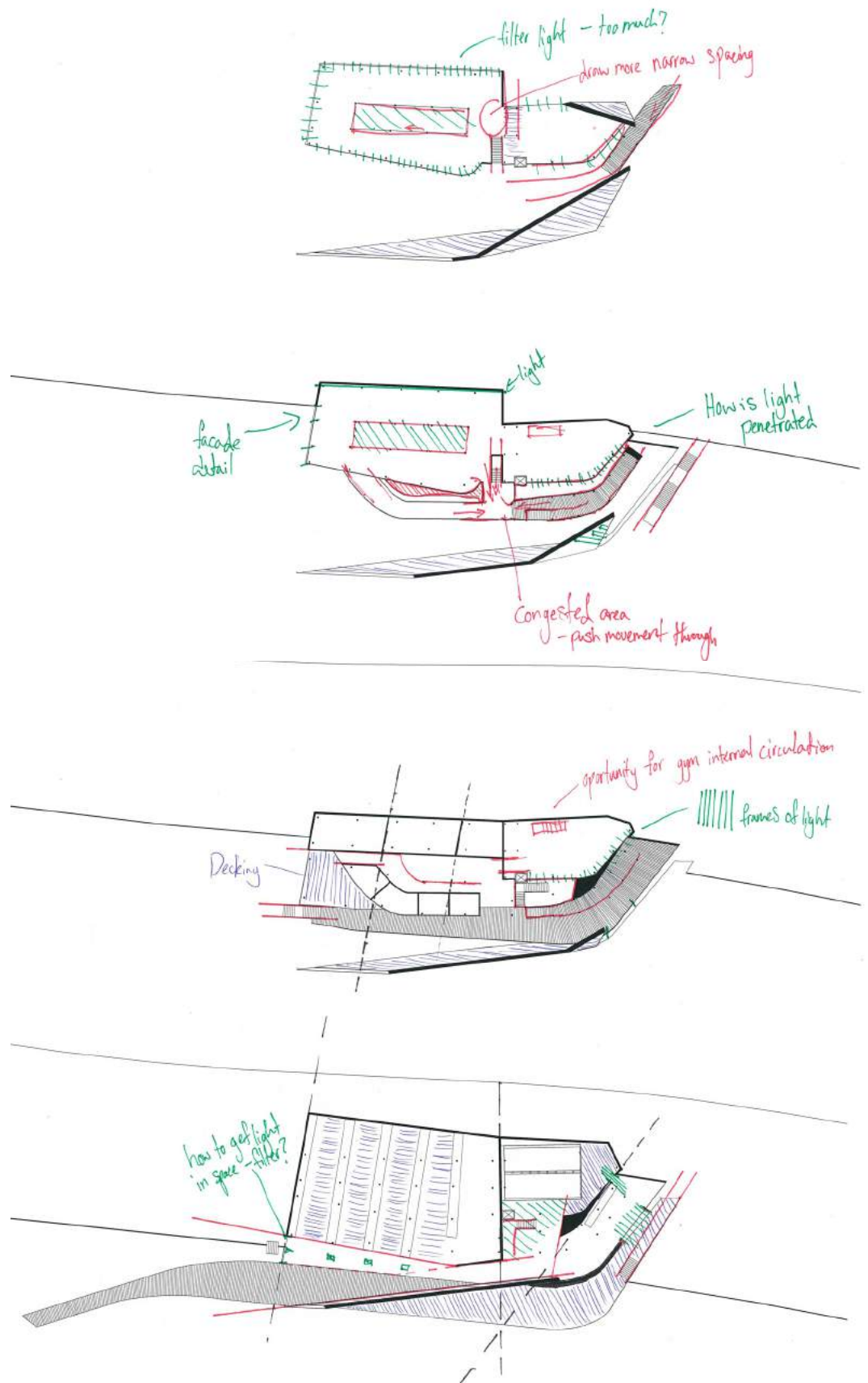


Fig 7.42. Public Scale: Original boathouse plans developed for the August review

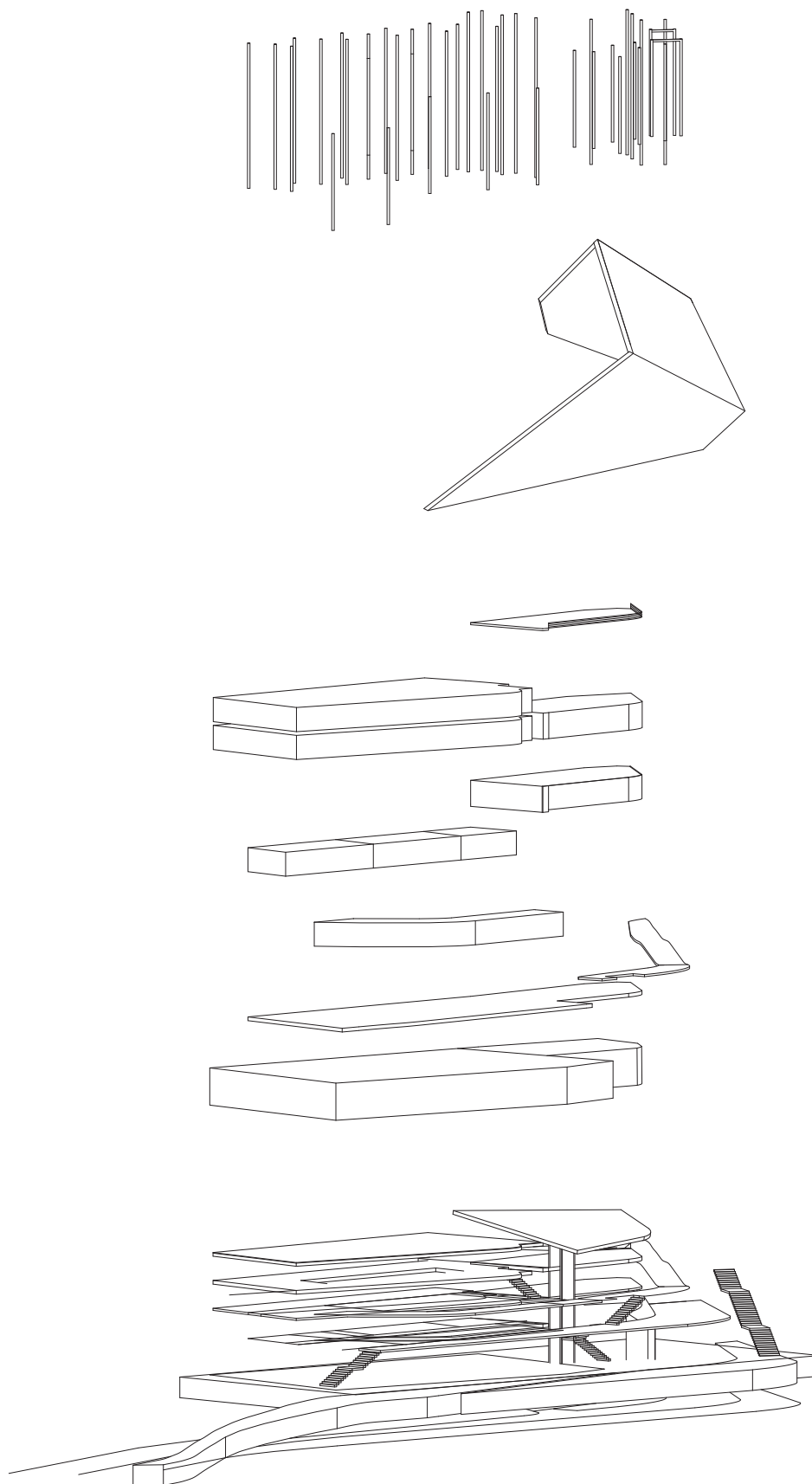


Fig 7.43. Public Scale: Development diagram of boathouse layers of the building

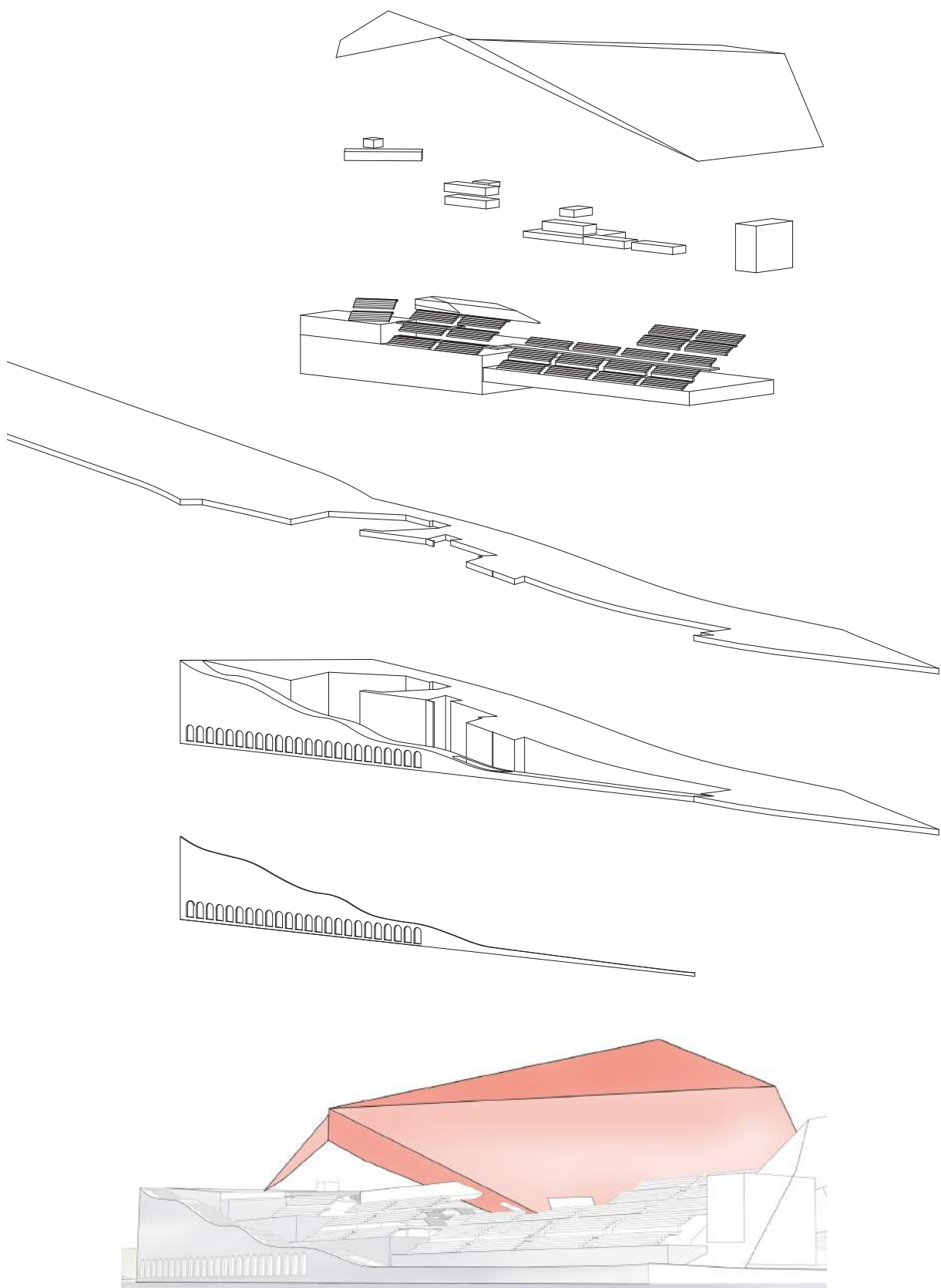


Fig 7.44. Public Scale: Development diagram of grandstand layers of the building with outcome bellow

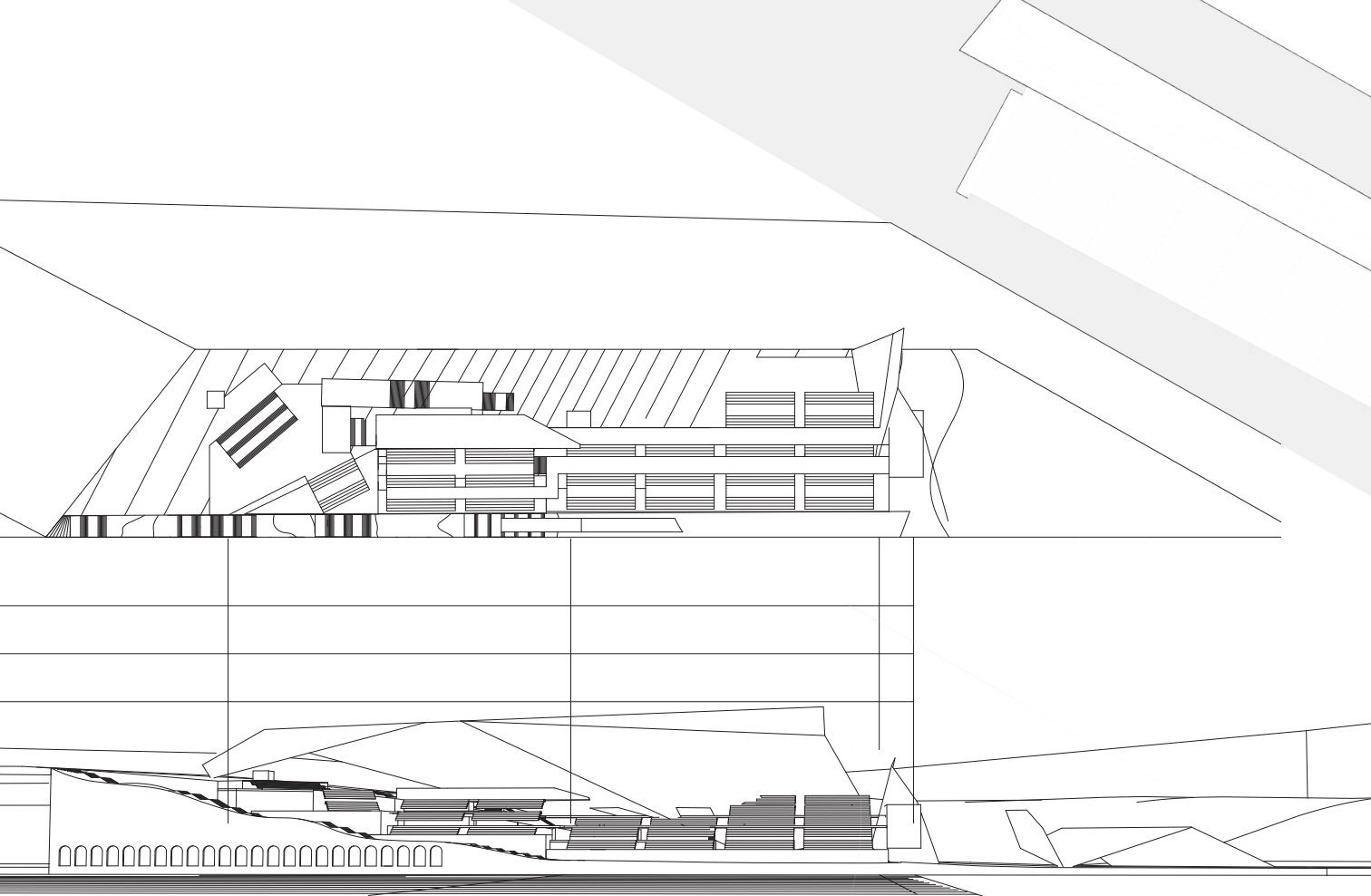
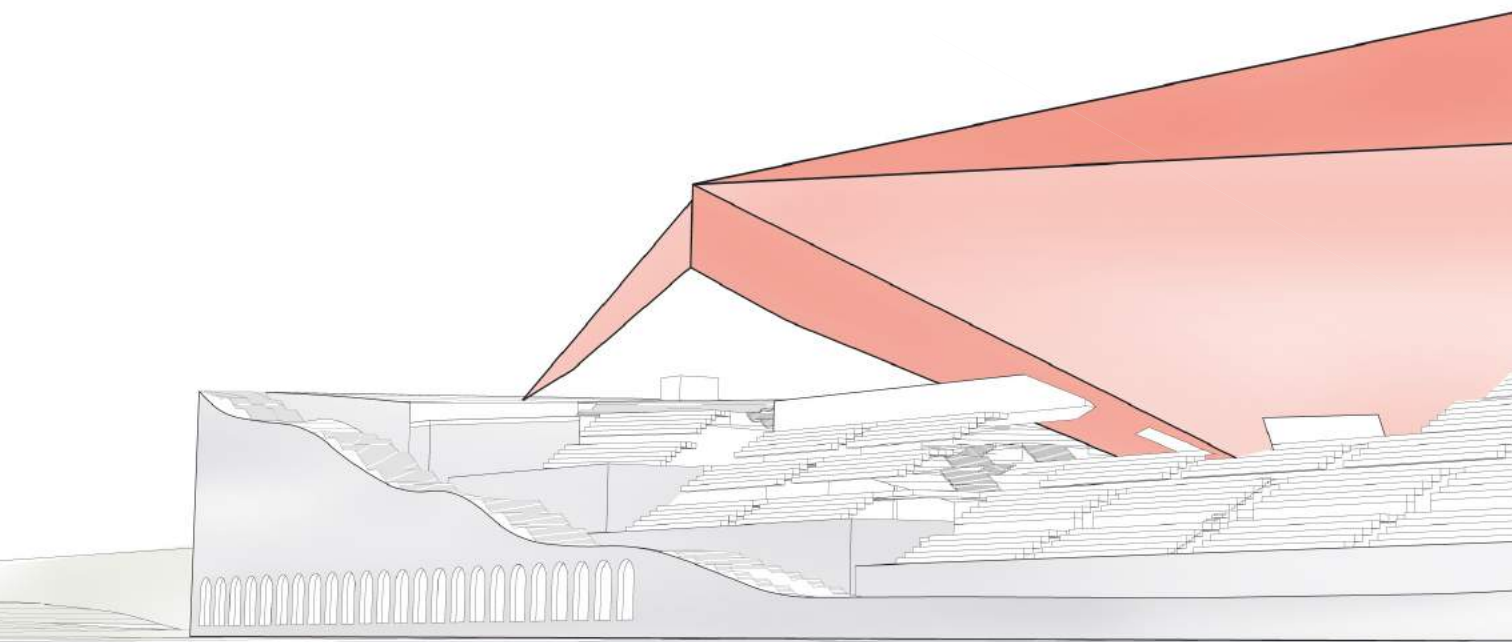


Fig 7.45. *Public Scale: Grandstand plan and elevation presented at the August review*



