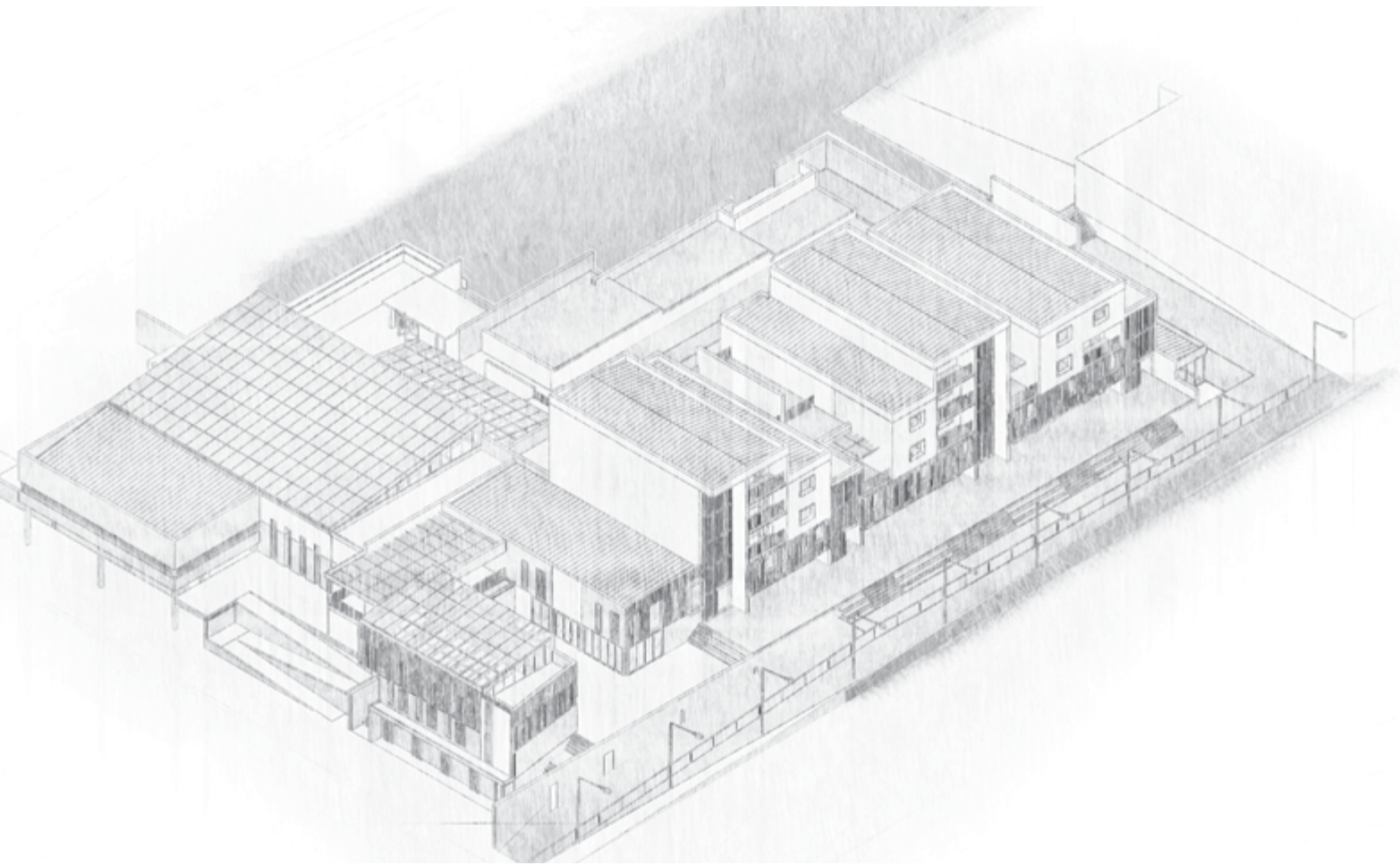


**ASSOCIATIVE TYPOLOGIES:  
MODES OF ENGAGEMENT IN  
COLLECTIVE URBAN ENVIRONMENTS.**



# PROJECT INFORMATION

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Research Field: Heritage and Cultural

Landscapes

The University of Pretoria, 2019

Project Location: Mamelodi Ext 6, Erf;  
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Program: Wellness facility, Cohousing,  
shared office & workspaces

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# Abstract

## MACRO CONTEXTUAL STUDY

### 1.1 Abstract

The dissertation 'associative typologies,' reflects on the social disconnection observed amongst urban participants in 21st Century urban environments. Exclusionary planning policies combined with the preferential socio-economic environment have created atomized urban networks that impair the social performance within cosmopolitan landscapes such as South African city centers.

With new integration imperatives defined in the Tshwane 2055 vision, which aims to integrate the city's development potential region by region, the once 'uncommon' peripheral zones such as Mamelodi East, are yet to find new collective importance that is described by spatial association.

The research topic focuses on the concept of 'collective commons' that represent themselves as urban modes of engagement between Pretoria CBD and Mamelodi east. These components will be used to recreate/support contemporary participation levels found in and around the case study areas today. This study will encourage the development of a conceptual framework that identifies a spatial pallet that accounts for the interactive potential of the targeted participants and attempts to improve the psychological condition of the urban dwellers from individual to collective.

The developmental outcome is intended to represent a destination of collective consumption that is informed by real-time urban modes. This methodology may enable the sustainable scaling of project phasing and stakeholder participation in neighborhood development projects that are branded by collective interest/ identity.

# Chapter 01

## MACRO CONTEXTUAL STUDY

### 1.1.1 General issue-

“Works of architecture, art, and poetry are indeed capable of moving us; they transform our life and ground our very being” (Neveu & Djavaherian, 2015, p. 243)

### 1.1.2 Urban issue-urban divisions

The focus of this dissertation <sup>1</sup>is the creation of access and livelihood in previously disadvantaged areas. Present-day South African cities designed to restrict access and economic participation through planning (Pernegger & Godehart, 2007). Pretoria is characterized by disconnected areas/neighborhoods with a strong development focus on the well-located areas (SA 2018: 24, SACN 2016), creating a migratory effect of the labor force situated on the peripheries of the job opportunities.

The migration of the labor force in the morning and returning in the evening continues the restrictive legacy of dormitory neighborhoods employed by the apartheid regime. It encourages urban compartmentalization that impairs integrated functions (Gehl, 2006, pp. 101-103). The National Development Plan was a legislative framework set out to remedy the segregation of environments and encourage access to livelihood through the Neighbourhood Redevelopment Programme of 2007. Since then, the road map to a democratic landscape has been captured in the form of the integration frameworks of 2011, the Urban Networks Strategy (revised from the 1996 Nation Development Partnership Grant), and the Breaking New Ground of 2009 (revised from the 2004 Redevelopment Programme).

### 1.2.1 Urban conditions

Current studies indicate that the focus of redevelopment is on transition environments offering good investment leverage. When there is development in environments that do not present high investment leverage, architectural quality is reduced to suite the return on investment (SA 2019). Previous plans did not account for the primary driving force being the private sector (profit-based specialist), which renders areas of low investment leverage such as previously disadvantaged neighborhoods undesirable (SA 2007: 5). The study will attempt to develop a conceptual framework that introduces a low-risk high liquidity development model that accounts for the profitability of developments while providing quality architectural environments (SA. The spatial framework aims to provide possible insight into additional networks that may positively inform the development risk. Peripheral neighborhoods host the majority of the labor force that migrates to and from the city center daily (GCRO 2018, Honours 2017, Masters 2019). As a result, these neighborhoods become dormant for most parts of the day due to being mono-functional (Honours 2017; Masters 2018; City of Tshwane 2018). This urban condition would suggest that the capacity of peripheral communities to contribute significantly to the economy is limited.

### 1.2.2 Urban context

A. the continuum of urban renewal  
With the physical legacy of South Africa defined by three oppressive administrations, the 2012 National Development Plan, although preceding the 2016 Agenda 2030

Sustainable Development Goals developed by the UN, aligns with the global imperative to restore the balance between the economy, the environment, and the social spheres around the world (SA 2007,2018,2019, SACN 2016). The physical context not only forms a platform of response but bares historical testament of the country's transition through different socio-political, environmental, and economic paradigms over the past 400 years to date (SA 2018, 2019, SACN 2016).

### 1.3 Contextual locality and location

The City of Tshwane, home to approximately 2.9 million people, with 2,125 million found in urban areas as of 2016<sup>2</sup> Pretoria hosts the central business district of the third-largest metropolitan municipality in the world (City of Tshwane, 2013, p. 22)<sup>a</sup>. Pretoria, which was founded as a capital in 1855 by the Zuid-Afrikaanse Republiek (ZAR) under general Andries Pretorius, is also one of the South African cities that bare physical evidence

<sup>2</sup> Statistics South Africa, 2012. Census 2011 Municipal report – Gauteng. Pretoria: Statistics South Africa.



### 1.3.1 Context

Introducing Mamelodi East, hosting a close combination of informal, formal, and suburban residences adjacent to the M10 and N1 on the south and the Magaliesberg mountain range on the north. Defined as a

of the evolution from a racially modeled to ‘democratically’ urbanized environment (South African History Online, 2017). With frameworks such as the ‘Tshwane 2055 Vision’ creating a participative platform for people to interact with city remodeling strategies, the regenerative role of architecture is supported by the psychological transition from a legacy of separation to integration. Building from urban restructuring idea such as the RDP which attempted to interrupt the “Apartheid geography” through land reform (City of Tshwane, 2013, p. 24), the narrative of reintegrating peripheral ‘townships’ into the city through infrastructure, service, and economy shall be the primary guide for the urban intension. Therefore, the Pretoria CBD, along with the region 3 and 6 urban frameworks, will be the reference context for the identified peripheral ‘township’ and its intended urban upgrade strategy.

‘dormitory settlement (Fisher, Le Roux, and Maré, 1998)’ due to the population increase from 1990 to 2014, Although Mamelodi east is underprovided in terms of total development expenditure, it is identified as an urban core.





## The site

Mamelodi Ext 6, Erf; 34042 & 34040, Pretoria, South Africa

## Client

Vista Co-operative: transport, business, and trade consortium (conceptual); University of Pretoria Business Clinic; Mamelodi Housing Society (conceptual)

### Program

Wellness facility, Cohousing, shared office & workspaces

## 1.4 Research question

### 1.4.1 Urban question

How can design interpret the situational components of desirable contemporary environments and apply them in previously disadvantaged neighborhoods converting them to flagship landmarks?

### 1.4.2 Architectural Question

How can access to livelihood, design inclusivity, and programmatic flexibility be interpreted architecturally?

### 1.4.3 Research intensions

The study aims to develop a conceptual

framework that aims to;

- Encourage domestic production and economic energy in the form of a sharing economy,
- Democratize urban space to enable access and empowerment,
- Encourage development vocabulary associated with collective ownership in civic structures,
- Promote the distribution of networks by encouraging satellite working,
- Support the establishment of cooperative based operations,
- Encourage the intersection of domestic and regional markets to increase nodal productivity,
- Establish a development framework that encourages a working relationship between institutional, private, and civic partners that promotes upward mobility in previously disadvantaged areas.

### 1.4.4 Architectural intension

The developmental outcome is intended to represent a destination of collective consumption (Urry, 1995, p. 12). The project is, therefore, a prototype that encourages local and external participants to converge in a cosmopolitan friendly environment and exchange specialties in the form of goods and services.

## MAMELODI STAKEHOLDERS

"VISTA CO"

SPECIALITY INPUT

CONSUMPTION MEDIUM  
"THE SCHEME"



CONSUMER

## EXTERNAL STAKEHOLDERS

"INVESTORS"

COMMODITY X COMMODITY Y

CO-HOUSING EDUCATION

DEVELOPMENT BRANDING

SUPPORT FACILITIES

1.2

## 1.5 Research method

The research will follow an abductive method approach as follows;

### 1.6.1 Historical review

This section involves the change in the urban morphology to contextualize the structural shift within the current urban environment. An overview will be conducted to establish the urban gestures that represent the character of the time and place. These gestures will be used to define the spatial transitions to which the design will respond. This exercise includes photos, maps, and documents that will be used to develop a visual understanding of the change over time.

### 1.6.2 Theoretical approaches

Supporting theories and narratives relating to the thematic concepts outlined in the "development narrative" chapter will give guidance in order to identify graphics, projects, concepts, theoretical frameworks relating to the spatial makeup and nature of the identified issue(s).

### 1.6.3 Current affairs

This section will involve the collection of reports from news and publications, addressing the cultural setting of the existing context to give an understanding of the socio-economic condition of the context. Current affairs will also be used to generate

**FIGURE 1.1** Map indicating site location relative to the University of Pretoria Vista Campus, Mamelodi East (Author 2019).

**FIGURE 1.2** Design intension diagram (Author 2019).

a visual narrative of the phenomenological changes from historic psycho-social position to date.

### 1.6.4 Quantitative studies

A generic qualitative desktop study, comprised of desktop research and case studies conducted in the context of the study, will be used to pre-empt the research design process in the form of a secondary theoretical framework. The study will, therefore, respond to the conclusions drawn from the framework that represents a supportive academic context, due to disciplinary limitations linked to the premise of the study originating from a built environment background.

### 1.6.5 Design methodology

It is integral to represent a collective translation within the design outcome. A methodology such as Hermeneutic phenomenology will be implemented for reflective design alternatives. This method is to remove any biases that may result from the interpretation of the author.

### 1.6.6 Limitations, Delimitations, and assumptions

#### Limitations & delimitations

The design will focus on the thematic

prescriptions related to the psychological effect of the built environment on individuals who engage thereof. Seeing that the cultural informants draw from the acculturation of the South African citizens that stretches over 150 years (Pernegger & Godehart, 2007, p. 45), the research will only include historic overviews directly relating to the real consequence, therefore limiting the historical timeline to the 1<sup>st</sup> industrial revolution. The morphology overview will focus on the spatial gestures that represent the character of a place as an abstract notion of identity and place for this study. Pretoria CBD will be contextualized within the historical overview as well as a destination for the migrating commuters.

Due to the study relating directly to users and their current state of being, the research alternatives will be tested against the conditions thereof. Due to ethical limitations, only secondary information will be used to relating to the clients to conceptualize the relationship between the dissertation outcomes and the client. The client focus group will be limited to active members of the community observed throughout the study.

## **1.6 Assumptions**

It is assumed that developments that exist in and around the Pretoria CBD are in conjunction with the Tshwane Spatial Development Framework (2011) and that the response thereof is addressed concerning the same framework. The identified cultures will also be represented as consisting of identities/ groups of identities that are linked by association and, therefore, find significance in urban components as a unit. The commuters traveling from the context of the site are assumed to all engage with the city's existing service infrastructures, namely taxi ranks, train stations, and public community facilities, before reaching their destinations.



# Chapter 02

## MACRO CONTEXTUAL STUDY

### 2.1 The continuum of development

City transformation towards sustainability has been a global narrative encouraged by the objective to seek cohesion between the three main realms which define a cities performance, namely: the environmental, social, and economic (United Nations 2016: 1). Published by the United Nations in 2015 Agenda 2030 stipulates a plan of action that accounts for the global concerns that infringe on development. This plan, which is embodied in 17 Sustainable Development Goals (SDGs) has been adopted by many states around the world recently, including South Africa (United Nations 2015).

Through the National Development Plan (NDP) Vision 2030, South Africa focused on creating employment and prioritizing poverty alleviation in an inclusive economy (United Nations 2019:5). Localized focus areas have been assessed to ensure that South Africa commits to the vision of the development plan. As seen in the South African Cities Report of 2016 (SACN 2016), a strong interdependency between progressive spatial redevelopment and collective governance is encouraged (SACN 2016:6). South African landscape draws its spatial legacy from a racially segregative landscape dating back over 100 years, governed by an oppressive government (SA History Online 2017).

The adoption of a national democratic framework that aligns with a global equality and livelihood agenda is nothing short of applicable to the 21<sup>st</sup> century cosmopolitan South African city (United Nations 2019).

Pretoria, formally established as the ZAR capital in 1855, bears the historical legacy

of South Africa's union in the form of the country's administration as the executive capital since 1910, the physical legacy of the 1951 segregation act in the form of peripheral neighborhoods with the predominant population being people of color, and the collective culture of the 2007 integrated development plan in the form of neighborhood upgrades (City of Tshwane 2013, Pernegger & Godehart 2007, SA 2007, 2011, 2018, SPLUMA, 2013, SA History Online 2017).

### 2.2 Past Developments

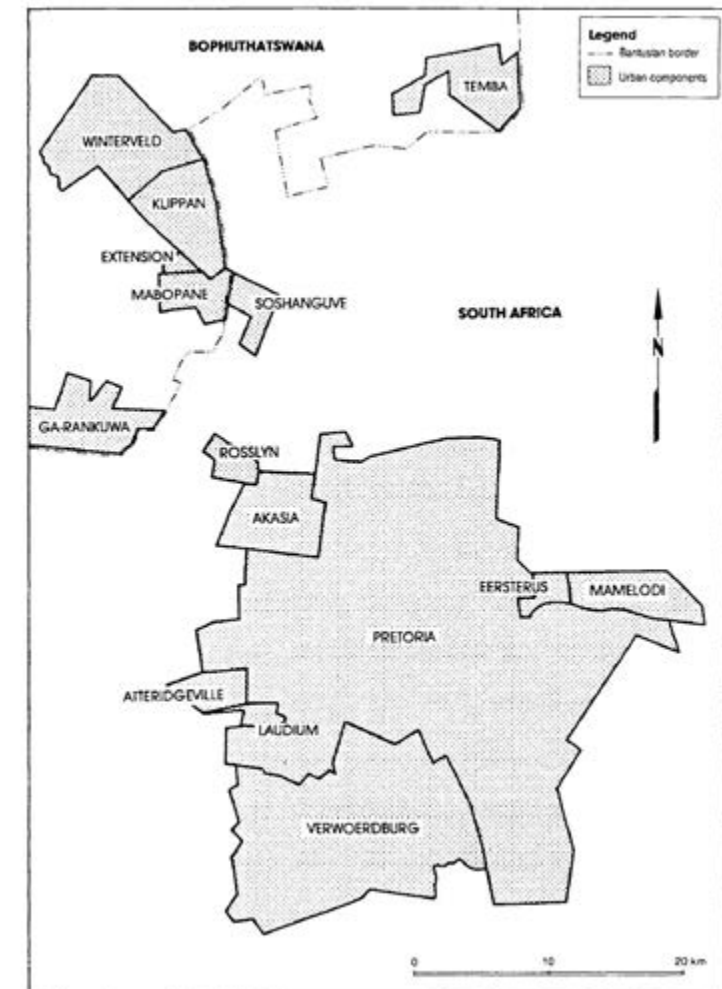
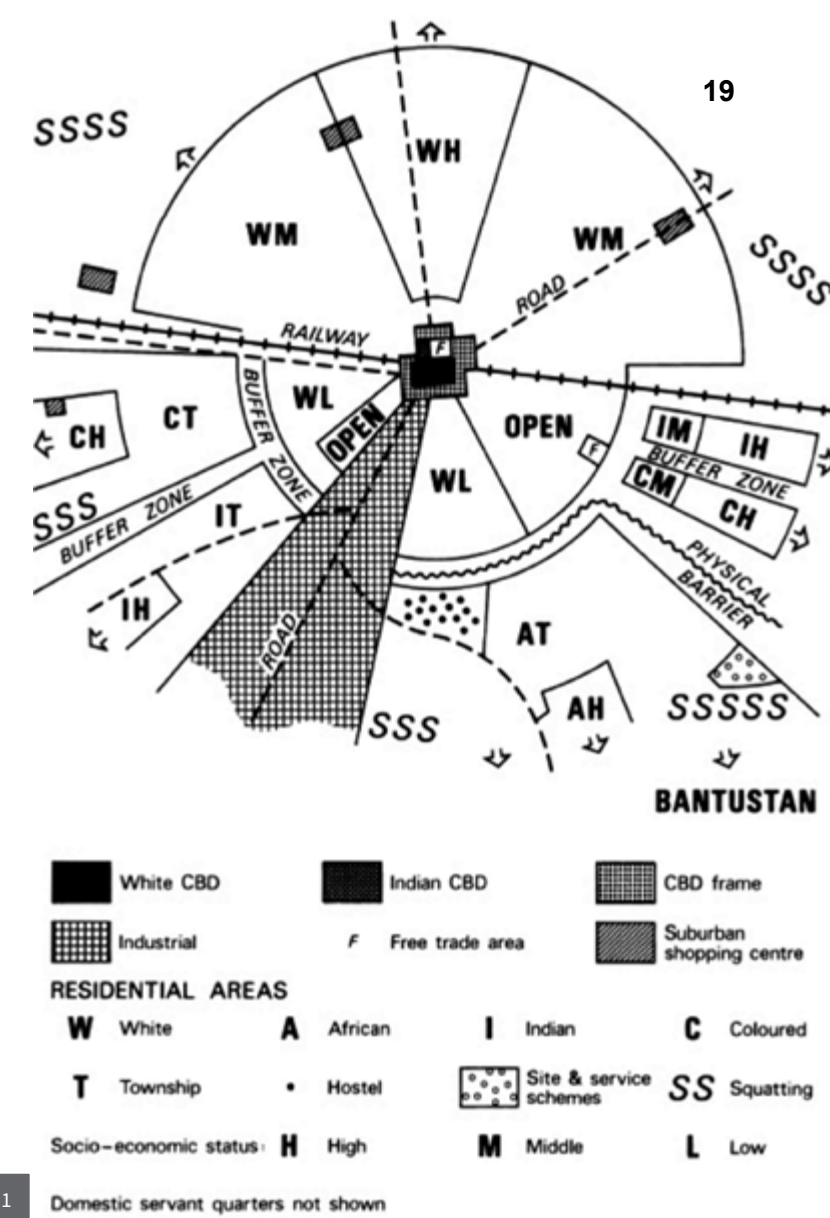
The first component to be conceptualized concerning association is time. Heidegger (1962), in *Being and Time*, associated the component describing the temporal nature of humans with the word being. Time was said to be represented physically by the movement between birth and death (Heidegger, 1962). Perhaps the connotation is made more explicit by Marx when he states that man is nothing, he is, at most, a carcass of time (Marx & Engels 1976) which alludes to time being the dictator of things including humans subjectivity (Urry 1995: 5). South Africans have observed and experienced what could be seen as a culture of segregation through effective compartmentalization of community structures by political administration bodies through policy since the 19<sup>th</sup> century. The mechanisms used to condition a separate state of being were primarily related to the physical and institutional contexts (Fig. 2.1) which permitted the realization of a socially engineered racially segregated South Africa (Bakker et al. 2003).

Following the South African Act of 1909 that favored the rule of white people over

South African land and resources without the participation or consideration of the indigenous communities (van de Berghe 1967: 74), the apartheid regime concertized the racial separation in the country through two primary legislative mechanisms. The first being the Population Registration Act of 1950, which categorized South Africans as Bantu (people of color), Colored (people of mixed race), or White. The second was the Group Areas Act of 1951 (Hiemstra V. G. and SA 1953) (Fig 2.2) that allowed the National Party to designate areas to be occupied by specific population groups in particular proximities away from desirable areas like the inner CBD. These areas were referred to as townships, which were underdeveloped areas set out during the apartheid era for non-white communities in South Africa (Pernegger & Godehart 2007).

Over time these townships grew to be defined by a dormitory spatial setting devoid of formal economic operations, and a growing population of laborers and curious individuals in seek of fortune in a city defined increasing diversity associated with expanding the mining industry. The Apartheid government spatially manifested the atomization of societies through planning. The subjectivity of the South African population is a construct, as suggested by Marx (Marx & Engels 1976), of transitioning through spatial conditions over time. With a physical setting favoring the monopolization

**FIGURE 2.1** The Apartheid City spatial methodology model (pmbhistory.co.za) in Maharaj B 2020). Pretoria Group areas Urban system (Smith 1992: 115)



2.2



of land and resources together with the psychological/ institutional environment shaped by an ideology rooted in Afrikaner dominance, the Apartheid government was able to diminish African resistance while maintaining an influential culture of controlled separation (Bakker et al. 2003).

## 2.3 Pro-active urbanization

The completion of the Lorenzo Marques (Maputo) to Pretoria (Eerste Fabrieke Station, Mamelodi) in 1890 not only situated Pretoria within the narrative of the industrial revolution but also positions one of the locations to which the urban planning conceptual framework of the Garden City by Ebenezer Howard (1965) would be applied (van Biljon 1993).

After the passing of the 1945 Black Consolidation Act, the Vlakfontein farm north-east of Pretoria (renamed Mamelodi in 1962) was formalized as an area for people of color by the Pretoria City council under NT. Cooper (Fig. 2.3,2.4). After the Group Areas Act (SA 1953) was passed, the Black Lady Selborne residents were forced to move to Mamelodi, Atteridgeville, and Ga-Rankuwa. It was in these areas that people of color were permitted to own land and only travel to the city and white neighborhoods for work, according to the Native (Black) Urban Areas Act of 1923 (SA 1923).

In 1948, Apartheid ideology took the form of education driven by the Bantu Education system. The Pretoria Bantu Normal College, formally renamed as the Vlakfontein Bantu Normal, was funded by the Transvaal Education Department to commission the building of the first native education college. This college is now known as the Mamelodi Rondavels, developed for black teachers as part of the Lapa scheme in Mamelodi east (Bakker et al. 2003).

Following the development of the Vlakfontein Bantu Normal College was the establishment of the Vista University campus in 1982, which was a

distance learning campus for academic and professional teachers (Landman 1989). Distant multi-disciplinary learning universities (Fig.2.5) in South Africa were culture-specific and primarily built to train black teachers separately to maintain and expand the ideologies of the Apartheid government across the education system (Bakker et al. 2003: 3). In 1994, the negotiations led by the Local Government Negotiation Forum led to an ideological shift towards a united South Africa. These negotiations resulted in the development of the Freedom Charter, the Reconstruction and Development Programme, and the National Development Plan, which kick-started a Nation Development Paradigm. This paradigm leaned toward a post-Apartheid country where the socio-economic, socio-political, and environmental realms enable an inclusive platform for all (SA 2018: 19).

## 2.4 The master-plan for Integration

Following the adoption of the Integrated Development Plans of 2007, a Gauteng Spatial Development Framework (G2055) from which the Tshwane Vision 2055: Remaking South Africa's Capital City was derived, prepared the regions of Gauteng for an increase in a population estimated at 28million by 2055 (SA 2013a). As part of this narrative, the Regional Spatial Development Framework (RSDF) of 2013 (SA 2011 2013a) schematically conceptualized the increased in density for municipal regions including previously disadvantaged areas such as Mamelodi East. This was developed to structure development around;

- Urban mixed-use activity nodes;
- Open spaces and green corridors;
- Public transit movement;
- Urban activity spines (City of Tshwane 2013 SA 2018).

The primary objective of these strategies is to connect rural, peri-urban, and urban environments with access to services and resources that encourage basic survival as well as participation in the exchange of lucrative productivity (SA 2013: 38).

Mamelodi is situated in the City of Tshwane municipality Region 6. This region is considered to be the knowledge belt of the city due to the presence of research facilities and tertiary institutions which positions it as a critical node for future development (City of Tshwane 2013: 53).

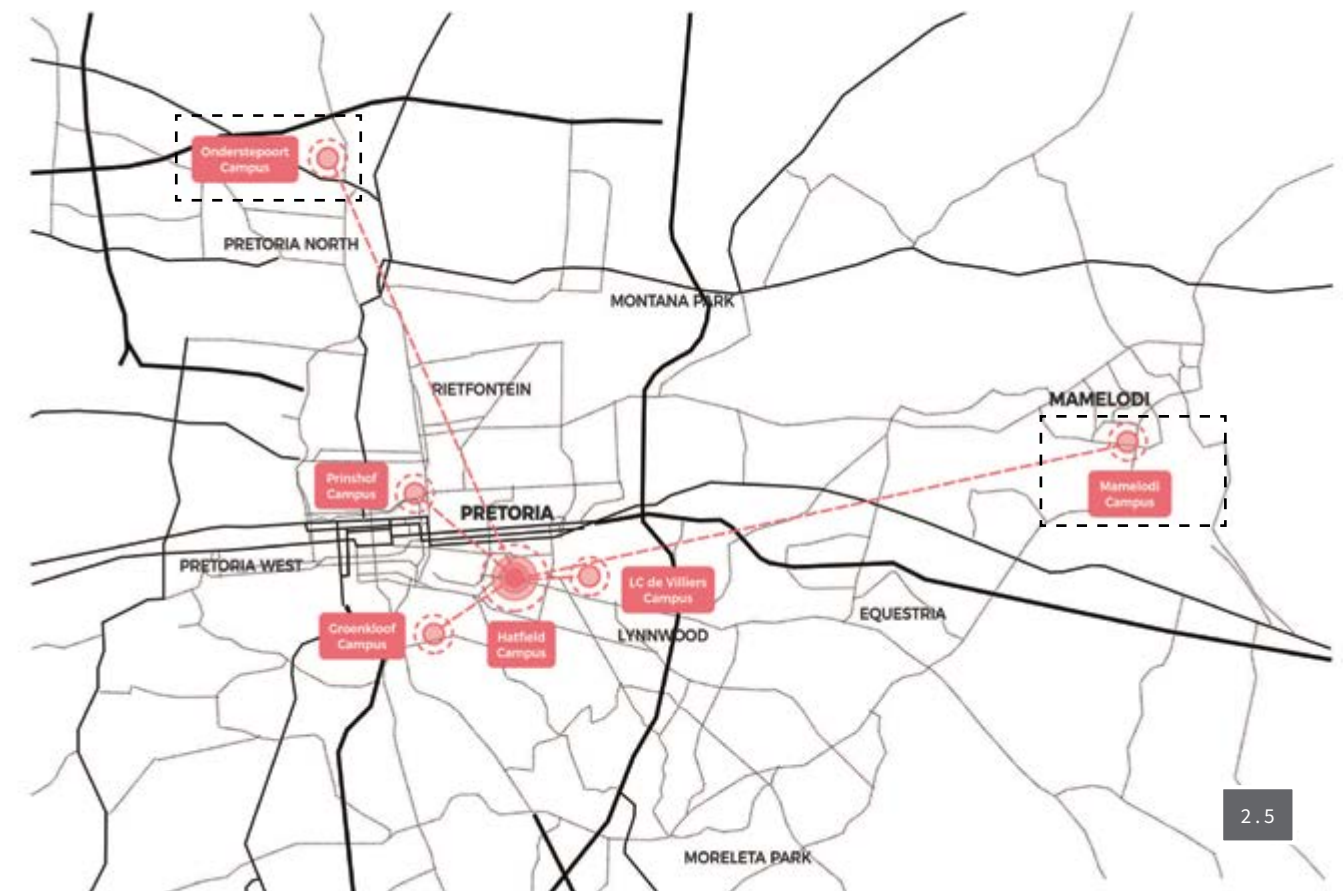
## 2.5 Present development

Mamelodi (Fig. 2.6) falls within the Neighborhood Development Partnership

**FIGURE: 2.3** Vlakfontein 1947 Layout by Pretoria City Council (Walker & Van Der Waal, 1991).

**FIGURE: 2.4** Mamelodi 1961 expansion map ( Walker & Van Der Waal, 1991).

**FIGURE: 2.5** Mamelodi Vista campus and Onderstepoort campus in relation to institutions located in previously "whites-only" neighborhoods (Honours studio 2017/ Department of Architecture\_ Economics Group)





Programme (NDPG) of 2006, carried out through the Urban Networks Strategy(Fig.2.7)(UNS) (SA 2006). This strategy is a systematic spatial targeting approach that seeks to leverage private investment in strategic previously disadvantaged areas by inserting interventions that create centers of economic and social activities (SA 2007: 6). To ensure commitment to the UNS, a legislative framework called the Spatial Planning and Land Use Management Act (SPLUMA) was created to provide norms and principles that ensure inclusive, efficient, and sustainable development across the nation (SA SPLUMA 2013: 1). SPLUMA enables initiatives such as the Tsosoloso Programme that is set out to develop livable urban areas that encourage investment and settlement in concentrated areas (SA 2013: 31). The Five Points of Action that embody the objectives of the program are;

- the creation of activity nodes;
- the fostering of strong links between mobility networks;
- the branding of transport interchanges as *civic termini*;
- the provision of quality pedestrian infrastructure;

the encouragement of livelihood within the public and natural environments is realized in areas that were defined by an underdeveloped, mono-functional character that lacked spatial identity (SA 2007: 4).

With the UNS setting insertion points for development in previously disadvantaged areas supported by the SPLUMA legislative framework, the Five Points of Action align development towards in these areas towards repairing and upgrading the Apartheid legacy which supports a national agenda towards Post-Apartheid South Africa that achieves balance between social, economic, environmental realms.

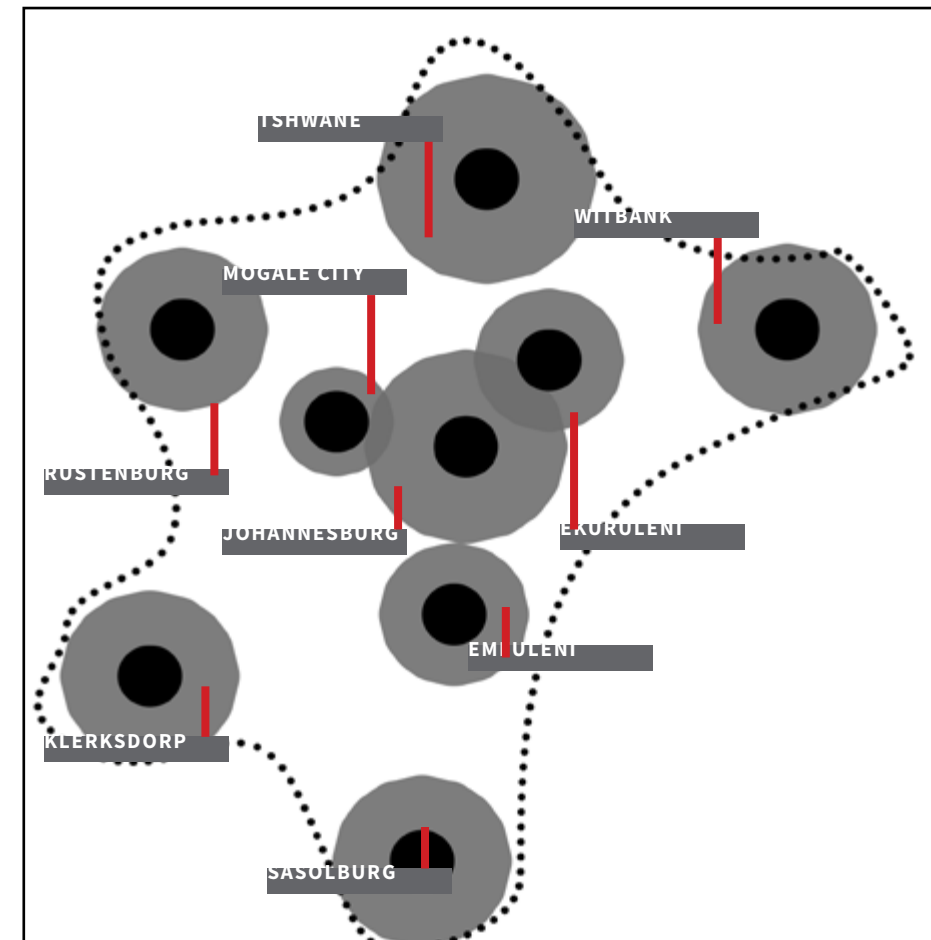
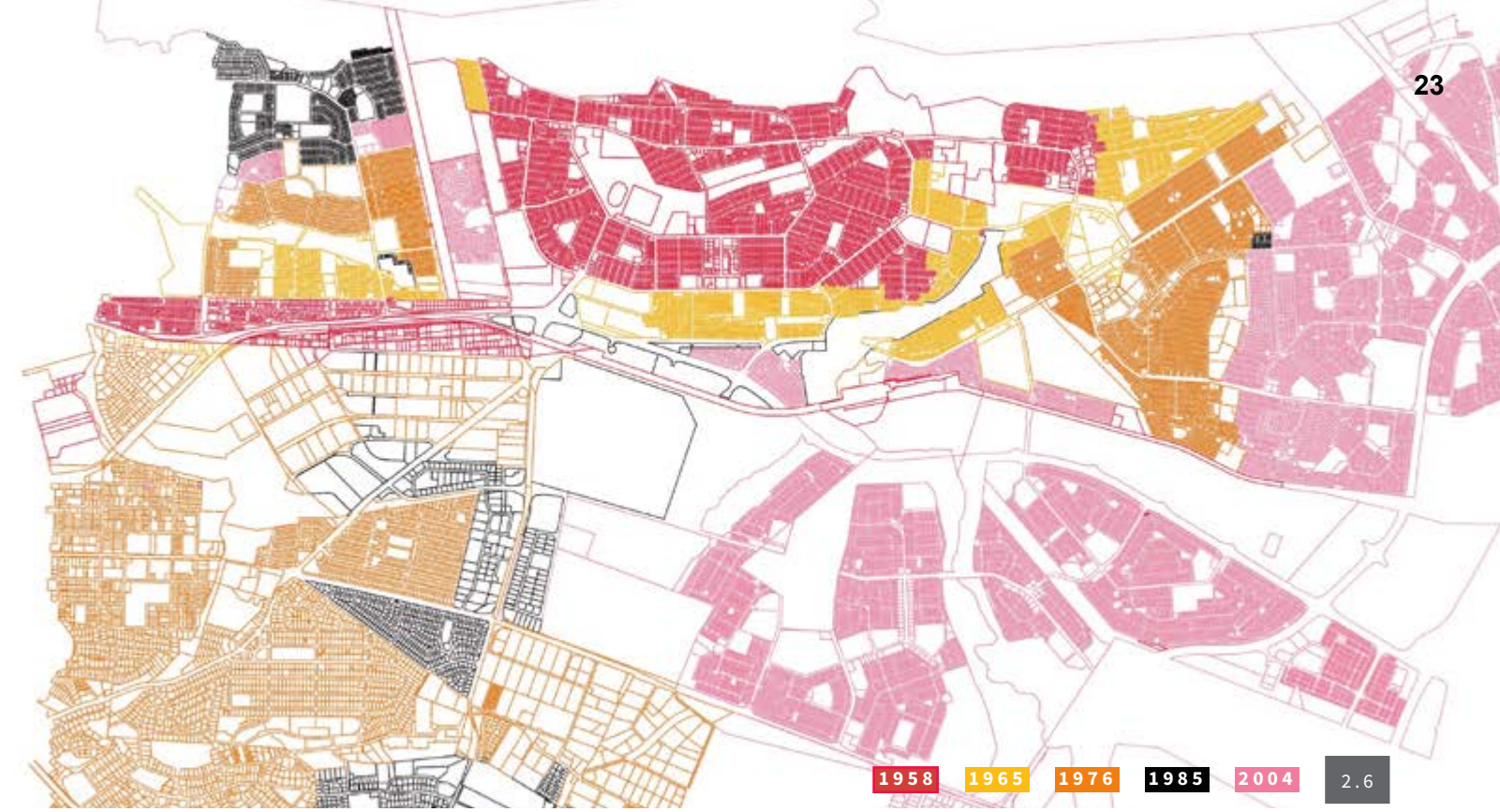
## 2.6 Regional context

### 2.6.1 Physical character

The Northern border of Region 6 is defined by the Magaliesberg Mountain range, with the Ekurhuleni Local Municipality to the south, and the N1 freeway towards the west. The designated land area is 885 square kilometers in size (88524 ha), with a population of 605,554 people as of the 2011 Census (StatsSA 2011).

