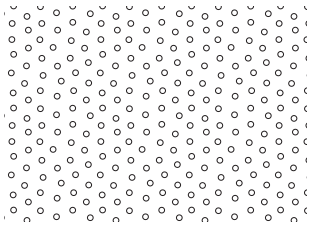
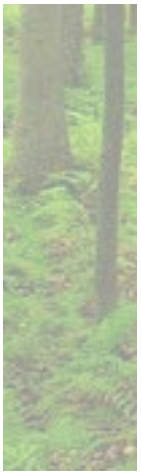
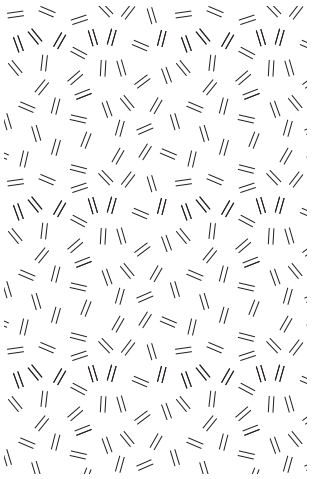
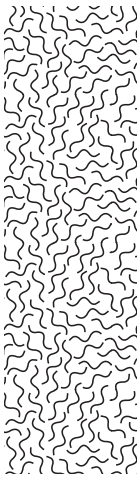
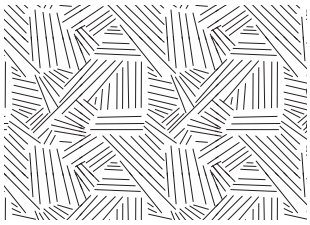
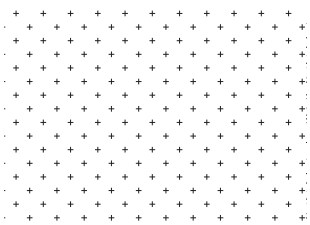
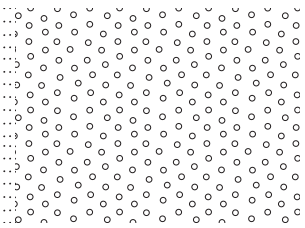
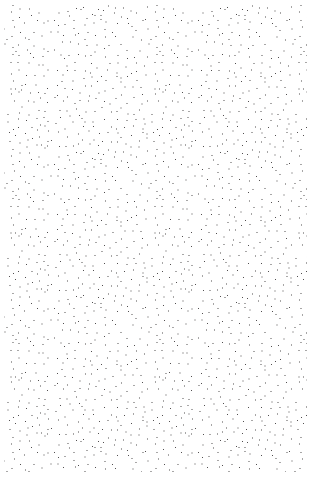


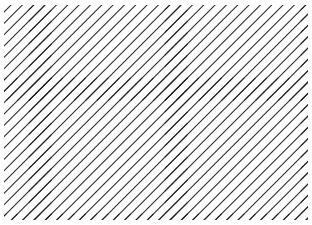
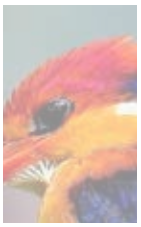
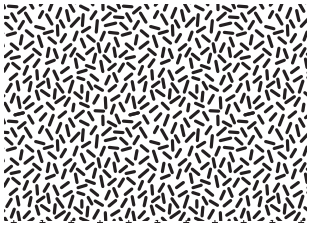
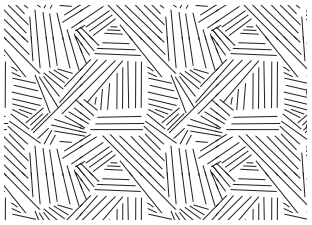






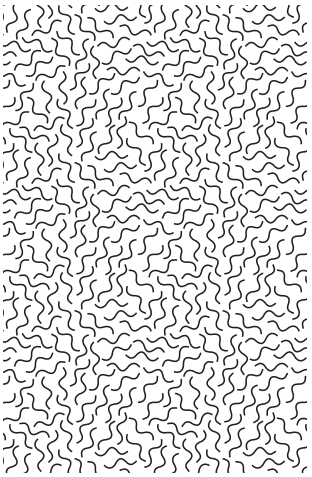
Establishing a new impartial collective identity through hybrid ecological landscapes that limit architectural obsolescence.



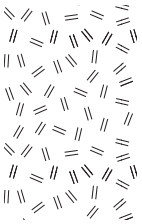





HYBRID ECOLOGICAL IDENTIFICATION



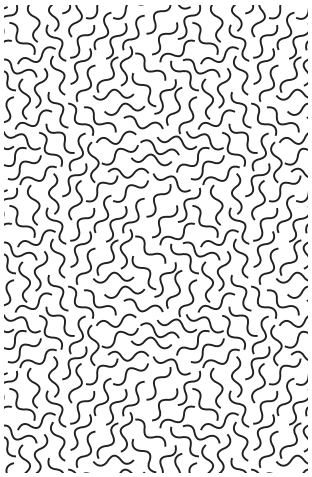
ABSTRACT

Research Field *Environmental Potential*

Study leader *Arthur Barker*

Course Coordinator *Arthur Barker*

Editor *Stephanie van Niekerk*

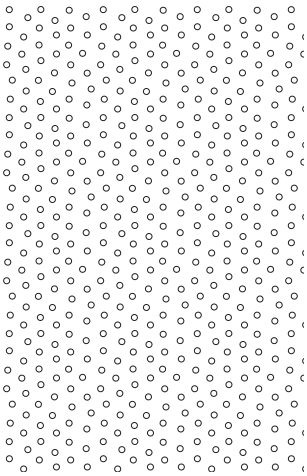


Hybrid Ecological Identification investigates the notion of representing African identity in architecture.

This dissertation aims to contribute to the limited discussion on the hybridity between Western and African architectural design and construction characteristics by probing the role of architecture in that process and to recognise and reconcile previously disregarded identities.

Ideas that express collective or national identity that are physically represented through architectural or urban means, are surveyed to develop a historical understanding of the City of Tshwane. This study explores how the non-static metaphysical realm of ideas collides with the static physical realm of architectural representation.

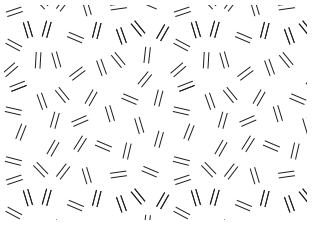
Certain identities become outdated when paradigm shifts occur. This dissertation seeks to represent a national character that limits obsolescence.



GUSTAV
KRUGER

Submitted to the Faculty of Engineering, Built Environment and Information Technology (EBIT) in fulfilment of part of the requirements of the degree Magister in Architecture (Professional), March (Prof).

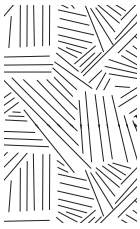
Department of Architecture, University of Pretoria 2019.



In accordance with Regulation 4(e) of the General Regulations (G. 57) for dissertations and theses I, Gustav Kruger, declare that this thesis, which I hereby submit for the degree of Master of Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and the list of references.

Word count: 23 000



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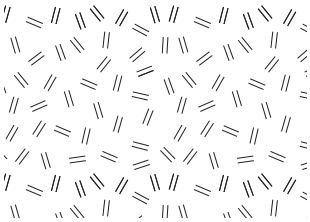
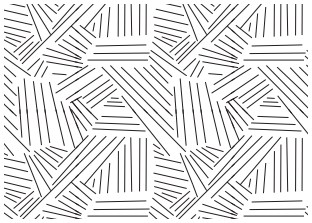
Gustav Kruger





PROJECT **SUMMARY**

Site Location	Consolidated erfs (R1/599, R599, 600, 2/601, R1/601, 1/602, R/602, 1/2705, R/605, 1/604, 3/2599) of a city block at the corner of Nana Sita and Paul Kruger Streets in Tshwane, as part of the zone previously known as the Skinner Street Freeway
Address	152, 160, 168, 174, 180, 184, 186, 188, 192, 340, and 341 Nana Sita [Skinner] Street
Gps Coordinates:	25°45'02.6"S 28°11'14.2"E
Program	The Forum for Intergovernmental and Public Relationships, public participation platforms and waste treatment landscapes.
Client	Department of Envirmental Affairs, Department of Home Affairs, Department of Energy, Department of Water & Sanitation, City of Tshwane
Theoretical approach	The metaphysical realm of ideas constantly changes, rendering representations in the physical realm redundant. Concepts are shared among a collective and architecture represents collective identity, which is a subjective social construct. Landscape urbanism allows for a nonaligned uniqueness that limits obsolescence

THANK **YOU**

Thank you **Prof. Arthur Barker** for sharing his much-valued insight and experience in theory and design while advising me throughout the year. His encouragement, feedback and guidance contributed greatly to this dissertation.

Thank you **Cobus Bothma**, for the opportunity to work at Laboratorium Architects for the past few years. The position provided me with the much- needed experience to approach this dissertation. The encouragement you provided helped me a great deal throughout my postgraduate studies and I am thankful for your friendship.

Thank you **Rudolf van Rooyen**, for his valued insight into the discourse of architecture, his understanding invoked in me a high regard for architectural theory and its entangled relationship with the built environment.

Thank you **Phillip Crafford**, for your esteemed acumen and critical questioning as you greeted me each morning while watering the gardens.

Thank you **Stephanie van Niekerk**, for editing this document and for your valued discernment in writing and structuring the written work.

Thank you **Atterbury Bursaries and Skyscape Architects** for their much appreciated financial support and the use of their printing facilities throughout the year.

Thanks to **My wife, Cecilia, and my extended family** for their love, support and motivation throughout my academic studies.

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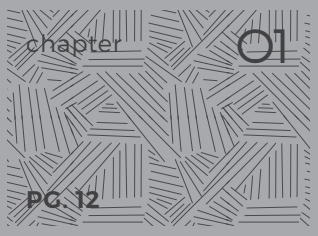

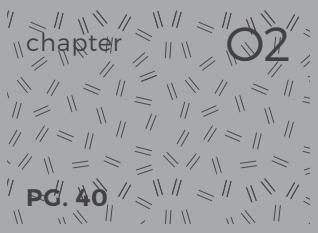

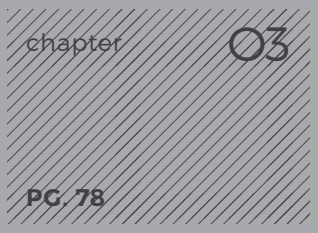

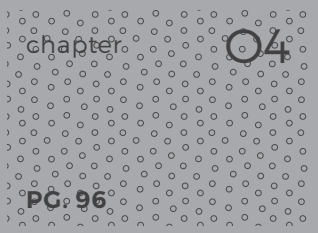

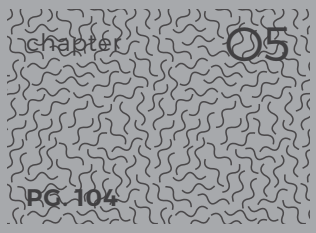

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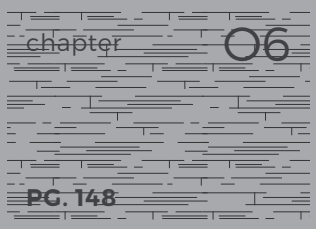

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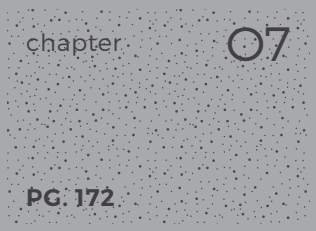

CONCLUSION

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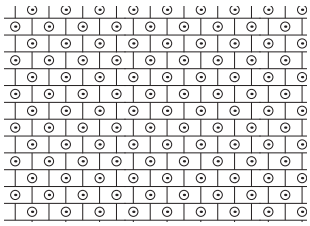
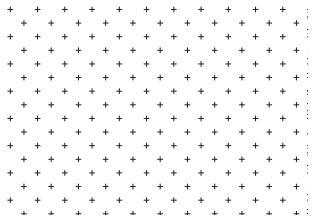
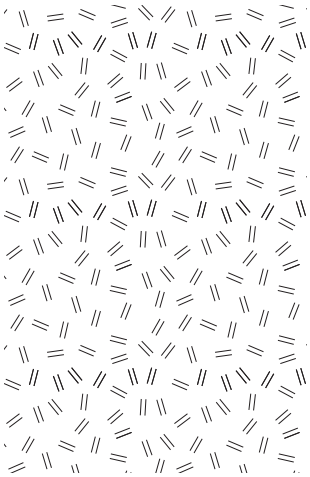
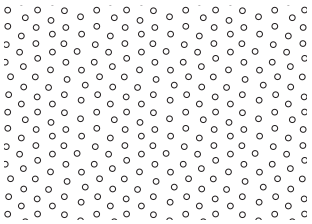
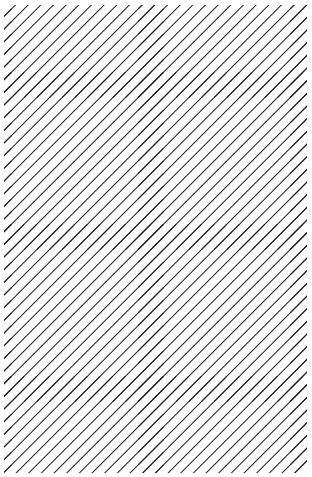
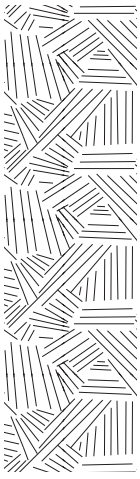
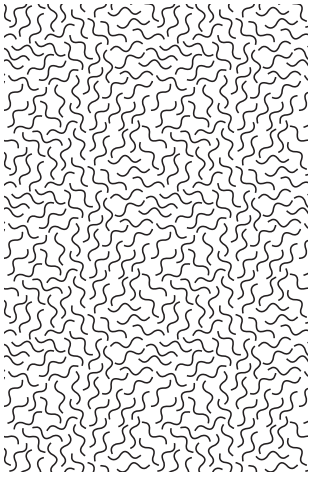
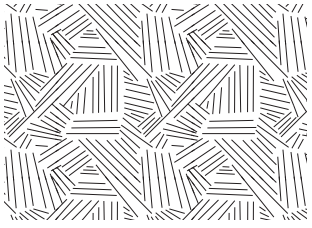
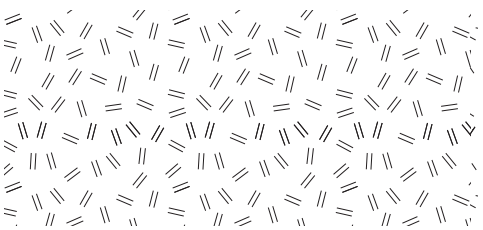
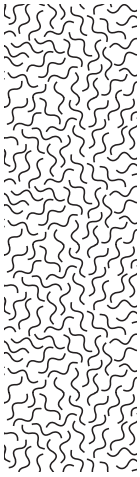
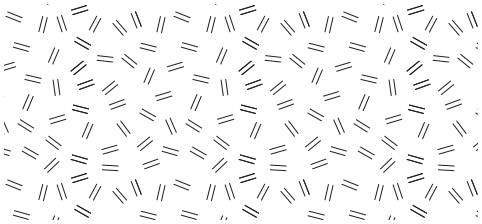





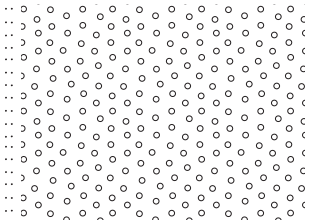
INTRODUCE and POSIT

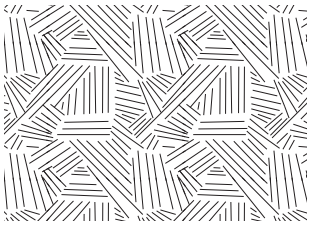
Three Theoretical Lenses, Dissertation Problems & Intentions

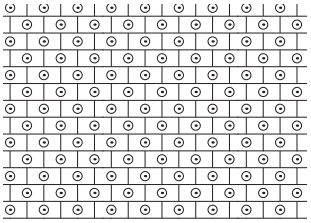





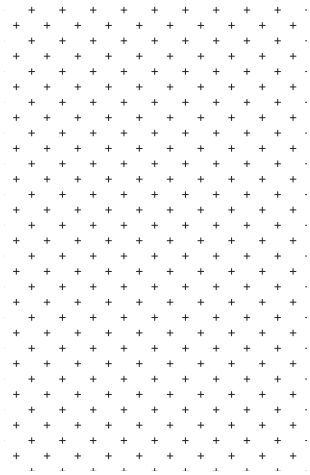


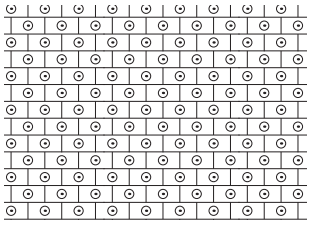


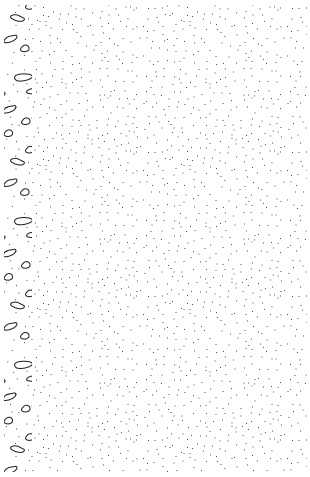
CHAPTER one











Introduction
From 1994 onward the City of Tshwane experienced another paradigmatic shift. The demolition of the Munitoria building and the gradual decay of the Transvaal Provincial Administration (TPA) building due to their political connections to the Apartheid period are indicative of a paradigmatic shift. That government aimed to represent an Afrikaner national identity.

Although these two magnificent objects are enormous in scale, their expression of power is fragile. Change and partiality threaten physical expressions of ideas with obsolescence.

The post-Apartheid government, through the erection of Freedom Park (2004), Tshwane House (2016) and the Women's Living Heritage Memorial (2016) attempt to establish a new collective identity with different shared values. With the exception of Freedom Park, these attempts could also be relevant to this paradigm only.

This dissertation attempts to establish a new typology to represent national identity through state projects that limits architectural obsolescence.

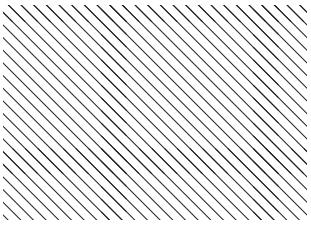
The theoretical approach to representing African identity in architecture can be understood as comprising three hypothetical lenses.

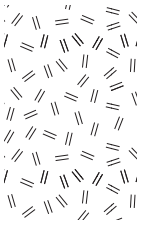
The first lens establishes the role of architectural design as a method employed by the state to represent collective characteristics in a capital city. The non-static nature of ideas threatens the static nature of architecture and results in obsolescence. This notion is explored through a brief paradigmatic analysis of Tshwane's history.

The second lens argues for hybridity between Western and African architectural discourses, with the aim of remediating discounted distinctiveness, and questions the current approach to dealing with the status quo.

Landscape urbanism theory, as the third lens is proposed in response to the issues defined by the previous two. This lens proposes a new architectural fusion that offers a theoretical approach to cultural identity that limits the effect of redundant building design.

All three lenses are used in conjunction to identify the Nana Sita freeway as a relevant site to represent this new typology.





THE STATE, ARCHITECTURE AND PLACEMAKING

theoretical lens

01

The state employes architecture as a method to represent collective identity in a place.
The state, comprising a political elite, operates within the capital by means of governing symbolic representations such as ceremonies, rituals and narratives, which grants it the aura of the Caput Mundi – the centre of the world (Vale 2008: 41). The "germinator" of a city is the original ritual destination that forms a political centre or capital (Vale 2008: 27). Lawrence Vale (2008: 98) argues that "Nationalism brings forth nations", which makes a sense of national or collective identity an essential component of nation-building.

The capital city is, therefore, the prime location to represent a shared uniqueness. The administrative capital, Tshwane, is the principal location that represents national accordance and where relevant ceremonies are conducted.

Civic buildings are symbols of the state
When a country comprises multiple ethnic groups – as is the case in South Africa – consolidating identities is an immense challenge for the state, which aims to merge the various groupings to create a sense of national uniformity (Vale 2008: 98). Governmental and public buildings are symbolic and serve as a statement of collective identification (Vale 2008: 27). These buildings are meaningful and as such reveal socio-political tensions within a nation (Vale 2008: 38).

Ideas structure society and are in continual flux
Representing ideas through an architectural lens is always implicated relative to "cultural, political and economic authority" (Van Rooyen 2018: 1). Each building could be considered to be a physical depiction of an applied system of ideas. The manifestation of concepts in architecture operates on both an urban and an architectural scale and is thereby inextricably linked with how society is configured (Van Rooyen 2018: 3).

However, the static nature of built objects is in an ever-present conflicting relationship with the non-static nature of ideas (Van Rooyen 2018: 5). Perceptions change, as does the manner in which society is formed. Building, as a material practice, restrict the metaphysical because of functional, material and technological demands (Van Rooyen 2018: 5).

Mindsets are shared among a given

"The images, metaphors, and rhetorical turns from which national ideologies are built are essentially devices, cultural devices designed to render one or another aspect of the broad process of collective self-redefinition explicit, to cast essentialist pride or epochalist hope into specific symbolic forms, where more than dimly felt, they can be described, developed, celebrated, and used."
– Clifford Geertz (Vale 2008: 27)

Fig. 1 **Top:** Demolition sequence of the Munitoria building (ENCA, 2013)

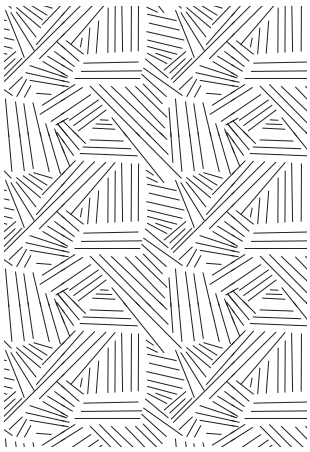
societal collective as it represents that groups' identity in the philosophical realm (Šuvaković 2014: 13). As such, these shared notions – together with their manifestations – distinguish between the collective "we" or "us" as against the "other".

The thought layers mentioned provide us with an immensely powerful learning tool to construct new representations that are passed from one paradigm to the next. Studying these ideas, together with their expressions, inform new symbols of identity. As an exploration of this notion, the relationship between the metaphysical realm of ideas and the physical realm of architecture is surveyed through a brief paradigmatic analysis.

Three paradigms of architectural representation have been identified to analyse the correlation between ideas and structural design.

The models include the pre-apartheid, apartheid and post-apartheid periods. The impact of Western ideas in Tshwane's historical development will become evident, as will the manner in which collective identity is presented.

PRE
APARTHEID PARADIGM



The Early Stages of Pretoria

In 1855, when the world was in the industrialisation phase, Pretoria was an agrarian society centred around the church (Fisher et al. 1998: 58). The church was located at the crossing of the Roman urbs quadrata (Fisher et al. 1998: 62). Church Street led to the Kerkplaatz ("Church Place"), where the Christian practice of communion brought the farmers in the region together in fellowship (Fisher et al. 1998: 59).

This periodic act of fellowship developed into trading opportunities, a Market Square and Market Street. The width of the streets was functional, determined by the turning circle of an ox wagon (Fisher et al. 1998: 59). Much later, this characteristic aligned with the functional requirements of wide streets for vehicular traffic.

"Tuishuise" or row houses were placed along the streets, forming "rydorpe" or row towns (Fisher et al. 1998: 59). The regular Cartesian grid pattern is a direct reflection of the Christian beliefs held by the farming community in contrast to the wild natural terrain surrounding the town (Fisher et al. 1998: 59).

According to Fisher et al. (1998: 60), the use of water via irrigation channels was a feature of early Pretoria and property owners had to erect structures on the road borders, enclosing their properties with walls, cultivate the land and plant trees on the sidewalks where earmarked. Hereby, the streets became well-defined spaces with varying degrees of privacy and public spaces (Fisher et al. 1998: 60). Pretoria shares these characteristics with Potchefstroom, Klerksdorp, Winburg, and Graaff Reinet (Fisher et al. 1998: 61).

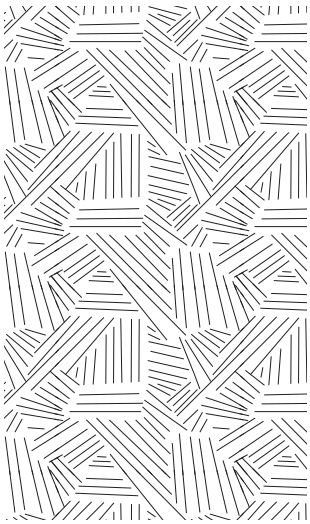
Dieter Holm (Fisher et al. 1998: 57) argues that the early town design of Pretoria could be considered as an "ecologically sustainable development, integrating social, functional, aesthetic and symbolic aspects." It is evident, therefore, that a strong connection to water, natural and productive landscapes were experienced in everyday life.

After the battle of Majuba in 1881 the Boers, united under the leadership of President Paul Kruger came to need the expertise of order and physical symbols that express the sovereignty of the state (Fisher et al. 1998: 63). Sytze Wopkes Wierda, a Dutch immigrant was employed to head the newly created Department Publieke Werken (PWD) in 1887 and in 12 years time Pretoria was converted into the capital of the republic resembling a classical Dutch tradition (Fisher et al. 1998: 64). Wierda saw architecture and urban design as a unified vision said to be modelled on Haussmann's Paris, signified by an emphasis on the whole, reflective of the motto "eendracht maakt macht" (unity is strength) (Fisher et al. 1998: 64). The Raadsaal, influenced by Paul Wallot's Reichstag in Berlin, as well as the Palace of Justice, on Church Square, communicate his intentions well and became characteristic of buildings of that time (Fisher et al. 1998: 65).

The eclectic Union Style followed thereafter, pinnacled by the Union Buildings, designed by the English Sir Herbert Baker, which is arguably the best symbol of South African nationhood (Fisher & Clarke 2014: 96).

Fig. 2 **01**: Palace of Justice (Running Wolf's Rant, 2019)
Fig. 3 **02**: Voortrekker Monument (Author, 2019)
Fig. 4 **03**: The Raadsaal (Author, 2019)
Fig. 5 **04**: The Union Buildings (Author, 2019)

APART
-HEID
PARADIGM



Establishing a new tradition

Amidst the Dutch and British colonial traditions, the logic and philosophy of a new technologically and functionally driven architecture slowly developed and eventually spread widely (Barker 2017: 3). However, in due time these early Modernist buildings erected in the 1930s displayed literal aesthetic interpretations of the movement and, in so doing, revealed various technical and climatic problems (Fisher et al. 1998: 233). The Modern Movement, as a Western notion, was misinterpreted and inconsistently applied.

The conditions were met to construct a new regional Modern Movement mutation: climatic and technological lessons where learnt, designers where free from Dutch and British colonial traditions, the inauguration of the Nationalist party in 1948 meant state commissions to further nationalism, new local industries were established and a variety of local materials where available (Barker 2017: 5). Influences from Brazil became the precedent to establish a new Afrikaner nationalist identity (Barker 2017: 5). The Meat Board (1952), Wachthuis (1959), Munitoria (1969) and the Transvaal Provincial Administration (TPA) (1962) buildings shared a stricking resemblance to the Ministry of Health and Education building (1940) in Rio. Even though the movement contained regional responses, as indicated by Barker (2017: 2), many buildings can be considered as blatant copies of Brazilian models. The architects Norman Eaton, Douglas Cowin and Hellmut Stauch, whose designs were informed by decades of handed-down knowledge, provided the few good examples of regional Modernism (Fisher, Le Roux & Maré 1998: 233).

Immersed in Modern thought, the city of Pretoria experienced enormous growth and development. The Modern narrative coincided with the nationalistic ideals of the governing party, the movement had immense political weight. To a large degree, advocates of the movement aimed to create a "new social order or utopianism" (Barker 2017: 3).

Social restructuring took place by separating black and white people spatially allocating different spaces and entrances to each. DM Calderwood's doctoral thesis "Native Housing in South Africa" was informed by a number of seminal international authors, including Patrick Geddes, Lewis Mumford and Clarence Stein, became the housing model for areas in which black people were designated (Haaroff 2011: 190).

Notions of utopianism aligned with enormous urban renewal and infrastructural schemes sought to promote better socio-cultural conditions, but they were often used as a political tool with strong racial substrata based on a deficient comprehension of society (Abrahamson et al. 2012: 60). The Schubart Park and Kruger Park urban renewal schemes are architectural examples that eradicated a large poor white community to establish a middle-class neighbourhood through high-density development (de Klerk 2019) . The 1967 Ring Road scheme is an infrastructural precedent that intended to alter the city's fabric detrimentally orientated around large expanses designated for vehicular transportation (de Klerk 2019). The beforementioned renewal schemes are contributors to Tshwane's urban decay today due to their megastructural scale and rigidity in design. The ill-considered and partial application of the Skinner street portion (now renamed Nana Sita street) of the 1967 Ring Road scheme in 1992

has left a marked scar in the city fabric virtually cutting the city core in half.

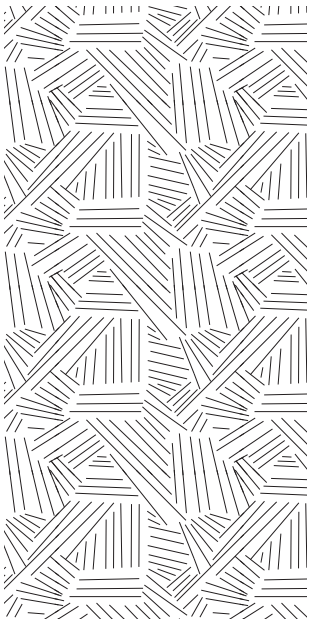
The city's character became like a functional machine. The fine-grained urban pattern of the city was replaced by a coarse-grained urban pattern comprised of buildings with large footprints zoned in functional districts seldom relating to a human scale. The TPA building, in particular, is known for its immense scale.

Historically, cities are composed of tightly knit areas involving mixed land usage because of on-foot travel (Herndon 2011: 3). The growing amount of vehicular traffic became the primary functions of streets and eliminated the original streetscape layering of early Tshwane – which nullifies street life. The layered connection to the landscape, in particular, was lost.

In South Africa, regional Modernism liberated the Afrikaner from his Dutch and British colonial heritage and heralded a new Afrikaner nationalist identity (Tymbios 2017: 10).

Fig. 6 **01:** Transvaal Administration Building (Author, 2019)
Fig. 7 **02:** The Munitoria Building (Zietsman, 2019)
Fig. 8 **03**: The State Theatre (Author, 2019)
Fig. 9 **04**: The Wachthuis (Author, 2019)

POST APARTHEID PARADIGM



A new South Africa

Left with the legacy of colonialism and Apartheid, the post-apartheid era marks a justice period in an effort to remedy the effects of the previous. The city is earmarked with a name change from Pretoria to Tshwane. The City of Tshwane maintains both its political and administrative capacities, making it a key point for development to occur (City of Tshwane 2013: 84). The current administration has made various attempts to represent social reform and inclusivity. Examples of the projects that have been undertaken include the erection of Freedom Park (2004), Tshwane House (2016) and the Women's Living Heritage Memorial 2016).

In order to bridge the cultural and political divides, an eclectic approach is taken in an effort to preserve culture (City of Tshwane 2013: 88). As such, symbols of "the hated past" are kept intact and showcased on public squares as a reminder of an earlier period (City of Tshwane 2013: 88). Retaining these representations may be regarded as a willingness to include all narratives. One amongst many of the Tshwane Vision 2055's aims is to preserve and promote Pretoria's memorable assets such as the Union Buildings, Voortrekker Monument (1949) , University of South Africa (1972), and the newly built Freedom Park (City of Tshwane 2013: 84). Historical liberation ceremonies such as the women's march of 1956 are observed amidst the various layers fashioned by previous paradigms (City of Tshwane 2013: 88).

However, new government buildings such as the Department of Environmental Affairs, Department of International Relations & Cooperation and Department of Statistics South Africa is built far from the city centre which detracts from Tswane's administrative significance. Citizen interaction is difficult forcing long-distance travel between divisions. These encompass megastructural footprints a shared characteristic with their Apartheid counterparts. Each of these structures is set back and gated off with no regard for public space.

Freedom Park is widely considered to be the most ambitious project undertook to resemble a post-Apartheid national identity (Noble 2011: 213). The park is situated on a hilltop in dialogue the Voortrekker Monument a symbol of the past, designed by Gerhard Moerdijk. Its guiding concept is reconciling and recognizing "unique properties of African indigenous knowledge and cultural practices, the recovery of traditions, and a search for 'authentic' forms of representation." (Noble 2011: 213). The project focussed on three "interactive themes" – struggle, democracy, and nation-building and its partiality are made explicit through disregarded local histories and practices embedded physically into an architectural landscape (Noble 2011: 215). Inquiry into the past and present is made but also projects towards President Thabo Mbeki's "African Renaissance" imagining cultural rebirth, self-discovery and confronting colonial prejudice (Noble 2011: 215).

Fig. 10 **01:** Freedom Park (Landezine, 2019)

Fig. 11 **02:** National Library (Author, 2019)

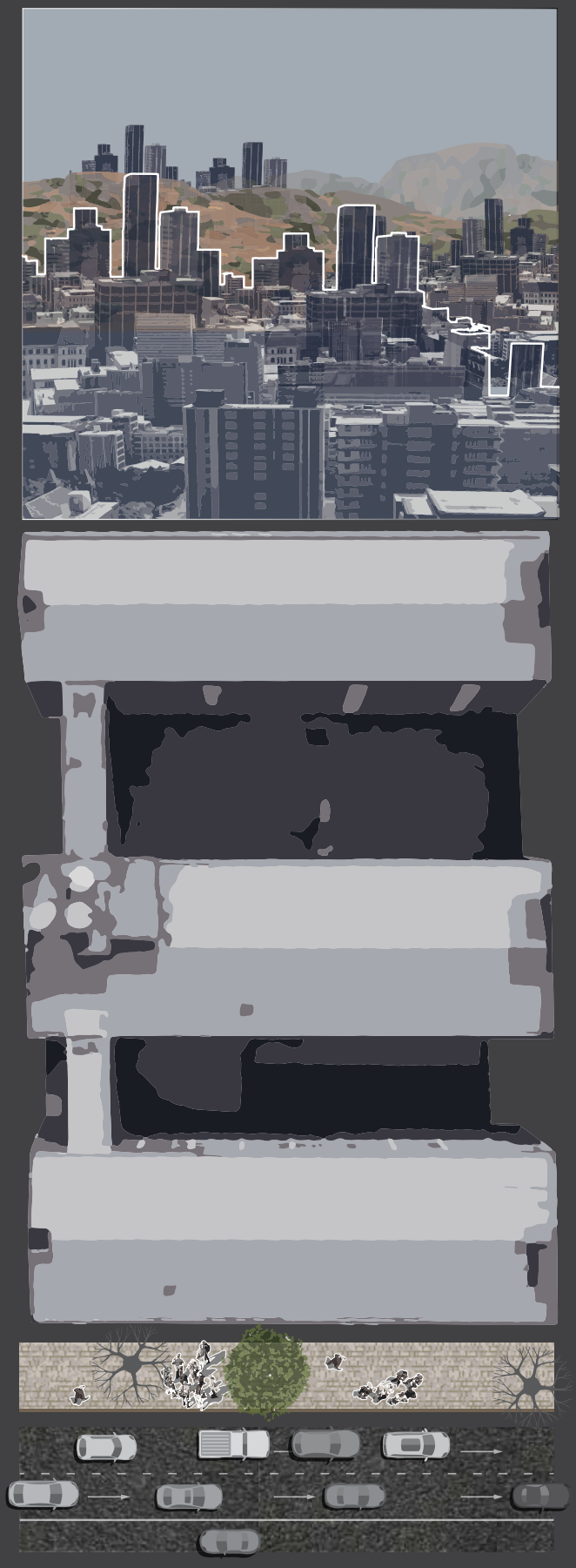
Fig. 12 **03**: Tshwane House (Rekord, 2019 edited by Author)

Fig. 13 **04**: Women's Living Heritage Memorial (Author, 2019)

Pre-Apartheid Paradigm

Fig. 14 **Left:** Diagram of street layering in the pre-apartheid paradigm (Author, 2019)

Fig. 15 **Right:** Diagram of street layering in the apartheid paradigm (Author, 2019)



Apartheid
Paradigm

Post-Apartheid Paradigm

Fig. 16 **Left:** Diagram of street layering in the post-apartheid paradigm (Author, 2019)

IDENTITY: A SUBJECTIVE SOCIAL CONSTRUCT

Identity is a subjective social construct

When we study the implications of the colonial and apartheid orders, as historical examples of sets of ideas that were shared by a given societal collective and resulted from major cultural differences, we understand how a rigid homogeneous character was established at the expense of other ethnic identities.

As of 1778, there existed a division between the Western culture and the African "other", as exemplified through "White civilisation, black savagery. White science, black animality. White mastery, black slavery." (Noble 2011: 6). In this sense, both colonialisation and apartheid rule disregarded "local traditions, histories and communal languages." (Noble 2011: 7). Mediating, remediating, and representing the discounted identities are at the centre of current architectural discourse in the post-Apartheid climate.

Jonathan Noble (2011: 6) presents the metaphorical image of a "skin" and a "mask" to illustrate the resulting social polarity. An interplay of tension occurs as the process of identification between the "natural identity" of "skin" and the dissimulation of a "mask" takes place, oscillating between objective authenticity and subjective inauthenticity (Noble 2011: 7). The process of classification is, therefore, regarded as a fluid social construct that resonates between an individual or group and other groups (Noble 2011: 3). A subjective theoretical framework of African distinctiveness is offered to reject the notion of a rigid unified view of "African Architecture" (Noble 2011: 3). Noble (2011: 5) draws on Franz Fanon to offer an open-ended non-systematic philosophy in which closed definitions of identity are avoided .

Evidently, this metaphorical representation heralds a critique of Modernism. Modernism's drive for an objective authentic "skin" was conceived under the universal functionalist notion of "purity in design" and "honesty of materials", silencing the "inauthentic play" concerning the non-functional ornamentation of a "mask" (Noble 2011: 7). The Modern project's exclusionary stance toward the use of non-functional ornamentation as the "savage other" is clearly indicated by Adolf Loos in Ornament and Crime (Noble 2008: 74). Inevitably, South African architecture places itself within a Western architectural discourse. The "skin", therefore, is white – yet it can wear a black "mask" (Noble 2011: 9).

In order to mediate identification processes that approach a future of reconciliation and recognition, repressed historical narratives and uniqueness – to be worn as a "mask"

"... the language and historical narratives of a group, its literature, symbols, modes of celebration, and so on give individuals both context and media for expressing their individuality and interpreting the world."
– Iris Marion Young (Noble 2011: 9)

"Hybridity is dynamic, mobile, less an achieved synthesis or prescribed formula than an unstable constellation of discourses"
– Homi K Bhabha (Noble 2008: 75).

02
theoretical lens

– may facilitate a new hybrid architecture and an eclecticism of ideas (Noble 2011: 9).

Western and African Hybridity

Speaking of an eclectic hybrid architecture is embedded in the postmodern interest, according to Noble, yet Charles Jencks's and Robert Venturi's call to eclecticism indicates a strong elitist undertone and contumacious disregard for Modernism, which exhibits a disregard for socio-political issues (Noble 2008: 71). With this critique, Noble aims to move beyond the "fashion of style" to address this deficiency in postmodern discourse and to confront Western hegemonic practices (Noble 2008: 71). Noble rages against a merely superficial aesthetic variety of ideas.

The process-driven nature of hybridity mutates and subverts hegemonic power structures via excluded narratives and is, therefore, continually in a state of deformation and ambiguity (Noble 2008: 75). Consequently, hybridity should remain entangled in a discussion of historically dominant structures to continue being a relevant tool (Noble 2008: 80).

Discussing Noble's Hybridity

The theoretical discourse, as presented by Noble, is fixated on a power struggle between white and black and operates under the assumption that the classification of white resembles the West and black resembles Africa. This dissertation will not seek to function under that assumption as it limits one to certain histories and identities. The British colonial order in South Africa, for instance, suppressed both white Afrikaners and black people.

Furthermore, as Noble is fixated on apartheid directives, the built examples of post-apartheid architecture referenced by him focus on remediating only black identities. Operating strictly within these assumptions would border on cultural preference- and correctness. Paradigmatic change would still threaten the proposed structures as they will remain mere representations of the ideas propagated in the current cultural climate, and the structures will suffer the same consequences that edifices from the Apartheid period underwent.

As such, the issue of identity will be treated in an impartial manner that steers away from cultural correctness to prevent falling into the trap of preferencing one group over another. Integration remains a relevant tool but a different kind of fusion will be sought.

The subjectivity of Noble's' framework allows much room to operate in and the metaphor will be delineated in a manner befitting this dissertation. Moving beyond merely aesthetic representations and addressing sociocultural issues are fundamental. Distinctiveness will be viewed more broadly, unconstrained by the belief that only black identities were suppressed. The paradigmatic analysis will aid in this regard and will classify all subdued characteristics with the application of ideas originating from both international and local contexts.

As Tshwane progressed from one continuum to the next it is evident that the connection to a variety of living landscapes was eventually lost. Although Freedom Park cannot be considered impartial with regards to identity, the scheme does encompass the commonality of such a landscape shared by all cultural groups. This notion forms the basis of the third theoretical lens.

PROBLEM STATEMENT

The **General** Issue

Reconciliation and the recognition of dominated identities under colonial and apartheid rule

Maylam (2016: 7) posits that racial identification includes traits such as ethnic, traditional, linguistic, and religious backgrounds. Partiality to one race or culture over another is rooted in observed dissimilarities regarding convictions, philosophies, reasoning, and collective, authorised, and official practice (Maylam 2016: 7 & 8). As a result, Western notions of architectural discourse have dominated South Africa throughout the colonial era and the apartheid period that followed thereafter (Noble 2008: 74). The classification of the "other" as a savage was an inherent condition of both these orders and inevitably resulted in control.

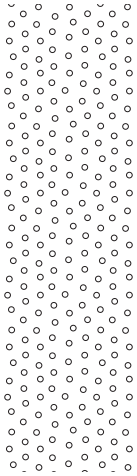
Preferencing one identity over another has detrimental effects, however. Both of these systems sought to advance their own uniqueness at the expense of other customs. Conversely, the post-apartheid approach marks a period of social reformation, inclusivity and impartiality whereby previously overlooked traditions are recognised in an attempt to reconcile unique traits and historical narratives. An investigation into what African identity entails is politically loaded and creates a condition for the investigation of historic hegemonic practices (Noble 2008: 75).

The **Urban** Issue

A renewed spatial identity for Tshwane

The greater part of the City of Tshwane, as indicated hereafter, was developed under the nationalist ideals of the previous apartheid government. Apartheid Modernism – as a Western set of ideas – permeated both the urban and architectural fabric and formed the city's identity to a large degree. As such, the current democratic administration has resolved to establish a new identity for Tshwane that is firmly rooted in justice, sustainability, resilience, quality, and the efficient use of urban space (City of Tshwane 2013: 87). The changing of Pretoria's name to Tshwane also indicates opposing ideological and political forces, resulting in a stark identity shift.

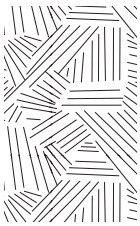
Understandably, the conversion has been executed in light of the current government remaining fixated on memorialising the struggle against apartheid. The erection of Freedom Park and the Women's Living Heritage Memorial clearly communicates an attempt to mitigate the legacy of apartheid rule, with a view to the eventual establishment of Tshwane as the capital city of South Africa (City of Tshwane 2013: 93). Although the construction of the aforementioned tributes was done with good intentions in terms of representation, they do not deliver a service to the public that goes beyond mere aesthetics.



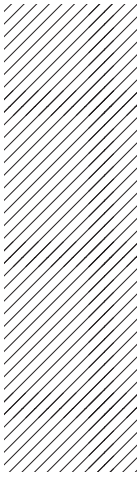
The **Architectural** Issue

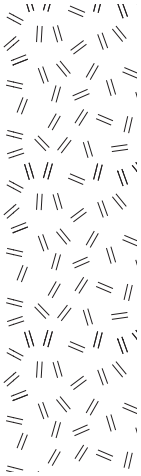
Architectural representations are threatened by paradigmatic shifts

In the post-apartheid era, the critical concern to be addressed is how African identities and histories should be expressed in architecture (Noble 2008: 74). Within current discourse, reconciliation and recognition of previously dominated ethnic groups are executed through a Pan-African lens that remains merely representational. The recurring problem is that cultural correctness that preferences a specific tradition is often instituted in order to promote a sense of national identity. The question of architectural obsolescence thus comes to the forefront when economic or political shifts take place, threatening architectural portrayals that signify identity.



RESEARCH **QUESTIONS**



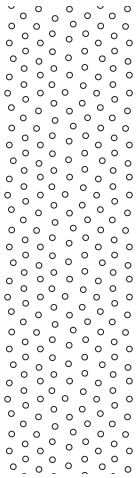


Primary
Research Question

How can a new African identity be represented whilst limiting architectural obsolescence?

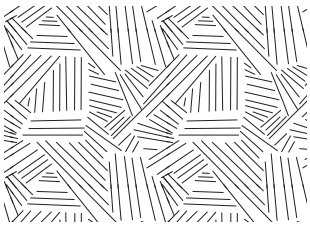
Secondary
Research Question

How can a new hybrid identity, that recognises previously subjugated narratives and identities, be impartially expressed in architecture?



Supplementary Research Questions

- Which building designs came to be represented in the City of Tshwane?
- Where did these concepts originate and to what degree did they impact the city?
- How did these ideas on construction come into being in the City of Tshwane?
- What does identity involve, and how is architecture implicated?
- Which chronicals and identities were disregarded?
- What is architecture's role in recognising and reconciling discounted identities?
- How can architecture demonstrate core characteristics without favouring one identity over another and overlooking the distinctiveness of other groupings?
- How can architecture resist being pressurised by cultural correctness?
- Which Western theories can be employed to establish a new identity for the city?
- How can the expression of identity transcend mere architectural representation?
- Is it possible to illustrate a collective persona in a non-static, adaptive manner?



RESEARCH **METHODOLOGY**

Urban Mapping

In order to comprehensively understand the historical and present layering of the central business district of City of Tshwane and the Nana Sita precinct,a series of mapping exercises will be done that will, in turn, inform a precinct and block framework in which the design will be situated. Mapping includes the historical and existing city fabric, land use and zoning, urban characteristics, geographic conditions, pedestrian and vehicular patterns and infrastructure. A brief paradigm analysis will also be conducted.

Archival and Desktop Research

Historical photographs, literature and articles where collected from the Tshwane Heritage Research Centre to develop an understanding of the city's history.
In conjunction with site visits, desktop studies will be done to understand the existing topographic and environmental conditions. Both existing and historical urban schemes will be studied that will inform the design process.

Precedent Studies

To understand the potential social and environmental impact of the urban framework an urban precedent was consulted. A contextual precedent was studied to gain an understanding of how architecture can respond to similar local conditions. To develop an understanding of ecological systems, relevant literature and a case study were consulted to understand design approaches that embed systems spatially.

Descriptive Interpretation

Evaluative research and an assessment of approaches to architectural identity will be conducted to determine the suitability and limitations of those strategies. Improvements will be considered. A theoretical departure to this dissertation will be developed by reviewing applicable theoretical literature and publications. Identity theory and Landscape Urbanism will be employed through which the development of the urban framework and proposed architectural design.

Applied research

The descriptive interpretation of the research will result in a conceptual design approach to resolve the dissertation intentions in an architectural built form that will be expressed in the technical concept, technical resolution and detail.

Delimitations

Although an urban framework will be proposed across the Nana Sita precinct, the architectural resolution will be delimited to a portion of the block at the corner of Nana Sita and Paul Kruger streets. The proposed design will feature site based characteristics and cannot be universally applied elsewhere. The typology that is sought is dependant on the proposed urban framework and its applicability is specific to that precinct.

Limitations

The design proposes a multiplicity programs that include intergovernmental relationship forums and living systems that are very complex and goes beyond the scope of an architect, As such, to resolve these programs architecturally, expert knowledge is consulted from a variety of disciplines to gain a sufficient, but also limited understanding of such programs. Clarification is required that the author is not an expert in these programs. A reasonable understanding is sought to make informed design decisions so that the focus will be on architectural design and the spatial experience.

LANDSCAPE URBANISM

theoretical lens

03

Landscape is a medium to augment cultural identity

John Tillman Lyle (1994: 25) defines the term "land" as "the rock underlying it, the water, the soil with its countless microorganisms, the plants rooted in it, the animals living on it, the air moving over it and all the dynamic processes occurring within it". Lyle (1994: 25) argues that the term landscape includes the beforementioned elements and extends this view to include the human dimension on and in the landscape together with everything that is needed to support human life. James Corner (1999: 4) views "landscape" as a verb employed to describe a process and agent that both represents and augments cultural identity. An emphasis is placed on the functional capacity of a landscape – moving beyond the mere traditionally decorative nature of "landscaping" and representation – and steers towards what the landscape does in the form of a system that produces a cultural setting (Corner 1999: 4). "Landscape" is, therefore, a medium for constructing a city (Waldheim 2006: 15).

Landscapes of infrastructure and waste

A new spatial and cultural identity is unlocked by remediating latent, dormant and derelict sites (Waldheim 2016: 9). Charles Waldheim (2016: 5) argues that the landscape medium has the capacity to flexibly absorb the frailties of architectural models left in the wake of an economic shift – and one might also include a political shift. Hereby, landscape enters into a "structural relationship to urban industrial economy" to "remediate, redeem and reintegrate" wasted urban transformations, utilising regional ecology ordering as a basis (Waldheim 2016: 8). Landscape urbanism views infrastructural systems – together with its potential for public space – as an urban ordering system, stressing the use of intensely complex and interwoven programmatic compositions (Waldheim 2016: 15). Natural ecology supplants architecture as "the primary element of urban order" and becomes an infrastructural future, thereby stressing exchanges between natural and engineered structures (Koolhaas 1998; Waldheim 2016: 18). The most striking autonomous capacity, by way of ecology as an agent of such urbanism, could potentially be left abandoned, indeterminate, open-ended, and self- regulatory (Waldheim 2016: 36).

Residue landscapes are produced through urban sprawl and leftover land caused by economic, industrial or political shifts (Waldheim. 2006: 199). Alan Berger views the city as an

Such an urbanism, could potentially be left abandoned, indeterminate, open-ended, and self-regulatory (Waldheim 2016: 36).

Charles Waldheim (2016: 5) argues that the landscape medium has the capacity to flexibly absorb the frailties of architectural models left in the wake of an economic shift – and one might also include a political shift.

organism, arguing that, "This is a natural process that can be ignored, maligned, or embraced, but never stopped" (Waldheim 2006: 203). Berger bases this theoretical discourse on the writings of merging economist, Joseph Schumpeter, and Rice University Dean, Lars Lerup, arguing that technology becomes obsolete through the process of progress in the consumption/ waste cycle as a recurrent "process of creative destruction" (Waldheim 2006: 203). Hereby, the city is non-static, rendering it a "transitional manifestation" that provides the challenge of having to integrate waste into the city (Waldheim 2006: 203). Berger defines three types of waste: "waste (such as municipal solid waste, sewage, scrap metal, etc.), wasted places (such as abandoned and/ or contaminated sites), or wasteful places (such as oversized parking lots or duplicated big-box retail venues)" (Waldheim 2006: 203). Berger coins such waste "drosscape", which involves intentionally altering waste through design (Waldheim 2006: 210). The strategy of drosscape also implies a multidisciplinary top-down and bottom-up approach, calling for what Bruno Latour terms "hybrid forums" that merge scientific and political debates (Waldheim 2006: 214).

Infrastructural landscapes represent and disrupt cultural identity

Substructural schemes and visions are as much a cultural representation of identity as governmental buildings. Such systems are a product of both natural local and political circumstances but also disrupt the people they serve (Waldheim 2006:181). Hereby, we should shift our "frame of reference for their design from utility to amenity, from infrastructure to urbanism." (Waldheim 2006: 181). We cannot revert back to a pre-infrastructural era. We should, however, recognise that understructure is crucial to the city and move from monofunctional technical criteria to a multi-layered function that incorporates social, aesthetic and ecological aspects (Waldheim 2006: 171). Kelly Shannon argues that introducing environmental layers into urban strategies provides opportunities for innovative interconnected and interdependent relationships (Waldheim 2006: 147). Urban ecosystems further introduce fauna and flora into the city to make new "hybrid ecological systems", which are not only concerned with the aesthetics of the landscape but become a functional integration that amalgamates socio-political factors with ecological factors in the process (Waldheim 2006: 170). This practice calls for hybridity between man-made infrastructure and natural systems to evoke a new cultural identity (Waldheim 2006: 184).

DISSERTATION **INTENTIONS**

The intention of this dissertation is to question the current approach of establishing a new identity for the city of Tshwane through a Pan-African lens that merely represents a particular identity. Hybrid ecological landscapes – as a medium and process to reconstruct the city – will be used to modify infrastructural and waste landscapes to construct a new cultural character. These landscapes can be left indeterminate, open-ended and self-regulatory so as to limit or even transcend architectural obsolescence.

This proposal recommends an alternative approach to representing identity through architectural landscapes by means of suggesting an adaptive, complex and process driven program as the solution. The method aims for impartiality, inclusivity, flexibility, and adaptability to prevent the subjugation of slighted traditional characteristics by excluding a distinct group's uniqueness or by becoming irrelevant when the current dispensation is replaced. The proposal essentially implies a new typology to represent an all-embracing identity architecturally.

It will become evident in the following chapters that The Nana Sita Freeway is a wasteful monofunctional infrastructural landscape. The intention of this dissertation is to reconstruct the Nana Sita freeway into a Greenway in order to join the City of Tshwane together in an effort to remedy the partial application of the 1967 Ring Road Scheme.

Fig. 17 **Left:** The High Line, reconstucting derelict infrastructure (Diller Scofidio & Renfro, 2019)

Embedding living systems into the lives of people

theoretical precedent

Title **The Lyle Centre for Regenerative Studies**

Designers **John T. Lyle with Cal Poly Pomona**

Locality **Cal Poly Pomona**

Date **1994**

The Lyle Centre for Regenerative Studies is an excellent example of living ecological systems being embedded in the lives of people (Lyle 1994: 15). John Tillman Lyle (1994: 15) argues that when architecture and the landscape adapt to diverse environmental conditions, the fundamental relationships between humans and nature are expressed spatially. Development is a necessary action to provide habitat and sustenance for society but this process also disrupts natural systems (Lyle 1994: 19). When we view communities as part of nature and allow natural systems to adapt because of their resilient capacity, new ecosystems are born (Lyle 1994: 20). Lyle (1994: 26) outlines **six phases of ecosystem functioning** that grounds the regenerative capacity of a landscape:

Conversion The conversion process is concerned with how nature transforms inputs to outputs to support life on earth.