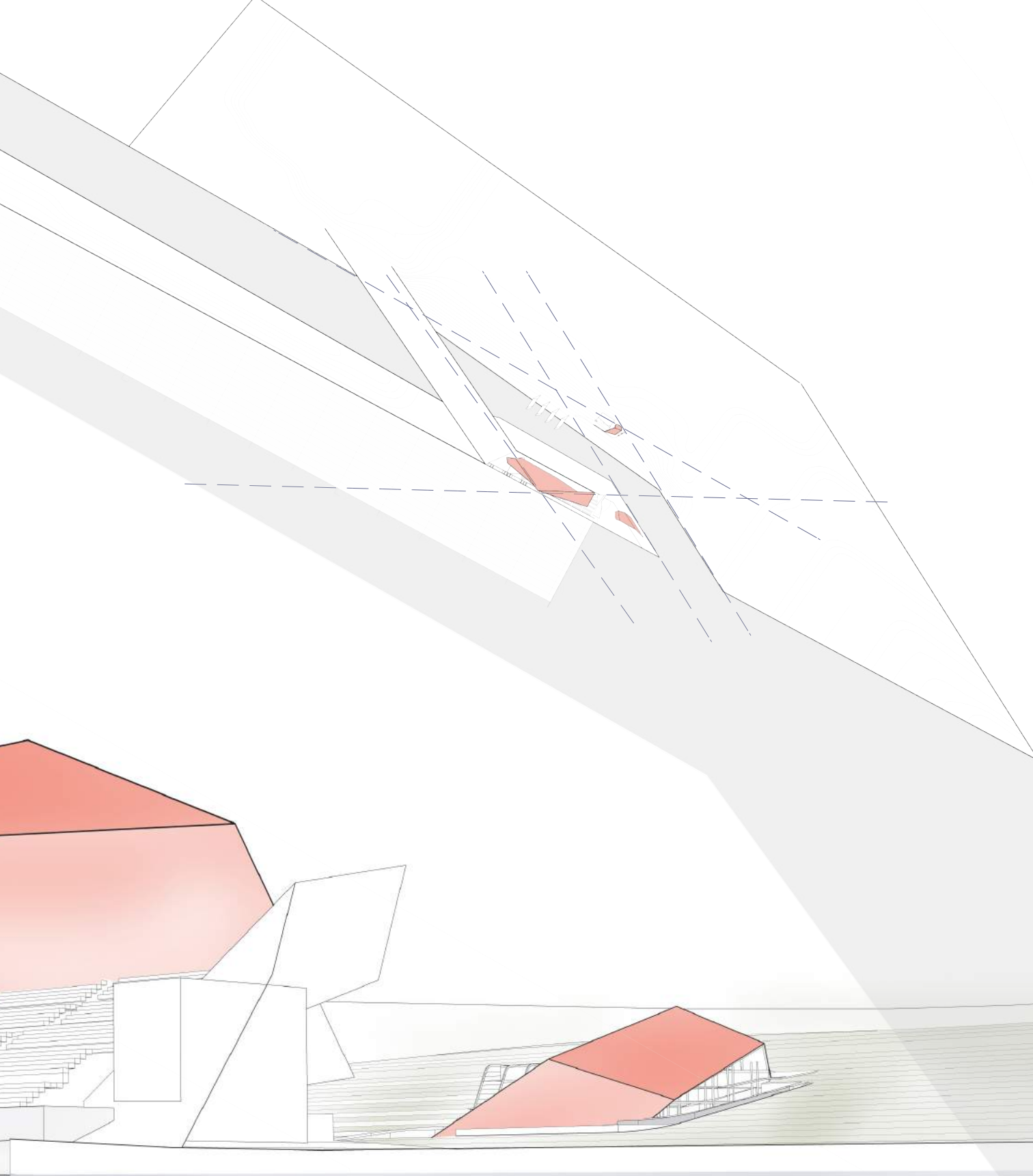
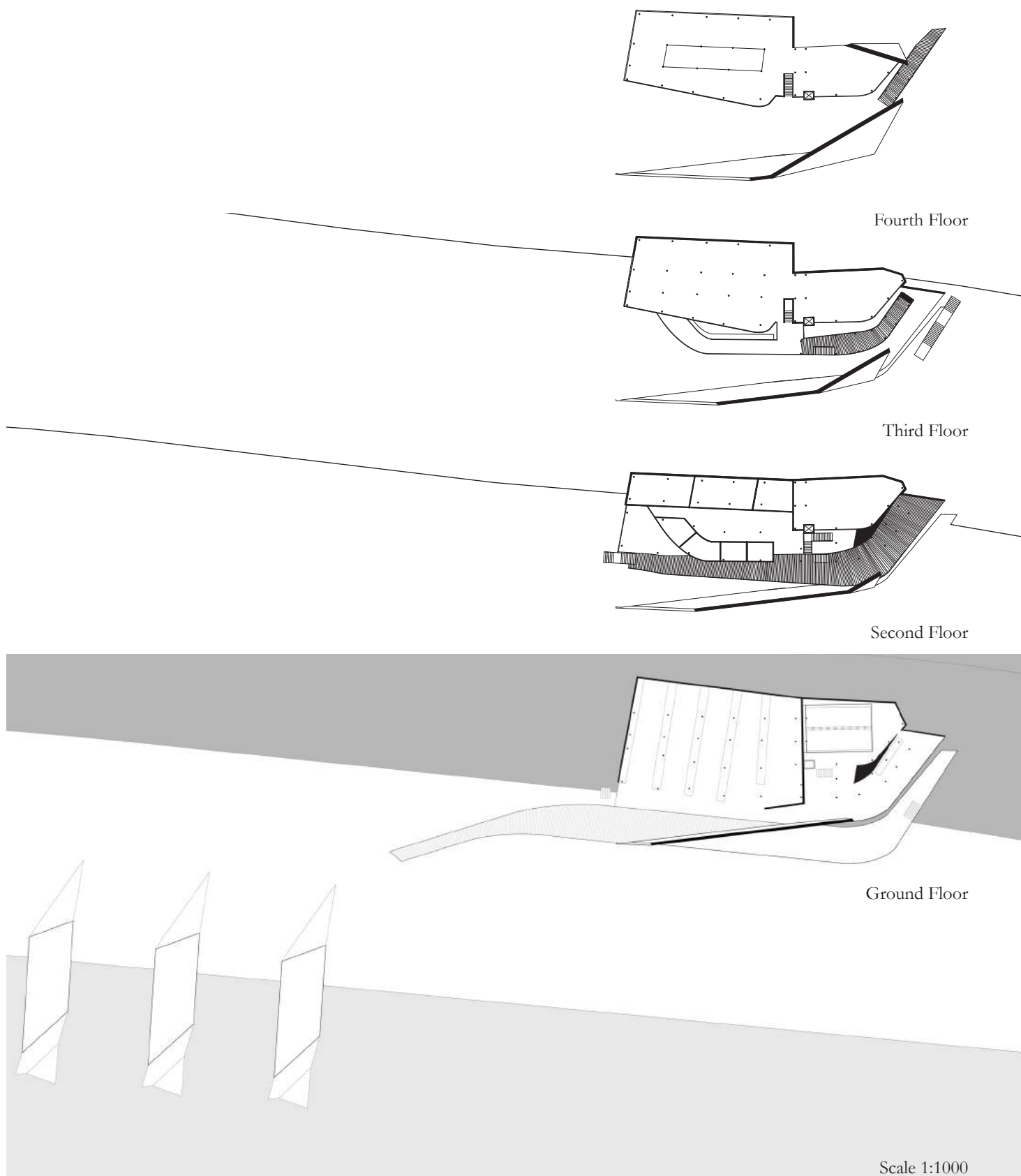
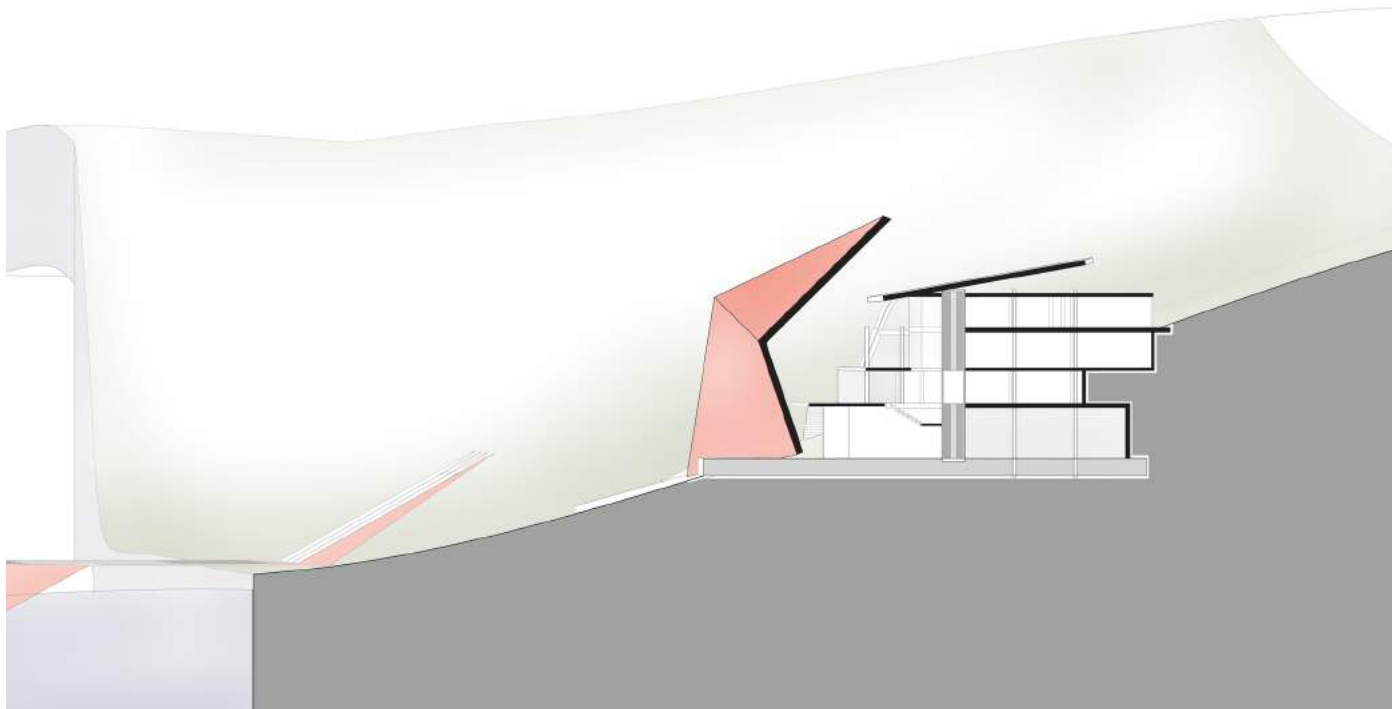


Fig 7.46. Top - Public Scale: Masterplan presented at the August review
 Fig 7.47. Bottom - Public Scale: Grandstand exterior perspective presented at August review





Scale 1:500

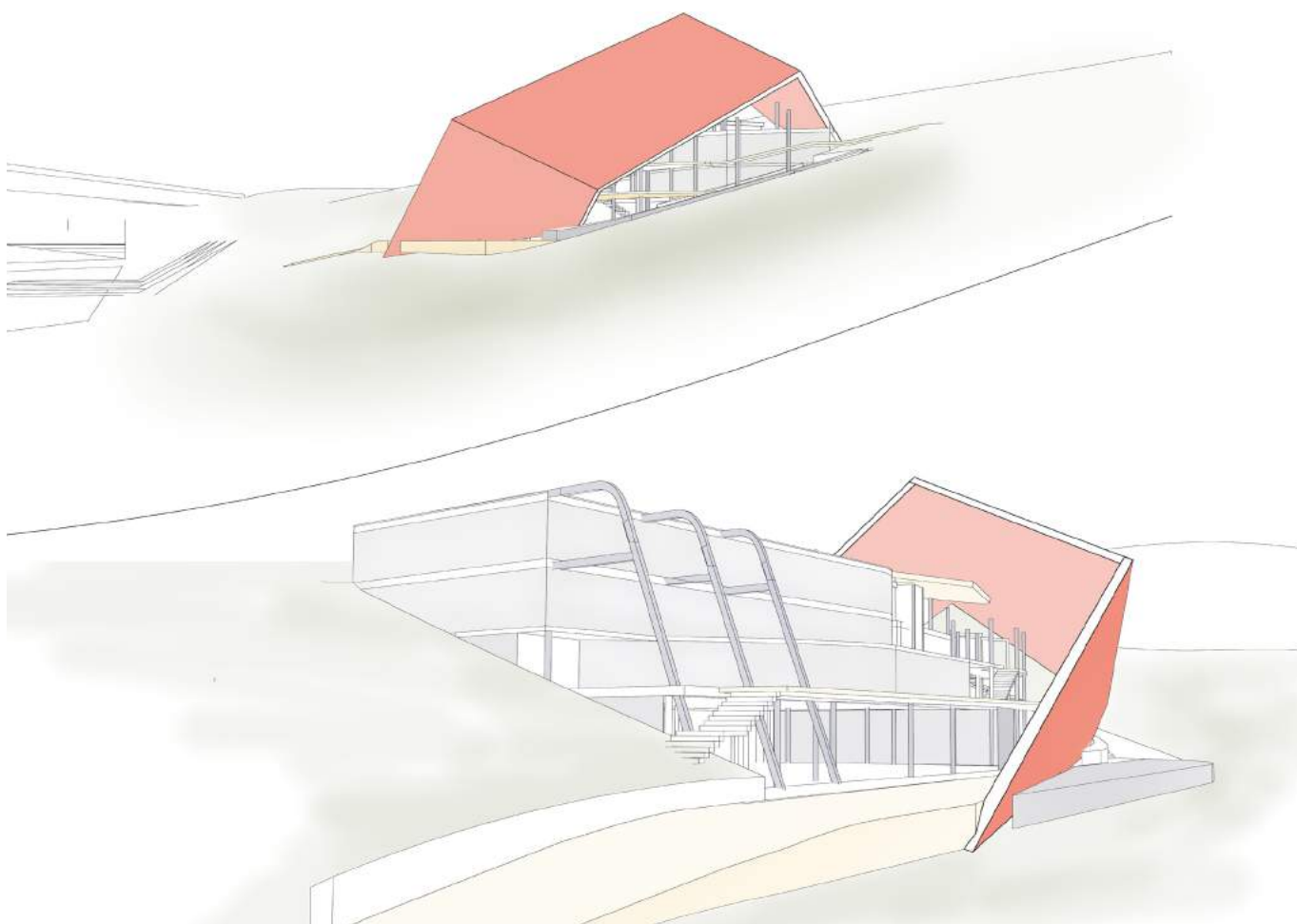


Fig 7.49. Top - Public Scale: Plans of boathouse presented at the August review
 Fig 7.50. Bottom - Public Scale: Exterior perspectives of boathouse presented at the August review

August Review

At this stage of the investigation, my research was presented at the August review. The reviewers acknowledged the strong process of development that generated architecture. Between the three reviewers, they all seemed to engage with the buildings formal process and the development through drawings. Working with fragments in a way, making this interesting typography. The initial investigations of atmosphere have come through clearly in the design investigation and mid-scale.

The reviewers agreed that the jump between the process explorations and final outcome does not respond enough to the design proposition through the drawings. The formal qualities of my plans and sections are simplified and flattened in the public scale. There were suggestions to investigate how other architects have translated drawings into buildings. I was told to look further into one building in order to understand how the user might inhabit these areas.

There are also opportunities to investigate how atmosphere can be generated through the relationship between architecture and the landscape. A suggested method was to photograph my models and then draw on the images to extract qualities from the model. This also supported the coherency of the design where the interior and exterior are not treated as separate elements.





Fig 7.51. *August Review pin up*

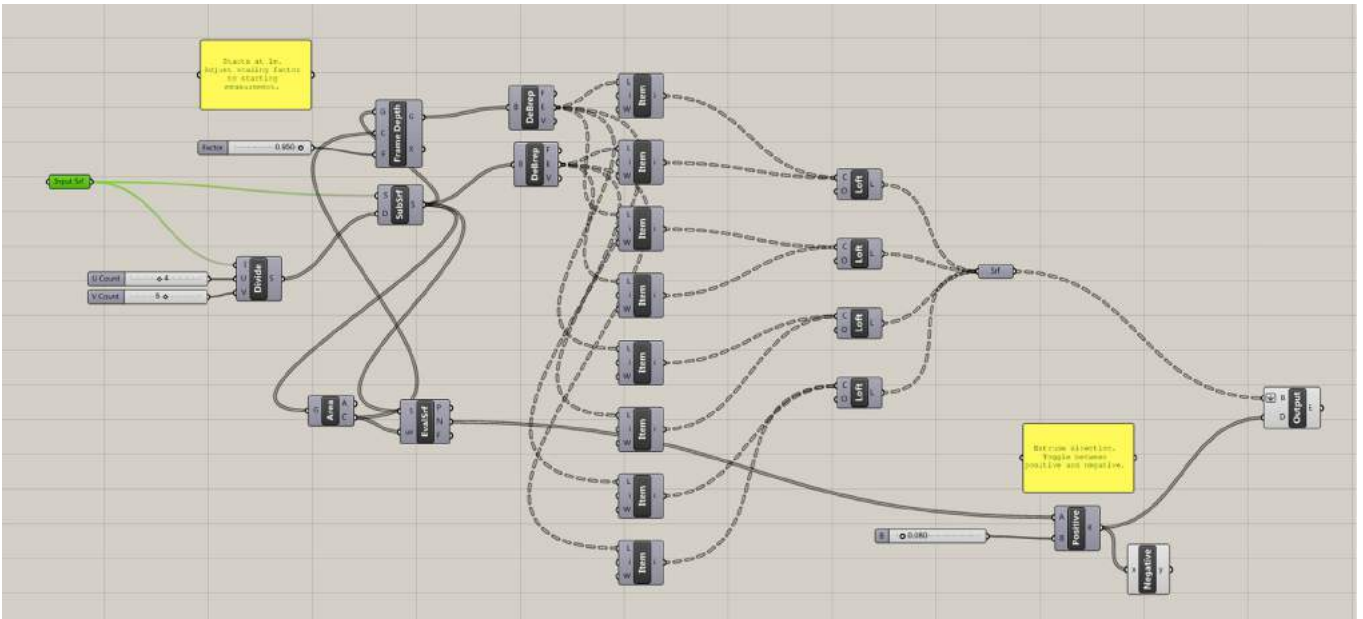


Fig 7.52. Grasshopper script used to form the grid structure of the corten steel on the skin exterior of the architecture

Material Development

Following the feedback from the August review, I considered how my proposition to amplify atmosphere through material compatibility, light on form, and thresholds. In this investigation, I looked at the material compatibility of corten steel and concrete. This material combination would be present on the roof. I investigated this through precedent designs and critically evaluated the qualities of each material. These precedents investigate how the steel is used in large-scale designs.

Atmosphere is generated through the mature weathering of corten steel. The colours and texture of the steel change over time and express the history as it ages. As seen in the Te Tuhirangi Contour it sits well within the landscape. The material can be moulded to the form of the architecture, or define the form itself. After talking to a structural engineer I was told that the steel becomes three times as strong when it is cast in a grid. Concrete is a dense material that is compatible with the corten steel due to the contrast in weight, colour and texture. It can mould with the steel or define the forms. Designing with these materials can amplify the atmosphere within the architecture, in particular, the corten steel will weather with the environmental conditions of the site.

