A Narrated Emergence

A Complex Urban Intergration of an Informal Settlement in Moreleta Park with it's Surrounding Context

A NARRATED EMERGENCE

A Complex Urban Integration of an Informal Settlement in Moreleta Park with its Surrounding Context

by
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Submitted in fulfillment of part of the requirements for the degree of Masters of Landscape Architecture (Professional)

in the
Faculty of Engineering, Built Environment and Information Technology

University of Pretoria

November 2022

Figure 1. Plastic View in Context (Markus Zorn 2021)

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2022

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Course co-ordinatior	Prof Arthur Barker	
Dissertation title	Narrated Emergence: A complex urban intergration of an informal settlement with its surrounding context	
Site description	An informal settlement called Plastic View, situated on an open plot of land in Moreleta Park, surrounded by affluent estates and the local Gemeente Church	
Users	The residents of Plastic View informal settlement who live on the site permanently, as well as the everday visitor from the surrounding affluent estates	
GPS co-ordinates	-25.831123, 28.307105	
Research Field	Unit for Urban Citizenship	

PLAGIARISM DECLARATION

In accordance with Regulation 4(c) of the General Regulations (G.57) for dissertations and theses, I declare that this dissertation, 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 state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma, or other qualification.

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 list of references.

SIGNATURE: 

ACKNOWLEDGEMENT

This year would not have been possible without the support of my parents, Roy and Colette Meij. Your continuous love has pushed me this far and I will always be grateful

To my study leaders Dr Carin Combrink and Dayle Shand, thank you for your emotional support and guidance through this field of landscape architecture. Your dedication and knowledge is always appreciated

To my studio master, Johan Prinsloo, thank you for your words of wisdom and for pushing me to reach my potential

To my lord for always being at my side

ABSTRACT
A NARRATED EMERGENCE

In communities stigmatized by economic inequality, citizens who fall within the lower income bracket tend to migrate to the city, seeking the opportunity of gaining financial independence (Njwambe et al. 2019); they are forced to reside in informal settlements which tend to border urban densities due to their oftentimes close proximity to work (Njwambe et al. 2019). Situated amidst gated communities, are two such settlements Cemetery View and Plastic View, which stand in stark contrast to the wealth, elegance and sophistication of their surroundings. These settlements share a multi-cultural connection to the landscape, and create narratives within these landscapes according to their cultural and ritualistic needs. The settlement of Plastic View sits within a particularly contested area, wrought with political and external involvement that has been the recipient of multiple aggressive interactions, that have lead to its current condition, shape and ways of existing. It is within these ways of existing that a keen focus is given by the architect. Through studies and investigations, these rituals are indicitave of evolution of space within the settlement. Its in understanding these rituals and interactions of evolution that leads the aim of this dissertation.

This dissertation seeks to investigate and challenge the role of the architect in such scenarios and take it further into the discipline of landscape architecture. As Important the landscape's role is in informal settlements, so should be the landscape architect's engagement with the environment. Harnessing the knowledge systems used within the informal settlements should, however, not romanticise the idea of an informal settlement. The architect's engagement is necessary due to the innovation they bring both spatially and strategically (Dovey 2013).

In order to address the complex urban integration of Plastic View with its surrounding context, while upholding the knowledge systems and identity found within the settlements, It's important to situate oneself within the continuum of informal settlement integration. This proposal seeks to understand the architects involvement in informality and how the knowledge gained can contribute to the discourse for future urban intergration projects.

Figure 2. Plastic View Conceptual Context (Author 2022)

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DEFINITIONS

informal settlement *noun* residential agglomerations where inhabitants lack secure tenure and basic service provision and are synonymous with penurious living conditions and increased vulnerability (UN Habitat, 2015).

agency *noun* 1. The capacity of an individual to act independently of the constraining organisational structures of society (Awan et al., 2011:30).

co-design *adverb* 1. The collaborative process of knowledge sharing and creation, between individuals of different skills, experiences, and creativity to support generative thinking and reach novel solutions.

upgrade *verb* 1. An increasingly common response in which housing conditions within informal settlements are to be improved in-situ, with initiatives of varying scopes, such as cost-effective upgrade that improves existing infrastructures and services, towards more comprehensive provisions that, for example, include supporting housing provisions and tenure security. (Satterthwaite, 2012: 206).

tenure *noun* 1. The legal right to ownership of land (Cambridge Dictionary, n.d.). 2. With Tenure - The inhabitant of the plot has secured ownership of the land. 3. Without Tenure - The inhabitant of the plot does not own the land, which, in the case of Plastic View, belongs to the City of Tshwane Municipality.

authorship *noun* 1. the state or fact of being the creator of a piece of work (Oxford English Dictionary, n.d.) 2. Within the scope of this dissertation, it refers m to the level of creative input by the architect in the produced design

architect as primary author *noun* 1. The architect acts as the single active contributor to spatial design.

mediator *noun* 1. The catalyst that enables the transition between spatial outcomes and community needs.

enabler *noun* 1. The role of the architect when [s]he encourages community appropriation of the design in such a way to benefit the community.

architect as facilitator *noun* 1. The role of the architect when [s]he encourages the community to participate in the design of which affects them.

African urbanism *noun* 1. The rapid rate of rural-to-urban migration in Africa, where people are migrating to cities in search of economic opportunity or fleeing from political conflict and instability (Njwambe et al. 2019). This influx of population places a strain on existing infrastructures and creates demand for more integrative urban planning.

Figure 1.1. Plastic View Typology Mapping (Author 2022)

Trust me when one door closes another one opens. We might miss the opportunity because we concentrate on the closed one. There is no way all the doors can be closed while you are alive. If all the doors are closed then you are dead. But while you are breathing, trust me, a door is going to open up. It might be somebody coming along and asking, “Hey man! Why are you sitting there lonely?” That’s the door opening. You are still alive. So don’t die before you die. Die when you are dead.

That is why I say life is a “compendium of wonders.” It is this mixed thing. It keeps on rolling. You think you know it all and then you get to the other side and you find it is something else. And then you turn it around and you find it is something else again. It gives you many reflections of itself. That is why I say life is a compendium of wonders.

01

EMERGENCE

In this chapter, an introduction into informality in South Africa is discussed, using Plastic View as the theoretical focus.
The intention is to formulate a research by design methodology that will direct the dissertation onwards.

Figure 3. Emergence Title (Markus Zorn 2021)

EMERGENCE
BACKGROUND

Africa is a continent rich with indigenous knowledge systems (IKS) that range from cultural and religious ceremonies to agricultural and health initiatives (Vilakazi 2002). This identity is often disconnected from the urban context because of urbanisation models used in the global north that were applied uncritically to the global south (Steyn 2003). Urbanisation in South Africa has seen a dramatic increase since the turn of the century with 63% of the current population living in urban areas (UNFPA, 2007:7). This figure is set to rise to 71% by 2030, adding to the demand on basic infrastructure and municipal engagement (UNFPA, 2007:7).

In a world where cities are seen as areas where innovation is key, the issue of sustainability has become pertinent due to the rise in urbanisation (Patel et al. 2022). Agendas including that of the African Union (2063) and the Paris Agreement on Climate Change recognise the importance of cities in creating a more sustainable environment. This, however, relies on data that is easily accessible, and proves difficult to relate to the complexity of African Cities (Patel et al. 2017). These cities become destinations to which people migrate to for work opportunities (Njwambe et al. 2019).

People that migrate in search of economic stability and the intention of returning to their homes later in life means that informal settlements become a cheap and sustainable method of living near these urban centres (Njwambe et al. 2019). The problem of urbanism in South Africa lies in the fact that many urban dwellers will remain in informal systems, which creates an issue in providing access to basic services and municipal resources (Patel et al. 2020). These informal systems are situated on the periphery of economic hubs and are home to dwellers that migrate there in search of economic stability, better health, and better living standards. Outdated urban colonial models tend to set a precedent for many African contexts (Fox and Goodfellow 2016). Informal settlements are situated close to work between more established areas yet remain socially and physically marginalised due to colonial urban policies (Oelofse & Dodson 1997). These policies are still perpetuating this segregation today with gated communities being built next to informal settlements (Hansen 2009). The cities of Johannesburg and Tshwane perpetuate this extreme polarity, as they are seen as important economic hubs of South Africa (Hansen 2009). It becomes evident that the implications of following global north planning approaches do not seem to work for urban life in South Africa (Totaforti 2020). This leads to an investigation into what makes these cities so complex. Taking into consideration the context within which informal settlements are situated, as well as the cultural significance which guides ways of living, it becomes evident that the landscape of home is central to cultural identity, belonging and well-being (Njwambe et al. 2019). African cities remain closely connected to their rural hinterlands, and this is related to its people, who similarly are connected to their agrarian heritage and their natural environment. According to Njwambe (2019:413) childhood experiences in nature and activities that take inhabitants into these landscapes remain key to this relationship.

Figure 1.2. Apartheid Town Planning (Author 2022)

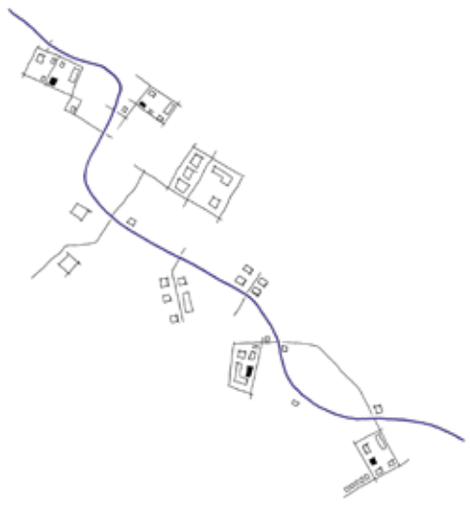


Figure 1.3. African Urbanism Identity (Author 2022)

EMERGENCE
PLASTIC VIEW

Situated amidst gated communities in Moreleta Park, Pretoria, are two such settlements: Cemetery View and Plastic View. This contrast in wealth, elegance, and sophistication of their surroundings, is a direct reflection on socio-spatial injustices that exist within South Africa's urban fabric. The settlement's placement is found close to environmental resources that assist the community in terms of basic survival needs. The lack of service provision within these marginalised areas leads to the need for environmental support. This research seeks to investigate the spatial implications of informal settlements in South Africa, enquiring into the disconnect from the urban fabric and the marginalisation of settlements from social dynamics. An investigation into the infrastructural implications of informal settlements will also be done, to understand the dynamic between basic services and the close connection to the landscape, focusing on how the landscape plays a role in the identity of informal settlements in South Africa.

Figure 1.4. Map of Plastic View in Moreleta Park (Author 2022)

Figure 1.5. Moreleta Integration: Live Build (Markus Zorn 2021)

Figure 1.6. Plastic View Settlement Aerial (UP Hons 2021)

Figure 1.7. Plastic View Settlement in Contrast to the Church

Markus Zorn 2021)

EMERGENCE
INFORMAL URBANISM

The issue created by urban development not considering Informal systems (Hansen 2009), as well as the migration of people from surrounding, commonly rural areas (Patel et al. 2022), results in an urban sprawl of settlements that are disconnected and disengaged from the socio-spatial and economic urban landscape. This spatial disconnection creates an infrastructural dilemma (van Breda and Swilling 2018). These informal systems make it difficult for municipalities to implement infrastructural upgrades for urban services (Patel et al. 2022) without the use of programmes that cater for informal settlement upgrade, such as the Upgrade of Informal Settlement Programme (SJC 2017), refer to figure 1.8. (SJC 2017). The UISP is rooted in the policies and programmes of post-apartheid housing theory. To solve the frequently used response of subsidised housing, which places housing sites far from existing communities and facilities, the UISP supports an in-situ response, which places houses on the existing site, and prevents the displacement of resident communities (SJC 2017). This relies on regular engagement with the community (SJC 2017). South African Policies and mandates state that engagement with the community is necessary to reach a consensus on the future of the settlement, however, responding to informants on site once an agreement is reached is left to the key stakeholder's approach to urban development (Totaforti 2020).

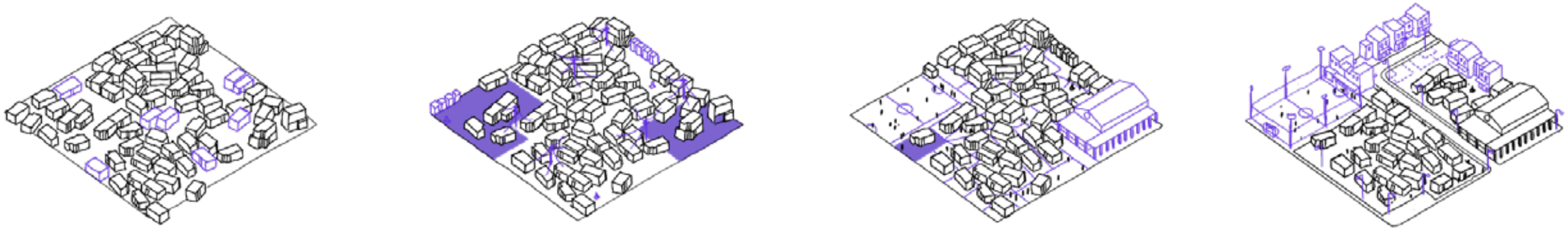


Figure 1.8. Social Justice Coalition: UISP Visual Representation (SJC 2017)

EMERGENCE
INFORMAL URBANISM

These informants can range from the physical to the more intangible. In an African context, James Ferguson (2006:3) comments that the breadth, diversity, and complexity of the continent and its urban areas seem to make it absurd and reductionist to speak of ‘the African city’, or even the ‘African cities’ [...] as if there is a type, or even several types that belong to a distinct set. In rural South Africa, the landscape plays a large role in cultural identity (the intangible). Njwambe (2019:413) describes the emotional dimension of home as a sensory and spiritual attachment to nature. These activities range from cultural and religious requirements to a more tangible use of the landscape, such as the need for natural resources and agriculture.

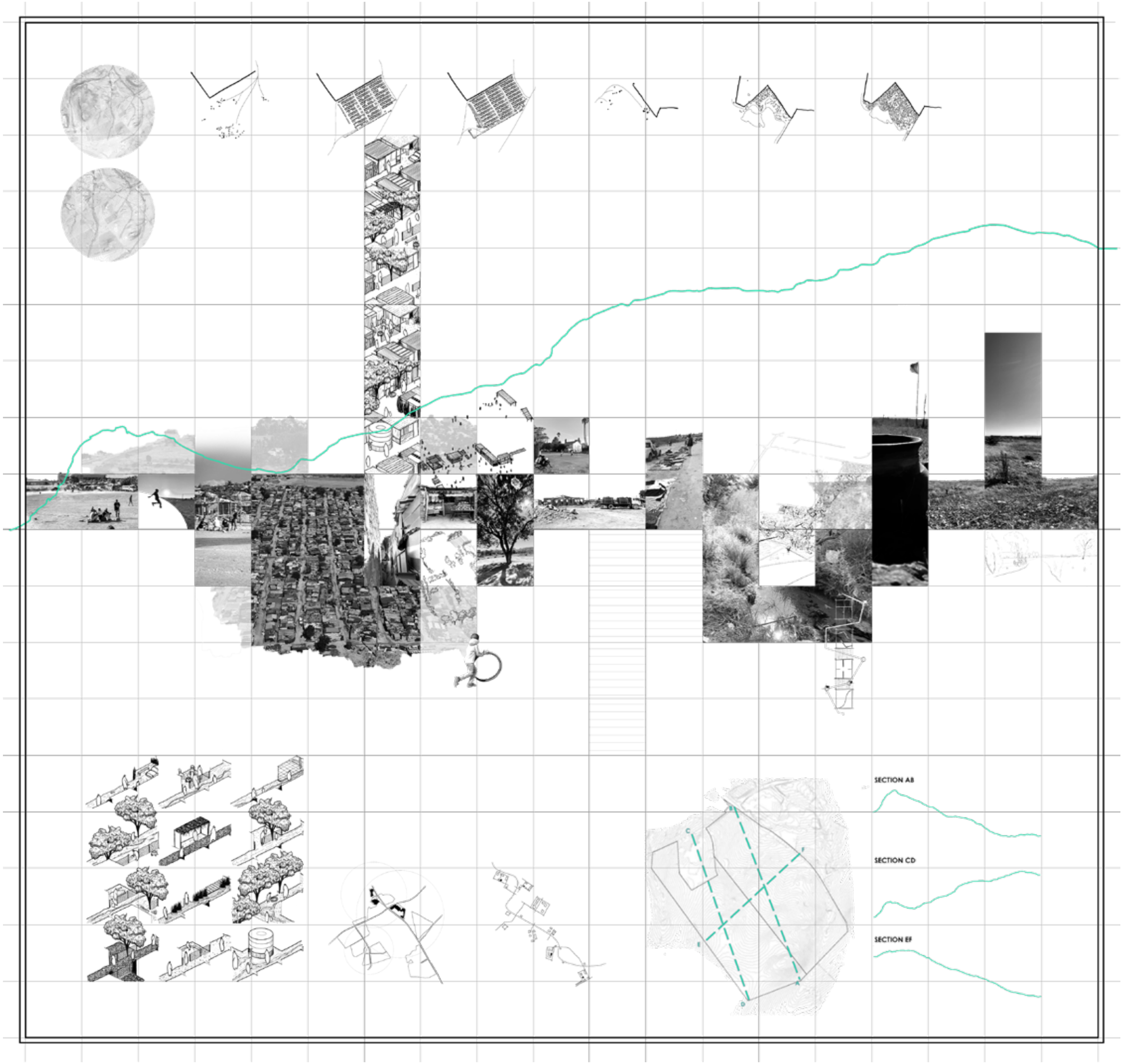


Figure 1.9. Conceptual Mapping of the Connection to the Landscape (Author 2022)

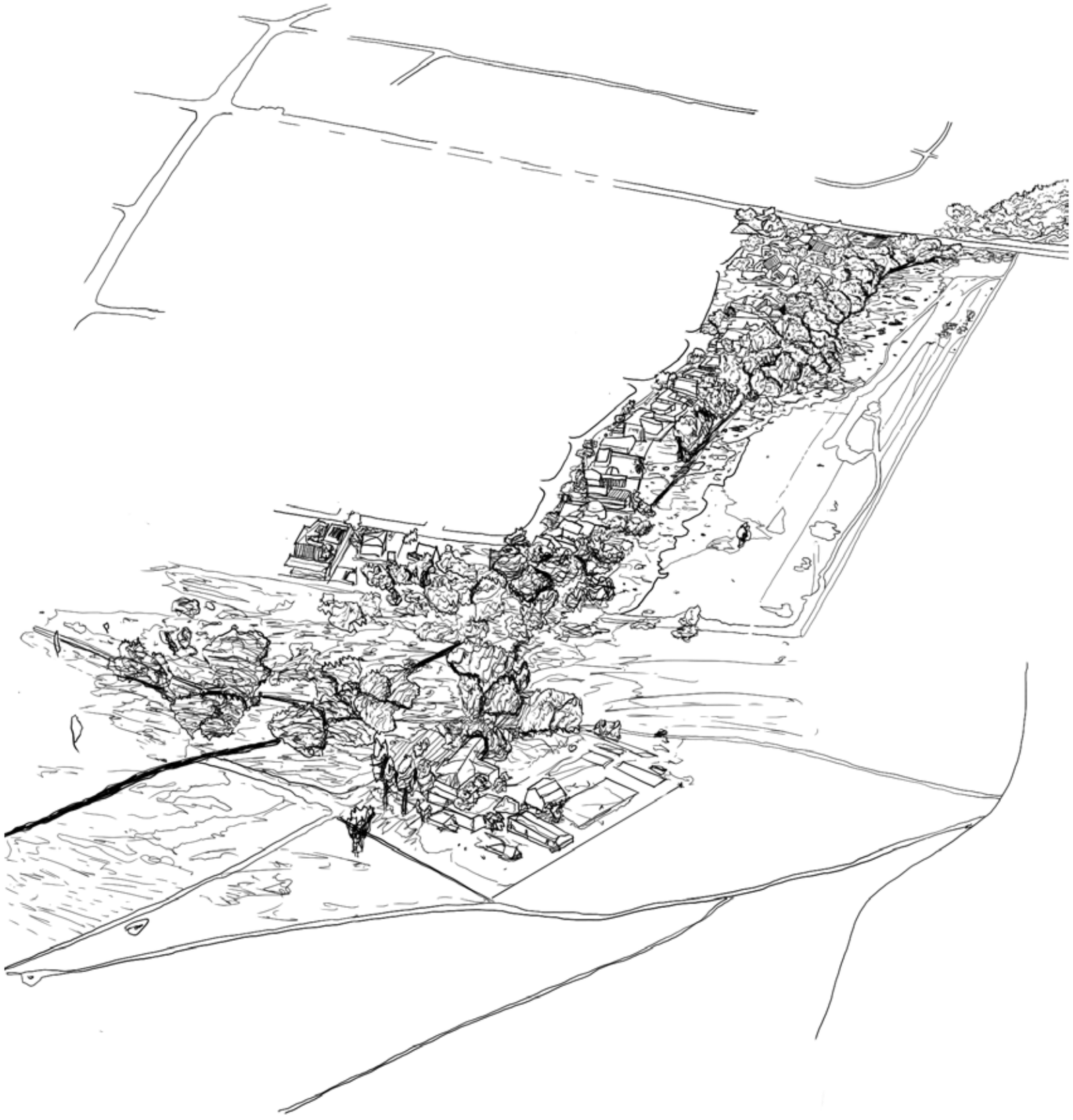


Figure 1.10. Moreletaspruit Drawing (Author 2022)

In Plastic View, the environment and the landscape play a huge role in not only providing basic needs and services, but culturally as well. Surrounding the settlement are sites of cultural and religious significance, refer to annexure A “Rituals” (UP Hons 2021). Religious gatherings, prayer and resting spaces have been discovered, further emphasising the importance of the landscape in the settlement (UP Hons 2021). Beyond the intangible use, the natural environment is currently used to harvest wattle in the pursuit to upgrade dwellings, as well as the use of the natural river for grey water, which runs adjacent to the community (UP Hons 2021). Inside the settlement, members of the community grow their own agricultural gardens, and use the outdoor shared spaces for recreational gatherings and meetings (UP Hons 2021). Homes are demarcated using vegetation, and private courtyards are shaded using roof gardens and climber vegetation (UP Hons 2021). Trees are also used to demarcate spaces of gathering, and service function, such as washing and cleaning of clothes (UP Hons 2021).

This close connection to the environment is related to the instinctive appropriation of environmental space and non-spaces for both cultural, and basic needs (Njwambe 2019). Urban migration, urban sprawl and an African identity crisis are all in play within the settlement as well. The clashing of cultures and dwelling tension between the surrounding estates and the settlement, as well as the City of Tshwane’s (CoT) apparent views on the settlement needing to be relocated, refer to Figure 1.11.-1.13. (Ryan Meij 2022), leaves the city with a social dilemma. There is value in understanding how people have created place within their boundaries. Kim Dovey (2013) investigates urban informality, labelling it as a quest for authenticity. More than their homes, it’s the in-between spaces that determine unique ways of living. Jan Gehl (2011) refers to this as life between house spaces. There is potential for new urban visions in understanding peoples’ cultures and daily rituals. Relph (1976:6) calls it a human experience of existence to construct and live in a space.

Figure 1.11. Plastic View Map (Ryan Meij 2022)

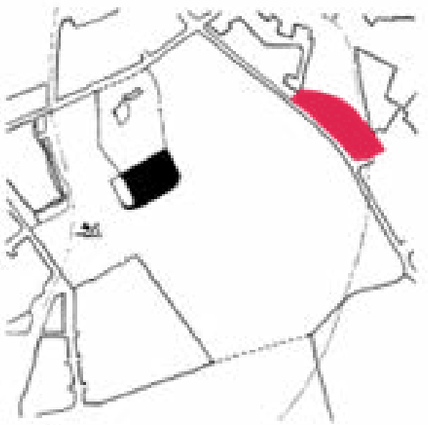


Figure 1.12. Plastic View Proposed Site (Ryan Meij 2022)

Figure 1.13. Plastic View Discussed Location (Ryan Meij 2022)

EMERGENCE
THE ROLE OF THE LANDSCAPE ARCHITECT

The state of rapid urbanisation and informality is a global issue, and this begs the question of the architect's involvement in the process, as well as the approach to the communities involved. How one approaches informal settlement upgrade, dictates the level of ritual and cultural authenticity that is retained in the community. Informal settlements carry with them rituals and ways of living in the social, economic, and cultural realm that is not easily retained in formalising the settlement (Dovey 2013). The public and in-between space is an important realm of investigation, one that has a dependence on the streetscape and natural landscape (Dovey 2013). Formalising a settlement by using standards of delineating spaces that are separate from one another sees the loss of an emerging urbanism that began from the informal ingenuity and the appropriation of a space (Dovey 2013). Incremental upgrading of a settlement is an overall more cost effective and adaptable approach to informal settlement upgrade (Dovey 2013). The use of knowledge systems found within the community for construction can lead to incremental upgrade that, over time, can be effectively upgraded in-situ rather than replaced. This type of architecture requires engagement with the community that enters the realm of citizen-led co-design (Mitlin 2017). Mitlin (2017) investigates the importance of the role of the architect in equipping the community with the knowledge necessary to lead them in an incremental social transformation. This requires a relationship with the state, where the state is obligated to provide basic services that can be used by the community in ways that encourage agency (Mitlin 2017).

Landscape architecture and design should keep a deep connection with the site, contextualising the user and the community as the key catalyst. This dissertation seeks

Figure 1.14. Representation of Urban Disparities (Ryan Meij 2022)

to investigate and challenge the role of the architect in such scenarios and take it further into the discipline of landscape architecture. As Important the landscape's role is in informal settlements, so should be the landscape architect's engagement with the environment. Harnessing the knowledge systems used within the informal settlements should, however, not romanticise the idea of an informal settlement. The architect's engagement is necessary due to the innovation they bring both spatially and strategically (Dovey 2013). An architect's understanding of infrastructural needs and urban connectivity, coupled with the knowledge systems of ways of living used in informal settlements that brings about cultural authenticity leads to a design that can withstand formalisation without the loss of said realms. Habraken (1972) proposes a support system that seeks to utilise serviced frameworks, grounded by municipal engagement, and requires residential infill. This approach begins to uncover ways in which an architect can apply themselves to informal settlements, while enabling the community to express themselves on the site. The landscape is no different. Currently a misused commodity, the landscape has the potential to become a regenerative resource from which the community can learn and use to upgrade the settlement physically, and characteristically. This understanding requires an in-depth enquiry into the environment's current conditions, the relationship between the community and the landscape in terms of tangible resources and intangible cultural connections.

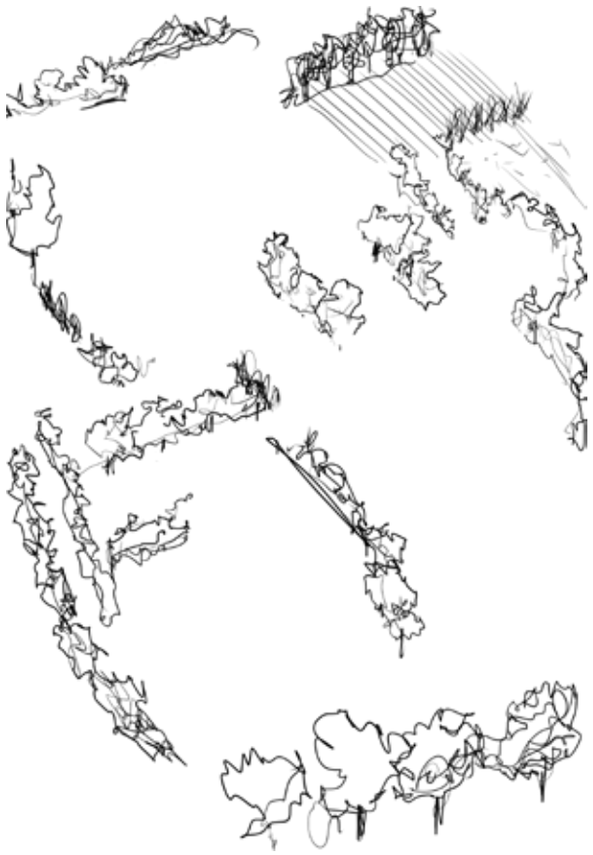


Figure 1.15. Emerging Urbanism: Natural Environment
(Author 2022)

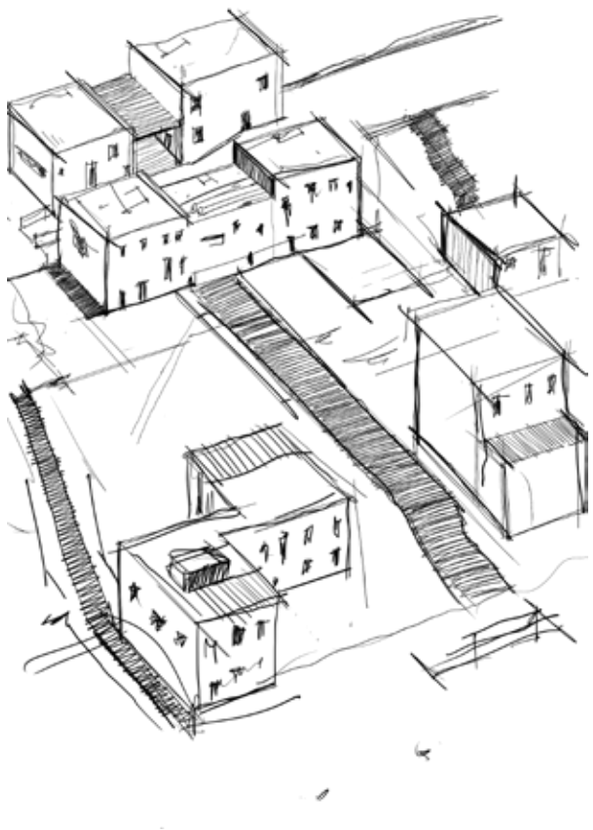


Figure 1.16. Emerging Urbanism: Built Environment
(Author 2022)

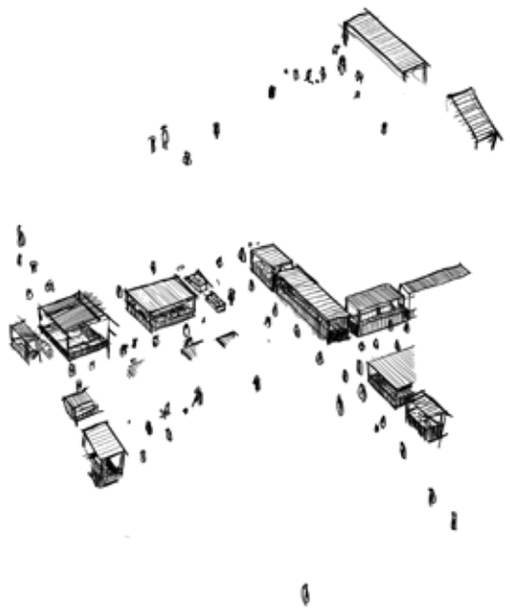


Figure 1.17. Emerging Urbanism: Identity Agency
(Author 2022)

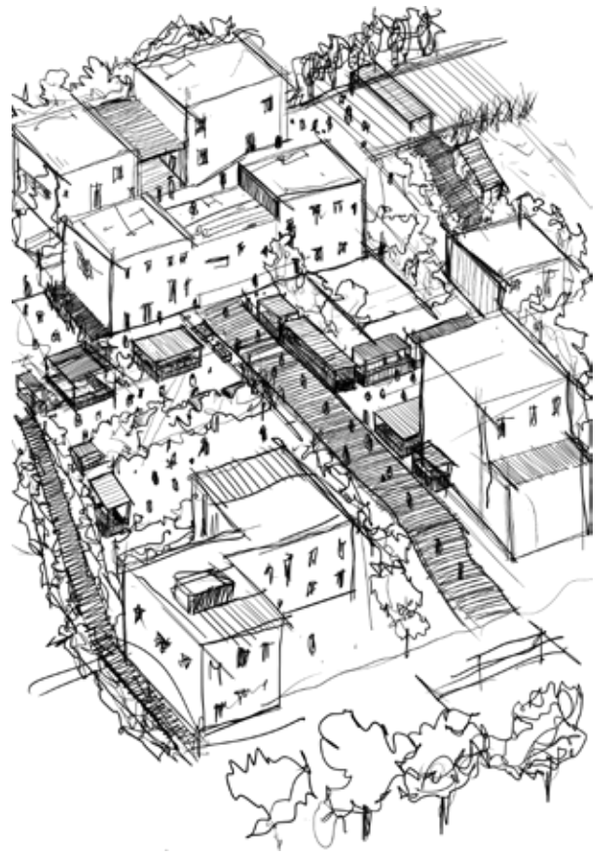


Figure 1.18. Emerging Urbanism: Synthesis
(Author 2022)

EMERGENCE
RESEARCH METHODOLOGY

This investigation requires a set of categories that will be used to inform decision making and help to discover a set of data from fieldwork that can be used to strengthen the argument. When conducting research which is culturally responsive, the investigation into the impacts of urbanisation and the values of indigenous knowledge systems needs to be comprehensive. Bagele Chilisa (2012) explains that western based research is inherently influenced by an individualistic top-down lens, while indigenous knowledge systems focus research on life, and between individuals and their communities, placing an importance on physical, communal, and cultural tendencies (Chilisa 2012). Chilisa (2012) describes a postcolonial indigenous research methodological approach, which focuses on a culturally responsive methodology, placing importance on the relationship between the individual, the community and their surrounding (Chilisa 2012). This kind of approach lends itself towards ethnography, and places importance on the community and their emerging urbanism.

Ethnographic methods consider how people live and interact within their cultural setting. Usually with the goal of producing a narrative of that culture, but in this regard of Plastic View, the focus is on the multitude of cultures that exist and coexist within its people in the landscape and natural environment (Hammersley and Atkinson 2007).

In investigating this emerging urbanism, a closer study into the relationship between these systems and how one moves and interacts between these systems shows how cultural expression can occur. The term systems refers to cultural needs and tasks that occur in the natural landscape, basic and natural services that are taken from the environment as well as the built environment within which one dwells. This investigation into the individual-community perspective and how it contrasts the approach of the Western based research tendency is a lens through which one can see the importance of a bottom-up approach to urban design within the South African context.

EMERGENCE

THEORETICAL FRAMEWORK

The research undertaken highlight's key themes and occurrences that can be investigated through an architectural lens. These themes include:

Urbanism in the South African context, relating to the spatial and infrastructural implications incurred by urban planning. This can be denoted as the urban issue.

The emerging urbanism that is found in Moreleta Park relates to the identity of place and the ability to express a way of living within the settlement. This highlights the regional issue.

The studies of the *use, design, and appropriation in shared and environmental spaces* that exist between the individual and their natural landscape, and how a cultural identity is nurtured therein, defines the scope of the architectural issue.

Figure 1.19. Urbanism in South Africa (Author 2022)

Figure 1.20. Emerging Urbanism in Moreleta Park (Author 2022)

Figure 1.21. Use, Design and Appropriation of shared spaces (Author 2022)

EMERGENCE
THEORETICAL FRAMEWORK

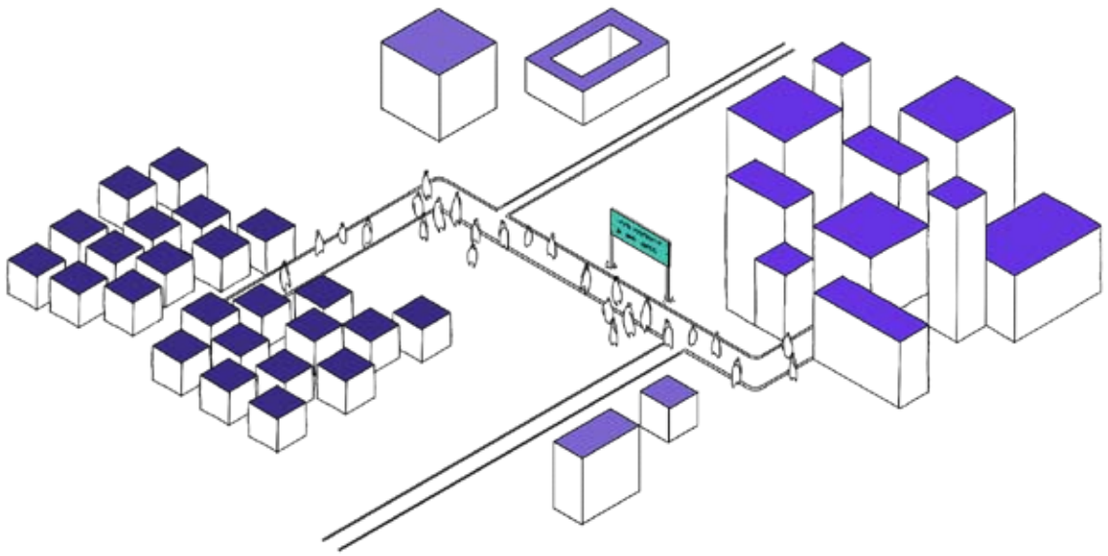


Figure 1.22. Urban Migration (Author 2022)

Urbanism in the South African context:

The debate on urban planning has explored the possibilities of applying models and approaches produced within the global north and applied to countries in the global south (Totaforsi 2020). This approach was a major factor that played a part in colonial history and has left scars in the urban landscape of South African cities particularly (Steyn 2007). Although urban policies are driven by the need for growth and climatization, they still present issues of inequalities, poverty, and social isolation (Totaforsi 2020). As Ferguson (2006) mentions, African societies develop differently from those of the global north and do not seem to fit the dynamics of the context. The colonial urban planning model that was applied to South African cities did not take into consideration the specific features of place within the landscape and urban environment, nor did it account for the vast amount of cultural influence one places on and within these environments (Totaforti 2020). Urban planning models applied in South Africa during Apartheid, tended to promote racial segregation, and left poorer African families on the peripheries of suburbs, with little governmental support and municipalities unable to deal with housing requirements for these poorer communities.

EMERGENCE
THEORETICAL FRAMEWORK

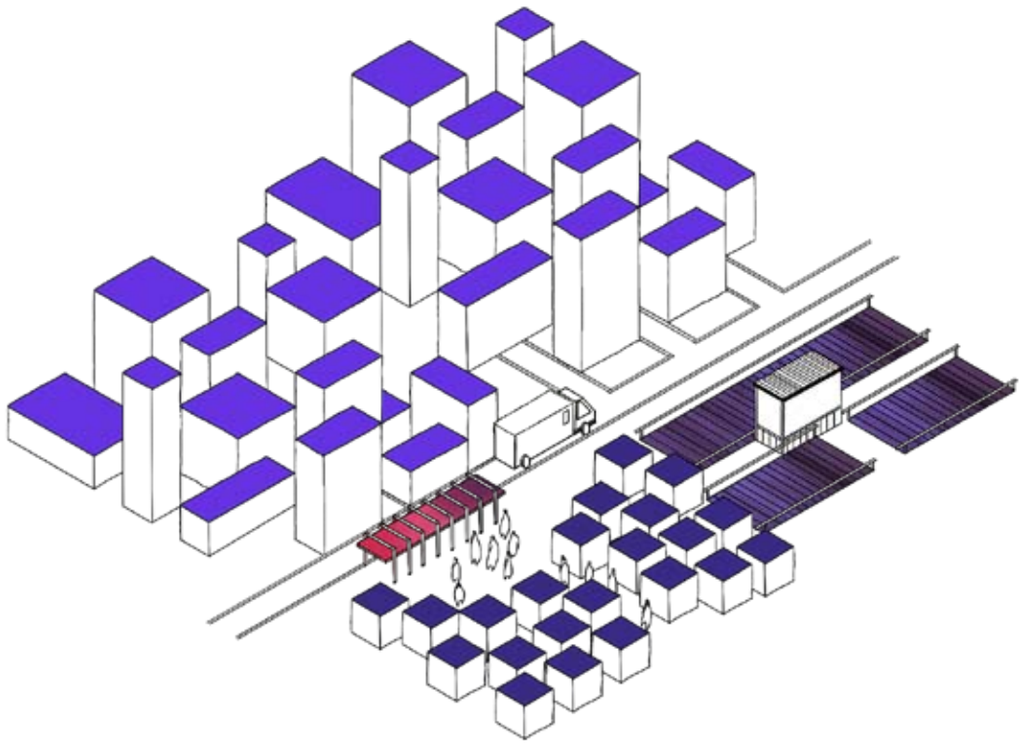


Figure 1.23. Urban Separation (Author 2022)

The emerging urbanism:

In the context of Plastic View, the settlement is situated amidst controversy surrounding placement and relocation. The existing plan sees the acquisition of the land the settlement currently resides on. The plan proposes an “integrated, mixed use, sustainable precinct” (Precinct Plan 2021) on the land portions which Plastic View resides. This proposal will seek to build an “economic centre for Africa” (Precinct Plan 2021), seeking to make Africa a destination for “world leaders to be accommodated within” (Precinct Plan 2021). According to South African municipal requirements, adequate housing will be provisioned for legal South African citizens. With a population of around 9000 people, the new precinct plan for portions 285/R and 279/R Garstfontein 374JR (2021), sees only 853 families accommodated for. The remaining dwellers will have to be relocated to a new site, not yet determined by the council. It is within this legal context that a newfound way of living is being expressed by the informal dwellers. This process is often a result of the misunderstanding of social interactions that occur within informal settlements. According to Habraken (1998), the level of control one has over a space is directly proportional to the potential of identity expression. The more control one has over their space, the more they can express themselves in their way of living and in their cultural needs.