**FIGURE: 2.6** Mamelodi spatial progression from 1958 - 2004 (Honours studio 2018/ Department of Architecture\_ Mamelodi Heritage M2

**FIGURE: 2.7** (Group) Post democratic integration diagram (Author 2019) adapted from National Spatial Development Perspectives (NSDP) (SA 2007)





### 2.5.2 Mobility

Region 6, connected by the N1 and N4 to the rest of the country, is structured by three primary mobility roads that link it to the CBD, namely; Lynwood, Atterbury, and Garsfontein Road. The only north-south link that connects these mobility roads is Solomon Mahlangu (M10).

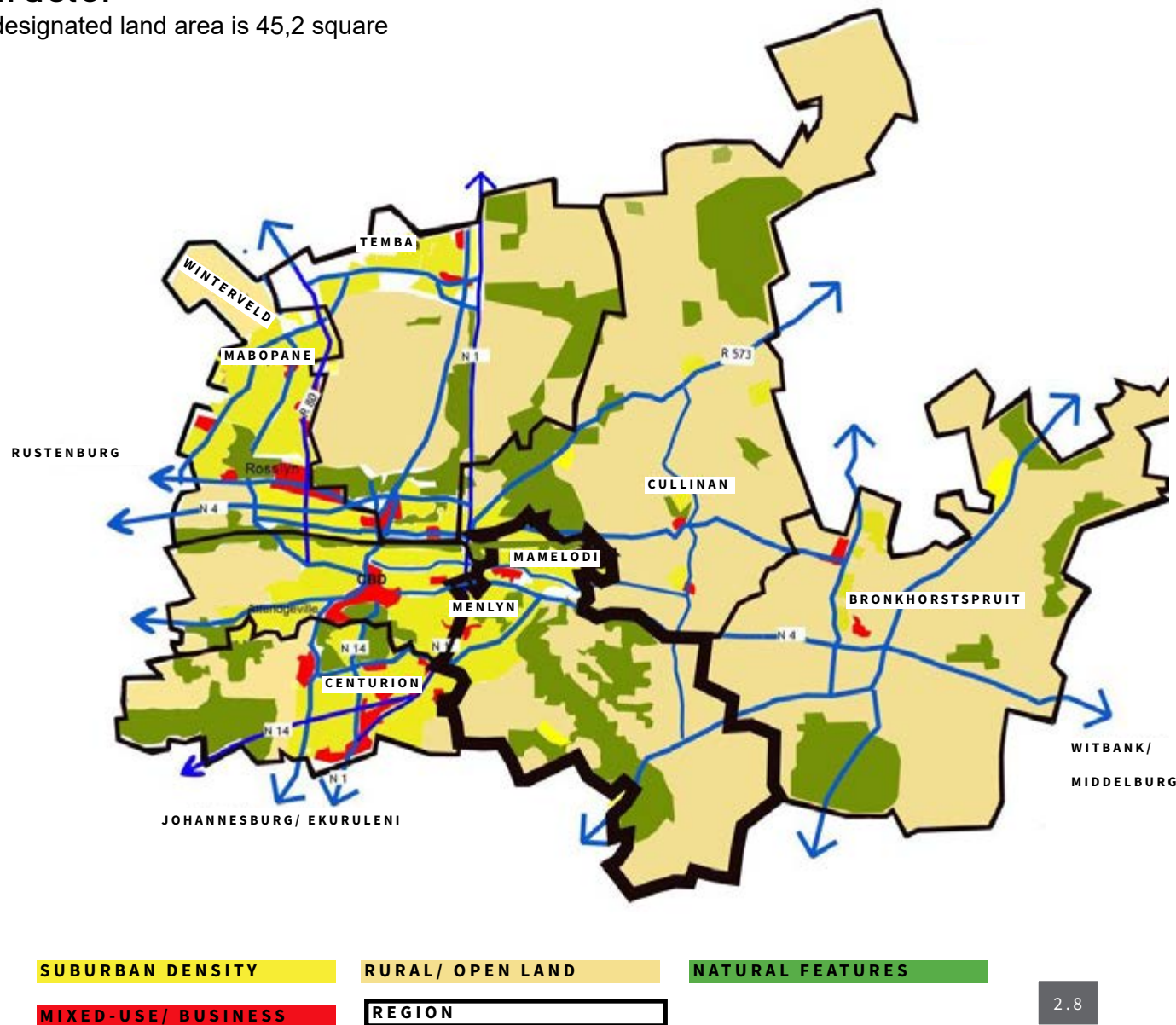
### 2.5.3 Township Context

Mamelodi is located on the northern section of the region, divided into Mamelodi West and Mamelodi East by the Pienaars River bordered by the Magaliesberg Mountain range to the north (Fig 2.10). The railway to the south connects Mamelodi to Pretoria CBD and Hatfield to the west and Emalaheni Local Municipality to the east.

### 2.5.4 Demographic character

The designated land area is 45,2 square

**FIGURE: 2.8** Region 6 locality in relation to Tshwane regions with structuring components (CoT 2014-15).



2.8

kilometers with a population of 7,403/ square kilometer (334,577 people) (StatsSA 2011). The Mamelodi East study area indicates a high household density relative to the other areas (Fig. 2.12).

### 2.5.5 Accessibility

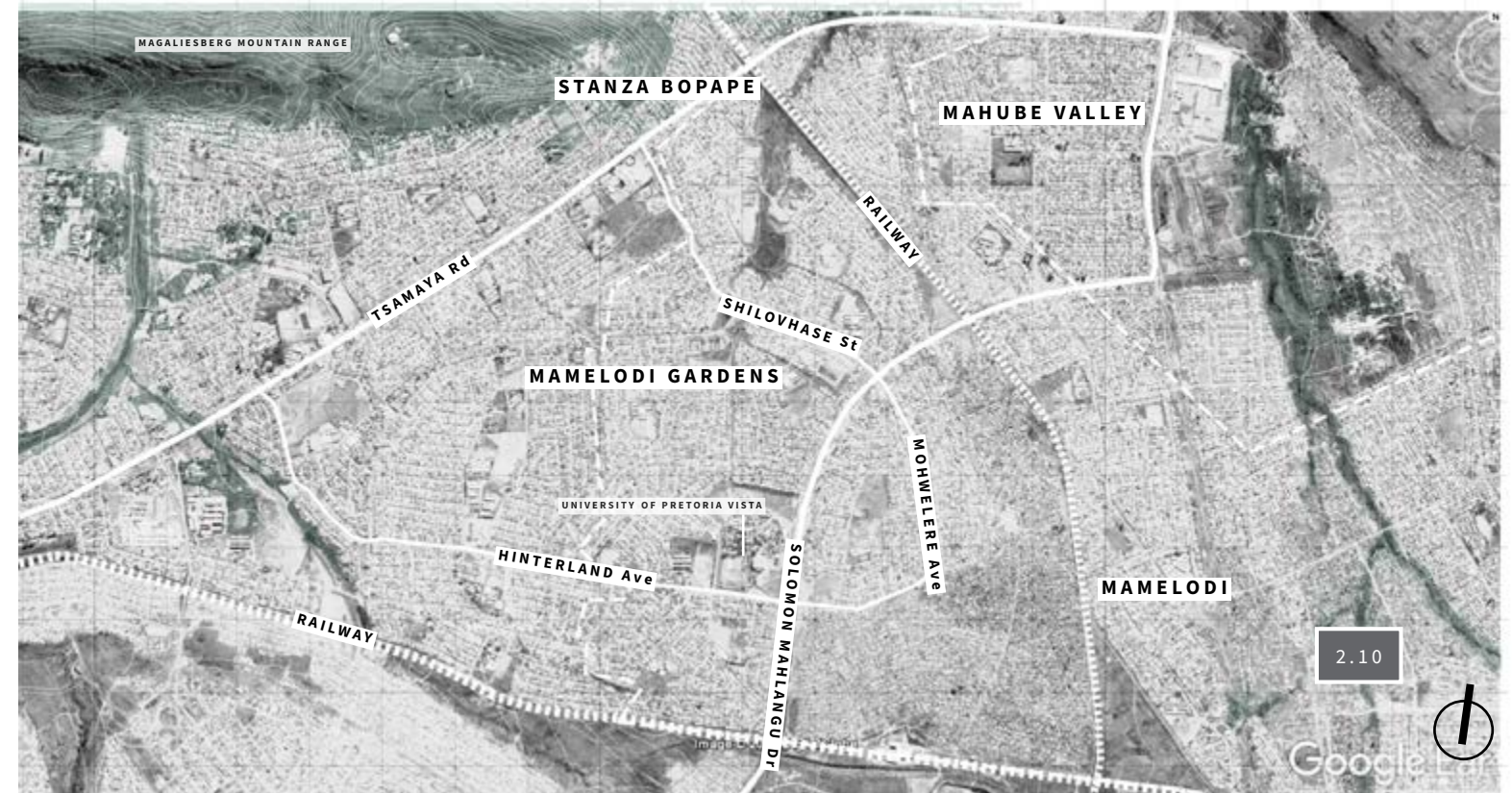
While the majority of the population residing in this section of the region relies on public transport (bus, taxis, and train) (Fig.2.13), there is sufficient east-west connectivity to the CBD while the north-

**FIGURE: 2.9** Mamelodi in relation to Pretoria CBD (Author 2019).

**FIGURE: 2.10** Mamelodi contextual map, (Author 2019).



2.9



2.10



south connection to the N1, Atterbury, Menlyn, and the N1 Johannesburg is limited to Solomon Mahlangu Drive (M10). Therefore the primary weakness is related to poor transportation services and infrastructure between north and south (SA 2013: 41).

### 2.5.6 Opportunities

FIGURE 2.11 Mamelodi East Household size (Mappable 2017).

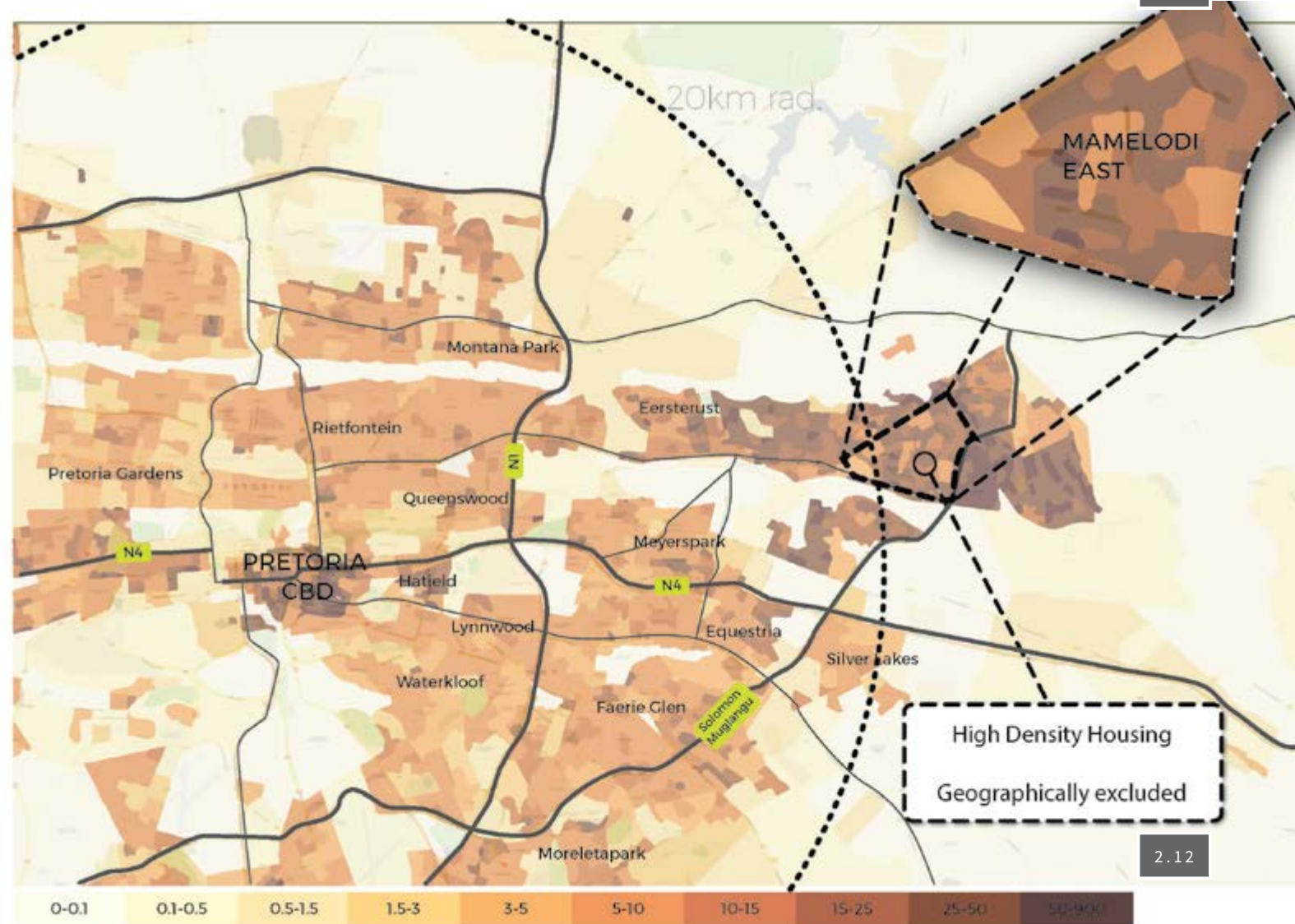
FIGURE 2.12 Mamelodi East Households per hectare (Mappable 2017).



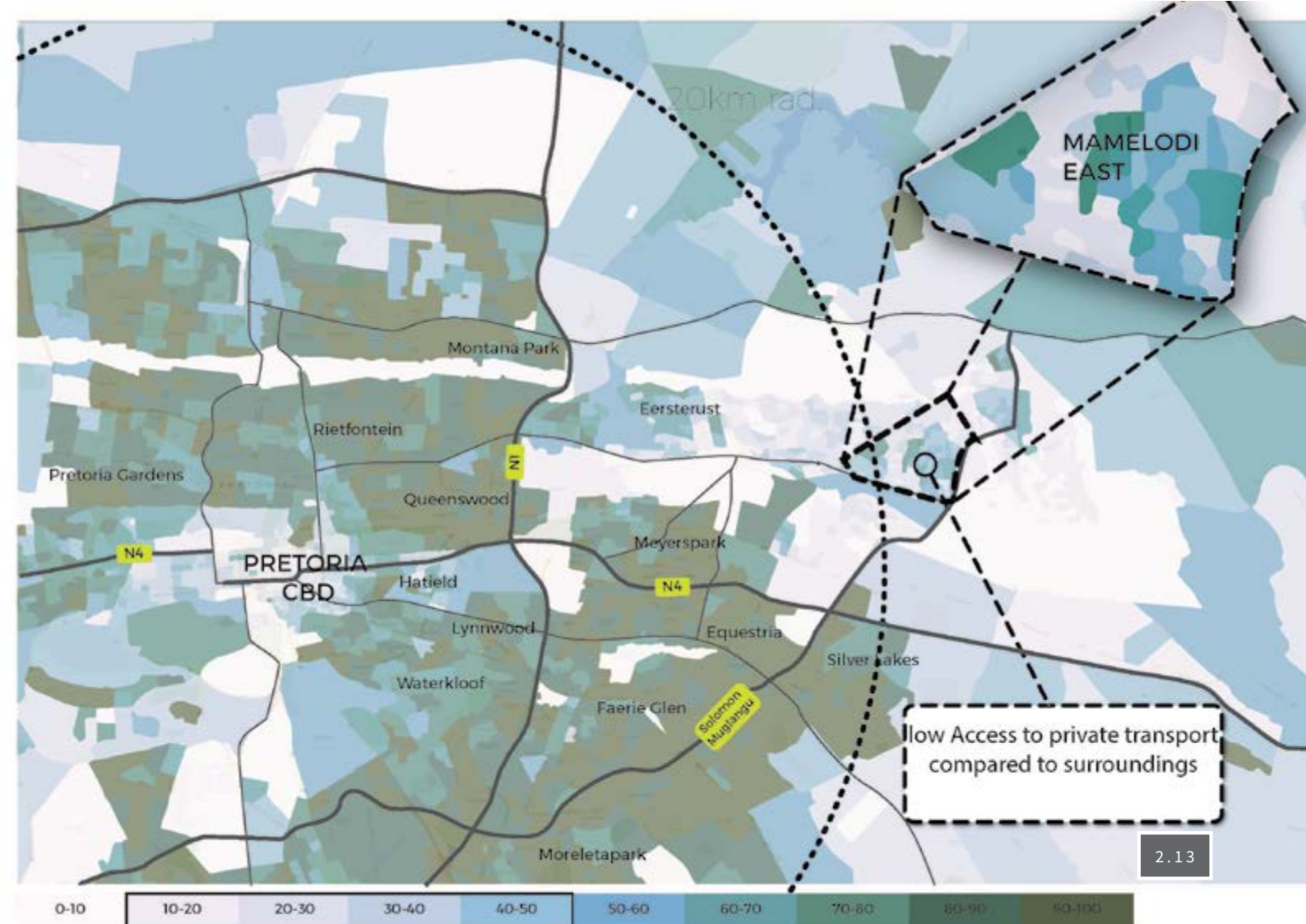
2.11

The Tshwane Metropolitan Spatial Development Framework (MSDF) of 2012 indicates that Mamelodi will develop as an “Urban Core.” The core consists of the Solomon Mahlangu Precinct, the Tsakane Precinct, and the Eerste Fabrieke Precinct, aimed at introducing high-density residential development in conjunction with retail development, public transport, and future Regional Magistrates Court complex (SA 2013: 44). (See Annexure A- Region 6: Nodes & Corridors 2018 map; Density 2018 Map; Biodiversity 2018 map for

FIGURE 2.13 Mamelodi East Percentage of people with private vehicles (Mappable 2017).



2.12



2.13



detailed plans of the Region 6: Regional Integrated Development Plan 2018.)

## 2.6 Conclusion and Synthesis

By observing Pretoria through the lens of time, the transition between social, economic, and environmental realms from the totalitarian to democratic regimes, the current situation in and around the context of Mamelodi finds a position.

The Agenda 2030 which was adopted by the NDP, gave rise to a framework for

redevelopment embodied in the City of Tshwane Vision 2030 that not only provides the thematic realms to which

FIGURE 2.14 The Composition Regeneration strategy for Mamelodi/ Nellmapius development (GAPP 2010).



2.14

redevelopment and transformation is necessary but also creates a national narrative synchronized towards progressive and sustainable development throughout the country (SA SPLUMA 2013). Legislation in the form of policy has been the primary mechanism that enforced ideologies of the political administration of the country over the past 300 years, and has since been used to rewrite the political and spatial framework that governs the execution of the country's spatial legacy towards inclusivity and equality (United Nations 2016, SA 2007, 2011, 2018).

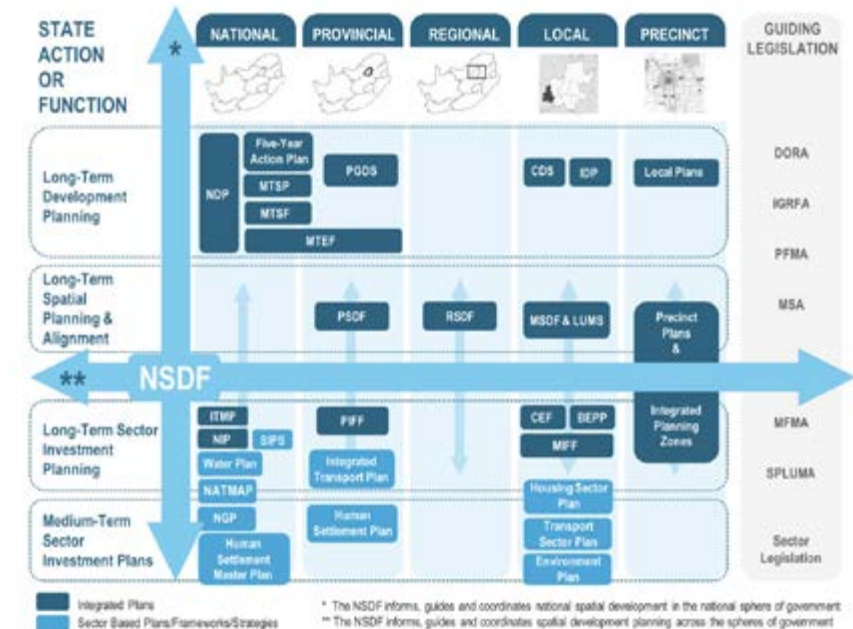
The city is an environment where the socio-political, socio-economic, and environmental realms converge. There has been a shift in the ideology of what defines the point of convergence. The activity amongst individuals now defines the city, which operates by the modes of urbanity (Gehl 2006, Van de Berghe 1967). However, to successfully account for the diverse nature of these modes, coordination between inter-governmental departments, private sector entities, and local or regional residents needs to be addressed and concertized with the same rigor/ mechanisms as seen in global initiatives such as the Agenda 2030.

FIGURE 2.15 The Sustainable Development Goals (SDGs) adopted by the NDP 2030 (United Nations

FIGURE 2.16 2015). National Spatial Development Framework strategy for the execution of the national development agenda (SA NSDF 2018: 34).



2.15



\* The NSDF informs, guides and coordinates national spatial development in the national spheres of government  
 \*\* The NSDF informs, guides and coordinates spatial development planning across the spheres of government

2.16

**The following chapter will unpack and discuss key concepts that have been revealed by observing the continuum of the South African political and spatial landscape. These concepts will be positioned as;**

- 1. A theoretical background to which the design development will reflect and respond upon;**
- 2. The disciplinary realm(s) in which coordination is necessary.**

**END OF CHAPTER 2**



# Chapter 03

## THE RE-DEVELOPMENT NARRATIVE

### 3.1 Introduction

The National Development Plan (NDP): Vision 2030 is the foundational framework for national redevelopment within the context of South Africa (SA 2013). The framework articulates a national agenda to repair the legacy discriminatory spatial planning by addressing spatial challenges under five themes. These themes are; Spatial Justice, spatial sustainability, efficiency, spatial resilience, and sound administration (SA 2013, 2018). To align the imperatives of the NDP within a global narrative, they have been related to the 17 Sustainable Development Goals (SDGs) adopted by the UN in 2015 (SA 2016 SACN 2016). The Spatial Planning and Land Use Management Act (SPLUMA) of 2013 (SA 2013) was then created to provide the norms and principle standards that ensure inclusive, efficient, and sustainable development across the nation (Fig 3.1)(SA SPLUMA 2013: 1).

This chapter will employ a concept-centric approach adopted from Salipante's a Matrix Approach to Literature Reviews in Research Organizational Behavior (Salipante et al.1982). This approach aims to consolidate the NDP development under three main concepts, namely, neighborhood, inclusive, and sustainable development. These concepts will be discussed and reviewed against the NDP target of providing inclusion and equality in urban environments (SACN 2016: 26).

This chapter aims to review neighborhood development in South Africa to identify its current state of progress regarding the integration of the previously disadvantaged. This objective of the review is to provide insight into where the development succeeds and where attention still needs to be placed. The theoretical contribution of the evaluation is to identify knowledge gaps that contribute to the lack of progress in neighborhood development and provide possible remedial suggestions to future methods. The road map to integration captured in the Integrated Urban Development Framework of 2013 has not received the same implementation rigor as development frameworks for central business districts (Dewar & Kiepiel 2004: 2 SA 2013). As a result, those with the financial capacity still define and realize the value and image of the city.

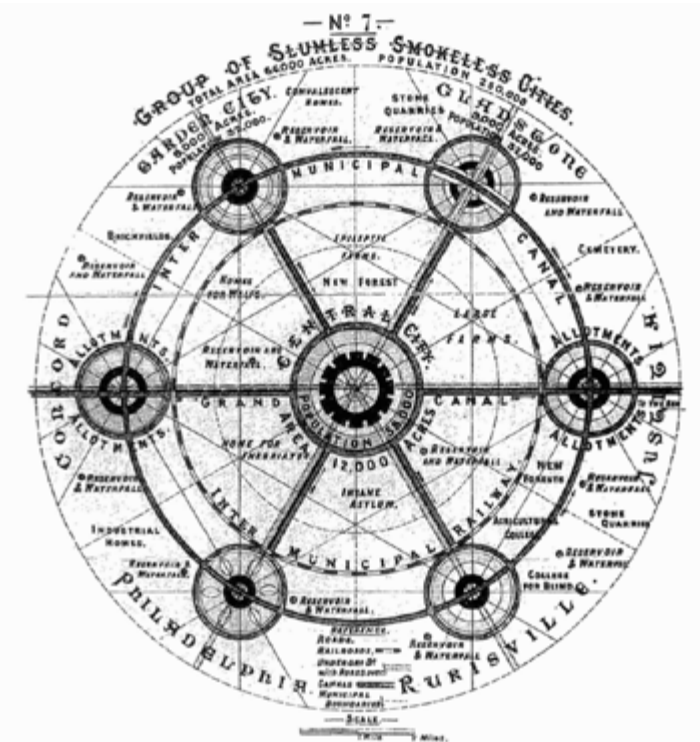


**FIGURE 3.1** The National Spatial Development Concepts of the NDP and SPLUMA diagram consolidating the NDP 2030 levers and SPLUMA principles (SA NSDF 2018: 90).

### 3.2 Neighborhood development

The Neighbourhood, not disregarding the contemporary urban definition associated with a social construct and a consolidated residential area, is a term originally developed as a town planning concept to reduce the travel time of its target population (Curtis & Olaru 2010: 49). This definition falls in the realm of urban planning that lends itself to the conceptual framework of the Garden City that distinguishes functions from one another, namely, residential, industrial, agricultural, whose operation is driven by a public authority (Fig 3.2) (Howard & Osborn 1965). This framework aims to introduce residential components and services within proximity to enable its community to function (Curtis & Olaru 2010: 50). The neighborhood concept aligns with the 21st-century global narratives such as the Project for Public Spaces (PPS) (1975-2018), dedicated to providing assistive guidelines for the development of sustainable improvements in cities, regions, and neighborhoods.

**FIGURE 3.2** Diagram indicating the Garden City conceptual intension (Howard 1965).





In the South African context, the neighborhood concept, adopted as a planning tool, was used to concentrate specific population groups during the apartheid regime, along with defined proximities from the city as a means to disassociate them from its operations (Pernegger & Godehart 2007). These neighborhoods were termed townships; underdeveloped areas set out during the apartheid era for non-white communities in South Africa (Pernegger & Godehart 2007). After 1994, strategies such as the National Development Partnership Grant (NDPG), now formally known as the Urban Networks Strategy (UNS), have been developed to integrate South African neighborhoods with the urban upgrade strategy called the National Development Plan (NDP), Vision 2030 (Bruggemans 2006).

The primary objective of the UNS strategy is that of a catalytic development approach. The character of the UNS strategy is defined by the incentivized partnership between the public sector, who facilitate and represent the targeted areas, and the private sector (mostly developers and investors) who drive projects through privately funded development schemes (Fig 3.3). Over the past thirteen years, this model has resulted in 179 completed projects with various still under construction across 65 municipalities (SA DNT 2014; SA DHT 2007: 3; SA 2007). Recent studies show, however, that the development weighting favors areas with high financial liquidity and land value over economically disadvantaged areas (SACN 2016: 49).

**FIGURE 3.3** Ubuntu Centre, Red Location. Neighborhood upgrade projects to increase investment leverage in disadvantaged areas.



3.3



3.4

**FIGURE 3.4** Mamelodi Nodal development (City of Tshwane 2018)

### 3.3 Inclusive development

With the catalytic platform set by the public sector in economically disadvantaged areas, the private sector is enabled to contribute towards primary economic development in these areas in the form of settlement upgrades through initiatives such as affordable housing (SA DNT 2007: 6). The public sector attracts private sector investment through the provision of infrastructure that will enable access to external regions and related markets. This strategy is known as nodal development, which is a term used to define the investment of the private and public sectors in areas where infrastructure, activity, and commerce converge (Fig 3.4) (City of Tshwane 2013: 14). The condition of support systems and resources in Townships is directly proportional to their progress of the economic transformation (SA 2003: 11). The UNS program has only managed to develop fixed projects across 65 municipalities across the country, leaving large infrastructural backlogs in townships found in the remaining 213 municipalities (City of Tshwane 2013; SA 1998; SA, DNT 2014; SA DHT 2007). As infrastructure is one of the critical components that

invite the participation of the private sector, limited serviceability of potential development sites/ nodes/ sub-regions located in previously disadvantaged areas renders low investment leverage. The lack of serviceability, therefore, limits the participation of the private sector in these areas (SA DNT 2007: 5). Although the targets presented in the NDP seem achievable, there remain incongruencies between the method of execution and the aim of the framework resulting from weak coordination between the role-players involved in upgrading previously disadvantaged areas (Dewar & Kiepiel 2004: 29, SACN 2016: 50). Despite the public sector providing the spatial contexts that suggest areas of development potential, the spatial expression is determined by the vested interests (SACN 2016: 50). As a result, the focus of the private sector on top-tier locational development has impaired intent of the post-1994 transformation agenda, which continues the legacy of spatial inequality and exclusivity in South African cities (SACN 2016: 30).



### 3.4 Affordable housing strategies

One of the first interventions that respond to the Apartheid landscape was the provision of over three million state-funded housing options across the country (The Presidency 2014 in SACN 2016: 50). The relevance of state-funded housing sits in two critical frames within the redevelopment strategy. The first is due to the long-standing spatial democracy road map that aims to transform the spatial character of the South African townships from isolated, underserved settlement to fully functional neighborhoods (SACN 2016: 50; SA SHS 2007:86). The second being the Redevelopment Programme (RDP) of 2004, now formally known as the Breaking New Ground (BNG) policy (SA DHS 2009), whose aim was to provide settlement in and around areas of viable economic opportunities (Fig 3.5)(SA 2007: 7).

The program draws from the self-contained community model developed and idealized by Ebenezer Howard (1965), which encourages housing provision alongside mixed-use land attributes for the neighborhood to function (Curtis & Olaru 2010: 50). The actual application of post-apartheid RDP housing expansion schemes was not planned to include resources and long-term development capacity that enables the development of self-containment over time (SA 2007: 8). Coupled with the locational disadvantage of state-funded housing, the integration of the majority of low-income households remains impaired.

**FIGURE 3.5** Evolution of national restructuring over time with consolidated conceptual contexts



### 3.5 Inclusionary housing

One of the most recent remedial instruments used to address the disparities of disadvantaged communities with contemporary issues such as structural unemployment, polarised socio-economic environments, and changing political perspectives is inclusionary housing (SAPOA 2018).

The concept lends its origins from the United States, developed in the 20th century as a response to the extension of social imbalance resulting from separating housing complexes for low-income population groups (Calavita & Mallach 2010: 2). In principle, the adoption of the inclusionary zoning framework in the housing policy of 2007 was one of the first acts of advocacy by the public sector regulatory body to account for the role of the private sector in the structuring of the South African landscape through housing development (SAPOA 2018).

The radical impetus of the instrument is for private property developers to allocate a percentage of affordable residential units to low-income individuals or families. The units are to be on the same construction site as market-driven residential units with the same identity, along with the options of allocating land or funds for the same cause (Calavita & Mallach 2010: 2). The inclusionary framework is enforced by legislative tools such as the Inclusionary Housing Policy of 2019 (CoJ 2019) supported by the SPLUMA Act 16 (SA SPLUMA 2016) to ensure the national adoption of the inclusive development strategy.

The South African Property Owners Association (SAPOA), which represents the South African private property developers, conducted a report on the industry based discrepancies of inclusionary housing. The report is framed around the fiscal risk linked to inclusionary housing (SAPOA 2018:2), which poses a critical threat to the residential sector, which may lead to a shift in investment focus to other asset classes.

See February 25th, 2019 Money web news report; <https://www.moneyweb.co.za/investing/property/mixed-response-to-city-of-joburgs-inclusionary-housing-policy/>.

The implementation of the national urban growth framework set out in the NDP is conceived as being primarily driven by the coordination of the South African National Government. The interdisciplinary coordination of the private sector is suggested as a collaborative action, within the investment guidelines of the NDP under the national action and key role players (SA PME RDLR 2018) section. Therefore, the growth of South African urban environments depends on the coordination of the public sectors development framework, outlined in the IUDF and DHS framework master plan (SA 2014) (SA PME, RDLR 2018: 123), and the development strategies proposed by the private sector (SACN 2016; SA DHS, 2013).

This methodology presents an uneven distribution of duties between the public and private sectors by suggesting the role of the private sector is at the execution spectrum of the process, which represents the last stage of the development methodology.

This method, therefore, fails to introduce joint accountability across all sectors in the narrative of national urban development (SACN, 2016; SA, 2018). Perhaps the intention of the guiding actions necessary for the strategic investment outcomes was not meant to place the interdisciplinary participation of the private sector under the category of facilitators' of change (SA, PME, RDLR 2018: 123). As a result, there is an impaired alignment between the governmental sectors involved in neighborhood development and private developers, which leads to the approval of strategies that clash with the development framework masterplan (SACN 2016: 50).

This discoordination encourages continued economic inequality, structural unemployment, and spatial injustice despite 25 years since the end of Apartheid (SACN 2016; SA 2019: 29).



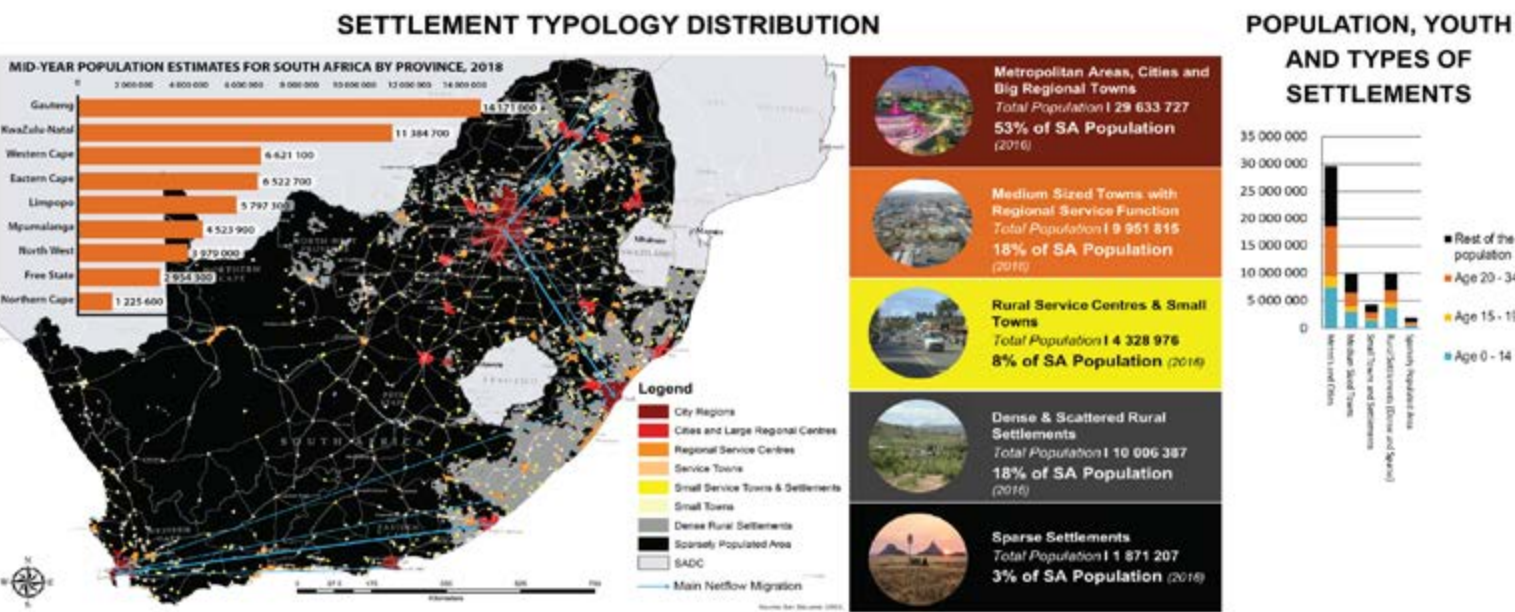
### 3.6 Sustainable development

As of 2016, 53% of South African settled in the metropolitan area, 18% in medium-sized towns, 8% in rural to small towns, 18% in dense and scattered rural settlements, and 3 % in sparsely settlements (Stats SA 2016). The current population of South Africa has risen from approximately 45.9 million in 2002 to 56.5 million in 2017, with the Gauteng province holding the most significant percentage of the country's population (Stats SA 2017: 7). By 2030, the population is projected to reach 65.3 million, with approximately 71.3% of the people residing in urban metropolitan areas (Fig 3.6) (SA 2018: 45).

Our cities need to, therefore, learn to contain and manage the multiple communities in a sustainable way that enables them to function with equal opportunities and resources (SA 2018; SA NPC, 2010; SACN 2016). South African cities have evolved positively and continue to experience an upward development trend when we consider the Gross Domestic Product (GDP) per capita from 1960 to 2010 (SA Reserve

Bank 2010 in SA NPC 2010: 9). Yet persistent challenges not represented in the GDP are structural unemployment, social exclusion, and widespread poverty, which all impair overall development in the country, thus, limiting progress (SA NPC 2010:9). Notwithstanding the overall agenda of the NDP, the general focus for the 2030 agenda is to address social inequality, structural unemployment, poor education, and access to quality urban environments, which resonate with SGD Goal 11: Sustainable cities and communities. This goal aims to develop economic opportunities, affordable housing, establish strong social ecologies in a well connected, healthy urban environment.

**FIGURE 3.6** Population report on settlement distribution (StatsSA in SA 2018: 43)



Population Characteristics and Settlement Dynamics Based on StatsSA, 2011, 2018; Quantec 2016, CSIR Town Typology 2018, Vulnerability and Migration Indicators – See Annexure A

(SACN 2016, SA NPC 2010; SA 2019). Thematic areas that have since responded to the SGD Goal 11 and continue to contribute to the development of South African cities despite the pace (SACN 2016: 125-158). Urban transport and access are addressed by the Bus Rapid Transit (BRT), adopted by cities such as Johannesburg, CapeTown, and Pretoria. Despite being the most challenging goal, spatial transformation is constantly addressed through gentrification and the provision of low-income state-funded housing for the previously disadvantaged around the country (SANPC 2010). Methods to ensure that developments account for the livelihood of urban citizens are embodied in Integration development plans (IDPs), Spatial Development Frameworks (SDFs), and Budget Implementation Plans (SDBIPs).

