CHAPTER

06

[design development]

urban decay as a result of neglected infrastructure

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The chapter focuses on the main design generator and substantiates the decision-making process within the theoretical, practical and infrastructural context of the dissertation.

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Birds of the City

"There are always people who will come to inhabitthe difficult spaces of the wall. They are the people of crisis, pushed usually unwillingly to confontation with limits, borderline cases of every sort, adventurers, criminals, inventors, con artist, opportunites, people who cannot, or have not been allowed to, fit in elsewhere. They are nomads of the body, refugees of the mind, restless, itinerant, looking without much chance of finding a sure way either forward of back. Instead, they turn the situation to an advantage, making uncertainty a verture, and strangeness an ally."

Lebbeus Woods
(1997, 13)

INTRODUCTION

The design concept is an amalgamation of the theoretical investigation in Chapter 3. The design of an Urban [infra]Structure results from manifesting the analytical, theoretical, programmatic and precedential premises as discussed in the previous chapters. The project investigates the decay of urban peripheries as well as the way in which the continued neglect of infrastructures have led to their degenerative nature. The mapping and analysis of Tshwane's 2055 infrastructural vision concluded that although the vision is regarded as one of potential it in fact continues to facilitate this urban periphery condition defined by the block of Brown Street.

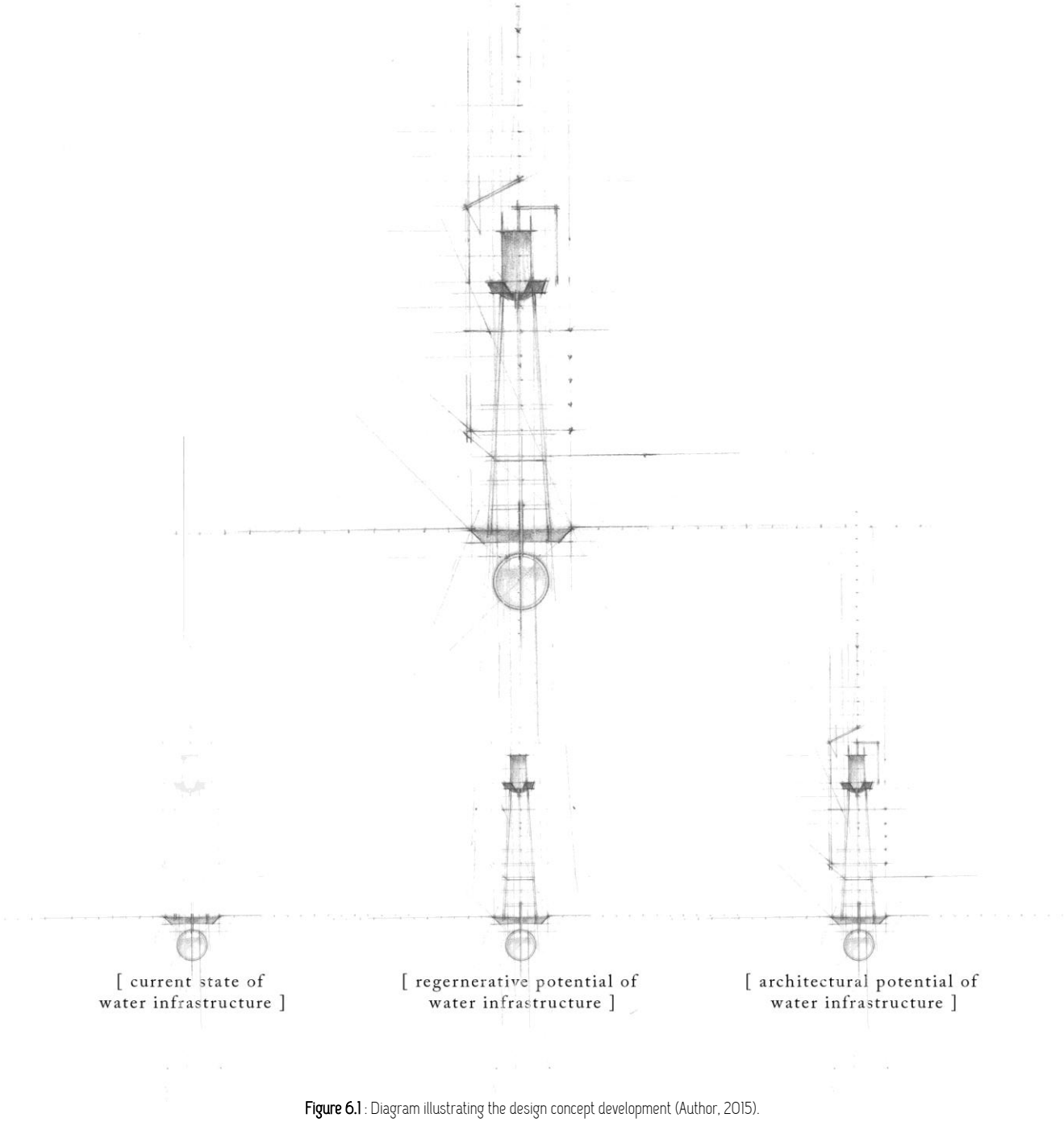

Figure 6.1 : Diagram illustrating the design concept development (Author, 2015).

SUMMARY OF DESIGN INFORMANTS

6.1.1 [site potentials]

The design of the Urban [infra]Structure intended for the block of Brown Street is based on existing urban, precinct and site potentials. These potentials are, in order of scale, the urban synergy with the 'Re Kgabisa' inner city framework; the social capital present within the North-Eastern periphery stemming from the informal transport hub; resultant commercial activity; remains of vacant buildings on Brown Street; and the site's geographical location within the orthogonal layout of the CBD, which allows for conditions ideal for inner-city water harvesting. All these potentials offer physical informants for direct and tangible design responses.

6.1.2 [program potentials]

The programmatic potential of the project is realized through an in-depth understanding and unlocking of existing on-site and contextual potentials, as stated above (7.1.1). The programs selected are based on their potential to contribute to a regenerative infrastructure.

6.1.3 [theoretical potentials]

6.1.3.1 The Urban Periphery Condition

Based on the theoretical and philosophical underpinning discussed in Chapter 3, the periphery condition is one which denies itself (North-Eastern quadrant of the Pretoria CBD) legitimacy. This denial is due to the fact that there is a continual desire toward the centre; the historic core of the city. In contrast to the core, which is considered to be the most central, public, dense and intense area, the peripheral zone should provide the most FLEXIBILITY but also needs to be most RESPONSIVE to its surrounds (Urban Hub Design Toolkit, 2013: 13). The primary role of the periphery is to mediate between the Heart and Corridor Zones of the surrounds. Being less dense than the centre, this zone should encourage residents in the surrounding areas to move into the hub and spaces that accommodate existing urban operators who cannot be accommodated in the more intensely developed zones (Urban Hub Design Toolkit, 2013: 13).

Departing from the periphery's state of dependency, Koolhaas suggests a Generic City; an ideal situation where the periphery becomes an independent entity "liberated from the captivity of the centre" (Koolhaas, 2005: 16). The generic city is no longer part of the destructive cycle of dependency. The success of this urban strategy is based on the fact that the Generic City is one free of identity (as identity roots from the historic core). Pretoria, however, is not only comprised of the generic; it also forms part of a '100% specific city' in its projection of its African identity. Public space in the generic city model is generally found as public squares. As Pretoria lacks public infrastructure, public spaces are found within the streetscape. This lack of public infrastructure in the North-Eastern periphery has resulted in 'insurgent' activity; the informal appropriation of the "in-between" spaces of its fabric.Therefore, Koolhaas (2005: 16) proposes the concept of the 200% city, where the city is both 100% generic and 100% specific.

6.1.3.2 Entopic Decay

Entropy, a term based on the 2nd law of thermodynamics, describes the natural tendency of matter to fall into a state disorder. The same law is applied by Lebbeus Woods in which theory concerning "*Inevitable Architecture*", in which the inevitability of decay is considered to be the future condition of all materials and therefore, architecture. Architecture as a material entity is dependent on the energies associated with occupancy; in essence, maintenance. It is this very principle that has led to the decay of Brown Street's fabric. It is not only the vacancy of buildings but also the obstruction of public access that here cause the absence of architecture's human component.

Therefore, to design for decay is to "include with the design a degree of complexity, even of contradiction embodied in the simultaneous processes of growth and decay of our buildings that heightens and intensifies our humanity" (Woods, 2012). It is the manifestation of entropy that is communicated in the layering of change over time. Entropy is evidence of the presence of nature in time. This designed complexity is a continuation of the entropic flow; "ruins melt and merge into new structures, to get a marvellous energetic juxtaposition occurring, with accident a large part of the whole process" (Smithson, 1973).

6.1.3.3 Regenerative Architecture

Stemming from the idea that decay is considered a natural phenomenon and should therefore inherently exist in harmony with nature and its natural process, architecture should engage the natural world as a medium for and generator of the design. Regenerative architecture "utilizes the living and natural systems that exist on site" that become the "building blocks" for the architecture. It has two focuses; it is an architecture that focuses on conservation and performance through a focused reduction on the environmental impacts of a building. This focus relates closely to the intentions of sustainability. "It is an architecture that embraces the environment and uses the millions of years of engineering and evolution as the foundation for a regenerative structure" (Littman, 2009: 2). It is based on the premise that everything we build has the potential to integrate the natural world as an equal partner in architecture.

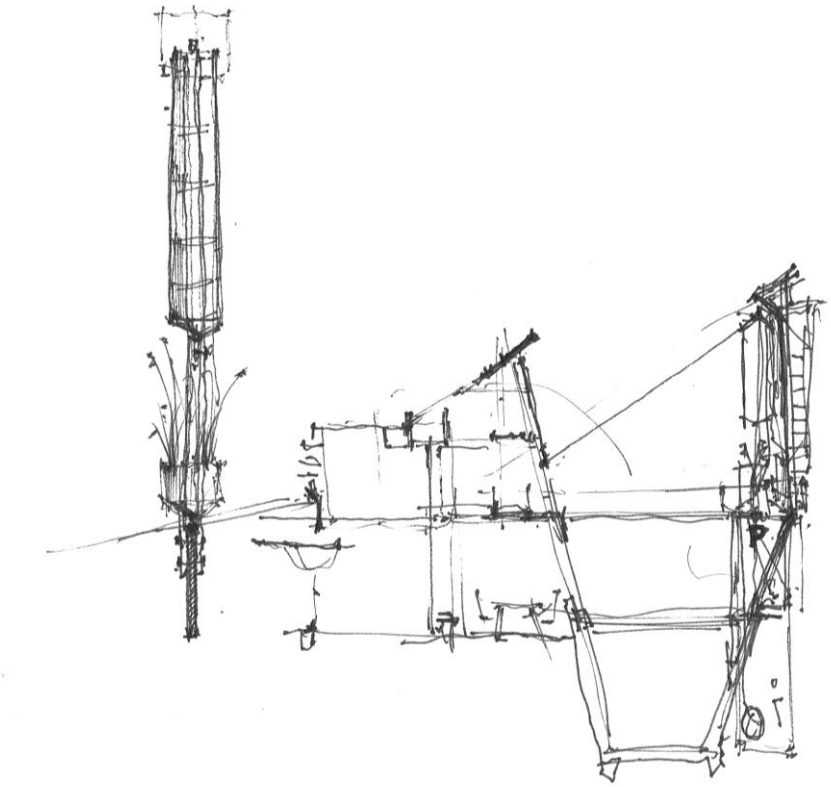

Figure 6.2 : Sketch diagram illustrating conceptual section iteration (Author, 2015).