Bodegas Portia by Norman Foster & Partners



Fig 7.53. Norman Foster & Partners, Bodegas Portia, 2010

Te Tuhirangi Contour by Richard Serra



Fig 7.54. Richard Serra, Gibbs Farm, 2001

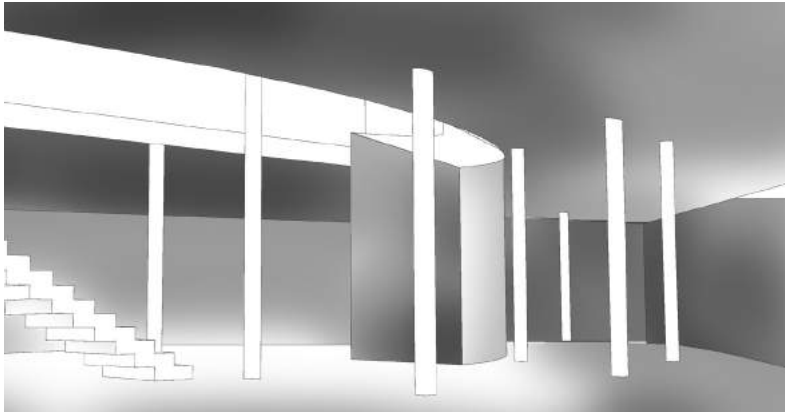


Fig 7.55. *Light tests made within the public scale buildings investigating the direction of light*

Light Development

Following the feedback from the August review, to focus more closely on how to create atmosphere in this investigation I looked at investigation, I looked at light on form. This considers how I could move light throughout the building with the use of surface and form the light was part of the building.

This test model investigates the way light and shadow move on different surfaces. This test model cuts and blocks light. By curving the forms I could direct light further into the building. Light reflects off each surface texture differently. By adding and altering forms I can direct the way light moves.

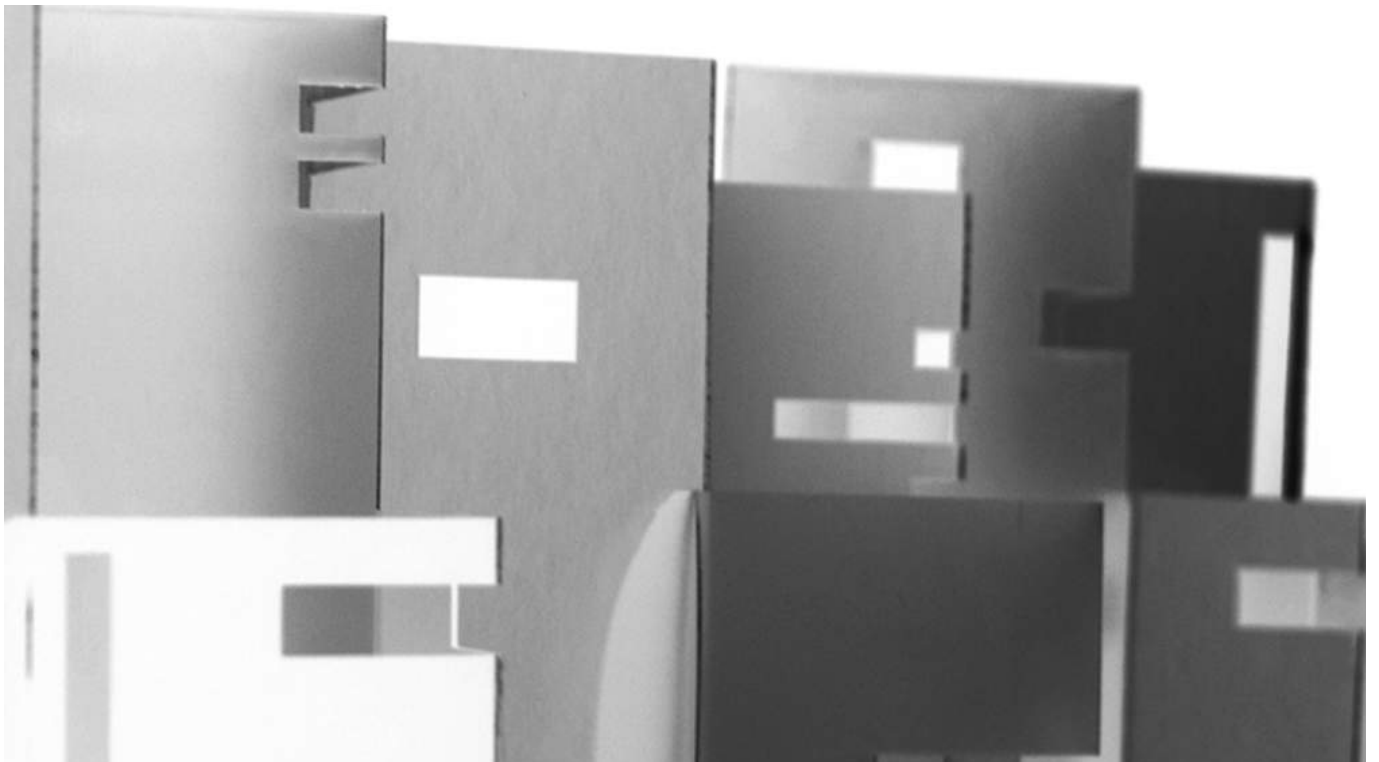


Fig 7.56. Test model to investigate the way light moves and reflects through forms

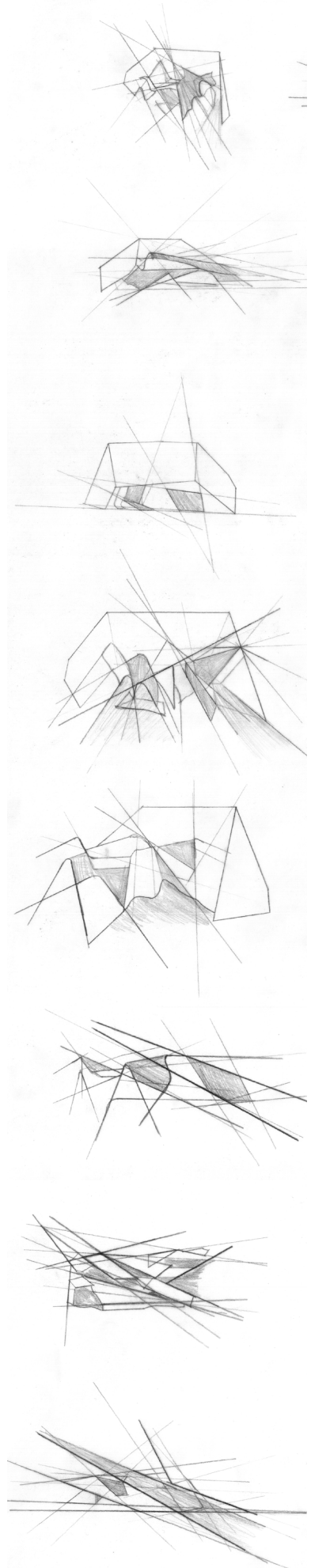
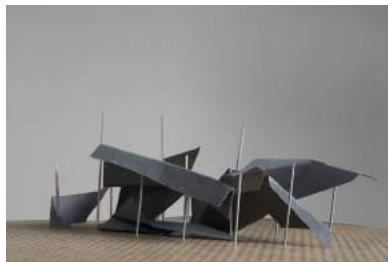
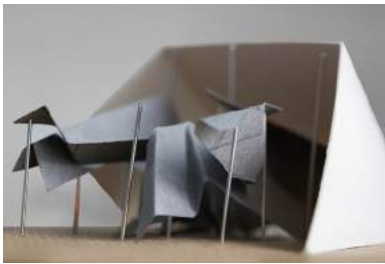
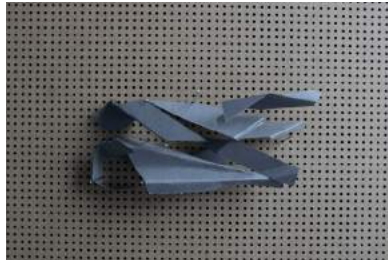


Fig 7.57. *Threshold test model One*

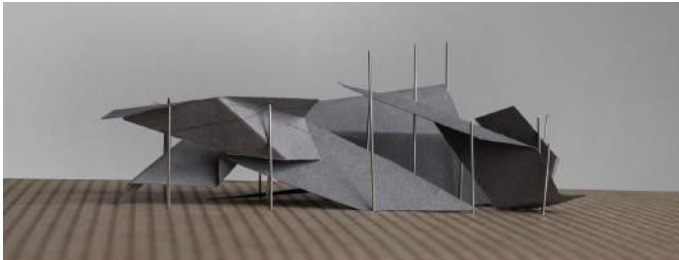
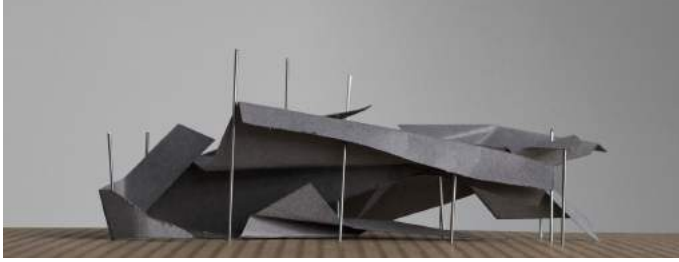


Fig 7.58. *Test One investigates threshold as solid and void forms*

Threshold Development

Test One

Following the feedback from the August review, I also considered threshold, more directly. Due to the success of testing through modelling I have chosen to develop threshold further through physical model tests.

The model aims to generate threshold through solid and void forms. I am using similar methods to develop the interior, by using the same forms generated from the island.

Threshold is identified in this first test model through the elevation, within the tension and movement of these forms. I was able to see the way forms can inform the movement throughout the space. I could also see how light will pass through. This makes some interesting spaces within the voids of the forms.

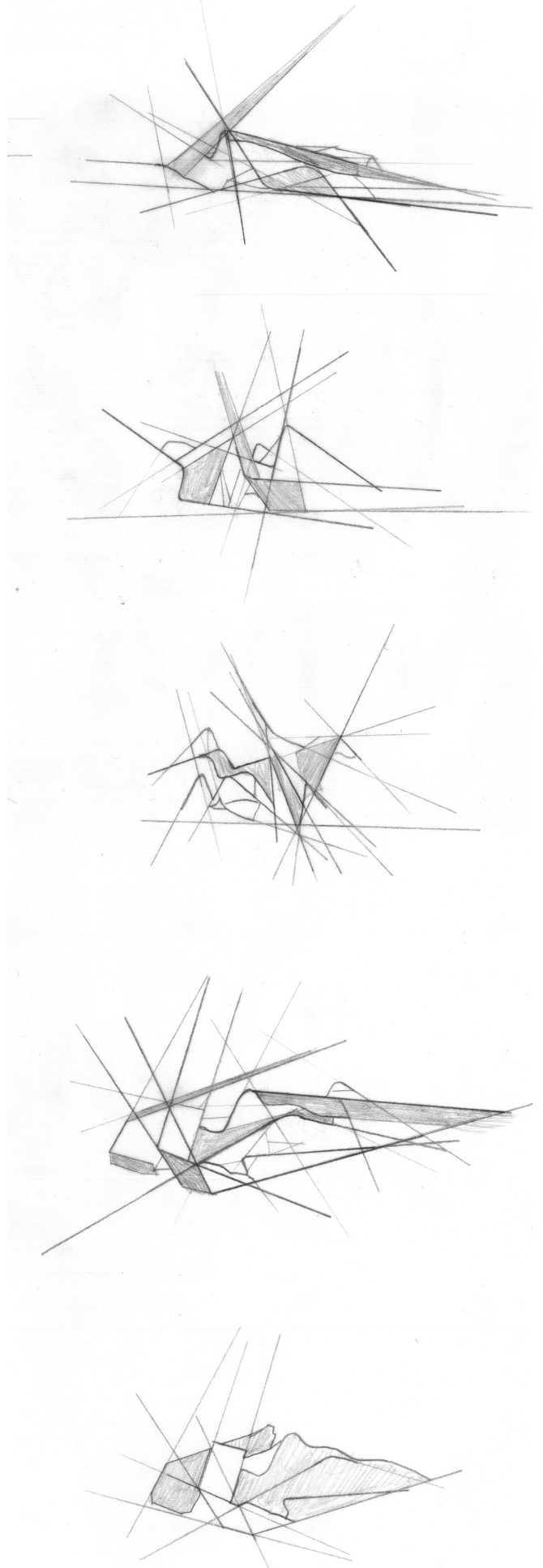


Fig 7.59. *Diagram drawings of threshold Test One*

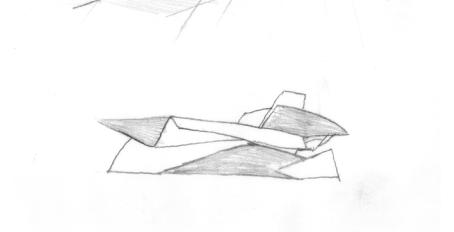
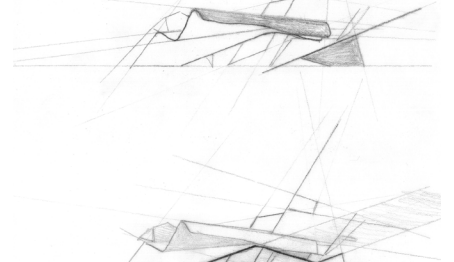
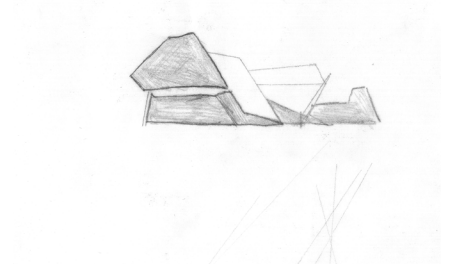
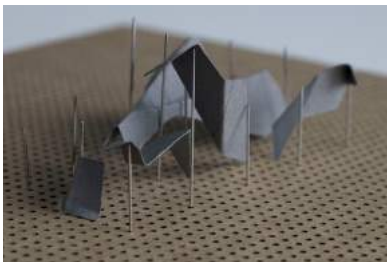
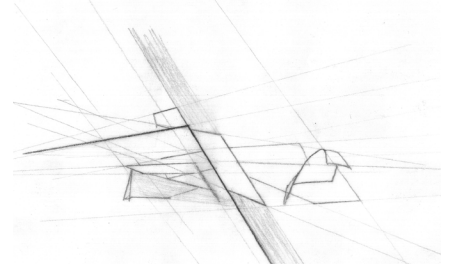
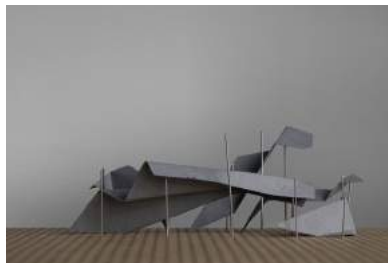
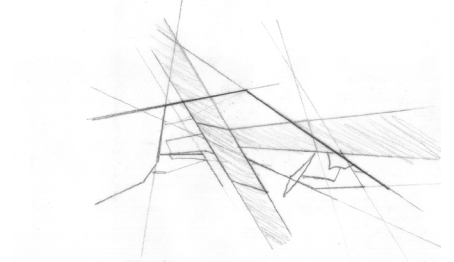
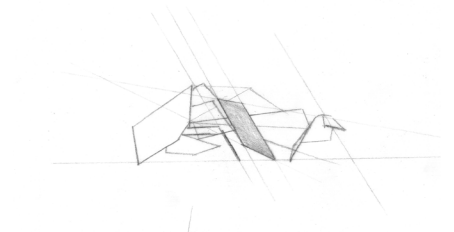
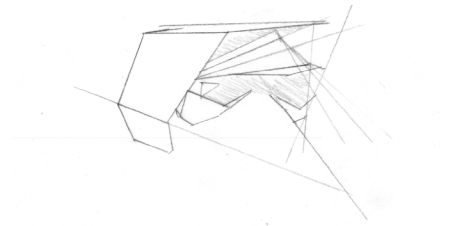


Fig 7.60. *Threshold test model Two*

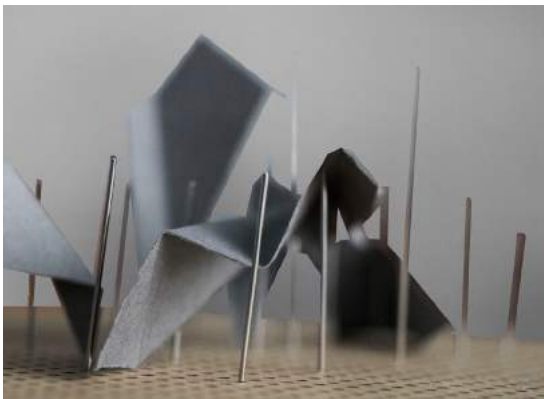
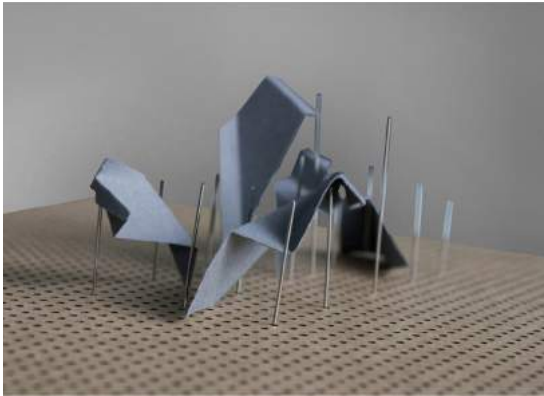


Fig 7.61. *Test Two investigates threshold through the entrance of the boathouse to create tension between inside and outside.*

Threshold Development

Test Two

The aim of this test model is to generate threshold through the entrance of the interior forms within the building. “[C]onscious staging of tension between inside and outside, public and intimate, and to thresholds, transitions, and borders” (Zumthor, 2006. 87). In this test model, I consider the entrance to the boathouse as the first threshold that draws a person into the building.

By drawing over the photographs I could manipulate the forms. When reflecting on these diagrams I found the curved entrance amplified the threshold through the different voids it generated. I repeated this method with other forms and found that the curve corresponds well with the other forms throughout the model.