EMERGENCE
THEORETICAL FRAMEWORK

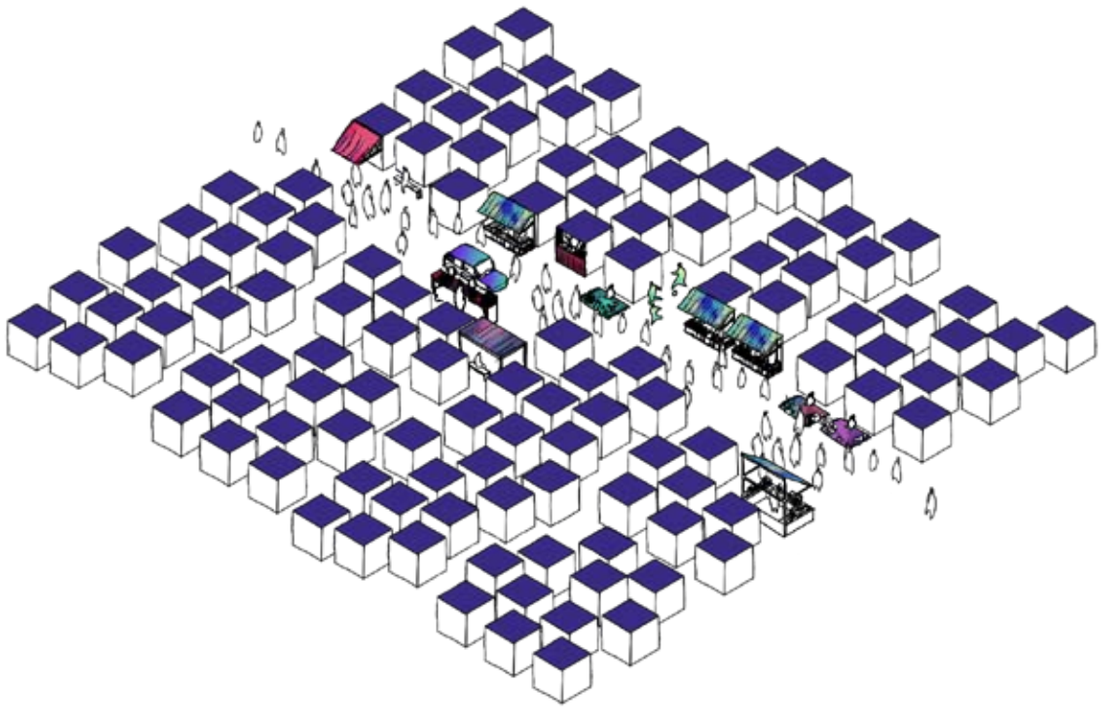


Figure 1.24. Urban Identity (Author 2022)

The studies of use, design, and appropriation in the shared and environmental spaces

In the sense of humanity and expression, it is a common conception that the human should again become the centre for spatial design, one should become the focus and an object, where architecture and urban design should be based on the experience one has in a space (Borden 2001: 11). Lefebvre (1991) mentions that for the body to be a focus within a space, the restoration of the sensory, sensual, and non-visual in architecture is necessary. It is not the work of architecture to create and impose value within cities, but rather the form should be a result of the life within cities (van Rensburg 2008). To find a new approach to architecture and landscape architecture as urban intervention, Borden (2001) proposes both micro and macro scales should be considered within the ways of living within the city. For this expression to be appreciated and reflected on the cityscape, the issues of diversity in the social domain that experiences complex interactions between socio-cultural values and perceptions needs to be addressed (van Rensburg 2008). In this way, investigations into the ways of living experienced within Plastic View are insightful and may lead to a deeper understanding of cultural and social influence on the user and their environment.

EMERGENCE
RESEARCH QUESTION

In recognition of issues that surround the Plastic View community as well as the inherent connection to the surrounding natural landscape, and in investigating the possibility of Plastic View being upgraded in its current location, the following question is posed:

How can the designed landscape play a role in the upgrade of Plastic View in response to the cultural significance of the environment to its inhabitants, while being situated within the UISP model?

In an attempt to answer this question, a set of objectives can be put in place to further delineate the project, describing the potential goals this investigation can achieve. The dissertation will therefore:

- Use the UISP model, through a landscape architectural intervention.
- Minimise the uncertainty around who is responsible for upgrading the settlement, by allowing the community agency in their settlement.
- Allow the landscape to become a regenerative resource for growing natural elements that can be used in the structural and economical upliftment of the community.
- Enable the community to be involved in the upgrade process, creating a bottom-up approach to urban planning based on people's narratives.
- Create landscape infrastructure that is consistent with the needs and requirements of the community, that follows from Habraken's (1972) understanding of how the community's identity is expressed through the infill of a proposed support system.
- Allow for the settlement to grow as an organic city with a close connection to the landscape (Gehl 2010, Kostof 1999).

Through an investigation into the typologies of form, shape and elements that exist within and around Plastic View focused on the experience and use of outdoor and environmental spaces for both cultural and serviceable needs, a design can be situated within the UISP model that utilises the landscape as a regenerative resource to facilitate the upgrade of Plastic View, allowing for the emerging urbanism to be expressed proportionately.

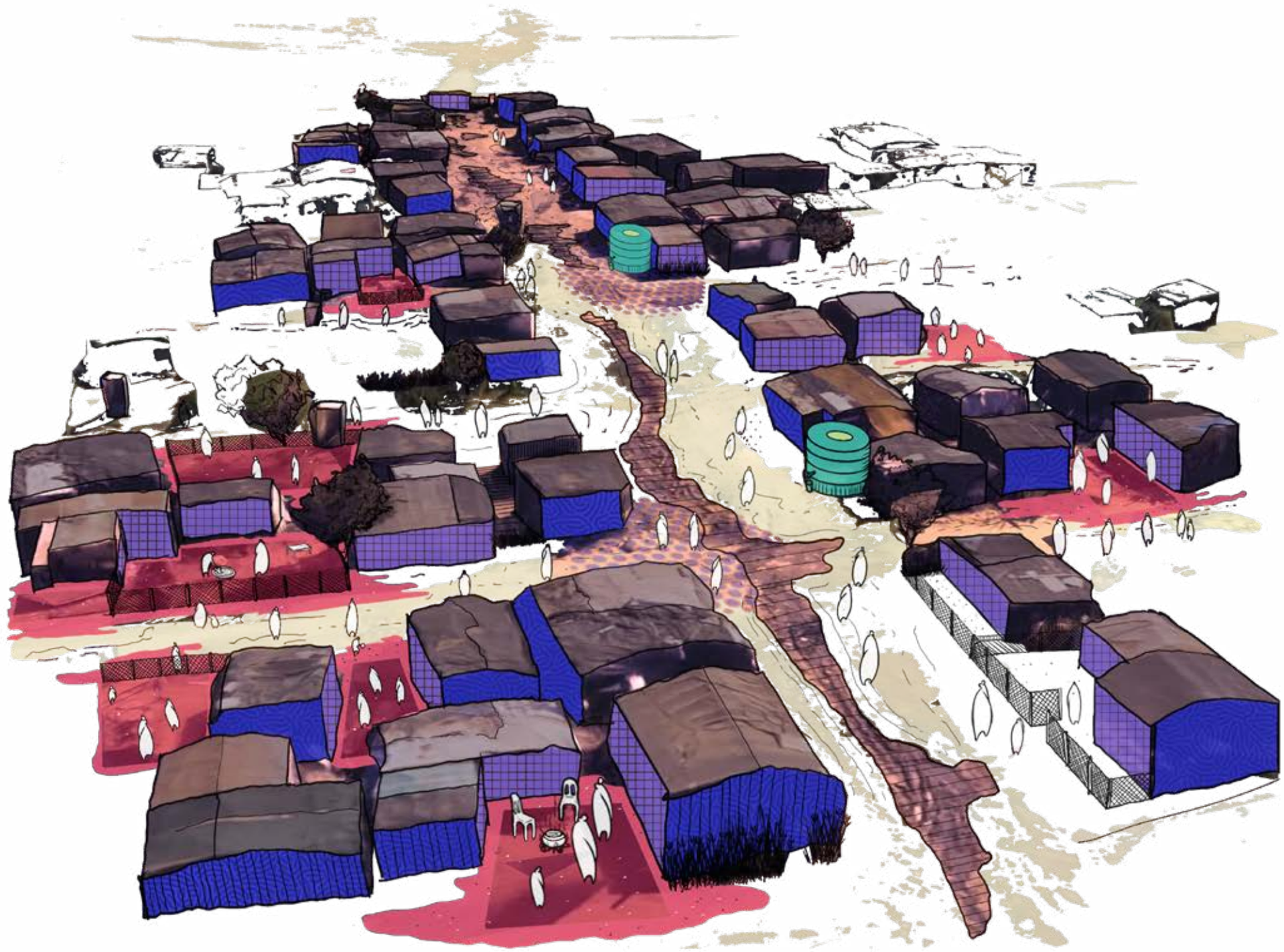


Figure 1.25. Plastic View Settlement Expression (Author 2022)

02

A PATTERN LANGUAGE

In this chapter, an enquiry into the role of the architect is done, while providing background into Plastic View and its contextual and theoretical relationship.

Figure 4. A Pattern Language Title (Author 2021)

A PATTERN LANGUAGE
DEVELOPED ARGUMENT

Enquiries into the discourse addressing informal settlement upgrade, within the South African context, are investigated as part of the Unit for Urban Citizenship studio. This investigation unpacks the historical, immediate and future state of Plastic View. The urban contextual investigation advanced a deeper understanding of Plastic View, while facilitating a delicate exchange with the community to understand the role an architect can play in these scenarios. In order to situate our approaches towards informality as a unit, it is important to compare approaches of similar projects within South Africa. In investigating the difference of approaches and in understanding the urban context, the foundation into the design investigation is done with and within the community, both socially and physically. This will guide the scheme's initial spatial enquiries of typological studies, done as a unit and taken further individually as a spatial lexicon, while being based on the notion of further understanding how people make space for themselves in the environment, and in the built environment within the community. Pattern languages, and the use of landscape functional units were identified through documenting various instances of the same typology, by overlaying the observations of building and environmental typologies, actors and objects that were observed. This provides a series of design-informants that helped generate a conceptual framework for form, programme and a language that the landscape will take, based on the articulation of space, and spatial requirements.

Acknowleding this premise guided the initial design, which was explored through different functional landscape plans, and was further investigated through precedents that followed a similar language, in functional units. Finally, programmes were chosen that best suited the concept of a regenerative landscape built by the community for the upgrade and future urban integration.

A PATTERN LANGUAGE
POSITIONING THE PROJECT

In order to address the complex urban integration of Plastic View with its surrounding context, while upholding the knowledge systems and identity found within the settlements, It's important to situate oneself within the continuum of informal settlement integration. The Unit for Urban Citizenship Studio 2022 investigated multiple approaches that addressed the upgrade of informal settlements. In doing so, it was acknowledged that a 'one-size-fits-all-solution' was not possible in these scenarios. The UUC team felt that the research done into the different approaches was for more than giving direction in our own investigation, but there was a possibility of adding to the already rich discourse within this ever growing body of knowledge. In this studio, we derived that the argument's inherently complex vocabulary is an acknowledgement of the diversity of the people and communities with which it tries to understand.

As a group, our individual dissertations aim to influence and expand the pedagogy of the architect's engagement with informality. Thus, in order for us to understand the discourse, while making it more accessible to the reader, a matrix was created situating projects along lines of tenure and authorship.

In this regard, Tenure is 'the legal right to ownership of land' (Cambridge Dictionary n.d). Tenure was then broken into two parts, with and without external engagement, or political engagement. If a project was situated within tenure, the inhabitant of the plot has secured and obtained land, whereas without tenure refers to the lack of ownership of land. In the case of Plastic View, the community does not have ownership of the land, lending the architect to address informality in the form of temporary relief, without tenure.

Authorship refers to the state of being the creator of a piece of work (Oxford Dictionary n.d). Within the scope of our investigation, we refer to authorship as the level of creative input an architect has in the produced design. The levels of engagement describe the type of process the project will take. The more authorship an architect has, means that there is less external, in this case the community, engagement.

PRECEDENTS FRAMEWORK

1. RDP
2. UISP
3. DIANA MITLIN - *SCALING THROUGH THEORY*
4. ARCHITECTS IN COMMUNITY
5. MORAR COURIOCA
6. JO NOERO - *TABLE HOUSE*
7. URBAN THINK TANK - *EMPOWER SHACK*
8. ELEMENTAL (ALEJANDRO ARAVENA) - *HALF A HOUSE*
9. ASIYE ETAFULENI
10. PETER RICH ARCHITECTS - *ALEXANDRA HERITAGE CENTRE*
11. LOW DESIGN OFFICE - *AGBOGBLOSHIE MAKERSPACE PLATFORM*
12. PATAMA ROONRAKWIT'S STORY - *SMALL CHANGE (NABEEL HAMDI)*

PROJECT START → *PROJECT END*

UUC22 CONTRIBUTORS

- *NASEERA GOGA*
- *INGRID SCHMUTZ*
- *ANNIQUE HAESE*
- *RYAN MEIJ*
- *NICHOLAS HUDSON*

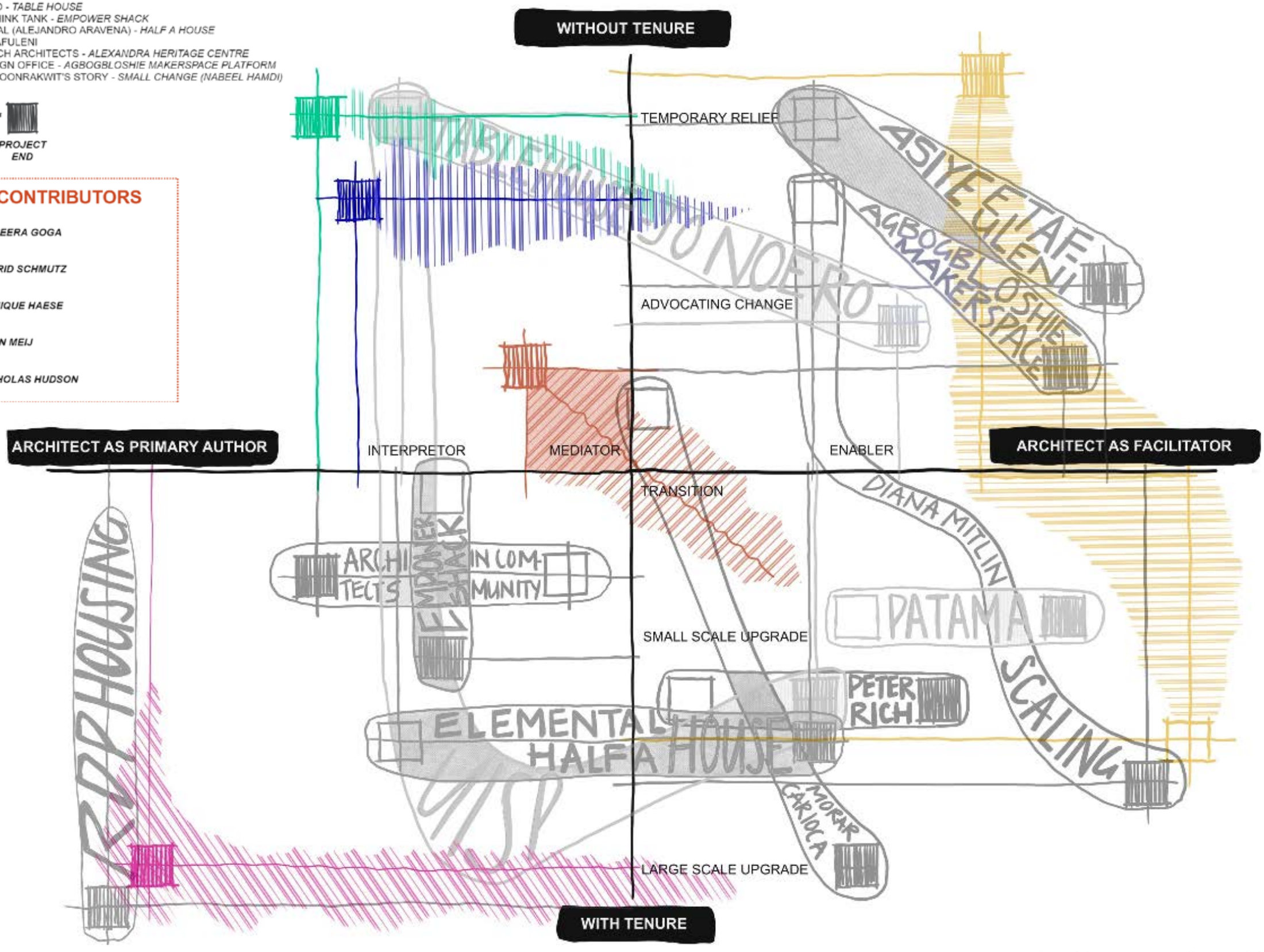


Figure 2.1. Approach Matrix Graph (UUC 2022)

A PATTERN LANGUAGE
POSITIONING THE PROJECT

A few examples were studied and plotted on the matrix, in order to situate the discourse, as well as create a foundation on which the team could build and situate their own projects. Projects such as the table house by Jo Noero, which was designed as a form of temporary relief, situates itself without tenure, with the architect taking authorship in the beginning, and allowing the community to appropriate over time. The 'Reconstruction and Development Program' (RDP Housing), sees the architect as primary author, with larger scale solution and construction. While the UISP, as discussed previously, sees itself situated initially without tenure, and advocating for collaboration in interpreting the current conditions of the settlement. This progresses in scaling up to be positioned in tenure, which enables upgrades over time.

This understanding of existing projects allows us to plot our own approaches in the matrix. In my investigation, a study is done in the environment and context, in order to understand the deep connection the community has with its natural surroundings. In the research phase, a community engagement analysis is done of the different typologies that exist in the landscape, as well as the shared outdoor spaces of the community. This investigation led to the creation of a spatial lexicon, where the findings were used to influence the direction the project would take. Initially, I take the role of primary author, using my knowledge of site and context, as well as the study done within the community to initiate a design that would give structure to future appropriation, handing more authorship to the community of Plastic View, allowing for appropriation of the eventual structure that is designed. This process is done with the knowledge that there are future precinct plans for the site that have no clear indication of the future for the settlement, although in this investigation, it is assumed that Plastic View will be upgraded in-situ, and not moved to a new site.

A PATTERN LANGUAGE
CONTEXTUAL ANALYSIS

As mentioned before, the issue created by urban development not considering informal systems (Hansen 2009), as well as the migration of people from surrounding, commonly rural areas (Patel et al. 2022), results in an urban sprawl of settlements that are disconnected and disengaged from the socio-spatial and economic urban landscape, captured in figure 8., which shows the boundaries around the settlement (Ryan Meij 2022).

In the case of Plastic View, the inherent disconnect from the urban surroundings is as a result of external engagement and proximity to available work opportunities. In investigating the routes in and out of Plastic View, it was noted that there are three main connecting roads to the surrounding context, excluding smaller pedestrian paths. These three main connecting roads are in close proximity to transport nodes, and link to surrounding affluent estates that provide work opportunities to the community.


Figure 2.2. Plastic View Map (Author 2022)


Figure 2.3. Plastic View Boundaries (Author 2022)


Figure 2.4. Plastic View Estate Context (Author 2022)

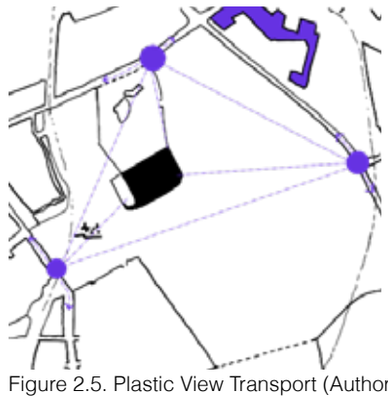


Figure 2.5. Plastic View Transport (Author 2022)

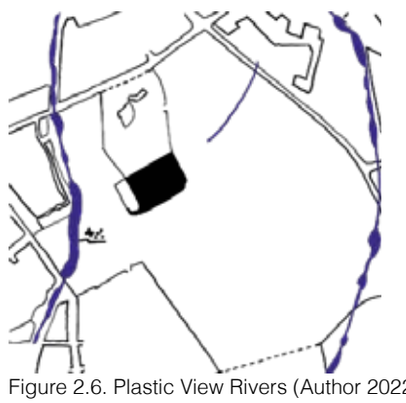


Figure 2.6. Plastic View Rivers (Author 2022)

A PATTERN LANGUAGE
URBAN CONDITION

Plastic View is surrounded by affluent estates and gated communities, as seen in figure 2.4. Garsfontein Road, running eastwest, is the main transport road towards the city centre, and Woodlands mall, where groceries are purchased by the residents of Plastic View, as well as a taxi rank which is present at the entrance to the mall property, are positioned north of the site (UUC 2021). An empty standing servitude runs along the southern portion of Plastic View, that is known as “Plastic View Road”. This road connects Brabham Street with Plastic View, and is the proposed future main entrance into Plastic View. It also serves as a connection to another taxi rank situated on Wekker Road. It’s through this entrance that service vehicles enter the settlement and provide municipal services such as clean water for the jojo tanks within the settlement, and the cleaning of the portable toilets. This unfortunate reality is due to the fact that there is no municipal infrastructure that is provided for the settlement. In portion 98/374 of Garsfontein 374JR, a property known in the settlement as the ‘white house’, is an abandoned plot that is used as a storage facility by the community for various applications . This house’s entrance leads onto Wekker Road, and is passed by the community on the way to various transport routes and connections. This house is the only property that is supplied with municipal infrastructure and its misuse is an untapped resource for future development (UUC 2021). As previously stated, this spatial disconnection creates an inherent infrastructural problem (Van Breda and Swilling 2018), and in order to address future infrastructural implementations, the use of programmes such as the UISP becomes very important (SJC 2017).

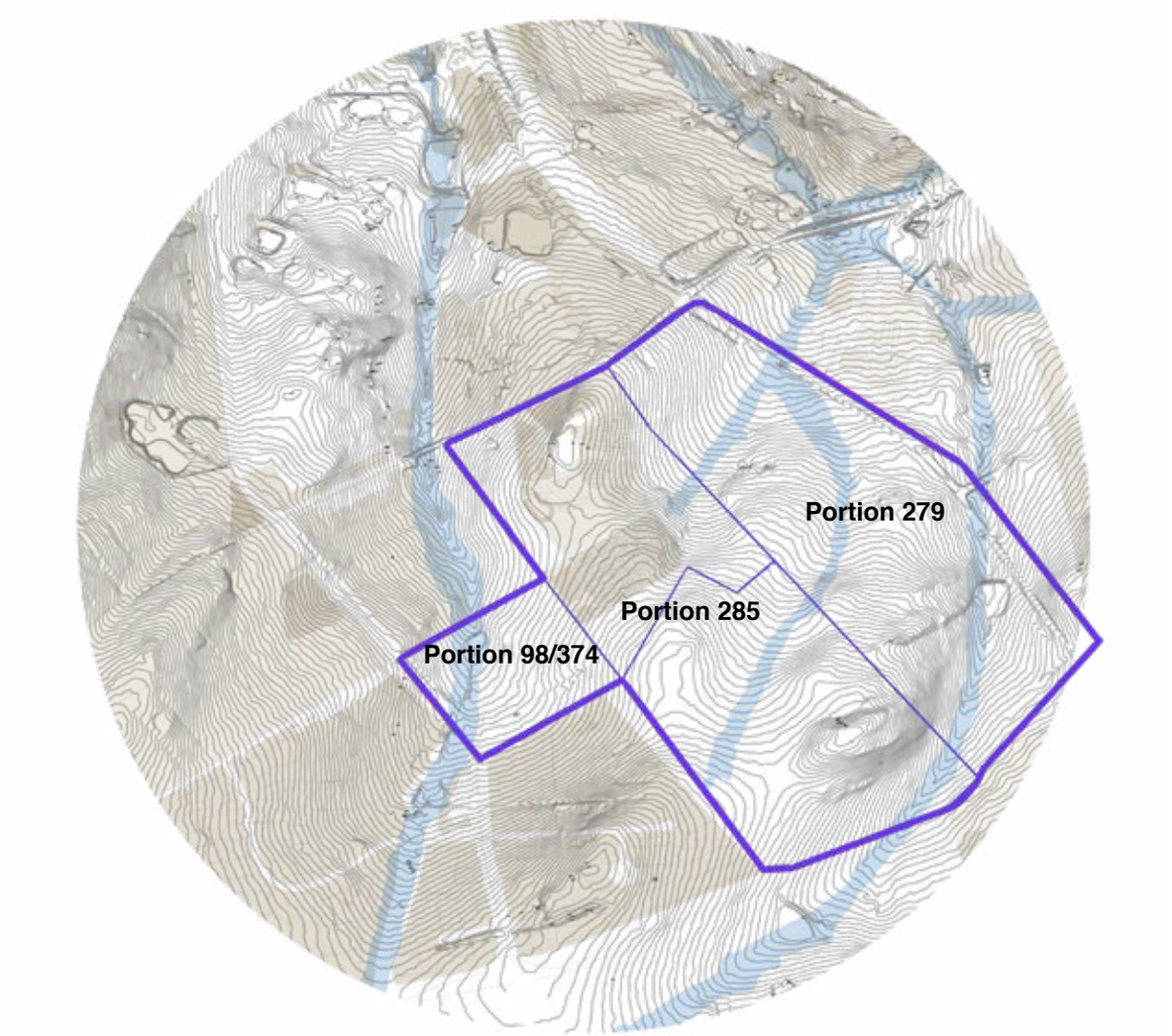


Figure 2.7. Plastic View Portions (Author 2022)

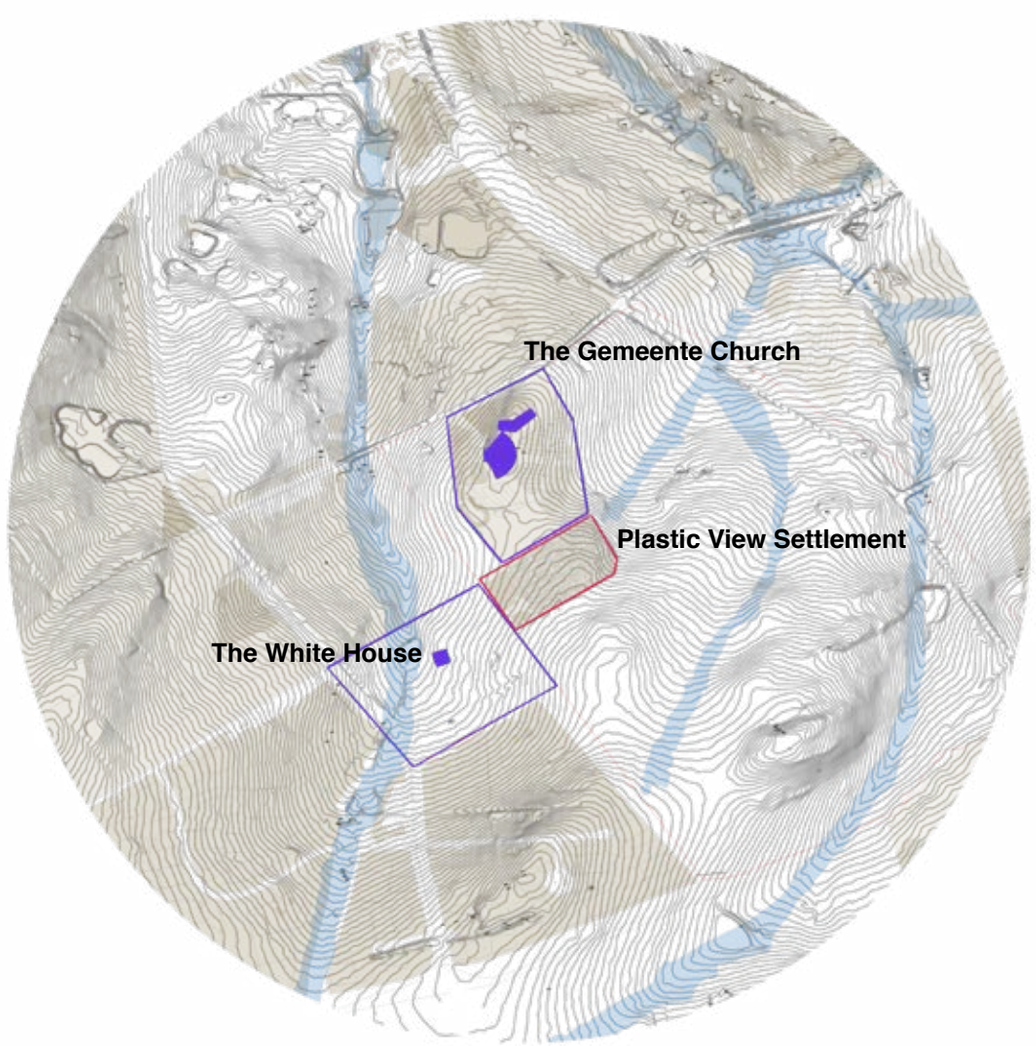


Figure 2.8. Plastic View Service Availability (Author 2022)

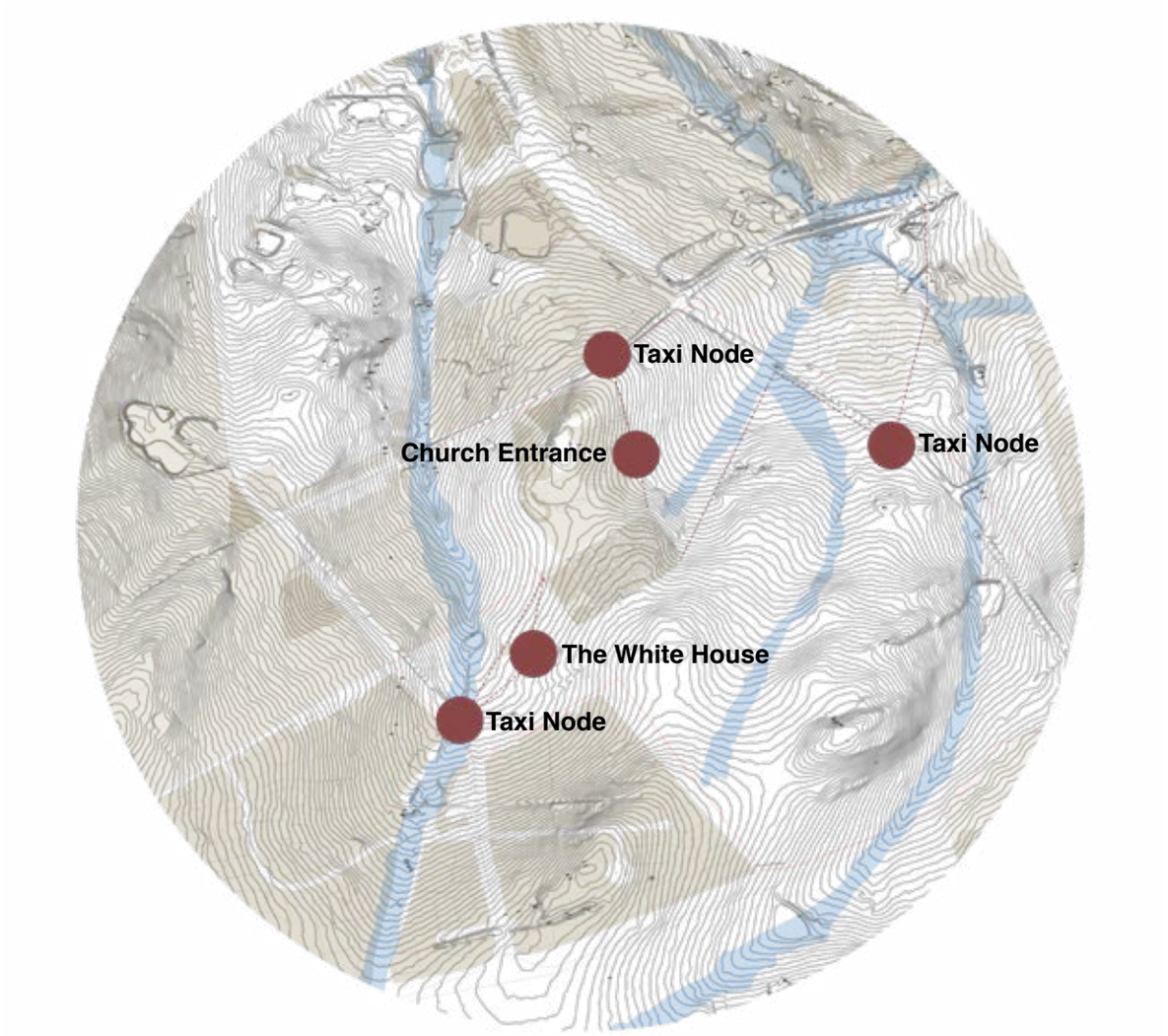


Figure 2.9. Plastic View Contextual Transport and Social Nodes (Author 2022)

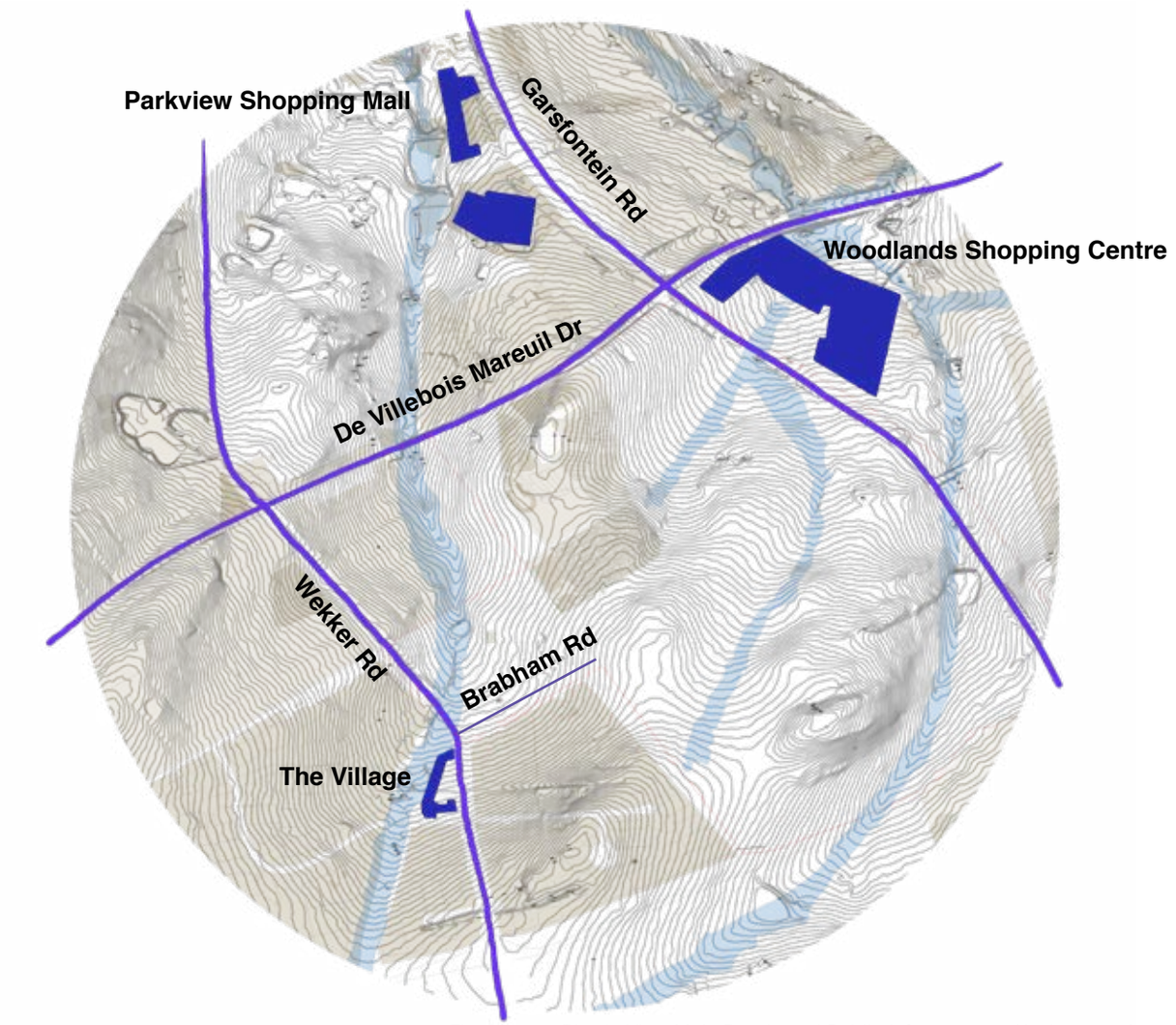


Figure 2.10. Plastic View Main Roads and Public Infrastructure (Author 2022)

A PATTERN LANGUAGE
NATURAL CONDITION

When investigating the connection the community has with the environment, it was clear the landscape played a huge role in providing basic needs and services, as well as cultural and spiritual significance. Plastic View's position allows for a deep connection with the surrounding natural environment. This led to the need for a thorough site analysis. Although the site does have zones of sensitivity, there was no real value in plant preservation, as it is largely composed of invasive wattle and blue gum trees, as well as non-indigenous grass and shrub invasives, therefore the site is in need of strategies for ecologically sound rehabilitation. Located on either side of the open portion is situated distributaries of the Moreletaspruit. Flowing north, these tributaries are largely polluted due to refuse and human waste being dumped into the river. This issue of river pollution has sparked the surrounding affluent communities to gather often to perform clean ups of the river course. The settlement of Plastic View is situated on a watershed line, causing water to flow to either side of the settlement, and down into these distributaries. The open portion consists largely of residual andesite geology. This causes a lot of runoff of water on the site and is the cause of major erosion that occurs within the settlement.

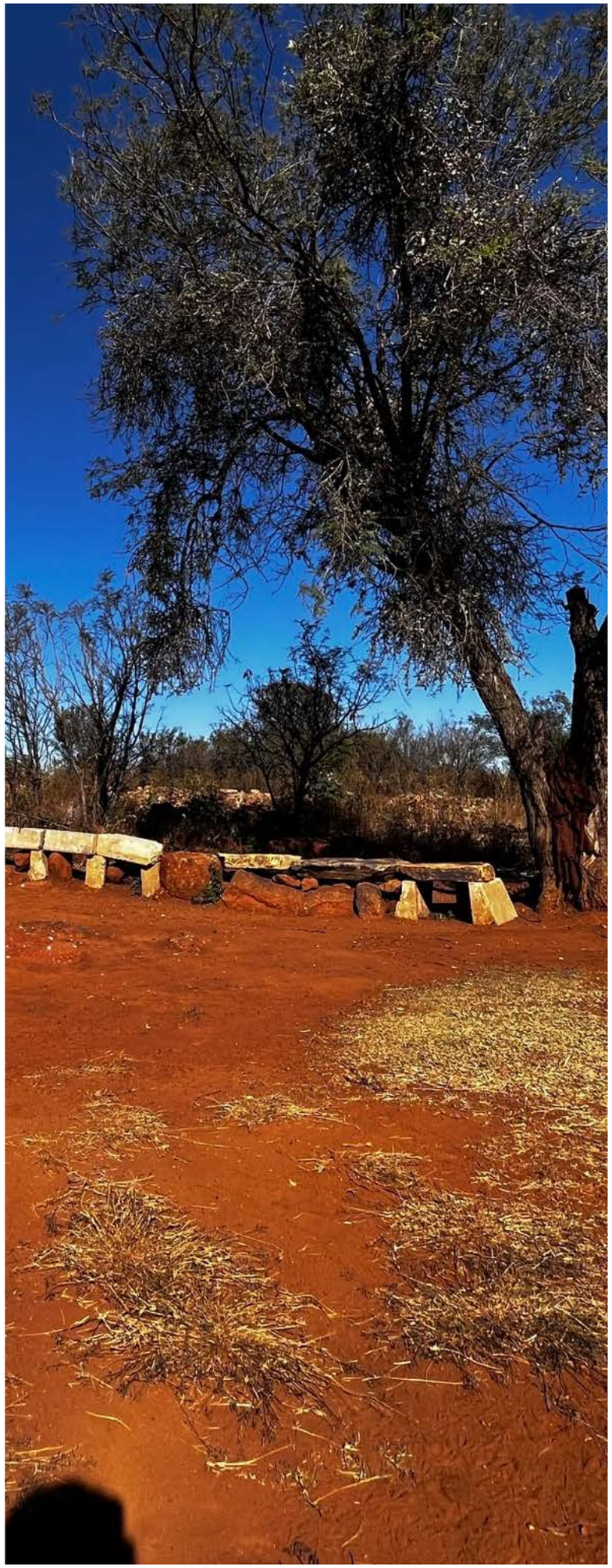


Figure 2.11. Contextual Spiritual Space (Author 2022)

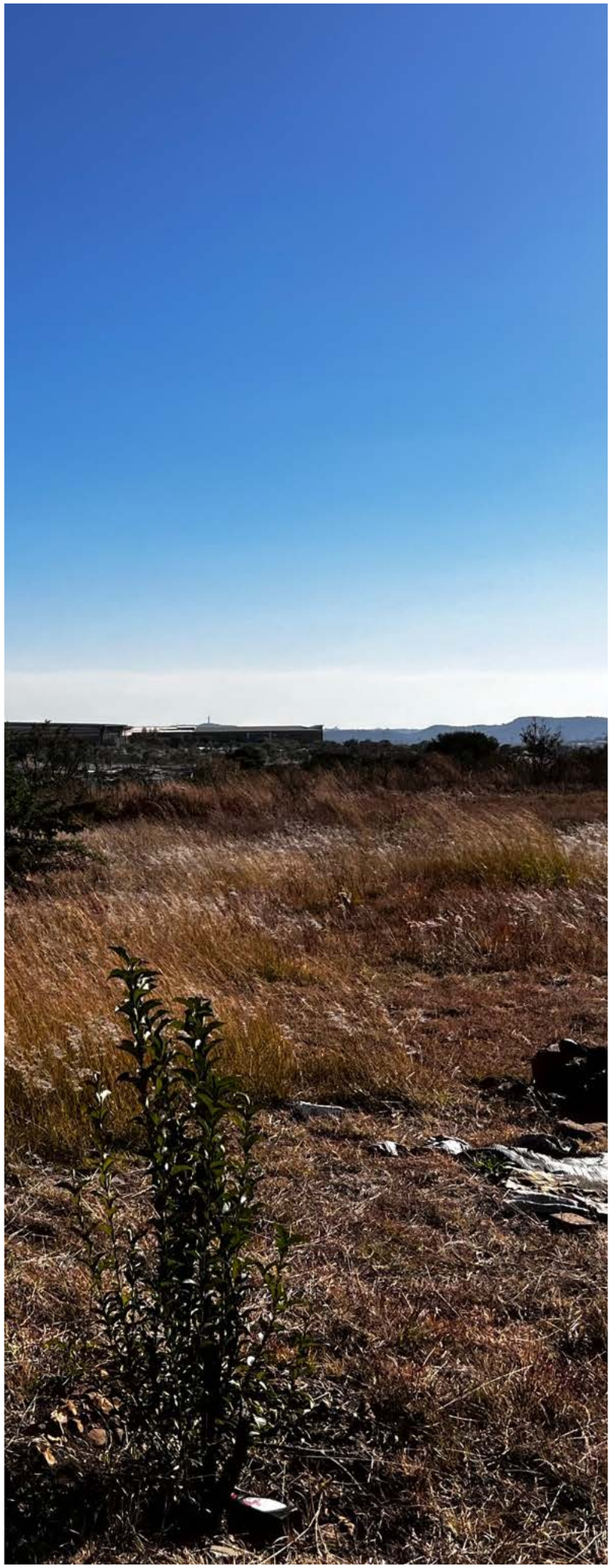
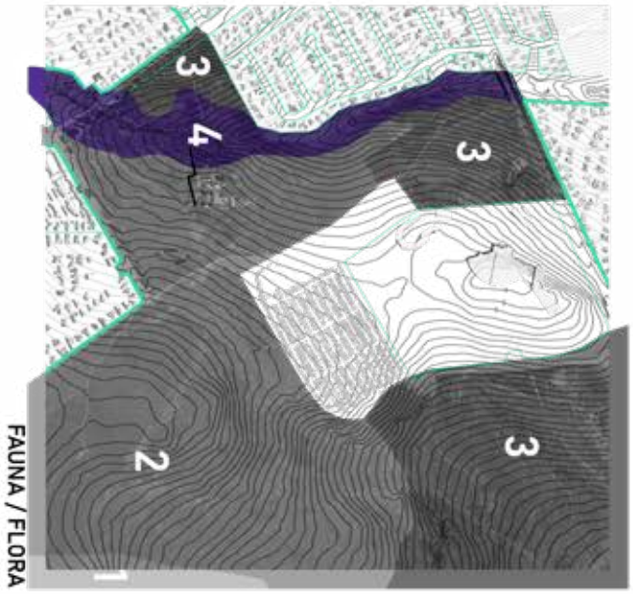