CONCEPT

6.1.3.4 Rethinking Infrastructure

Contemporary cities are required to maintain a flexible organization. The enables them to absorb a continuous spatial reformation without losing their specificity and centrality (Delalex, 2006: 51). Specificity and centrality are both essential in an urban environment such as Pretoria, which thrives on identity. In synthesising theoretical premises, the architecture required in this peripheral context is to take on many roles. Firstly, it is to be flexible; not only in its ability to adapt to the ever-changing nature of identity, but also to the expected changes in its context. Secondly, it has to be sustainable in that it is free of its dependency. Lastly, and most importantly, is to be regenerative; it must prioritize the natural world as the catalyst for rehabilitation of the urban.

If this architecture is to regenerate, architects must incorporate a certain complexity of the real in their design. They must thus redirect their interest toward questions of scale, use, movement, flow and exchange; so moving toward an infrastructural design. Infrastructure not only has the ability to act directly on the city but it is also the most direct way to address human needs (Seewang, 2013: 2). Infrastructure therefore acts as the agent between the social component and the architecture that it accommodates (Banham, 1965: 79). Infrastructure should then form part of this process; mediating between the questions and their architectural responses. As architects reclaim their original tools, they should relate architecture to material practices, such as ecology and engineering, which are concerned with the conception and transformation of large scale assemblages over time (Delalex, 2006: 54).

The concept of an [infra]structure becomes the medium by which the city block of Brown Street is transformed. The transformation of the city block is necessitated by a persisting condition of urban decay. The identification of the site's latent internal and external infrastructural potentials enable transformation in addition to the site's internal and external resources, forming a system of interdependent components within the envisioned [infra]structure.

[infra] : Latin for "below" & theoretical principles of expanding.

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Urban [infra]Structure

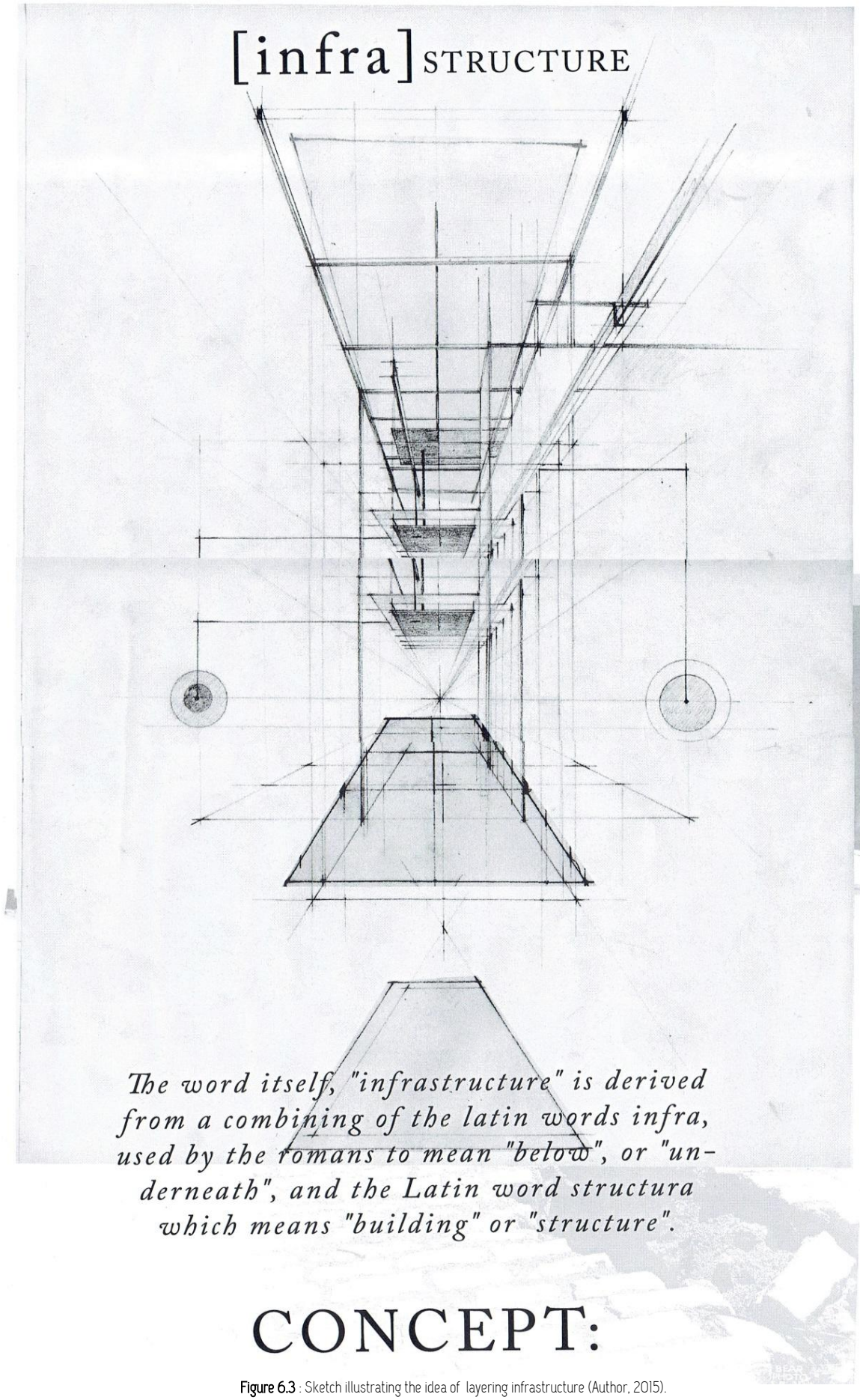

Figure 6.3 : Sketch illustrating the idea of layering infrastructure (Author, 2015).

6.2 DESIGN

6.2.1 [background]

In Chapter 7 the proposed [infra]structure of Brown Street is explained within the parameters of seven main design generators. These design generators influenced the process of decision making throughout the development stages of the design progression. The generators address design concerns regarding the urban, precinct and site analyses, building program, environmental aspects, site-based influences and, most importantly, the way in which the creating of an [infra]structure leads to the design of architecture.

6.2.2 [theoretical Premise]

Within the context of Brown Street, this dissertation explores an architecture of infrastructure. The systematic manifestation of infrastructure within the degenerative "in-between" spaces of the city block will result in the creation of a regenerative environment capable of rehabilitating not only the city block itself but also its dilapidated context. The design strategy for this dissertation is to develop the zones of the site which have not only been most affected by the degenerative nature of the site but also the transformation of the in-between spaces which led to the decay of the surrounding fabric.

6.2.3 [Brown Street as Service Core]

Anticipating that the rehabilitation of the city's urban periphery will lead to investment in and development of the block of Brown Street, an investigation is made into the possible nature of the regenerative infrastructure. Remembering the role of infrastructure as "the basic physical and organizational structures needed for the operation of society" as well as considering the , it was seen fit to initiate the design process with the creation of a *'service core'*. The service core is a distinctive feature. It provides: structural solidity as well as room for elevators, toilets, and other amenities that contribute to the main network for utility services, power and data. The service core influences many aspects of the design of buildings, such as those concerning structure, access and even shape.

The service core is defined as the *"distinctive feature that plays an important role in the success and sustainability of the whole"* (Trabucco, 2010; 1). Investigation into possible site locations and relevant design potentials of the intended [infra]structure maniphested within three stages **(see figure 6.3)** illustrated as:

A. "inserting" B. "contextualizing" C. "feeding"

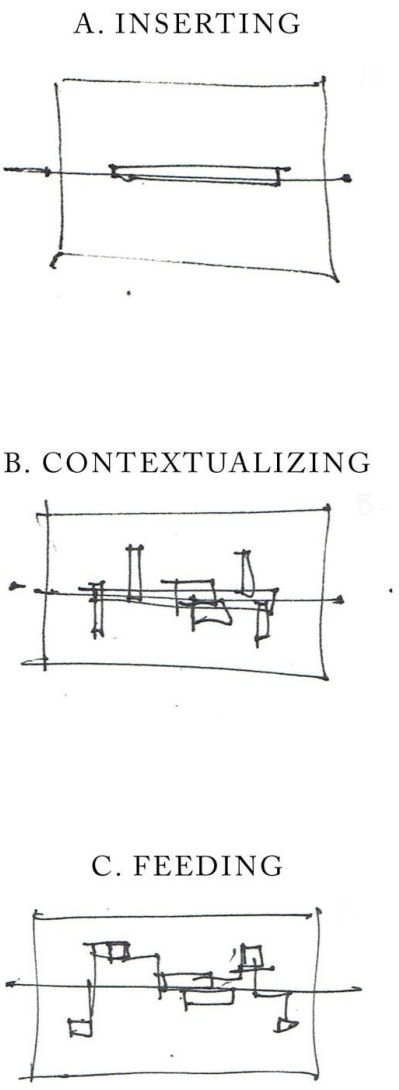

Figure 6.3 : Sketch diagrams illustrating site location of proposed 'service core' within the block of Brown Street (Author, 2015).