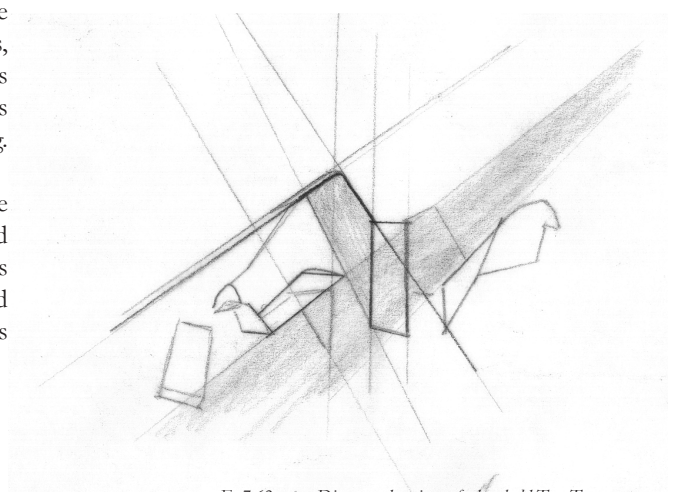
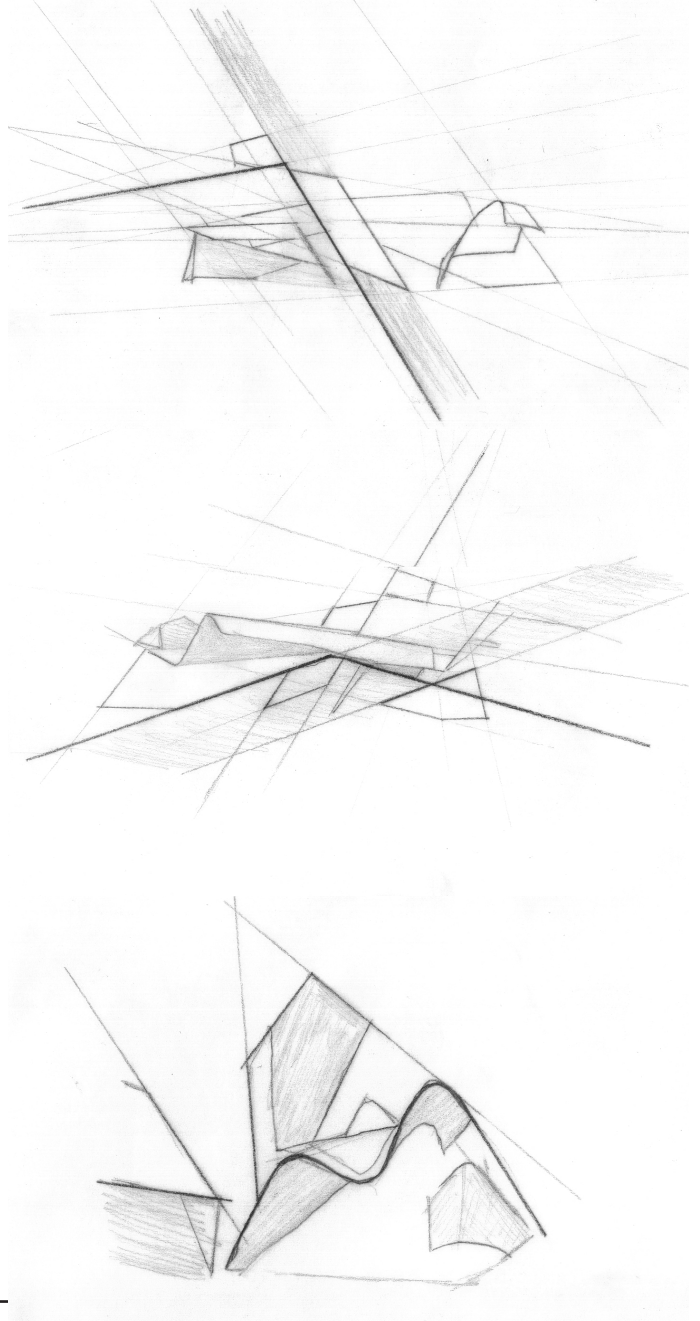


Fig 7.62. *Diagram drawings of threshold Test Two*

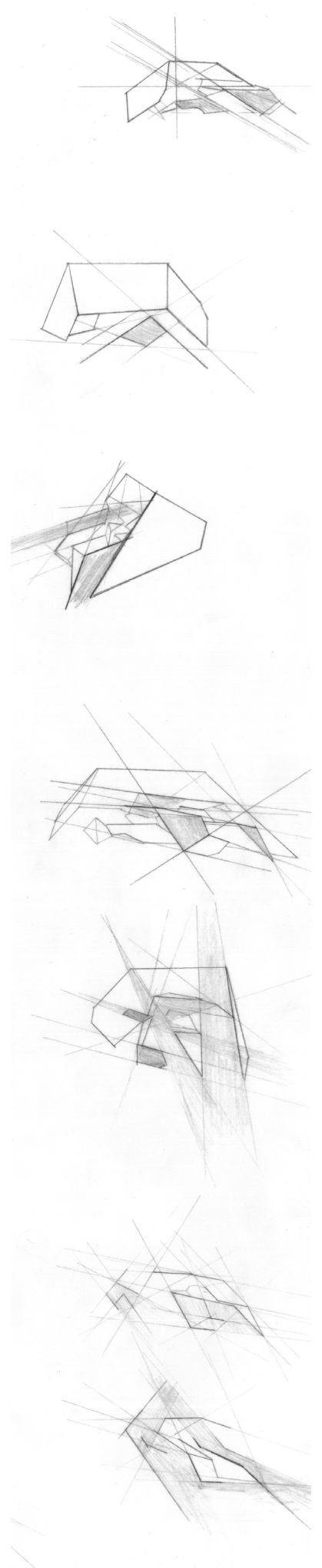
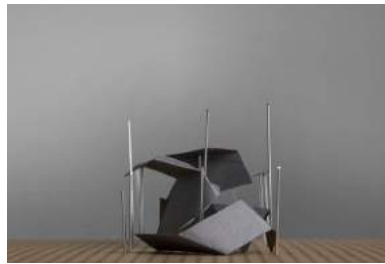


Fig 7.63. Threshold test model Three

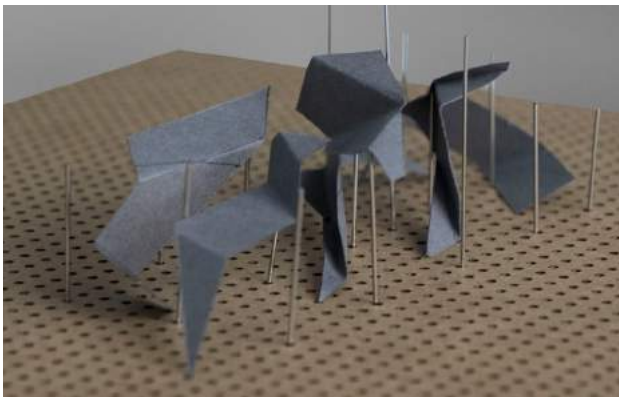


Fig 7.65. *Test Three investigate threshold through the alignment of forms and layers*

Threshold Development

Test Three

The aim of this test model is to generate threshold through solid and void forms. This model considers how to use thresholds to circulate the viewer through the building. This was tested by aligning the forms at different layers of the building to test how they interact and correspond. The voids were pushed to extend floor heights and direct forms into smaller spaces.

By manipulating the images I could identify the direction these forms would move to. Reflecting on this process, I found the diagrams to be successful in identifying where the forms were generating thresholds.

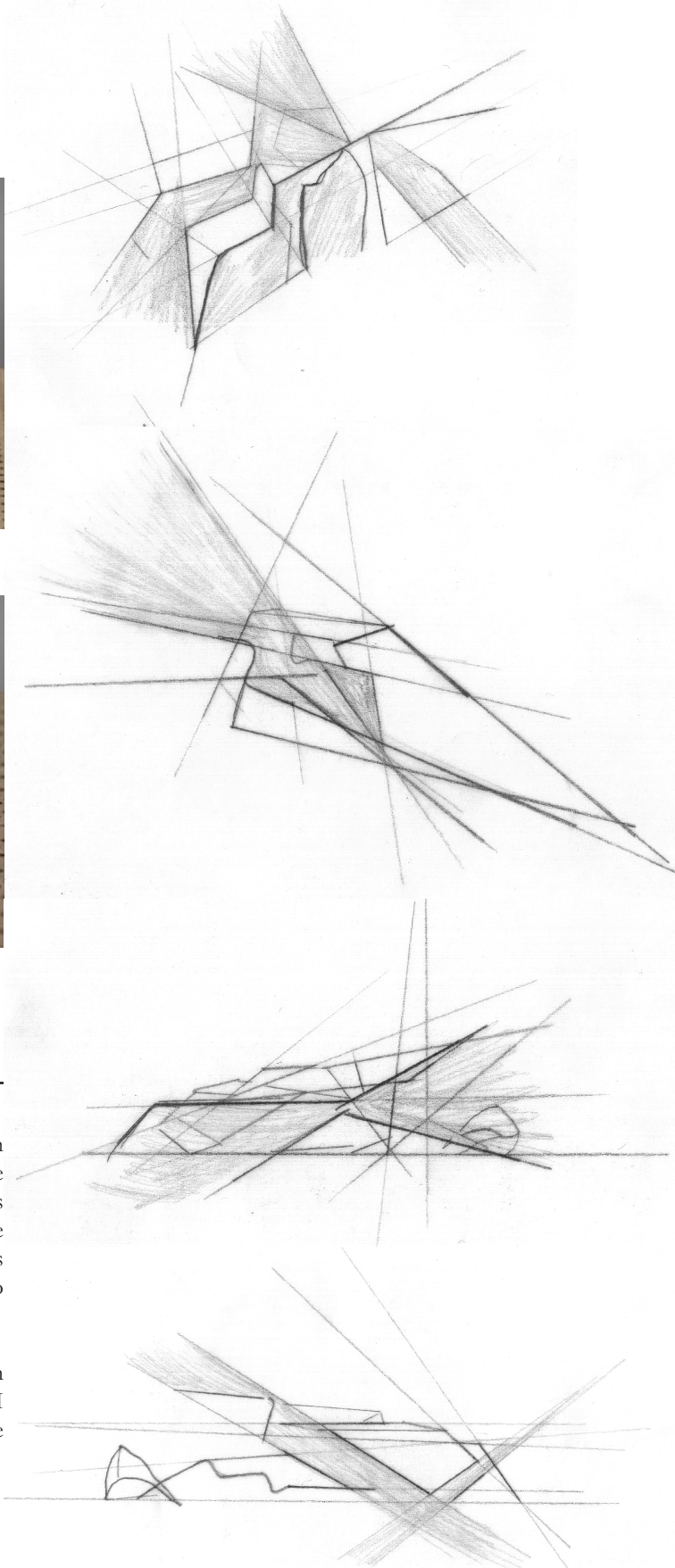
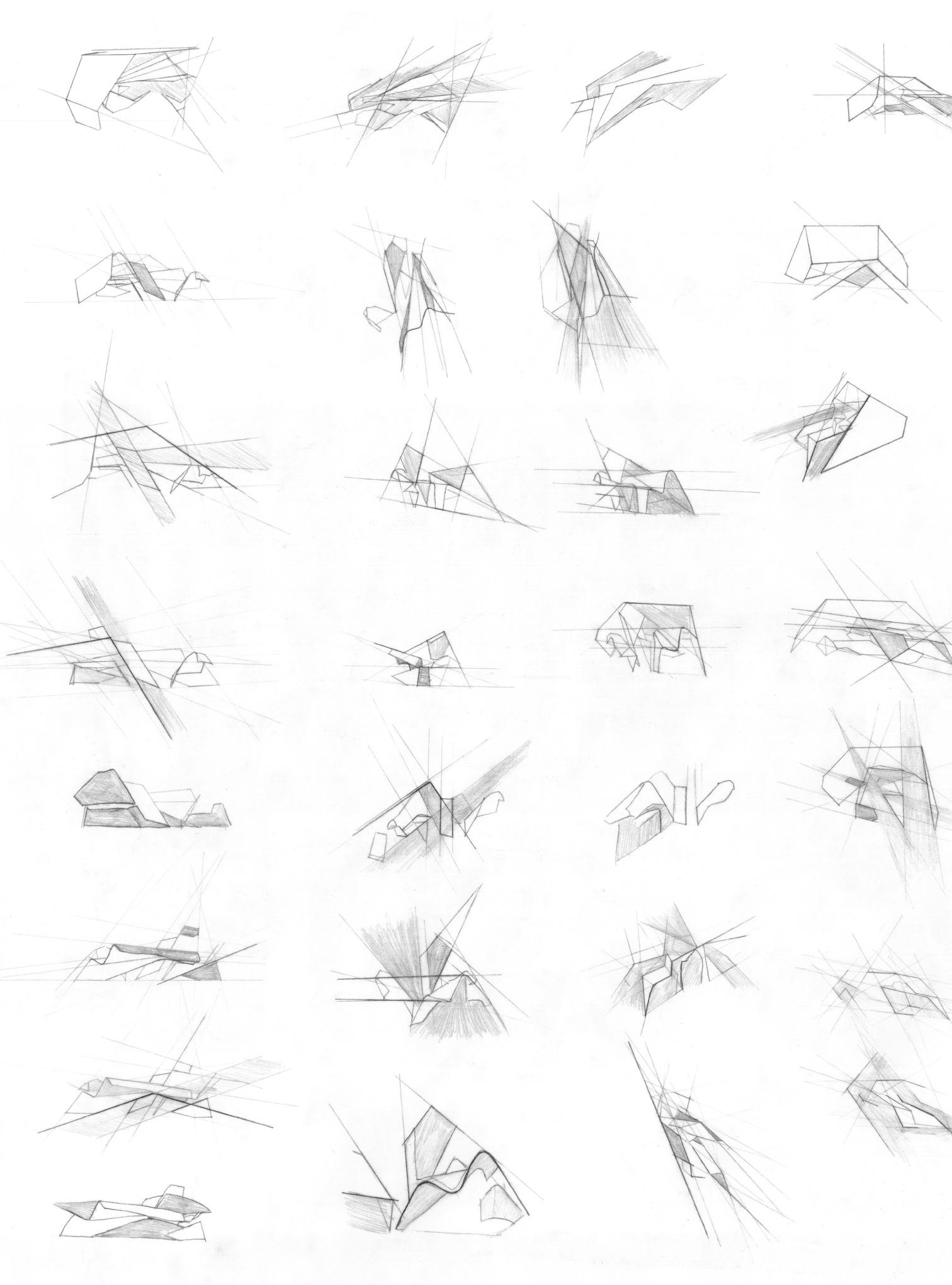


Fig 7.64. *Diagram drawings of threshold Test Three*



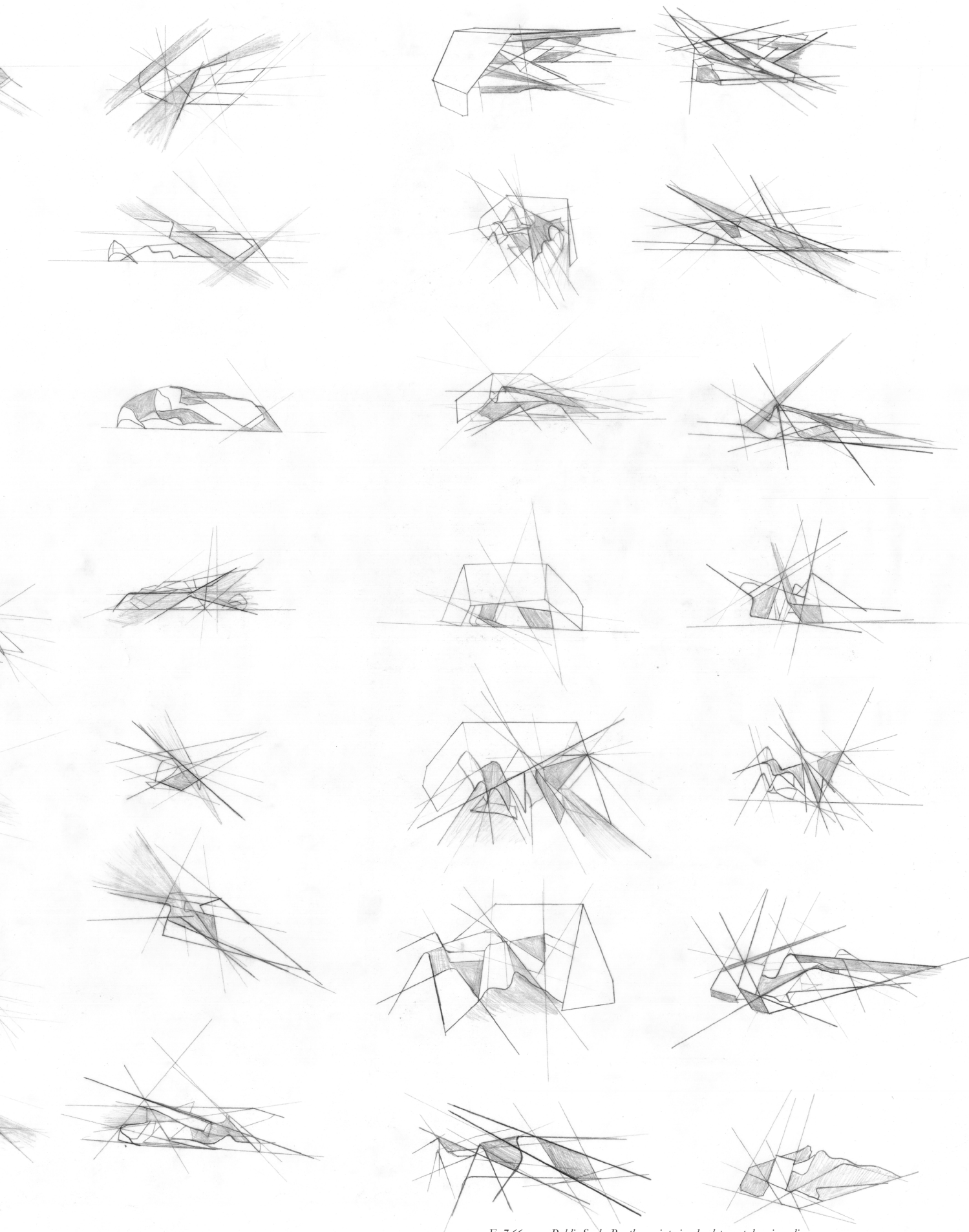


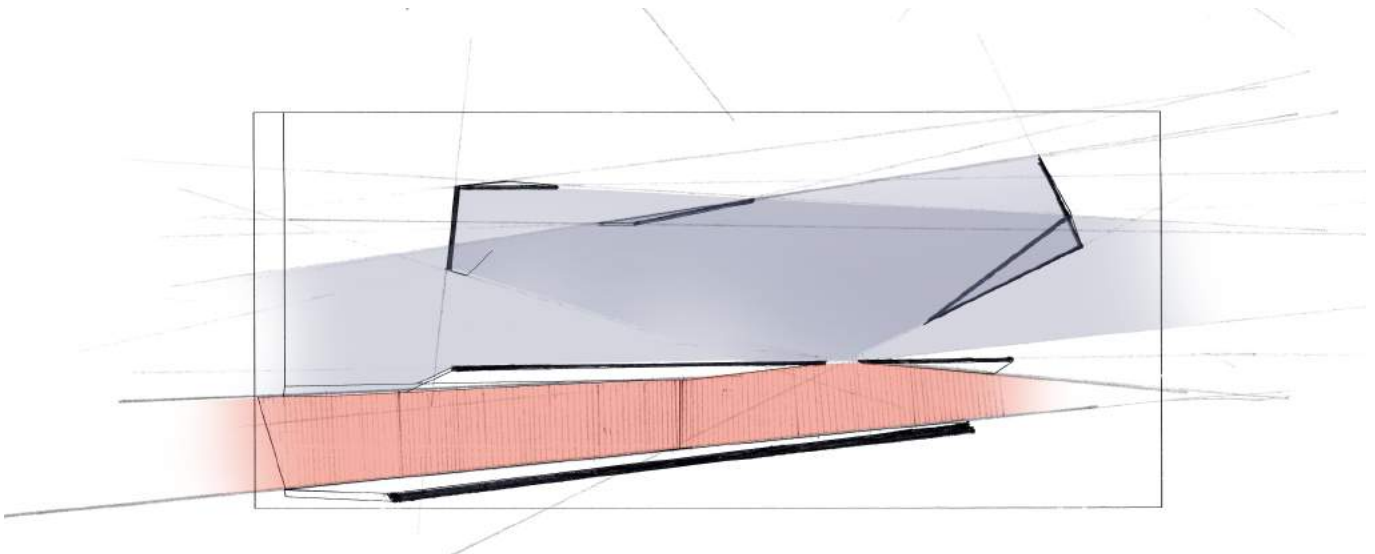
Fig 7.66. Public Scale: Boathouse interior development drawings diagrams

Design Development

Due to time constraints of the project, the final design was developed through designing in plan and section in order to finish the design. Through this development process, I considered how the proposition was represented through these drawing types and tested these through diagrams.