Distribution A number of distribution methods, that deliver energy and materials to ecological community members, are embedded in nature.

Filtration Living and non-living processes restore the purity of water and air by removing and dissolving materials in order to maintain further processes.

Assimilation Natural systems do not produce unused waste since the output is returned to the cycle and becomes vital input used for the ongoing process.

Storage Materials remain inactive during varying periods, awaiting eventual utilization.

Human Thought Natural procedures and human thought processes are joined in an effort to mitigate the far-reaching impact humans have on the environment. This principle considers that there are virtually no independent landscapes unstained by human activity, and that "humanity has no choice but to provide the mind within nature". Regenerative development is dependent on a complex understanding of natural and human systems.

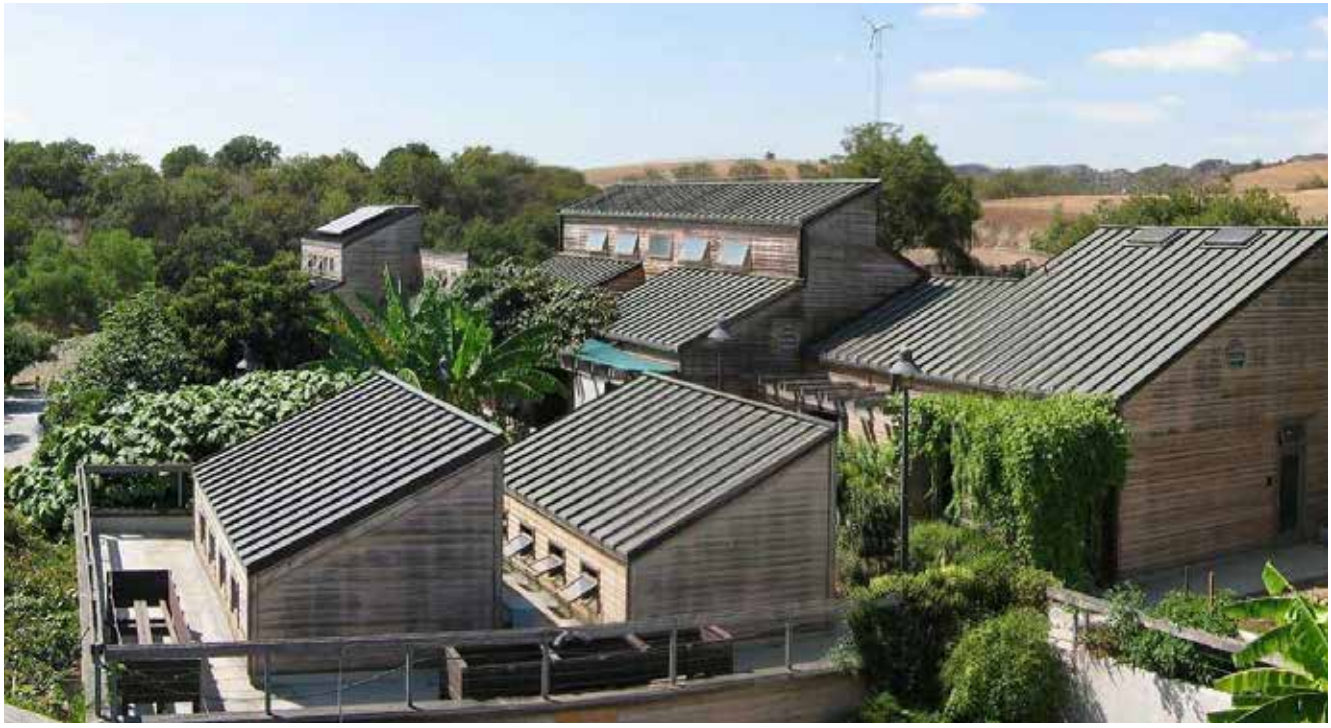


Fig. 18 **Top:** Perspective view of the Lyle Centre for Regenerative Studies (Cal Poly Pomona, 2019)

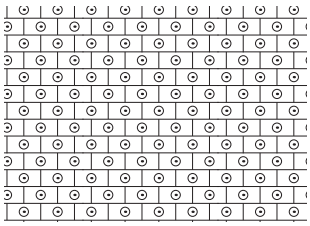
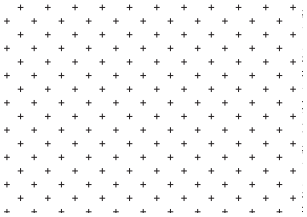
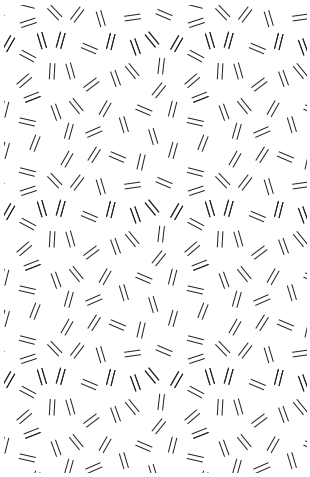
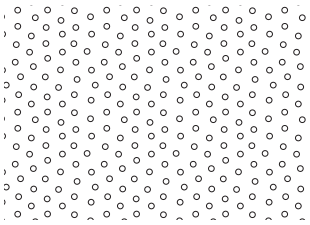
Lyle (1994: 23) categorizes his ecosystemic understanding into three order modes, namely the structural-, functional- and locational orders, which steered the Lyle Centre for Regenerative Studies from the outset:

Structural order is defined as "the composition of living and nonliving elements" as they interact with one another (Lyle 1994: 23). The intensive development of the site incorporates a wide range of biological and cultural programs that are entrenched in the unique cropping systems that follow the typography of the site and allow for bio diverse systems that are specific to each level.

Functional order is defined as "the flow of energy and materials that distribute the necessities of life to all of the species within an ecosystemic structure" (Lyle 1994: 23). Complexity and the cohesion between processes are achieved through the interconnecting energy and flows of material as regulated by human interaction.

Locational patterns take into account that ecosystems are location-specific and directly impact species diversity and population density, which is enabled through particular local conditions (Lyle 1994: 24). Careful positioning of a wide range of agricultural settings takes into account the complex topographic conditions determined by the site.

The application of these principles is grounded in a deep cyclical understanding of the systems that have worked towards a productive landscape that has inserted a human ecosystem (Lyle 1994: 31).

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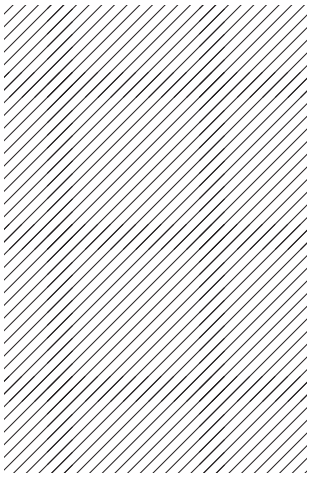
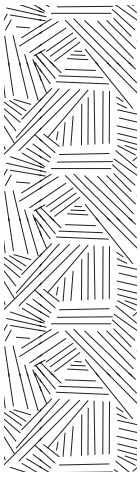
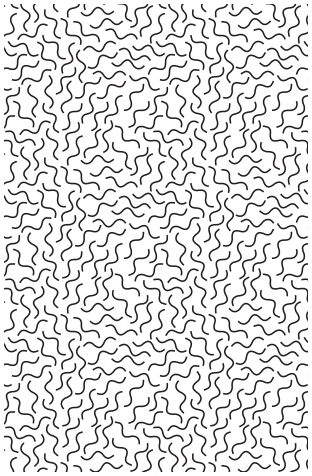
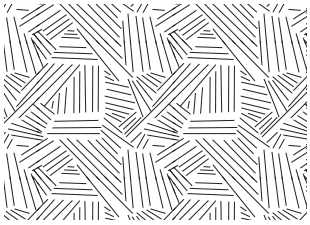
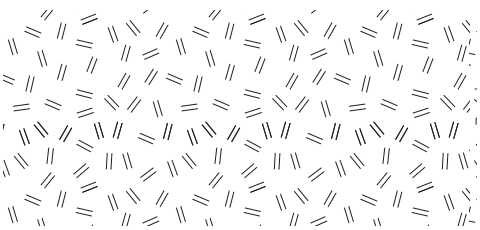
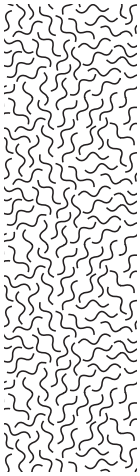
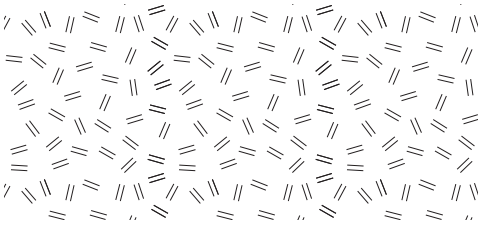
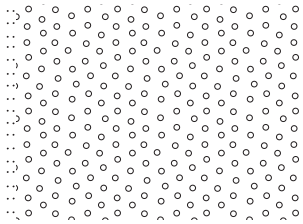



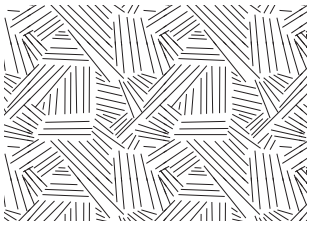
The Historical,
Present & Future
Context

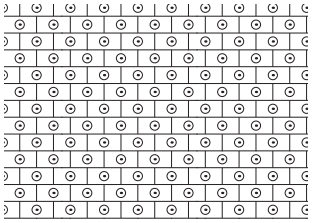





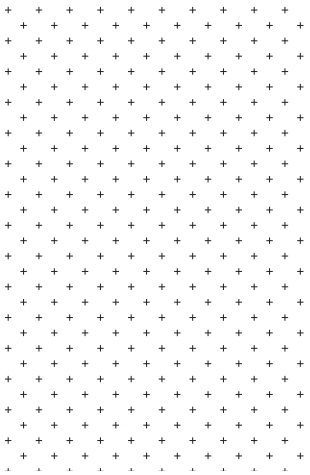




CHAPTER two



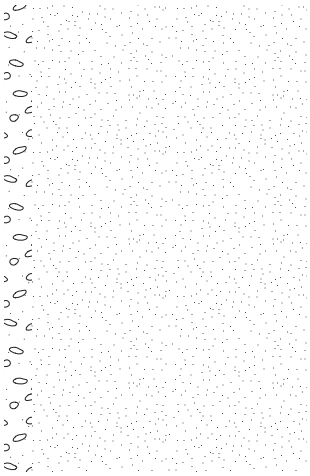


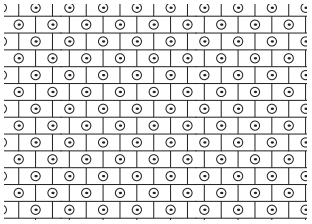


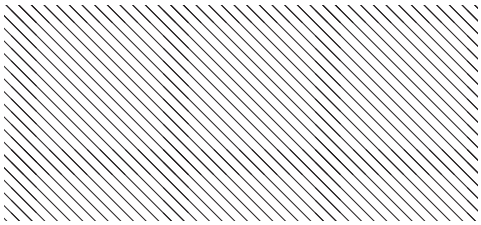
Introduction
Landscape Urbanism theory has shown that infrastructure has a marked socio-political and environmental impact that contribute or detract from the urban condition.

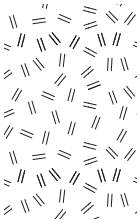
Informed by this notion, this chapter has been conducted to start with a brief discussion on the Ring Road Scheme of 1967 to develop an understanding of the original intentions that were outlined by the strategy. This is followed by a comparative analysis of the partial application of the Skinner street freeway in 1992. It will be shown that it was an ill-considered development that dismantled the central business district's fabric. By reconstructing the freeway through the proposed urban framework some of the ill-considered historic utopian ideals can be reconciled. The installation of the Skinner street freeway (now renamed Nana Sita street) had major socio-political implications then and now and by remediating this condition, infrastructure can contribute towards a better city vision.

The historic survey of the scheme is followed by an urban mapping component done through the Landscape Urbanism lens. Specific attention was given to identify waste and infrastructural landscapes. As such, urban mapping was done from a CBD scale to a precinct scale to a city block scale. As a response to the mapping taking into account the theoretical lenses, an urban framework was developed in conjunction with Vermeulen in which the design will be situated.









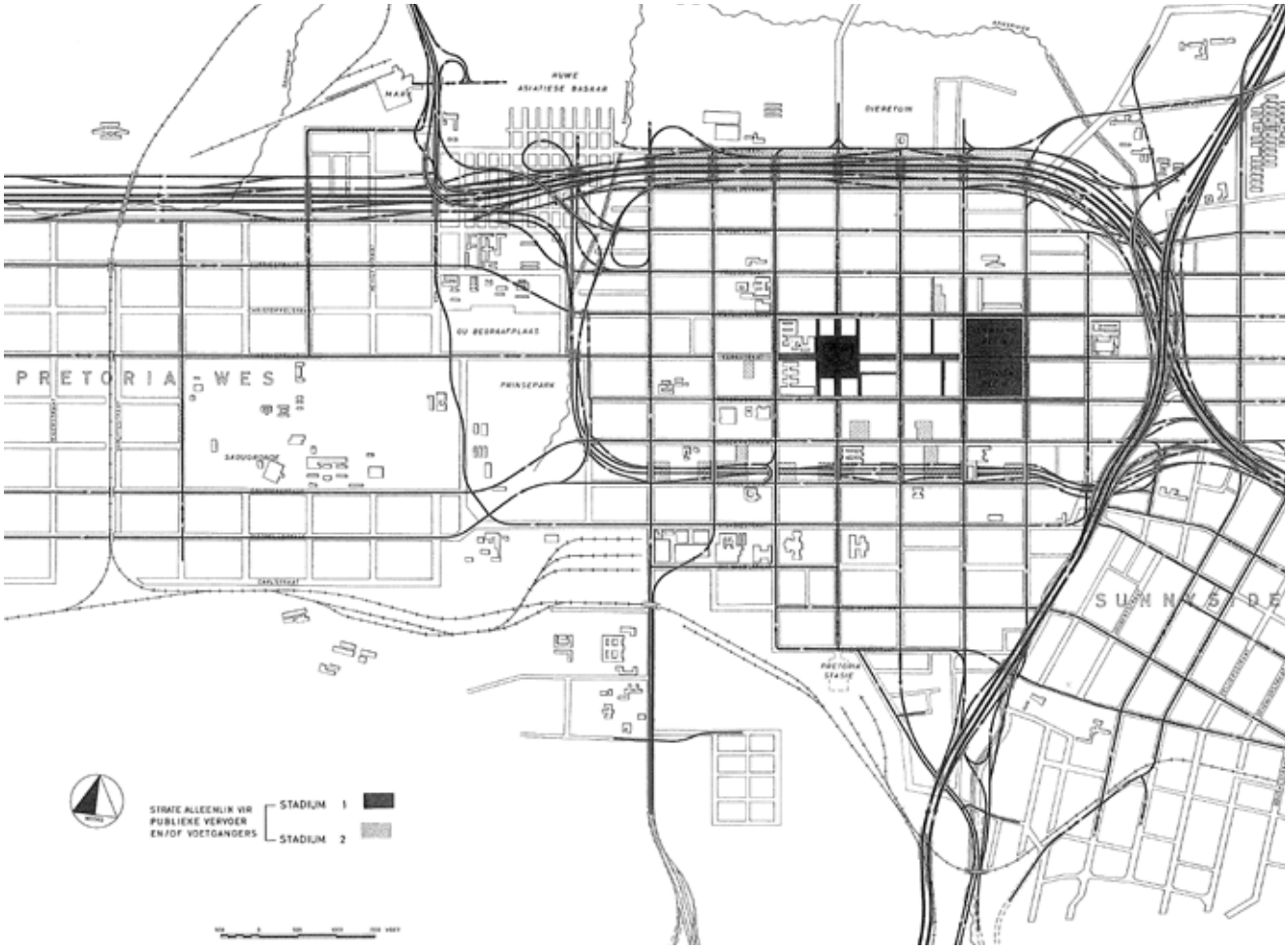
THE 1967 RING ROAD SCHEME

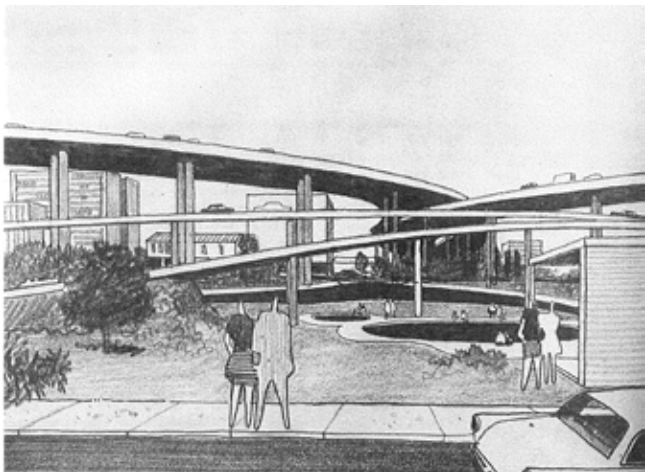
Outline: The Scheme's Original Intentions
In 1965, the Department of Transport, the Transvaal Provincial Administration and The Pretoria City Council sought approval from the Telford Commission to commence with a ring road scheme (Tshwane Heritage Research Centre 2019: 3). The planning of the Pretoria Ring Road Scheme commenced in 1967 and formed part of the 1960 Traffic Plan (Tshwane Heritage Research Centre 2019: 1). The system was seen as part of the larger regional and national transportation network (Tshwane Heritage Research Centre 2019: 3) and comprises four freeway routes that both encircle and cut the city in half.

The north-south roads are known as the Daspoort and Hospital routes while the east-west roads are known as the Skinner Street and Blood Street routes (Tshwane Heritage Research Centre 2019: 1). The primary function of the freeways was traffic movement, and it did not take adjacent properties and parking facilities into account (Tshwane Heritage Research Centre 2019: 3). The Skinner Street thoroughfare divides the city in two. The scheme acknowledges the impact of road infrastructure as a key component of the modern city that enables convenience, economic growth and cultural potential (Tshwane Heritage Research Centre 2019: 1). The scheme was intended to support the growth of the metropolitan area by providing optimal access to the city core through diverting thoroughfare traffic to the Ring Road (Tshwane Heritage Research Centre 2019: 1). Parking facilities were concentrated adjacent to and under elevated traffic distribution roads to absorb as much traffic from the CBD as possible and make the city landscape attractive (Tshwane Heritage Research Centre 2019: 2). Public transportation includes various bus services, including a bus rapid transit system that conveys commuters in the CBD, further lightening the traffic load (Tshwane Heritage Research Centre 2019: 35).

The aim was to render the CBD car-free (Tshwane Heritage Research Centre 2019: 2). The focus was placed on the incorporation of green areas to make the cityscape aesthetically pleasing (Tshwane Heritage Research Centre 2019: 3). Infrastructure's relationship with and potential use of green space are interdependent, with roads forming the connective tissue between urban and suburban green zones (Tshwane Heritage Research Centre 2019: 38).

Open roadside spaces may potentially be turned into parkland to become a crucial part of the city's visual organisation (Tshwane Heritage Research Centre 2019: 38). Green areas that have been identified include Fountains Valley, Pretoria Zoo, Daspoort





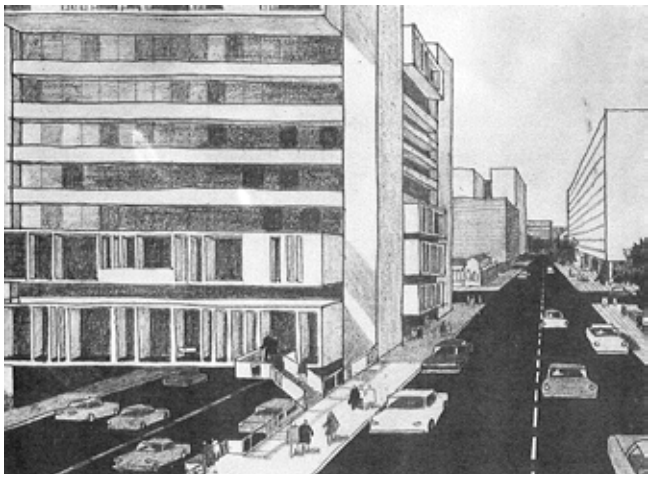


Fig. 19 **Top:** Diagram indicating intended traffic free roads (Tshwane Heritage Research Centre, 2019)

Fig. 20 **Middle Left:** Conceptual drawing of landscape features below road infrastructure (Tshwane Heritage Research Centre, 2019)

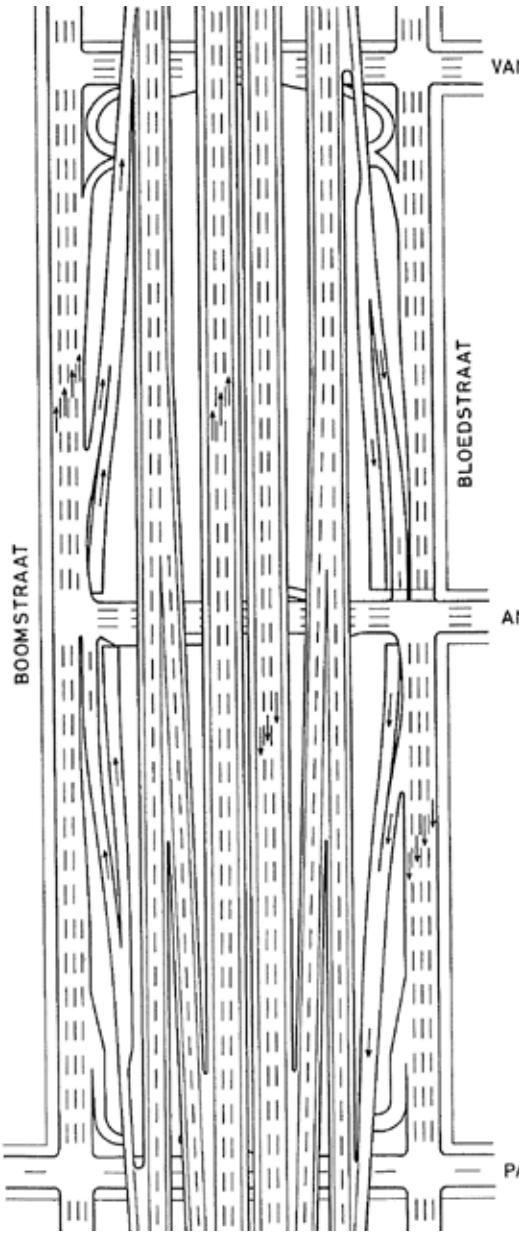
Fig. 21 **Middle Right:** Conceptual drawing of below grade roads under buildings (Tshwane Heritage Research Centre, 2019)

Fig. 22 **Bottom Left:** Typical interchange system (Tshwane Heritage Research Centre, 2019)

Valley, Wonderboompoort, Walkerspruit, the Caledonian Sports Grounds, the Apies River, and Steenhovenspruit (Tshwane Heritage Research Centre 2019: 38). It is argued that these green spaces are to be consolidated as one verdant zone for recreational use (Tshwane Heritage Research Centre 2019: 38).

Primarily, the social impact of roads should be considered, and traffic routes should not impose on the existing character of an urban location or community (Tshwane Heritage Research Centre 2019: 4). The scheme should be pliant and able to adapt to changes in traffic conditions (Tshwane Heritage Research Centre 2019: 4). American roadway criteria, including "A Policy on Arterial Highways in Urban Areas", "A Policy on Geometric Design of Rural Highways 1965" and the "Highway Capacity Manual 1965", were consulted to guide geometric standards (Tshwane Heritage Research Centre 2019: 8).

The Tshwane Heritage Research Centre (2019: 37) states that a city's principal function is livability and inhabitants' work and leisure, followed by vehicular movement since traffic flow cannot be allowed to compromise the other fundamental concerns. Roads aid in social functioning and should facilitate it as directly and quickly as possible (Tshwane Heritage Research Centre 2019: 38).



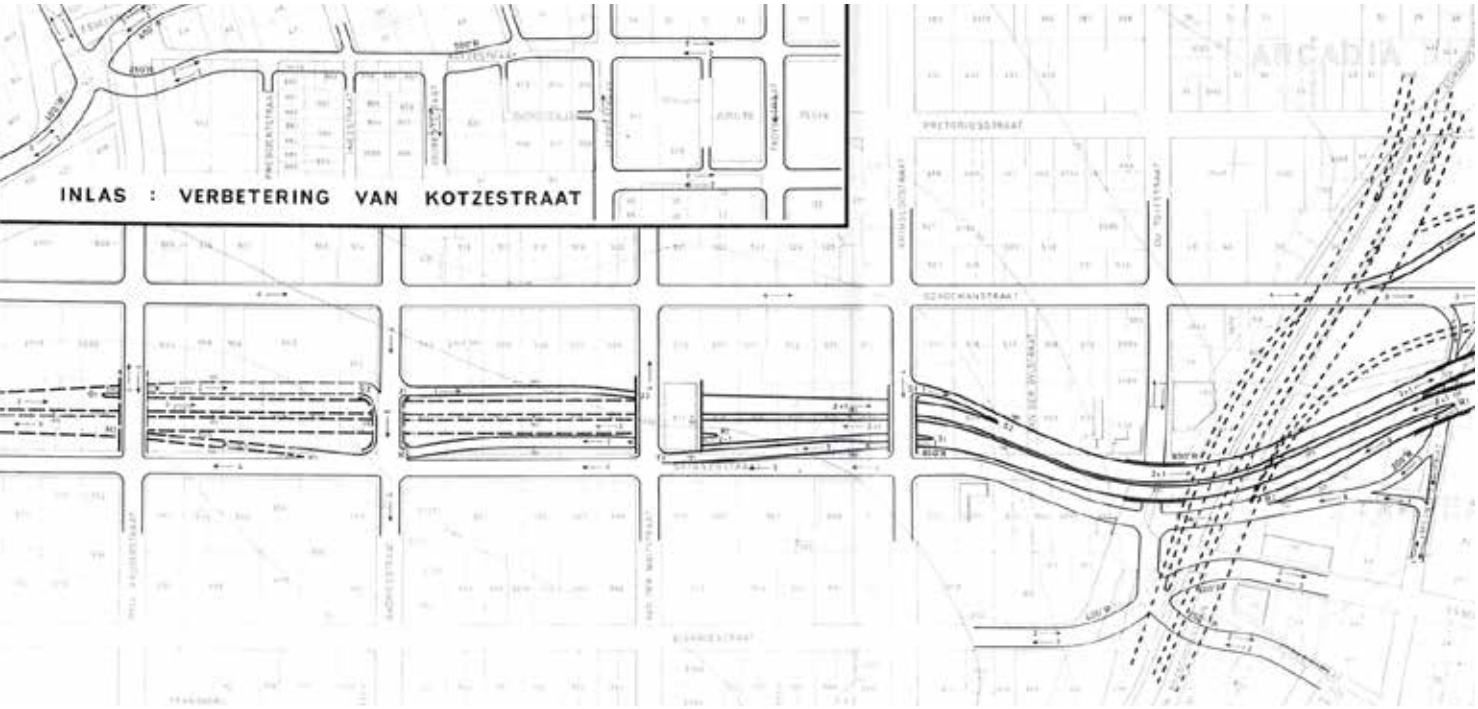


Fig. 23 **Top:** Intended interchange system for Skinner street (Tshwane Heritage Research Centre, 2019)

Fig. 24 **Bottom Left:** Intended below grade road system for Bloed street (Tshwane Heritage Research Centre, 2019)

Fig. 25 **Bottom Right:** Intended below grade green space (Tshwane Heritage Research Centre, 2019)

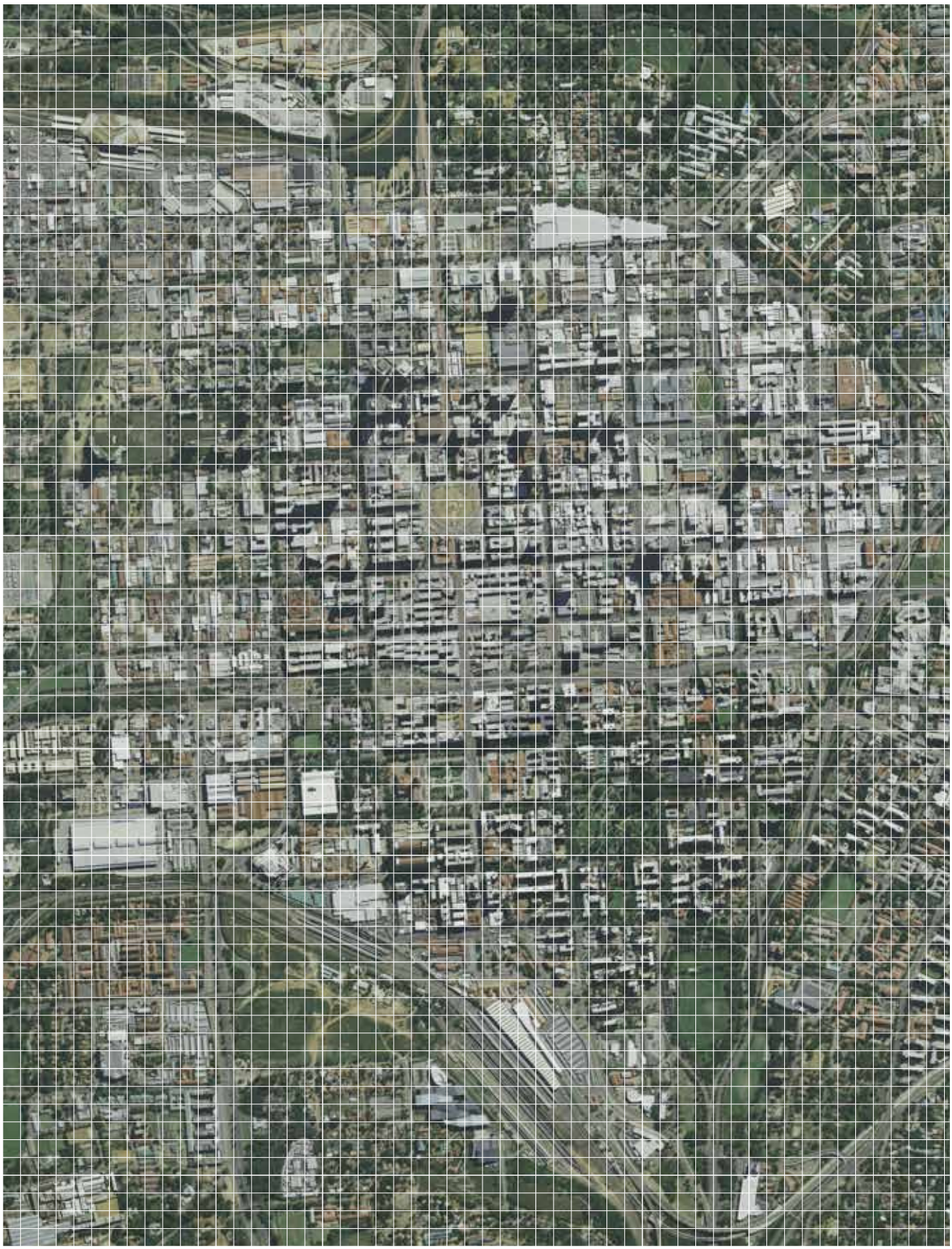


Fig. 26 **Left:** Aerial map of Tshwane CBD (Author, 2019)

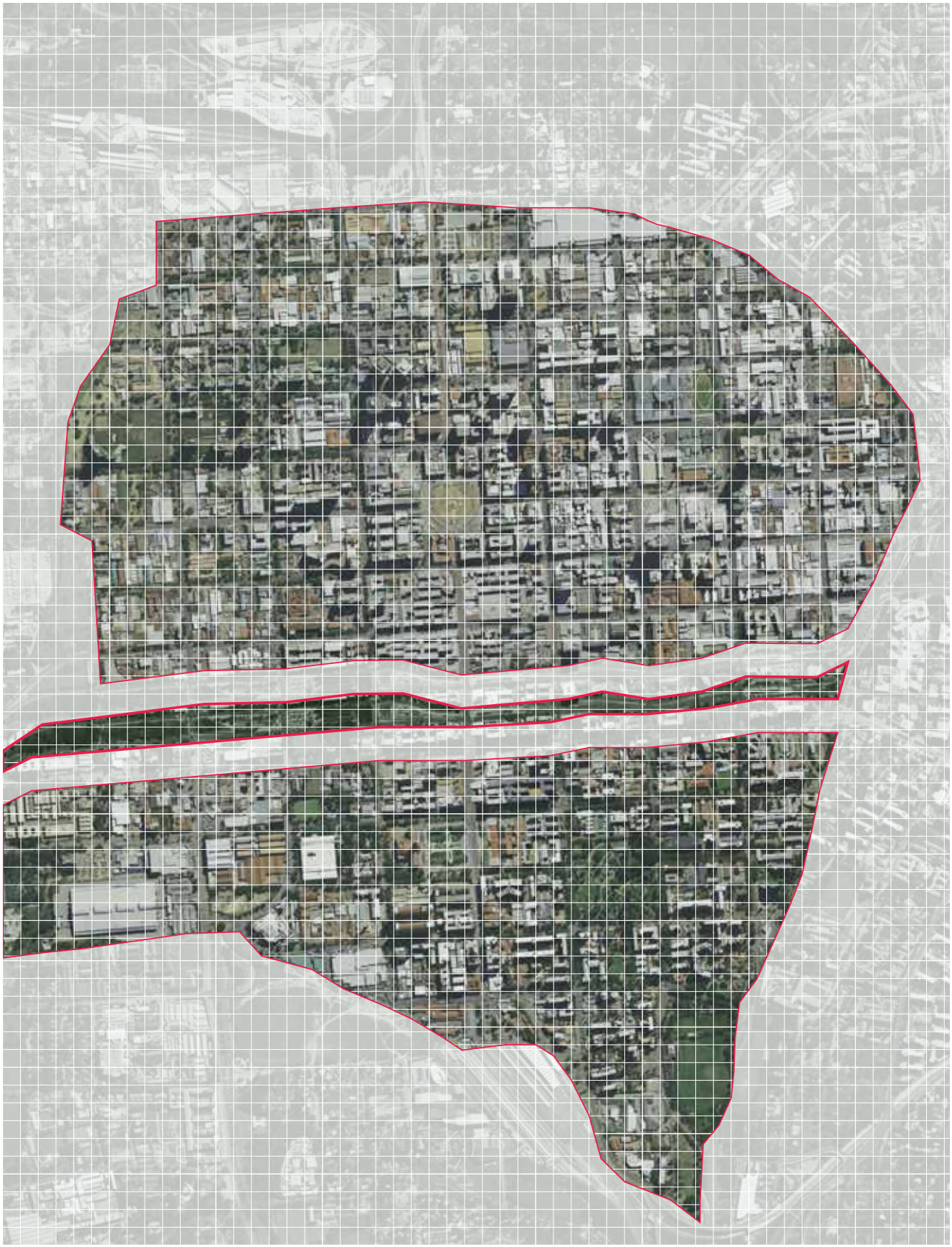


Fig. 27 **Left:** Nana Sita freeway cutting the CBD into two portions (Author, 2019)

Infrastructure as a social regenerator

urban precedent

Title	**The High Line**
Designers	**James Corner Field Operations and Piet Oudolf with Diller Scofidio + Renfro**
Locality	**New York**
Date	**2009**

The High Line in New York is a raised hybrid public park and greenway – where sightseers can view art, design and nature – that runs above the thoroughfares on the west side of Manhattan. The High Line was erected on an old cargo railway line, is as long as the Nana Sita Freeway, spans 2,4 km, and connects three neighbourhoods; the meatpacking district, West Chelsea and Clinton. The project inspired the reclamation of abandoned infrastructural post-industrial ruins across the globe and employs landscape architecture as a method to remediate the site (Cilento 2009). Hard paved surfaces mesh into soft vegetated biotopes, incorporating "the wild, the cultivated, the intimate, and the social", and allow a broad variety of ways in which to interact with and use spaces (Scofidio + Renfro 2009). The scheme respects the existing biodiversity while introducing new site-specific microclimates (Scofidio + Renfro 2009). Derelict rail tracks and engineered structures merge into the new landscaped fabric making the development a suitable formal precedent for urban renewal as regards the social development purposes of this dissertation.

Site History

1934	The original elevated railway was completed
1980	Abandonment of the railway due to interstate trucking
1990	The High Line was considered a blight on the neighbourhood and the southern portion was demolished, and the rest was under threat of demolition
1999	Two New Yorkers founded the nonprofit Friends of the High Line in order to save the historic structure
2003	The High Line Competition launched
2009	Phase I complete
2011	Phase II complete
2014	Phase III complete
2019	Phase IV complete

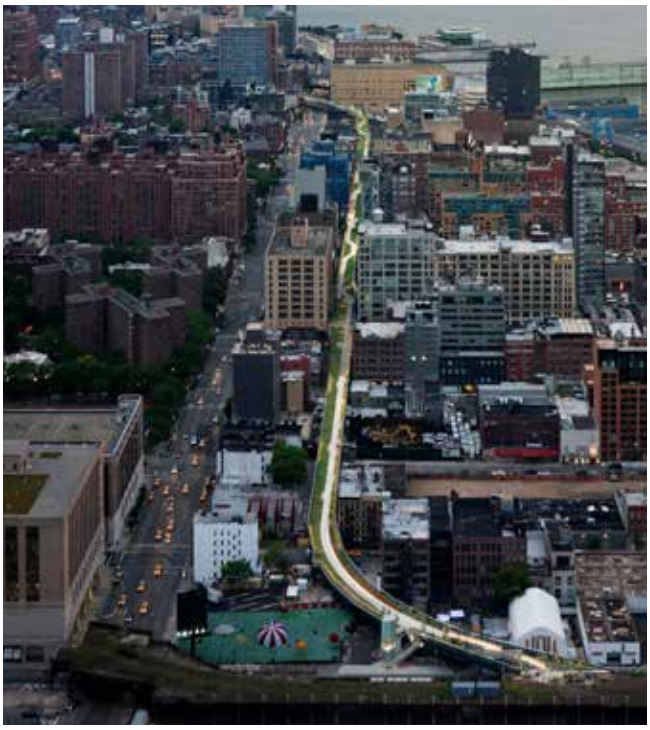


Fig. 28 **Bottom Left:** Aerial perspective view of the High Line (Diller Scofidio & Renfro, 2019)

Fig. 29 **Top Left:** Eye level perspective view of the High Line (Diller Scofidio & Renfro, 2019)

Fig. 30 **Top Right:** Aerial view of the High Line (Diller Scofidio & Renfro, 2019)

Fig. 31 **Top Middle**: Aerial plan view of the High Line(Diller Scofidio & Renfro, 2019)

Social

7.6 million visitors in 2015 (37% local)
Hosts 26 000 people annually through events
Educates 12,000 children annually
Promotes health and well-being

Economic

Roughly $65 million tax revenue generated annually.
Catalyzed over $2 billion in new development

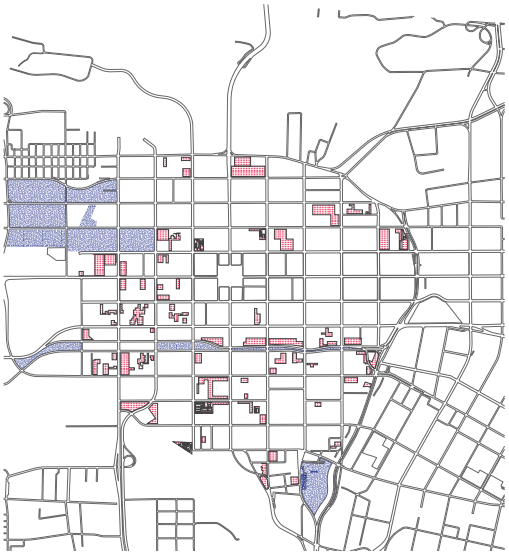
Environmental

Sequesters 1.3 tons of carbon and intercepts 92136 litres of stormwater annually.
A species richness index of 47 reached.
68,8099 cubic tons of compost generated.
Native species are used to attract pollinator species.
14164 m^2 of cultivated gardens added.

MAPPING: **TSHWANE CBD**

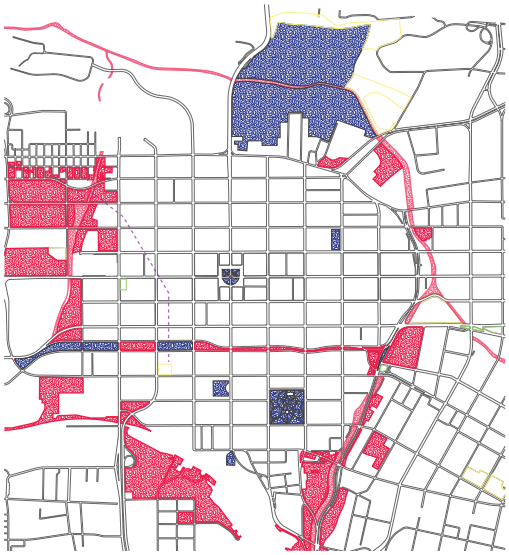
01 Wasted & wasteful place

There are many derelict, open and green spaces along the Apies River and Steenhovenspruit. Parking areas and neglected lots fragment city blocks significantly, both on the ground level and with regard to façades and edges.



02 Wasted green space

There are very few maintained green spaces for public use and those along the rivers are in poor condition. Large unsightly expanses can be seen south of Marabastad.

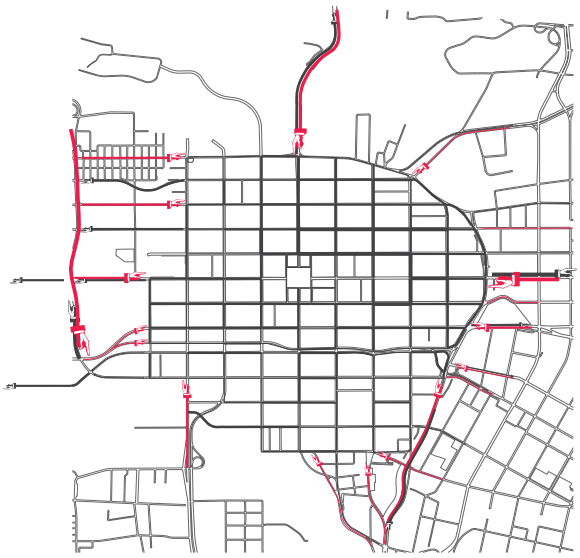


03 Railways & train stations

Railways form hard boundaries to the north and south of the city and the CBD has pronounced infrastructural railway sites that have left notable scars on the landscape.

04 Traffic

Paul Kruger Street forms an arterial route along the north-south axis while WF Nkomo and Stanza Bobape Streets form the east-west arterial route.



05 Stormwater infrastructure

The slopes to the rivers determine the direction of the storm water channels, which descend to either side from the central north-south axis. Rivers and mountain ranges shape the city's natural boundaries.

Fig. 32 **01** Mapping of wasted and wasteful place (Author, 2019)

Fig. 33 **02** Mapping of wasted green space (Author, 2019)

Fig. 34 **03** Mapping of railways and train stations (Author, 2019)

Fig. 35 **04** Mapping of traffic (Author, 2019)

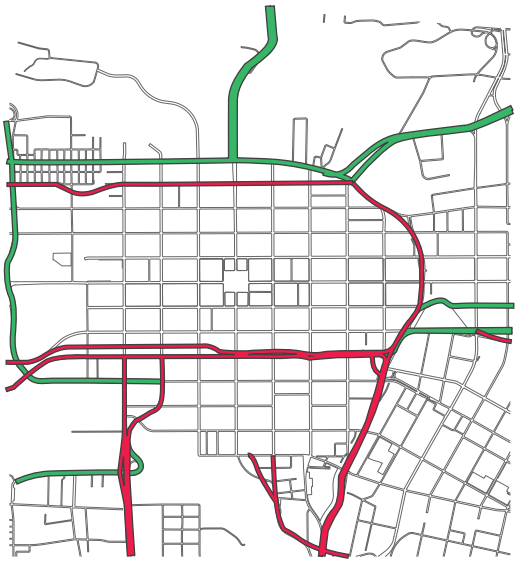
Fig. 36 **05** Mapping of stormwater infrastructure (Author, 2019)

Historical Schemes

The partial application of both the Goedehoop Urban Renewal Scheme and the Ringroad Scheme has left immense scars in and around the city. The derelict Schubart Park and Kruger Park buildings deface the urban setting. Vehicular traffic was accommodated at the expense of pedestrian movement whereas Nana Sita Street cuts the city in half.

06 Ring Road scheme intentions

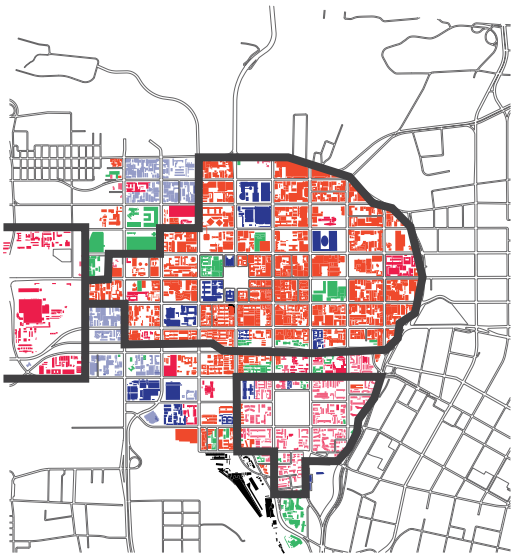
07 Partial application comparison



08 The Goedehoop urban renewal scheme

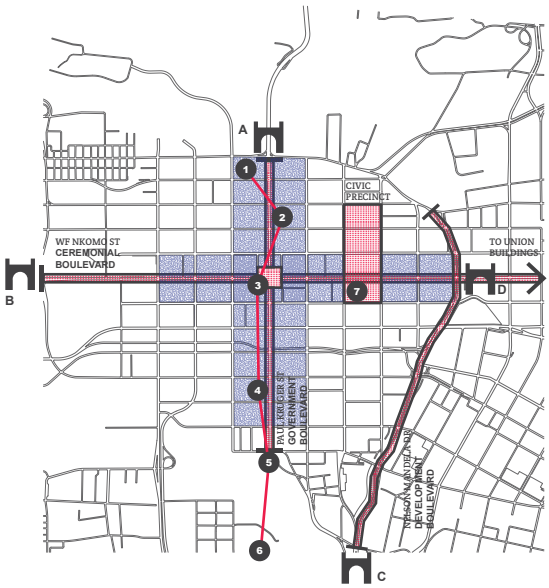
09 Zoning

The city is mainly divided into functional districts. Government departments are scattered throughout the capital and the majority of industrial sites are situated to the west.



10 The Tshwane 2055 Vision

This urban framework envisages a ceremonial boulevard on the east-west axis and a government boulevard on the north-south axis. Each of the entry points is to be marked by prominent gateway buildings and parks.
Symbolic squares will be situated along the government boulevard and the Nelson Mandela corridor will function as a prime investment zone.



11 Geological Conditions

The city is surrounded by geological features. Boundaries are formed by mountain ranges to the north and south and the Apies River and Steenhovenspruit to the east and west. Contour lines slant to both sides from the central north-south axis towards the water bodies that form the metropolitan borders to the east and west.

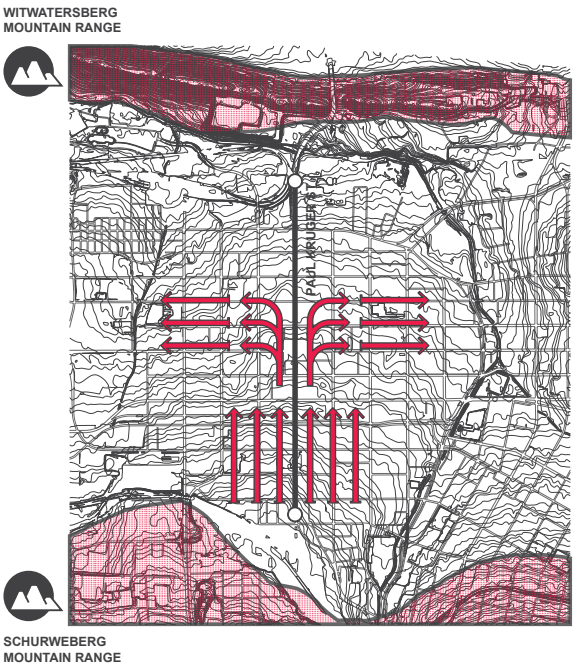


Fig. 37 **06** Mapping of Ring Road scheme intentions (de Klerk, 2018 edited by Author)

Fig. 38 **07** Mapping of partial application comparison (Author, 2019)

Fig. 39 **08** Mapping of the Goedehoop urban renewal scheme (Author, 2019)

Fig. 40 **09** Mapping of zoning (Author, 2019)

Fig. 41 **10** Mapping of the Tshwane 2055 Vision (Author, 2019)

Fig. 42 **11** Mapping of geological conditions (Author, 2019)

Nana Sita street

Church street

Market street

Pretorius street

Fig. 43 **01** Perspective view along Skinner street in 1890 (Bussinesstech, 1890)

Fig. 44 **02** Perspective view along Church street in 1902 (Heritage Portal, 1902)

Fig. 45 **03** Perspective view along Market street in 1900's (Heritage Portal, 1900)

Fig. 46 **04** Perspective view along Pretorius street in 1900's (Heritage Portal, 1900)

Nana Sita street
formerly known as
Skinner street

WF Nkomo street
formerly known as
Church street

Paul Kruger street
formerly known as
Market street

Pretorius street

Fig. 47 **01** Perspective view along Nana Sita street (Google Earth, 2019 adapted by Author)

Fig. 48 **02** Perspective view along WF Nkomo street (Google Earth, 2019 adapted by Author)

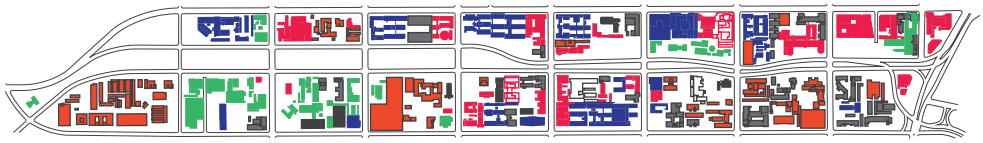
Fig. 49 **03** Perspective view along Paul Kruger street (Google Earth, 2019 adapted by Author)

Fig. 50 **04** Perspective view along Pretorius street (Google Earth, 2019 adapted by Author)

MAPPING: **NANA SITA FREEWAY**

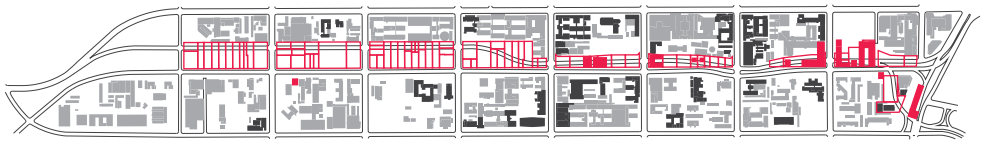
01 Building Use

Building uses indicate high concentrations of:
Government departments
Educational facilities (schools and institutions of higher learning)
Vehicular industrial services
Residential accommodation



02 Heritage and Scarred Lots

Many valuable buildings were destroyed when the freeway was constructed but the Staatsmodel School was saved by steering the road around it. Lots have been damaged because of the Skinner Street Freeway. Six original lots make up one city block but these have been consolidated and subdivided over time, altering the original city structure.



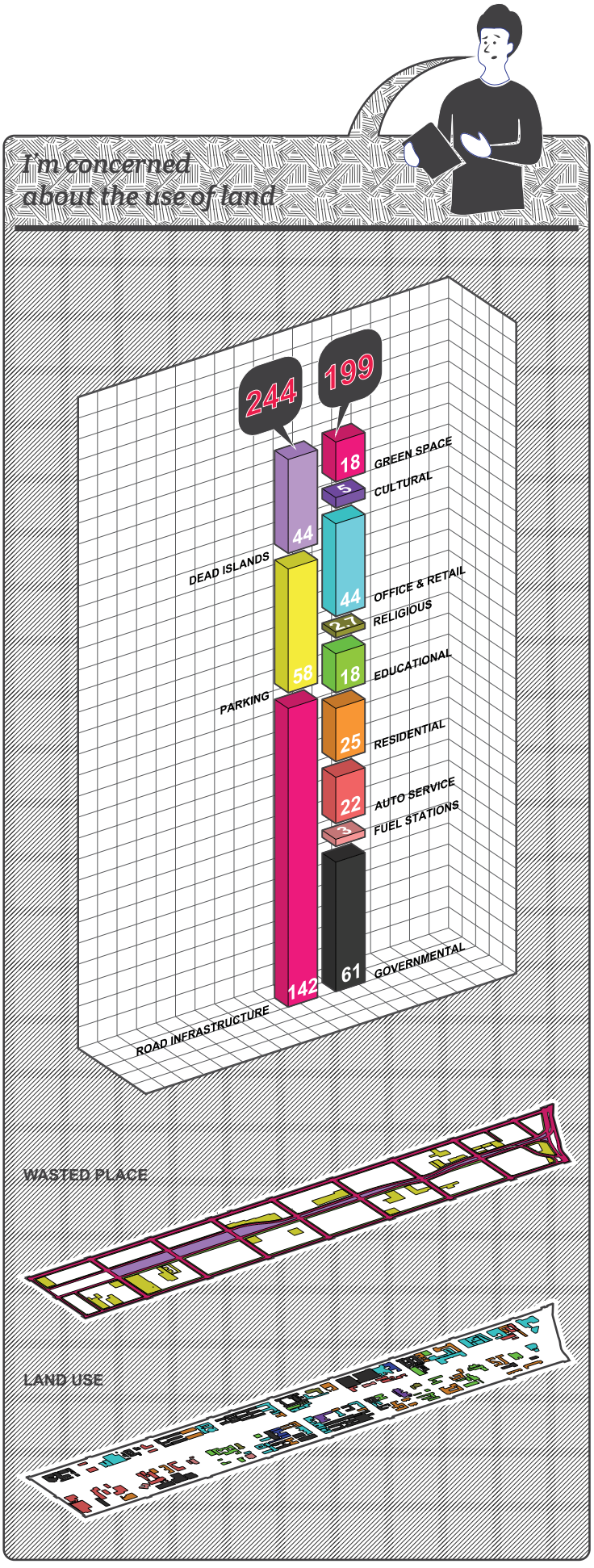


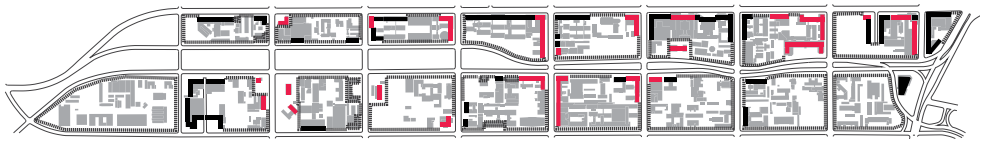
Fig. 51 **01** Precinct mapping of building use (Author & Vermeulen, 2019)

Fig. 52 **02** Precinct mapping of heritage and scarred lots (Author & Vermeulen, 2019)

Fig. 53 **Middle Left:** Land use comparison (Author, 2019)

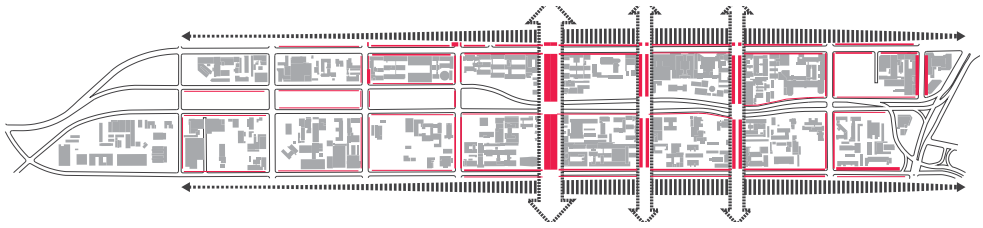
03 Building Edges

The precinct contains a high concentration of inactive edges across all usages, resulting in poor pedestrian movement. The very few active edges correlate with good pedestrian activity and important traffic routes, as is evident along Paul Kruger Street.