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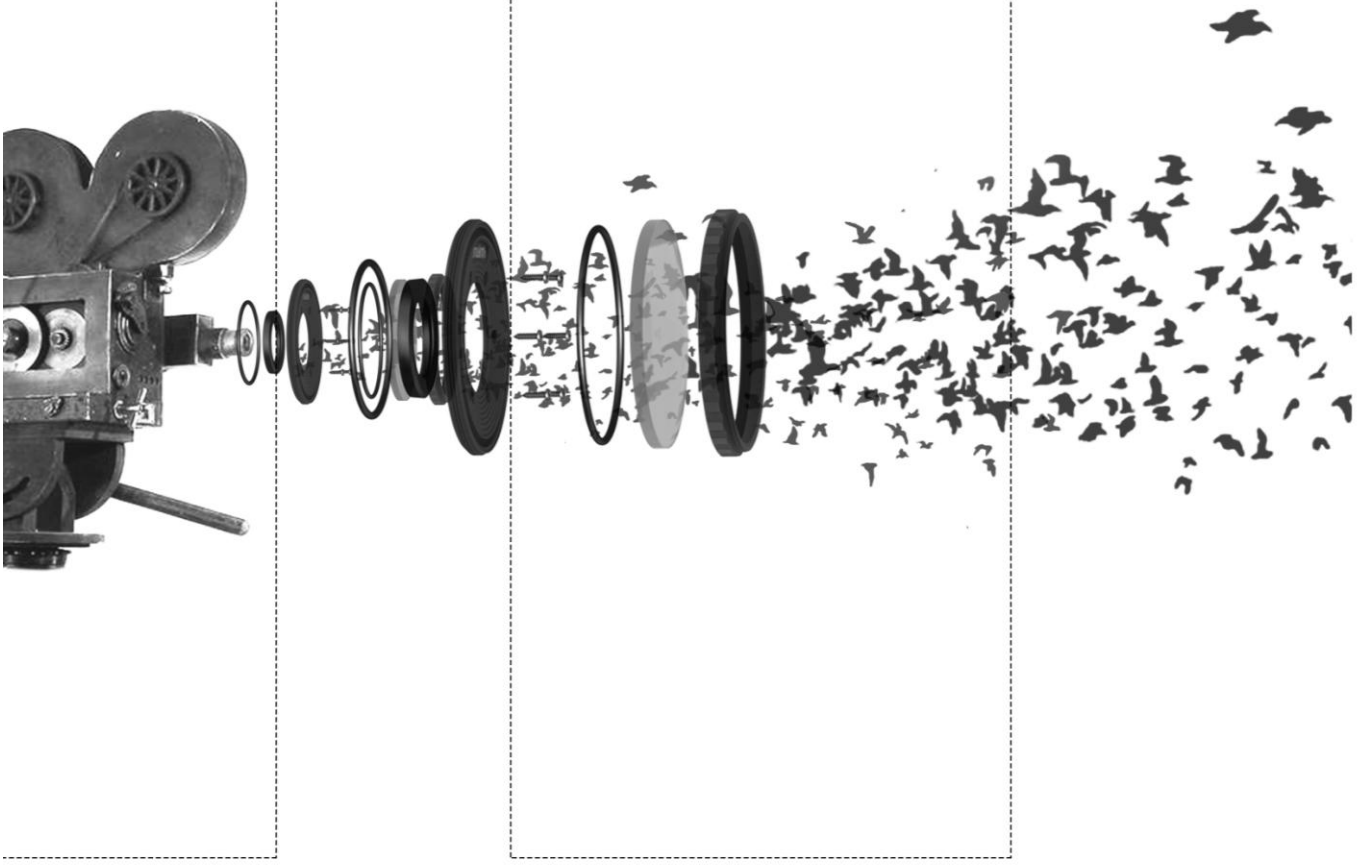


6.3.1 INSERTING

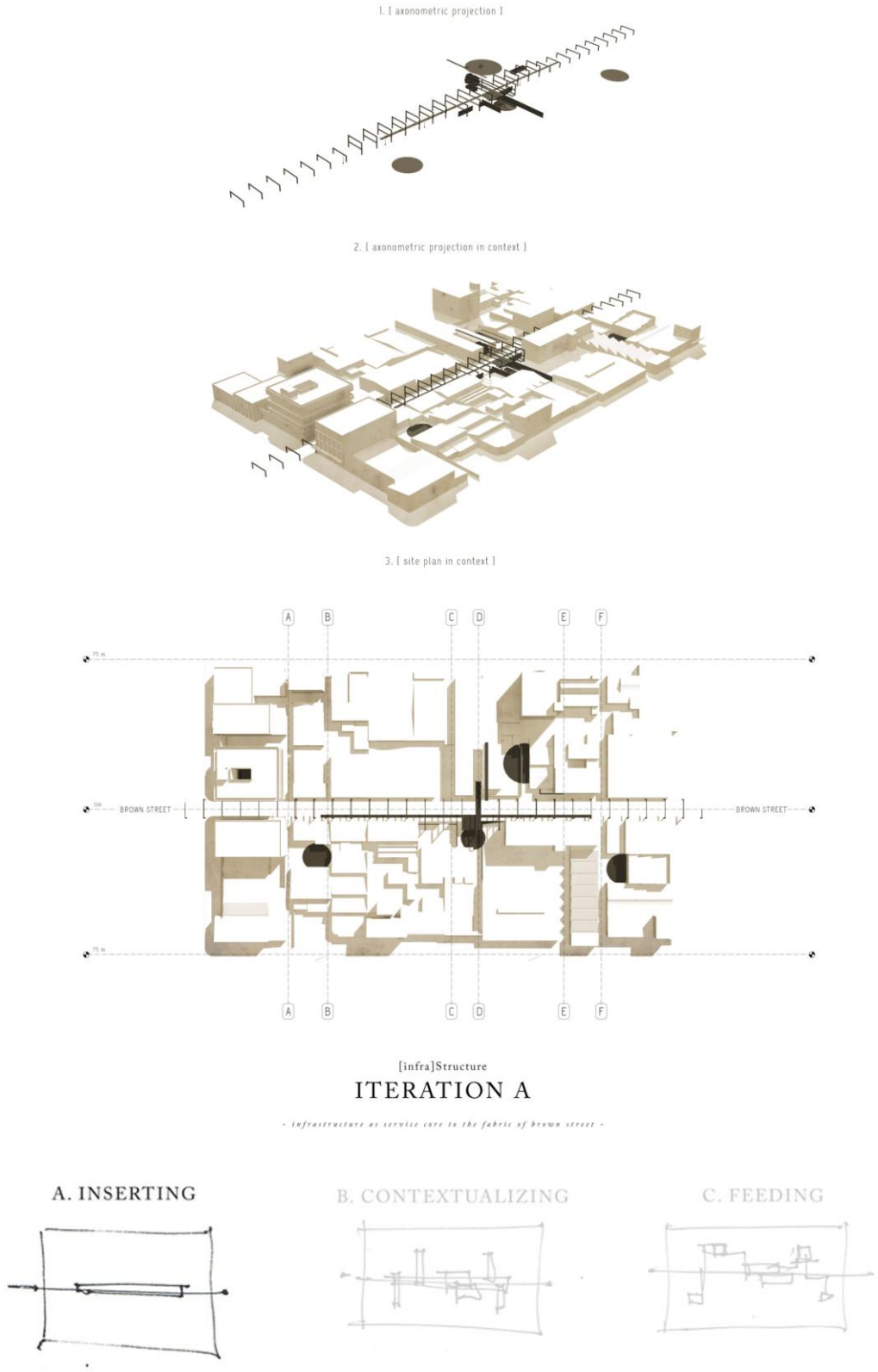


Figure 6.4 : Diagram illustrating the INSERTING of [infra]structure (Author, 2015).

7.3.2 CONTEXTUALIZATION

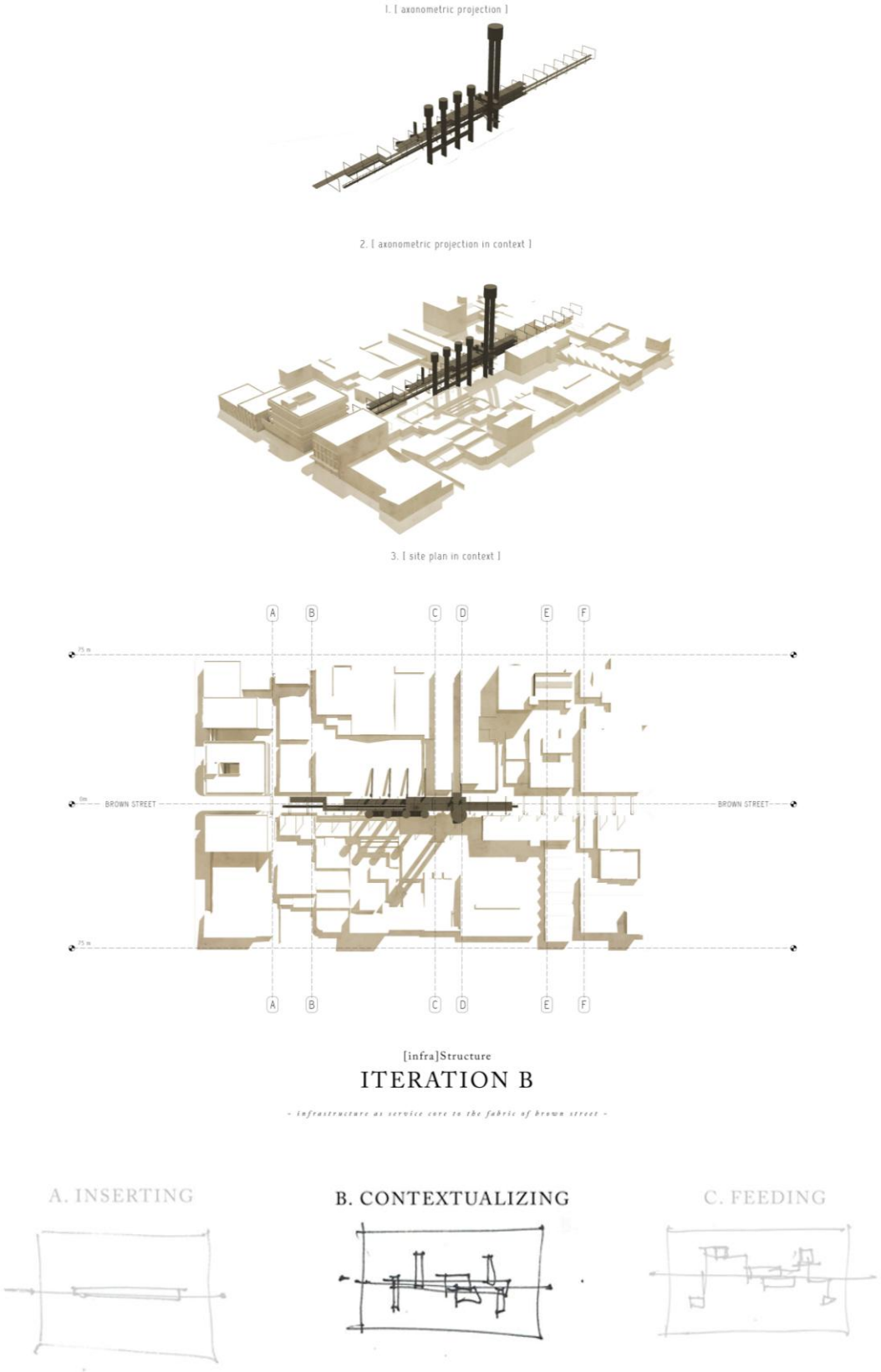


Figure 6.5 : Diagram illustrating the CONTEXTUALIZING of [infra]structure (Author, 2015).