Figure 2.12. Contextual Prayer Space (Author 2022)

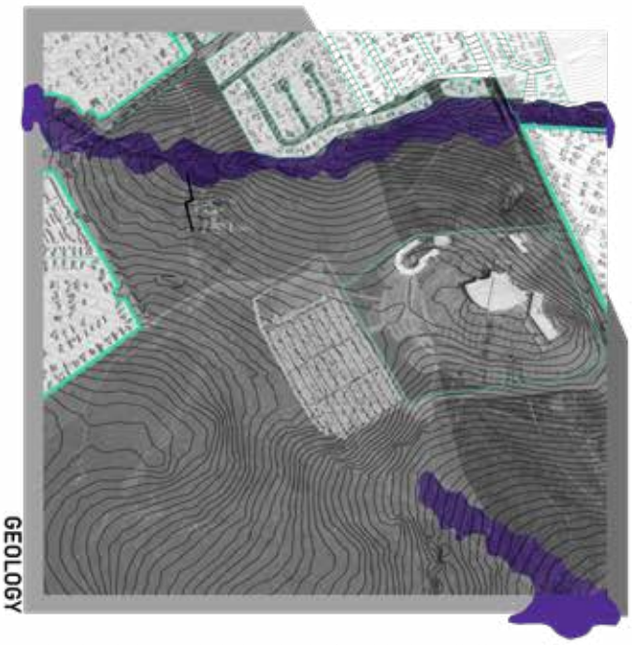
Figure 2.13. Contextual Ritual Space (Author 2022)

FAUNA / FLORA



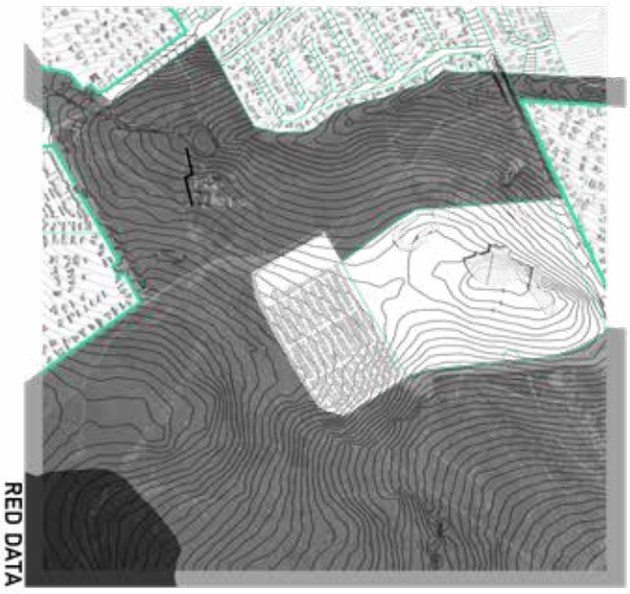
ROCKY RIDGE GRASSLAND // ERAGROSTIS FIELD
DEGRADED WOODLAND // WETLAND

GEOLOGY



RESIDUAL ANDESITE // RESIDUAL.BEDROCK SHALE
1:100 YEAR FLOODLINE

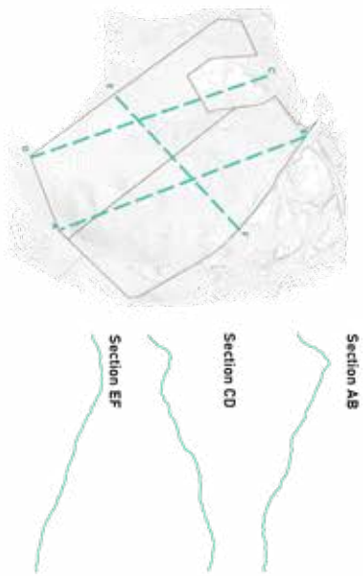
RED DATA



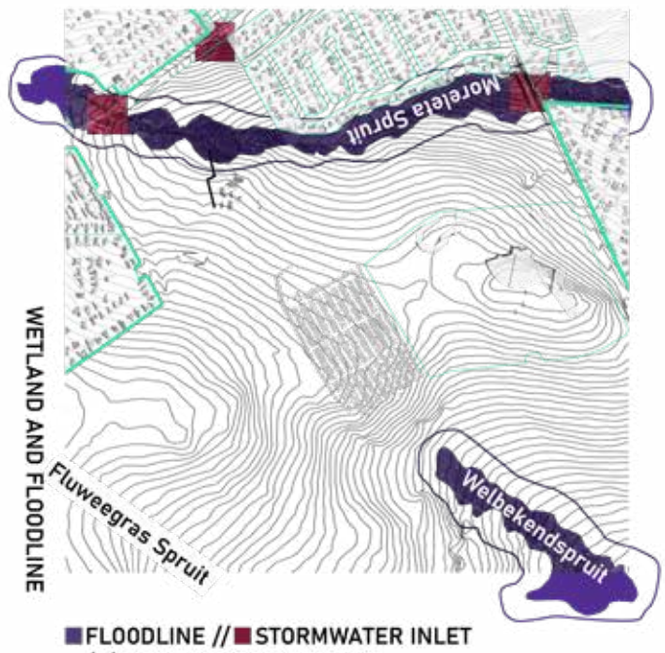
HIGH SENSITIVITY // LOW SENSITIVITY

WATERSHED LINE

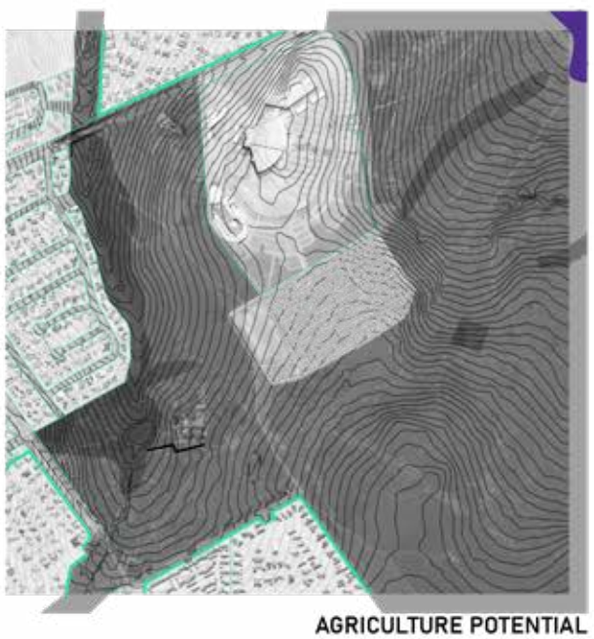
SECTIONS



WETLAND AND FLOODLINE

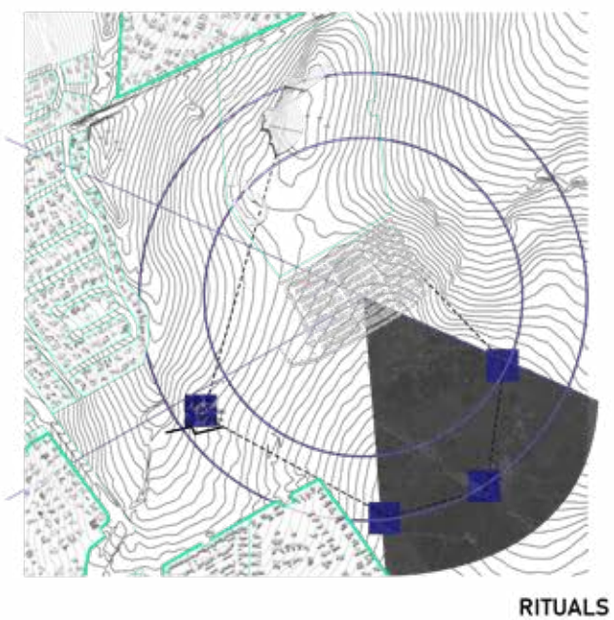


FLOODLINE // STORMWATER INLET
/-/ WETLAND DELINEATION



AGRICULTURE POTENTIAL

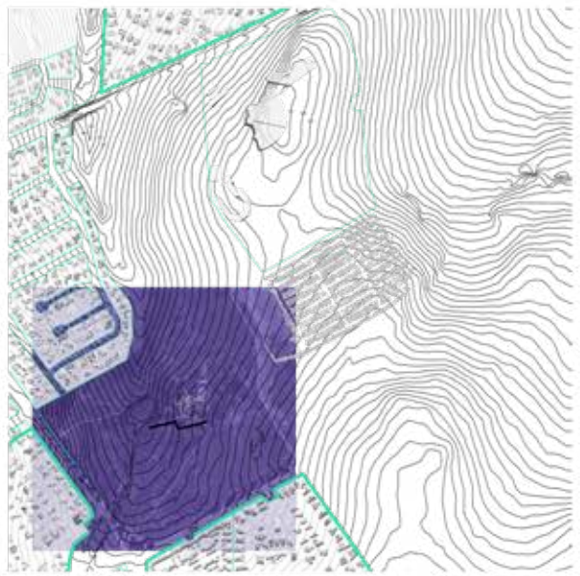
ERF DELINEATION



RITUALS

SITE SYNTHESIS // QUANTITATIVE DATA

DATA DICTATES POTENTIAL OF SITE AND ALLOCATION OF DESIGN SPECIFICATIONS **SITE CONDITIONS**



SITE

Figure 2.14. Contextual Site Analysis (Author 2022)

A PATTERN LANGUAGE
SITE SELECTION

Following the analysis done on site, and in line with the theoretical intention of urban integration, the It was important to understand the surrounding context. A criterion was developed to aid in the selection of the site:

- Site sensitivity in terms of ecology and potential (both infrastructural and ecological preservation wise)
- Municipal Infrastructure availability and future implementation accessibility
- Urban Connection and Accessibility between surrounding estates and current transport nodes of the settlement.

Thus, the entrance into Plastic View from the southern portion on Wekker Road and Brabham Street is the chosen site for intervention.

Due to its close proximity to neighbouring transport nodes and work opportunities, as well as its inherent connection to the future proposed pedestrian entrance to Plastic View, this site is a prime destination for pedestrian movement, and would have frequent passive surveillance. The land on which the intervention will be implemented is designated for future development, due to its low ecological- and soil- sensitivity. This, in conjunction with the agricultural potential of the soil on the periphery, lends it to becoming a site on which the proposed intervention can help rejuvenate the soil and regenerate the surrounding ecology. The site is connected to portion 98/374, which has the house situated in the centre, with the possibility of using the municipal infrastructure that is available and supplied to the house currently. This provides a space on which agriculture and ecology can be irrigated, should there be the need. This entrance is also in desperate need of a sense of arrival. The current situation has the resident enter via a service road into Plastic View. On arrival at the settlement, the resident is

greeted by a large football field, which is in need of regeneration, as the slope is not conducive to the need. This field would also be a connection to the site, and provides an opportunity to connect these activities of outdoor services and recreation. The intervention should seek to create a sense of arrival into the settlement that speaks of the nature and culture of Plastic View, while emulating the future possibility of the settlement. This entrance is also greeted by a community creche. This creche has the backing of SACares4Life, an external NGO that works with the community, and provides supervision of children during the day, as well as general health and emergency care for children and mothers alike. The NGO also allows community leaders to use the site for meetings over the weekend. This space is also a gathering point of contact space for students, who frequent the settlement in hopes of supporting and assisting the community where possible.

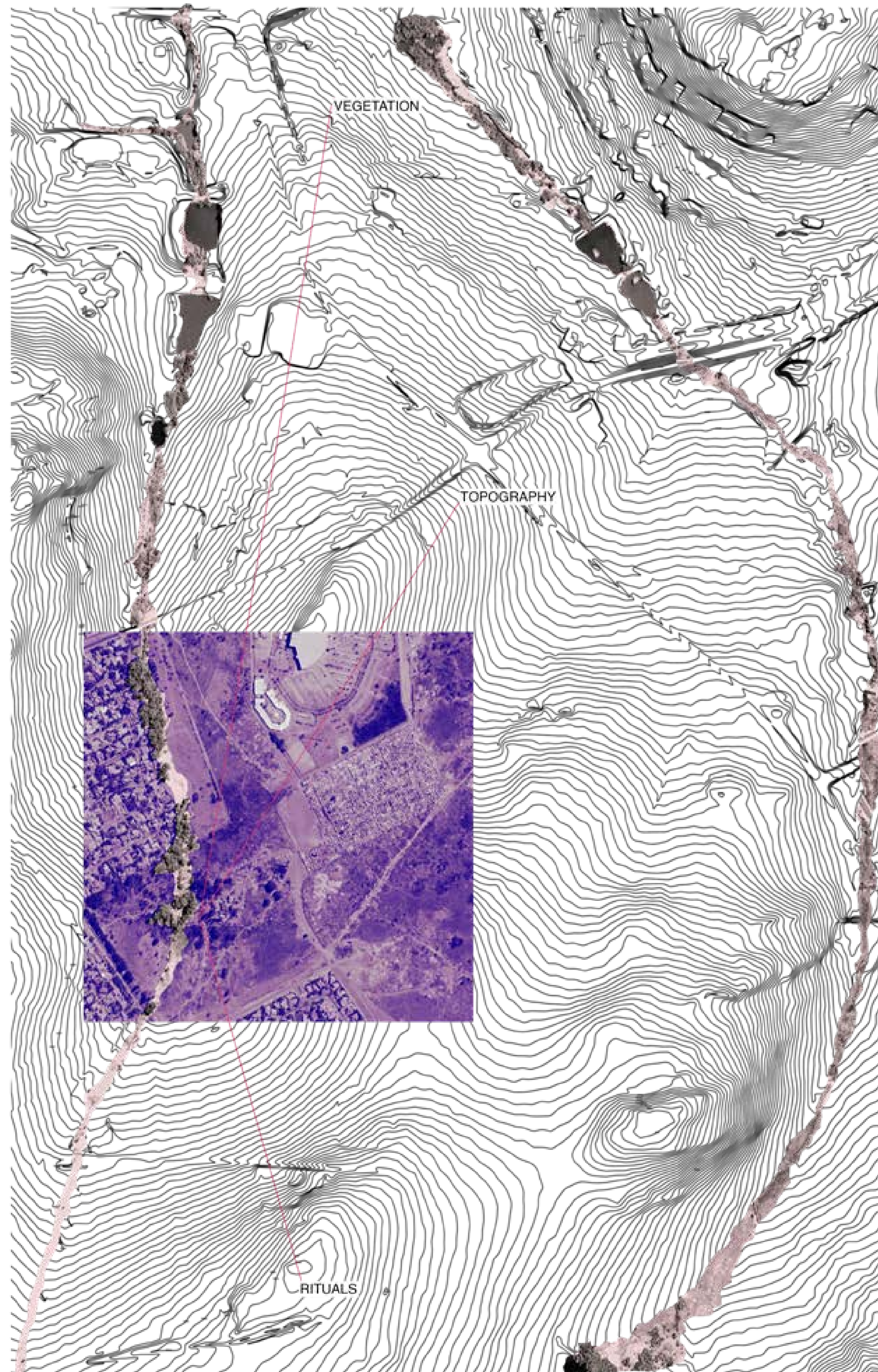


Figure 2.15. Site Selection (Author 2022)

A PATTERN LANGUAGE

HISTORICAL; IMMEDIATE; FUTURE

Plastic View is a typical example of urban development which does not acknowledge informal systems (Hansen 2009). The result of urban sprawl due to urban planning (Patel et al. 2022), has led to economic, social and infrastructural disconnect between these informal settlements and their surrounding contexts. Over the 21 years the settlement has existed, the settlement has been the recipient of prominent policy changes that have promulgated during the post apartheid timeframe. The Breaking New Ground Policy (BNG) aimed to eradicate informal settlements across South Africa, and provide housing to these residents by 2014, yet neither of these goals have been achieved (Mbanga, 2020). The UISP, as mentioned before, was released through the BNG policy as part of the National Housing Code in 2009, which consists of a phased approach to providing basic services and infrastructure to these informal settlements, with the emphasis on community engagement and participation.

Plastic View settlement began as an emergence of settlers in 2001. These settlers were under constant threat by the municipality and neighbouring estates, as illegal eviction notices were given, and eventually the destruction of shacks in 2006. This led to a court order for eviction in 2008, yet no land was provided, so the court declared the order invalid. It was around this time that Tswelopele, a non-profit organisation with the goal of providing necessities to the settlers, decided on a grid system for Plastic View, to provide order and confinements, in order to appease the municipality and Moreleta residents. This organisation led to the eventual legalisation of settlers on the land in 2009. However, in 2012, another eviction proceeding was done, this time against settlers that didn't qualify for subsidized housing. The land was eventually recognised as Plastic View, however, development plans and an eventual auction for the land occurred in 2014-2015. The settlement began to gain recognition for

its tense nature and implementation of policy and law. Thus, in 2016, the University of Pretoria began its involvement in the site, providing assistance and relief to the settlement in a multitude of ways. It wasn't until 2021 that Africapital released the development plans for an affluent precinct which would exist on the site. Relocation plans were discussed for settlers that qualified for subsidized housing, but residents who did not would be relocated to a new site, yet to be determined by council.

In contrast to the grid layout of Plastic View, and the contention surrounding the settlement, Cemetery View, another settlement not far from Plastic View, was allowed to grow organically, without the influence of an external NGO. Plastic View, having formal NGO engagement and a subsequent leadership group to maintain some order in the settlement, makes it a better site for intervention than the former, yet creates a good contrast in both form and control.

The nature of Plastic View having an extensive history with policy and municipal engagement, as well as its disconnection with the urban fabric makes it an interesting case study. Although strict mandates have been put in place to confine further sprawl of the settlement, it is within these constraints that ways of living are expressed, and an investigation into these relationships and typologies will form the basis of future development for Plastic View. This shall be the premise on which the intervention will be placed, using principles from the UISP and BNG policy, while relating to the culture and traditions of the settlement, in order to not have a repetition of prior events, and breaking the stigma of informal settlements within the surrounding context.

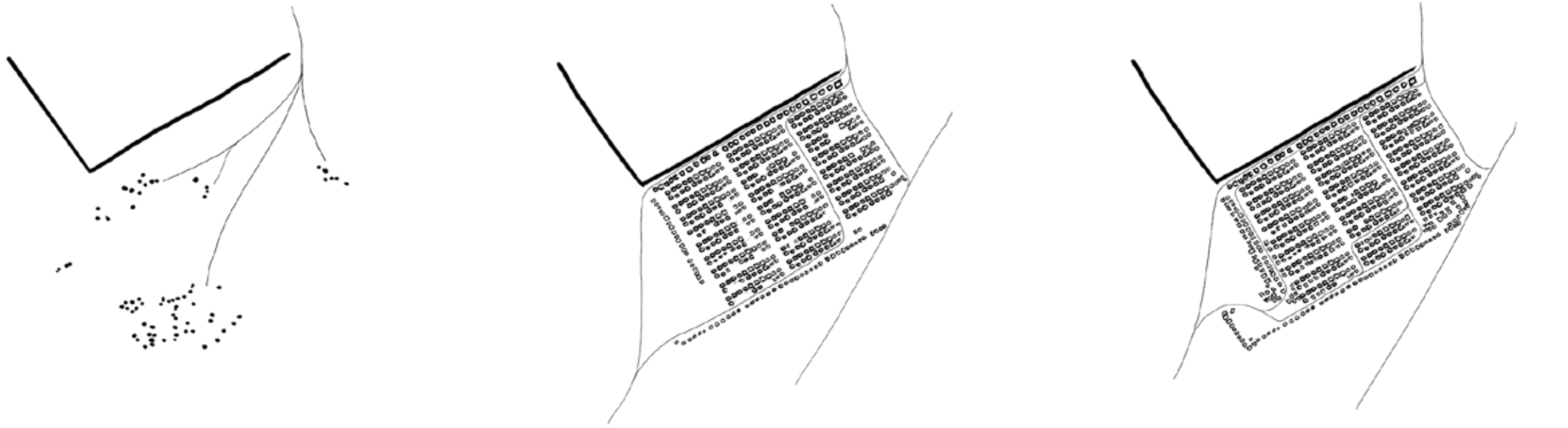


Figure 2.16. Plastic View Growth (Author 2022)

2008

2013

2020

Figure 2.17. Cemetary View Growth (Author 2022)

A PATTERN LANGUAGE
SPATIAL LEXICON

As described before, it's important to understand the history and the present circumstances in order to fully grasp the potential of existing relationships and typologies that exist in the settlement. It's based on this notion of how people within the settlement make space for themselves that the UUC documented the different spatial typologies that exist within Plastic View. Refer to Annexure

This process unfolded through the use of Epicollect, a data capturing tool, that geotagged and located different examples around the settlement. This was done in conjunction with observational and diagrammatic sketches, in order to fully understand the specific typology in question. It was through this exercise that pattern languages began to emerge, as different instances of the same typology were overlaid and examined. These were transcribed, and assembled into a spatial lexicon of Plastic View, where typologies of space were overlaid with actors, the residents, and objects. These created forms of appropriation, and were defined in how one interprets space. This process forms the backbone of familiarity and potential venture within the design. It enables an understanding of how space is formed, and how it will form in certain scenarios. The different forms of typology examined were outdoor, shared streetscape spaces, economic typologies and dwelling typologies. This process helped expand the spatial vocabulary needed to respond to identified issues and possible solutions in an appropriate manner.

Figure 2.18. Plastic View in Context (Author 2022)

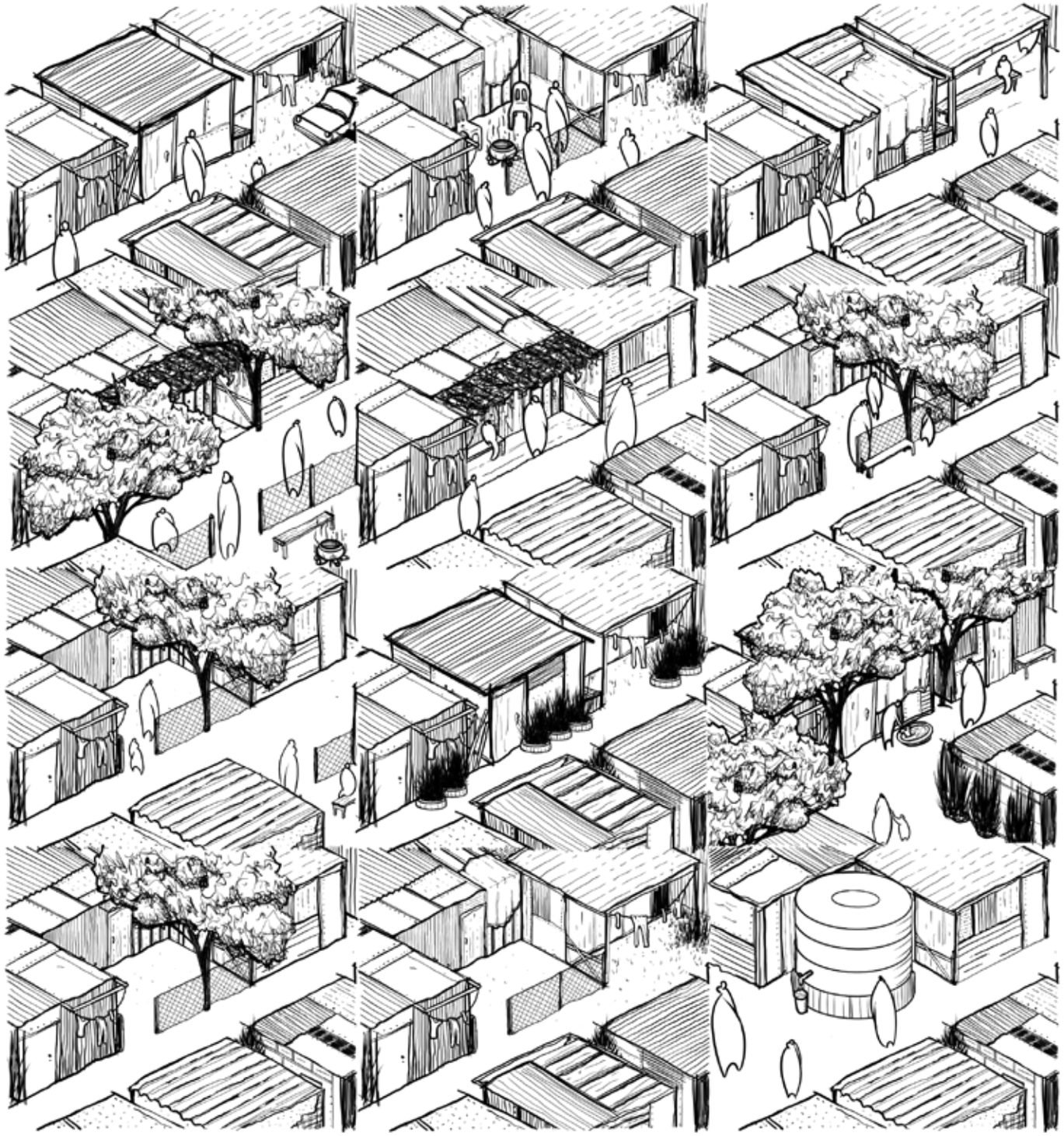


Figure 2.19. Plastic View Outdoor Typology Study (Author 2022)

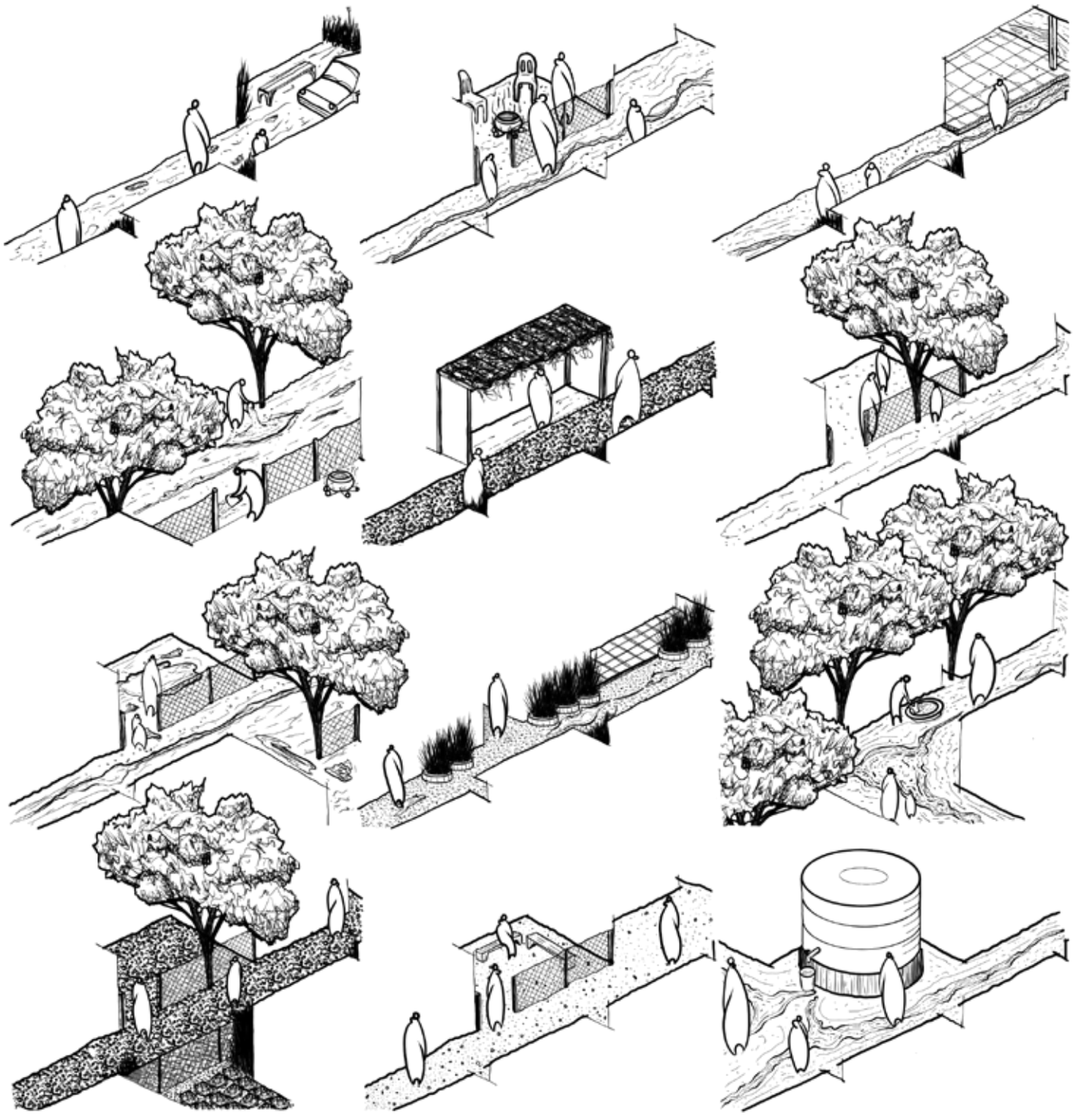


Figure 2.20. Plastic View Outdoor Typology Study 2 (Author 2022)

A PATTERN LANGUAGE

THEORETICAL DISCOURSE

In order to situate my project into the discourse of informality, it's important to draw comparisons to, and learn lessons from existing projects and architects who work in these environments. Consulting the matrix compiled by the UUC, and investigating projects that are plotted in a similar area on the graph, the principles of these projects that deal with informality can be investigated and used to create a framework from which my project can be taken forward and investigated further in line with my theoretical question. These principles taken from precedents are analysed and finally, brought into the context of Plastic View.

THE TABLE HOUSE, CAPE TOWN. JO NOERO (2016)

Figure 2.21. The Table House Project (Noero Architects 2016)

Jo Noero designed the Table House as a means for permanent living conditions using low cost structures, which could be extended both horizontally and vertically. The permanent structure acts as infrastructure that enables the residents to appropriate, in ways of gradual development, using local building labour and skills. The project is based on a module that is proportionate to its local context and existing houses. The main principle of the project was situating the residents at the centre of the initiative. The table house is a very site specific solution to informality in Philippi, Cape Town, however it uses important principles that empower people to take charge of their own housing environments, transforming their homes and environments, using the infrastructure that the Table House provides (Noero 2016).

Jo Noero showcases the importance of community engagement and thorough research into the settlement you are intending to intervene in. This project also expresses the value in providing the infrastructure necessary and allowing the community to intervene in the project, taking it forward and it becoming their own.

The way the houses were designed allows for easy, low cost construction, and further gradual alterations made over time, while giving the community freedom in orientation and form.

Relevance of precedent study 1:

Permanent modular system as infrastructure, that provides the necessary infrastructure that allows the community to appropriate over time.

Low cost, easy construction.

Context specific solution

Community driven project

THERE GROWS THE NEIGHBOURHOOD. ENGELWOOD, CHICAGO. EMMANUEL PRATT 2018

Figure 2.22. There Grows the Neighbourhood (Emmanual Pratt 2018)

Emmanuel Pratt started the initiative to help residents reach their potential in learning how to build a community and create community driven solutions in their neighbourhoods. What once was a derelict house, now exists a rehabed urban, community farm. Emmanuel coined this term as blight to light, refurbished urban decay into its new potential of uplifting communities. After acquiring the plot of land, Emmanuel began by reaching out to the neighbourhood and offering an educational opportunity, through a pilot programme of an urban farm. This plot became a destination space, a place where you could meet and share ideas, and over time, this opportunity was taken and a small shop was opened in the connecting house, starting up a local economy. The use of available materials used in the project to evolve the site was important in evolving the discourse and conversation on the site. Public spaces were created, and eventually the ecology on the site began to flourish as a result of the constant care given to the plot. The use of simple modular systems in denoting space and materiality became an important tool in engaging the community with the project, as it was a simple method to create space and objects within those spaces.

Relevance of precedent study 2:

Modular systems in denoting and creating space in a previously derelict house

using available materials in creating new spaces

community driven project and design process

Economic potential of community driven project

Figure 2.23.,2.24. Europe Water Point Upgrade (Yes&Studio 2021)

Europe Water Point Upgrade. Cape Town. Yes& Studio 2021

With the help of multiple NGO's and community engagement, Yes& studio implemented an upgrade in Europe, an informal settlement in Gugulethu, Cape Town, a settlement lacking in basic services and infrastructure. Similar to Plastic View, the settlement experiences a lack of drainage and has no formal sewerage system. The only potable water is from communal tap points.

The project seeks to solve the service requirements in the settlement, while attempting to create safer and more positive spaces within the settlement. Thus the intervention is situated on a key intersection, and spans along the main pedestrian access route in the settlement. The intervention comprises two plazas that are fitted with ergonomic water points and storm water channels that also function as grey water diversion systems.

The premise of the design is to create a sustainable urban infrastructural intervention, by creating a pleasant day to day experience within the settlement.

Relevance of precedent study 3:

Streetscape as service and experiential intervention

The use of sustainable infrastructure in ergonomic and storm water channels

Water point as node for communal space

03

BLIGHT TO LIGHT

Taking the theoretical background, mapping and analysis done into account, this chapter seeks to investigate a possible programmatic response tp the site, as well as a masterplan vision, through an itterative design process

Figure 5. Blight to Light Title (Markus Zorn 2021)

BLIGHT TO LIGHT

REVISED CONCEPT

To create a landscape that has potential to become a regenerative resource, and give structure to a landscape that is presently misused. The landscape will foster community engagement and exchange, creating an ecological hub that is created by the community, for the community. It's within these exchanges and possible encounter zones that forms and elements within the landscape will cater for the cultural and ritualistic needs of the community, that are expressive in growing this organic city of pattern languages.

REGENERATIVE RESOURCE

COMMUNITY EXCHANGE

RITUALS

FAMILIAR

UISP

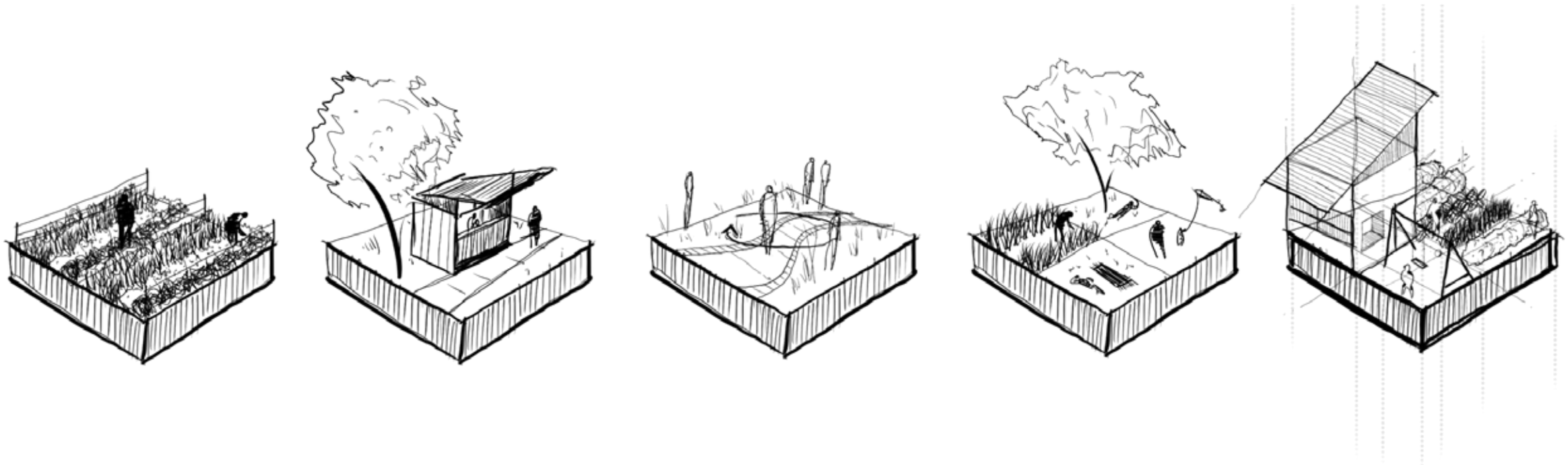


Figure 3.1. Design Principles (Author 2022)

BLIGHT TO LIGHT
DESIGN CONCEPTUALISATION

Following explorations done in envisaging possible directions the community might take with the design, the decision was taken to give form to the landscape in different functions, in the hopes of finding elements within each that could be suitable and usable in the final intervention.

Design iteration 1.

In response to the environmental degradation on the site, as well as the possible need for water in an ecological and agricultural intervention, this iteration focused on creating retention and detention ponds along the Moreletaspruit. The primary focus was the possible accumulation of water on the site, as well as the secondary outcome of water collection, in passive ecological regeneration. The creation of bioswales that lead into the river acts as structure within the landscape. The possibility of these swales holding the landscape and acting as an armature, led to the next iteration of structure and agriculture within the landscape.

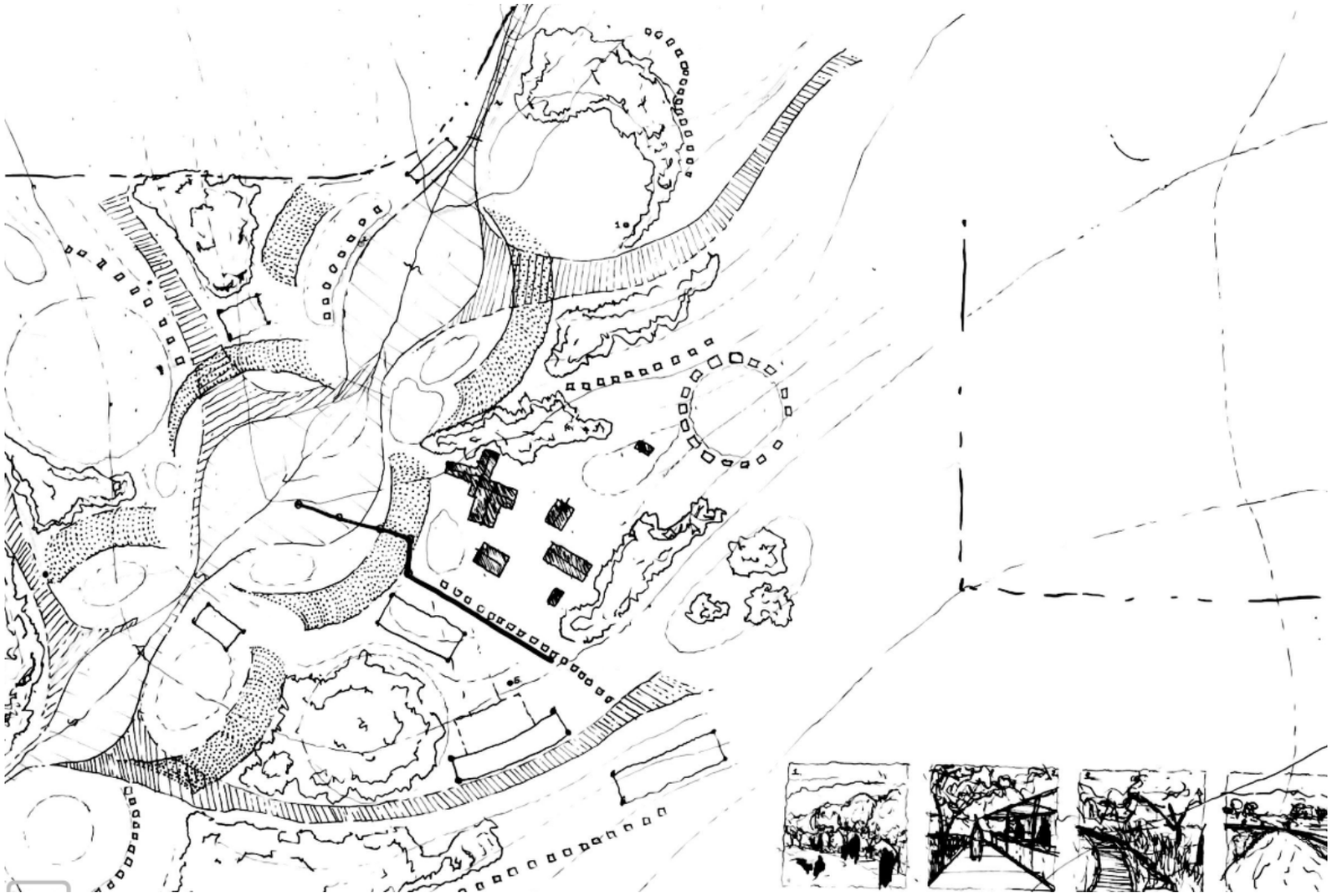


Figure 3.2. Iteration 1 (Author 2022)

BLIGHT TO LIGHT
DESIGN CONCEPTUALISATION

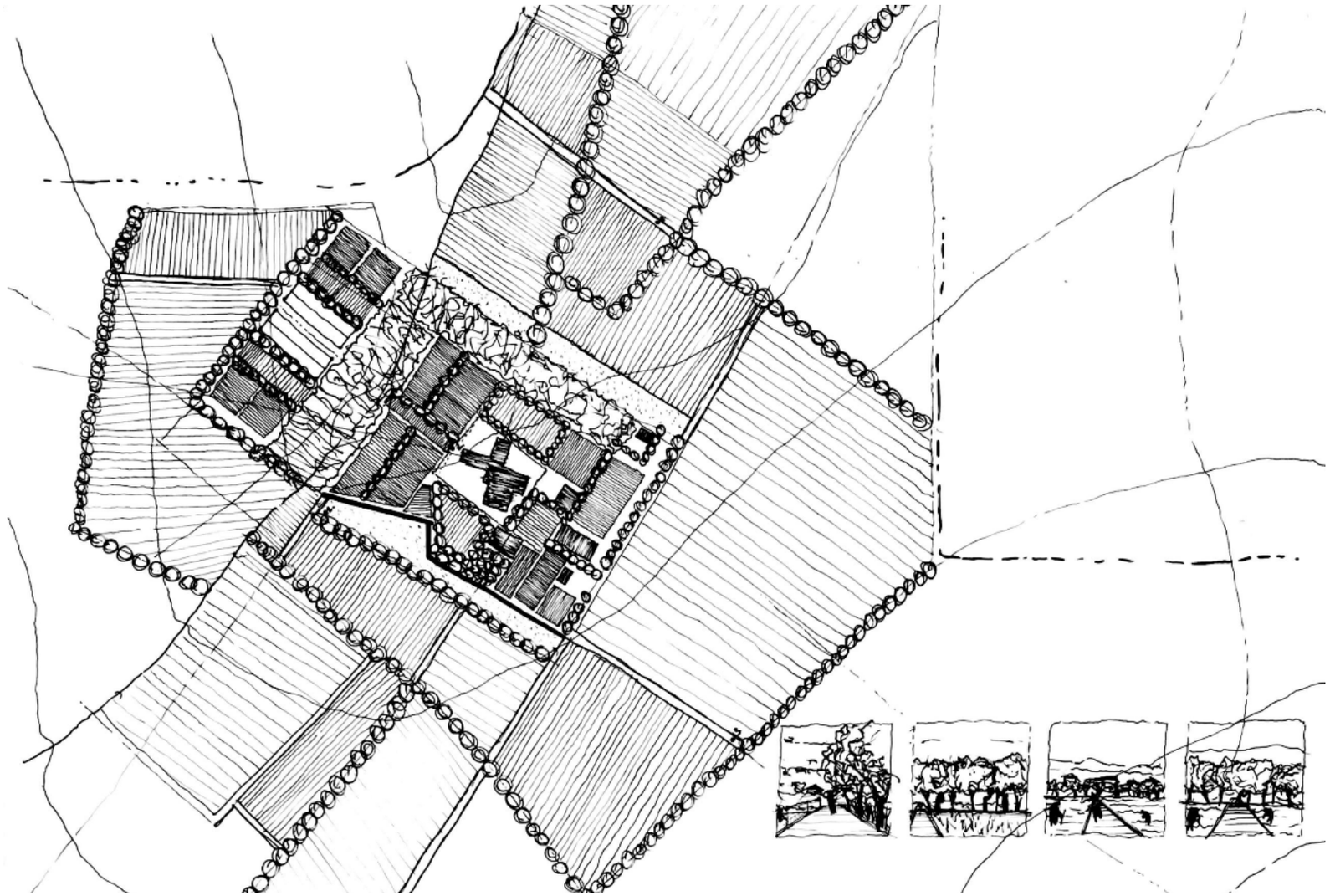


Figure 3.3. Iteration 2 (Author 2022)

Design iteration 2.