In these diagrams, I am testing the combination of light on form and threshold and the way they can amplify atmosphere within the architecture. A technique I used to generate threshold was double height spaces within larger communal areas of the building, to generate voids within that open light and prioritise a space. Through plan, I tried to change the forms of these rooms so that the lighting qualities varied at each level.

In reflection, these drawings do not reflect the change in material types that can generate a threshold. This has been represented through wall thicknesses as different wall types and finishes.



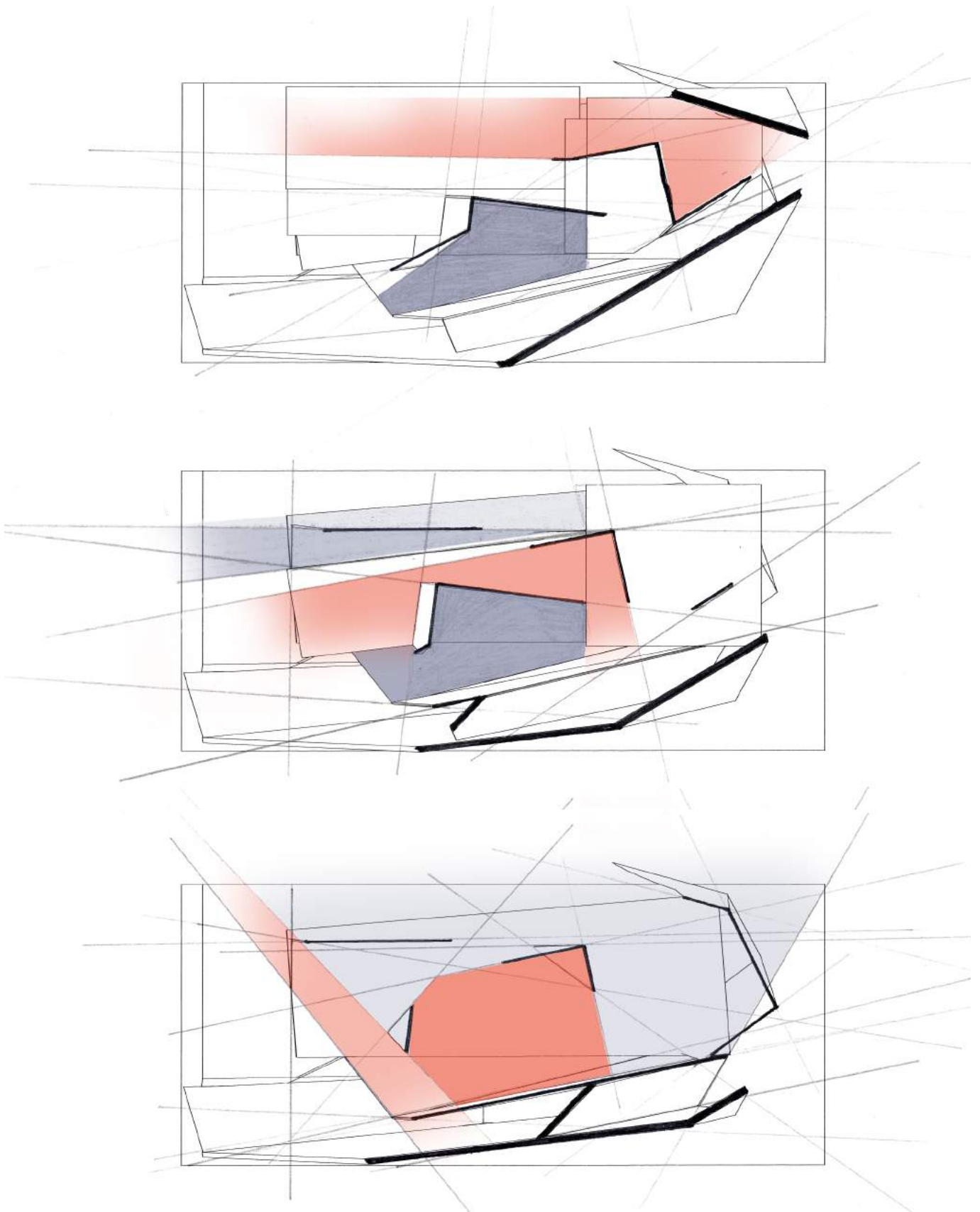


Fig 7.67. *Development of the proposition through designing in plan*

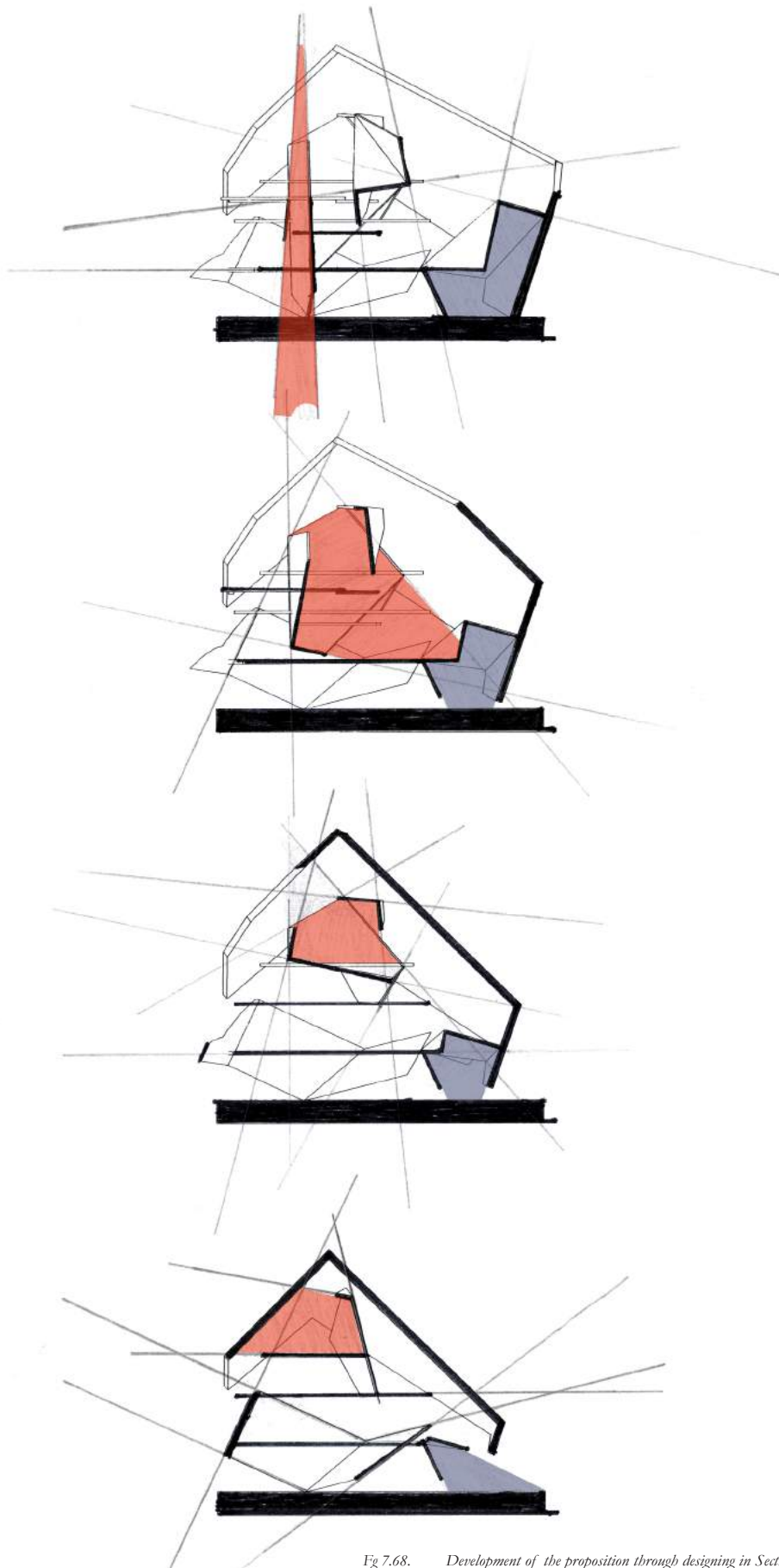


Fig 7.68. *Development of the proposition through designing in Section*

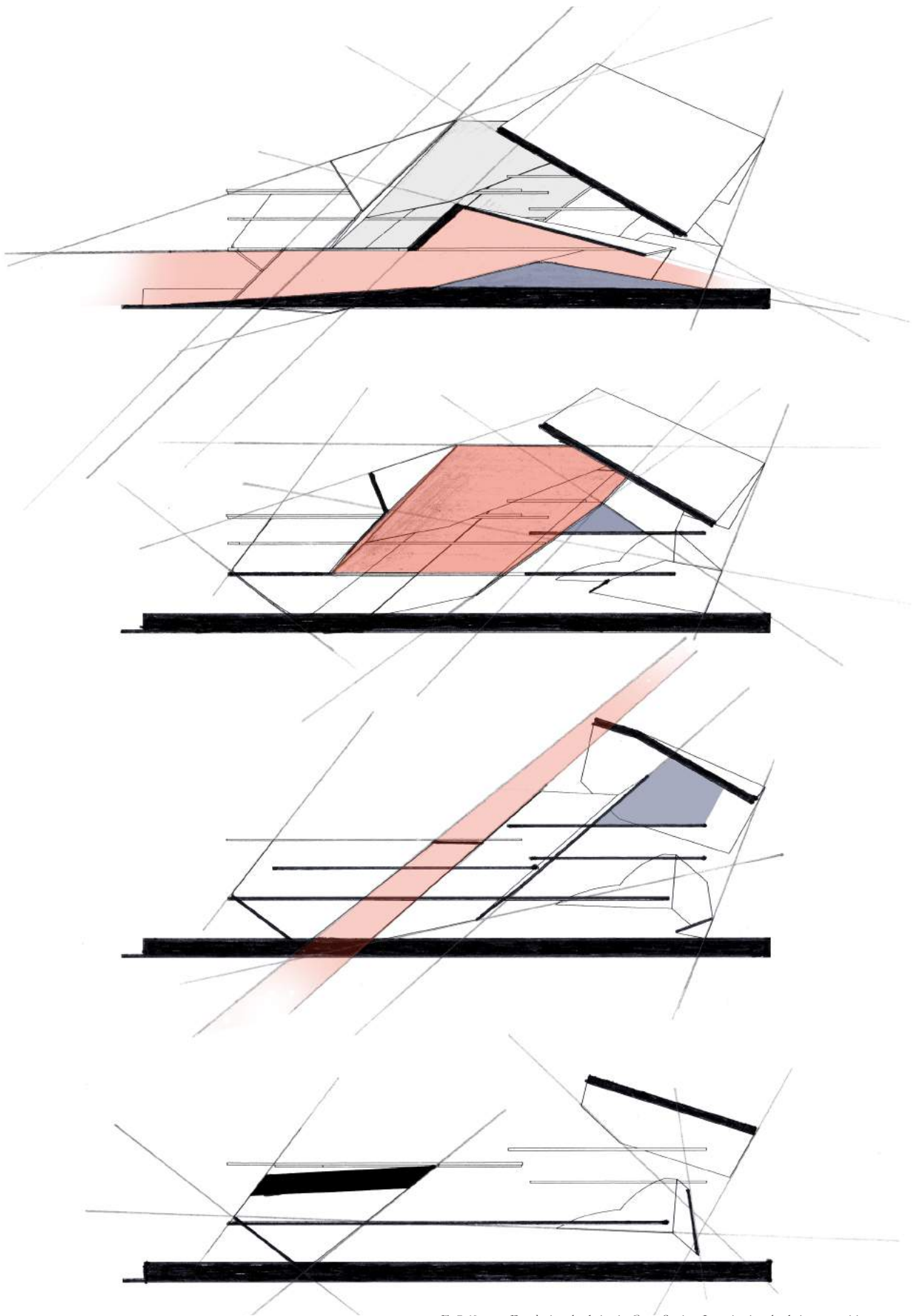
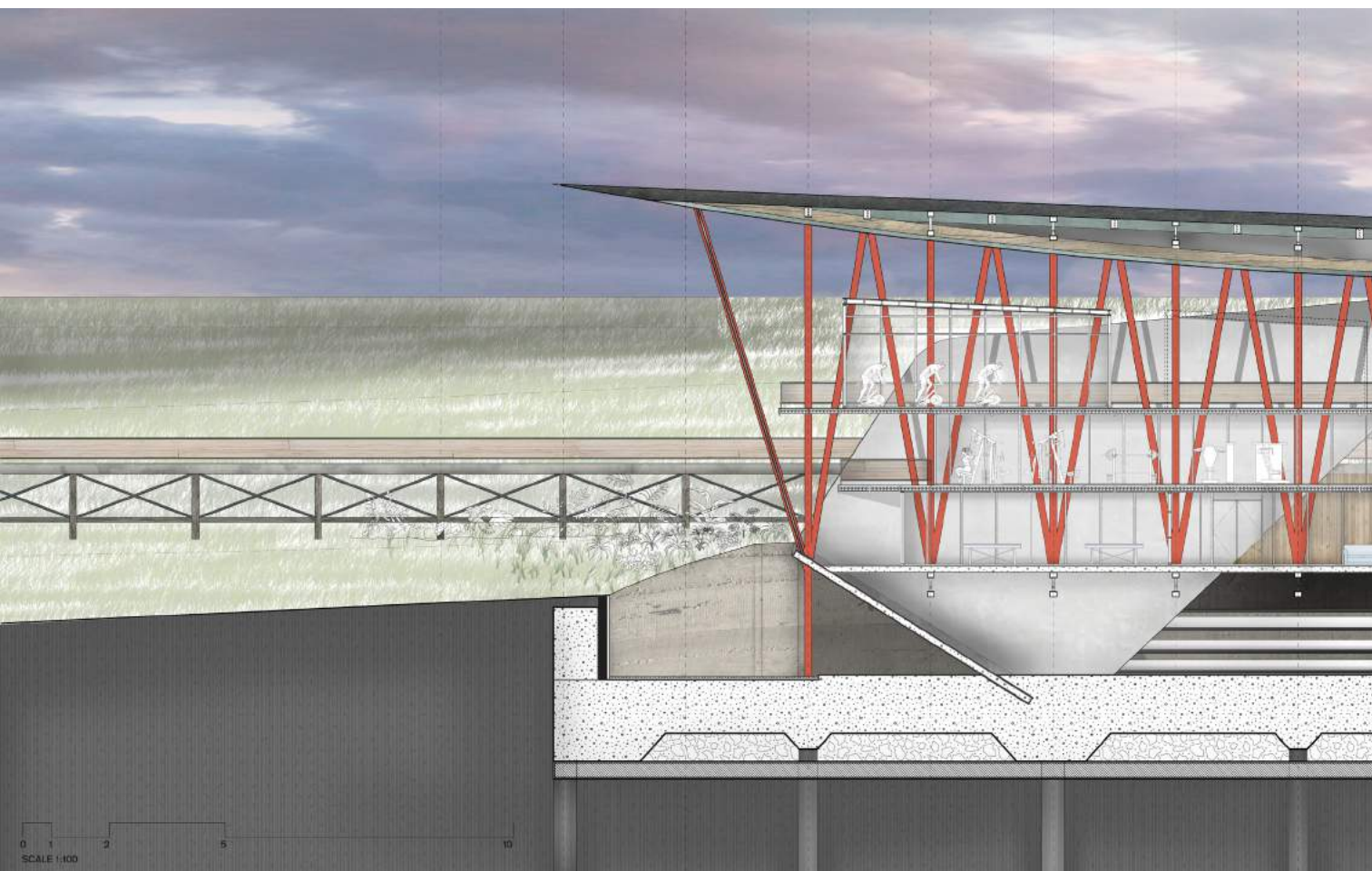


Fig 7.69. *Developing the design in Cross Section. Investigating the design proposition through the different levels of the building.*



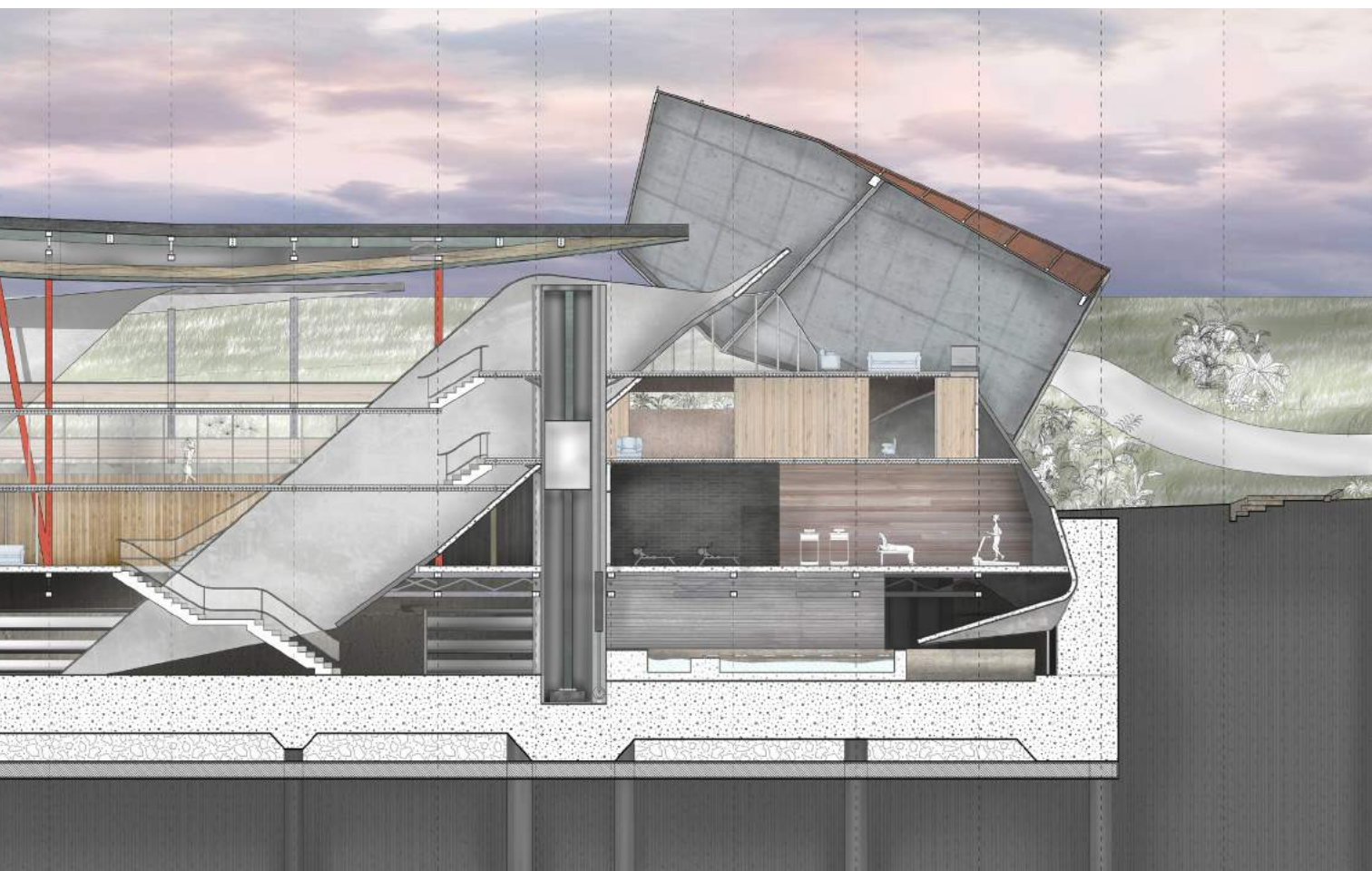


Fig 7.70. Boathouse Cross Section showing the different programme types within the building