7.3.3 FEEDING

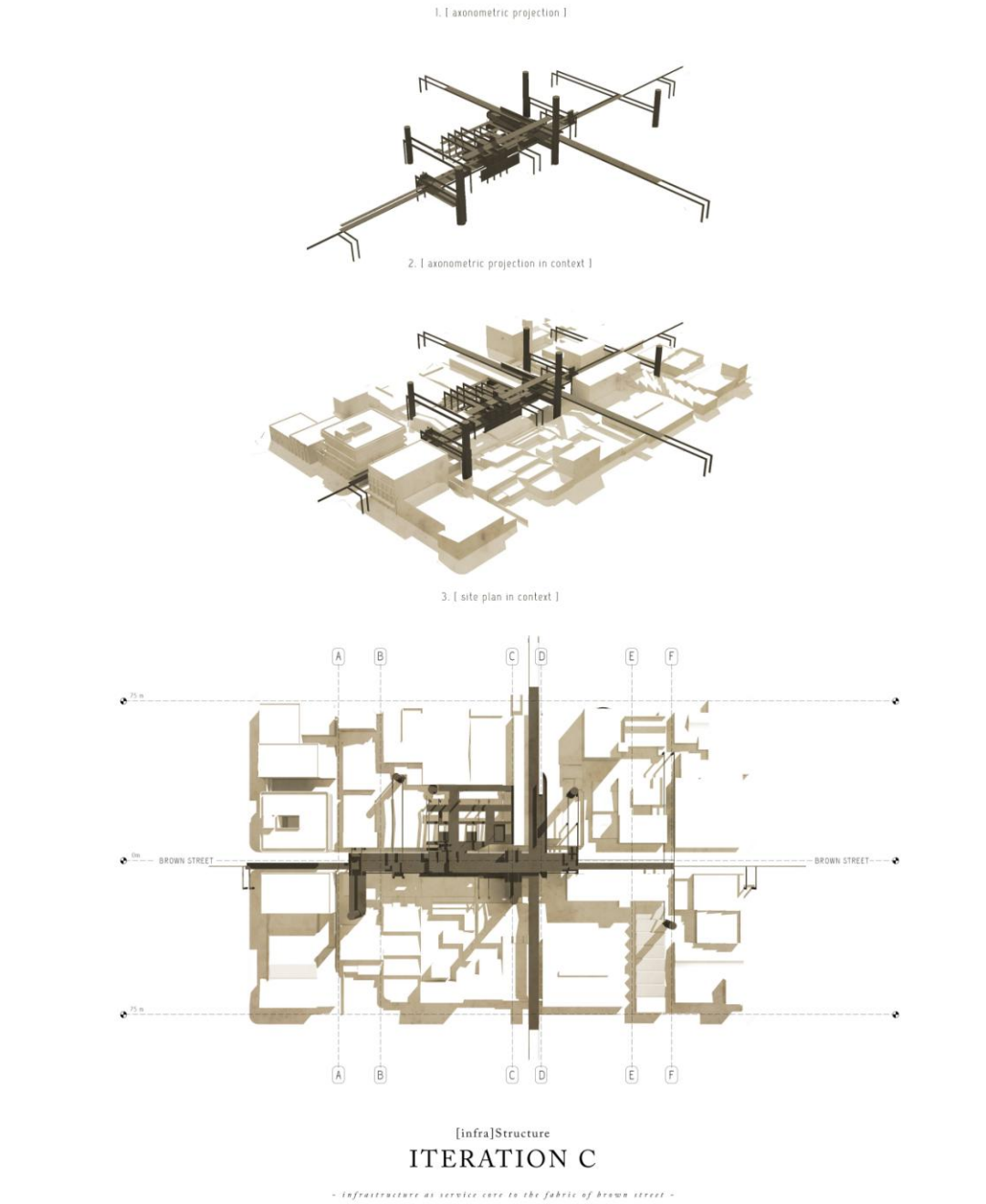


Figure 6.6 : Diagram illustrating the proposed [infra]structure FEEDING off of Brown Street fabric (Author, 2015).

THE [infa]STRUCTURE

[Arial view of proposed regenerative infrastructure]

6.4 INSLUA

6.4.1 [urban components : the city block]

In *Urban Components*, Leon Krier criticises the historical tendency to the centralization of function (economic and cultural power) as this results in larger and large city blocks, which eventually attains larger and larger building programs. It causes the overstressing of city centres.

The city of Pretoria has been formalized and has developed from an agrarian origin (Bell & Lane 1905:12). The natural boundaries of the city contained its development and have to a large extent formed the city's urban identity (Jordaan, 1989: 26). The morphing of these elements saw the city transform into what is has become today. Analysis of Pretoria's urban development reveals that what is today known as the completely urbanized Central Business District, was once the residential surrounds of the town centre, Church Square.

The rigid *cardo-decumanus* grid in conjunction with the residential origin of the city has resulted in oversized city blocks. These impede pedestrian movement in and around the urban environment. Consequently, as the city grew, so did the development of the vibrant mid-block arcades (Le Roux, 1991: 32). This added a distractive layer to the city's spatial identity and urban environment. However, as the city of Pretoria expands, so does the need for public space.

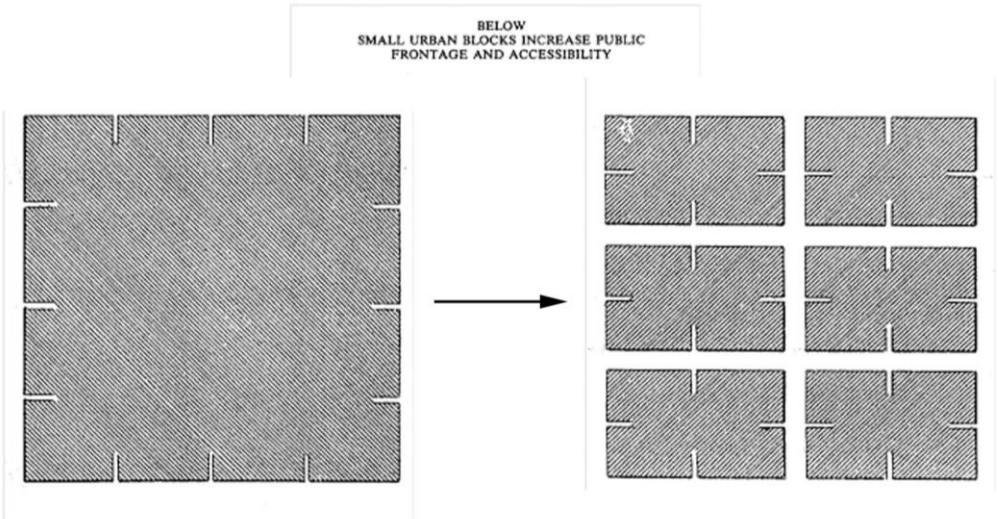
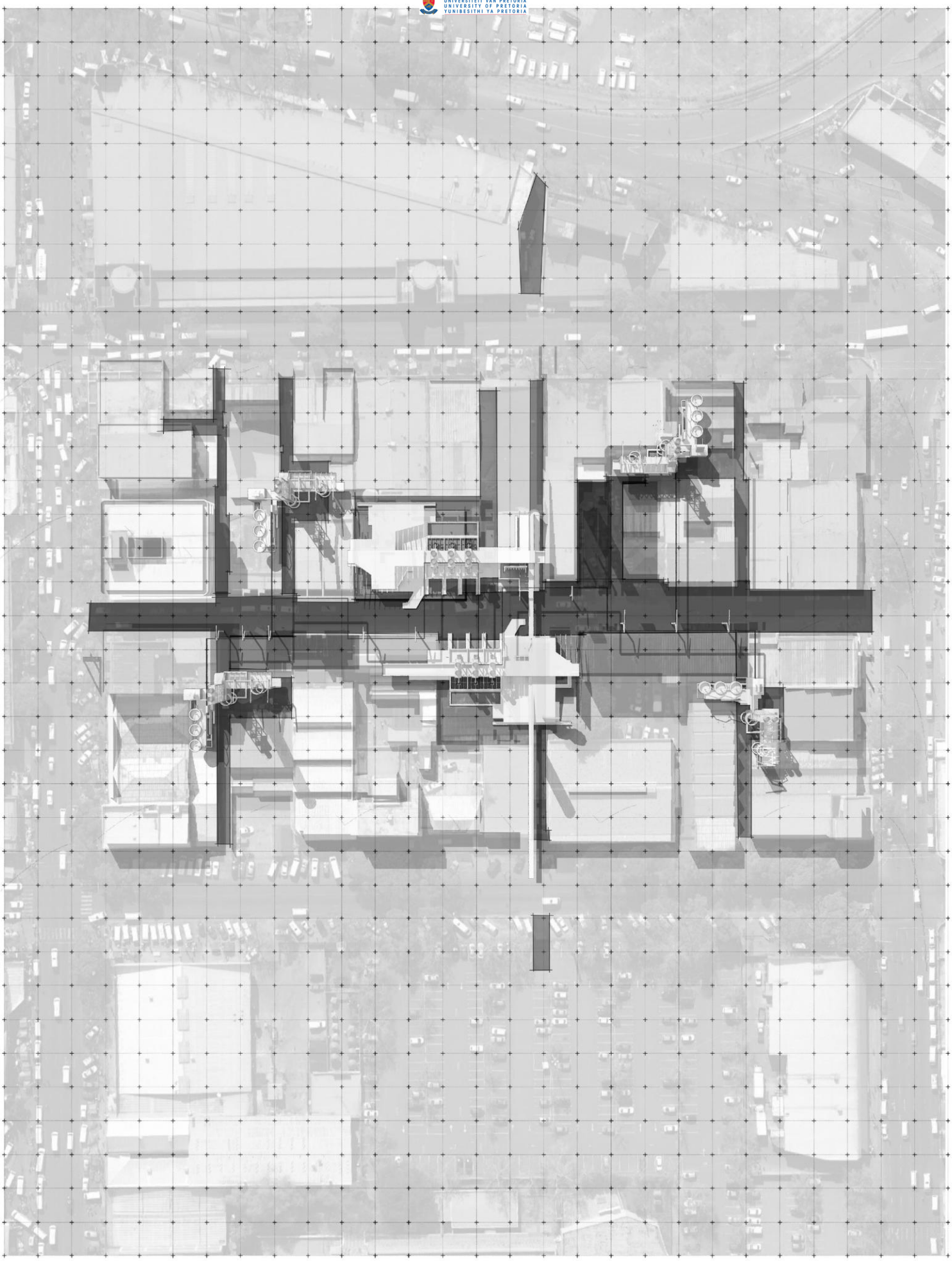
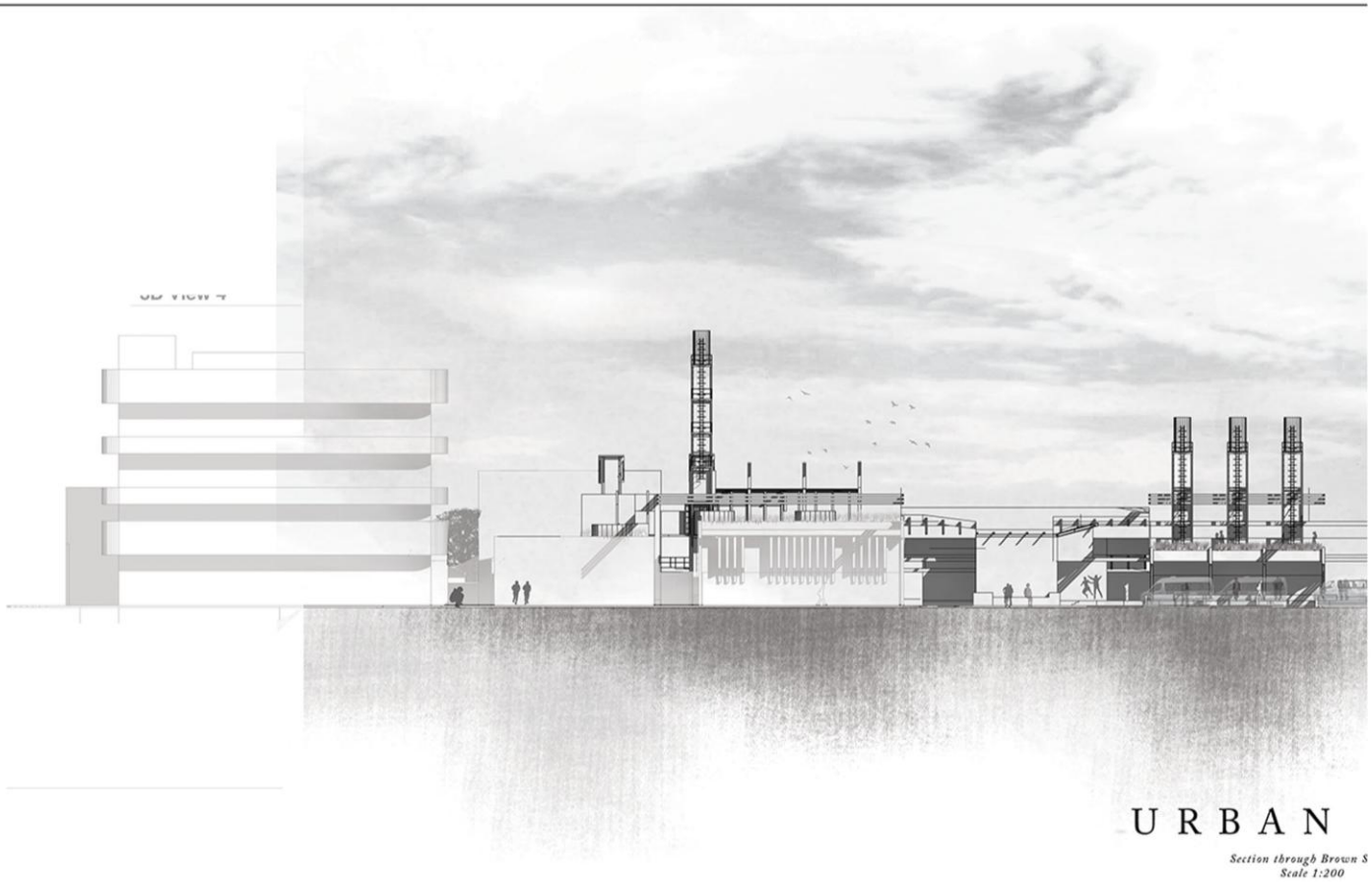