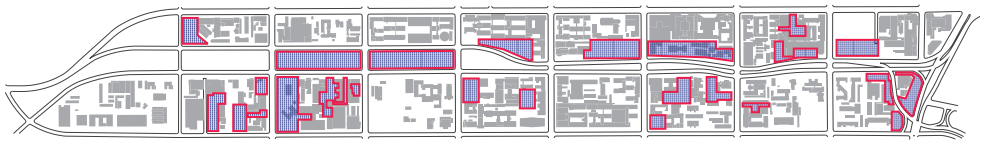
04 Pedestrian Movement

Pedestrian traffic density decrease from Paul Kruger street to either side. These routes are also prominant vehicular routes.



05 Wasted & Green Space

Most green spaces are in poor condition owing to a lack of maintenance. Maintained green locations cannot be accessed by the public because of high-speed traffic. Islands are formed by leftover blocks situated in-between the two roads, some of which are used as car parks. Parking lots are a major contributor to poor edge conditions, block fragmentation and non-continuos façade articulation.



06 Bus routes

Tshwane Rapid Transit (TRT) stops are isolated and barely used by the public. Effectively, these stops are monofunctional islands. Bus and taxi lanes are concentrated in the western part of the precinct, between Paul Kruger and Nelson Mandela Streets, and the turning circle adjacent to Paul Kruger Street is a key transportation point.

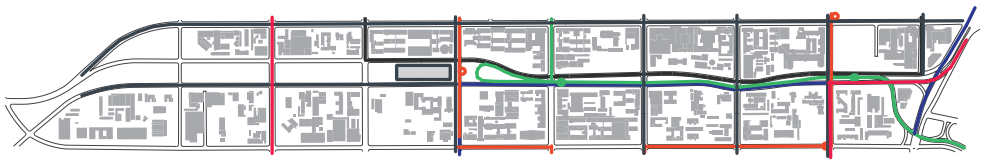


Fig. 54 **03** Precinct mapping of building edge conditions (Author & Vermeulen, 2019)

Fig. 55 **04** Precinct mapping of pedetrian movement (Author & Vermeulen, 2019)

Fig. 56 **05** Precinct mapping of wasted and green space (Author & Vermeulen, 2019)

Fig. 57 **06** Precinct mapping of bus routes (Author & Vermeulen, 2019)

AFRICAN URBANISM
A REVIEW

African cities, a short introduction

The distinguishing factors that define a settlement as urban are common to all cities and have been so throughout history. Two prerequisites are required regarding good urban form and a sense of community; permanence and compactness (Steyn 2007; 50). Shared common characteristics are shared among all urban forms and are universally relevant (Steyn 2007; 51). Many of the principles proposed by Steyn are nonspecific vis-à-vis purely African urban forms and Western urban theory is applied where needed. Eurocentric concepts of the African city make it difficult to identify a truly African settlement typology because of the complex layering of history and the lack of analysis concerning African urbanism. History is "overlaid and overlapping", rendering most examples of hybrid forms (Steyn 2007; 50). Rapid urbanisation threatens the study of African cities (Steyn 2007; 62).

Johannesburg is a prime example of the nineteenth century "scramble for Africa", which was characterised by European domination and involved the exploitation of land and natives in support of the European objective (Steyn 2007: 54). The precedent study by Gerald Steyn (2007: 62), indicates that there is "no such thing as a Pan-African city". All the cities studied display a definite order, even though they contain circular and radial patterning (Steyn 2007; 54).

Vertical layering, which provides free access between houses by means of galleries and alleys, is an interesting phenomenon in Lamu, for instance (Steyn 2007: 56). This ordering system allows for both cultural and economic integration (Steyn 2007: 56). Both Timbuktu and Lamu present with distorted grid formations (Steyn 2007: 59). African city forms range between 'organic clusters, rows, enclosures, grids and circles" that are very similar to Western examples (Steyn 2007: 61). Social, economic, environmental, and historical events are universal aspects that influence layering in placemaking (Steyn 2007: 61).

In African cities, a sense of identity is formed by the marketplace and the way in which street vending takes place (Bakker 2009: 43). These vibrant, composite spaces bring all social classes, from vendors to the urban elite, together (Bakker 2009: 43). The proposed urban vision incorporates African principles of city-making. The core principles are derived from Gerald Steyn's precedent studies in Africa.

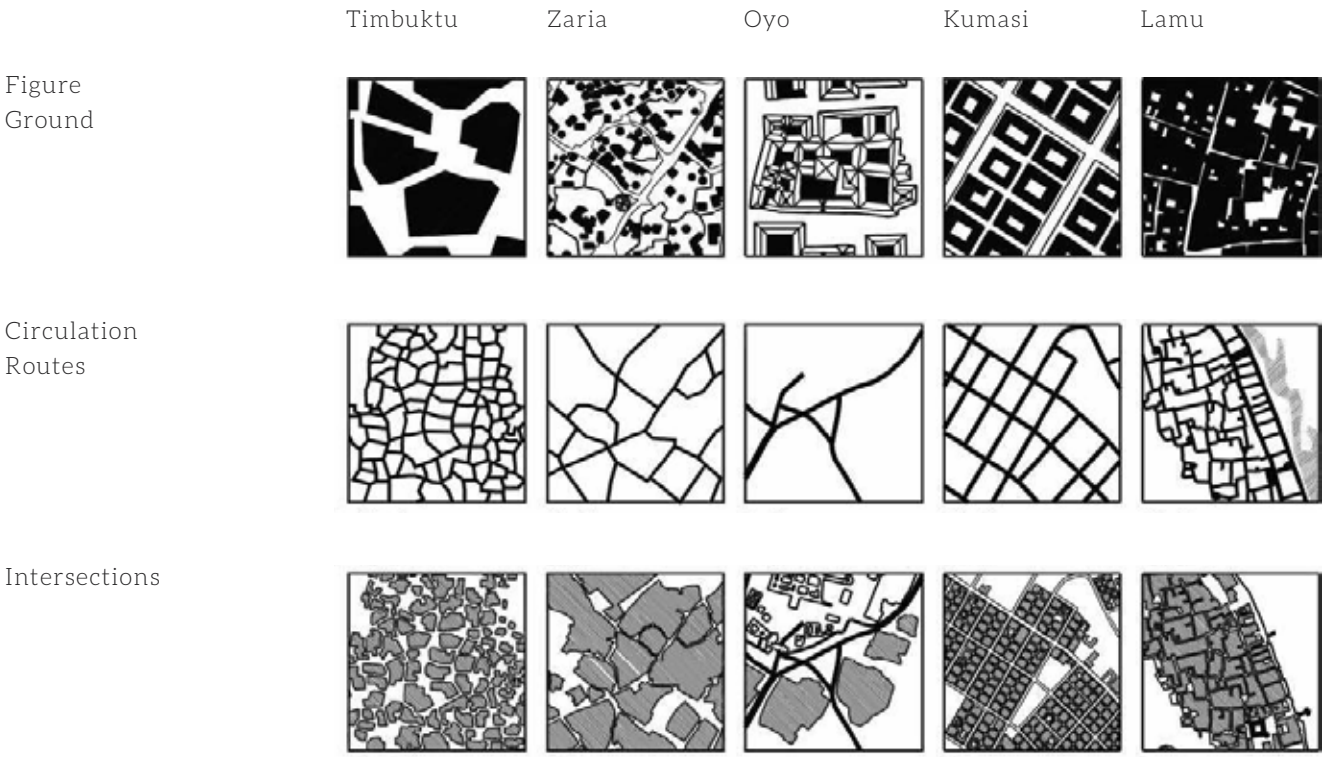


Fig. 58 **Top** Comparison of African city fabric (Steyn, 2007 adapted by Author, 2019)

The universality of placemaking

Placemaking demonstrates a universal nature in relation to open public spaces and Kevin Lynch's urban design elements such as nodes and axes.

Site and circumstance

African cities all tend to be based on the available site and circumstance, meaning that regional materials are used and local topography is taken into consideration.

Market place

The marketplace is an important element in African design. Streets and squares – where commercial activities take place – are generally situated in the city core.

Compactness

African settlements are compact and horizontally dense, resulting in close-knit communities.

Village urbanism

African towns display urban formations that consist of clustered villages. These neighbourhoods are small mixed-use self-sustaining units that form part of a larger whole.

Infrastructure as a method for social upliftment

Title	**Baragwanath Transport Interchangee**
Designers	**Urban solutions Architects and Urban Designers with Ludwig Hansen**
Locality	**Soweto**
Date	**2006**

The aim of the Baragwanath Transport Interchange is to uplift the Soweto area and connect it with Johannesburg via an infrastructural gateway that spans one of the busiest transport nodes in South Africa (Mathenge 2015). The form reflects a 1.3 by 0.5-kilometer arcade-type structure in which a densely packed programmatic composition incorporates public facilities and amenities, transport nodes, stations, and a variety of trading and retail functions (Mathenge 2015).

A sense of orientation is achieved by differentiating the articulation of functions and entry points along the spine of the project (Mathenge 2015). Crafted landmark structures materialize this concept and provide the scheme with a sense of local identity and ownership, which is further emphasized by the creation of stereotomic spaces that can be passed through (Hansen n.d.). The robust materiality of the structure is applied in a variety of ways to avoid a monotonous spatial character.

Nearly 70% of Soweto commuters use the interchange, where the historic train station has been replaced by the taxi rank and market (Hansen n.d.).

Fig. 59 **Top Right:** The facade of the built fabric relating well to a human scale (Google Earth, 2019 edited by Author)

Fig. 60 **Middle:** Streets bustling with activity (Google Earth, 2019 edited by Author)

Fig. 61 **Bottom Left:** A layered street edge (Google Earth, 2019 adapted by Author)

THE GREENWAY URBAN FRAMEWORK

Introduction

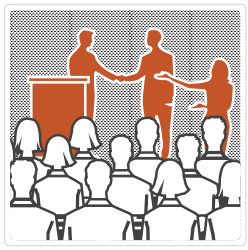
In response to the urban mapping described previously, five strategies are proposed to form a greenway in an effort to remedy the partial application of the Skinner Street portion of the 1967 Ring Road Scheme.

01 Government development programs

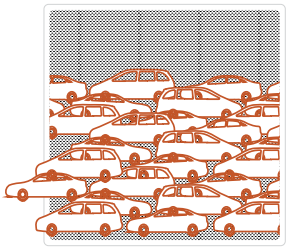
Nana Sita Street will be introduced as the new administrative boulevard that houses a concentrated number of government departments and support functions to strengthen Tshwane's administrative role. A stronger presence of national and possibly international governmental relations should be present in the administrative capital. The administrative boulevard should house a dense and compact environment in which to live, work and play. Furthermore, most government departments suffer from a poor public interface. We propose to create spaces for street and public interaction – where appropriate – fronting Nana Sita to increase open public areas and improve relations between the authorities and the community. Government development programs will be assigned to blocks adjacent to state buildings. These programs have been assigned four categories that are linked to blocks: parkland, mentorial, ceremonial, and transportation hubs.

01. PARKLAND

02. MENTORIAL



03. CEREMONIAL



04. TRANSPORT

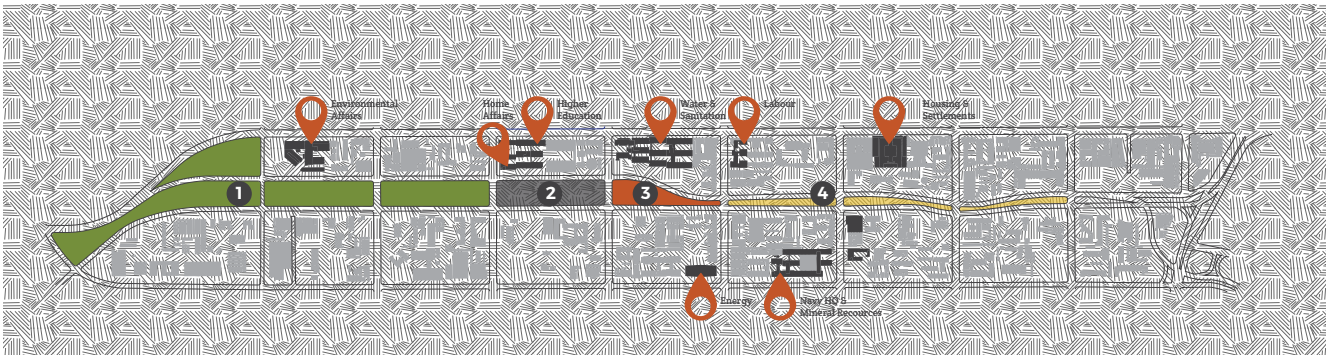
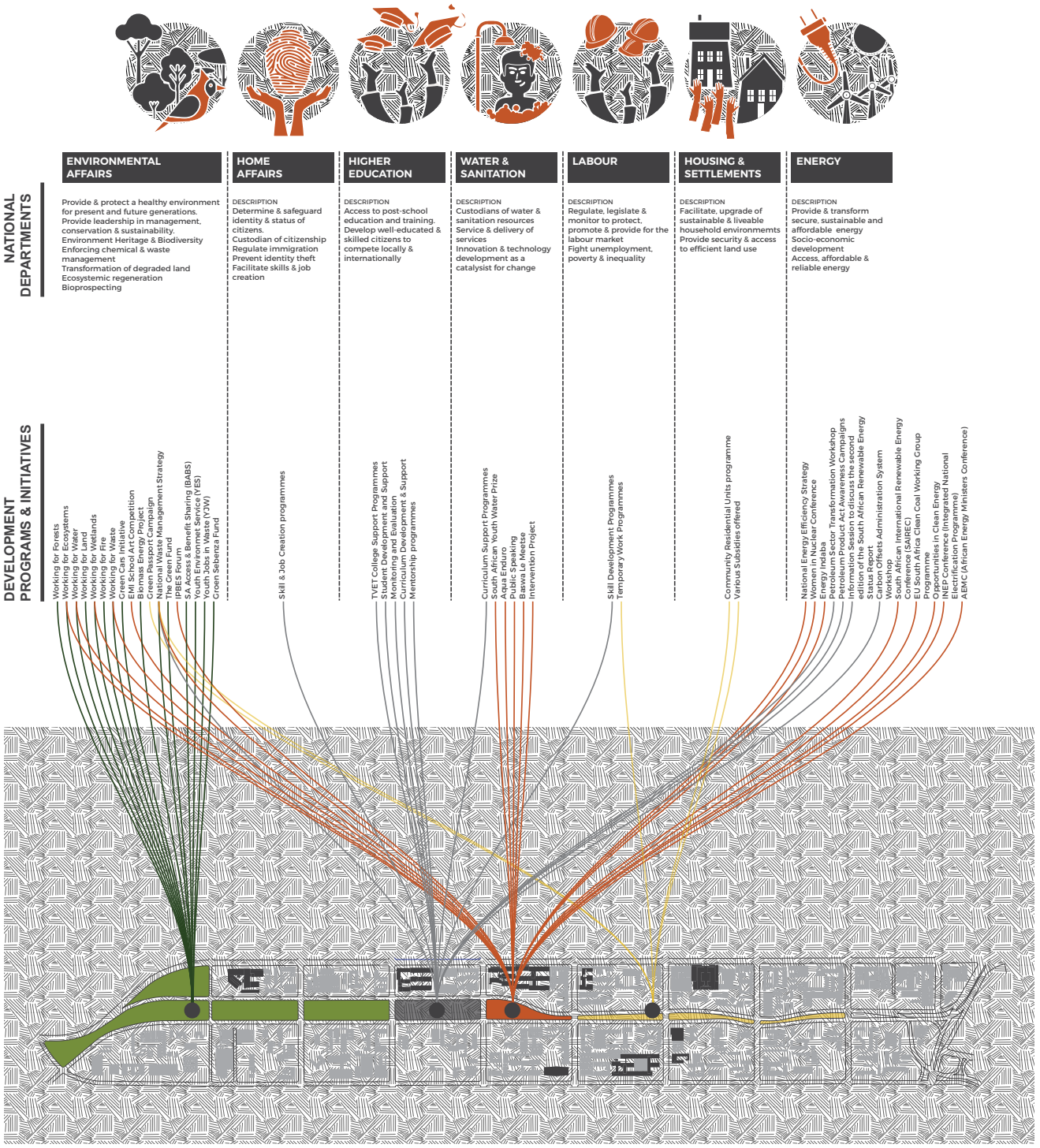


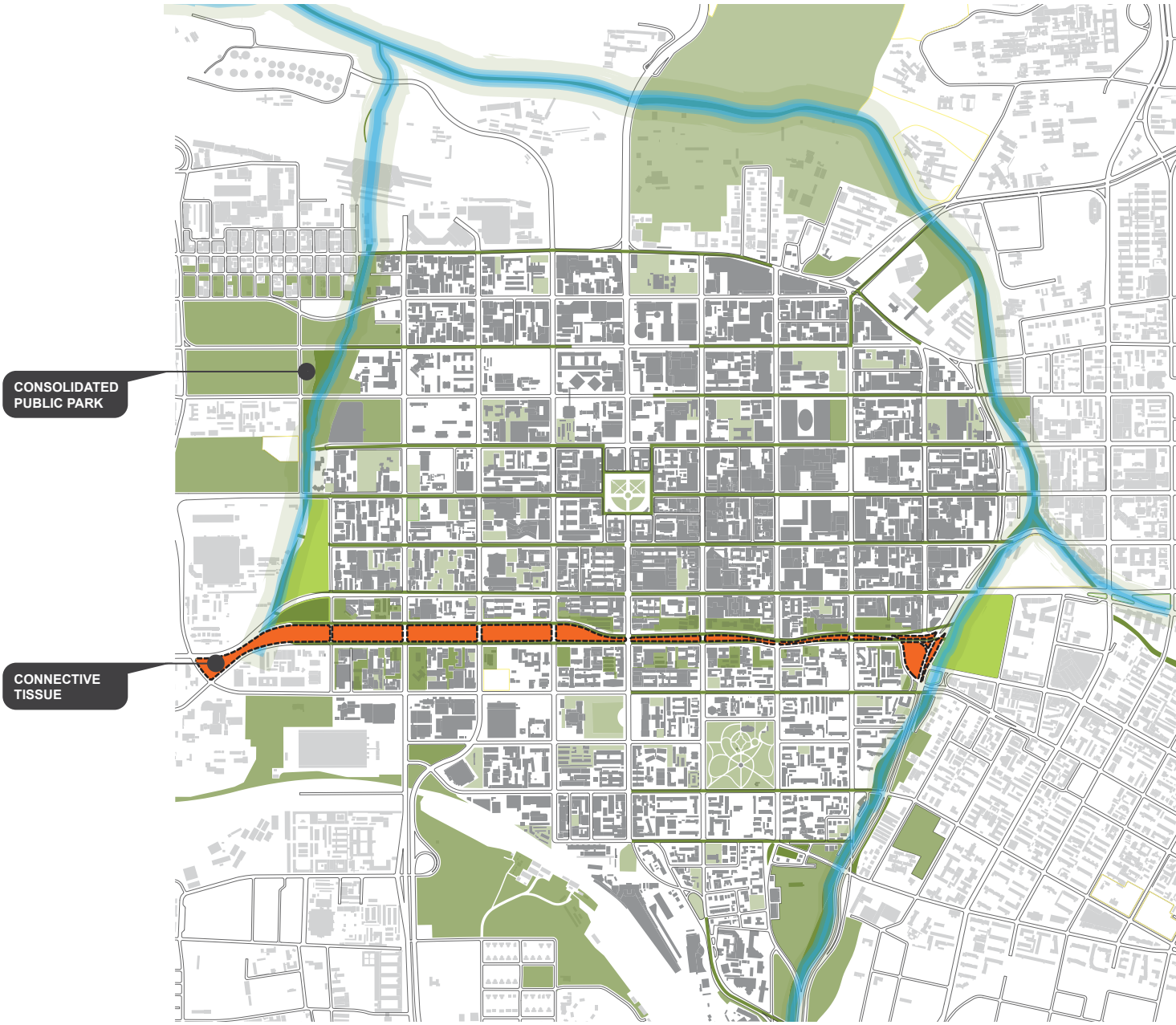
Fig. 62 **Below Left:** Categorization of functional types corresponding to adjacent government departments (Author, 2019)

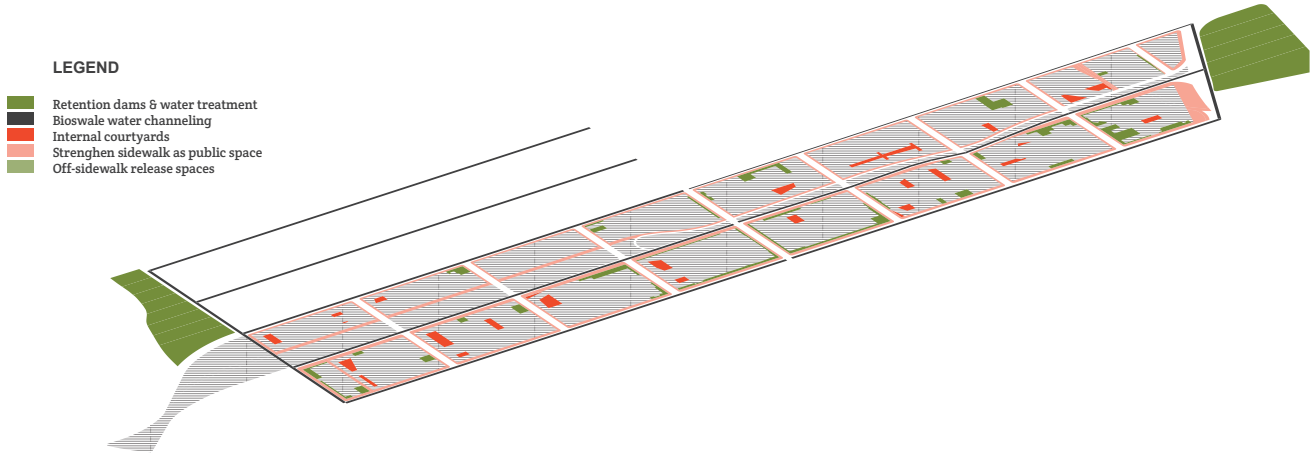
Fig. 63 **Below Right:** Ordering of development programs across the precinct (Author, 2019)



O2 Ring Park

Tshwane 2055 envisions green recreational spaces along both the Apies River and Steenhovenspruit. The Nana Sita precinct will form the green connective tissue that joins the city's northern and southern segments. A crucial element in Tshwane's description is water. Utilising storm water as a resource will contribute much value to the metropolis and aid in the regeneration of the two rivers. Natural ground filtration will be utilised and surplus storm water will be rerouted into bioswales placed adjacent to the rivers in order to purify and rehabilitate the resource. This process will reinstate the prominence of water as a central feature in the city.





O3 Urban production

Tying into Tshwane's agrarian roots, a rekindling of farm-living is to be introduced by means of small-scale compact fruit and vegetable production. Furthermore, this strategy incorporates village urbanism, which advocates for self-sustaining productive units in the city, resulting in local food production and distribution along with support functions for families.

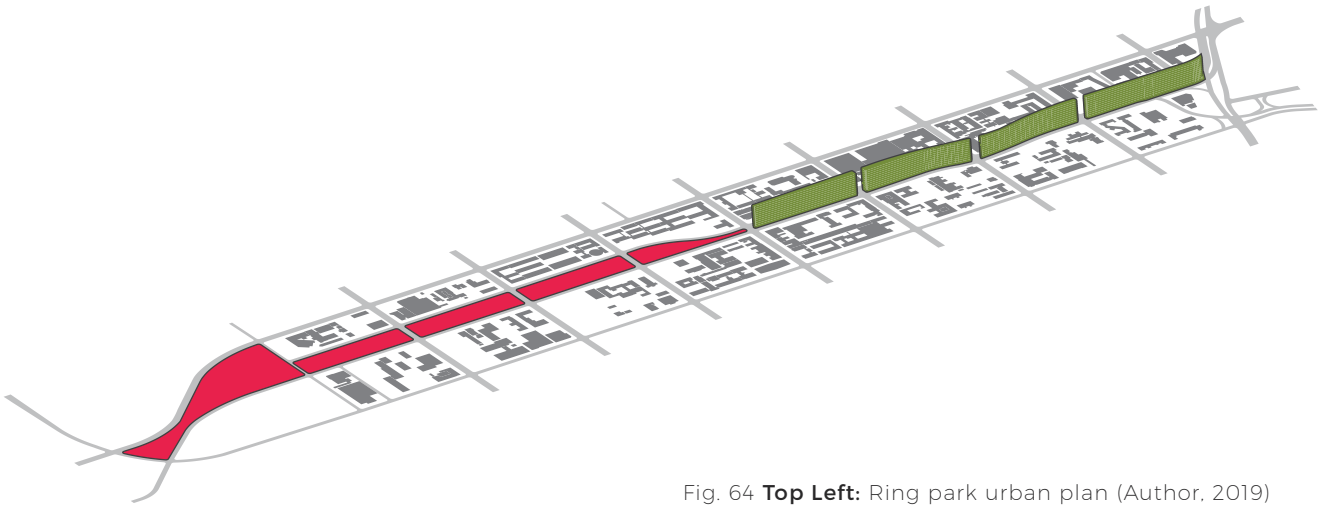


Fig. 64 **Top Left:** Ring park urban plan (Author, 2019)

Fig. 65 **Below Left:** Rink park axonometric view with legend (Author, 2019)

Fig. 66 **Top Right:** Urban production axonometric view with legend (Author, 2019)

04 Repair the scar

The implementation of the widening of Skinner Street (now Nana Sita), that forms part of the Ring-road Scheme of 1967, produced a scar in Tshwane's urban fabric by cutting the southern part off from the city centre. The strategy to repair the scar includes the consolidation of Nana Sita into one two-way traffic stream and to incorporate the current eastern stream into the proposed greenbelt – an urban recreational park where small-scale commerce can occur spontaneously along the pedestrian routes. In order to free up space for the greenbelt, scattered parking lots are to be consolidated into strategically placed car parks. Moreover, on the remaining portion of Nana Sita Street, traffic will be slowed down and controlled through the use of cobblestones and speed bumps to create a friendlier pedestrian environment.

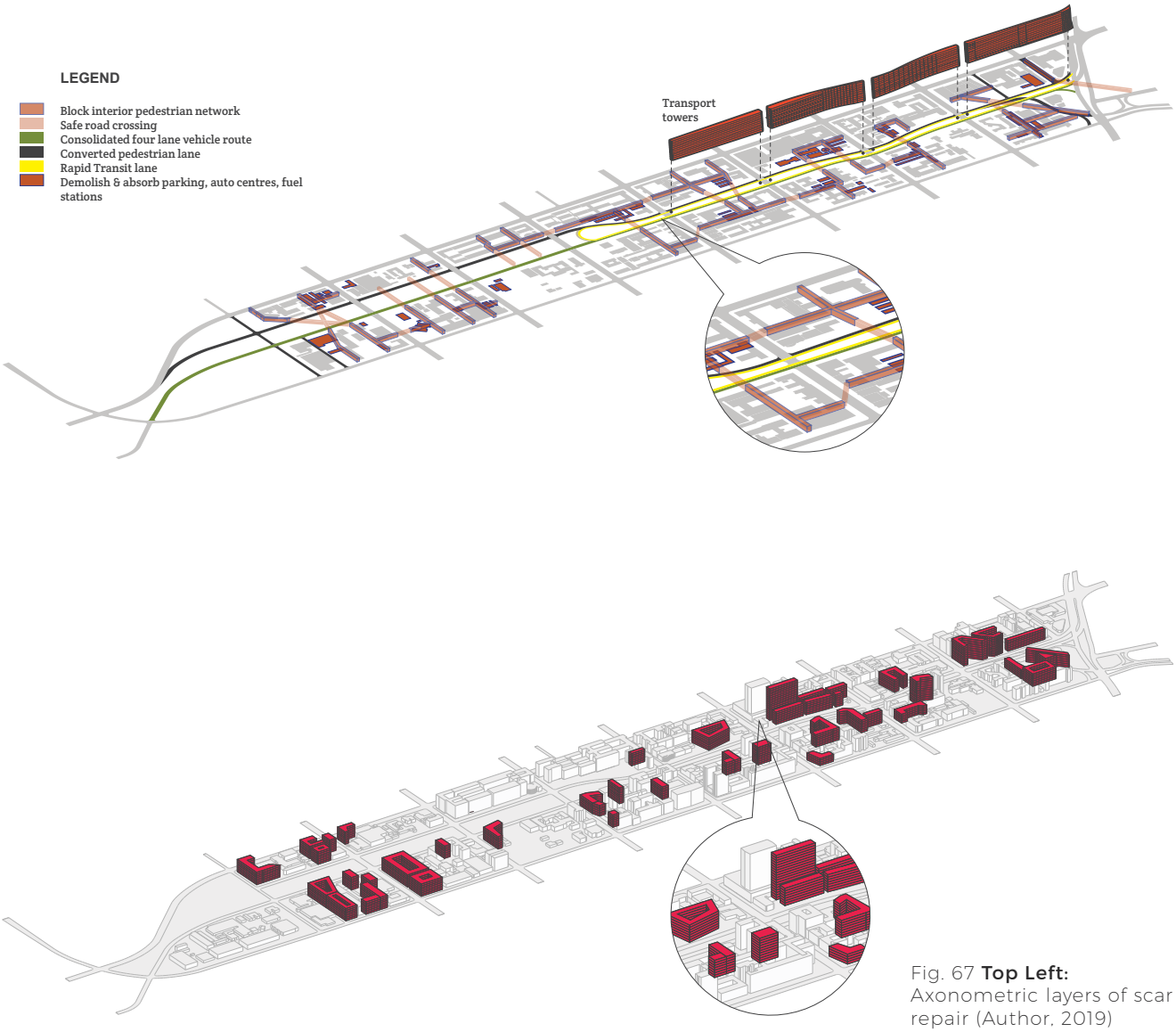


Fig. 67 **Top Left:** Axonometric layers of scar repair (Author, 2019)

O5 Economic injection

O'Connor (1983:196) states that many African cities encompass commercial spaces as a central component. This notion is echoed in Tshwane, where Church Square was initially a marketplace for the surrounding farmers. A new marketplace will be introduced on Nana Sita to revive the lost connection to Tshwane's agrarian past. The idea of public commercial space is coupled with street vending and the informal trading that transpires along pedestrian routes. Street vending occurs mostly along built active edges, creating a second layer of activity alongside the road. Thus, the final strategy creates dynamic edges on building façades that consist of retail and services down Nana Sita, allowing the organic progression of street vending. Increased activity is an economic injection much needed in this scarred, derelict landscape.

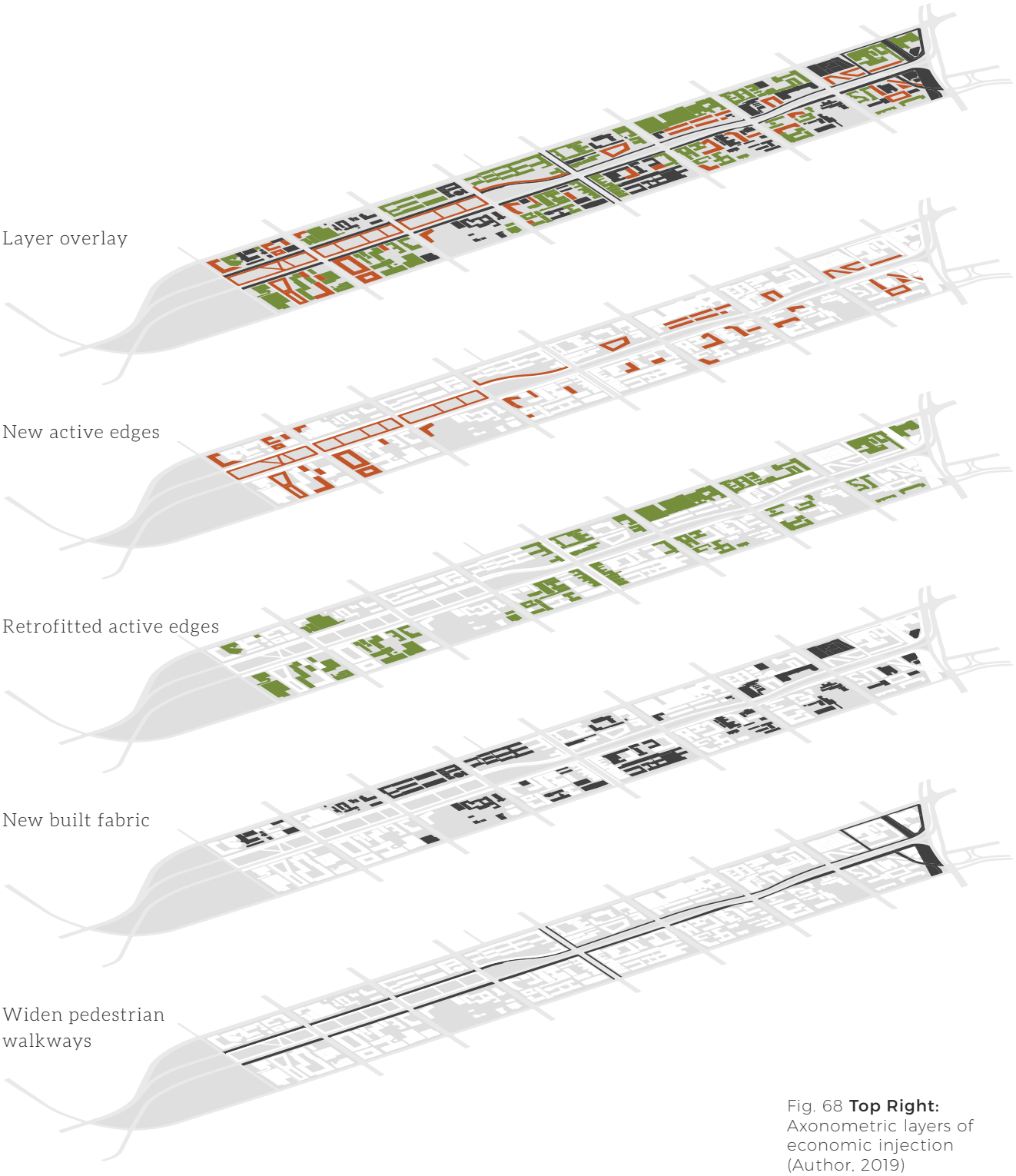
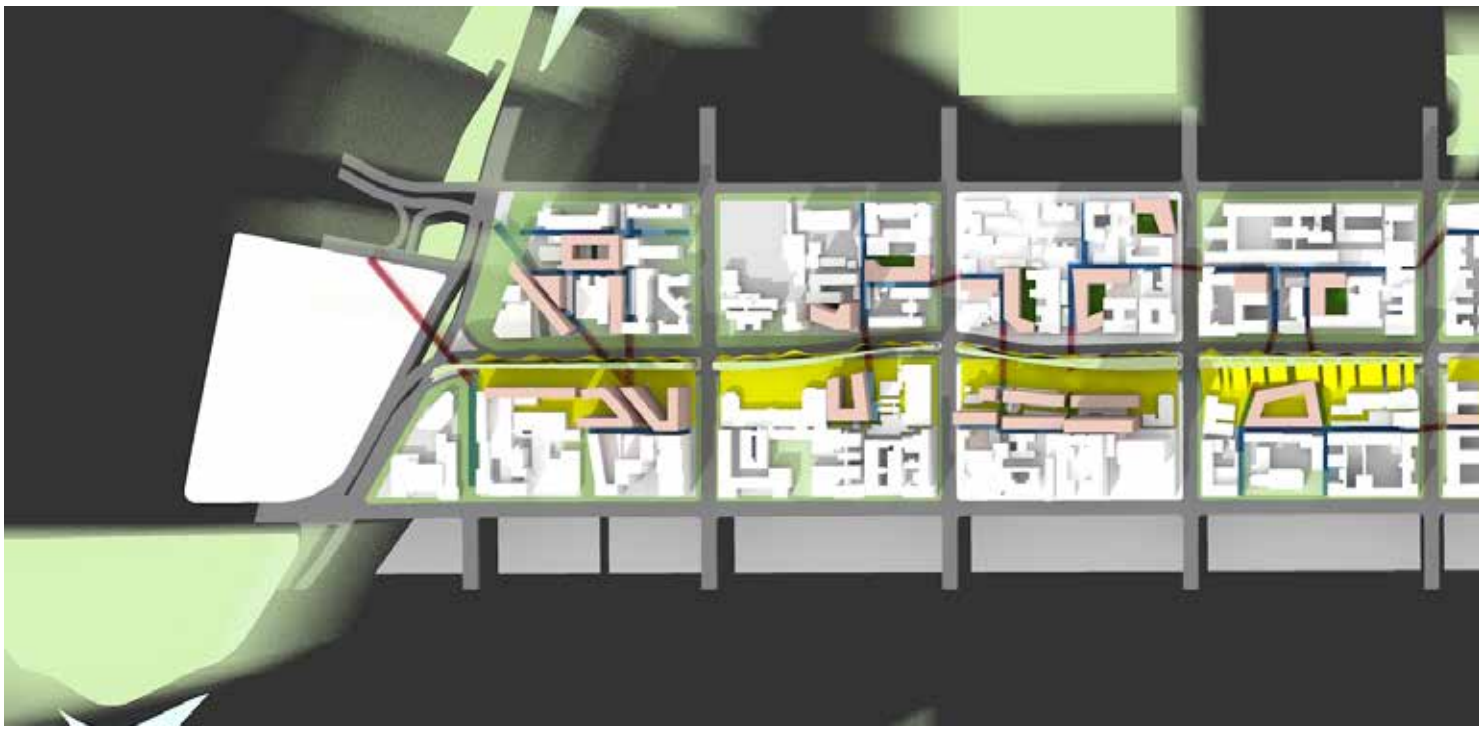


Fig. 68 **Top Right:** Axonometric layers of economic injection (Author, 2019)

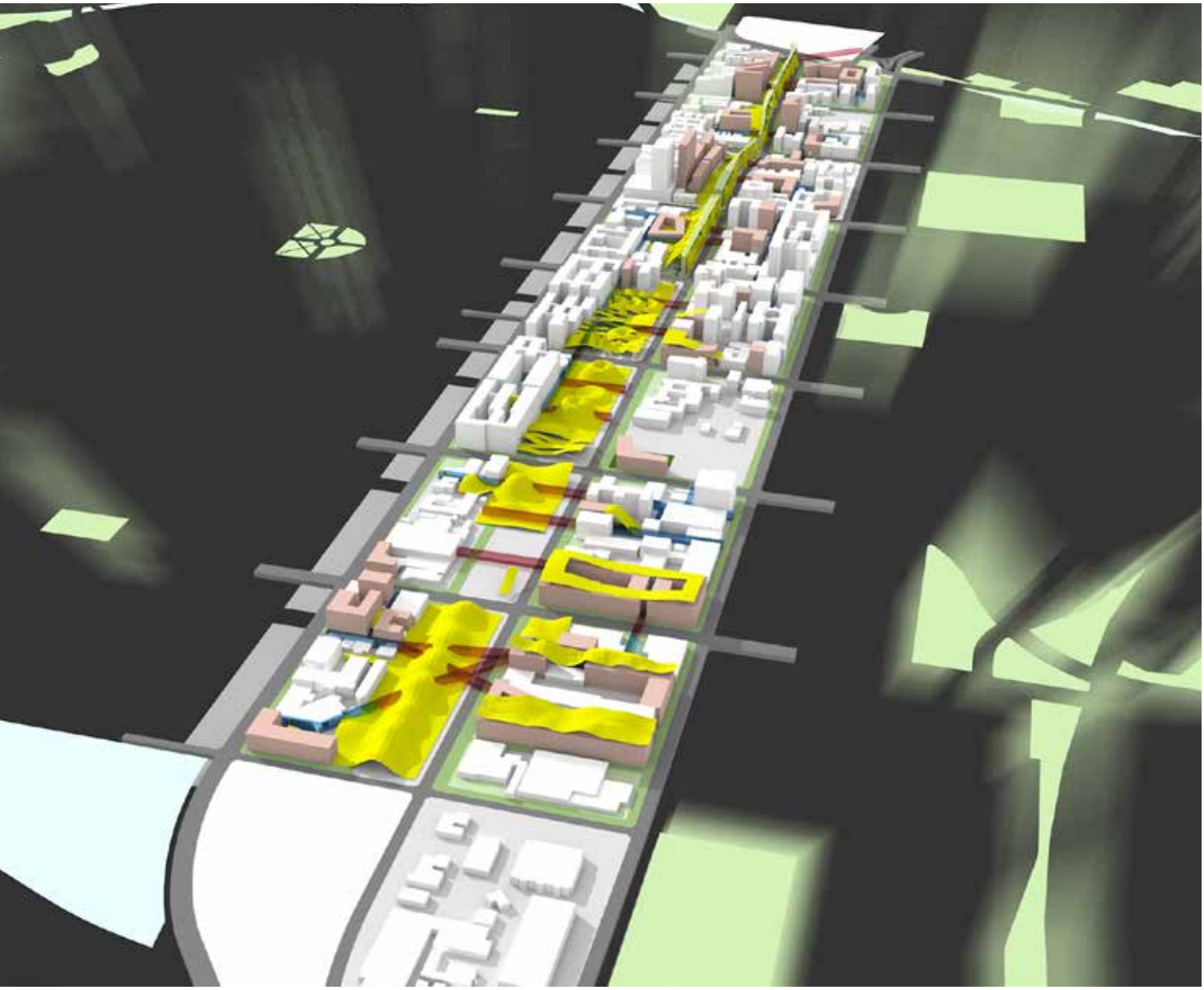


URBAN VISION

THE GREENWAY

Fig. 69 **Middle Top:** Framework overview rendering indicating strategies(Diller Scofidio & Renfro, 2019)

Fig. 70 **Bottom Left:** Aerial perspective of proposed urban framework indicating strategies (Author, 2019)



SITE SELECTION

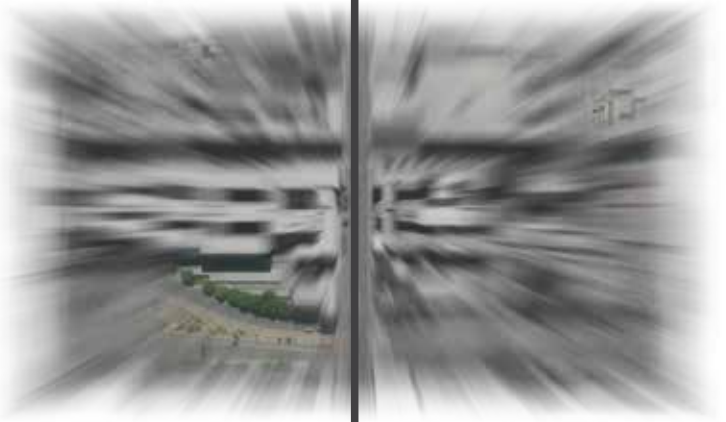
The chosen site is located on the block at the crossing of Nana Sita street and Paul Kruger street. This site is chosen to test the dissertation intentions are delimited to the intended scale at which this project will respond. This site is located along the central axis that cuts through Church street, making it the most important city block along the freeway in terms of cultural significance. This is further emphasized by the Tshwane Vision 2055 envisioning Paul Kruger street as a Governmental boulevard that includes a series of ceremonial public sqaures starting with Station square at the south and Church square at the city center.

Fig. 71 **Left:** Axonometric view of proposed site (Google Earth, 2019 edited by Author)

Fig. 72 **Right:** The proposed site in relation to public squares along Paul Kruger street (Google Earth, 2019 edited by Author)

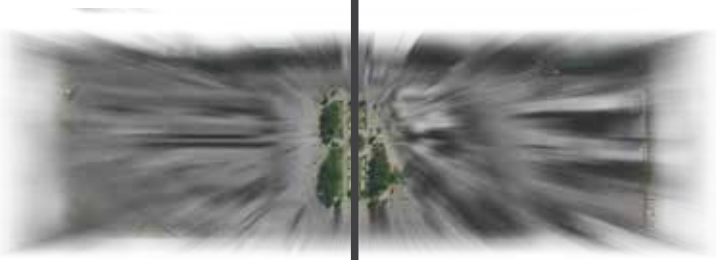
PAUL KRUGER STREET

CHURCH SQUARE



WATER SQUARE

PRETORIUS SQUARE



STATION SQUARE

HERITAGE ATTITUDE

CIVIC BUILDINGS

The existing government buildings on the north part of the site are typical examples of civic architecture built during the Modern period. These buildings show typological characteristics that are shared with the Transvaal Provincial Administration building, specifically that of the form and the façade treatment being a response of Tshwane's climate.

These structures indicate a variety of design attributes that contribute towards the diverse palette of buildings that adds to Tshwane's character. These civic structures are comprize of regional materials and available technology employed during the Late Modern period and as such could be adaptively reused requiring very little intervention other than maintenance and updating certain features of the buildings to conform to current SANS 10400 regulations. Although fully resolving interventions made to these buildings do not fall within the scope of this dissertation suggestions will be made that will be resolved conceptually while respecting and adding to the characteristics of these buildings.

A typical issue related to these structures is their poor response toward the street edge that lacks programmatic activity such as a retail component as their functions are limited to government administration.

It is a known issue that the basements of buildings in the CBD flood due to the shallow water table and the assumption will also be made that the understructure of these buildings can be used for water storage purposes.

THE ROAD PORTION

Due to the fact that the Ring Road scheme was only partially applied and did not respect the original proposal, the road as it is doesn't exhibit prominent features to classify it as an artefact or layer part of the city in and of itself. There are no noteworthy characteristics displaying a particular set of attributes that needs to be respected or included in the design other than the roads' form that disrupts the original city fabric.

Adding a wide range of urban and programmatic layers to its current function will reconstruct the freeway through adaptive reuse. Parts of the route might be kept intact depending on the impact it has on the design development phase. The original scheme indicated noteworthy intentions of providing sufficient amounts of green space in the city as part of the infrastructure. It is intended that this key feature will be uncovered in the urban framework and the design itself.

COVERED PARKING STRUCTURES:

The covered parking structures at the south of the government building indicate no potential heritage value and could, therefore, be removed to open up space for improvements to the ground floor interface.

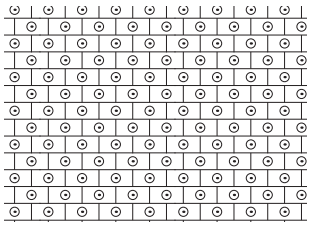
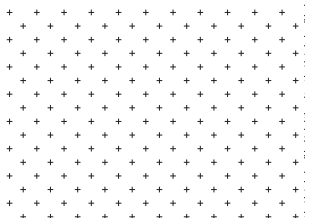
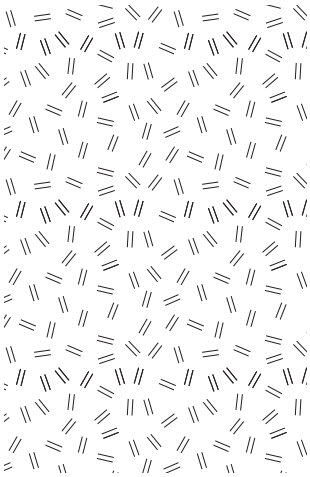
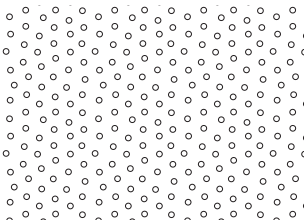
Fig. 73 **Far Left:** Axial perspective indicating the civic structures on site (Author, 2019)

Fig. 74 **Right:** Axial perspective indicating the roads on site (Author, 2019)

Fig. 75 **Far Right:** Axial perspective indicating the parking structures on site (Author, 2019)

LOST HERITAGE:
The application of the Ring Road scheme did not respect the existing built heritage at the time as the buildings where demolished. In an effort to uncover the demolished architectural landscape, the original block fabric and the removed structures will be uncovered and reconstituted in the proposed design.

Fig. 76 **Top Left:** Historic photograph of demolition taking place on the proposed site (Tshwane Heritage Research Centre, 1992)

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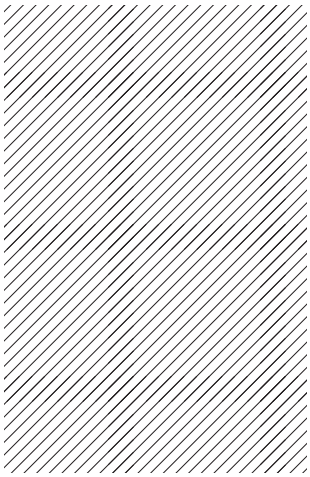
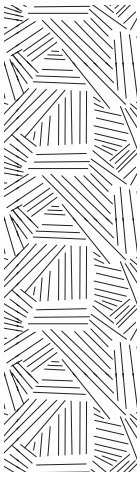
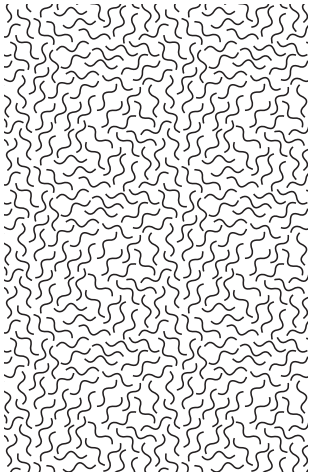
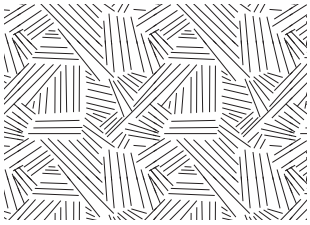
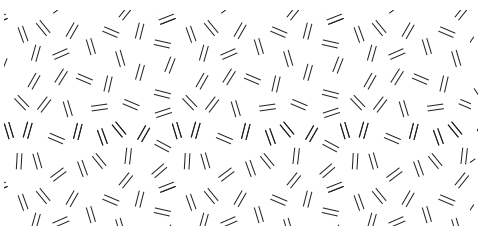
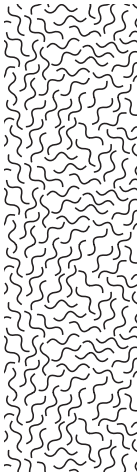



The state's structure & the Program as three Orders

CHAPTER three

AM

In search of a socio-political and ecological condition

Informed by the theoretical lenses, the question of identity involves constructing a program that embeds itself in a present socio-political issue that will aid in mediating the relationship between the national, provincial and local governments and the people they serve.

This socio-political concern should refrain from remaining stuck in the past and focus on unlocking potential by addressing collective identity in a spatial manner that is flexible and adaptable enough to limit obsolescence.

As such, the governmental structures are surveyed in search of socio-political matters that obstruct the rapport between the government and the citizens. As indicated hereafter, the poor relationships evident between the different government departments have had a direct impact on service delivery, resulting in a lack of public trust.

State Structure: A Brief Description

The Constitution of the Republic of South Africa (Constitution) stipulates that the country must follow a developmental and decentralised government model that comprises three spheres: national, provincial and local (Siddle & Koelbe 2016: 1). These domains will be "distinctive, interdependent and interrelated", and require cooperation between them (Republic of South Africa 1996). The Constitution sets forth four requirements in section 41(1)(c): government must be effective, transparent, accountable and coherent (Republic of South Africa 2003: 10).

Decentralisation and Developmentalism

A decentralised model describes how power is distributed between government entities, and that the relationship between the various spheres lies at the heart of this structure (Siddle & Koelbe 2016: 4). Devolution takes place on three governmental levels: administrative, political and fiscal (Siddle & Koelbe 2016: 4).

A decentralised governmental structure is dependent on the competence of staff members, especially those in leadership roles (Siddle & Koelbe 2016: 2). A devolved model relies on sufficient power, financial resources, administrative capacity, and accountability mechanisms in order to provide improved service delivery and development (Siddle & Koelbe 2016: 6). Unsuccessful application obstructs service delivery (Siddle & Koelbe 2016: 7).

Developmentalism is a strategy employed to advance the economic growth of underdeveloped nations by cultivating a vibrant domestic market via state intercession. The approach seeks to improve the human condition via education, health services, the reduction of poverty, and wealth creation (Siddle & Koelbe 2016: 8). Citizens are mobilised to take part in and direct resources towards this collective national agenda (Siddle & Koelbe 2016: 9). When civilians lose their trust in the government's ability to deliver the required services, they no longer participate by directing resources towards the common goal.

The Current State of Service Delivery

Service delivery challenges are core issues that must be addressed to deal with the socio-economic inequalities in the post-apartheid climate (Ile 2010: 52). Conveying services is in disarray, as characterised by the protests that have been escalating rapidly since 2007, peaking with 218 demonstrations in 2014, which indicates a lack of trust in the administration (Powell, O'Donovan & De Visser 2015; Siddle & Koelbe 2016: 15). The dispensing of basic amenities in the City of Tshwane is embodied by backlogs across the various functions to be provided (City of Tshwane 2016: 31). The local government sphere consists of municipalities, which are closest to "the people" and deal directly with the provision of basic resources (Ile 2010: 53). Even though protesting citizens regard the local administration as representing the government in

01

PRIORITY ONE FUNCTIONS

Refuse/Waste services
Water services
Electricity reticulation
Storm water reticulation

02

PRIORITY TWO FUNCTIONS

Street Lighting
Street trading
Trading regulations

03

PRIORITY THREE FUNCTIONS

Municipal parks and recreation
Public places
Local tourism
Local amenities
Childcare facilities
Markets

general, many of the services are provided by other spheres of authority, which results in local municipalities being blamed even though all government departments are jointly accountable (Mofolo 2016: 231).