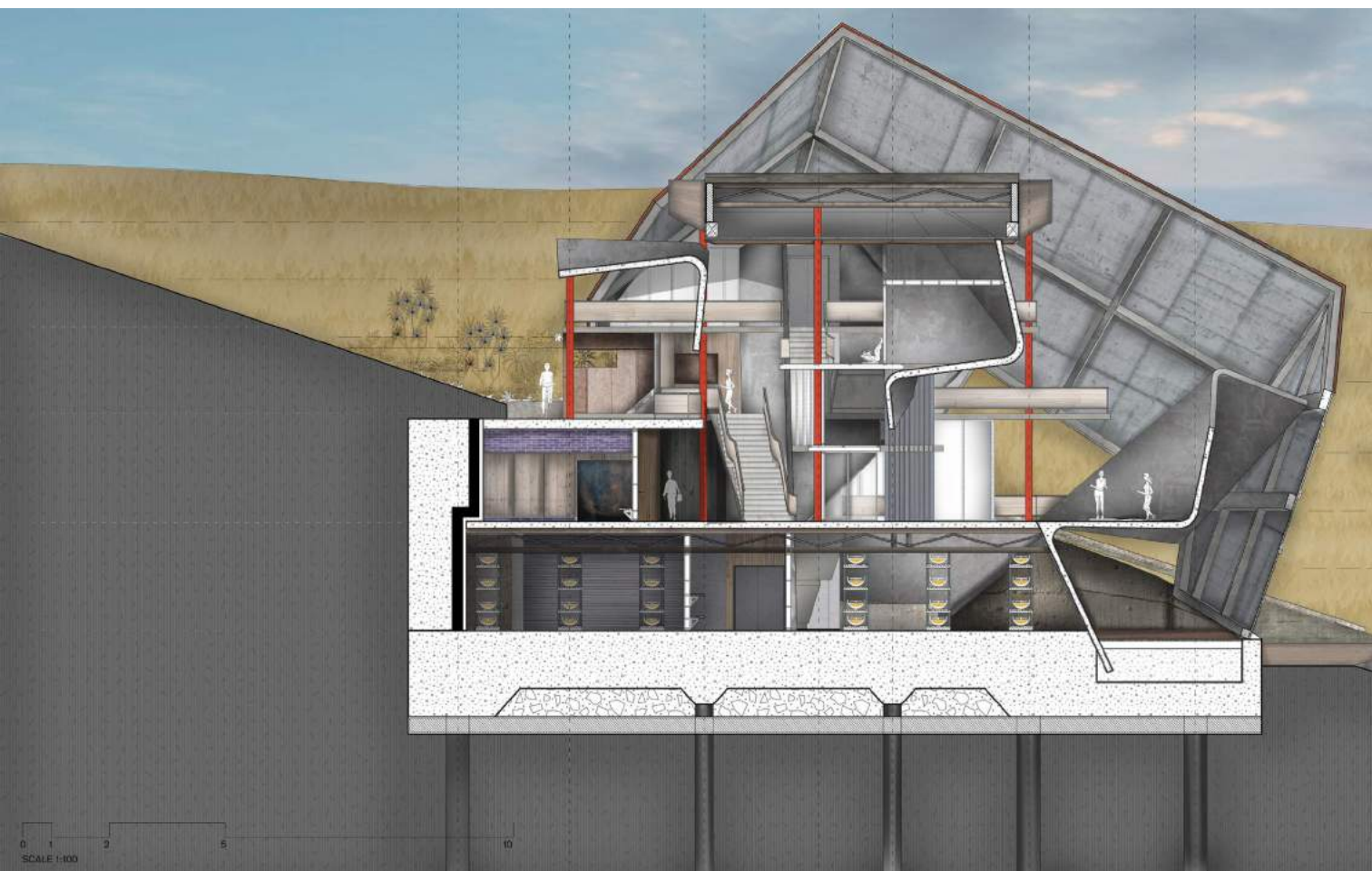
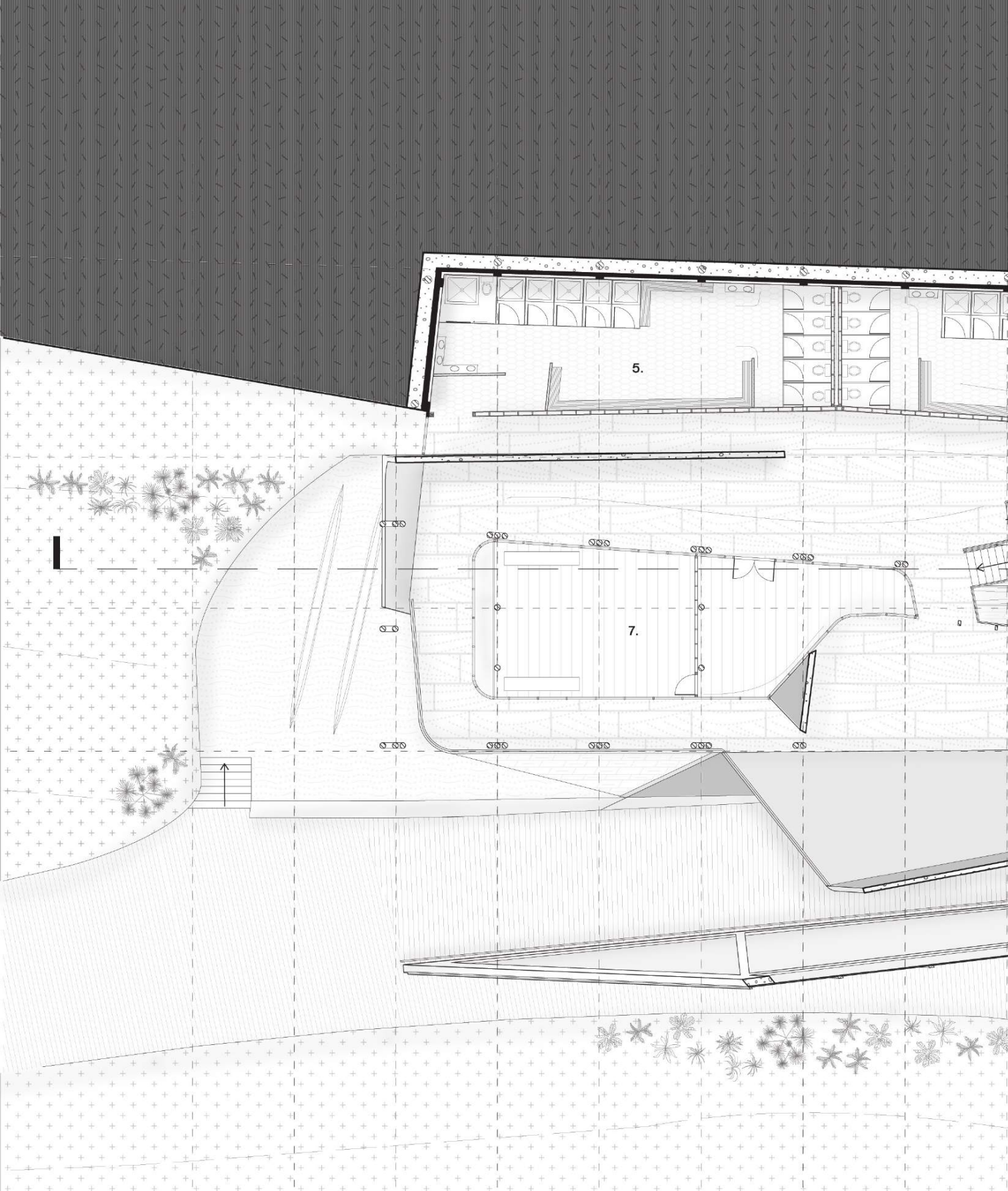




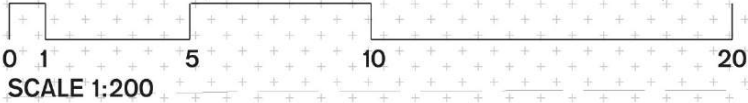
Fig 7.71. *Boathouse Cross Section showing the level change to the landscape. Retaining walls used to support structure*







BOAT HOUSE - SECOND FLOOR



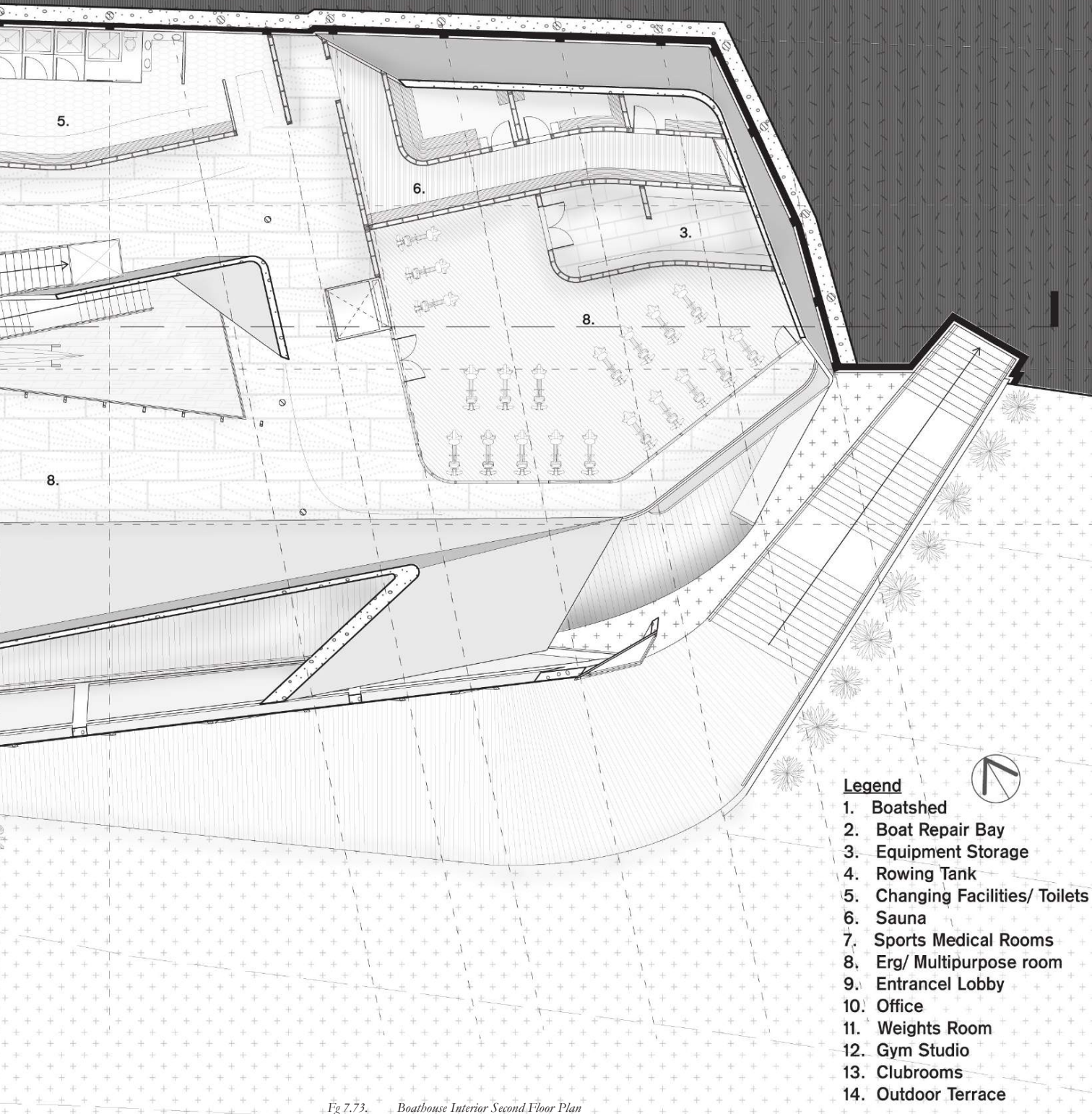
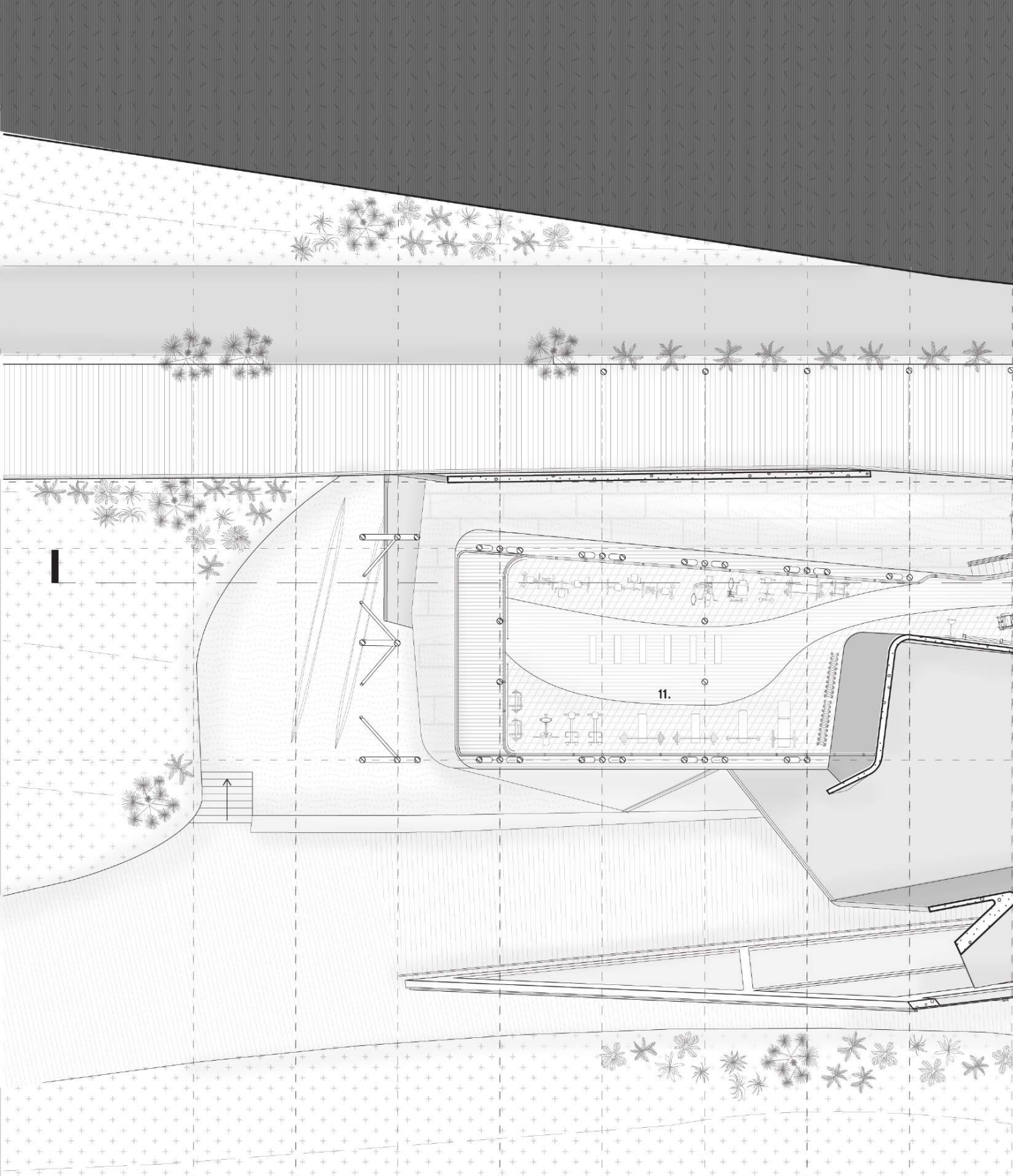
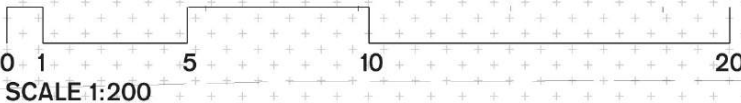