This landscape focused solely on the agricultural and reproductive nature the site may hold. Using avenues of trees as armatures holding the fields, this design created a dialogue between man and nature in the form of labour. The idea was to create a landscape that focused on the reproductive nature of the landscape, while using the ‘white house’ as a ‘farmhouse’. A place where one begins and ends.

BLIGHT TO LIGHT
DESIGN CONCEPTUALISATION

Design iteration 3.

An iteration into the possible qualities the landscape has for creating moments, focused on the current relationship the settlement has with their surroundings. The design felt additive, but held potential in its principles.

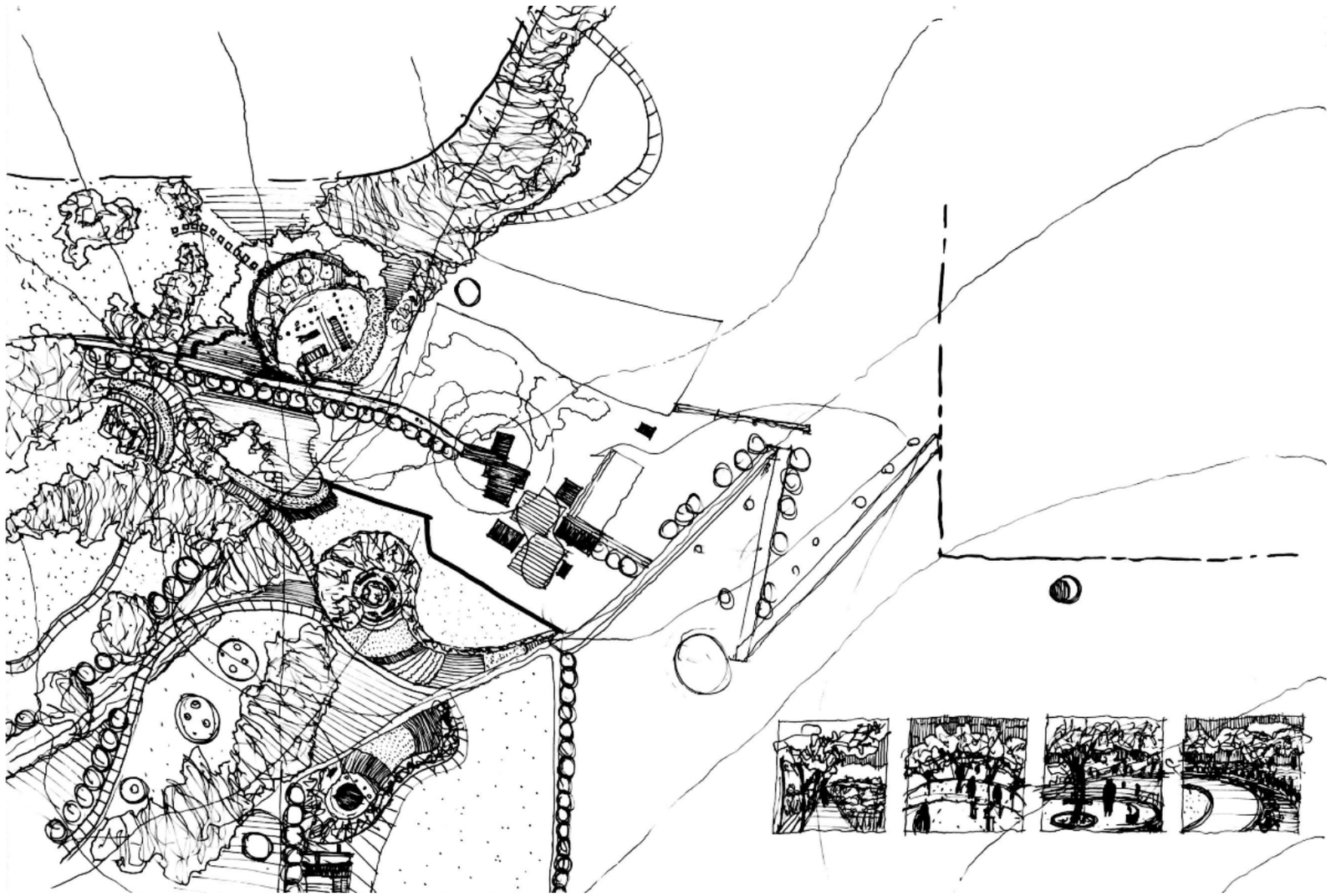


Figure 3.4. Iteration 3 (Author 2022)

BLIGHT TO LIGHT
DESIGN CONCEPTUALISATION

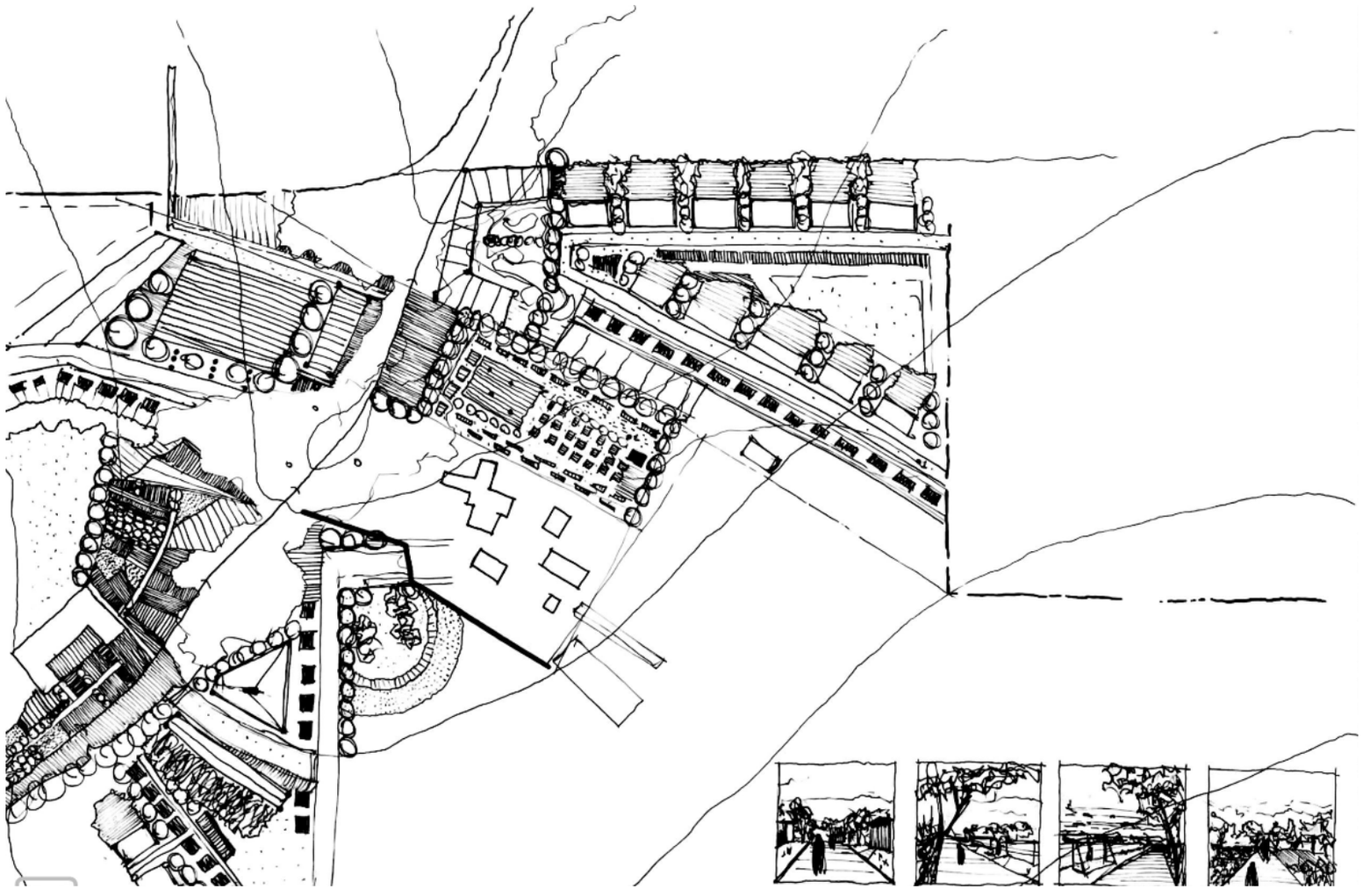


Figure 3.5. Iteration 4 (Author 2022)

Design iteration 4.

With Plastic View possibly having to expand in order to accommodate for the growth in population, This iteration sought to investigate the possibilities of extending Plastic View, and imagining what future possibilities there were in form and layout. This design was the first attempt at designing an economic driver for the scheme, and was set on the idea of living within the landscape.

BLIGHT TO LIGHT
PROJECT BRIEF

Client:

The main clients of the project are the residents of Plastic View. The community remains the core focus of the design, as they take ownership of the space that is created. The vision for the design is that the landscape will evolve over time, and eventually, expand to the broader context of Moreleta Park, whereby residents of neighbouring affluent estates can start to engage in the project, and create an exchange between the different communities of Plastic View and the surrounding context.

Program:

In creating the regenerative landscape, The core programme of the design is the agricultural farm initiative. As the project incrementally evolves, an economic outlet can be created in the form of a nursery. The purpose of the nursery is to bring in an economic influx into the intervention, which will help with future maintenance costs, and will help expand the project further

Scope:

Allowing the Landscape to become a regenerative resource in the form of a lifestyle farm and eventual nursery, the project will begin to add value for future development within the settlement. The initiative will create job opportunities within the settlement, and allow for expansion and eventual reconceptualisation of Plastic View. With the goal of creating a symbiotic relationship between dwelling, agriculture and residents, the intervention will include housing as part of the scheme, which will be used as a prototype example in envisaging what Plastic View could be, while responding to the existing typologies.

Project Type:

The goal is to create a landscape urban framework that deals with the complex urban integration of Plastic View into its surrounding context. With the focus of the landscape being a primary tool for upgrading the settlement while responding to existing forms, shapes, elements and rituals that are prominent within the settlement.

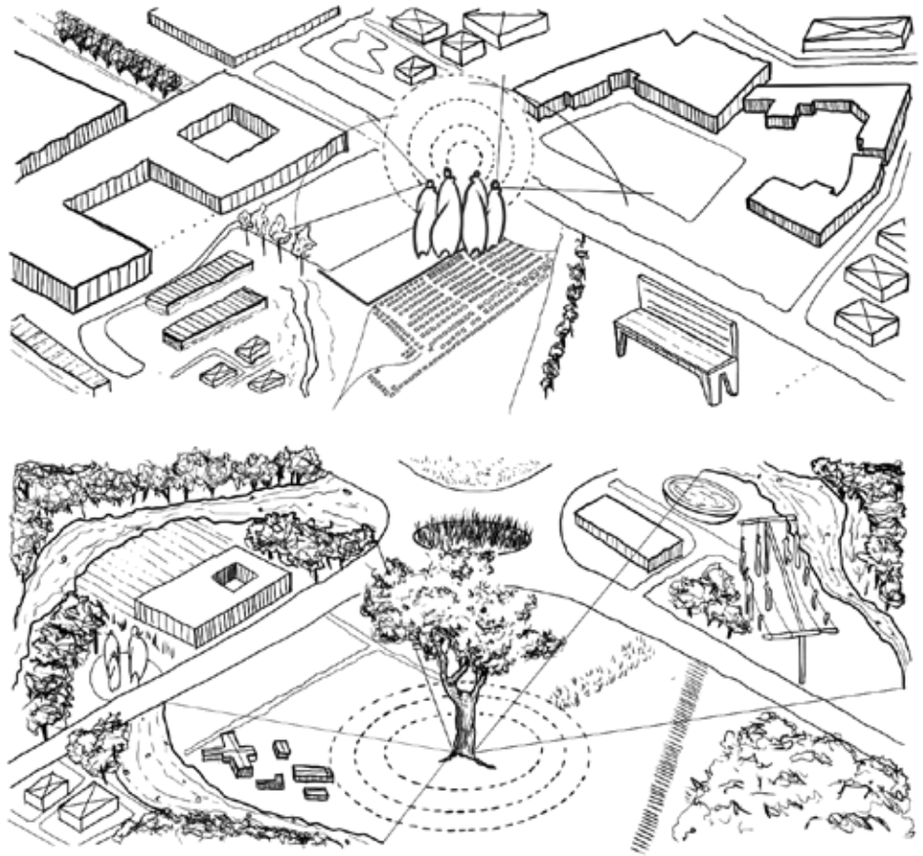


Figure 3.6. Plastic View Program Concept (Author 2022)

BLIGHT TO LIGHT
ITERATION FINDINGS

Plastic View is scattered with multiple cultures and belief systems that overlap one another in the way people live and move through the rituals of their everyday lives The focus on the connection to the landscape and the environment is prevalent here as the social and cultural paradigms draw people together beyond the confines of their homes. The in-between spaces form a major part of this investigation. Understanding the potential of these spaces can be interrogated and expressed through typological studies, and interpretations thereof. The new landscape becomes an upgrade, more permanent mimicry of what currently exists, both naturally and human made. The landscape takes on a familiar form for its users, and allows for greater interaction, both for personal gain, and the upgrade of the environment.

This scheme creates a plan which allows for appropriation, while attempting to prepare and assume for potential programs in these nodes. Yet what will typify the landscape is how one moves between these nodes and how this emerging urbanism is celebrated through a proposed landscape structure as an urban framework.

Figure 3.7. Moreletaspruit Water Flow (Author 2022)

Figure 3.8. Private Gardens in Plastic View 1 (Author 2022)

Figure 3.9. Private Gardens in Plastic View 2 (Author 2022)

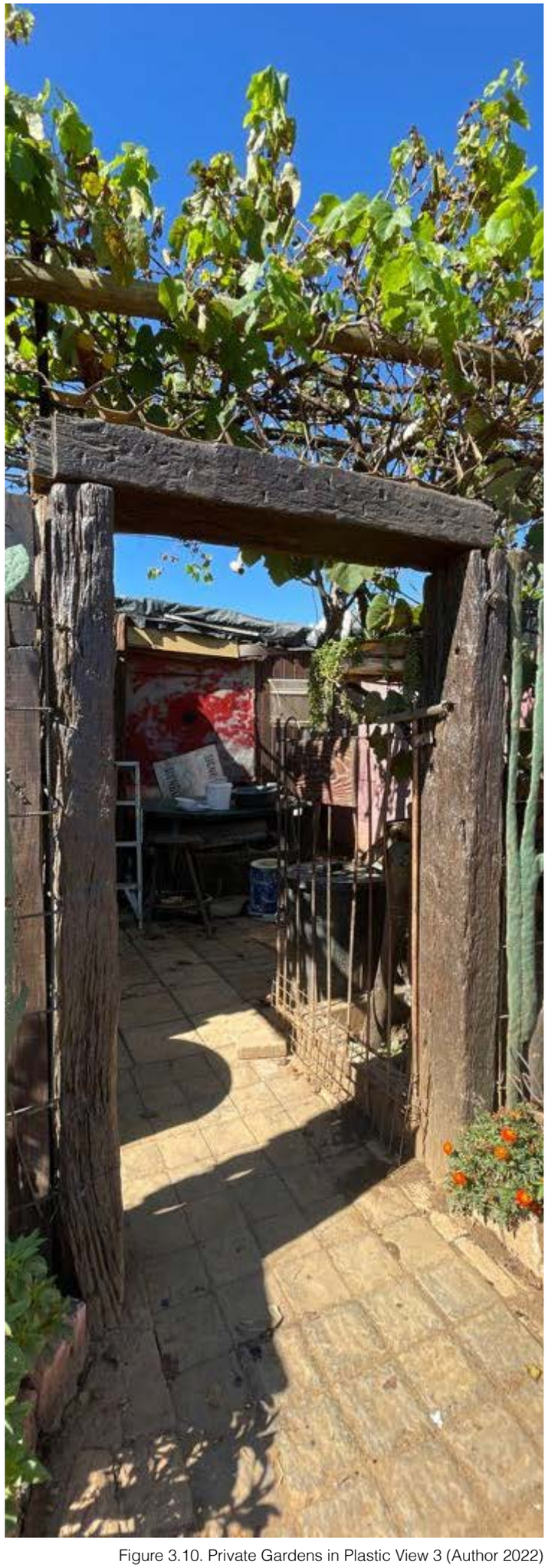


Figure 3.10. Private Gardens in Plastic View 3 (Author 2022)

Figure 3.11. Private Gardens in Plastic View 4 (Author 2022)

Figure 3.12. Private Gardens in Plastic View 5 (Author 2022)

BLIGHT TO LIGHT
REFINING

Through design iterations of functional landscapes, the design realized a deeper investigation that followed the conclusions drawn from the iterations. The preliminary design for the complex integration of Plastic View draws from the positive potentials of each iteration. Each separately fails to communicate the vision succinctly, however, there are principles that are drawn from each that can contribute to a final design. Design iteration one identified the need for environmental sensitivity and protection, while alluding to the possibility of land manipulation and water harvesting. Design iteration two alludes to the functional portion of the landscape, where the majority of the regenerative resources will be produced and harvested. It is within these fields that armatures within the landscape are created, using similar design principles to those followed by Michel Desvigne. Design iteration three investigated the potential of the natural landscape creating moments within that respond to the current cultural landscapes that surround the settlement. Design iteration four investigated the potential of dwellings being made within the landscape and created an opportunity to create future stakeholders and custodians of the proposed intervention.

The opportunities drawn from each iteration are responsive to the current conditions within the settlement, while also being situated within the proposed theoretical intervention. The aim of further investigations is to understand the relationship between the intentions drawn, rather than design them in isolation. In doing so, new design iterations will seek to draw the narrative from within the settlement and its surroundings, and translate it into the intervention, placing emphasis on the need for integration between the settlement and its addition.

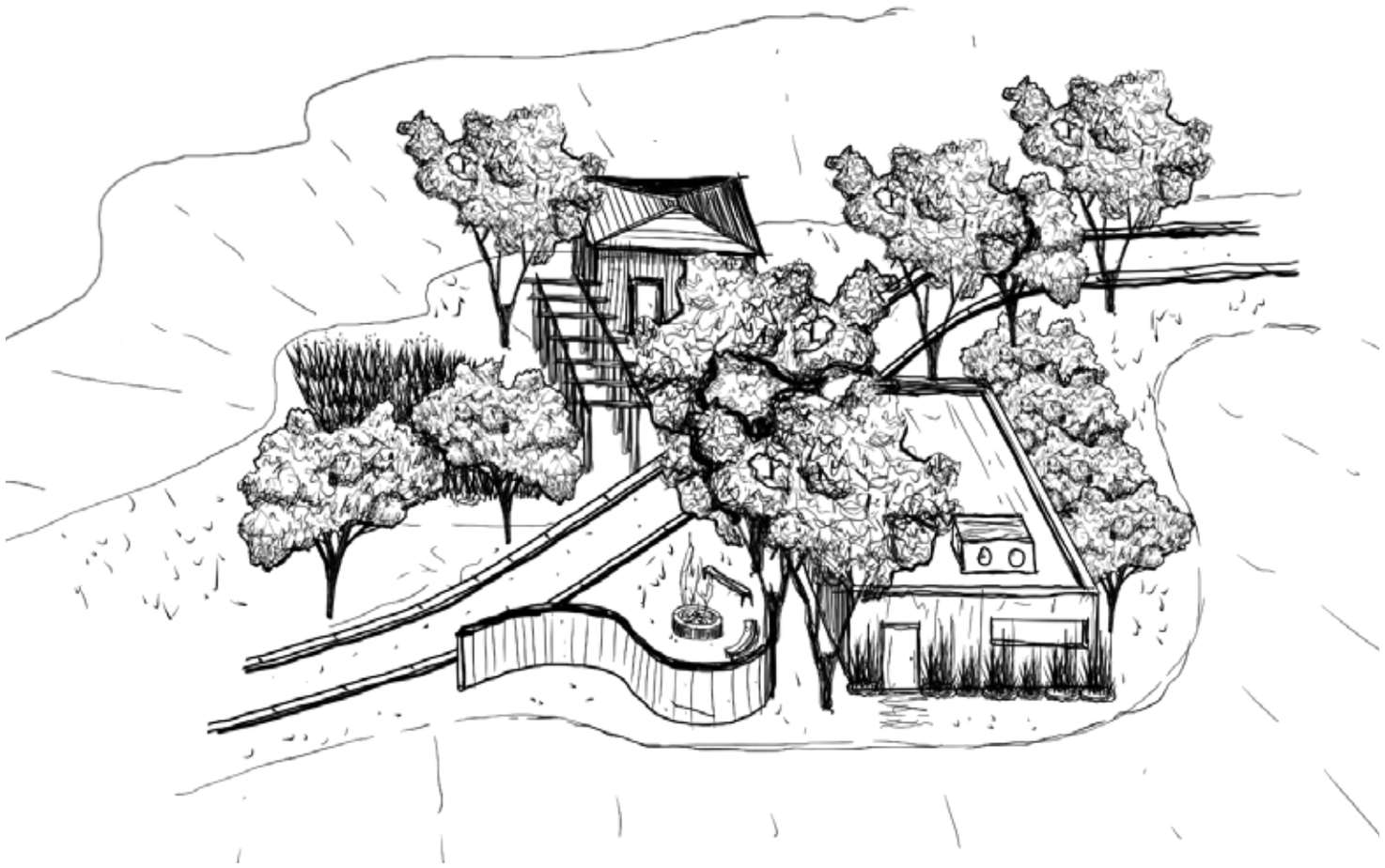


Figure 3.13. Conceptual Dwelling (Author 2022)

BLIGHT TO LIGHT

DESIGN INFORMANTS AND INTENTIONS

Progressive design explorations followed the intentions drawn from previous iterations. Emphasising the importance of community, the landscape took on a structural and regenerative role. With these two principles, ways in which the landscape could function were investigated. Informants were identified in the form of more precedent studies that focused on the technology of landscapes, as well as how agricultural fields could be appropriated and incrementally upgraded. These informants of structure (creating armature to hold the landscape, giving form to fields and future interventions), regeneration (investigating material and vegetation that could provide nutrients to poor soil conditions and allow for fast turn over) and incremental upgrade (allowing the community to take ownership and create an identity using the landscape), narrowed the designs intentions into achievable principles, and led the approach in a more structured fashion.

Figure 3.14. Conceptual Masterplan (Author 2022)

BLIGHT TO LIGHT
DESIGN INTENTIONS

The first of these new design resolution iterations were guided by the need to respond to the context of Plastic View. Using a grid that followed the 8m x 8m unit size and position within Plastic View and overlaying a similar size grid following the direction of the ‘white house’, a design form was made that eluded to the structural potential the landscape tectonics could play. Footpaths and avenues of trees formed armatures that held fields and landscape elements, creating an order within the landscape and alluding to a relationship between the form of Plastic View and the intervention.

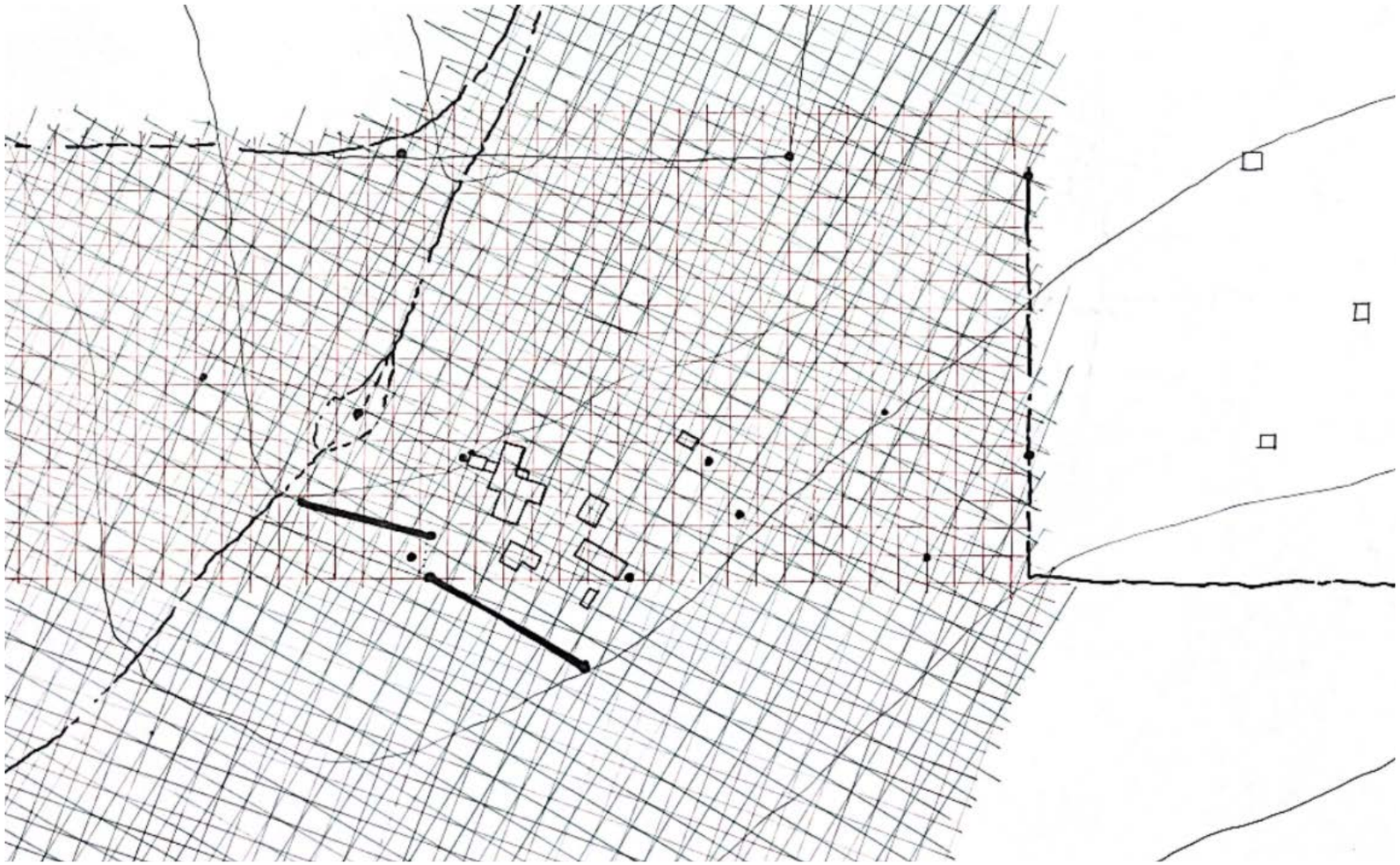


Figure 3.15. Grid System (Author 2022)

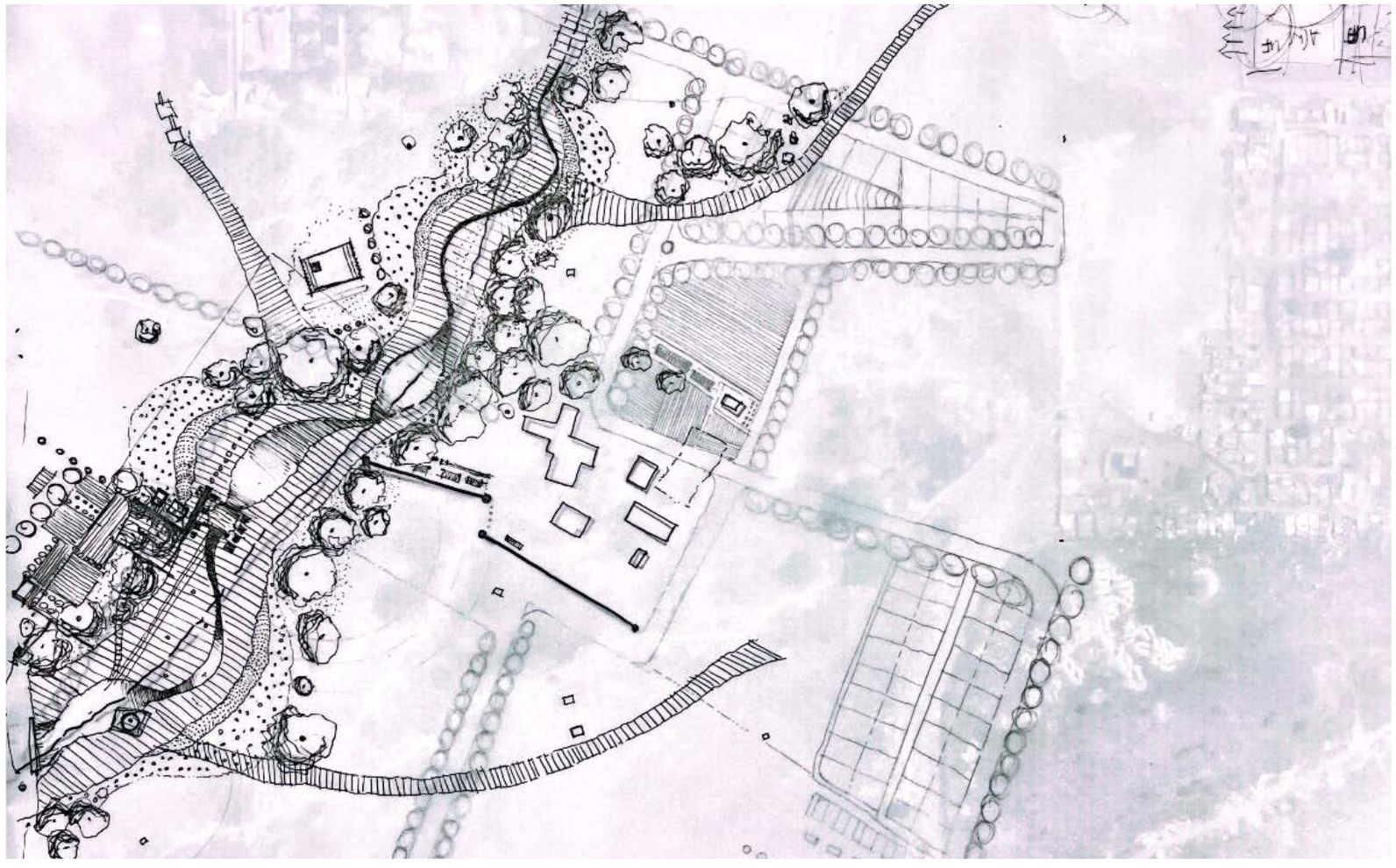


Figure 3.16. Resolution iteration 1 (Author 2022)

Figure 3.17. Resolution iteration 2 (Author 2022)

BLIGHT TO LIGHT
ITERATION FINDINGS

The second resolution iteration followed the principles discussed when investigating design informants and created a functional landscape that was responsive to the principles investigated, as well as the findings on site. The design was created by establishing a man-made bioswale as a central axis which cut through the site, adjacent and parallel to the settlement. The design responded to the immediate context, being that of the creche and the possibility of children learning with nature, as well as a juxtaposition in relationship between the recreational sports field and the agricultural fields as serviceable landscapes. The design is broken up into multiple functions. The ecological function of the dam and the bioswale, the serviceable landscape of the agricultural fields and the seedling nursery, the economic potential of the wholesale nursery, and the recreational sensory garden. This large-scale iteration was designed to get a better understanding of the scale of the site, spanning a large distance and creating issues of rest spaces and working spaces. Outdoor garden spaces were explored, situated at important junctions and along longer footpaths.

In addition to this, the bioswale became the mediator of space, carving out the structure that the avenue of trees and paths provide to the agricultural landscape, and providing a juxtaposition of form and function. The bioswale seeks to create space within that emulates the current relationship the settlement has with the landscape, by becoming a space of recreation and relaxation. It would be along this path that spaces of cultural significance would occur, should the community see fit. The natural landscape, encompassed by the serviceable landscape, provides a space of refuge, further replicating and adding value to the current relationship between the settlement residents and the contextual landscape.

BLIGHT TO LIGHT
LANDSCAPE AND FORM

Following thorough investigation on the additive nature of the design, and in response to the intentions investigated, the language, or form and identity of the landscape should be that which provides structure and integration. In addition to the necessity for a regenerative design, the intervention seeks to allow for incremental appropriation, while being situated within the structure that is provided by the landscape. In investigating a form or language of the landscape, the term landscape tectonics can be used to best describe the relationship the form has with its intentions. As described by Kenneth Frampton, tectonics is the ‘art of building’, describing the language of a building as a way in which the parts of a building are assembled (1996). Frampton goes on to say that once an aesthetic perspective is placed on the production of the tekton, then the term “tectonic”, can be judged as such. (1996).

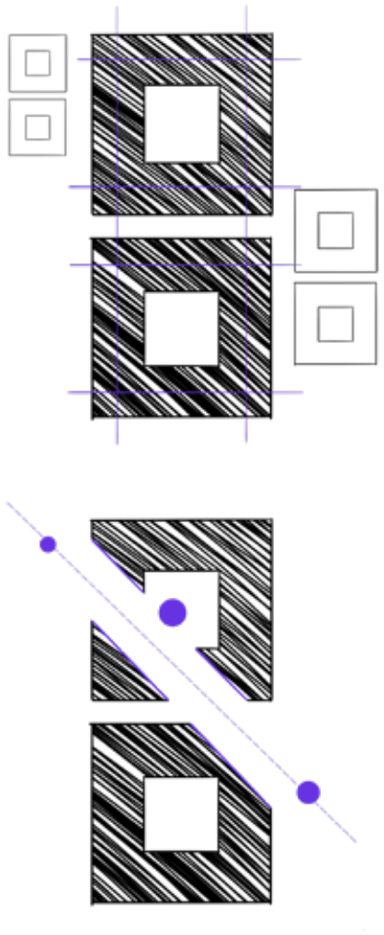


Figure 3.18. Additative vs Subtractive (Author 2022)

When applied to landscape architecture, tectonics can be described as the assembly of materials, elements and functional components, which give order to the landscape, and prevent the misalignment of components which can cause a lack of coherence. In designing with functional components and units, the design is given a coherent language through repetition with some variation. A limited palette of materials creates these functional elements, and it's the repetition with variation that creates a visually appealing, consistent composition. This composition can be described through the use of principles such as rhythm, balance, emphasis, texture and unity, principles used in art compositions.

In landscape designs, the rhythm of functional units creates a balance between elements, such as the line of trees and its juxtaposing field. The language lies in how things are put together in a considered way. In this sense, putting down the infrastructure in the form of armatures, will allow for appropriation to occur. In an environment such as informal settlements, one cannot predict how people will use and adapt a space. Thus, the language of an intervention is ensured because the armature is there.

Figure 3.19. Language of the Landscape (Author 2022)

BLIGHT TO LIGHT

SEIMILANO. MILAN, ITALY. MICHEL DESVIGNE 2020

Figure 3.20. SeiMilano Plan (Michel Desvigne 2020)

A landscape inventory that sees elements such as tree patterns and densities scaled from courtyard to urban territory is prominently investigated by Michel Desvigne. In experimenting with these elements, Desvigne highlights the importance of planting and material choices, and reveals the potential these elements have in shaping the landscape. The inventory is assembled of elements and used without a clear order.

Spaces where nature that was supplanted by urban areas is recomposed. intention of parks, for leisure and recreation. Constellation of planted areas in a city or metropolis. give city porosity. scattering of parks and gardens, reminder of nature's presence in the city.

As expressed in the project, SeiMilano, Desvigne manages urban interventions through its infrastructure. Having been inspired by Lombardy's farmlands, with its use of canals, woods and rows of trees, Desvigne designed SeiMilano with a limited landscape inventory. Using few elements, such as avenues of trees, pathways, groves, open fields and buildings, Desvigne aped the landscape to dictate structure on the masterplan, using the landscape elements to act as armature for the areas around them.

BLIGHT TO LIGHT
LANDSCAPE AND FORM

Following the investigation done into landscape tectonics and Michel Desvigne's SeiMilano project, the third resolution iteration explored the use of a small landscape inventory. using elements such as paths and avenues of trees to give structure to the agricultural landscape, this design focused on how the landscape can still accommodate incremental change, while exerting a language for the design. The structure of the landscape is carved out by the natural flow of a bioswale, which acts as a juxtaposition of not just form, but function as well. Following on from previous iterations, this design uses landscape elements as functional units to give order and structure, while allowing the carving of forms and materials to create space within the design.

In order to incorporate the settlement within the design, and not allow the design to feel as if it were a separate entity, an extension of a prominent road within plastic view is extruded through the design, creating a street that links with the white house. This street follows the typologies investigated early on in the design, and expresses the rituals and ways of living that already exist within the settlement. The road extruded from the settlement is that of the southern portion, where residents on these roads have private gardens for both aesthetic and agricultural purposes. These residents have experience in landscape maintenance, and hold the potential in becoming key stakeholders for the future intervention. The proposed street's houses are based on the principle of gardening, thus the need for people who have experience in gardening fundamentally become the residents in which these first houses will be proposed for. The intention of this street is to become an example for Plastic View, showing the settlement the potential form it can take on.

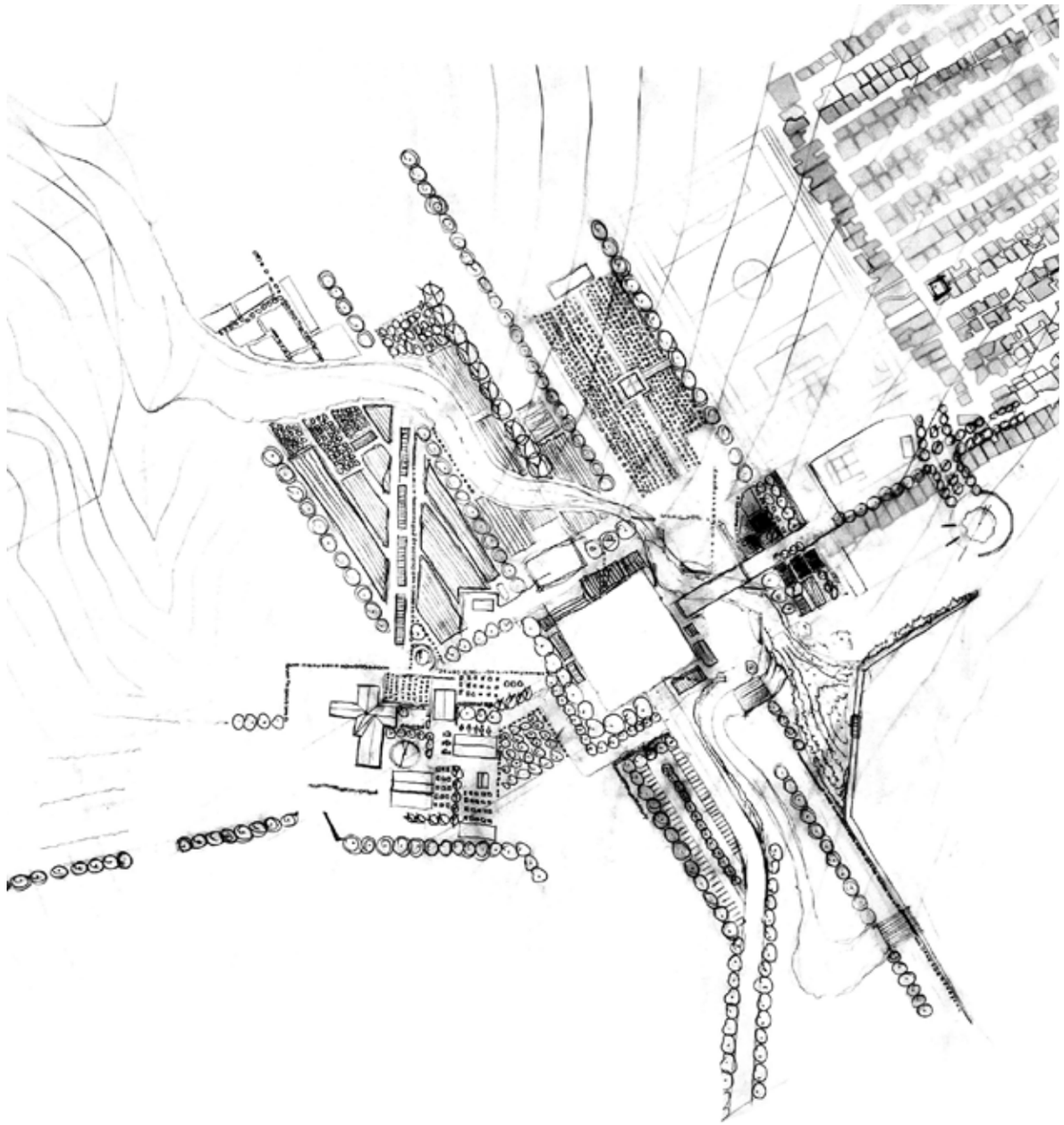


Figure 3.21. Resolution Iteration 3 (Author 2022)

BLIGHT TO LIGHT
FINAL MASTERPLAN DESIGN

The design iteration primarily focused on creating an improved sense of spatial organisation, giving hierarchy to points and axis of conference. As the street extends towards the ‘white house’, hierarchy is given to that point of conference, and a market square is created. This square creates a possible space for surrounding affluent estate residents to enter into the site and provide an economic influx into the settlement that will be used for the further upgrade of the intervention.

This form of social encounter is as a result of the relationship between the house as a platform for a wholesale nursery, and the market space as an intervention with the potential to sell produce made from the landscape.