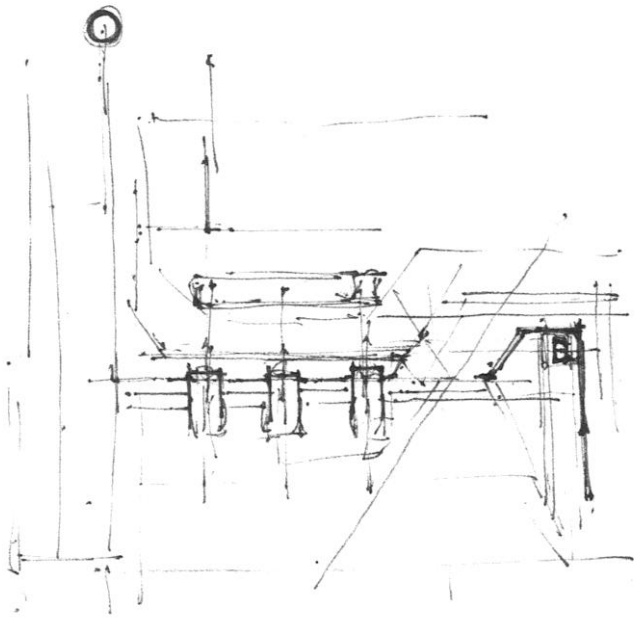
Figure 6.5 : Diagram illustrating the feeding off of Brown Street fabric (Author, 2015).

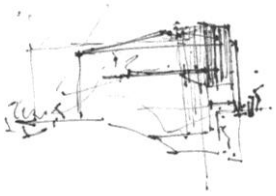


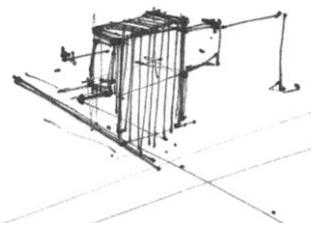
[i n f a] S T R U C T U R E

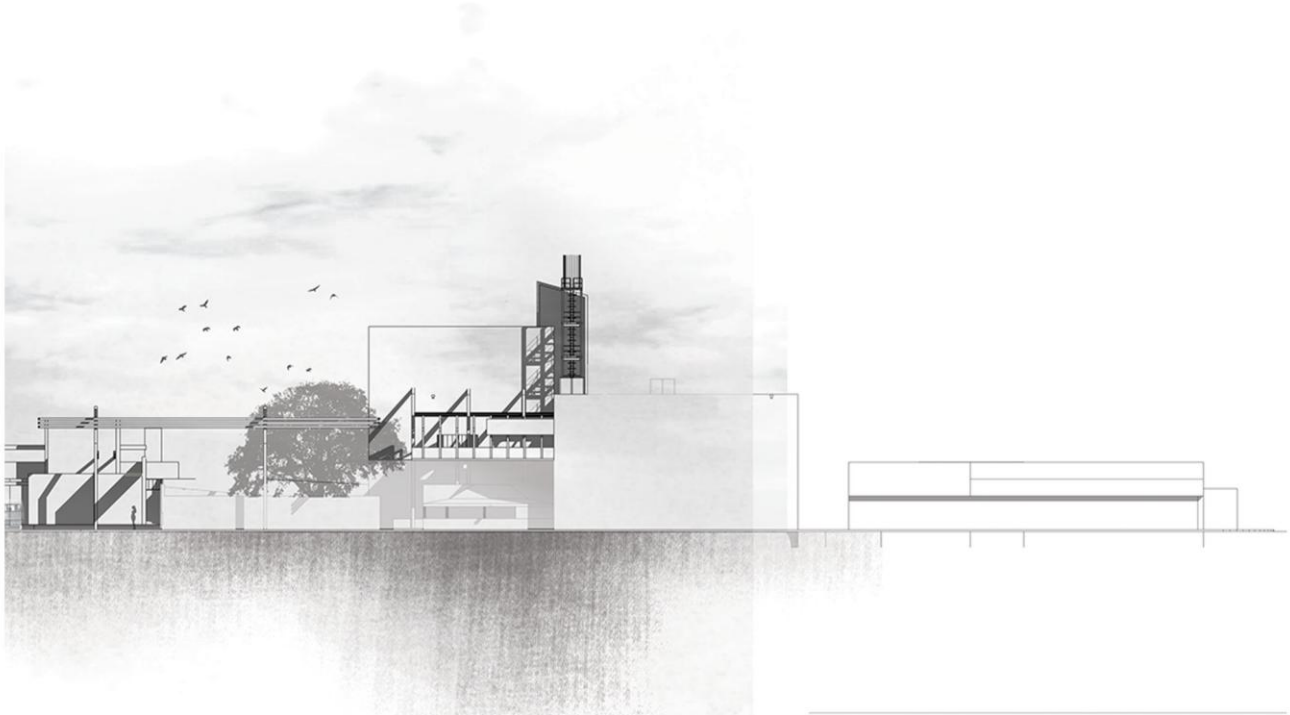
[Arial view of proposed regenerative infrastructure]











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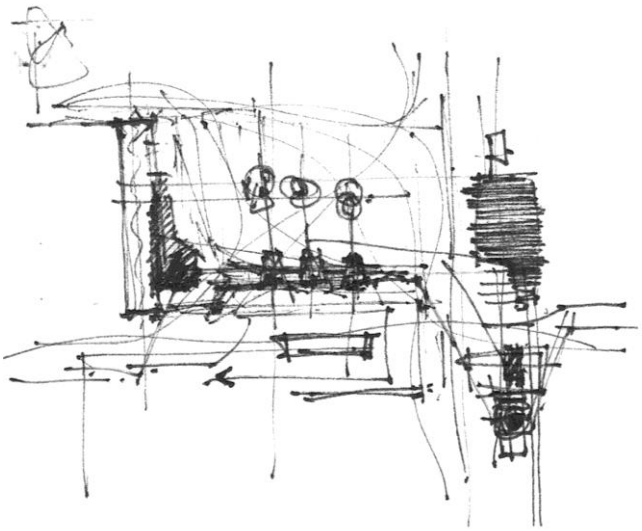