Fig 7.73. Boathouse Interior Second Floor Plan



BOAT HOUSE - THIRD FLOOR



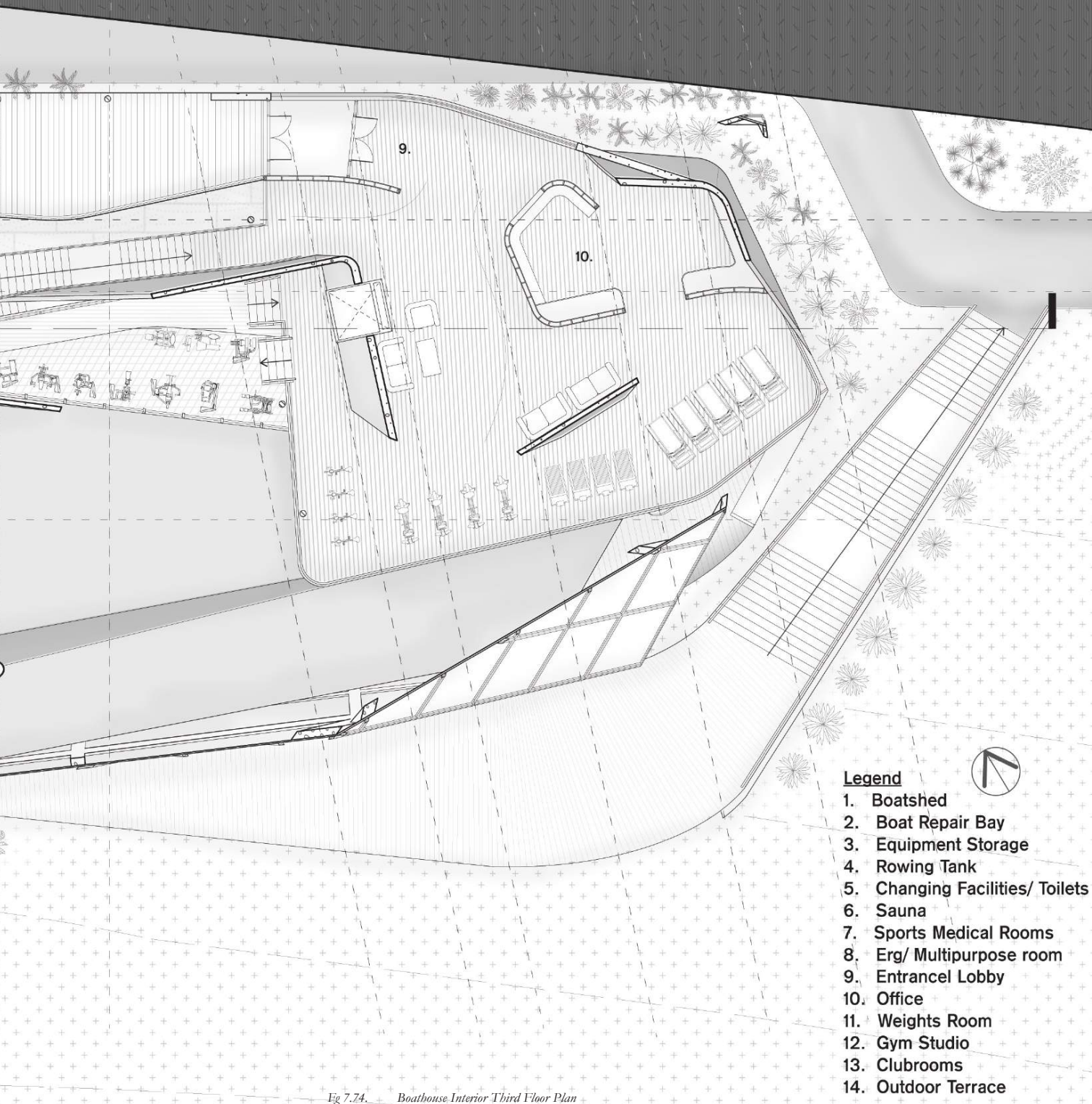
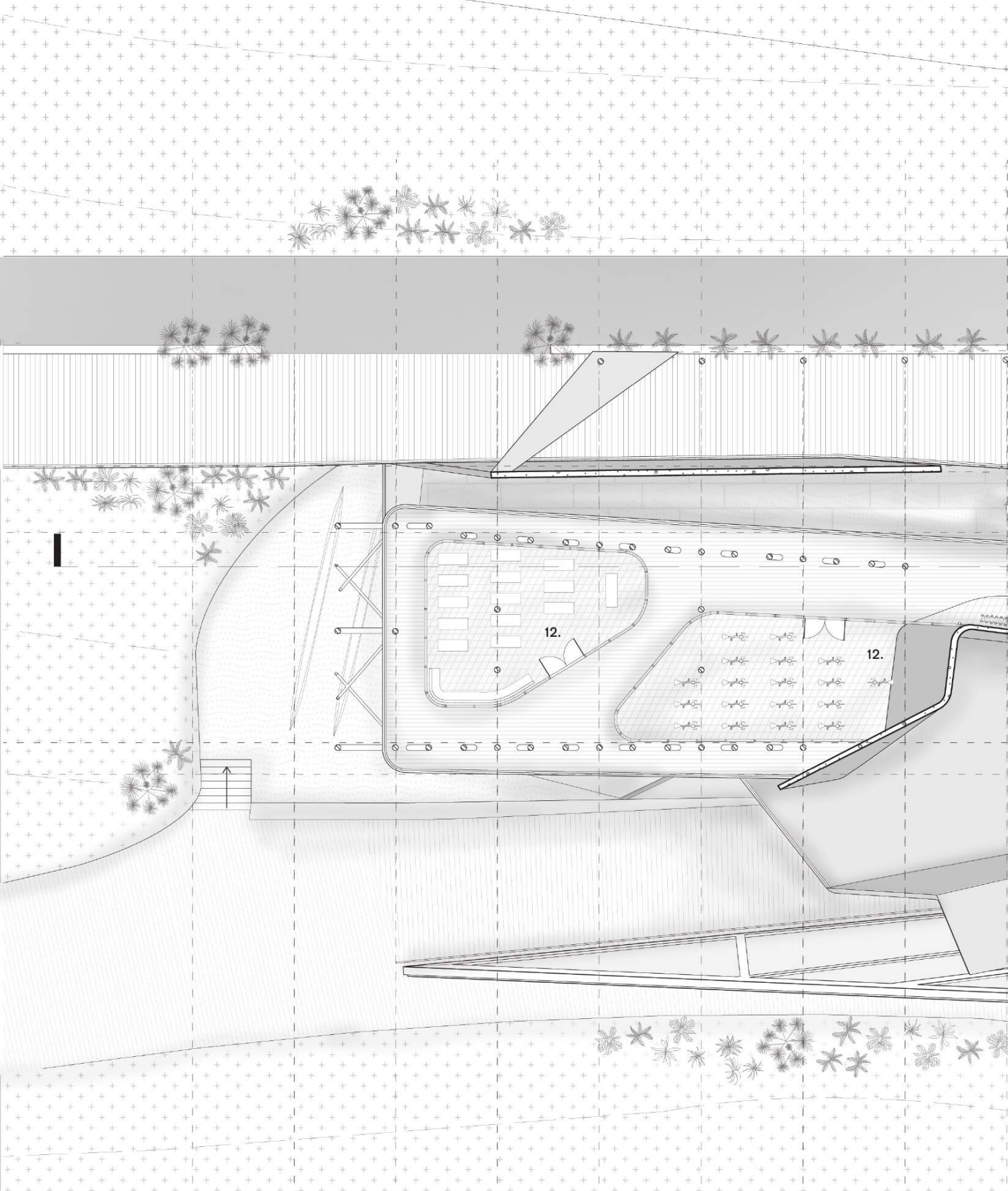
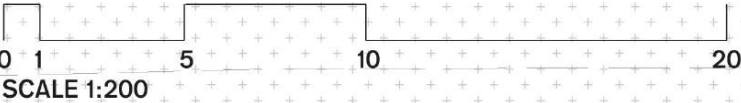


Fig 7.74. Boathouse Interior Third Floor Plan



BOAT HOUSE - FOURTH FLOOR



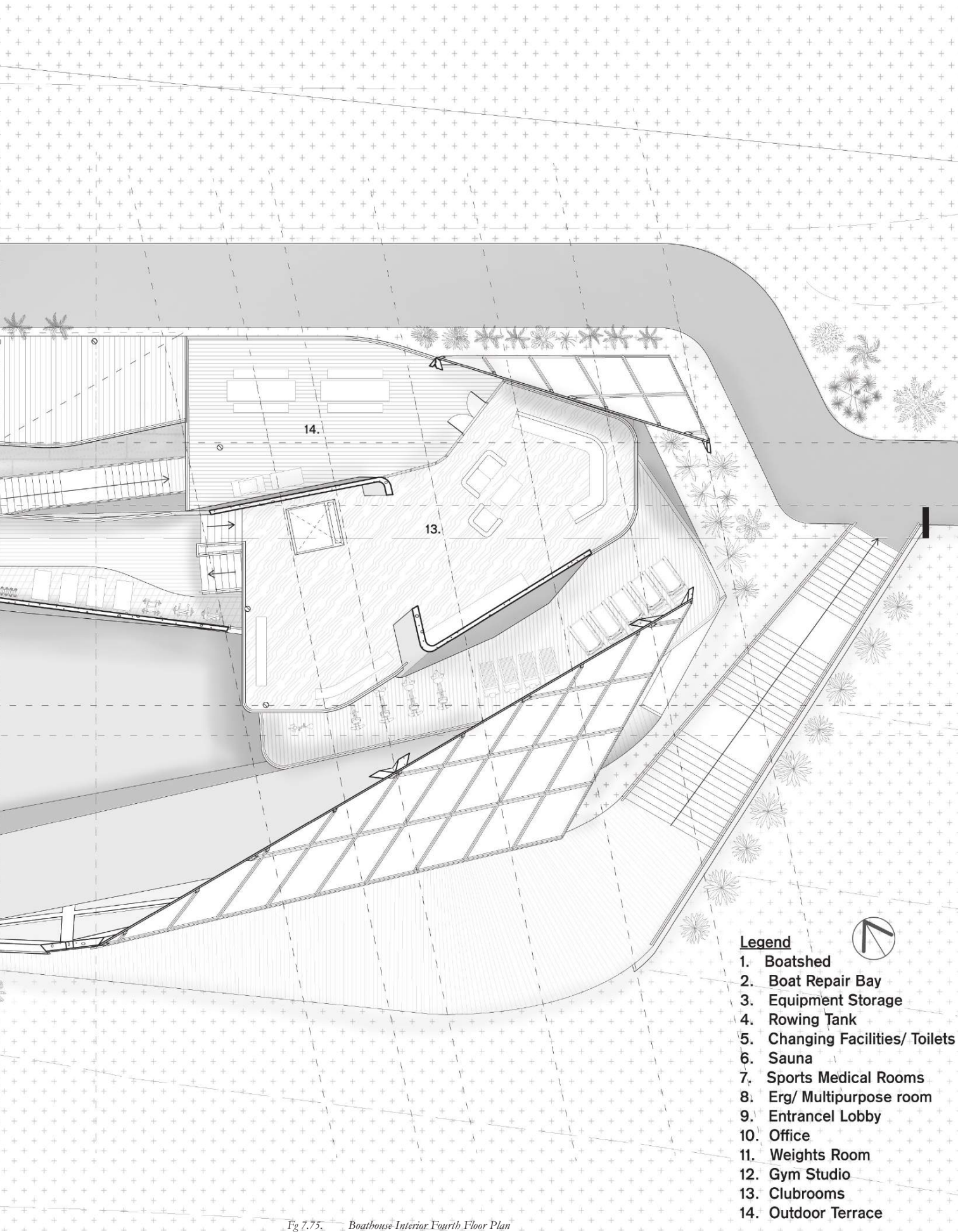


Fig 7.75. Boathouse Interior Fourth Floor Plan



Fig 7.76. Boathouse Interior perspective Second Floor shows the atmosphere in different areas of the building which plays between majesty and tranquillity.



Fig 7.77. *Boathouse Interior perspective Fourth Floor shows the atmosphere of the gym*





Fig 7.78. Boathouse Exterior Perspective of entrance from ground level



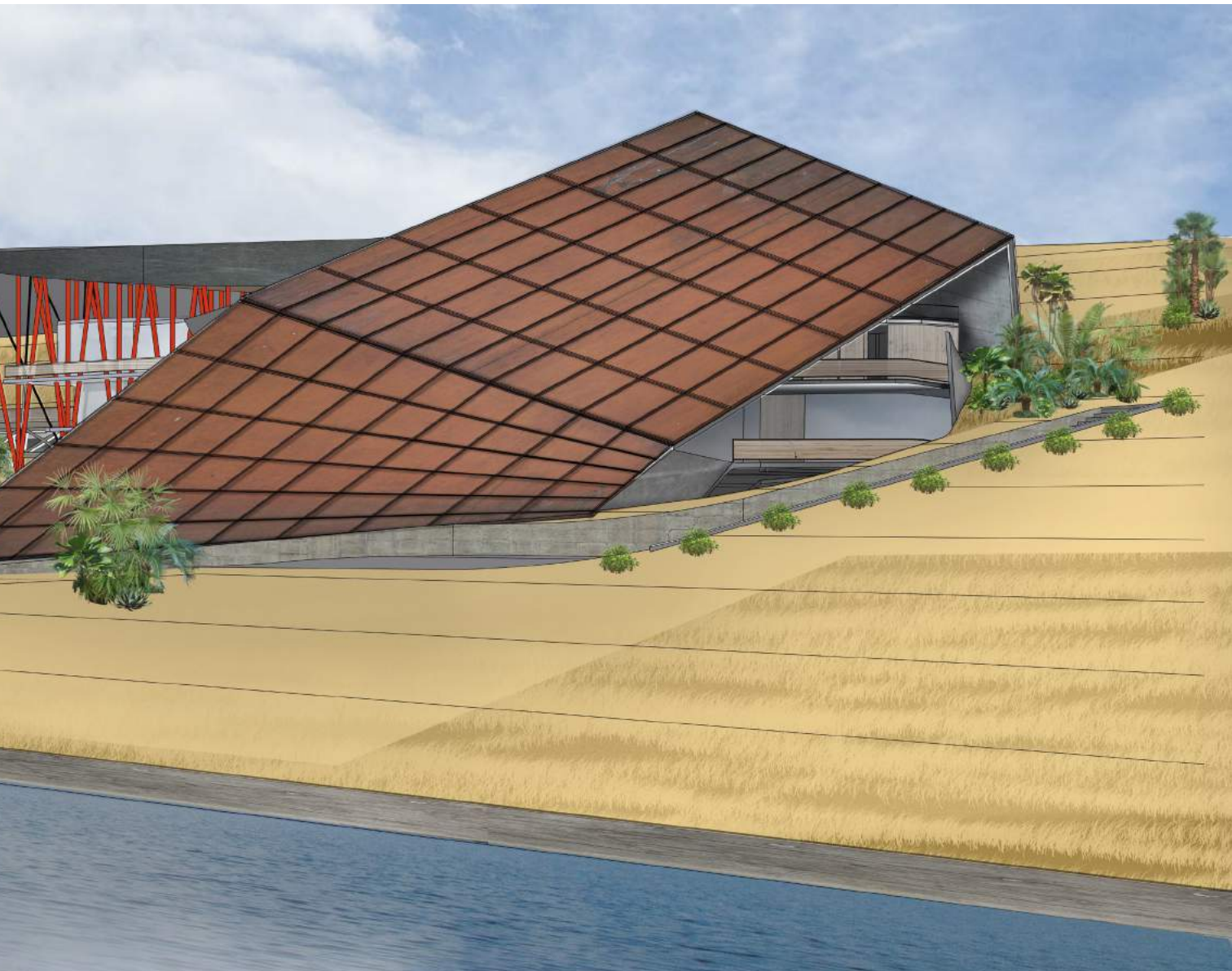
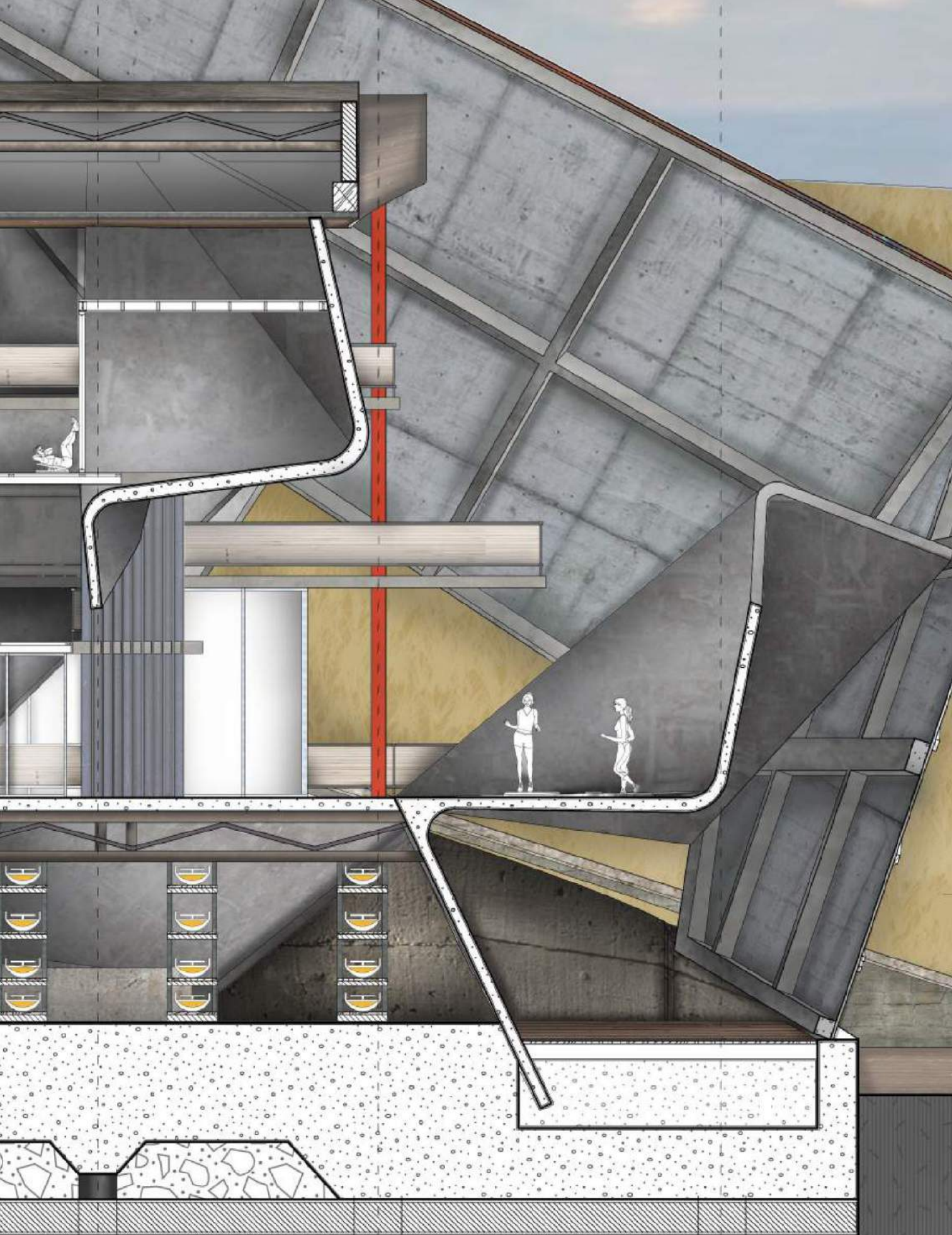


Fig 7.79. Boathouse Exterior Perspective on site view from water



Design Evaluation

Stage Three

The design of an Olympic boathouse investigates how to amplify atmosphere within an artificial environment. This was resolved through material compatibility, light on form, and thresholds, in order to amplify the atmospheric qualities of the architecture. By reducing to one building to design, rather than an Olympic park, I was able to address the proposition at an architectural scale. The outcome of my research has shown that amplifying atmosphere was achieved by building the relationships between the architecture and landscape, to the point where it generates a form from this vocabulary.

Material compatibility came through the dense mass and smooth nature of the concrete curved interior that contrasted with the sharp, jagged forms of the corten steel of the exterior. Light on form was considered through early stages as generative forms folded to distort the light onto each surface. The light is diluted through the different layers of the building. Thresholds were tested using different wall types as well as the lighting qualities throughout the different spaces of the building. This tension between the inside and outside would adapt to the programme. I wanted the building to push the borders of what was interior and what was exterior. Creating enclosed areas for the necessary programme functions.

The methods of drawing modelling continued through my design process. It has allowed me to generate form through design strategies of superimposition. The architecture was resolved through the composition of atmospheric techniques from Zumthor and applying them to the formal strategies of Eisenman. This process of development formed both the interior and exterior of the building.

The final design experiment of a boathouse extends the investigation to explore how to amplify atmosphere through an artificial environment. The thesis concludes in the final chapter by providing a critical reflection on the design process, and providing a summary of the research into atmosphere within artificial architectural environments.