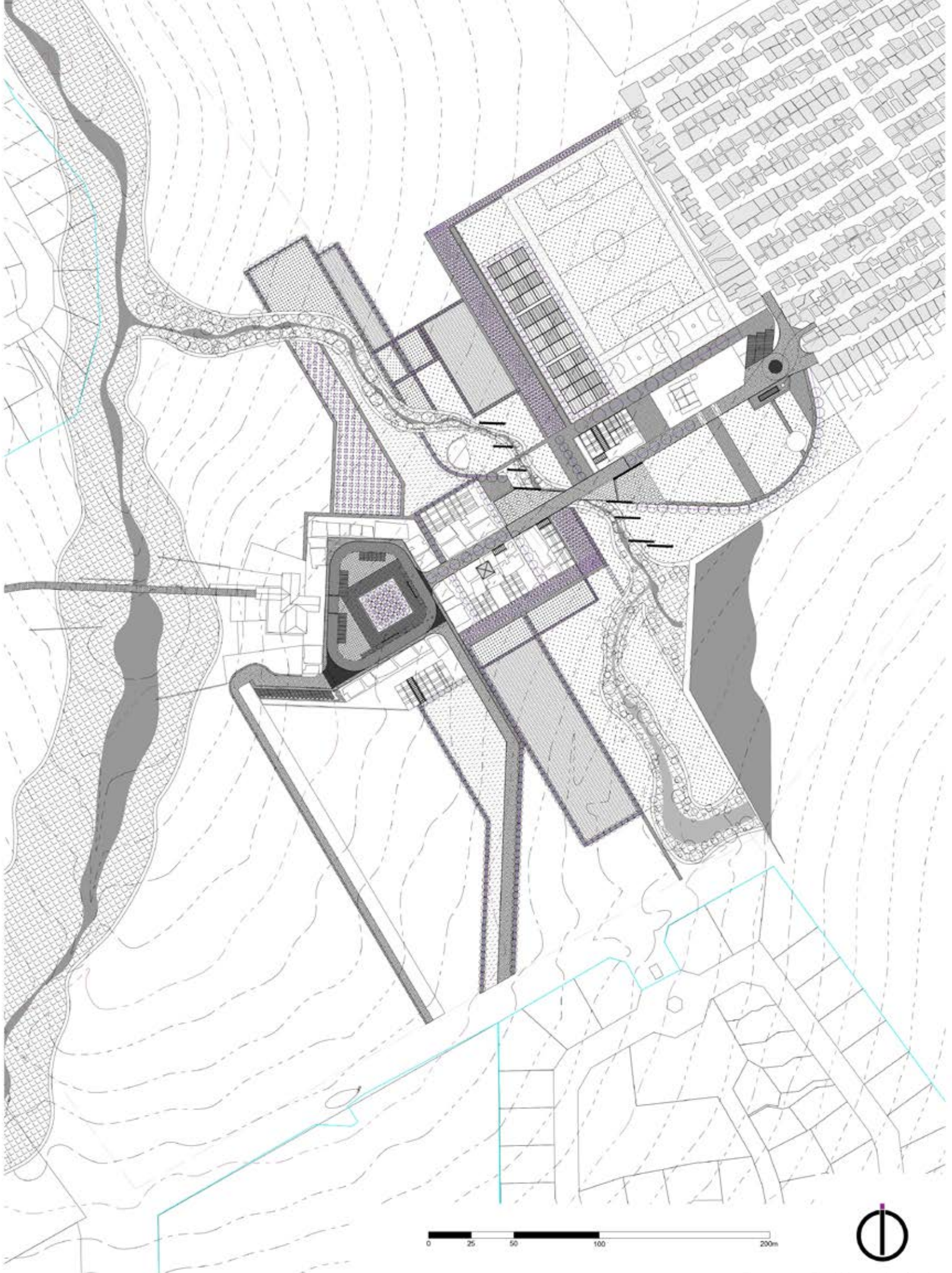


Figure 3.22. Final Masterplan (Author 2022)

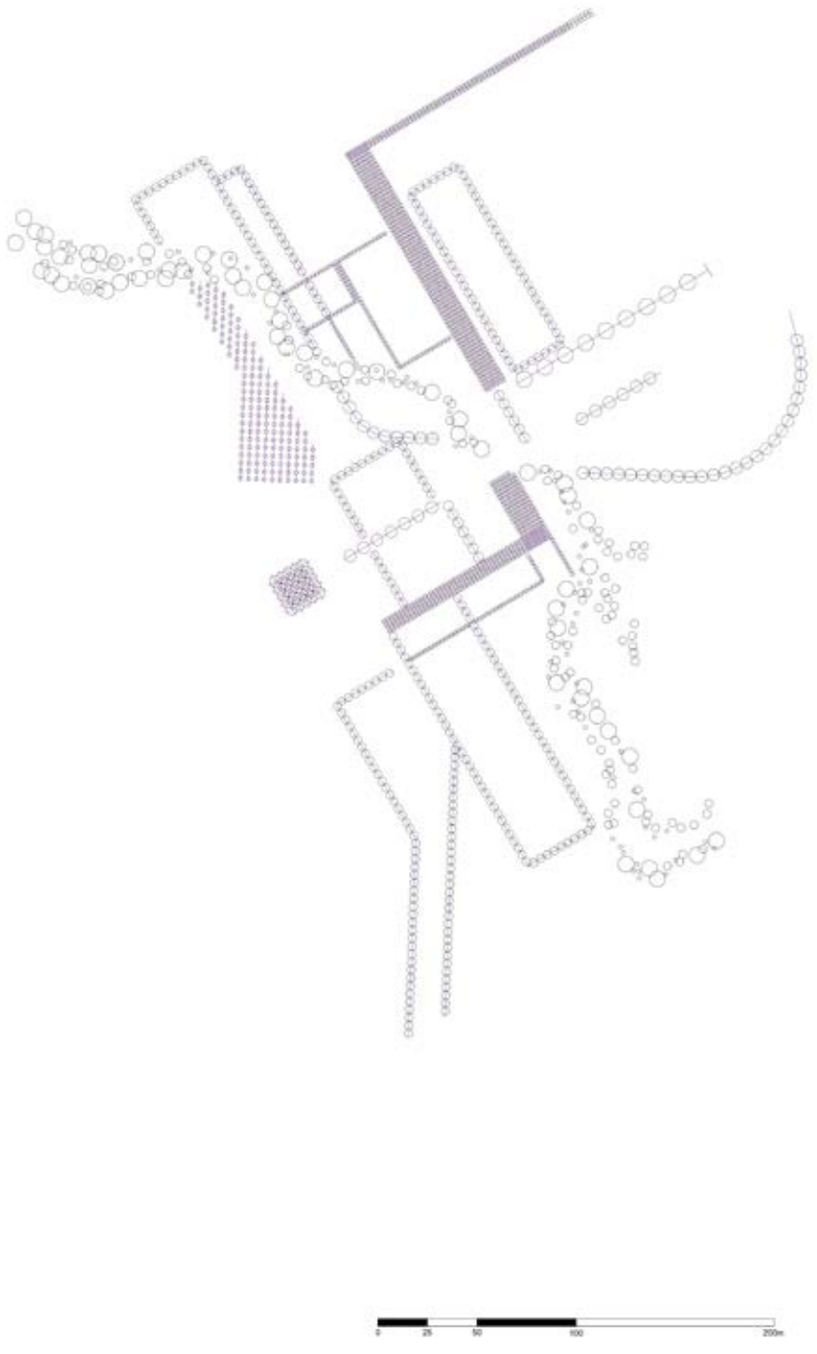


Figure 3.23. Tree Structure Masterplan (Author 2022)

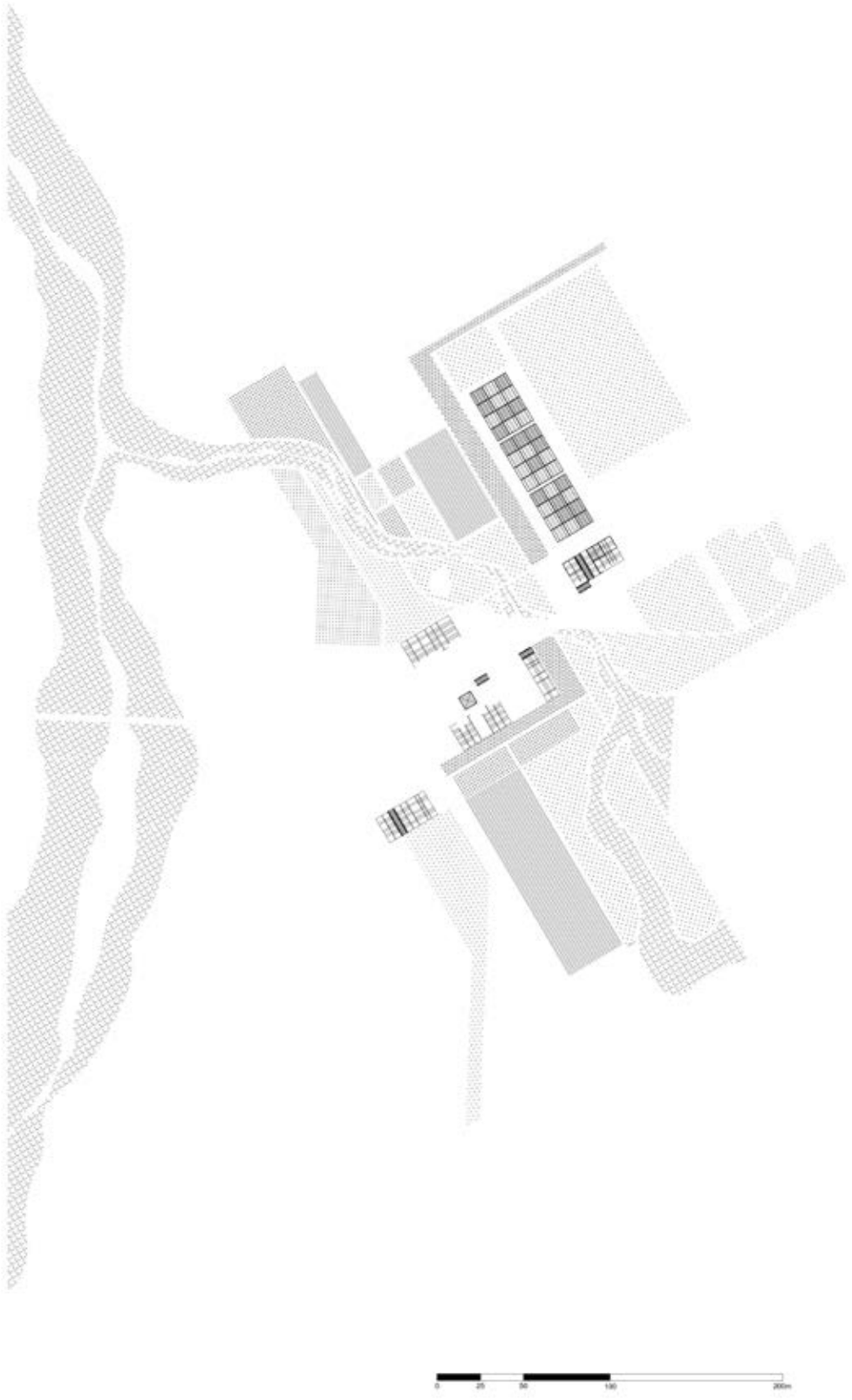


Figure 3.24. Agriculture and Vegetation Masterplan (Author 2022)

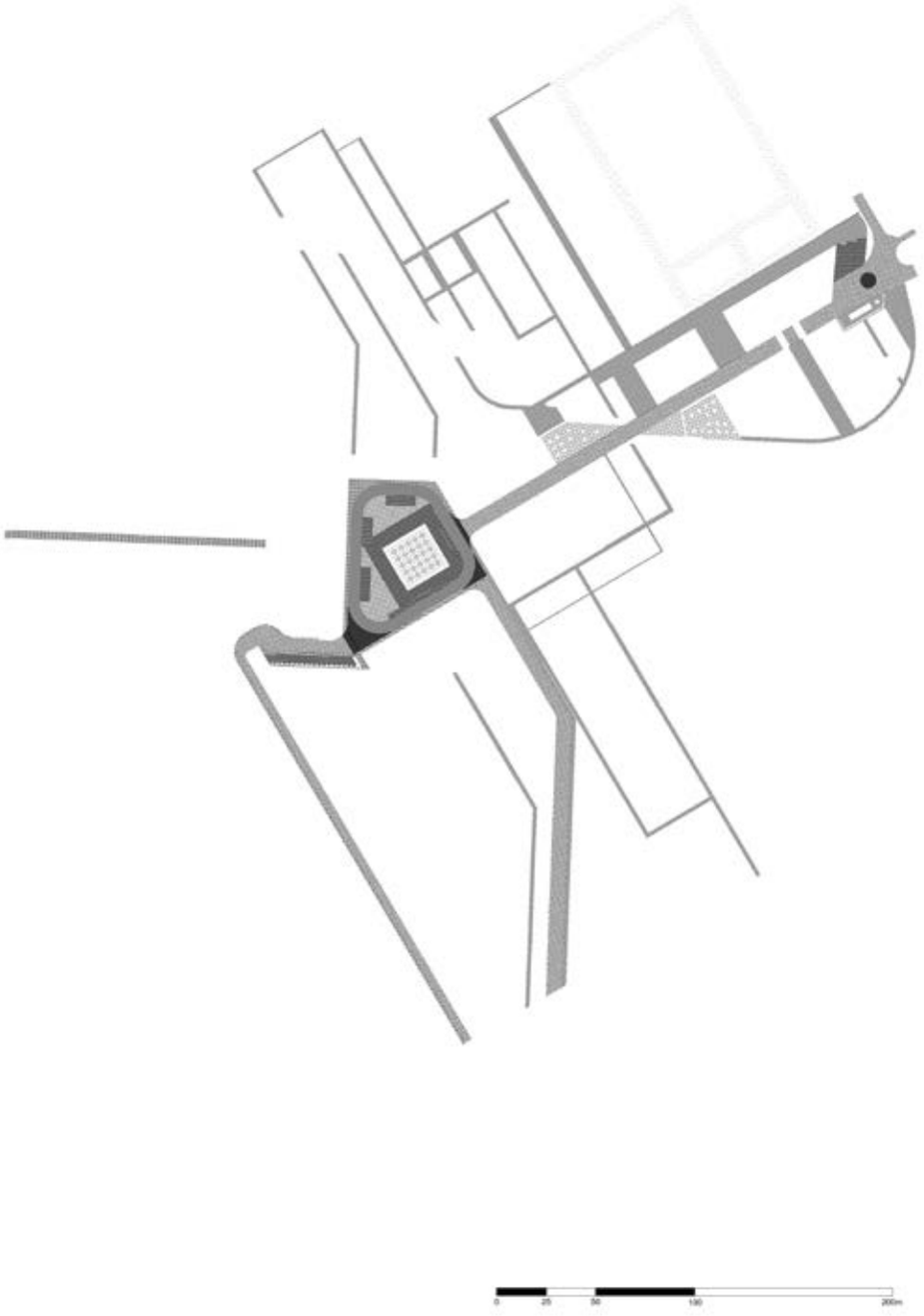


Figure 3.25. Hardscape Masterplan (Author 2022)

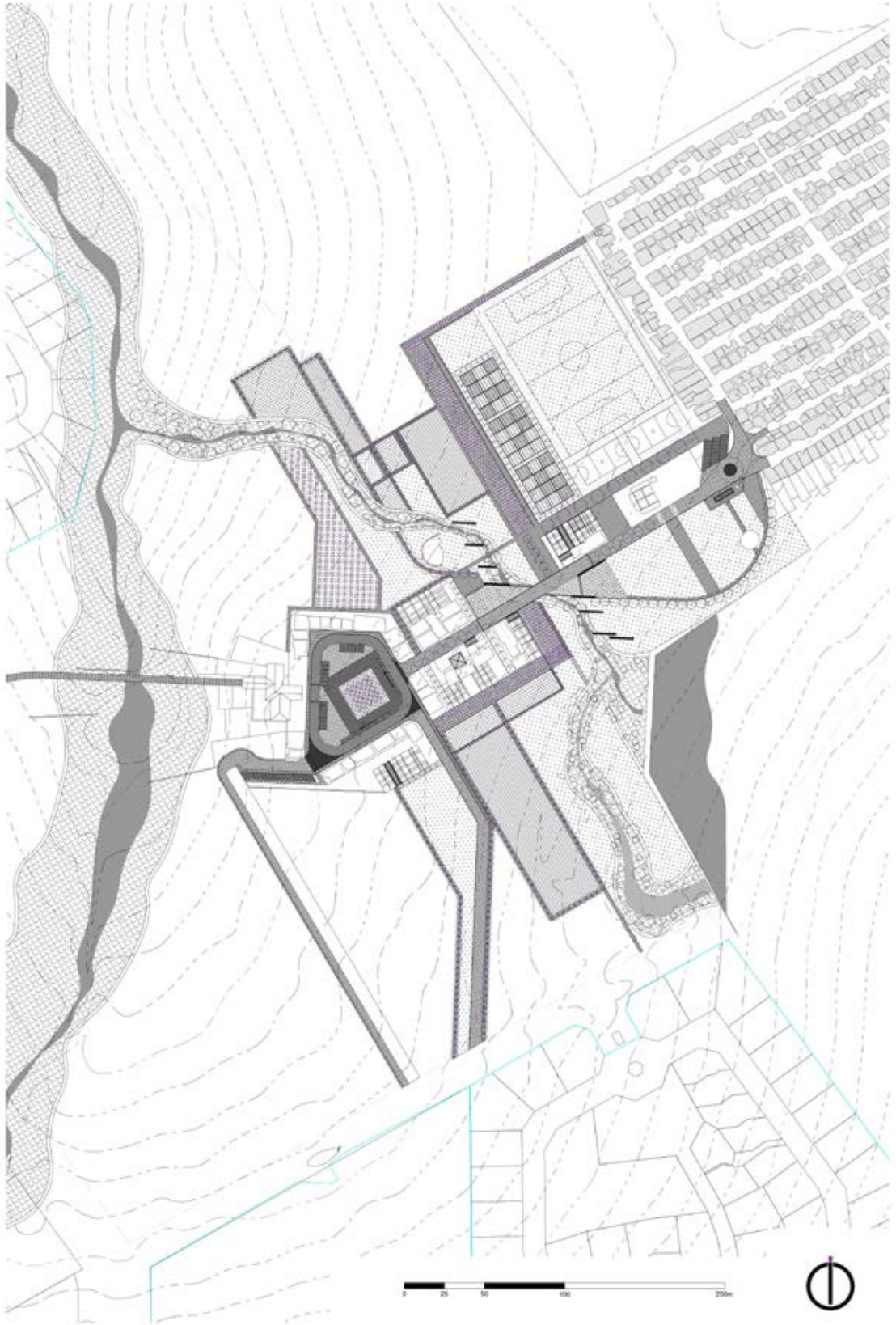
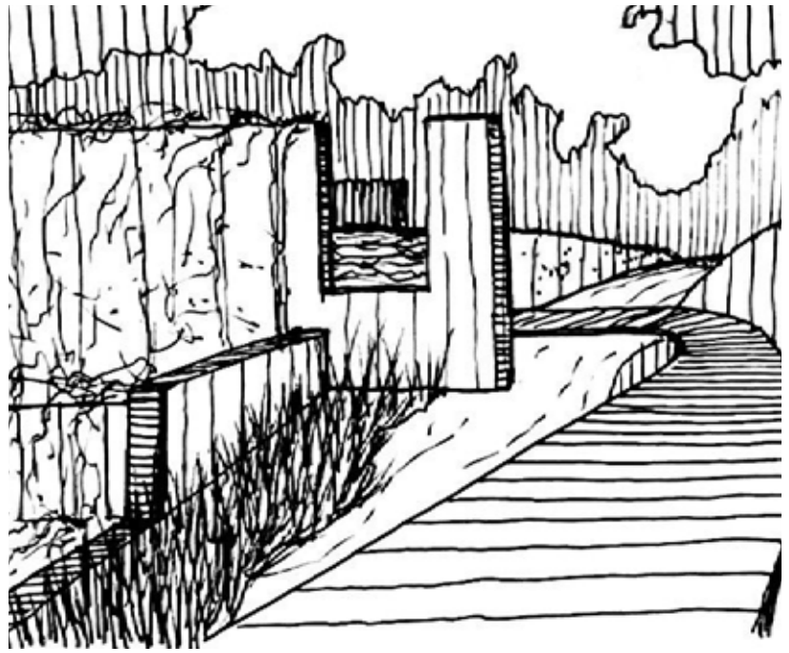


Figure 3.26. Final Masterplan (Author 2022)



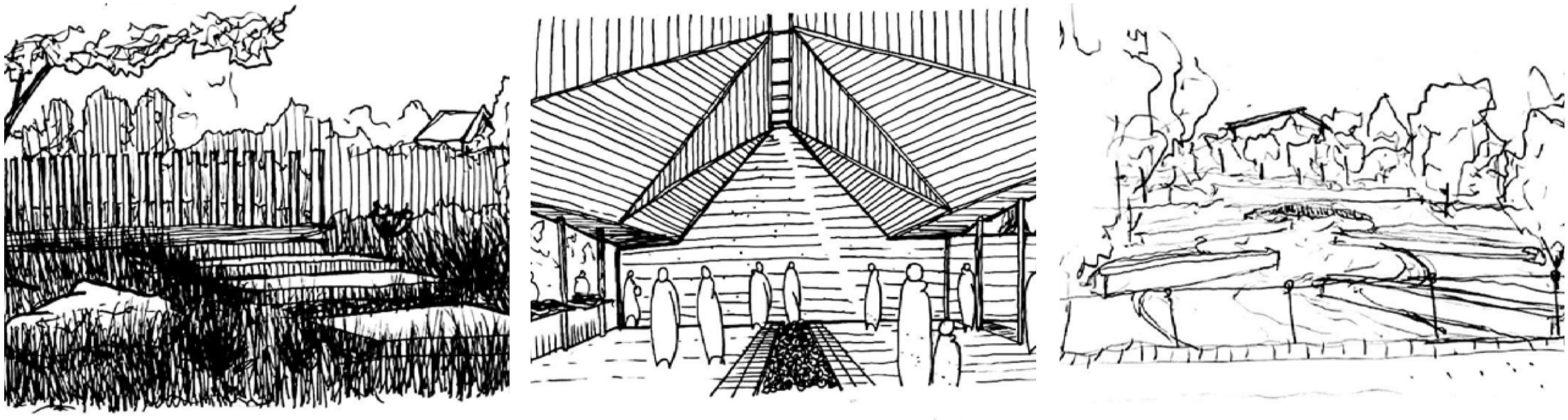


Figure 3.27. Landscape Scenes (Author 2022)

04

REFINING

This chapter focuses on the technical investigation and how the use of Bamboo has a positive effect on the natural environment, as well as its positive impact as a sustainable building material

Figure 6. Synthesis Title (Louis Kruger 2022)

REFINING
TECHNICAL CONCEPT

The approach taken in earlier chapters relies on the incremental upgrade of the settlement. As discussed by Dovey (2013), incremental upgrade is overall more cost effective, and allows for an adaptable approach to informal settlements. The use of indigenous knowledge systems, also allows for the expression of construction technology to be used, and can effectively upgrade the settlement over time. Thus, the technological concept should reinforce the potential of incremental upgrade, while being a suitable construction technology that the settlement residents can build for themselves.

The design becomes a relationship between regeneration and appropriation, and thus, the investigation into materiality and planting becomes the tectonic investigation for the landscape, and how it still relates to the theory previously investigated.

Figure 4.1. Construction mehod (Markus Zorn 2021)

REFINING

CORO FIELD. SUAN PHUENG DISTRICT, THAILAND, INTEGRATED FIELD 2015

With the intention of bringing farming products, and creating an agricultural lifestyle for urbanites, Coro Field seeks to create a project that makes agriculture appealing to the general public. Using a proportional grid system, the farm connects building layers to open spaces through structure, skin, services, and tectonics that define different spaces.

The farm makes use of multiple shade structures placed over a field of agriculture that gives the user the choice of uncovering or covering the plants for protection, or just for shade within the landscape. These shade structures are made of steel tubing, and allow for irrigation to flow through, and drip down where needs be. The site is defined by moveable surfaces in different enclosures. Modular furniture systems also define different planning, and give agency to the user, who can decide what furniture to use or create.

RELEVANCE OF CORO FIELD

- The creation of modular furniture that can be created by the community
- The use of shade structures in the agricultural fields for protection and/or aesthetic reasons.
- The amount of agency within the given structure.

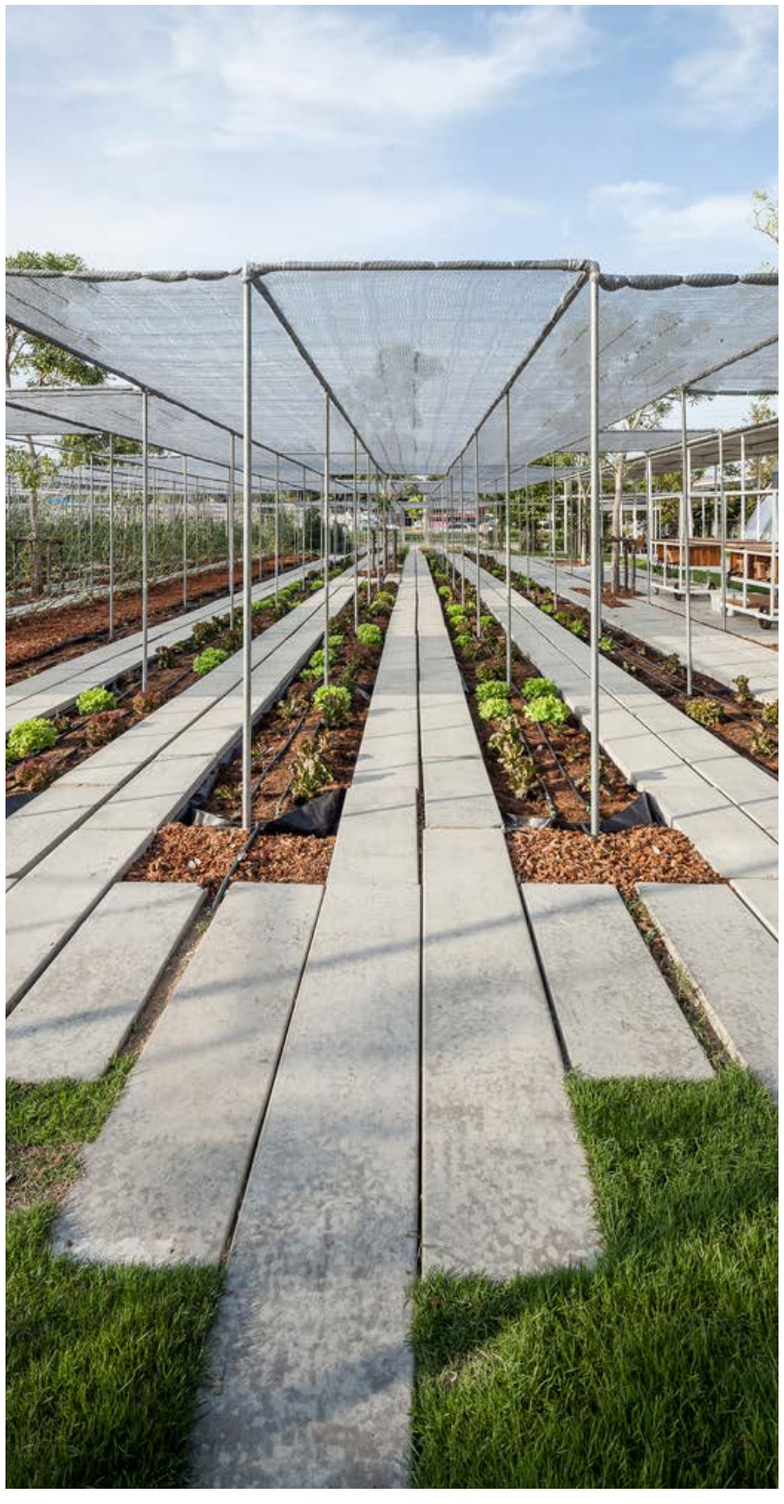


Figure 4.2. Coro Field Agriculture (Coro Field 2015)

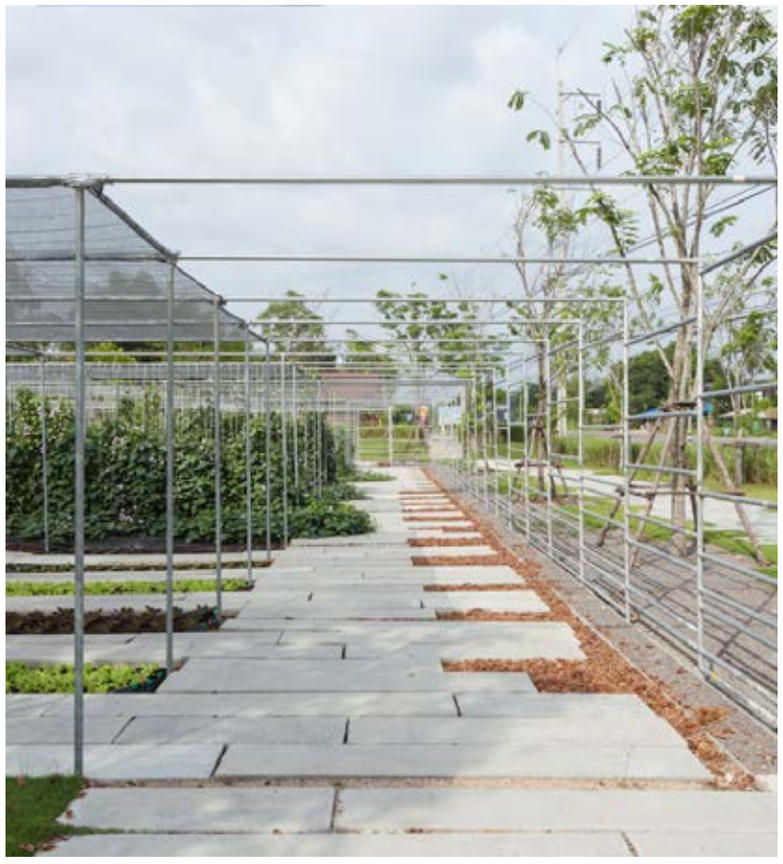


Figure 4.3. Coro Field Structure (Coro Field 2015)

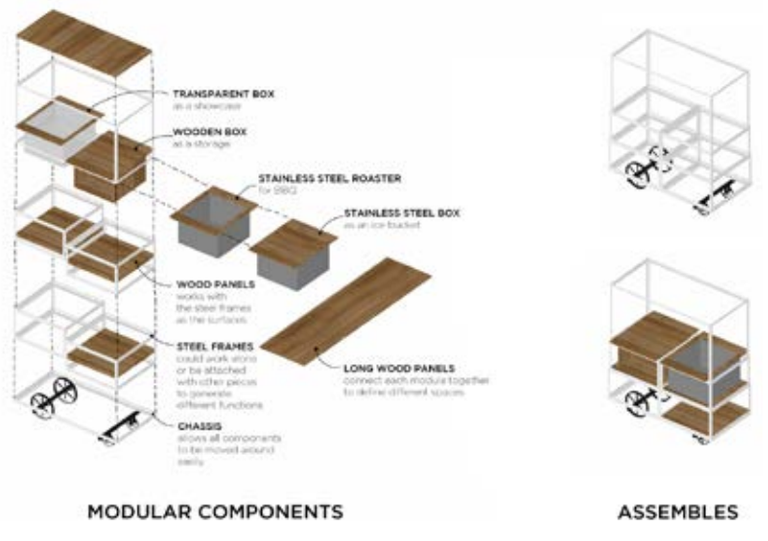


Figure 4.4. Coro Field Furniture (Coro Field 2015)

REFINING
MATERIALITY

The residents have always used available materials and resources, mainly materials that are easily accessible and are easy to construct. Although the buildings consist mainly of steel and blue gum / wattle structures, There is an abundance of slate rock that is situated around the settlement. Presumably dug up from a surrounding building, the slate was dumped on the open land around Plastic View. This slate is currently situated along the path that leads to multiple outdoor sites, which have cultural significance. The slate is prominent along these paths, as it highlights routes and direction, but has also been appropriated in the form of furniture. Large slate pieces have been found and carved? and turned into seating, which is placed in these cultural landscapes, and used to define the space. Thus, The existing use of material informs the proposed material palette. The slate should be used as low rise walls that dictate important paths or nodes.

Sourcing Material

As a main road, concrete should be used to hold the weight of trucks and other vehicles, while segment paving made from bricks is used to dictate pedestrian traffic. This segmental paving can be sourced around the site, and is an easy resource to use in construction. These reclaimed bricks can be used in conjunction with cobble and other loose paving surfaces. These paving surfaces can be used to dictate paths, and can be used as trimming on main roads and pedestrian walkways.

In finding a suitable material to build with and for regeneration, an investigation is done into the potential use of bamboo. This leads to an investigation into the planting strategy.

Figure 4.5. Slate Availability (Author 2022)

Figure 4.6. Loose Brick (Author 2022)

Figure 4.7. Kowie Bamboo Farm (Louise Carter 2017)

REFINING
PLANTING STRATEGY

As with materiality, the use of planting is chosen through proper investigations done on site. The agricultural fields should work on a crop rotation basis, and accounts for the different agricultural vegetables and fruits that are currently used on site. Thus, an investigation was done into the plants and their growing cycle, as well as availability of plants and their turnover. The agricultural landscape should become a significant sensory experience that also allows for safe passage through the site. Worries of danger should not be a factor in the fields, so a suitable plant size and height, as well as distance between planting is stated as being a 2m distance between crops. This is a suitable size for a wheelbarrow to move on site between crops and in the field.

Investigating the potential crops that can be harvested, as well as the existing vegetables grown within Plastic View, it was discovered that a crop rotation method was most suitable for growing crops within the fields in the intervention. The crop rotation, done over different seasons. The benefits of crop rotations include lower chances of weeds and insects, as well as improved soil properties. This means that that soil retains water moisture at a better rate. Crop rotations also help in replenishing the soil with important chemicals, such as nitrogen and carbon (Francis 2005)

Figure 4.8. Plant Rotation Strategy (Author 2022)

REFINING
PLANTING PLAN

Figure 4.9. Planting Plan (Author 2022)

Ordering

REFINING

PLANTING STRATEGY

Trees

Harpephyllum caffrum

Salix mucronata

Erythrina lysistemon

Combretum erythrophyllum

Dombeya rotundifolia

Searsia lancea

Figure 4.10. Tree Plan (Planting) (Author 2022)

REFINING

PLANTING STRATEGY

Bioswale

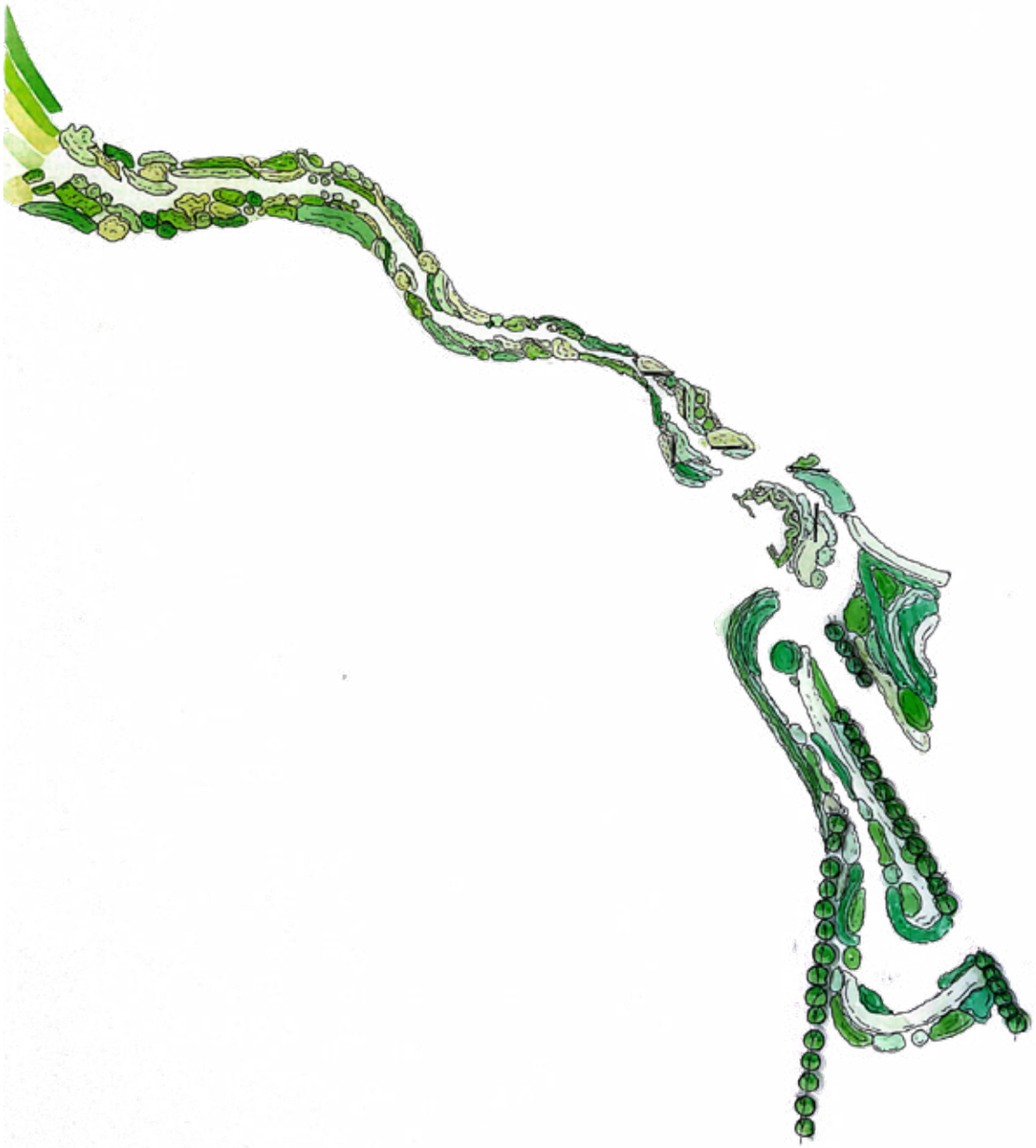


Figure 4.11. Planting Plan Bioswale (Author 2022)