The Current State of Intergovernmental Relationships

Service delivery development is advanced by outcome-oriented leadership that promotes intergovernmental relationships (IGR) and develops strong social, economic and political cooperation (Ile 2010: 55).

The fragmented nature of current resource provision, synergy, coordination, management, delegation, monitoring and evaluating progress, and communication between the administrative domains, is an enormous problem faced by the government (Ile 2010: 53).

The provision of services and governance by the state is dependent on intergovernmental relations based on cooperative structures between the three government purviews (Republic of South Africa 2005). South Africa's multilateral system depends on "well-coordinated policy, planning, budgeting, implementation, and reporting" that are developed by way of forums structured according to the Intergovernmental Relations Framework Act of 2005 (National Treasury 2011: 32; Republic of South Africa 2005).

Communities are omitted from intergovernmental relationship forums, which restricts citizen participation while the administration, in fact, expects citizens to take part on four levels: "as voters, citizens expressing their views, consumers, end-users, and as organised involved partners" (Mofolo 2016: 242; Siddle & Koelbe 2016: 12).

Fig. 1 **Top:** The three priority functions of local government (National Treasury 2001: 33)

Restricted Citizen Participation

The Institute for Public Participation (2009: 6) defines society playing its part as "a deliberative process through which affected citizens, civil society organisations, politicians and officials are involved in policy decision-making." Emphasis is placed on the public as coordinators that prevent unacceptable decisions being made, and not only as beneficiaries of administrative decisions (Mofolo 2016: 233).

Aligning the nation's needs with government responses is key as the leadership could profit from a collective source of "information, perspectives and potential solutions" that foster interaction and accountability (Mofolo 2016: 233).

Currently, "the voice of the citizen is absent" as the administration is focussed on internal processes, which limits its developmental role with respect to the population (Republic of South Africa 2013: 5). At present, responsiveness and improvements regarding communal feedback are poor (Republic of South Africa 2013: 12).

The proposed developmental agenda provides a framework to strengthen the partnership between active citizens and the government in order to monitor and give feedback on public responsibility and frontline service delivery (Republic of South Africa 2013: 5). The aforementioned framework emphasises a program that both fortifies the voices of citizens and creates relationships with the authorities (Republic of South Africa 2013: 12).

If the developmental agenda is pursued, intergovernmental relations will be reinforced through forums that allow public access – thus facilitating citizen participation – which is fundamental to good governance and the proper provision of services (Mofolo 2016: 240).

Constructing the three order program

In response to the framework for the proposed developmental agenda, the program comprises three orders.

The high order includes multilateral relationship forums across the three spheres of government that will allow for public attendance. The flexibility and adaptability of the spaces in which the participants will assemble will be essential as conferences and ceremonies initiated by the leadership will also be accommodated in these areas.

Both the medium and low order aspects flow through the three priority functions of the local administration, together with citizen participation platforms.

Landscape urbanism is the primary informant for the low order program, utilising waste as a potential option. The low order focuses on two of the priority one functions of local government, including refuse removal and water and storm water reticulation expressed a series of hybrid infrastructural systems that act as an agent for service delivery and developing the human condition.

Instrument	Description
Citizen journalism	Citizens collect, report, analyse and disseminate news and information. New media technologies such as media sharing websites and social networks have enabled citizen journalists to provide alternative news sources to conventional mainstream media. Citizen journalism can contribute to accountable service delivery.
Citizen report card	Citizen report card methodology uses surveys to enable citizens to assess the quality of public services and to use the information to advocate for improvements.
Community monitoring	Community members are trained to act as monitors of local services. The information is used to engage with government on improving problem areas.
Community scorecards	Community scorecard is based on identifying issues though facilitated focus group discussions with community members. This information is then analysed and used by citizens then engage with government service providers to address problems.
Grievance redress mechanisms	Complaints mechanisms, such as hotlines, customer feedback websites etc., aim to resolve problems with service delivery through providing an opportunity for citizens to report problems, channel this information to the responsible authority and track resolution.
Independent budget analysis	A process where civil society stakeholders research, monitor and disseminate information about public expenditure to influence the allocation of public recources and hold government accountable.
Mobile phone surveys	Mobile phone technology, linked to on-line platforms, offers a number of opportunities for surveying, reporting and communicating - significantly improving data processing, turnaround time and reach for monitoring government services.
Mystery client/guest surveys	A way to monitor frontline service delivery using an unannounced surveyor posing as a client in order to identify both good customer service as well as areas that require improvement.
Ombudsman	An independent oversight and recourse body set up to arbitrate disputes in a particular sector.
Participatory budgeting	A process through which citizens participate directly in budget formulation, decision-making, and monitoring of budget execution.
Public hearings	Formal meetings at community level that centre around budgets and strategic planning and are a tool for citizen accountability.
Quantitative service delivery surveys	These surveys examine the efficacy of spending and the relationships between those who contract for a service and those who deliver it.
Social audit	A monitoring process through which organizational or project information is collected, analysed and shared publicly, and investigate findings are shared and discussed publicly.
Transparency portals	These are websites that publish public financial information, thereby increasing transparency by conveying large amounts of information to those with internet access.

Fig. 77 **Top Middle:** Table of citizen participation mechanisms (Republic of SA, 2013 edited by Author)

HIGH ORDER PROGRAMS

The high order programs accommodate intergovernmental relationship forums that allow for public attendance and participation. These spaces can also function as conferences initiated by the adjacent department's outlined in the urban framework.

Fig. 78 **Bottom left:** High order programmatic requirements (Author, 2019)

High Order	Intergovenmental Forum Space							
	Description	**Volume**	**Lighting**	**Sunlight**	**Ventilation**	**Landscape Views**	**m²**	**Spatial Concerns**
Foreground spaces	Meeting/ Conference Space	High	Natural & Artificial	Indirect	Natural/ Mechanical	■	375	Adaptability to a variety of forum sizes & configurations. Allow for public seating.
	Passage	High	Natural & Artificial	Direct/ Indirect	Natural/ Mechanical	■	100	Centrality and simplicity of circulation.
	Exhibition	High	Natural & Artificial	Indirect	Natural/ Mechanical		150	Adaptibility to a variety of exhibition sizes.
	Administration Offices	Medium	Natural & Artificial	Indirect	Natural/ Mechanical	■	110	Allow for private outdoor space.
	Site Security Office	Medium	Natural & Artificial	Indirect	Natural/ Mechanical	■	15	Accessibility to primary circulation routes.
	Reception	Medium	Natural & Artificial	Indirect	Natural/ Mechanical		75	Visibility & wayfinding is crucial.
	Private lounge	Medium	Natural & Artificial	Indirect	Natural/ Mechanical	■	95	Proximity to conference space.
	Lounge	Medium	Natural & Artificial	Indirect	Natural/ Mechanical	■	100	Views to courtyard.
	Circulation	Medium/ High	Natural & Artificial	Indirect	Natural/ Mechanical	■	300	Centrality and simplicity of circulation.
	Staff Lounge	Medium	Natural & Artificial	Indirect	Natural/ Mechanical	■	45	Privacy.
	Foyer	High	Natural & Artificial	Direct/ Indirect	Natural/ Mechanical	■	350	Encourage views to the service landscapes.
Background spaces	Storage	Low	Artificial	Not required	Natural/ Mechanical		70	Proximity to meeting/ conference spaces.
	Dressing rooms	Medium	Natural & Artificial	Indirect	Natural/ Mechanical		65	Proximity to conference space.
	Kitchen	Low/ Medium	Natural/ Artificial	Indirect	Natural/ Mechanical		65	Proximity to service route for deliveries and organic waste
	Conference toilets	Low/ Medium	Natural/ Artificial	Direct/ Indirect	Natural/ Mechanical		35	Proximity to meeting space. Stack shafts.
	Staff toilets	Low/ Medium	Natural/ Artificial	Direct/ Indirect	Natural/ Mechanical		35	Proximity to living machine. Stack shafts.
	Public toilets	Low/ Medium	Natural/ Artificial	Direct/ Indirect	Natural/ Mechanical		110	Proximity to living machine. Stack shafts.
	Plant Room	Low	Artificial	Not required	Natural/ Mechanical		20	Easy access and serviceability.
	Sound Equipment storage	Low	Artificial	Not required	Natural/ Mechanical		10	Proximity to meeting space.
					Total		**2125**	

MEDIUM ORDER PROGRAMS

The medium order incorporates some of the three priority functions of local government – amenities, markets, public places, and trading – combined with citizen participation platforms where the public may communicate directly with the authorities in an effort to establish a beneficial public interface for the existing state buildings that lack such a connection. A series of spaces that form a new boundary to the south of the government buildings are proposed. Integrating retail components that sell the products generated by the hybrid ecological landscapes in the various trading and production spaces are embedded into the citizen participation platforms.

Fig. 79 **Bottom Right:** Medium order programmatic requirements (Author, 2019)

Medium Order	Citizen participation platforms								
		Description	**Volume**	**Lighting**	**Sunlight**	**Ventilation**	**Landscape Views**	**m²**	**Spatial Concerns**
Web Based		Citizen Journalism	Medium/ High	Natural & Artificial	Indirect	Natural/ Mechanical	■	300	This type of feedback generally occur within the office cubicle discussion space. Allowing for the relevant infrastructure such as computer screens and WIFI so that discussion with officials might occur.
		Mobile phone surveys							
		Independent budget analysis							
		Transparency portals							
Survey Based		Citizen report cards	Medium/ High	Natural & Artificial	Indirect	Natural/ Mechanical	■	300	This type of feedback generally occur within the office cubicle discussion space. Allowing for the relevant infrastructure such as computer screens and WIFI so that discussion with officials might occur.
		Mystery client/ guest surveys							
		Quantitative SD surveys							
Group Discussion Based		Community monitoring	High	Natural & Artificial	Indirect	Natural/ Mechanical	■	300	Group discussion typically occur within a large open space with sufficient amounts of seating (community hall space) for a variety of group sizes.
		Community scorecards							
		Ombudsman							
		Grievance redress mechanisms							
		Participatory budgeting							
		Public hearings							
		Social audit							
Background Space		Hall Storage	Low	Artificial	Not required	Natural/ Mechanical		55	Accessibility
		General storage	Low	Artificial	Not required	Natural/ Mechanical		25	Accessibility
		Public Toilets	Low/ Medium	Natural/ Artificial	Direct/ Indirect	Natural/ Mechanical		45	Links to living machine & existing waste infrastructure.
						Total		**1025**	

LOW ORDER PROGRAMS

Preparation and Three-Dimensional Sequencing, as the second and third principles outlined by Sébastien Marot (Corner 1999: 50; Waldheim 2006: 145), inform the low order program. The primary criteria in selecting relevant processes view the landscape as a cyclical dynamic organism and take the ecological layers that compose the landscape – together with their relevant interactions – into account.

As a response to the aforementioned intentions, the central component of the overall program is to construct hybrid ecological landscapes that act

Low Order	Hybrid ecological systems							
	Description	**Volume**	**Lighting**	**Sunlight**	**Ventilation**	**Landscape Views**	**m²**	**Spatial Concerns**
Systems	Living machine system (internal)	Medium/ High	Natural	Direct & Indirect	Natural	■	200	Integrate spatially with high order and medium order spaces. Easy access and serviceability.
	Living machine system tower	Medium/ High	Natural	Direct & Indirect	Natural	■	480	Integrate spatially with high order and medium order spaces. Easy access and serviceability.
	Aquaponic cell system	Medium/ High	Natural	Direct & Indirect	Natural	■	700	Integrate spatially with high order and medium order spaces. Easy access and serviceability.
	Wetlands	Outdoor	Natural	Direct & Indirect	Natural	■	725	Integrate spatially with high order and medium order spaces. Easy access and serviceability.
	Vermiculture system	Medium/ High	Natural	Low light conditions	Natural	■	700	Integrate spatially with high order and medium order spaces. Easy access and serviceability.
Foreground Interface	Street trade Area	Medium/ High	Natural	Direct & Indirect	Natural	■	320	Proximity to the main pedestrian & vehicular routes.
	Children's play area	Outdoor	Natural	Direct & Indirect	Natural	■	200	Proximity to the main pedestrian & vehicular routes.
	Weaving Space	Medium/ High	Natural	Direct & Indirect	Natural	■	0	Weaving spaces integrated into feedback platforms.
Background Space	Pump Room	-	Natural/ Artificial	Not required	Natural		35	Ease of access and serviceability
	Pretreatment room	Low	Artificial	Not required	Natural		140	Ease of access and serviceability of septic tanks.
	Street trading Storage	Low	Artificial	Not required	Natural		65	Proximity to the trading spaces.
	Staff toilets & changing area	Medium/ High	Natural/ Artificial	Direct & Indirect	Natural		45	Links to living machine & existing waste infrastructure.
	Washing & Preparation	Low	Natural/ Artificial	Direct & Indirect	Natural		20	-
	Equipment Storage	Low	Natural	Not required	Natural		35	Ease of access.
	Vermiculture Packaging	Low	Natural/ Artificial	Direct & Indirect	Natural		35	Proximity to the trading interface.
	General storage	Low	Natural/ Artificial	Not required	Natural		35	-
	Deliveries	Low	Natural/ Artificial	Direct & Indirect	Natural		15	Proximity to road interface.
	Food Waste collection	Low	Natural	Direct & Indirect	Natural		35	Proximity to road interface.
	Dry Waste Collection	Low	Natural	Direct & Indirect	Natural		35	Proximity to road interface.
					Total		**3820**	

as an agent for the priority one functions of local government service delivery (refuse and waste services, water and storm water reticulation and electricity reticulation).

These terrains are used to process unwanted matter on site as closed systems in which municipal detritus becomes an asset for the users on the site and in the broader precinct. The hybrid infrastructures integrate aesthetic, economic and ecological aspects aimed towards improving the human condition. As such, the sites become examples of the ecological development programs initiated by the government.

Fig. 80 **Bottom left:** Low order programmatic requirements (Author, 2019)

Fig. 81 **Next Page Spread:** Programmatic ordering diagram (Author, 2019)

THE THREE SPHERES OF GOVERNMENT

NATIONAL

PROVINCIAL

LOCAL

HIGH ORDER

INTERGOVERNMENTAL RELATIONS FORUMS

PRESIDENTS' CO-ORDINATING COUNCIL

Attendees:
(a) the President;
(b) the Deputy President;
(c) the Minister in the Presidency;
(d) the Minister;
(e) the Cabinet member responsible for finance;
(f) the Cabinet member responsible for the public service;
(g) the Premiers of the nine provinces;
(h) a municipal councillor designated by the national organisation representing local government

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NATIONAL INTERGOVERNMENTAL FORUMS

Attendees:
(a) the Cabinet member responsible for the functional area
(b) any Deputy Minister appointed for such functional area;
(c) the members of the Executive Councils of provinces who are responsible for a similar functional area in their respective provinces;
(d) a municipal councillor designated by the national organisation representing local government

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PROVINCIAL INTERGOVERNMENTAL FORUMS

Attendees:
(a) the Premier of the province;
(b) the member of the Executive Council of the province who is responsible for local government in the province;
(c) any other members of the Executive Council designated by the Premier;
(d) the mayors of district and metropolitan municipalities in the province;
(e) the administrator of any of those municipalities
(f) a municipal councillor

23

LOCAL MUNICIPAL INTERGOVERNMENTAL FORUMS

Attendees:
(a) the mayor of the district municipality;
(b) the mayors of the local municipalities in the district or, if a local municipality does not have a mayor, a counsellor designated by the municipality;
(c) the administrator of any of those municipalities

31

CONFERENCES & CEREMONIES

The Civilian | The Student | The Bussinessman | The Scientist

CEREMONIES

South African Youth Water Prize
Aqua Enduro
Public Speaking
Baswa Le Meetse Intervention Project

CONFERENCES

IPBES Forum
National Energy Efficiency Strategy
Women in Nuclear Conference
Energy Indaba
South African International Renewable Energy Conference (SAIREC)
EU South Africa Clean Coal Working Group Programme
Opportunities in Clean Energy
INEP Conference (Integrated National Electrification Programme)
AEMC (African Energy Ministers Conference)

MEDIUM ORDER

PUBLIC PARTICIPATION PLATFORMS

The Government Employee | The Civilian | The Journalist

DISCUSSION BASED PARTICIPATION

Community monitoring
Community scorecards
Ombudsman
Grievance redress mechanisms
Participatory budgeting
Public hearings
Social audit

SURVEY BASED PARTICIPATION

Citizen report cards
Mystery client/guest surveys
Quantitative SD surveys

DIGITAL BASED PARTICIPATION

Citizen Journalism
Mobile phone surveys
Independent budget analysis
Transparency portals

PRIORITY TWO & THREE FUNCTIONS

The Government Employee | The Street Vendor | The Shop Owner

THE THREE FUNCTIONS OF LOCAL GOVERNMENT

PRIORITY TWO FUNCTIONS

Trading regulation
Street Lighting
Street trading

PRIORITY THREE FUNCTIONS

Markets
Parks and recreation
Public places
Local tourism
Local amenities
Child care facilities

LOW ORDER

SERVICE DELIVERY LANDSCAPES

The Government Employee | The Farmer | The Student/ Scientist | The Street Vendor

PRIORITY ONE FUNCTIONS

Refuse/Waste services
Water & StormwatSer reticulation services
Electricity reticulation

DEVELOPMENT PROGRAMS

Working for Ecosystems
Working for Water
Working for Wetlands
Working for Waste
EMI School Art Competition
Green Passport Campaign
National Waste Management Strategy

ORGANIC REFUSE

a potential resource

South Africa generates an estimated amount of 3 million tons of organic waste each year, of which 35% is recycled while the remaining 2 million tons are landfilled (Department of Environmental Affairs 2013: 14),

As outlined by the National Waste Management Strategy (Department of Environmental Affairs 2013: 2), utilising organic composting methods reduces both landfill and landfill gas. Instead of storing municipal refuse and creating a spoiled landscape such – as landfill sites – garbage could potentially be employed as a valuable resource. Unnecessary transport costs and other expenses are avoided when organic waste is composted and used on site.

Vermicomposting

Vermicomposting is the process during which earthworms are used to digest organic material, thus turning it into vermicompost (Munroe 2007: 1). Aristotle referred to worms as the "intestines of the earth" because of their ability to provide fertile soil by "disinfecting, neutralizing, protect and produce" (Munroe 2007: 35).

The red wiggler (Eisenia Fetida), indigenous to most parts of the world and known as the "composting worm", is among an estimated 1800 species of earthworms worldwide (Munroe 2007: 5). These worms are more robust than their counterparts and are widely used in commercial settings (Munroe 2007: 1).

It is proposed that vermicomposting be used to process organic waste on site as it contributes greatly to the biodiversity of the soil by introducing both micro-organisms and earthworms, requires little skill, provides labour opportunities, and encompasses low operating costs. The output of vermicomposting produces both compost and earthworms (vermiculture) that can be sold as agricultural fertilizer and animal feed, respectively.

Vermicompost provides many benefits, including increased moisture retention, nutrient-holding capacity, soil structure, and higher levels of microbial activity (Munroe 2007: 30). Recent research indicates that vermicompost naturally suppresses plant diseases and repels hard-bodied pests (Munroe 2007: 32).

Perhaps the biggest advantage provided by the worms is that the bowel, which is described as a "bacteria factory", " excretes microbes in the soil that provide conditions for other organisms to live in" (Munroe 2007: 37).

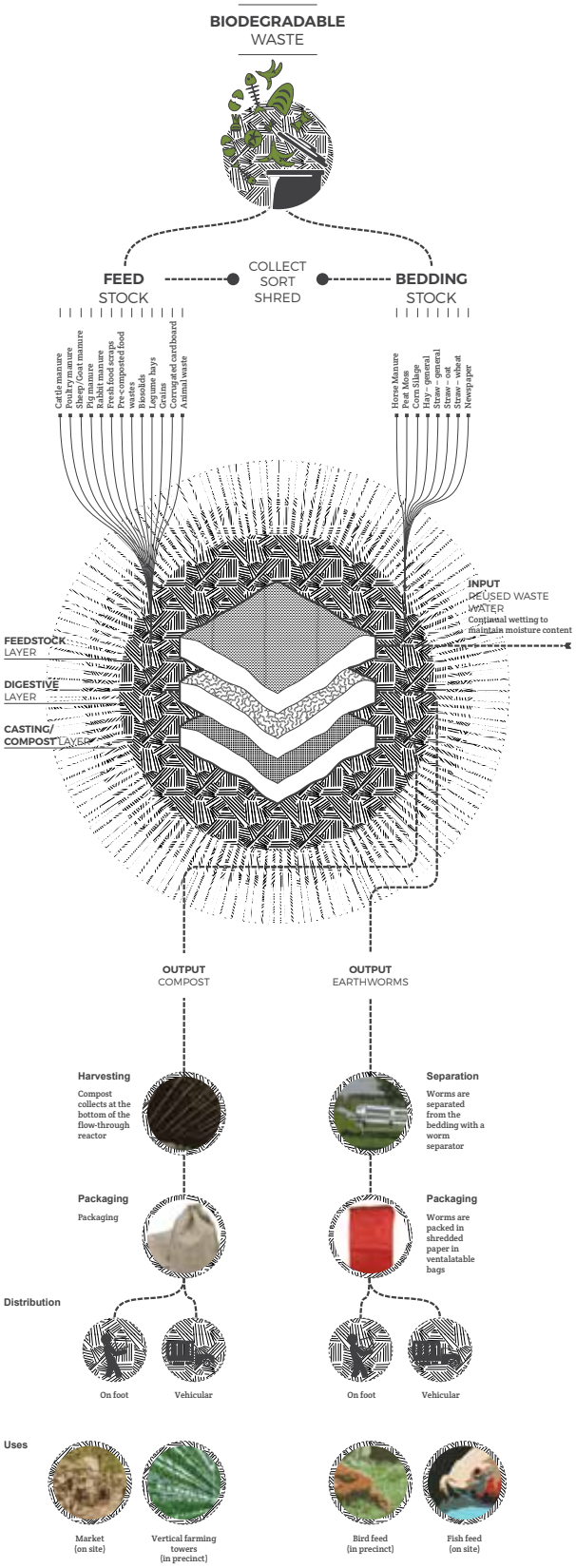
The Manual of On-Farm Vermicomposting and Vermiculture (Munroe 2007: 1) outlines five basic requirements for vermiculture:
- Bedding material;
- Food stock;
- Adequate moisture (45-60% moisture content);
- Adequate aeration, and
- Protection from temperature extremes.

Vermicomposting: flow-through reactors
Of the various systems available, the flow-through reactor system is the most efficient. (Munroe 2007: 25). Rows of raised boxed structures are topped up with refuse, which is digested by the earthworms. The worms excrete their castings (manure), thus generating rich nourishment for the soil. The compost is removed via closely spaced movable rods at the bottom of the construction, which might be manually or automatically operated.

Vermiculture

Vermiculture focuses on cultivating those worms that require different conditions (Munroe 2007: 26). High population densities that range between 5 and 10kg/ m^2 are required to ensure elevated production rates (Munroe 2007: 26). Harvesting worms is the primary objective.

Fig. 82 **Below Left:** Vermiculture and vermicomposting system diagram (Author, 2019)



Harvesting the worms

Mechanical harvesting, the quickest and easiest method, is summarised below:

"... the mechanical harvester ... is a trommel device, a rotating cylinder about 8-10 feet in length and 2-3 feet in diameter. The cylinder walls are composed of screen material of different mesh sizes. The cylinder is rotated by a small electric motor mounted on one end of the cylinder. The trommel is set at an angle; at the upper end of the rotating trommel worms and their bedding (including castings) are added. As the cylinder rotates, the castings fall through the screen. The worms 'ride' the entire distance of the trommel and pass through the lower end into a wheelbarrow." (Munroe 2007: 28).

Once the worms have been separated, they are weighed and transferred into bags filled with moistened peat moss and then sold (Munroe 2007: 26).

Output rates

For composting, worm populations maintained at between 2.5k - 5kg/m² and kept in a 2m² bin, double every 60 to 90 days in satisfactory conditions, which means an initial 10kg of worm population can expand to 40 tonnes in two years (Munroe 2007: 13).

Combining shredded paper with cardboard and 5% poultry manure has yielded a constant output of 50% (Munroe 2007: 14). Composting outputs can vary between 10% and 50% of the initial input weight as a result of this application because of the variety of input materials used (Munroe 2007: 14).

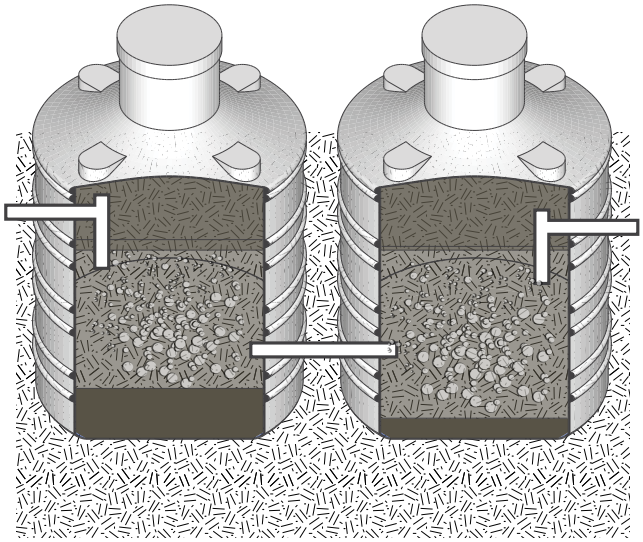
WASTED WATER

a potential resource

It is proposed that human waste be processed on-site, combining the Living Machine system with the aquaculture cell systems developed by John Todd (Todd, Brown & Wells 2003; US EPA 2001). This procedure involves six treatment tanks and four aquacultural cells, as delineated below:

Anaerobic reactor (step 1)

The initial step of the process comprises pretreating effluent in a covered or below grade tank, similar to a septic tank, that reduces concentrations of BOD5 and solids (US EPA 2001: 2). Methane gas can be harvested using a UASB reactor elsewhere on the blcok..



Anoxic reactor (step 2)

This reactor prevents aerobic conditions and encourages floc-forming and denitrifies micro-organisms, removing a significant amount of BOD5. A coarse bubble diffuser mixes the effluent and odour is controlled by a planted biofilter with an attached growth medium. The vegetated biofilter sits on top, controlling moisture levels (US EPA 2001: 3).

Closed aerobic reactor (step 3)

The closed aerobic reactor is similar to the anoxic reactor but includes fine bubble diffusers to reduce BOD5 further, removing gases and stimulating nitrification (US EPA 2001: 3).

Open aerobic reactors (step 4)

Similar to the closed aerobic reactor, the open aerobic reactor is covered with supported vegetation on top, which promotes microbial growth, nutrient uptake, insects and micro-organisms (US EPA 2001: 3).

Ecological fluidized beds (EFB) (step 5)

Water is circulated through a series of between one and three tanks, each consisting of both an inner and outer receptacle which consists of an attached growth medium such as crushed rock (US EPA 2001: 4). Neutralised sludge is periodically collected and could be utilised elsewhere on site.

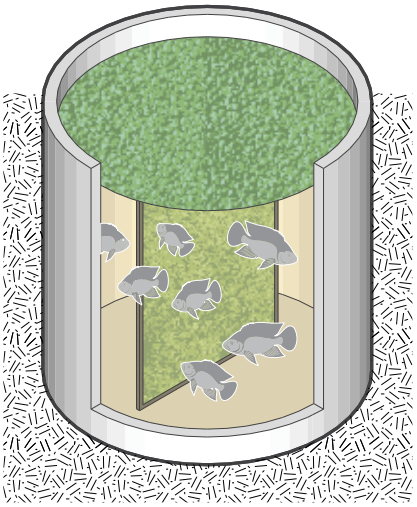
Fig. 83 Living machine reactor system proposed by John Todd (Author, 2019)

Aquaculture and aquaponic constructed wetland cells (step 6)

The wetland cells form the final treatment before water can be reused for irrigation, toilet flushing or the wetting of vermiculture windrows. According to Todd, Brown, & Wells (2003: 436), the constructed wetland is composed of a series of four cells as outlined below:

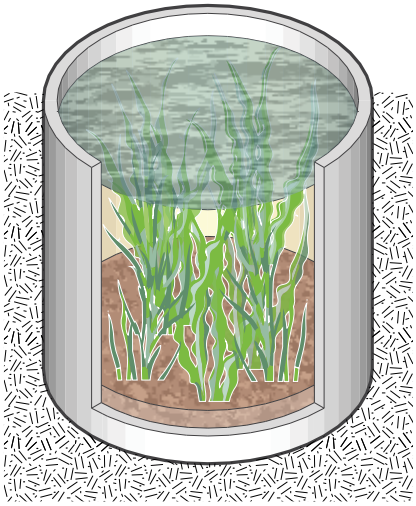
Cell 1

Fish are isolated in this cell and feed on algae, turf screens and zooplankton from the downstream cells.



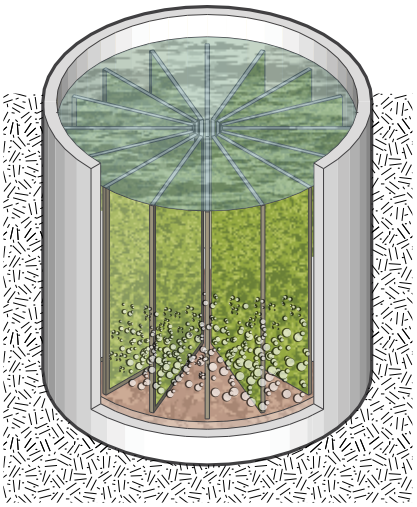
Cell 2

Fish effluent is converted to a stable sediment that supports aquatic plants and filter organisms.



Cell 3 and 4

Cells 3 and 4 continue to improve water quality and convert nutrients, providing adequate conditions for the algae, turf screens and aquaponics to grow.



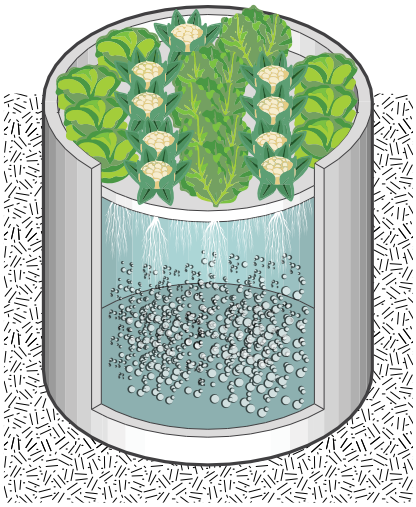
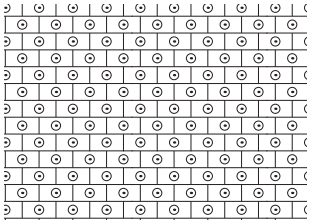
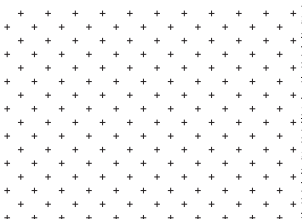
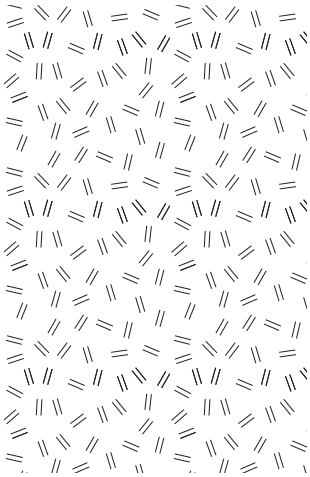
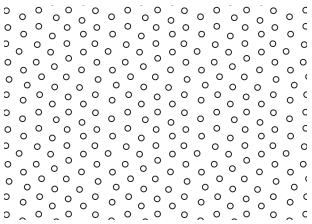


Fig. 84 Aquacultural cell system proposed by John Todd (Author, 2019)

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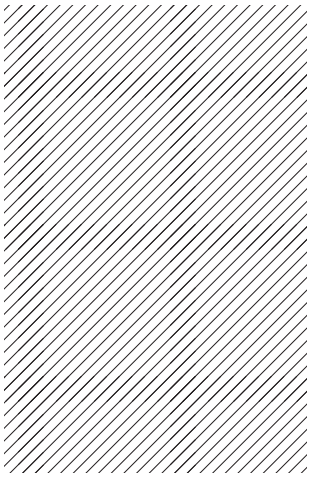
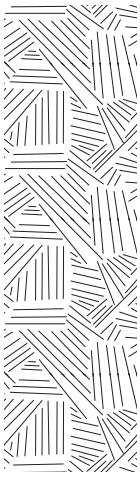
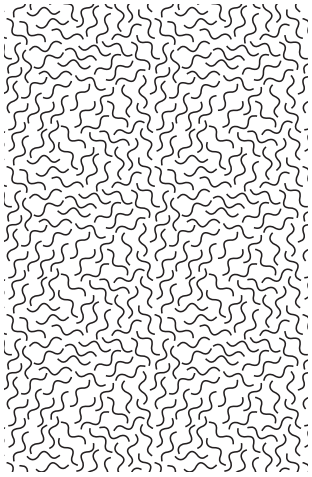
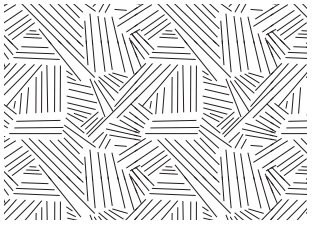
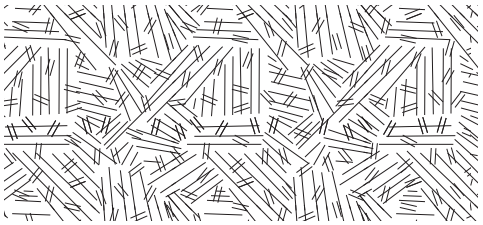
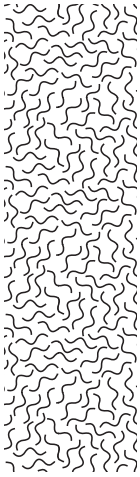
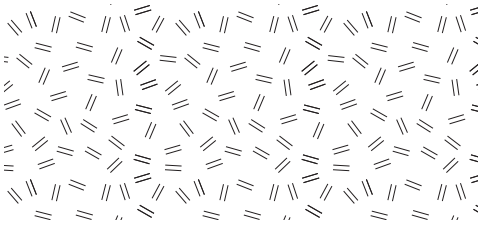
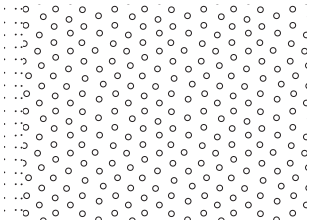



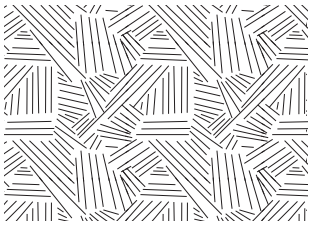
Constructing a site based hybrid ecological landscape

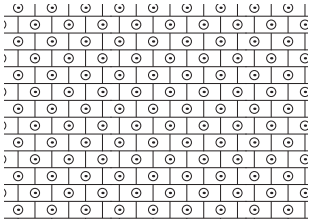





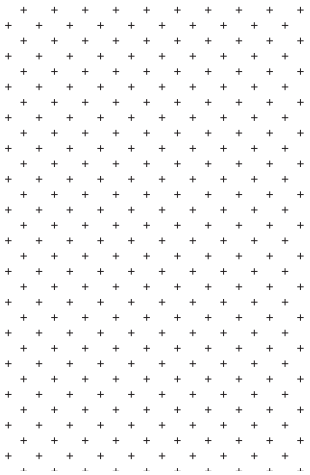




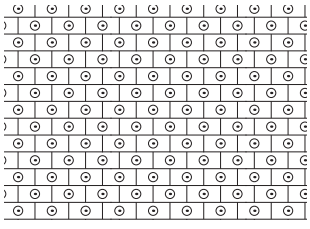
CHAPTER four



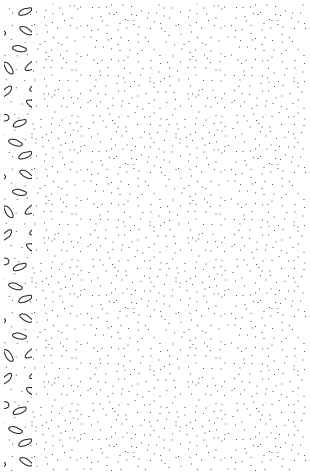




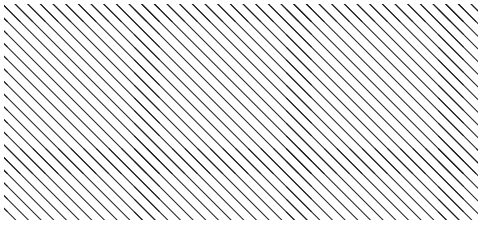
Introduction
This section synthesizes the preceding chapters in a spatial format. Proposing flexible and adaptable ideas that resist architectural obsolescence is the target. These notions underpin the design response to invoke a new cultural identity that responds in a multilayered manner. A mere rigid paradigmatic representation is resisted. Applying a complex composition of the three order functions that merge socio-political with ecological factors necessitates a new spatial hybrid.

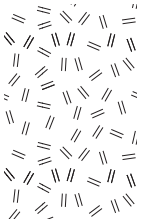


These ideas are echoed in Sébastien Marot's (Corner 1999: 50; Waldheim 2006: 145) four spatial principles that underpin a site based landscape: anamnesis; preparation; three-dimensional sequencing; and relational structuring. Marot's principles are extended by a taxonomy of design concepts proposed by Marcel Smets: grid; casco; clearing; montage (Waldheim 2006: 140).



Analysing the chosen site through this conceptual framework results in a series of site conditions that are recognized.





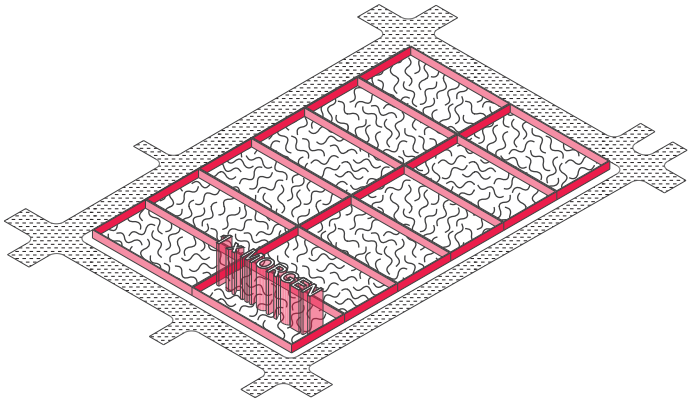
Fusing the beforementioned frameworks form the conceptual basis of this dissertation. Responding to these attributes with architectural spaces translates into a new cultural identity. Analysis of the site and responses thereto are generated by viewing these layers as informants to the design process that builds on and synthesize itself with the specific qualities of the setting.

Anamnesis	Views landscape as an expression of culture, a conversation where one listens to what has been said before and responds in an informed spatial manner.
Preparation	A process rather than a product (Corner 1999: 50). Preparation takes into account the passing of time, cycles, seasons, and weathering – viewing a landscape as a cyclical dynamic organism.
Three-dimensional sequencing	Considers all the layers that compose the landscape, addressing the interactions and transactions between these various strata.
Relational structuring	Both anticipate and build new relationships between objects in the landscape and strive to go beyond the scope of the brief and the site.

Casco	The design becomes a receptacle that reflects and mediate the layers that constitute the existing conditions of the site.
Clearing	The landscape becomes a binding backdrop that accommodates new interventions
Montage	Piecing together and superpositioning programmatic and compositional layers.
Grid	The grid forms a pre-established regulatory model and underlying structure that order the landscape.

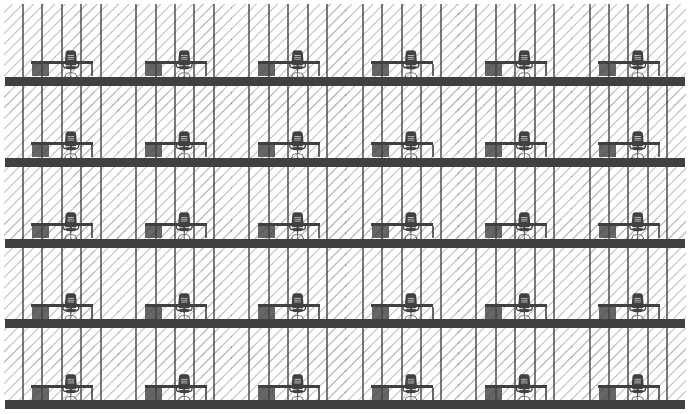
HISTORICAL ERF LOT SIZE: MORGEN

The origical city block comprized of twelve morgen lots. This pattern was altered as time progressed.



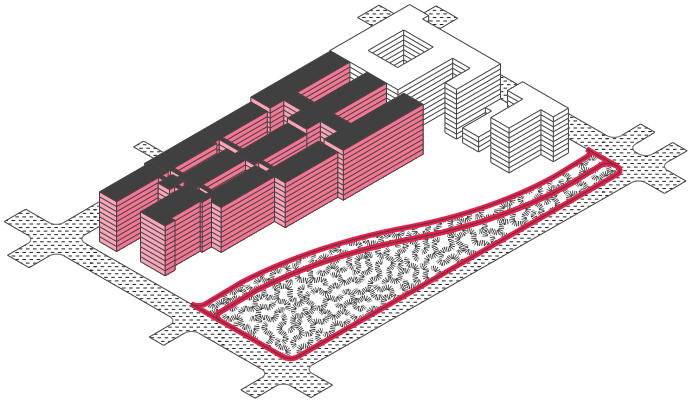
MONO-FUNCTIONAL STATE BUILDINGS

The existinhg government buildings comprise of only administrative functions. As such have little to none urban activity on the ground floor due to this characteristic.



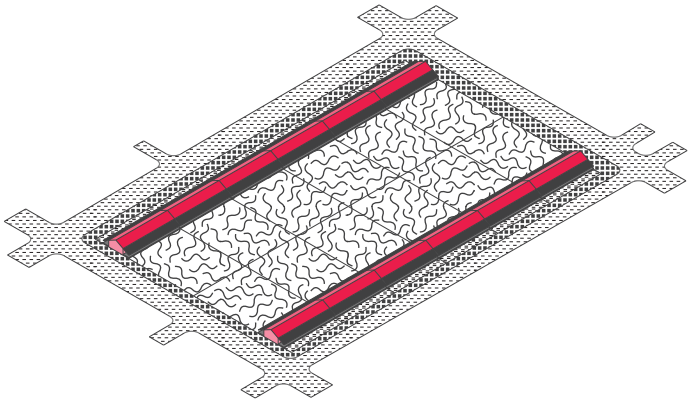
MODERNIST MEGASTRUCTURES & SCHEMES

Both the existing government buildings and the Nana Sita freeway are megastructural in scale.

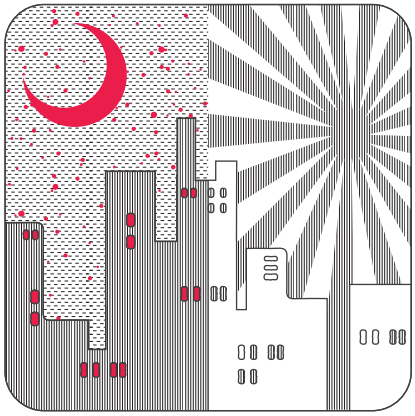


DOMESTIC TYPOLOGY SPATIAL LAYERING

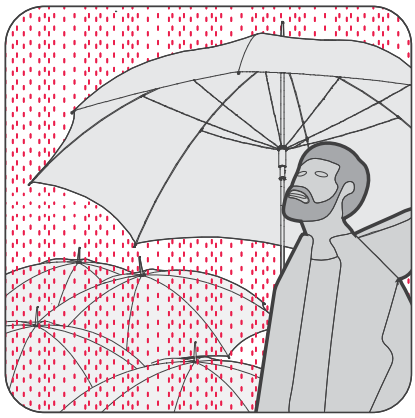
Before the Modern paradigm, most city blocks comprized of domestic spatial layers as described in the paradigm analysis.



PASSAGE OF TIME



CHANGING SEASONS



PLANT GROWTH OVER TIME

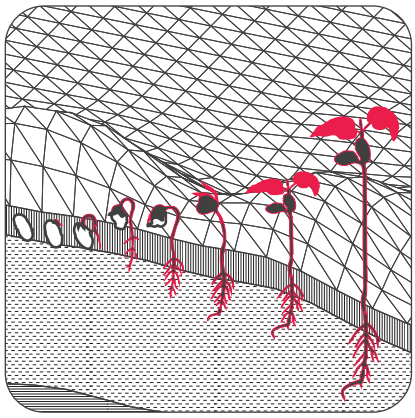
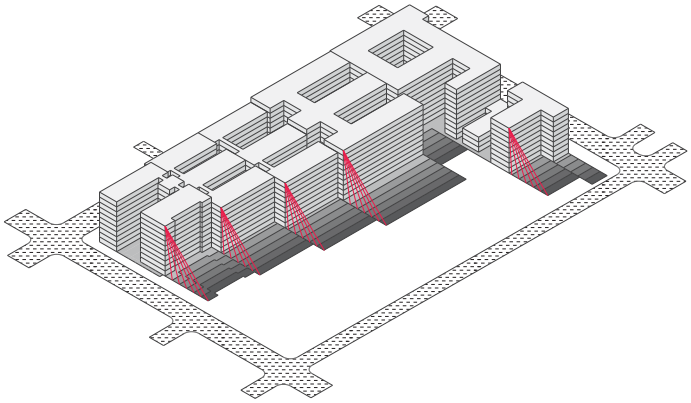


Fig. 85 Conceptual framework diagrams part 1 (Author, 2019)

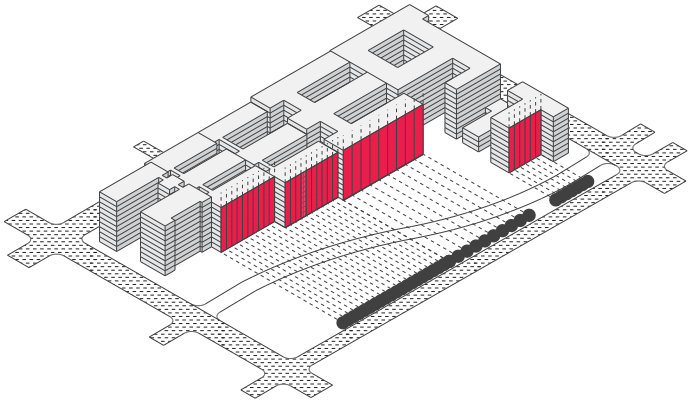
BUILDING SHADOWS

Far reaching shadows are evident on the southern side caused by the tall government buildings on the north.



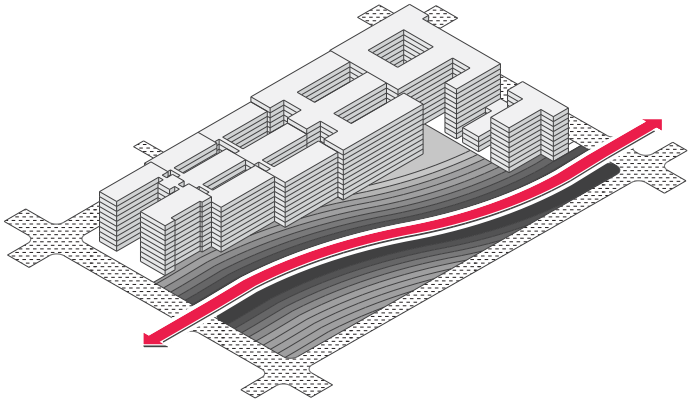
FACADE GRID

The facades of the existing government buildings are typical of the Modern period. Concrete columns and slabs form a rational grid with glass or brick panels fitted in between.



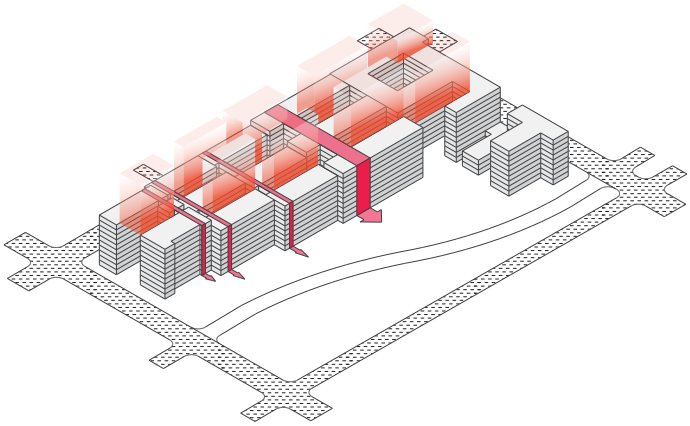
PRIVACY & ACTIVITY GRADIENT

The pedestrianized road forms a privacy and activity gradient on either side of the route.



TYPOLOGICAL CHARACTERISTICS

The existing government buildings indicate typological climatic responses. Built mass are arranged along the east to east axis with courtyards in between segments. A central circulation core ties the building segments together.



MEDIATION OF BUILDING SCALE

Mediating the building heights of the tall government buildings to a lower human scale is important. The bigger scale will be situated at the north while the southern portion of the site might have a smaller scale.

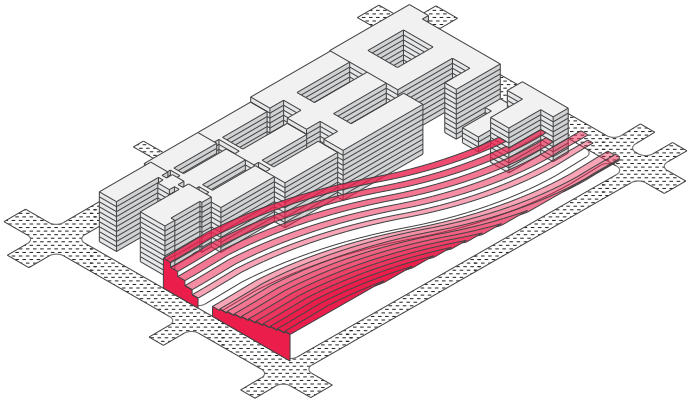
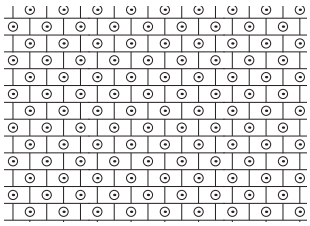
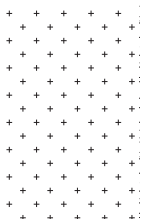
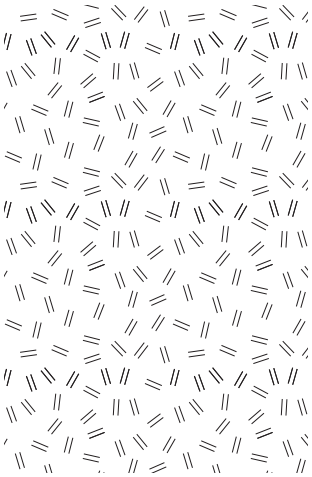
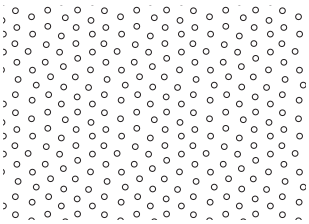
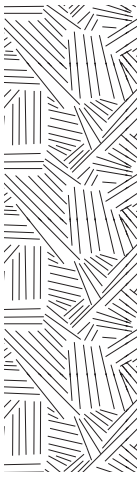
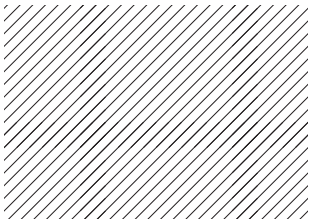


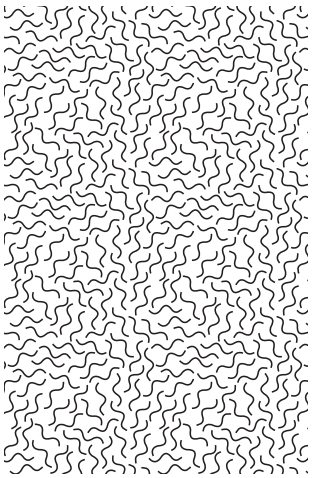
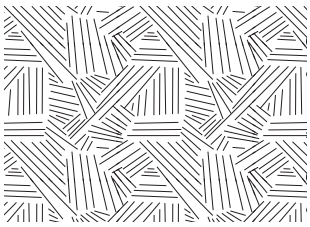
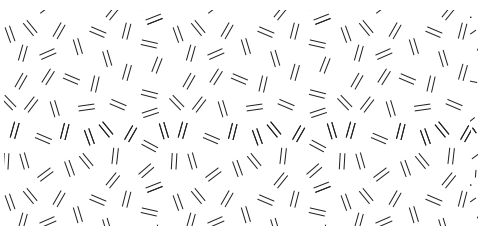
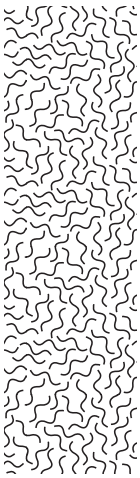
Fig. 86 Conceptual framework diagrams part 2 (Author, 2019)

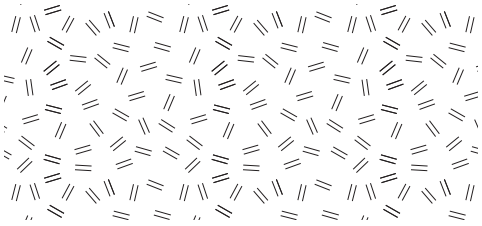





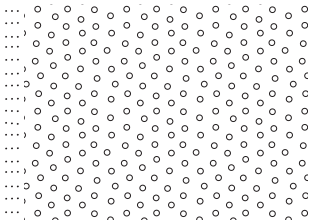
DESIGN

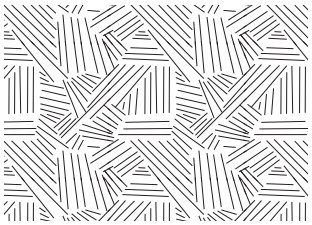
Iterating design options
and synthesizing ideas

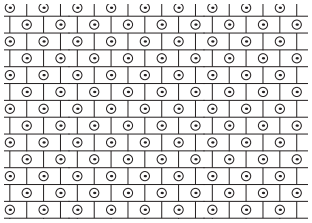





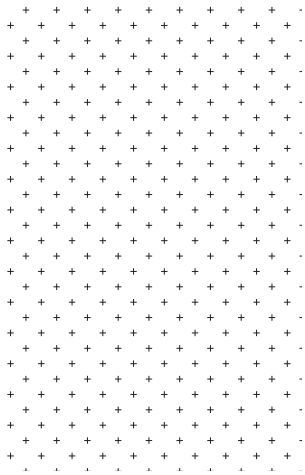




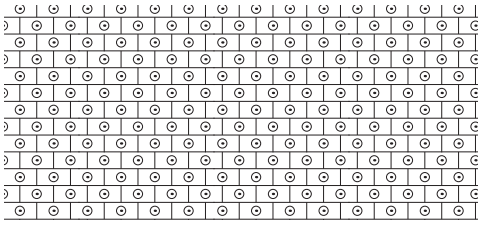
CHAPTER five

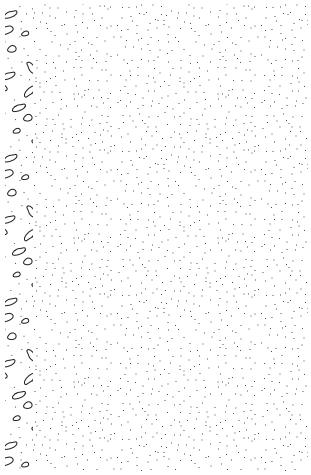


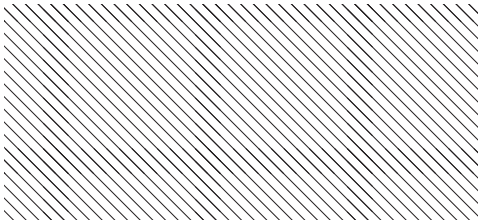


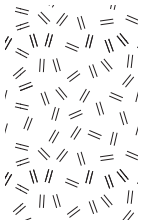


Introduction
This chapter's aim is to function as a synthesis between the preceding chapters. Responses to the conditions on the site are generated through an iterative design process that uncover a series key design features used to develop a taxonomy of design characteristics resulting in a final design proposal.