These tools are developed to improve the delivery of basic needs and services on a national level, despite the reverse development effect due to a segregative spatial legacy and exponential population growth (SACN 2016: 165). South Africa also adopted an agenda aimed at environmental sustainability. With the assistance of legislative mechanisms such as the National Environmental Management Act (NEMA) of 1998 (SA 1998), sustainable development, now driven by the National Strategy for Sustainable Development (NSSD) adopted in 2008, is guided and vertically integrated through the institutional, economic, socio-political, and ecosystemic realms (SA DEA, 2011a in SACN 2016: 163).

As a result the Green Building Council South Africa (GBCSA), a derivative of the World Green Building Council responsible for developing accredited knowledge on green building solutions in favor of environmental sustainability, now assume the role of monitoring and regulating sustainable standards in the transformation of the South African property industry (GBCSA 2019).

### 3.7 Synthesis

This section employs an abductive research methodology to define the align the theoretical review of the neighborhood, inclusive, and sustainable development concepts with empirical data related to the progress of the NDP.

#### 3.7.1 delimitations

The data is restricted to the city scale/local scale, where the regional scale is considered when necessary. The objective is to establish the general progress of the NDP Vision 2030 concerning the development agenda. The assessment of progress will focus on Spatial Transformation within neighborhood development, with the inclusive and sustainable development progress providing secondary data and possible areas of investigation for future research.

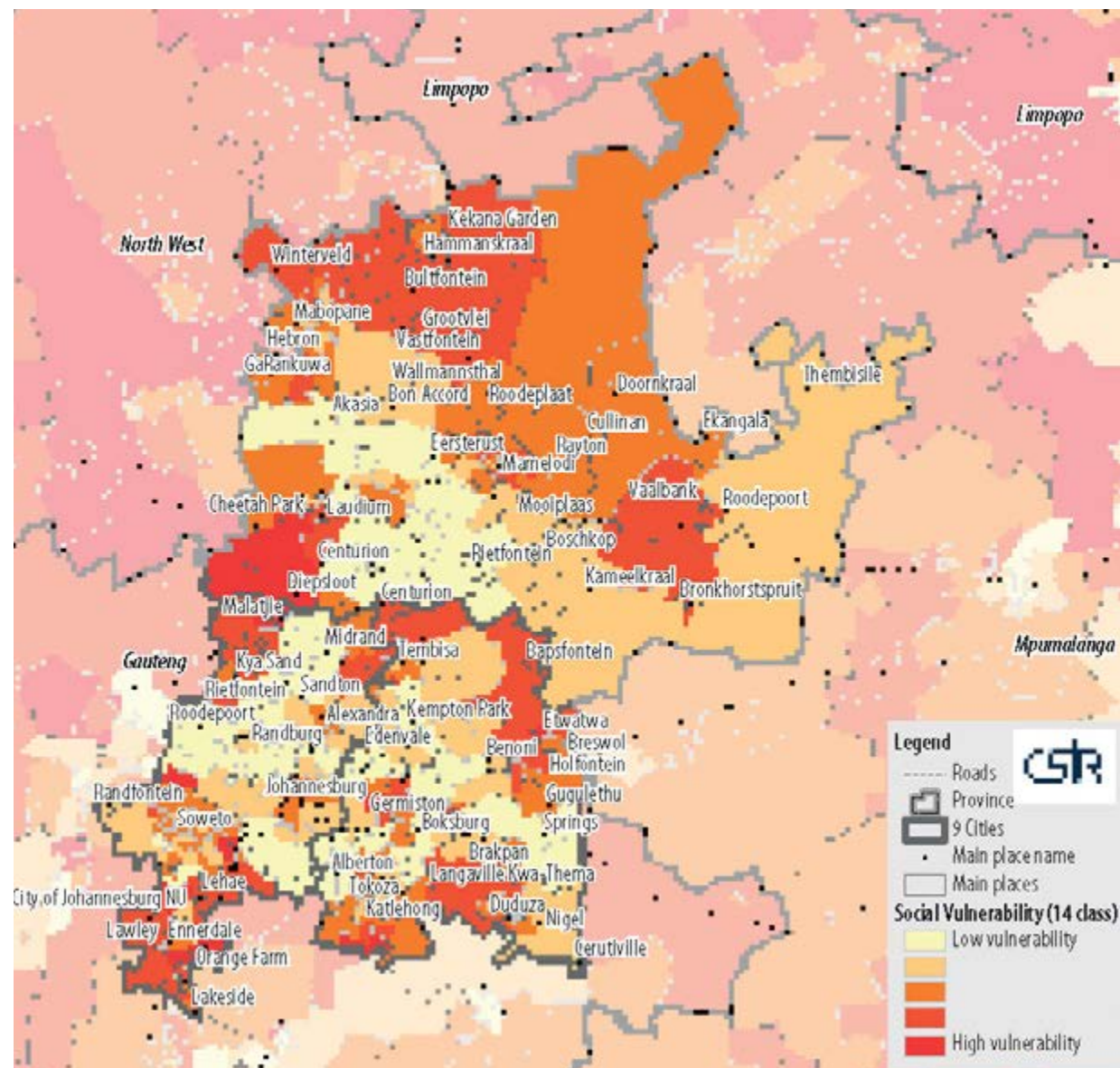
Contemporary studies conducted by the National Planning Commission (NPC) titled NPC Diagnostic Report reflected the goal-to-execution performance of the NDP in 2011. This report concluded in the lack of progress in the overall objective, and the main contributor to this reality is an absence of broad partnership along with a failure to implement the policies set out to help achieve this national objective (NSTF 2019). In 2015, the Millenium Development Goal Report indicated that there might be a significant lack in the coordination of disciplines within the critical development sectors that contribute to the lack of progress in the NDP imperatives. A review of the 20-year NDP progress indicated that the goal to eliminate poverty and reduce inequality had not been met (StatsSA 2015).



The Social vulnerability index is used to assess whether communities located in the context of assessment can positively respond to the influence of multiple stressors (SACN 2016: 131). The majority of people in South Africa fall within high vulnerability mostly due to locational disadvantages (Fig. 3.7).

Over half the population of low-income residents spend approximately 20% of their wages on transportation to and from places of work and recreation (Kane 2006 in SACN 2016: 136). Although there has been a radical increase in racial mixing across contexts such as Gauteng, the majority of Black Africans still reside on the periphery of urban cores across the country due to a lack of access to inner-city rental stock (Harrison and Todes, 2013 in SACN 2016: 141).

**FIGURE 3.7** South Africa Social Vulnerability assessment (CSIR in SACN 2016: 131)



Access to environments that enable personal development is of higher priority, which could be fostered by the public sector investment. The continuing displacement of disadvantaged communities not only embeds the Apartheid spatial pattern but increases urban inequality (SA NPC 2010). If we consider the Gini coefficient used to assess imbalance from a scale of 0 (most equal) to 1 (most unequal), South Africa is one of the most unequal countries in the world (UN-HABITAT 2008 in SACN 2016: 142). The year 2010 marked 16 of democracy in South Africa, yet structural unemployment and poor education opportunities ensured a limited change in income inequality (CSIR 2015). Therefore, poor education, deprived access, over-population, result in the inability of communities in areas such as townships to function efficiently (SA NPC 2010: 28; SACN 2016).

Those who have gained access to the opportunities closer to the inner city find refuge in the middle-class (SACN 2016: 142). Imperative driven through policy mechanisms such as the Inclusionary Housing policy (IH) now enables the middle-income group to enter the housing market in high-income areas. The inclusionary policy (IH), developed to foster progressive growth in the development of sustainable human settlements for all, provides a regulatory basis to score settlement developments against preliminary targets set by the NDP. Undefined roles regarding the operational components necessary for the efficient integration of the inclusionary housing components in the residential market have created resistance from the private sector (SAPOA 2018).

The IH policy primarily addresses the fast-tracking of housing delivery while disruptively enforcing the coexistence of varying income groups under a similar identity. This policy is considered a radical, successional response to the Group Areas Act of 1950 (SA DHS 2008). It presents a challenge that in part, reflects the changing atmospheres in the socio-political economies and shifts paradigmatic perspectives regarding

collective identities in 21st-century cities (Dewar & Kiepiel 2004; Dewar, Watson & Todes, 1986: 5-7).

For the past two decades, the NDPs driving components have rested on the collaboration between the intergovernmental relationships of the public sector bridging with the profiling and investment capacity of the private sector. This collaboration has resulted in a comprehensive plan of action that forms a facilitative guideline for the urban integration strategy presented as the NDP: Vision 2030. A possible hint at the next step in the narrative of settlement upgrade is represented by the lack of literature reflecting on the backtesting the IH models within the South African context (Charlton 2010; 2014; Robertson 2017).

Assessing the IH model finds relevance within gentrification as this is the present-day development model employed in the revitalization of decaying inner-city areas.

Addressing social exclusion in South African cities from an interdisciplinary perspective will not only strengthen innovation around integrated urban planning but will also address public access and inequality. The innovative capacity of additional disciplines such as architecture could address the gap between the interdisciplinary insights, currently underutilized in the executive realm of the NSDF (Dewar & Kiepiel 2004). In terms of the town planning and spatial development agenda, the vision to restructure the South African spatial setting has synchronized across the government bodies.

The lack of progress expressed by contemporary literature in the form of reports and reviews on the lack of a progressive development towards the outcomes set and guided by the frameworks and regulatory policies of the NDP seems to rest in the realm of execution/ implementation. The national redevelopment agenda aims to repair the imbalances caused by Apartheid spatial planning.

However, well-serviced areas with locational privileges continue to attract both public and private investment. Neighborhood development in previously disadvantaged areas is critical to respond to the blockages of the first NDP phase and maintain the narrative towards sustainable, inclusive cities. Rising urbanization in densely populated regions places pressure on the development sector to innovate around development issues related to the SDGs. With the private sector being responsible for rolling out the spatial expressions of the NDP, inclusive financial models in settlements are critical. By bridging the innovative capacity of sector-specific disciplines, urban areas could be improved to benefit/ support current and future residents.

### 3.8 Conclusion

The National Development Plan: Vision 2030 is the guideline framework for the redevelopment of South Africa. It is enforced across the nation by the SPLUMA legislative framework to ensure inclusive, efficient, and sustainable development across the country (SA SPLUMA 2013: 1). Over the past 25 years, despite the lack of progress, the country has transformed through neighborhood upgrade, inclusive design, and sustainable development. Nonetheless, there still exist challenges relating to housing limitations in well-located areas, exclusive urban environments, and impaired access to socio-economic opportunities for the previously disadvantaged.

The radical IH policy may have been the first groundbreaking policy to expose the financial dynamics related to the function and appearance of integrated human settlements.

Thus, investigating the components necessary for this development model to operate may provide insight on how to provide access to all income groups in well-located areas.

**END OF CHAPTER 3**



# Chapter 04

## CONDITIONAL ASSESSMENT

### 4.1 Status quo

Mamelodi is one of the first townships, planned by the Pretoria city council under NT Cooper, to host the victims of the 1953-1967 forced removals following the passing of the 1951 Group Areas Act (SA 1951). Then called Vlakfontein 329 JR farm, the settlement was defined by the Magaliesberg mountain range to the north, Tsamaya Road to the South, Sun Valley to the west, and the Pienaars River to the east. Today, Mamelodi is defined by the Magaliesberg Mountain range, the Ekurhuleni Local Municipality on the south, and the N1 freeway on the west. The designated land area 885 square kilometers in size (88524 ha), with a population of 605,554 people as of the 2011 Census (StatsSA 2011). Mamelodi East, classified as a dormitory settlement due to the population influx from

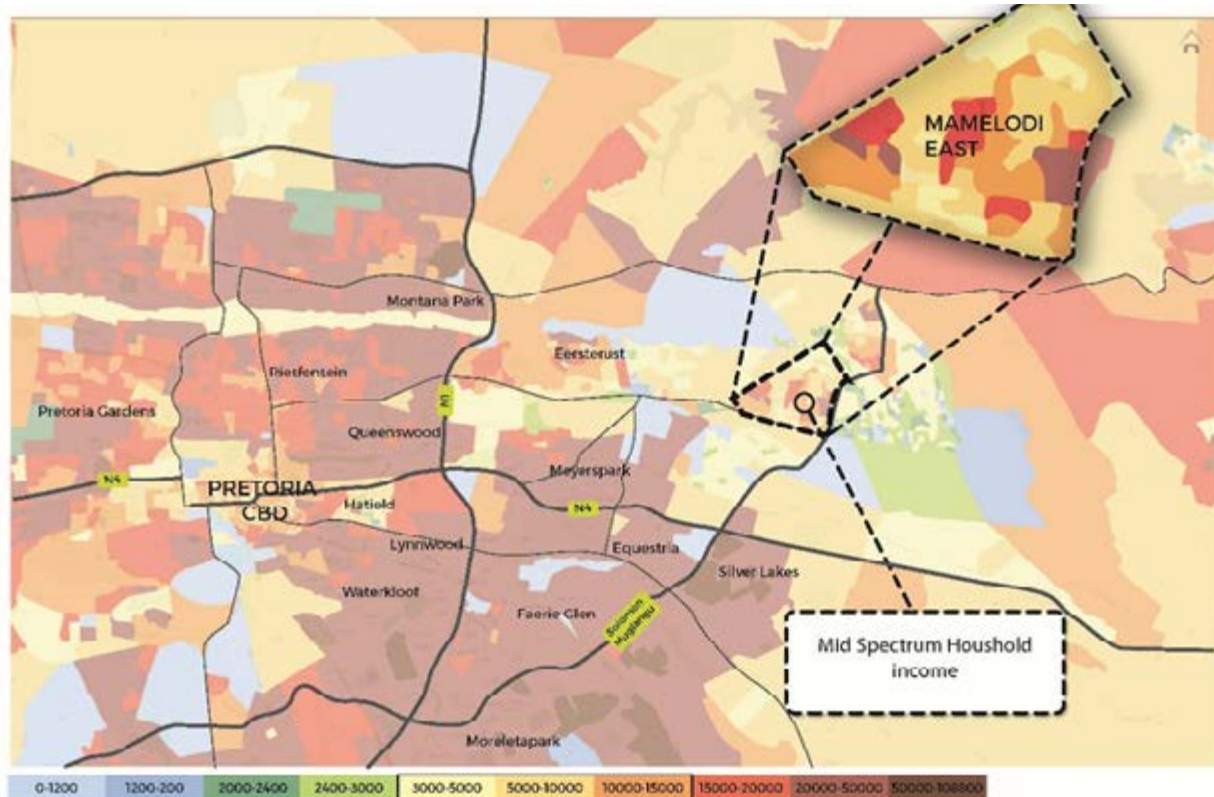
1990- 2014 (Fisher Le Roux & Maré 1998), is identified as an urban core. It is one of the townships with a high household per hectare ranging from 3 to 900, considering the geographic size. It is situated approximately 20km outside of Pretoria CBD and has a low percentage of employed citizens compared to the surrounding areas.

### 4.2 Socio-economic condition

The average household income ranges from R3000- R15000, with the majority of the population situated in the middle to low-income spectrum (Fig.4.1).

The household sizes are large compared

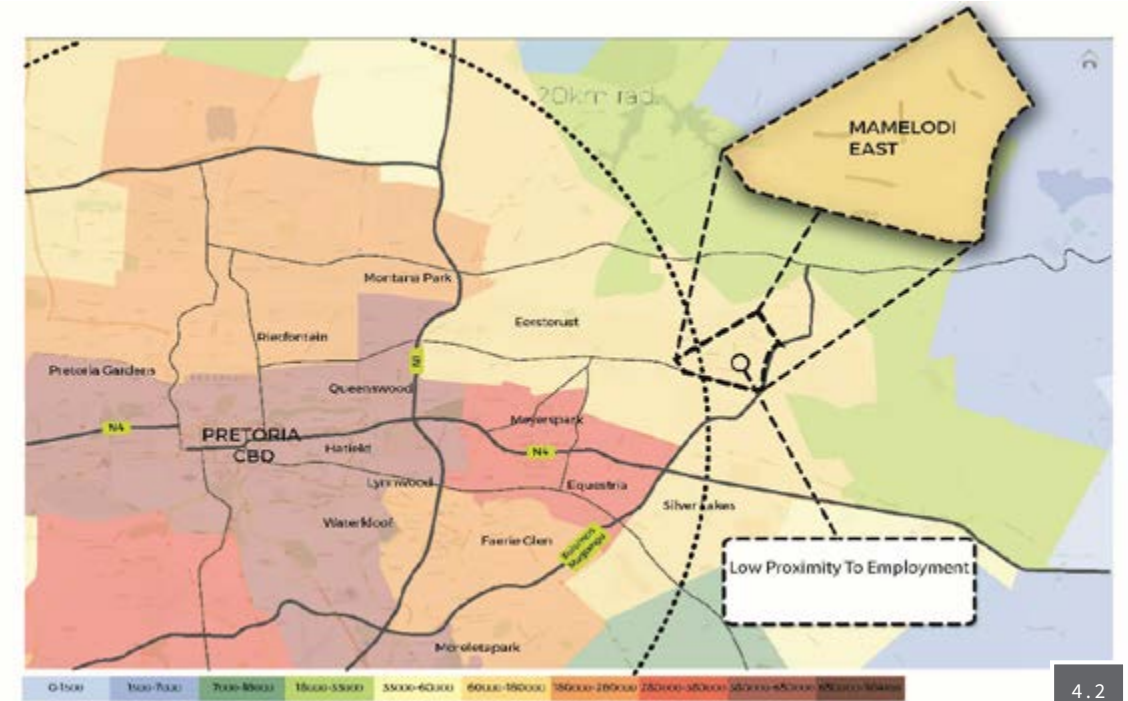
**FIGURE 4.1** Average household income (MappableSA, 2017 in Honours 2017).



4.1

to the suburban areas, which qualify the household income as below adequate. The township has a low number of employees who are within 20-minute proximity to employment (Fig.4.2), therefore, resulting in the majority of their time spent on traveling to and from places of work.

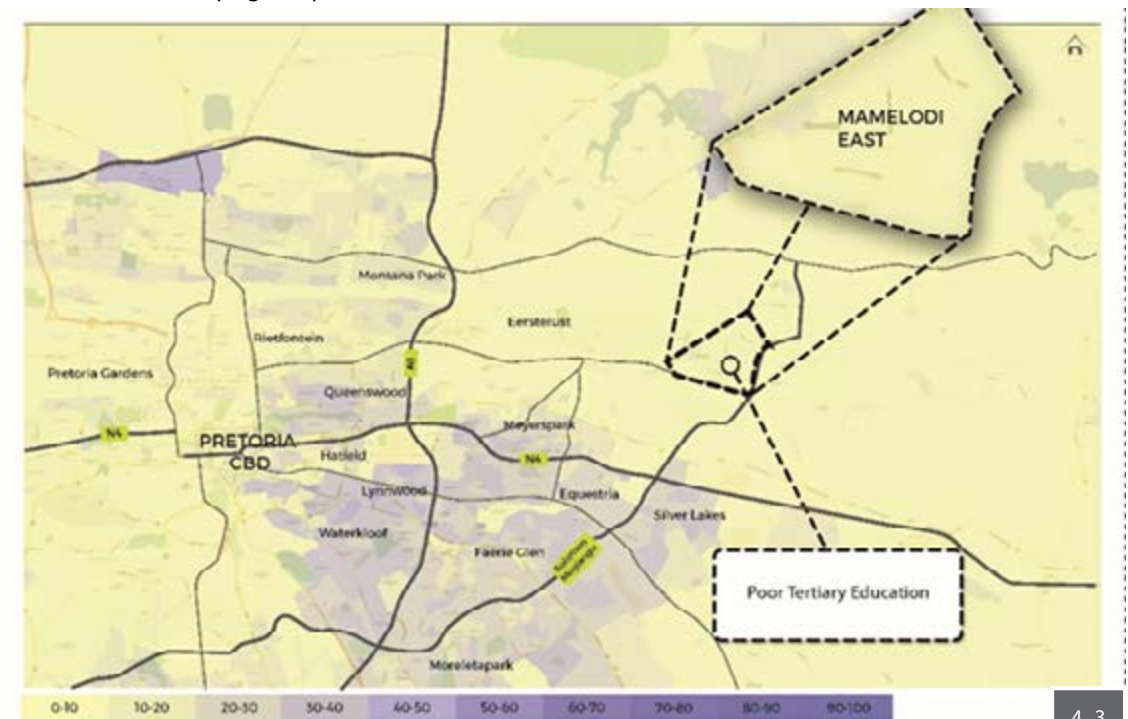
**FIGURE 4.2** Proximity to employment (MappableSA, 2017 in Honours 2017).



4.2

There is a low percentage of individuals with private vehicles, which leads to a significant dependency on public transport. The population has a little exposure to tertiary education as the percentage of degree qualification is between 0 and 20% (Fig.4.3).

**FIGURE 4.3** Population percentage with degrees (MappableSA, 2017 in Honours 2017).



4.3



Due to Mamelodi East's locational disadvantage, historical ties to the Apartheid spatial planning, and contemporary issues of development backlogs, the context provides a reflective platform linked to the exclusive legacy of the Apartheid regime. The spatial setting also exposes development dynamics associated with regressive neighborhood development as socially elite environments continue to develop around the township.

### 4.3 Meso urban condition

#### 1) The Vista precinct

The site is located on the corner of Solomon Mahlangu Drive (M10) and Hinterland Road (Fig.4.4). The site was chosen due to being located next to the University of Pretoria Vista campus. Originally developed as a distance learning campus for Black academic professionals in 1982, the campus contributes to the spatial legacy of segregation (Landman 1989).

The campus is centered within a large vegetation buffer that is fenced off on all sides, rendering it exclusive to registered students or associated scholars. The future of the campus, however, sees promising

integrative energy driven by the institutional development framework that envisions the Vista campus as an anchor institution (UP Mamelodi Campus 2018). Zone as municipal land, the site offers a prototypical platform for a flagship project that responds to the legacy of exclusion.

FIGURE 4.4 Site locality map (Aurthor 2019).



4.4

#### 2) Urban structure

The Vista campus and the site are on a block cell structure with the connection to the primary access on Hinterland Road, the main artery. The residential components are on a linear cell structure that relates to the initial morphology set out by the Pretoria city council under NT Cooper. The capillary road networks create long blocks and narrow blocks of approximately 200m x 40m (Fig.4.5)(MappableSA 2017, Van Biljon 1993).



4.5

#### 3) Land Use

There is a large concentration of formal and informal residential use around the site. The site is zoned for municipal use adjacent business one & two zonings, which introduces diversity (Fig.4.6).

FIGURE 4.5 Urban structure (Aurthor 2019).

FIGURE 4.6 Zoning plan as per CoT Townplanning scheme (Author 2019).



4.6



4) Access and mobility

Solomon Mahlangu Drive (M10) is the only north-south movement arterial that connects to the Bronkhorstspuit Road, the N4, and the N1 to Johannesburg. Mamelodi is then connected east-west through a major arterial, Tsamaya road. Hinterland avenue, a minor arterial, connects the two main arteries (Fig.4.7).

4.1) Transportation structure

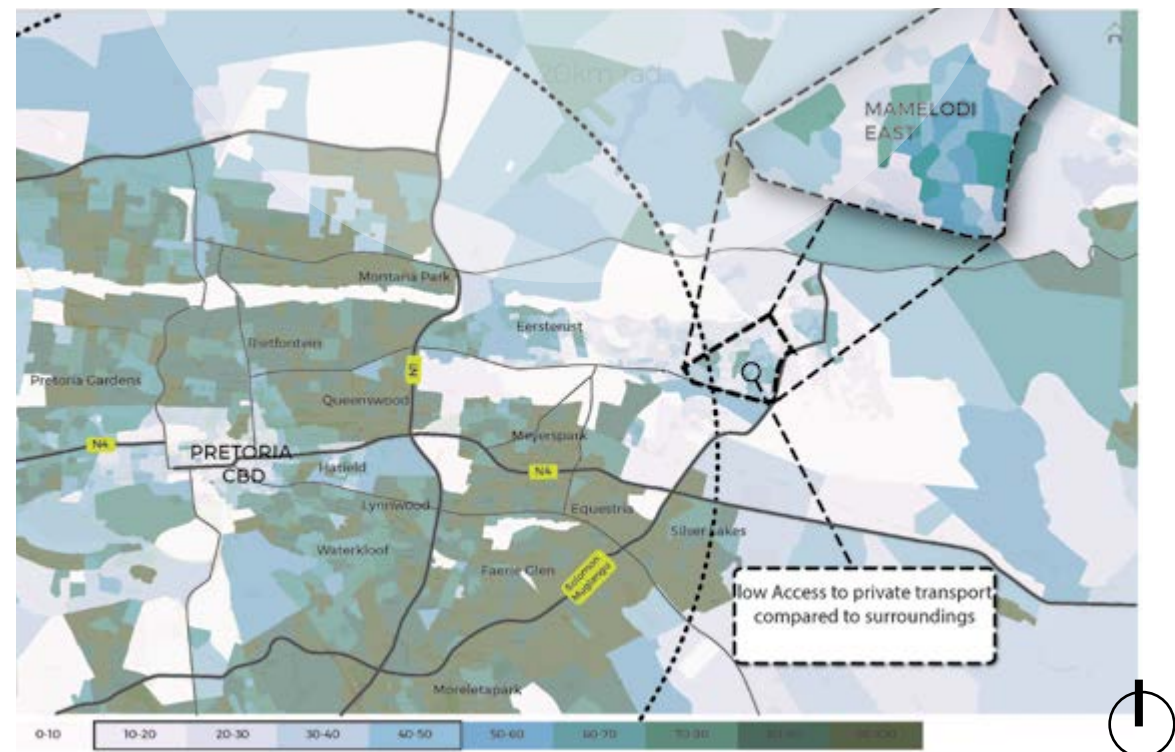
Mamelodi East primarily dependant on public transport. The primary transport systems are “touting vehicles, taxis, and buses” that take workers and students to the city in the morning and back to the township in the afternoon (Fig.4.8).



**FIGURE 4.7**  
Mobility Access  
(Aurthor 2019).

**FIGURE 4.8**  
Population with access  
to private vehicles  
(MappableSA, 2017 in  
Honours 2017).

4.7

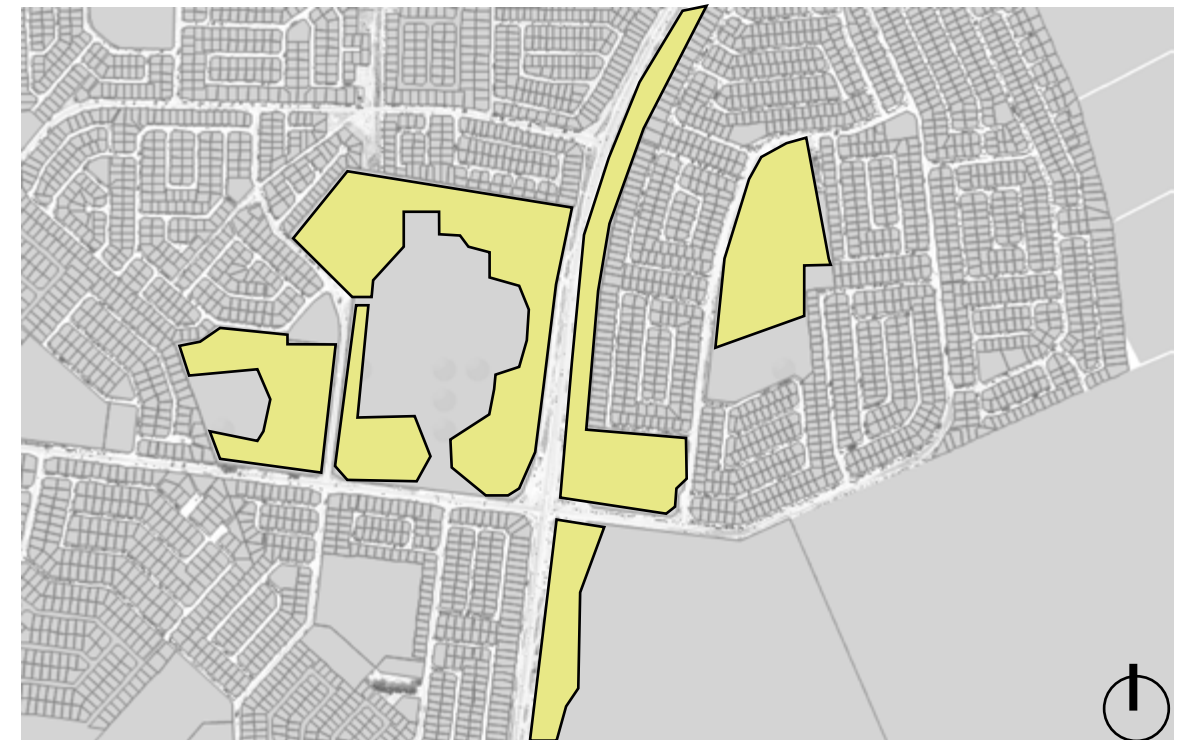


4.8

5) Open space networks

Mamelodi east has vast sections of open spaces that disconnect the parcels instead of connecting them. Often zoned as public space, these open spaces become derelict “public” space as a result of the informal occupation (Fig.4.9) Manageable open spaces with residential backdrops offer an opportunity for commercial/ service activity. Recreational grounds are often too big, poorly defined, and disconnected from the local school ground.

The pedestrian links are between Mamelodi Extension 6 and Mamelodi Gardens in disrupted by the bulk water servitude adjacent to Solomon Mahlangu Drive (M10) (Fig.4.10). The most dominant spatial buffer on the southern gateway of Mamelodi East is the Vista campus, as well as the derelict TR137 bus depot municipal site.



**FIGURE 4.9**  
Open space analysis  
(Author 2019)

**FIGURE 4.10**  
Mobility linkages &  
barriers(Author 2019).

4.9



4.10





**FIGURE 01-06**  
Contextual condition  
(Honours 2017).

### Synthesis

After assessing the current condition, Mamelodi East faces challenges of economic inequality, locational displacement, and structural unemployment. Although monofunctional, the local servicing of the township is fair. Healthcare is a critical disparity along with recreational environments that encourage aspiration

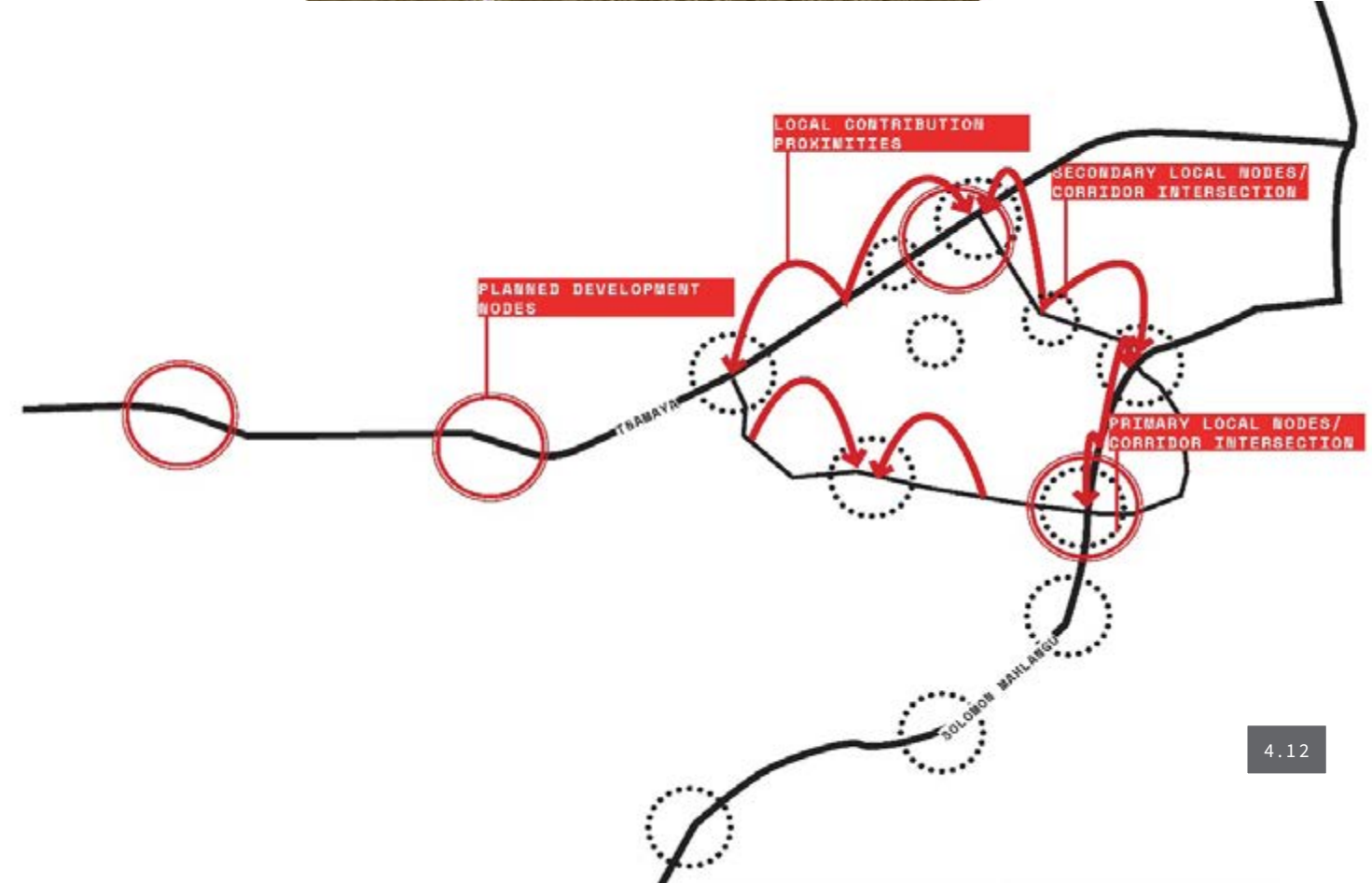
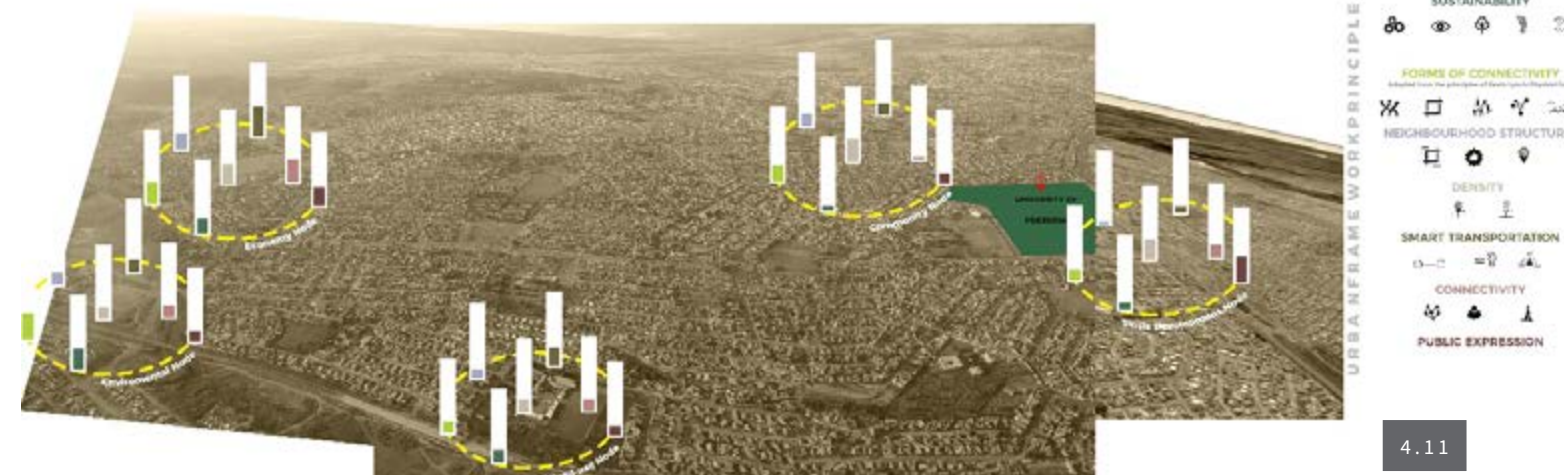
**FIGURE 4.11**  
Meso contextual  
condition analysis  
against New  
Urbanism, Transit  
Oriented Developent  
principles (Honours,  
Living Ma-chine Group  
2017).

**FIGURE 4.12**  
Conceptual framework  
intention depicting an  
insertion of potential  
primary nodes that  
support existing  
secondary nodes  
(Author 2019)

and inclusion.

The potential of the site include;

- the introduction of nodal development,
- extending the emerging nodes into formalized urban environment,
- the introduction of a higher density linked with nodal development,
- increased economic activity on Solomon Mahlangu Drive (M10) defining its significance as the secondary mobility link to the N4, Garsfontein, Atterbury, and the N1,
- encouraging urban stitching between Savannah Country Estate and Mamelodi Gardens (City of Tshwane 2011).



**END OF CHAPTER 4**



# Chapter 05

## BLOCK VISION + CONCEPT

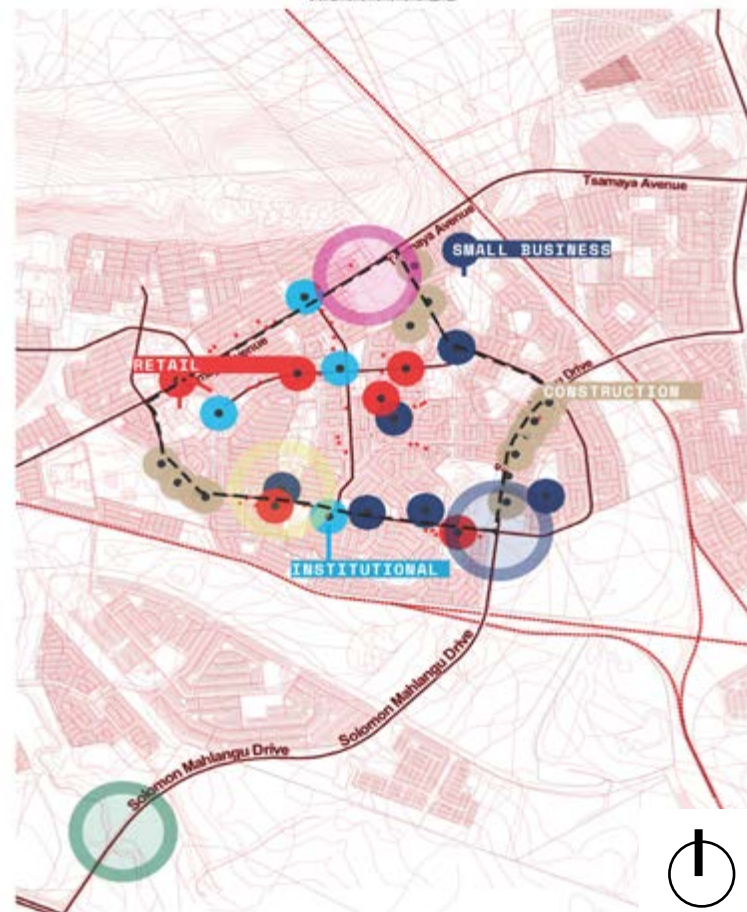
### 5.1 Urban framework

Drawing from the Tsosoloso Programme, which is linked to the UNS to create liveable urban areas and encourage investment (GAPP 2010: 18), the Five Points of Action will be adopted to establish development targets that align with the Regional Spatial Development Framework of 2018. The urban objective is divided into three scales to respond to the global, local, and microlocal framework towards inclusive and sustainable cities (SA 2018; WeForum 2018).