Marginal Grasses

Carex austro-africana

Melinis nerviglumis

Miscanthus junceus

Typha capensis/T. domingensis

Marginal shrublet

Gomphostigma virgatum

Lippia javanica

Vegetables

Spinach

Sweet Potato

Lentils

Medicinal Herbs

Sour fig

Wild rosemary

Origanum

Wild garlic

REFINING

PLANTING STRATEGY

Agricultural

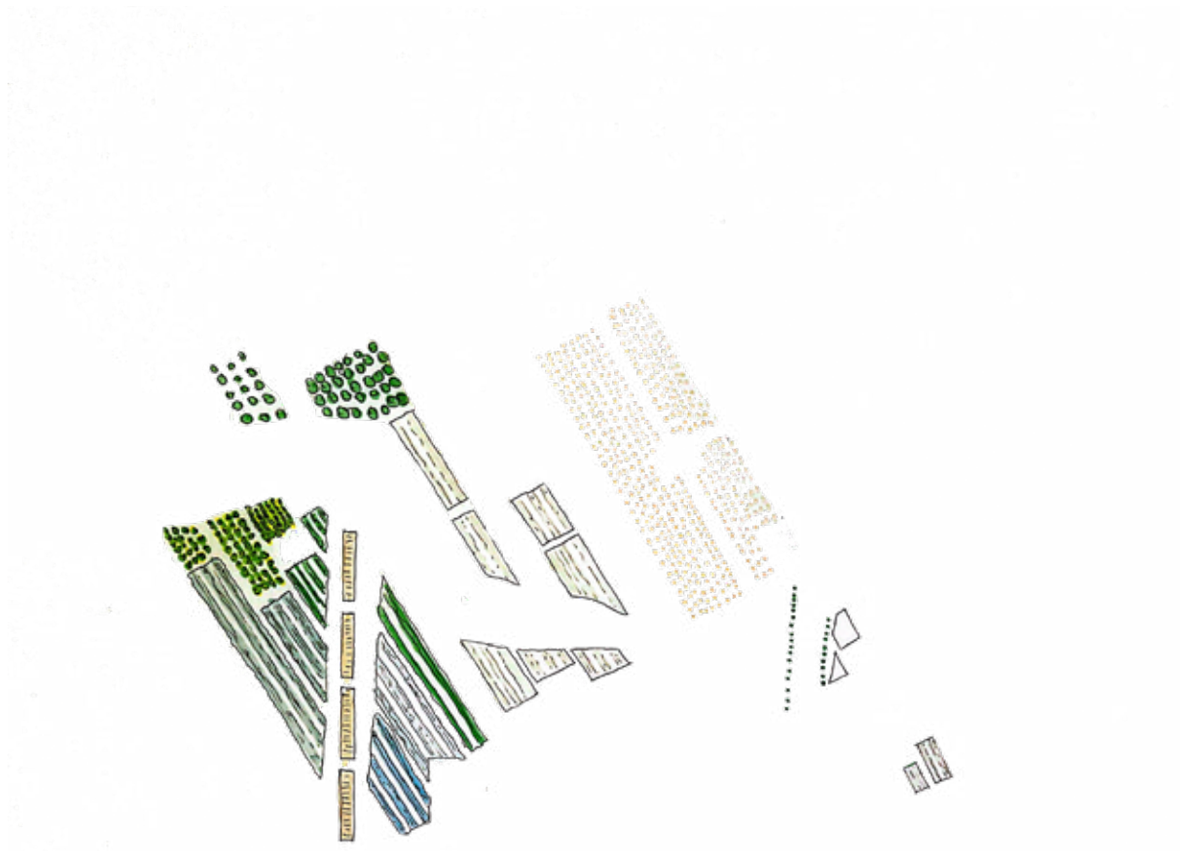
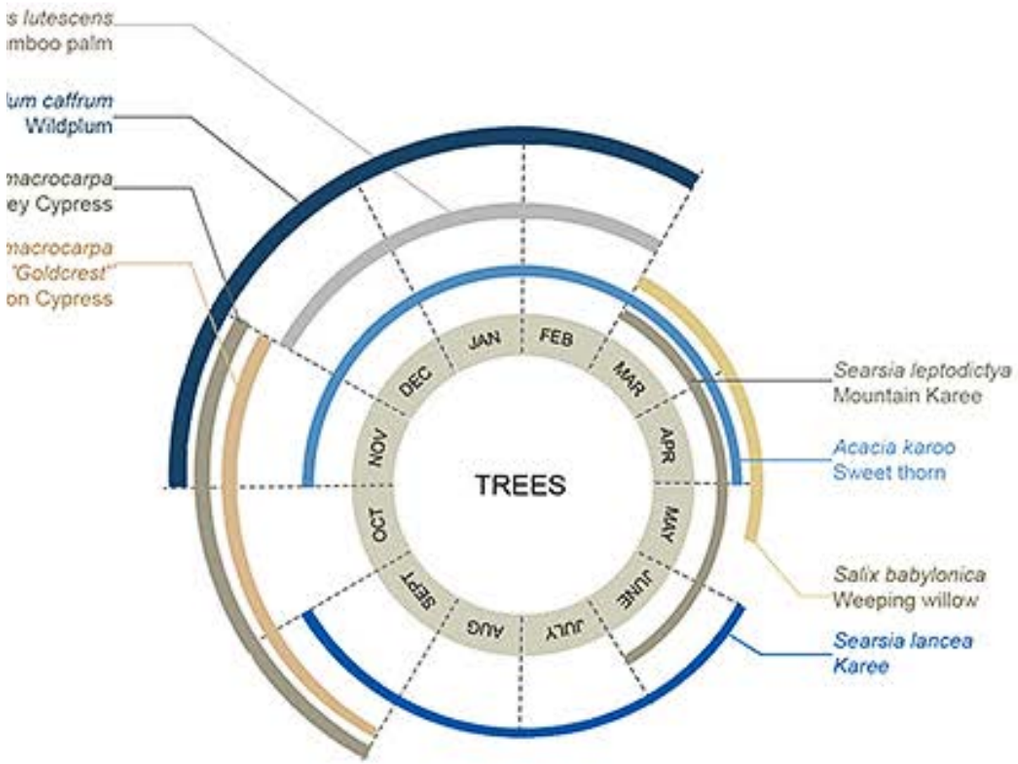
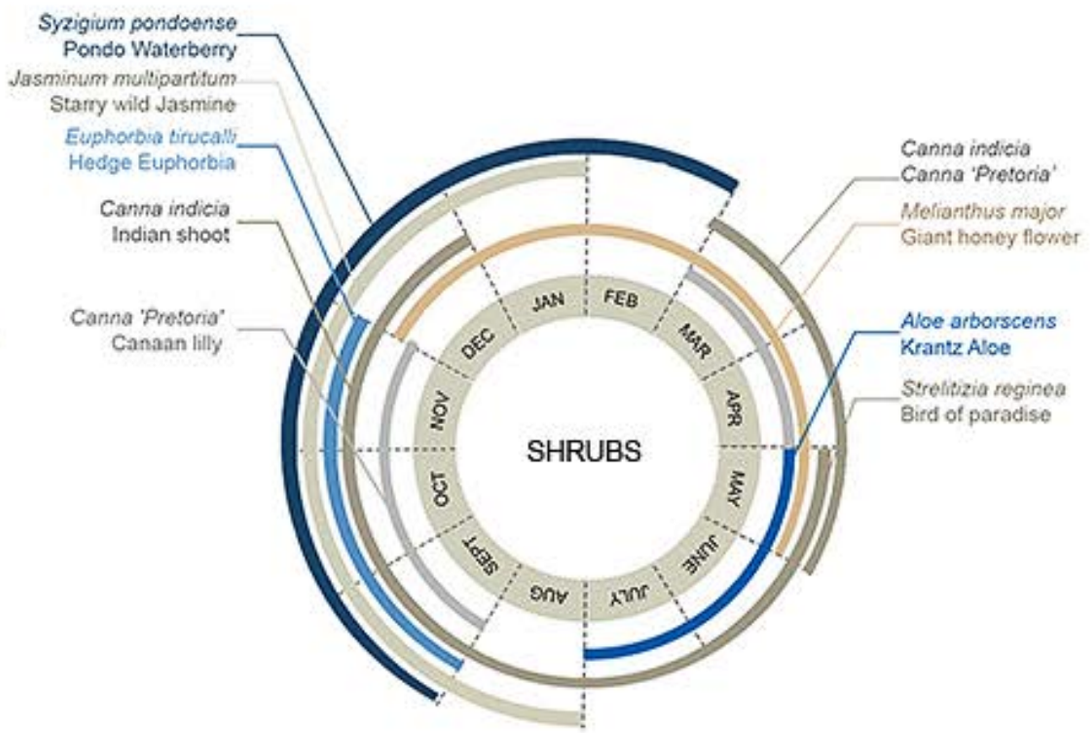
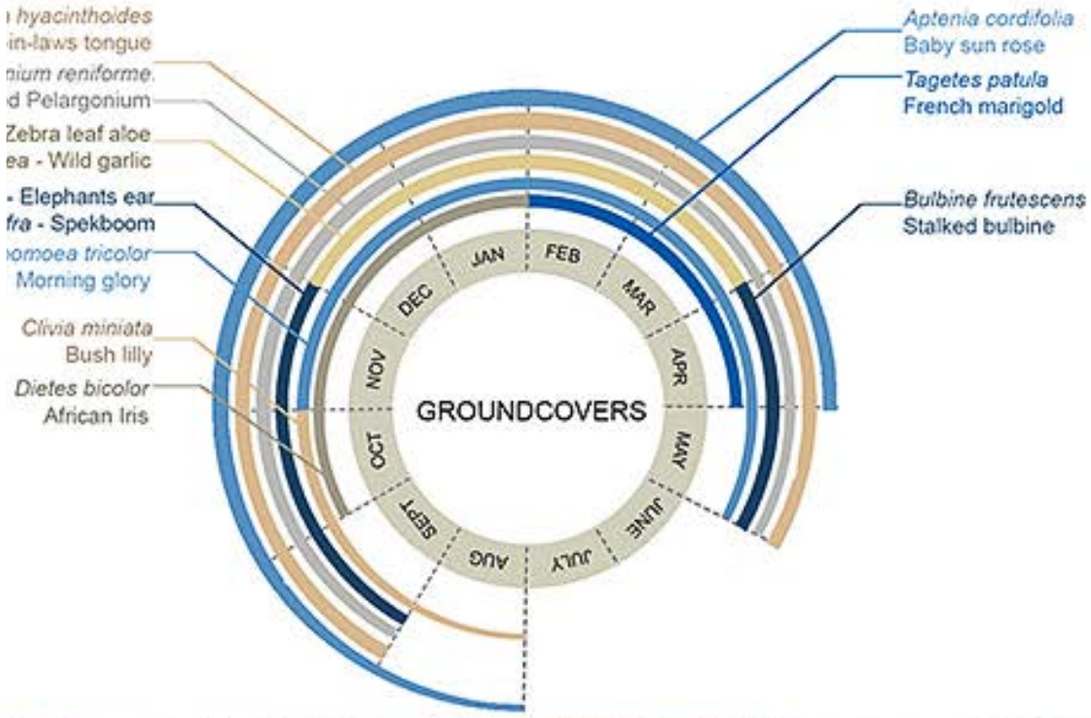


Figure 4.12. Planting Plan Agriculture (Author 2022)







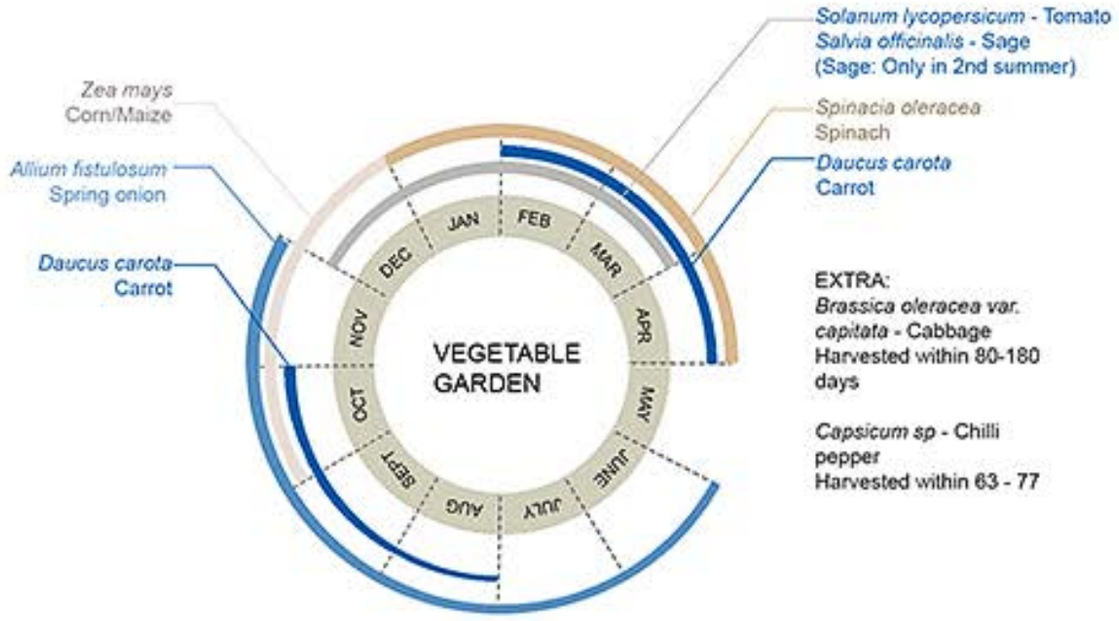


Figure 4.13. Plant Investigation in Plastic View (UP Hons 2021)

REFINING
STRUCTURE

Using planting and vegetation as armature, it's important to distinguish the difference in planting choices, and which plants will be used where on site. Creating structure on site, the use of an evergreen avenue of trees is the sole element that dictates space and alludes to movement in the agriculture fields.

The planting is then broken into different nodes. The main corridor consists of vibrant planting that draws attention and creates an atmosphere of energy. Threshold spaces and private zones consist of a more calm tone, where one can relax and immerse within a more calming node. This contrast in vibrancy makes the feeling more prominent when moving between nodes, and allows a visual interpretation of the energy on site.

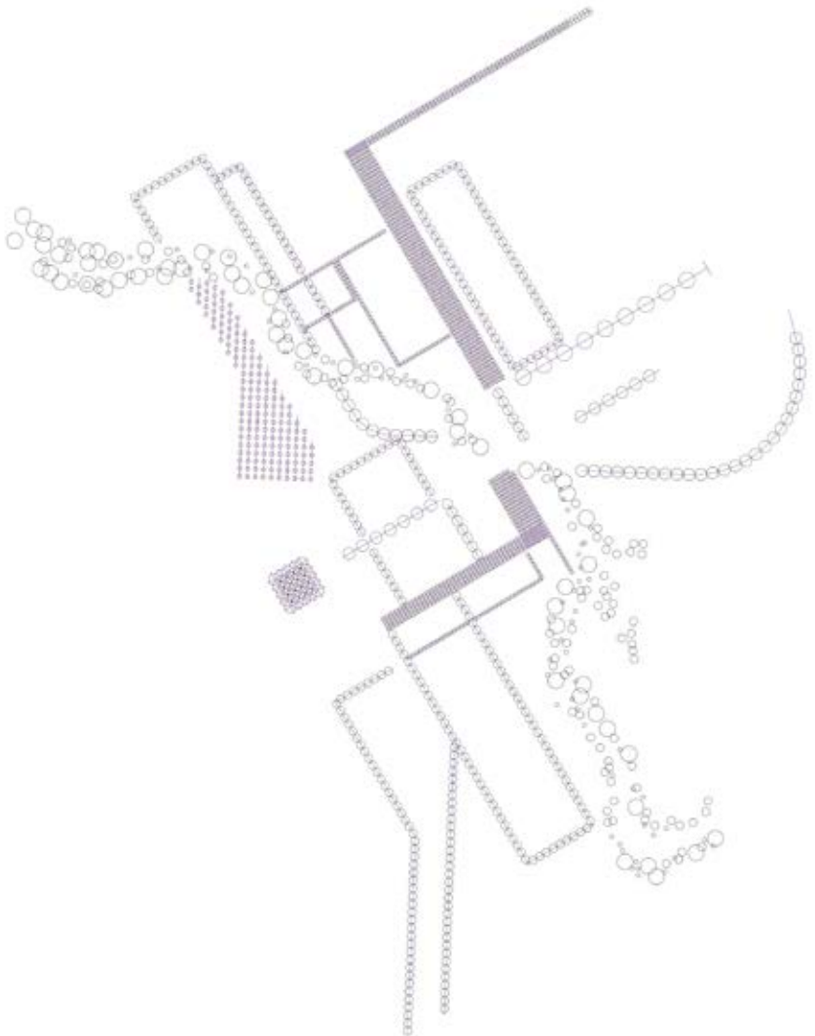


Figure 4.14. Planting as Armature (Author 2022)

REFINING
BAMBOO

Similar to the trees as armature, bamboo is represented on site and within the fields in two different forms. One, as armature to create a boundary between different functions on site. The other form is in intercropping with the vegetables and other agriculture on site. Bamboo has many benefits that can be utilised in the intervention, such as its sustainability benefits in being used as a building material as well as the biodiversity benefits in enhancing soil moisture and crop productivity in intercropping and agroforestry methods.

REFINING
BAMBOO AS Resource

In the hopes of promoting soil regeneration and crop production, the use of bamboo (Bambusa balcooa) planted at spacing of 4m x 4m seeks to achieve these goals. Bamboo is a fast growing plant, which has properties of producing high biomass in comparison to acacia and teak (Partey et al 2017). Bamboo has high bio-energy production values and also has other bio-ecological benefits such as soil stabilisation and has high water conservation properties through its root system. South Africa uses bamboo in plantations due to its beneficial relationship with reduction in deforestation and building material and firewood production (Kuehl et al 2013). A study was done in Ghana that tested the agroforesty potential of Bambusa balcooa, whereby the bamboo was intercropped with maize, cowpea and cassava. The selection of this species of bamboo came down to its ability to regenerate quickly, its natural ability to grow in less wet and more dry soils, as well as its high amounts of biomass production (Zhao 2014). The maize was grown within the bamboo rows at 0.8m x 0.4m, while the cowpea was grown at 0.4m x 0.2m spacing within the said rows of bamboo.

The bamboo helps hold soil moisture, and increased the soil moisture by 13%, while it also increased the soil pH by 10%, having better results on crops than monocropping. The bamboo also helped produce a higher maize crop yield over a three year period. The same can be said for the cowpea as well. The bamboo rehabs soils that are more dry and helps manage water flow and moisture retention on site, with bamboo also having positive effects on retaining water from rainfall. Bamboo intercropping is very economically viable, and helps in avoiding land degradation, making it the perfect crop to use on site in Plastic View. With soil being quite degraded around the periphery of the settlement, the bamboo would help rejuvenate the soil, and increase the crop production at the same time. Thus bamboo is a prime agricultural crop, just for the benefits stated.

Figure 4.15. Bamboo Intercropping (World Agroforestry 2020)

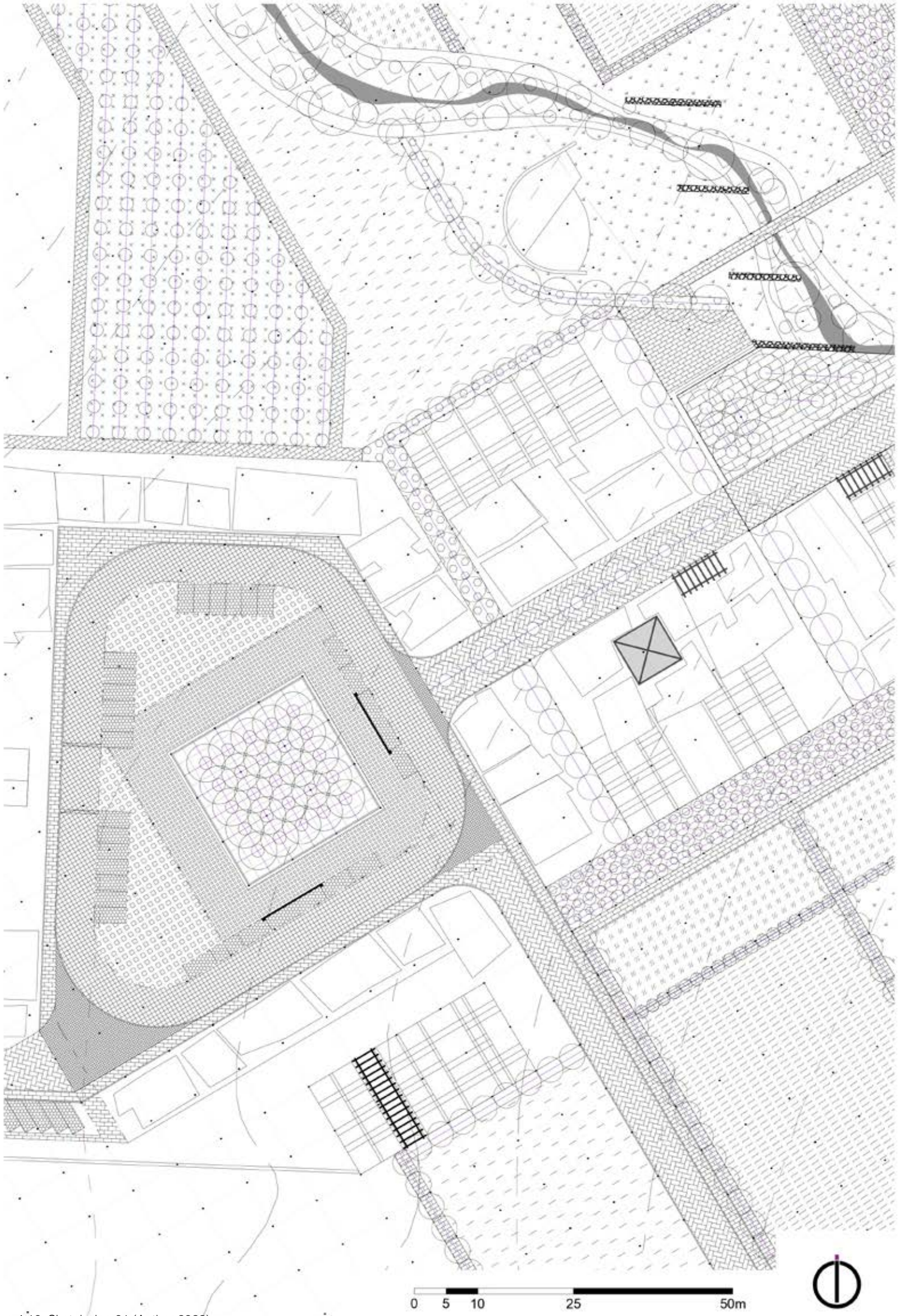


Figure 4.16. Sketchplan 01 (Author 2022).

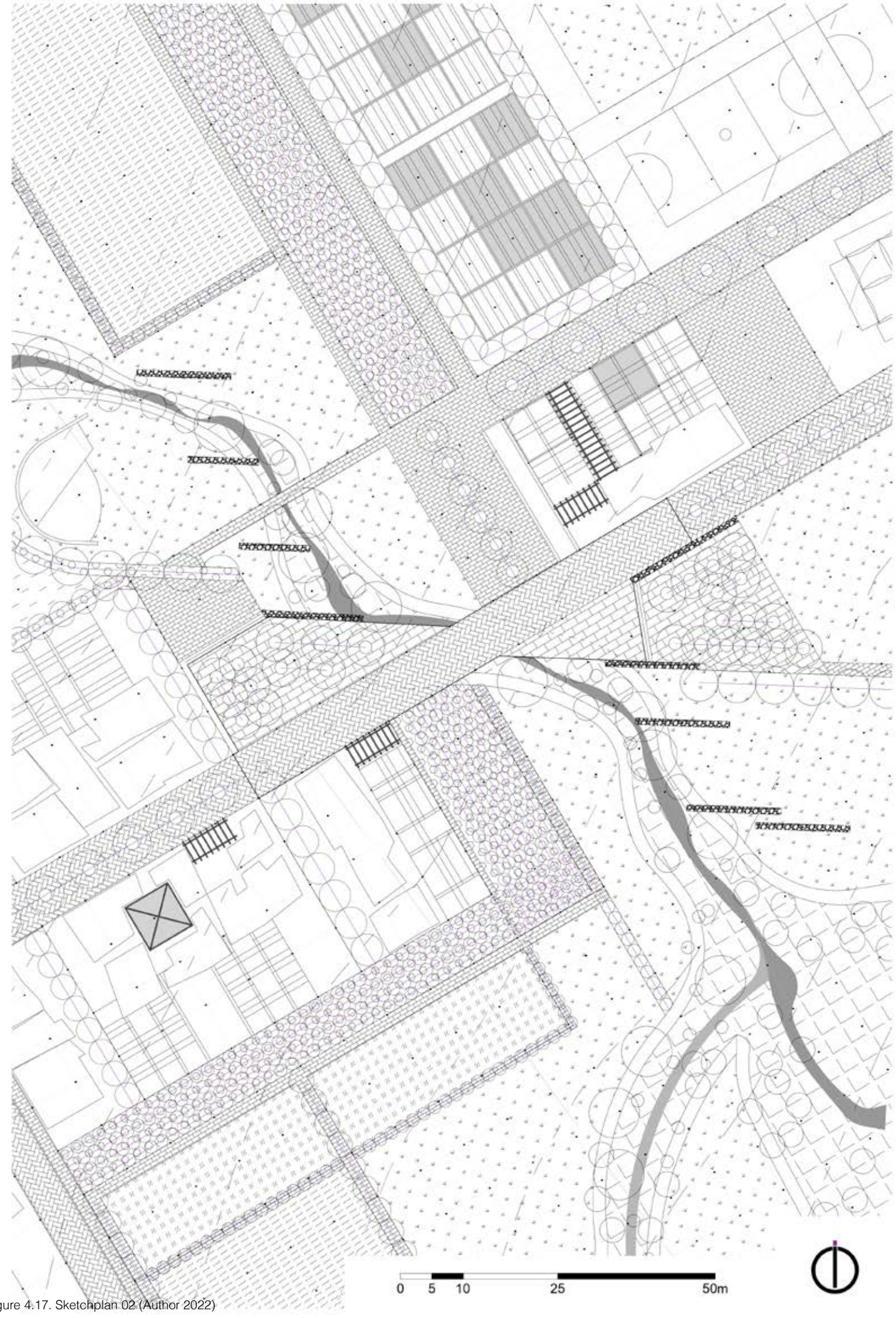


Figure 4.17. Sketchplan 02 (Author 2022)

REFINING
BAMBOO AS BUILDING MATERIAL

In-situ upgrading aims to achieve more livable conditions within informal settlements, gearing towards architectural upgrades, structural integrity, and service provision, in the hopes of obtaining title deeds (Bahn 2017). These methods are aims that hope to promote self help and technical empowerment within settlements (Galmarini 2022). Bamboo is a sustainable resource and very to work with. The bamboo does require correct treating and collection in order to be resistant to fungi and water. The bamboo can be used in multiple ways, as investigated, as building structure, modular furniture, lighting features and as shade structures.

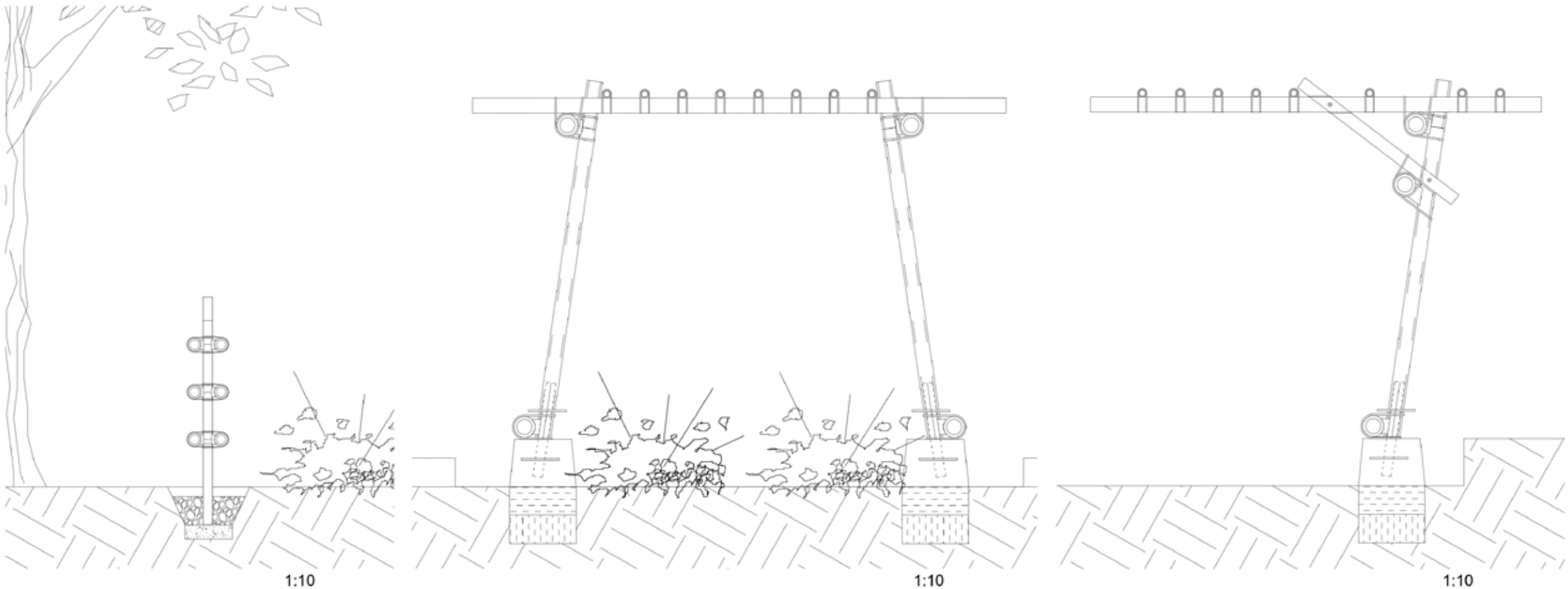


Figure 4.18. Bamboo Furniture (Author 2022)

REFINING

BAMBOO AS BUILDING MATERIAL

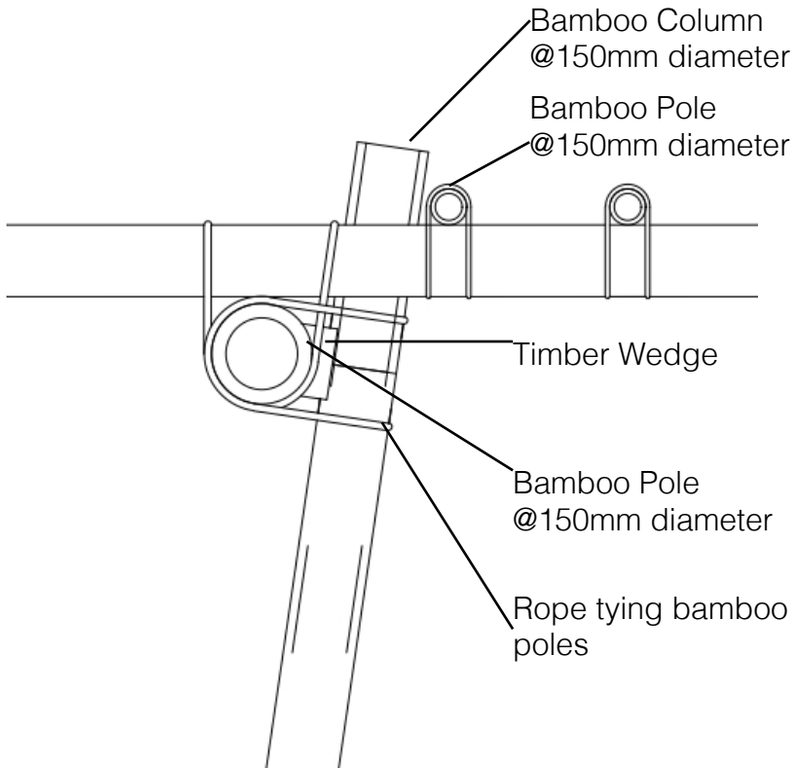


Figure 4.19. Bamboo pergola (Author 2022)

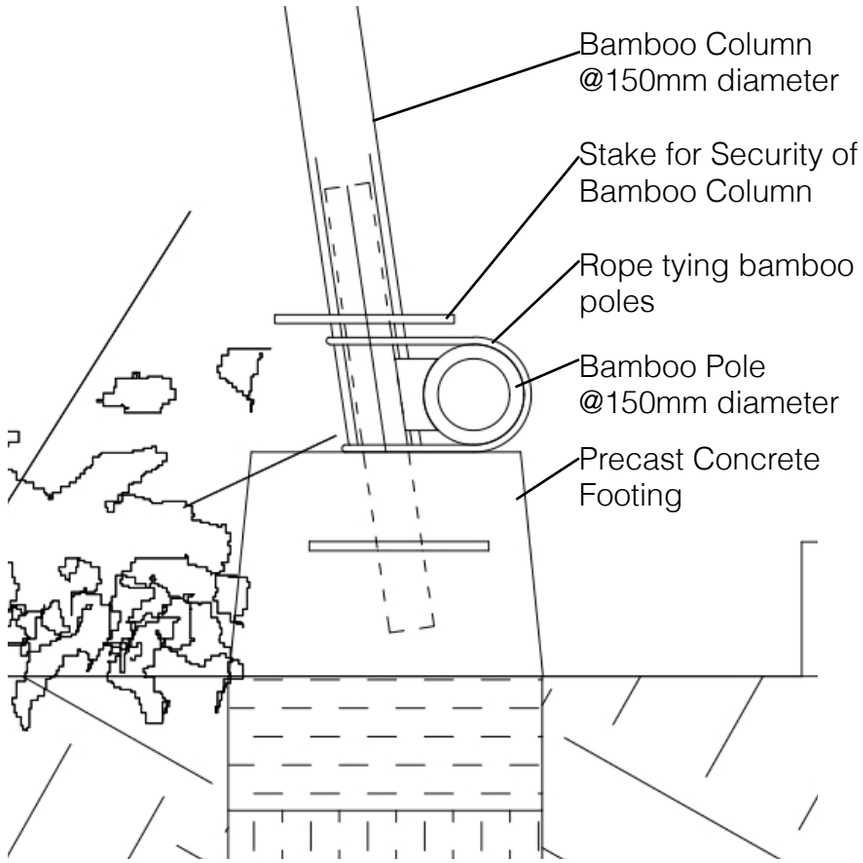


Figure 4.20. Bamboo Footing (Author 2022)

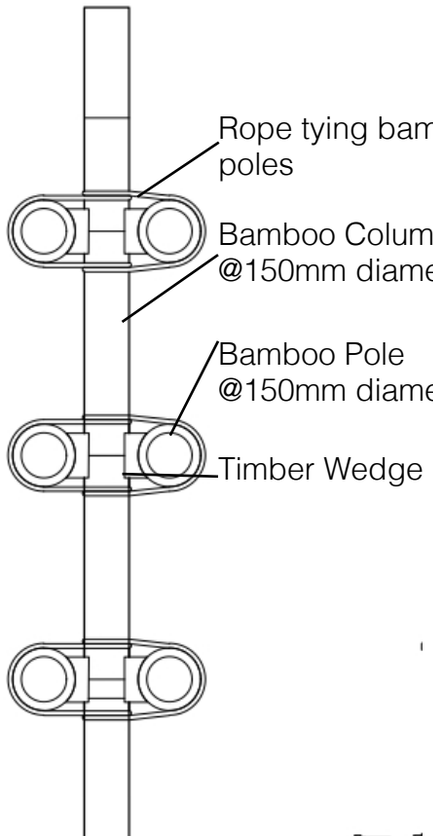


Figure 4.21. Bamboo Fence (Author 2022)

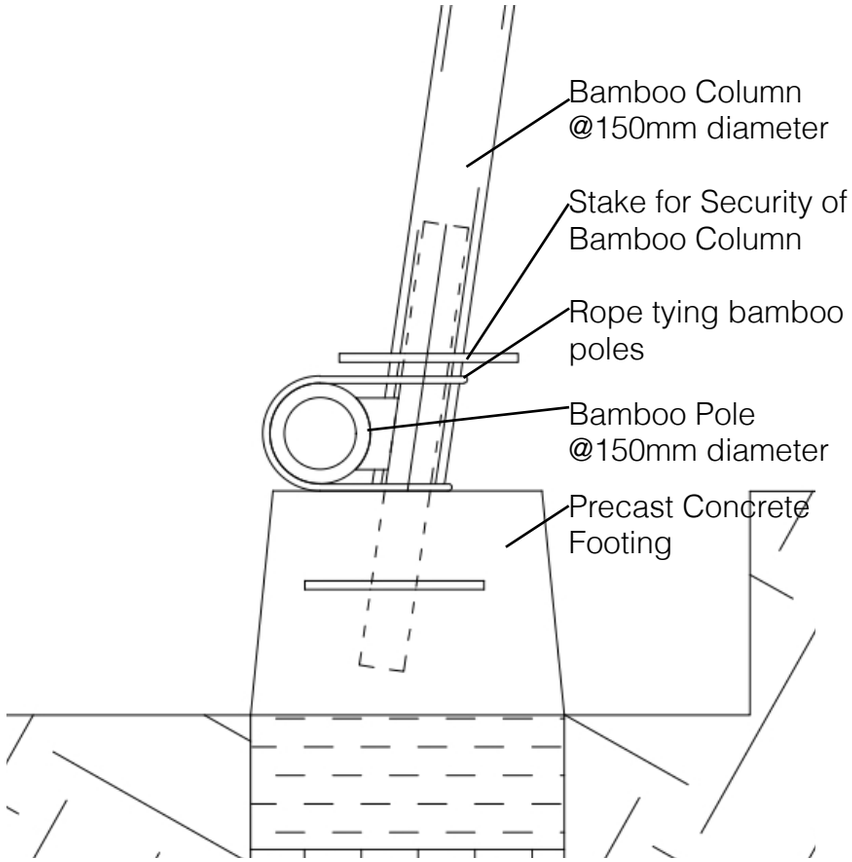


Figure 4.22. Bamboo Footing (Author 2022)

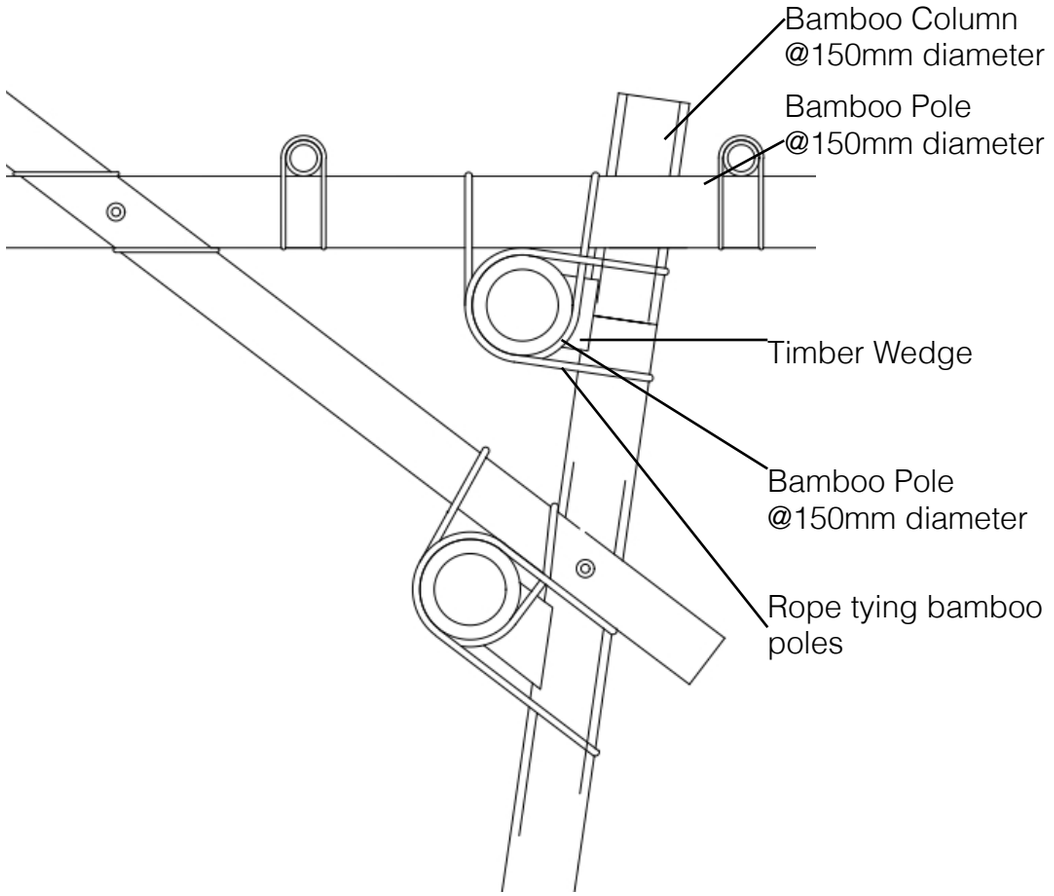


Figure 4.23. Bamboo Pergola (Author 2022)

REFINING
SYSTEM STRATEGY

In the design there are multiple fields that require water for irrigation purposes. The demand for these fields have been done and can be seen on the water calculations graph.

The source of the water for the site comes via a constructed dam, situated at the top of the site, south of Plastic View. The constructed dam captures water runoff from the watershed line on site, and stores it in a detention dam. The overflow of this dam flows into a bioswale and back into the Moreletaspruit. The bioswale is zoned to capture water runoff from the agricultural fields as well, and further downstream, a constructed wetland is situated before the river to clean the water once its been used to irrigate the crops.

REFINING
WATER STRATEGY

The water calculations done were predicting the demand of all zones, based on weekly irrigation requirements for agriculture. It was decided that the crops will be irrigated a minimum of twice a week, thus the calculations depict such. The constructed dam was sized to hold enough water to respond to not only the demand, but also the amount of runoff the site obtains. The capacity of the dam, once it reaches capacity, will overflow and flow into the bioswale attached, and from there back into the Moreletaspruit. An emergency spillway was also accounted for in the design, and provisions were made spatial for such.

In order to calculate the water demand, first the yield was found. Using the map on page 128, the total areas were calculated against run off co efficients and rainfall data for the region. Once this figure was found, the data was compared against the demand for water in the intervention. The final figure was then used to work out the annual average amount of water that would be captured on site. This required storage that was needed for retaining this water for the demand. Thus a dam was designed on the southern portion of the site to capture and retain the water.

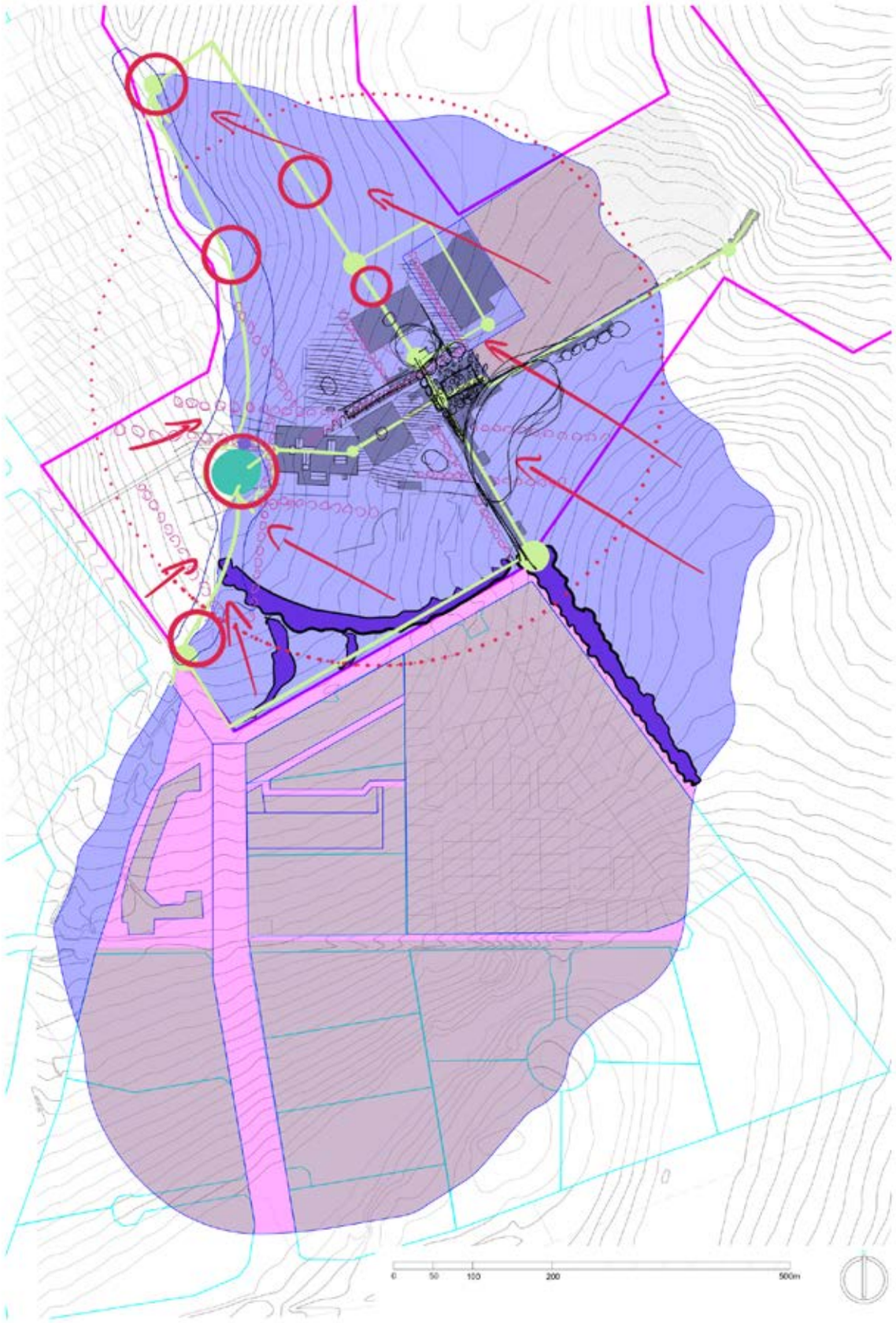


Figure 4.24. Water Catchment Area (Author 2022)

WATER MANAGEMENT MODEL

A WATER RESOURCE INFORMATION (YIELD, m³)

A1 RAIN WATER HARVESTING DATA

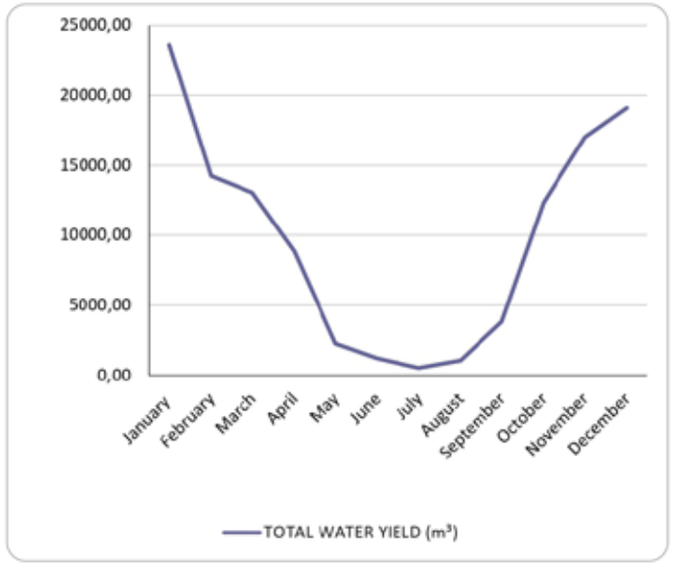
DESCRIPTION	AREA (m²)	RUNOFF COEFF. (C)
Roof structures	0	0,9
Non-permeable surfaces	0	0,9
Semi-permeable	434342	0,4
Lawn	0	0,1
Plant Beds	0	0,3
TOTAL AREA (A)	434342,00	
WEIGHTED C		0,40

A2 RECYCLED / ALTERNATIVE WATER SOURCE

MONTH	SOURCE 1		SOURCE 2		TOTAL / MONTH (m³)
	WEEKLY YIELD (m³)	MONTHLY YIELD (m³)	WEEKLY YIELD (m³)	MONTHLY YIELD (m³)	
January	50	0,00	0	0,00	0,00
February	0	0,00	0	0,00	0,00
March	0	0,00	0	0,00	0,00
April	0	0,00	0	0,00	0,00
May	0	0,00	0	0,00	0,00
June	0	0,00	0	0,00	0,00
July	0	0,00	0	0,00	0,00
August	0	0,00	0	0,00	0,00
September	0	0,00	0	0,00	0,00
October	0	0,00	0	0,00	0,00
November	0	0,00	0	0,00	0,00
December	0	0,00	0	0,00	0,00
ANNUAL AVE.		0,00		0,00	0,00

A3 TOTAL WATER YIELD

MONTH	AVE RAINFALL , P (m)	CATCHMENT YIELD (m³) (Yield = PxAxC)	ALTERNATIVE WATER SOURCE (m³)	TOTAL WATER YIELD (m³)
January	0,136	23628,20	0,00	23628,20
February	0,082	14246,42	0,00	14246,42
March	0,075	13030,26	0,00	13030,26
April	0,051	8860,58	0,00	8860,58
May	0,013	2258,58	0,00	2258,58
June	0,007	1216,16	0,00	1216,16
July	0,003	521,21	0,00	521,21
August	0,006	1042,42	0,00	1042,42
September	0,022	3822,21	0,00	3822,21
October	0,071	12335,31	0,00	12335,31
November	0,098	17026,21	0,00	17026,21
December	0,110	19111,05	0,00	19111,05
ANNUAL AVE.	0,674	117098,60	0,00	117098,60



B WATER DEMAND

B1 LANDSCAPE IRRIGATION DEMAND (m³)

DESCRIPTION:	LAWN (m²):	15074	AGRI (m²):	12840	PLANTING (m²):	8854	
MONTH	WEEKLY IRR. (m)	MONTHLY DEMAND (m³)	WEEKLY IRR. (m)	MONTHLY DEMAND (m³)	WEEKLY IRR. (m)	MONTHLY DEMAND (m³)	TOTAL MONTHLY IRR. DEMAND (m³)
January	0,02	1205,92	0,05	2568	0,005	177,08	**3951**
February	0,02	1205,92	0,05	2568	0,005	177,08	**3951**
March	0,02	1205,92	0,03	1540,8	0,005	177,08	**2923,8**
April	0,02	1205,92	0,03	1540,8	0,005	177,08	**2923,8**
May	0,01	602,96	0,03	1540,8	0,005	177,08	**2320,84**
June	0,01	602,96	0,025	1284	0	0	**1886,96**
July	0,01	602,96	0,025	1284	0	0	**1886,96**
August	0,02	1205,92	0,025	1284	0	0	**2489,92**
September	0,02	1205,92	0,03	1540,8	0,005	177,08	**2923,8**
October	0,02	1205,92	0,03	1540,8	0,005	177,08	**2923,8**
November	0,02	1205,92	0,05	2568	0,005	177,08	**3951**
December	0,02	1205,92	0,05	2568	0,005	177,08	**3951**
ANNUAL TOTAL		12662,16		21828		1593,72	36083,88

B2 ALT DEMAND

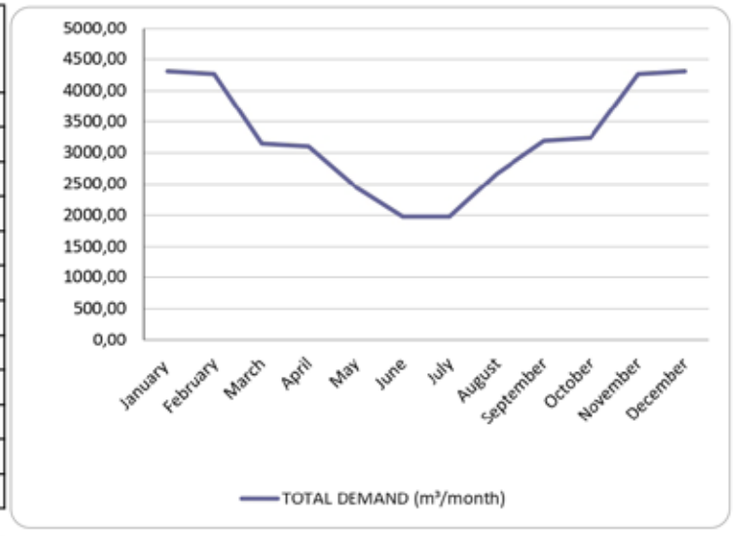
MONTH	PERSONS	WATER/ CAPITA/ DAY (l)	DOMESTIC DEMAND (m³/month)
January	0	4	**0**
February	0	4	**0**
March	0	4	**0**
April	0	4	**0**
May	0	4	**0**
June	0	4	**0**
July	0	4	**0**
August	0	4	**0**
September	0	4	**0**
October	0	4	**0**
November	0	4	**0**
December	0	4	**0**
ANNUAL TOTAL			0

B3 EVAPORATION LOSS (For 'open' reservoirs)

35mm - 45mm/week in summer

AREA OF RESERVOIR (m²): 2250

MONTH	EVAPORATION RATE (m/week)	EVAPORATION RATE (m/month)	TOTAL LOSS (m³/month)
January	0,04	0,16	**360**
February	0,035	0,14	**315**
March	0,025	0,1	**225**
April	0,02	0,08	**180**
May	0,015	0,06	**135**
June	0,01	0,04	**90**
July	0,01	0,04	**90**
August	0,02	0,08	**180**
September	0,03	0,12	**270**
October	0,035	0,14	**315**
November	0,035	0,14	**315**
December	0,04	0,16	**360**
ANNUAL TOTAL	0,32	1,26	2835,00



B4 TOTAL WATER LOSS & DEMAND

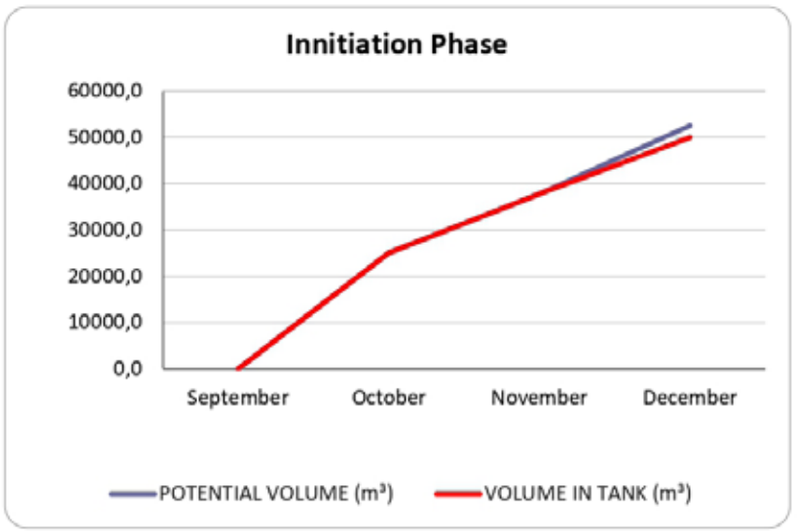
MONTH	TOTAL DEMAND (m³/month)
January	**4311,00**
February	**4266,00**
March	**3148,80**
April	**3103,80**
May	**2455,84**
June	**1976,96**
July	**1976,96**
August	**2669,92**
September	**3193,80**
October	**3238,80**
November	**4266,00**
December	**4311,00**
ANNUAL TOTAL	38918,88

C WATER BUDGET

RESERVOIR CAPACITY (m³):	50000
MIN VOLUME (m³):	25000

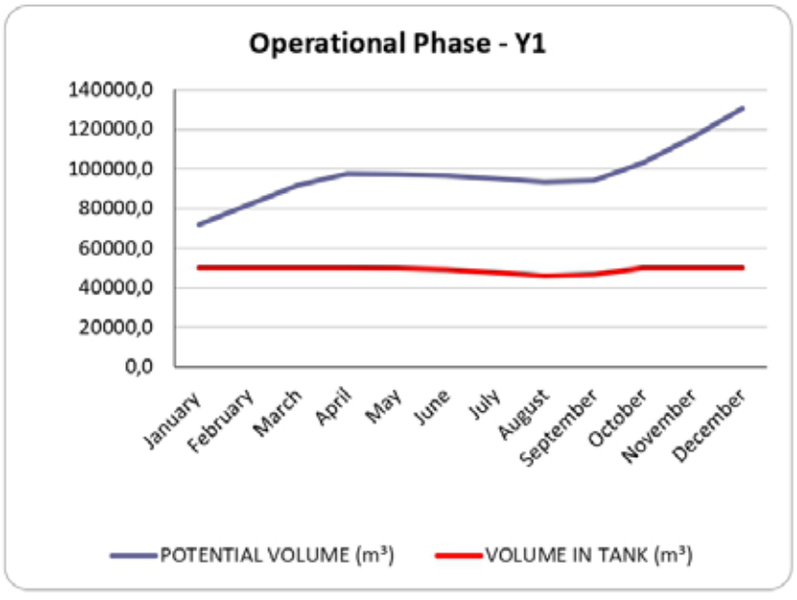
C1 WATER BUDGET INNITIATION PHASE

MONTH	YIELD (m³/month)	DEMAND (m³/month)	MONTHLY BALANCE	POTENTIAL VOLUME (m³)	VOLUME IN TANK (m³)
September	3822,2	3193,8	628,4	**0,0**	**0,0**
October	12335,3	3238,8	9096,5	**25000,0**	**25000,0**
November	17026,2	4266,0	12760,2	**37760,2**	**37760,2**
December	19111,0	4311,0	14800,0	**52560,3**	**50000,0**
	52294,8	15009,6	37285,2		



C2 WATER BUDGET YEAR 1

MONTH	YIELD (m³/month)	DEMAND (m³/month)	MONTHLY BALANCE	POTENTIAL VOLUME (m³)	VOLUME IN TANK (m³)
January	23628,2	4311,0	19317,2	**71877,5**	**50000,0**
February	14246,4	4266,0	9980,4	**81857,9**	**50000,0**
March	13030,3	3148,8	9881,5	**91739,3**	**50000,0**
April	8860,6	3103,8	5756,8	**97496,1**	**50000,0**
May	2258,6	2455,8	-197,3	**97298,9**	**49802,7**
June	1216,2	1977,0	-760,8	**96538,0**	**49041,9**
July	521,2	1977,0	-1455,7	**95082,3**	**47586,2**
August	1042,4	2669,9	-1627,5	**93454,8**	**45958,7**
September	3822,2	3193,8	628,4	**94083,2**	**46587,1**
October	12335,3	3238,8	9096,5	**103179,7**	**50000,0**
November	17026,2	4266,0	12760,2	**115939,9**	**50000,0**
December	19111,0	4311,0	14800,0	**130740,0**	**50000,0**
ANNUAL AVE.	117098,6	38918,9	78179,7		



05

CULMINATION

This chapter will see the technical resolution develop into systematic designs that are implemented throughout the design.

Figure 7. Culmination Title (Markus Zorn 2021)

REFINING
TECHNICAL CONCEPT REVISION

As the design progressed, relations were drawn between the technical component, as well as the programmatic approach.

In the programmatic approach, the use of trees as armature gives from to the landscape, providing structure, while using a familiar scale for appropriation. The length of a street in Plastic View was used to space avenues of trees, while allowing the spaces between (infill) to be appropriated as seen fit by the community. The street and roadscape in Plastic VIew is the plane on which all appropriation occurs. The free moving use of space creates the rich culture and rituals that occur within the settlement. The agricultural fields are the first phase of appropriation within the spaces between avenues of trees (infill). Creating the groundworks for future development and expression to occur on.

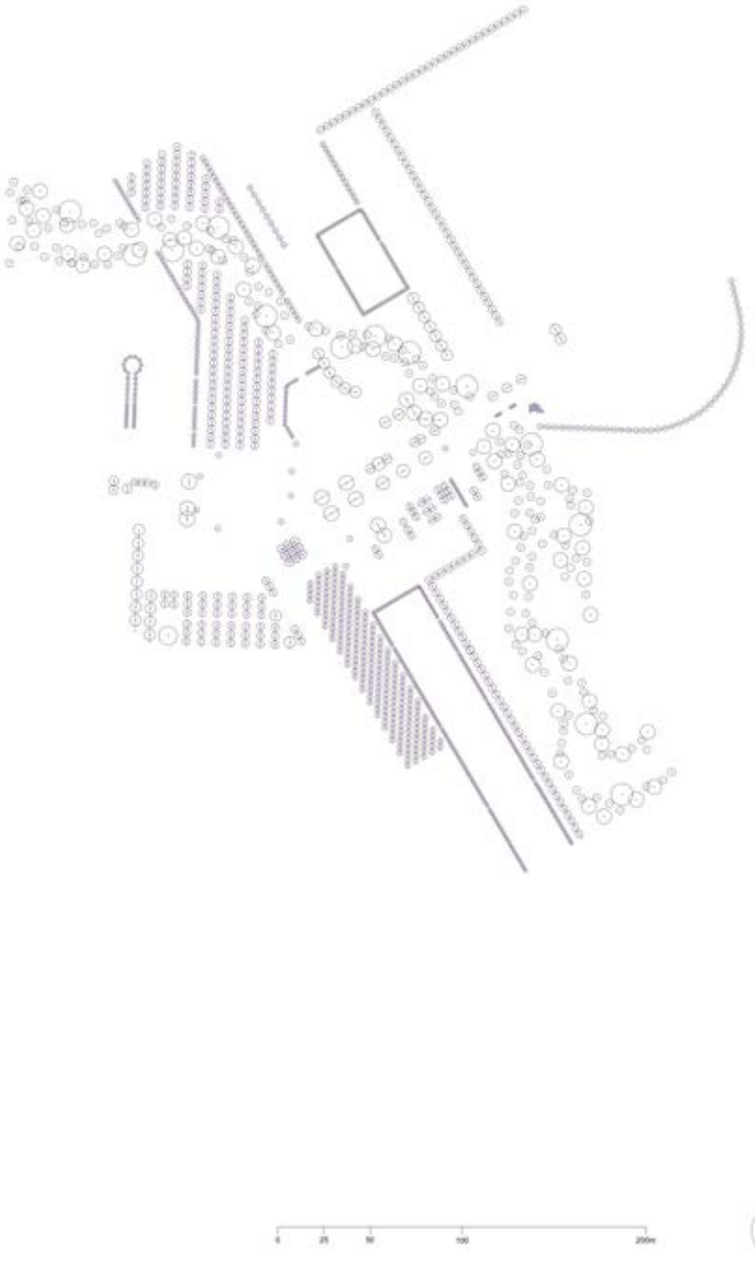


Figure 5.1. Tree as Armature (Author 2022)

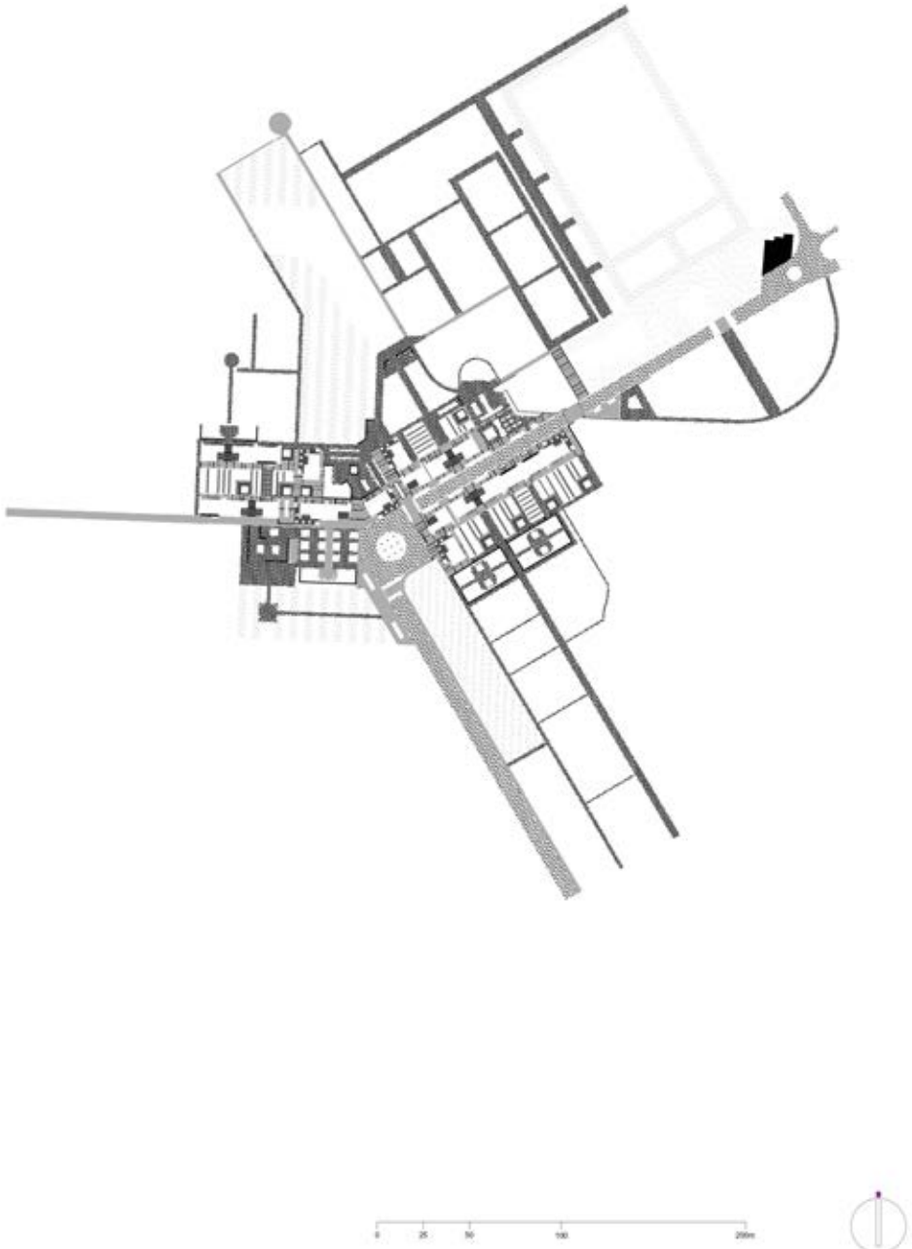


Figure 5.2. Street as Spine (Author 2022)

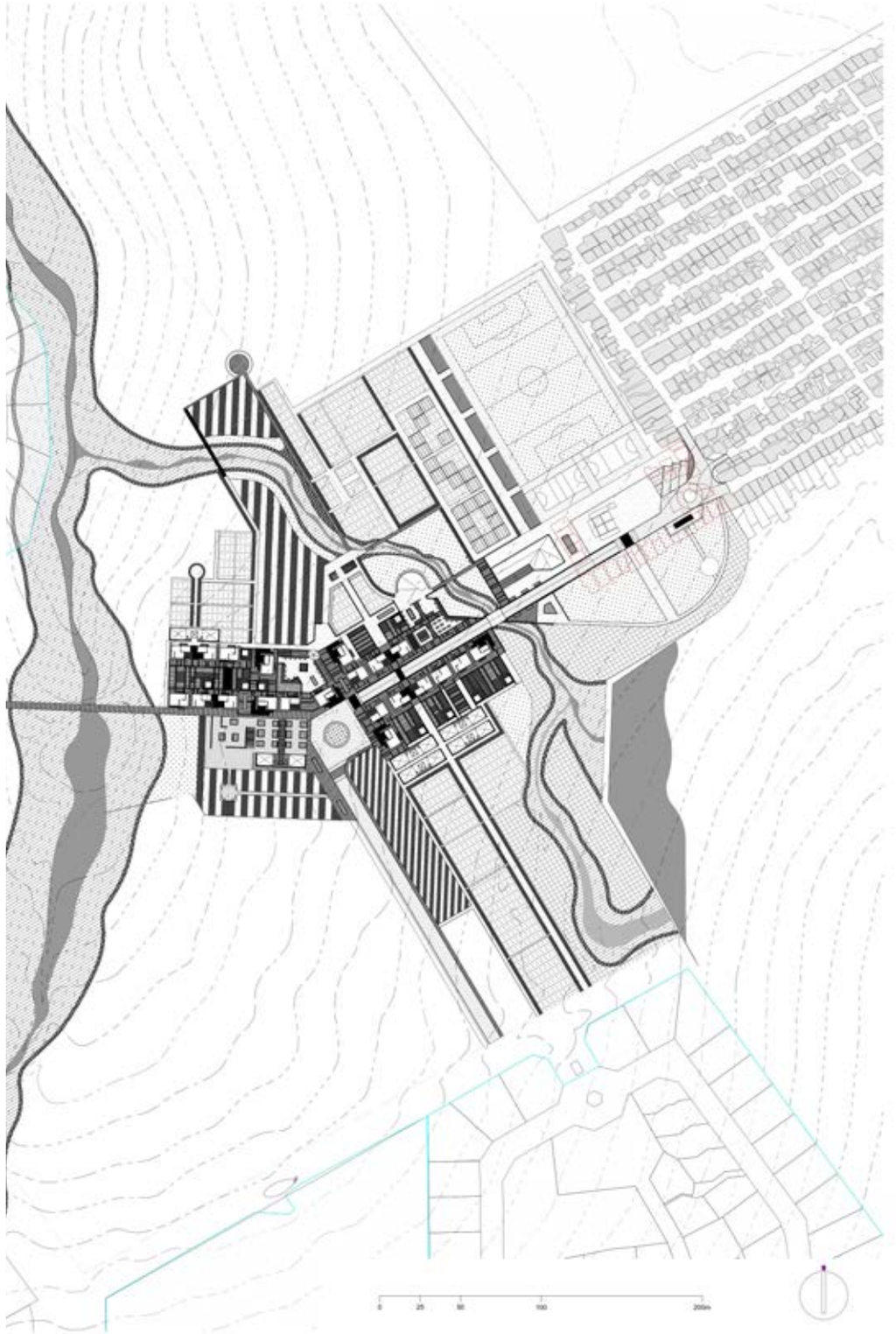


Figure 5.3. Fields as Infill (Author 2022)

REFINING
TECHNICAL CONCEPT REVISION

As with the bamboo structures, the bamboo that is grown in the fields are used to create landscape furniture. Shade structures, chairs, platforms etc. are created using techniques taughrt within the workshops adjacent to the fields. These construction techniques, using the bamboo as the armature, is where the appropriation can occur.

The bamboo structures can also be appropriated and altered to serve any function the community needs. From shade structures, in the landscape, to becoming structural material for buildings and furniture within the landscape.

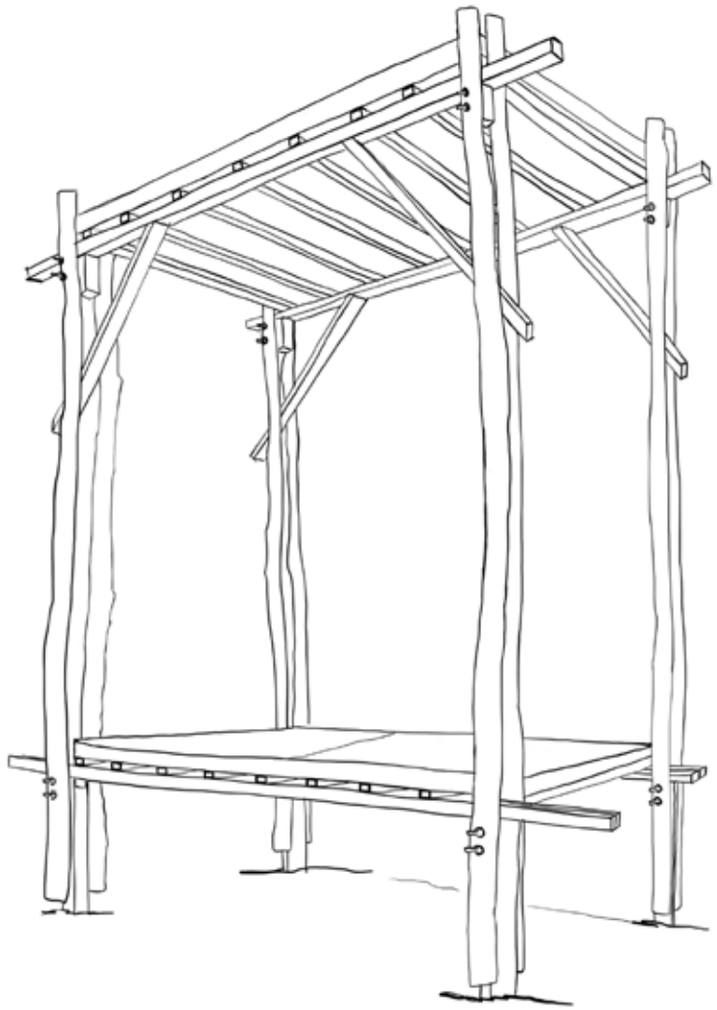


Figure 5.4. Platform for Engagement (UP Hons 2021)

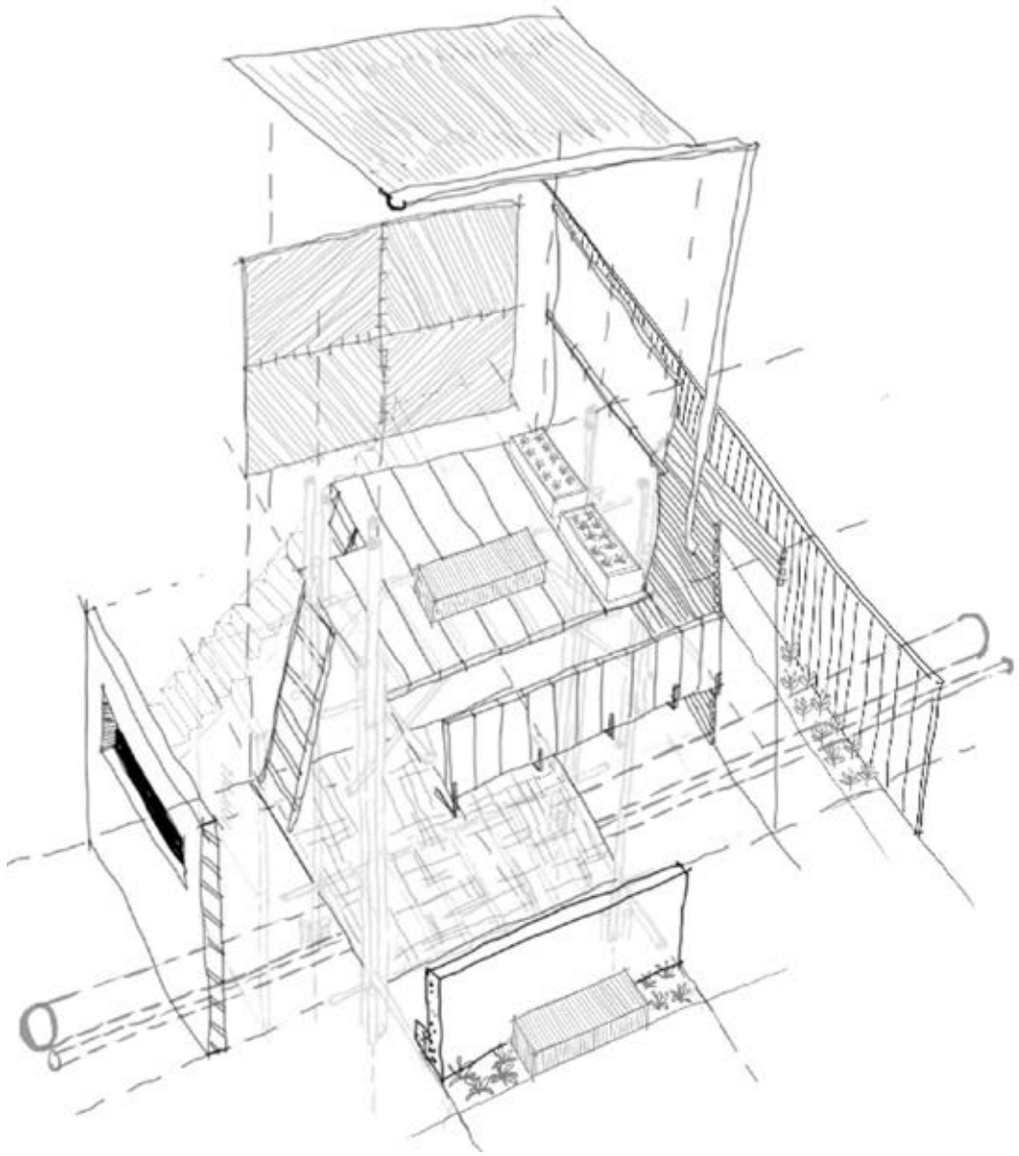
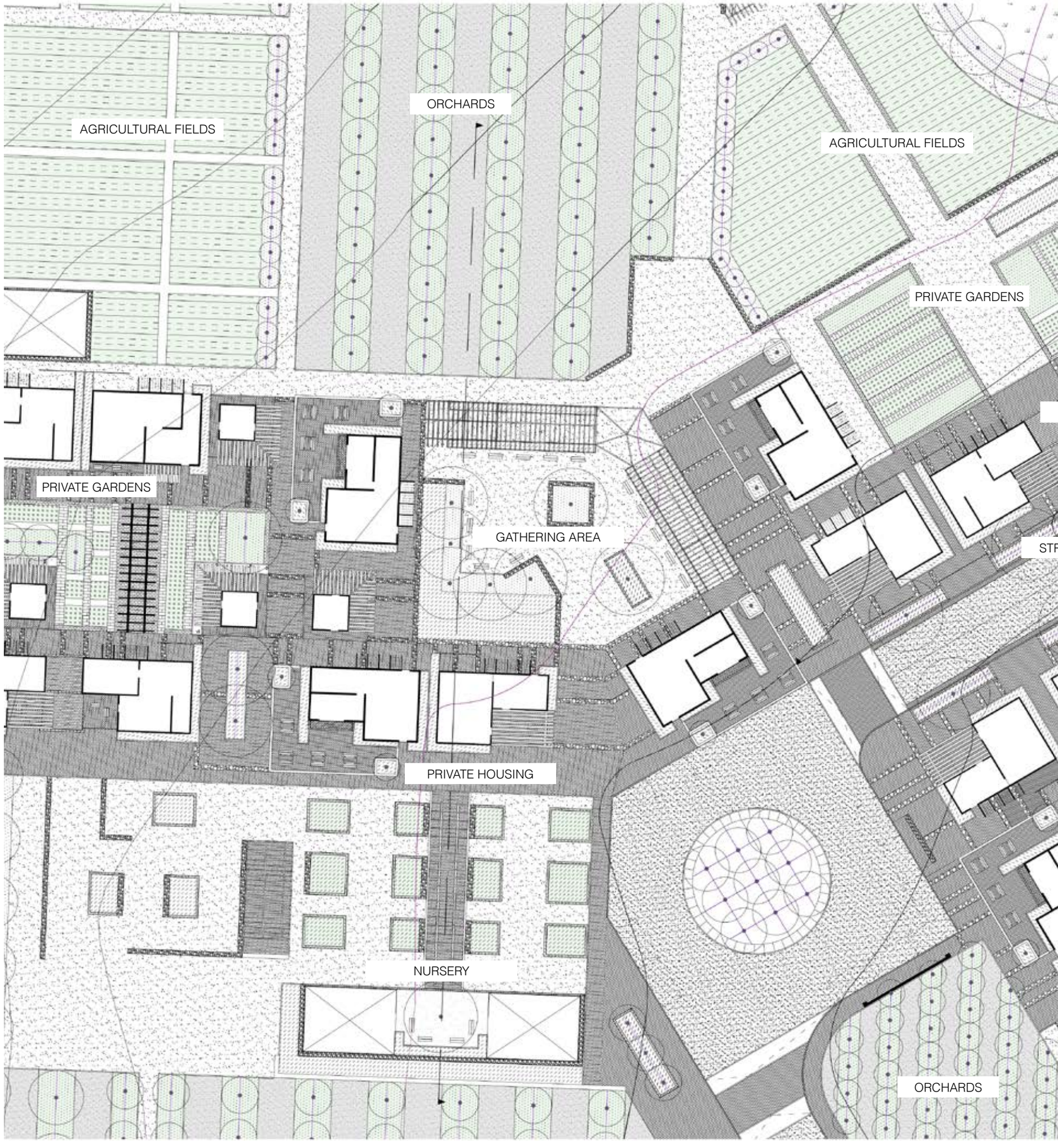


Figure 5.5. Appropriation of Platform for Engagement (UP Hons 2021)

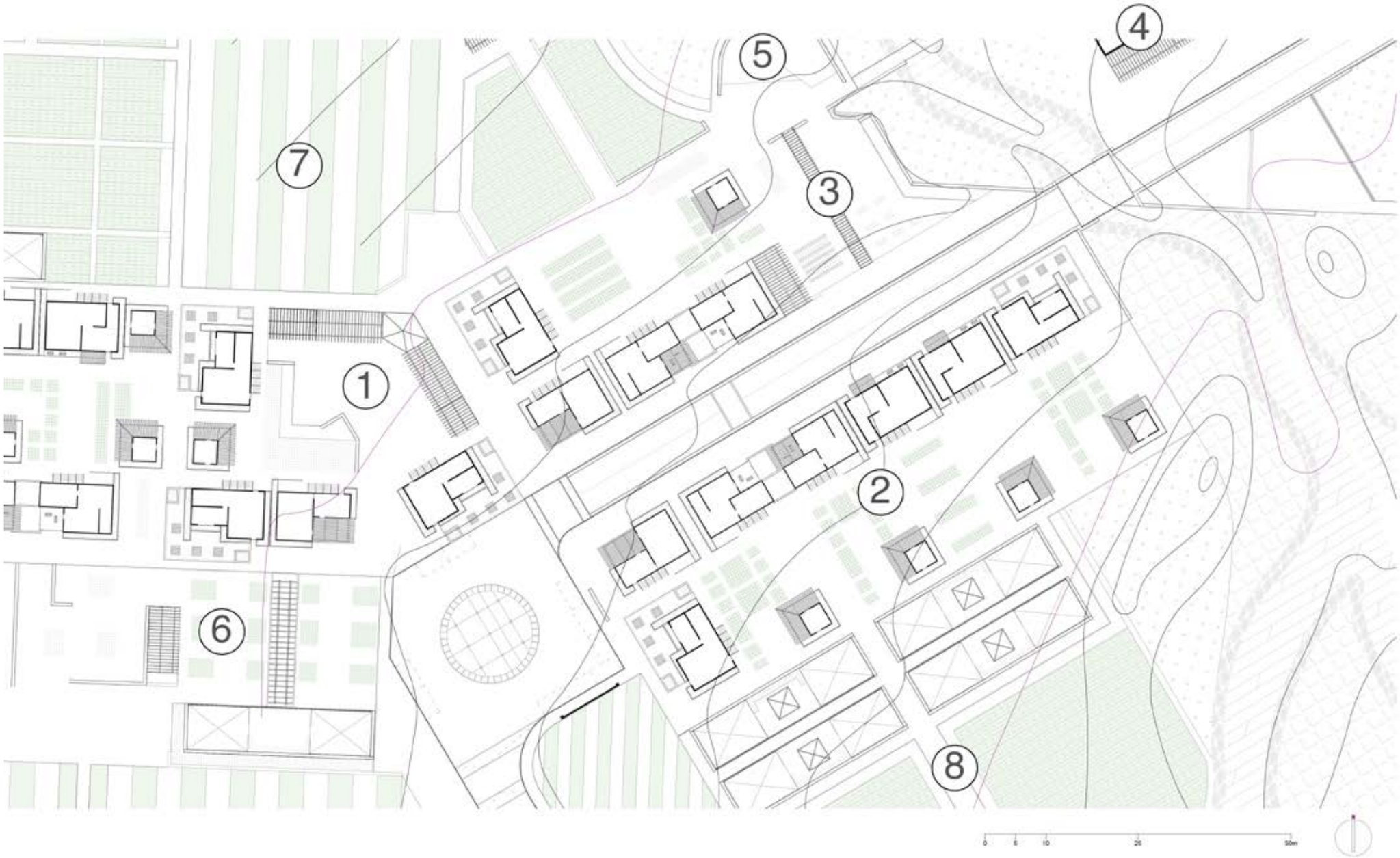
CULMINATION // 5



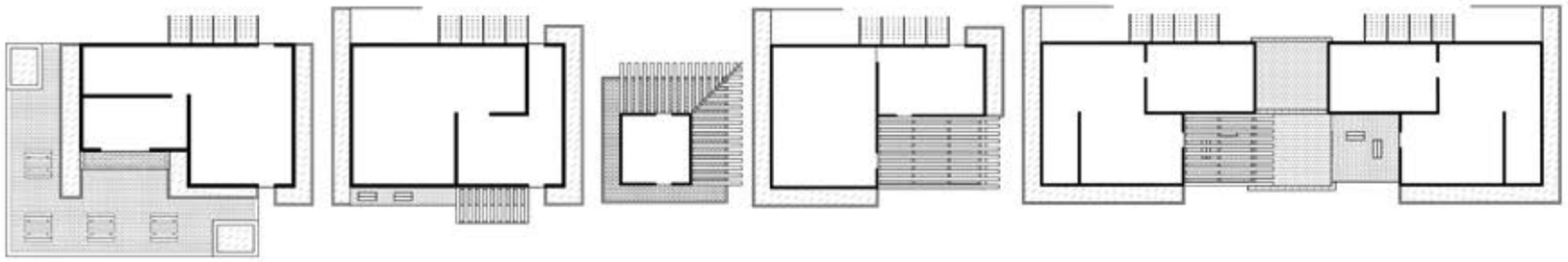
REFINING

SKETCHPLAN 1:200 (A0)

Figure 5.6. Site Sketchplan (Author 2022)



1. Gathering Point
2. Private Community Gardens
3. Show Garden
4. Bamboo Workshop
5. Education Space
6. Nursery
7. Orchard
8. Agricultural Fields



Tuckshop Typology

Single Dwelling Typology

Shed

Corner Unit Typology

Courtyard Typology

Municipal Water Point

Possible Position for water tank

Perenial Bioswale

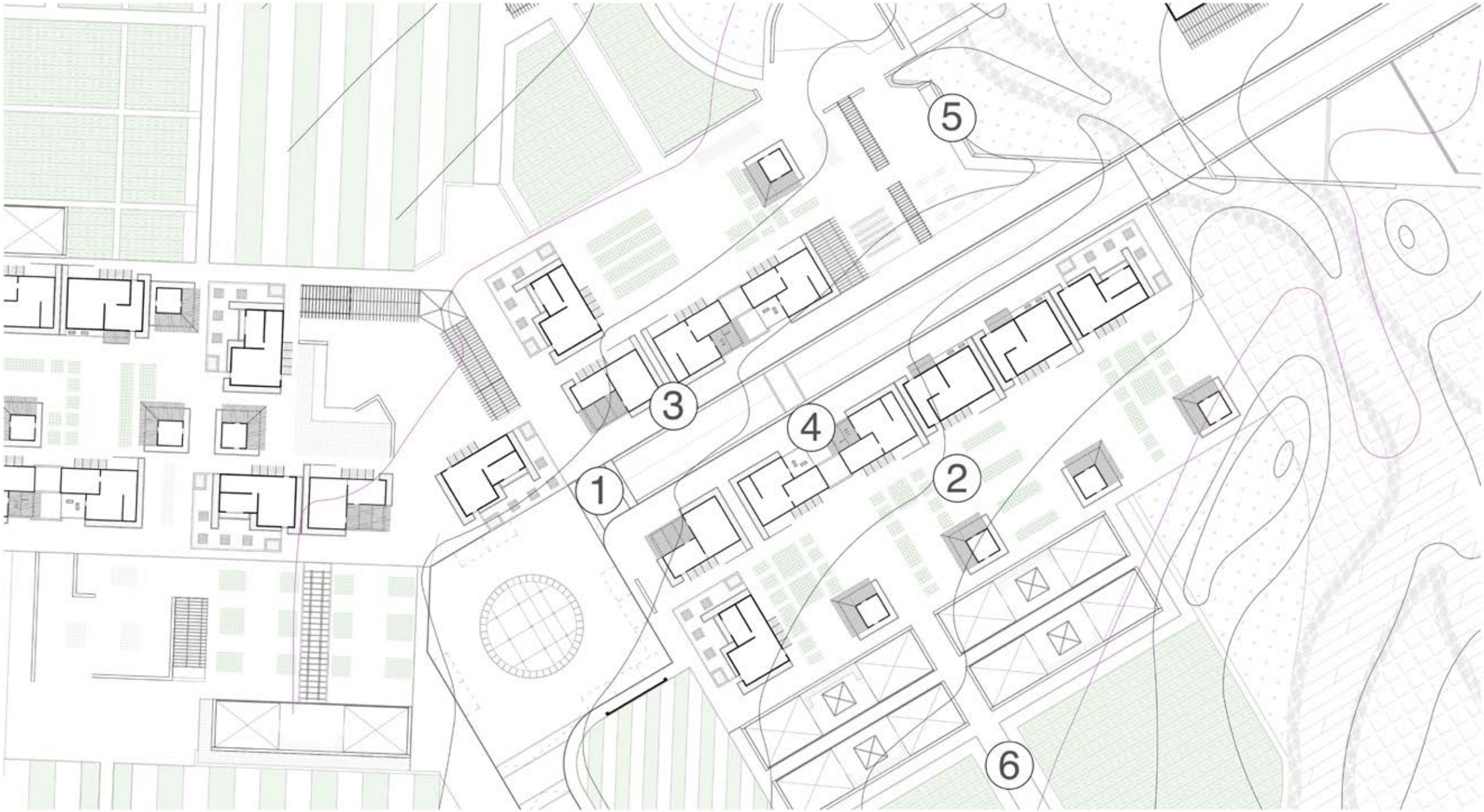
Larger community fields for intercropping agriculture and bamboo

Roadscape as armature // spine (market space)

Private gardens for specifically agriculture and medicinal plants

Fruit orchard

Figure 5.7. Systems Diagrams (Author 2022)



MATERIAL PALETTE

BAMBOO CONSTRUCTION

①

DECOMPOSED GRANITE

②

HALF BRICK PATH

③

BRICK COURTYARD

④

BRICK EDGING

⑥

SLATE WALL

⑤

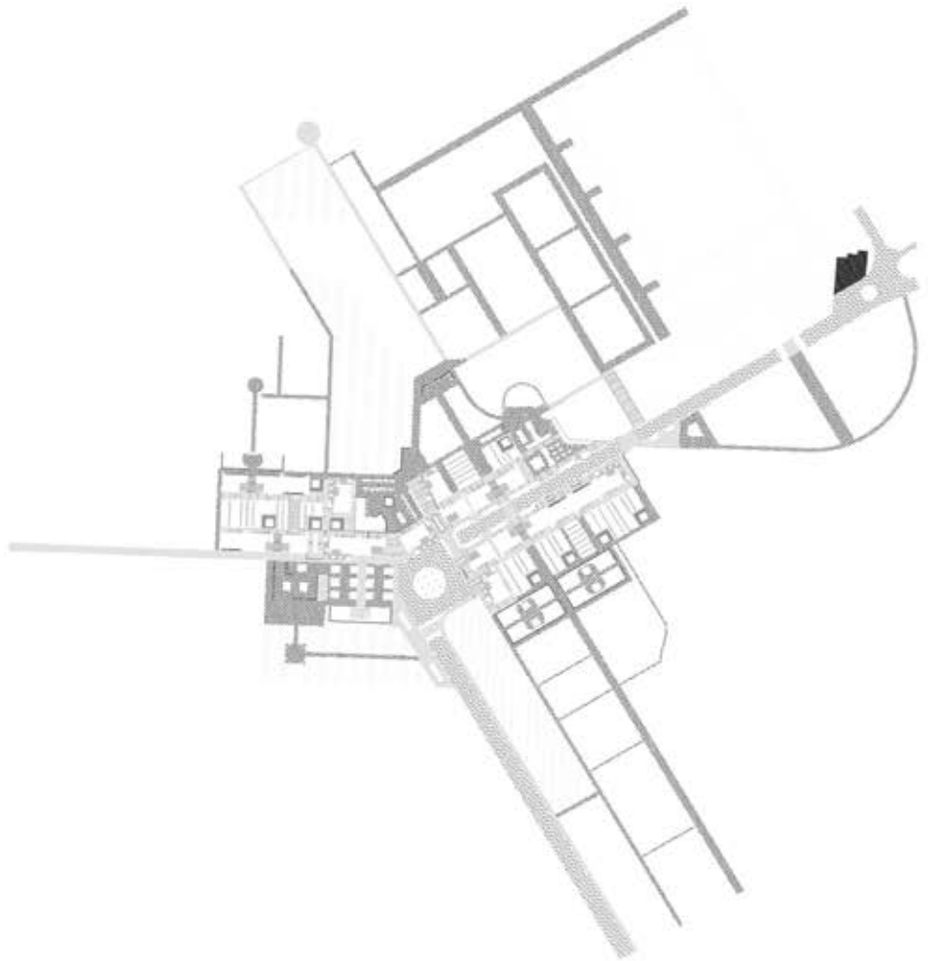
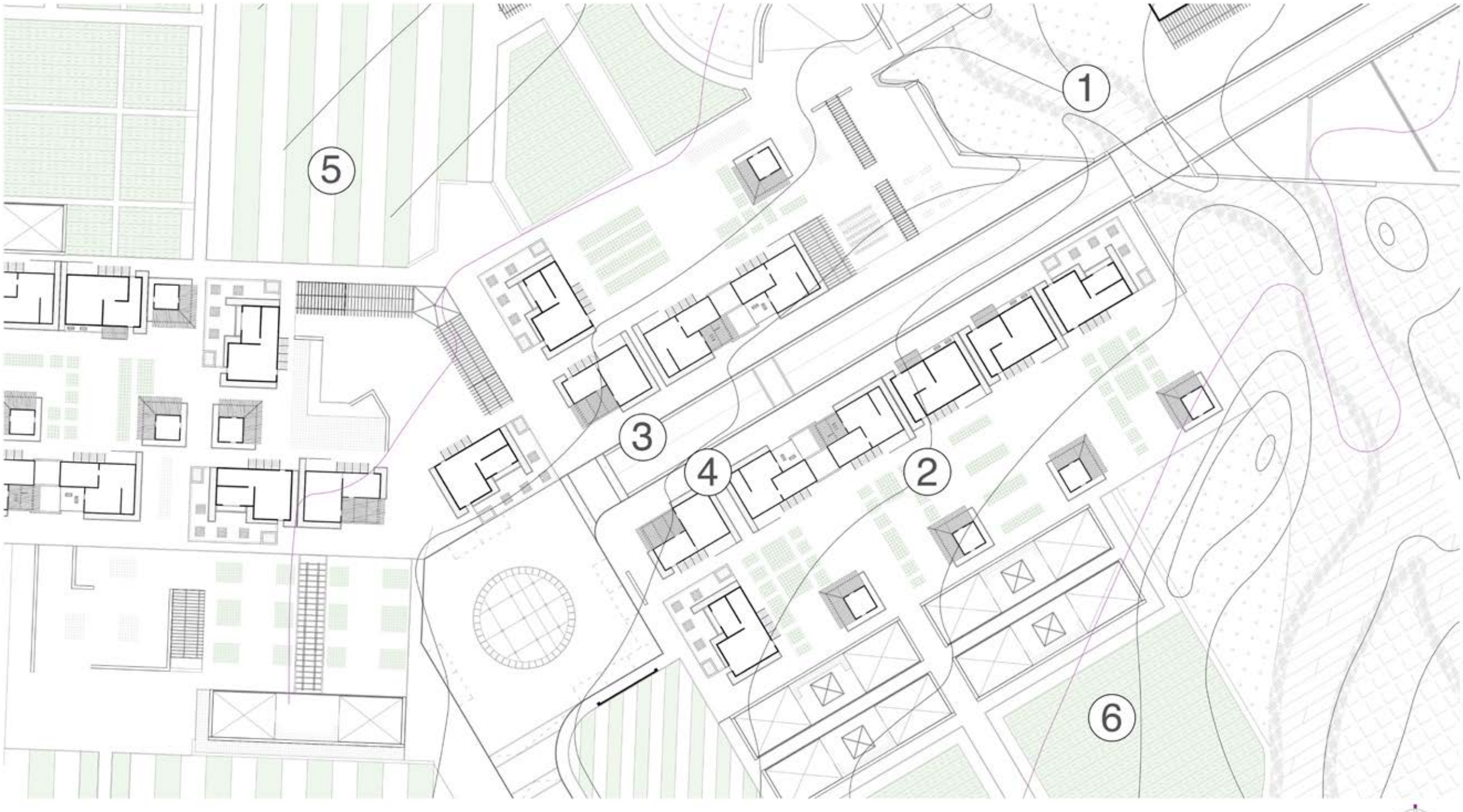


Figure 5.8. Materiality Palette (Author 2022)



PLANTING PALETTE

Marginal Grasses

① 
Carex austro-africana


Melinis nerviglumis


Miscanthus junceus


Typha capensis/T. domingensis

Marginal Shrubs


Gomphostigma virgatum


Lippia javanica

Medicinal Herbs

② 
Wild Rosemary


Sour Fig


Wild Garlic


Origanum

Vegetables


Lentils


Sweet Potatoes


Spinach

Shrubs

③ 
Aloe arborescens


Strelitzia reginae


Syzigium pondoense

Groundcover


Aptenia cordifolia


Bulbine frutescens


Clivia miniata


Tagetes patula

Ordering

④ 
Combretum erythrophyllum


Dombeya rotundifolia


Erythrina lysistemon


Harpephyllum caffrum


Salix mucronata


Searsia lancea

Orchard

⑤ 
Kumquat


Lemon


Orange

Agroforestry

⑥ 

Bambusa balcooa

Agroforestry technique; Planting bamboo every 2m²

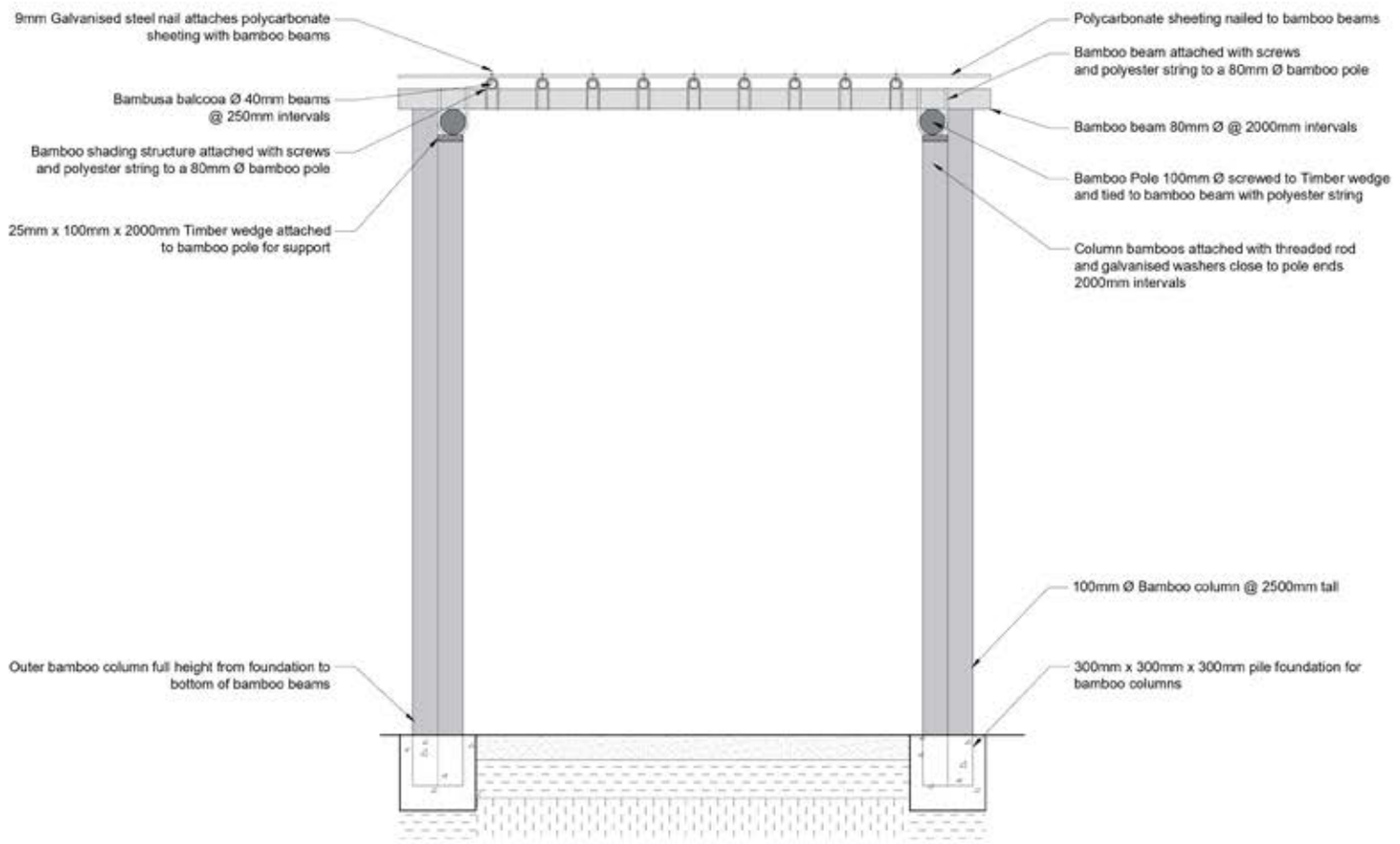
Benefitial yield increase

Soil water retention

Not planted in hedges, to prevent safety isues

Figure 5.9. Planting Palette (Author 2022)

1



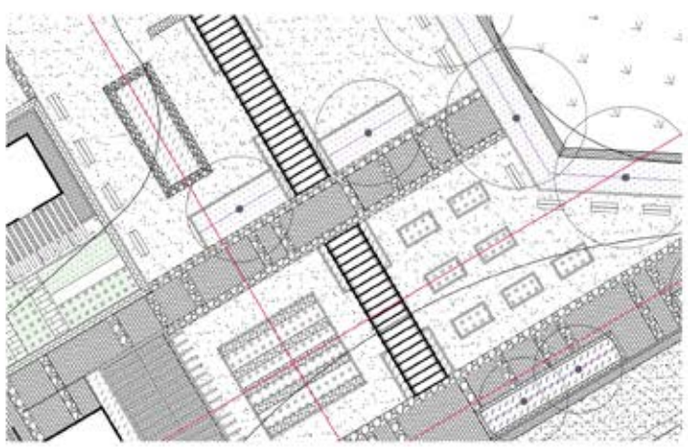


Figure 5.10. Bamboo Structure 1 (Author 2022)

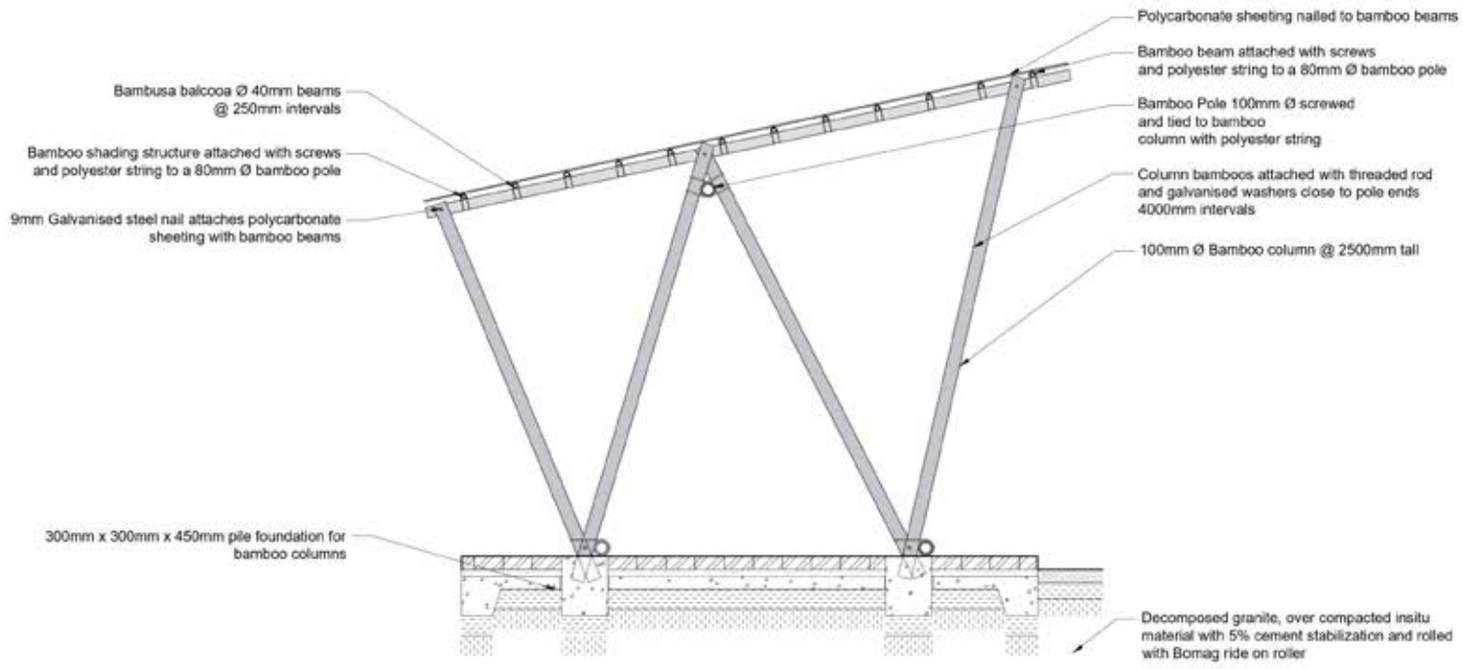
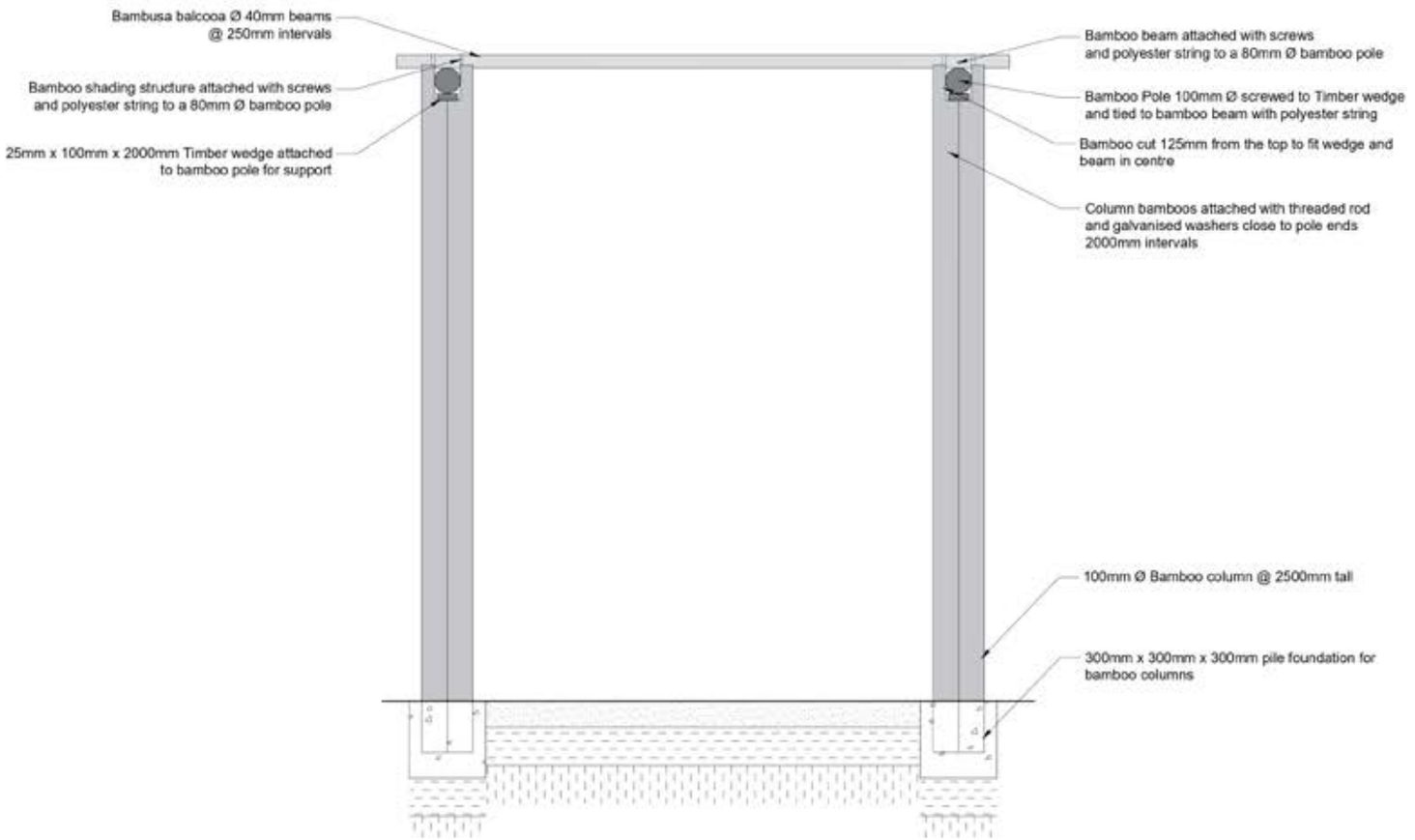


Figure 5.11. Bamboo Structure 2 (Author 2022)

3



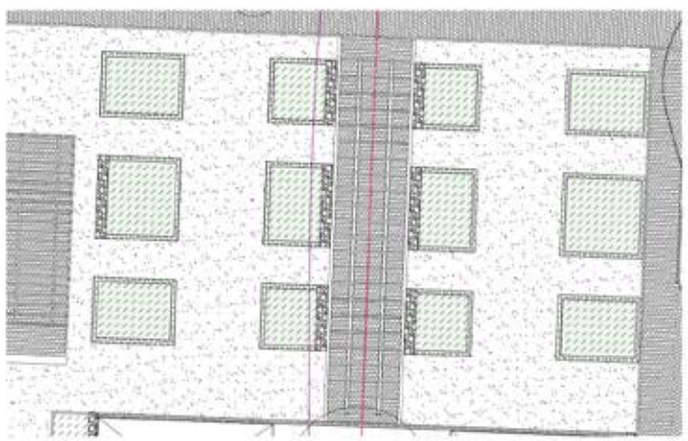
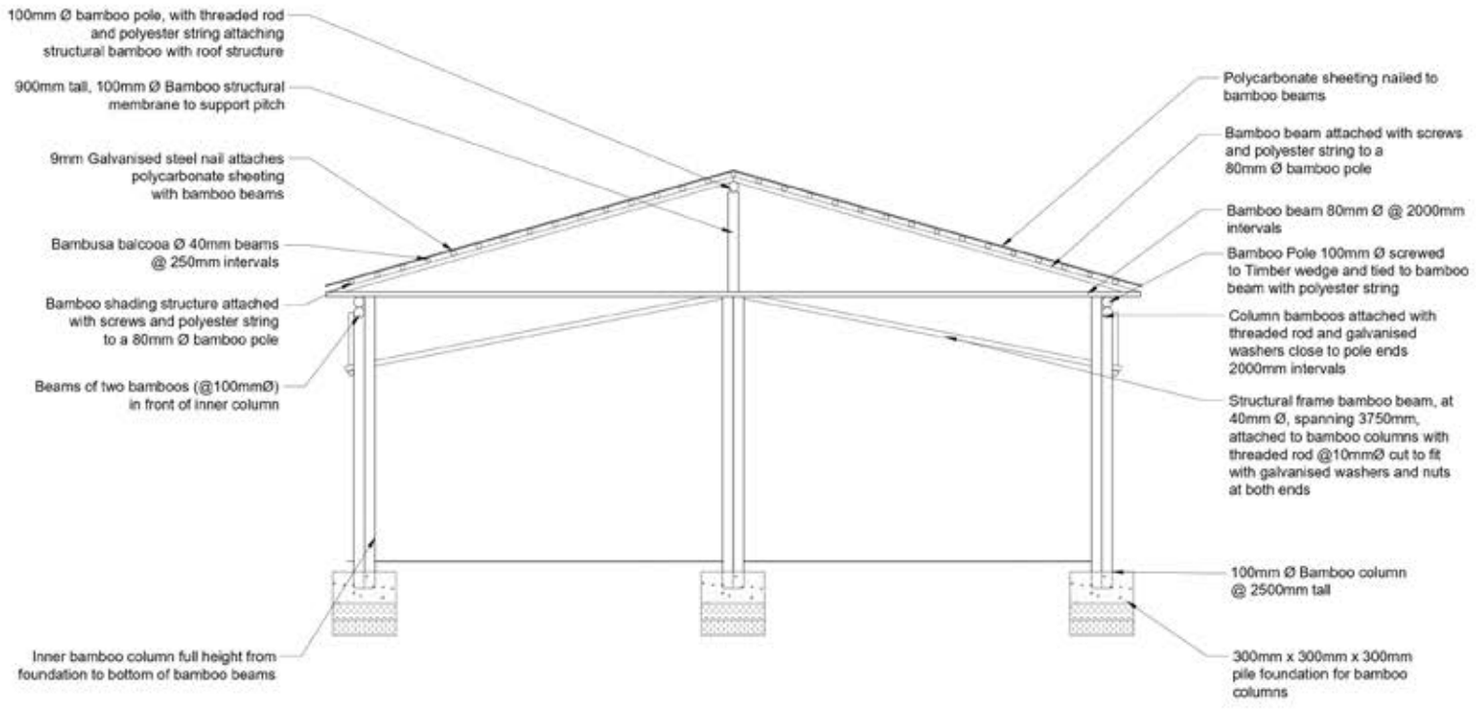


Figure 5.12. Bamboo Structure 3 (Author 2022)

4



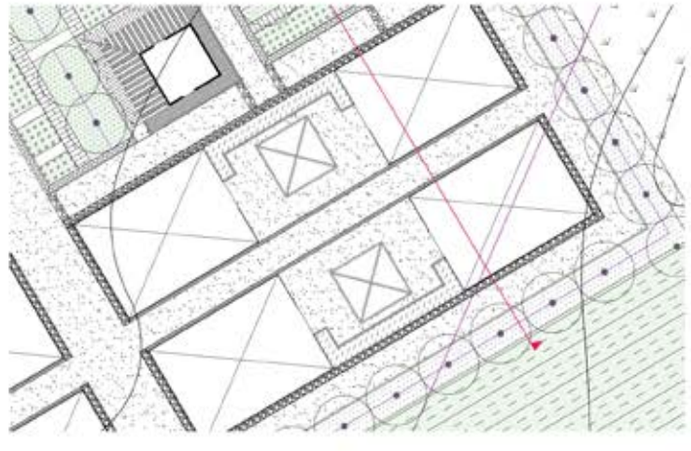
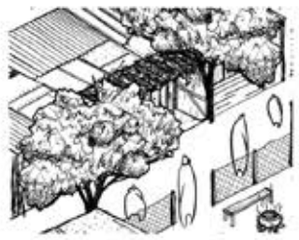
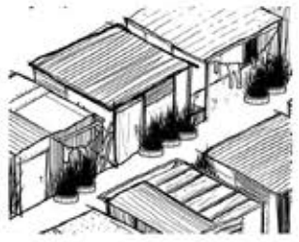


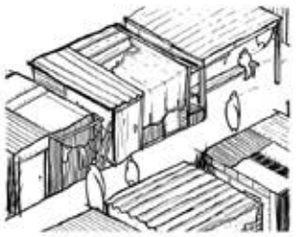
Figure 5.13. Bamboo Structure 4 (Author 2022)

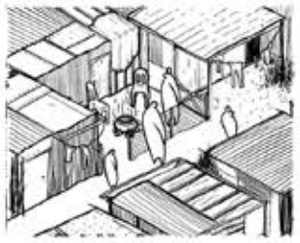


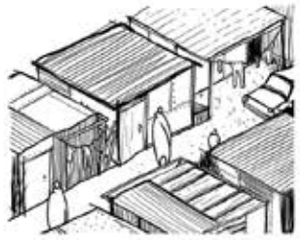


Orchard

Gathering Space

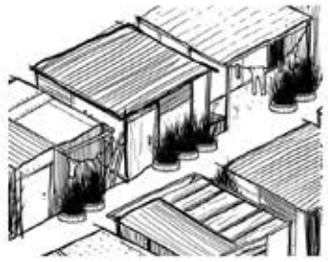


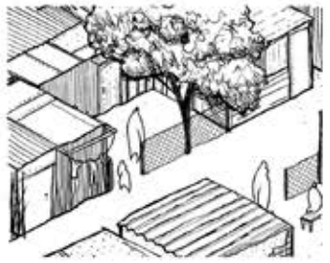




Site Elevation A - A

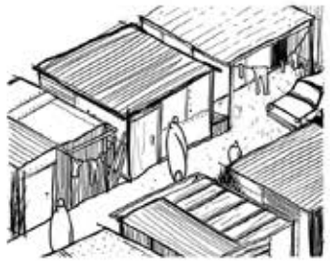
Figure 5.14. Site Elavation A-A (Author 2022)

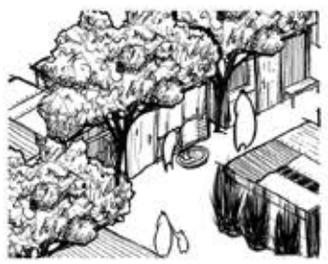


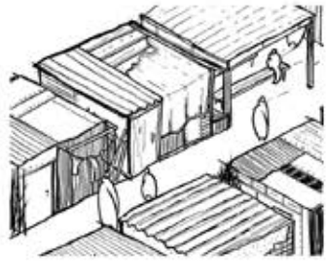


Seedling Workshop

Private Agricultural Garden

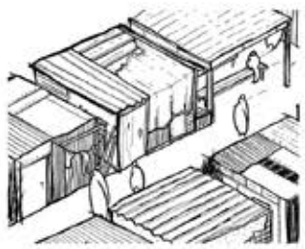


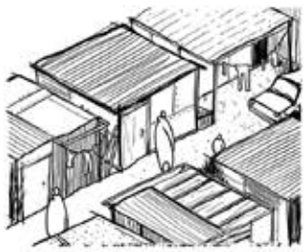


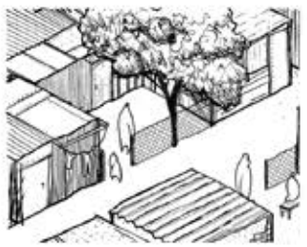


Site Elevation B - B

Figure 5.15. Site Elavation B-B (Author 2022)



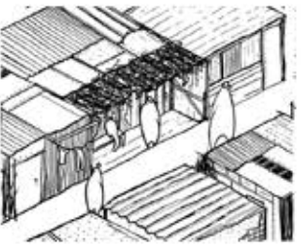


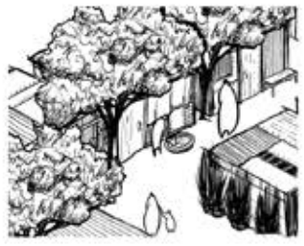


Corner Dwelling

Movement Node

Courtyard Space





Site Elevation C - C

Figure 5.16. Site Elavation C-C (Author 2022)


Bamboo show exhibition
Detail Area 1
0
1
2.5
5
10

Detailed section 1:50

Figure 5.17. Detailed Section (Author 2022)

Figure 5.18. Market Street (Author 2022)

Figure 5.19. Render of Main Street (Author 2022)

Figure 5.20. Render of Shaded Escape (Author 2022)

Figure 5.21. Render of Path to Agriculture Fields (Author 2022)

Figure 5.22. Render of Sensory Garden (Author 2022)

Figure 5.23. Render of Entrance to Fields from Gathering Area (Author 2022)

Figure 5.24. Render of Main Street to Show Garden (Author 2022)

Figure 5.25. Site Axo (Author 2022)

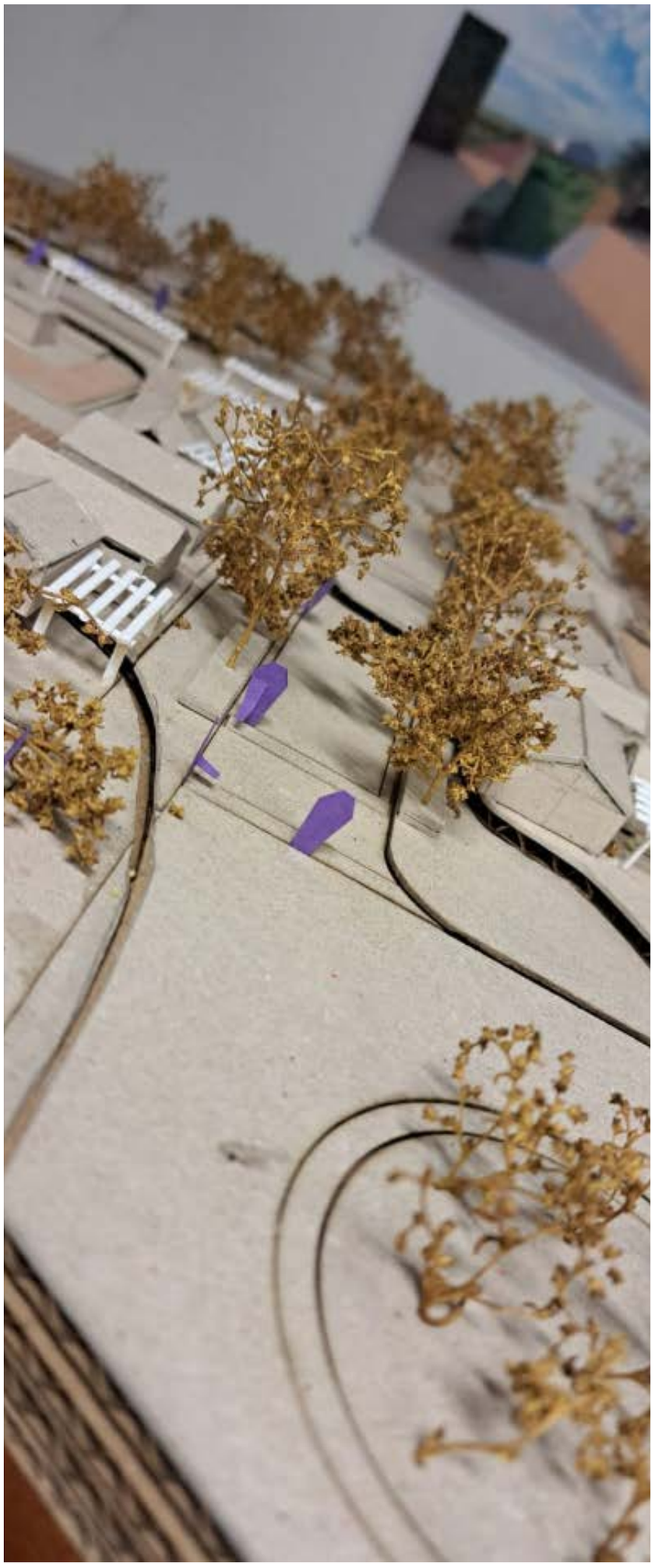


Figure 5.26. Model View 1 (Author 2022)

Figure 5.27. Model View 2 (Author 2022)

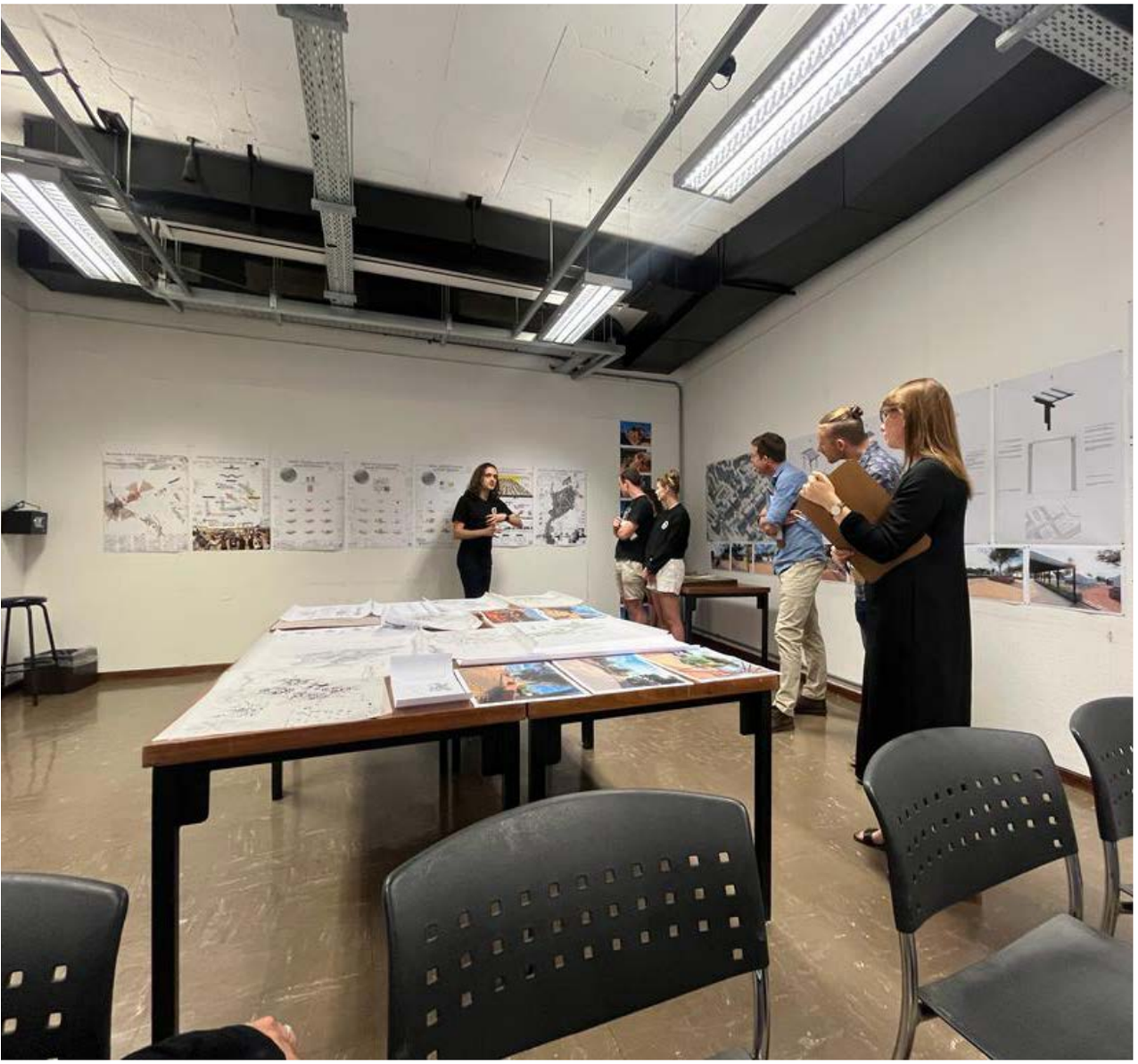


Figure 5.28. Final Exam Image 1 (Haese A 2022)

Figure 5.29. Final Exam Image 2 (Haese A 2022)

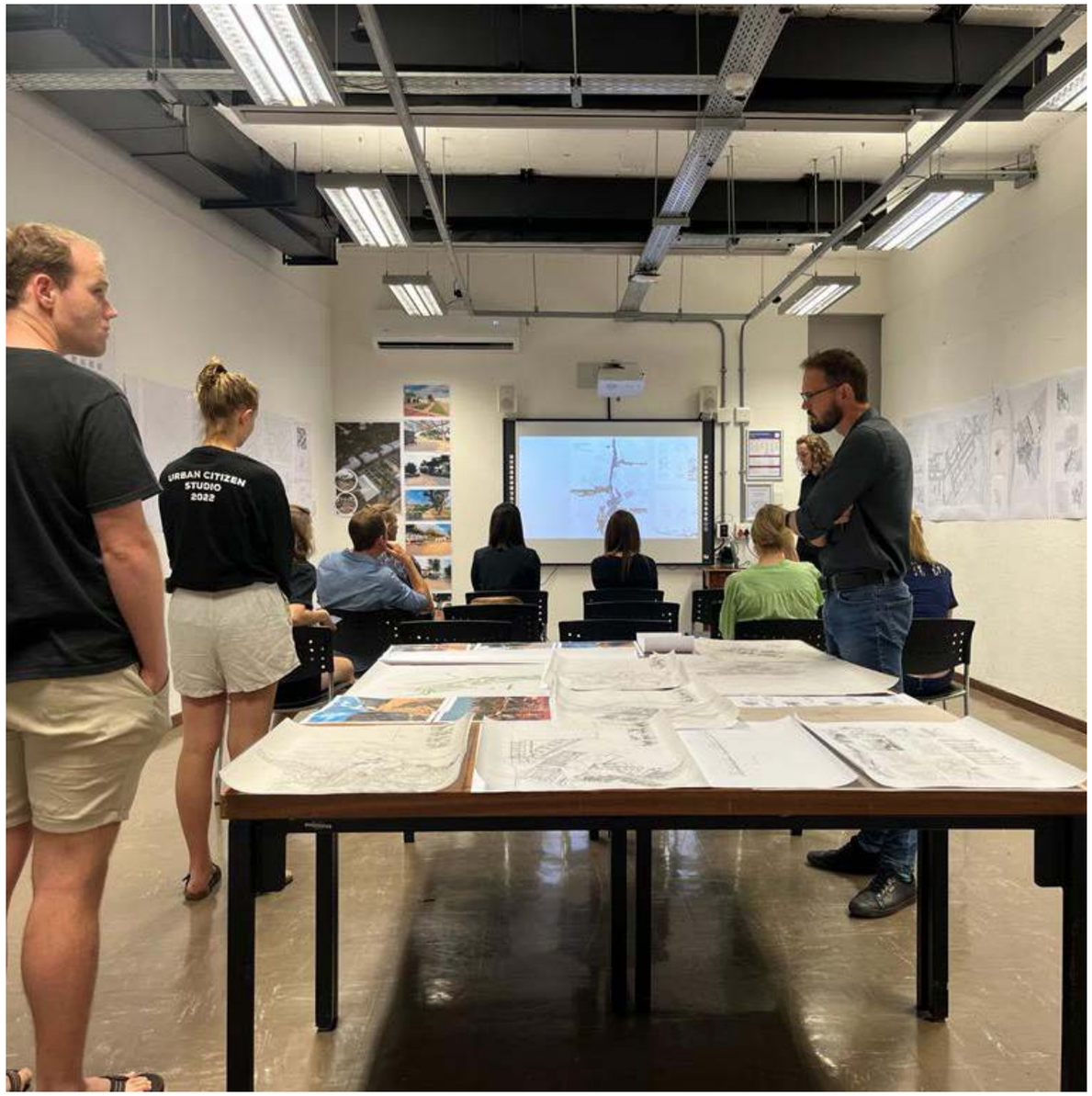


Figure 5.30. Final Exam Image 3 (Haese A 2022)

Figure 5.31. Model View 3 (Author 2022)

06

REFLECTION

Figure 8. Reflection Title (Markus Zorn 2021)

REFLECTION

The intentions of creating a deeper connection with Plastic View were primarily based on understanding the role one can play in such an environment. The research question asked on how the narrative of the residents be respected and uplifted in a humane way, while trying to achieve a relationship with policy and the people it seeks to relieve. The project started with understanding what the policy was, and what rituals and cultures existed in the settlement via the spatial lexicon study. This unique way of living was difficult to replicate without romanticizing informality. As a designer it was difficult to situate myself in this environment without the prior engagement with the site, as well as the approach matrix created with the UUC group at the beginning of the project. The task of responding to informality was difficult to design for, as it was not an easy task to judge how much authority should be taken in such environments where agency is fundamentally engrained. Having a project that deals with such tangible, real world issues made it more interesting. As the design progressed, one had to consider if the community would appreciate such initiatives, the feasibility of the task, as well as the real world possibilities.The aim was to create a design that could feasibly work in such an environment, should the possibility arise, and that made the engagement with Plastic View more challenging and ultimately rewarding.

LESSONS LEARNED

Having spent the past two years working in Plastic View, I have been deeply connected to the site and its people. Having uncovered stories, rituals and cultures within the settlement that otherwise I would never have understood, has changed my perspective on architecture and informality in a dramatic way. The one size fits all solution does not work in any environment, especially informality, and proper engagement, relationships and understandings need to be made in such tasks. Architecture is more than designing spaces, its understanding we can make a difference in people's lives. Architecture has the capabilities to enhance one's experience, while allowing agency to occur, allowing the people you design for to become the golden thread, especially in environments such as informal settlements.

ARCHITECT?

As the discourse grows in informality, due to the increasing amounts of informal settlements around the world, the role of architecture as an exclusive field must be re-thought. In order to remain pure to its goals and principles of relief one sets out to achieve in such environments, the amount of authorship one should have in informality needs to be reconsidered. Separating roles and tasks with sole authorship is not a viable route, and the role of a spatial agent should be taken more seriously. One who designs for informality and allows participation to occur within the process. designing with the community, for the community is a suitable response, and one that should be considered when approaching the task of relief in informality.

FINAL THOUGHTS

Although the intervention design was theoretical, the real world tangibility of the project meant that the investigation done would add to the difficult discourse. The project's aim in providing relief to informal settlements is achieved through an environmental regenerative approach. This initiative is viable because of Plastic View's already close relationship to nature and its surrounding context. Aiming to build on current rituals and ways of living, the benefit created through an agricultural landscape is directly responsive, and contributes to the discourse via a landscape architect's perspective. In engaging with the community, the rich potential that exists in these environments should not be disregarded, but uplifted and celebrated. Architecture as a whole, has the potential to do so, especially in a country with rich knowledge systems and deep connections between its people and the landscape. The potential is limitless, and if the ground works are provided through critical engagement now, then future relief will be an easier task to achieve.

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