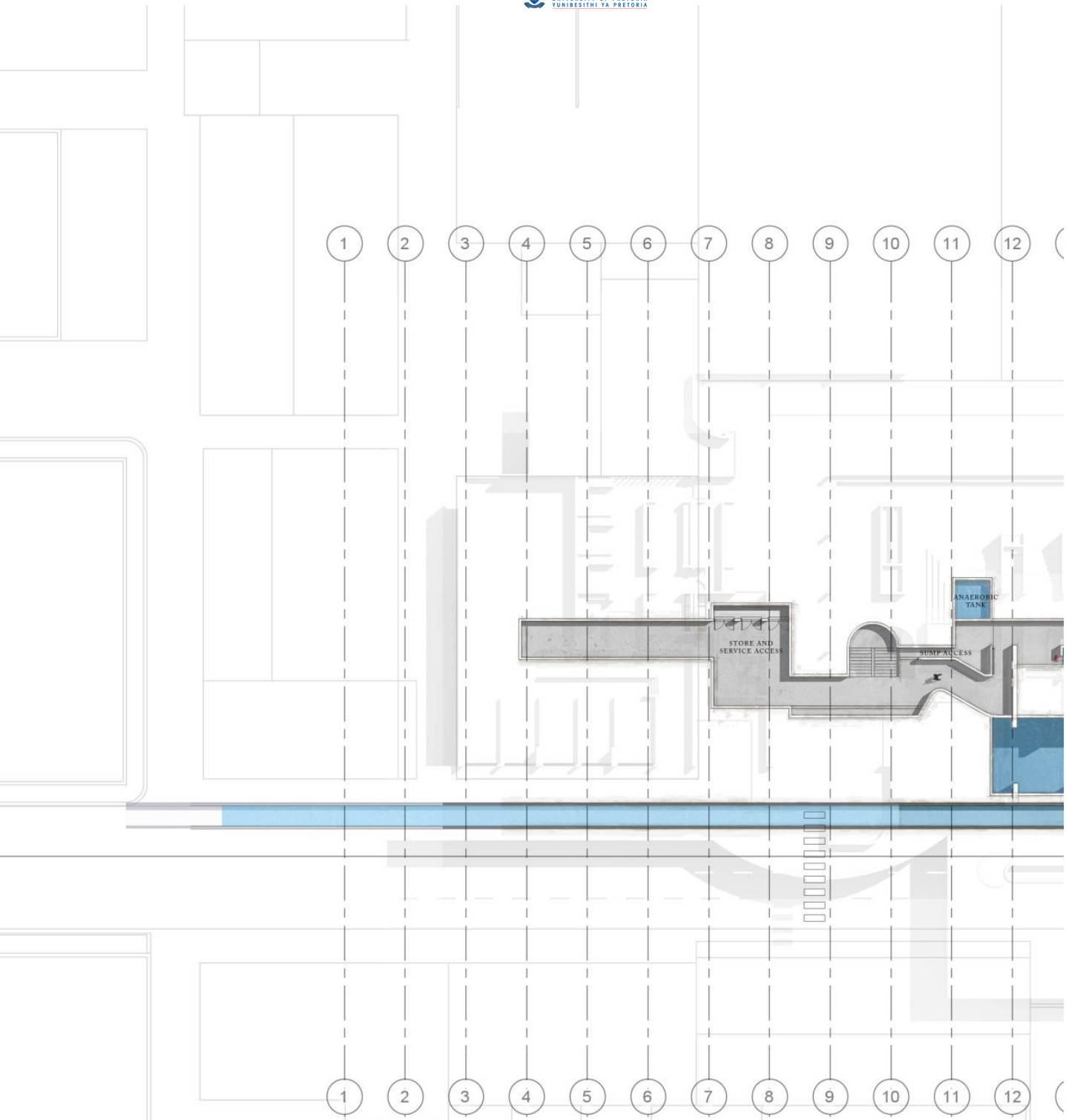

BASEMENT FLOOR

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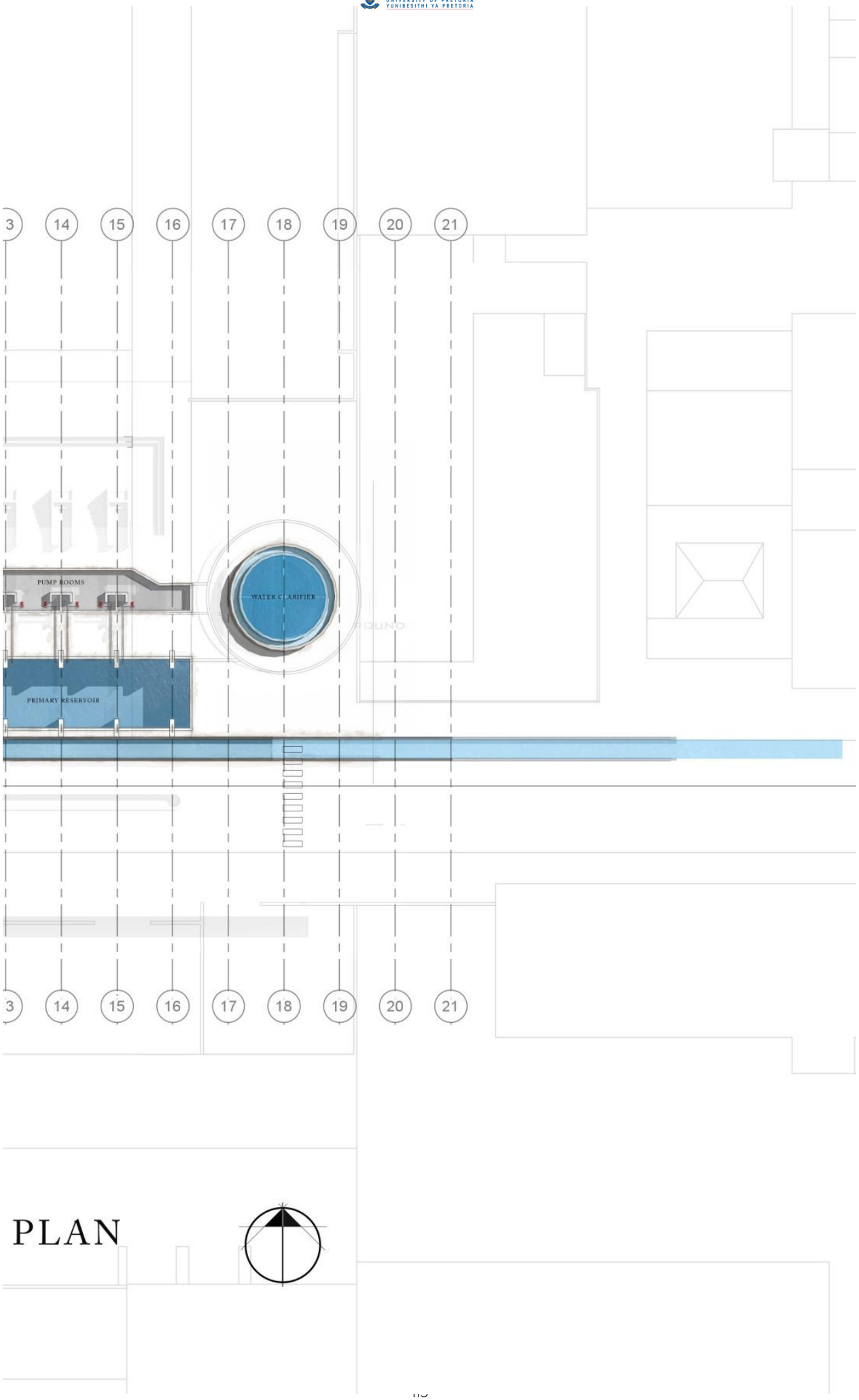

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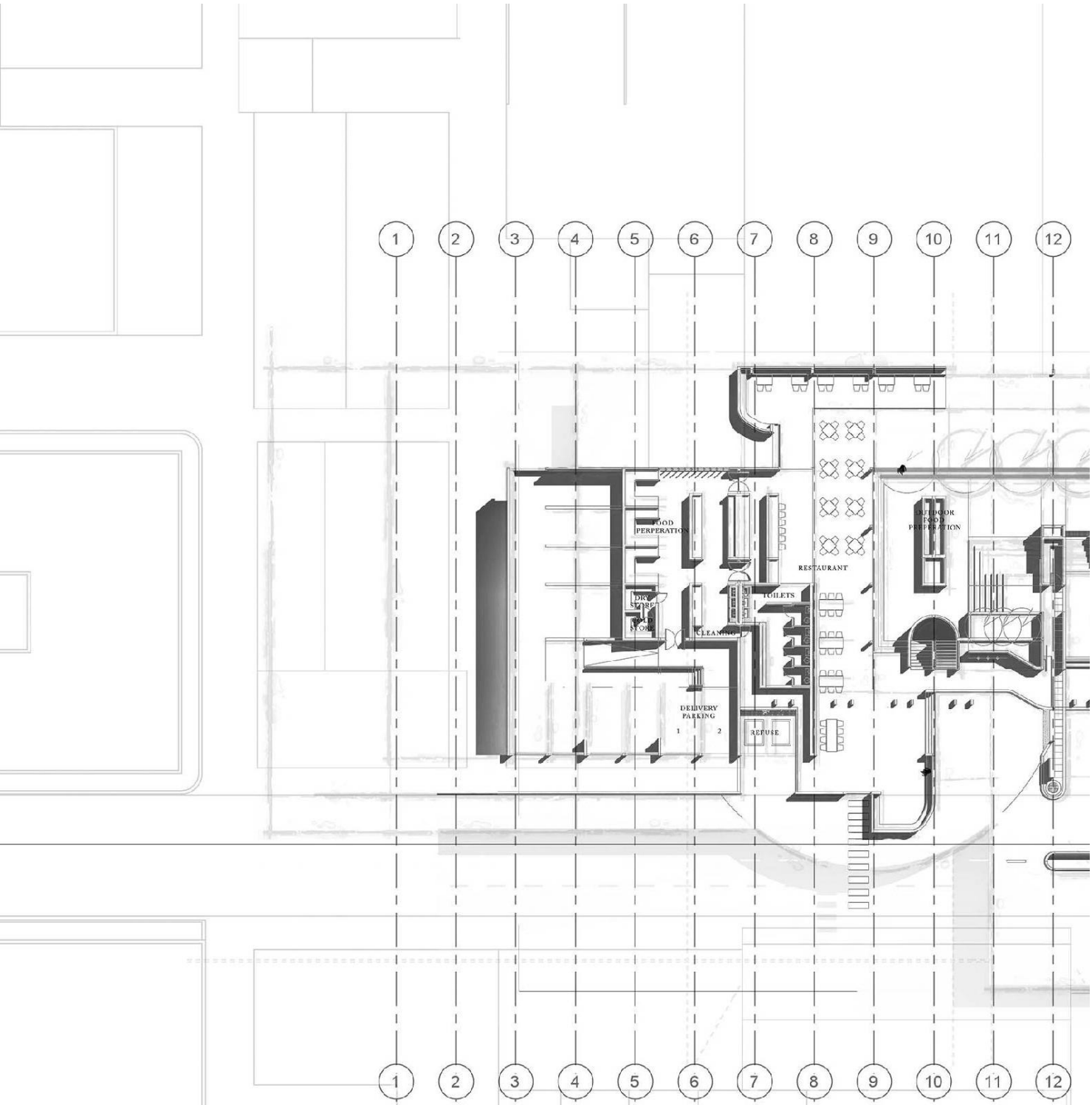

GROUND FLOOR

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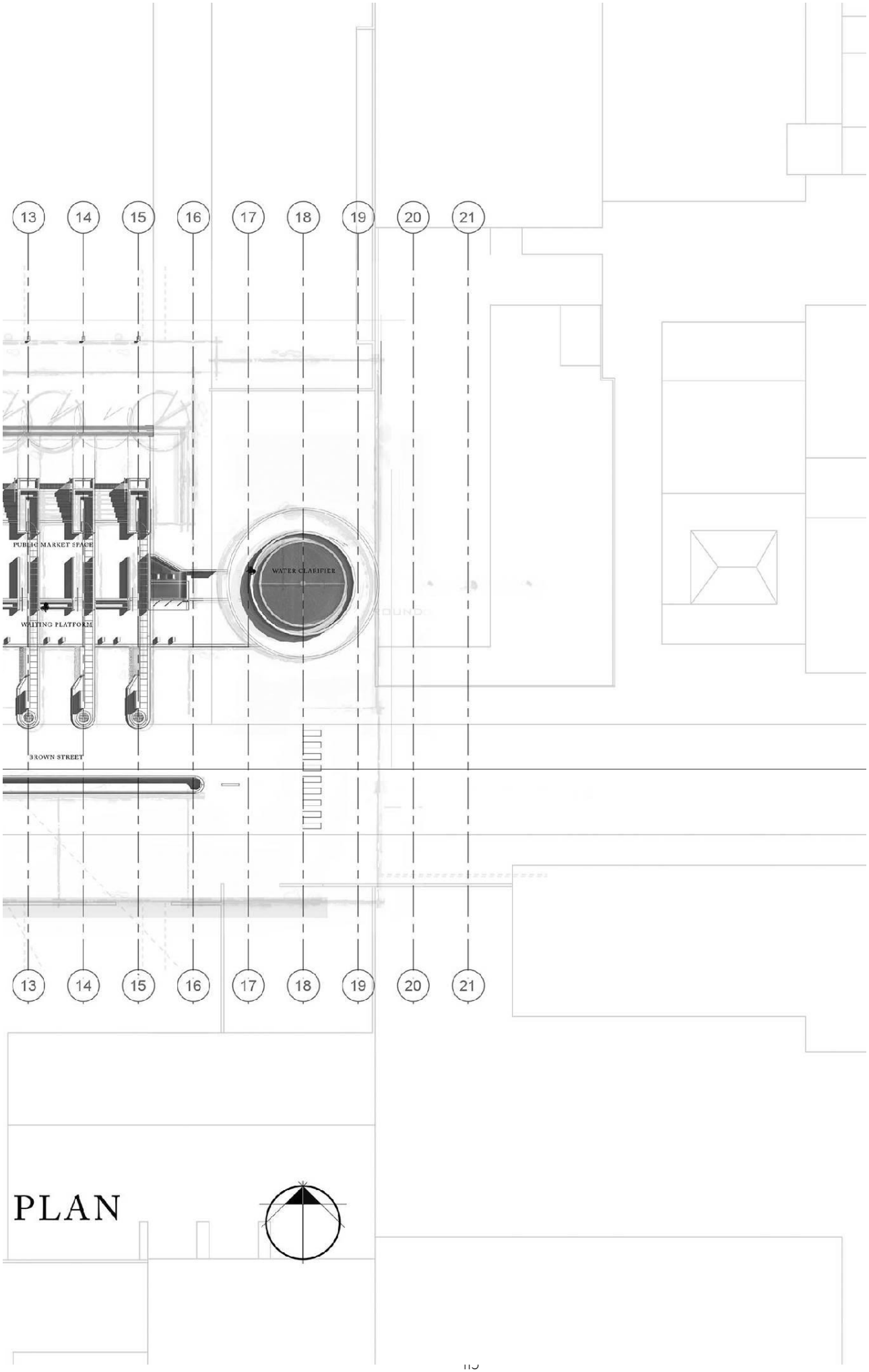

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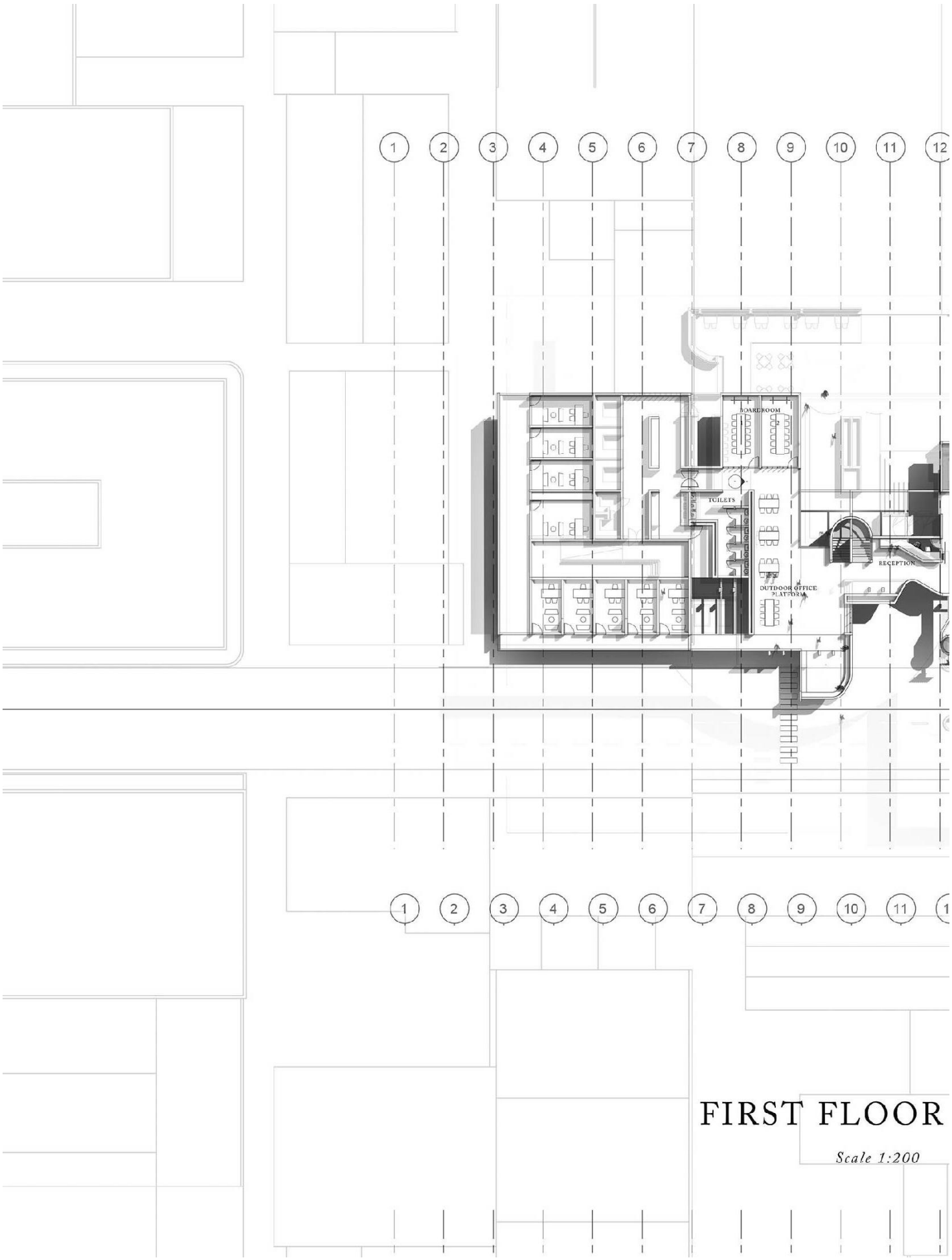

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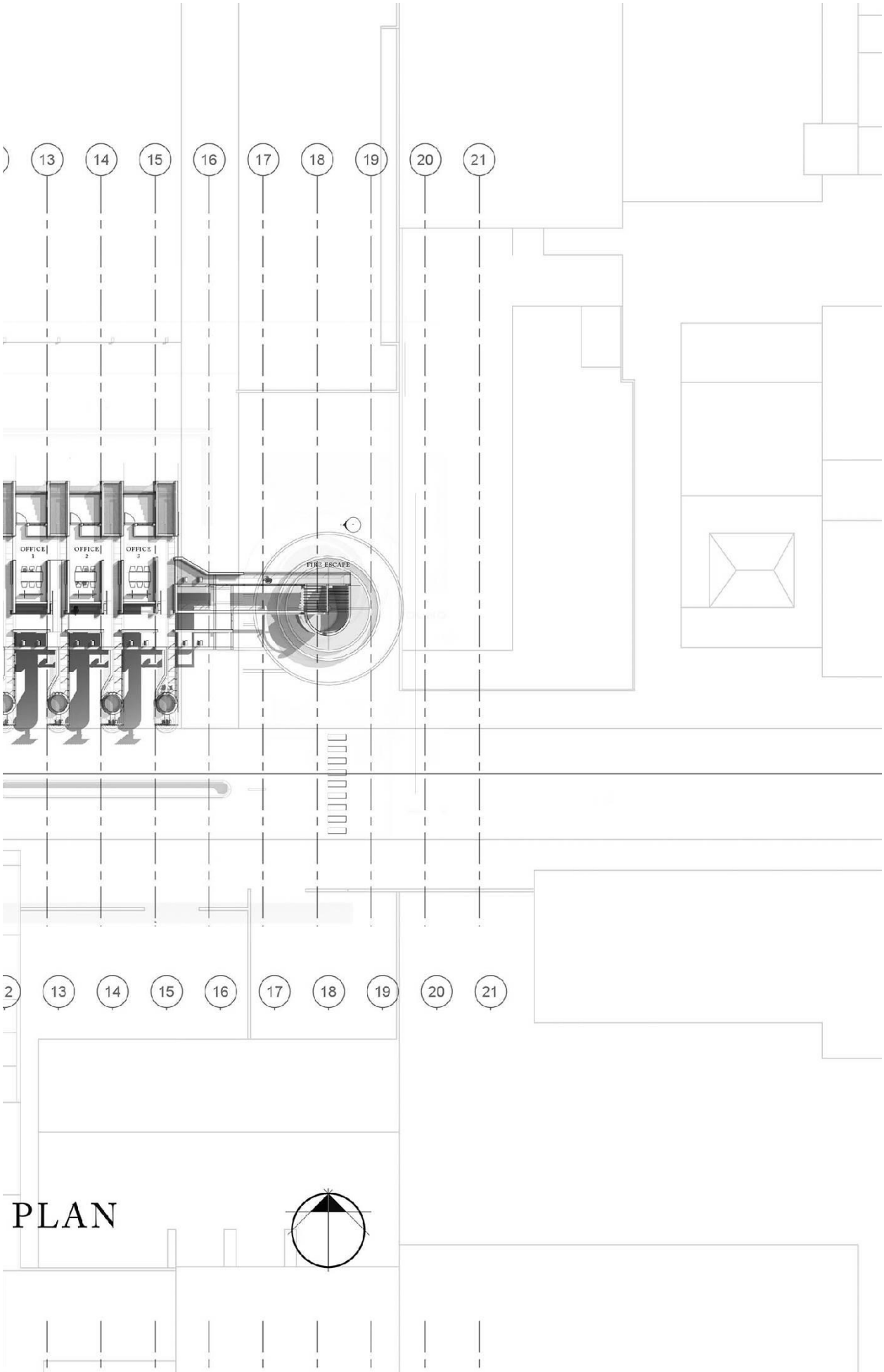