These frameworks will aim to;

- 1) Global framework:
  - Encourage domestic production and economic energy in the form of a sharing economy,
  - Democratize urban space to enable access and empowerment,
  - Encourage development vocabulary associated with collective ownership in civic structures,
- 2) Local framework:
  - Promote the distribution of networks by encouraging satellite working,
  - Support the establishment of cooperative based operations,
- 3) Microlocal framework:
  - Encourage the intersection of domestic and regional markets to increase nodal productivity,
  - Establish a development framework that encourages a working relationship between institutional, private, and civic partners that promotes upward mobility in previously disadvantaged areas.

**FIGURE 5.1** Assessment of proposed CoT Nodal development strategy overlaid with existing nodes (Author 2019).



5.1

The nodal development strategy, activity corridor, and open space upgrade framework (Fig.3.4) seem to lack integration with locally established nodes (Fig.5.1). The derived framework, therefore, aims to;

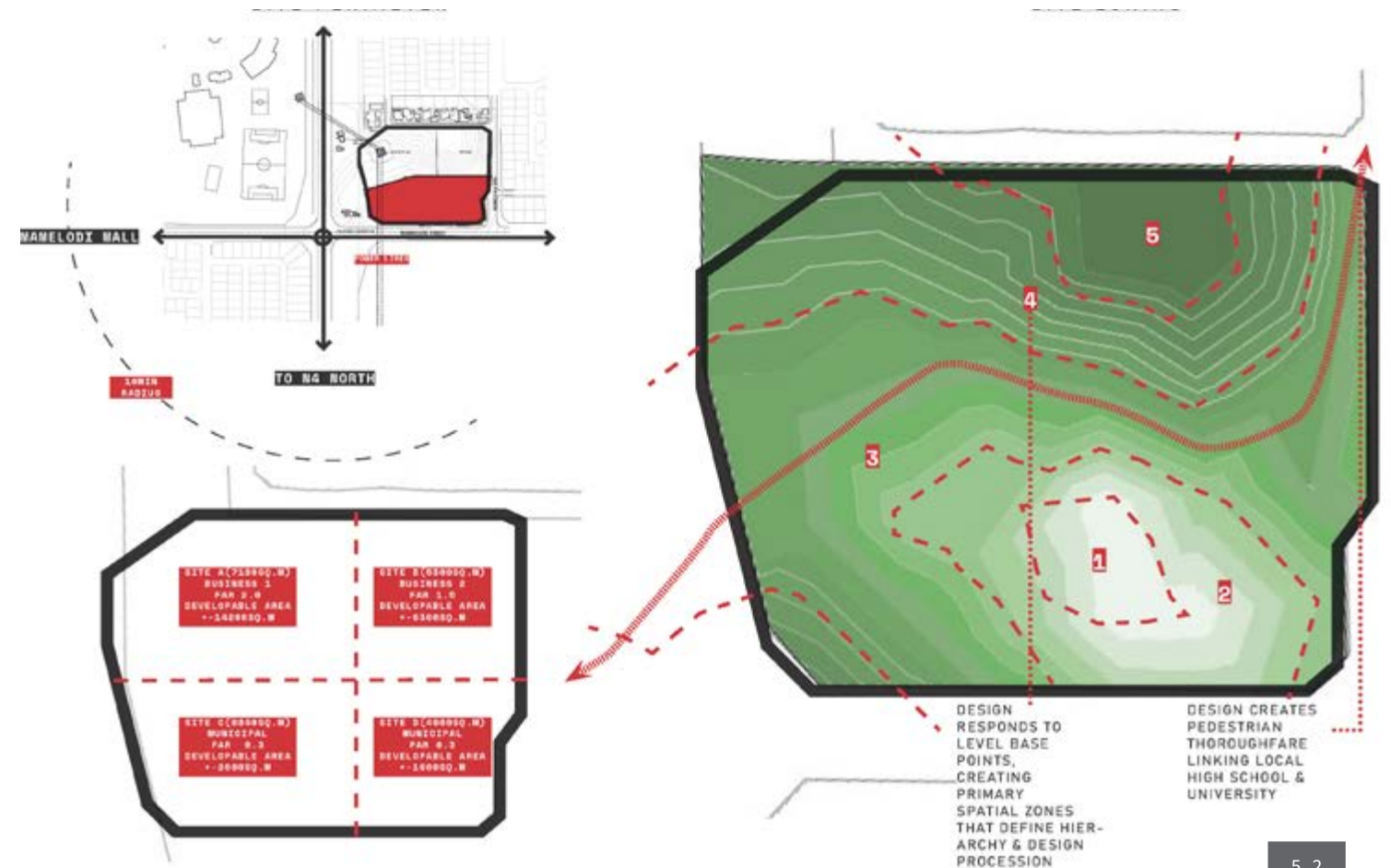
- Encourage mixed-use potential and connect local retail nodes,
- Encourage tourism potential through architecture intervention,
- Provide a potential link between public transport facilities and the BRT to support the Mamelodi/Menlyn link,
- Minimize the pendulum effect by introducing commercial opportunities.

### 5.2 Block strategy

#### 5.2.1) Development parameters

The precinct is divided into four Erfs (Fig. 5.2) as per municipal zoning; Business 1, Business 2, and Municipal, which is divided into two Erfs.

**FIGURE 5.2** Site development parameters as per City of Tshwane Townplanning Scheme (2011)(Author 2019).



5.2

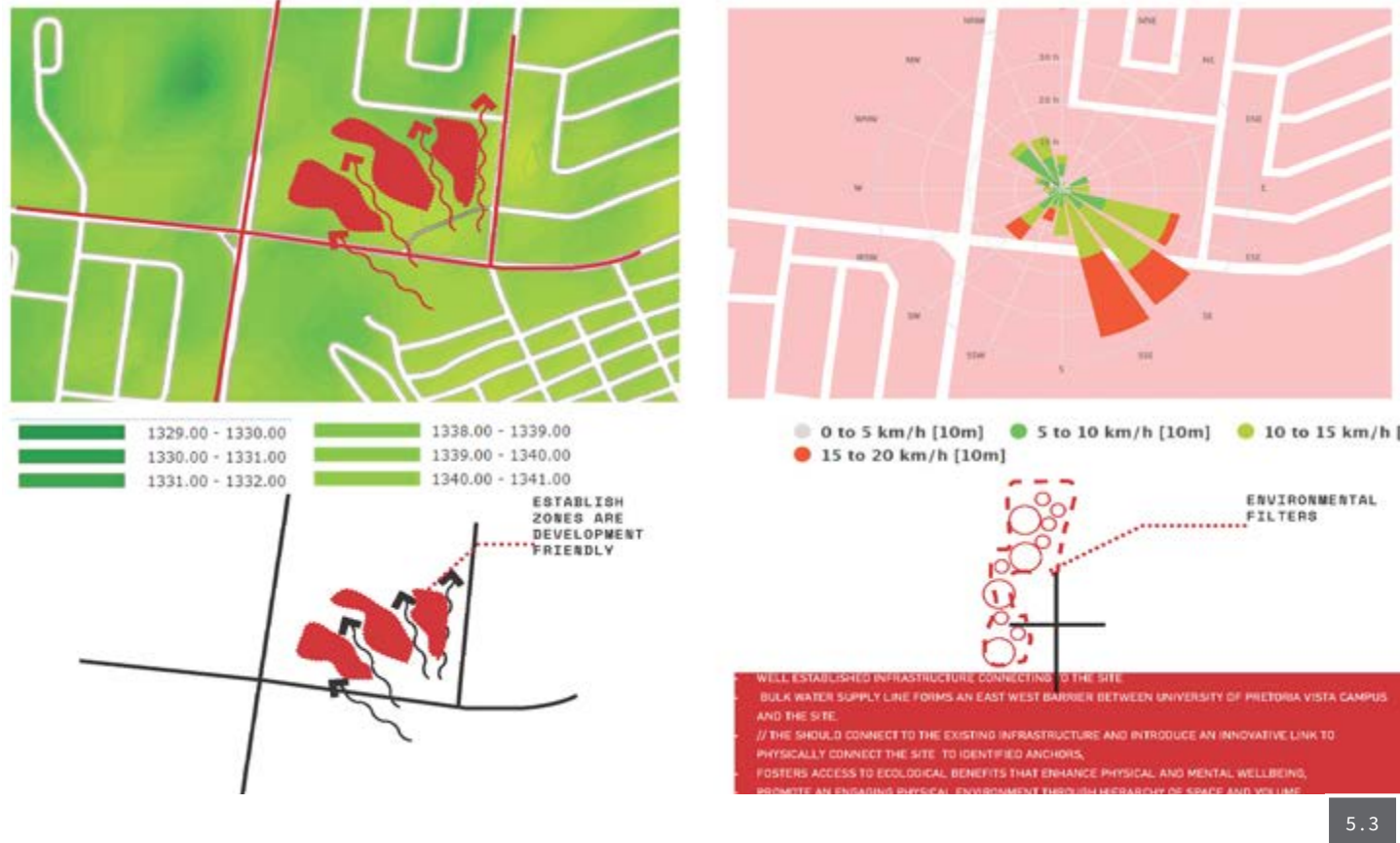


### 5.2.2) Site conditions

The site is well serviced with sewer reticulation to the north of the site, the stormwater channel to the south, and bulk water supply on the west of the site adjacent Solomon Mahlangu Drive (M10)(Fig.5.3). These parameters open up the site for full development.

The site terrain has a fall towards north from the south, experiencing a prevailing NNW wind as a result of the Magaliesberg Mountain Range (Fig.5.3).

**FIGURE 5.3** Topography and wind analysis courtesy of InfraWork2019 and Meteoblue (Author 2019).

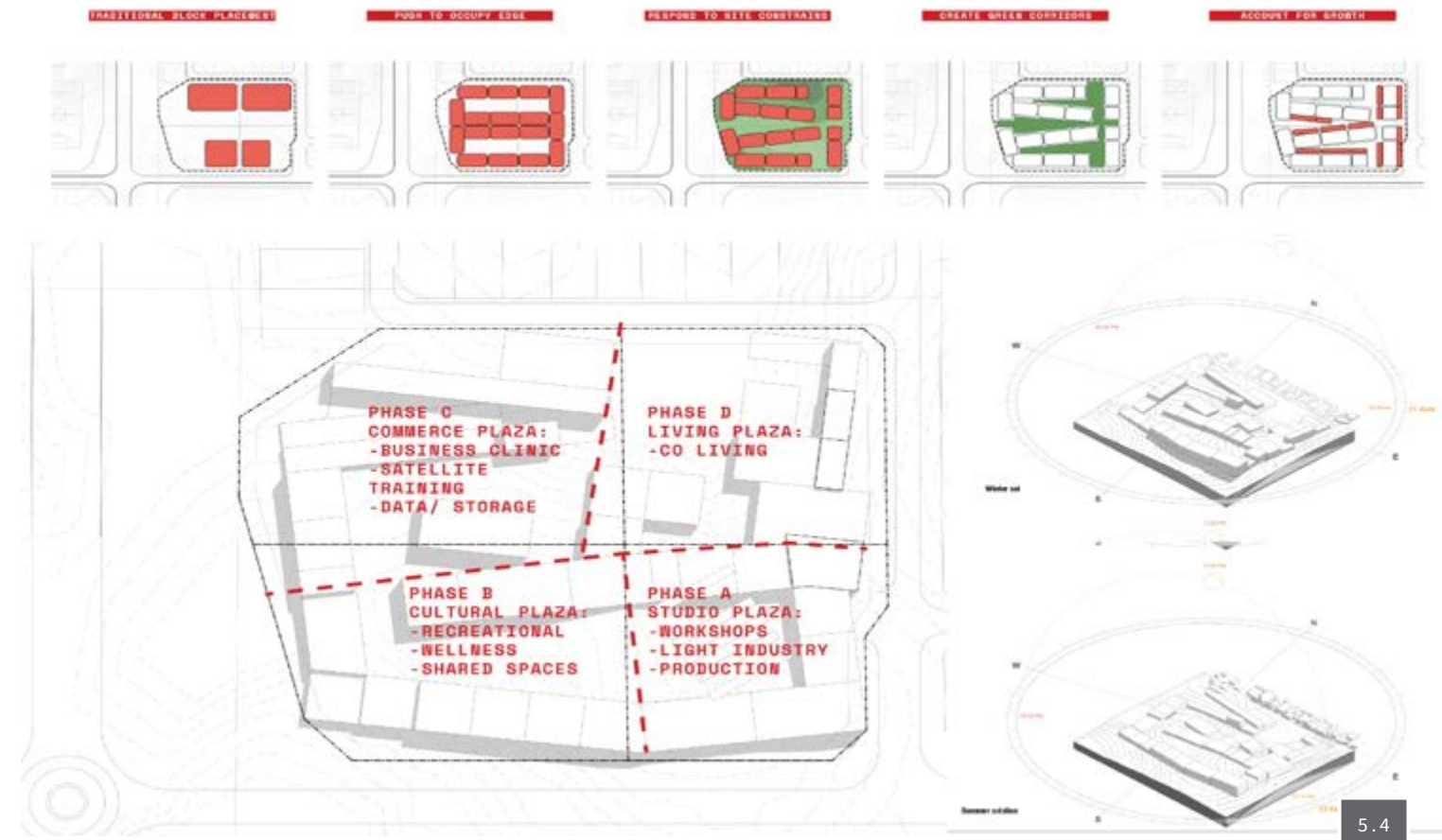


5.3

### 5.3 Precinct proposal

The precinct proposal offers a maximum developable footprint that occupies the edges of the four sites to engage with the urban community (Fig.5.4). The footprint responds to the site terrain to foster access to the ecological benefits of an environmental hierarchy. The spaces between the buildings form green corridors that encourage pedestrian linkages with all four boundaries and the center of the site. The pedestrian walkways around the buildings are wide to encourage informal occupation to allow the present urban life to coexist on the building edges.

**FIGURE 5.4** Precinct development diagram (Author 2019).



5.4

## Pattern 1

This takes the compact cities approach and defines the limitations of the development before programmatic commitment to ensure the eradication of future sprawl.

## Pattern 2

The precinct is developed as a village that offers adjacencies between buildings and creates free internal boundaries where communities collect. These boundaries are in the form of squares, corridors, and roadways.

## Pattern 3

The street is seen as an edge that should be part of the precinct interface. The precinct extends the bounding frontage behind the perimeter of the boundary to accept the sidewalk as part

## Pattern 4

The building orients the ground floor to face the communication route, feeding off the energy from passing foot traffic. Spontaneous activity defines the first threshold, and mixed building use defines the second threshold, presenting a mix-use precinct.

## Pattern 5

The composition of the buildings enables an infill strategy that accommodates the programmatic change. The occupancies are determined by the socio-economic quo, therefore, enabling the participation of multiple income groups based on the scope or level of investment. The precinct consists of anchor amenities as well as satellite facilities to introduce programmatic flexibility at a domestic scale.

## Pattern 6

The precinct offers green corridors that introduce the benefits of the environmental hierarchy between the buildings, reducing the descaling effect of medium density buildings in the precinct.

## Pattern 7

The technical concept represents a sustainable reference pallet that is meant to educate the surrounding semi-skilled local craftsmen in order to adopt health and safety construction methodologies related to existing building methods. Vernacular technologies of timber and brick construction are implemented throughout the precinct using the latest sustainable methods.





# Chapter 06

## PROGRAM STRATEGY

Mamelodi Gardens was selected as a study area to conduct a community profile based on data gathered by the 2017, 2018 Honours and 2019 Masters in Architecture students of the University of Pretoria. The categories of assessment were limited to methods of mobility, dedicated activities relating to labor and academia, and recreational activities. See the "Community Profile" diagram for a detailed description of the weekly time table for the selected community of Mamelodi Gardens.

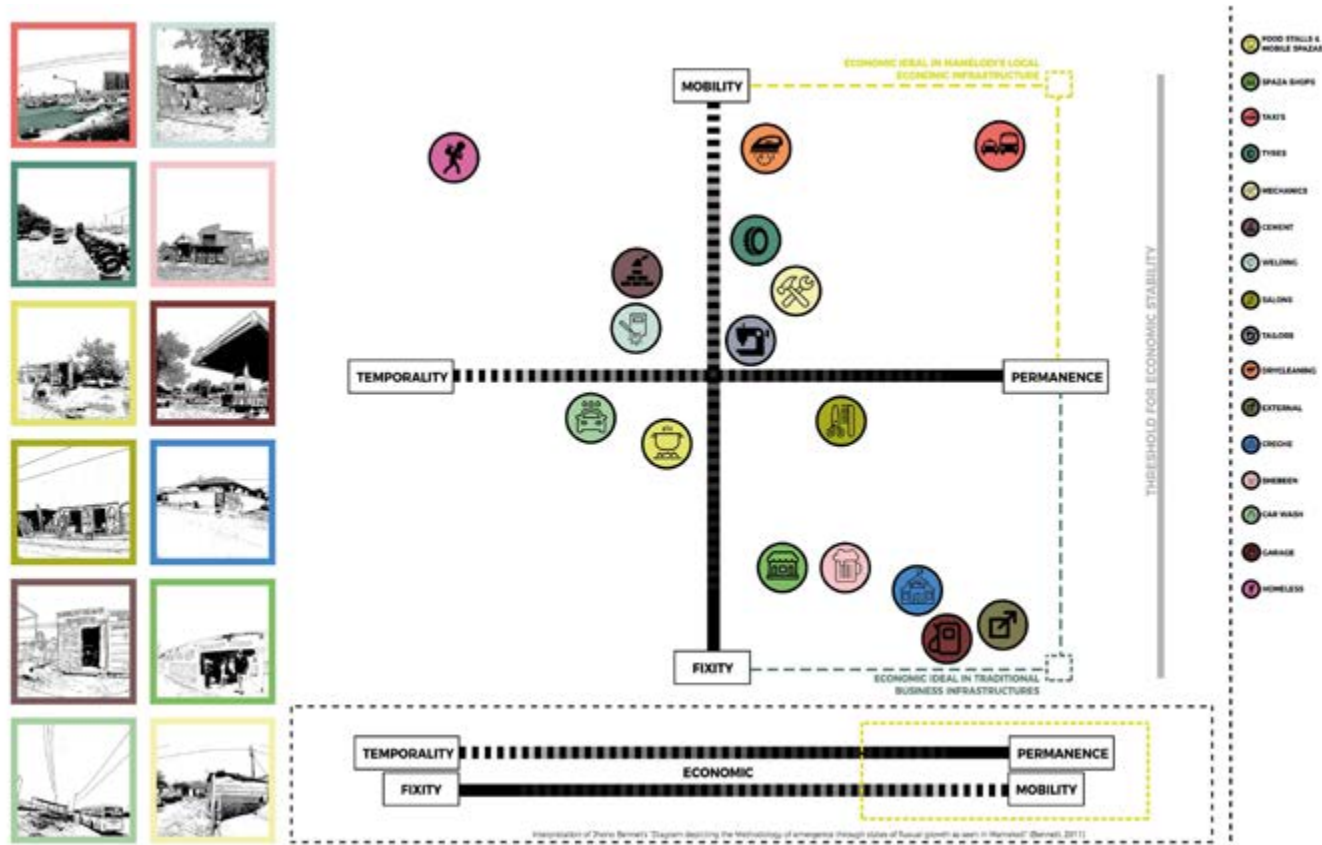
65% who are working age, and 5 % over 65 years of age (MappableSA 2017). Between 05h00-08h00, the laborers and scholars commute in high frequency from Monday to Friday and commute back to the township from 16h00-19h00. The migration leaves traders and local laborers who mostly service the local scholars, unemployed, and elderly between 14h00-16h00, and commuters between 16h00-19h00. There is limited socializing during the week except on Sunday and minimal leisure activities.

### 6.1 Overview

As per the SAL 2011 survey (MappableSA 2017), the population of Mamelodi Gardens is 30-40% of people less than 19 years, 60-

The service and trade economies have been identified within a taxonomy that defines the position of the business as mobile, mobile or fixed, permanent or temporary (Fig.6.1). This taxonomy indicates the types of economies the intervention should consider.

**FIGURE 6.1** Economic typologies in Mamelodi East (Honours, Economics Group 2017)



### 6.2 Contextual references

A community profile based on a contextual study of daily uses and related infrastructure was conducted to understand the intervention drivers of the site and design strategy.

6.4.1 The street as an urban platform\_ Solomon Mahlangu Drive (M10), Mamelodi East, Pretoria

The street, a place that is multidimensional, a movement corridor, an economic driver, and a place of social exchange and recreation (GCRO 2018: 43). Solomon Mahlangu Drive is the only north-south movement corridor into Mamelodi East connecting to the N1 (Fig.6.2).

**FIGURE 6.2** Study area in relation to the city centre (GCRO 2018).





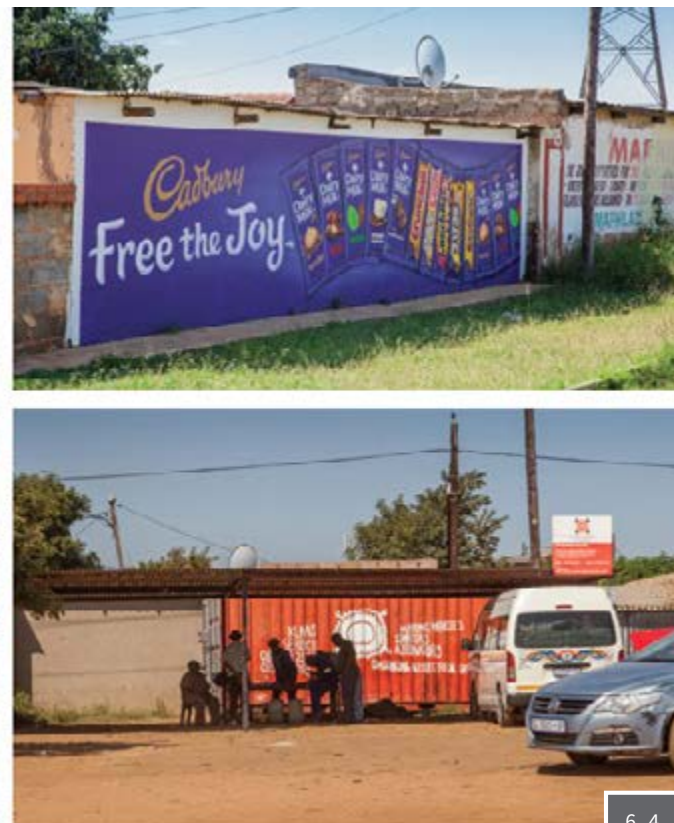
It presents a multitude of transition zones that depict a variety of spatial settings ranging from ideal to unpleasant as a result of the edge conditions. On the surface, these edges seem infrastructural. As one moves through the different conditions, the types of adopted edges indicate the different services provided by the street edge (Fig.6.3-6.4).

Hard edges seem to associate with territorial activities while soft or implied edges extend themselves to a multitude of activities (Fig.6.4). This observation indicates that the way the edge is occupied relates to condition and nature (GCRO 2018: 50).



**FIGURE: 6.3-6.4**  
Various edge conditions along Solomon Mahlangu Drive (M10) and their associated attitudes (GCRO 2018: 49).

6.3



6.4

### 6.3 Principle lessons

The street edge provided a credible example of a mixed-use urban platform, accommodating a variety of uses and citizens. Local interventions should, therefore, encourage the temporal conditions by allowing sustainable opportunities for

urban participation (Fig.6.4-6.5). Streets can, therefore, be design as sustainable open spaces by;

- enabling clear sightlines,
- providing activity sensitive surfaces,
- providing designed pathways that link to other spaces,
- offering public infrastructure (lighting, seating, greenery, inclusive thresholds) (Smit, Davey 2017 in City of Tshwane 2018).



**FIGURE: 6.5-6.6**  
Informal occupation typologies with their associated structures (GCRO 2019: 54).

6.5



6.6



### 6.4 Case Study: Spontaneous occupancies

Since the 1950s, recipients of state-funded residential components have added “backyard rooms” to produce income from their residential plots. This phenomenon grew to define the urban landscape of South Africa to date. According to the census of 2001, 2.3million people were living in what is called “backyard shacks” (StatsSA 2001 in Poulsen & Silverman 2002). The primary benefit of this study is the added efficiency in land use as a result of the “higher density” on properties with backyard shacks as well as the added benefit of the landowner deriving income from their property (Poulsen & Silverman 2002). Since then, interventions have responded to this condition to innovate housing typologies that account for growth and anticipated densification (Fig.6.7).



### 6.5 Synthesis

The intervention should aim to accommodate expansion over time by accommodating spatial compartmentalization in order to leverage the added efficiency of higher density.

FIGURE 6.7 The lufhereng , mogale city development by 26/10 and Peter Rich Architects.



6.7

### 6.6.1 Principle references

6.5.1 2014 Watershed, V&A Waterfront, Capetown- Wolf Architects



a



b

Key ideas: mixed-use service micro precinct, economic incubator, urban building, a hierarchy of temporal to permanent activities, contextual material pallet.

6.5.2 2014 Lo barnechea Social housing, Chile- Elemental Architects



c



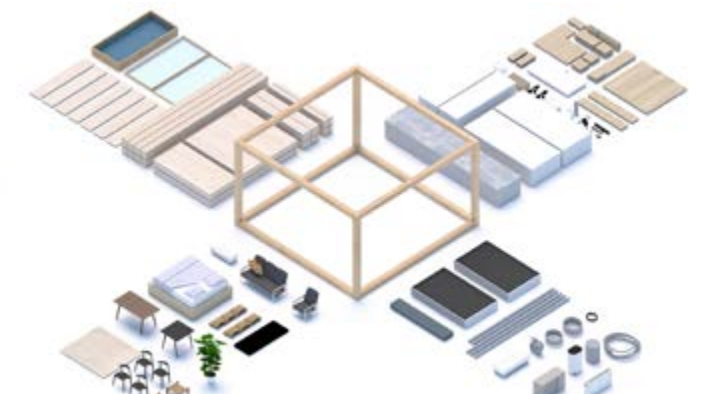
d

Key ideas: Quality housing solutions, infrastructural subsidy, networked approach, socio-political integration.

6.5.3 2019 Urban Villages Project, Conceptual framework- EFFEKT Studio, Space 10



e



f

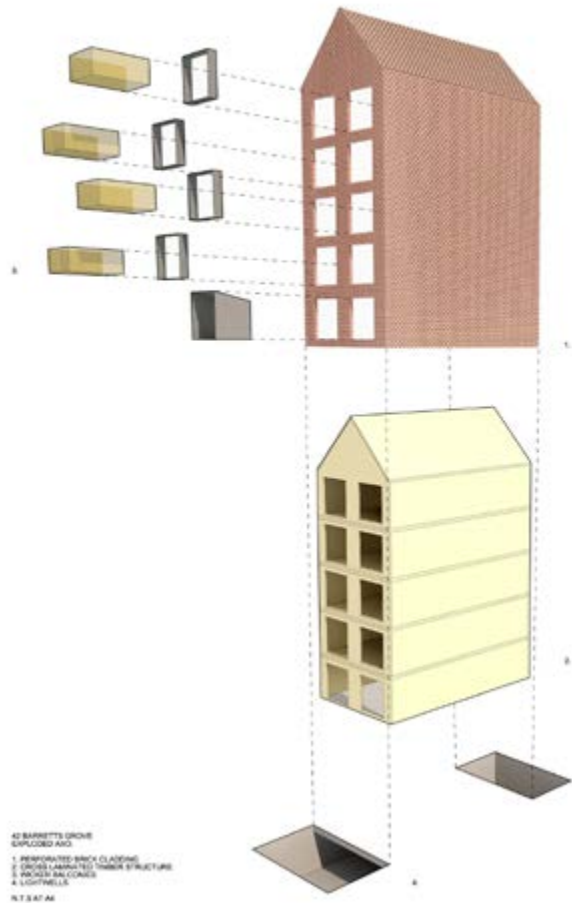
Key ideas: subscription-based rental, universal/ modular construction, sustainable design, co-sharing typology, livelihood upgrade, systems thinking.



6.5.4 2016 Barrets Grove Apartments, London- Groupwork Architects



g



h

Key ideas: technical innovation, composite construction, tectonic construction, exposed load-bearing Cross Laminated Timber

6.6.2 functional requirements

Based on the assessment of the contextual conditions relating to the activities, the intervention(s) need to, therefore, encourage safe points of assembly guided by activated routes sheltered from harmful elements. Recreation should be introduced to respond to low leisure activities, with well-located public services.

6.6.3 Programmatic requirements

The programmatic pallet is developed to align with the objectives defined by the three framework scales towards inclusive and sustainable cities. The programs include; market spaces, satellite work

hubs, social service programs, healthcare amenities, co-working environments, co-living opportunities, and lifestyle facilities.

6.6 Design framework development

6.6.1 program generation

The purpose of the program choice is to introduce recreation, co-working, residential, and wellness amenities to support the lack of serviceability as part of neighborhood development.

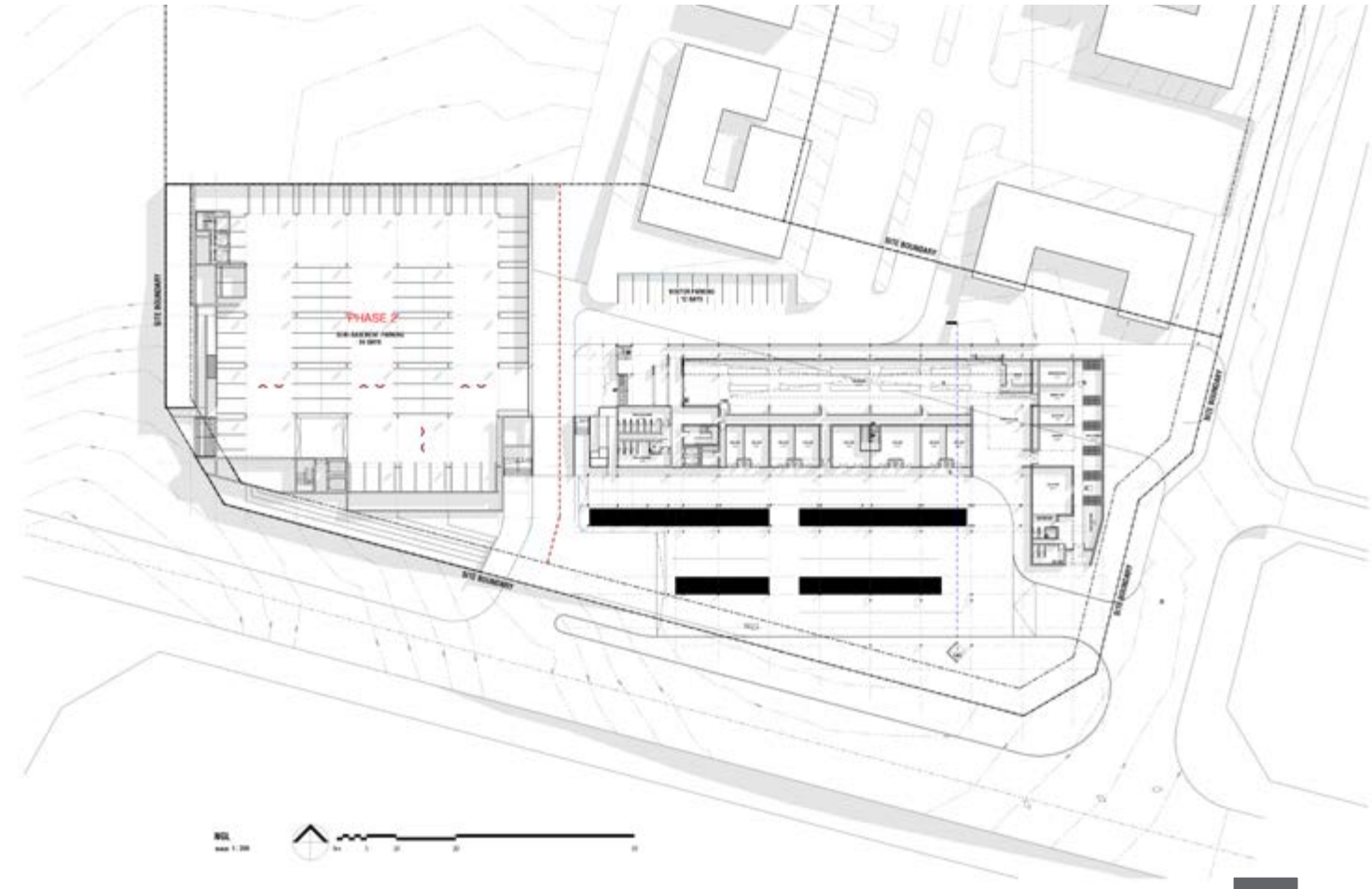
(As per Accommodation schedule diagram)

Resolution 4\_ Urban integration

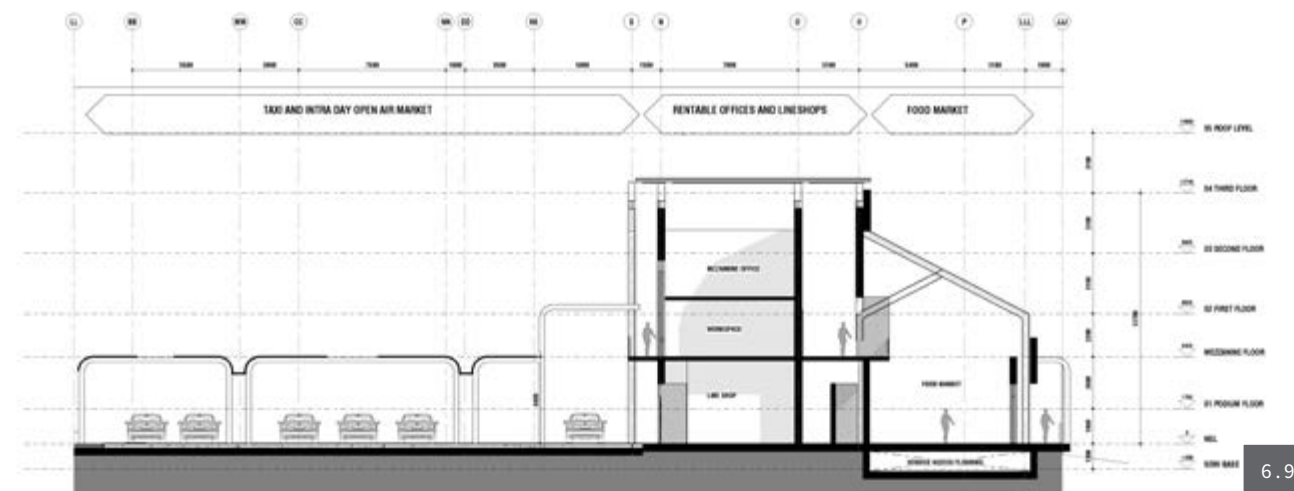
The resolution attempts to design the "framework" of the site from the lens of mixed-use precincts.

Criticism: site integration was not achieved, poor urban edge definition, mixed-use urban environment not successful.

6.6.4 Design revision panels



6.8

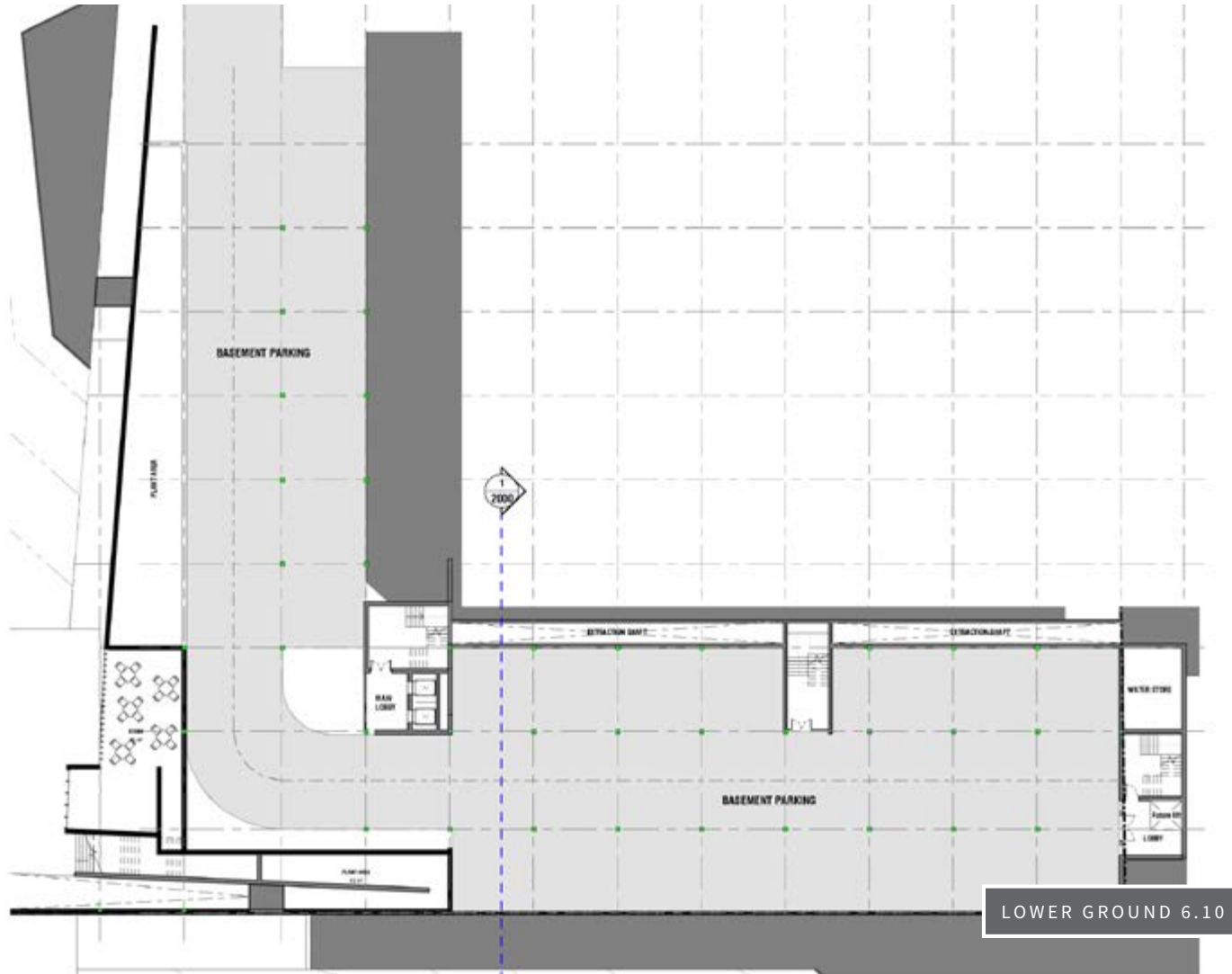


6.9

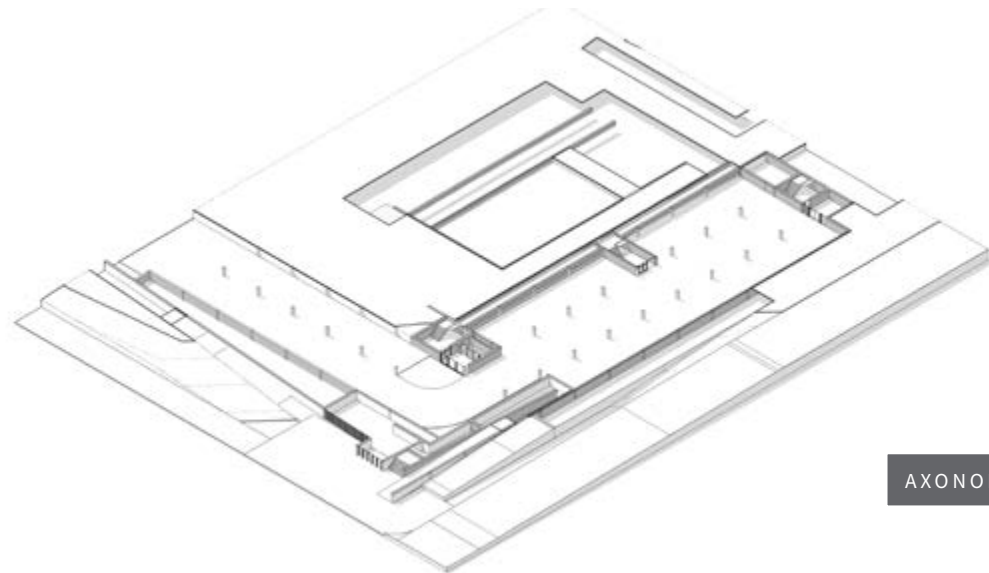
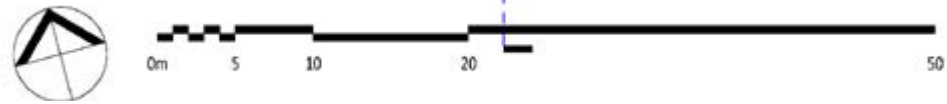


Resolution 5\_ Sectional exploration & formal study

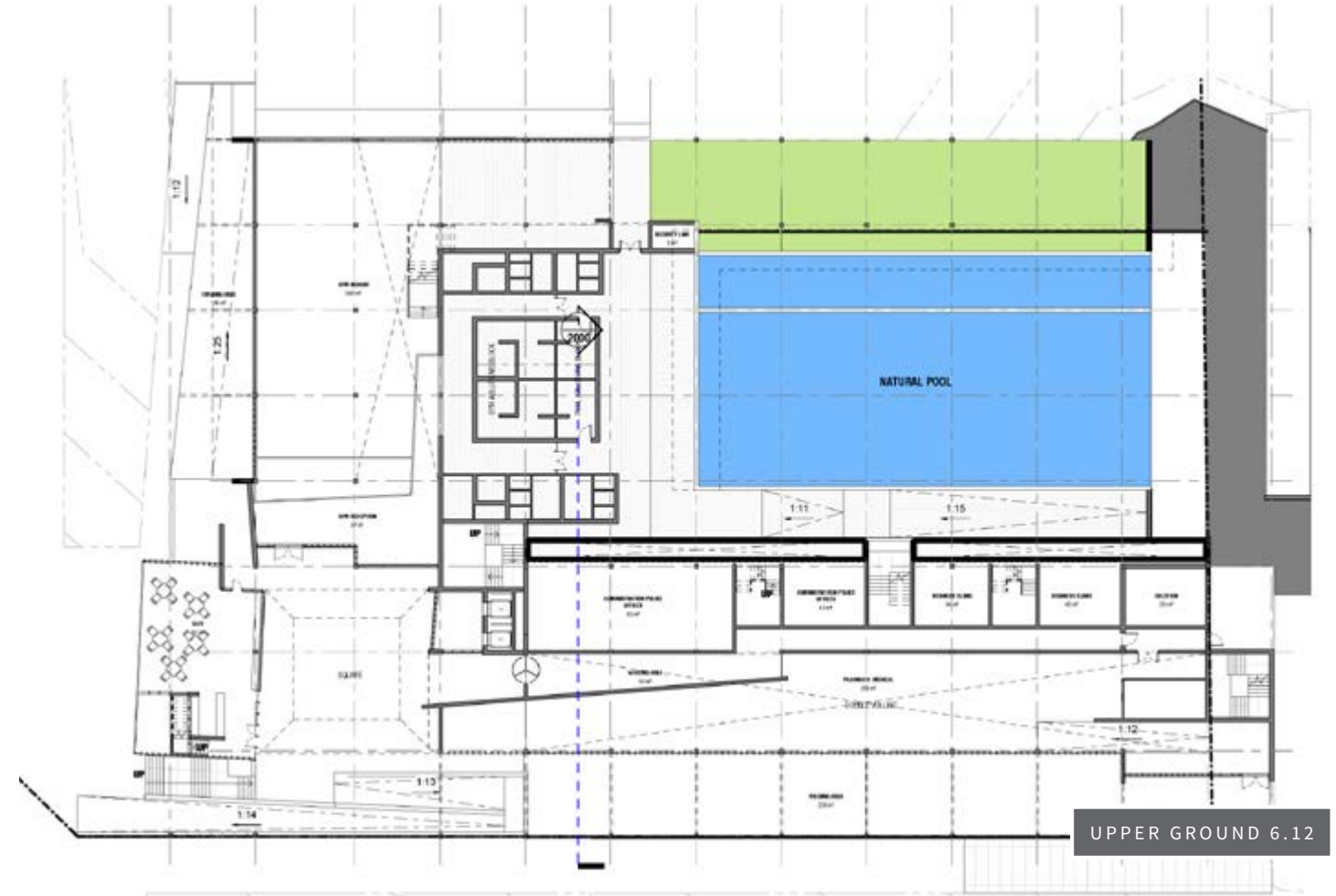
This resolution reflects on the concept of mixed use, co-shared space and inclusionary housing.



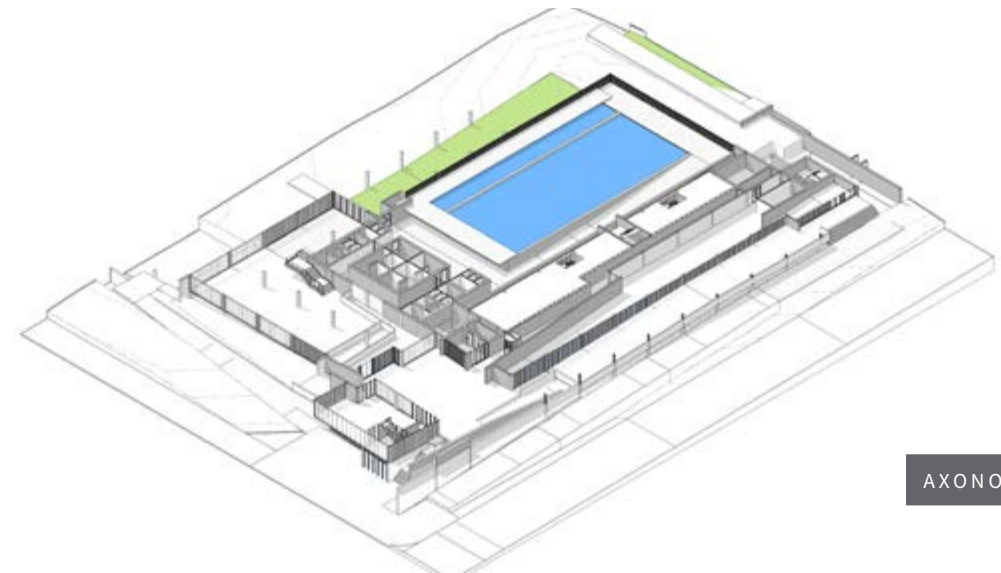
LOWER GROUND 6.10



AXONOMETRIC 6.11



UPPER GROUND 6.12

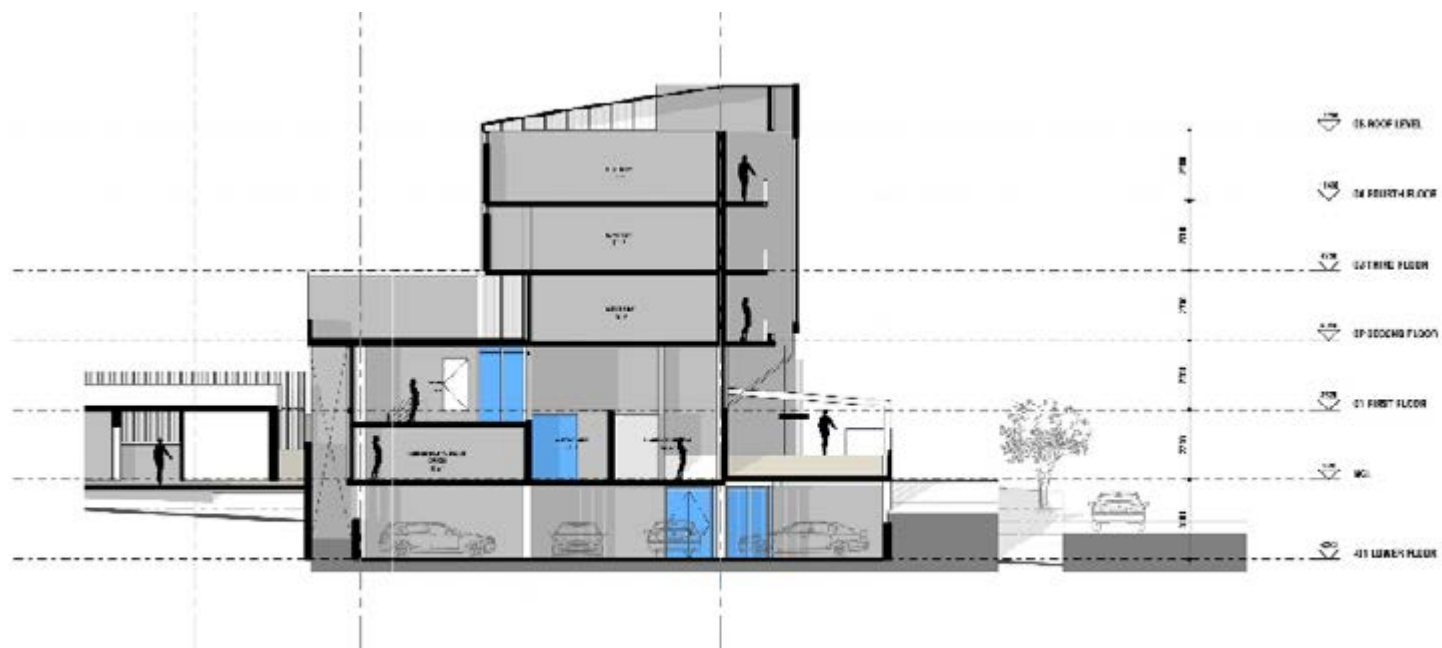


AXONOMETRIC 6.13

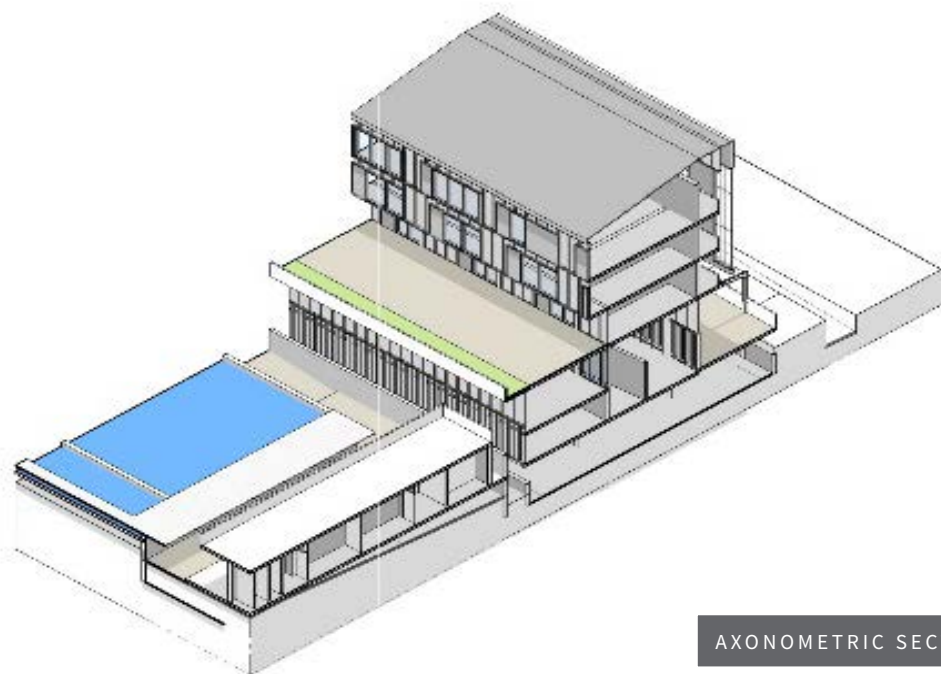


Criticism: plan too descriptive, urban mixed use environment is impaired by non permeable thresholds.

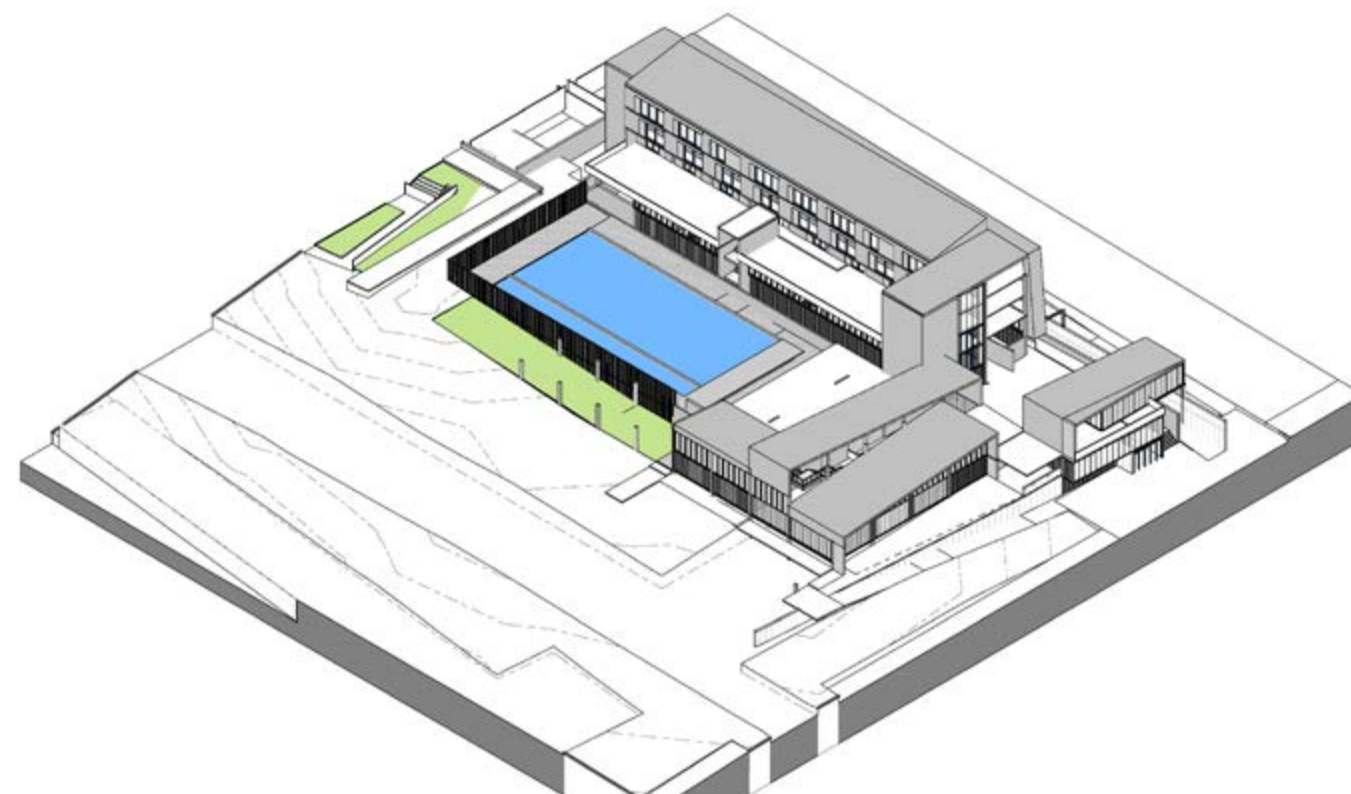
The final design resolution was a response to the criticism of the June crit session feedback. The design was not integrated as per the agenda of the project intension. Upon reflecting on seven patterns that embody the physical translation of the urban upgrade narrative set out by the National Development Plan.



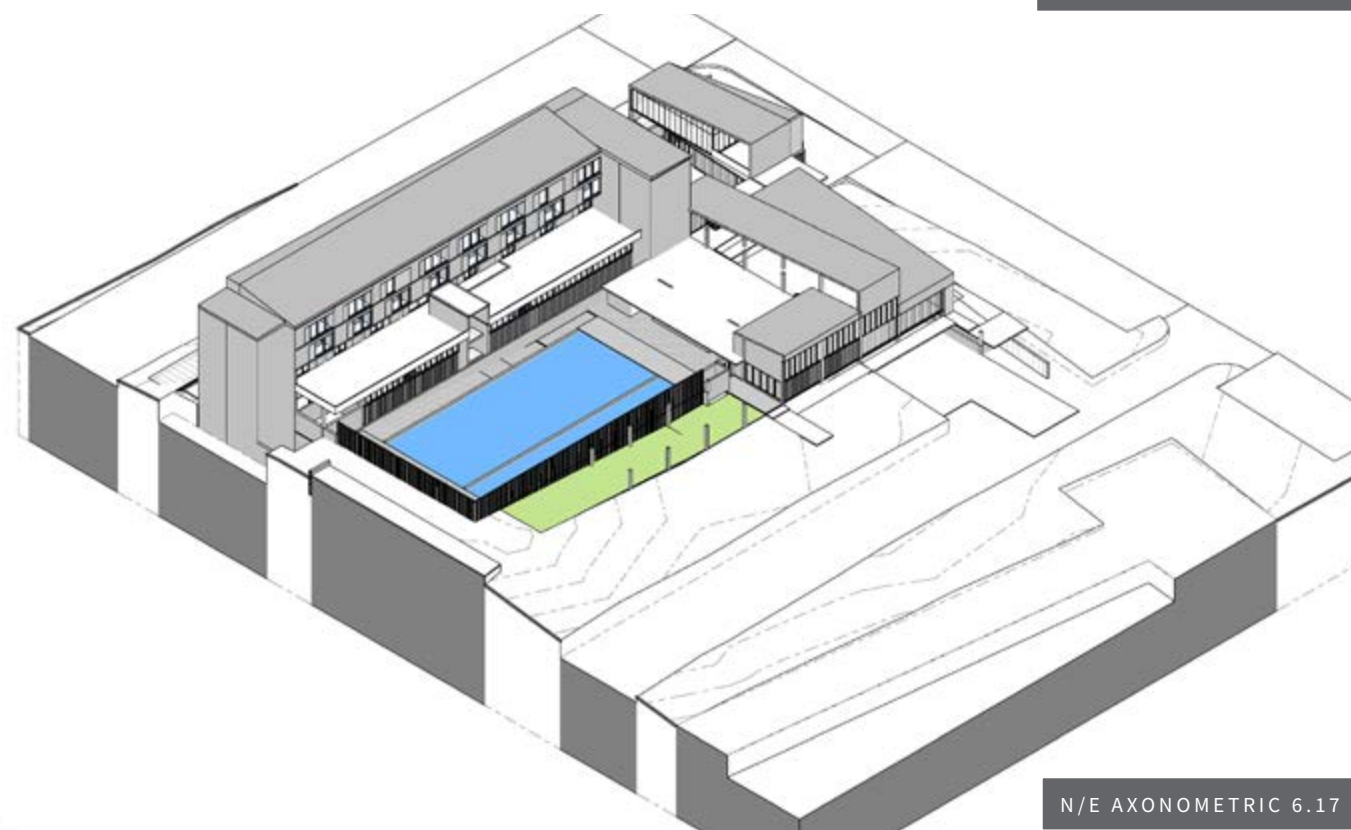
CONCEPTUAL SECTION 6.14



AXONOMETRIC SECTION 6.15



N/W AXONOMETRIC 6.16



N/E AXONOMETRIC 6.17



## 6.7 Final design framework

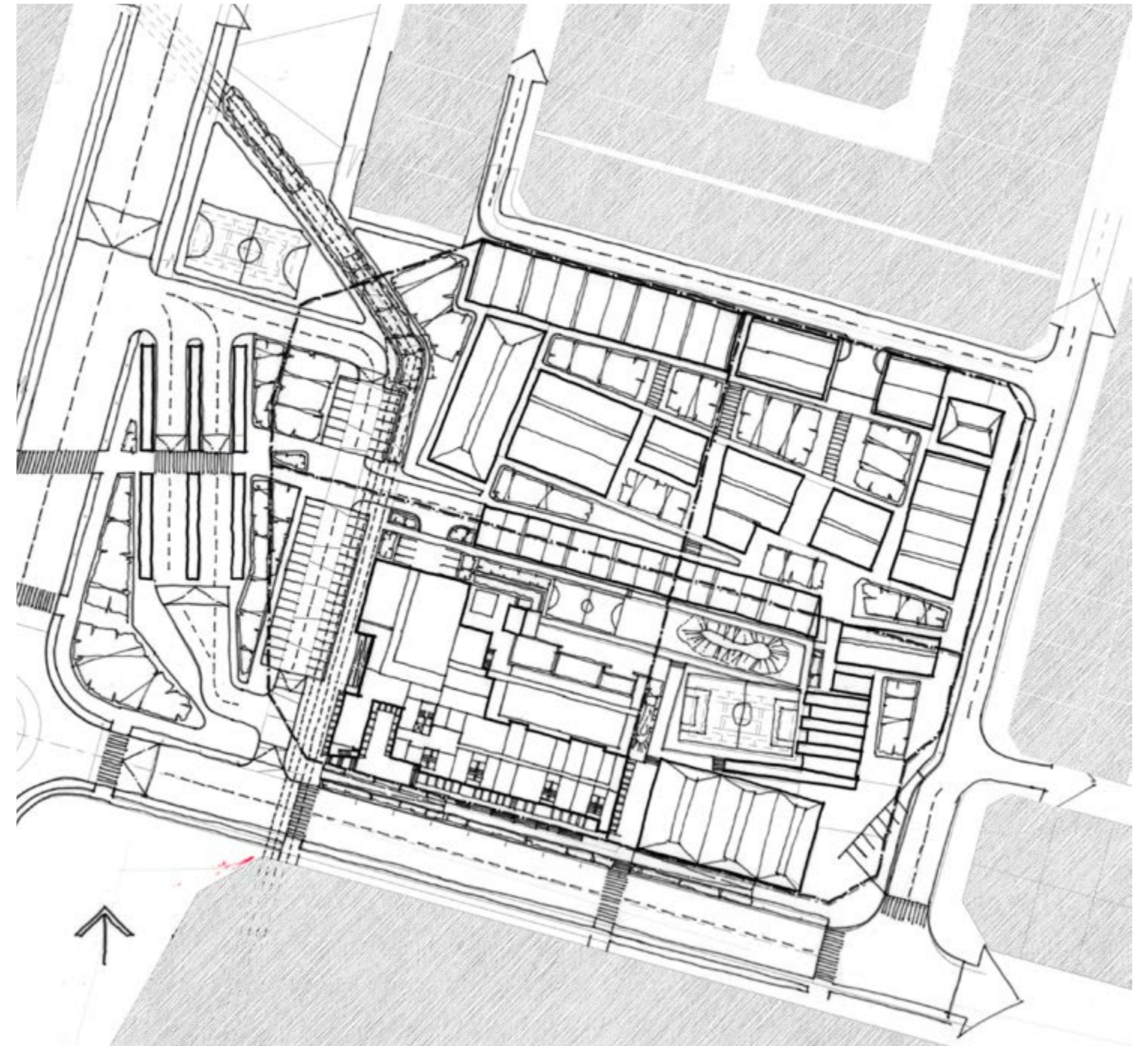
Site C has been selected as the prototype site. The site is situated on the corner of Hinterland Avenue and Solomon Mahlangu Drive (M10), which is a prominent position forming the “gateway” edge with the Vista campus into Mamelodi East.



The site will introduce recreation, co-working, and consumption spaces as flexible programs. The fixed programs will be a co-living/ inclusionary housing component and a wellness facility.

The final master-plan indicates the final site plan layout (Fig 6.19).

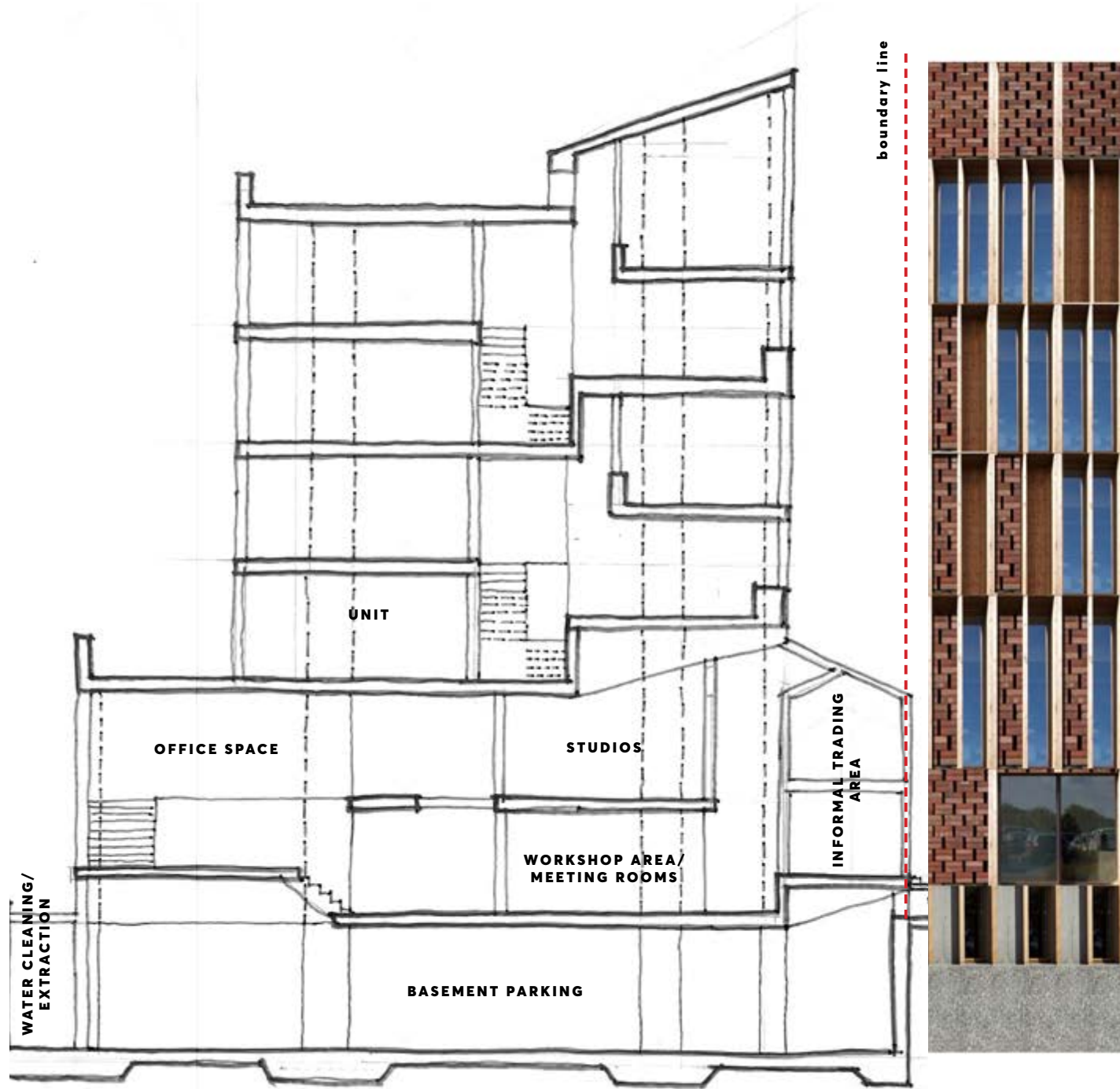
**FIGURE 6.19** Final proposal site plan (Author 2019)





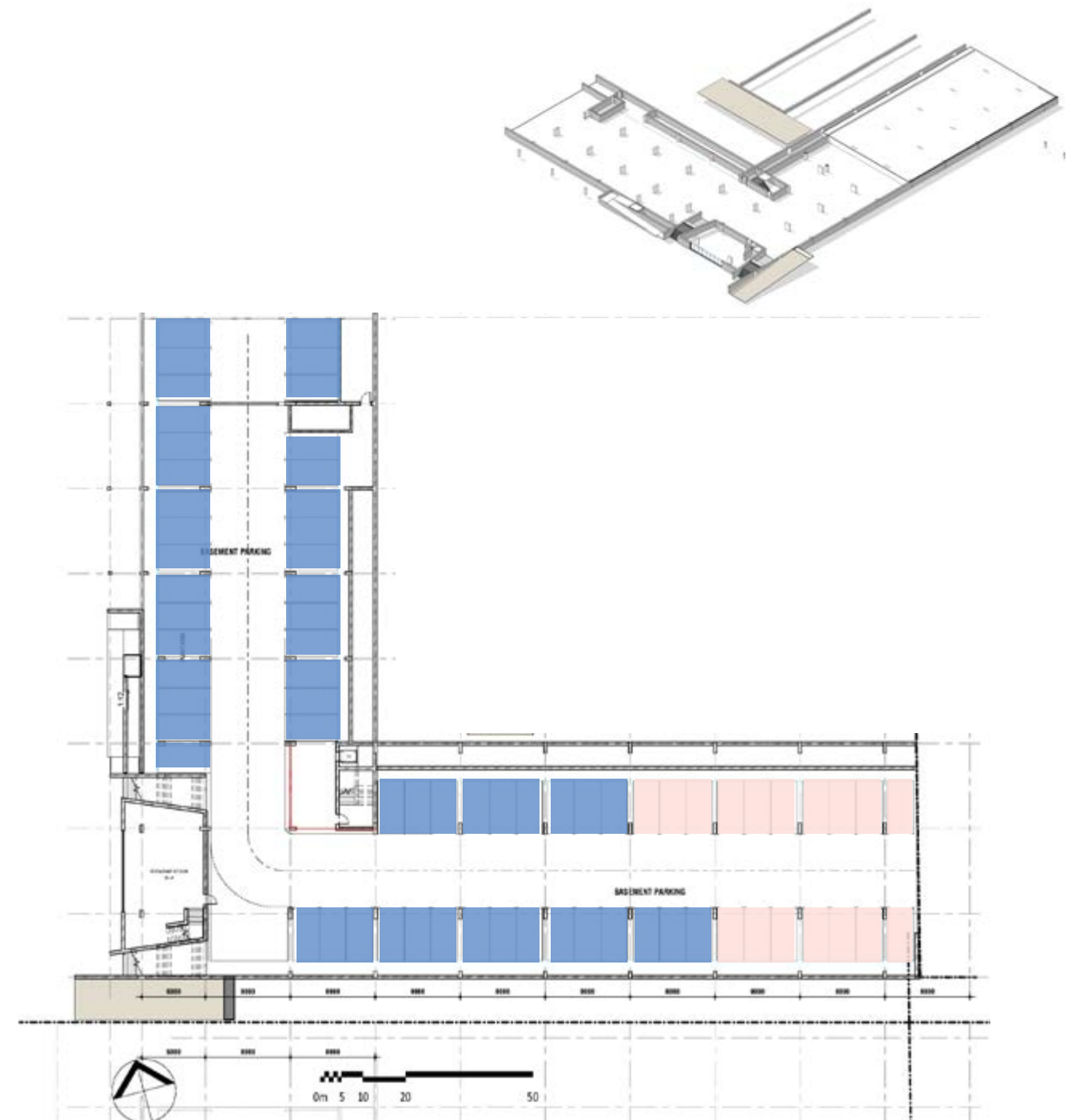
The proposal celebrates the reflection of local economic energies by providing an enabling infrastructure that accommodates different types of economies. Urban space is extended to the primary and secondary public to eradicate hierarchies between the users (Fig 6.20).

**FIGURE 6.20** Sectional elevation study indicating spatial relationships and intended aesthetic.



The semi-basement houses the parking structure that accommodates cyclical parking between the offices and gym and dedicated parking for the residential units (Fig.6.21).

**FIGURE 6.21** Top- Semi-basement 3D. Bottom- Semi-basement level indicating parking allocation.

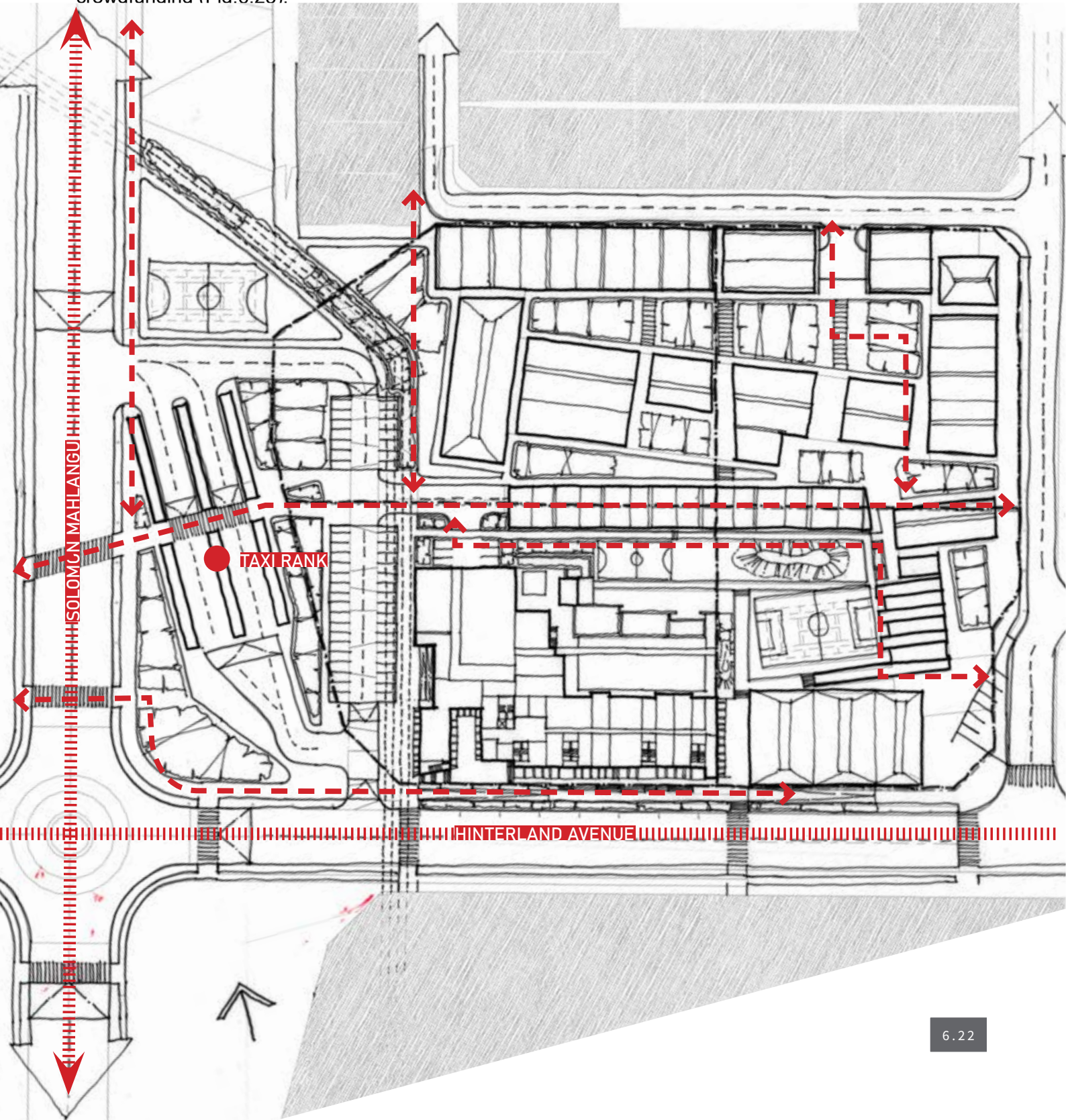




A pedestrian link between the Vista campus relocated taxi rank, and the Hinterland Avenue edge has been established to encourage a secure route that connects residents with public amenities

The economic status quo represented by the Access To Finance diagram has revealed that the community of Mamelodi Gardens is very familiar with the concept of crowdfunding (Fig.6.23).

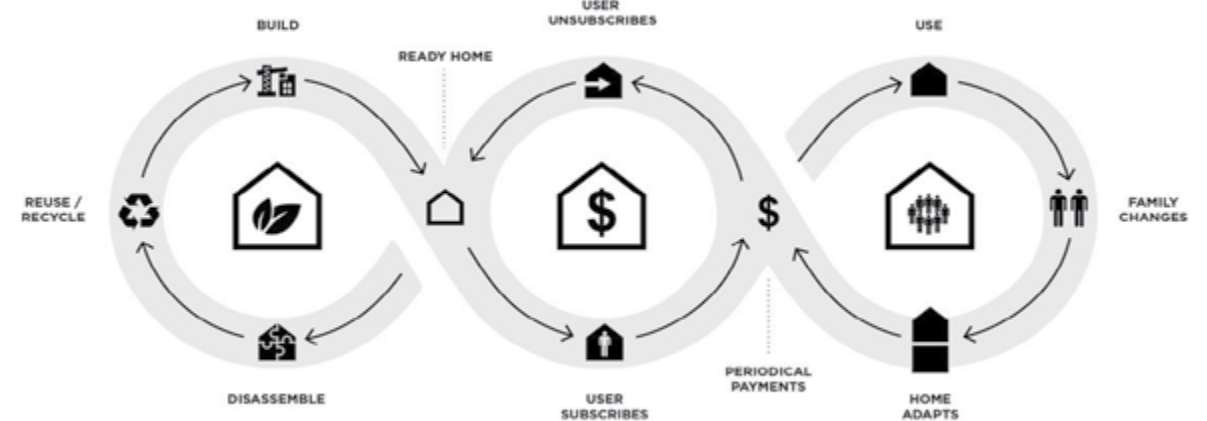
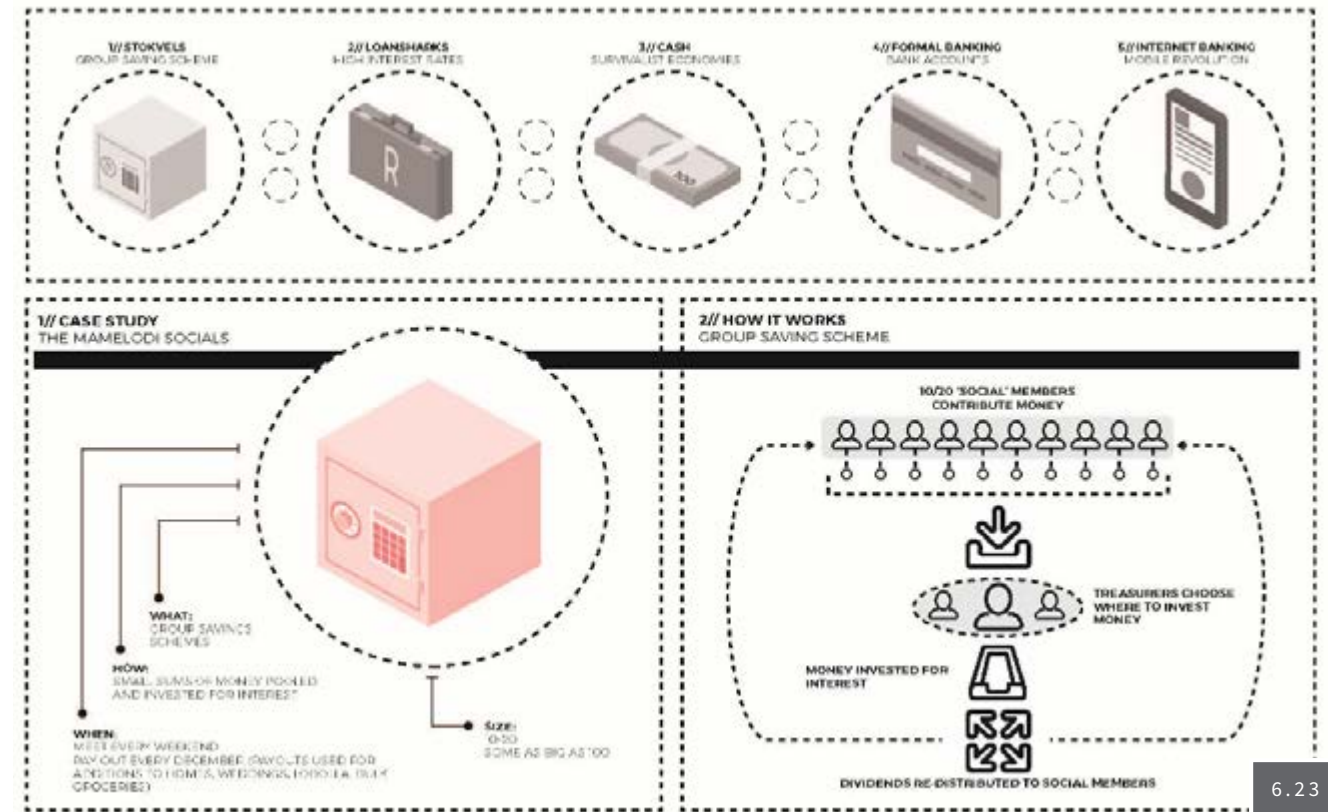
FIGURE 6.22 Sectional study indicating spatial relationships



This remedial tradition towards financial restriction finds opportunity in contemporary challenges relating to issues of housing access around the world. The Copenhagen based IKEA research lab, Space10, has partnered with EFFEKT Architectural Studio to envision a development concept that enables efficient subscription-based housing for all generations (Dezeen 2019). This concept is called the “Urban Villages.”(Fig. 6.24)

FIGURE 6.23 Access to finance diagram indicating the current attitudes towards crowd funding Honours, Economics Group 2017)

FIGURE 6.24 New development model developed by Space 10 & Effekt studio called Urban villages (EFFEKT & Space10 2019).

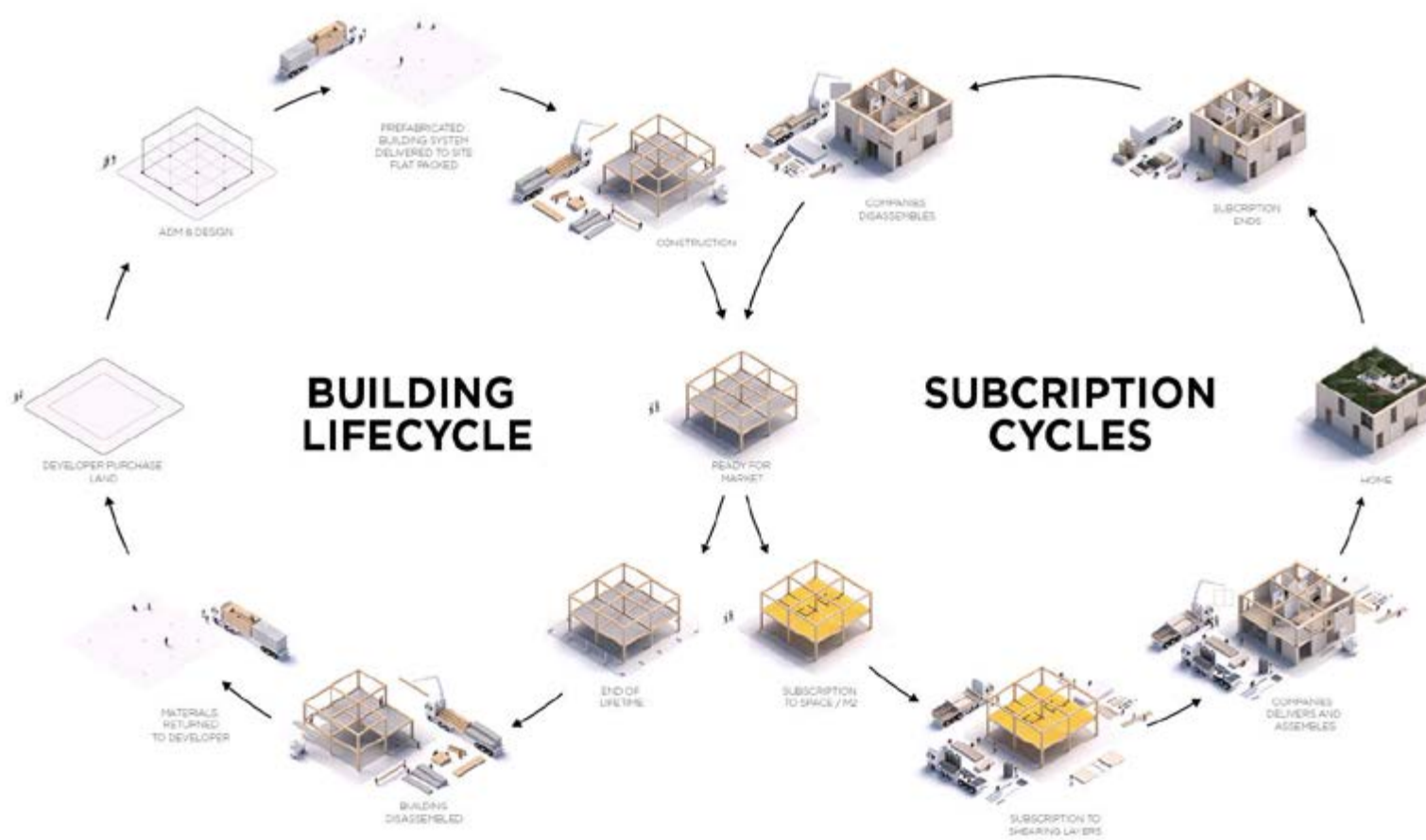




The concept positions the purchasing of the land and development of the structure with the private and public bodies of interest, eliminating expensive down payments but instead, turns the “subscription payments based on market valuation into equity stock” (EFFEKT & Space 10 2019)(Fig. 6.25).

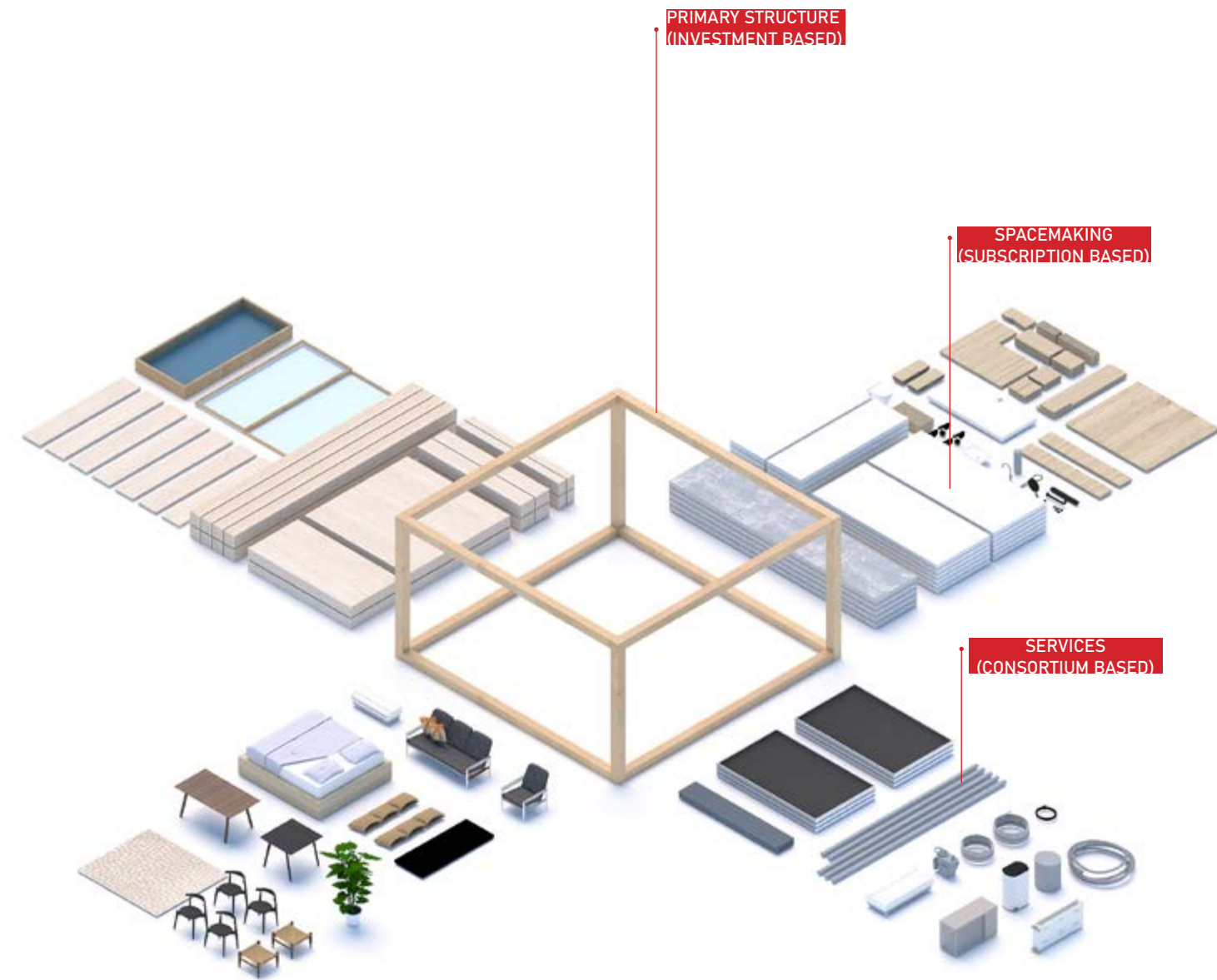
“The intimate and unceasing interaction between people and the forms they inhabit uniquely define the built environment” (Habraken & Teicher 1998). The development lends the “infill strategy” piloted by Alejandro Aravena’s Elemental Architects, which associates the cost for the fixed structure to permanent investors, i.e., the basement structure and the podium level as well as the recreational pool and associated services.

**FIGURE 6.25** Anticipated conceptual building cycle (EFFEKT & Space10 2019).



The flexible items such as the internal partitioning of spaces and the programmatic infill components required for space to function are associated with the consortium of users with common interests. This strategy introduces a “low architectural entry point for different users” and uses the cumulative capacity of the interested users to create revenue stability, which lowers the development risk (Fig 6.26).

**FIGURE 6.26** Component based construction principle to encourage access to high quality spatial infrastructure at low economic entry point (EFFEKT & Space10 2019).





**END OF CHAPTER 6**



# Chapter 07

## DESIGN RESPONSE

The national restructuring agenda led by the NDP places emphasis on building a spatial landscape that seeks a balance between the social, economic, and environmental realms (SA 2018, SACN 2016). In this regard, the potential of the architectural discipline to provide high quality affordable spatial entry points to the housing, commercial, and retail market that adapts to the situational requirements of all income groups is limited by development focus being on well-served areas (SACN 2016:30). As a result, the development weighting in the South African context is on the provision of services within proximity to areas with high financial liquidity and land value over economically disadvantaged areas (SACN 2016: 49).

### 7.1 Site design: A response to neighborhood development progress.

The proposal aims to employ the “Urban Villages” development thinking as a remedial solution to the locational disadvantage of Mamelodi East. The resulting added benefit was the flexibility to determine the nature and identity of the proposed building(s).

The design introduces density as a catalyst for nodal development. Access along the prominent Hinterland avenue edge is enabled by placing a “civic” square connected by wide pathways, on the primary address of the building to capture the pedestrian energy (Fig. 7.1). A hierarchy of functions is introduced to respond to the monofunctional nature of the site and context thereof (Fig. 7.2). Programmatic complexity is favored over formal novelty to address attitudes relating to social atomization as a result of silo communities.

FIGURE 7.1 Density increase.

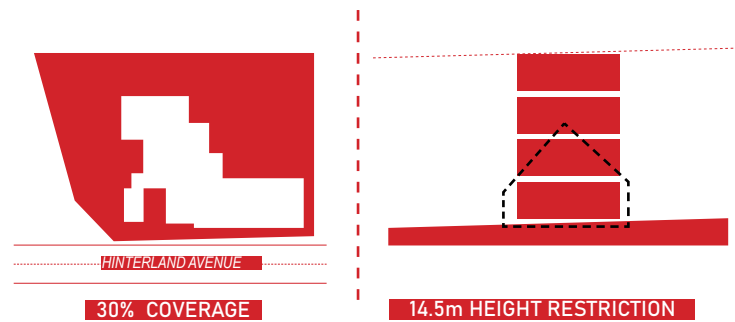
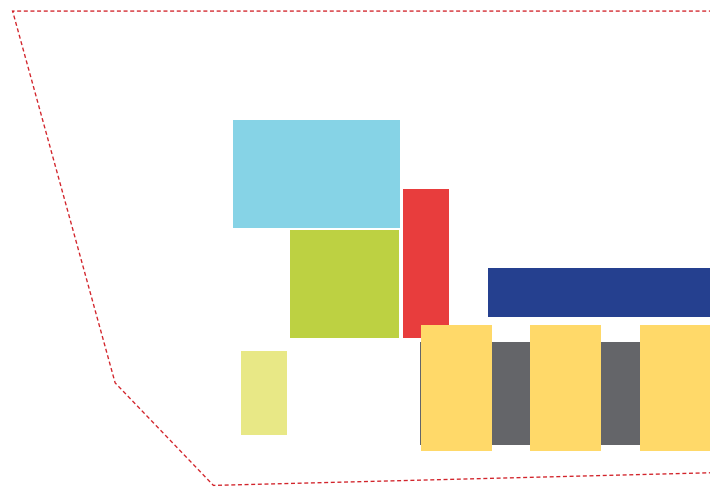


FIGURE 7.2 Mixed-use programme introduction.



- FITNESS CENTER
- OUTDOOR GYM AREA
- RESTAURANT
- WORKSPACE/ OFFICES
- RESIDENTIAL
- SWIMMING

As a result, the composition of the internal spaces is defined by a partitioning system that varies in transparencies and operational flexibility based on the internal programmatic.

A mixed transit modality node is introduced by the relocated bus and taxi stop in front of the new piazza parking lot located on the western edge of the building to respond to the proposed BRT route located on Solomon Mahlangu Drive (M10) (Fig. 7.4). Recreational activities such as the swimming pool, outdoor fitness podium, and public square, introduce quality open space that is inclusive to all user types. The identity of these components aims to offer a unique urban environment that contributes to the tourism potential of Mamelodi East (Fig 7.6).

FIGURE 7.3 Partitioning options indication spatial flexibility.

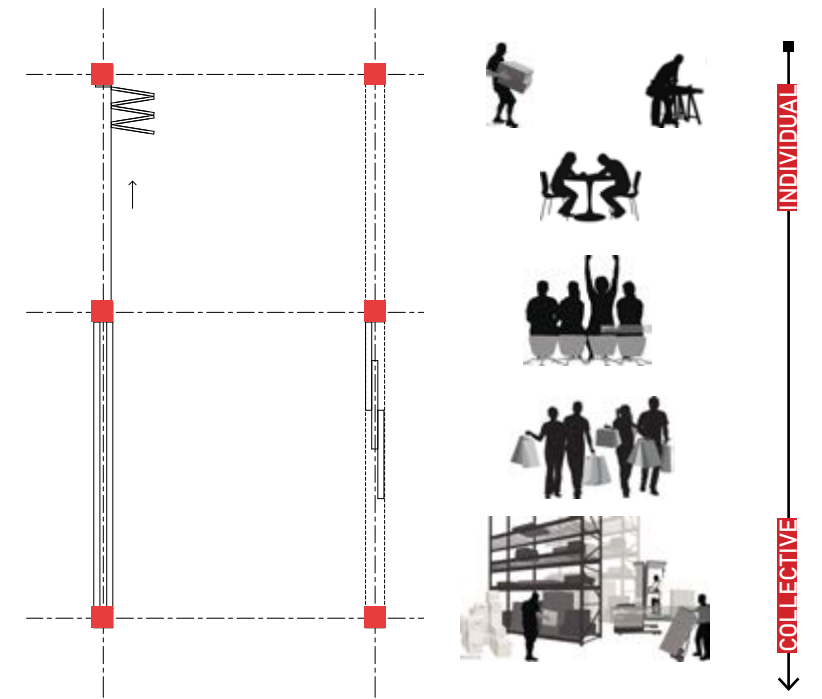


FIGURE 7.4 Relocated taxi rank and proposed BRT stop along proposed BRT route.

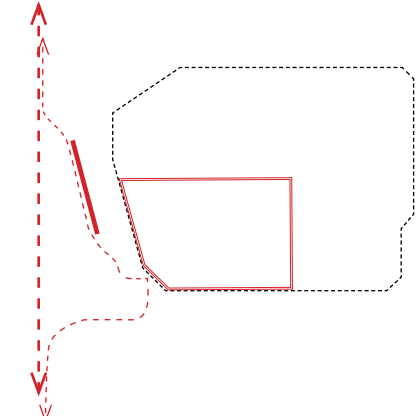
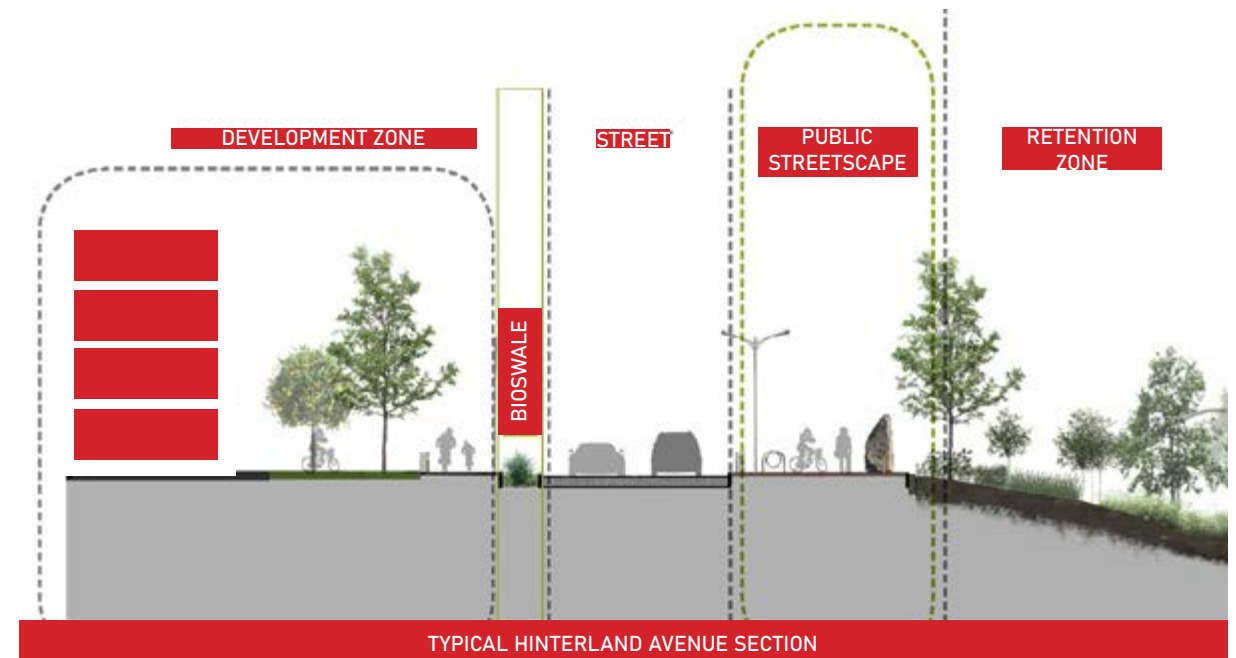


FIGURE 7.5 Urban upgrade conceptual intention.





## 7.2 Architectural context.

Cultural identities and ethical memories in the city are challenged by the territorial materialism and wealth of the private sector (Fig. 7.7) that governs its physical representation (Montefiore 2011: 26-27: 39: 144, SA PME, RDLR 2018). The modern city transformed by the money lending class into a service-based transactional city with self-referential centers of consumption (Fig. 7.8) as primary destination (Kotkin 2016: 30-36) that no longer fosters a secure and healthful environment with economic and recreational opportunities for the low-income classes (SA NPC 2010:9). The transactional city casts out the notion of domesticity. If this city model is to be used as a reference for neighborhood redevelopment (Fig.7.9), it will fail to provide access and sustainable proximities to inclusive environments in disadvantaged neighborhoods (Dewar & Kiepiel 2004, Kotkin 2016: 42, Wright 1958).



**FIGURE 7.7**  
Menlyn Maine development (B+P Architects).



**FIGURE 7.8**  
Early morning market, Brook street, Durban (Urban Land Institute 2015).  
**FIGURE 7.9**  
Social inequality scenes (2019 Miller J).



7.9

## 7.3 Technological context

The totalized aesthetics of cityscapes is based on pictorial modernist references that do not account for reformation by changing social orders (Fig.7.10). (Boyer 1994: 2). With the public sphere physically dominated by the private sector's branding whose identity is coordinated to overpower the architectural representation of consumption environments (Fig.7.11-7.13), the input of local crafts, trades and contemporary spatial associations is undermined and left to exist in the collective public (informal) realm, the street sidewalk (Boyer 1994, Jacobs 1958)



7.10



7.11



7.12

**FIGURE 7.10**  
The Club development, Pretoria (Atterbury)..  
**FIGURE 7.11**  
The Mall of Cyprus, IKEA (Atterbury).  
**FIGURE 7.12**  
Barlow park development, Pretoria, (Atterbury).  
**FIGURE 7.13**  
Castle Gate development, Pretoria, (Atterbury).



7.13



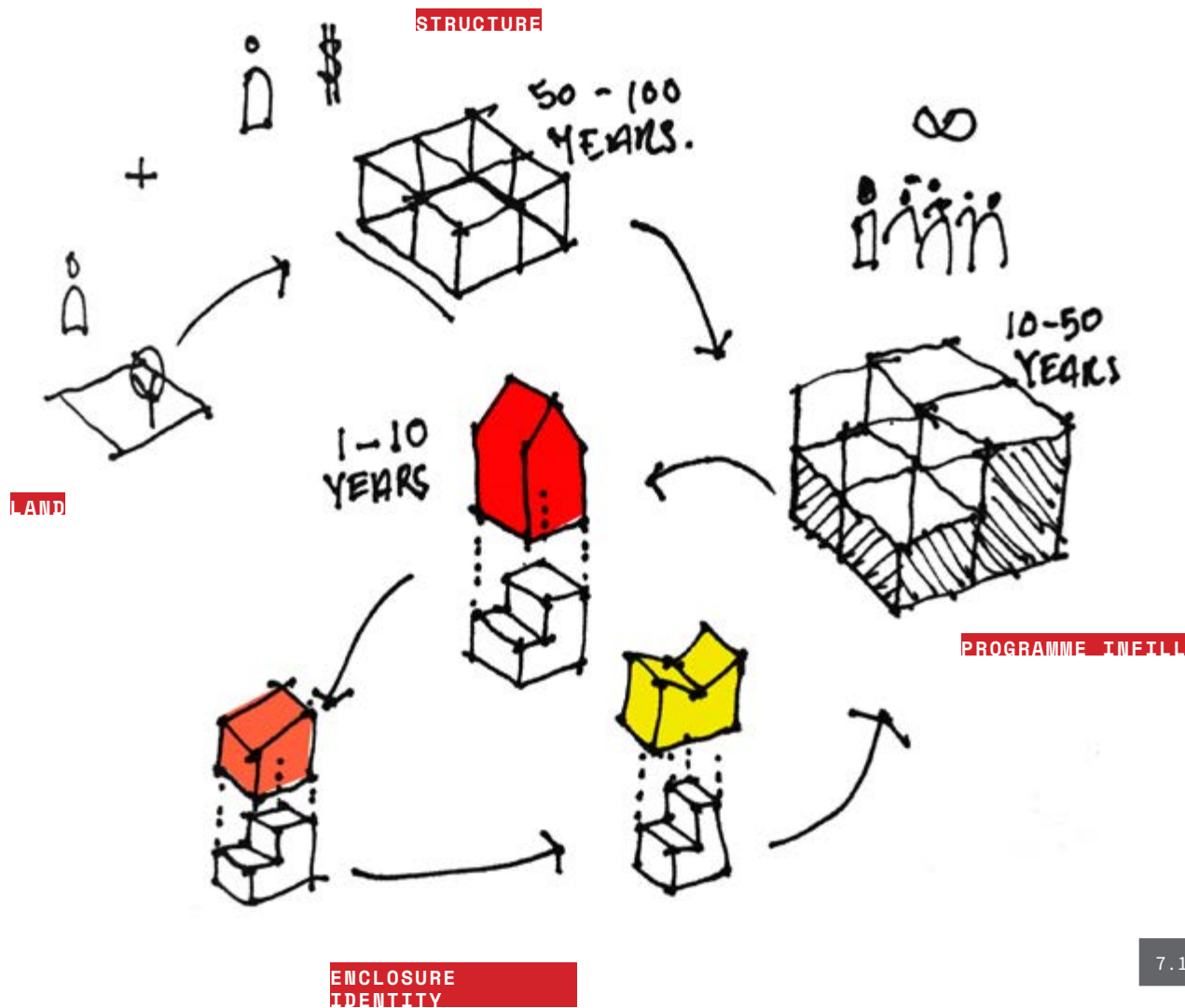
### 7.4 Technological concept

The neighborhood development program aims to remedy the segregative planning model of the apartheid regime in the vain of integrating previously disadvantaged neighborhoods. The project is structured around the aim of synthesizing the collective identity of local users/ dwellers and external private parties.

The scheme devises a financial model that consists of two parts aimed at providing a manageable entry point for lower-income classes. The first is introducing a standardized structure based on the floor and slab system that increases the flexibility of the internal floor area. This system allows a variety of spatial

configuration/ programmatic “insertions” that account for the status quo. The second part is to introduce a subscription-based programmatic groundfloor that is represented by partitioning systems that coexist with a fixed residential second to the fourth floor, both represented by a standardized panel-based enclosure system (Fig. 7.7). The materials will consist of a conventional material pallet such as roof steel sheeting, timber, brick, and glass. This architectural model is designed to increase the financial liquidity of the development project by increasing the portfolio diversity through use while encouraging participation from low-income locals in high market value projects.

**FIGURE 7.14**  
Inclusive development framework (Author 2019).

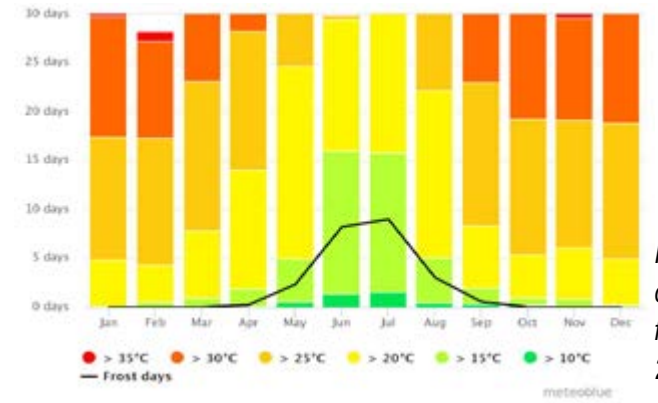


7.14

### 7.5 Site climatic data

#### Maximum temperature

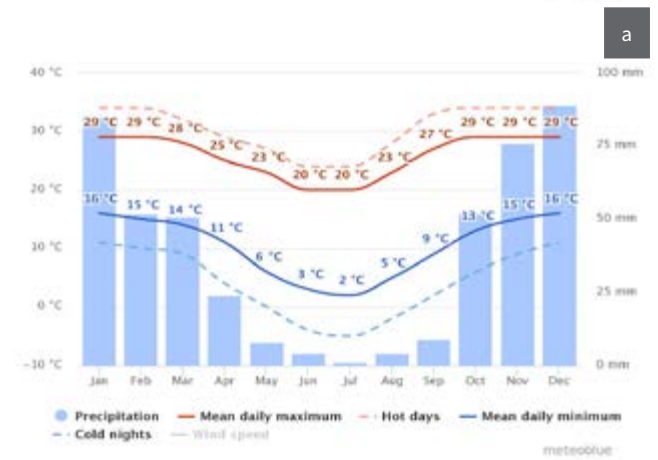
The maximum temperature diagram for Mamelodi West displays how many days per month reach certain temperatures.



**FIGURE 7.15**  
Inclusive development framework (Author 2019).

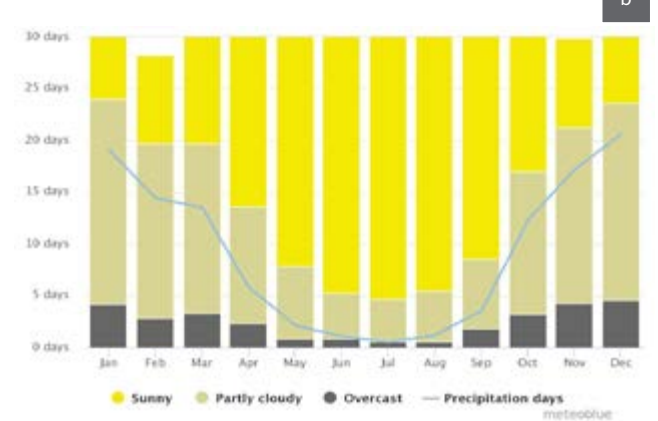
#### Average temperatures and precipitation

The “mean daily maximum” (solid red line) shows the maximum temperature of an average day for every month for Mamelodi West. Likewise, “mean daily minimum” (solid blue line) shows the average minimum temperature. Hot days and cold nights (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years.



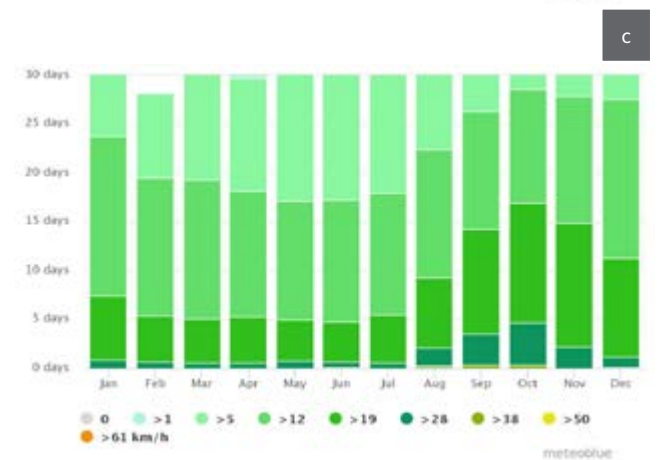
#### Cloudy, sunny, and precipitation days

The graph shows the monthly number of sunny, partly cloudy, overcast and precipitation days. Days with less than 20% cloud cover are considered as sunny, with 20-80% cloud cover as partly cloudy and with more than 80% as overcast.



#### Wind speed

The diagram for Mamelodi shows the days per month, during which the wind reaches a certain speed.



### 7.6 Climatic deduction

The building should account for a moderately cool internal environment that protects its inhabitants from the harsh summer heat (Fig. 7.15a) while shielding public spaces from excessive winds between Aug-Jan (Fig. 7.15d).

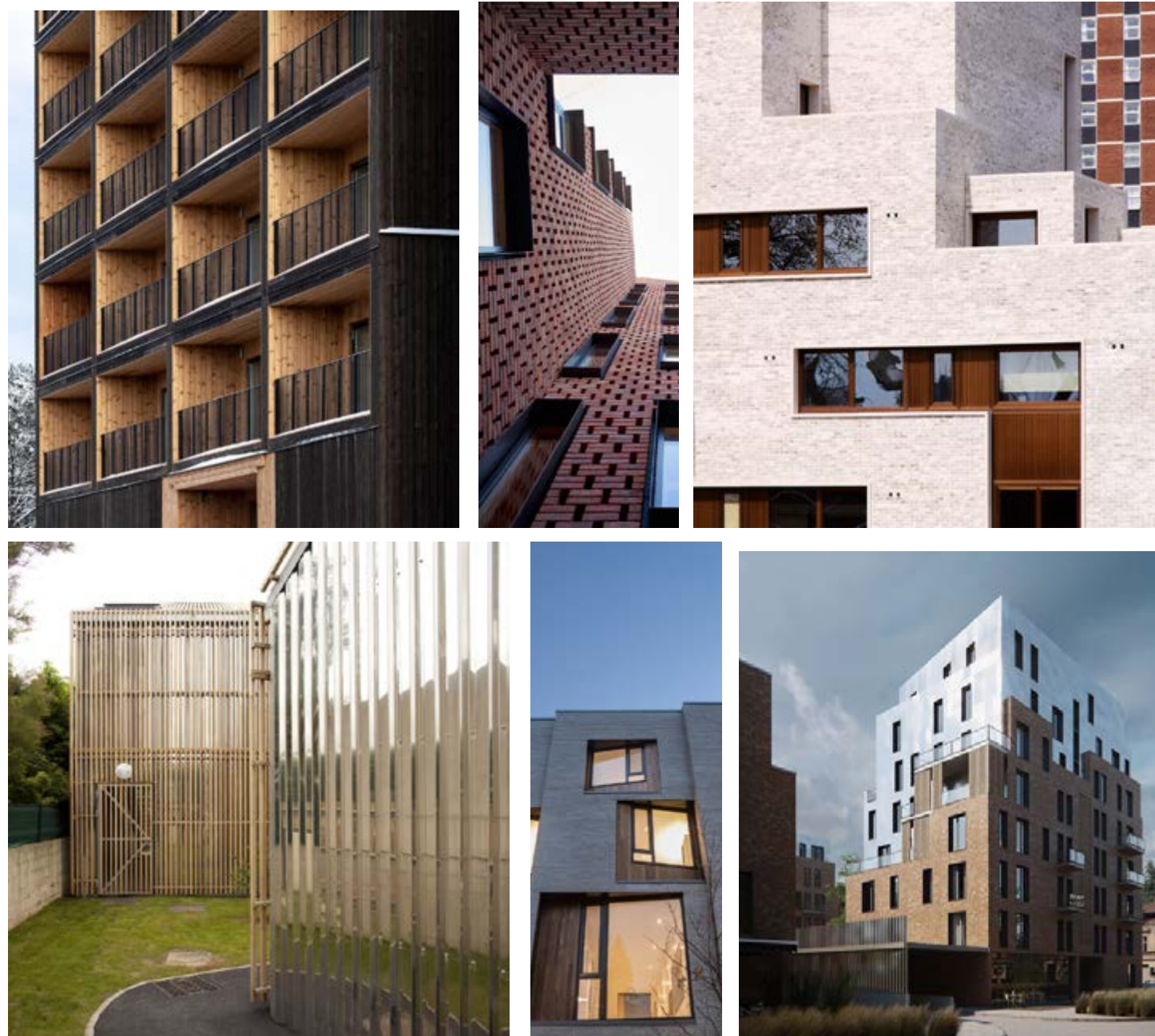
d



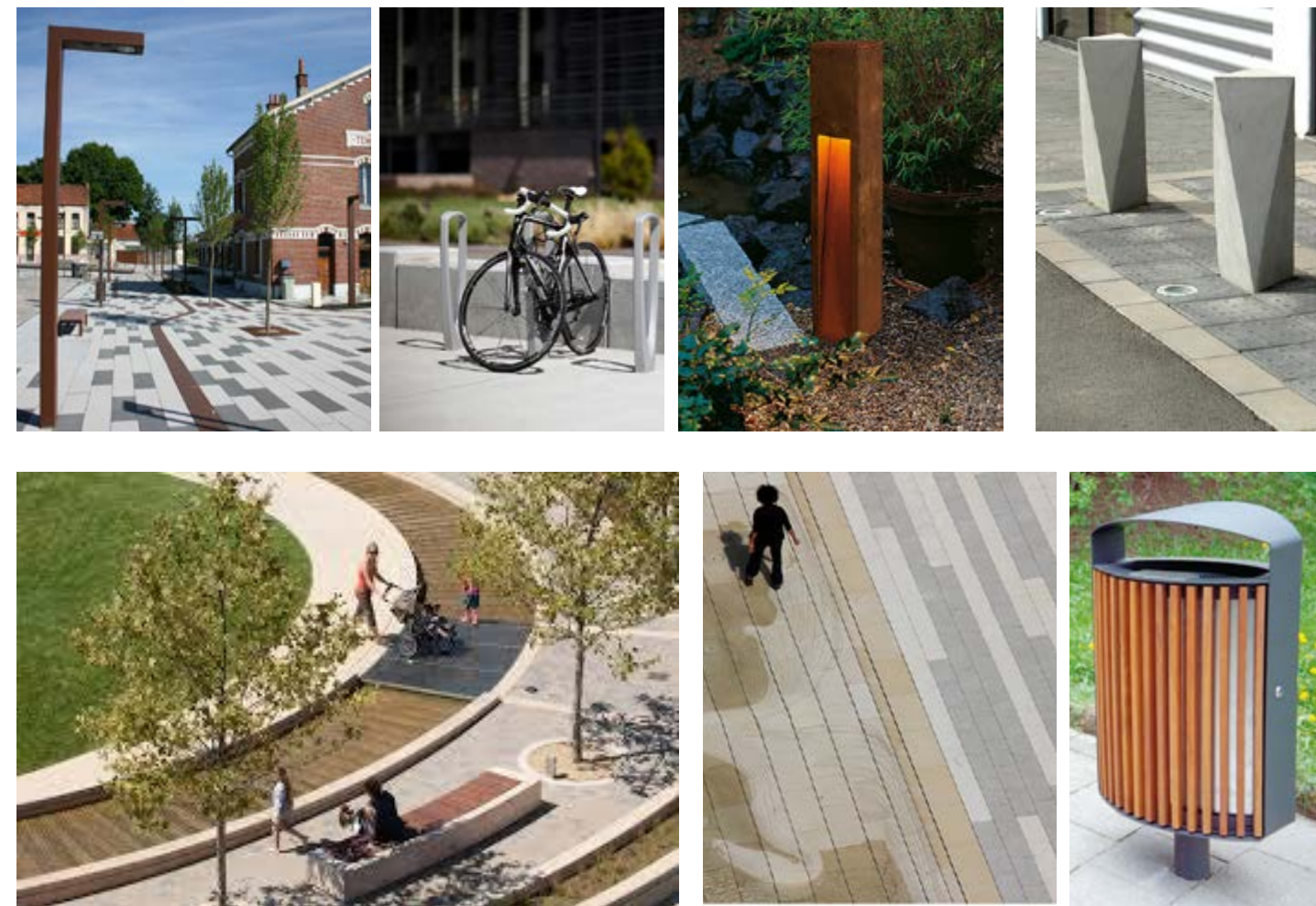
### 7.7 Thematic Precedents Structure



### Envelope



### Urban Elements



### Greening

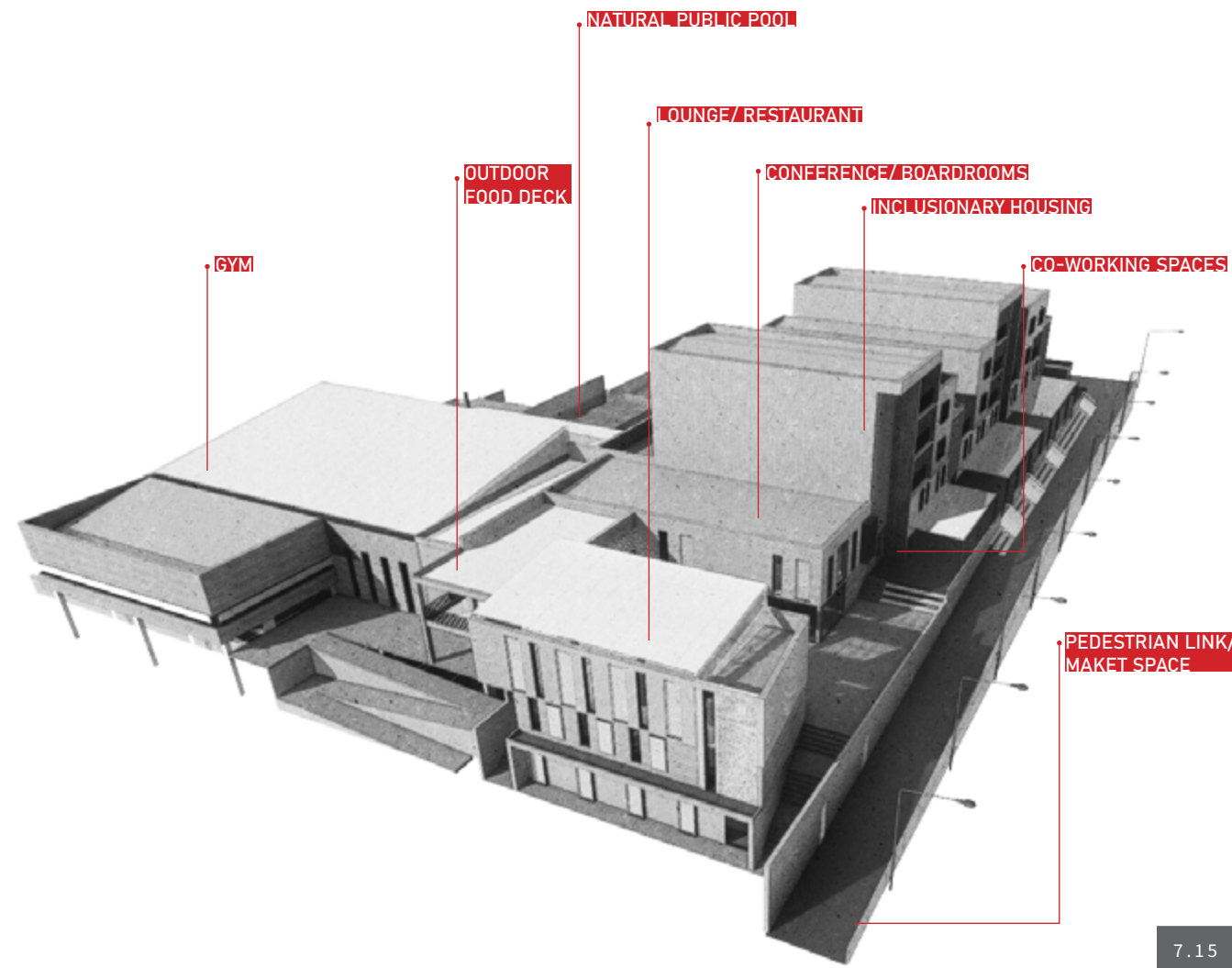




# 7.8 Site Plan

*Final revision*

FIGURE 7.15 Model of final revision scheme (Author 2019).



7.15

FIGURE 7.16 Site Plan (Author 2019).

- Fitness centre
- Restaurant
- Store
- Training rooms
- Designated offices
- Ablutions
- Facilities management
- Co-working offices



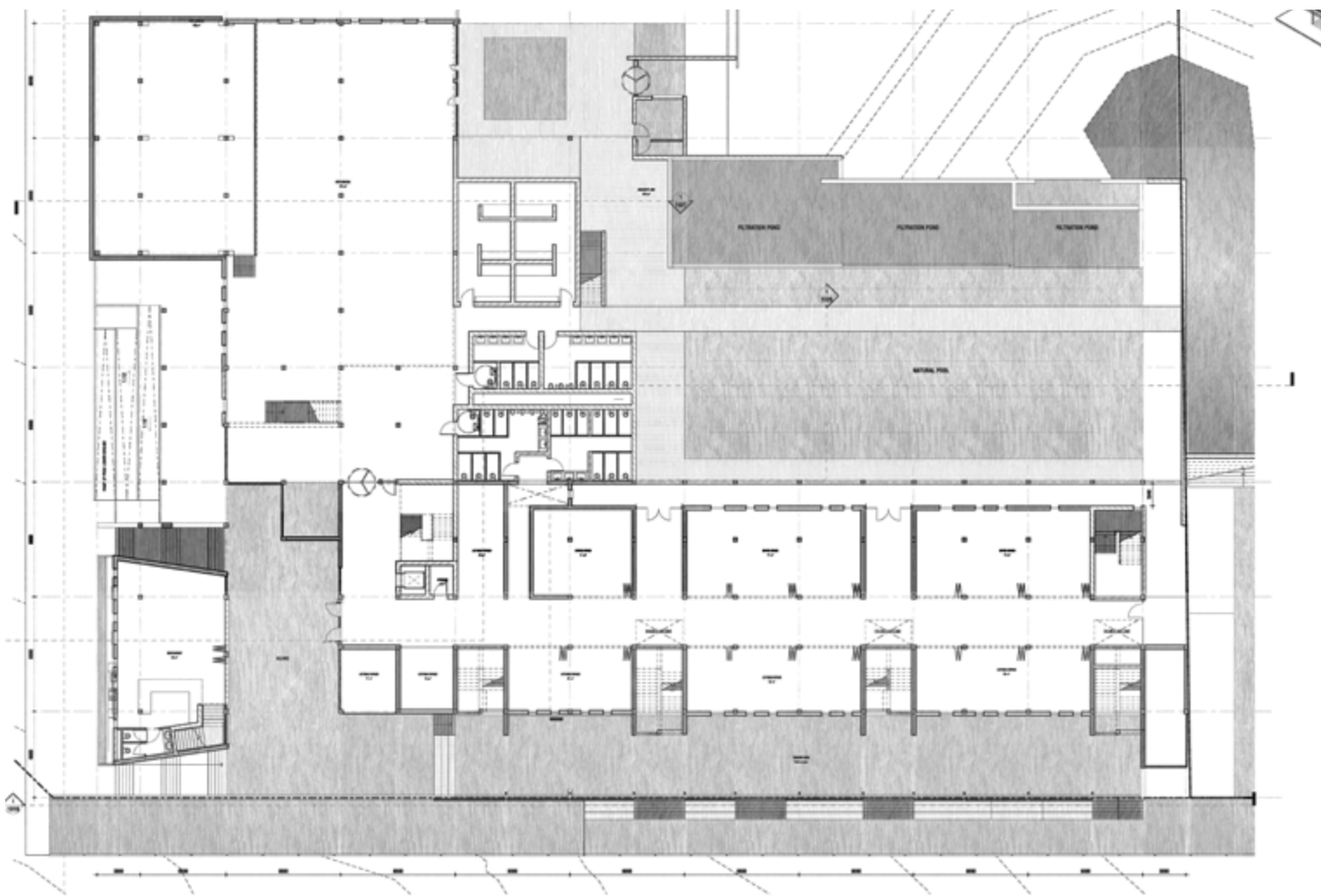
7.16



# 7.9 Ground Floor plan

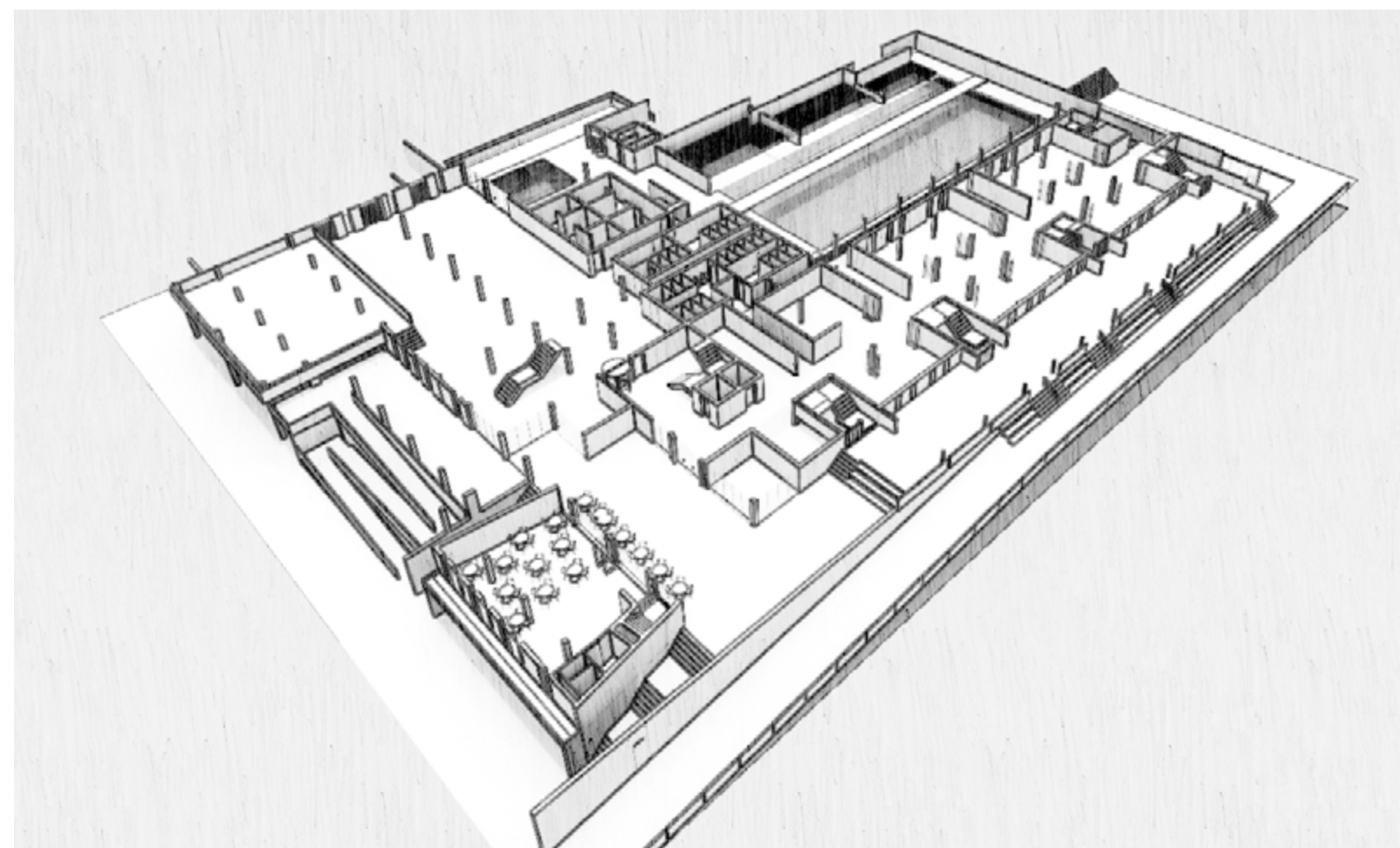
*Final revision*

FIGURE 7.17 Ground floor plan (Author 2019).



7.17

FIGURE 7.18 Ground Floor Axo (Author 2019).

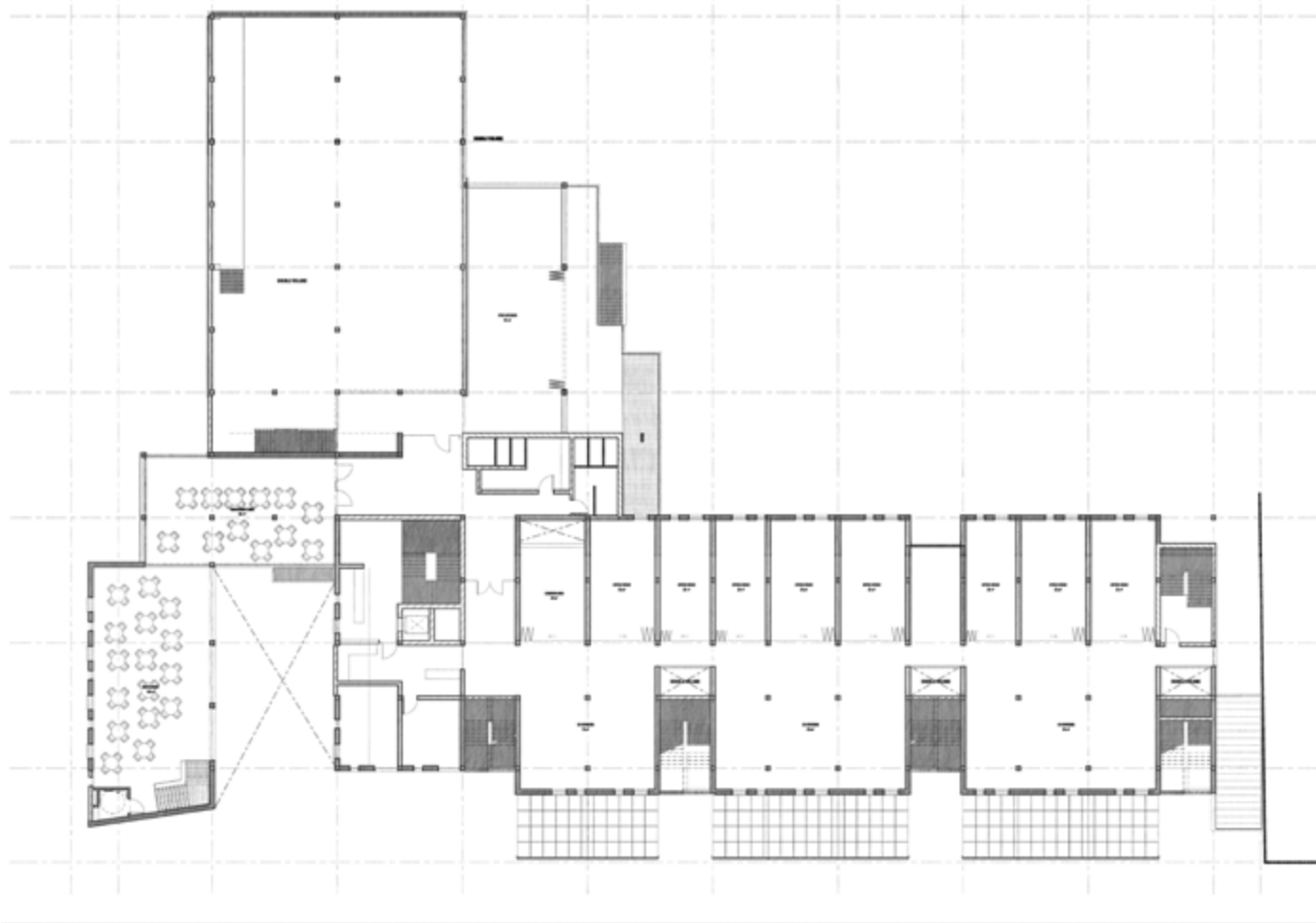


7.18



# 7.10 Typical First Floor plan *Final revision*

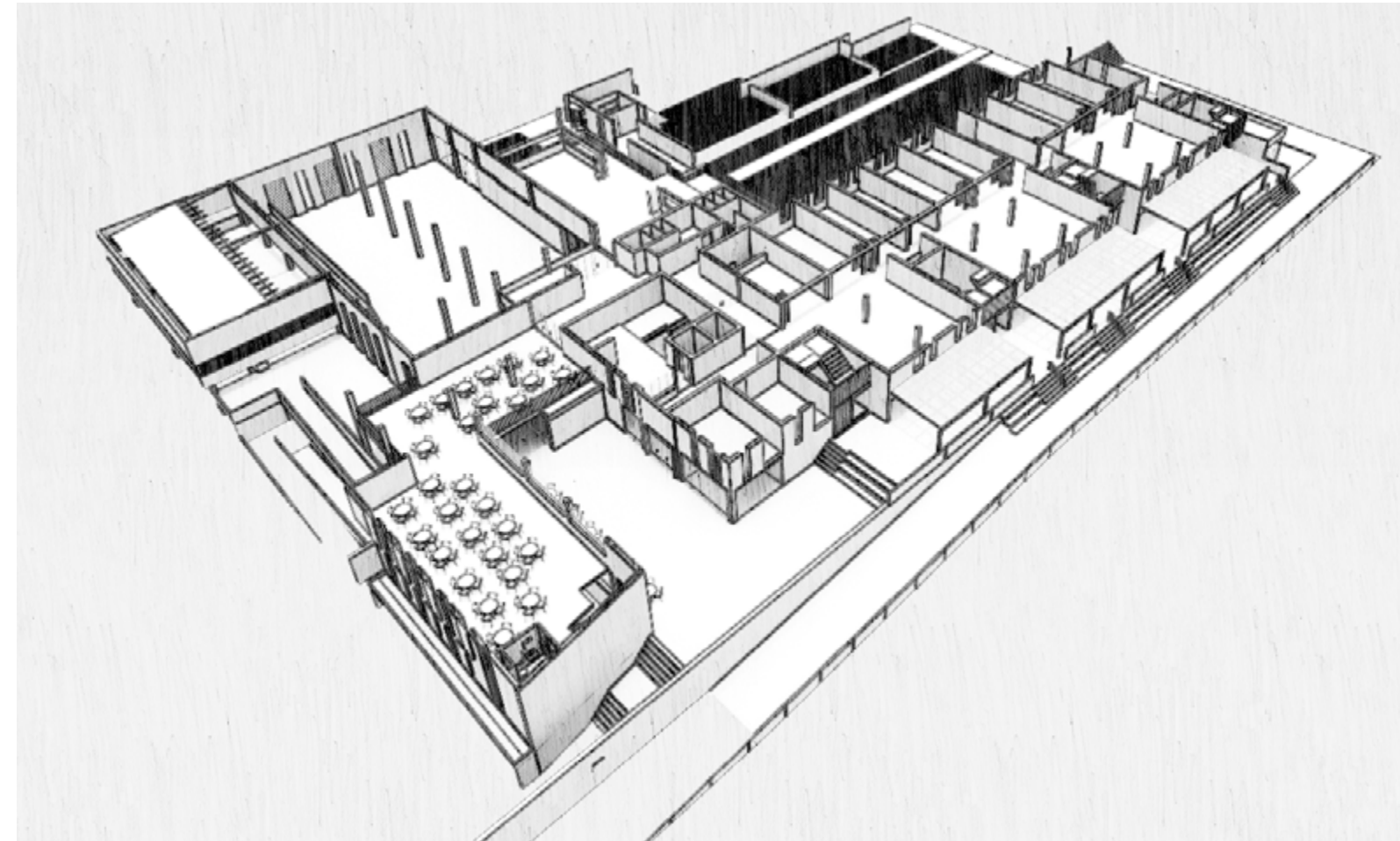
FIGURE 7.19 First floor plan (Author 2019).



AD-03-FF PLAN  
 Scale: 1:100 Date: 5/10/20

7.19

FIGURE 7.20 First Floor Axo (Author 2019).

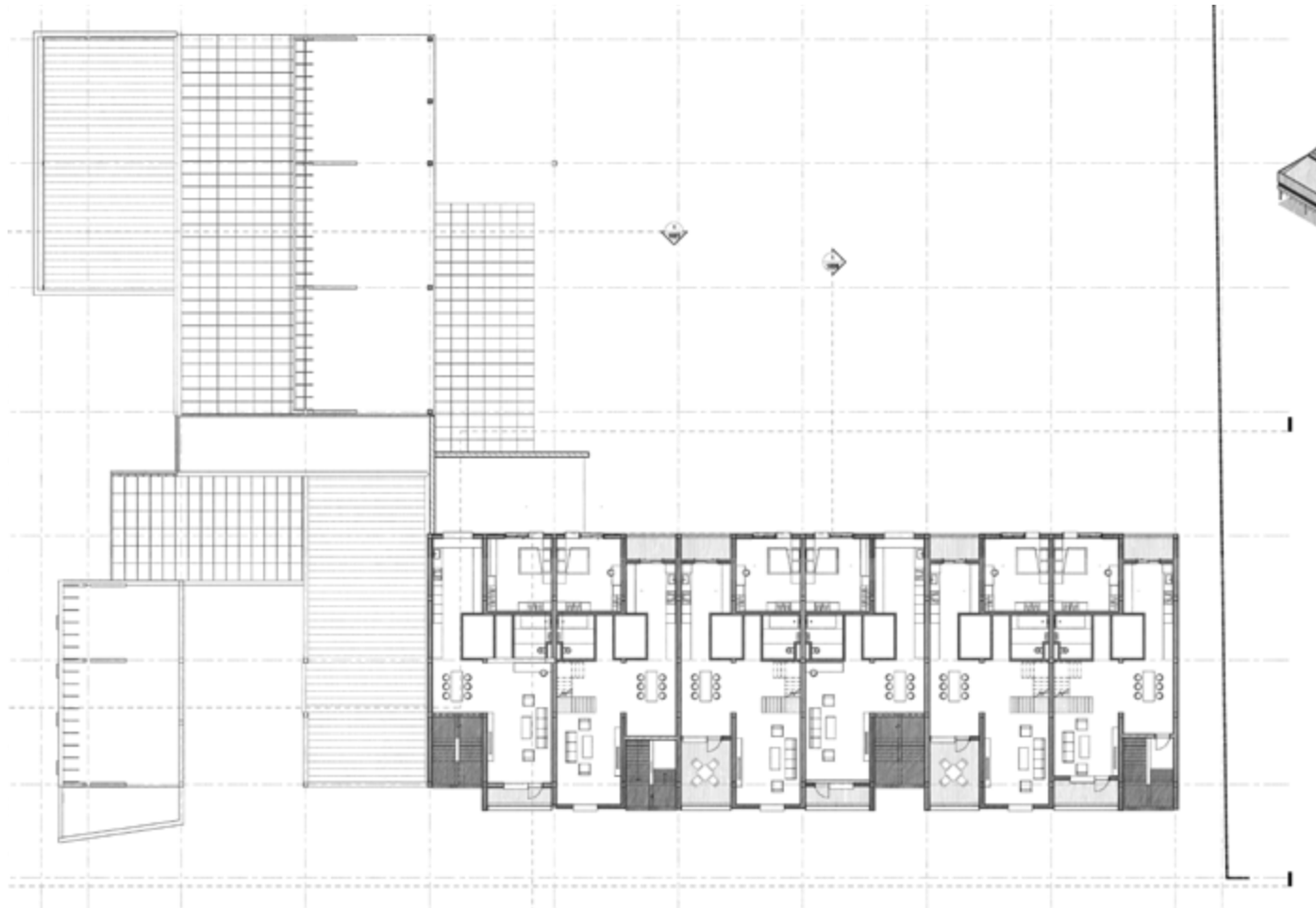


7.20



# 7.11 Typical Second Floor plan *Final revision*

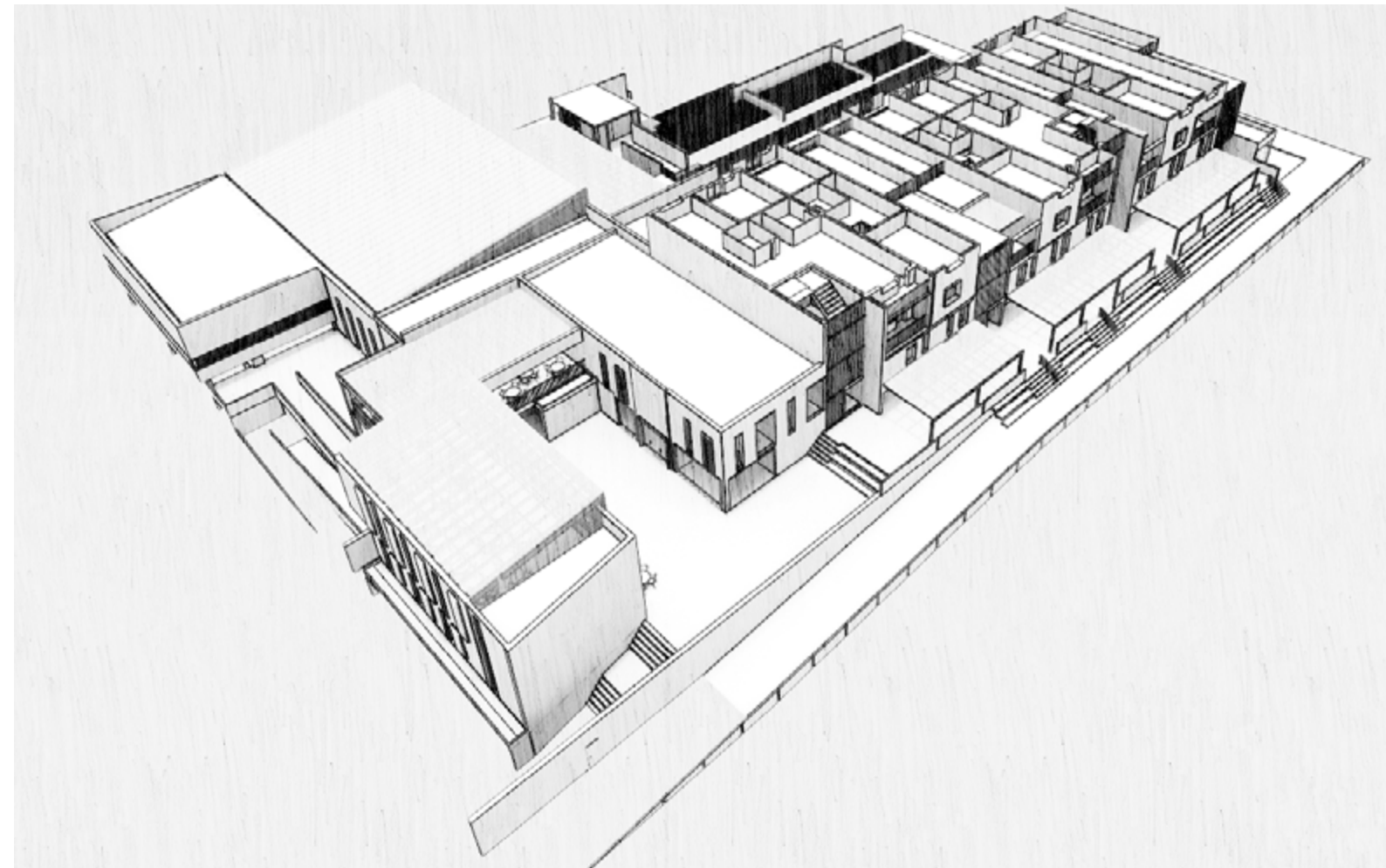
FIGURE 7.21 Second floor plan (Author 2019).



AD-03-SF PLAN  
Scale 1:100  
0m 5 10 20

7.21

FIGURE 7.22 Second Floor Axo (Author 2019).



7.22



7.12 Solomon Mahlangu  
Elevation  
*Final revision*

FIGURE 7.23 South Elevation (Author 2019).





7.13 Hinterland Ave.  
Elevation  
*Final revision*

FIGURE 7.24 West Elevation (Author 2019).

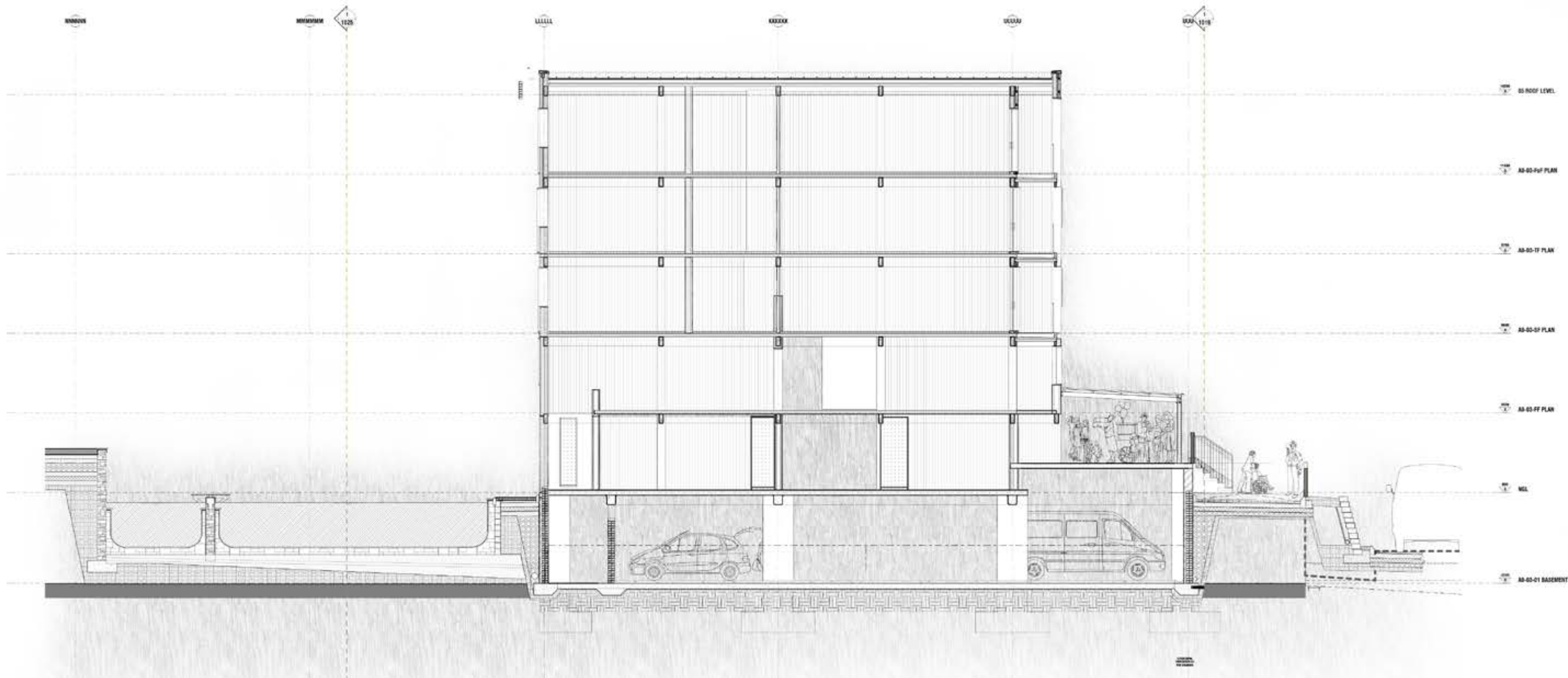




# 7.14 N/S Section

*Final revision*

FIGURE 7.25 N/S Section (Author 2019).

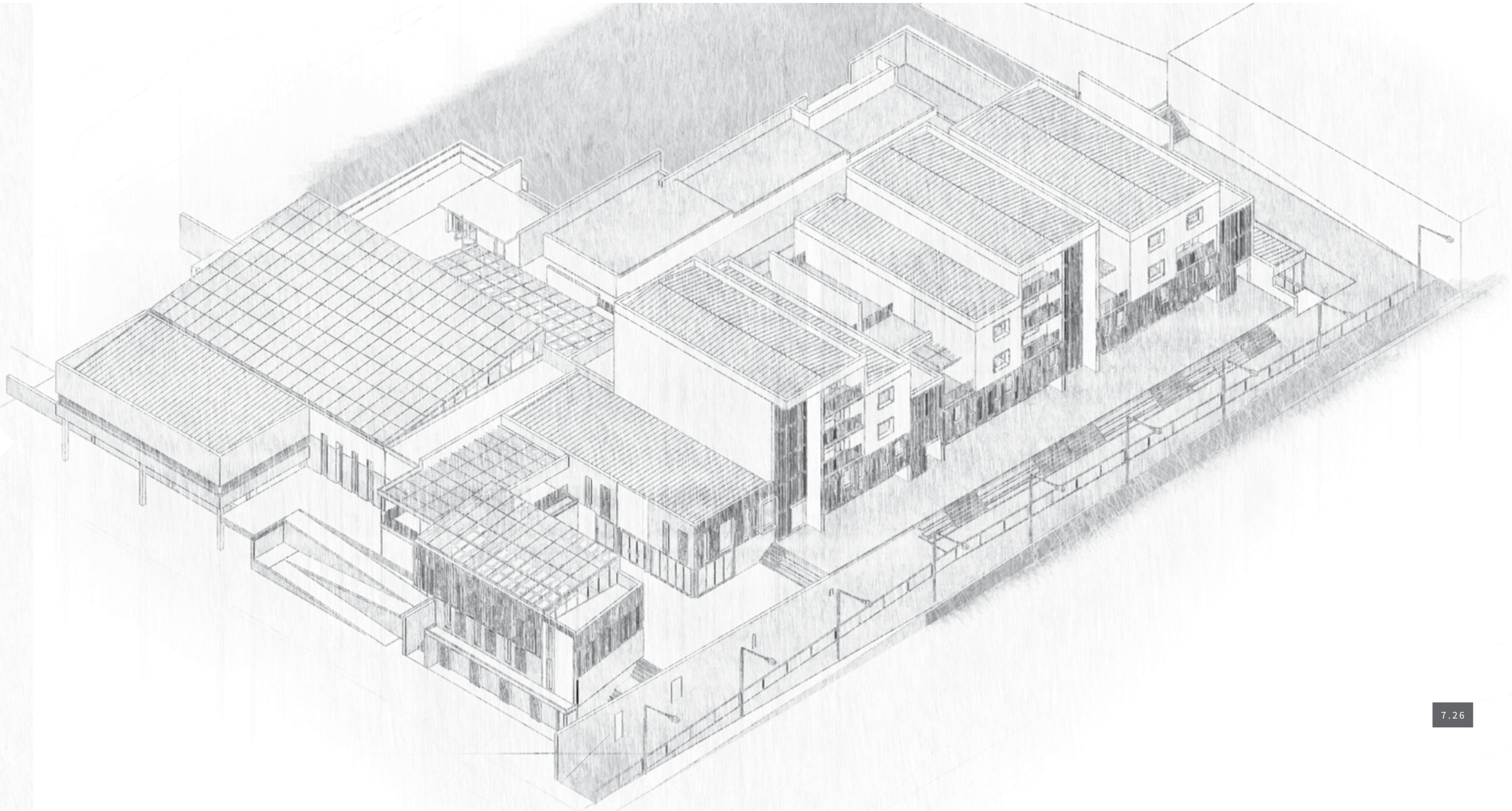




## 7.15 3D Axonometric Sketch

*Final revision*

FIGURE 7.26 3D Axonometric Sketch (Author 2019).





## 7.16 South West Perspective Sketch

*Final revision*

**FIGURE 7.27** South West perspective  
Sketch (Author 2019).

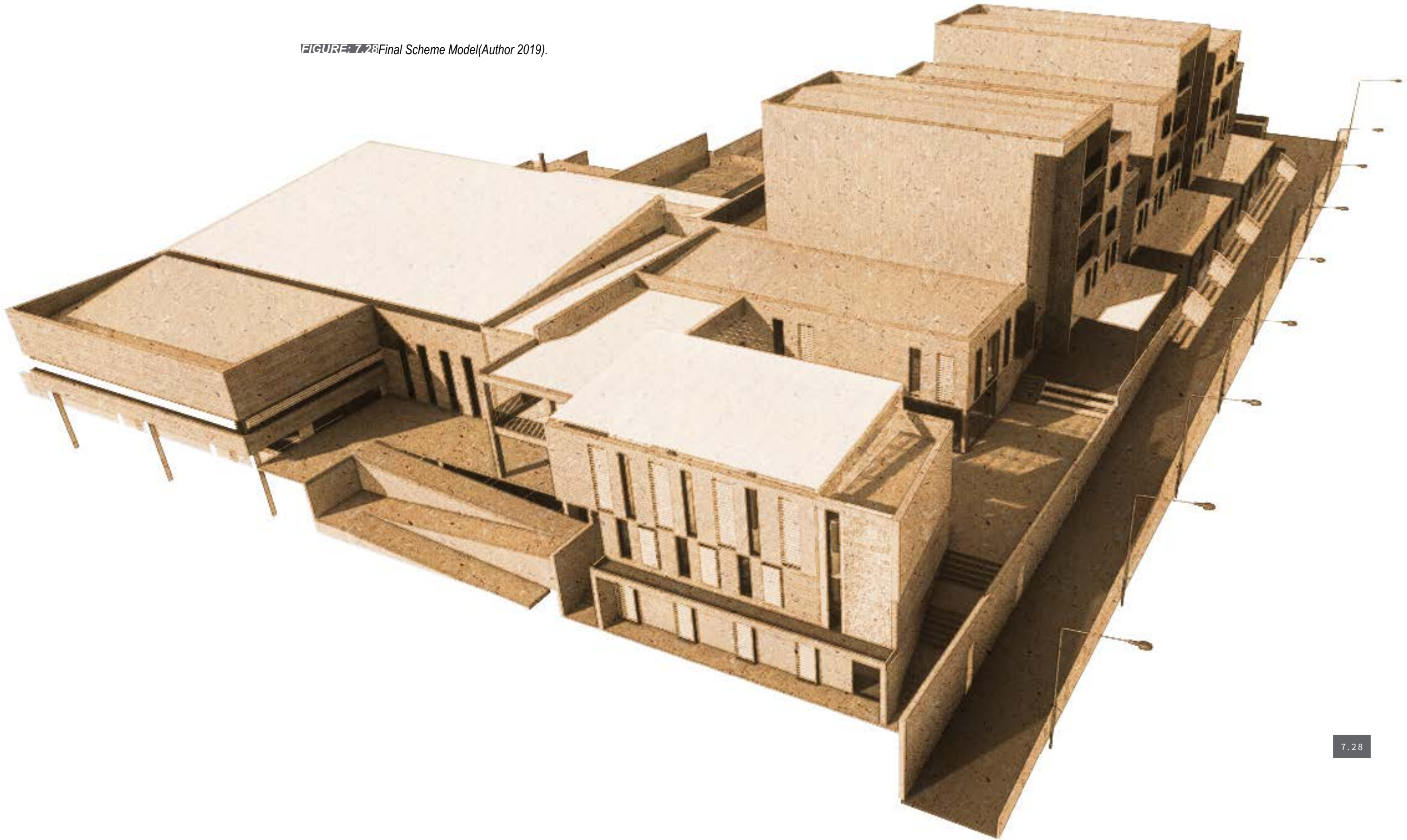




## 7.17 Final Model

*Final revision*

FIGURE 7.28 Final Scheme Model (Author 2019).



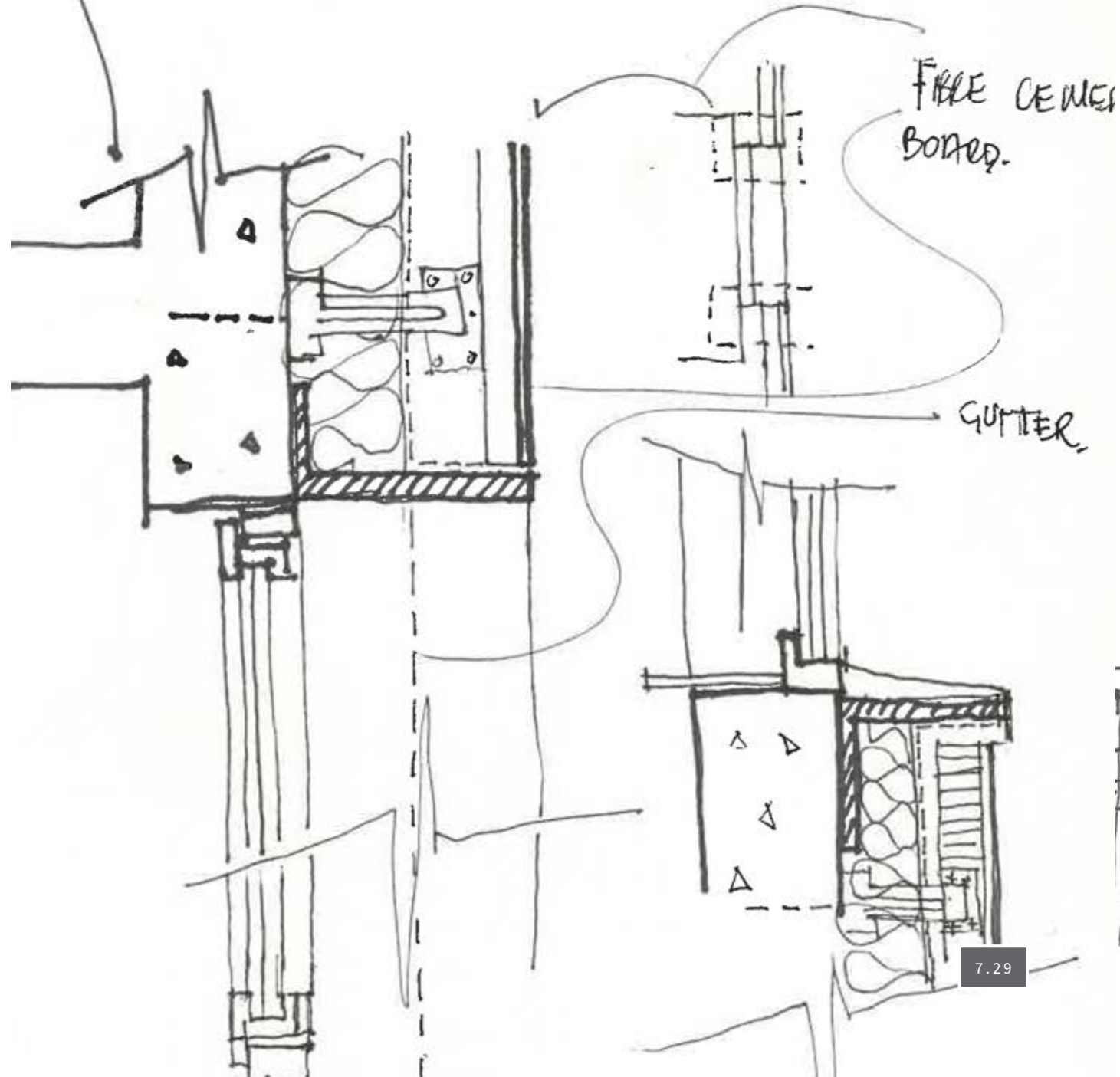


# 7.18 Technical Investigation

Final revision



FIGURE 7.29 Detail Sketch Investigation (Author 2019).



7.29

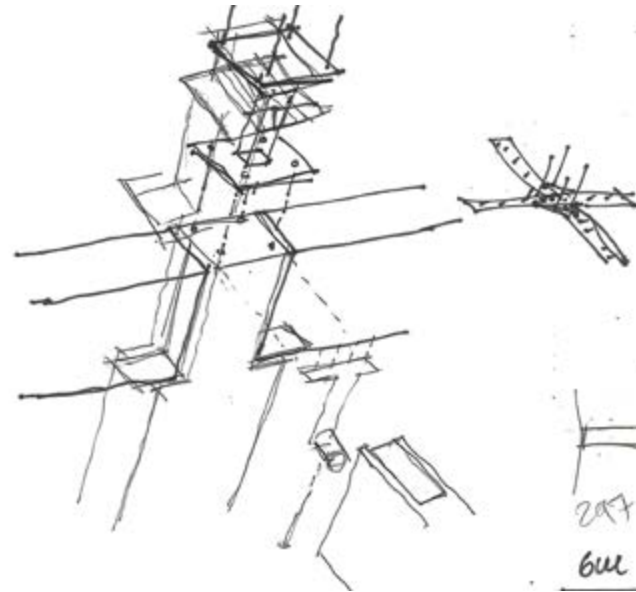
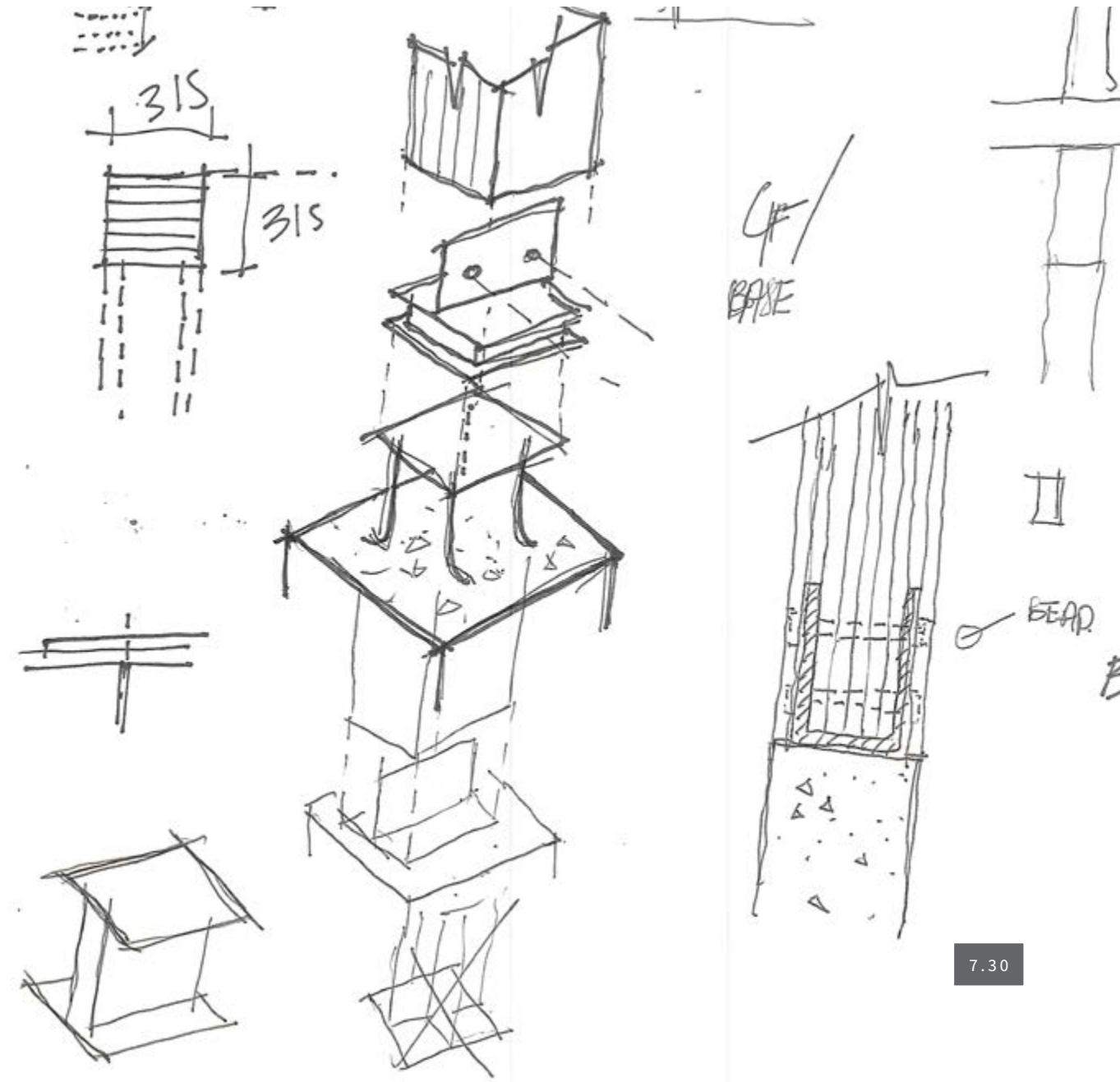


FIGURE 7.30 Structural Investigation (Author 2019).



7.30



FIGURE 7.31 Wall Sketch Investigation (Author 2019).

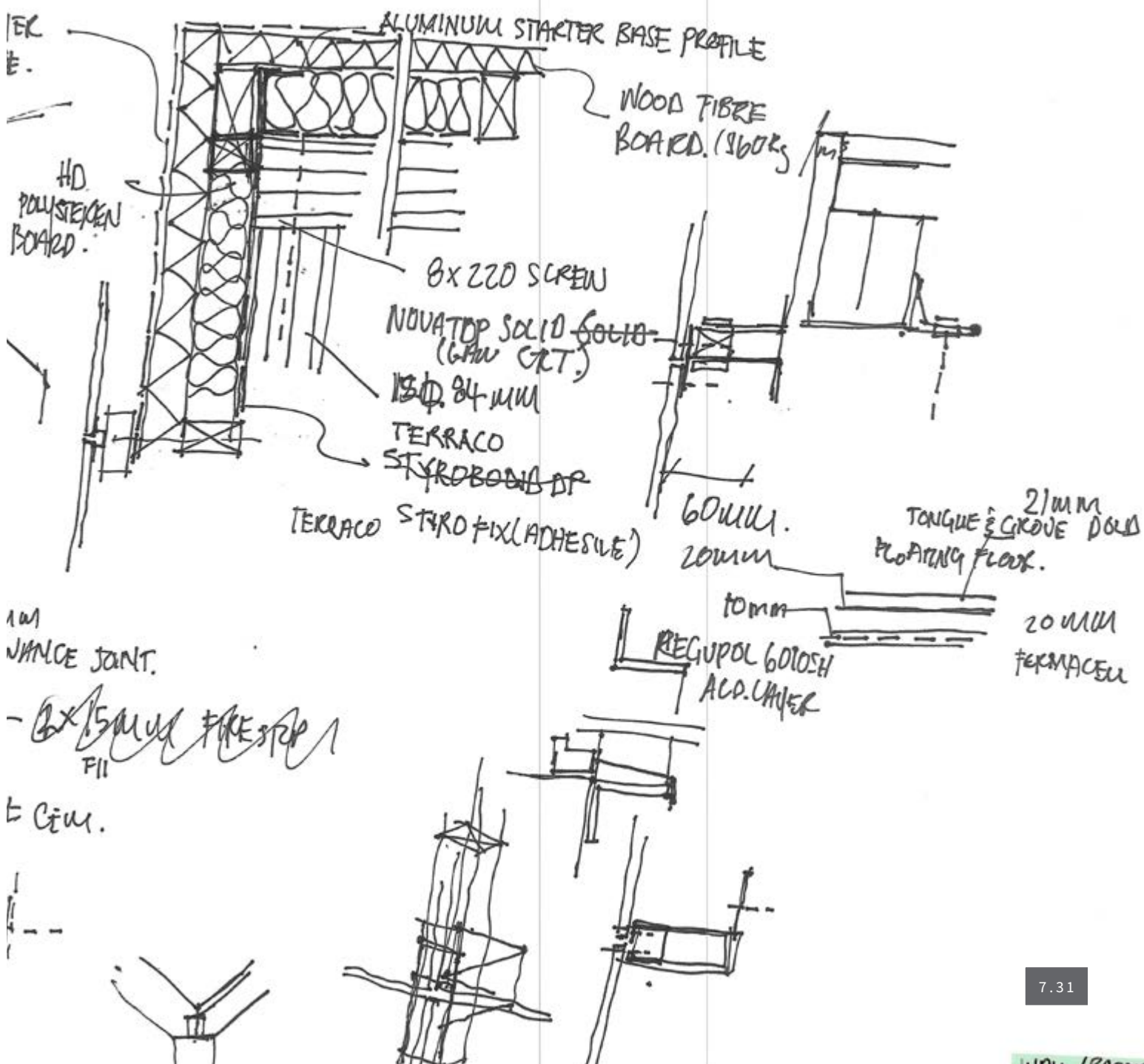
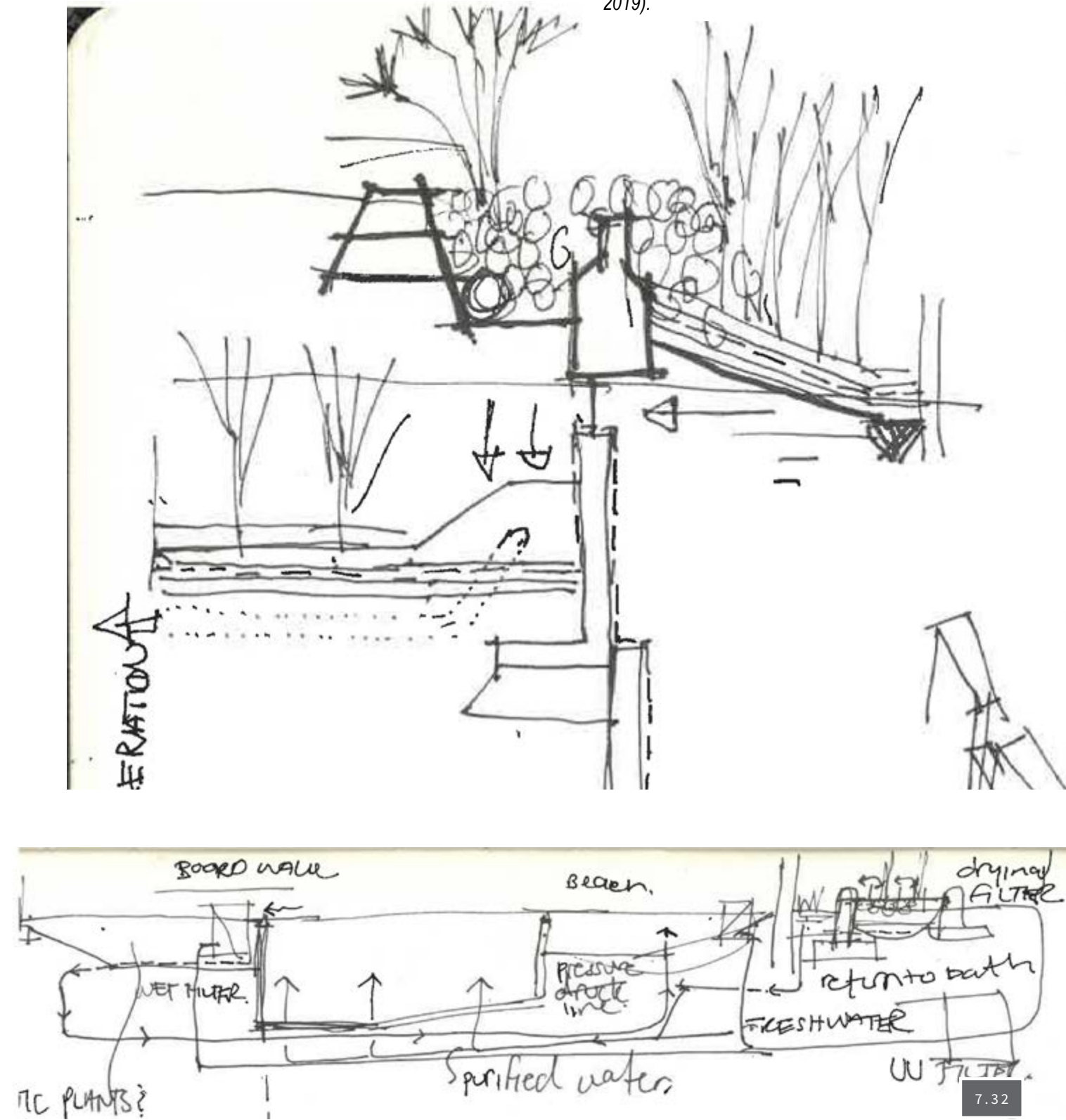
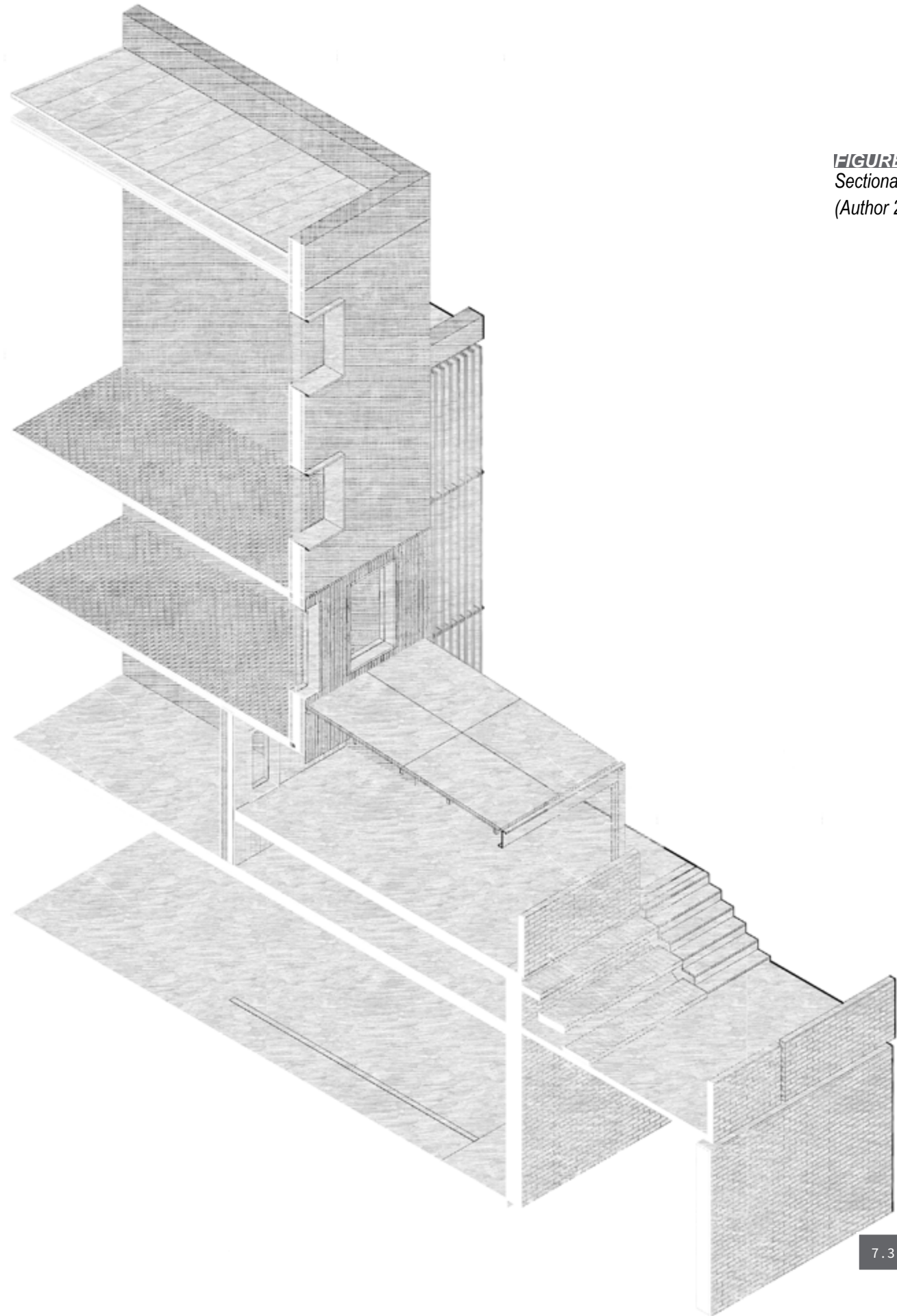


FIGURE 7.32 Natural pool Investigation (Author 2019).



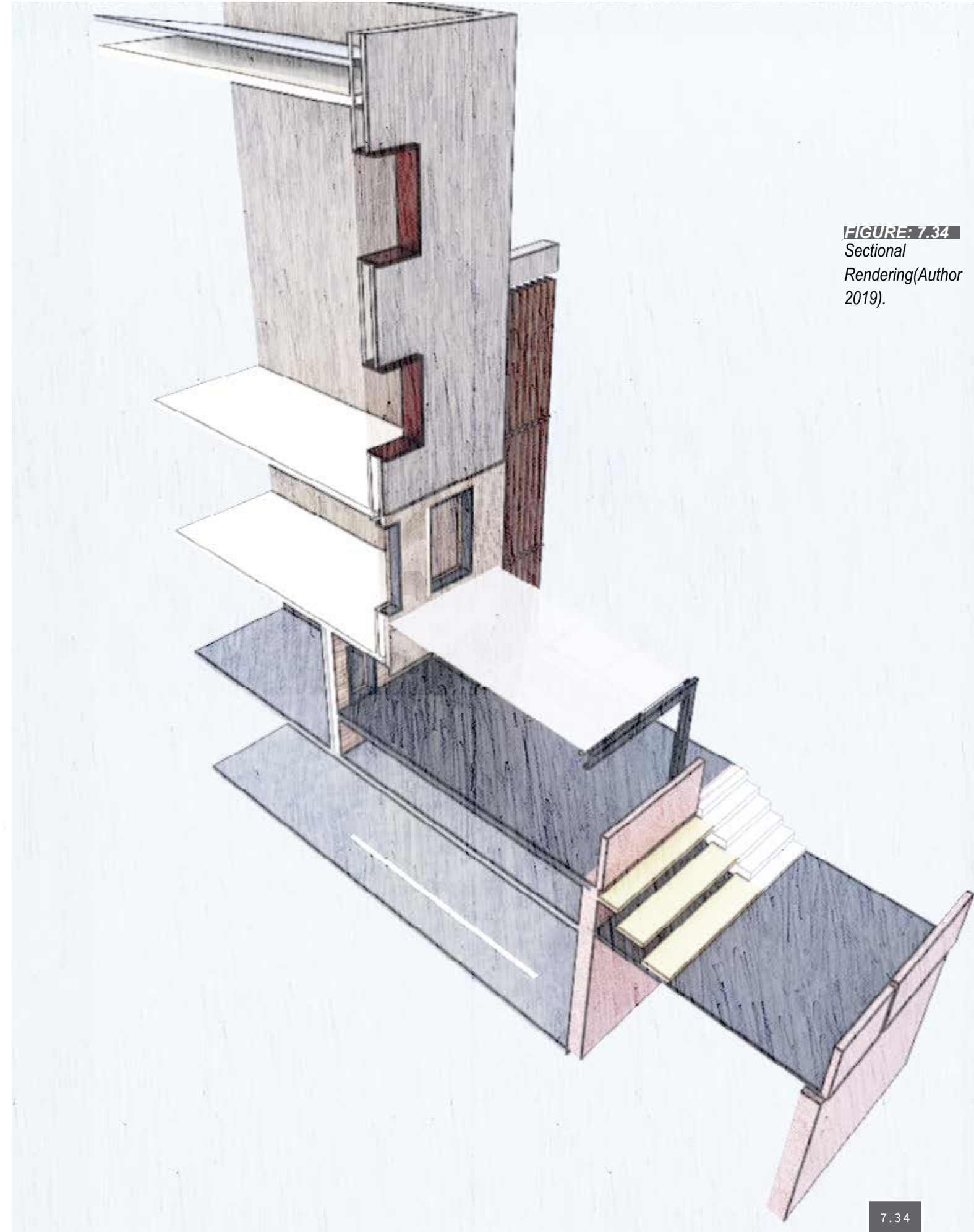


### 7.19 Sectional Model *Final revision*



**FIGURE 7.33**  
Sectional Model  
(Author 2019).

7.33



**FIGURE 7.34**  
Sectional  
Rendering(Author  
2019).

7.34



7.20 Detail Drawings  
Final revision

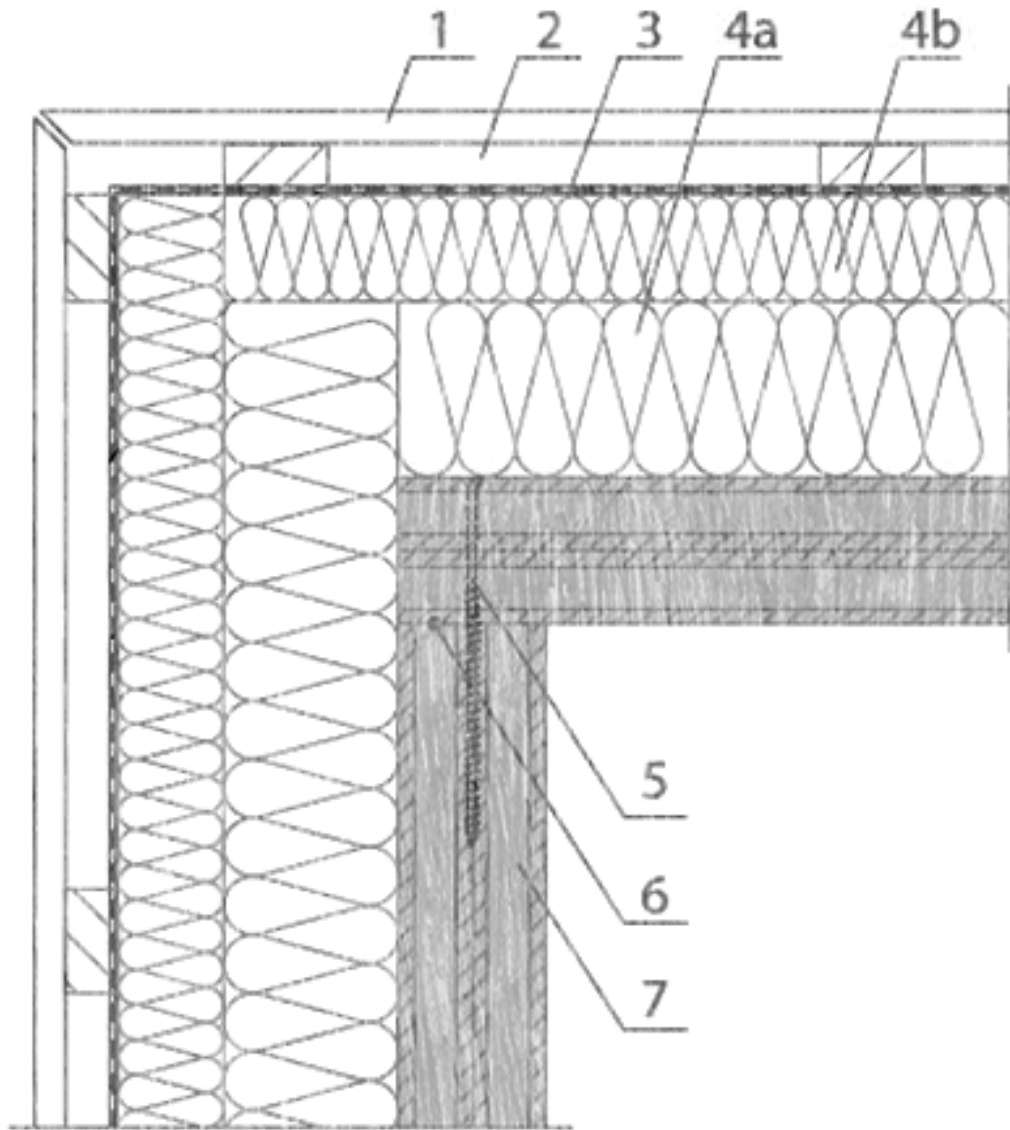
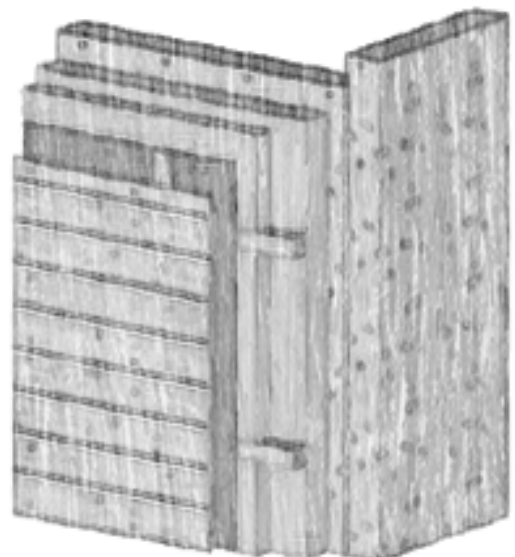


FIGURE 7.35  
Envelope Detail  
(Author 2019).



- LEGEND**
- 1. TIMBER CLADDING
  - 2. AIR GAP
  - 3. BREATHER MEMBRANE
  - 4a. WOOD FIBREBOARD ( $\lambda = 0,041W/mK$ ,  $q = 160 \text{ kg/m}^3$ ) (STEICOtherm)
  - 4b. WOOD FIBREBOARD ( $\lambda = 0,040W/mK$ ,  $q = 50 \text{ kg/m}^3$ ) (STEICOflex)
  - 5. SCREW 8 x 220 (160). (NUMBER ACCORDING TO THE STATICS)
  - 6. AIRTIGHT EXECUTION OF THE JOINT
  - 7. SOLID WOOD WALL NOVATOP SOLID 124, 84

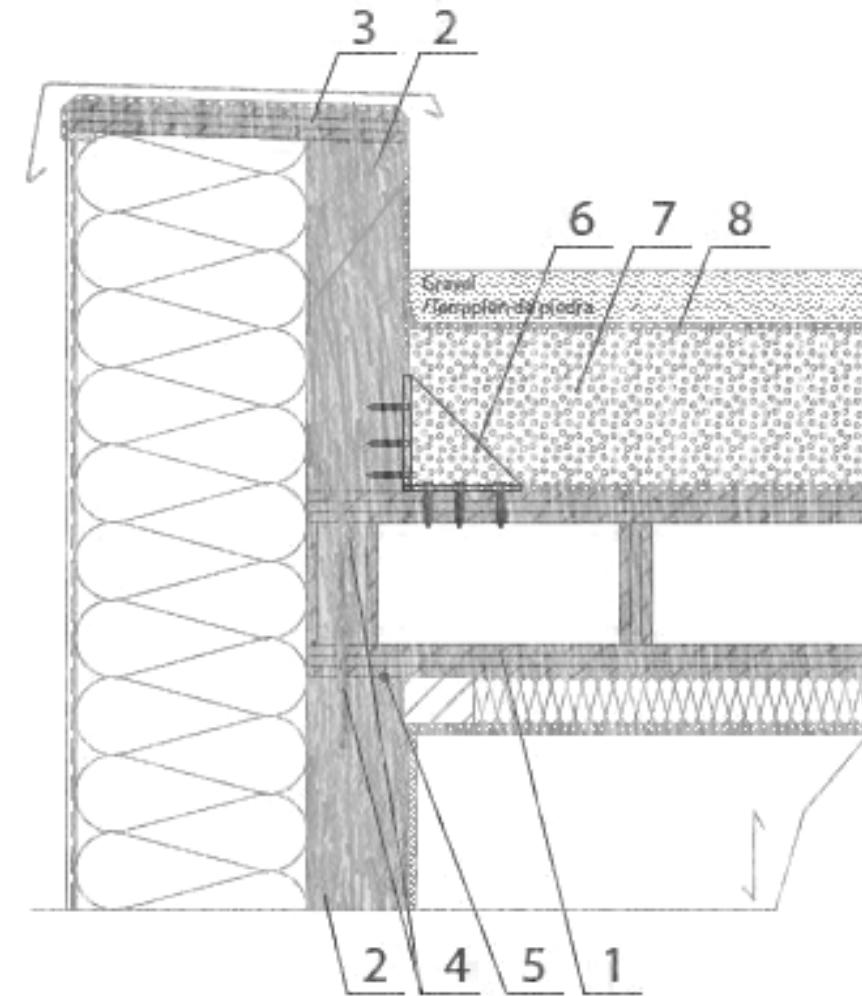
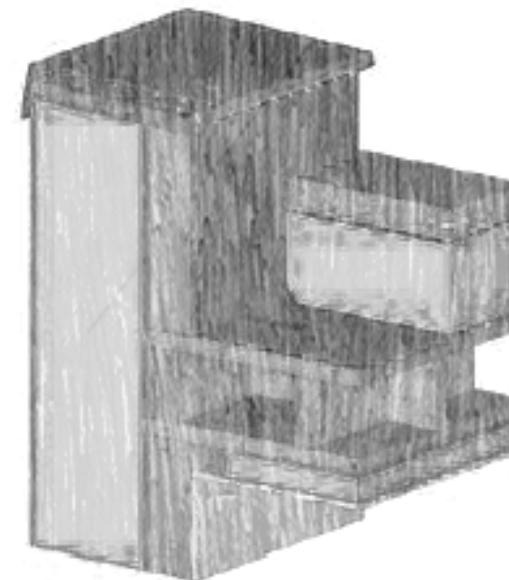


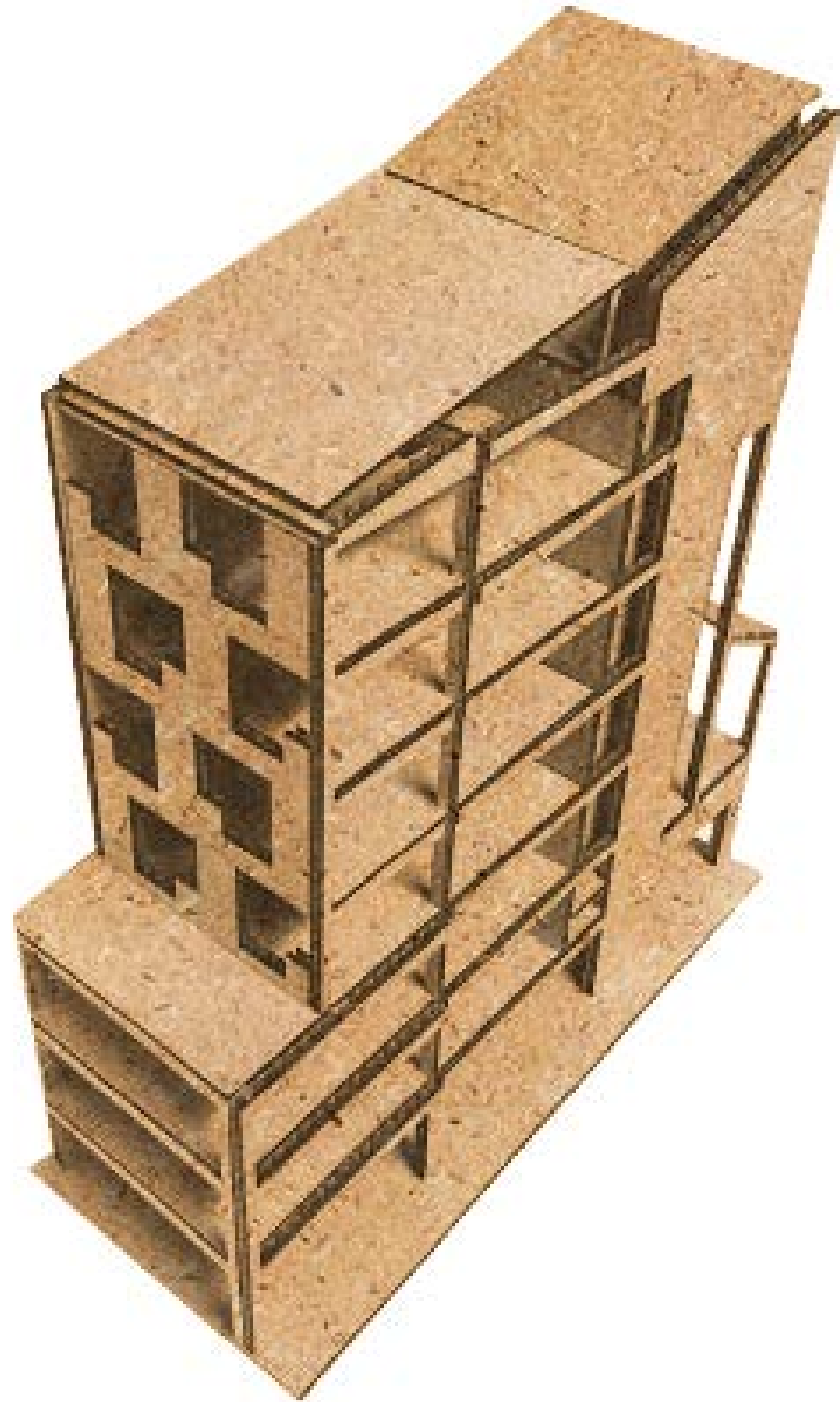
FIGURE 7.36  
Parapet  
Detail(Author 2019).



- LEGEND / Leyenda:**
- 1. ROOF /Techo  
NOVATOP ELEMENT
  - 2. SOLID WOOD WALL  
NOVATOP SOLID
  - 3. SOLID WOOD PANEL.
  - 4. SCREW, NAIL. (NUMBER ACCORDING TO THE STATICS)
  - 5. AIRTIGHT EXECUTION OF THE JOINT
  - 6. STEEL SUPPORT
  - 7. THERMAL INSULATION EPS
  - 8. PVC HYDRO INSULATION MEMBRANE



### 7.21 Final Sectional Model *Final revision*



**FIGURE 7.37**  
Sectional model  
view(Author 2019).



**FIGURE 7.38**  
Sectional model  
view(Author 2019).



**END OF CHAPTER 7**



# Chapter 08

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