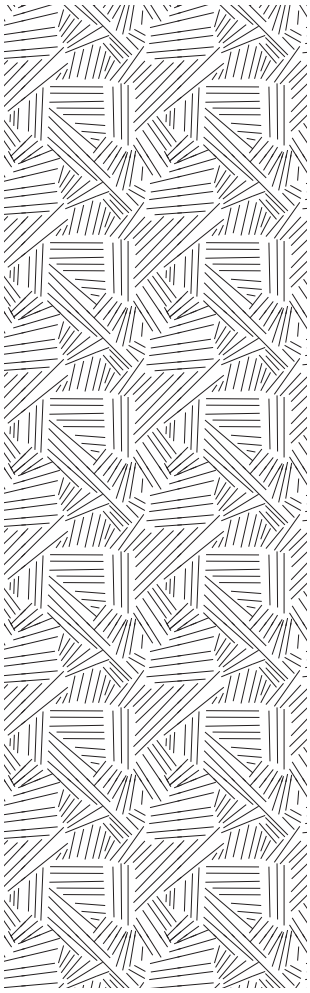




IDEA 01

In Response to Theory Lens One

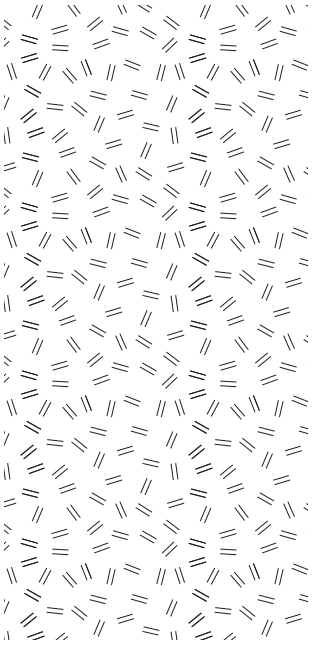
An innovative set of ideas, that invoke a new identity capable of absorbing a paradigm shift, is proposed. While recognizing that ideas change continually, this concept counters rigid representations and seeks flexibility and adaptability as a response to existing urban and architectural conditions.



IDEA 02

In Response to Theory Lens Two

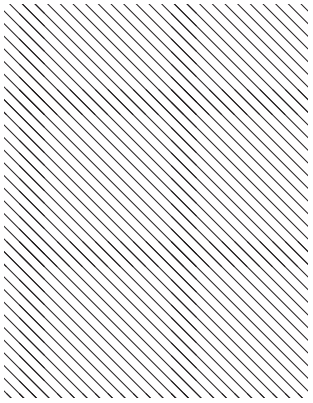
Establishing a rigid partial identity disregards diverse characteristics and results in the erasure of the unique identities of "the others". As such, identity is approached as a subjective notion in which an open-ended solution is sought. This idea is strongly reflected in the proposed program as one steers toward addressing a current socio-political condition with ties to the Apartheid era, as reflected in the Nana Sita Freeway. A new spatial hybrid will be created by fusing local discourses with Western traditions.



IDEA 03

In Response to Theory Lens Three

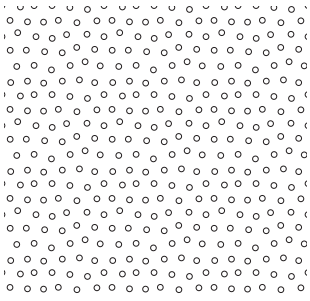
Human life is supported by a landscape that includes natural and cultural processes. Both aesthetic and functional requirements will be incorporated into the spatial landscape. The local ecology will be employed to order the site and remediate wasted and wasteful space, thus architecture will not be the primary ordering tool. The site design offered can potentially be abandoned. Such an approach amalgamates socio-political and ecological conditions and aims to surpass utilitarian considerations by integrating infrastructure as a spatially interconnected public amenity that incorporates social, aesthetic and ecological considerations and relationships.



IDEA 04

Response to History

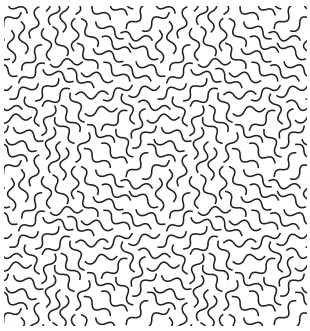
Evident in the development of the city was its changing relationship to the landscape. This dissertation aims to contribute and uncover a historical condition and provide a new relationship to a living landscape in the city. Living infrastructural systems are introduced to address this notion. Furthermore, the historical intentions of the Ring Road Scheme of 1967 is reinterpreted to offer a infrastructural landscape that has the capacity to function as a public space and amenity simultaneously. The scheme incorporates vehicular , public and waste processing infrastructure within the public experience. To address the demolition of the previous landscape, structural elements allocated within the grid to invoke the previous built fabric.



IDEA 05

Response to Context

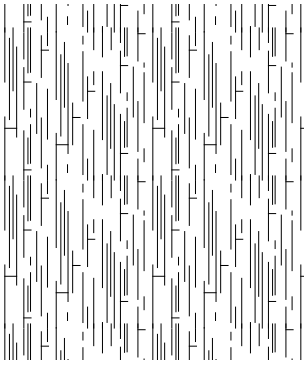
The response to context starts by remediating the damaged lots by stitching the block together to align with the city's existing block structure while addressing the edges of the site well which encourages public use and pedestrian movement. This dissertation connects with the Tshwane Vision 2055 by promoting a prominent public space along the Paul Kruger boulevard. The proposed living systems become an important green asset for the lacking green space in the city. The site becomes a sample project for the along rest of the Nana Sita Greenway infrastructural scheme. This greenspace is productive , provides a dense mixture of uses and produces outputs that tie into the larger urban framework that establish relationship beyond the site.



IDEA 06

Response to Program

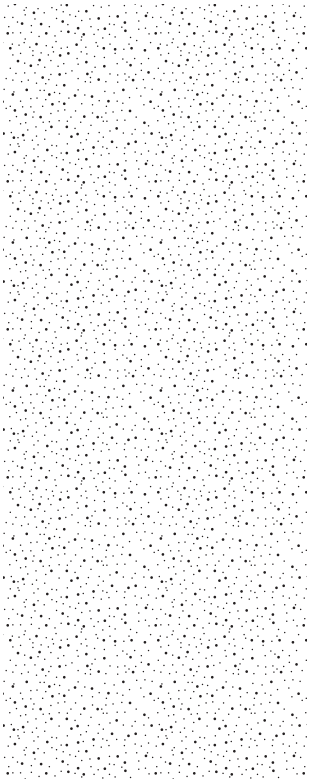
The proposed three order program aims to address the poor relationships between the citizen and the government, internal governmental relationships. Adressing this socio-political condition combined with service delivery needs, which has a definite ecological impact to uncover a spatial expression to this issue. This relationship is also evident in the government buildings themselves. As such, these dissertation aims contribute spatially to this problem by providing a new and better spatial relationship. The aim is to develop an architectural response that includes a spectrum of functions of which the government is responsible for through addressing the three orders spatially.



IDEA 07

Response to Technology

The approach to technology is informed by an understanding that as change occur, some technologies becomes obsolete. Flexibilty and adaptiblity of spatial configurations are important to adjust to the changing demands of spaces. As such, the relationship between temporary and permanence will be experimented with. A key feature is to consider the life of the building and allow for a spectrum of scenarios in which obsolence could occur.



INITIAL CONCEPTS

Fig. 87 Tower (Author; 2019)

A high-volume landmark-type structure is utilized to initiate a new identity. Materializing this concept occurs through a building being placed on top of the landscape while the infrastructural terrain experience occurs on the ground floor of the edifice.

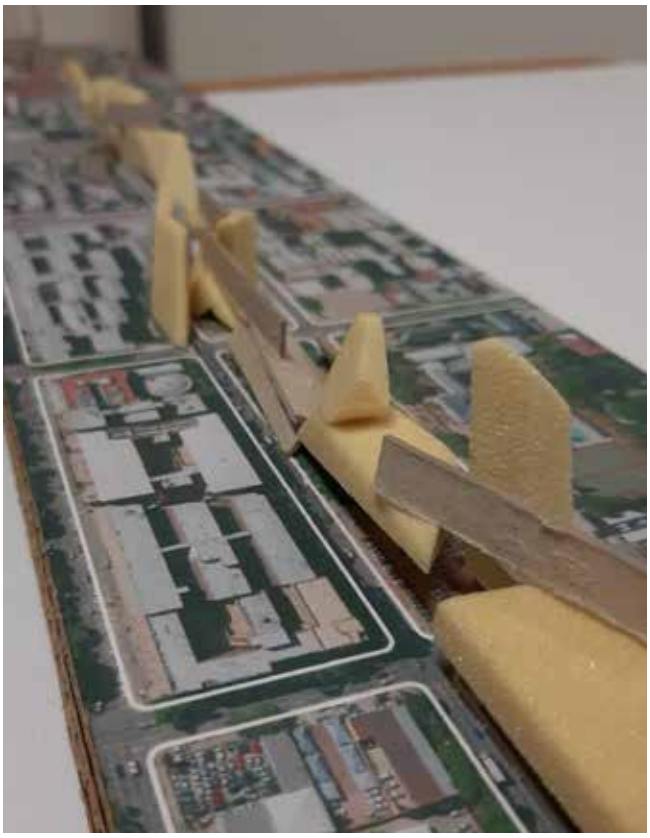


Fig. 88 Landscraper (Author; 2019)

As a critique of the previous idea's thoughtless approach, the building is turned horizontally so as to more effectively become part of the landscape. However, this model remains a rigid concept that fails to dialogue with the setting. Functions are aligned in a linear fashion that extends lengthwise. While a better relationship with the ground floor is achieved, the concept consists of an unnecessary amount of built fabric "on top" of the site.

Fig. 89 Primary massing model (Author; 2019)

This prototype explores the built fabric as a fluid form in which the base and roof merge with the landscape. The spatial experience takes place along a route. Although this formal response has aesthetic advantages, critical reflection indicates a poor relationship with various site conditions, especially as regards existing buildings.

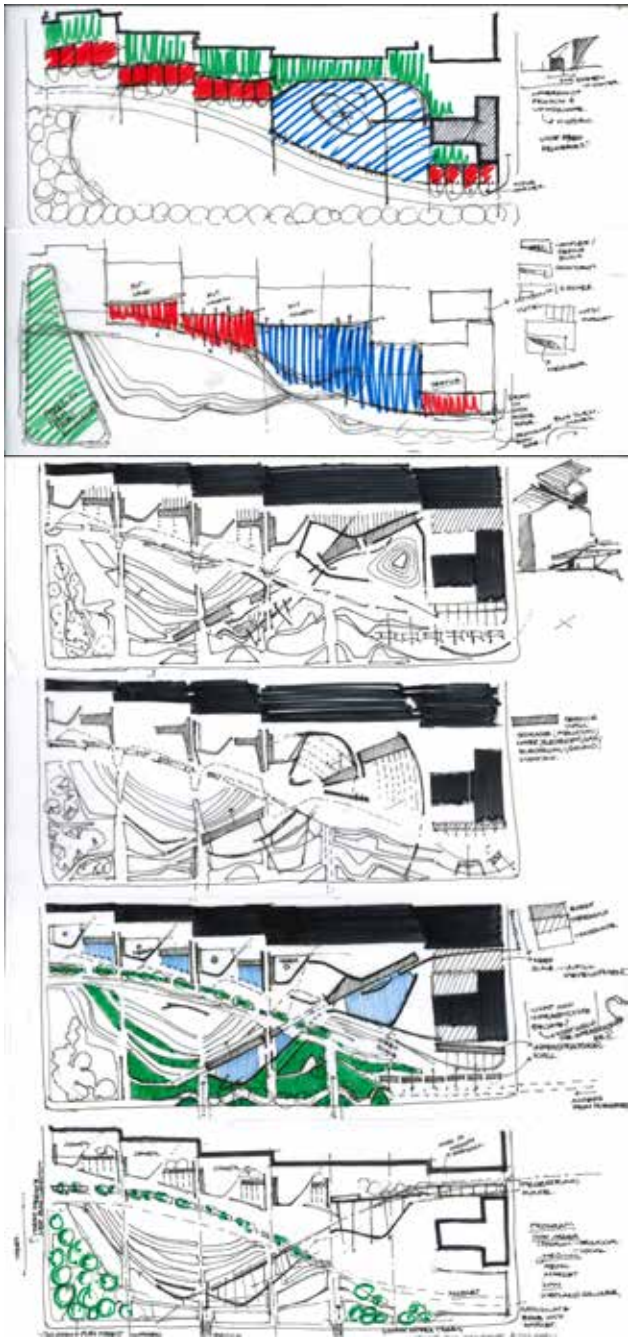


Fig. 90 Initial site sketches (Author; 2019)

These initial sketches introduce the new built fabric as a reconsidered boundary to conditions vis-à-vis the southern portion of the state buildings that are located between the pedestrianized Nana Sita lanes. The landscaped portion is situated on the stagnant island between the two lanes. These iterations respect the original Nana Sita infrastructural layer that separates the city block at the corner of Nana Sita and Paul Kruger Streets in Tshwane.
As the conceptual development continued, built forms that flow across the pedestrian lanes and merge with the landscape were conceived to articulate a new boundary condition relative to the state buildings, which includes a private courtyard and a recreational area that is coupled with the citizen participation platform.

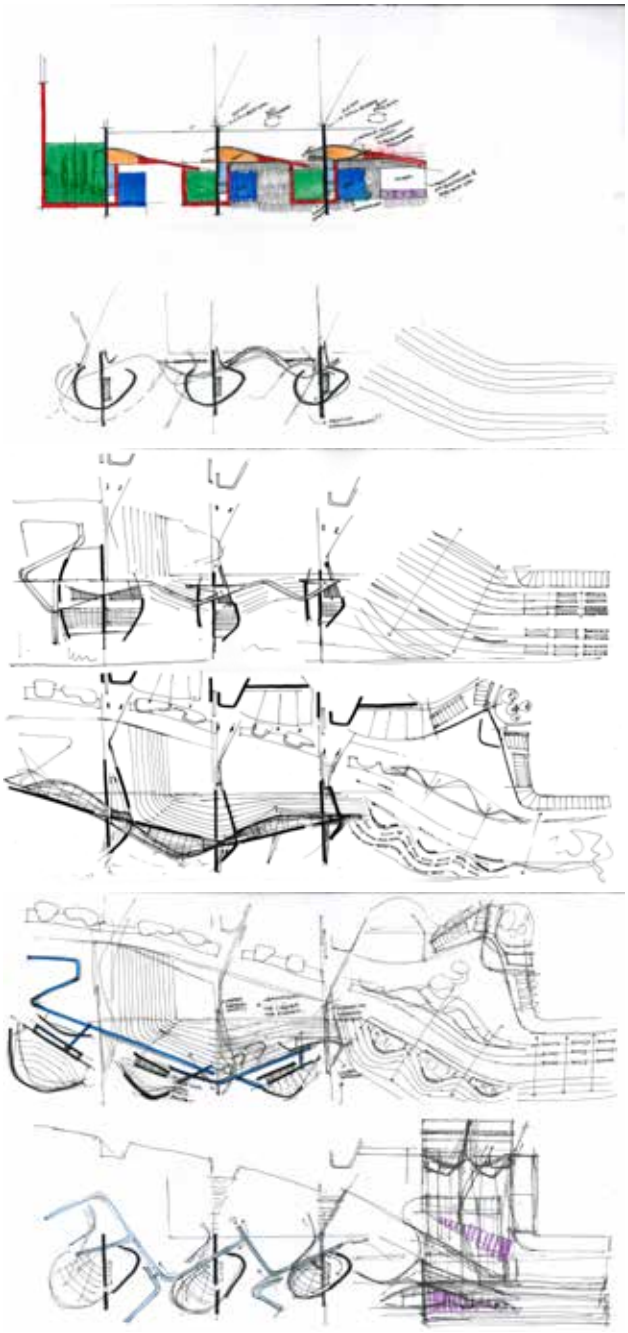
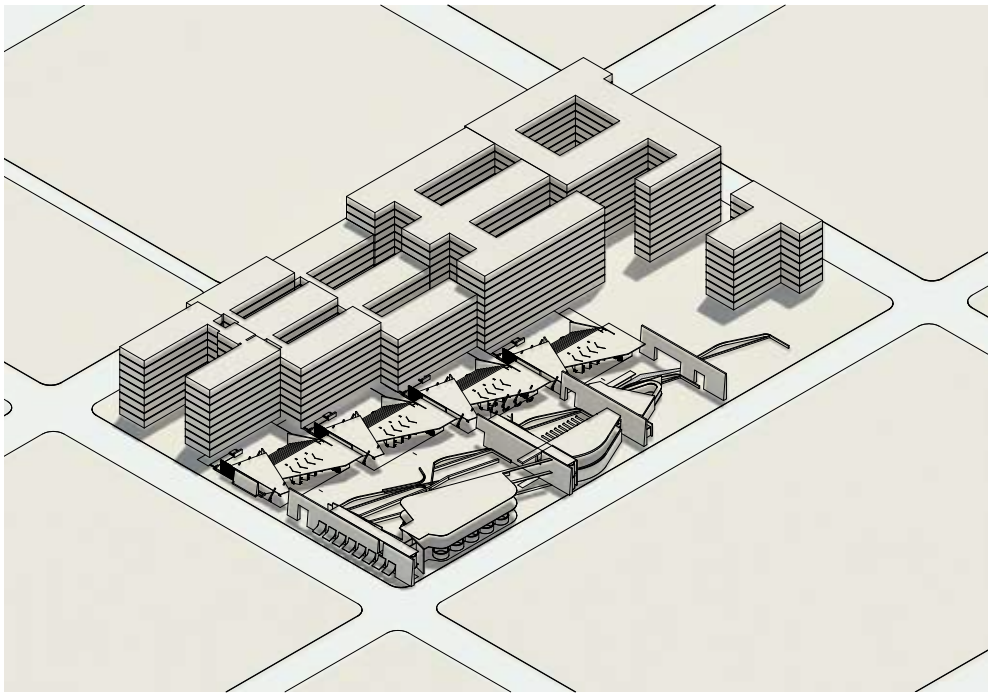
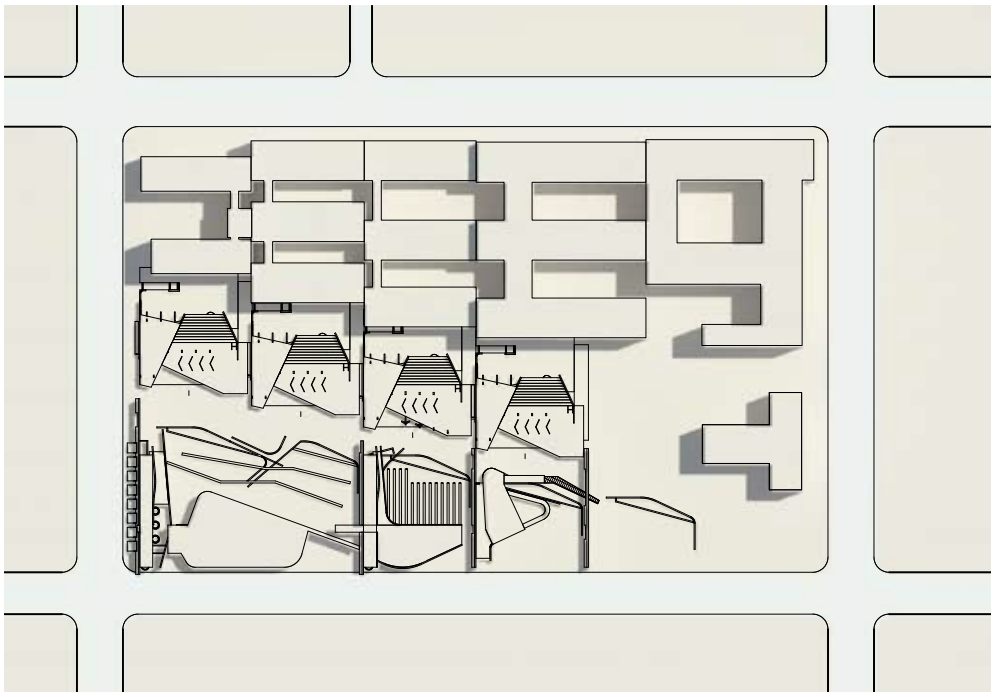


Fig. 91 Secondary site sketches (Author: 2019)

This series of drawings present the forum spaces that form part of the terrain in which the user will experience both the high and low orders simultaneously; the high order being the three spheres of government and the low order presenting the priority one functions of local government, including refuse removal and water and storm water reticulation. An experiential route links the various forum platforms with the hybrid landscape's support functions in order that one may view the processes involved. A common issue concerning these duplications is the everyday pedestrian's poor scenery experience and the surroundings' poor relationship with the street on the south side. The southern portion essentially turns its back on the street and disregards pedestrian movement on the outer edge of the block.

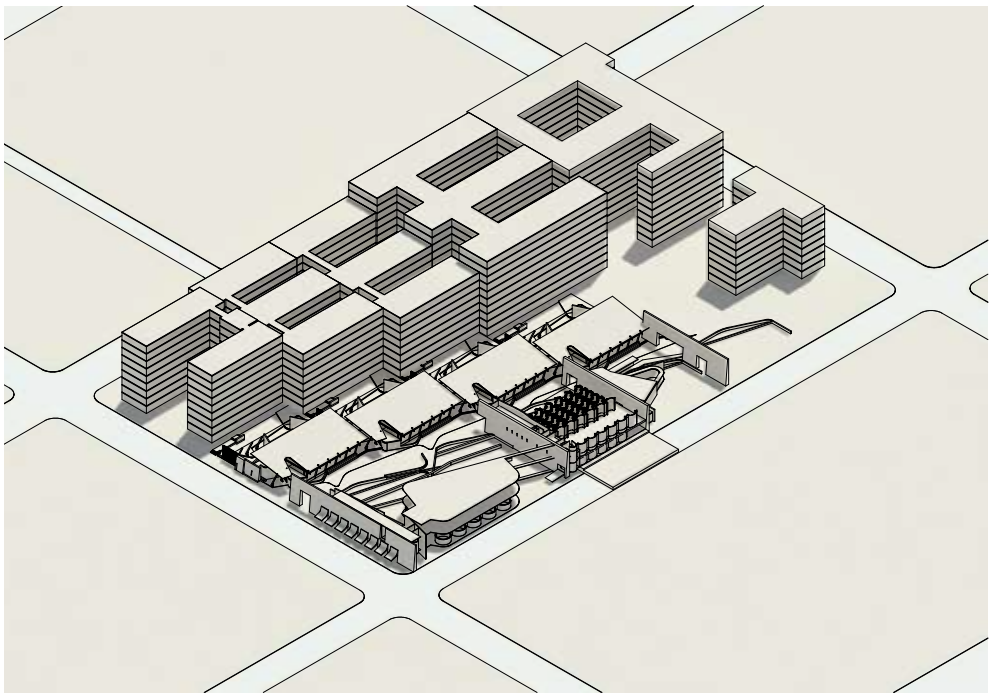


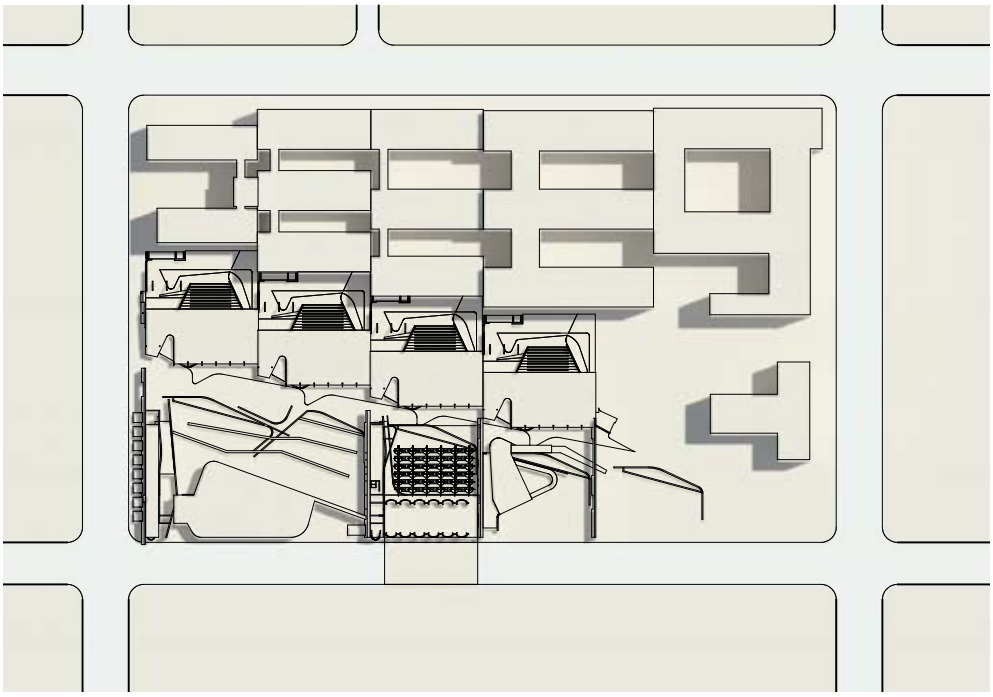


ITERATION 01

Fig. 92 Iteration 01 (Author: 2019)

This study builds on the previous drawings and focusses on the historical erf sizes as a series of stereotomic boundaries that one can pass through, with spaces situated in-between.

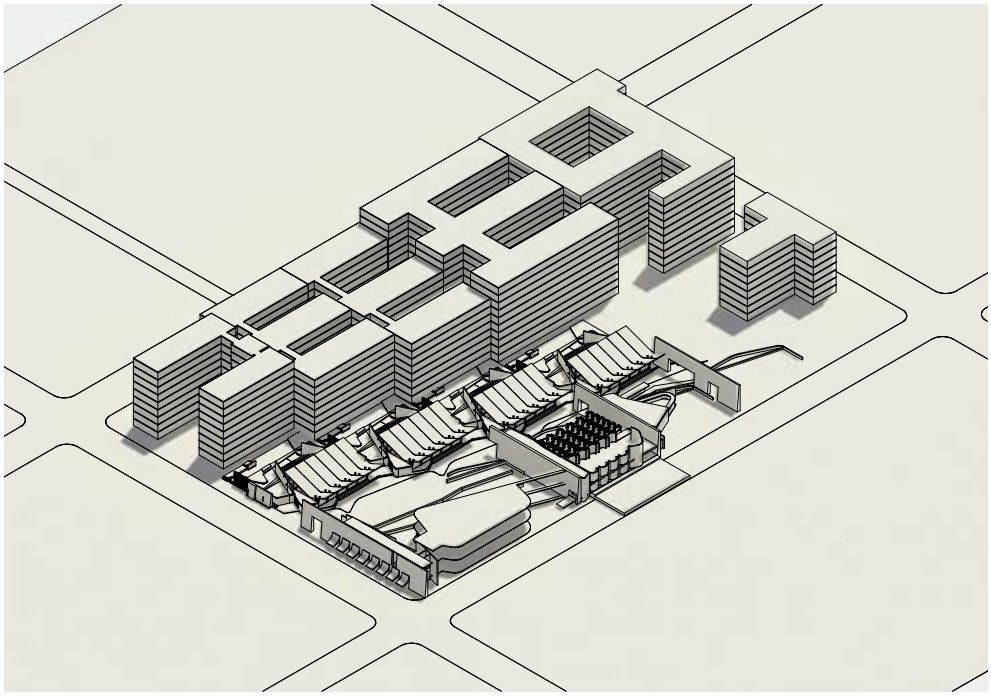


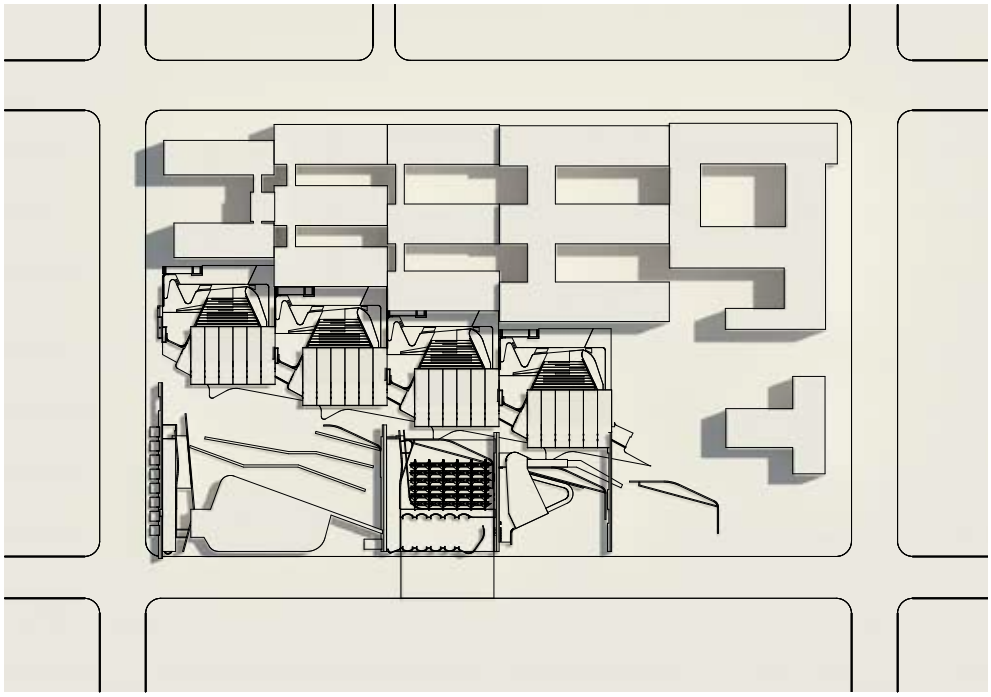


ITERATION
02

Fig. 93 Iteration 02
(Author; 2019)

To break the stagnant dynamic of the plan, the altered grid resembles strings, which are strung between two points, being pulled apart. Roof structures are iterated in a similar fashion.

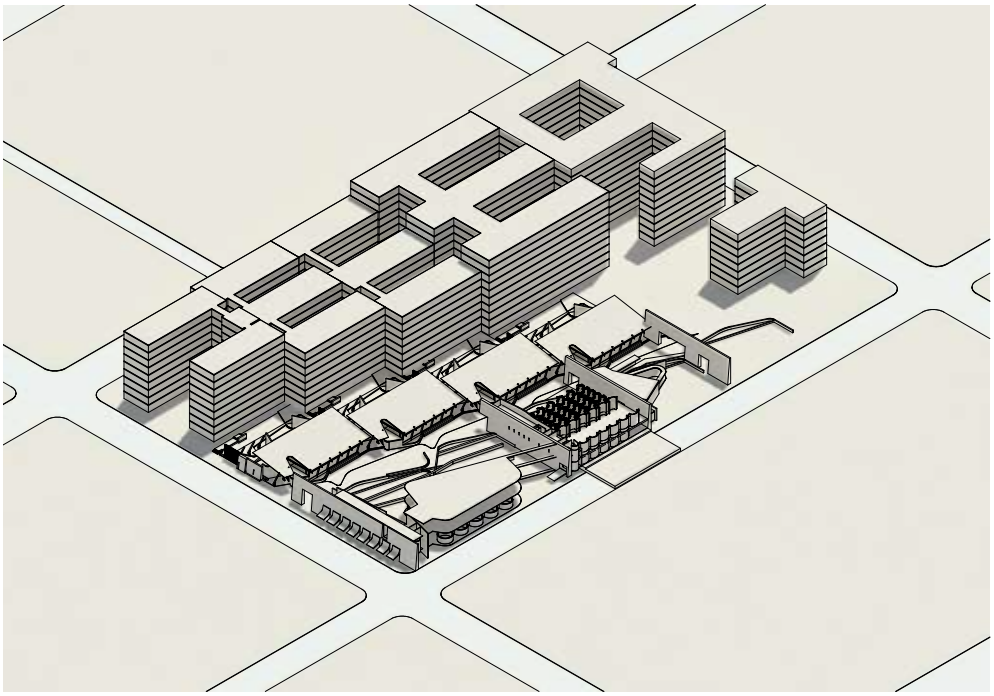


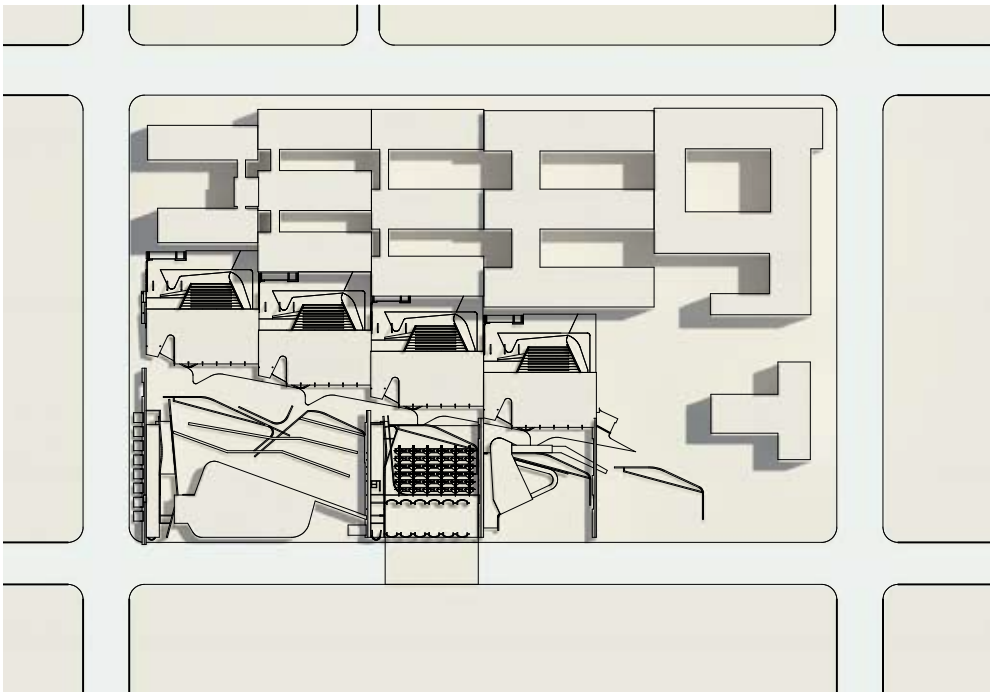


ITERATION
03

Fig. 94 Iteration 03
(Author; 2019)

This restatement indicates a gradation of courtyard spaces that range from public to semi-private to private. Facilitating a series of functions allows for flexibility and adaptation. The layering of boundaries between spaces and the manner in which these are occupied by the users became a conceptual driver. This idea is echoed in the use of thick walls and tiered surfaces in which defined spaces are available for different functions and applications.





ITERATION
04

Fig. 95 Iteration 04
(Author; 2019)

The roof structures are restated and the scale of the boundary walls is reduced. Making thick walls narrower will facilitate walk-throughs from one area to another and the historical layers are disclosed as one progresses through the different landscapes. The market is added to the Eastern portion of the site with green space in-between.

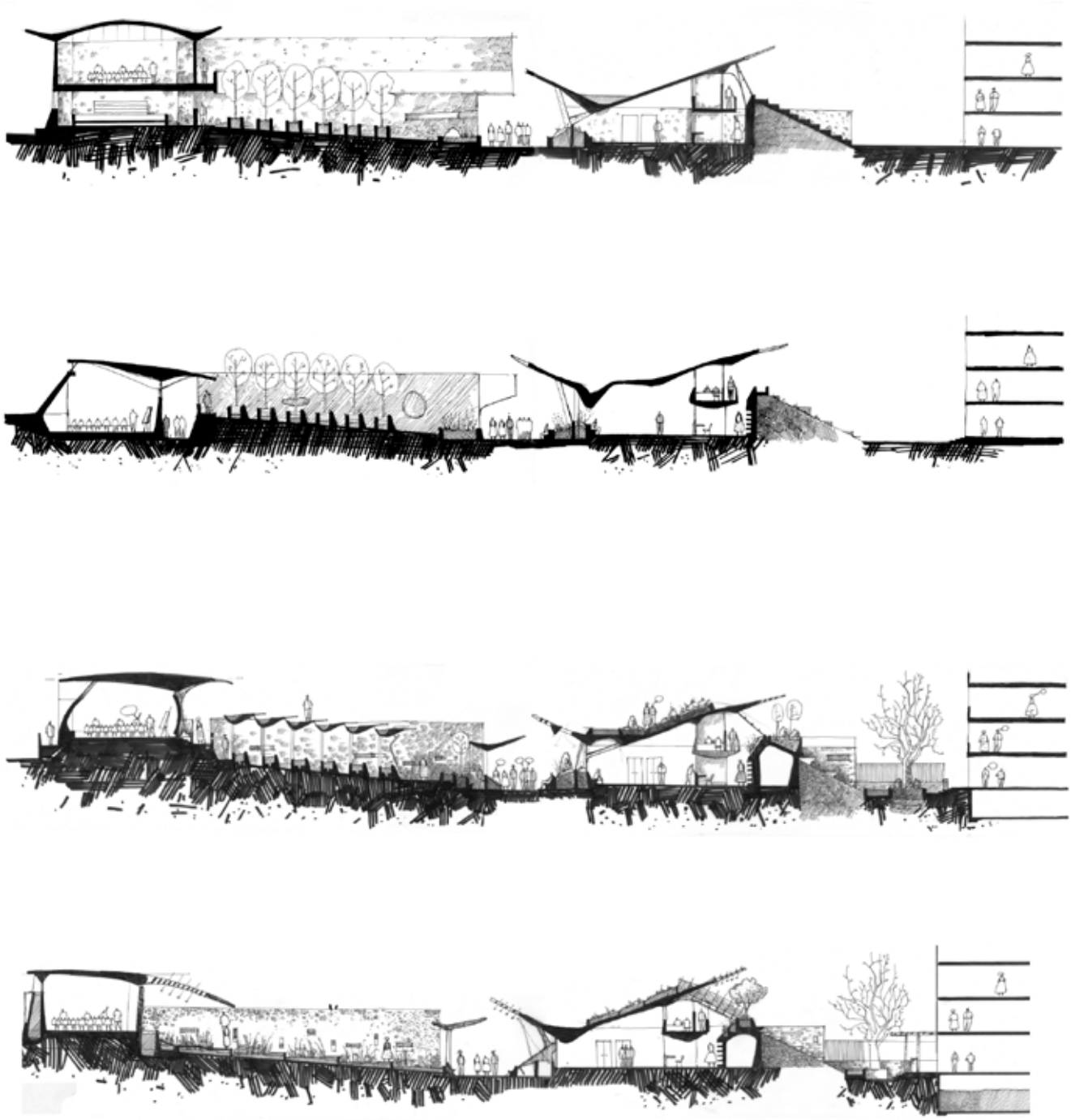


Fig. 96 Iteration 4 section exploration (Author; 2019)

The poor response to the street edge has been fundamental to the investigation thus far because the functional activity is turned inward, away from the street. Furthermore, the repetitiveness of the citizen platforms indicates a lack of spatial variety while elements are placed on top of the landscape and fail to form part of it. The pedestrianized route cuts the site into two portions, which results in the everyday pedestrian having a limited experience regarding ecological systems. A series of spatial responses was developed based on an understanding of the site. At a certain point, it became necessary to reconsider the design approach and investigate an alternative set of responses that would build on the study undertaken hitherto in order to find solutions to the challenges presented by the site.

RECONSIDER

Fig. 97 Sketch iterations of the reconsidered approach (Author: 2019)

This exploration is based on the conceptual study embarked on to date and the extraction of crucial design components. The layered courtyard spaces to the south of the state buildings remain a key feature. A hierarchy of routes was decided on. The primary pedestrian route is situated on the south perimeter of the block with secondary routes –whereby the various functional areas can be reached – cutting into the area. The secondary routes signify the historical morgen boundary lines. All three order programs establish a vital connection to the ecological landscapes since spaces flow into these natural systems.

In response to the Tshwane 2055 vision that imagines a ceremonial boulevard along that route, a formal water square – which forms a visible storm water retention pond – is added adjacent to Paul Kruger Street. The intergovernmental forum platform is placed next to the square. A trading edge that mixes street vending with formal retail functions – along the south-western edge of the block – is proposed. This enables passive surveillance and an active street edge.

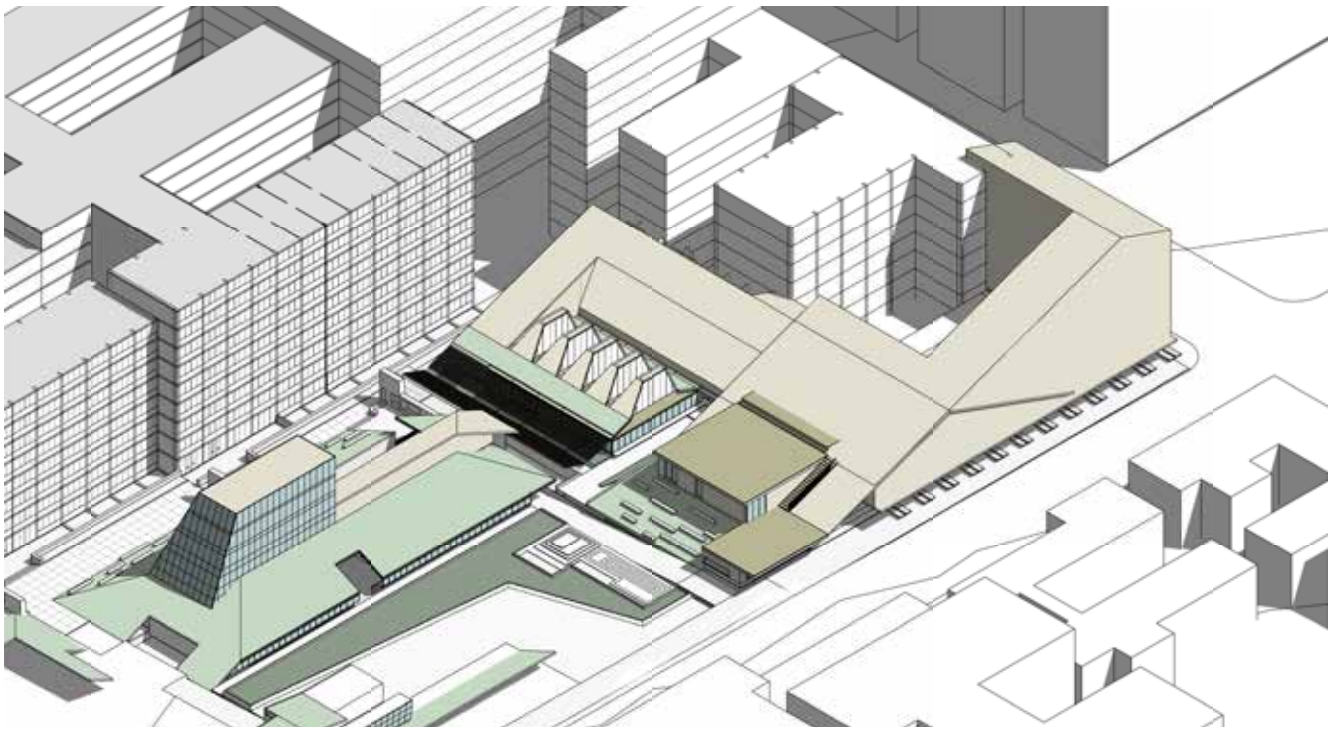


Fig. 98 Iteration 5 (Author; 2019)

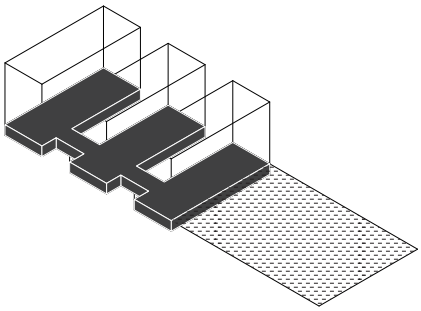
The replications that follow break the repetitive nature of the location by merging the landscapes and allowing for two secondary routes along the morgen boundary lines. The western route extends beyond the site to the north and south. A semi-private route is formed to the east, serving the citizen participation platform for the Department of Water and Sanitation. Experimenting with the formal logic of the built forms led to the use of tiered surfaces by which spatial responses are defined. Similar to the primary massing model, the roof landscape becomes an extension of the ground landscape. As characterized by the adjacent buildings, however, the form remains controlled by the grid. Spaces that are carved into the earth encourage downward movement along the slope of the site.

Synthesis
Compiling spatial knowledge gained through the iterative process resulted in a series of design responses in order to construct a site-based hybrid ecological landscape. These spatial ideas manifest in the form of a final design proposal.

DESIGN TAXONOMY
A SERIES OF FEATURES

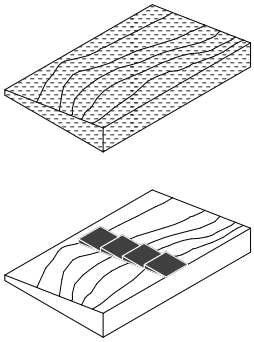
01 UTILIZE BASEMENT

The existing basements of the government buildings are utilized as storage reservoirs for harvested water.



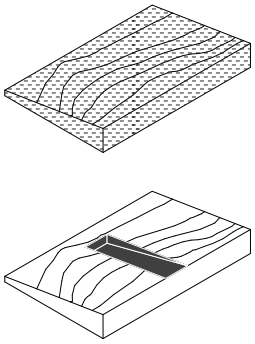
02 STEP FLOOR SURFACES

Floor surfaces are strategically stepped to follow the slope of the site.



03 CUT INTO THE SITE

The experience of going "into the soil" is emphasized by cutting into the site as it sloped down. This strategy enables the height of the building to become lower.



04 SPREAD SYSTEMS

The chosen living systems are spread across the site to allow for a range of spatial oppertunities to occur.

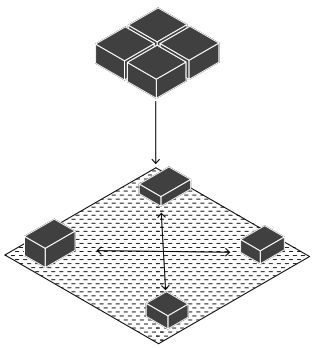


Fig. 99 **01** Design features: Utilize basements (Author; 2019)

Fig. 100 **02** Design features: Step floor surface (Author; 2019)

Fig. 101 **03** Design features: Cut into the site (Author; 2019)

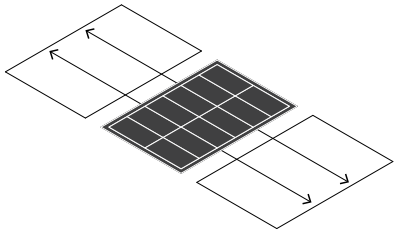
Fig. 102 **04** Design features: Spread systems (Author; 2019)

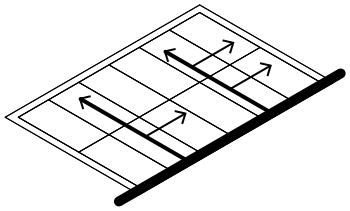
05 CIRCULATION ROUTES ACROSS BLOCKS

In response to the urban framework , pedestrian routes link across the block to promote pedestrian movement and permeability.

06 HIERARCHY OF PEDESTRIAN ROUTES

Pedetrian routes are arranged according to a spectrum of importance.



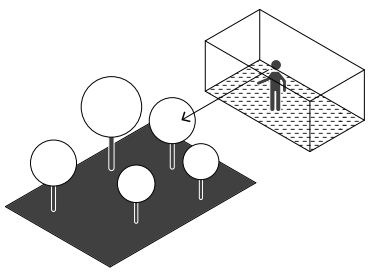


07 ESTABLISH LANDSCAPE CONNECTIONS

A variety of landscape experiences are offered in the design.

08 COMPLETE AND ARTICULATE EDGES

Articulating the edges of the block is also done by giving scale to that portion of the site.



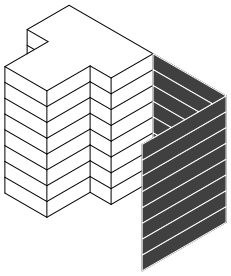


Fig. 103 **05** Design features: Circulation routes across blocks (Author; 2019)

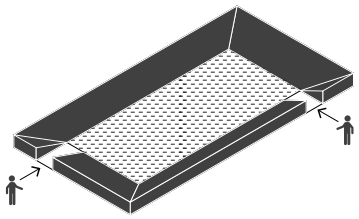
Fig. 104 **06** Design features: Hierarchy of pedestrian routes (Author; 2019)

Fig. 105 **07** Design features: Establish landscape connections (Author; 2019)

Fig. 106 **08** Design features: Complete and articulate edges (Author; 2019)

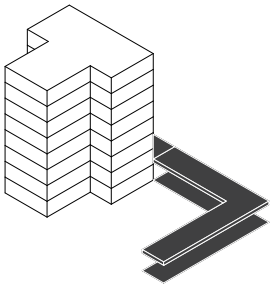
09 ARTICULATE PUBLIC SPACE

A sense of enclosure is created by atriculating the edges of the park area in the design. Entry points are also included.



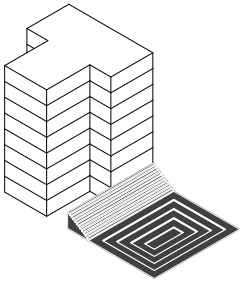
10 PROVIDE OVERHANG

The existing overhang is extended to adress the poor edge condition and protects the pedestrian from the elements.



11 PROVIDE CEREMONIAL SQUARE

A ceremonial water square is proposed to link with the Tshwane Vision 2055 framework. This square becomes part of a series of public spaces on Paul Kruger street.



12 ACCESSIBLE AND PROGRAMMED INCLINES

Flat surfaces are inclined and landscaped to mediate the slope of the roof with the ground. Programs are assigned under these surfaces.

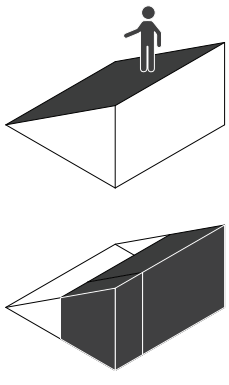


Fig. 107 **09** Design features: Articulate public space (Author; 2019)

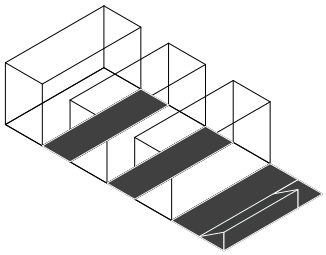
Fig. 108 **10** Design features: Provide overhang (Author; 2019)

Fig. 109 **11** Design features: Provide ceremonial square (Author; 2019)

Fig. 110 **12** Design features: Accessible and programmed inclines (Author; 2019)

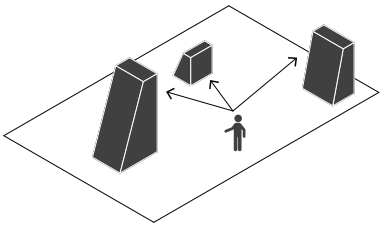
13 REESTABLISH EXISTING & EXTEND COURTYARDS

The existing courtyards of the government buildings are derelict spaces. These spaces are reestablished as green spaces and a third private courtyard is proposed as an extention of the building typology.



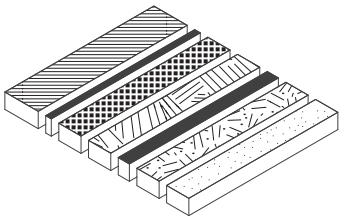
14 LANDMARKS

Higher structures mark points of importance on the site and become wayfinders and attractions in the landscape.



15 LANDSCAPE AS A SERIES OF LAYERS

The design of the architectural landscape is viewed as an uncovering of the pre-apartheid layered street.



16 EXPRESS HISTORIC ERF BUNDARIES

Thick mass elements express the historic morgen erf boundaries.

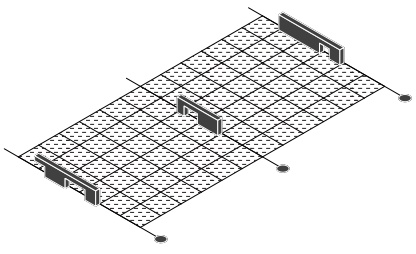


Fig. 111 **13** Design features: Reestablish existing & extend courtyards (Author; 2019)

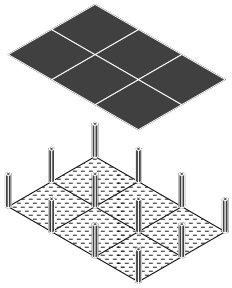
Fig. 112 **14** Design features: Landmarks (Author; 2019)

Fig. 113 **15** Design features: Landscape as a series of layers (Author; 2019)

Fig. 114 **16** Design features: Express historic erf boundaries (Author; 2019)

17 GRID THE SITE

The site is divided in a grid to order the site; respond the existing buildings and express the demolished grid when the freeway was introduced. Expressing columns in this grid uncovers structural elements from the past.



18 HISTORIC ERF BOUNDARIES AS CONFLUENCE LINES

The historic erf boundaries are viewed as important areas on the site. Important programmatic features occur along these lines.