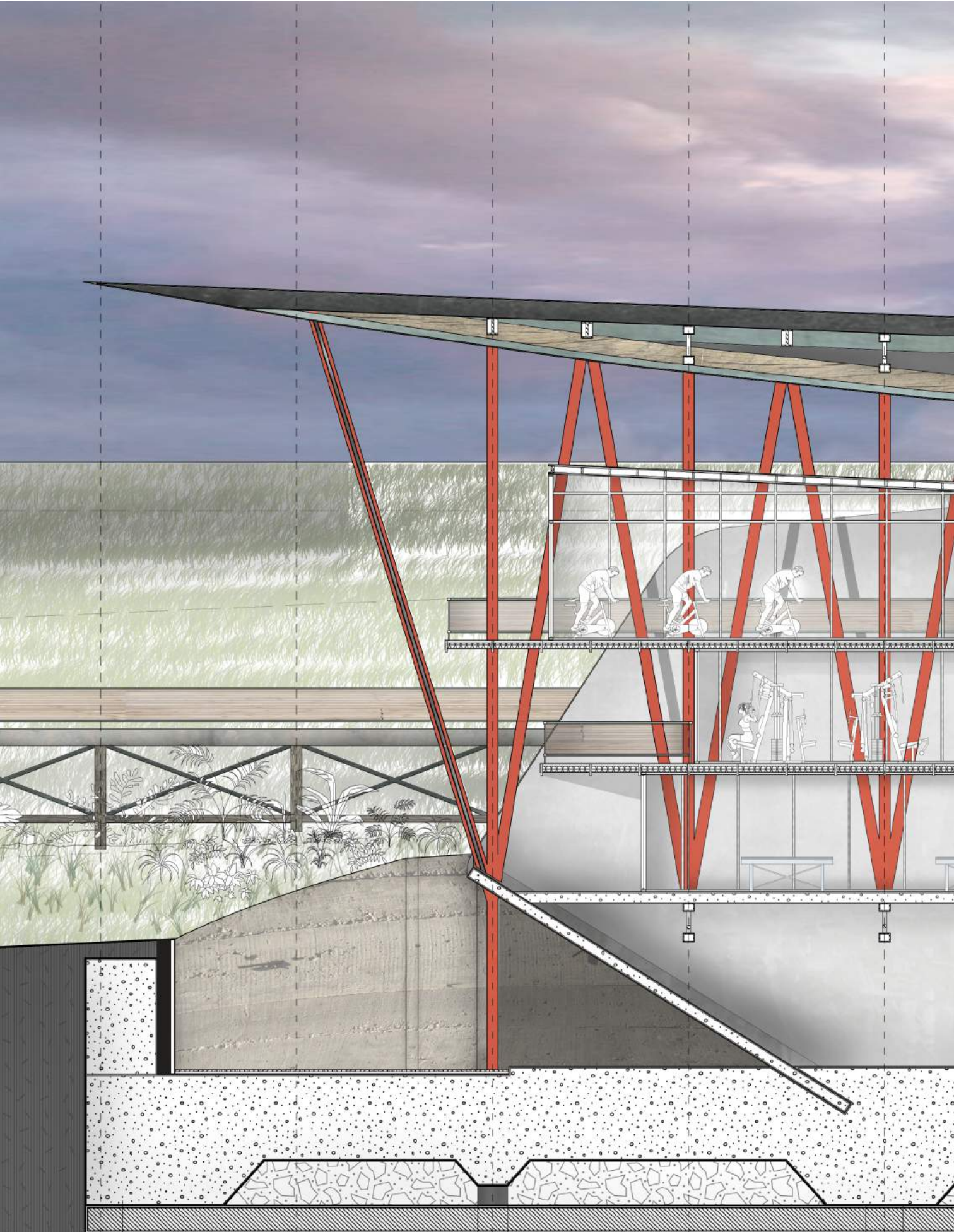


Fig 8.01. Public Scale: Boathouse Cross Section

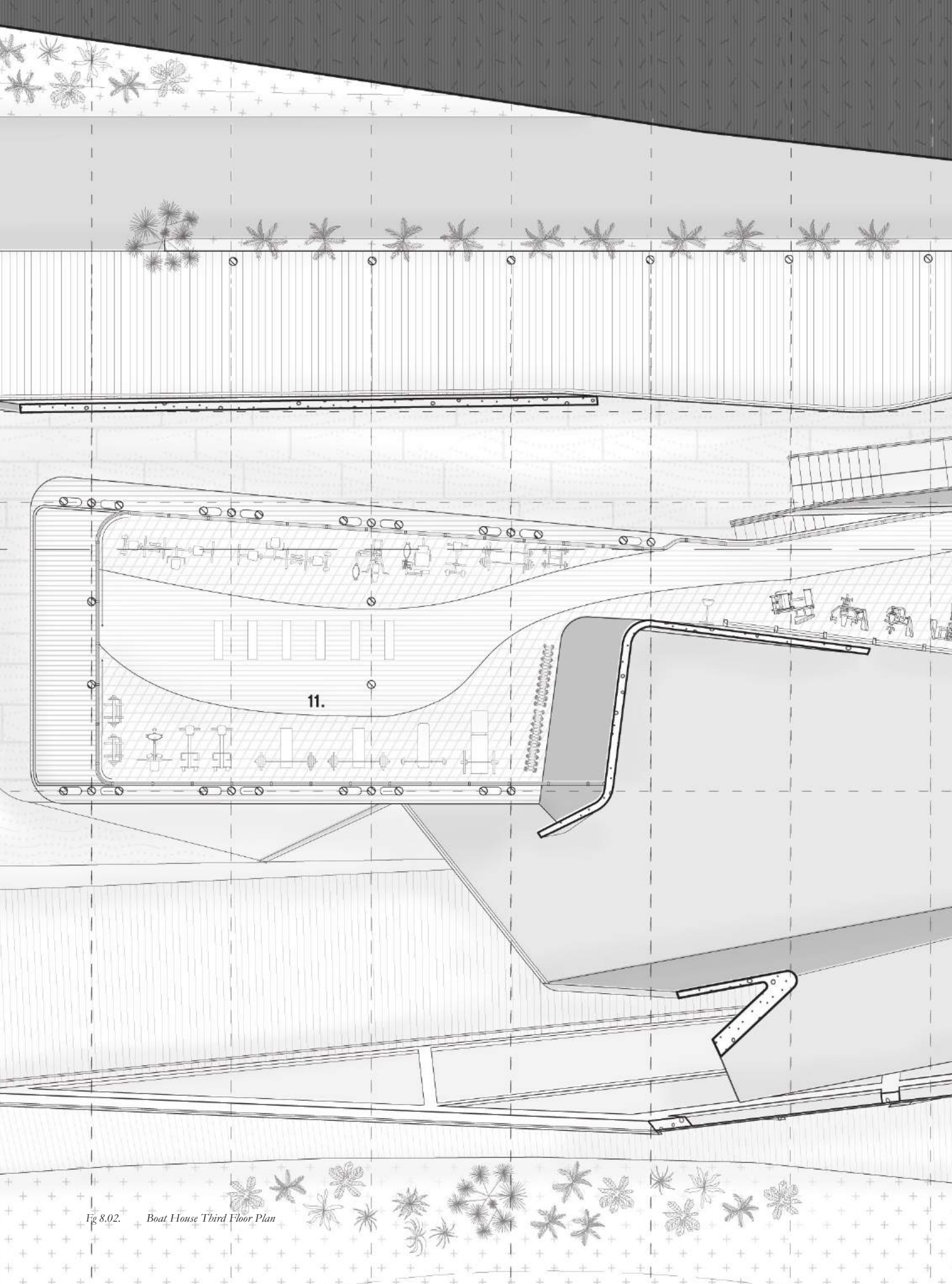


Fig 8.02. Boat House Third Floor Plan

Discussion

This thesis investigated atmosphere through the design of an artificial Olympic island and the resulting architecture resolved within this artificial environment. The proposition that structured this thesis was how to amplify atmosphere within an artificial environment. To test the design proposition, ‘staging atmosphere’ was resolved through material compatibility, light on form, and thresholds in order to amplify the atmospheric qualities of the architecture within the artificial island. The architecture was resolved through the composition of atmospheric techniques from Zumthor, and the formal strategies of Eisenman. Atmosphere for Zumthor is observed “through our emotional sensibility” (2006. 13). By enhancing human senses through architecture, Zumthor is able to create an emotional experience within the atmosphere of the architecture. This technique was combined with Eisenman’s formal strategies of superimposition, that fold and shift form and surface.

The appropriateness of these design methods and processes in relation to the scope of the research was resolved through a ‘design as research’ methodology allocated to the research stream. This is where the proposition was developed through three scales; a design investigation, a mid-scale design, and a public scale. The design investigation explored how atmosphere could be amplified at a human scale. It started as a material investigation of paper; the artificial bi-product of wood. The proposition was tested through an iterative process that was developed through the manipulation of photography in order to generate atmosphere. Atmosphere was amplified through light and transparency. This investigation did not lead to a final design, however after critical reflection, the proposition shifted to occupy further; threshold, light and layering of the landscape as part of the design investigation.

Shifting to a mid-scale design prompted my investigation into form and atmosphere, and the proposition of my research shifted to consider how an architectural form could amplify atmosphere. The proposition was tested through an iterative process that lead to the design of a modular T.V. tower to film the Olympic Games around the artificial island. It became apparent through the design process that I needed to choose an atmosphere to design for. I chose to look at ‘intimacy within the vast’, as an atmosphere that could be expressed throughout the artificial island that brought brining together traditional atmospheric qualities of majesty (Dufrenne) with a more contemporary shift towards this intimate (Zumthor). As a result, the modular design would adjust to the conditions of the terrain in order to generate an intimate space within the landscape, repeated through each area of the island and adjustable to the conditions of the sport.

The design of the site was important in the process of this thesis. Generating information from the site would provide the logical method to design the form of the artificial island. This was developed using drawing and modelling design methods. The generative process began with drawing techniques adapted from Perry Kulper. Kulper’s approach to drawing and architectural design is speculative and experimental. This precedent has used his techniques of ‘Strategic Plots’ to extract and document information of the site. I then applied this to a physical model.

The modelling process enabled translation of a two-dimensional diagram into a three-dimensional form. By superimposing the heights of the island it was possible to generate information from the site through abstract interpretation. The development of site did not proceed at this stage, as there was a priority to generate atmosphere from the architecture.

In the final design experiment, the proposition was re-evaluated at a public scale. At this stage of the investigation the theoretical framework was established. This helped develop the proposition to stage atmosphere through categories made by Zumthor. The architecture focused on materiality compatibility, light on form and thresholds, to amplify the atmospheric conditions of the architecture. Using formal design strategies of superimposition taken from research done by Peter Eisenman, it was possible to apply the designs of the island to the forms of the architecture. The result of this research came through the development of a boat club for the Olympic Island, showing the rowing and canoe events at the Games. The material composition between the smooth nature of the concrete curve contrasted with the sharp jagged forms of the corten steel exterior. The generative forms folded, distorting the light onto each surface. The light is diluted through the different layers of the building, which hollows out the darkness as if the light were a new mass. Thresholds were tested using different wall types within the building. The tension between interior and exterior was resolved through programme defining the necessary enclosed areas. The material qualities, juxtaposed with the formal structures, generated thresholds through the change in material and lighting qualities.





Fig 8.03. Final Presentation in November 2017

Critical Reflection

The proposition was developed through the process of shifting between scales. The design experiments provided the understanding of atmosphere and ways in which atmosphere can be staged within architecture. The research revealed opportunities for architecture to stage atmosphere through different design strategies identified through literature review. This locates the key design precedent and critiques the relevant information to the scope of my research. Undertaking sequential projects contributed to a greater understanding of my own methods and formal predispositions, raising my awareness of how I might approach future projects. This allowed me to critically reflect on strengths and weaknesses at different stages of the design process; from the iteration to the developed design.

The design investigation dealt with atmosphere through the process of modelling paper as a tool to generate atmosphere. This was resolved through the manipulation of photography and graphic diagrams. Atmosphere was present in the two-dimensional images rather than the models alone. However, due to its lack of a definitive programme or set atmosphere type, so the sense of direction and ability to amplify atmosphere was limited. This did not develop into an installation due to time constraints and because I had not clarified how to generate atmosphere. If I was more critical of the design tests I would have focused on how to generate atmosphere through a more clear iterative process that would lead to a final outcome.

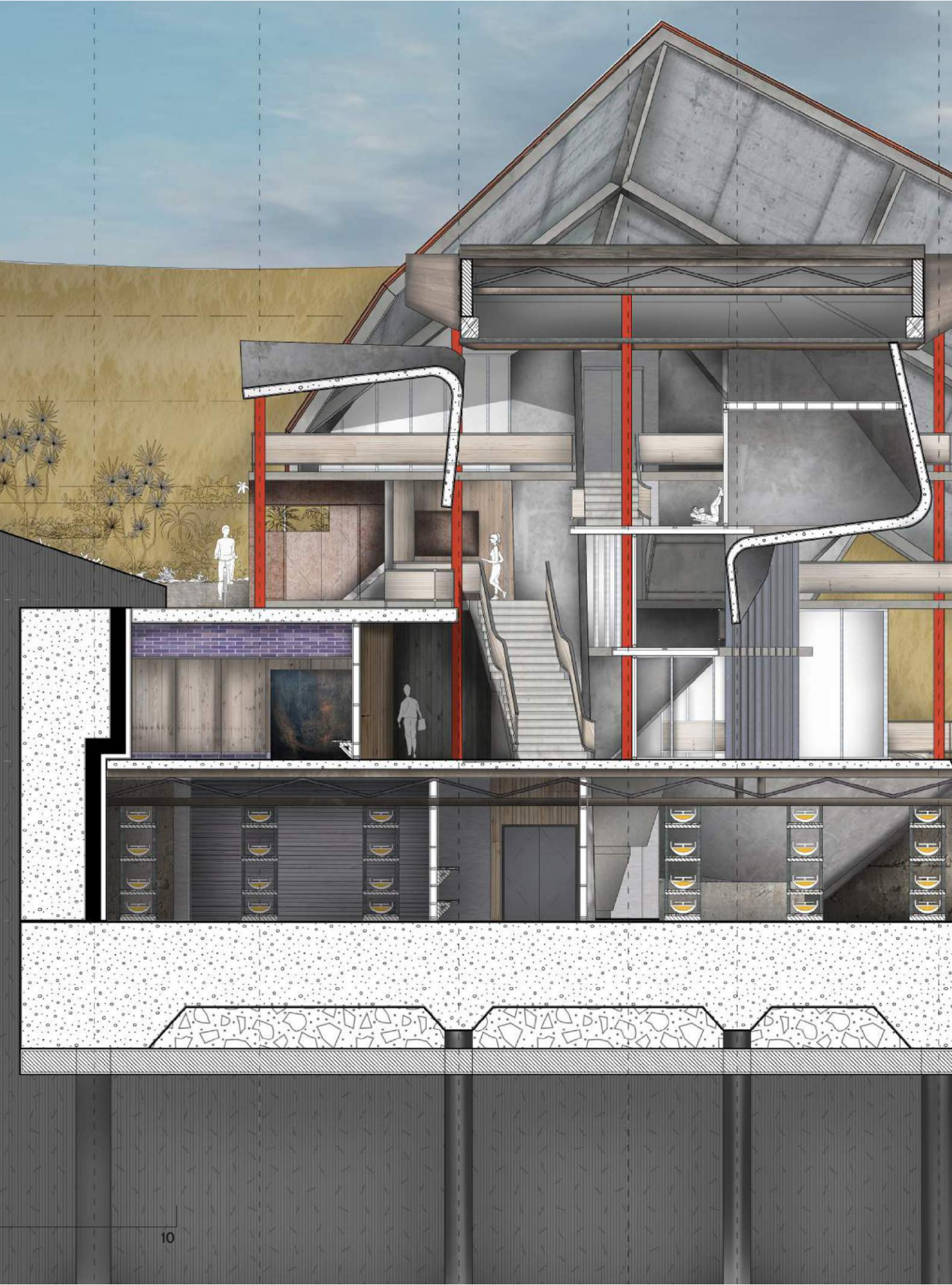
The design exploration shifted from the mid-scale design to a T.V tower. The T.V tower investigated form as a way to generate atmosphere. The weaknesses in this design are due to the lack of strategy in the preliminary design stages. I followed an iterative process, however, I had no clear design methods to generate form. This would have helped refine the direction of the design process and I could have investigated atmosphere further with a clear method. The final design, as a result of this lack of clarity, was not resolved. After reflecting on this I was aware that I would need to investigate formal design strategies for the next scales. This would strengthen my designs at the public scale.

I intended to masterplan the whole island, but due to time constraints, I was reduced to an area to design for. This was then reduced to a single building, in order to address the scope of my research that focused on different ways architecture could amplify atmosphere. The relationship between atmosphere and architecture was developed and later clarified in the

public scale design. This was made clear through the iterative process that allowed for a range of influences, and problems, to manifest in the design. Testing the success of the investigation is subject to the experience of atmosphere when addressing the design proposition. The dual method of approaching the proposition was through architect's theories presented throughout the research. This investigates ways of staging atmosphere and ways of generating atmosphere through formal strategies. The design process was about integrating site and building, however, the final site shows a lack of consideration. This could be due to the jumps made from exploration design to developed design.

The strengths of this research come from the combination of theoretical content that is applied to the design process. Investigating these theories and applying them to design lead research has strengthened the generative process and the development of atmosphere and architecture. However, this may have been detrimental to the final design. The ability to test material compatibility was limited to the computer rather than physical test models. Because the focus of my research was on process. The material compatibility could have been further resolved through large scale models. Light on form also follows similar constraints, as I instead rely on the computer to test the way light moves through the building. I was able to model similar forms, however, these did not reflect the same materials used within the building and would reflect light differently.

A weakness of this design process came through in the aesthetics of the forms produced. The aesthetics did not reflect the programme; the solid sharp forms produced in the architecture contradict the delicate refined nature of rowing. The exterior of the architecture did not reflect the soft fluid forms of the interior. This could be due to the design strategies of superimposition, and the layers that were added at earlier stages to generate information from the site. These constraints could have been addressed if I had decided on the programme at an earlier stage. However, the information generated from the site was not directly related to the one programme, and have to support the rest of the infrastructure and sporting arenas on the Olympic Island.



Future Direction

To extend this research of atmosphere further, the artificial island would need to develop. The research could have benefited through undertaking more work on the land and climate types within the island. Further development in this could have resulted in a stronger engagement between atmosphere and the landscape. This could be reflected further into the architecture and masterplan:

Stadia as it is today... are typified by an effort to link their construction to larger ambitions for urban regeneration. As a result, rather than understood as a single, freestanding object in the urban landscape... designed to serve as a link in a larger network of urban amenities – retail, office space, even residential development – all intended to drive economic development (Flowers, 2017. 16).

In early programme development of the public scale, I identified a media and events building. This could be integrated into the surrounding infrastructure of the rowing arena. Adding amenities to the design to serve more function to the site when the Games are not occupying the site. This would accommodate to an urban regeneration that could be applied to other areas of the island zone types.

Conclusion

This thesis investigated how to amplify atmosphere within an artificial architectural environment, that developed through a theoretical understanding of atmosphere and architecture. This was resolved through the process of investigating a proposition across three scales. The design outcomes in this research uncovered a range of methods that aided in amplifying atmosphere within architecture. The scope of this research applies atmosphere to the context of an Olympic Island. The contributions towards an island for the Olympic Games stages the way sport can be applied throughout the world. “The increasing awareness of how construction drives energy consumption and in turn is a driver of global climate change, there is an emerging consensus that scraped earth demolition of stadia is no longer a viable solution” (Flowers, 2017. 46). Even if people demolition existing stadiums to build new ones is not the answer. My solution moves temporary, oversized sporting infrastructure away from cities and prevents any destruction on existing cities.

The proposition of this research was resolved through materiality compatibility, light on form, and thresholds in order to amplify the atmospheric qualities of the architecture. The material qualities, juxtaposed with the formal structures generated thresholds through the change in material and lighting qualities. The atmospheres were amplified through the tension between subject and object, encased in the staged artificial environment.

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Figure List

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