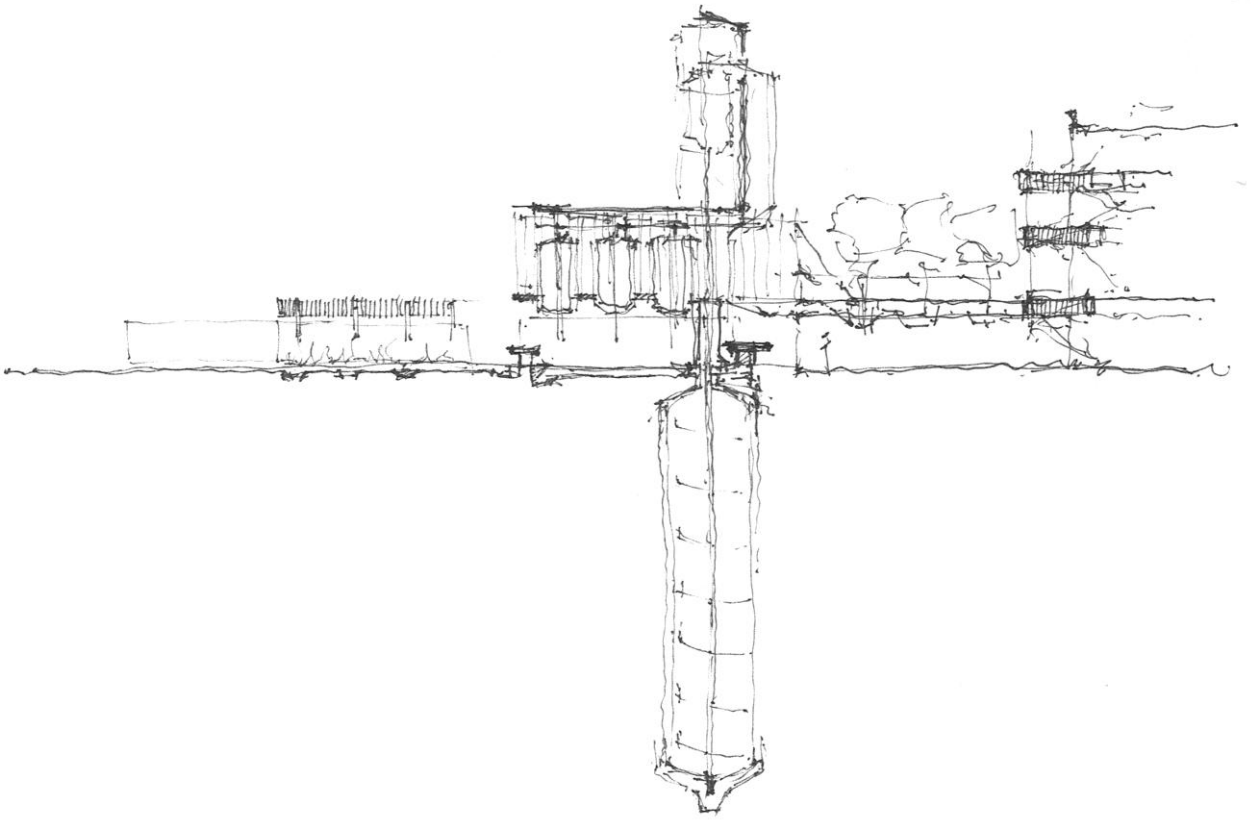

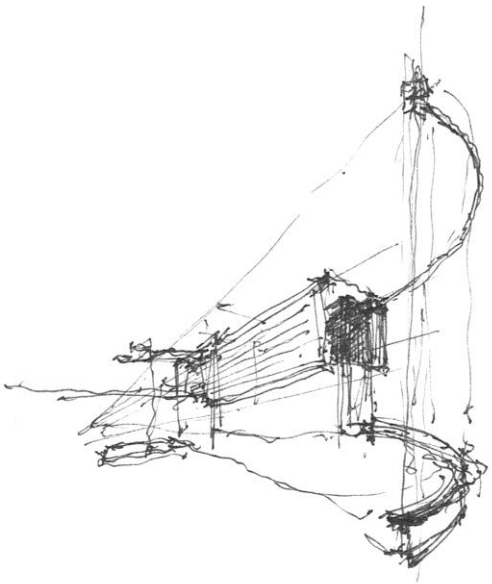

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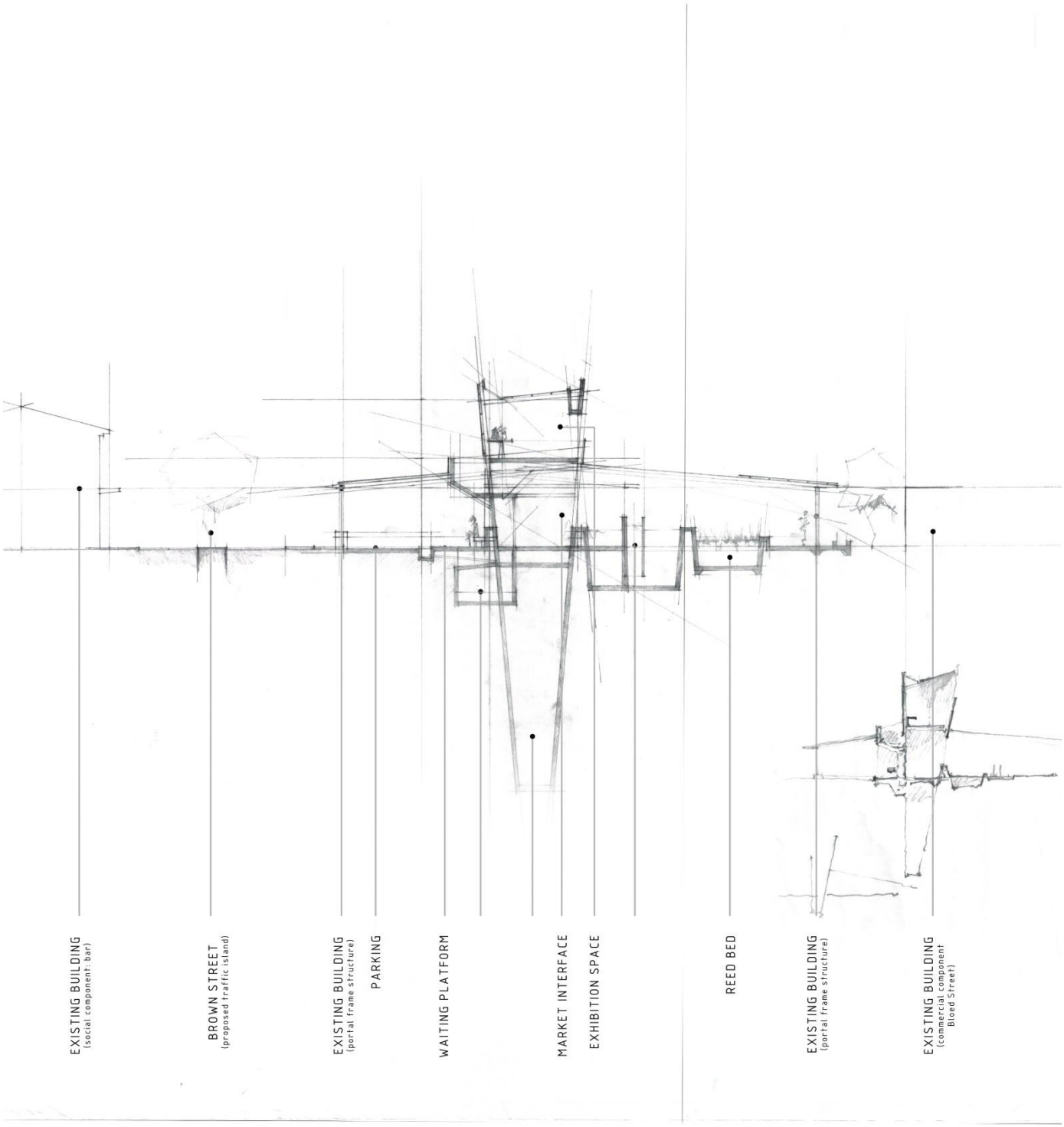
- Section Exploration -



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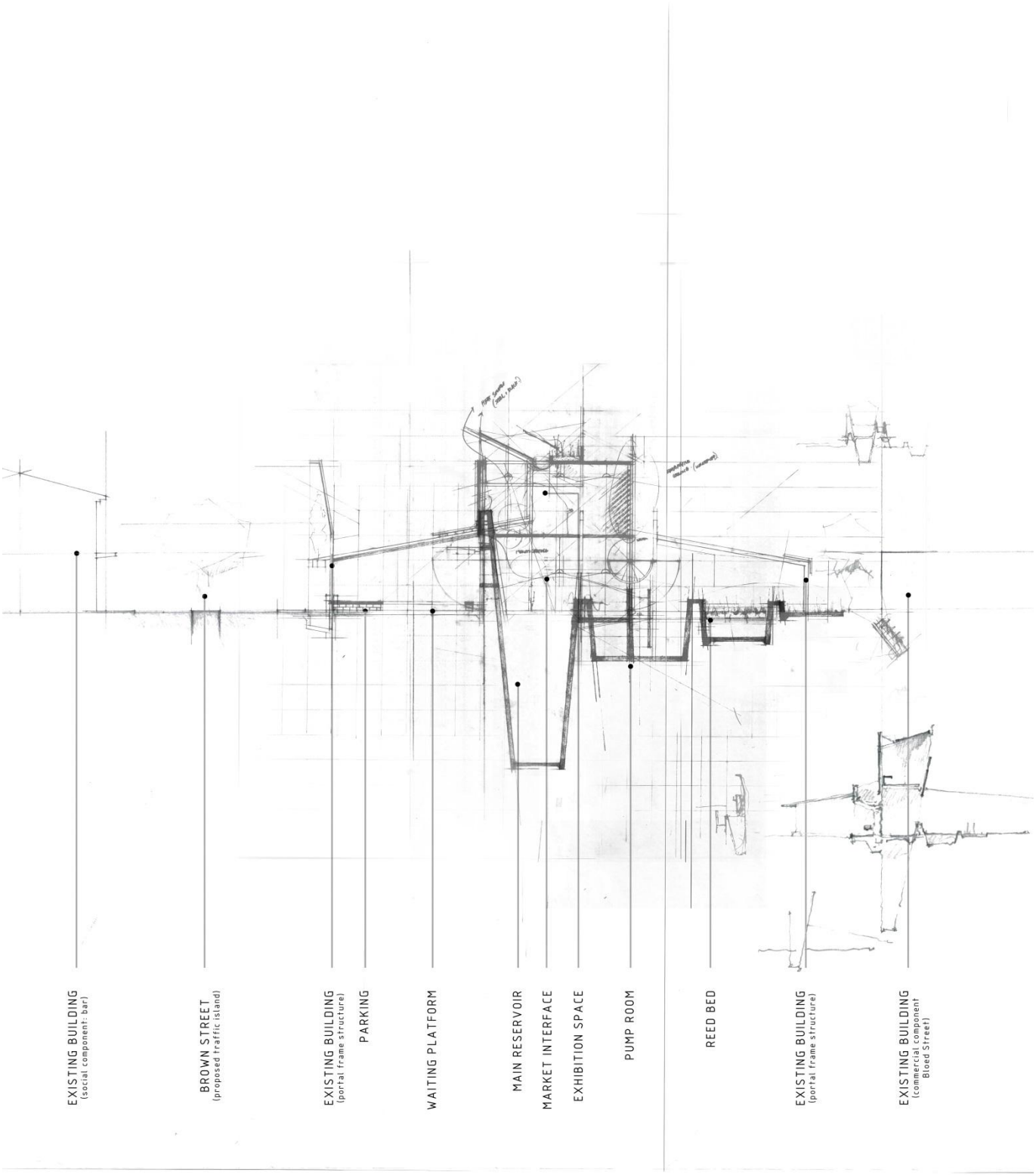

03

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