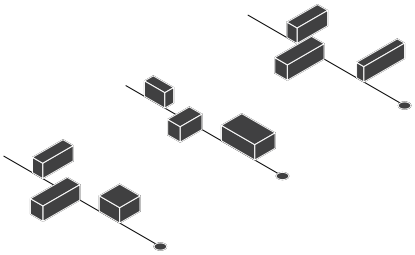


Fig. 115 **17** Design features: Grid the site (Author; 2019)

Fig. 116 **18** Design features: Historic erf boundaries as confluence points (Author; 2019)

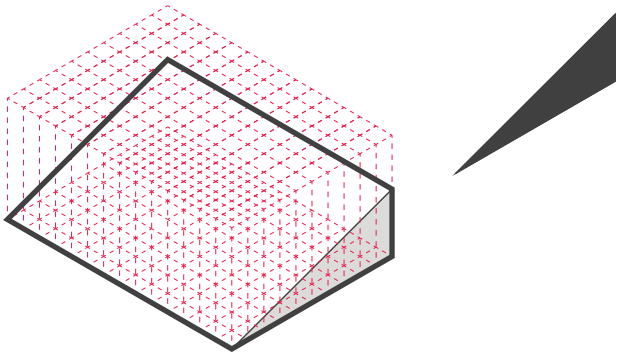
FINAL DESIGN

Fig. 117 **Spread:** Aerial perspective from the south west angle (Author: 2019)

FORM DEVELOPMENT

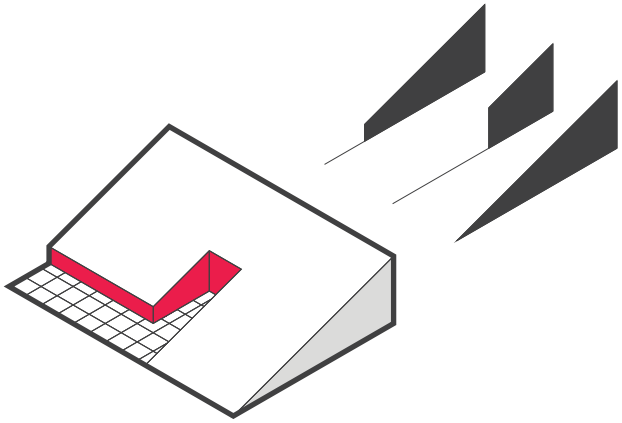
01 INCLINE & GRID

Introduce inclined surface within the grid.



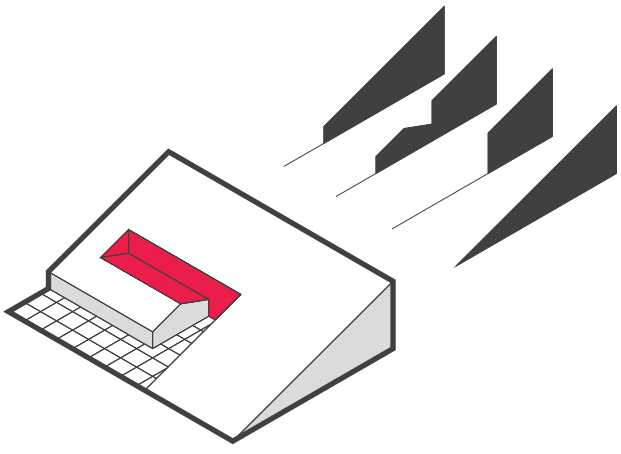
02 COURTYARD & VIEWS

Cut inclined surface to introduce a courtyard and views.



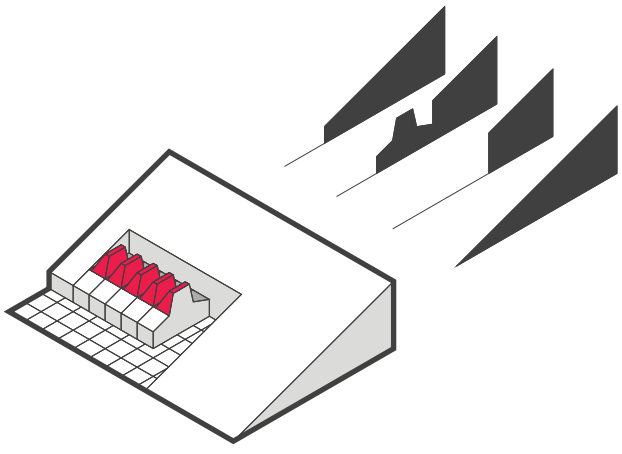
03 PASSAGE LIGHT

Cut away roof surface along the passage to encourage light penetration.



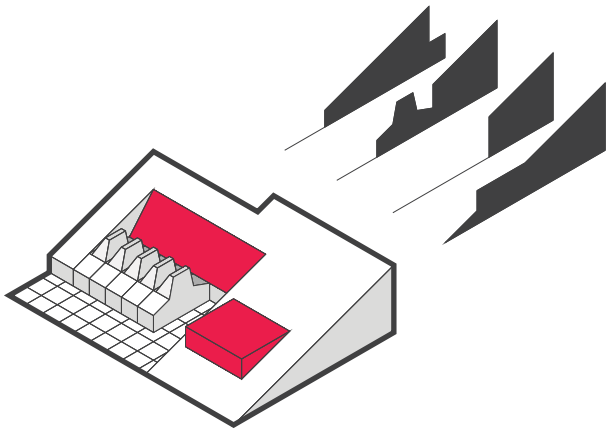
04 ARTICULATE FORUM SPACE

Articulate individual forum spaces with high volume roof structures that form clerestory windows.



05 INCREASE LIGHT & EVENT SPACE

Increase roof incline above the passage and introduce a rooftop event space above the foyer.



06 ENTRANCE & OVERHANG

Cut away a portion of the south facade to emphasize the entrance and to form an overhang along the street edge.

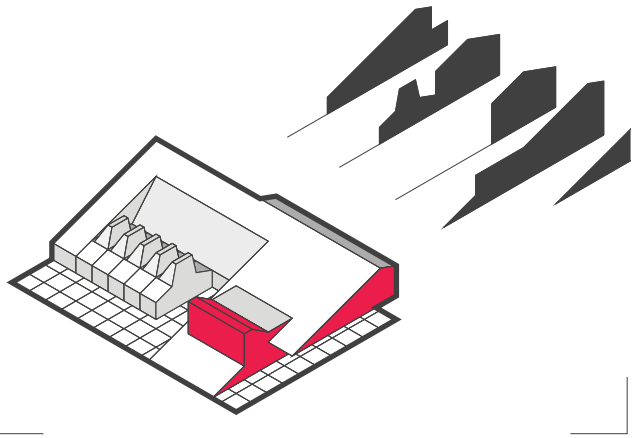


Fig. 118 **01** Form development: Incline and grid (Author; 2019)

Fig. 119 **02** Form development: Courtyard and views (Author; 2019)

Fig. 120 **03** Form development: Passage light (Author; 2019)

Fig. 121 **04** Form development: Articulate forum space (Author; 2019)

Fig. 122 **05** Form development: Increase light and event space (Author; 2019)

Fig. 123 **06** Form development: Entrance and overhang (Author; 2019)


Department of
Water & Sanitation
Department of Water
& Sanitation
Courtyard
Courtyard
Existing B
Existing B
Existing B
Discussion &
Survey Platform
Living System
Tower
Intergovernmental
Forums &
Community
Platform
Organic Refuse
Collection
NANA SITA STREET

site plan

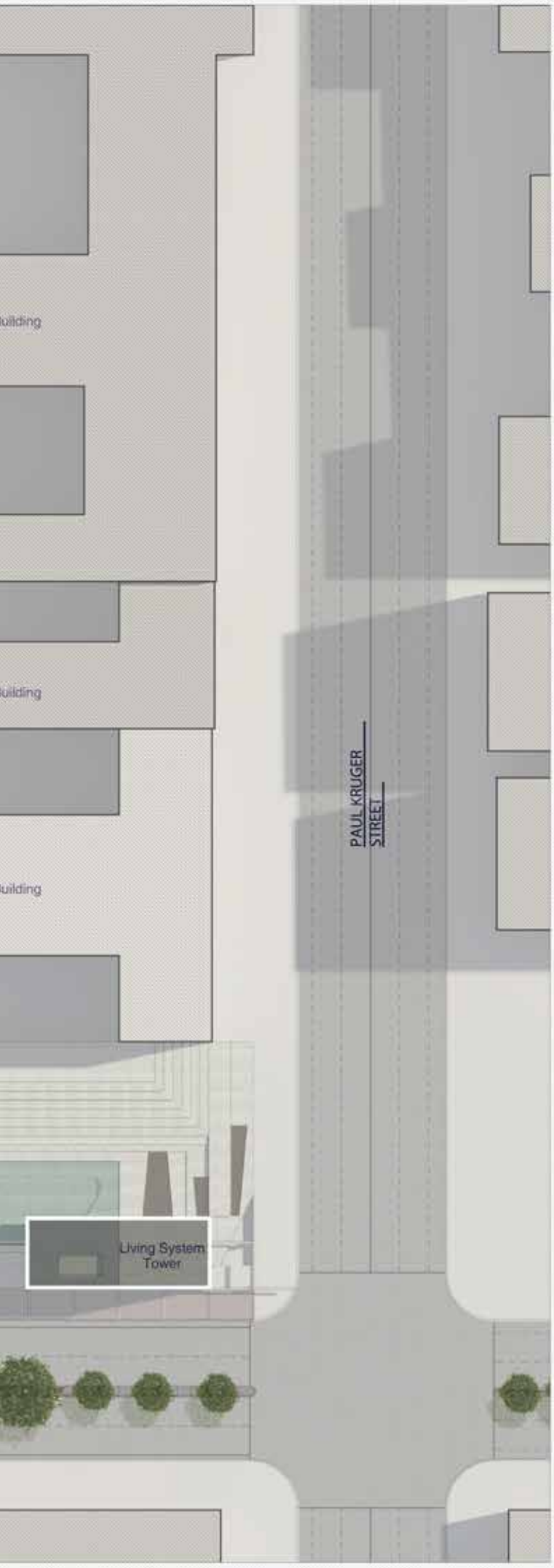


Fig. 124 Site plan (unscaled. original scale 1:200) (Author; 2019)

ground floor

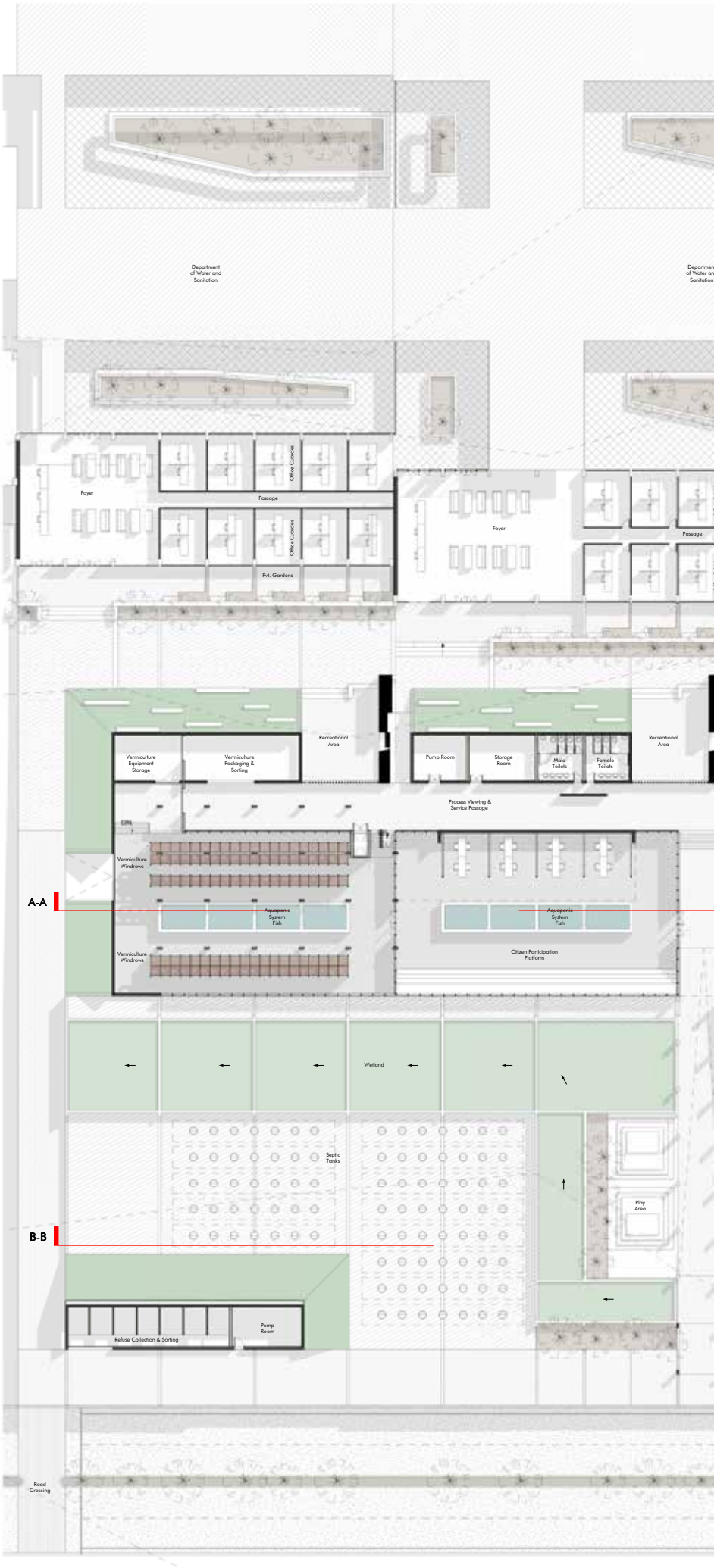
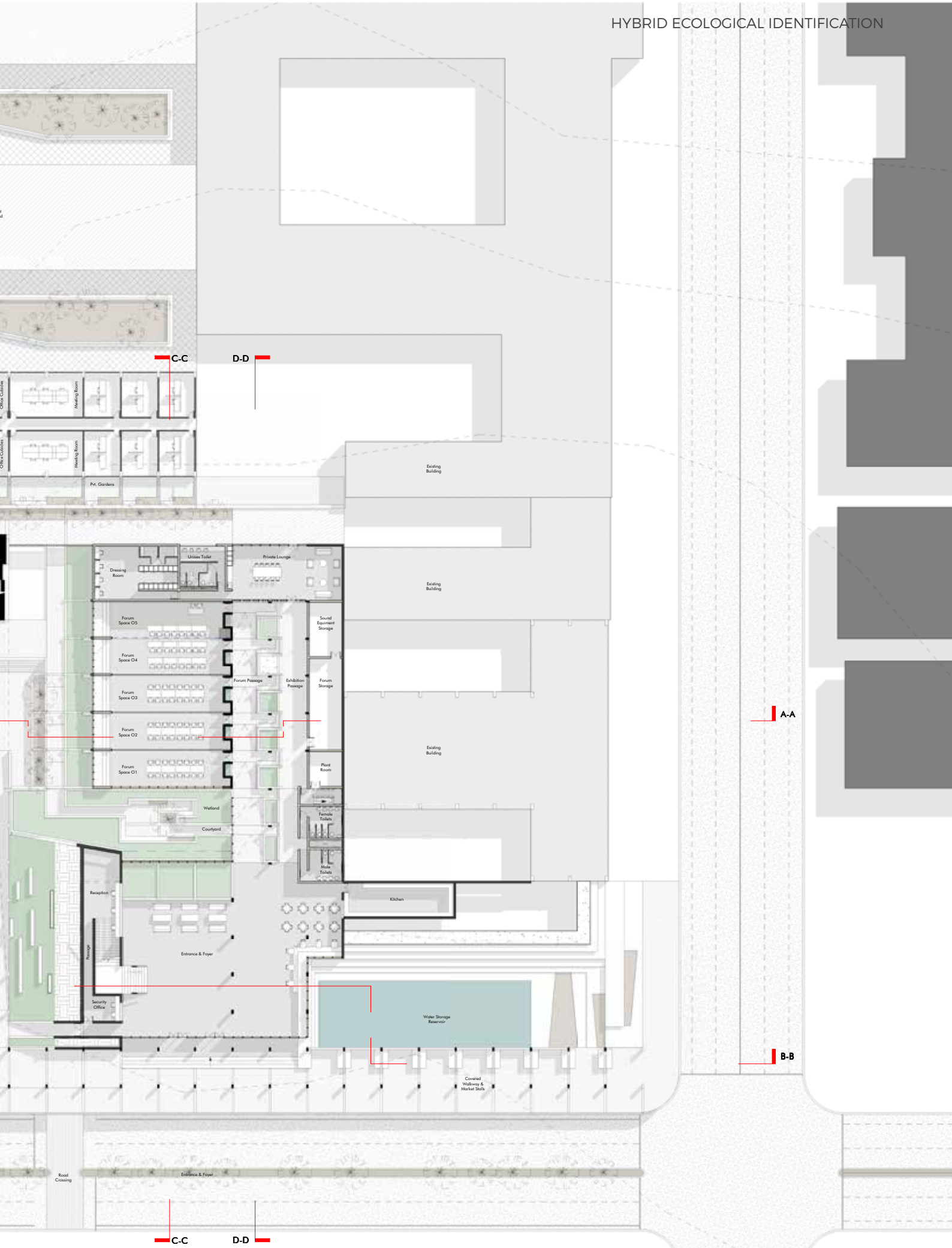
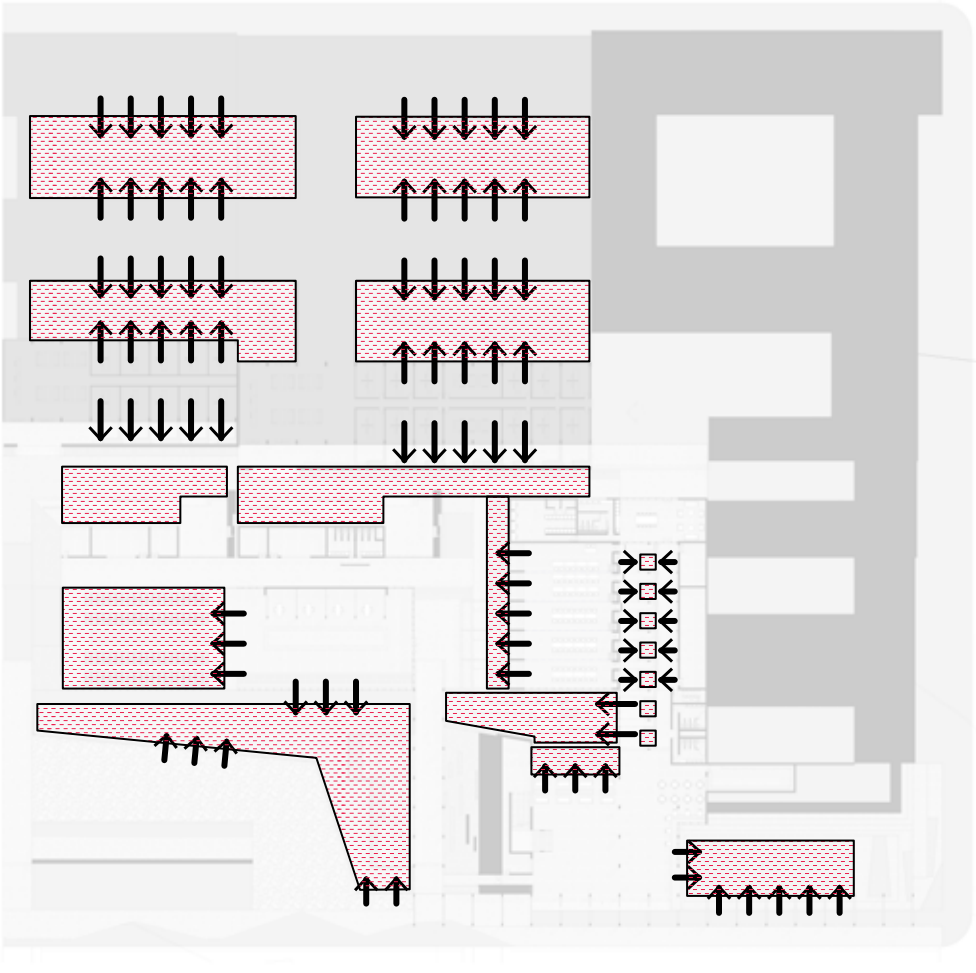


Fig. 125 Ground floor plan (unscaled. original scale 1:200) (Author; 2019)

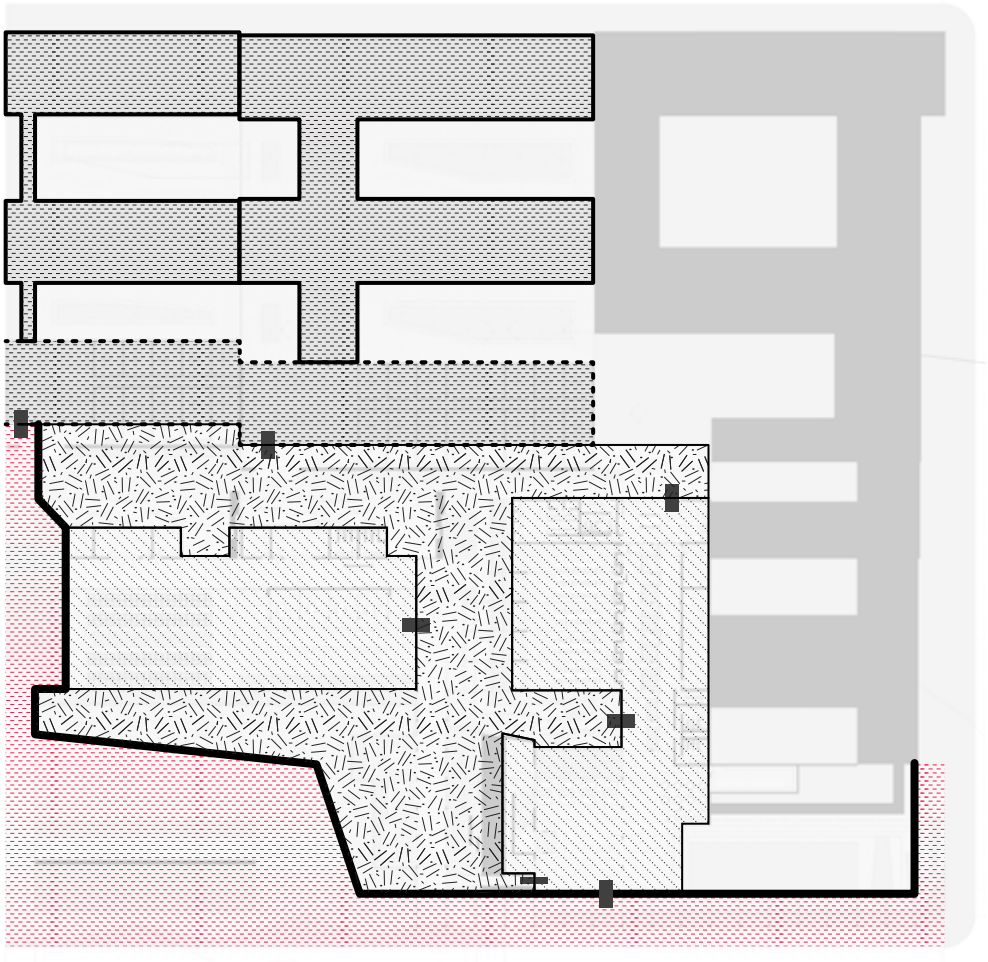

C-C
D-D
Office Cubicles
Meeting Room
Office Cubicles
Meeting Room
Pvt. Gardens
Existing Building
Existing Building
Existing Building
Dressing Room
Unisex Toilet
Private Lounge
Forum Space O5
Forum Space O4
Forum Space O3
Forum Space O2
Forum Space O1
Forum Passage
Exhibition Passage
Sound Equipment Storage
Forum Storage
Plant Room
Female Toilets
Male Toilets
Wetland
Courtyard
Reception
Passage
Security Office
Entrance & Foyer
Kitchen
Water Storage Reservoir
Covered Walkway & Market Stalls
A-A
B-B
Road Crossing
Entrance & Foyer
C-C
D-D

DESIGN LAYERING

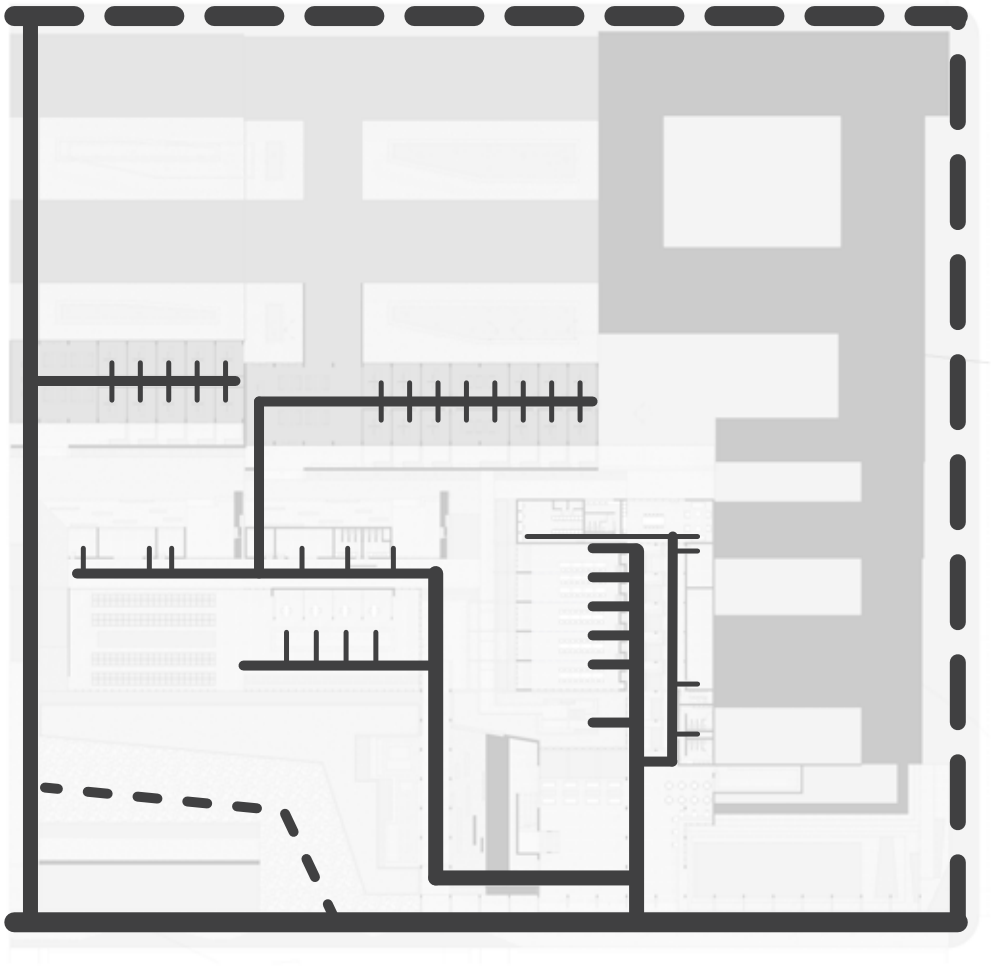


LANDSCAPE CONNECTIONS

Fig. 126 **Bottom Left**
Landscape connections
(Author; 2019)



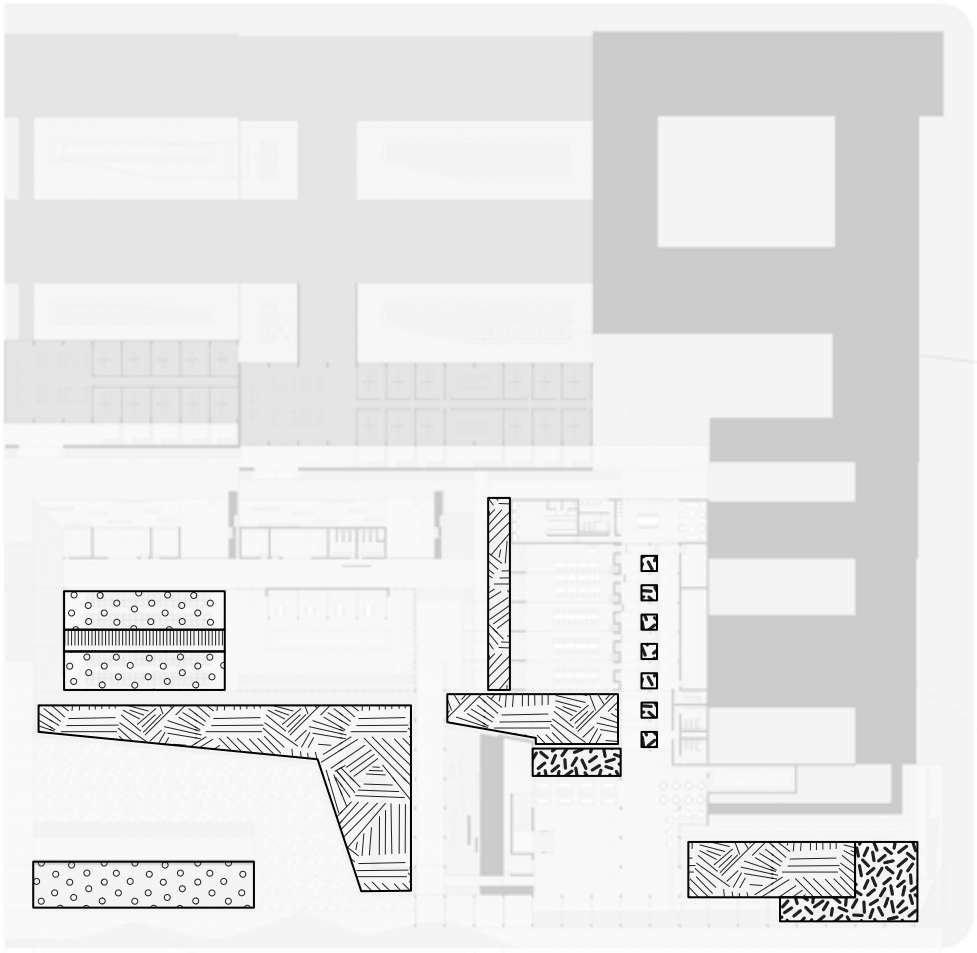
BOUNDARIES AND THRESHOLDS



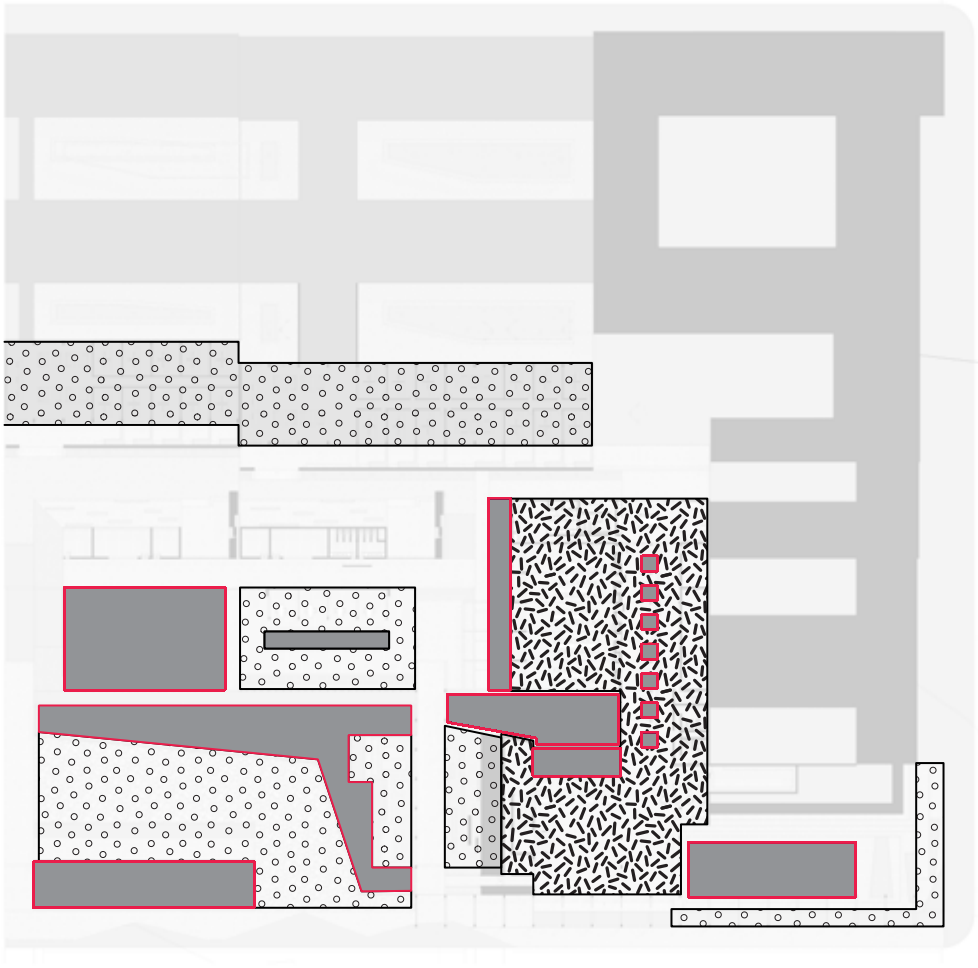
CIRCULATION ROUTE HIERARCHY

Fig. 127 **Top Right**
Boundaries and thresholds
(Author; 2019)

Fig. 128 **Bottom Right**
Circulation route hierarchy
(Author; 2019)



LIVING SYSTEMS



PROGRAMMATIC COMPOSITION

Fig. 129 **Top Left** Living Systems (Author; 2019)

Fig. 130 **Bottom Left** Programmatic composition (Author; 2019)

LANDSCAPE LAYERS

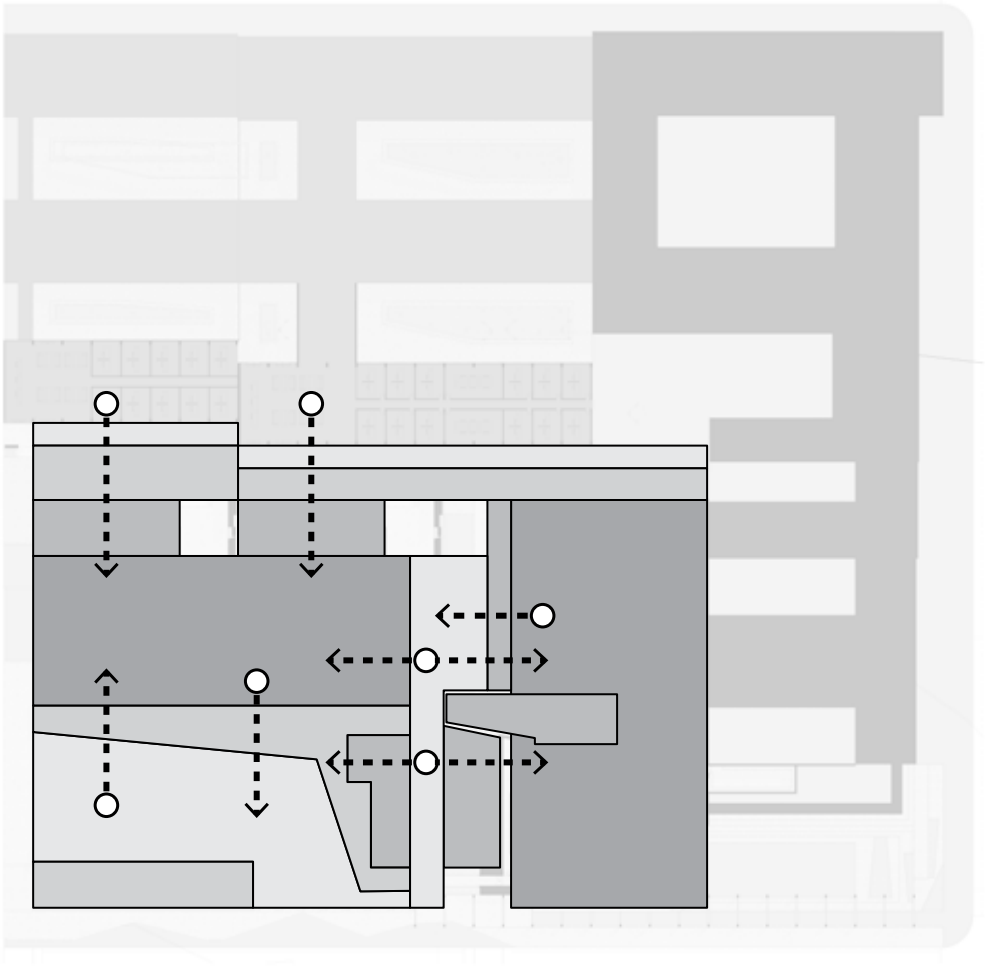


Fig. 131 **Bottom Right**
Landscape layers (Author; 2019)

first floor

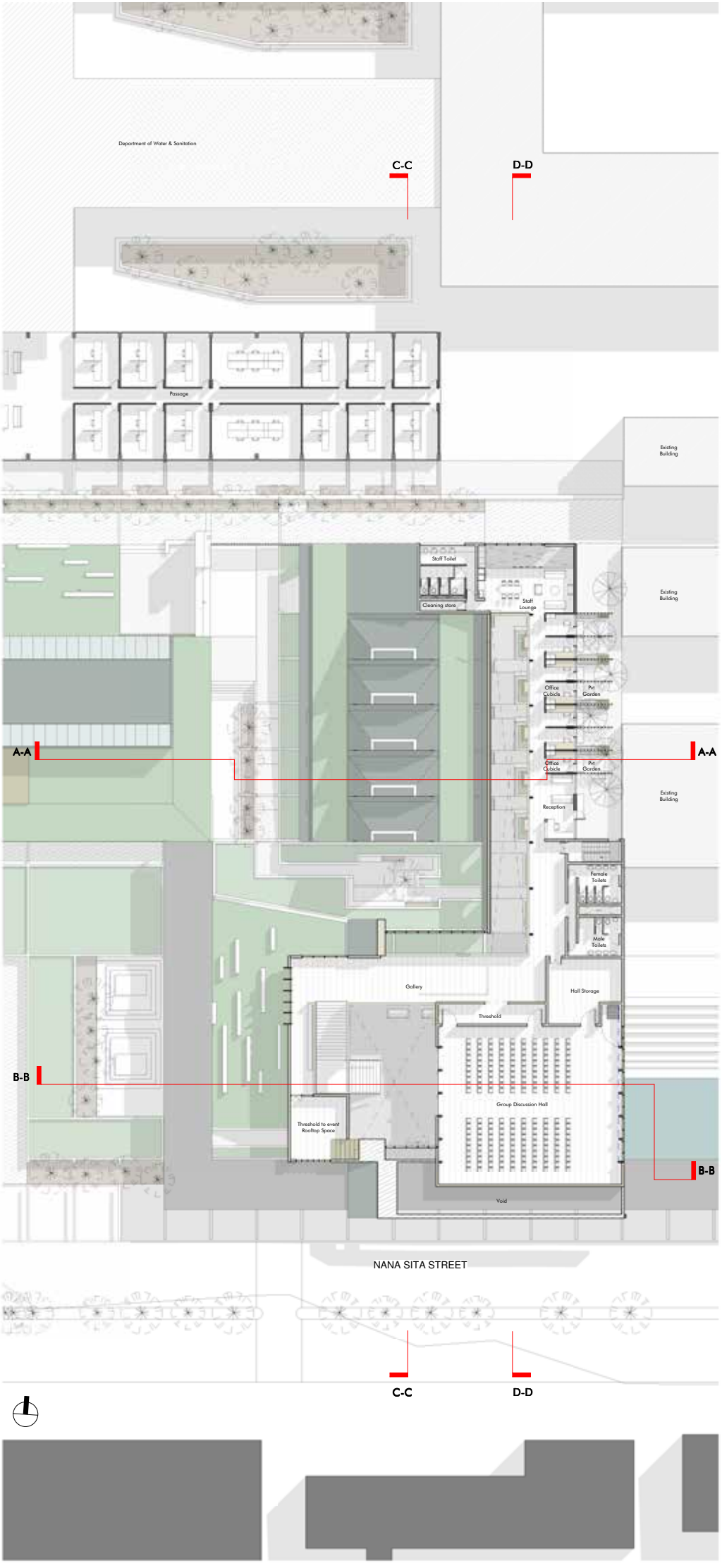
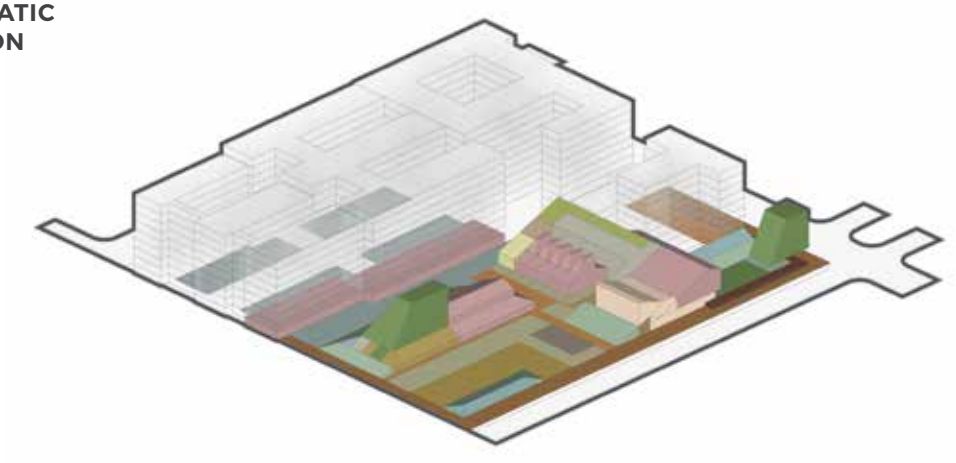
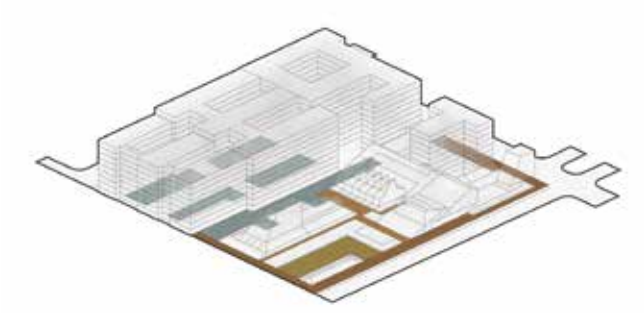


Fig. 132 First floor plan (unscaled, original scale 1:200) (Author; 2019)

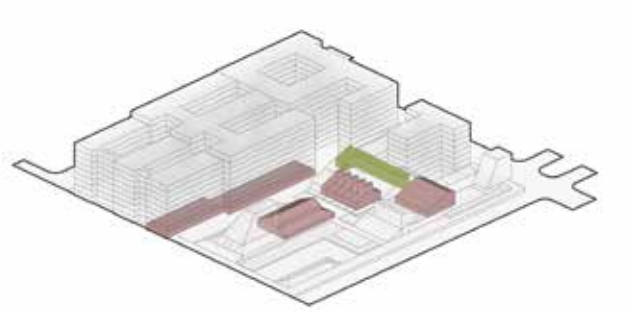
PROGRAMMATIC COMPOSITION



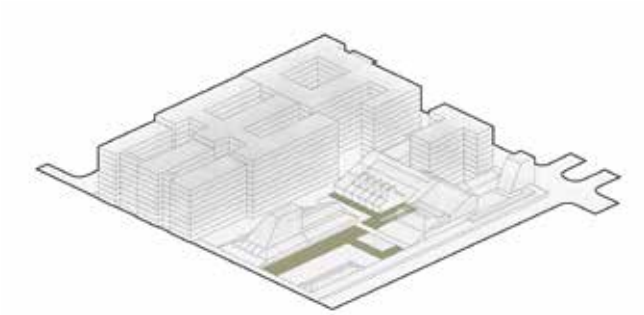
OUTDOOR CIRCULATION & COURTYARDS



CIVIC & ADMINISTRATION

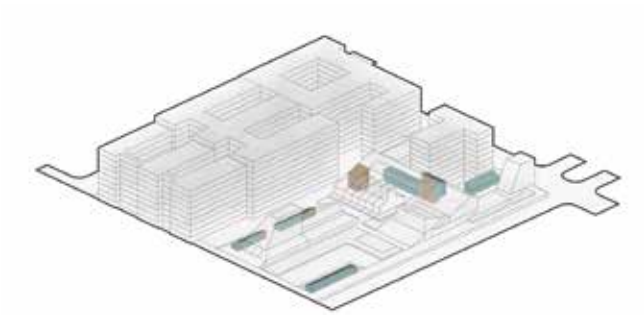


WETLANDS



LIVING MACHINE & VERMICULTURE SYSTEMS

SERVICE SPACE & TOILETS



FOYER, RECEPTION & CIRCULATION CORES

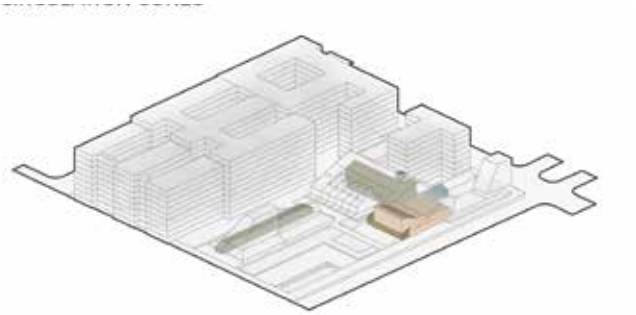


Fig. 133 **Spread**:
Perspective from west
looking east (Author; 2019)

south elevation

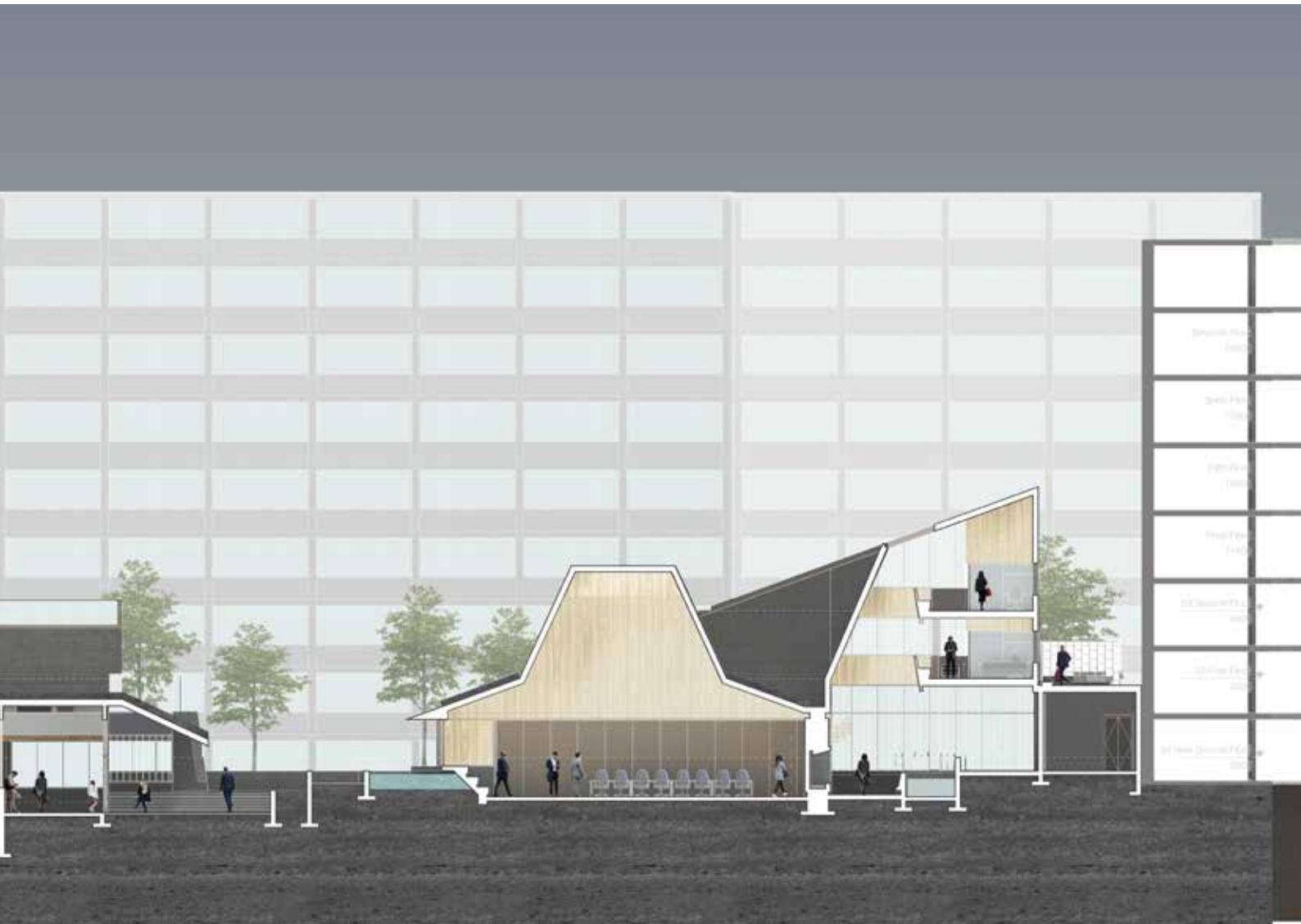
Fig. 134 **Top Left:** Perspective view of courtyard (Author, 2019)

Fig. 135 **Bottom:** South elevation (unscaled. original scale 1:50) (Author, 2019)

section
A-A

Fig. 136 **Top Left:** Perspective of forum passage (Author, 2019)

Fig. 137 **Bottom:** Section A-A looking north from south (unscaled, original scale 1:50) (Author; 2019)



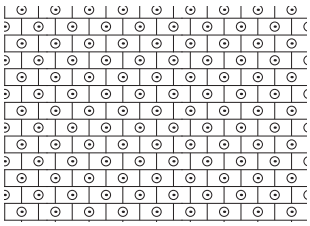
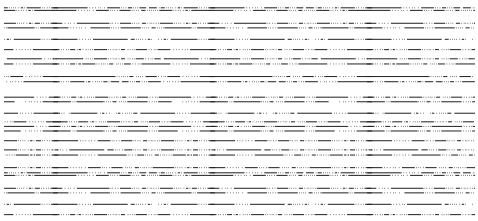
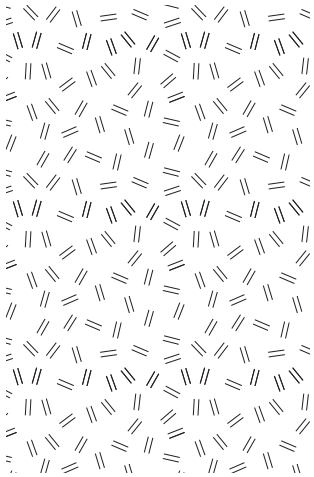
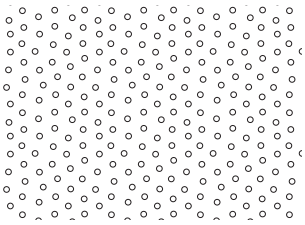
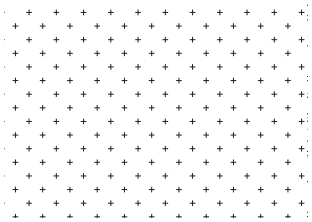
section
B-B

Fig. 138 **Top Left:** Perspective in the atrium (Author; 2019)

Fig. 139 **Bottom**: Section B-B looking north from south (unscaled. original scale 1:50) (Author; 2019)

Fig. 140 **Top Right:** Perspective in the foyer (Author; 2019)

Fig. 141 **Left:** Perspective in the forum space (Author; 2019)

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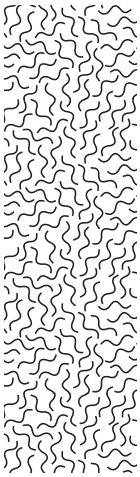
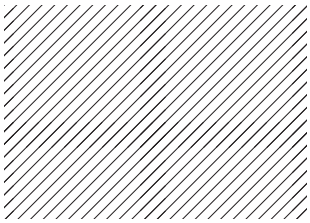
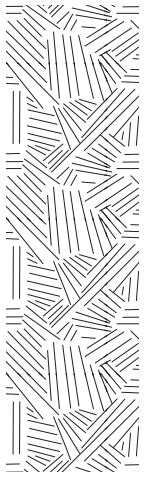
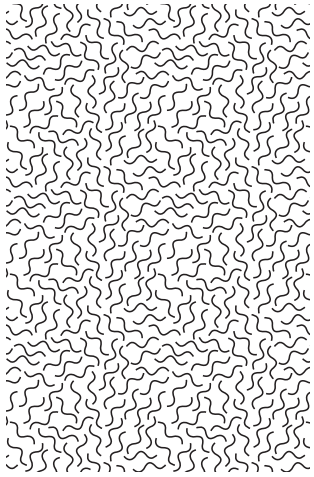
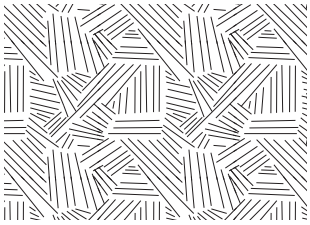
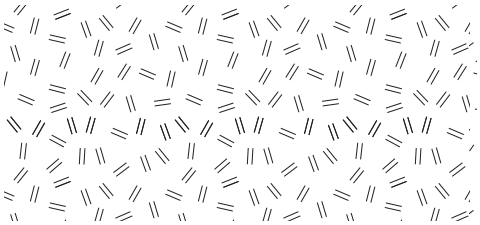
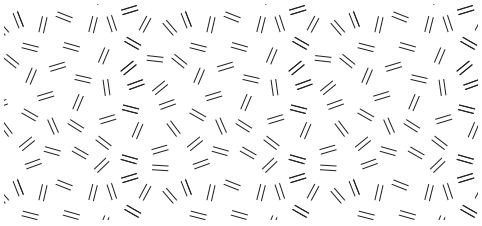
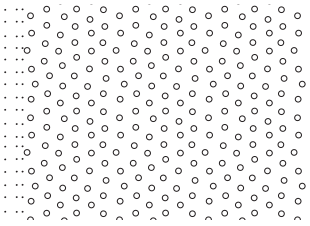




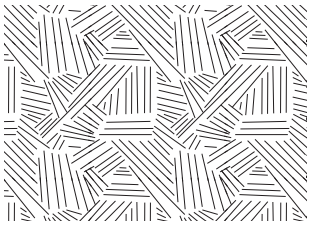
Developing the technical application of the design

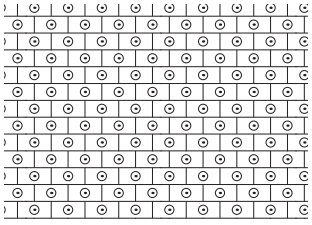




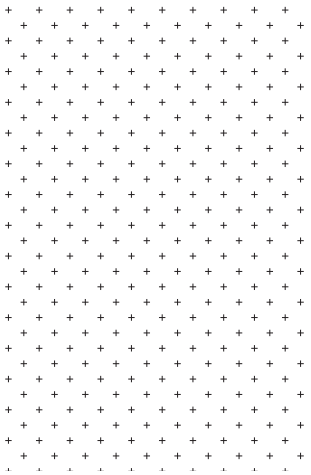




CHAPTER five

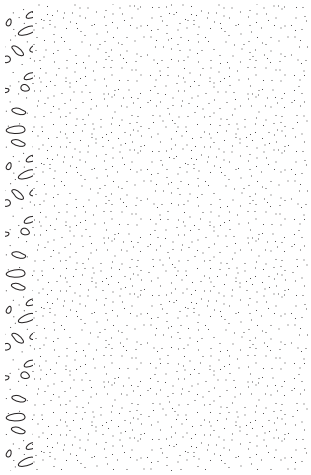


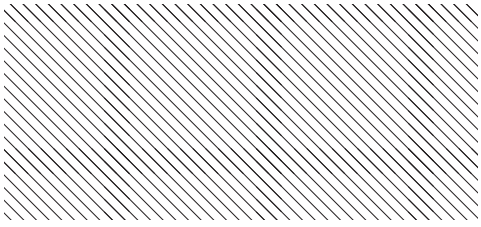


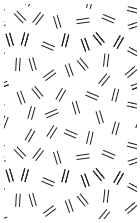


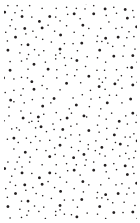
Introduction

Sebastien Marot's concept of preparation – that offers process rather than a product – revolves around considering the lifespan of the built landscape (Corner 1999: 50). As such, the passing of time is of paramount importance and, in order to address identity, the key theme of this dissertation is the notion of architectural obsolescence, which is an inevitable product of the passing of time.









TECHNICAL CONCEPT

The **Life** of the Building

Considering obsolescence to be a part of the lifespan of buildings and allowing for a spectrum of datedness to occur.

Mark Meagher cites Stuart Brand (Meagher 2014: 95; Brand 1995) in arguing for the capacity of what he terms "low architecture" to offer "flexible responsiveness to change over time" while "high architecture" presents permanence as the architectural solution. The latter approach presents a tendency to avoid architectural features that are receptive to deterioration and going out-of-date.

Meagher suggests an alternative way of thinking about the elements of architecture to account for the changes that take place over time. It is argued that an overt focus on permanence contributes toward obsoleteness (Meagher 2014: 96; Brand 1995). Brand offers a model that views the building as a composition of elements, with varying rates of change resulting in a dynamic approach that considers the lifespan of a building and its constituent parts. A lifespan spectrum is offered that ranges between a high to a low level of obsolescence, which is epitomized in his "shearing layers" diagram (Brand 1995). Accounting for eventual disuse in architecture contributes to a transformed spatial experience that incorporates a new type of flexibility and performance (Meagher 1995: 97). "Low architecture" encourages transformation, reorganization and adaptation through the careful consideration of separating technologies with different rates of outmodedness so that some elements might be replaced to suit future demands (Meagher 1995: 97). The inevitability of the occurrence leads to the avoidance of expensive and maintenance-intensive elements as an integral feature of the design and takes into account the inhabitants that occupy the building and their changing demands (Meagher 1995: 99). However, Meagher (1995: 99) also imagines a hybrid architecture that mixes high and low technologies and takes the lifespan of its components into account to make culturally significant buildings in which both types of technology can respond to change.

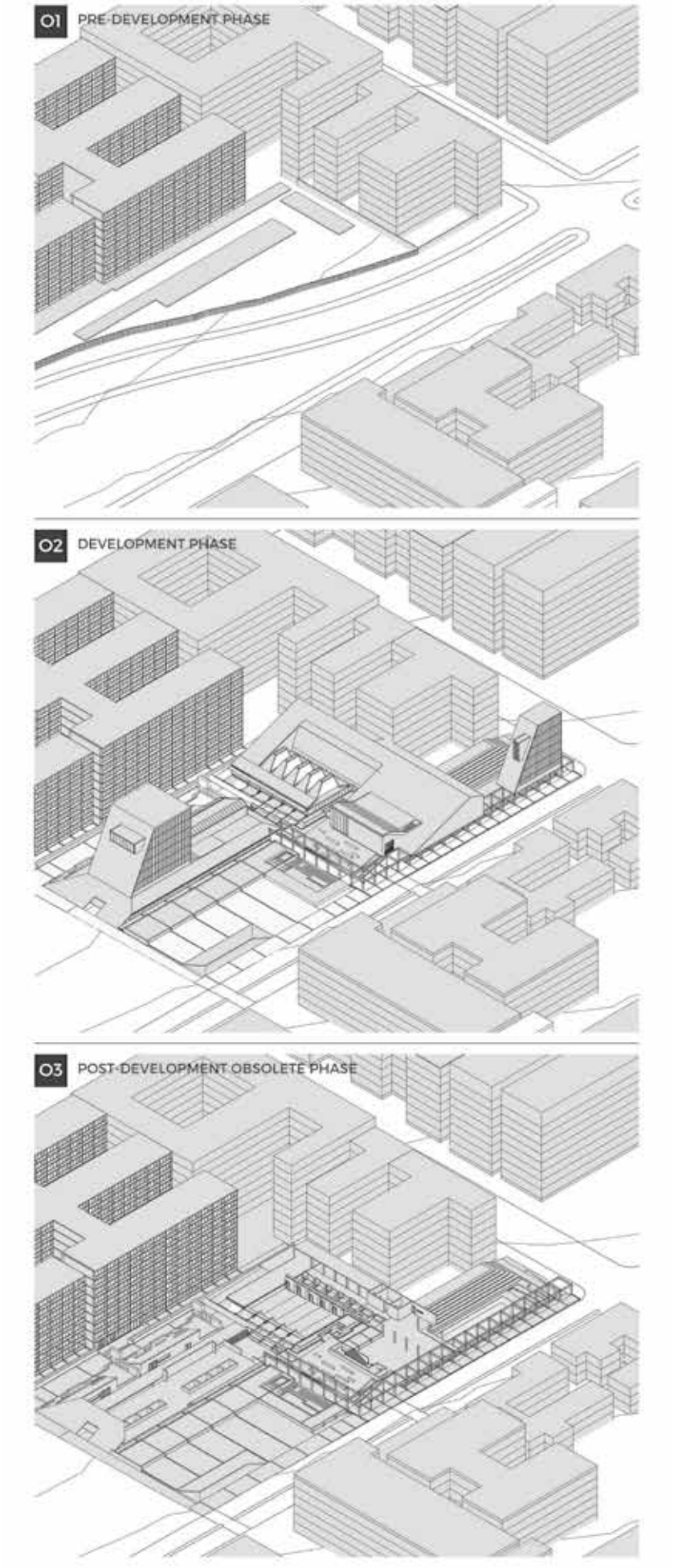


Fig. 142 **Right:** Progression of the lifespan of the building ranging from pre development to obsolesence (Author; 2019)

Fig. 143 **Spread:** Aerial perspective of the obsolete landscape 1 (Author: 2019)

EXISTING MATERIALITY

Floor

Asphalt forms a homogenous surface across most of the site to accommodate its primary functions, which comprise vehicular traffic and parking.

Walls & Windows

The envelope created by the existing buildings on the northern and eastern portions of the site consists of face brick infill panels. Panels are typically expressed between columns in a grid format that is built up to balustrade height with windows that take up the rest of the altitude. Steel windows are typically placed on the north and south with their mullions manifested in equal increments between column centres.

Roofs

The flat concrete roofs are expressed in a Modern style and are no different to a floor plane that forms the horizontal lines that cross the vertical ones created by the columns. Therefore, the roof is not rendered as a separate feature of the façade.

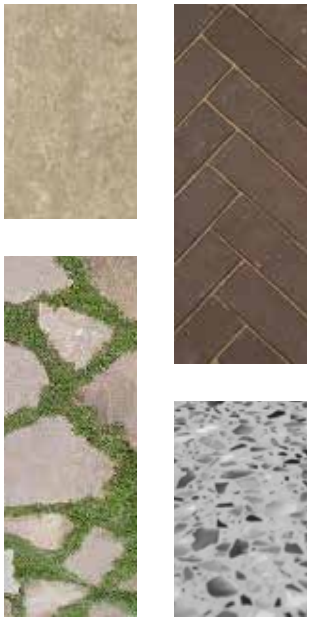
Structure

The concrete column structure of the existing buildings is conveyed in a strict grid format characteristic of the Modern period. Columns and floor slabs are typically articulated on the façades of the buildings in a variety of ways.

Fig. 144 **Top Left:** Existing material palette (Author; 2019)

NEW MATERIALITY

Floor



To counter the use of a singular homogeneous material (asphalt) a palette of new materials has been added to extend visual complexity to the dullness of the site as it stands. The roads' concrete slab sub-structure can be broken up to form reclaimed concrete paving blocks that allow for plant growth to penetrate in-between. Circulation routes are articulated with clay brick pavers. Exposed aggregate polished concrete floors mark spaces of prominence on the ground floor. Linoleum, which has been selected for its bio-degradable potential, will be used from the first floor upward. Rhinowood is used for decking.

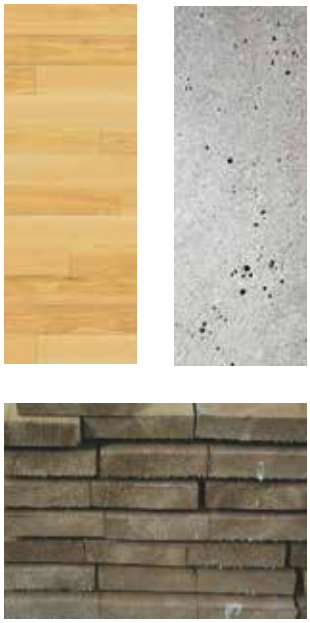
Walls & Windows

Walls on the ground floor are primarily made of cast-in-situ concrete that forms permanent sculptural features. Concrete is selected for its sculptural potential, textural variety and stereotomic robustness. Exterior walls are clad with bitumen shingles to matches the roof material while the interior is clad with oiled (Monocoat or similar) marine plywood boards. Windows are stuck onto laminated timber frames with structural silicone.

Roofs

The materiality of the roof extends out of the soil. Bitumen shingles is utilized as it reflects the appearance of the road asphalt in a new way. Asphalt can be recycled to manufacture the new shingles. Planted green surfaces are employed as a material palette that mediates the shingles with the ground plane.

Structure



The stereotomic materiality of the structural elements rises up from the ground level to meet the tectonic structure resting above. Cast-in-situ concrete and laminated timber columns are used to express this concept. Unplaned South African pine members are form structural members between the cladding membranes.

Fig. 145 **Top Right:** New material palette (Author, 2019)

THE **LIFE** OF MATERIALS

Centuries

Decades

Years

Months

STEREOTOMIC LANDSCAPE

The ground is viewed as the most permanent element that pins the architectural elements in place. Concrete walls and columns rise out of the ground to become extensions of this idea in order to meet the lighter structures above.

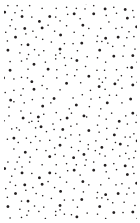
Fig. 146 **Left:** The life of materials (Author; 2019 influenced by Le Grange, 2018)

TECTONIC LANDSCAPE

To account for obsolescence, the choice of tectonic elements reflects an understanding that these elements are replaceable and offer the potential to be fed into the vermiculture system so that new elements can be installed.

LIVING LANDSCAPE

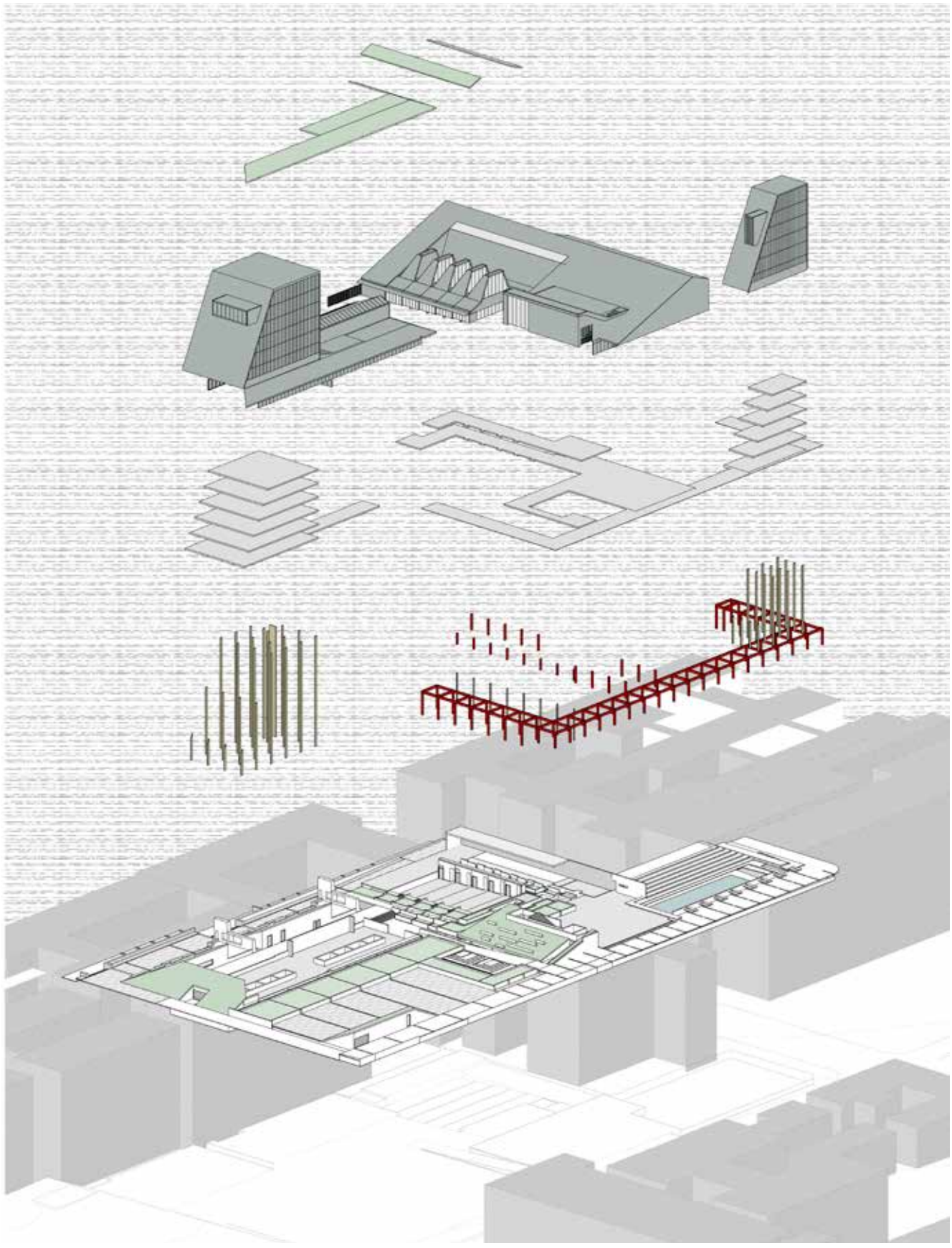
The lifespan of architectural elements includes living technologies used in the design. Output products are used in a variety of ways and wasted outputs can be fed back into the vermiculture systems to be agriculturally used as compost. On the other hand, plants that are utilized to process waste are to be harvested at intervals with a purpose of continually changing the living material palette.



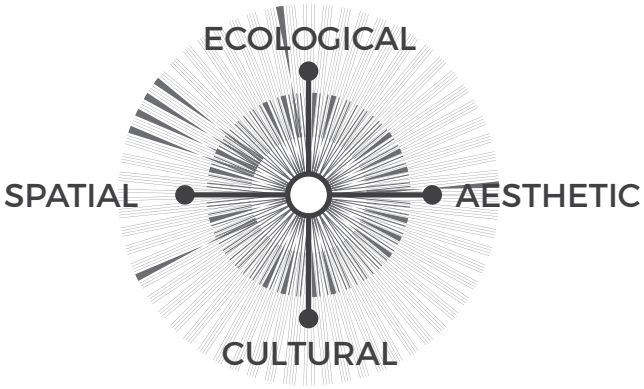
STRUCTURAL LANDSCAPE

Living Structure *Extensive green roof*	The living skin attributes a carpet like softness to the roof structure that mediates the materiality of the roof construction with the ground.
Tertiary Structure *Timber and bitemen clad sandwhich panel*	The tertiary structure is formed by the roof sandwhich panel that forms the skin of the building which is held in place by the primary and secondary structure.
Primary Structure *Reinforced concrete columns*	The logic of using reinforced concrete columns form could be understood as an uncovering of the lost building fabric. The demolished structures were built on a concrete column and slab grid structure, therefore, the structural intention is to express that lost fabric architecturally.
Secondary Structure *Laminate timber columns*	Laminate timber columns form the secondary structure meeting the concrete primary structure. These transitional elements mediate the concrete structure below with the timber roof landscape above.
Stereotomic *Inverted Plinth*	A concrete and brick inverted plinth is formed to encompass the primary structural feature that grounds the architecture in place. These robust elements are the most permanent features of the design and its aesthetic is expressed formally as an interplay between extending out of and cutting into the earth.

Fig. 147 **Left:** Axonometric view of the structural landscape (Author; 2019)



LIVING SYSTEMS LANDSCAPE



Systems as an agent
The focus of the systems are to process waste recources to become an asset to the primary services for which the government is responsible for. In that way these living technologies mediate those responsibilities and the landscape and the services it delivers become an agent for the government.

These systems aim to process waste recources on the site as well as well as those harvested from the city abroad. This aspect of the design align with Marot's (Corner 1999: 50; Waldheim 2006: 145) conception of relational structuring in which relationship beyond the site is built.

The ordering of these ecological systems are constructed according to Lyle's six phases of ecosystem functioning (conversion, assimilation, storage, distribution, filtration and human thought)

Services as spatial features
To introduce living infrastructural systems spatially, incorporate both aesthetic and utilitarian requirements.

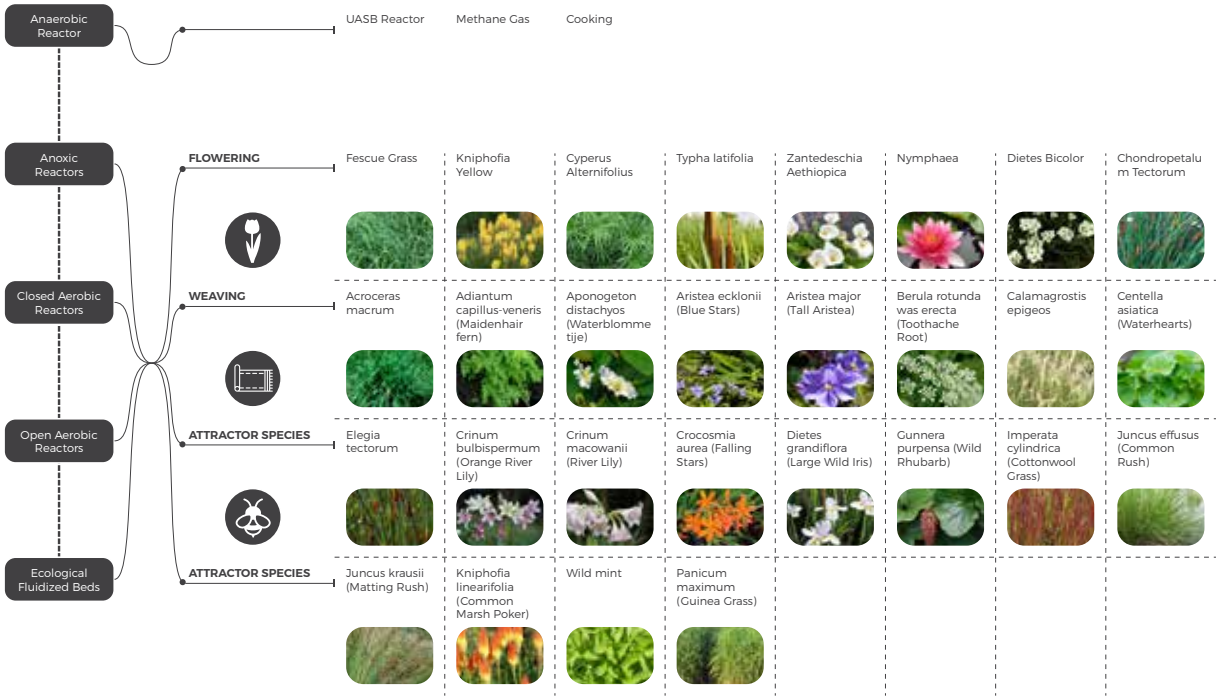
Rainwater and surface runoff is harvested from the roofs, processed on site and then reused where needed, whever it be on site or beyond the site. An important aspect of the design is to expose the diversion of rainwater internally to unlock the spatial potential of infrastructure.

Provision is made to service the building on site as far as possible. The primary heating and cooling strategy utilized is a ground-coupled heat exchange system combined with passive ventilation if the former system where to fail. The use of this system is informed by Marot's conception of three-dimentional sequencing that utilize the constant subterranean temperature to heat and cool air and water in the building.

Fig. 148 **Left:** Spatial integration factors (Author, 2019)

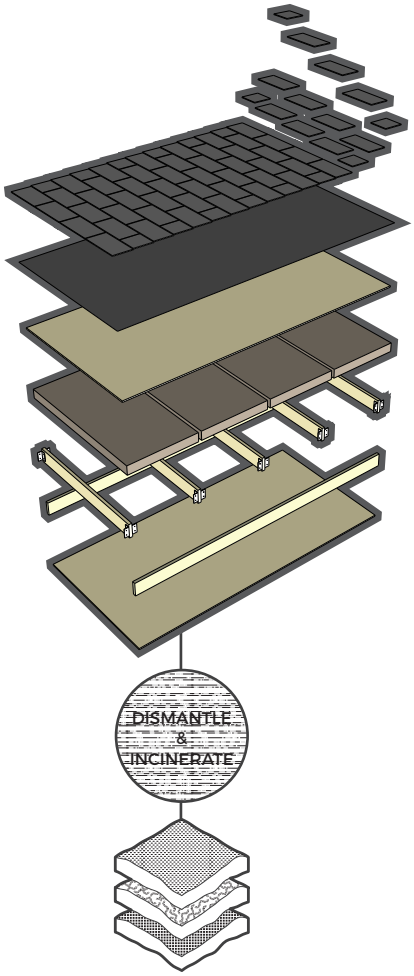
Fig. 149 **Right:** Living Machine system and Aquacultural cell ecology diagram with output products (Author, 2019)

LIVING MACHINE REACTOR SYSTEM

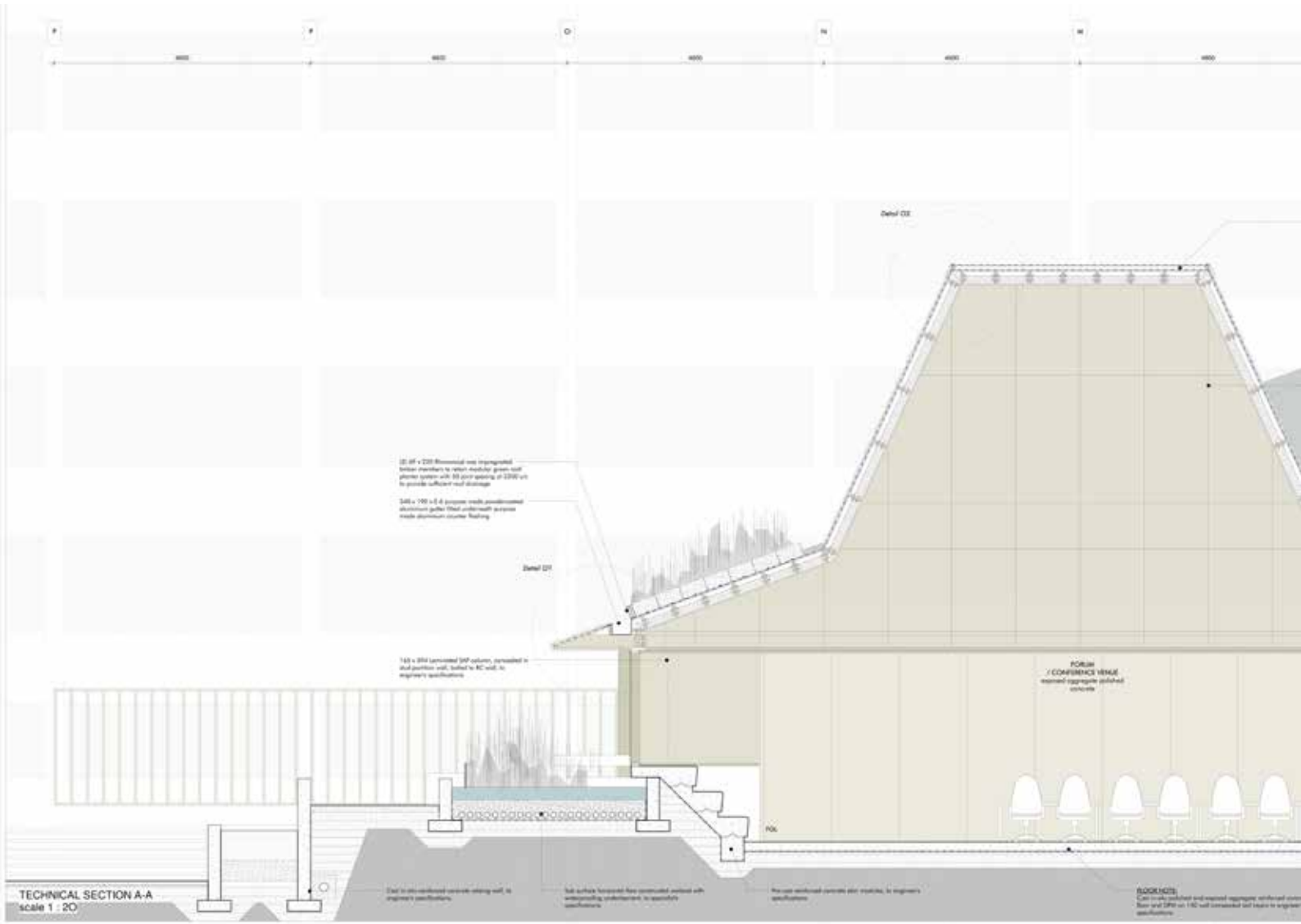


AQUAPONIC CELL SYSTEM

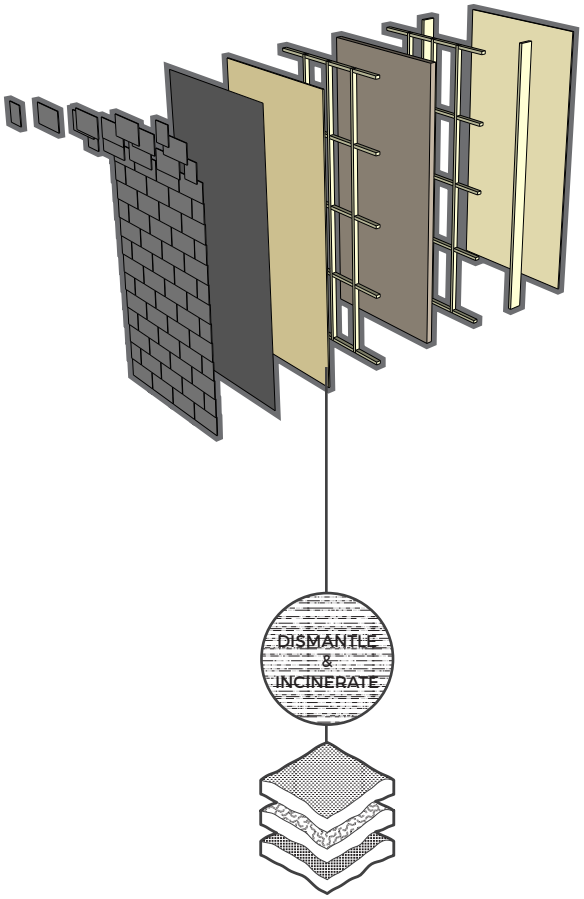
Roof construction layering



VERMICULTURE SYSTEM



Wall construction layering

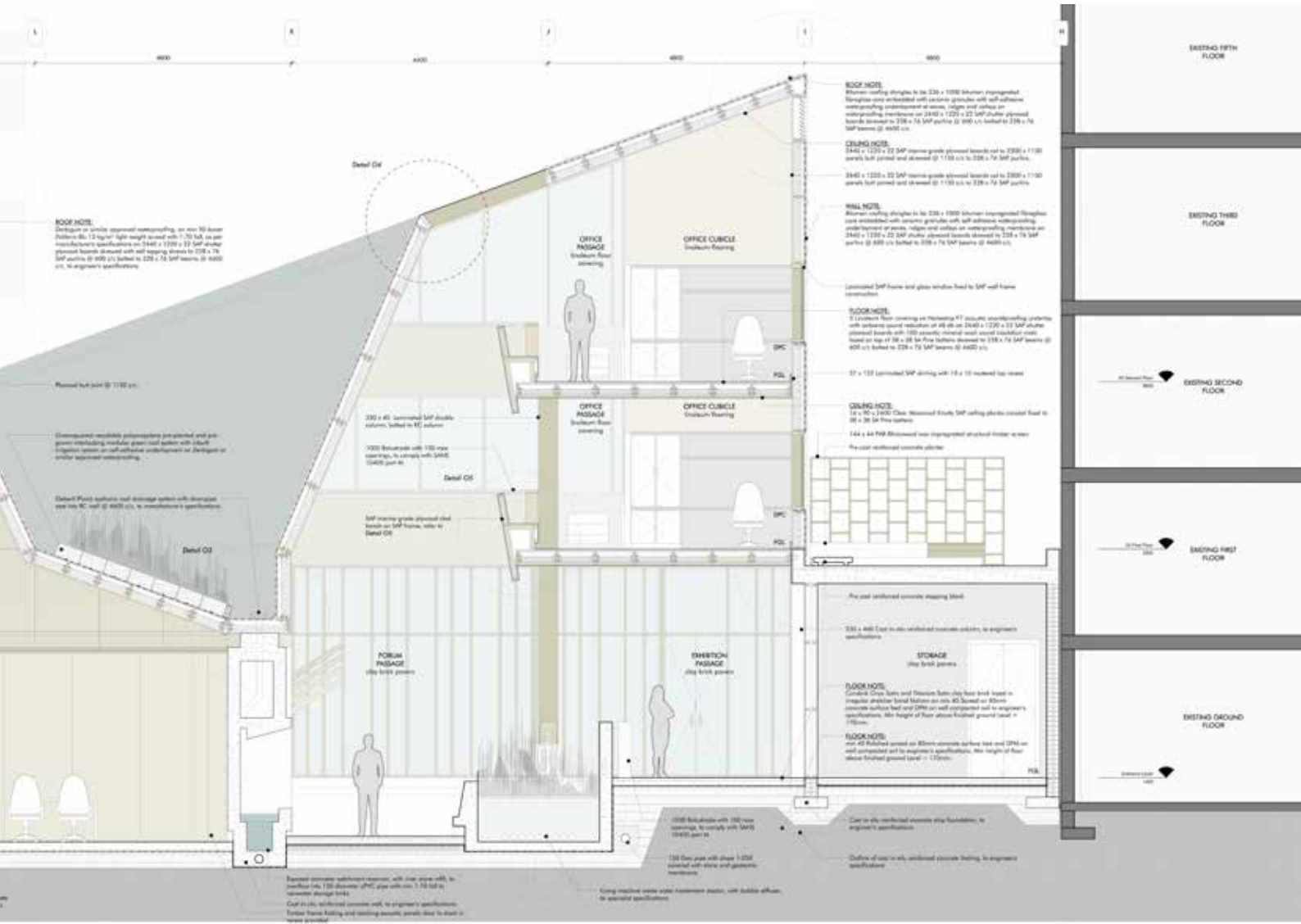


VERMICULTURE SYSTEM

Fig. 150 **Top Left:** Roof construction layering (Author, 2019)

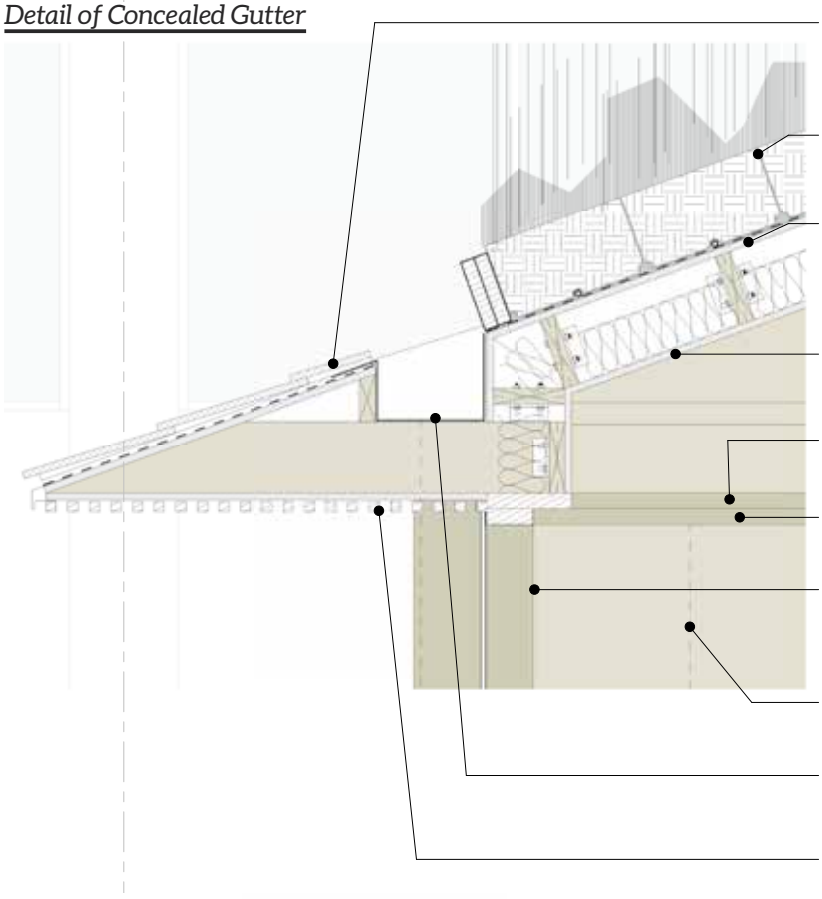
Fig. 151 **Top Right:** Wall construction layering (Author, 2019)

Fig. 152 **Bottom:** Technical section A-A (unscaled. original scale 1:20) (Author, 2019)



DETAILS

Detail of Concealed Gutter



Bitumen roofing shingles to be 336 x 1000 bitumen impregnated fibreglass core embedded with ceramic granules with self-adhesive waterproofing underlayment at eaves, ridges and valleys on waterproofing membrane

Greensquared recyclable polypropylene pre-planted and pre-grown interlocking modular green roof system with inbuilt irrigation system.

2440 x 1220 x 22 SAP shutter plywood boards skrewed to 228 x 76 SAP purlins @ 600 c/c bolted to 228 x 76 SAP beams @ 4600 c/c. on 2440 x 1220 x 22 SAP shutter plywood boards skrewed to 228 x 76 SAP purlins @ 600 c/c bolted to 228 x 76 SAP beams @ 4600 c/c.

2440 x 1220 x 22 SAP marine grade plywood boards cut to 2300 x 1150 panels butt jointed and skrewed @ 1150 c/c to 228 x 76 SAP purlins.

Two 44 x 150 PAR SAP members skrewed to SA Pine beams to form trim underneath plywood boards

PAR SAP member to form shadow line trim, skrewed to

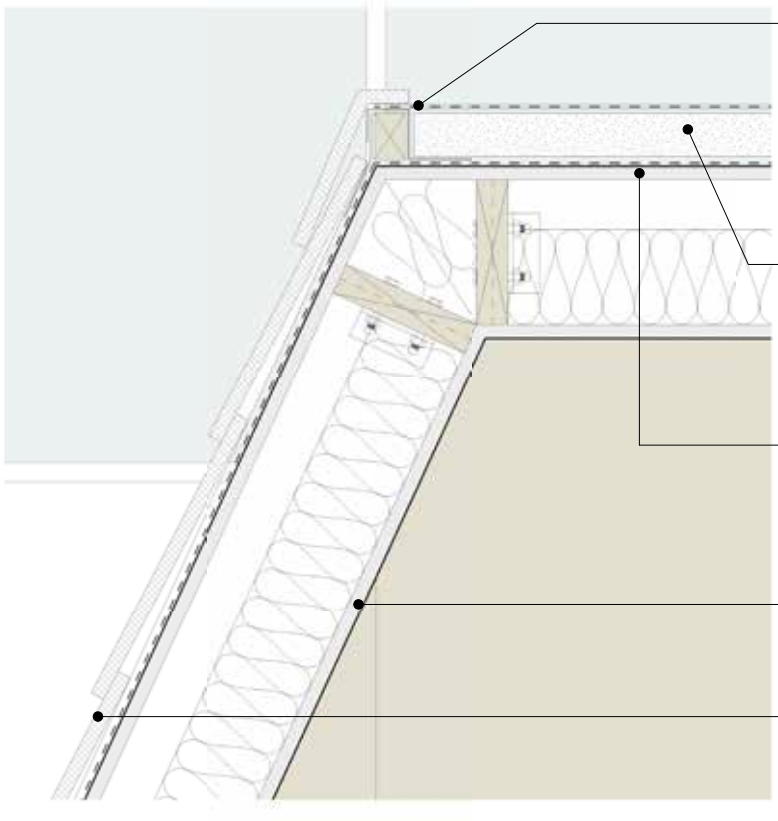
Laminated SAP frame and glass window fixed to SAP wall frame construction.
Laminated SAP frame and glass window fixed to SAP wall frame construction.

165 x 594 Laminated SAP column, concealed in stud partition wall, bolted to RC wall, to engineer's specifications

340 x 190 x 0.6 purpose made powdercoated aluminium gutter fitted underneath purpose made aluminium counter flashing

22 x 22 PAR SA Pine timber slats, nailed to black painted 22 shutter plywood boards @ 70 c/c

Detail of Roof Edge



50 x 76 Powdercoated aluminium flashing and counter flashing fitted over 50 x 76 SA Pine member screwed to SA Pine shutter plywood boards, to form permanent formwork for light weight screed

Derbigum or similar approved waterproofing, on min 50 *Isover Politerm Blu* 12 kg/m² light weight screed with 1:70 fall, as per manufacturer's specifications on 2440 x 1220 x 22 SAP shutter plywood boards skrewed with self tapping skrews to 228 x 76 SAP purlins @ 600 c/c bolted to 228 x 76 SAP beams @ 4600 c/c, to engineer's specifications.

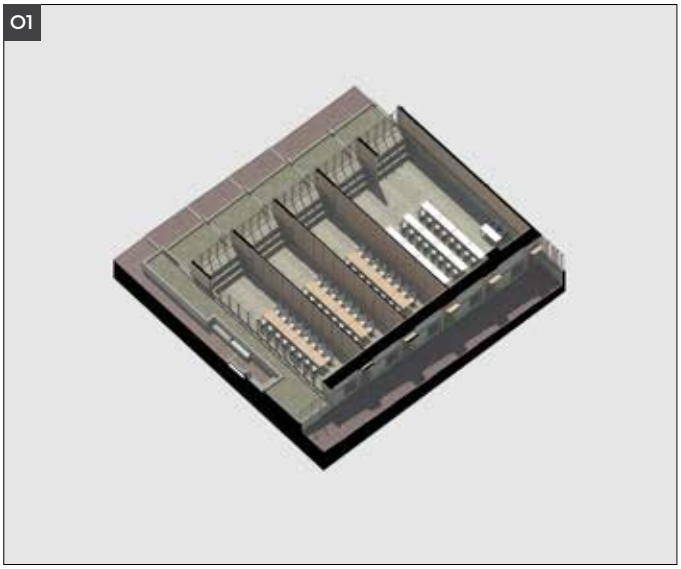
2440 x 1220 x 22 SAP shutter plywood boards skrewed to 228 x 76 SAP purlins @ 600 c/c bolted to 228 x 76 SAP beams @ 4600 c/c. on 2440 x 1220 x 22 SAP shutter plywood boards skrewed to 228 x 76 SAP purlins @ 600 c/c bolted to 228 x 76 SAP beams @ 4600 c/c.

2440 x 1220 x 22 SAP marine grade plywood boards cut to 2300 x 1150 panels butt jointed and skrewed @ 1150 c/c to 228 x 76 SAP purlins.

Bitumen roofing shingles to be 336 x 1000 bitumen impregnated fibreglass core embedded with ceramic granules with self-adhesive waterproofing underlayment at eaves, ridges and valleys on waterproofing membrane

SPATIAL ADAPTATION

OF FORUM SPACES



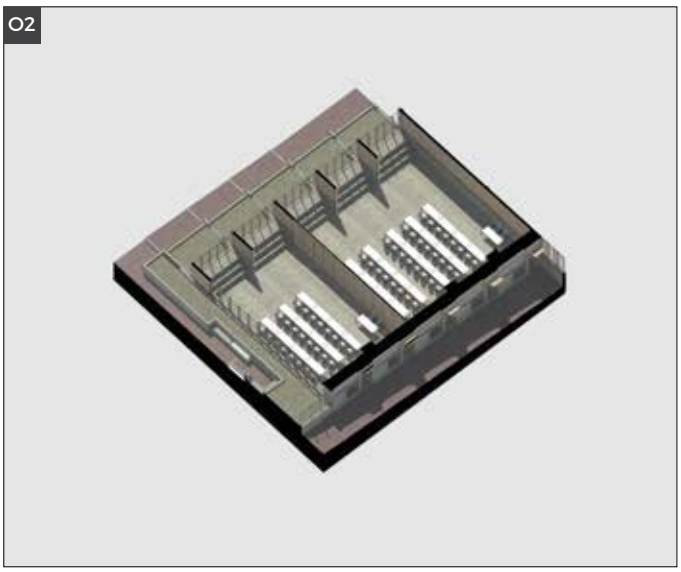


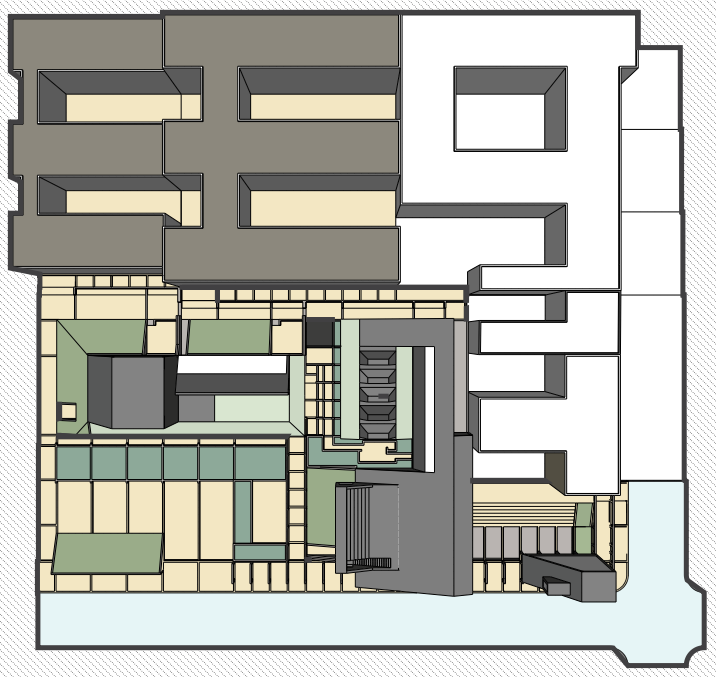
Fig. 153 **Top Left:** Detail of concealed gutter (unscaled. original scale 1:10) (Author, 2019)

Fig. 154 **Bottom Left:** Detail of roof edge (unscaled. original scale 1:10) (Author, 2019)

Fig. 155 **Right:** Diagram of various configurations of forum space (unscaled. original scale 1:100) (Author, 2019)

WATER HARVESTING

PLAN DIAGRAM OF ROOF AND PAVING SURFACES



COMBINED AREA

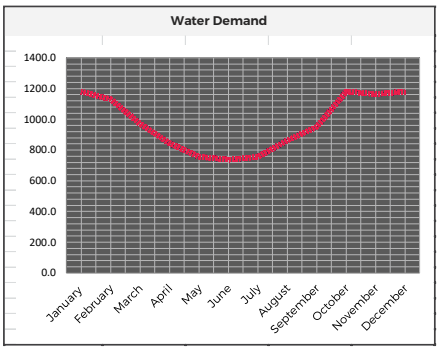
3888

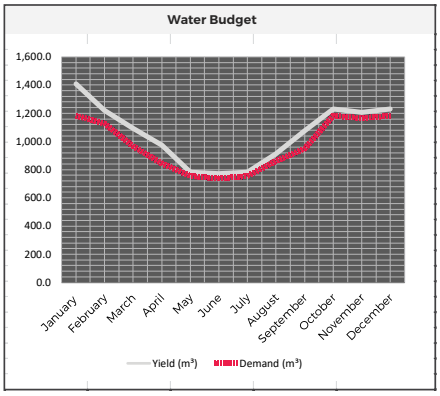
1265

3918

864

2038





Area Calculations

Catchment	Area, A (m²)	Runoff Coefficient,	
		C	C (weighted)
Shingle Roof	2038	0.95	0.14
Existing Roof	3888	0.8	0.23
Green Roof	864	0.35	0.02
Planted Seating	1265	0.2	0.02
Brick Paving	3070	0.85	0.19
Concr. Paving	848	0.65	0.04
Existing Paving	1787	0.85	0.11
Total	**13760**		**0.75**

Rainwater Yield Calculation

Month	Ave. rainfall, P (m)	Yield (m³) (Yield = PxAxC)
January	0.136	**1398.2908**
February	0.075	**771.11625**
March	0.082	**843.0871**
April	0.051	**524.35905**
May	0.013	**133.66015**
June	0.007	**71.97085**
July	0.003	**30.84465**
August	0.006	**61.6893**
September	0.022	**226.1941**
October	0.071	**729.99005**
November	0.098	**1007.5919**
December	0.11	**1130.9705**
Annual Average	**0.674**	**6929.7647**

Alternative Source

Month	Source 1 (m³/month)
January	**10**
February	**450**
March	**250**
April	**450**
May	**650**
June	**700**
July	**750**
August	**850**
September	**850**
October	**500**
November	**200**
December	**100**
Annual Average	**5760**

Total Yield

Month	Total Yield (m³/month)
January	**1408.2908**
February	**1221.11625**
March	**1093.0871**
April	**974.35905**
May	**783.66015**
June	**771.97085**
July	**780.84465**
August	**911.6893**
September	**1076.1941**
October	**1229.99005**
November	**1207.5919**
December	**1230.9705**
Annual Average	**12689.765**

Irrigation Demand

Month	Planting area (m²)	Irr. depth / week (m)	Irr. depth / month (m)	Irrigation demand (m³/month)
January	2129	0.05	0.3	**638.7**
February	2129	0.05	0.3	**638.7**
March	2129	0.05	0.2	**425.8**
April	2129	0.04	0.15	**319.35**
May	2129	0.03	0.1	**212.9**
June	2129	0.03	0.1	**212.9**
July	2129	0.03	0.1	**212.9**
August	2129	0.03	0.15	**319.35**
September	2129	0.03	0.2	**425.8**
October	2129	0.05	0.3	**638.7**
November	2129	0.05	0.3	**638.7**
December	2129	0.05	0.3	**638.7**
			Annual Total	**5322.5**

Alternative Demand

Month	Entity (Persons ?)	Entity demand / day (l)	Alt demand (m³/month)
January	500	35	**542.5**
February	500	35	**490**
March	500	35	**542.5**
April	500	35	**525**
May	500	35	**542.5**
June	500	35	**525**
July	500	35	**542.5**
August	500	35	**542.5**
September	500	35	**525**
October	500	35	**542.5**
November	500	35	**525**
December	500	35	**542.5**
		Annual Total	**6387.5**

Total Demand

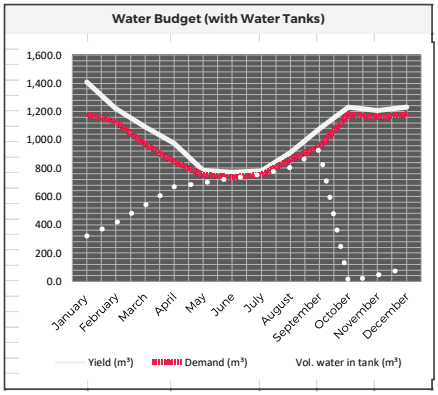
Month	Total demand (m³/month)
January	**1181.2**
February	**1128.7**
March	**968.3**
April	**844.4**
May	**755.4**
June	**737.9**
July	**755.4**
August	**861.9**
September	**950.8**
October	**1181.2**
November	**1163.7**
December	**1181.2**
Annual Total	**11710**

Water Budget

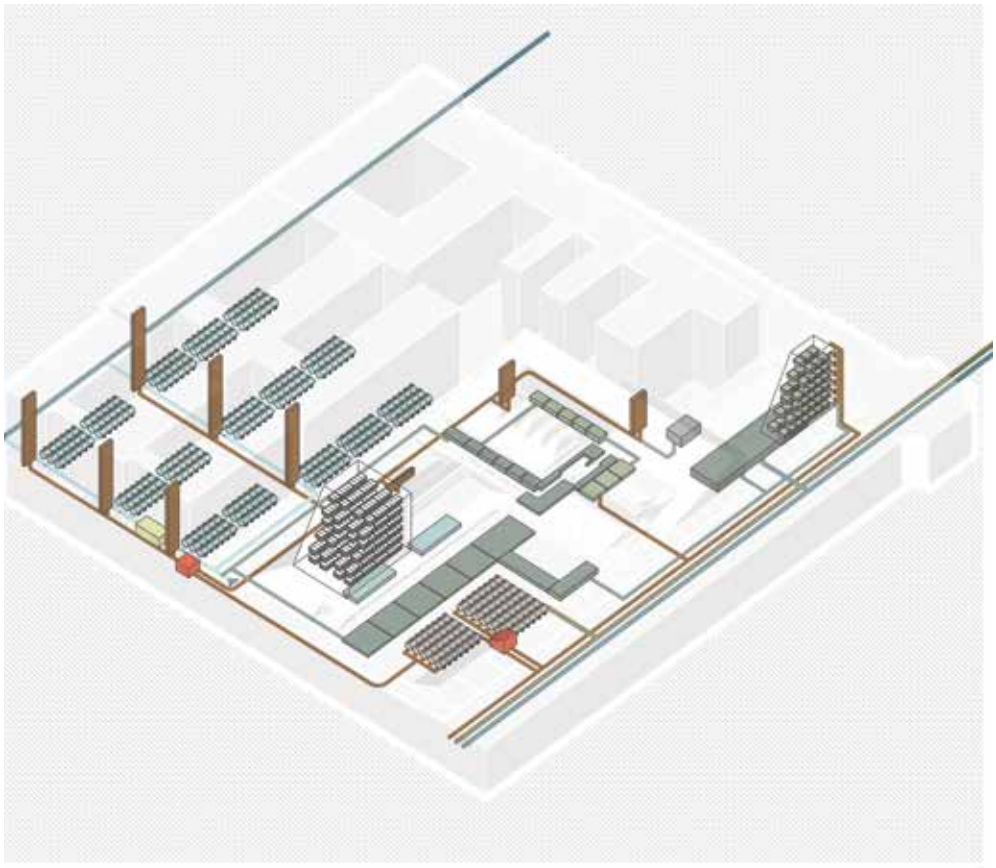
Month	Yield (m³)	Demand (m³)	Monthly balance
January	1,408.3	1,181.2	**227.1**
February	1,221.1	1,128.7	**92.4**
March	1,093.1	968.3	**124.8**
April	974.4	844.4	**130.0**
May	783.7	755.4	**28.3**
June	772.0	737.9	**34.1**
July	780.8	755.4	**25.4**
August	911.7	861.9	**49.8**
September	1,076.2	950.8	**125.4**
October	1,230.0	1,181.2	**48.8**
November	1,207.6	1,163.7	**43.9**
December	1,231.0	1,181.2	**49.8**
Annual Average	**12689.765**	**11710**	

Water Budget (Accumulative)

Month	Yield (m³)	Demand (m³)	Monthly balance	Vol. water in tank (m³)
January	1,408.3	1,181.2	227.1	**320.8**
February	1,221.1	1,128.7	92.4	**413.2**
March	1,093.1	968.3	124.8	**538.0**
April	974.4	844.4	130.0	**668.0**
May	783.7	755.4	28.3	**696.2**
June	772.0	737.9	34.1	**730.3**
July	780.8	755.4	25.4	**755.7**
August	911.7	861.9	49.8	**805.6**
September	1,076.2	950.8	125.4	**931.0**
October	1,230.0	1,181.2	48.8	**0.0**
November	1,207.6	1,163.7	43.9	**43.9**
December	1,231.0	1,181.2	49.8	**93.7**
Annual Average	**12689.765**	**11,710.0**		



WASTE WATER PROCESSING



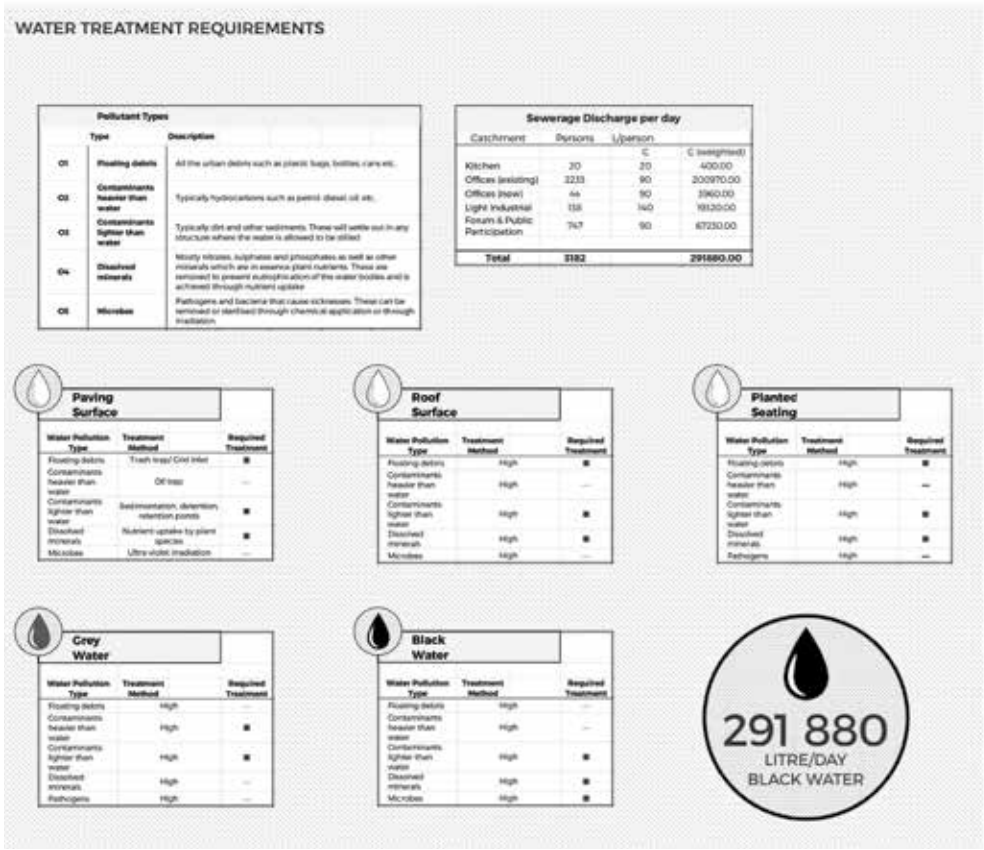


Fig. 156 **Left:** Water harvesting(Author, 2019)

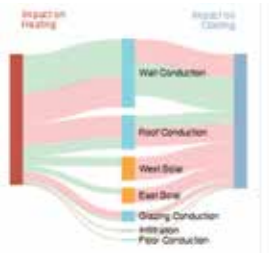
Fig. 157 **Right:** Waste water processing (Author, 2019 informed by Vosloo, 2014)

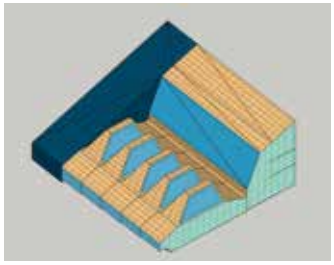
ENERGY & DAYLIGHT ANALYSIS

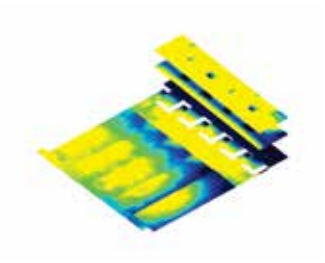
ENERGY MODELING

DAYLIGHT MODELING

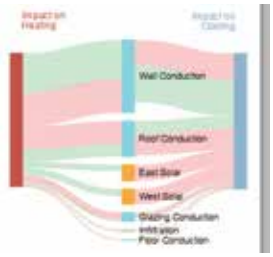
ITERATION **01**

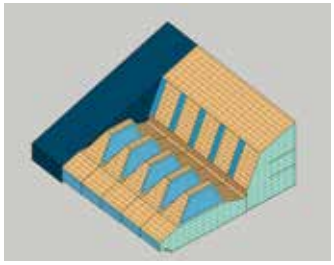




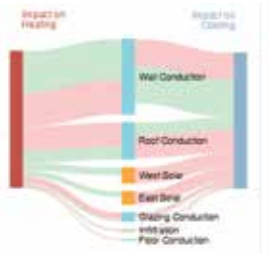


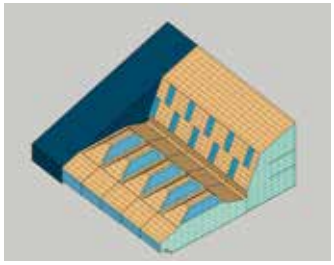
ITERATION **02**

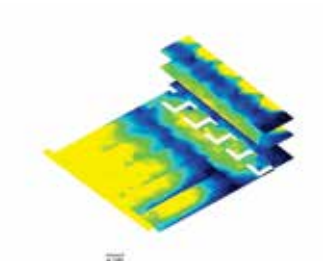




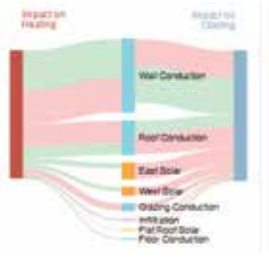
ITERATION **03**

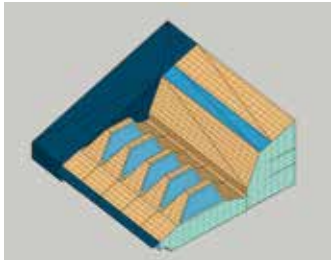


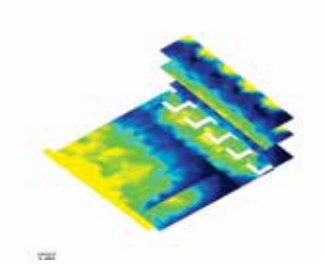




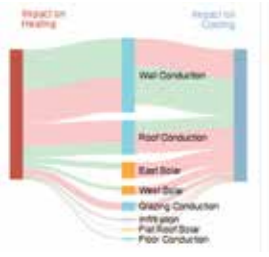
ITERATION **04**

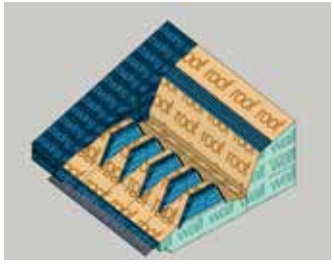


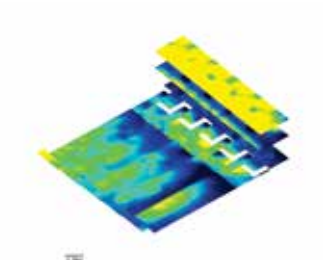




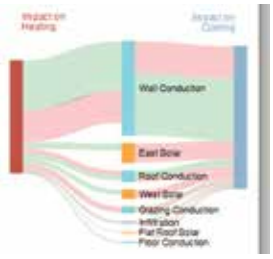
ITERATION **05**

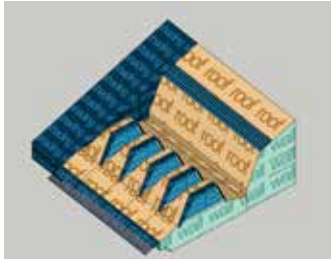


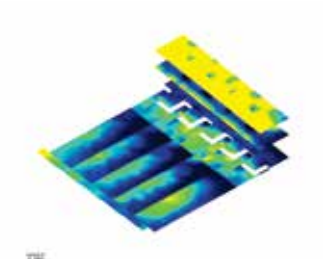




ITERATION **06**







SBAT ANALYSIS

SUSTAINABLE BUILDING ASSESSMENT TOOL RESIDENTIAL

1.04

	Achieved
SB SBAT REPORT	**4.5**

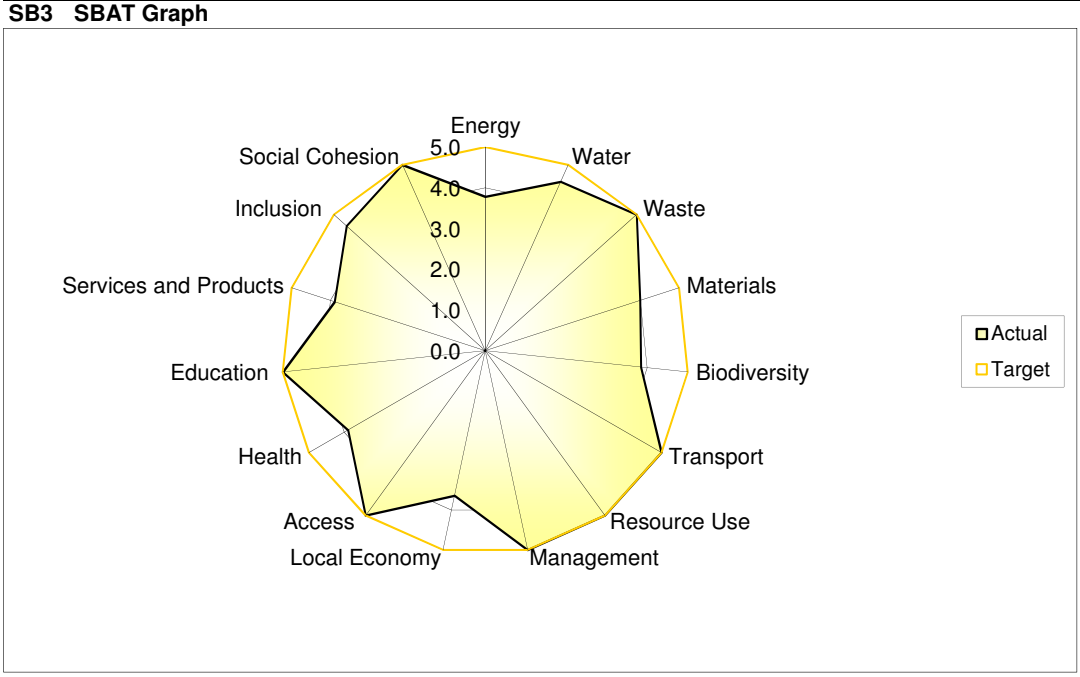
SB1 Project

0

SB2 Address

0

SB3 SBAT Graph



SB4 Environmental, Social and Economic Performance	Score
Environmental	4.2
Economic	4.7
Social	4.5
SBAT Rating	4.5

SB5 EF and HDI Factors	Score
EF Factor	4.4
HDI Factor	4.3

SB6 Assessment: SBAT assessment carried out by

Name	Date
Assessor number	
Signature	

SB7 Validation: SBAT assessment validated by

Name	Date
Signature	

SB8 Validation

Number	Date

Fig. 158 **Left:** Energy and daylight analysis (Author, 2019)

Fig. 159 **Right:** SBAT analysis (Author, 2019)

Fig. 160 **Spread:** Aerial perspective of the obsolete landscape 2 (Author: 2019)

CONCLUSION

The intention of this dissertation is to examine the existing method of instituting a new identity for the city of Tshwane through a Pan-African lens that merely represents a particular distinctiveness. Hybrid ecological landscapes – as a medium and process to reconstruct the city – are used to modify infrastructural and waste landscapes to constitute a new cultural character. These landscapes can be left indeterminate, open-ended and self-regulatory so as to limit or even transcend architectural obsolescence.

The study questions the current approach vis-à-vis establishing an African identity in architectural design. In so doing, three theoretical lenses were proposed. The first lens emphasizes the role of the state in demonstrating a national identity in the capital city, the notion that ideas continually change – rendering some representations obsolete – and the difficulties involved in expressing identity when a country comprises a multitude of ethnic groups. The depictions involved form characteristic layers in the city's built environment – that provides a basis from which to learn – and led to a brief paradigmatic analysis of the City of Tshwane's history in order to attain an understanding of how identity was expressed over time. The manifestations studied are limited to the aesthetic depictions that may be threatened by architectural obsolescence when a paradigm change occurs.

The second lens outlines the prevalent theory underlying post-Apartheid African architecture that aims to remediate, recognize and reconcile past ethnic oppression but remains stuck in the past as a result of partiality to certain cultural groups, and supports the argument that the current socio-political conditions should be addressed by correspondingly incorporating aesthetics. After initially probing the current approach employed as regards dealing with the status quo, the conclusion was reached that identity is a subjective social construct. The second lens primarily amalgamates Western and African architectural theory.

In response to the first and second lenses, landscape urbanism was employed. 'Landscape', in this instance, is used as a traditional identity instrument that manifests in living systems synthesized with architectural space to produce a cultural setting. It is argued that these systemic landscapes can absorb paradigmatic shifts and could become a new urban ordering mechanism by emphasizing infrastructure as an urban amenity – directed towards the integration of social, aesthetic and ecological aspects – that may result in new interconnected programmatic relationships. The aforementioned idea birthed the concept of hybrid ecological landscapes.

Assessments showed that the partial application of the Skinner Street (renamed Nana Sita Street) portion of the 1967 Ring Road Scheme cleft the city fabric in two, causing a disruptive and wasteful infrastructural site. The Greenway urban framework was developed to convert the freeway into a living formative spine that serves the city, ties the metropolis together through green understructure and provides much needed civic and public functions along the route. The chosen site was determined at a reasonable scale to provide an example of how the precinct could be developed.

Constructing the site according to the three orders allowed for a densely packed programmatic composition that synthesizes socio-political and ecological factors while taking aesthetic aspects into account in order to invoke a new identity. Spatially addressing these programs attends to the inadequate relationships between government spheres, the poor liaison between the administration and the citizens it aims to serve and

the public amenities that the authorities ought to deliver according to the Constitution. A current socio-political issue is thus resolved in a way that transcends mere aesthetic representation.

The proposed design amalgamates socio-political, ecological and aesthetic factors by offering an architectural landscape that responds to the specific conditions on the site in addition to the elements proposed in the urban framework and the programmatic composition. A new cultural and ecological setting is produced in response to the historical and existing layering of the site by: viewing the construct as a process rather than a static object; considering the interactions between the various living system layers and by encouraging collaboration between the site and the precinct.

The typical mono-functional civic buildings nearby are countered by a multilayered spatial experience that is flexible, adaptable and will suit a variety of uses once it is built and when the current utilization eventually becomes obsolete. Partiality concerning specific cultural characteristics is averted by including diverse occasional and everyday users and employing landscape as both a neutral feature and a cultural agent. Since all buildings face eventual obsolescence, the lifespan of the structure was considered and a series of scenarios that allow for the likelihood was deliberated. The proposed design, therefore, presents a multilayered typology for the site, based on civic buildings that can be left undefined, flexible and self-controlled so as to limit or even transcend architectural obsolescence.













FINAL PRESENTATION

Corobrik 1st Runner Up
87% for Design Resolution
82% for Technical Resolution
79% for Dissertation Book

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Fig. 1 **Top Left:** Table of various governmental forums (Republic of South Africa, 2005 adapted by Author)

	The President's Coordinating Council		National Intergovernmental Forums		Provincial Intergovernmental Forums		Local / Municipal Intergovernmental Forums	
Primary Function	A consultative platform for the President		Primarily a consultative forum for the Cabinet Member responsible for a functional area	Reports to the President's Coordinating Council and refers matters to the Budget Council and Budget Forum	Primarily a consultative forum for the premier responsible for a province	Reports to the Presidents Co-ordinating Council Interprovicial forums may be formed	A consultative forum for the district municipality & local municipalities in the district	May refer matters to the Provincial/Premier's Intergovernmental Forum
Interest	Raises matters of national interest to national, provincial and local governments.		Raises matters of national interest within the functional area		Raises matters of provincial interest & local government in that province		Raises matters of provincial interest & local government in that province	
Consult	Implementation of policy and legislation	Coordination and alignment of priorities, objectives, strategies, and strategically important matters.	Implementation & development of policy and legislation	Coordination and alignment of priorities, objectives, strategies, and strategically important matters	Implementation of policy and legislation	Coordination and alignment of : priorities, objectives, strategies, development planning and strategically important matters	Implementation of policy and legislation	Coordination and alignment of priorities, objectives, strategies, and strategically important matters
Discuss	Service delivery performance: detect failures	Service delivery performance: Initiate preventative & corrective actions	Service delivery performance: detect failures	Service delivery performance: Initiate preventative & corrective actions	Service delivery performance: detect failures	Service delivery performance: Initiate preventative & corrective actions	Service delivery performance: detect failures	Service delivery performance: Initiate preventative & corrective actions
Consider	Reports from other intergovernmental forums	National performance reports	Reports from provincial intergovernmental forums	National performance reports	Reports from other provincial intergovernmental forums	Local intergovernmental reports	Reports from other provincial intergovernmental forums	Local intergovernmental reports
Inter Forum Relations	National		Provincial		Presidential	National	Provincial	
Attendees	President (chairperson)		Cabinet Member (chairperson)		Provincial Premier		District Mayor	
	Deputy President		Deputy Minister (related function)		Members of the Executive Councils (local government)		Local Municipality Mayors	
	Minister in the Presidency		Members of the Executive Councils (related function)		Members of the Executive Councils (premier specified)		Municipal Councillor representatives	
	Department ministers		Municipal Councillor representatives		Mayors (district & municipal)		Municipal administrator	
	Cabinet Member (finance)				Municipal administrator			
	Cabinet Member (public service)				Municipal Councillor representatives			
	Provincial Premiers							
	Municipal Councillors representatives							

Gustav Kruger

Hybrid Ecological Identification

Establishing a new nonaligned collective identity through systemic living architectural landscapes that limit building design obsolescence.

INTRODUCTION

From 1994 onward the City of Tshwane experienced another paradigmatic shift. The demolition of the Munitoria building and the gradual decay of the Transvaal Provincial Administration (TPA) building due to their political connections to the Apartheid period indicate why. That government aimed to represent an Afrikaner national identity.

Although these two magnificent objects are enormous in scale their expression of power is fragile. Change and partiality threaten physical expressions of ideas with obsolescence.

The post-Apartheid government, through the erection of Freedom Park, Tshwane House and the Women's Living Heritage Memorial attempt to establish a new collective identity with different shared values. With the exception of Freedom Park, these attempts could also be relevant to this paradigm only.

This dissertation attempts to establish a new typology to represent national identity through state projects that limits architectural obsolescence.

The theoretical approach to representing African identity in architecture can be understood as comprising three hypothetical lenses.

The first lens establishes the role of structural design as a method employed by the state to represent collective characteristics in a capital city. The non-static nature of ideas threatens the static nature of architecture and results in obsolescence. This notion is explored through a brief paradigmatic analysis of Tshwane's history.

The second lens argues for hybridity between Western and African architectural discourses, with the aim of remediating discounted distinctiveness, and questions the current approach to dealing with the status quo.

Landscape urbanism theory, as the third lens is proposed in response to the issues defined by the previous two. This lens proposes a new architectural fusion that offers a theoretical approach to cultural identity that limits the effect of redundant

building design.

All three lenses are used in conjunction to identify the Nana Sita freeway as a relevant site to represent this new typology.

THEORETICAL LENS ONE: THE STATE, ARCHITECTURE AND PLACEMAKING

The state, comprising a political elite, operates within the capital by means of governing symbolic representations such as ceremonies, rituals and narratives, which grants it the aura of the Caput Mundi – the centre of the world (Vale 2008: 41). The "germinator" of a city is the original ritual destination that forms a political centre or capital (Vale 2008: 27). Lawrence Vale (2008: 98) argues that "Nationalism brings forth nations", which makes a sense of national or collective identity an essential component of nation-building. The capital city is, therefore, the prime location to represent a shared uniqueness. The administrative capital, Tshwane, is the principal location that represents national accordance and where relevant ceremonies are conducted.

When a country comprises multiple ethnic groups – as is the case in South Africa – consolidating identities is an immense challenge for the state, which aims to merge the various groupings to create a sense of national uniformity (Vale 2008: 98). Governmental and public buildings are symbolic and serve as a statement of collective identification (Vale 2008: 27). These buildings are meaningful and as such reveal socio-political tensions within a nation (Vale 2008: 38).

Representing ideas through an architectural lens is always implicated relative to "cultural, political and economic authority" (Van Rooyen 2018: 1). Each building could be considered to be a physical depiction of an applied system of ideas. The manifestation of concepts in architecture operates on both an urban and an architectural scale and is thereby inextricably linked with how society is configured (Van Rooyen 2018: 3). However, the static nature of built objects is in an ever-present conflicting relationship with the non-static nature of ideas (Van Rooyen 2018: 5). Perceptions change, as does the manner in which society is formed. Building, as a material practice, restrict the metaphysical because of functional, material and technological demands (Van Rooyen 2018: 5). Mindsets are shared among a given societal collective as it represents that groups' identity in the philosophical

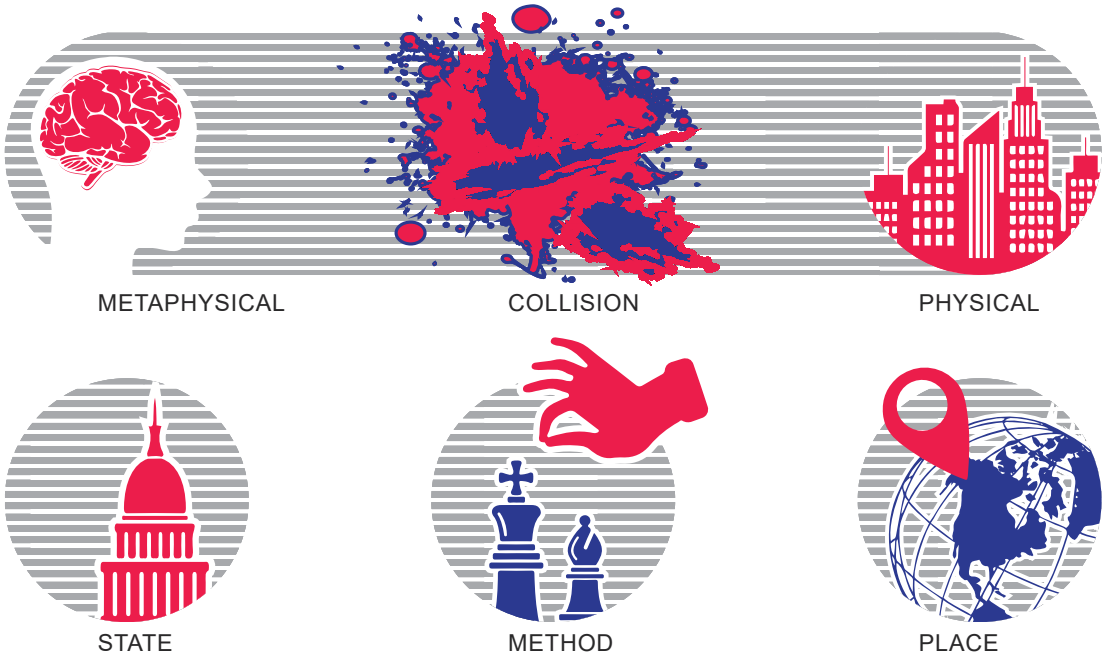

Fig. 01. Below Right; Diagram communicating the first theoretical lens (Author, 2019)

Fig. 02. Left; Photo of Church Street west in 1902 (The Heritage Portal, 1902)

realm (Šuvaković 2014: 13). As such, these shared notions – together with their manifestations – distinguish between the collective "we" or "us" as against the "other".

The thought layers mentioned provide us with an immensely powerful learning tool to construct new representations that are passed from one paradigm to the next. Studying these ideas, together with their expressions, inform new symbols of identity. As an exploration of this notion, the relationship between the metaphysical realm of ideas and the physical realm of architecture is surveyed through a brief paradigmatic analysis.

Three paradigms of architectural representation have been identified to analyse the correlation between ideas and structural design. The models include the pre-apartheid, apartheid and post-apartheid periods. The impact of Western ideas in Tshwane's historical development will become evident, as will the manner in which collective identity is presented.

THE PRE-APARTHEID PARADIGM

In 1855, when the world was in the industrialisation phase, Pretoria was an agrarian society centred around the church (Fisher et al. 1998: 58). The church was located at the crossing of the Roman urbs quadrata (Fisher et al. 1998: 62). Church Street led to the Kerkplaatz ("Church Place"), where the Christian practice of communion brought the farmers in the region together in fellowship (Fisher et al. 1998: 59).

This periodic act of fellowship developed into trading opportunities, a Market Square and Market Street. The width of the streets was functional, determined by the turning circle of an ox wagon (Fisher et al. 1998: 59). Much later, this characteristic aligned with the functional requirements of wide streets for vehicular traffic.

"Tuishuise" or row houses were placed along the streets, forming "rydorpe" or row towns (Fisher et al. 1998: 59). The regular Cartesian grid pattern is a direct reflection of the Christian beliefs held by the farming community in contrast to the wild natural terrain surrounding the town (Fisher et al. 1998: 59).

According to Fisher et al. (1998: 60), the use of water via irrigation channels was a feature of early Pretoria and property owners had to erect structures on the road borders, enclosing their properties with walls, cultivate the land and plant trees on the sidewalks where earmarked. Hereby, the streets became well-defined spaces with varying degrees of privacy and public spaces (Fisher et al. 1998: 60). Pretoria shares these characteristics with Potchefstroom, Klerksdorp, Winburg, and Graaff Reinet (Fisher et al. 1998: 61).

Dieter Holm (Fisher et al. 1998: 57) argues that the early town design of Pretoria could be considered as an "ecologically sustainable development, integrating social, functional, aesthetic and symbolic aspects." It is evident, therefore, that a strong connection to water, natural and productive landscapes were experienced in everyday life.

After the battle of Majuba in 1881 the Boers, united under the leadership of President Paul Kruger came to need the expertise of order and physical symbols that express the sovereignty of the state (Fisher et al. 1998: 63). Sytze Wopkes Wierda, a Dutch immigrant was employed to head the newly created Department Publieke Werken (PWD) in 1887 and in 12 years time Pretoria was converted into the capital of the republic resembling a classical Dutch tradition (Fisher et al. 1998: 64). Wierda saw architecture and urban design as a unified vision said to be modelled on Haussmann's Paris, signified by an emphasis on the whole, reflective of the motto "eendracht maakt macht" (unity is strength) (Fisher et al. 1998: 64). The Raadsaal, influenced by Paul Wallot's Reichstag in Berlin, as well as the Palace of Justice, on Church Square, communicate his intentions well and became characteristic of buildings of that time (Fisher et al. 1998: 65).
The eclectic Union Style followed thereafter, pinnacled by the Union Buildings, designed by the English Sir Herbert Baker, which is arguably the best symbol of South African nationhood (Fisher & Clarke 2014: 96).

THE APARTHEID PARADIGM

Amidst the Dutch and British colonial traditions, the logic and philosophy of

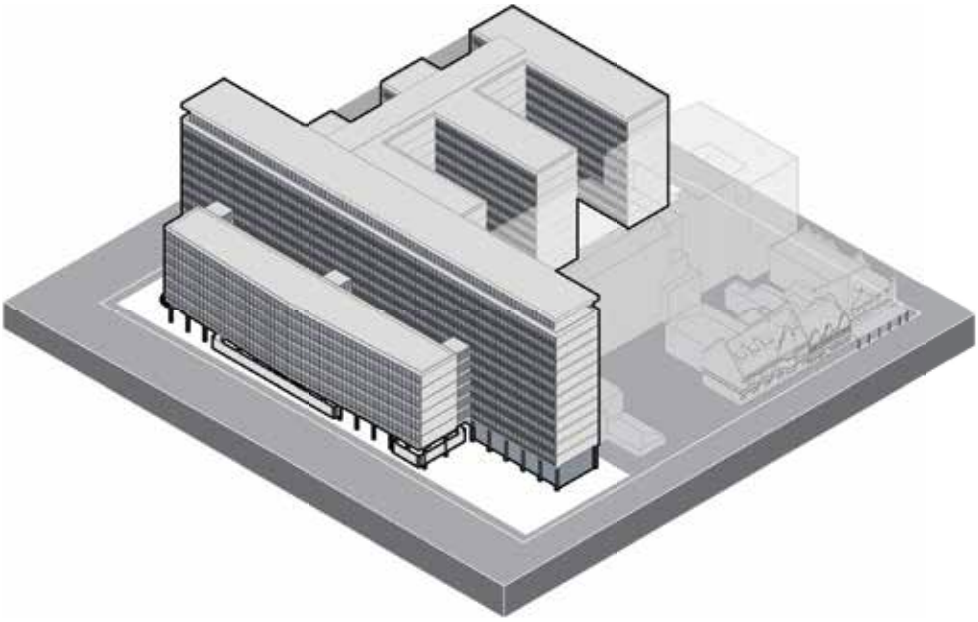

Fig. 03. Left; Axonometric representation of the TPA building (Author, 2018)

a new technologically and functionally driven architecture slowly developed and eventually spread widely (Barker 2017: 3). However, in due time these early Modernist buildings erected in the 1930s displayed literal aesthetic interpretations of the movement and, in so doing, revealed various technical and climatic problems (Fisher et al. 1998: 233). The Modern Movement, as a Western notion, was misinterpreted and inconsistently applied.

The conditions were met to construct a new regional Modern Movement mutation: climatic and technological lessons where learnt, designers where free from Dutch and British colonial traditions, the inauguration of the Nationalist party in 1948 meant state commissions to further nationalism, new local industries were established and a variety of local materials where available (Barker 2017: 5). Influences from Brazil became the precedent to establish a new Afrikaner nationalist identity (Barker 2017: 5). The Meat Board and the Transvaal Provincial Administration (TPA) buildings shared a stricking resemblance to the Ministry of Health and Education building in Rio. Even though the movement contained regional responses, as indicated by Barker (2017: 2), many buildings can be considered as blatant copies of Brazilian models. The architects Norman Eaton, Douglas Cowin and Hellmut Stauch, whose designs were informed by decades of handed-down knowledge, provided the few good examples of regional Modernism (Fisher, Le Roux & Maré 1998: 233).

Immersed in Modern thought, the city of Pretoria experienced enormous growth and development. The Modern narrative coincided with the nationalistic ideals of the governing party, the movement had immense political weight. To a large degree, advocates of the movement aimed to create a “new social order or utopianism” (Barker 2017: 3).

Social restructuring took place by separating black and white people spatially allocating different spaces and entrances to each. DM Calderwood’s doctoral thesis “Native Housing in South Africa” was informed by a number of seminal international authors, including Patrick Geddes, Lewis Mumford and Clarence Stein, became the housing model for areas in which black people were designated (Haaroff 2011: 190).

Notions of utopianism aligned with enormous urban renewal and infrastructural schemes sought to promote better socio-cultural conditions, but they were often used as a political tool with strong racial substrata based on a deficient comprehension of society (Abrahamson et al. 2012: 60). The Schubart Park and Kruger Park urban renewal schemes are architectural examples that eradicated a large poor white community to establish a middle-class neighbourhood through high-density development (de Klerk 2019) . The 1967 Ring Road scheme is an infrastructural precedent that intended to alter the city’s fabric detrimentally orientated around large expanses designated for vehicular transportation (de Klerk 2019). The beforementioned renewal schemes are contributors to Tshwane’s urban decay today due to their megastructural scale and rigidity in design. The ill-considered and partial application of the Skinner street portion (now renamed Nana Sita street) of the 1967 Ring Road scheme in 1992 has left a marked scar in the city fabric virtually cutting the city core in half.

The city’s character became like a functional machine. The fine-grained urban pattern of the city was replaced by a coarse-grained urban pattern comprised of buildings with large footprints zoned in functional districts seldom relating to a human scale. The TPA building, in particular, is known for its immense scale.

Historically, cities are composed of tightly knit areas involving mixed land usage because of on-foot travel (Herndon 2011: 3). The growing amount of vehicular traffic became the primary functions of streets and eliminated the original streetscape layering of early Tshwane – which nullifies street life. The layered connection to the landscape, in particular, was lost.

In South Africa, regional Modernism liberated the Afrikaner from his Dutch and British colonial heritage and heralded a new Afrikaner nationalist identity (Tymbios 2017: 10).

Fig. 04. Left; Types of waste (Author, 2019)

THE POST-APARTHEID PARADIGM

Left with the legacy of colonialism and Apartheid, the post-apartheid era marks a justice period in an effort to remedy the effects of the previous. The city is earmarked with a name change from Pretoria to Tshwane. The City of Tshwane maintains both its political and administrative capacities, making it a key point for development to occur (City of Tshwane 2013: 84). The current administration has made various attempts to represent social reform and inclusivity. Examples of the projects that have been undertaken include the erection of Freedom Park, Tshwane House and the Women's Living Heritage Memorial.

In order to bridge the cultural and political divides, an eclectic approach is taken in an effort to preserve culture (City of Tshwane 2013: 88). As such, symbols of "the hated past" are kept intact and showcased on public squares as a reminder of an earlier period (City of Tshwane 2013: 88). Retaining these representations may be regarded as a willingness to include all narratives. One amongst many of the Tshwane Vision 2055s aims is to preserve and promote Pretoria's memorable assets such as the Union Buildings, Voortrekker Monument, University of South Africa, and the newly built Freedom Park (City of Tshwane 2013: 84). Historical liberation ceremonies such as the women's march of 1956 are observed amidst the various layers fashioned by previous paradigms (City of Tshwane 2013: 88).

However, new government buildings such as the Department of Environmental Affairs, Department of International Relations & Cooperation and Department of Statistics South Africa is built far from the city centre which detracts from Tswane's administrative significance. Citizen interaction is difficult forcing long-distance travel between divisions. These encompass megastructural footprints a shared characteristic with their Apartheid counterparts. Each of these structures is set back and gated off with no regard for public space.

Freedom Park is widely considered to be the most ambitious project undertook to resemble a post-Apartheid national identity (Noble 2011: 213). The park is situated on a hilltop in dialogue the Voortrekker Monument a symbol of the past, designed by Gerhard Moerdijk. Its guiding concept is reconciling and recognizing "unique properties of African indigenous knowledge and cultural practices, the recovery of traditions, and a search for 'authentic' forms of representation." (Noble 2011: 213). The project focussed on three "interactive themes" – struggle, democracy, and nation-building and its partiality are made explicit through disregarded local histories and practices embedded physically into an architectural landscape (Noble 2011: 215). Inquiry into the past and present is made but also projects towards President Thabo Mbeki's "African Renaissance" imagining cultural rebirth, self-discovery and confronting colonial prejudice (Noble 2011: 215).

THEORETICAL LENS TWO: IDENTITY IS A SUBJECTIVE SOCIAL CONSTRUCT

When we study the implications of the colonial and apartheid orders, as historical examples of sets of ideas that were shared by a given societal collective and resulted from major cultural differences, we understand how a rigid homogeneous character was established at the expense of other ethnic identities.

As of 1778, there existed a division between the Western culture and the African "other", as exemplified through "White civilisation, black savagery. White science, black animality. White mastery, black slavery." (Noble 2011: 6). In this sense, both colonialisation and apartheid rule disregarded "local traditions, histories and communal languages." (Noble 2011: 7). Mediating, remediating, and representing the discounted identities are at the centre of current architectural discourse in the post-Apartheid climate.

Jonathan Noble (2011: 6) presents the metaphorical image of a "skin" and a "mask" to illustrate the resulting social polarity. An interplay of tension occurs as the process of identification between the "natural identity" of "skin" and the dissimulation of a "mask" takes place, oscillating between objective authenticity and subjective inauthenticity (Noble 2011: 7). The process of classification is, therefore, regarded as a fluid social construct that

WASTE

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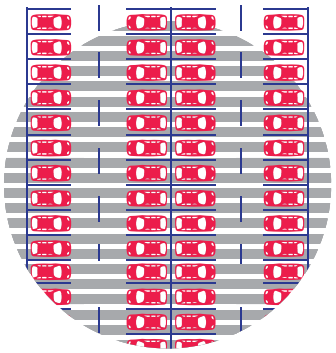


WASTEFUL
PLACE

resonates between an individual or group and other groups (Noble 2011: 3). A subjective theoretical framework of African distinctiveness is offered to reject the notion of a rigid unified view of “African Architecture” (Noble 2011: 3). Noble (2011: 5) draws on Franz Fanon to offer an open-ended non-systematic philosophy in which closed definitions of identity are avoided .

Evidently, this metaphorical representation heralds a critique of Modernism. Modernism’s drive for an objective authentic “skin” was conceived under the universal functionalist notion of “purity in design” and “honesty of materials”, silencing the “inauthentic play” concerning the non-functional ornamentation of a “mask” (Noble 2011: 7). The Modern project’s exclusionary stance toward the use of non-functional ornamentation as the “savage other” is clearly indicated by Adolf Loos in Ornament and Crime (Noble 2008: 74). Inevitably, South African architecture places itself within a Western architectural discourse. The “skin”, therefore, is white – yet it can wear a black “mask” (Noble 2011: 9).

In order to mediate identification processes that approach a future of reconciliation and recognition, repressed historical narratives and uniqueness – to be worn as a “mask” – may facilitate a new hybrid architecture and an eclecticism of ideas (Noble 2011: 9).

Speaking of an eclectic hybrid architecture is embedded in the postmodern interest, according to Noble, yet Charles Jencks’s and Robert Venturi’s call to eclecticism indicates a strong elitist undertone and contumacious disregard for Modernism, which exhibits a disregard for socio-political issues (Noble 2008: 71). With this critique, Noble aims to move beyond the “fashion of style” to address this deficiency in postmodern discourse and to confront Western hegemonic practices (Noble 2008: 71). Noble rages against a merely superficial aesthetic variety of ideas.

The process-driven nature of hybridity mutates and subverts hegemonic power structures via excluded narratives and is, therefore, continually in a state of deformation and ambiguity (Noble 2008: 75). Consequently, hybridity should remain entangled in a discussion of historically dominant structures to continue being a relevant tool (Noble 2008: 80).
Discussing Noble’s hybridity
The theoretical discourse, as presented by Noble, is fixated on a power struggle between white and black and operates under the assumption that the classification of white resembles the West and black resembles Africa. This dissertation will not seek to function under that assumption as it limits one to certain histories and identities. The colonial order in South Africa, for instance, suppressed both white Afrikaners and black people.

Furthermore, as Noble is fixated on apartheid directives, the built examples of post-apartheid architecture referenced by him focus on remediating only black identities. Operating strictly within these assumptions would border on cultural preference- and correctness. Paradigmatic change would still threaten the proposed structures as they will remain mere representations of the ideas propagated in the current cultural climate, and the structures will suffer the same consequences that edifices from the Apartheid period underwent.

As such, the issue of identity will be treated in an impartial manner that steers away from cultural correctness to prevent falling into the trap of preferencing one group over another. Integration remains a relevant tool but a different kind of fusion will be sought.

The subjectivity of Noble’s’ framework allows much room to operate in and the metaphor will be delineated in a manner befitting this dissertation. Moving beyond merely aesthetic representations and addressing sociocultural issues are fundamental. Distinctiveness will be viewed more broadly, unconstrained by the belief that only black identities were suppressed.

As Tshwane progressed from one continuum to the next it is evident that the connection to a variety of living landscapes was eventually lost. Although Freedom Park cannot be considered impartial with regards to identity, the scheme does encompass the commonality of such a landscape shared by all cultural groups. This notion forms the basis of the third

theoretical lens.

THEORETICAL LENS THREE: LANDSCAPE URBANISM

John Tillman Lyle (1994: 25) defines the term “land” as “the rock underlying it, the water, the soil with its countless microorganisms, the plants rooted in it, the animals living on it, the air moving over it and all the dynamic processes occurring within it”. Lyle (1994: 25) argues that the term landscape includes the beforementioned elements and extends this view to include the human dimension on and in the landscape together with everything that is needed to support human life.

James Corner (1999: 4) views “landscape” as a verb employed to describe a process and agent that both represents and augments cultural identity. An emphasis is placed on the functional capacity of a landscape – moving beyond the mere traditionally decorative nature of “landscaping” and representation – and steers towards what the landscape does in the form of a system that produces a cultural setting (Corner 1999: 4). “Landscape” is, therefore, a medium for constructing a city (Waldheim 2006: 15).

LANDSCAPES OF INFRASTRUCTURE AND WASTE

A new spatial and cultural identity is unlocked by remediating latent, dormant and derelict sites (Waldheim 2016: 9). Charles Waldheim (2016: 5) argues that the landscape medium has the capacity to flexibly absorb the frailties of architectural models left in the wake of an economic shift – and one might also include a political shift. Hereby, landscape enters into a “structural relationship to urban industrial economy” to “remediate, redeem and reintegrate” wasted urban transformations, utilising regional ecology ordering as a basis (Waldheim 2016: 8). Landscape urbanism views infrastructural systems – together with its potential for public space – as an urban ordering system, stressing the use of intensely complex and interwoven programmatic compositions (Waldheim 2016: 15).

Natural ecology supplants architecture as “the primary element of urban order” and becomes an infrastructural future, thereby stressing exchanges between natural and engineered structures (Koolhaas 1998; Waldheim 2016: 18). The most striking autonomous capacity, by way of ecology as an agent of such urbanism, could potentially be left abandoned, indeterminate, open-ended, and self- regulatory (Waldheim 2016: 36).

Residue landscapes are produced through urban sprawl and leftover land caused by economic, industrial or political shifts (Waldheim. 2006: 199). Alan Berger views the city as an organism, arguing that, “This is a natural process that can be ignored, maligned, or embraced, but never stopped” (Waldheim 2006: 203). Berger bases this theoretical discourse on the writings of merging economist, Joseph Schumpeter, and Rice University Dean, Lars Lerup, arguing that technology becomes obsolete through the process of progress in the consumption/waste cycle as a recurrent “process of creative destruction” (Waldheim 2006: 203). Hereby, the city is non-static, rendering it a “transitional manifestation” that provides the challenge of having to integrate waste into the city (Waldheim 2006: 203). Berger defines three types of waste: “waste (such as municipal solid waste, sewage, scrap metal, etc.), wasted places (such as abandoned and/or contaminated sites), or wasteful places (such as oversized parking lots or duplicated big-box retail venues)” (Waldheim 2006: 203). Berger coins such waste “drosscape”, which involves intentionally altering waste through design (Waldheim 2006: 210). The strategy of drosscape also implies a multidisciplinary top-down and bottom-up approach, calling for what Bruno Latour terms “hybrid forums” that merge scientific and political debates (Waldheim 2006: 214).

INFRASTRUCTURAL LANDSCAPES REPRESENT AND DISRUPT CULTURAL IDENTITY

Substructural schemes and visions are as much a cultural representation of identity as governmental buildings. Such systems are a product of both natural local and political circumstances but also disrupt the people they serve (Waldheim 2006:181). Hereby, we should shift our “frame of reference for their design from utility to amenity, from infrastructure to urbanism.” (Waldheim 2006: 181). We cannot revert back to a pre-infrastructural era. We should, however, recognise that understructure is crucial to the city and move from monofunctional technical criteria to a multi-layered function that incorporates social, aesthetic and ecological aspects (Waldheim 2006: 171). Kelly Shannon argues that introducing environmental layers into urban strategies provides opportunities for innovative interconnected and interdependent relationships (Waldheim 2006: 147). Urban ecosystems further introduce fauna and flora into the city to make new “hybrid ecological systems”, which are not only concerned with the aesthetics of the landscape but become a functional integration that amalgamates socio-political factors with ecological factors in the process (Waldheim 2006: 170). This practice calls for hybridity between man-made infrastructure and natural systems to evoke a new cultural identity (Waldheim 2006: 184).

IN SEARCH OF A SOCIO-POLITICAL ISSUE

Informed by the theoretical lenses, the question of identity involves constructing a program that embeds itself in a present socio-political issue that will aid in mediating the relationship between the national, provincial and local governments and the people they

serve.

This socio-political concern should refrain from remaining stuck in the past and focus on unlocking potential by addressing collective identity in a spatial manner that is flexible and adaptable enough to limit obsolescence.

As such, the governmental structures are surveyed in search of socio-political matters that obstruct the rapport between the government and the citizens. As indicated hereafter, the poor relationships evident between the different government departments have had a direct impact on service delivery, resulting in a lack of public trust.

STATE STRUCTURE: A BRIEF DESCRIPTION

The Constitution of the Republic of South Africa (Constitution) stipulates that the country must follow a developmental and decentralised government model that comprises three spheres: national, provincial and local (Siddle & Koelbe 2016: 1). These domains will be "distinctive, interdependent and interrelated", and require cooperation between them (Republic of South Africa 1996). The Constitution sets forth four requirements in section 41(1)(c): government must be effective, transparent, accountable and coherent (Republic of South Africa 2003: 10).

DECENTRALISATION AND DEVELOPMENTALISM

A decentralised model describes how power is distributed between government entities, and that the relationship between the various spheres lies at the heart of this structure (Siddle & Koelbe 2016: 4). Devolution takes place on three governmental levels: administrative, political and fiscal (Siddle & Koelbe 2016: 4).

A decentralised governmental structure is dependent on the competence of staff members, especially those in leadership roles (Siddle & Koelbe 2016: 2). A devolved model relies on sufficient power, financial resources, administrative capacity, and accountability mechanisms in order to provide improved service delivery and development (Siddle & Koelbe 2016: 6). Unsuccessful application obstructs service delivery (Siddle & Koelbe 2016: 7).

Developmentalism is a strategy employed to advance the economic growth of underdeveloped nations by cultivating a vibrant domestic market via state intercession. The approach seeks to improve the human condition via education, health services, the reduction of poverty, and wealth creation (Siddle & Koelbe 2016: 8). Citizens are mobilised to take part in and direct resources towards this collective national agenda (Siddle & Koelbe 2016: 9). When civilians lose their trust in the government's ability to deliver the required services, they no longer participate by directing resources towards the common goal.

Fig. 05. The three priority functions of local government (National Treasury, 2001)

Priority One Functions
Refuse/Waste services
Water services
Electricity reticulation
Storm water reticulation

Priority Two Functions
Street Lighting
Street trading
Trading regulations

Priority Three Functions
Municipal parks and recreation
Public places
Local tourism
Local amenities
Childcare facilities
Markets

THE CURRENT STATE OF SERVICE DELIVERY

Service delivery challenges are core issues that must be addressed to deal with the socio-economic inequalities in the post-apartheid climate (Ile 2010: 52). Conveying services is in disarray, as characterised by the protests that have been escalating rapidly since 2007, peaking with 218 demonstrations in 2014, which indicates a lack of trust in the administration (Powell, O'Donovan & De Visser 2015; Siddle & Koelbe 2016: 15). The dispensing of basic amenities in the City of Tshwane is embodied by backlogs across the various functions to be provided (City of Tshwane 2016: 31). The local government sphere consists of municipalities, which are closest to "the people" and deal directly with the provision of basic resources (Ile 2010: 53). Even though protesting citizens regard the local administration as representing the government in general, many of the services are provided by other spheres of authority, which results in local municipalities being blamed even though all government departments are jointly accountable (Mofolo 2016: 231).

THE CURRENT STATE OF INTERGOVERNMENTAL RELATIONSHIPS

Service delivery development is advanced by outcome-oriented leadership that promotes intergovernmental relationships (IGR) and develops strong social, economic and political cooperation (Ile 2010: 55).

The fragmented nature of current resource provision, synergy, coordination, management, delegation, monitoring and evaluating progress, and communication between the administrative domains, is an enormous problem faced by the government (Ile 2010: 53).

The provision of services and governance by the state is dependent on intergovernmental relations based

Fig. 06. Top; Aerial of Nana Sita Street (Author, 2019)
Fig. 07. Right; Aerial photo showcasing demolition of buildings along Skinner Street (Andrews, 1993)
Fig. 08. Far Right; Lans use comparison diagram (Author, 2019)

on cooperative structures between the three government purviews (Republic of South Africa 2005). South Africa's multilateral system depends on "well-coordinated policy, planning, budgeting, implementation, and reporting" that are developed by way of forums structured according to the Intergovernmental Relations Framework Act of 2005 (National Treasury 2011: 32; Republic of South Africa 2005).

Communities are omitted from intergovernmental relationship forums, which restricts citizen participation while the administration, in fact, expects citizens to take part on four levels: "as voters, citizens expressing their views, consumers, end-users, and as organised involved partners" (Mofolo 2016: 242; Siddle & Koelbe 2016: 12).

RESTRICTED CITIZEN PARTICIPATION

The Institute for Public Participation (2009: 6) defines society playing its part as "a deliberative process through which affected citizens, civil society organisations, politicians and officials are involved in policy decision-making." Emphasis is placed on the public as coordinators that prevent unacceptable decisions being made, and not only as beneficiaries of administrative decisions (Mofolo 2016: 233).

Aligning the nation's needs with government responses is key as the leadership could profit from a collective source of "information, perspectives and potential solutions" that foster interaction and accountability (Mofolo 2016: 233).

Currently, "the voice of the citizen is absent" as the administration is focussed on internal processes, which limits its developmental role with respect to the population (Republic of South Africa 2013: 5). At present, responsiveness and improvements regarding communal feedback are poor (Republic of South Africa 2013: 12).

The proposed developmental agenda provides a framework to strengthen the partnership between active citizens and the government in order to monitor and give feedback on public responsibility and frontline service delivery (Republic of South Africa 2013: 5). The aforementioned framework emphasises a program that both fortifies the voices of citizens and creates relationships with the authorities (Republic of South Africa 2013: 12).

If the developmental agenda is pursued, intergovernmental relations will be reinforced through forums that allow public access – thus facilitating citizen participation – which is fundamental to good governance and the proper provision of services (Mofolo 2016: 240).

CONSTRUCTING THE THREE ORDER PROGRAM

In response to the framework for the proposed developmental agenda, the program comprises three orders.

The high order includes multilateral relationship forums across the three spheres of government that will allow for public attendance. The flexibility and adaptability of the spaces in which the participants will assemble will be essential as conferences and ceremonies initiated by the leadership will also be accommodated in these areas.

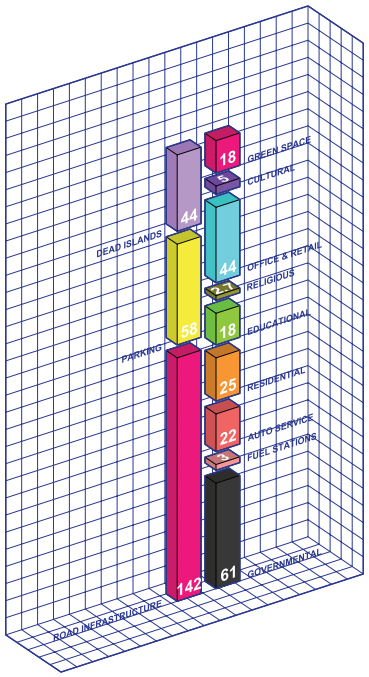
Both the medium and low order aspects flow through the three priority functions of the local administration, together with citizen participation platforms.

Landscape urbanism is the primary informant for the low order program, utilising waste as a potential option. The low order focuses on two of the priority one functions of local government, including refuse removal and water and storm water reticulation expressed a series of hybrid infrastructural systems that act as an agent for service delivery and developing the human condition..

SITE CHOICE: THE NANA SITA FREEWAY

The Nana Sita Freeway, as the chosen site is a wasteful monofunctional infrastructural landscape that failed to reflect the original principles as set out by the 1967 Ring Road scheme, apart from its location.

The partial application of the Skinner street portion (renamed Nana Sita street) in 1992 has left in its wake the demolition of a vast amount of buildings. It forms a distinct scar that cuts the city centre in half. Six original lots make up one city block but these



have been consolidated and subdivided over time, altering the original city structure.

The precinct contains a high concentration of inactive edges across all usages, resulting in poor pedestrian movement. The very few active edges correlate with good pedestrian activity and important traffic routes, as is evident along Paul Kruger Street.

Most green spaces are in poor condition owing to a lack of maintenance. Maintained green locations cannot be accessed by the public because of high-speed traffic. Islands are formed by leftover blocks situated in-between the two roads, some of which are used as car parks. Parking lots are a major contributor to poor edge conditions, block fragmentation and non-continuos façade articulation.

Many valuable buildings were destroyed when the freeway was constructed but the Staatsmodel School was saved by steering the road around it. A good concentration of heritage buildings is left in the western part of the precinct, between Paul Kruger and Nelson Mandela Streets.

The intention of this dissertation is to reconstruct the Nana Sita freeway into a Citizen-focussed Service delivery Greenbelt in order to join the City of Tshwane together in an effort to remedy the partial application of the 1967 Ring Road Scheme. It is argued that the schemes' past can be reconciled by reconstructing the freeway into a hybrid ecological infrastructural system.

EMBEDDING ECOLOGICAL SYSTEMS INTO THE LIVES OF PEOPLE.

The Lyle Centre for Regenerative studies is an excellent example of living ecological systems embedded into the lives of people (Lyle 1994: 15). John Tillman Lyle (1994 :15) argues that when architecture and the landscape adapt to diverse environmental conditions, the fundamental relationships between humans and nature is expressed spatially. Development is a necessary action to provide habitat and sustenance for our society, but this process also disrupts natural systems (Lyle 1994:19). When we view communities as part of nature and allow natural systems to adapt due to their resilient capacity, new ecosystems are born (Lyle 1994: 20).

Lyle (1994: 26) outlines six phases of ecosystem functioning that grounds the regenerative capacity of a landscape:

Conversion
The process of conversion is concerned with how nature converts inputs to outputs supporting life on earth.

Distribution
A number of distribution methods are embedded in nature that distributes energy and materials to ecological community members.

Filtration
Living and non-living process restore the purity of the water and the air by removing and dissolving materials to maintain other processes

Assimilation
Natural systems do not have unused waste, every output returns into the cycle that becomes a vital input for the ongoing process.

Storage
Materials are held inactive in varying periods that await eventual use.

Human Thought
Natural processes are joined with human processes of thought in an effort to mitigate the far-reaching impact humans have on the environment. This principle considers that there are virtually no independent landscapes unstained by human activity, and as such “humanity has no choice but to provide the mind within nature”. Regenerative development is dependant on a complex understanding of natural and human processes.

Lyle (Lyle 1994:23) categorizes his ecosystemic understanding into three modes of order namely structural order, functional order and locational order which drove the project from the outset:

Structural order is defined as ‘the composition of living and nonliving elements’ as they interact with one another (Lyle 1994:23). The intensive development of the site incorporates a wide range of biological and cultural programs that are embedded into the unique cropping systems that follow the typography of the site and allow for biodiverse systems that are specific to each level.

Functional order is defined as ‘the flow of energy and materials that distribute the necessities of life to all of the species within an ecosystemic structure’ (Lyle 1994:23). Complexity and cohesion between processes are achieved through interconnecting energy and material flows regulated by human interaction.

Locational patterns take into account that ecosystems are location-specific that directly impacts species diversity and a population density which is enabled through specific local conditions (Lyle 1994: 24). Careful positioning of a wide range of agricultural situations takes into account the complex topographic conditions determined by the site.

The application of these principles is grounded in a deep cyclical understanding of systems that worked towards a productive landscape that embeds a human ecosystem (Lyle 1994: 31).

CONCLUSION
Paradigmatic manifestations throughout Tshwane’s history indicates that representation of identity change, they are subjective, mostly aligned to a certain group’s identity and eventually become obsolete through new modes of expression. These layers viewed through the theoretical lenses provides a valuable tool to construct new forms of representation.

The intention of this dissertation is to question the current approach of establishing a new identity for the city of Tshwane through a Pan-African lens that merely represents a particular identity. Hybrid ecological landscapes – as a medium and process to reconstruct the city – will be used to modify infrastructural and waste landscapes to construct a new cultural character. These landscapes can be left indeterminate, open-ended and self-regulatory so as to limit or even transcend architectural obsolescence.

This proposal recommends an alternative approach to representing identity through living architectural landscapes by means of suggesting an adaptive, complex and process-driven program as the solution. The method aims for impartiality, inclusivity, flexibility, and adaptability to prevent the subjugation of slighted traditional characteristics by excluding a distinct group’s uniqueness or by becoming irrelevant when the current dispensation is replaced. The proposal essentially implies a new typology to represent an all-embracing identity architecturally.

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Faculty of Engineering, Built Environment and Information Technology

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Reference number: EBIT/E11/2019 25 April 2019

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Dear All

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

Approval is granted for the application with reference number that appears above.

1. This means that the research project entitled "*Masters professional dissertation in architecture, landscape architecture and interior architecture*" has been approved as submitted. It is important to note what approval implies. This is expanded on in the points that follow.

2. This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Code of Ethics for Scholarly Activities of the University of Pretoria, or the Policy and Procedures for Responsible Research of the University of Pretoria. These documents are available on the website of the EBIT Research Ethics Committee.

3. If action is taken beyond the approved application, approval is withdrawn automatically.

4. According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of the EBIT Research Ethics Office.

5. The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof JJ Hanekom
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY