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Timeless thresholds: adaptive interchanges supporting pedestrian life in Actonville

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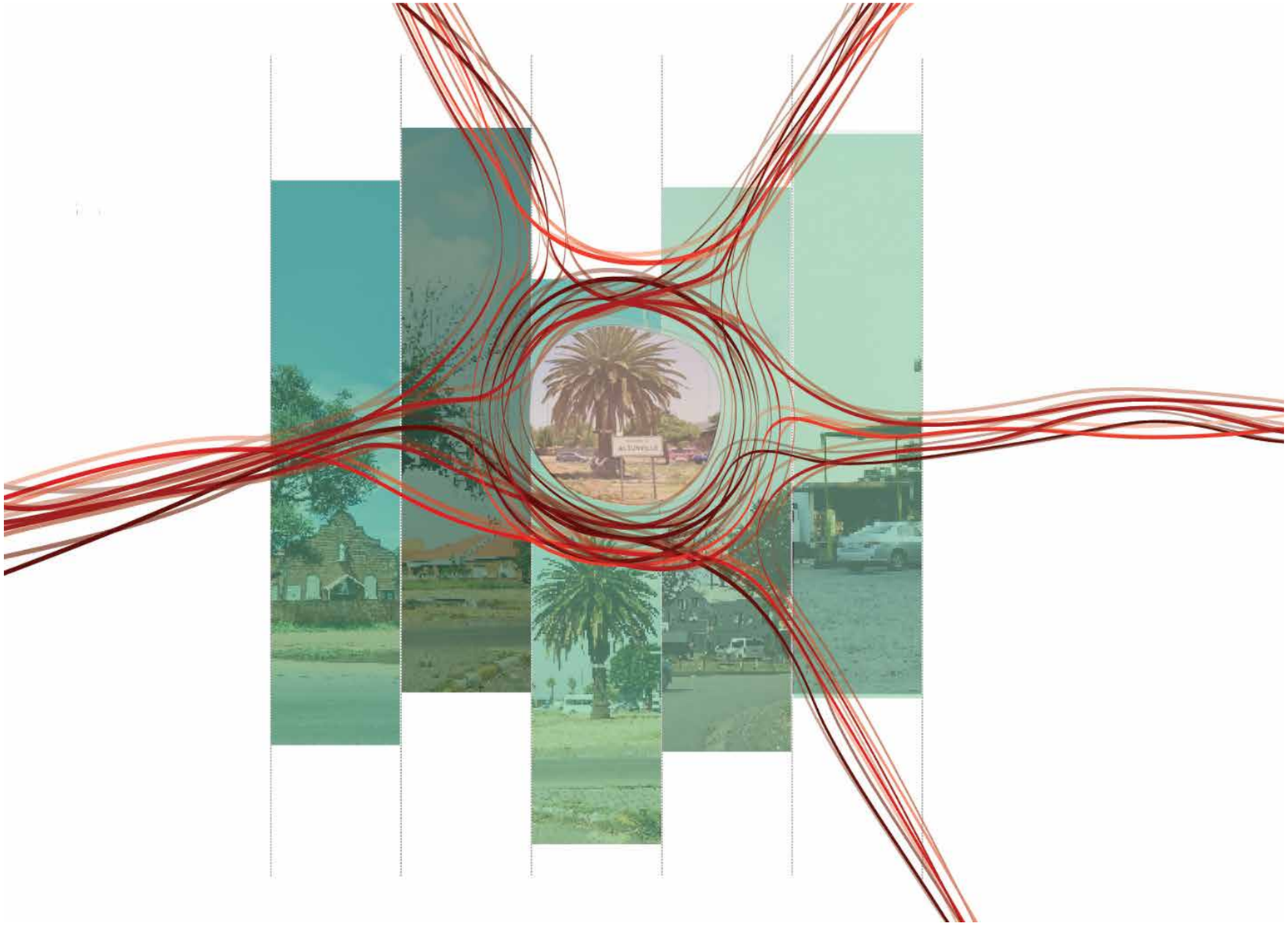

timeless thresholds

Adaptive interchanges supporting pedestrian life in Actonville.

Sivaania Naidoo
1609105

07 February 2023



I would like to dedicate these writings to my
late grandmother and brother...
My Mali ma,
Thank you for being an inspiration to me,
For showing me what braveness is and
what a strong woman is made of,
For showing me what true beauty is,
And lastly for always supporting me in chasing my dreams!

My Hanna,
Thank you for always encouraging me to follow my passion,
For being a gentle soul amidst the chaos of this world,
For bringing smiles and but only laughter,
And lastly for being you!

Fig 0.01 - Actonville centre.
(Bhana 2014)

Declaration

I, Sivaania Naidoo(1609105) am a student registered for the course Master of Architecture (Professional) in the year 2022. I hereby declare the following: I am aware that plagiarism [the use of someone else's work without permission and/or without acknowledging the original sources] is wrong. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have stated explicitly otherwise. I have followed the required conventions in referencing thoughts, ideas, and visual materials of others.

For this purpose, I have referred to the Graduate School of Engineering and the Built Environment style guide. I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my unaided work or that I have failed to acknowledge the source of the ideas or words in my own work.



Sivaania Naidoo

07 February 2023

Acknowledgments

Before thanking anyone, I would like to take a moment to offer my gratitude and love to my grand-parents and great-grand parents, for all their sacrifices and opportunities they fought to give me. Without your contributions and attributes, I would not be an inch of who I am today.

To my family,
My Appa and Amma, I am eternally grateful for the constant support and guidance you have given me. For always asking how can I help and being there to catch me when I fall. My sister, Pranave thank you for always being my emotional support and making sure I was well fed. My Peri Ma that has always been there to assist me, share her knowledge and love for her community with me. Avi, I will always be grateful for the boundless consultations and your ever-willingness to assist and give your all to me. Shantha, thank you for your belief and unwaivering support that is always constant. Lastly to my grandmothers' thank you for your love and support throughout the year.

To my supervisor Hilton Judin,
Thank you for your patience, understanding and constant guidance throughout the year. Through your support and direction, I have gained confidence in more ways than one. Thank you for everything you have done for me.

To my mentor Abdullah Abass
I am eternally grateful for countless discussions of Architecture and world views. I have learned a lot from you and the architect you are. But most importantly you have given me the gift of bamph!

To my friends,
To Hope and Kimal thanks for being my peace and sanity from undergrad to post-grad and always willing to assist. Mo, thank you for being my calmness amidst the storm of this year!

Thanks to anyone and everyone that has assisted me in any way in getting to this point. It is sincerely appreciated!

timeless thresholds

TIMELESS: **/ˈtʌɪmləs/** not affected by the passage of time.

A boundless typology created to connect users of all ages through supporting and creating pauses within Actonville.



Fig 0.02 - Thresholds of Reading Road. *(Bhana 2014)*



Lexicon

TIME: A nonspatial continuum that is measured in terms of events which succeed one another from the past through the present to the future(“Definition of TIME” n.d.)

THRESHOLD: The level or point at which you start to experience something, or at which something starts to happen or change(“Threshold” n.d.)

CHANGE: To make or become different(“Change” n.d.)

EPOCH: A long period of time, esp. one in which there are new advances and great change(“Epoch” n.d.)

LIMINAL: of, relating to, or situated at a sensory threshold: barely perceptible or capable of eliciting a response(“Liminal Definition & Meaning - Merriam-Webster” n.d.)

Fig 0.03 - Footprints of Actonville.
(Author, 2014.)



Abstract

The architectural project derives itself from the richness of its landscape set in Actonville, Benoni. The context places the project within a post-Apartheid framework that displays stains of impoverishment, degradation, contamination, and the dire need for a recreational space, an “In-Between Space”. A space that can act as a threshold to support existing conditions and extend itself to create new programs. Actonville contains multiple existing infrastructures that spill onto a common area, demarcating the chosen site. The conceptual driver of the project is developed around the notion of time and the cycles of reoccurring change it brings about. How can architecture adapt to support and uplift existing communities and their changing needs throughout their daily life?

The building translates into a threshold within the existing framework to connect the old with the new, the industrial and residential, and the pedestrian and vehicle. The project develops into a timeless building that houses various programs to become an extension of the existing context. The building is situated within a high-motion setting that creates its identity of movement and frequency. However, it introduces contrasting notions of slowing down, through concepts of fragmenting time to derive programs of continuities and discontinuities. Discontinuities that seek to provide users with an opportunity to slow down in their day and create connections to bridge old and new programs.

The building becomes a peripheral heart that extends its continuous threshold into communities, creating continuities of spaces of trade, learning, employment and play. It cuts through spaces by introducing discontinuities such as walkways/bridges and spaces of waiting between thresholds. These spaces will include aspects of memory that are extracted from the history of Actonville.

Fig 0.04 - Imprints of Singh road, Actonville. *(Bhana 2014)*

DOCUMENT STRUCTURE

The report's structure will be broken up into various chapters that unravel the process of the study through a time analogy.

CONTENTS

Inception Point-Locating through personal background.

Time plots-Theoretical understanding and basis for intervention.

Experienced Anatomy-Experiencing the present landscapes through sketches and mapping.

Exploration development-Exploring form, program and design translations through process sketches and details.

Ultimate bind-Final expressions of the proposed intervention through drawings and details.

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INCEPTION POINT



Fig 1.01 - Entrance-Circle palm tree.
(Bhana 2014)

CHAPTER 01

This chapter will look at situating the reading within the topic selection as well as within the document. It will allow the reader to understand the choice of selection as well as introduce the topic and theories being researched.

1.1 Preface

1.2 Introduction

1.1 Preface

(Personal background)

The project is a result of multiple experiences and moments I share, not only with the context but within my community.
Actonville, known to me as 'Action'ville was not just an area that was an aftereffect of the Group Areas act of 1950. Actonville became home to many Indian families that shared in each other's struggles. It became a landscape in which laughter and celebrations were shared but more importantly it became a setting in which hardships were shared.

Action'ville is the area I chose to declare I grew up in. It is an area that carries an immense amount of my childhood memories and ancestral heritage. My great-great grandfather had worked at Chimes hotel near the mines (today known as the Kleinfontein mines) as a waiter during the early 1900s. They had built their homes on vacant land in Actonville out of iron and wood.

The Veersammy's(my mother's side) together with the Govender's(my fathers side) were amongst some of the early families living in Actonville. My great-grandmothers(fathers side) family were amongst the many families relocated from their homes in Kalama Zhu, Boksburg to Actonville following the declaration of the 1950's Group Areas act. My great-grandmother(mothers side) was one of the first midwives in the area, who had delivered multiple babies in homes due to the lack of medical facilities in the area at the time. Both families had played an integral role in the development of not only the communities growth but also the communal development of the town. They were amongst the pioneers of the Benoni Tamil School Board(BTSB) and the Sivan Aalayam temple. They had made countless contributions to community organizations as well as welfare societies.

My grandfather was the Chairman of the Actonville management committee. He had worked as a woodwork teacher at William Hills High school and was part of many organizations that uplifted families in the community. My father's family had also played an integral part in the community, establishing a dry cleaners store (Target Dry Cleaners) on Govender Street that employed multiple people and helped other businesses open up beside them. The store was a typical mixed-use typology with the dry cleaners and commercial enterprise situated on the street edge with residential spaces above.

Actonville embodies multiple social connections that have lasted for over 100 years between community members and their ancestral heritage. These relationships have been carried over for multiple generations and continue friendships that begun with their forefathers.



Time is but a notion of a moment,
A moment that is now a memory.
A memory is but a notion of a fading moment in time.
A time that once was and is yet to be evoked through the lens of your retina and limbic system.

Time, an advent concept that is only grasped once it's too late, a notion that enraptures all that is, was and is yet to be.

The notion that is still yet ever moving.
A seeker of knowledge and gainer of truth.
A physical entanglement that cannot be held nor touched.

How does one begin to unravel the tellings of time?

Fig 1.02 - A collective of memories and contributions made in Actonville. *(Author, 2022)*

1.2 Introduction

The notion of time unravels

itself through demarcations,

Demarcations that allow the users

spontaneity and adaptability within

space.

A space not bound by its confines

nor through its use.

Released by its limitations...time?

1.2.1 Background & site

The premise of the research takes form from the site, located within the mining town of East Rand, Benoni. It is situated in Actonville, on the periphery of industrial and residential areas. The industrial area is the visual buffer zone that separates Actonville from Lakefield, an apartheid segregation of Whites and Indians. The exact site is a space that is part of an existing road reserve as well as vacant land around the traffic circle.

These spaces get filled with temporary programming to support the changing needs of users passing through. The architectural investigation follows from the formwork present on-site and seeks to re-formulate the way in which architecture supports communities changing needs? The architectural intervention aims to question and re-imagine the way in which buildings adapt through time and overtime to best support users.

My interest in the site draws on notions of how the space gets used and adapted by users through different periods of time. The site is centred around a traffic circle which not only marks the entry into Actonville but also allows various types of movements in and around the site to influence and create different scenarios at different times. The notion of various movements of traffic impacting the site directly allows questioning and re-imagining of a building which includes movement of pedestrians, taxis and vehicles that influence the architecture.

It allows for the re-imagination of an urban scale building that addresses various relationships within communities. It also creates the actual sites of interventions able to tackle multiple scenarios through various users.



Fig 1.03 - Site image of temporary market space.*(Bhana,2014)*

1.2.2 Fields of inquiry

The research seeks to answer the question of:

+ How various relationships within communities can be strengthened and uplifted through architecture?
+ How architecture can become a threshold for these various relationships?

The theory of time and architecture will be used as a means of understanding spatial conditions of architecture through time and how architecture changes over time.
The historical theory will enable an understanding of how the past has influenced the current landscapes of Actonville.
Lastly, the theory of ecology will enable an understanding and an extraction of concepts of rehabilitation and rebirthing of the once contaminated landscape.

The theory provides the concepts of intervention and an understanding of multiple theories connecting on order to provide a framework for the proposed building project.

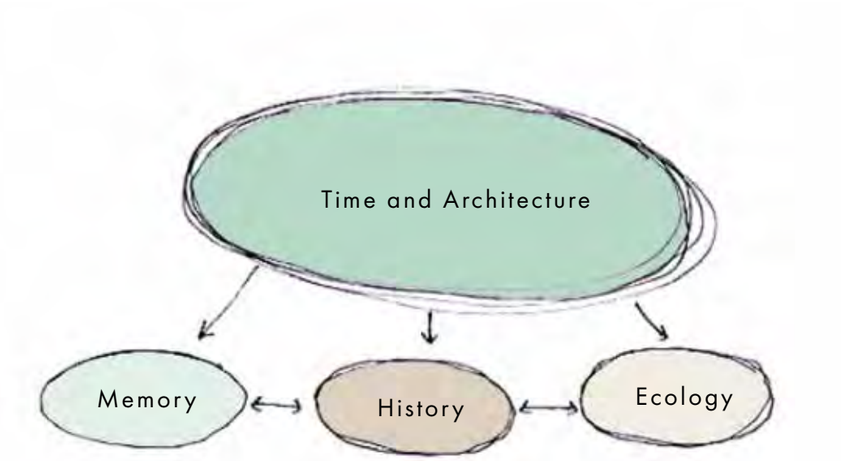


Fig 1.04 - Theory Inquiry. *(Author,2022)*

1.2.3 Research methodology

The research methodology will comprise of a creative research outlook in which, it will combine various research methodologies in order to interrogate and interpret various themes. The themes of time, memory and the history and ecology of Actonville will be used to structure the focus of the research. These themes will be explored through theory, site and precedents. The research will combine qualitative and quantitative approaches to gain knowledge and arguments that will become the basis of an architectural proposition.

The research will mainly look at Inductive research that will analyse the site, Actonville, Benoni. It will use ethnographic observational methods of mapping and diagramming the context. This will include mapping of various activities, typologies, networks of community as well qualities of the area. It will look at mapping these characters over different days and times. In order to gain knowledge on the history of the area, it will look at interviewing various members of the community, experts and professionals in the area. This will be done in order to gain archival information and imagery on the area.

Deductive research will focus on compositions of theory that build a theoretical basis of time and architecture. This will include philosophical concepts of time and memory that will be linked to an architectural approach as well as back to the context of Actonville. Additionally, it will look at case studies that can extract concepts of urban design, connectivity and community.



Fig 2.01 - Plots of time. *(Author,2022)*

CHAPTER 02

TIME PLOTS

2.1 Instantaneous Architectonics

2.2 Memory

2.3 Culminations

This chapter will look at the theory of time and architecture. An exploration of notions of time, from a philosophical manner and from an architectural perspective. The varying frameworks will be extracted to develop concepts of the building including experiential translations that will be incorporated. It will further expand on understanding of spatial notions of time, thresholds of time and adaptations of time.

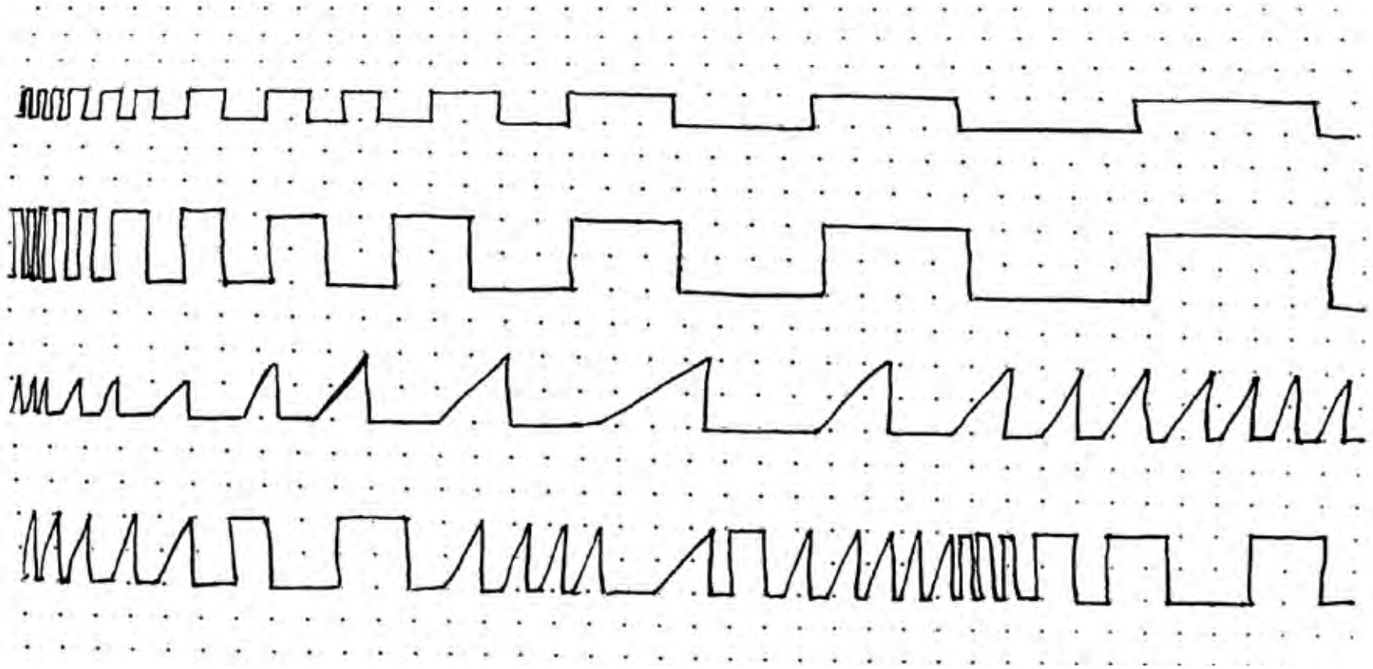


Fig 2.02 - Instantaneous motions of time. *(Author,2022)*

2.1 Instantaneous Architectonics

The theoretical premise establishes itself from the understanding of the chosen context, which is a result of the author's personal background and the conditions in the area. These conditions not only seek attention but alleviation within the community. The theoretical argument is therefore based on theories that will support the conditions of the context and chosen site.

These conditions are a result of site readings that display changes over time, movement, and a high sensory nature. The primary premise will focus on the notion of time that explores these conditions concerning architecture and vice versa. It will explore these intertwined and interrelated relationships between space and time. It will further expand on spatial conditions over time to extract continuities and discontinuities within the contextual setting.

How do we begin to unravel the tellings of time?

The concept that is practised but not perceived. The telling that shows no understanding.

An everyday movement that shares truly little recognition for its once ephemerality.

The exploration of time, from a philosophical manner as well as from an architectural aspect. The varying frameworks of the understanding of time will be extracted to develop the intended program of the building including experiential concepts that can be incorporated into the building and overall experience. The chapter will further expand on an understanding of spatial notions of time, thresholds of time as well as the adaptations of time.

Time can be thought of in vague terms or can be considered through a highly speculative and philosophical manner. The notions of time are yet prominent in either way as it is an intangible factor that affects us in physical ways. Therefore its understanding through theoretical frameworks are prevalent.

Through the study of time, we can understand the importance of change as it describes our movements and regimes as ephemeral moments that are never fixed in time or states of motion. This abstraction of time allows one to understand the value of the present reality as a fixed state that is an ever-changing experience and being. As the theorist Swart explains it is always being viewed against the past, that which occurred and that which will occur, the future. (Swart 1989, 3). For him, the present becomes the means in which we connect the past and the future(Swart 1989, 3). The current situation in architecture then becomes the question of understanding time and the existence of the building's nature over different periods of time, past, present and future.



Fig 2.03 - A visual representation of time through architecture. *("Gallery of Architecture and Masks: A Visual Representation of Time - 10" n.d.)*

2.1.1 Perceived change

Time can be described as a construct that is used on a daily basis, through our movements and the way we experience our daily routines. It becomes a referential point of view that enables us to conduct certain activities or tasks within a given amount of time or at a specific time. However, the concept is not constricted to our menial tasks, it becomes a relevant aspect of our daily lives. As time passes or moves, many aspects get reflected through a change, these changes might occur physically or through mental moments. The historian Paul Fraisse describes it as 'perceived change', the continuous and perceived continuity(Fraisse 1963, 99) that occurs once we realize a change has taken place and we perceive that a change in time has occurred.

> Fraisse states: 'Man, lives amidst change, even before he becomes aware of the fact that he himself is changing, he sees continuous changes in the world around him''(Fraisse 1963, 1).

These refer to a physical, brief stimulus that depicts instances that have passed through time. For Fraisse, these become thresholds of a duration(Fraisse 1963, 99), holding these moments within a time frame.
For example, in the notion of walking from point A to point B, it is only once we realize that we are no longer at point A that we perceive a change in time or that a duration of time has passed. This can be seen as a physical change that has occurred. However, one can be standing at point A and still perceive a time change that might not be physically apparent however, occur through the user's memory. This can be viewed as a mental change that occurs internally. This carries forth a concept of time that is both in the moment and carries no physical movement. A description of experiencing time both instantaneously and simultaneously that allows the users to experience the past and present while projecting it into a future possibility. The concept of time can be expanded and described through various notions and varying perspectives. Fraisse disregards the conventional categories of time(physical, biological, phycological and social time)as these describe a series of changes that limit the perspectives of psychology (Fraisse 1963, 13). This notion of time can be further explored through the lens of philosopher Henri Bergson that categorises time through a psychological perspective that expands the notion through metaphysical conditions(Fraisse 1963, 13).

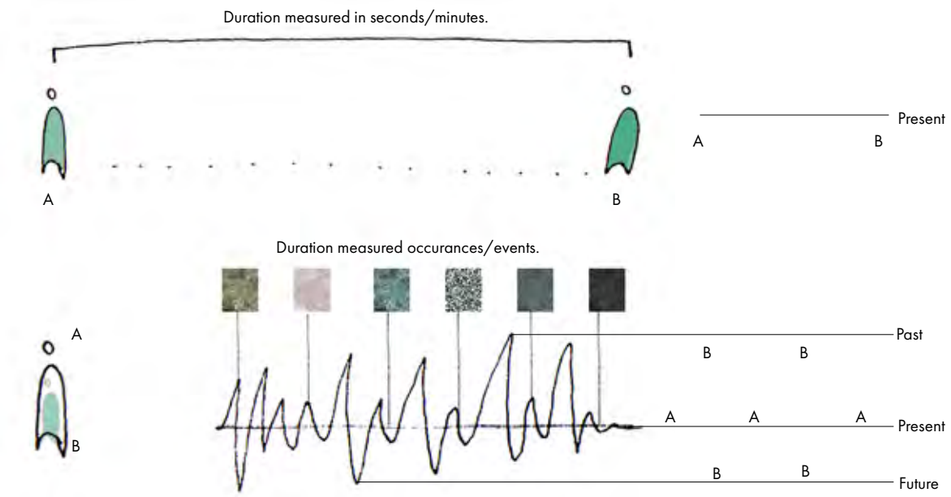


Fig 2.04 - Objective time vs 'la durée'.*(Author,2022)*

The philosopher Henri Bergson distinguishes the notion of time into two categories namely 'objective time' and 'la durée'(Moravec n.d.), time thought and time lived, the rational idea of time and the sense of time. Objective time is observed through the physical means such as a watch, clock, stopwatch, and even a calendar. It provides a physical means of measuring something intangible such as time. Objective time is what we are most familiar with and use on the day-to-day basis of constructing our daily routines and various activities carried out. Therefore, from our example, we can deduce that the moment from point A to point B can be described through objective time, where one could use a watch or a stopwatch to calculate the duration of time from point A to point B.

Time is defined by the Merriam and Webster dictionary as the "nonspatial continuum that is measured in terms of events"("

Merriam-Webster"). Time describes itself as a measuring device through events that aren't spatialized but rather idealised in one's mind. This notion of time places events, occurrences or moments in a non-linear or linear pattern that can connect the user to their past. A notion described by philosopher Henri Bergson as 'la durée'(Moravec n.d.). 'La durée' relates to time lived or the way in which time is experienced. It contains a vaguer definition that begins to fill the void of the definition with inner experiences that are much more personal than the number of minutes in an hour or hours during the day. 'La durée' considers the influence of subjective matter such as one past, which includes their memories, past experiences, and emotions that begin to encapsulate their mind during the moment.

For multiple decades, the built environment has been largely shaped through the lens of social, economic and financial circumstances that have influenced designs and the way in which space gets used. The calibre of these designs showcased high levels of technicality, function and industry standards(Geidion



Fig 2.05 - Time lived.(Author,2022)

1967, 430), this was as a result of man's potential at the time(Swart 1989, 4). However, the influence of other factors such as feelings, emotion, time or the consideration of the influence of time was rarely taken into consideration during that time. This was largely due to the fact that immeasurable circumstances such as feelings, emotions and change over time were considered as a threat due to their arbitrary nature(Swart 1989, 4). This in turn developed concepts and designs that compromised of logic and functionality with little to no consideration of intangibles such as user memory or experience.

Henri Skolomoswki describes the Renaissance period as the first era to include other factors such as enlightenment through object explorations(Swart 1989, 5). Explorations of art, sculptures, paintings and more("How the Renaissance Influenced Architecture | ArchDaily" n.d.) began to influence the way in which architects conceptualised spaces. This in turn started the movement of ornamentation and decoration. Swart describes this a style of architecture that became known as the romanticism of the revival of Gothic architecture. It is an architecture that begins to express a sense of romanticism filled with emotive language expressed through the details of ornamentation. This style of architecture placed intimacy, love and romance at the forefront of the design and building but also within the city. It has created an architectural language that speaks to the user's emotions as well as to their function.

On the other hand, modernist architecture showcases simplicity, clean lines and the influence of science and technology as the basis of a design. This in turn has shaped multiple design methodologies over the years. As modernism strips away the ornamentation and decoration, which was previously romanticised in Renaissance architecture. However, modernism incorporated concepts of enlightenment and liminal spaces that created a sense of pause as well as reflectivity within their designs. In addition to which the increasing rate at which modernism is evolving(Guggenheim 2009, 39), the urge to reminisce and sentimentalize the old becomes an ongoing search for an appropriate language of architecture.



Fig 2.06 - Renaissance architecture's romanticism.
("Gallery of How the Renaissance Influenced Architecture - 11" n.d.)

An architectural language that is expressive of not only the now but is able to evoke one's perceived sense of change. A change that is both tangible and intangible. An expression of the building that allows one to perceive the change physically, as well as evoke an emotion within the user. A threshold that holds the user in a liminal space that allows them to experience where they are physically and metaphysically through their past and future.

A simple example of this concept is the way in which architects design thresholds or more the visible threshold, the entrance. Entrances have been the visible thresholds of a building, allowing the user to perceive change from the outside to the inside, monotonous heights to double volume spaces and of course changing materials and textures. Simple elements that when designed in conjunction with the overall concept and atmosphere desired can bring together this combination of tangible and intangible.

2.1.2 Continuities & Discontinuities

Bergson's descriptions of categorising time through 'la durée' allows one the realisation that there are multiple layers and multiple understandings within the word. Time is therefore expandable and individualised through one's own experiences.
Fraisse denotes time as moments interwoven together, a result of sequential experiences that contain reoccurring moments. A result of continuities and discontinuities intertwined together through moments of fluctuations and fixed stability(Fraisse 1963, 1). These looks at describing the different moments in one's life. The abstraction of time through continuities and discontinuities becomes extremely interesting as a means to describe everyday life and various thresholds of time.

Continuities described by Bergson emulate the 'flow or passage'(Bergson 2002, 205) that is self-sufficient and experienced naturally. T hese moments look at expressing consistent moments of uninterrupted changes within daily life. These can be abstracted into the moments or durations of fixed momentum such as school or work. It begins to describe continuities through the lens of productivity, the consistency as well as a fixed, reoccurring action. The result of a sort of permanence that is created within daily life through the descriptive occurrences.

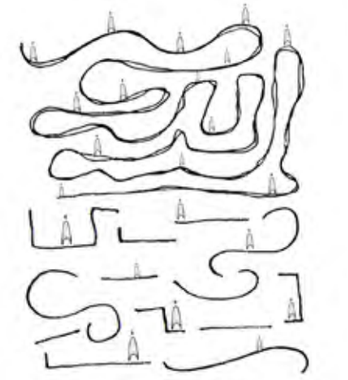


Fig 2.07 - Continuities and discontinuities. *(Author, 2022)*

Continuities additionally, can be looked at through the means of a continual happening, an ever-expanding notion that continues throughout one's life. For example, from the time we are small, we go to pre-school, then primary school, high school, university and then find employment. However, even during employment we might study additional courses and undergo various trainings. The role of education and learning becomes an ongoing constant threshold throughout one's life. This is largely due to technology and our advancements in science, there are always additional resources being made available and new research being carried out. The need to upskill in an ever-changing society becomes extremely relevant, especially in a growing community in which the basic educational frameworks are in existence. Therefore, there will always be a need for communal centres that incorporate resource centres or information centres. Places in which not only the youth can expand their knowledge but also whereby the elderly can transfer their knowledge and perhaps gain new knowledge. A place in which the intangibles can exchange through engagement within their community.

Discontinuities can be abstracted into the various moments of pause, waiting and anticipation during the day. They are moments of 'ineffectiveness' within the realm of productivity. Nevertheless, these are the moments that allow one to engage with the outside world. They are moments of reflectiveness that allow one to re-engage with the present. For example, while travelling to a meeting, the time taken to get to the destination might be seen as a discontinuity within one's day. This is largely due to the fact that one can't be productive within that time however during this time, one is usually overwhelmed by thoughts and reminders of what to say or preparations for the meeting. Thus, indirectly that time becomes productive, until there are potholes on the road, and one has to swerve left and right to avoid them. While we all might share a great deal of animosity toward potholes and the terrible road conditions, the potholes allow us to re-engage with the present. This re-engagement allows us to acknowledge our surroundings at that moment. We might not be appreciative of the roads in South Africa however they do provide us with moments of the now and realigning and reacquainting ourselves with our surroundings. Discontinuities become more than interruptions, they become vital moments of pause in experiencing an otherwise fast-paced lifestyle.

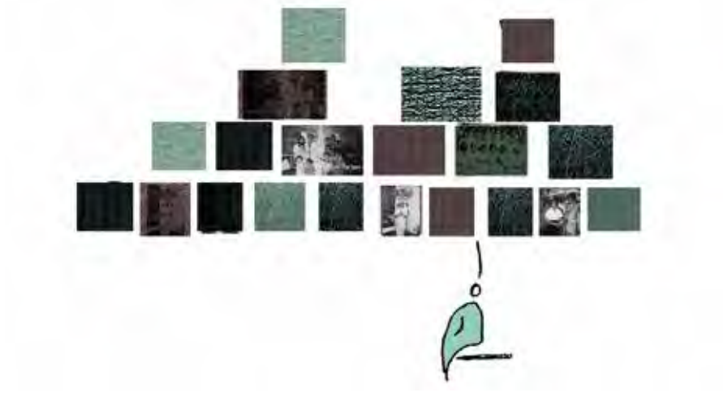


Fig 2.08 - Moments of reflectiveness. *(Author, 2022)*

Through understanding time from the perspective of continuities and discontinuities, it allows one to consciously reflect on moments in their life. This allows one to break up these moments into continuities and discontinuities. Which makes one aware that while discontinuities might initially be considered a negative moment in terms of productivity. It is actually the discontinuities within one's life that bring meaning and lost senses back. They allow us to actually stop and witness the passing moments, allowing us to slow down time. These become vital moments that disconnect one from their otherwise demanding schedules and rushed lifestyles. It is without a doubt that our lifestyles have become challenging and extremely stressful centred around work and our various busy schedules.

Additionally, these moments of disconnect are there to provide one with a slight relief, a breather, a reminder that there is more out there and that sometimes we need a gesture to be in the present every now and then. Moreover... to slow down. It is only once we disconnect that can we see the bigger picture, which allows us to reconnect with an added motivation and strength. It becomes vital to create a balance between the discontinuity and the continuity in order to shape our desired outcomes. The ultimate outcome would be to allow the discontinuities to break up the continuities and create effortless flow and movement between the two. This would allow for moments of disconnect that then merge into moments of realisation and determination into the desired activity or frame of mind. Moments of pause can be created through internal corridors that overlook into courtyards. A courtyard that allows one to sit down and breathe for a few moments in silence. Essentially these are spaces of contrast to the building and its program.



Fig 2.09 - Moments of pause created through corridor. *(Khosla Associates,n.d)*



Fig 2.10 - Imagery of "Continuity produced by discontinuity" within a landscape. *(Richard Serra Shift,n.d.)*

2.1.3 Ephemerality

Time contains an extremely ephemeral nature, as Fraisse describes it, which is ever-changing(Fraisse 1963, 10) to which each human develops a notion of change or progression of changes. Fraisse abstracts the human reaction to change into three categories of change namely, conditioning, perception and control over change(Fraisse 1963, 11). Conditioning to time looks at the technical conditioning to time, the activity relating to the time of day (day to night progressions)(Fraisse 1963, 11). This usually creates a routine or rhythmic pattern within one's daily life. Perception to time looks at the apprehension of changes that occur simultaneously(Fraisse 1963, 12). This expresses the order of inducements in addition to their time frame, under what conditions does the mind perceive instantaneous into a simultaneous notion. Lastly, it looks at the control over time, human nature has always been fixated on being able to control that which is irrepressible, namely time. The notion of being able to control that which is uncontrollable. Through the use of memory, man can forecast the anticipated results, this is done through past memories that can assume a futurist resultant(Fraisse 1963, 12). These place the human reactions into the ephemerality of time within categorisations that allow one to understand the progressions to change within the human perspective.

Fraisse explains that "We become conscious of duration through our feelings of time" (Fraisse 1963, 12). Fraisse describes the human perspective to which we become aware of durations is through our feelings of time. The notion that begins to describe the emotive quality behind the concept of durations and time. This is ultimately the consciousness behind the awareness of challenges that become present within our realisation. The period between what we are doing and what we would like to do(Fraisse 1963, 12). As human beings, we have adopted an extremely ambitious characteristic to which we are always searching for more. The comparative analogy of where we are vs where we should be and that we are always in search of more and more. Fraisse uses this description as a means to describe duration through the various changes.

Our present situation allows us to differentiate from one variation to the next as Fraisse explains that the intervals become a psychological reality when the present does offer us that direct fulfilment (Fraisse 1963, 199)or desired outcome. The current situation alarms us that a change is occurring or is yet to occur. The feeling of our current circumstances not being able to bring us joy or contentment within life is usually followed by a change that will respond to this circumstance. This notion of not being content or not being concerned with where we should be is what allows us to conceptualise duration. If we are content within the 'now' then we do not need to worry about anything else. We are living in the moment and truly satisfied with where we are.

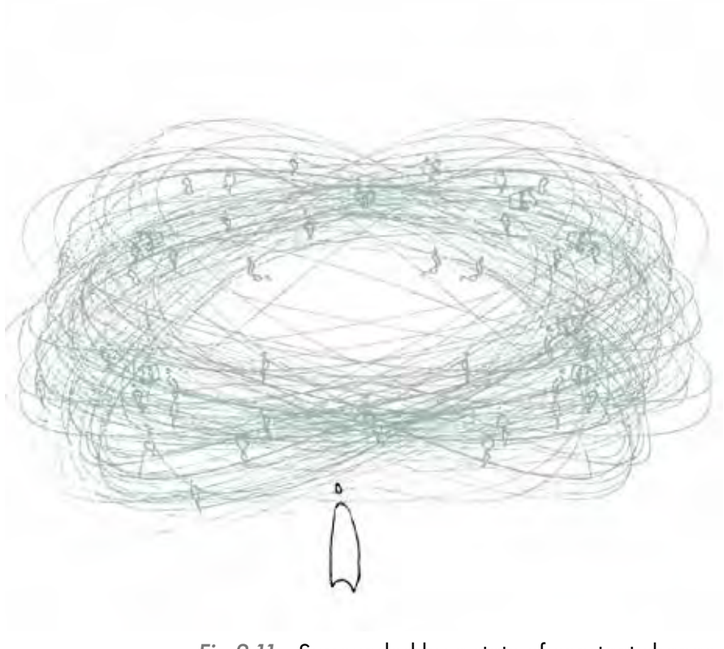


Fig 2.11 - Surrounded by a state of constant change.
(Author, 2022)

These concepts of the now vs the where we should be can be extracted into understanding various surroundings and their daily life within Actonville. The surroundings derives itself from a low socio-economic class. The majority of the community are from a low to medium income groups(GAPP Consortium 2019, 282). The status quo of the area is currently in demise due to the increase in density, the lack of space within the area as well as in schools. The context of Actonville however does present this notion of being concerned with the 'now' through their daily life.

This is particularly true in the choice of the site; the main objective is:

+ What do I need now?
+ How can I use what's there to help me achieve my goal?

The vacant land in front of the church adapts into parking for Sunday Mass and on a Monday is used to repair cars. The context shares a beautiful notion of being in the now and using it in our surroundings. However, how can this notion of 'being present' by filtering itself into uplifting the community and change within the area?



Fig 2.12 - Contextual adaptations.
(Author,2022)

The consideration of time within the architectural realm has always been one of an absent factor in regards with physical adaptations of buildings. However spatially, architecture has always been concerned with the term adaption, this can be seen in the first renditions of the prehistoric hut(Schnädelbach 2010). The hut displays strains of the conditioning of time, the manner in which one adjusts daily activities towards the corporal change in time. It depicts how one space can be adjusted to various daily activities. For example, the combination of sleeping, eating and leisure that fuses the programme of a bedroom, kitchen and living room into one space that is able to adapt to one's needs during the day and night. (Schnädelbach 2010)

Buildings' relationship with time is complex, as it can alter in use however the given typology automatically enables the buildings form(Guggenheim 2009, 47). This makes the process of change, more complicated as more money and labour would be required to be spent in order to repurpose the building into its new intended use. Nevertheless, had this change been taken into consideration during the design process, it would be a much simpler. The manner in which the building gets used as well as how the building reacts with changes over time



Fig 2.13 - Marc-Antoine Laugier's drawing of the primitive hut.
("Primitive Hut — Franzsiebler" n.d.)

becomes vital. This is due to the fact that surroundings are always changing with property values, social and cultural aspects as well as monetary investments, that are always in fluctuation. This in turn affects the building's identity as well as its once intended use.

> The historian Swart argues in his paper on time that: "then time specifically in its paradoxical role as both tie and divider of events, past and present. Time is fundamental to the structure, nature and meaning of history." (Swart 1989, 6)

Swart explains the intertwined relationship between time and building through the quote above, explaining it as a connector and separator simultaneously. The notion that can connect us with our past and disconnect us from our present, it is able to bind us to a future reality by making us aware of how far we have come. They can be abstracted in the way the building becomes the connector to various notions such as history, memory, nature and time. These interlinked concepts place the user at the forefront of the design while considering evolving factors such as time and nature. By prioritising the user in the design of the building, the building is able to better suit the user and allows them to form personal connections within the building. These personal connections then allow the user to form memories within the space.

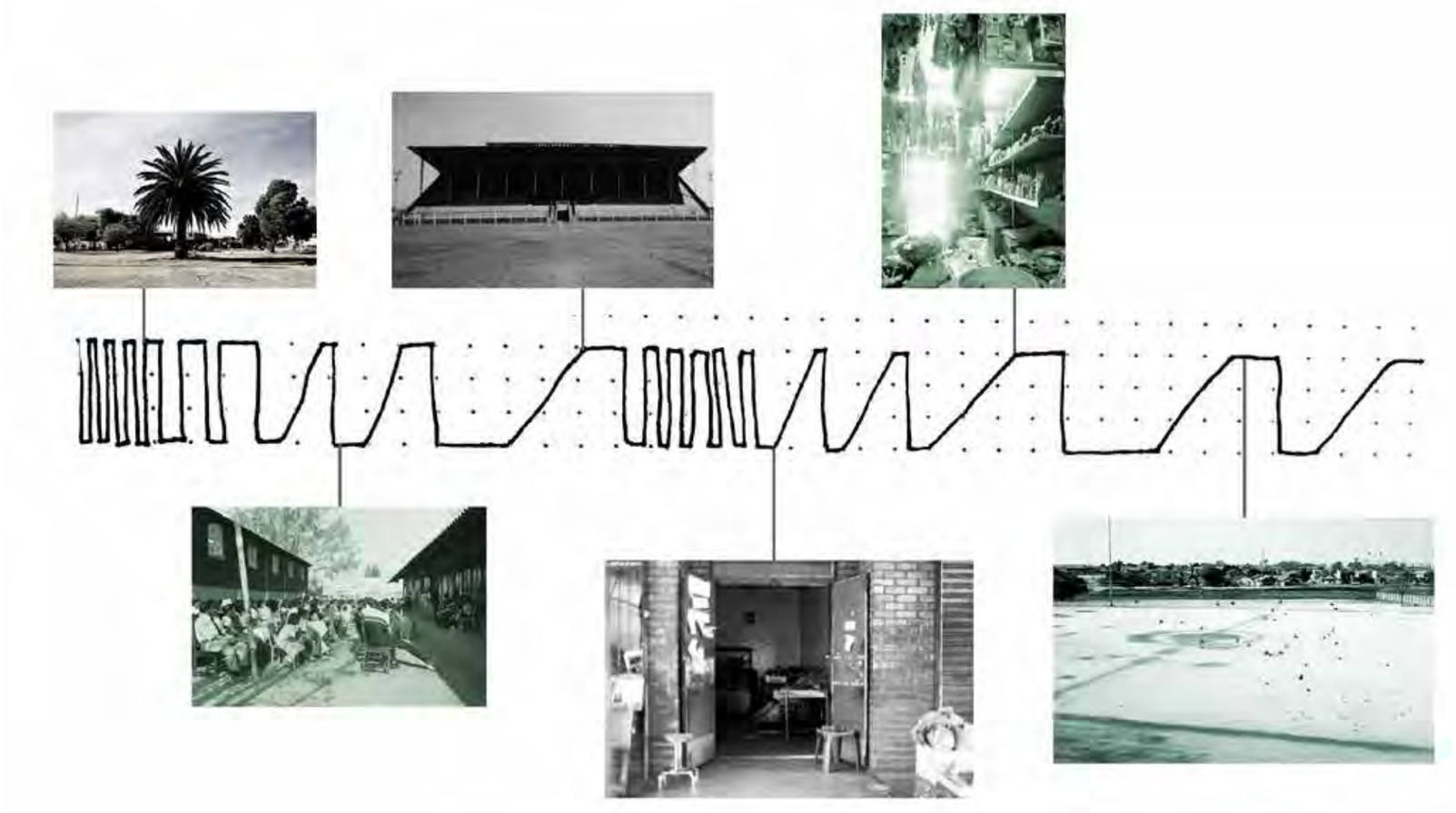


Fig 2.14 - Memory within time. *(Author& Bhana,2022)*

2.2 Memory

This chapter will look at understanding the various notions of memory as well as the entangled relationship it shares with time. It will explore the notion of memory in a personal capacity as well as in a communal capacity. The research will also look at understanding memory as a means to connect users within the community. It will touch on memory architecture that is able to relate buildings to time as well as stabilize memories within them. Additionally, it will take a further look into the senses within architecture alongside to memory associations.

The memories of our abyss,

sending us into a whirlwind of emotion and disparity. The unknowns of tomorrow,

comforted by the knowns of yesteryear with the feelings of the once was.

The carnal simulations attach, each transcending into a once.

A once filled with triumphant quests that put a beaming glow on your face.

A once that encapsulates the uncomfortable, the aches and the anguish.

For it is only once we've felt so deeply that we cherish each moment just a little more.

2.2.1 Encapsulated senses

Memories are described by Paul Fraisse as "a series of experienced events through the laws of association"(Fraisse 1963, 6) allowing one to become aware of the relationship between the before and the after. His understanding of memory and time allows one to understand memory as an aspect of time, that one's memories allow one to perceive the change that has occurred. His abstraction of time and memory places it within a personal and subjective means of understanding change. The change is often linked to various associations and sensations. He goes on further to describe how one's memories are often displayed through mental images and these mental images provide our bodies with various sensations(Fraisse 1963, 7). Those memories don't only evoke sensations but recall other associations within a singular memory recollection. For example, this can be seen in a memory of the beach; one's mind will automatically recall other memories associated with the beach. This allows one to perceive the procession and succession of the memories which again allows one to process these changes as well as the sensations that come with it. Fraisse's understanding connects with the subject on a personal level that allows them to relate it to themselves in order to understand time as well as their changes. This not only reconnects with their memories but additionaly connects to their emotions being altared that revives the sensations again.

> Bergson says that: "It is a memory within change itself, a memory that prolongs the before into the after, keeping them from being mere snapshots and appearing and disappearing in a present ceaselessly reborn."(Bergson 2002, 205)

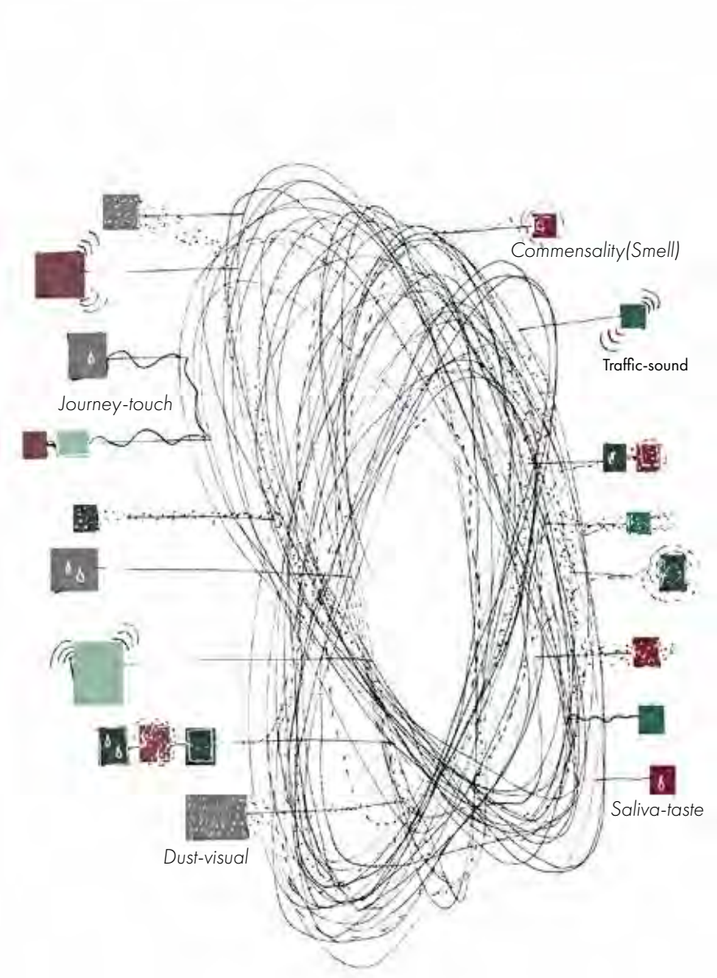
Bergson refers to memory as a means of duration, a duration of various recollections that occur before and after to place the moment within a duration. He refers to memory as an external memory and not one of personal significance but rather as a distinction from its past and a preserved form as a memory of change(Bergson 2002, 205). This depiction not only creates a varying perspective of what we

retain as a memory. In addition, it creates a notion of a memory that describes duration as a neutral concept. A means to connect to anyone in a standard understanding of the extents. The memory is but a fluid notion of our life, it is free of everything that is complex and challenging, it is an uninterrupted notion without separation and transition.

Bergson goes on to describe that without understanding duration one cannot understand time or memory(Bergson 2002, 205). This understanding of memory can be abstracted into understanding memory as a disconnected aspect that influences change. An aspect that is purely transitional, free from any personal entanglements or challenges. The memory then becomes an element of consciousness between various states. Bergson states that our internal lives are interconnected to our bodies and our environments. This leads to the consciousness duration that is linked to our physical consciousness. As Pepperell describes it as our physical consciousness being directly linked to our brains as well as to our energy(Pepperell 2018). Energy refers to the perceived conflicts of movements and senses. This introduces the idea that while our memories may not be intimately linked to us, it is linked in the way in which our surroundings trigger our consciousness. This then allows us to conclude that certain sounds, smells, sights and textures begin to influence and activate certain memories. These memories can then become subjective or remain vague. In addition, they begin to influence the experience of the duration by creating various memories. Memories that then become encapsulated in various surroundings.

> The historian Seremetakis states: "Sensory and experiential fragmentation is the form in which this sensory history has been stored and this dictates the form of its reconstruction." (Seremetakis 1993, 2)

Memories are intertwined with one's senses; the sensorial experience allows one to relive the moments that once were. The senses spark a tangible experience to an otherwise psychological experience. The senses become a means by which to exchange meaning, memory, experience and cultures(Seremetakis 1993, 1). The senses can be used to transport users into various eras and moments within time. Historian Seremetakis uses the 5 senses as a way in which to connect her travels to her research but additionally connecting her ancestral heritage to her own within varying frameworks. She makes use of saliva(taste), the journey(touch), Traffic (Sound), Dust (Visual) and reflexive commensality (Smell) to categorize her travels and research(Seremetakis 1993, 1). The memory fragments itself into senses and experiences to create a recollection. The senses break up into tiny experiences that then form a collective memory. What is interesting to note in her research is the way she begins to describe her experiences. These descriptions become extremely reminiscent of the actual experience. Thus, creating a dual memory with the reader as she allows one to feel her experience through her sensory description. She uses dust to explain not only the visuals but dust as a form of historical sedimentation, one that is part of an archival narrative(Seremetakis 1993, 14). One can abstract the notions of this description, but also various translations of the sense and those senses that are not only what you can experience personally but also through narratives of storytelling.



This understanding of the varied relationships between memory and one's senses can be extracted into that of storytelling through architecture. The way in which architects can connect the various senses to trigger the user's memory as well as narrate an archival of context through its surroundings. The theory of critical vernacular architecture begins to describe these intertwining relationships between time, memory, place and senses(Brown and Maudin 2012, 340). It depicts the style of architecture as being part of its context and of its people. This is done through the use of local materials that are familiar with the users however using it in a way to narrate a story of the building as well as movement. By using familiar materials in ways that trigger the user's memory it allows them to connect with the building as well as their own memory or ancestral heritage.

Fig 2.15 - Sensors as experiencing memories. *(Author, 2022)*

2.2.2 Re-collective objectivity

Memory architecture begins to unravel the means of memory and time through objects and buildings. Memories can be linked to various settings that enable their meaning such as personal, family, town as well as cultural and communal memories. These share the vital characteristic of memory which is the connection or recollection of the past(Guggenheim 2009, 40). The sociologist Michael Guggenheim uses Actor-Network Theory (ANT) which uses theories of science based on material technology as a means to translate it into the field of memory. Non-object (Intangible) based memories become very difficult to translate to others as well as unpredictable as they are mainly based on the memory of the brain. Object(tangible) based memory allows one to transfer value and uses of present and past(Guggenheim 2009, 41). The tangible objectives provide a more constant transfer of memory which also allows one, a more sensorial experience that can be associated with their own. These objects allow for intimate memory collection, however, become less successful in terms of collective memory associations. Collective memory associations refer to multiple people or multiple networks.

Guggenheim notes that there are two processes used in building memory, namely functional systems and the accessibility and usability of objects(Guggenheim 2009, 42). The functional system aims to create a coordinated system that allows for multiple shared memories to correlate within a realm. This notion makes use of various technological programs that combine various discourses into a binary code(Guggenheim 2009, 43). The use of functional systems to control time telling within art museums is usually through either an isolation or multiplication. The isolation process allows for a more focused approach which usually depicts a high valuation of the object and a higher stabilisation of memory recollection as it is a singular item. The multiplication process looks at a diverse grouping of objects that relate to each other's narrative. This process looks at objects that associate with each other and feed off each other's history allowing for a more narrative memory recollection process. The abstraction of the idea of singularity vs multiplicity becomes significant in the experience that is being created. A singular notion depicts a clear focus whereas the multiplicity allows for groupings that slow time down as there are multiple objects or areas of focus. A process that can be simply translated into a building narrative, a main entrance depicting clear entry or exit versus multiple rooms situated around a courtyard. The multiplicity allows the user to engage with multiple narratives that feed into a singular notion, whereas the singularity allows them a focused narrative.

Guggenheim translates these concepts of singularity and multiplicity into buildings by relating them to time and memory. This is categorised into three types, site, local stability and lastly their temporality (Guggenheim 2009, 46). The choice of site is important, as the building is closely linked to its context, a context that will change over time. A singular identity that is influenced by the multiplicity of its context. The local stability refers to the uniqueness of the building, what it has to offer its surroundings as well as the people of the area. How can a singular building influence multiple people? How does it provide stability to the area. Lastly, the building's temporality depicts the notion of an ever-changing identity, as our lives and context circumstances are in a constant state of change. It refers to the building being able to be repurposed in order to serve a different use or multiple other uses. Lastly, the notion of a fixed structure that allows for flexibility within its use and purpose through its lifetime(Guggenheim 2009, 47) . A singular structure with multiple purposes that is able to serve multiple users that serve various communities.

These notions each begin to influence the way in which the building gets designed and how it will be used. However, it is important to note that as much as architects enable the way in which buildings get used it is always the user that will adapt the space to their needs throughout their daily use. The architect can only guide the way in which users take advantage of the building and space.

It is therefore important that we allow for flexibility and adaptability within our design that enables the user to make the space their own.



Fig 2.16 - Singularity- Sonic Arcade, a depiction of shaping space with sound. *(Sonic Arcade: Shaping Space with Sound" n.d.)*



Fig 2.17 - Multiplicity- Multiple displays creating a singular narrative of Soundcity. *(STANZA: Soundcities, n.d.)*

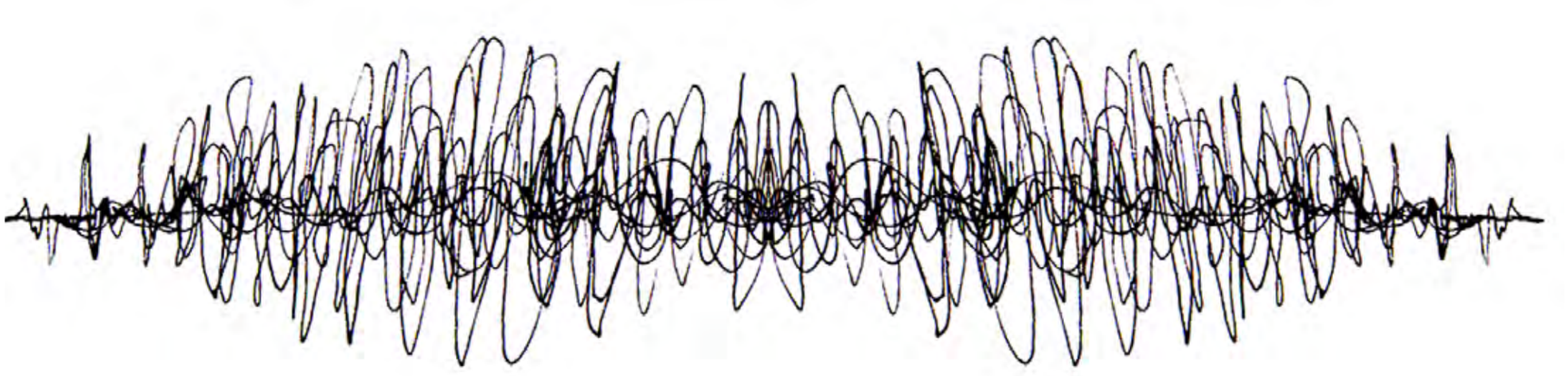


Fig 2.18 - Collision of theory. *(Author, 2022.)*

2.3 Culminations

This chapter concludes the theoretical premises and brings forth concepts of theory that will be extracted into building translations. These translations will be used within the conceptual stages of the design development that will allow the final design to be moulded around.

The tellings of time yet endless have been
bound to that of us beings
And are but a notion of daily life
That colludes each day
To form collectives....

Collectives that we perceive as our memories...
Our memories
Yet bound by us intimately
Are yet abundantly obtainable to others
Through the sense we all experience...
Our memories
Have become but a notion of who we have become..

Time and memory are but notions of the same ocean
Seeking an ever-constant quest.
A quest that has discovered their fixed state in that of the physical realm...

The research has looked at understanding the theoretical basis through analysing the theory of time and memory as a means to connect to the context of Actonville. The theory aimed to understand the way in which time is perceived in order to slow down time within its highly motive and fast paced context. The theory of memory seeked to question and understand the methods of how our memories are activated and can lead to associations of other memories. This was done in order to understand how a building or an object can connect the user to their memories and contextual past.

The theory of time looked at understanding the complex theory of time through various lenses such as philosophy and architecture. It focused on understanding time through the way humans perceive time and change, durations of continuities and discontinuities as well as times ephemeral nature within buildings. The research looked at these concepts within the realm of time as well as how they relate to architecture and building concepts.

The understanding of these elements of time has brought forth notions of how they can be abstracted in to building notions such as form, thresholds and programming. The theory of perceived changed allowed an understanding of how a person perceives a change has taken place which can be abstracted into thresholds. Thresholds of entry or exit that can allow the user to experience a change through a portal of change. The understanding of durations of time through continuities and discontinuities allowed for time to be abstracted into program of continuous activity through which discontinuities break up the continuous activity. The discontinuities are seen as moments of pause and reflection upon which users can alternate between productivity and reflectivity. Continuities and discontinuities were also abstracted into form making in which enabled slowing down time. The understanding of time through ephemerality and building allowed the understanding of times ephemeral nature within buildings static nature. The need for our buildings to be adapted by the user for their needs.

A translation of a building to serve multiple users and contain flexibility to adapt to various uses. The theory of memory has focused on understanding memory through the way it is encapsulated through ones senses as well as through the recollection of objects. Through understanding the way in which our memories are triggered through our senses, it allowed us to realize the way in which our surroundings impact us. It understands that certain senses when triggered can recollect certain memories associated with the sense being triggered. This can be abstracted in the choice of materials, textures used, spaces created, and smells released. They begin to connect the user with personal memories as well as memories within their context. The research of re-collective objectivity let us understand how objects can trigger memories as well as narrative notions of a building through singularity and multiplicity. These notions were abstracted into form making and the way in which facades get treated.

The research has looked at understanding intimate perceptions of time that connects with the theory of memory. As it allowed the understanding of how our memories are triggered through the senses and how our senses allowed the associations between our memories and time. The research brought forth varied connections to the context of Actonville as well as understandings that brought forth analysis and contextualisation to the area. This has brought forth concepts and translations of architecture from a theoretical manner into a physical manner. It has allowed the development of the building to translate concept of time into methods of slowing time down and enhancing the community.

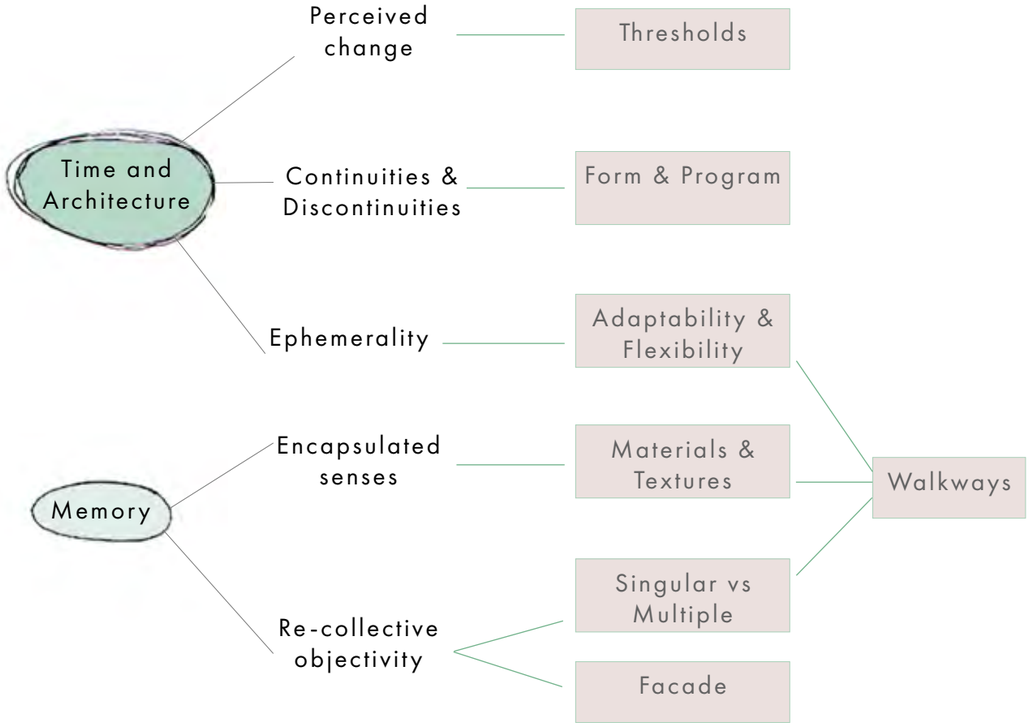


Fig 2.19 - Extractions of theory. *(Author, 2022)*

A quest has found that...

The ever indulgent being seeks more than their pocket can afford and yet is never satisfied.
The being left to make ends meet with what they have always finds solace within menial tasks and encounters.
Encounters that are held by no confines of that of time.
For their boundless meanings of time and their endless memories of 'the what was' will always be worth more than what is defined in their pockets.

Our context of Actonville is but filled with beings of encapsulated time and memories that are yet to be defined by the notions of time!



Fig 3.01 - **Moments of Actonville.** *(Author overlayed over Hemisha Bhana, 2022)*

CHAPTER 03

EXPERIENCED ANATOMY

3.1 'Action'ville's archives

3.2 Present inquiry

3.3 Ecology

3.4 Site

This chapter will mainly look at understanding the historical shaping of Actonville over the years.
The analysis will look at interpreting the landscape and the communities in order to grasp the way in which the terrain is used by the community.



Fig 3.02 - Actonville imprint of mixed use.*(Bhana, 2014.)*

3.1 'Action'ville's archives

This chapter will look at understanding the context of Actonville. This will be done through analysing the historical context of the area and its beginnings as a town. It will also look at the influence of Apartheid on the area.

Concealed by smoke with specks of ash, characterizing my thresholds. Thresholds filled with abrasive textures,
textures that make you think twice before entering.

However it is only once you cross my thresholds do you feel my warmth. A warmth that fills lounges and kitchens, one that is seen within smiles and laughs.

A warmth that can only be experienced in order to be felt...

Sir Herbert Butterfield states: "A people that lived without any knowledge of its past- without any serious attempt to organise its past-would hardly be calculated to make such progress in civilisation"

The context establishes itself in Benoni, a historic mining town on the East rand. The town began formal developed around the late 1940s and 1950s as a result of the 1950s Group area act. The town became home to many Indian families that had been relocated from various areas such as Boksburg, Benoni town and surrounding farm areas such as Putfontein were relocated to Actonville. The precinct boundaries are as a result of the railway line running to the north and one running to the west. The railway lines have become a physical barrier that separate Actonville and Wattville (Former Black township). Today, the railway is disused however the barrier and fracture between the various communities remains.
Actonville or rather known as 'Action'ville became known for its constant activity, children playing in the streets, loud conversations in backyards, and even neighbours' arguments on the sidewalk. Actonville is a result of the connections and relationships that have been harboured through the Apartheid era. While the town is considered to have a low to medium socioeconomic status(GAPP Consortium 2019, 282) the town showcases a variety of social networks that are showcased through the experience of the town. These social networks transfer themselves into the community as well as through networking for multiple entrepreneurs in the area.
The town has seen incremental changes from not only the moving out of many families but also through the introduction of new families and communities since the end of Apartheid in 1994(Moodley and Adam 2000, 5). The introduction of new families and communities have also brought forth new cultures and ways of living that overlay and merge into the layered history of Actonville.



Fig 3.03 - Actonville imagery.*(Bhana,2014.)*

3.1.1 Frame of reference

Actonville is said to have had its first inhabitants during the late 1800's(Sibda 2022). The town had come from humble beginnings, where houses were made of simple zinc and wood structures.

The discovery of gold along the Eastern reef saw its first mining camps set up and around 1906 the municipality was established(Feyder 2016, 36). The town was known as the 'Location & Indian Bazaar'("Municipality of Benoni" 1950).The area had consisted of three zones, an Indian Bazaar, 'Native' area and a Coloured area. The Indian Bazaar area had comprised of mainly Indians and Chinese labourers, this was due to Chinese labourers arriving in 1904 (Gardiner, n.d., 40)that had worked in the mines for inexpensive labour. However due to the harsh conditions, many deserted the area. The location contained no visible demarcations of the various areas.

In 1902, the Road Tram line(Benoni Junction) was established connecting mines on the south to private sidings in the north(Import 2016). In 1911, the second line was established connecting the east to the west and was used for transportation for goods as well as transporting people(Import 2016). This was a major form of transport used within the area that transported people into Benoni town as well as into Johannesburg.

Urbanisation within Benoni had peaked during the 1930s to 50s as it saw the economic change from mining industries to manufacturing industries. The 1930s was also the period of The Great Depression that took place in America, this saw a decline in the mining industry as the municipality pushed the manufacturing industry ahead. The manufacturing industry was the areas second income however due to the pressure from The Great Depression it took a step up as the mining industry saw higher costs of production for low grades of ore(Feyder 2016, 36). This change had played a key role in shaping the working-class culture as the manufacturing industry brought stability to the uncertainty of gold production. This had meant permanent jobs that were in close proximity to the community.



Fig 3.04 - 1955 Actonville municipal map, Blue zone for Indians, Red for "Natives" , Green for Coloureds and yellow for the th municipal compound. *(Feyder 2016,23 from Benoni Townhall Archives)*

Majority of the residents were of the working class that had to work multiple jobs, in order to make ends meet. These included working as waiters, in factories and wage labourers. Cultural committees and communities were established in back yards and under trees before institutional buildings were erected(Sibda 2022). This was largely due to the fact that many of the committees couldn't afford to develop the land as a result the infrastructure only started emerged towards the late 1930's and early 1940's.



Fig 3.05 - Images of the Gujarati school being established under the trees.*("Shree Benoni Gujarati Hindu Seva Semaj 25th Anniversary" 2012)*

The high levels of urbanisation that occurred within Benoni, brought about the housing crisis of the 1930s. This in turn started the large-scale squatter movement of the 1940s(Feyder 2016, 40). Overcrowding was normalised within stands measuring at approximately 225 sqm, housing four to five families in the front house with the back house housing more families (Feyder 2016, 93). This led to dreadful living conditions that caused a media uproar, which was followed up by a visit by an Indian delegate that was appalled at the living conditions. This was followed by a campaign of "cleaning up" African squatters in the area. However this event had been followed up by the National party being instated in 1948, which was also the year in which the construction of Wattville was sped up and declared a township(Feyder 2016, 41). It was meant to be seen as the "Jewel of Benoni", with brick houses and a modernist approach with dignified facilities. However, the development of Daveyton was seen to be the long-term solution.

In 1952, the National Party instated the Group Areas Act, an act that racially segregated people, it had aimed for "pure" racial areas(n.d.). As a result, remaining Chinese labourers were moved into 'Whites areas', while the Coloured people were moved to Reiger Park. The African people were moved into Wattville and Daveyton(Gardiner, n.d., 40). Actonville was then demarcated as an Indian area. It is important to note that while the area had been "racially pure" there was a lot of disconnect between ethnic groups within the area. This was due to forms of exclusion that had traveled from India into the community. There were two group of Indian arrivals in South Africa, those of indentured labourers decent and those of Indian passengers(Feyder 2016, 381). This formed a disconnect as one community was seen in a lower regard to the other. On top of this there was a further division within the community as a result of ethnic groups such as Tamil, Hindu, Gujarati and Muslim. While there was disconnect the Tamil, Hindu and Gujarati communities came together and formed the Maha Sabha. An institutional building in which they held events, prayers and weddings



Fig 3.06 - The Maha Sabha hall after being sold. *(Bhana,2014)*

in. However, it eventually become complex coordinating the different prayers on their respective days and times. Which led to the committees deciding to sell the property and split the money equally for respective buildings to be erected(Ramsamy 2022). This led to the building of the Sivan Aalyam, the Radha Krishna Mandir as well as the Sri Ved Vidya Mandir in the 1980s.

Actonville and Wattville are situated within close proximity to each other, in which the communities were separated by the railway line. The railway lines became a physical barrier in which the two communities were separated by. While the railway lines became a formal boundary that separated communities, they fought alongside each other during the struggles of Apartheid. Majority of the fights against Apartheid were led by ANC groups in the area in which Oliver Reginald Tambo, who resided in Wattville was apart of("Karolia Family Legacy Continues in Actonville" 2021). The members spread awareness of the struggles being faced and employed volunteers to grow their numbers. It was during the early 1960s in which certain members were arrested and exiled to Robben Island.

> Anna Bohlin argues in her book that: "In South Africa today, local identity is as much an outcome of processes of exclusion and the reification of difference, as it is the result of collective identification and the creation of a common past". (Lovell 1998, 178)

A statement that is especially true within the town of Actonville. It is a result of communities being formed by the processes of exclusion and 'individual groups' that have formed its ethnically diverse identity. The town sees the creation of various different religious buildings being built in order to cater to the various communities. After the end of Apartheid many affluent families moved out of Actonville, this started another wave of urbanisation that increased densities within the area. This has allowed the introduction of other communities to be welcomed within the area.



Fig 3.07 - The relationship between Actonville and Wattville, the railway line separating the two areas. *(Author,2022)*

Over the years, Actonville has seen incremental changes not only socially but politically as well as infrastructural changes over the years. It is important to note the way in which national political events have influenced the area socially and infrastructurally.

The town is demarcated through the major routes as well as the railway reserve on the south western boundary that links the East to the West. The area is bound by the five major roads that connect to surrounding neighborhoods.

The aerial imagery depicts the expansion of the town in relation to the site area. The succession of imagery begins to narrate the increase in densities and how the surrounding areas have expanded in relation to the town. Additionally it begins to demonstrate how this has impacted the growth of the area.

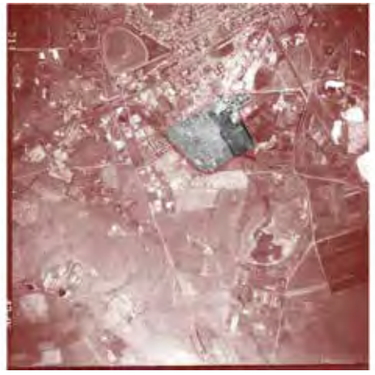


Representation of Natives Act.



Urbanisation and overcrowding crisis of 1930s with established railway lines in use.

1936

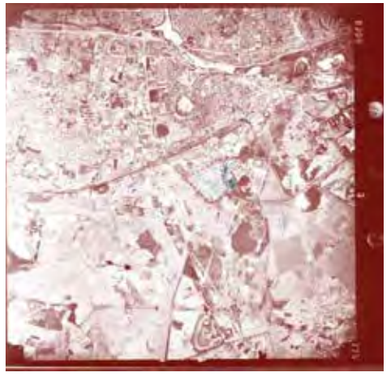


Group Areas Act & Defiance Campaign.

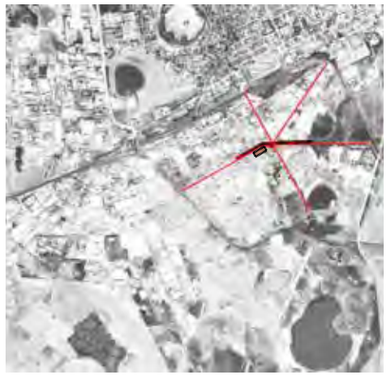


Relocations and Actonville is demarcated for Indians.

1952

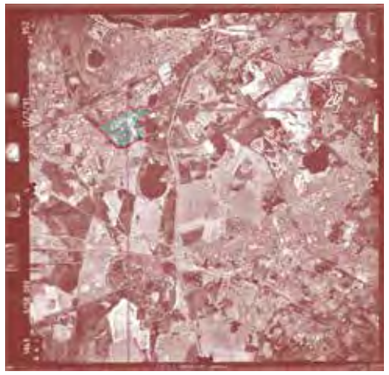


Soweto Uprising.



Riots occurring during school, major uproar between communities.

1976

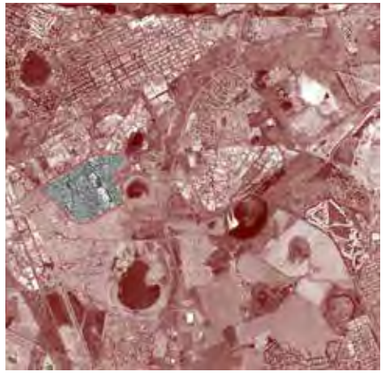


National Peace Accord.

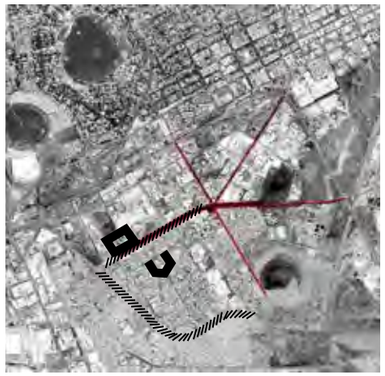


Ubanisation wave, introduction of new communities.

1991



COVID-19 Pandemic.



Precinct development in process through GAPP Architects.

2020

South African Events

Impact on Actonville

Fig 3.08 - Aerial photographs. *(GAPP Consortium overlayed by Author, 2022)*

Town grid transformation

Actonville's grain is heavily influenced by the town planning layout. The initial layout in 1936 shows the conventional rectangular blocks. These can be referenced to the planning of Benoni CBD's layout in proceeding analysis of surrounding areas.

In 1952, Actonville expands itself to North-Eastern edge with reference to the road that sits on the periphery.

In 1976, the design of the civic centre is imposed into the rectilinear grid of the precinct.

In 1991, the initial rectilinear grid begins to dissipate as well as the area being extended to the South Eastern edges.

In 2020, the precinct grid hardly changes.

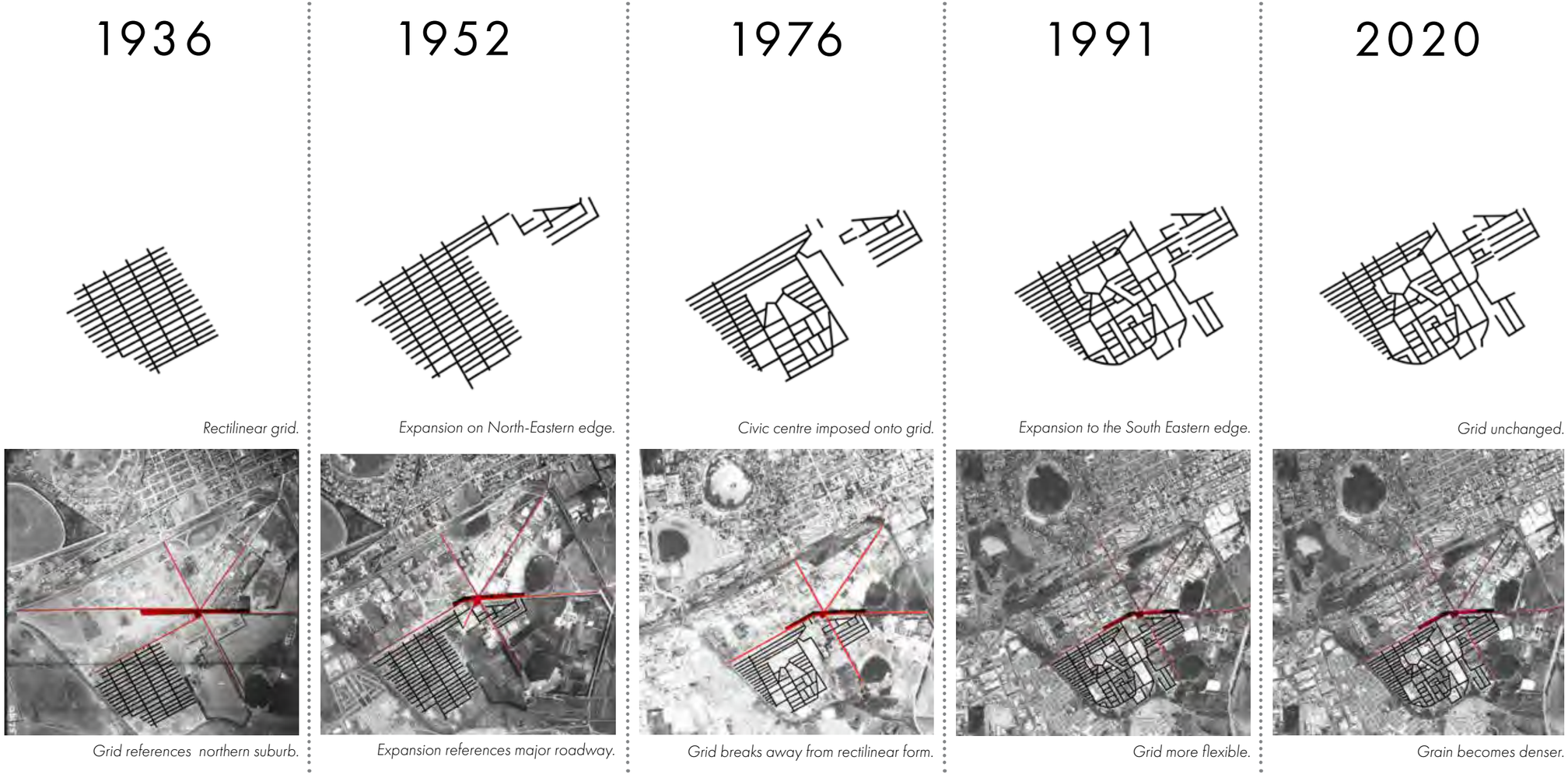


Fig 3.09 - Aerial mapping of transformation. *(GAPP Consortium overlayed by Author, 2022)*

3.1.2 Influence of apartheid

The influence of Apartheid has socially and infrastructurally impacted the town and surrounding areas. The physical segregation influenced the encounters and opportunities the communities were given. The town had grown from Pre-Apartheid to post- Apartheid, seeing the inclusion of multiple religious infrastructures such as churches, mosques and temples being established towards the late 1970s onwards. The town had comprised of very few amenities, these were shared between Actonville and Wattville. A lot of the municipal amenities were demarcated for different communities on different days(Ramsamy 2022).

The lack of infrastructure meant that majority of the buildings served multiple purposes. Amongst these was the Davies Social Centre, established in 1952. The space had played a vital role in the development of the area, as it was used by both communities. The human settlements was situated adjacent to the centre and was used to pay bills on different days for different communities. The centre had been used daily, from a clinic, library space hosting dances, weddings, funerals and much more. The exterior space was embodied with similar concepts of adaptability and community. As it housed a market on the weekend in which many residents used as an opportunity to earn extra income and form a larger community. The steps housed conversations of freedom fighting and a better future. The centre had also been used hold ANC meetings(Ramsamy 2022). The Social Centre was a depiction of not only adaptable space but a clear precedent for communal upliftment within the community.

The beer hall is situated next to the centre and is assumed to have been in existence around the same time as the time the mines were operational. It was situated within close proximity to the mines as well as the mine compound. Beer halls were used as an escape from harsh treatments, labourers had endured in the mines. They harboured the culture of community, a safe space in which they could forget their troubles and hardships and also a place in which they could sing and dance. Nevertheless, the lack of amenities allowed them to form strong bonds between different groups that become allies with one another.

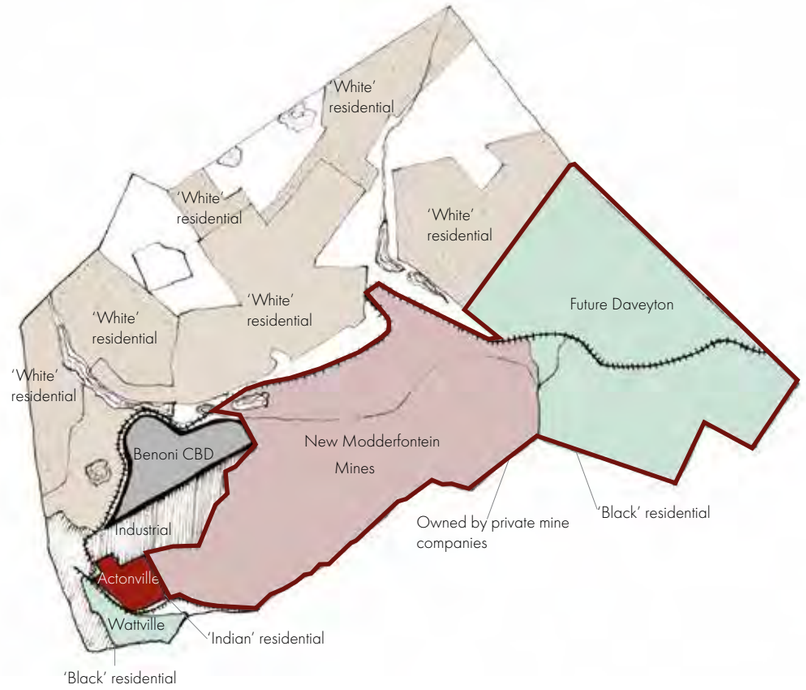


Fig 3.10 - Apartheid spatial diagram of Benoni based on 1942 municipal map.*(Author, 2022)*



Fig 3.11 - Davie Social Centre, now the Lighthouse Ministries church.*(Author, 2022)*

In Swarts thesis he states that: "Architecture has been up to now essentially the creation of individual buildings, by individuals to meet the ends and needs of individuals or groups with specific identities." (Swart 1989, 5)

The creation of these civic natured buildings being shared by both communities allowed for the dissolving of their identities as "black" or 'Indian'. While forming an identity of standing together as faces of the oppressed. However, there was some separation between the two as it allowed for sharing between communities. These buildings have to some extent allowed for the dispersion of the "black" and "Indian" identity to dissolve post-Apartheid.

In 1952, Chengelryan Soobia Moodley led a delegation of Indian community members together with African community members into Benoni town, during the Benoni riots(Verasammy, n.d.). These riots were part of the Defiance campaign of 1952, in which the African National Congress (ANC) and South African Indian Congress (SAIC) had formed an alliance against the discriminatory laws being passed("72. The Defiance Campaign, 1952 | South African History Online" n.d.). In 1959, a meeting for the Group Areas Act took place in which Mr Moodley gave a submission of the events and conditions the Indian Community faced(Verasammy, n.d.). This meeting took place in the small-town hall in Benoni. Mr Moodley was a prominent profile within the community that led many protests, organisations and was a part many founding committees in the area.

The area had also adapted many other important infrastructural changes such as the location change of William Hills Secondary School and Actonville Primary School. William Hills Secondary School was regarded as one of the best in the Transvaal area, with students going on to become Doctors, lawyers and politicians within the area(Ramsamy 2022). The school was the only high school in the area for over 50 years. Due to the town location and the school being situated on the periphery, it saw many protests and riots including the 1976 riots. The 1976 riots saw students take to the streets in protest against Afrikaans being taught in all schools("The June 16 Soweto Youth Uprising | South African History Online" n.d.). Mrs Ramsamy vividly recalls the 1976 riots; they had been writing tests and were asked to evacuate the school immediately.



Fig 3.12 - Previous locations of William Hills Secondary and Actonville Primary school.*(Author,2022)*



Fig 3.13 - Protests outside Dehli court.*(Bhana,2022)*

Any personal belongings were told to be left behind and to run home immediately. The political unrest flooding throughout the country had begun in Soweto and spread all over the country into many towns including Actonville. Actonville, Wattville and many other surrounding areas had joined in many significant protests and riots that led to the end of Apartheid.

The protests and riots allowed people to form allies and create a strong community that shared a vision. This allowed for communities to build infrastructure that enhanced the area and uplifted generations after. During the 70s and 80s, Actonville saw an increase in social infrastructure with small communities building their respective temples, mosques and churches. The architectural language was based off ethnic origins, with craftsman flying in to create various spaces.

Amongst social infrastructure is the Actonville Squash Courts, the squash courts were a collaboration between Peter Rich, Jonathan Noble and Kevin Fellingham. It was a low budget project that was sponsored by the makers of toilet roll(Fellingham 2022). The building is designed out of precast panels, cement block, Tyrolean plaster with



Fig 3.14 - View of Squash courts.*(Bhana,2022)*

standard doors and windows. The architectural language stands out as it makes use of mono-pitched roofs with circular windows that are reinforced by the plaster design. Other social infrastructure established in the 80s include the Actonville stadium, Noor Masjid, Sivan Aalyam and more.

The 90s saw the Apartheid legislation come to an end, this enabled people of colour freedom of movement and freedom of location. Many families moved into more affluent areas such as Lakefield, Benoni town and Farrarmere. New families and communities moved in, establishing new committees and organisations. Over the years and in more recent years, Actonville has become highly densified, with more and more residents moving into the area. The grain of the area has become far more denser with outbuildings, double storeys being erected with extra space being converted into liveable area. This enables added income to landlords and provides people with decent living conditions.

In addition, it requires users to prioritise a third space. A space other than their living quarters not their work or school place. A place which incorporates community, interactions and encounters filled with treasured memories and laughs. Third spaces that could allow them to grow their knowledge, skillset and their networks.

3.1.3 Outline of history

The town of Actonville showcases a great sense of community and comradery. A town that was previously known as the 'location' and housed various communities that can be seen within its layers of history. The archival begins in the form of a timeline allowing one to interogate the moments that have led to our current understanding of Actonville. The timeline comprises of three components that each share a common thread, a thread of community and unity. It looks at communal infrastructure, politics and public events held in the area.

MAP LEGEND

- *Institutional infrastructure*
- *Political events*
- *Community events*

1900

Fig 3.15 - Benoni station situated near Actonville *("Benoni The Station Benoni No 3 | EGGSA Post Card Collection / Poskaartversameling | EGGSA.Org" n.d.)*



Railway station opened to serve Kleinfontein mine.

02 Rand Tram Line

06 Benoni Municipality established

1910

Madressa Committee is established 12

11 New Benoni station opens.

The second railway station opens going northwards to Dunswart.



Fig 3.16 - New Benoni station in Harper Avenue. *(Benoni city times Import 2016)*

Fig 3.17 - East facade of Jaame Masjid. *(Ameem Amod,1950)*



16 Jaame Masjid

1920

24 Actonville Primary School



Fig 3.18 - Actonville Primary School 1977. *(Hemisha Bhana,n.d)*

Fig 3.19 - Beer hall exterior *(Author,2022)*



28 Ibandla Beer Hall

30 Eastern Transvaal Football Association

1930

34 William Hills High School

Williamhills high was first opened in 1934, and was situated near Reading Rd. The now Benoni Primary School location. The school was considered one of the best high schools in the Transvaal area.

35 Emaroweni Primary Catholic School.

35 St Josephs Catholic Church



Fig 3.20 - St Josephs catholics church structure consecreted. *(About – St. Joseph's Catholic Church" 1951)*

36 SMKSSA Established

Fig 3.21 - Construction of the Shree Benoni Gujarati Hindu Seva Semaj. *(Hemisha Bhana,n.d)*



Shree Benoni Gujarati Hindu Seva Samaj. 39

1940

47
Benoni Tamil School Board(BTSB)



Fig 3.22 - Pioneers and youth group of the Benoni Tamil School Board. *("Benoni Tamil School Board- 50th Anniversary" 1997)*

National Party elected
48



Fig 3.23 - Old Benoni Primary School exterior. *(Mrs S Ramsamy,n.d)*

Benoni Primary School
49

1950

50
1950's Group Area's Act

All Indians in Benoni were re-located to Actonville as it became the Asiatic area.

A delegation led by C.S.Moodley into the African section during the Benoni riots that took place inn Benoni square. (Verasammy, n.d.)

Benoni Riots
52



Fig 3.24 - Plaque outside centre *(Author,2022)*

Davies Social centre
52

Submission on behalf of the Indian community was given by C.S. Moodley. (Verasammy, n.d.)

Group Area Board meeting
59

53
Maha Sabha

The Maha Sabha was formed by the Indian community and hosted many prayers, weddings, shows and dramas for the community. The Maha Sabha was sold and shares divided equally amongst the Tamil, Hindu and Gujarati community to build respective temples/organizations.

56
Madressa

The Madressa is built next to the Jaame masjid. (Haffejee 2005)



Fig 3.25 - Celebration on the street. *(Hemisha Bhana,n.d)*

Soccer tournament celebration
60

Benoni Muslim Jamaat(BMJ)
60

1960

Relocation of Shree Marieamman & Kalieamman Siva Subramanyam Aalayam (SMKSSA)
64

61
Benoni Indian Child Welfare Society

The Benoni Indian Child Welfare Society was formed by Bhana Rawjee, Dr Mia and Dr Cachalia and Miss T Ragunan. It is now known as the Actonville Child and family Welfare Society. It is situated on the corner of Mia and Mayet Drive.



Fig 3.14 - Congress Meeting. *(Hemisha Bhana,n.d)*

Bhana Rowjee Dewa addressing the community during a congress meeting on Pillay Street.

Congress meeting
73

Indian Reformed Church Congregation Traansvaal
73

70 Pioneer Primary School



Fig 3.13 - Opening of Pioneer Primary. *(Author,n.d)*

1970

70 Railway station closes

The Kleinfontein station renamed in 1912 to Rangeview Station was closed due to the mine siding that closed.

76
Riots

The Soweto riots had ignited protest and unrest in schools in Actonville as well.



Fig 3.15 - Learners protesting in Soweto. *("The June 16 Soweto Youth Uprising | South African History Online" n.d.)*

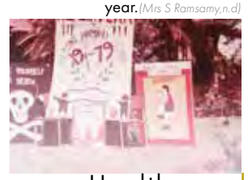


Fig 3.17 - Posters made for health year. *(Mrs S Ramsamy,n.d)*

Health year
79

Fig 3.16 - Exterior of Actonville Cricket Spurs Club. *(Author, 2022)*



Actonville Spurs Cricket Club
79

St Mary Magdalene Chapelry
77

79
Actonville Stadium



Fig 3.18 - View from soccer field of grand stands *(Hemisha Bhana, Portraits of Actonville, 2014.)*

79 Liverpool Secondary School



Fig 3.19 - Old quadrangle used for Assembly. *("Liverpool Secondary School-20th Anniversary Commemorative Brochure" 1999)*



Fig 3.20 - Renovated Jaame Masjid. *("The Book of Purification and Purity," 1980)*

Jaame Masjid Renovated
80

A school established for the disabled, in which community members can donate or sponsor students.

Actonville Training centre
84

1980

80
Noor Masjid

83
Relocation of Williamhills

The relocation of the school was celebrated with a parade that included the Drum majorettes.



Fig 3.21 - Parade on Reading Rd to celebrate reopening. *(Hemisha Bhana,n.d)*



Fig 3.22 - Drawing of the temple exterior. *("Benoni Tamil School Board- 50th Anniversary" 1997)*

The Sivan Aalayam was only built 38 years after the BTSB was formed.

Sivan Aalayam.
85

Radha Krishna Mandir
87

88
Squash Court



Fig 3.23 - Squash courts. *(Kevin Fellingham,n.d)*

People Agaist Sri Lankan Oppression(PASLO) was formed inorder to raise awareness about the Sri Lankan Government and the situation in the Sri Lanka.

PASLO
98

Fig 3.15 - Opening of Mary moodley clinic with Mayor Gerrie Krek.*(Hemisha Bhana,n.d)*



Mary Moodley Clinic
91

Fig 3.16 - Students watching plays at the Seva Semaj.
("Liverpool Secondary School-20th Anniversary Commemorative Brochure" 1999)



Drama evening
98

Fig 3.18 - Clean up banner.*("Benoni Primary School-70th Anniversary" 2019)*



Clean-up campaign
03

Fig 3.21 - Exterior of Christian teaching centre.*(2POS,n.d)*



Christian teaching Centre
11

Fig 3.22 - Reading Road blocked.*(Reinart Taerien/ EWN,2015)*



Members blocked Reading Road during attacks.

Xenophobic Attacks
15

End of Apartheid
94

Actonville Post Office
91

1990

89
Protest

Community protested against increase in water & lights. People staying in the flats couldn't afford it, protest got unruly and police had to intervene.



Fig 3.14 - Armed police during unrest.*(Hemisha Bhana,n.d)*

93
Actonville community centre

95
Sunshine Hospital



Fig 3.17 - Exterior of Sunshine Hospital.
(Author,2022)

2000

03
Bilaal Masjid



Fig 3.19 - Exterior of Masjid.
("[LISTEN] Actonville Community in Benoni Left Heartbroken After Passing of Masjid Sayyidina Bilaal's Muezzin" 2020)

2010

14
SEIFSA Training Centre



Fig 3.20 - Exterior of training centre.
("About – SEIFSA Training Centre" n.d.)

14
Portraits of Actonville Exhibition

2020

18
Prince of Monaco visits

17
Benoni Sai Centre



Fig 3.23 - External view of Benoni Sai centre.*(Author,2022)*

22
Aziz Ally Learning centre

Pioneer Primary opened up a learning centre as part of their libray in memory of the late principle Aziz Ally. The centre contains games, books and opens up into a garden in which children can play in.

Based on the archiving, it is noticeable that from the 50's to the early 90's there was a lot more infrastructure put into the area. A lot of the early committees were able to lease and buy land for cultural and religious building after decades of building their communities. Actonville showcases its respect and diverse nature through its various communities. However today these various communities have fragmented the large community of Actonville. This is seen in each community having the own spaces for their community. Thus, having more exclusive and seclusive spaces that limit the interactions within the community. It is evident that the lack or the struggle of these communities brought people together as a larger community. A community that provided inclusive spaces and unlikely familiar encounters. Encounters that formed a tight knit community

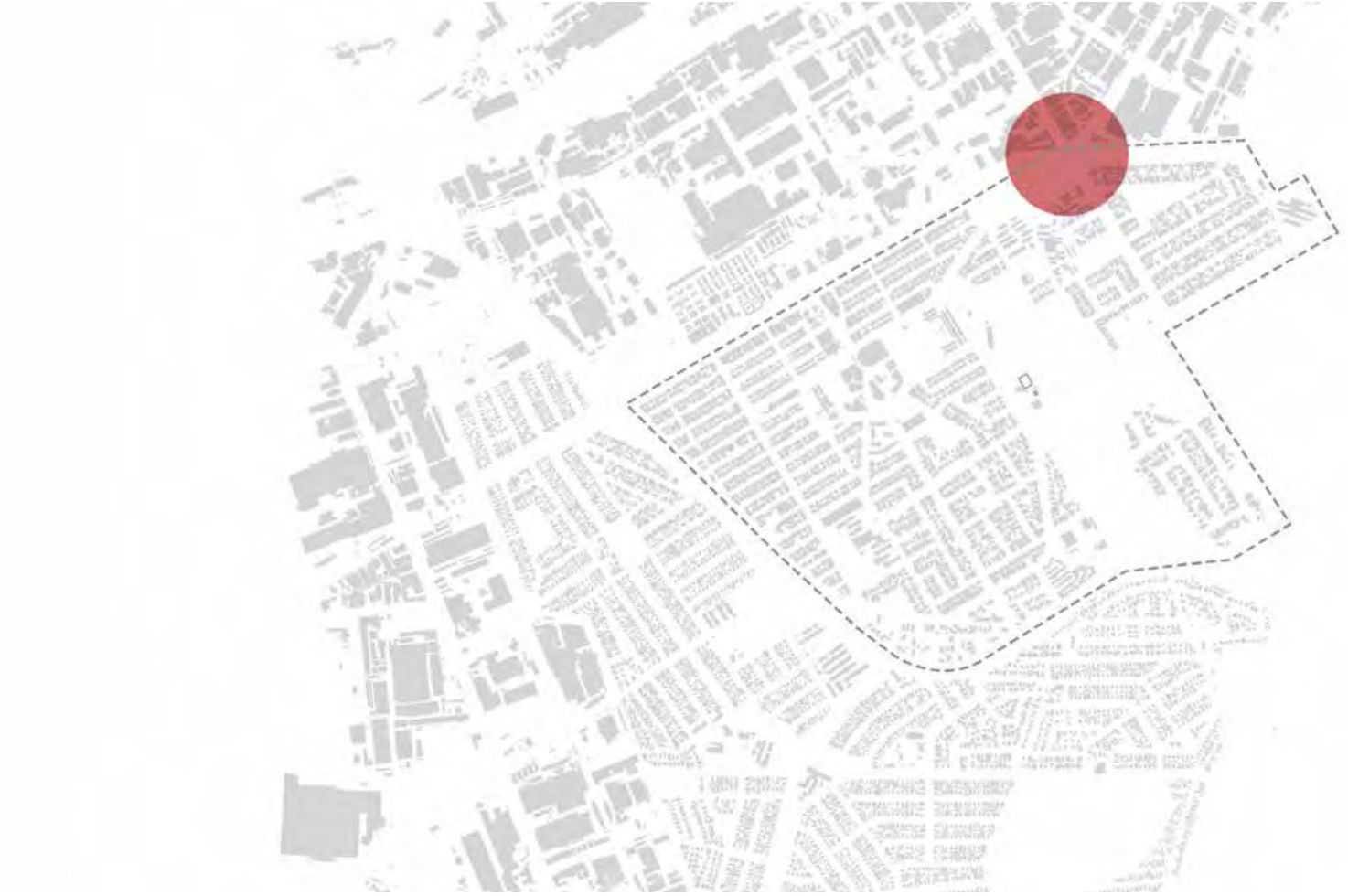


Fig 3.24 - Site area in relation to precinct.*(Author,2022)*

3.2 Present inquiry

This section will look at analyzing present conditions within the area as well as contributory factors that have influenced conditions. The analysis will look at understanding the existing infrastructure that contributes to daily conditions in the area and around the site. The analysis follows the pedestrian from an urban scale slowly zooming into street scale.

Major Highway connections

The site connects to two major highways, The N12 highway and the N17 highway.
The site sits central to both highways as well as being on the corner entrance to the precinct. The site, therefore contains a high levels of traffic flow.

MAP LEGEND

- *Site*
- *Precinct*
- *Surrounding towns*
- *Major Highways*
- *Routes to highways*

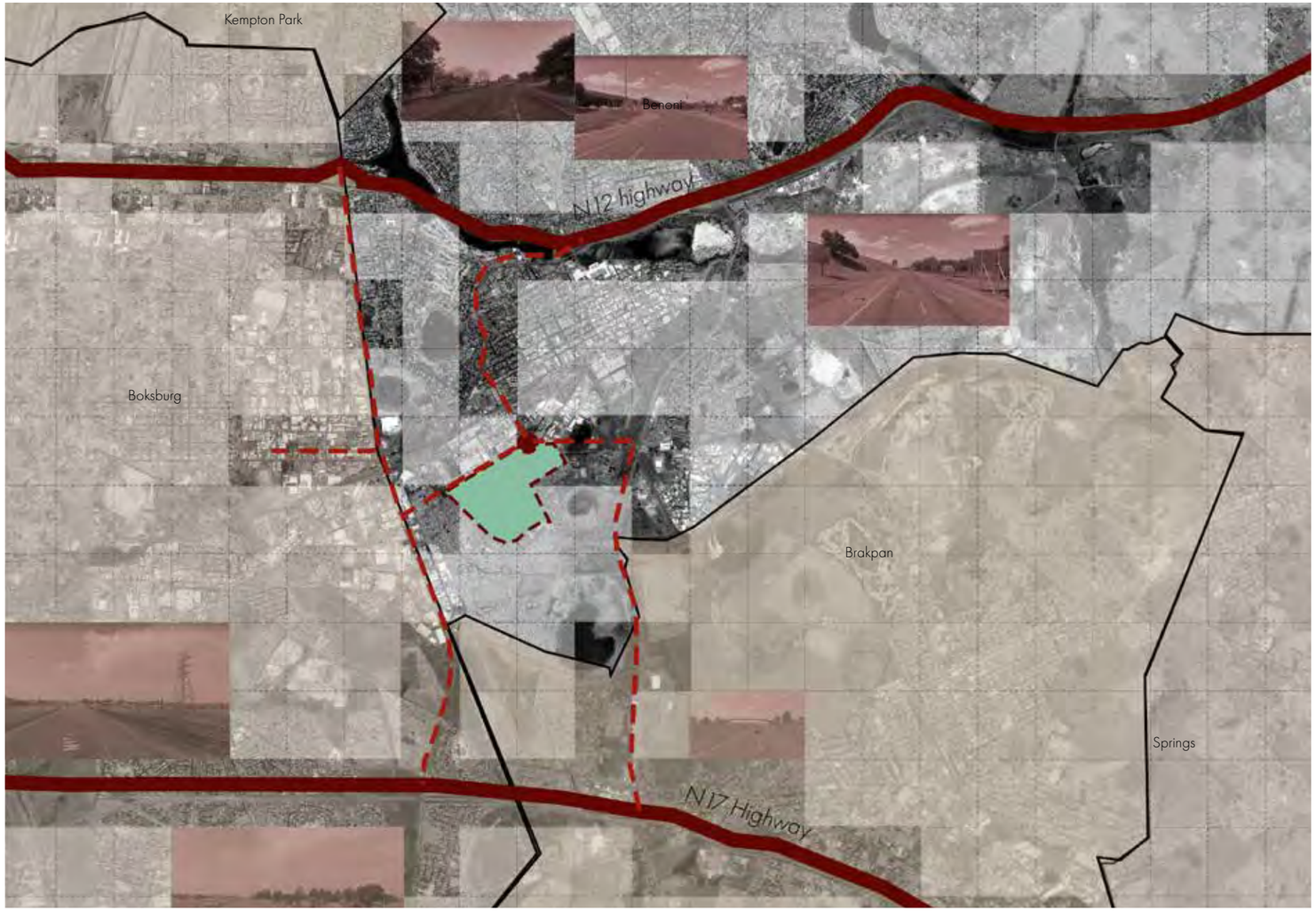


Fig 3.25 - Road and highway diagramming. *(Author,2022)*



Figure above depicts the relation between Actonville and Johannesburg CBD. It shows Actonville in between the two major connecting highways, that connect many users to Johannesburg CBD on a daily basis.

Fig 3.26 - Town diagramming. *(Author,2022)*

0 2 4 6 8 km

Railway line connections

Actonville is situated within the railway lines forming the boundaries of the precinct. These railway lines connect the east to the east, allowing people from Actonville and Benoni to travel to Johannesburg. This railway line also brought goods from Johannesburg into smaller towns such as Actonville. Today the railway lines are no longer in use and the area has been adapted into informal settlements.

MAP LEGEND

- *Site*
- *Precinct*
- *Surrounding towns*
- *Major Highways*
- *Railway*

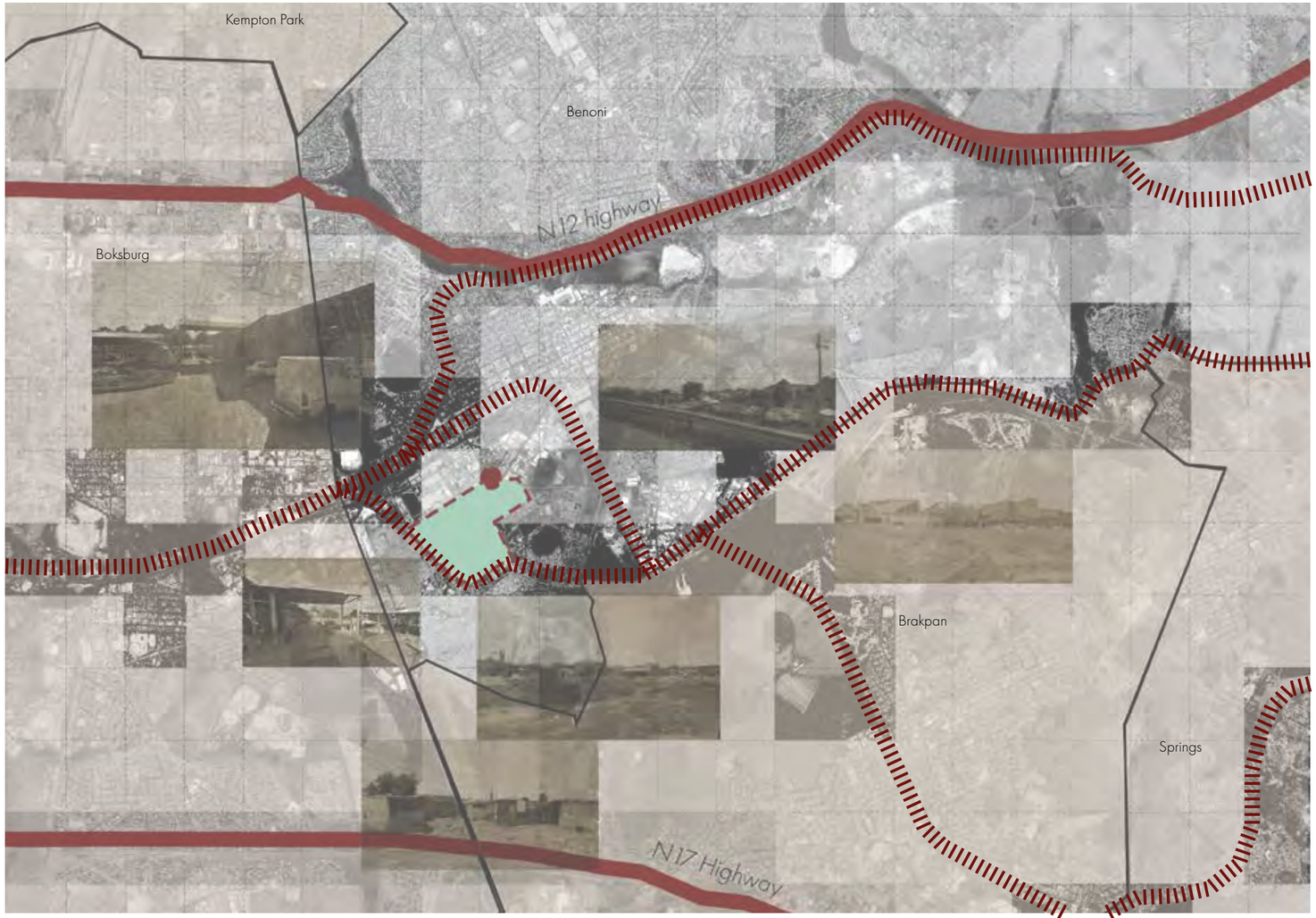


Fig 3.27 - Railway diagramming. *(Author, 2022)*



Railway lines around Actonville connecting to Johannesburg. The railway lines were used a major form of transportation within the area. It was used in transporting people to Johannesburg as well as goods.

Fig 3.28 - Town diagramming. *(Author, 2022)*

0 2 4 6 8 km

Surrounding Areas

Actonville is situated on the southern edge of Benoni, with neighboring areas consisting of previous “black” and “coloured” townships with more “white” areas such as Lakefield and Benoni town situated more towards the upper north. All CBD areas contain a similar grid that follows a rectangular formation and orientated towards the north. The area connects to all major entry routes that connect to neighboring areas as well as the precinct.

MAP LEGEND

- *Site Area*
- *Surrounding Suburbs*
- *Actonville precinct*
- *Connecting routes*
- *CBD Grid lines*
- *Benoni Boundary*
- *Entrance points*

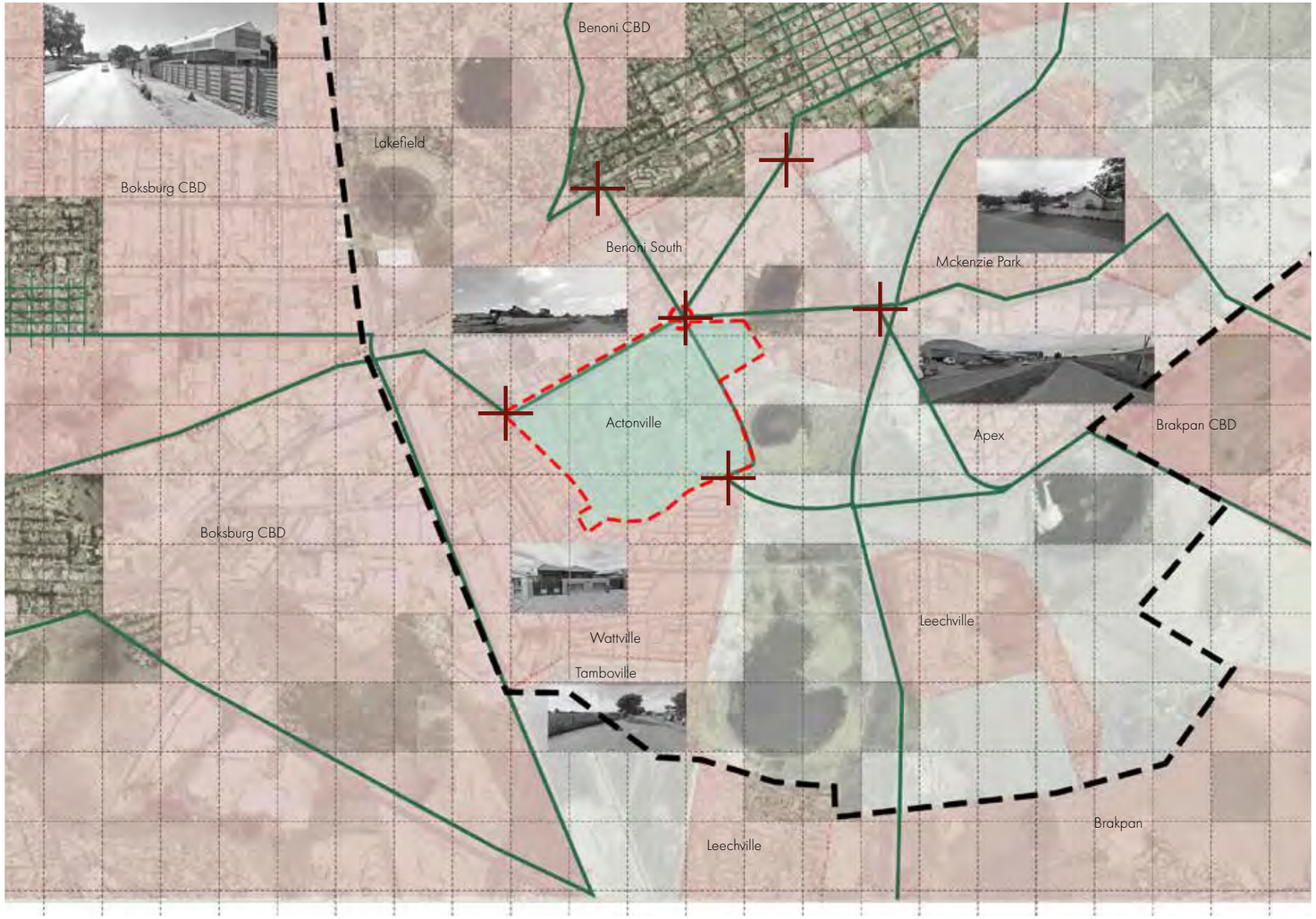


Fig 3.29 - Surrounding area diagramming. *(Author,2022)*



Actonville situated on southern tip of Benoni. The area is easily accessed by neighboring towns of Boksburg and Brakpan. It can therefore be deduced as a connector town between the two.

Fig 3.30 - Town diagramming. *(Author,2022)*

0 2 4km

Neighboring industrial areas

Actonville is surrounded by five major industrial areas, namely Anderbolt, Dunswart, Boksburg East, Benoni south and Apex. These neighbouring industrial areas have contributed to the growth of the town as well as providing stability to many families that were employed by these companies.
These areas were used as buffer zones separating the “whites” from the “blacks”. The physical barrier of Apartheid that remains today.

MAP LEGEND

- *Site Area*
- *Surrounding Industria*
- *Actonville precinct*
- *Connecting routes*
- *CBD Grid lines*
- *Benoni Boundary*

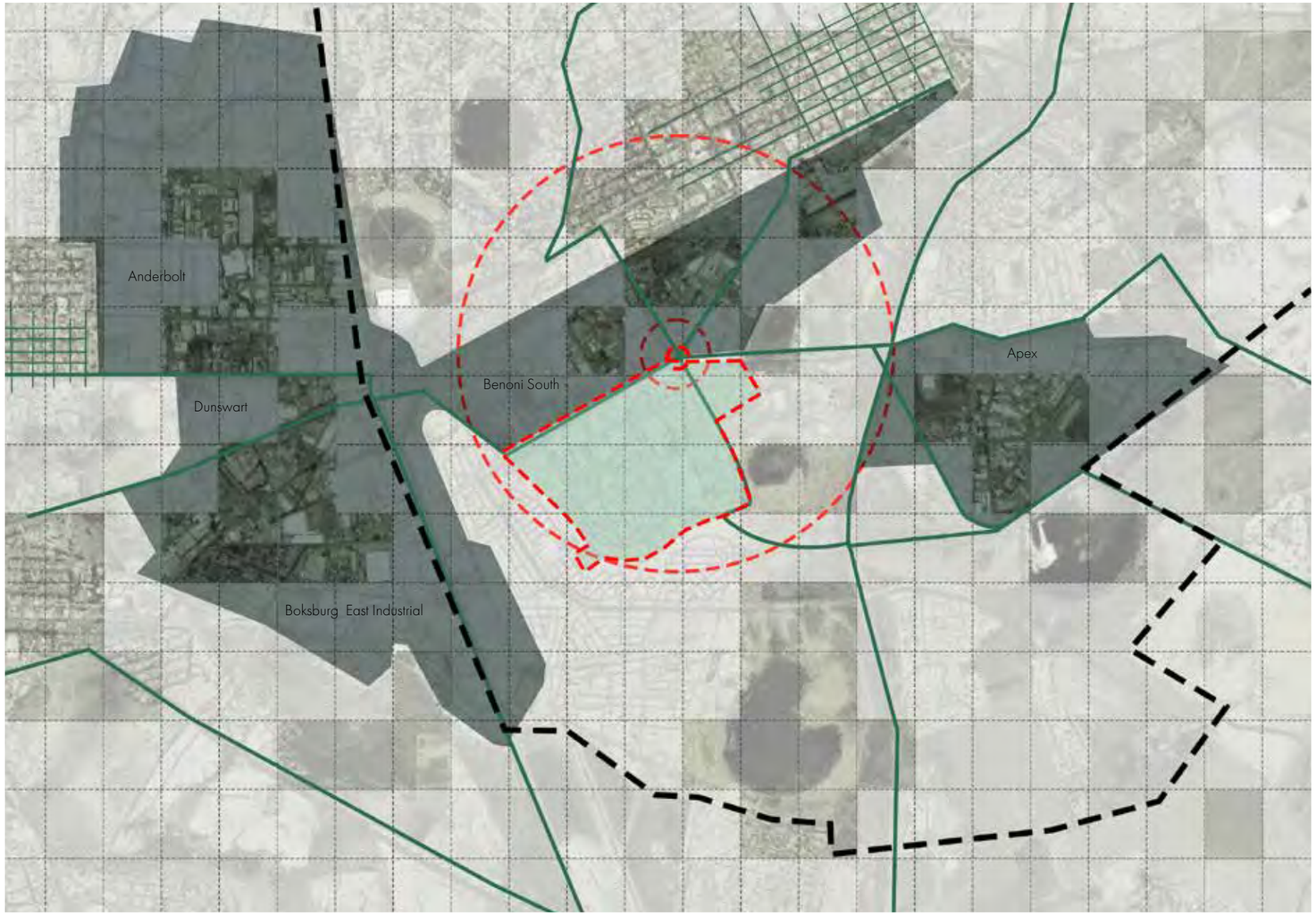


Fig 3.31 - Industrial area diagramming. *(Author,2022)*



Majority of industria situated in southern region. This was due to industrial areas situated within close proximity to Mining areas, which were usually situated on the southern areas. These were also the areas in which non-whites lived which forced them into the working class.

Fig 3.32 - Area diagramming. *(Author,2022)*

0 2 4km

Road reserves

The site area sits within a road reserve that runs along the periphery. The reserve connects to multiple reserves on both the eastern and western edges of Benoni. This is due to Reading road forming part of the K-Route.

Road reserves have also been used within apartheid planning as buffer zones between industrial and residential areas. This further substantiated the concept of segregation using reserves as islands separating racial groups.

MAP LEGEND

- *Site Area*
- *Actonville precinct*
- *Connecting routes*
- *CBD Grid lines*
- *Road reserves*

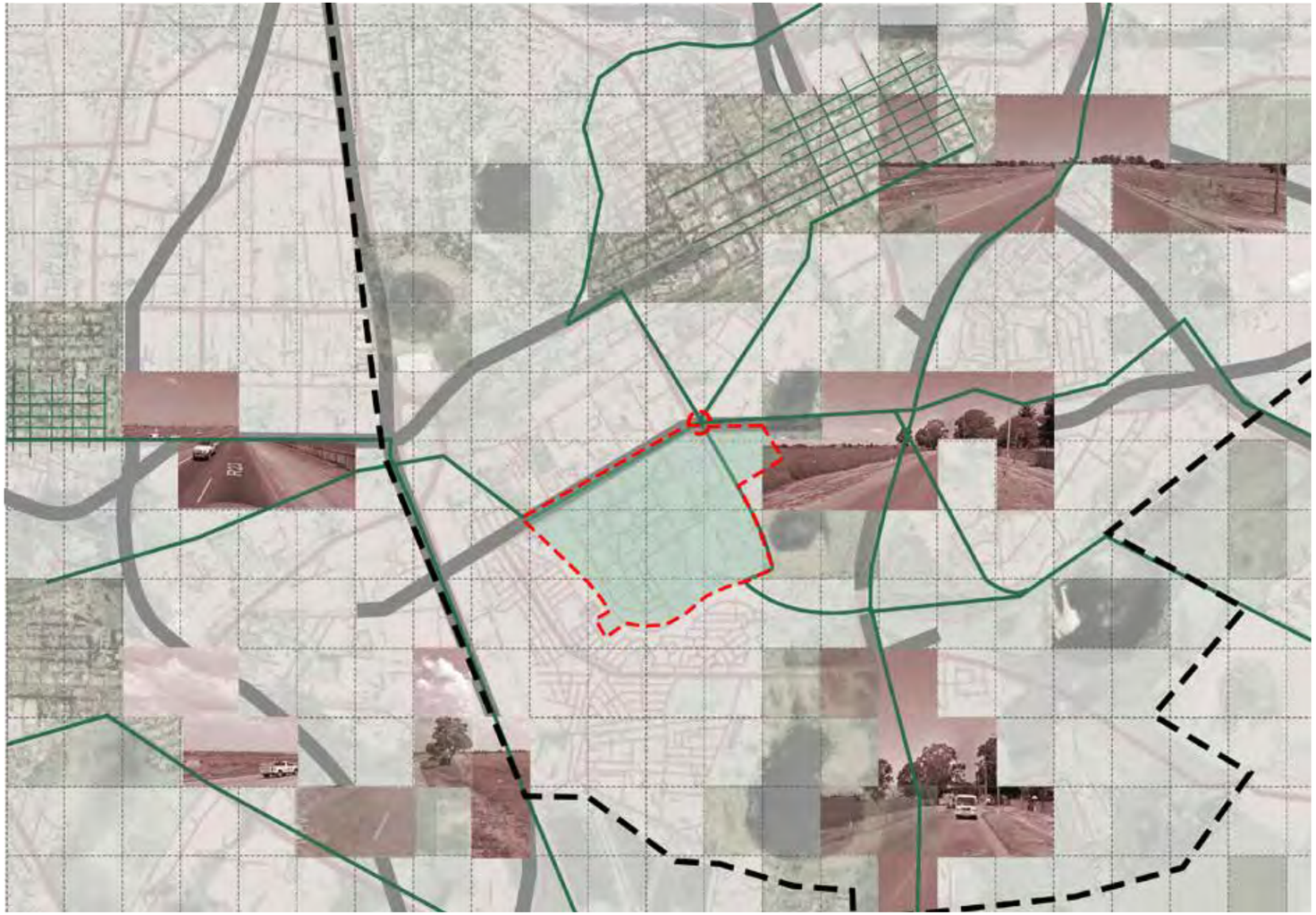


Fig 3.33 - Reserve mapping. *(Author, 2022)*



Actonville in relation to road reserves situated in Benoni. The reserves are usually situated around major routes as additional space for potential upgrades.

Fig 3.34 - Town diagramming. *(Author, 2022)*

0 2 4km

Transportation
-Taxi Routes

The site situated on the periphery which sees the high influx of taxi's due to the taxi rank being situated on the edge, further down.

These taxi routes filter into surrounding areas as well as into major taxi ranks such as Dunswart and Benoni CBD.

The taxis are the most predominantly used form of transport within the area. As it is used by workers, school children and other residents.

MAP LEGEND

- *Site Area*
- *Actonville precinct*
- *Connecting routes*
- *CBD Grid lines*
- *Taxi main routes*

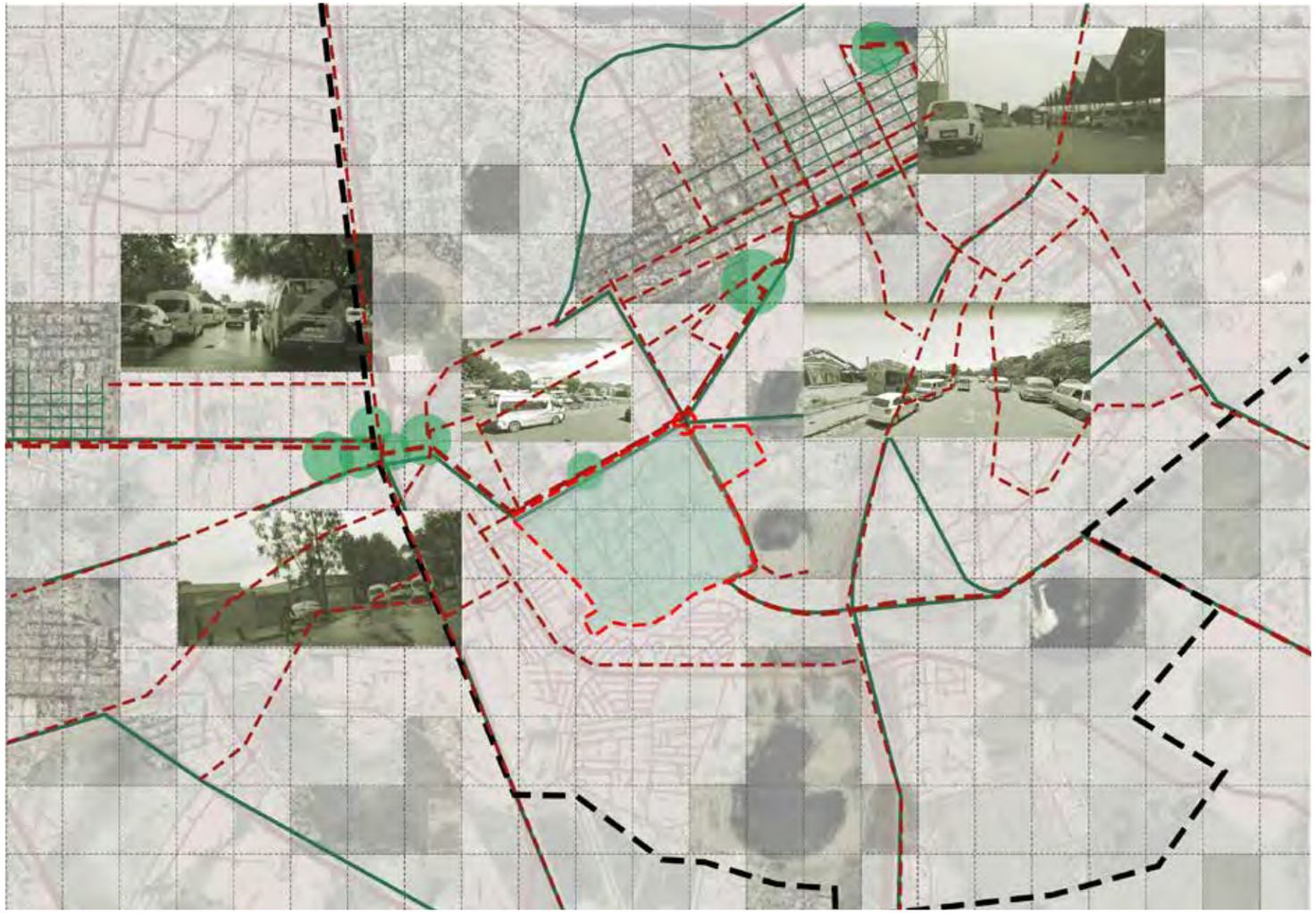


Fig 3.35 - Taxi diagramming *(Author, 2022)*



Major Taxi ranks within Benoni. Majority of the taxi ranks are informal spaces that are situated within close proximity to major busy roads.

Fig 3.36 - Area diagramming *(Author, 2022)*

0 2 4km

Transport
-Bus Routes

The major taxi route follows the edge of Benoni and Boksburg. These route then connect into suburbs.

There is one major bus route within close proximity to the site. These routes connect to surrounding bus stops as well as to buses in Johannesburg.

MAP LEGEND

- *Site Area*
- *Actonville precinct*
- *Connecting routes*
- *CBD Grid*
- *Bus Route*

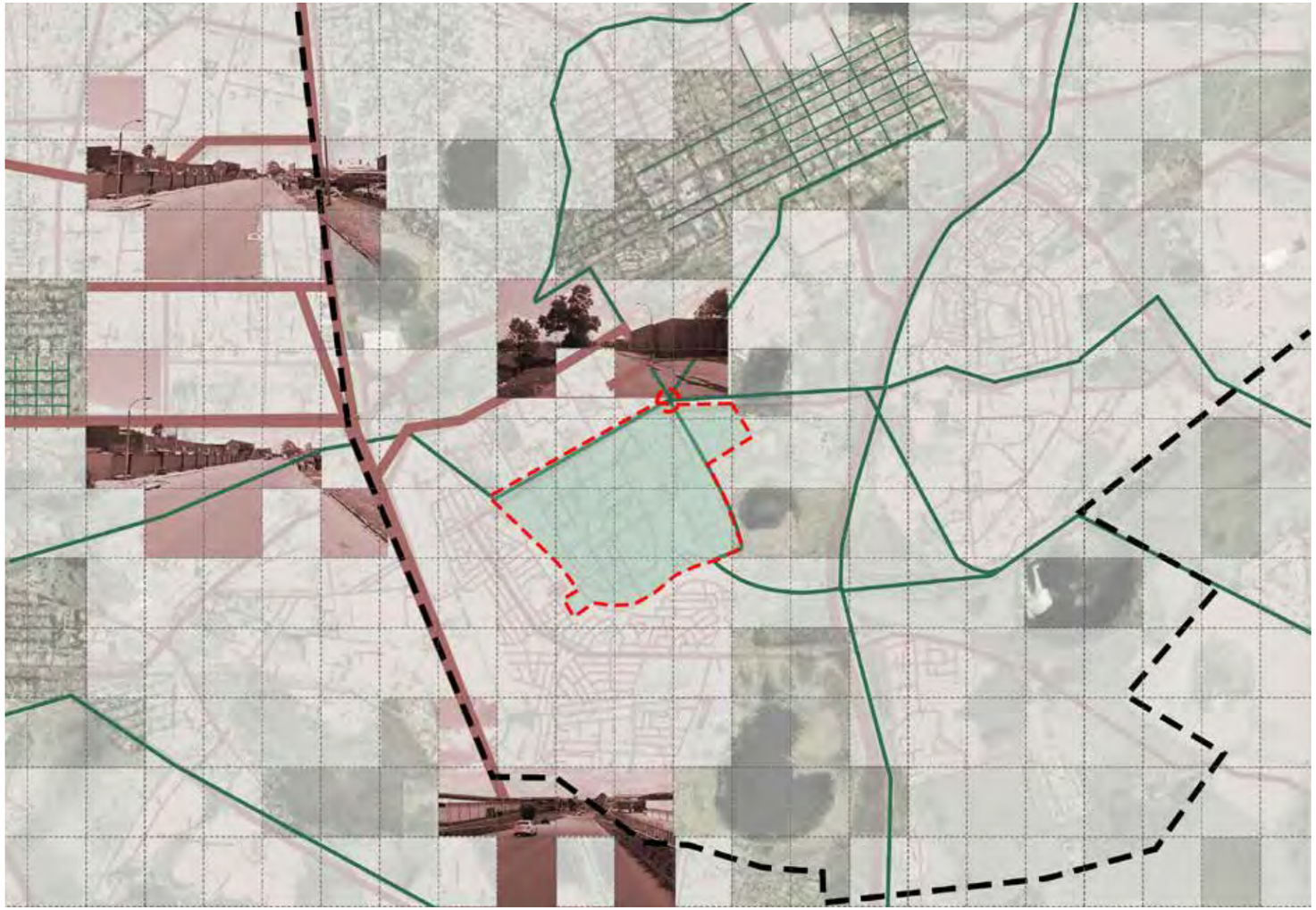


Fig 3.37 - Town diagramming *(Author, 2022)*



Major bus stops in the area. These bus stops service multiple areas.

Fig 3.38 - Town diagramming *(Author, 2022)*



The area has seen the influence of surrounding layers into its landscape, that has developed its current circumstance. However, due to its diverse community the area contains layers of its community embedded within its terrain. The high civic nature of the area and vast diverseness in cultures and religions begin to imprint into the infrastructure and daily life of Actonville.

These factors begin to influence the way in which pedestrians use and move through the area. The pedestrian movements begin to form networks of community.



Fig 3.39 - Precinct aerial. *(Author,2022)*

Zoning- Civic nature

Actonville contains a high civic nature in which the towns city centre contains a town hall, municipal offices as well as the private district hospital (Sunshine Hospital).

There is a lot of activity that spills out of the centre within 5 minute walking distance.

MAP LEGEND

- *Site Area*
- *Road reserve*
- *Railway line*
- *Cemetery*
- *Mixed use-Commercial edges*
- *Religious*
- *Educational*
- *City Centre*
- *Sports fields*

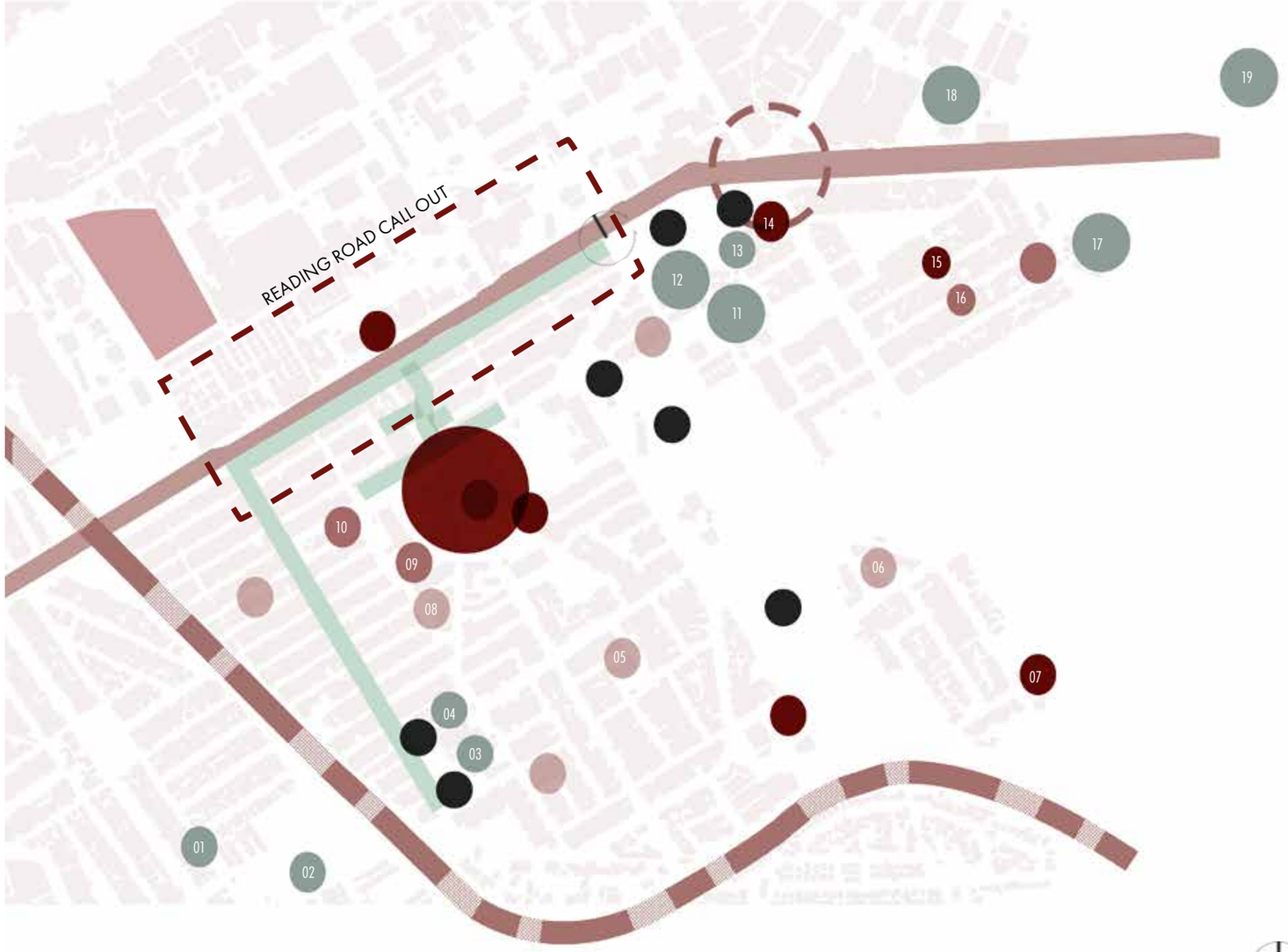


Fig 3.40 - Precinct Mapping. *(Author, 2022)*

01-Wattville Adult Education Centre
02-Etwatwa Secondary school
03-Pioneer Primary School
04-Actonville Primary School
05-Anwaar-E-Khalid Shah Masjid
06-Masjid Bilaal
07-Restored Word Fellowship
08-Noor Masjid
09-Sivan Aalayam
10-Sri Veda Vidya Mandir
11-Benoni Primary School
12-Liverpool Secondary School
13-Emaromeni Catholic Primary School
14-St. Joseph's Catholic Church
15-Kingdom Hall of Jehovah's Witnesses
16-SMKSSA Wynberg Street Temple
17-William Hills Secondary School
18-SEIFSA Training Centre
19-Christian Teaching Centre

scale bar 1 : 5 000

Religious infrastructure

The diverse nature of the town shows the inclusion of various religious infrastructure that engraves itself within the framework. Majority of these infrastructures are not only religious as most of them include some form of educational extra curriculum's such as a Madressah, Tamil, Gujarati, Hindi, dance and yoga classes. These organizations are not only religious as they symbolise various communities in which social activities occur as well as a form of giving back to the community as soup kitchens in some cases.

MAP LEGEND

- *Churches*
- *Temples*
- *Mosques*



Fig 3.41 - Religious infrastructure mapping.*(Author,2022)*



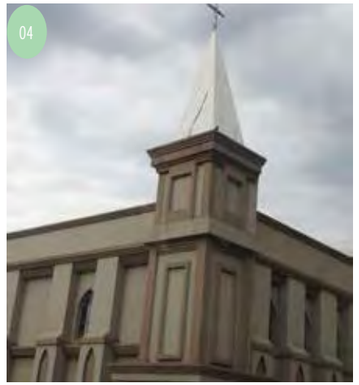
Jaame Masjid



Shree Benoni Gujarati Hindu Seva Semaj



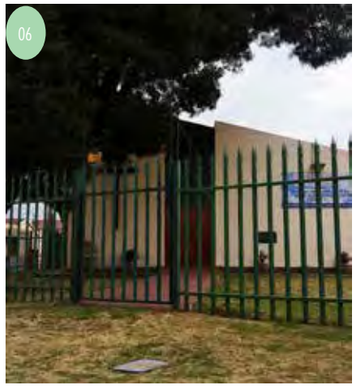
Sivan Aalayam



Anglican church



Masjid-ul-nur



Cornerstone Ministries

Fig 3.42 - Religious imagery.*(Author,2022)*

Commercial and industrial infrastructure

The area contains a high level of commercial activity that occurs along the precinct edge. The area encourages local businesses and commerce for the local economy.

Majority of the local business have been in existence for over 50 years and have been passed done from generation to generation.

This edge is highly pedestrianized with mixed use building occurring on Singh Street. The commercial street edges see vendors and users in constant communication. Majority of the users are regulars within the area.



Fig 3.43 - Zoning location diagram. *(Author, 2022)*

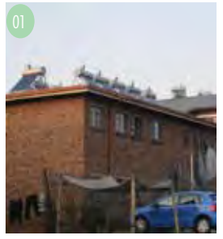
01. Lawson's Centre
02. Marwa Mini-market
03. Rose Hairdressers
04. Lucky stores
05. Supreme Fix
06. Osman's Optical, Medical Suites
07. Afrigraphi Studio
08. Africa Motor Spares
09. Subadees Wholesalers
10. Prince Gold Pawn Exchange
11. New Star Hair salon
12. Keni's Takeaway
13. Tswala Liquor Store
14. Govin Store
15. Kanjee's Tailors
16. Katrada & Sons Spice store
17. Golden Arrow Liquor store
18. Hira Street Pharmacy
19. Police store
20. Acton Motor Spares
21. Elite Dry Cleaners
22. Rand Funerals
23. Far East Undertakers
24. Light House Ministries
25. Ibandla Beer Hall
26. GearBox Repair
27. Metro Liquor Outlet
28. Ekurhuleni Panel beaters
29. 4 Sure Motor Spares
30. Actonville Power Station
31. Hyper Poles
32. Cutlass Products (Pty) Ltd
33. Wam Metals (Pty)
34. Marthinusen & Coutts Benoni
35. Denel Vehicle Systems Omc
36. Magsons Shoe Repairs
37. Ali Cellphone repairs
38. Fatimas Spiceday
39. Style by Vicky, Supermarket
40. Aysha's Supermarket
41. Uzma's, TUKS watch repair
42. Nana;s Dry Cleaners
43. Taj Stationary & Novelty Centre
44. Shree Benoni Gujarati Hindu Seva Samaj
45. Tharman Motor Spares CC
46. Shoprite
47. Iqbals Meat Deli
48. Al Saudi Bakery
49. Actonville Post Office
50. Riyaad's Fast Food

Actonville/Wattville hostel

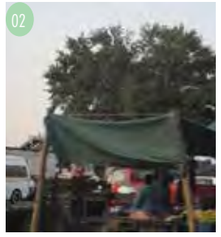
Informal settlements

Reading road call out

Reading road sits between the industrial and commercial activity. Reading road falls part of the K-Route, therefore contains a road reserve. It displays a range of various goods and services.



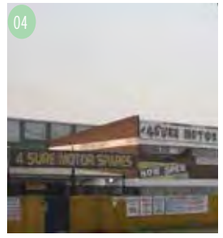
Actonville- Wattville Hostel



Reading Road Market



Ibandla Beer Hall

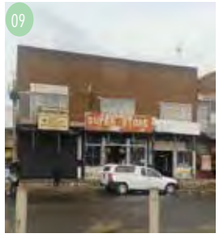


4 Sure Motor Spares

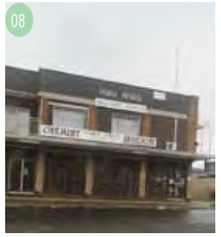




Shoe Nook



Mnandi Super Store



Hira Street Chemist



Kanjee's Tailors



Subadee's Wholesalers



Marhaba Pizzas & Fast food

Fig 3.44 - Zoning Imagery. *(Author,2022)*



Mixed use- Commercial/residential



Parking curb



Road reserve



Section 01 through Reading road and reserve.



Mixed use- Commercial/residential



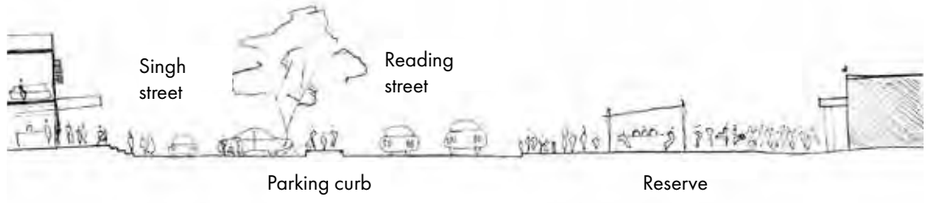
Parking curb



Market



Lighthouse ministry

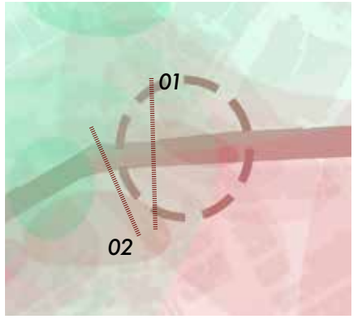


Section 02 through Reading road.

Fig 3.45 - Reading Road Section and imagery. *(Author,2022)*

Smellscape

The area contains a range of various smells due to various activities in the area.
It becomes an attribute that becomes apparent especially in certain areas.



The area around the site is filled with smoke from factories as well as pollen.

Fig 3.46 - Site Area Smells. *(Author, 2022)*



Fig 3.47 - Smellscape. *(Author, 2022)*

MAP LEGEND

- *Sewage*
- *Smoke/Pollution*
- *Pollen*
- *Bakery/Food*
- *Burnt Grass*

0 2 4km

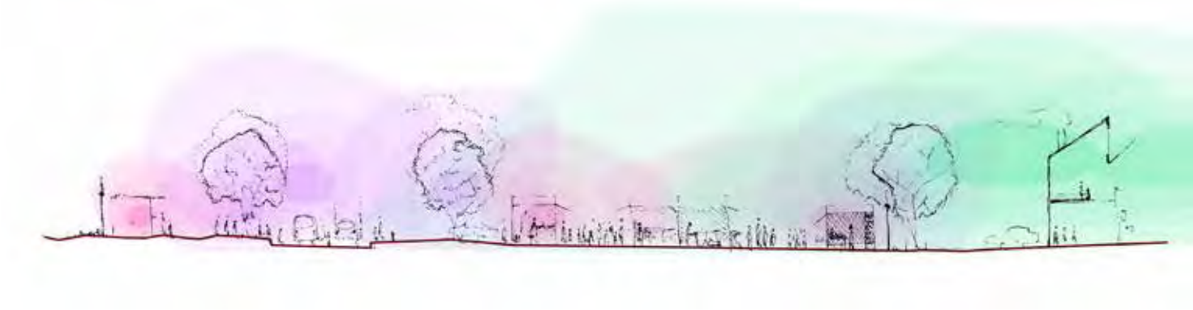
SMELLSCAPE sections through site

The sections below begin to understand how the various smells travel across and through the site.

The sections begin to unpack how the varying smells merges and their intensities.



Section 01 through church across through to factories.



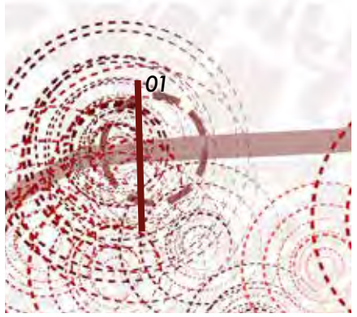
Section 02 through school fields across through the market and neighboring factories.

Fig 3.48 - Smellscape Sections. *(Author, 2022)*

Soundscape

The area consists of various activities, which throughout the day disperse various sounds.
These sounds become a time indicator for many people for various activities to occur.

The most prominent sounds for activities such as pray and school spread through the town into the residential areas.



The site sees a concentration of Taxi/ Vehicular and school bells.

Fig 3.49 - Site Soundscape. *(Author,2022)*



Fig 3.50 - Soundscape. *(Author,2022)*

MAP LEGEND

Taxi's/Vehicular

School Bells

Temple Bells

Mosque Prayers

0 2 4km

Soundscape during the day

Due to the site containing various activities it became vital to unpack the various sound relationships across the site. The sound mapping begin to unpack the relationship between time and various activities that usually occur.

The section unpack the source of the sound and how it travels through the site.

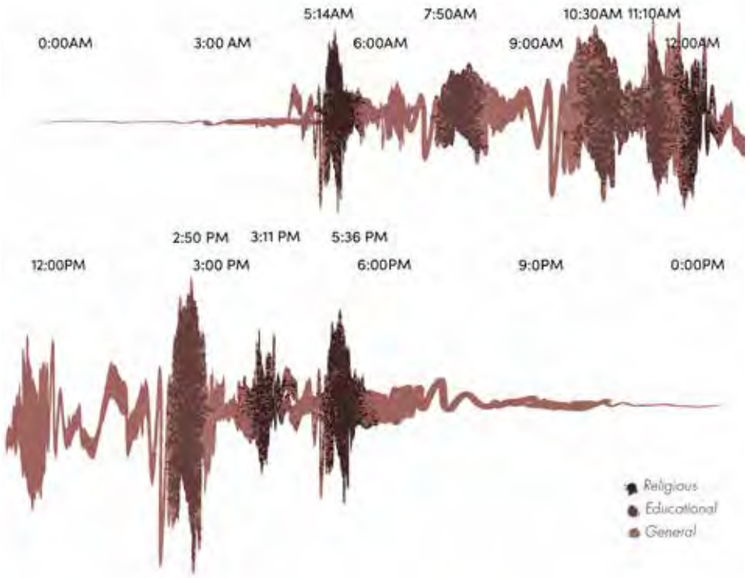
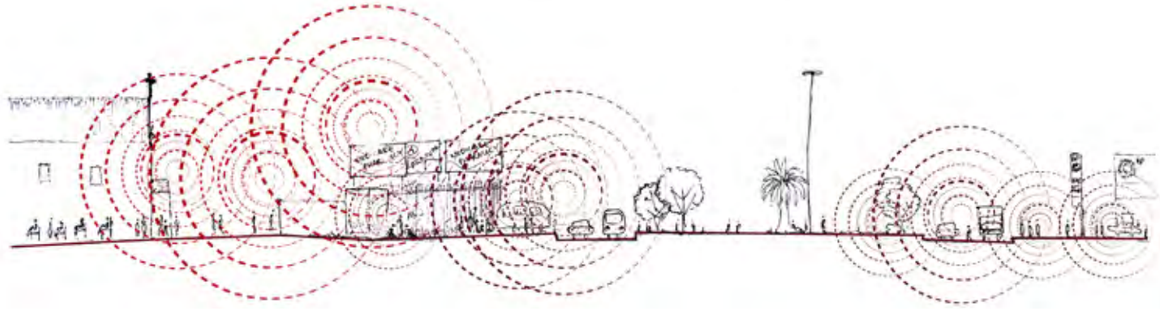


Fig 3.51 - Soundscape vs time. *(Author,2022)*



Section indicating the sound of Taxi's/ Vehicles as well as the school bells traveling through the site.

Fig 3.52 - Soundscape Section. *(Author,2022)*



Fig 3.53 - Imagery of site ecology.*(Author,2022)*

3.3 Ecology

This section will look at understanding the contaminated landscape of Actonville as the status quo. It will look at understanding various methodologies that will enable a rebirth and purification within the area.

Overview of landscape

The landscape of Actonville has become one of a town and manufactured parks with almost no resemblance to its former natural landscape(GAPP Consortium 2019, 265). This is largely due to the historical development of Benoni, one of the mining towns of the East Rand. The towns development largely focused on its infrastructure while the natural environment disappeared, with gravel and paving covering its surfaces. The highly pedestrianised area, while forming clusters of activity and movements contains no ecological links between the activity and open spaces such as parks and natural ecosystems.

The precinct itself contains no wetlands, nevertheless there are two within close proximity to the edges. Glenshaft pan is situated towards the south-eastern boundary and Amata pan closer to the northern boundary. Both of these pans are situated within close proximity of developments such as residential and industrial. Their locations and surroundings have affected the natural state of these ecosystems, with very little care and maintenance given to their natural habitat. The areas are characterised by their overgrown weedy vegetation that conceals their freshwater systems.

The Amata pan is classified as a sedge pan with open water and invading reeds. The pan is known as the 'oil dam' having highly polluted water (possible oil spillages) as well as being used within the community to conduct certain rituals. The Glenshaft pan is also characterised by its invading reeds however, contains no barrier zone as it is situated within close proximity to an informal settlement that is fastly growing in density. Due to the ongoing transformations within the area, these ecosystems fauna life has decreased significantly over the years. It is quite unlikely that either of these pans contain any aquatic life with the highly polluted state of the waters(GAPP Consortium 2019, 266).

Due to the area being closely situated near the industrial edge on the northern boundaries, the constant smoke and pollution of nearby manufacturing factories seep into the area. This characterises the air as being heavily polluted with chemicals and dangerous gases that flow into homes and open spaces. The fact that these factories are not only situated within close proximity to each other but also to the residential zones does not provide much assistance either. Additionally with the pans being overly polluted as well, it doesn't provide the area with much needed air purification or detoxification.

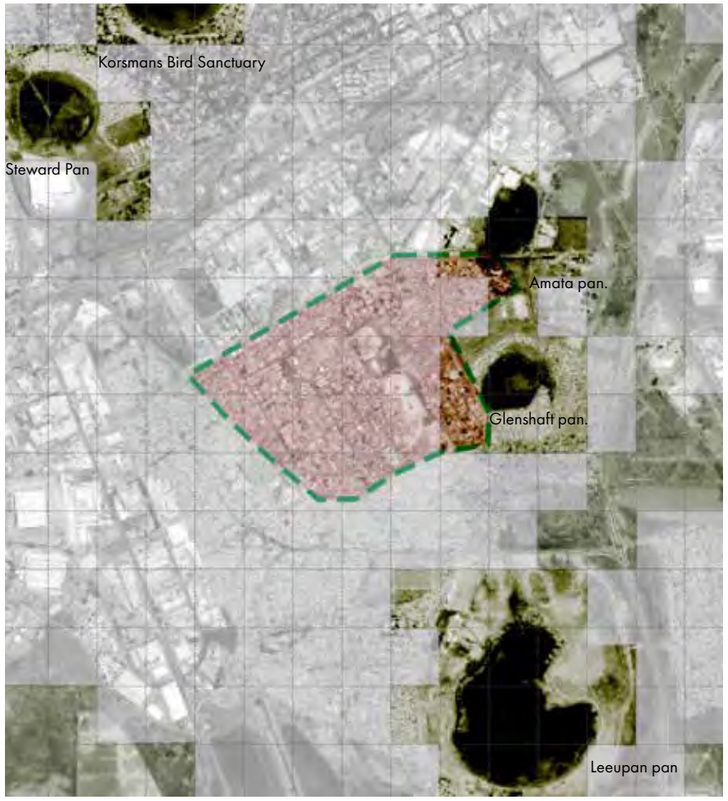


Fig 3.54 - Mapping ecosystems.*(Author,2022)*

The area contains “pocket parks” that are generally formed around clusters of residential planning, aiming to create safe spaces within streets. However, due to many factors such as drugs, crime as well as safety in the area many of these parks have become unsafe and catalysts for drug and alcohol abuse. This has led to polluted spaces that have become unsafe with illegal substance lying all over.

In response to this the municipality erected Clearview security fences with the purpose to make them safer, nevertheless some of the fences have been torn down or broken while some have not been maintained. The municipality has also introduced gym sets in efforts to promote exercise in the area. These have been welcomed with residents making use of the equipment throughout the day. It has showed to increase parks usage however it still a ‘hotspot’ for illicit activities by the youth(“[WATCH]: Actonville Park Burdened by Social Ills | Benoni City Times” n.d.). The parks have been used for weekend activities such as drinking, smoking and drug dealings, with surfaces covered in empty bottles, broken glass, wrappers and more. The parks are a compilation of trees and grass with very little landscaping or additional fauna. Majority of them contain alien weeds that have spilled into the grass and area as a result of a lack of maintenance. The area contains a high sports infrastructure with a stadium that is situated within close proximity to the squash courts, swimming pools and cricket grounds. However, these spaces are dilapidated and are only used for events. The cricket grounds are used by the Actonville Spurs Cricket Club for practice and the stadium is used for events as well as school sports days. The public amenities are quite run down and hardly used by the community.



Fig 3.55 - Images of litter and illicit activities. *(“[WATCH]: Actonville Park Burdened by Social Ills | Benoni City Times” n.d.)*

Greenscapes

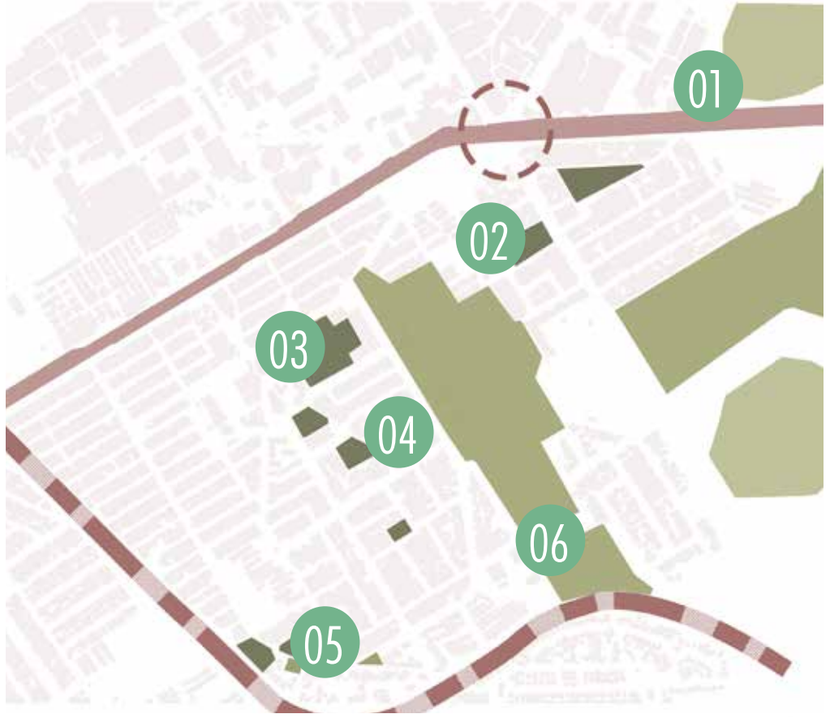


Fig 3.56 - Mapping greenscape and water bodies. *(Author,2022)*

MAP LEGEND

- *Parks*
- *Sports fields*
- *Wetlands*

0 2 4km



Invading reeds in front of Amata pan.



Playground outside Benoni Primary School.



Park between the brown flats and civic centre.



Munshi park.



Ghandhi street park.



Cricket fields.

Fig 3.57 - Images of greenscapes. *(GAPP Consortium and Author,2022)*

Tree mapping and species

The area sees a variety of different trees however, majority of the trees are not indigenous to the area. Majority of these alien species require a lot more water than indigenous plants that are local to the soil and conditions of the area. These species tend to draw groundwater resources and tend to compete with local species for nutrients and resources.

The introduction of these trees do however provide the areas with shade, added wind flow and act as buffers between industrial areas and open spaces. Additionally they provide a noise reduction within the area. However majority of the trees don't cluster together to aid in alleviating factors in the area.

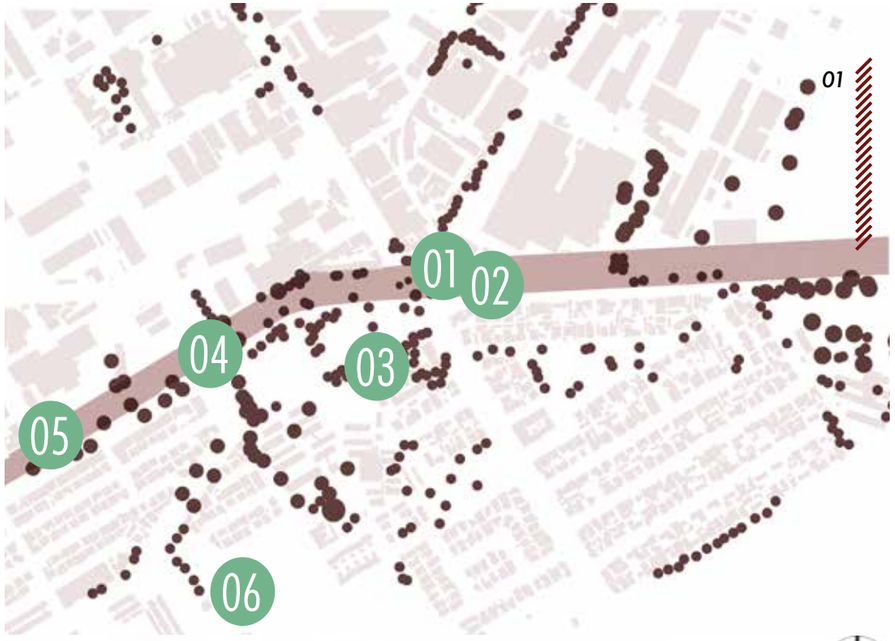


Fig 3.58 - Tree mapping. *(Author, 2022)*

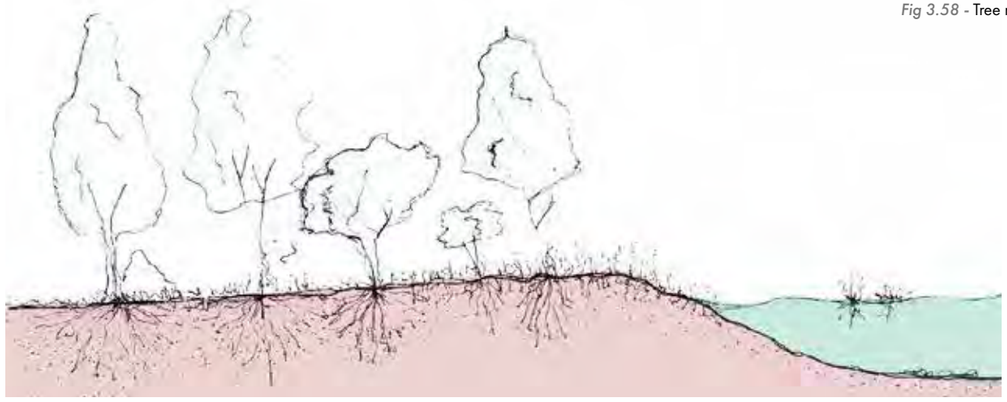
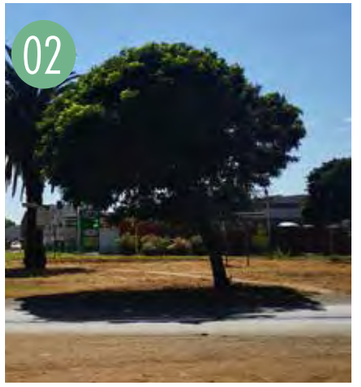


Fig 3.59 - Tree section 01. *(Author, 2022)*



Date Palm trees

Native to Canary islands and attracts insects due to fruits produced.



Carrotwood

Native to Australia, used in construction industry.



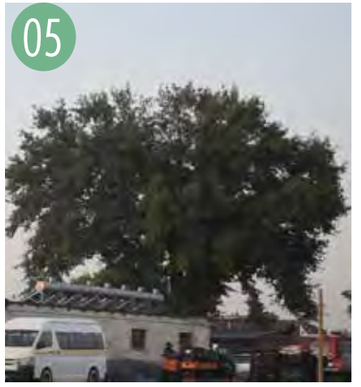
Deodar cedar

Native to Western Asia, has dust and noise reduction functions.



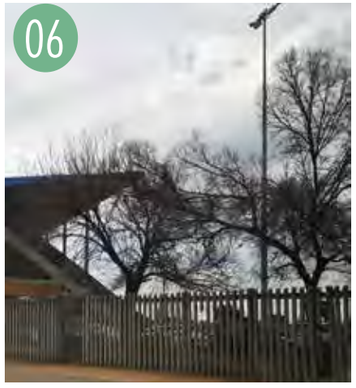
Bay Laurel

Native to Mediterranean region, popular for birds nests.



Live oak

Native to coastal areas attracts many birds.



Silver birch

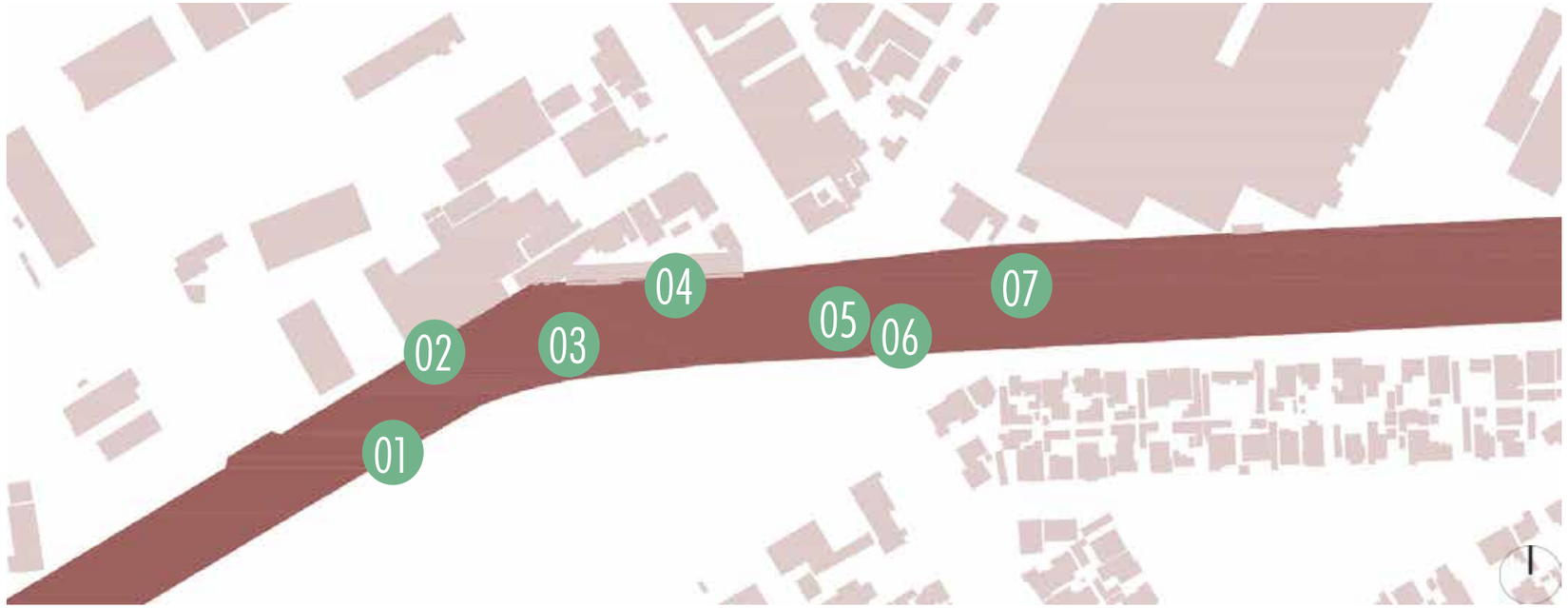
Native to Europe, shorter lifespan than oak.

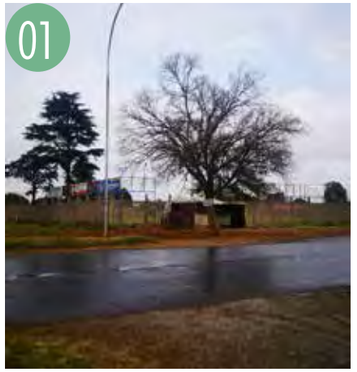
Fig 3.60 - Imagery of site trees. *(Author, 2022)*

Flora catalogue

The area doesn't contain a lot of plants, there are more shrubs and plants in residential plots. Which is due to members planting and maintaining their plants. The area shows a vast amount of alien weeds that tend to spread as a result of the lack of maintenance in the area.

Majority of the plantings in open spaces are a result of either members of the community or as a result of seedlings and weedlings in the area. The lack of maintenance and development of flora has led to a decrease in the landscaping of the area. The fact that the area contains a lot of alien species makes it hard for local flora to grow in the area.

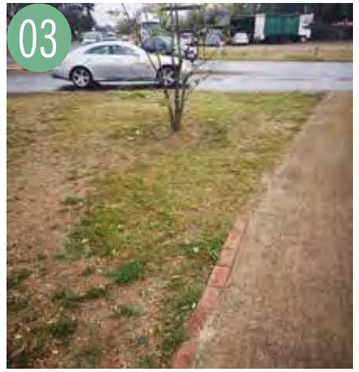




Area around Reading road with hardly any plants.



Local planters made from used tyres.



Bare shrubs around the circle.



Shrubs with white flowers.



Shrubs with yellow flowers.



Area on Lancaster street with hardly any plants.



Lone shrub.

The imagery showcases the site area flora being scarce and not thriving within its landscape. This is also due the alien species that occur frequently within the immediate surroundings of the site that has influenced the way in which fauna grows.

Fig 3.61 - Imagery of site fauna. *(Author, 2022)*

Surface catalogue

The area consists of various surfaces, most are left untreated or uncared for over the years. The flea market area consists of paving as well as gravel being thrown over the sand to constitute for the parking area. The area in front of the church consists of top soil with some areas consisting of grass and weeds. The other areas consists of grass merging into soil.

The majority of the roads are tarred and are in average condition with some sidewalks being paved and other left unmaintained or covered. The lack of maintenance sees majority of the surfaces in the area covered in pollution.

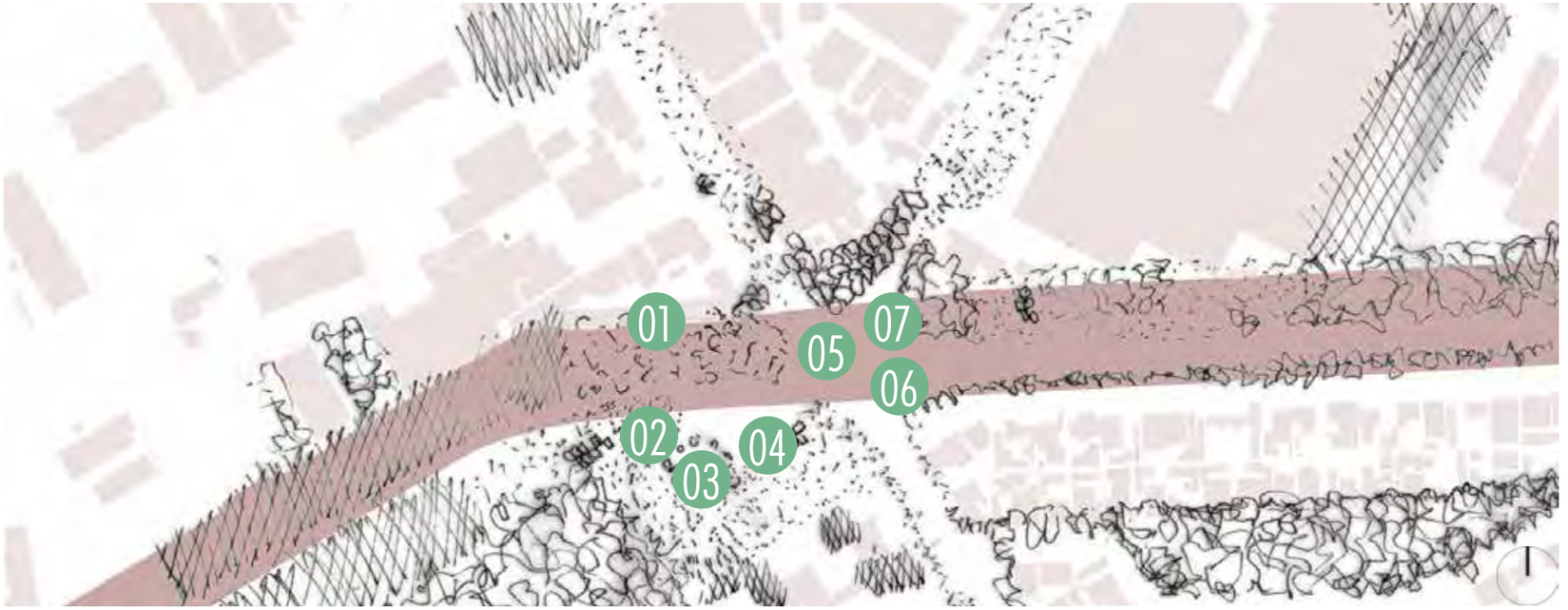


Fig 3.63 - Surface mapping.*(Author,2022)*



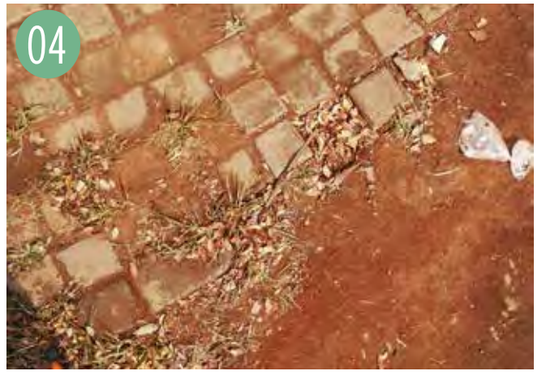
Dry worn out grass



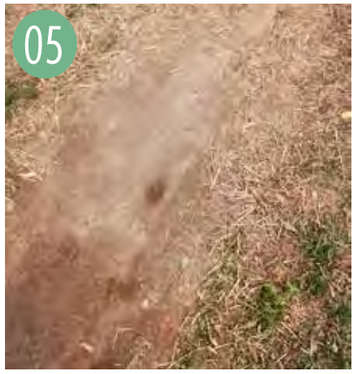
Top soil with small gravel stones



Hard rock with soil and some grass



Paving disappearing into soil



Grass worn out by pathway of frequent motion.



Concrete pathway with brick edges around the circle.



Paving around the edges of the circle.

The traffic circle was given an uplift by the Prince of Monaco in 2018. The circle was paved in areas and around the edges. The area had also seen multiple plantings in order to enhance the entry in to Actonville.

Fig 3.62 - Surface Imagery.*(Author,2022)*

Soil mapping

The area of Actonville is characterised by its reddish sandstone soil, this is as a result of the underlying Vryheid formation, Karoo Supergroup(GAPP Consortium 2019, 275). This is widely due to past mining activity that has taken place in close proximity to the precinct. This also means that some of the soil could have dolomite under the surface. Additionally due to the constant pollution of factories in the surroundings, these toxins get trapped within the soil. This toxification within the soil deters the growth of new flora as well as existing flora within the area. As a result, the soil contains very little to no nutrients that are able to grow vegetations that can provide alleviation to the quality of air as well as provide food to the community.

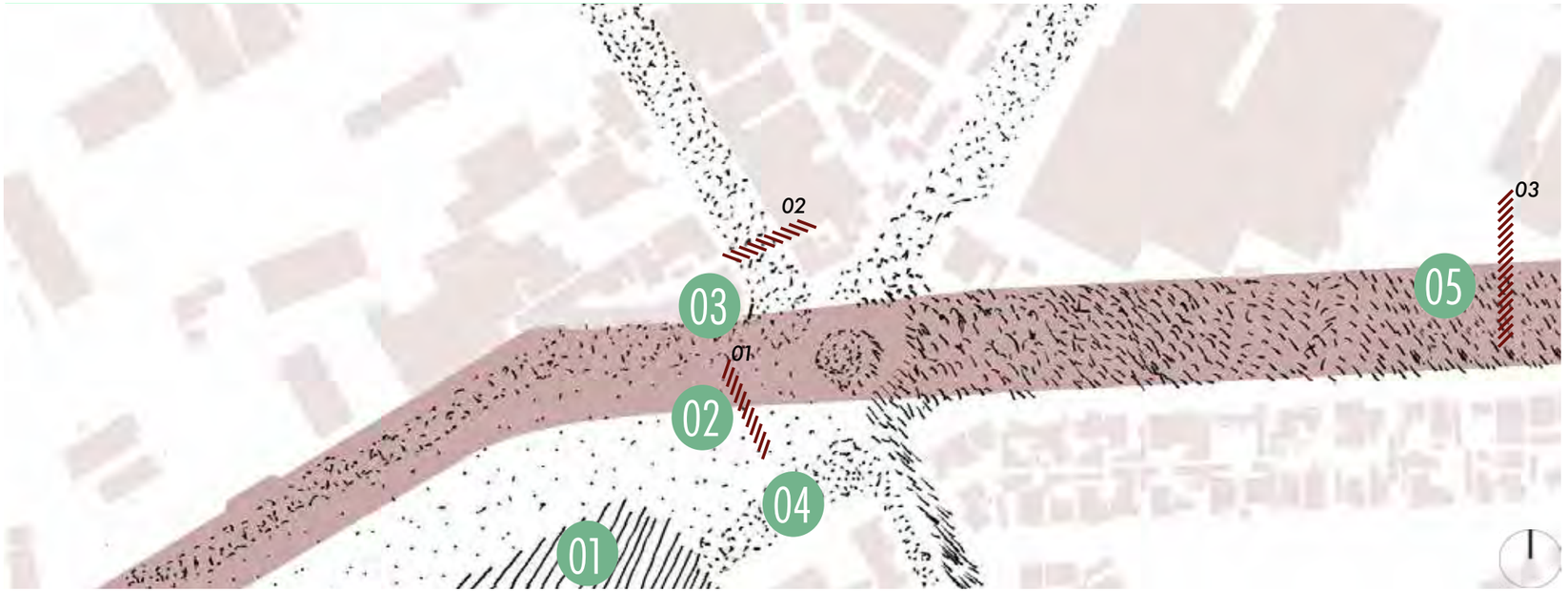


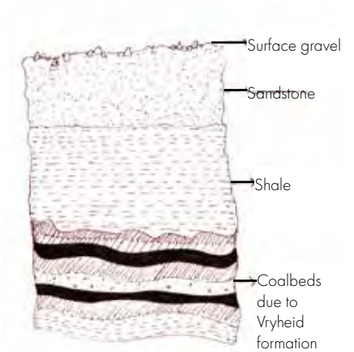
Fig 3.65 - Soil mapping of different soil types in the area.*(Author,2022)*



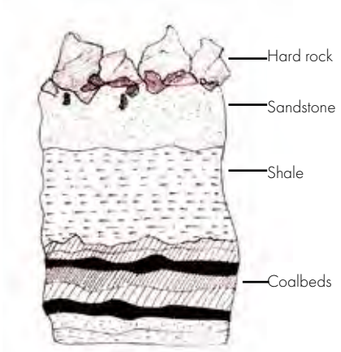
Dry burnt grass.



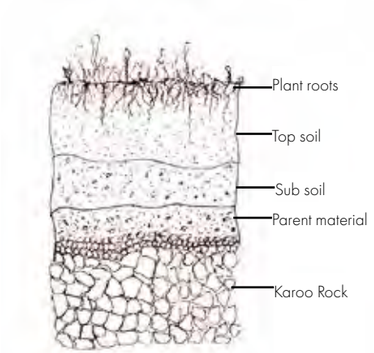
Reddish sandstone soil.



Section 01 with surface gravel.



Section 02 with hard rock



Section 03 with plant roots

Fig 3.64 - Sections of soil conditions.*(Author,2022)*



Moist grass.



Damp clayey soil.



Grass/plant with dry soil.

Fig 3.66 - Images of soil conditions.*(Author,2022)*

The areas show cases an increasing rate of density that allows the area to contain an influx of activity and movement however, these don't connect with the ecological spaces in the area. This in turn fills the area with a high concentrations of pollution running from the industrial areas into the residential sections. The argument for rehabilitation and development of better ecological links within the area becomes vital as the ongoing pollution aids the degradation of the land and soil. Thus, making it harder for indigenous crops to grow, clean ground water systems and existing flora to sustain itself.

The ongoing pollution together with past mining activities in surrounding areas have contributed to a toxic air concentration that affects the health of residents. As a previous resident of the area, I would suffer regularly with asthma problems as a result of the air conditions. It was only after we had moved out of the area that it reduced in severity and frequency. This is a common case within the community that is seen amongst the elderly and youth.

Rehabilitation

The area is situated within a low to medium socioeconomic status(GAPP Consortium 2019, 282), this would mean that the rehabilitation plan would need to be considerate of the context as well as becoming adaptive to the landscape. The main objective within rehabilitating the terrain is to look at methods of air purification that do not require large machinery or complex systems to operate. The purification system should be self-sustaining and require minimal maintenance. The building would need to become a threshold for expansion and future connections that can aid in its use. The need for the design to include and expand on greenspaces becomes necessary as the building would need to be sustainable and self-sufficient, requiring simplicity and efficiency.

The rehabilitation process will look at re-introducing local fauna and flora into the project in order to not only create new ecosystems but also support the existing systems and build off them. The introduction of small-scale insects such as earthworms, beetles, springtails and other arthropods. The inclusion of small scale insects will not only improve soil organisms and enhance nutritional content but also help to aerate the soil("Soil Arthropods | NRCS Soils" n.d.). The arthropods will help shed organic matter such as dead plant residues and stimulate healthy bacteria and fungi within the soil. This will aid in the growth of indigenous flora that will be less impactful on ground water and other resources. The interaction between the plants and microorganisms will aid in soil rejuvenation(Wei et al. 2021). The indigenous flora will contribute to air purification as they will be planted within clusters and will be chosen on their air purifying ability. Green wall plants have shown to effectively purify the air based on reducing the concentration of pollutants. Larger scale trees include the River bush Willow, White Stinkwood and Fever tree.

There are various types of artificial purification systems available however, majority of them don't fit the scale of the project or are designed as a more complex system that would require a regular maintenance and upkeep. The research looked at finding solutions that could be easily integrated within the design and not require a new development. Amongst these is the use of titanium dioxide (TiO2), a substance that has become effectful in removing harmful nitrogen oxides, a process called photocatalysis(Ramirez et al. 2010). The substance is mixed in with paints that can then be painted on various surfaces such as walls, roofs, pavements and even cars. The titanium dioxide is a pigment that acts as a catalyst when activated by sunlight. The substance can also be used to enrich concrete and cementitious materials, it is called TioChem and can be used in various ways. German company Climalife manufactured one of the first roof tiles that contained a TioChem coating(Bolte 2009). This coating enabled the reduction of nitrate oxide from the air thus improving the air quality(Bolte 2009). TioChem is considered to be a fairly new product having only been in the industry for over 10 years.

The paint technology is used within facade developments, mainly on northern screens as it reacts the most consistently with the sun and is therefore able to reduce pollutants in the air. The Mexican hospital makes use of it within a modular screen tile that provide a consistent surface to interact with air flow ("Mexico City Hospital 'Eats' Pollution: Torre de Especialidades Features Innovate Facade Tiling That Neutralizes Smog" n.d.).



Fig 3.67 - **TiO_2 used in facade.** *("Mexico City Hospital 'Eats' Pollution: Torre de Especialidades Features Innovate Facade Tiling That Neutralizes Smog" n.d.)*

It is therefore more affordable and easily accessible to use the paint form of titanium dioxide as it is available within the country and is in use. This enables a variety within the design as various colours can be used to create a language within the building.

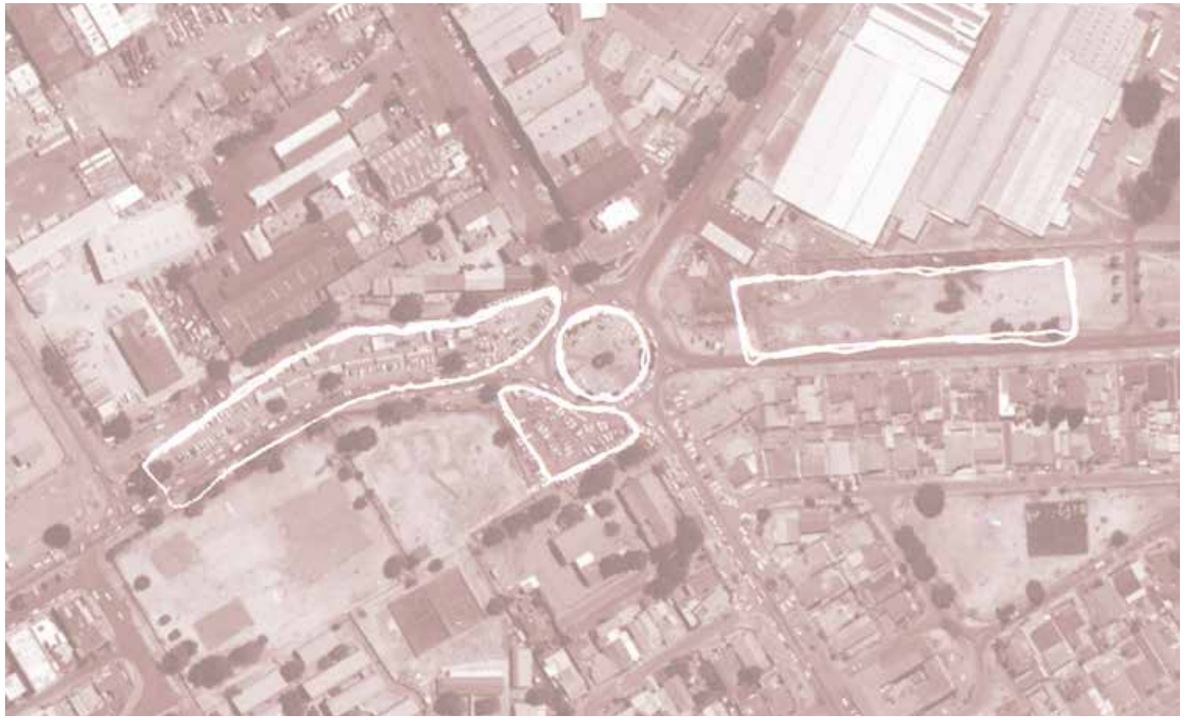


Fig 3.68 - Site selection aerial. *(Author,2022)*

3.4 Site

The chosen site, comprises of three areas. These areas fall part of the urban space within the context and gets filled with temporary program that changes throughout the day. The two longitudinal sites are as a result of the road reserve of the K-Route. However, skeleton market stalls fill north western edge. These get used mainly on the weekends and occasionally during the week. The other sites are completely void, with users and vehicles in constant exchange with the sites.

The fragmentation allows for various opportunities within the building such as:
-Noise control
-User control
-Different connections with context

Site selection

The choice of site and context to work within, was the point of inception for the project. It was a vital part of many of my journeys and had always stood out as a place of intervention. Through observations, the theory had placed itself within the project.
The site displays priority to the vehicle as it is within in a traffic circle however the primary constant user is the pedestrian which often gets forgotten and neglected. The sites temporal usage makes it ineffective within the community as most of the time it is hardly utlised. As it could be serving pedestrians throughout the day. The ineffective usage makes the sites prone to pollution and vagrants which becomes a safety concern within the area at certain times. The actual choice of where the intervention would take place came after consultations and deliberations. Eventually the decision was taken that based on observing traffic flow within the area. The most trafficable roads had led to the selection of sites as the different sites not only provided different design opportunities, but they also provided the building the chance to become this threshold within close proximity to each other that would promote walkability. In addition to bridge the gap between the pedestrian and the vehicle. The traffic circle therefore became the threshold that bridged connecting users, buildings and the history of Actonville.

The different sites allowed for different programs to be included within the project, allowing it to become more contextually ingrained within its site. This allowed for clusterings of activity and program that could connect with existing infrastructure. This also allowed the building to adapt to certain conditions such as noise level within various programs, taking advantage of user routes that would lead them into the building and allowing the building to adapt to their needs or usage. The fragmentation allows for variety within form and scale adapting to these various conditions and analysis. Understanding the context and the way in which it gets used became vital to then assign program and designing for the community.

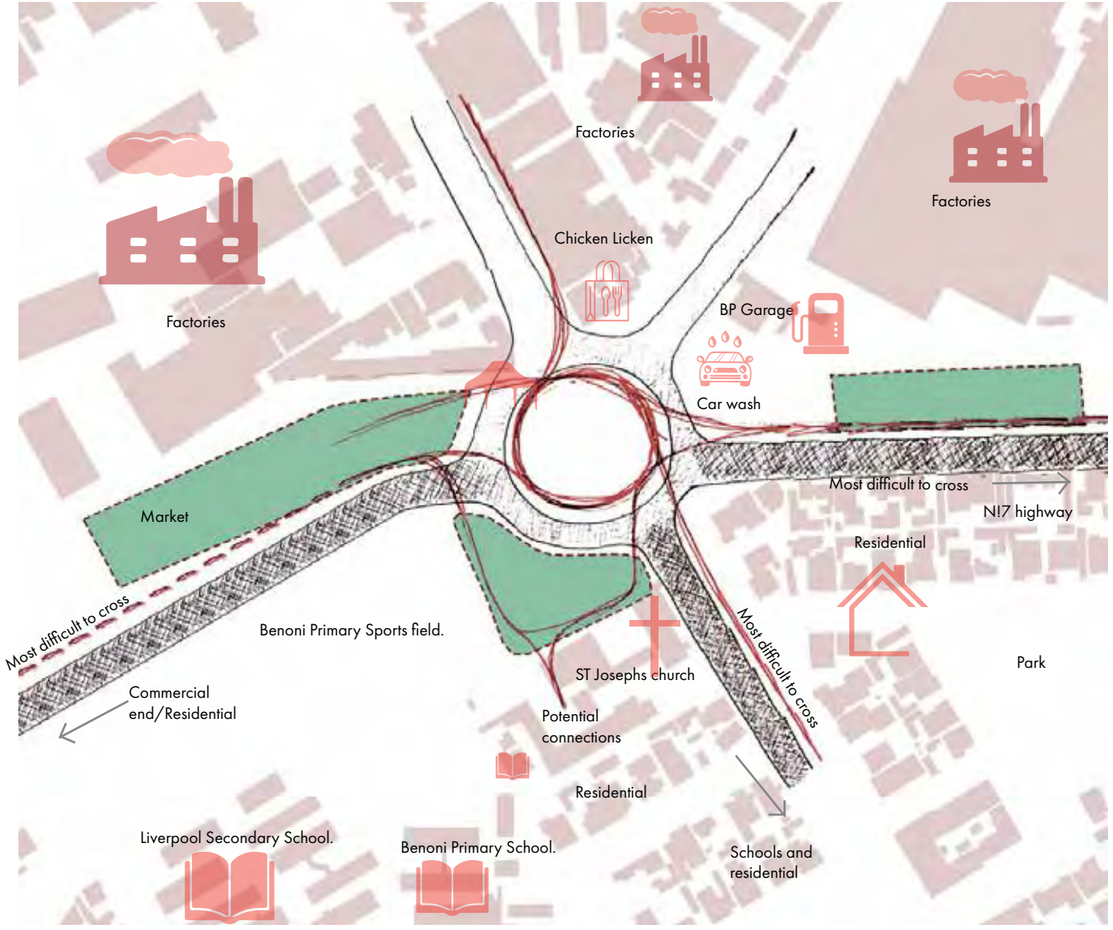


Fig 3.69 - Site selection and trafficable areas. *(Author, 2022)*

It is important to understand the layers that have created the landscape of Actonville in order to understand its identity. The unravelling of history allows for architects to extract and pull parts of history into buildings. Buildings that allow future users to understand and learn from the past. It also creates a unique identity specific to the context and its users.

"for architecture cannot be successfully practised for long without a sense of history, without the sense of direction which history can give, without a concept of what architecture means, and this concept cannot exist outside time and continuity" (Allsopp 1970, 58)

The chosen site is a part of the circle, an area that marks the threshold of Actonville. The circle encapsulates multiple eras, adaptions, histories and memories within the communities. The area before being demarcated as a traffic circle encompassed many gatherings, parades, sports day events and more. Over the years the area has changed infrastructurally and socially with the towns development.

As mentioned earlier the relocations of the school as well as the introduction of new schools enraptured the space. As majority of the school events overflowed onto the circle as well as onto Reading Road.

The site area has always been one of constant adaptations and re-inventions to serve the users. It is important to note that while it is constantly adapting it is centred around the user, the pedestrian. The notion of high mobility and community remain at the core of the site within its historical reference.



Fig 3.70 - View of area in front of sports field depicting the industrial area.*(Ramsamy,n.d)*

Roads,
connected by moments of public enthrallment
with laughs and smiles of joy.
The site area is encapsulated
with moments of entry and exit,
held within its state of limbo.
A state not fixed in time
nor physicality.
Bound by no form and
held by no man.

I am that which chooses to hold
me in an ultimate bind...

Site imagery



View from market stall onto Reading Road.



Corner activity.



Traffic circle, entrance board.



Road Reserve.



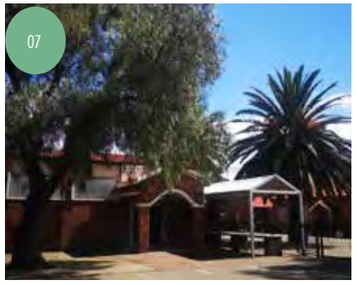
Industrial edge of Birmingham Road.



Fig 3.71 - Image location.*(Author,2022)*



Chicken Licken.



ST Josephs Church.



Benoni Primary Sports field exit.



BP Garage.



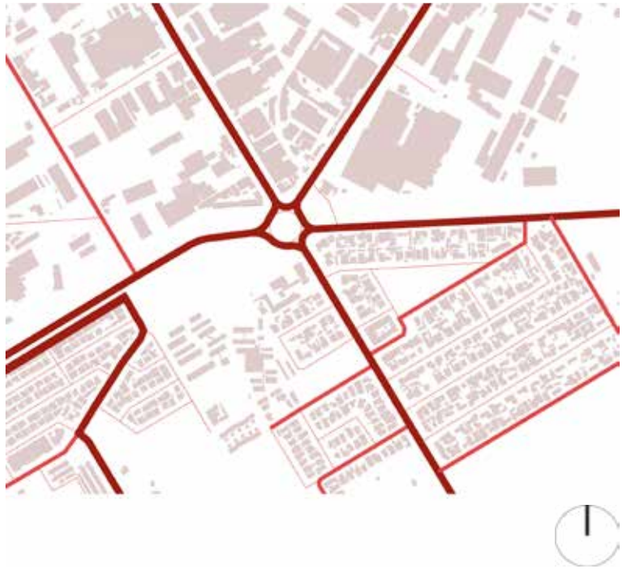
Reserve surface.

Fig 3.72 - Site Imagery.*(Author,2022)*

Site analysis

Road usage

The main routes near the site serve as feeder routes into the area.



MAP LEGEND

- *Primary Routes*
- *Secondary Routes*
- *Tertiary Routes*

Built vs Boundary

The site sees a contrast between the industrial grain and the residential grain.



MAP LEGEND

- *Cadastral boundary*
- *Figure Ground*

Figure ground

The ground relationship show the grain becoming denser towards the south.



MAP LEGEND

- *Figure Ground*

Public vs Private

The solid indicates the voids within the area.



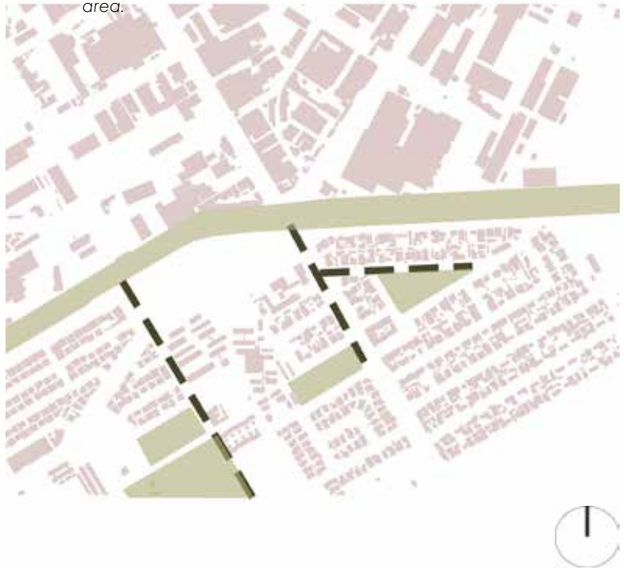
MAP LEGEND

- *Private*
- *Public*

Fig 3.73 - Site Mapping. *(Author, 2022)*

Greenscapes

Considering the reserve as a green belt that can connect to greenscapes in the area.



MAP LEGEND

- *Figure ground*
- *Greenscapes*
- *Potential connections*

Urban Walls

The main routes near the site serve as feeder routes into the area.



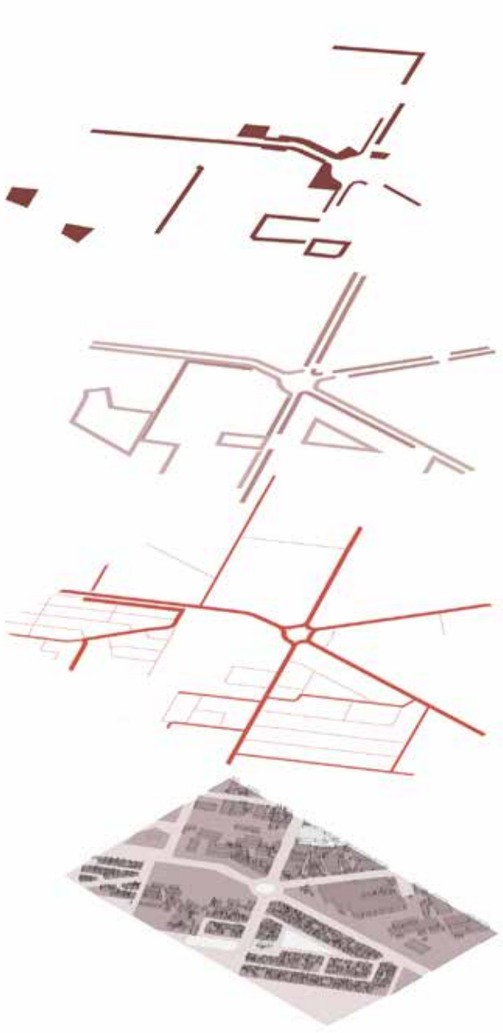
MAP LEGEND

- *Figure Ground*
- *Urban Walls*
- *Park Fences*

Fig 3.74 - Site Mapping. *(Author, 2022)*

Site Axonometric

The site contains various layers that create its present condition. Exploding the layers enables an understanding of each condition that contributes to the current condition. These include the built ground, roads, edges and parking spots.



Common parking spots.

Hard and soft edges.

Major routes and roads.

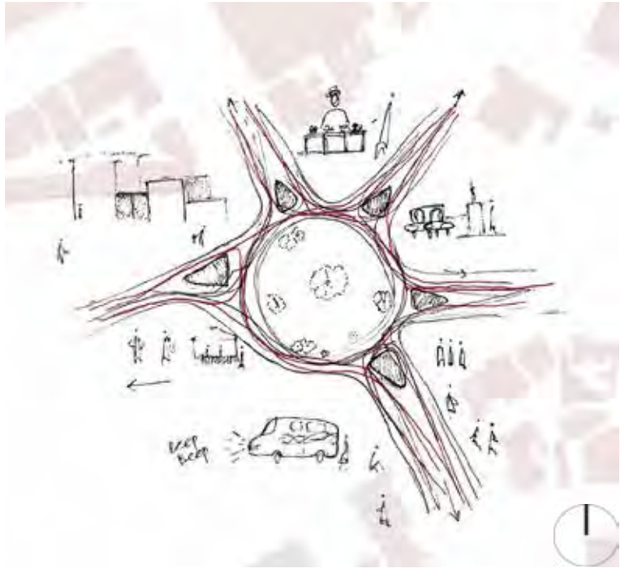
The built area containing built massing.

Fig 3.75 - Site Component Mapping. *(Author, 2022)*

Due to the temporary nature of the sites, varoious activities occur at various times of the day. The observational mappings begin to unpack various activities such as informal markets and movements.

Weekday mappings

7:45 AM



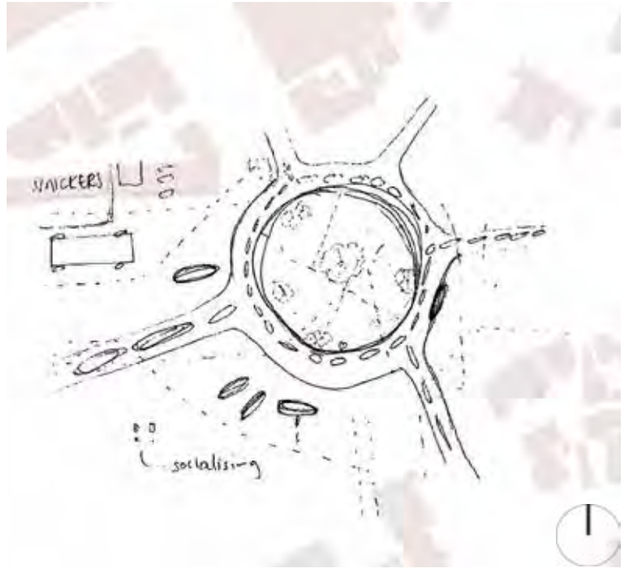
-Lots of Taxi's
-Pedestrians-Factory workers
-Lots of incoming traffic, N17 Highway
-School kids

15:00 PM



-More traders
-Pedestrians-Workers and school kids
-Taxi's
-Gathering areas

17:00 PM



-Lots of Taxi's
-Pedestrians-Factory workers,crossing,cutting through market
-More movement than activity
-Buying Fruit & Veg before going home.

20:00 PM



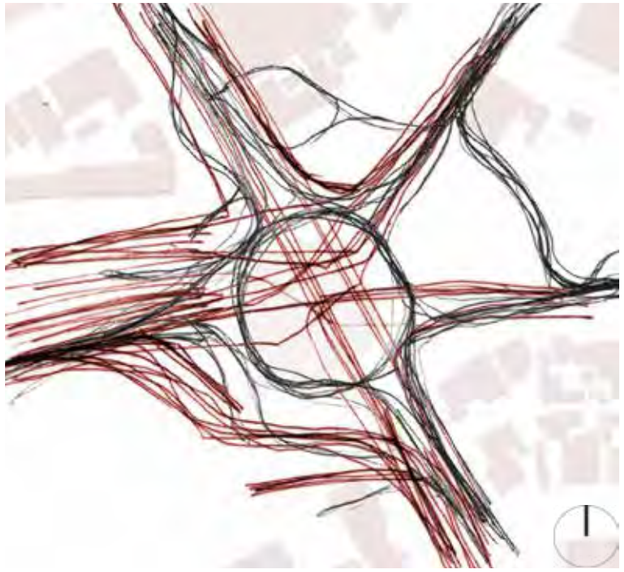
-Few cars/movement
-Main activity around garage/Chicken Licken
-Dark/less lights on
-Kids

Fig 3.76 - Time patterning Mapping. *(Author,2022)*

The temporary nature brings forth interesting movement patterns that bring to depict varying frequencies of movement. This begins to correlate with daily activities in the area.

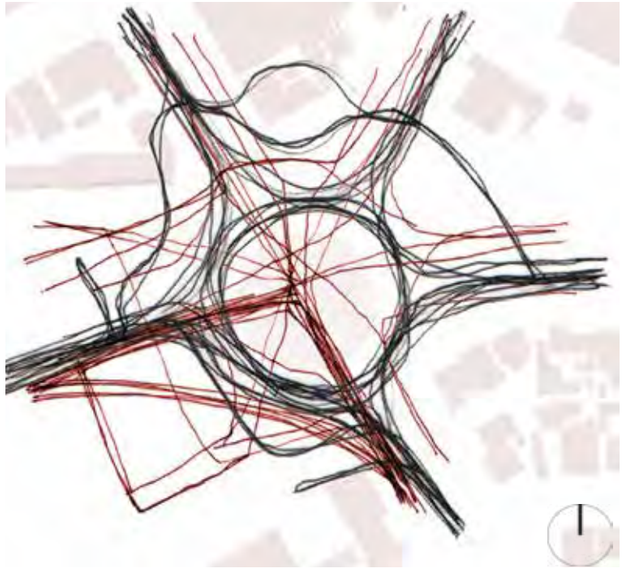
Weekday movements

Early morning
7:45 AM



-Lots of Taxi's
-Pedestrians-Factory workers
-Lots of incoming traffic, N17 Highway
-School kids

Afternoon
15:00 PM



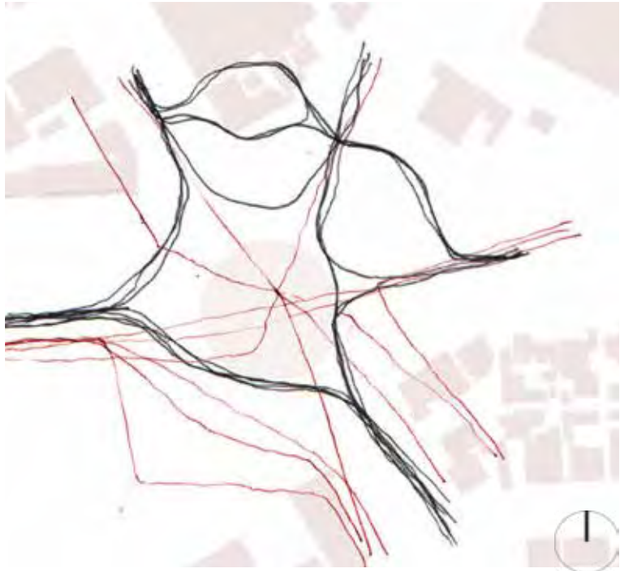
-More traders
-Pedestrians-Workers and school kids
-Taxi's
-Gathering areas

Late afternoon
17:00 PM



-Lots of Taxi's
-Pedestrians-Factory workers,crossing,cutting through market
-More movement than activity
-Buying Fruit&Veg before going home.

Evening
20:00 PM



-Few cars/movement
-Main activity around garage/Chicken Licken
-Dark/less lights on
-Kids

Fig 3.77 - Movement Mapping *(Author,2022)*

Weekend mappings

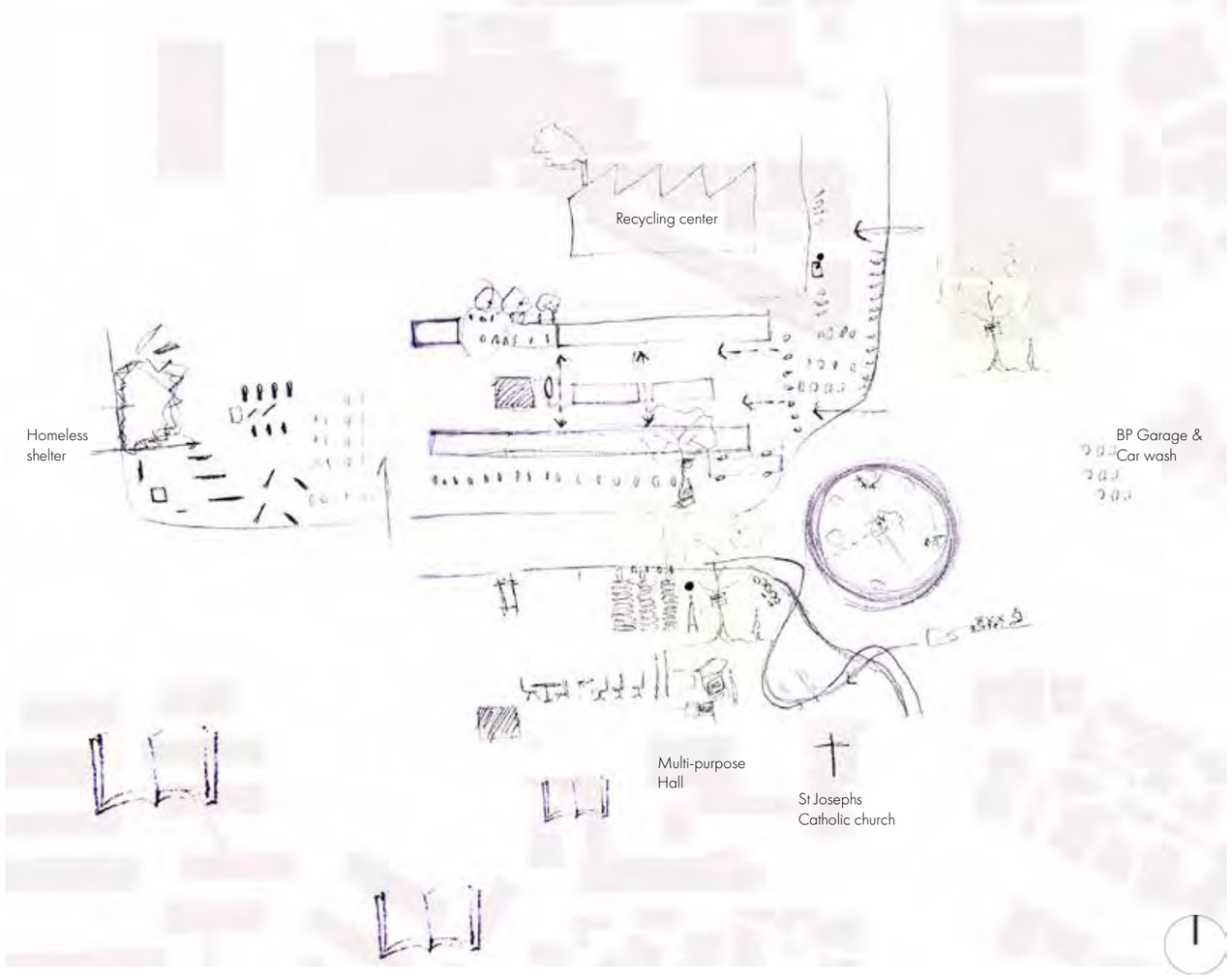
The weekend sees an influx of people due to the Bangladesh Market occurring. This influences the other sites as they get filled with gazebos and temporary stalls or become parking spots.

11:30 am



-Market users-vehicles & pedestrians
-Lots of Taxi's
-Pedestrians-Community members
-Kids

Fig 3.78 - Activity Mapping.*(Author,2022)*



Reading road sees the influence of the market influencing traffic and users. Users are constantly moving between spaces and crossing Reading Road.

Fig 3.79 - Reading Road Mapping.*(Author,2022)*

Movement



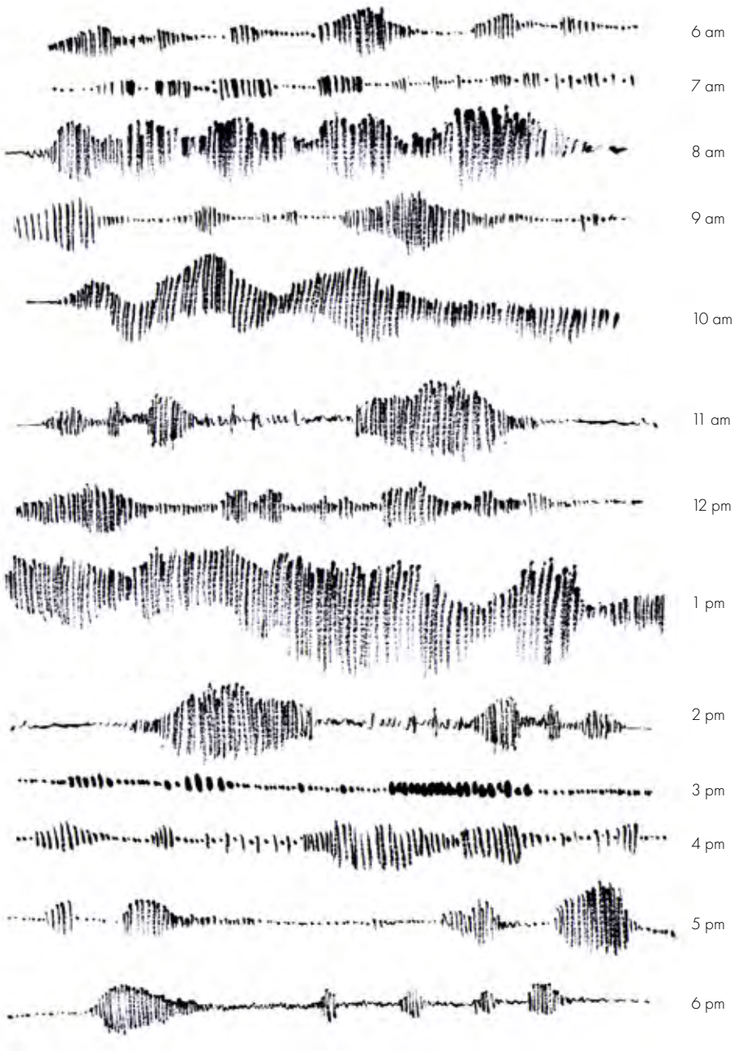
-Few cars/movement
-Main activity around garage/Chicken licken
-Dark/less lights on
-Kids

Fig 3.80 - Movement Mapping.*(Author,2022)*

Sound mappings

In observing the site, it became apparent that the sites get used by various users throughout the day. The various users each utilize the site in their own way in order to best suit their needs.

The movements along the site also become a means as to where activity occurs. The movements also begin to influence what type of activity occurs.





Peak morning motion.



Midday motion.



Motion extracted into moments.

Fig 3.81 - Movement Mapping on site. *(Author,2022)*

Weekdays



Pedestrian movement



The Pedestrian

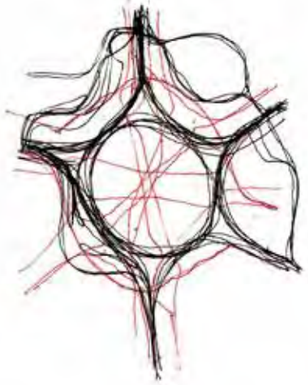
Workers



School children



Weekends



Pedestrian movement

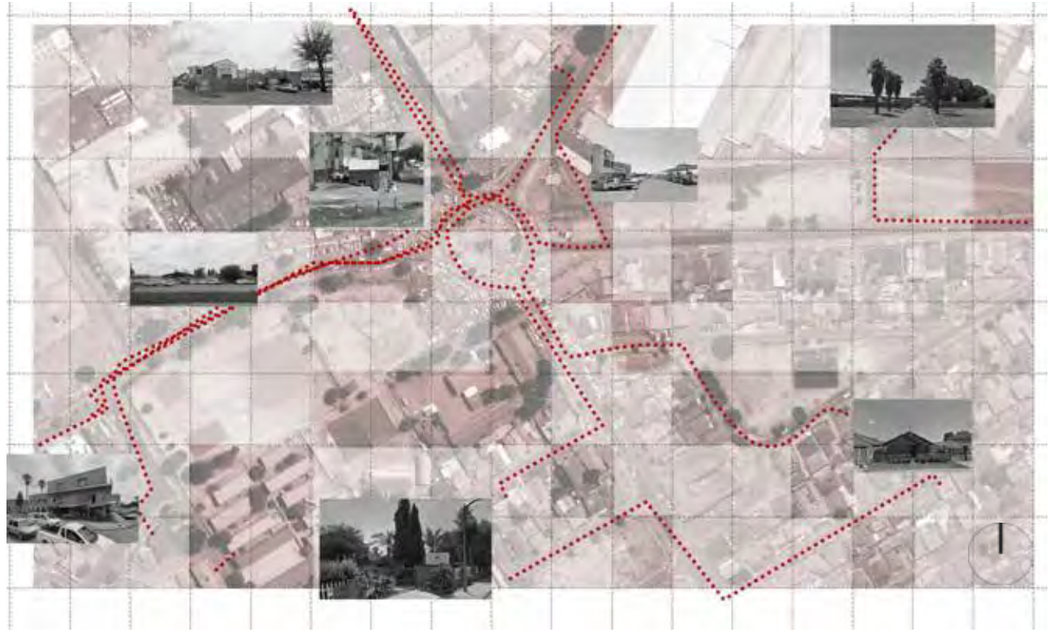


Taxi users



Entrepreneurs







Workers in the area usually pass the circle and grab something before heading off to work.



School children usually meet around the circle before and after school, some catch a taxi home from the circle.



Taxi user's usually get dropped off around the circle and stop for something to eat before work.



Entrepreneurs usually remain static.

User movements

In observing the site, it became apparent that the sites get used by various users throughout the day. The various users each utilise the site in their own way in order to best suit their needs.

The movements along the site also become a means as to where activity occurs. As the movements begin to influence what type of activity occurs.

Fig 3.82 - User Movement Mapping.*(Author,2022)*

Modes of transportation

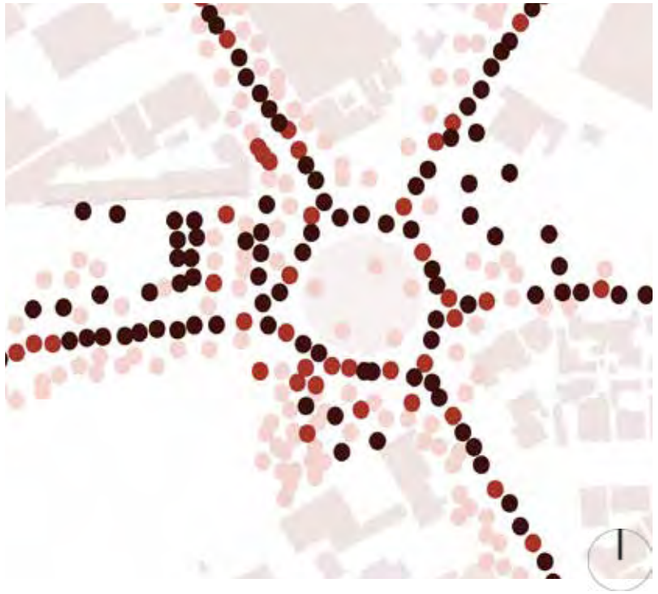
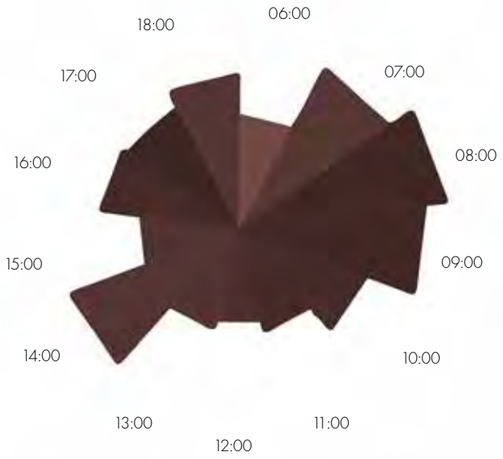
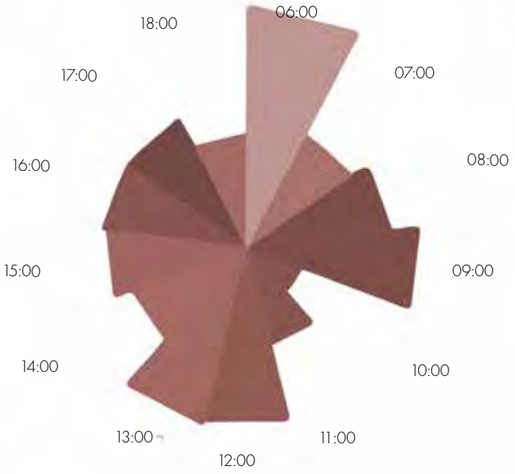


Fig 3.83 - Transport Mapping. *(Author, 2022)*

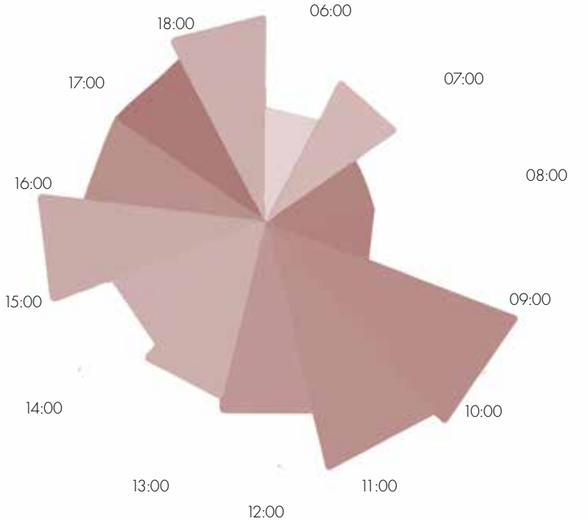
Vehicles



Taxi's



Pedestrians



User transportation

Based on observational mappings of users it became apparent that there are three major modes of transportation in the area. Namely, vehicular, taxi's and pedestrians.

The frequency of these modes of transport fluctuate during the day. This begins to influence movements and activities on the site such as school kids hanging around or employee rushing to work.

Fig 3.84 - Pie charts. *(Data Visualization -Traffic study of Actonville, 2022)*

Common typologies

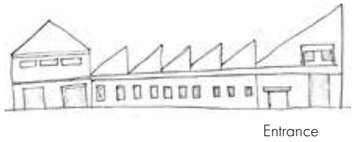
There are a few common typologies in the area, which make up the urban fabric of Actonville as well as the immediate surroundings of the site. The typologies bring a specific user onto the site. There are multiple exchanges between the user and various typologies.



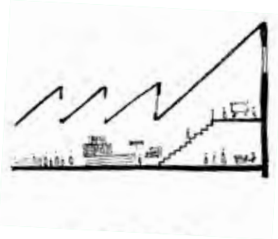
Locations of common typologies.

Fig 3.85 - Location plan. *(Author, 2022)*

01



Industrial



Section through factory.

Due to the proximity of the industrial area, various factory workers engage with the sites. There are various types of factories in the area, such as brick manufacturers, recycling warehouses etc.

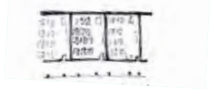
02



Educational



Section through school walkway.



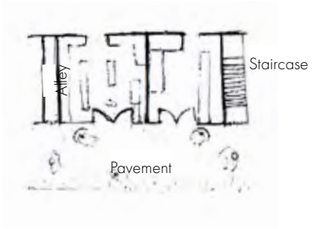
Plan of classrooms.

There are multiple educational facilities in the area that service the Actonville and Wattville area predominately. Majority of the schools cater to approximately over 1500 children each.

03



Mixed used



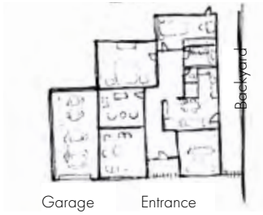
Plan of ground floor -alleys and staircases

There are multiple mixed use buildings with various ground floor use (Fig 4.37- 4.38). The mixed use typology running through the edges of the precinct enable entrepreneurship and density within the area. This typology bridges the growing density and the need for an income while catering to various needs.

04



Residential- House



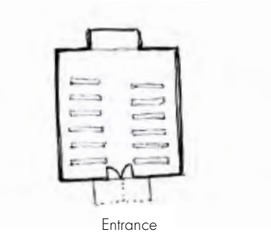
Plan of common residential layout.

The residential typologies are quite dense with small plots of land, approximately at 600 sqm a plot. The plot is usually maximised and consists of added outbuildings which can be rented out for added income.

05



Religious-Church



Plan of church.

The area shows a vast amount of religious buildings including the church which includes a multi-purpose hall that is used for funerals and events.

Fig 3.86 - Common typology analysis. *(Author, 2022)*

Sectioning

The site sections begin to unpack the various spatial relationships that occur on the sites. They begin to show the different thresholds and relationship between different programs. It also begins to unpack the relationships between the pedestrian and the vehicle and the pedestrian and the program.

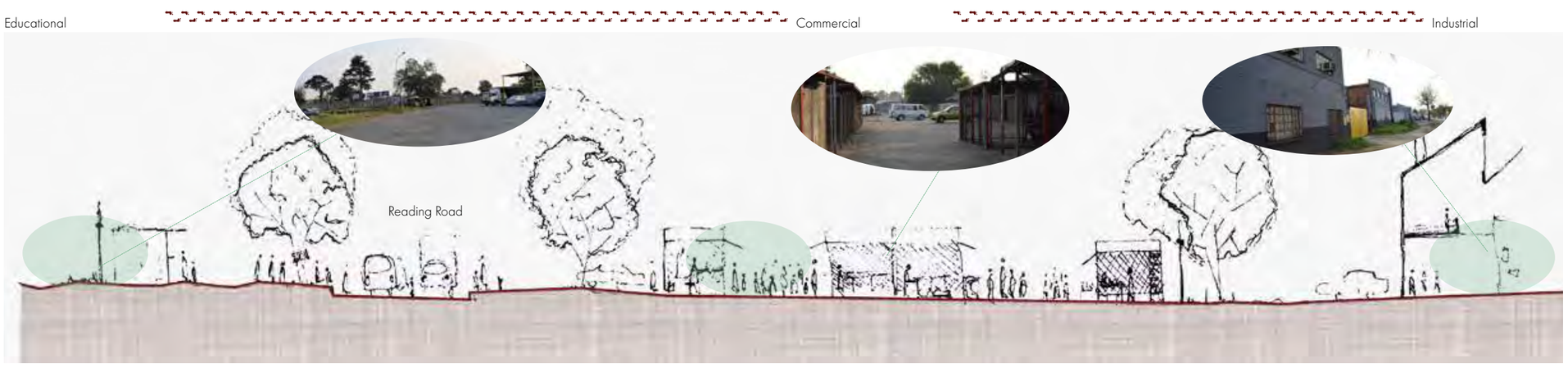


Plan of sections taken.

Fig 3.87 - Section locations.*(Author,2022)*



Section A through St Josephs church and BP Garage.

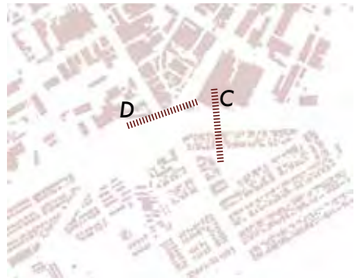


Section B through Reading road and factory.

Fig 3.88 - Site Sections.*(Author,2022)*

From sectioning the site, it showed various connections and relationships that different buildings had with each other. It also showcased how the users interact with these spaces throughout the day.

The sections showcase a high level of ground-level activity and mobility.



Plan of sections taken.

Fig 3.89 - Section locations *(Author, 2022)*

Industrial — Residential



Section C through industrial and residential.

Commercial — Retail/fuel



Section D through market and garage.

Fig 3.90 - Site Sections. *(Author, 2022)*

Elevating

The elevations begin to unpack the surrounding architectural language being expressed. It also depict the changes in expressions as well as the identity of the area.



Plan of elevations taken.

Fig 3.91 - Elevation locations.*(Author,2022)*



Elevation 01 over industria



Elevation 02 through over factory.



Elevation 03 over Reading Road Market(Bangladesh).

Fig 3.92 - Site Elevations.*(Author,2022)*



EXPLORATION DEVELOPMENT

CHAPTER

04

Fig 4.01 - Section sketch of site.
(Author,2022)

This chapter will look at various explorations and design processes that has shaped the final design. It will also provide an understanding to certain design decisions and developments.

4.1 Sketch charette
4.2 Precedent analysis
4.3 Program
4.4 Building Development



Fig 4.02 - Controlling the uncontrolled- Charette 01 *(Author,2022)*

4.1 Sketch charette

This section will look at the process of experiments and model making that has inspired concepts,analysis and design development.

The initial process focused on experiments that aimed to heal a harsh history that is visible.

The second process looked at methods of fragmenting time through paper folds and how to slow time down.

Sketch charette 01- 29th April

Initial sketch charette

The first charette explored existing conditions in Actonville. These included the surfaces which are dusty and polluted. The different textures such as hard and soft. Lastly the polluted air caused by the neighboring factories.

The charette looked at 3 exercises
01- Things changing over time
02- Narratives of community
03- Evoking memory and journey

Charette- Key terms

Time
Movement
Change
Thresholds
Pedestrian
Memory
Scars
Journey



Fig 4.03 - Map of collectants. *(Author,2022)*

Exercise 01

SURFACES BECOME A REFLECTION OF TENSION

Exercise 01 looked at various surfaces of tension as a metaphor of Apartheid treatments on the landscape of Actonville. It focused on the burning on various plastics as a deterioration versus the treatment of water as regenerating element.

Exercise 01- Key terms

TIME
CHANGE
SCARS

Material representations

OASIS

Soft surfaces

Landscape before apartheid.



STONE & GLASS

Hard surfaces

Apartheid harshness pierces into landscapes.



CANDLE WAX

Merged surface.

Post-apartheid-merging.



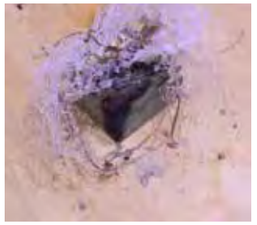
BURNING VARIOUS PLASTICS

Post effects

Effects of apartheid visible.



Fire experiments.

	Hard pierces soft.	Merging with wax.	Adding plastic.	Burning.	After 60 seconds.	After 2 minutes.	Final form.	Observations
EXPERIMENT 01								-Burned in a spiral manner that spread flames
EXPERIMENT 02								-Fire spread over whole piece and grew until it died -Oasis became deformed after it cooled down
EXPERIMENT 03								-Small flames -Heavier mass

Water regeneration.

	Hard pierces soft.	Merging with wax.	Merged surface.	01-Adding hot water.	02-Adding cold water.	02-After 2 minutes.	02-After 2 minutes.	Observations
EXPERIMENT 04								-Burned in a spiral manner that spread flames

Fig 4.04 - Tensioned surfaces.
(Author, 2022)

Layering narratives

Exercise 02 looked at layering multiple narratives of fire. Using the positive influences of fire within the community.
The exercise looked at using various object that represented these narratives as well as layering them. It then looked at using fire to merge their individual smells and create a singular narrative.

Exercise 02- Key terms

TIME
MOVEMENT
CHANGE
THRESHOLDS
PEDESTRIAN
JOURNEY



Fig 4.05 - Map of fire incidents. *(Author,2022)*



WARMTH

Fire as a generator of community through warmth.
It creates micro-social clusters that share the warmth.
The sense of smoke that encapsulates conversations.



RELIGION

Fire as a generator of community through religion.
The use of light as a symbol of hope through prayers-used in churches and temples. The use of incense to evoke smell within temples.



FOOD

Fire as a generator of community through food.
It creates warmth through feeding and creating social groups.
Food tends to always bring people together.

Fire experiments.

	Layering.	Burning camphor.	Burning.	Burning incense.	After 60 seconds.	After 2 minutes.	Final form.	Observations
EXPERIMENT 01 Wine bottle Plants Burning Camphor Incense								-Heightened dark wine smell with slight flower smell
EXPERIMENT 02 Flowers Camphor Incense								-Fire didn't spread -Smell flower and more camphor
EXPERIMENT 03 Cardboard Sand & stone Camphor Grass Garlic								-Flame kept going out -Camphor burned items -Smoke induced inside container,Strong garlic, weird chemical smell -Once laid down form kept

Water regeneration.

	Flowers & water	Submerged.	Shaken.	Burning	After 60 seconds.	Shaken.	After 2 minutes.	Observations
EXPERIMENT 04 Flowers								-Flowers burned after been emerged in water -Next day-smell of flowers is enhanced

Fig 4.06 - Layering surfaces.
(Author,2022)

Journeys of memory

Exercise 03 focused on the pedestrian as a medium through memory. The exercise used my memory from my childhood to re-trace experiences and routes once taken.

Exercise 03- Key terms

Time

Thresholds

Pedestrian

Memory

Journey



Fig 4.07 - Map of Journeys. *(Author,2022)*



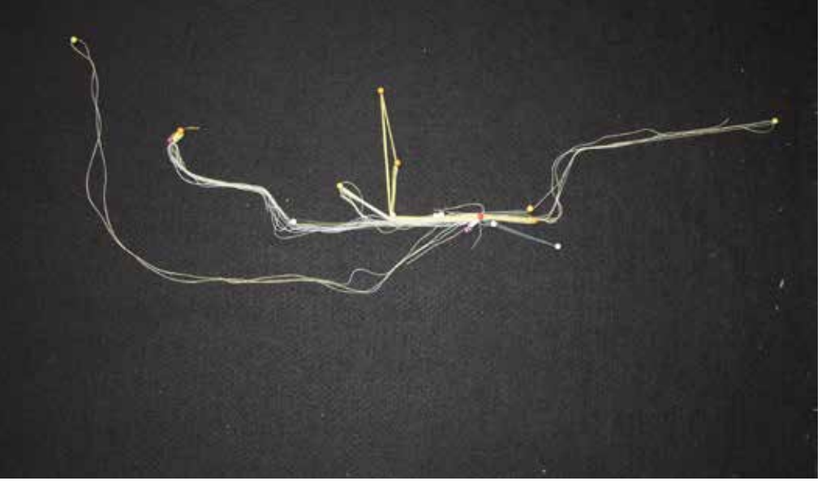
Fig 4.08 - Grand-mothers house *(Author,2022)*



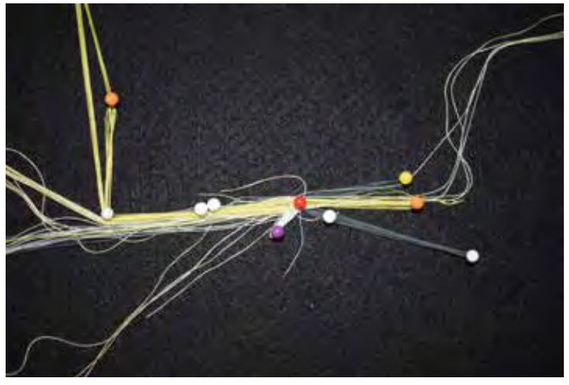
WARMTH RELIGION FOOD

Grand-mothers house becomes nodal point to narratives being explored.

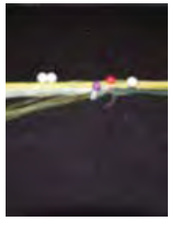
Journeys begin to mimic the site connections.













Re-tracing my memory as a pedestrian navigating through Actonville.
The mapping follows my memory through the frequent places I visited in my childhood.
This was done through re-tracing the route with string and thumb-tacks.

LEGEND

- *My grandmothers house*
- *House shops/places*
- *Temples/religious*
- *Friends houses*
- *Schools/tuition*

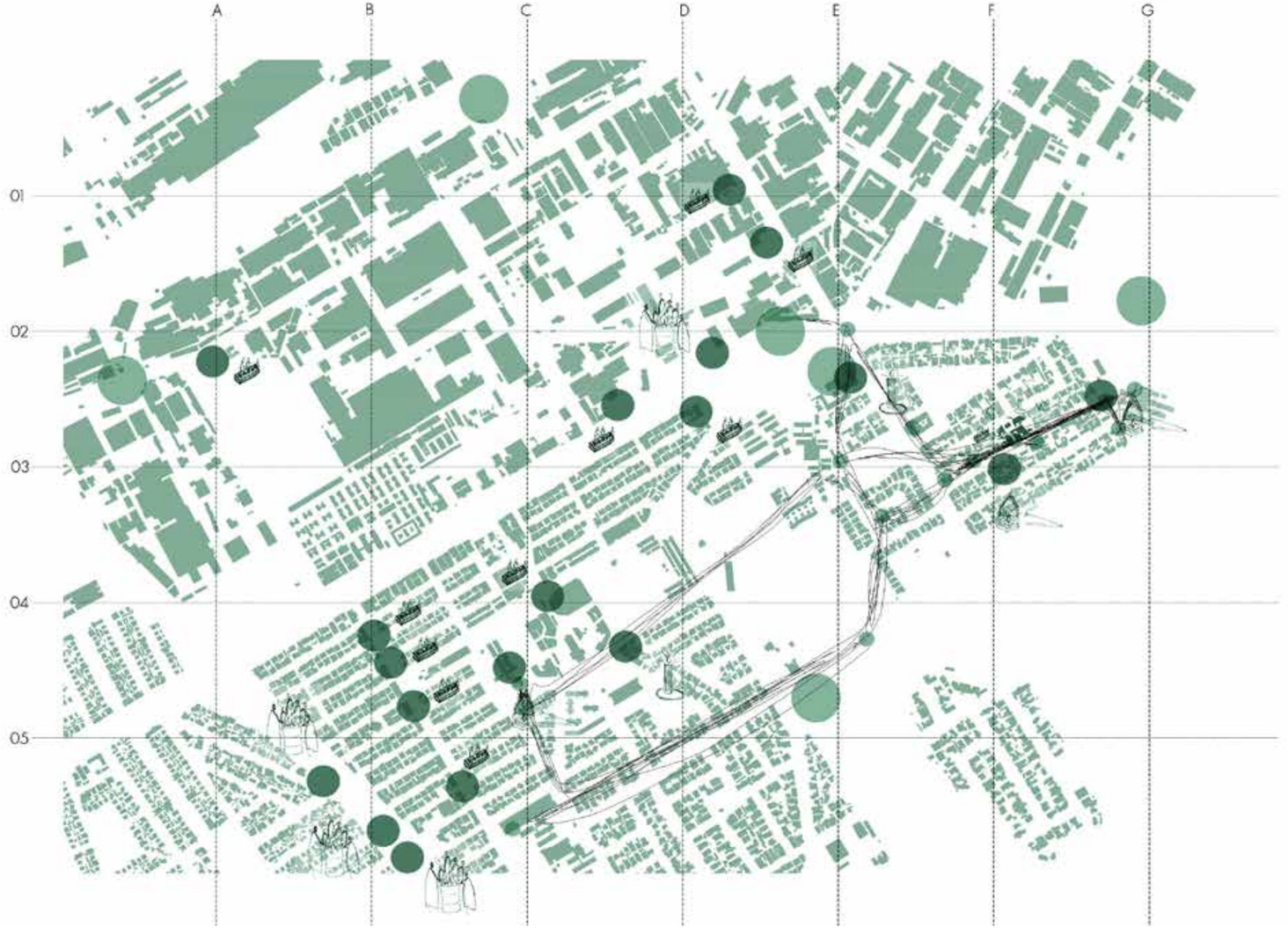
Fig 4.09 - Memory as a pedestrian. *(Author,2022)*



Map of journey is then overlay-ed onto site map and manipulated to match routes and centers.
It begins to depict a pedestrians experience.

Fig 4.10 - Overlay-ed maps. *(Author,2022)*

A mapping containing collectants, fire incidents and journeys. Map indicates overlaps and connections through each mapping exercise.



While the exercise didnt lead to any design developments it did extract concepts of theory and analysis that led to the designing of the building.

Concepts extracted:
+ Memory
+ Narratives of users
+ Smell and soundscapes.

Fig 4.11 - Map of Resultants. *(Author, 2022)*

Sketch charette 02 - 12th August

Paper folds

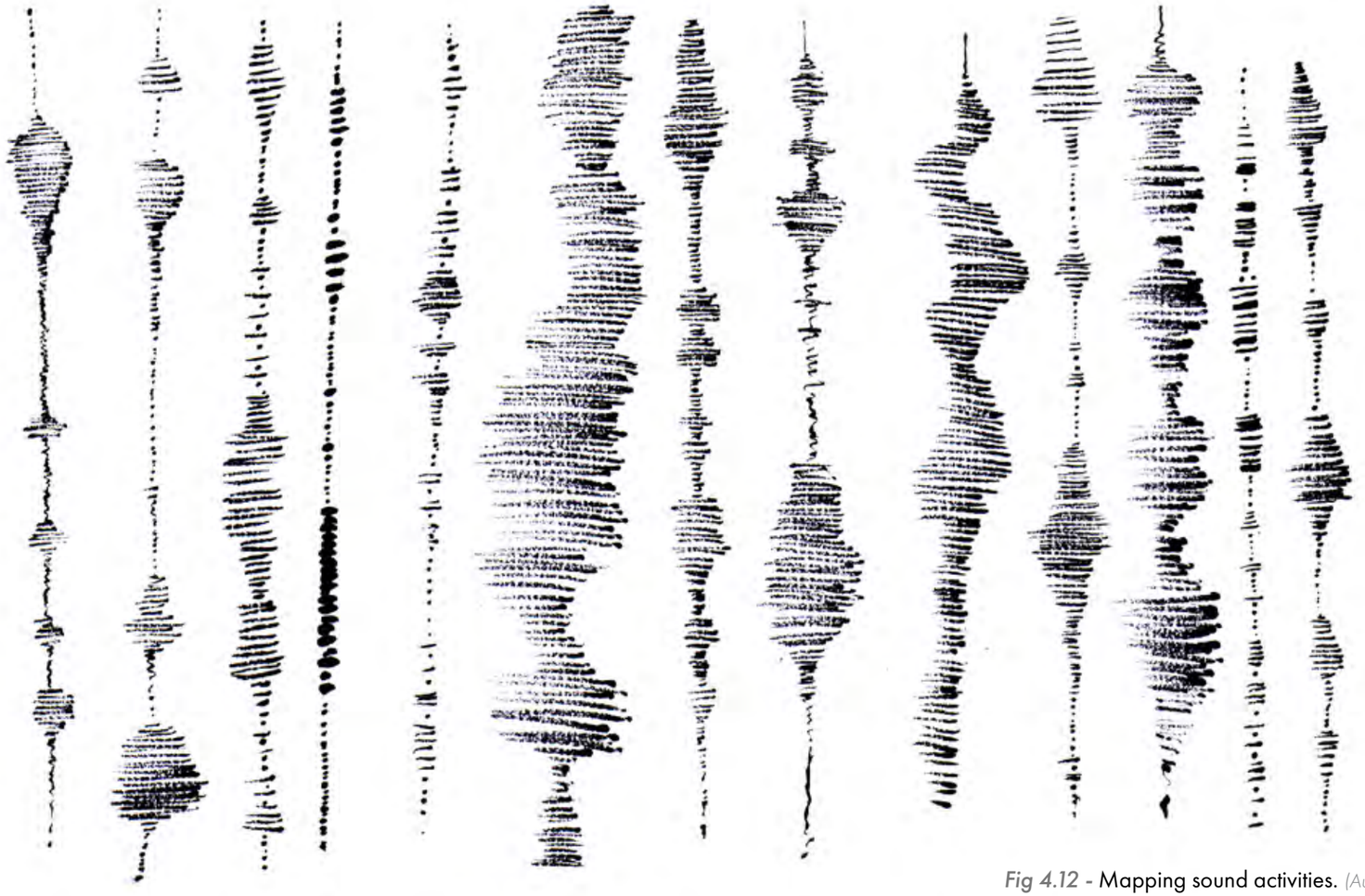


Fig 4.12 - Mapping sound activities. *(Author, 2022)*

Folding time - Technical workshop charette

The second charette looked at connecting the theory of time to building concepts through representing time through paper folds. This process focused on depicting time as frequencies of motion. Similar to that of a ticker tape recording movements of an object.

Sound waves were used as a basis of high activity vs low activity which related to the pace of time and the activities on site(Fig 4.12).
High activity-Fast paced
Low activity- Slow pace

From this translation the closer the clusters, the faster time would be and the further stretched the slower time is.

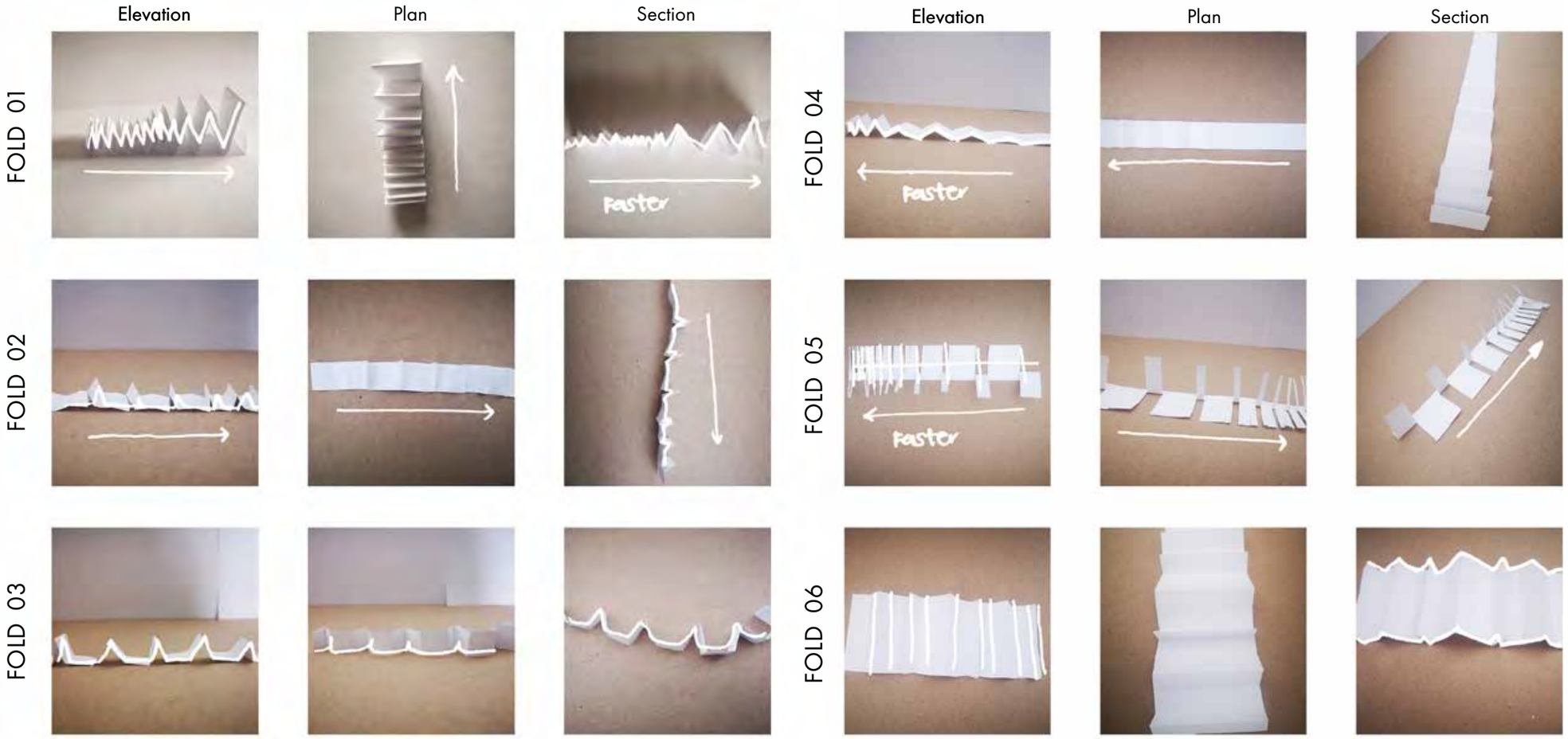


Fig 4.13 - Paper folds. *(Author, 2022)*

Fragments of time

From paper folding the next step was to look at how the folds could be translated into form.

This was done through segmenting a mass, similarly in the same way a clock segment time.

The sketch show the exploration of segmenting time with frequencies.

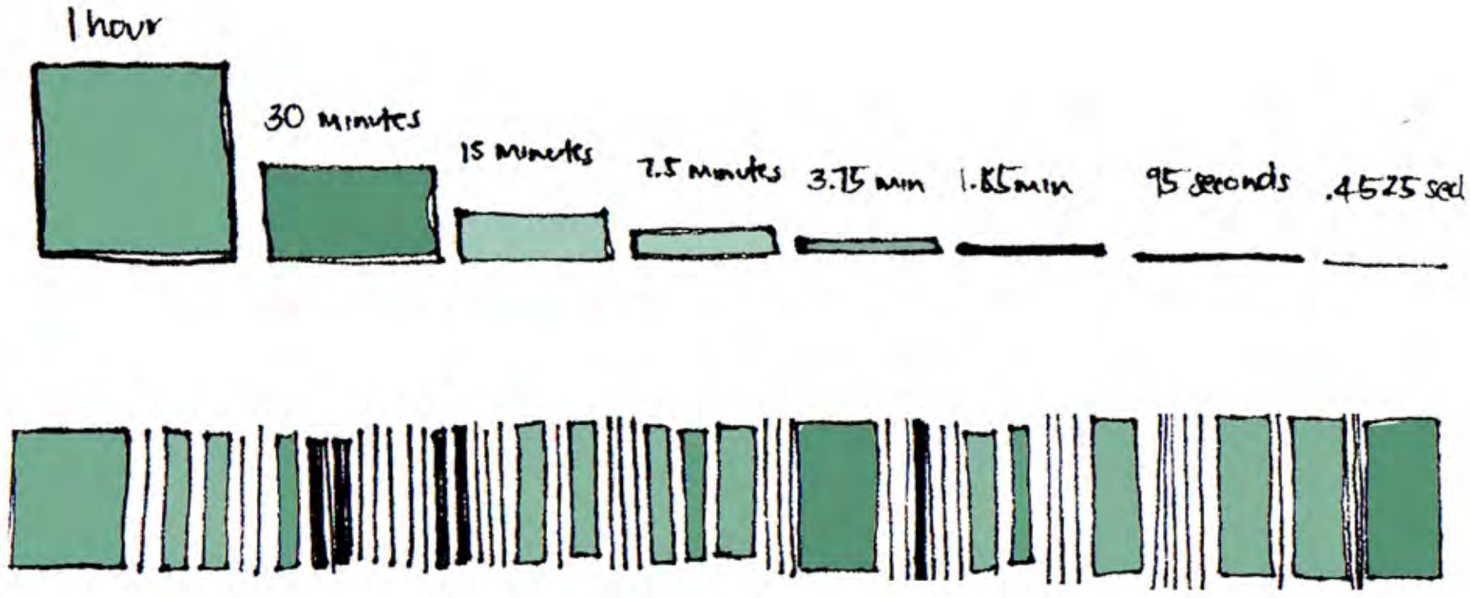


Fig 4.14 - Fragmentation. *(Author, 2022)*

Fragmenting time on site

Model 1: 5 000

From the paper folding exercise observations it was deduced that small close folds read as fast paced whereas longer spread out folds read as slower paced. This translated into the fragmenting of the mass onto the site.

It saw solid massing being cut into clusters of mass that allowed groupings of various activities and spaces.

This exercise led to the formation of the massing as well as program clustering in the development of the building. That translates from the theory of continuities and discontinuities within the form-breaking up a solid mass.

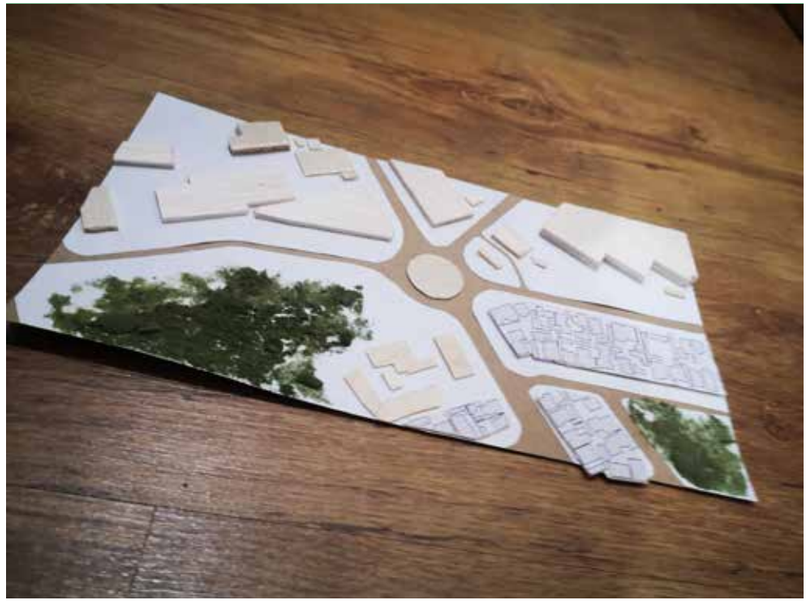


Fig 4.15 - Site model. *(Author,2022)*

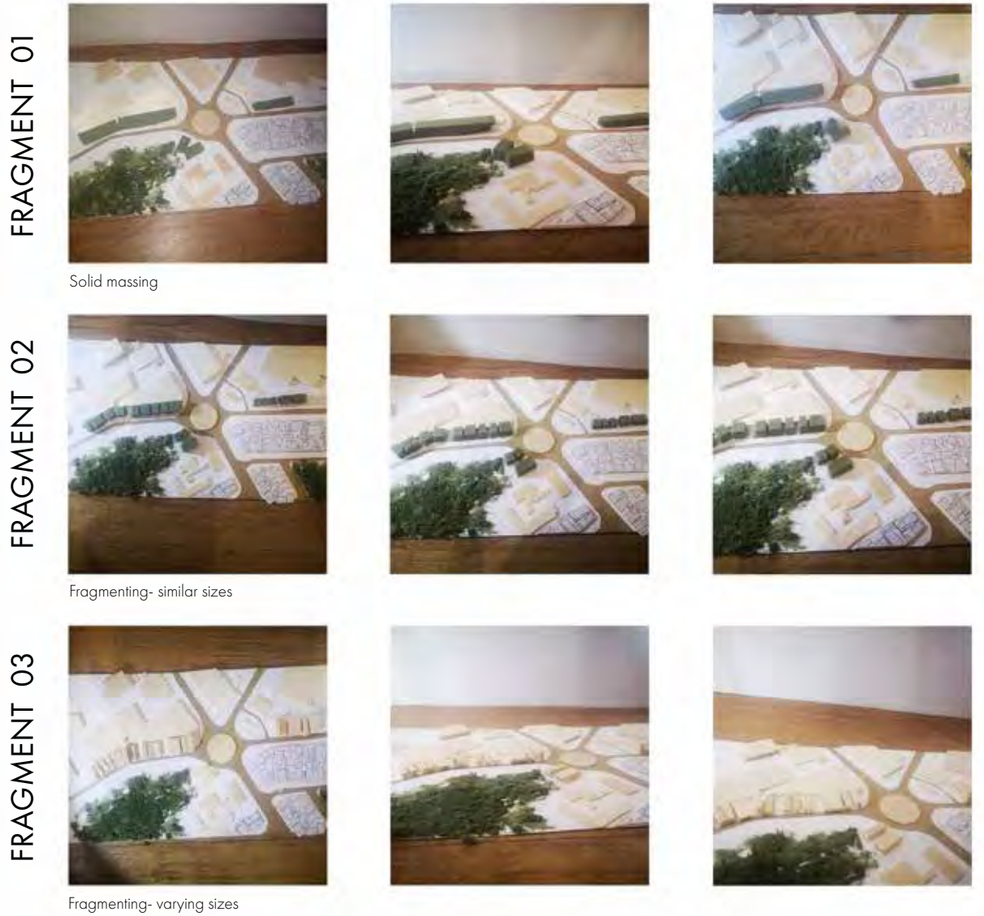


Fig 4.16 - Massing models. *(Author,2022)*

Model 1: 2 000

This process was repeated on a larger scale. The models used folding paper as well as cutting a solid mass(oasis).

The models translated into the masses of program clusters. These spaces were fragmented by spaces of pause such as courtyards and seating spaces.



Fig 4.17 - Site model. *(Author,2022)*



Fig 4.18 - Massing models. *(Author,2022)*

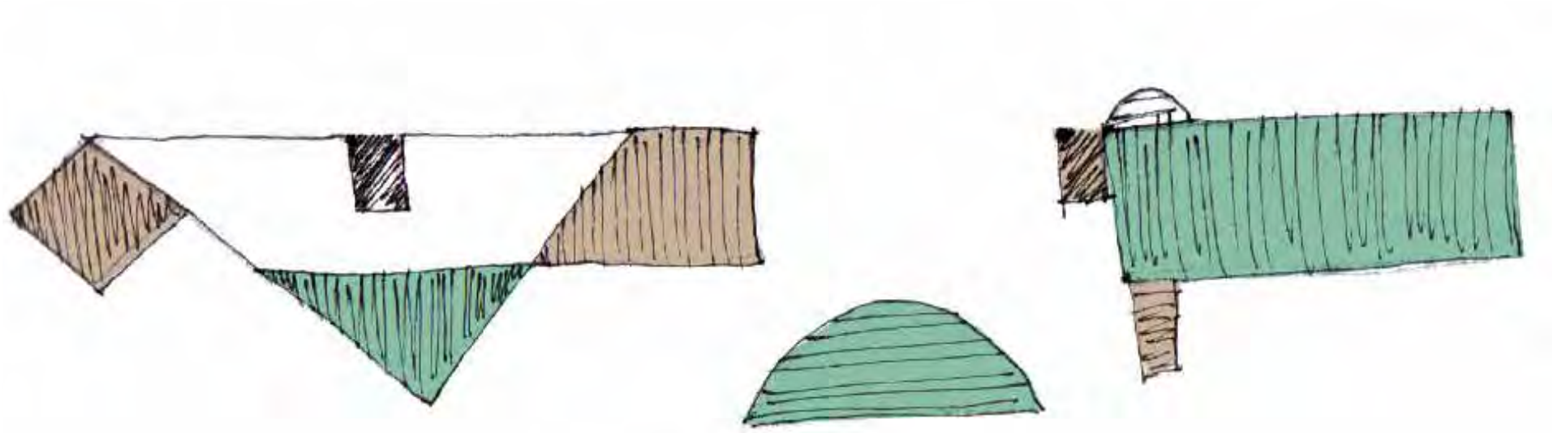


Fig 4.19 - Precedent sketch. *(Author, 2022)*

4.2 Precedent analysis

This section will look at understanding various case studies that will provide solutions, strategies or methodologies in order to provide the basis of a design development for the building.

The youth activity centre

Architects: Rede Architects & Moguang Studio
Location: China, BEIZHUANG TOWN
Year: 2020

The youth activity centre designed by Rede Architects, Moguang Studio, is part of urban renewal project that spreads from the city centre into suburbia. The project re-purposes an old garment manufacturing factory, the project maintains the layout of the existing buildings and transforms the program into a Youth activity centre. The project houses various programme's such as education camps which include a discovery centre, multi-purpose hall and more. It also includes conference rooms, accommodation (dormitories & guest houses) as well as restaurants.

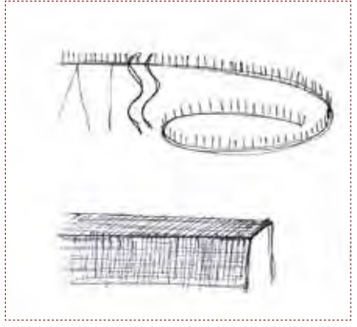
It aims to re-activate old industrial without the rich heritage into a spatial activator in the area. The project made use of various renovation strategies and not a single style in the project. This included prioritising the relationships between buildings and the surroundings including the complex. Its makes use of inserting a series of elements in between to connect the various building such as walkways, corridors, courtyards as well as transitional spaces that link into other areas of the complex. These elements translate into a three-dimensional landscape.



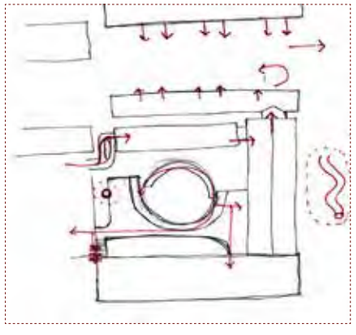
Fig 4.20 - Aerial view of walkway connecting buildings.
("REDe Architects, Moguang Studio, Xia Zhi · The Youth Activity Center" n.d.)

The playground incorporates geometric shapes to enhance the idea of adventure, play and fun. These translate into circular slopes that allow play at different levels as well as connect different floors. The slope makes use of slated columns that resemble the mathematical 'sine waves'.

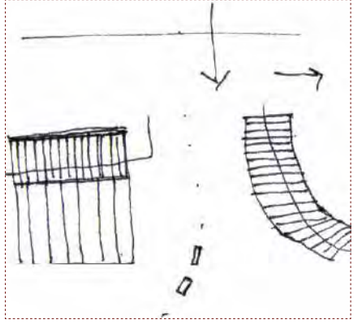
Through the use of various materials, various thresholds were created for children to play and enhance their sensory.



Movement devices



Movement paths and connections



Movement into different spaces

Fig 4.21 - Analysis of building.
(Author,2022)

Concepts extracted

+ Circulation & movement.
+ Movement between different buildings.
+ Connecting buildings.
+ Differentiating between buildings with the same architectural language.

Luchtsingel

Architects: ZUS
Location: Netherlands- Rotterdam
Year: 2015

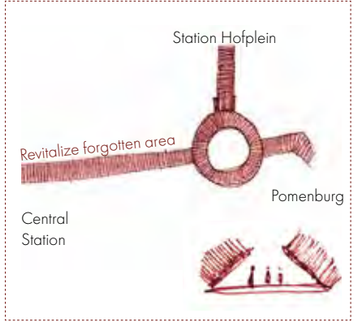
The Luchtsingel is designed by Rotterdam architects ZUS, as a public infrastructure that can be reconnecting the three districts in Rotterdam. It is one of the world's first public infrastructure that is paid for through crowdfunding. The pedestrian bridge aims to connect to existing infrastructure such as the central station and through Dakakker. Which also creates new public spaces that revitalise the once forgotten area.

The project is based on the permanent temporality, the architects use the city's character and many existing forms as a conceptual and starting point of design. The architects used vacant office spaces to introduce a city laboratory for young entrepreneurs in the areas. The building houses many functions such as a culinary workshop, information centres, restaurants, bars and an urban rooftop farm.

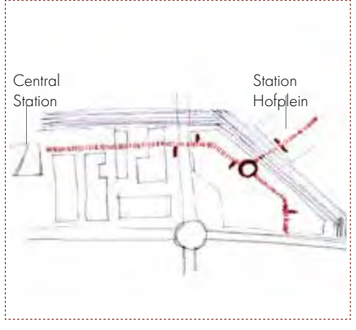
The bridge uses stairways as a means to connect to the ground plane inviting users up an experiencing the city in a different landscape. The bridge also connects to Popenburg park that is child-friendly with a playground and a vegetable garden. Addition roofs extend into greenspaces which extend the terrain of city life into nature but also connects to the bridge.



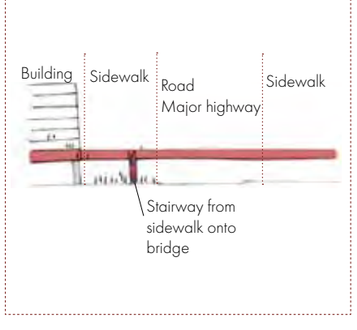
Fig 4.22 - Aerial view of bridge connecting areas.
("Gallery of The Luchtsingel / ZUS - 1" n.d.)



Bridge connecting areas.
Bridge section



Movement connections



Section of spaces

Fig 4.23 - Analysis of building.
(Author, 2022)

Concepts extracted

+ Connecting buildings.
+ Bridging across.
+ Layering history on.
+ Connecting old and new.

Footbridge Across the River Drava

Architects: Jose Maria Sanchez Garcia
Location: Slovenia- Maribor
Year: 2010

The footbridge designed by José María Sánchez García aims to reconnect the shore that are separated by the river Drava in order to reinforce and reconnect back with the city. The bridge needed to have a low impact on the environment and not impact the river, thus it makes use of only two supports one at either end of the river. It also needed to take into account having a minor visual impact thus the structure needed to be very light and almost transparent in nature.

From this the conceptual notion of the bridge appearing as a 'ghost' derived. A bridge that almost disappears into the horizon that showed used almost floating on the water.

The bridge not only connects the shore but connects on two different levels into the city for example into the Glavani square (city centre) and Lent-tabor(river).

The bridge extends vertically to create the levels within the structure, two levels that connect cyclists and pedestrians to either the riverbanks or city centre and a central level that is used a viewpoint as well as to host events, market space or exhibition space on the river.

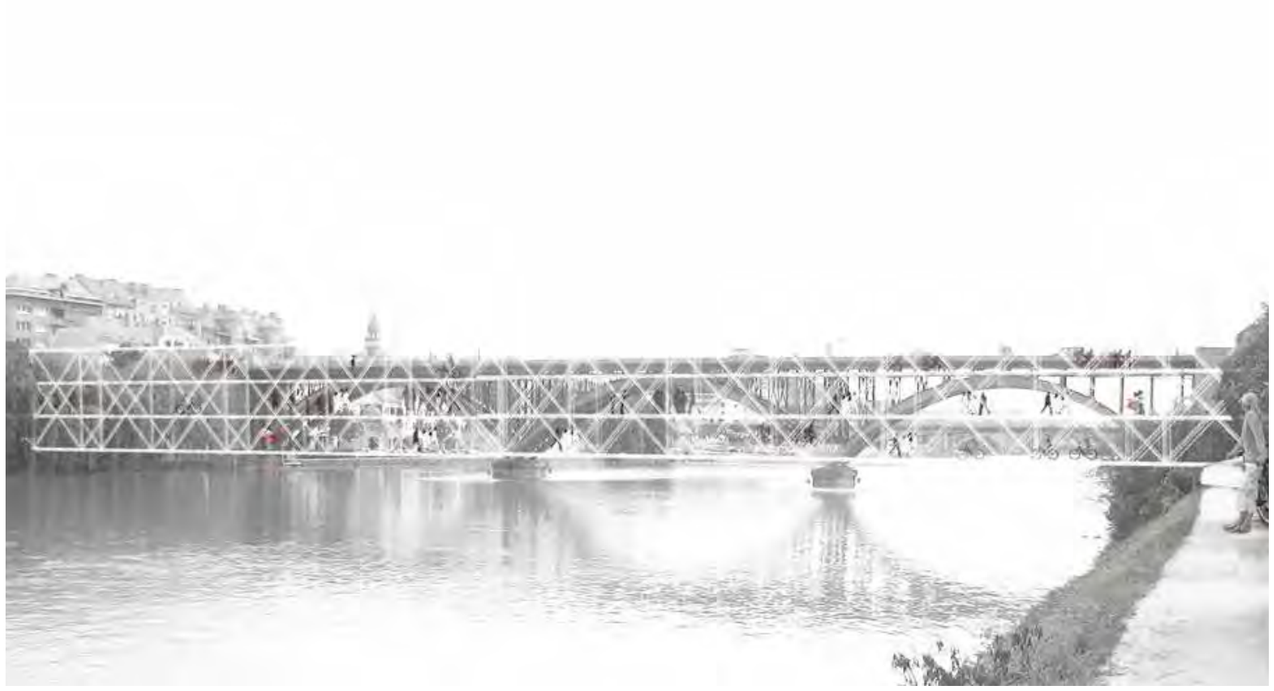
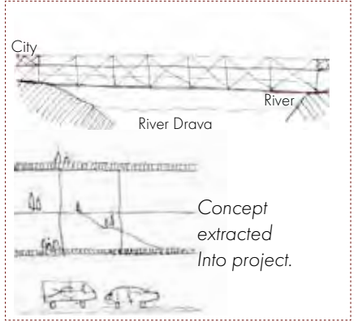
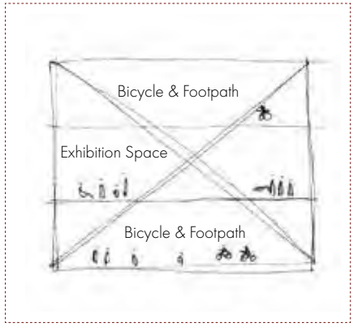


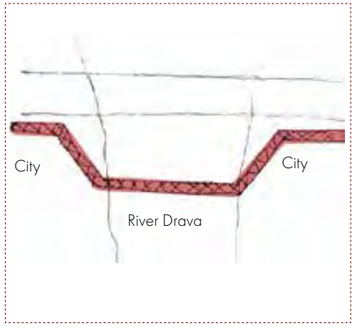
Fig 4.24 - Aerial view of bridge connecting shores.
("José María Sánchez García · Footbridge Across the River Drava River 2012" n.d.)



Bridge connections



Different levels



Plan of bridge across river

Fig 4.25 - Analysis of building.
(Author,2022)

Concepts extracted

+ Bridging on levels.
+ Construction-lightweight steel.
+ Concept.
+ Creation of program and pedestrian.

Cittadella

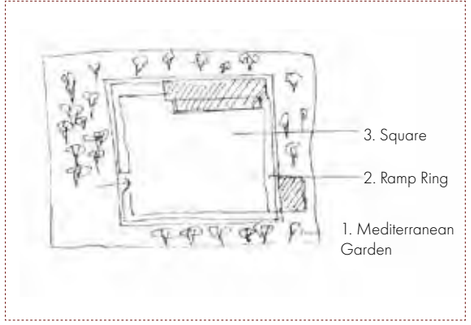
Architects: Delta Studio
Location: Italia- Bisceglie
Year:2017

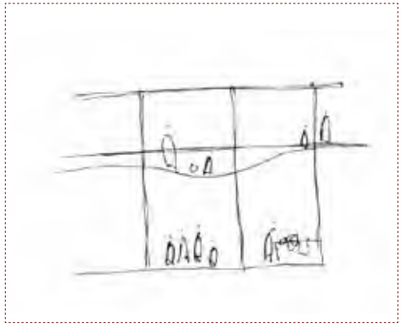
The Cittadella is designed by Deltastudio reimagines a new identity for suburban life through reinterpreting the perimeter wall, a form of separation and exclusion. The project aims to create a multifunctional courtyard space that connects the local community and visitors to a place where things can happen. The project repurposes an old slaughterhouse into a new building that is able to serve as a multifunctional space together with the incorporation of a caretaker house.

The project inserts itself into the urban scale connecting to various cycle routes as well as pedestrian routes that connect the space to the urban realm. The project looks at three components, the Mediterranean gardens, the ramp ring and the square.
The Mediterranean Garden is used to connect various areas together as well as combine the educational, community and citizen in a green space. The ramp ring becomes a horizontal landmark that is used as an identifier for the building. The ramp ring connects the slaughterhouse on various level and houses a play path for children. The structure makes use of energy efficient PV panels that attach on to it which allow it to light up at night, providing light and security. The square houses a multi-functional space that is easily adaptable from a sports field to a market space to play space as well as an outdoor cinema that can be used during the night.



Fig 4.26 - View of entrance. *("Deltastudio · La Cittadella" n.d.)*





Ramp ring elevation



Section through spaces

Concepts extracted

+ Movement across levels.
+ Light-weight structure.
+ Connecting the old and new.
+ Threshold nature.

Fig 4.27 - Analysis of building
(Author,2022)

The playscape
Children's community centre

Architects: waa
Location: China, Beijing
Year:2021

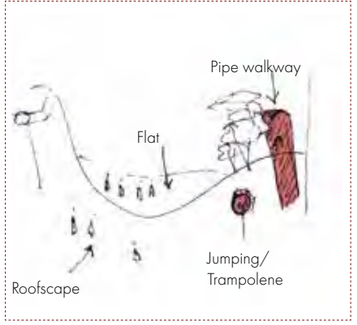
The playscape designed by waa architects in Beijing aims to capture the experience of (safe) street play. The project is part of a refurbishment of the industrial complex that was previously an old storage warehouse. The concept translated element of a neighbourhood taking aspects of childhood development and translating them into spaces. E.g.- group interaction-hide and seek, discovery-mazes.

The playscape is used for learning while allowing children to create a narrative for dreaming and their imagination. The playscape uses various elements in different scales that relate to the body of a child, Walkways (2.3m), Staircases (1.7m), balustrades(1.3m), slides(0.8m) and lighting(0.4m). The project connects the kindergarten with the playscape which also connects to the park, thus the playscape becomes the mediator between the two.

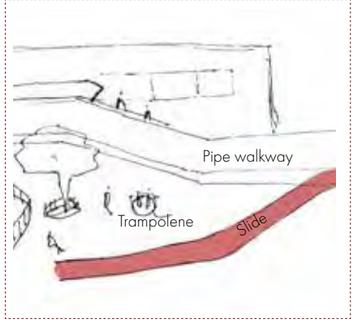
The three architectural interventions include pipe armatures that connect between buildings, roof which invites unconventional routes and the mounds which vary in topography which challenges the balance of a child. The project provides shortcuts and alternative routes to create new ways of exploration and discovery.



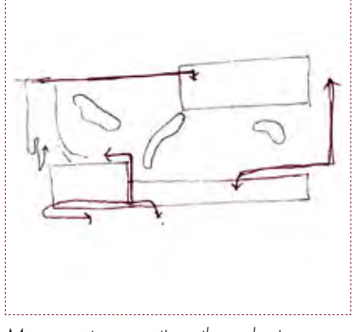
Fig 4.28 - Aerial view of Playscape.("Gallery of Children's Community Centre The Playscape / Waa - 9" n.d.)



Different elements



Movement pipes



Movement connections through pipes

Fig 4.29 - Analysis of building.
(Author,2022)

Concepts extracted

+ Movement.
+ Play-like form.
+ Roofscape.
+ Connectivity.

FUNDAMENTAL Children's Playschool

Architects: Gautier Rey
Location: Amsterdam
Year:2016

The children's playschool in Amsterdam designed by Gautier Rey as part of an international competition. The project re-imagines the relationship between the city and a kindergarten, it uses it location to maximise's the integration of public space and education. The project enhances existing features such as the water playground and sport practice.

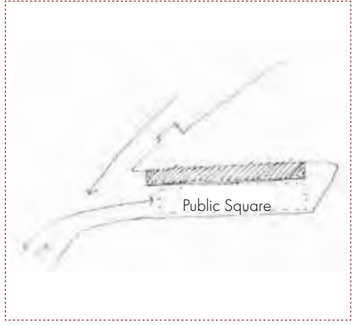
The site is thin and long which maximises it interface with the public and allows it to play an active role in its environment. The site also allows the water to become a backdrop within classrooms, the external space provide a necessary threshold that allows them to detach from outside activities.



Fig 4.30 - Perspective of building and public space.
("Gautier Rey · Fundamental" n.d.)

The building makes use of various spaces that break up the building and allow cohesion between the public space and the school. These include outdoor spaces, patios and courtyards that break up the homogeneity of conventional schools and allow children to connect with the water, sky and earth.

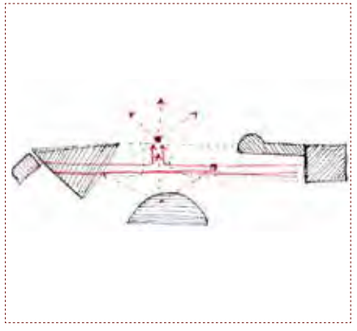
The form gets broken up with various geometries that break the thin linear form up. Sensory.



Building vs public space



Building and geometry



Movement and viewpoints

Fig 4.31 - Analysis of building.
(Author,2022)

Concepts extracted

+ Movement.
+ Public vs private.
+ Geometry.
+ Pedestrian and child nature.

Red rooftop playground

Architects: MAD architects
Location: China, Beijing
Year:2020

The red rooftop playground designed by MAD architects convert an 18th century courtyard building into a courtyard kindergarten with a roofscape that translates into a playscape for the children. The conceptual approach preserves the natural history of the site and layers onto it. This creates an urban narrative of the new and the old co-existing on the site. The project has also maintained all existing trees on the site and allowing them to demarcate spaces.

The roof translates into unfolding onto the site creating low and gentle postures that translate from the hills and the natural plains in the area. The roof allows the project to extend a limited space into a playground for the children. The old buildings incorporate art and dance classrooms while the new buildings contain open plan teaching spaces. The corridors become a visual connector within buildings experiencing the old and the new.

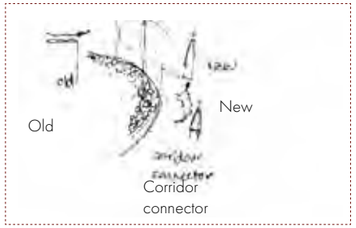
The architecture is a result of the magic and playful spaces that a child would experience. It becomes a symbol of freedom and endless magic in nature.



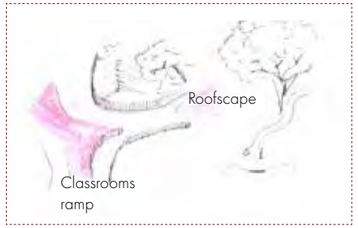
Fig 4.32 - Aerial view of roofscape connecting buildings.*("MAD Tops Beijing Kindergarten with Red Rooftop Playground" 2020)*



Juxtaposition of roofscape and buildings.



Visual connector.



Movement into different spaces

Fig 4.33 - Analysis of building.*(Author,2022)*

Traditional Medicine Traders Market

Architects: Design Workshop
Location: Durban, KZN
Year:1997

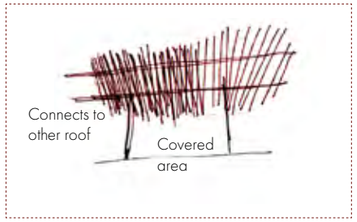
The traditional medicine traders' market is also known as the Warwick junction. The market is situated between two arterial roads as well as a railway line. The market has been in existence since the 1800s, housing both formal and informal vendors. The market houses inclusive spaces that are created by the collaboration of informal workers and the municipality. This collaboration enables effective and specificity within stalls that can cater to vendor needs.

The steel bridge is meant to serve as a connecting device between the Herb market and the Music bridge market. The herb market houses traditional healers and herb sellers, whereas the Music bridge market houses local singers and clothes and other goods.

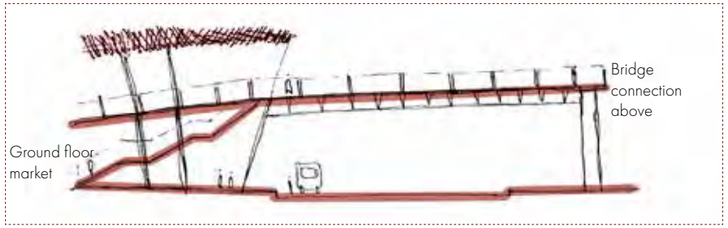


Fig 4.34 - Exterior view of walkway.
(Designworkshop n.d.)

The Music bridge market has improved safety within the area through creating pedestrian activity that uplifts the area. The footbridge is designed as a lightweight steel structure that ramps over the road. The structure contains a canopy design that plays with light and shadows throughout the day.



Ground floor typology extends into exterior.



Section through road.

Fig 4.35 - Analysis of building.
(Author,2022)

Site Verrier de Meisenthal

Architects':SO-IL and FREAKS
Location: France
Year:2015

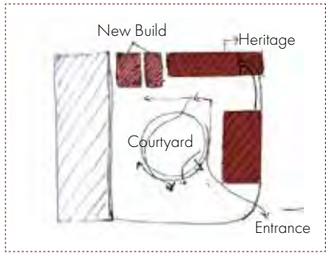
Site Verrier de Meisenthal, designed by SO-IL and FREAKS in the international competition to extend the Meisenthal museum. The project included a renovation and an extension that created a sweeping plaza that connects the various cultural spaces. The plaza plane creates a unified identity that incorporates the heritage as well as the new additions. The sweeping of the plaza allowed the creation of new entrances to existing heritage building and into the visitor's center.

The approach was to create a unified atmosphere that linked heritage and new builds through the sweeping plaza, this also allowed for minimal impact to the existing buildings. The additional buildings incorporated administrative functions; the walkways connect to upper floors. The northern edge rises in order to connect to the existing museum.



Fig 4.36 - Aerial view of Plaza plane connecting buildings.*("SO-IL and FREAKS Extend Glass Museum in France with Sweeping Public Plaza" 2022)*

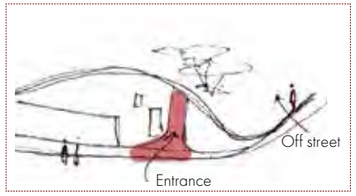
The sweeping concrete plaza is able to unify heritage buildings by proposing a minimalistic aesthetic that does not take away from the old richness of the heritage. It creates multiple connections and new entrances that allow users to connect with the old and new in a unified narrative.



Plaza connecting to buildings.



Internal sweep into courtyard.



Varying entrance experiences.

Fig 4.37 - Analysis of building.*(Author,2022)*

Faraday Precinct

Architects: MMA Design Studios, ASM Architects and Urban Design
Location: Johannesburg, Gauteng
Year:2015

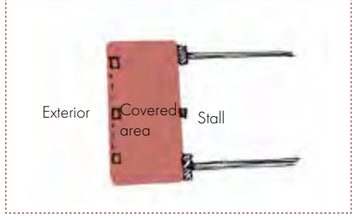
The Faraday market designed by MMA Design Studio is an intermodal transport exchange between commuters and trade. The design includes an existing administrative building, and storehouse that enraptures the history of Johannesburg. The market design incorporates both exposed and sheltered stalls that are designed for multi-traders. The space sees the exchange between transport and a formalized trading space that allows users to engage with each while commuters wait.

The space is inspired by traditional African spaces and symbols that can be extended into the urban realm. The design showcases a level of openness within shelter allowing movement of space and engagement with other vendors. The circulation is expanded to allow for these exchanges between users, commuters and vendors.

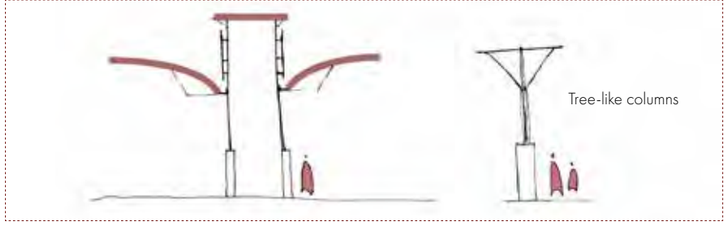


Fig 4.38 - Exterior view of Market.*("Faraday Precinct" n.d.)*

The design is characterized by its expressive steel structure and roof design that curves outwards. Its columns become tree-like structures, growing out of the concrete to hold up the roof structure. The design breaks up the visual by "floating' roofs held up the tree-like columns.



Ground floor typology extends into exterior.



Roof design

Fig 4.39 - Analysis of building.*(Author,2022)*

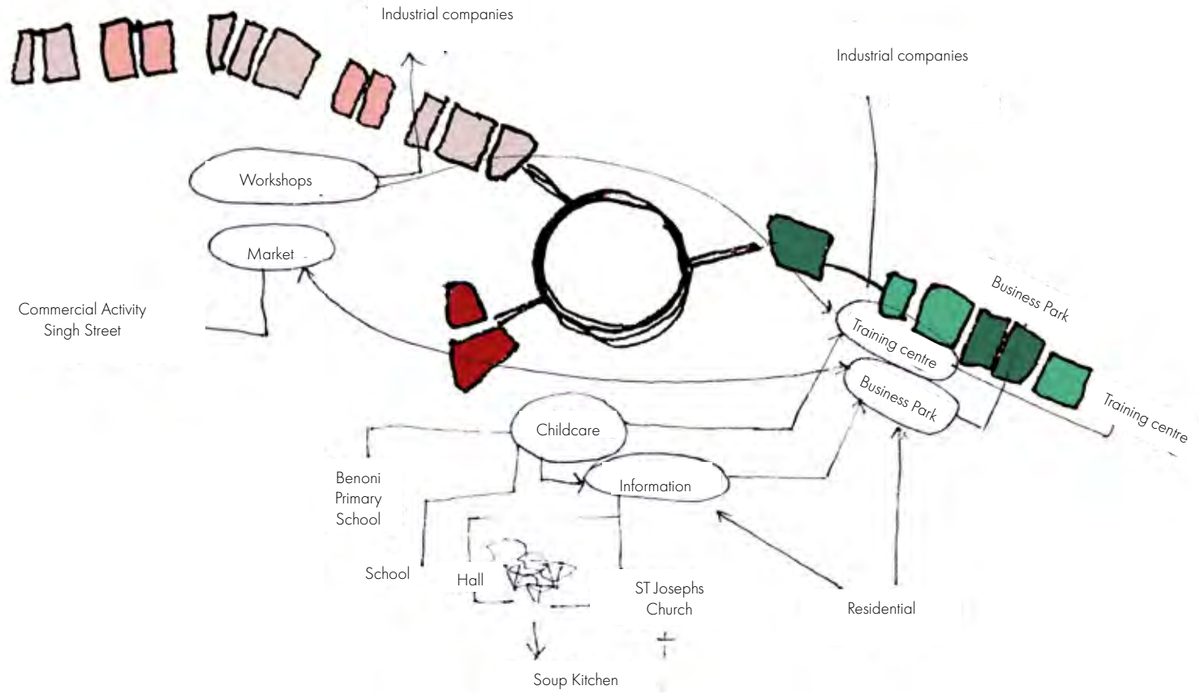


Fig 4.40 - Program clustering sketch.
(Author,2022)

4.3 Program

This section looks at the manner in which the program has been developed as well as placed in relation to various contextual understandings.

The program has been developed as a result of current understandings of site. It is meant to support existing infrastructure such as schools, industrial factories and entrepreneurs through the creation of new programs.

Developing program

The program develops around the varying activities and needs as well as what is needed to support these needs. It becomes evident from mappings and understandings of the site that there is a lack of a unity between existing structures. The program extends itself to support and bridge the varying frameworks. It is also a result of the theory of time forming continuous programs that can be broken up by discontinuities of reflective moments such as courtyards, seating areas and walkways.

The program intends to uplift the existing market and create additional workshop spaces that can be rented out by users either monthly or daily.
The addition of childcare and information centres aim to provide care and further information to the youth in the area.
The business development hub and training centre aim to provide further support to small businesses and entrepreneurs in the area.

In considering the development of the program it became vital to understand the existing ground infrastructure as well as understanding the manner in which people use the sites.

The movement of different users gave an indication of who the building needs to cater for. The next step was to understand what their need would be? What in their current surrounding is lacking or needs bridging? The understanding of making stronger connections between existing frameworks became vital.

The intended program was also driven by the theory of time, continuities and discontinuities. It intends to cater to all residents during their different time phases in their lifetime. The programs were also developed around the notions of developing and expanding their core function in the future, thus allowing for adaptability within the building and allowing it to be constantly relevant.

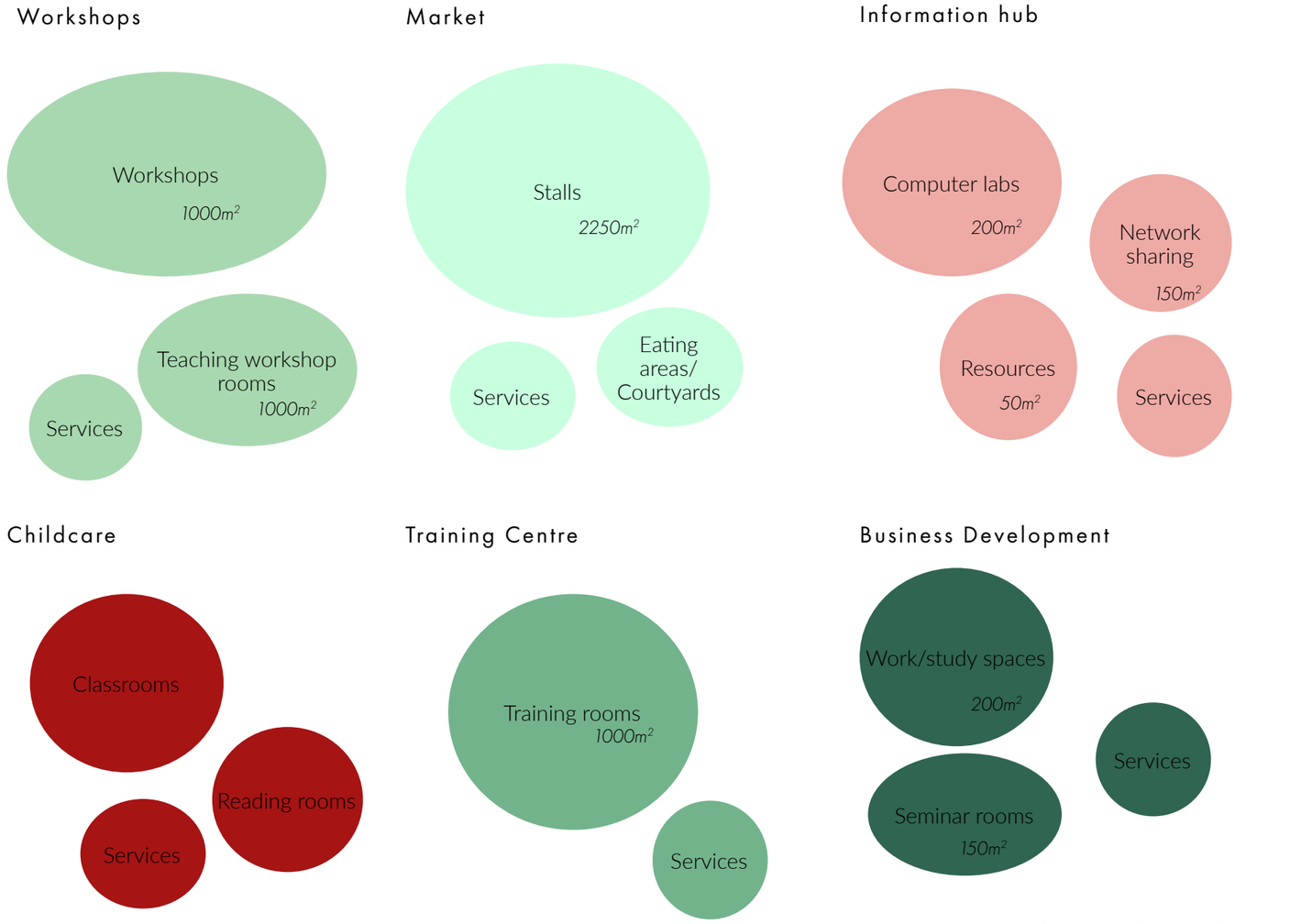


Fig 4.41 - Building Program. *(Author,2022)*

Detailing program

The program is detailed through various qualities and attributes that define the spaces and their activities. The main categorization is through loud and quiet spaces. This characterization allowed for the distribution of these spaces along the site that shared these qualities of quiet and loud.

This development is as a result of what the program activities would need and how the spaces would bee used throughout daily life.

Types of spaces	***Approx sqm***	***Quantity***	***Total sqm***	***Population***
Quiet				
Large study hall - Open plan, good natural light	200	1	200	75
Individual study rooms-*Compact, singular desk and chair, view out. Soundproofed!*	6	20	120	20
Seminar rooms- *Good light, Soundproof. Conference desk and chairs. Higher floor*	15	10	150	30
Reception- *Entrance foyer, open, desk + filing area incorporate waiting area*	10	1	10	2
Bathrooms- *Female and male*	30	1	30	10
Kitchenette-*Small eating table with basic essentials*	10	1	10	8
Restrooms- Couches fun, relaxed, soundproofed	15	3	45	24
Childcare -*Fun, colour fun spaces with good light*	30	4	120	45
Reading room-*Good light, open space, light, colour.*	50	2	100	80
Teacher lounge- *couches and break room with a small kitchenette*	15	1	15	20
Reception and break-out space- *Entrance foyer, open, desk + filing area incorporate waiting area*	30	1	30	2
Bathroom-*Female and male*	30	2	60	10
Courtyard space- *Space for play and pause*	100	3	300	50
Loud				
Information centre- *spaces that can provide information on various employment aspects and education.*	75	4	300	150
Training spaces-*Adaptable spaces that can be used to teach and educate the public on different things e.g.-Computers/applying for a job/different skills.*	50	20	1000	100
Workshops-*Adaptable spaces that can be used as market spaces, are easily accessible and can be used to teach crafts.*	36	30	1080	30
Bathrooms-*Female and male*	15	3	45	24
Lounge area- *couches and break room with a small kitchenette.*	15	4	60	40
Eating areas- *courtyard pause area.*				
Market stalls-*Adaptable spaces between commercial and crafting.*	75	30	2250	150
Walkways-*Adaptable spaces for market extension, seating, memory connections and pause.*	2500	1	2500	150
			8425	1020

Connecting program

The program is intended to support existing users and their needs while bridging various gaps within the community.
The existing framework depicts the highly diverse nature of the area, while the building is intended to bring specificity and become the needed threshold the user requires.

The program adapts to the nature of the context, situating the various spaces within the existing framework thus merging the old and new program.

The new program invites new users on a more frequent and regular basis.

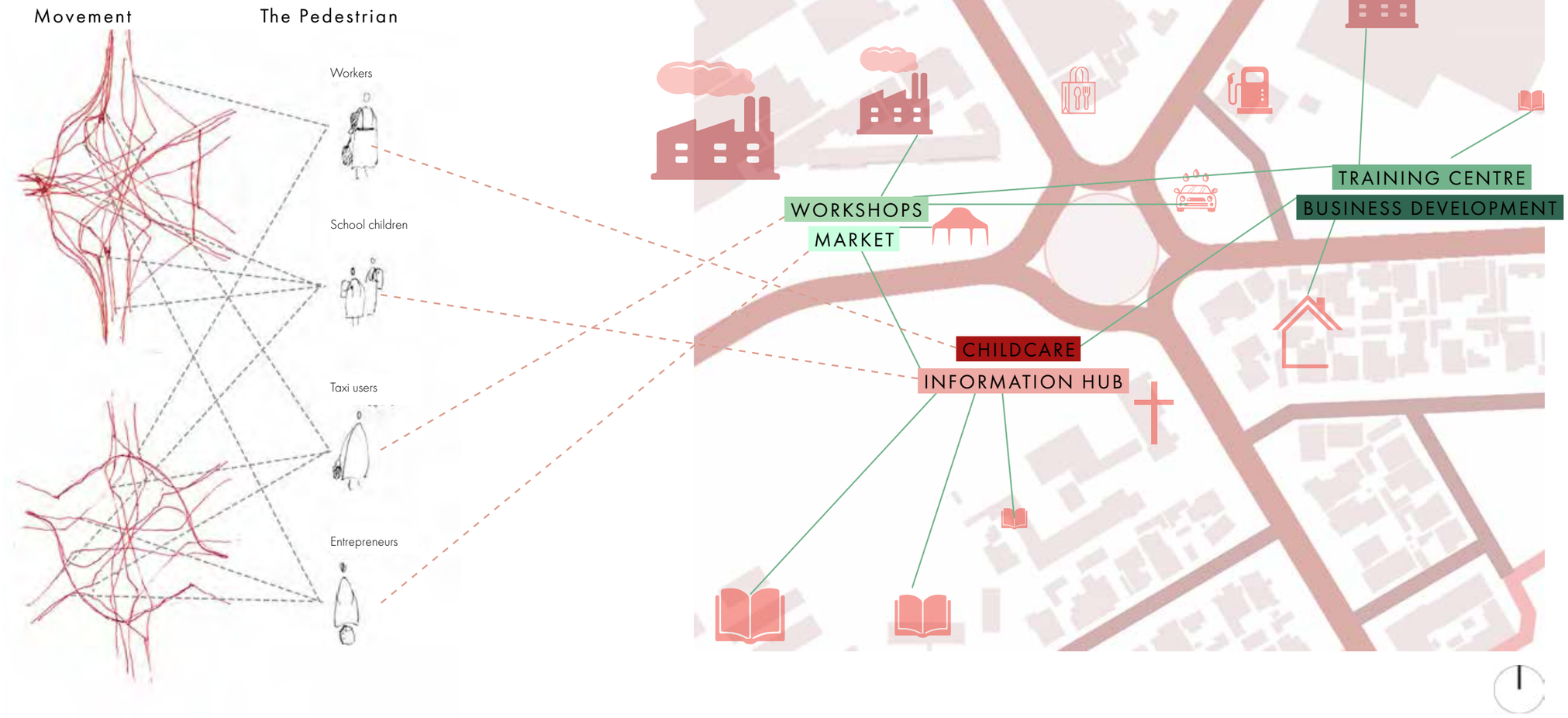


Fig 4.42 - Building Program on site.
(Author, 2022)

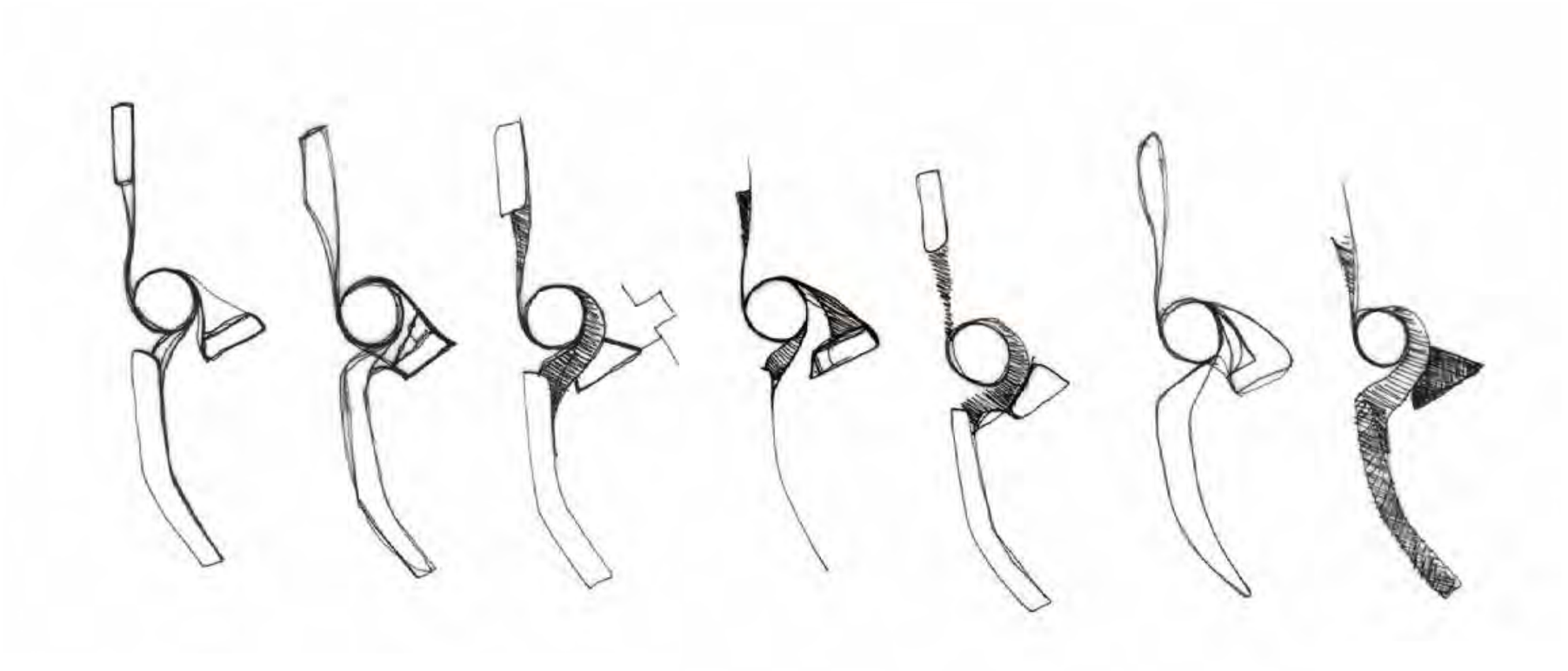


Fig 4.43 - Form finding sketches. *(Author, 2022)*

4.4 Building Development

This section will look at various explorations that were explored throughout the year that has led to the final design and decisions that were made.

4.4.1 Design intervention

30 June 2022

The initial iterations of the building focused on the program placement on site as well as connections within the urban setting on Actonville.

The design scale looked at bridging the large industrial scale with the small residential scale by allowing the building to become a threshold between the two scales.

The building connects with surrounding context as well as creates a place for users to connect with other users, entrepreneurs, SMME's, history and nature.

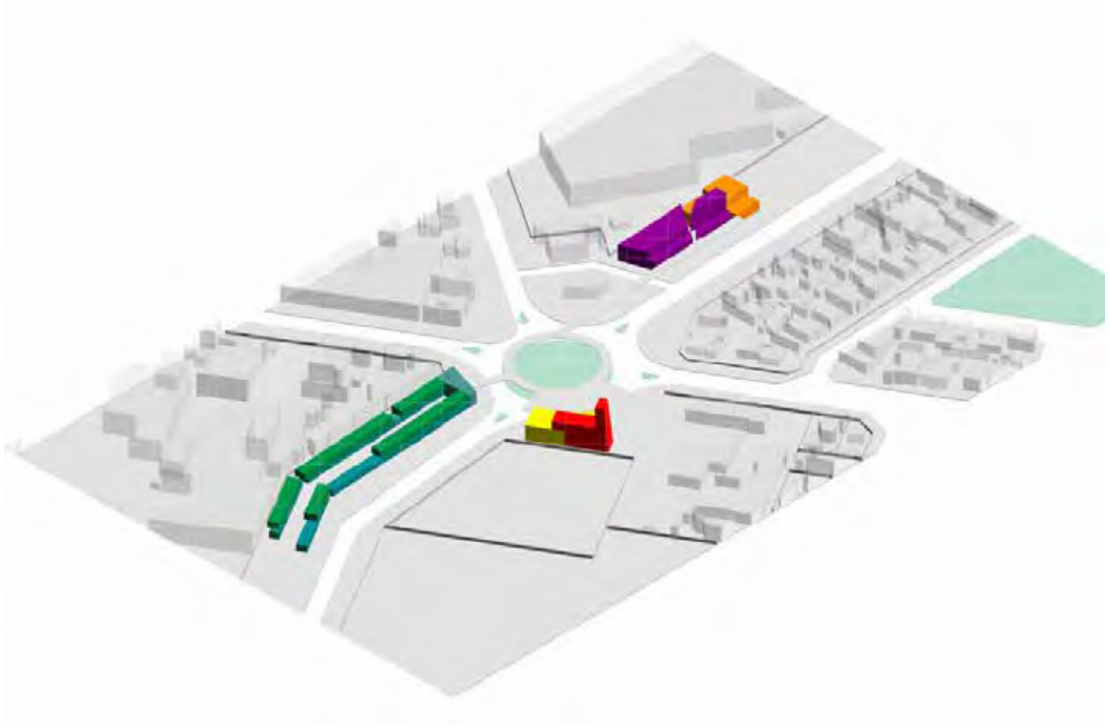


Fig 4.44 - Mass exploration. *(Author, 2022)*



Access

The access points get situated on the edges with market entrance from street level.



Viewpoints

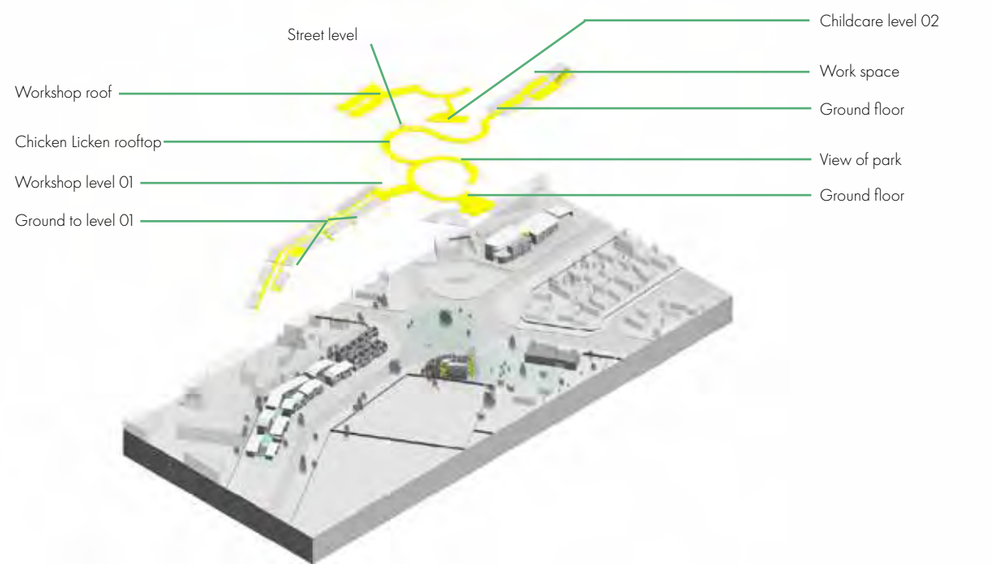
The viewpoints are carved out,using existing tree clusters to shape carvings into the buildings footprint to create spaces of pause and rest.



Green connections

The building looked at connecting various greenscapes through the walkways with future connections to the existing park on Kimberly Street.

Fig 4.45 - Building diagrams. *(Author, 2022)*

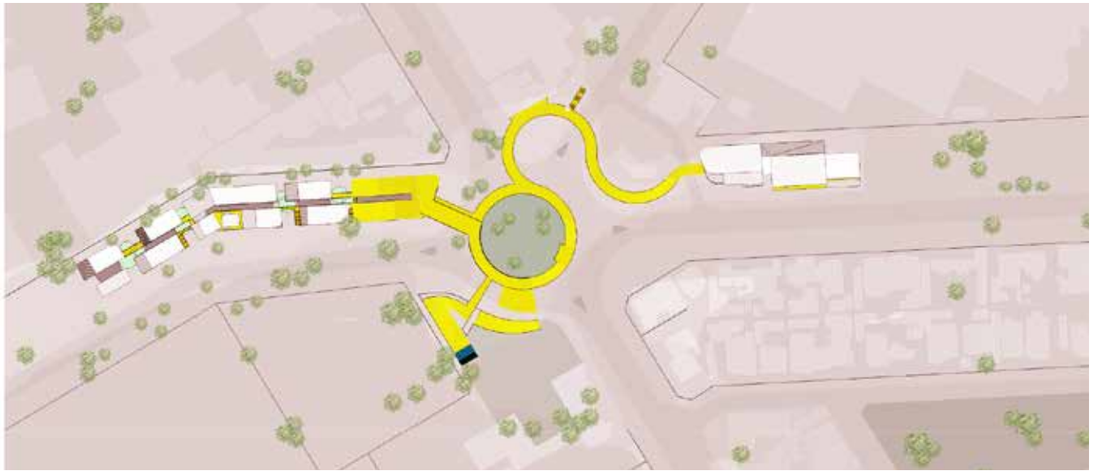


Circulation



Roofscape

Fig 4.46 - Building axo diagrams. *(Author, 2022)*



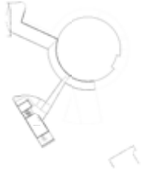
Site Plan



Ground floor Plan

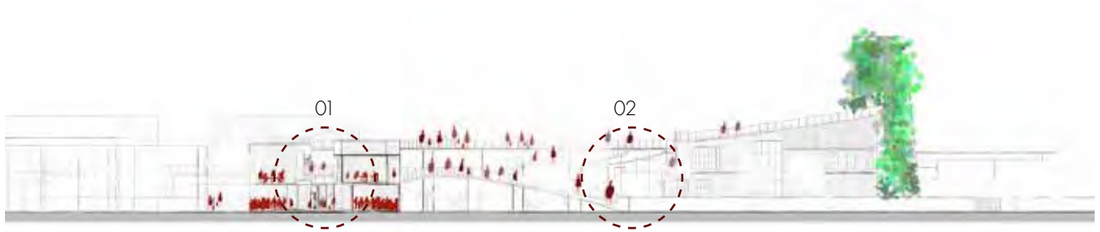


First floor Plan



Second floor Plan

Fig 4.47 - Plans. *(Author, 2022)*



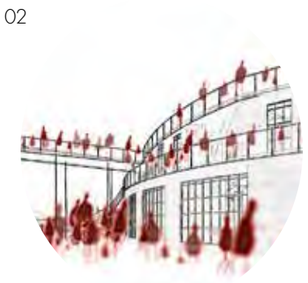
Cross section through market



Longitudinal elevation/section through market



Market interior



Street view of childcare



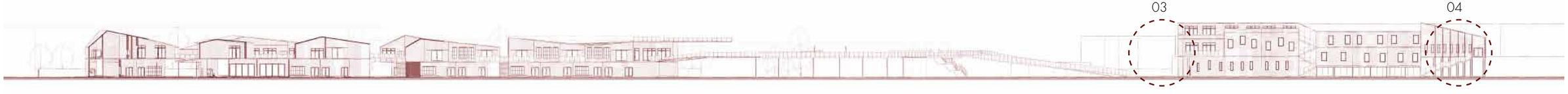
Training center



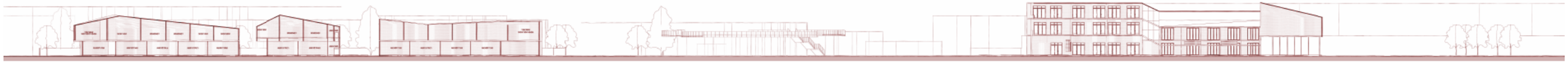
Study space



Overall perspective.



Longitudinal elevation/section through market and business hub.



Section through market and business hub.

Fig 4.48 - Sections and perspective views.*(Author,2022)*

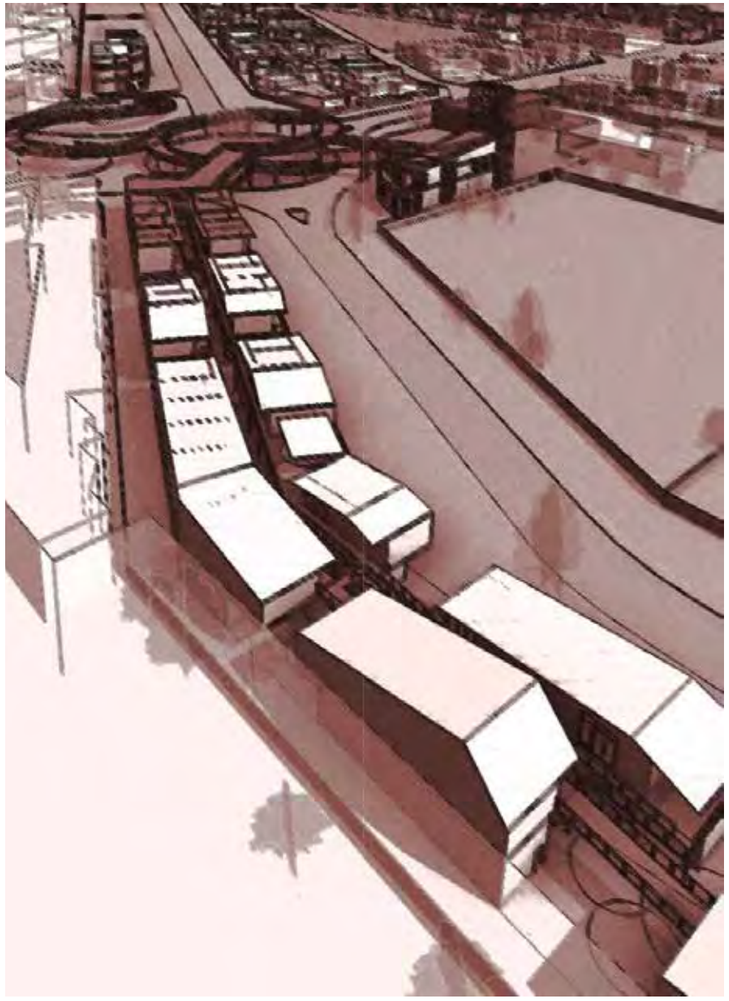
This initial design showed various connections however, did not express concepts explored in theory in cohesion with each other. It provided the basis for expanding.



Overview of bridges.



Overview of childcare.



Market and workspace overview.



Liverpool street perspective



Market perspective from Reading road.

Fig 4.49 - Perspective views. *(Author, 2022)*

4.4.2 Technical development

8 August 2022

Through the workshop the intent of the building developed into exploring the building as a filter.

A building that explores various filtering within the context as well as its landscape. This was explored in terms of filtering:

- Context:
  - + People
  - + Circulation
  - + Program

- Landscape:
  - + Light
  - + Air
  - + Noise



Fig 4.50 - Program exploration sketches *(Author, 2022)*

Locally sourced

Due to the building being situated in close proximity to industrial factories, majority of the materials will be sourced locally within an approximate 10km radius.

Local manufacturers:

- Benoni Brick Works
- Aleef hardware & Plumbing
- Build it DTM
- East Rand Boards
- Plywood Master
- 1D Steels
- Phepha Recycling

The building aims to source the majority of the materials and labour locally in order to reduce costs as well as boost the local economy. Where it is possible the building will make use of recycle materials such as reclaimed wood and recycled plastics.

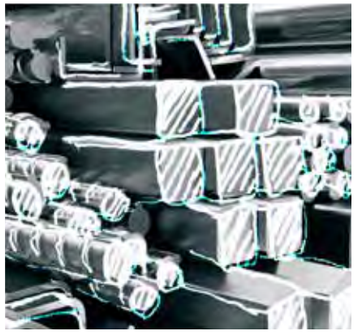


Fig 4.51 - Material sourcing.*(Author,2022)*



Bricks

Based on sourcing as well as contextual analysis, the majority of the building will be out of brickwork. This will also be easier for maintenance and upkeep.
This also allows for added facade expressions as they can be used for impressions or reliefs within the detailing.



Steel

Due to local steel manufacturers in the area, steel will be used to create lightweight additions as well as within the detailing of the building. The steel connects back to the industrial typology while contrasting the warmth of the brickwork..



Timber

To create more warm and comfortable atmosphere, timber will be used to offset the other textures. It will be used to accentuate spaces of rest as well as threshold while marking entrances.

Fig 4.52 - Material sketches.
(Author,2022)

Models explored

Sea arts hotel

Architects: Gosplan
Location: Camogli
Year: 2014



Fig 4.53 - Screening. *("Gosplan_ Facciataverde_Kit2_504x378.Gif (504×378)" n.d.)*



Fig 4.54 - Sketch analysis. *(Author,2022)*

Sea arts hotel in Camogli designed by Gosplan studio, makes use of a pushed out green facade. The facade is made of steel sections, expanded mesh with planter boxes. The system makes use of an automatic irrigation system which allows the plants to climb up the mesh and grow. The openings on the facade connect with balconies that connect the building and the facade.("Facciata Verde per Il Sea Arts Hotel Di Camogli - Gosplan" 2012)

Kransberg Highlands International Green Estate

Architects: EcoZa
Location: Limpopo, South Africa
Year: 2011



Fig 4.55 - Roofing. *("EcoZa Launches South Africa's First Carbon Neutral Green Estate" 2011)*



Fig 4.56 - Sketch analysis. *(Author,2022)*

Kransberg highlands international estate designed by EcoZa, situated within a wildlife reserve. The estate makes use of timber, compressed soil brick as well as rammed earth. The roofing provides added insulation and is designed to provide rainwater collection. Any excess water collection is channeled back into the wetland.("EcoZa Launches South Africa's First Carbon-Neutral Green Estate" 2011)

Luchtsingel

Architects: ZUS
Location: Netherlands- Rotterdam
Year: 2015



Fig 4.57 - Walkways. *("EUMiesAward" n.d.)*

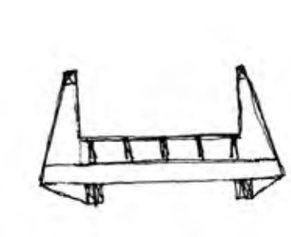


Fig 4.58 - Sketch analysis. *(Author,2022)*

The bridge is designed with timber construction, having timber cladding all around it. The internal timber cladding is painted with yellow providing the city and the bridge with a unique identity. The bridge was constructed through crowd-funding whereby donors and supporters can have their name inscribed onto a wooden board at the end of the bridge. ("Luchtsingel by ZUS Is an Elevated Pathway across Rotterdam" 2015)

Expressions explored

From this the building developed into using two different technologies within its construction.

+ Load-bearing brickwork
+ Lightweight steel construction

Load bearing brickwork for the structure and the envelop of the building whereas steel construction will be used for add-ons such as the walkways, screens and canopy detailing.

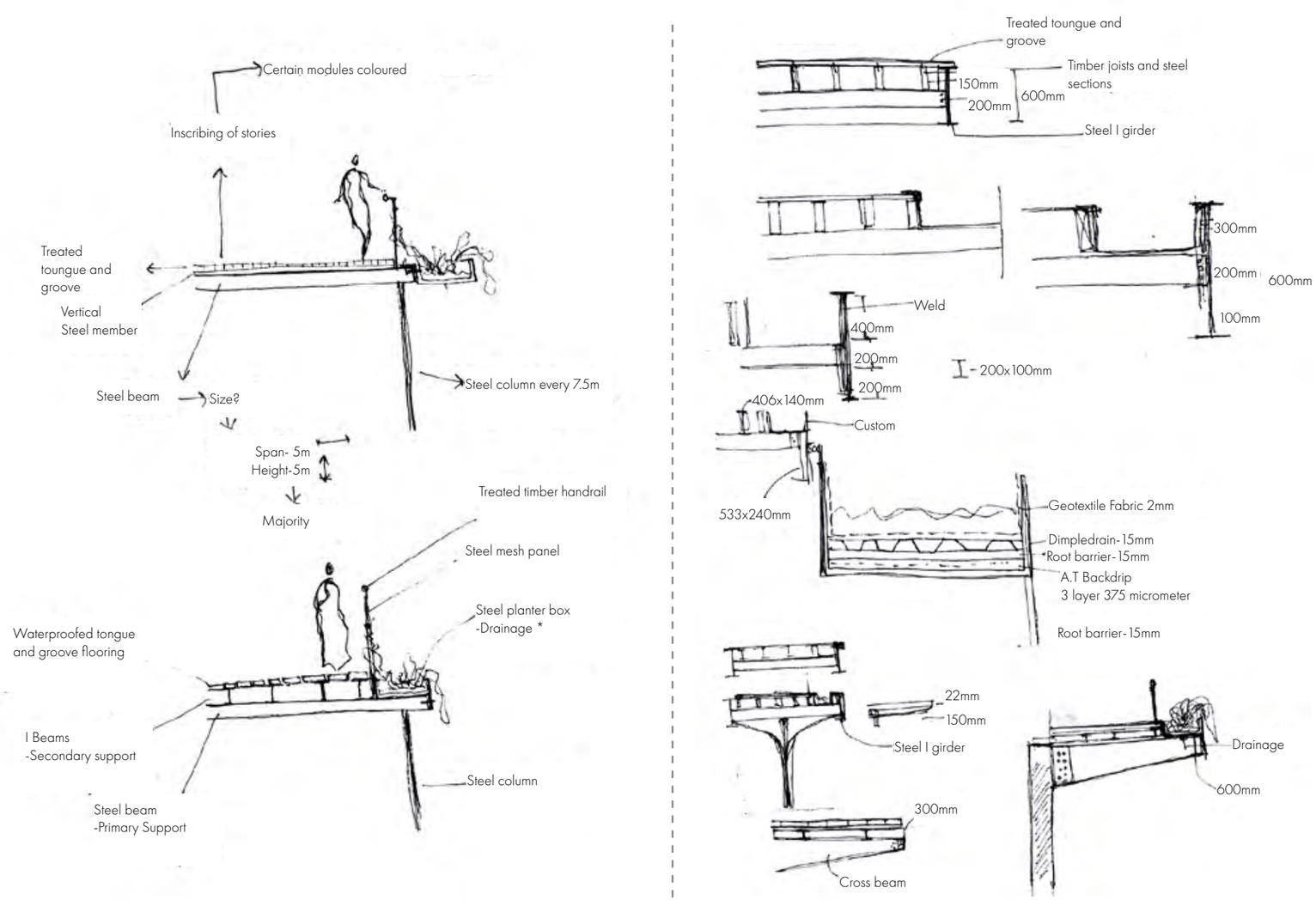
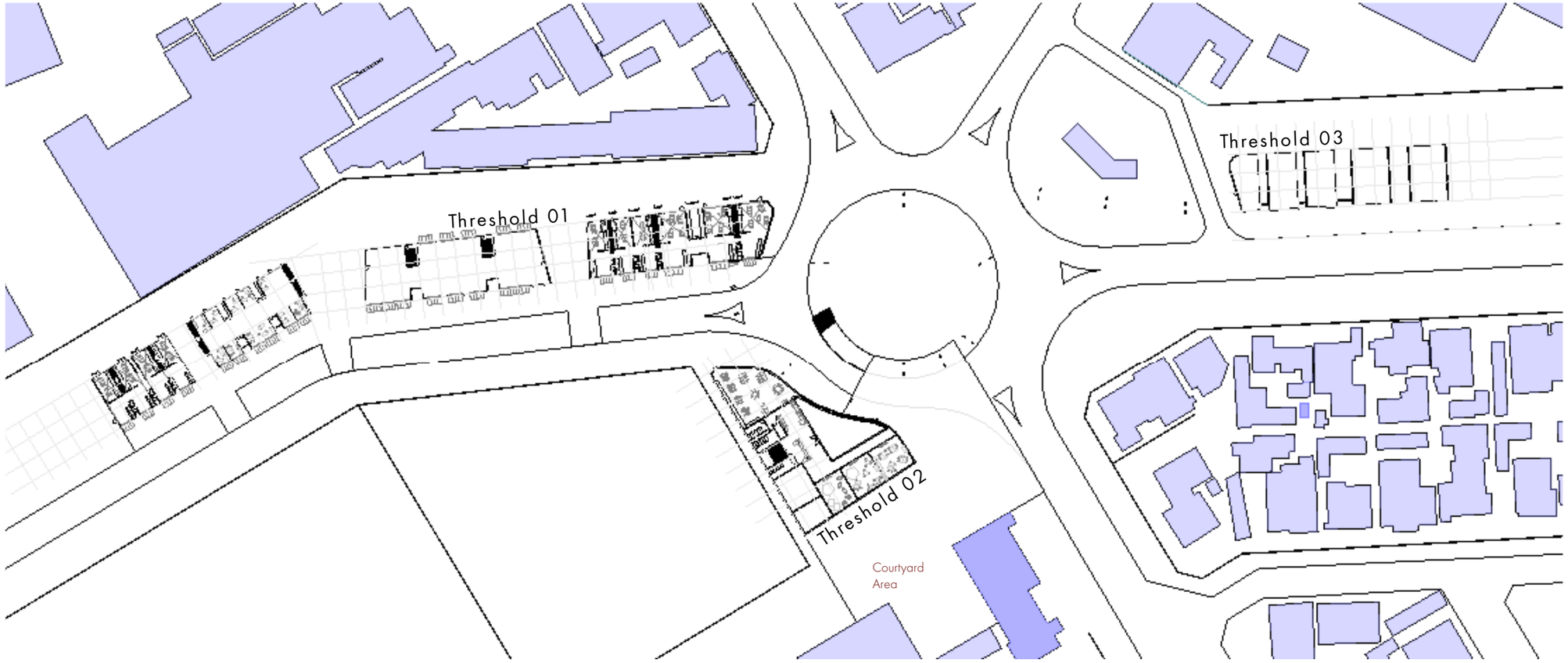


Fig 4.59 - Bridge exploration sketches.
(Author, 2022)

Threshold-
Master-planning

The master plan explored various connections between the site as well as forms of the different buildings. This allowed for experiential and ease of access trials and errors within the development.



Threshold 01

The creator court looks at supporting the existing market as well as including workshop spaces that can be rented out for use. The combination of creatives and commerce.

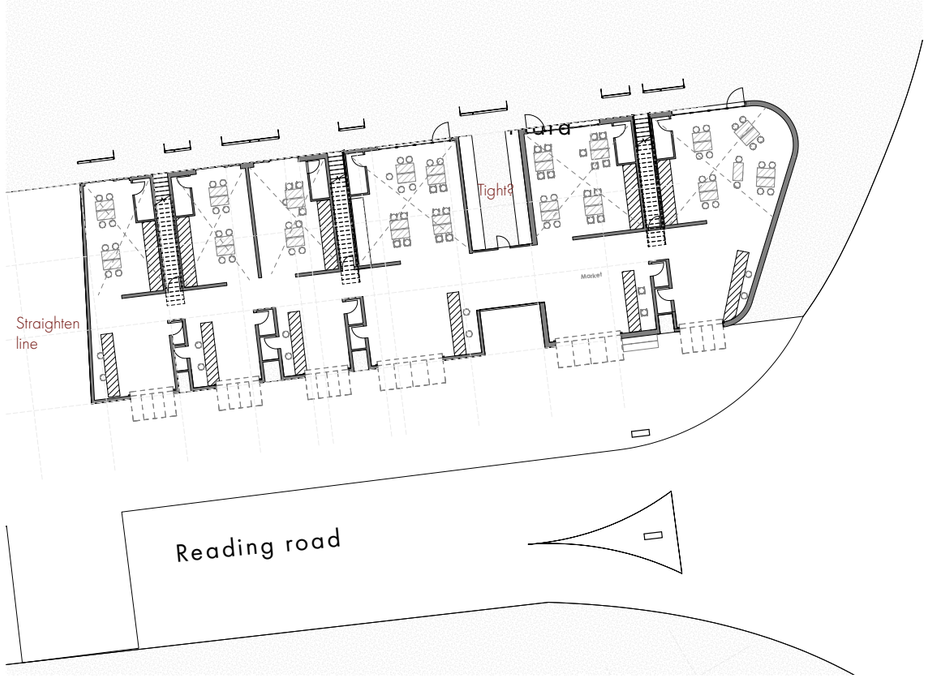
Threshold 02

The care centre looks at supporting the various schools in the area by creating spaces of care for children through after-care or daycares with the inclusion of reading rooms, resource centres as well as study hubs.

These encourage after care and further learning for the youth.



Plan of section taken

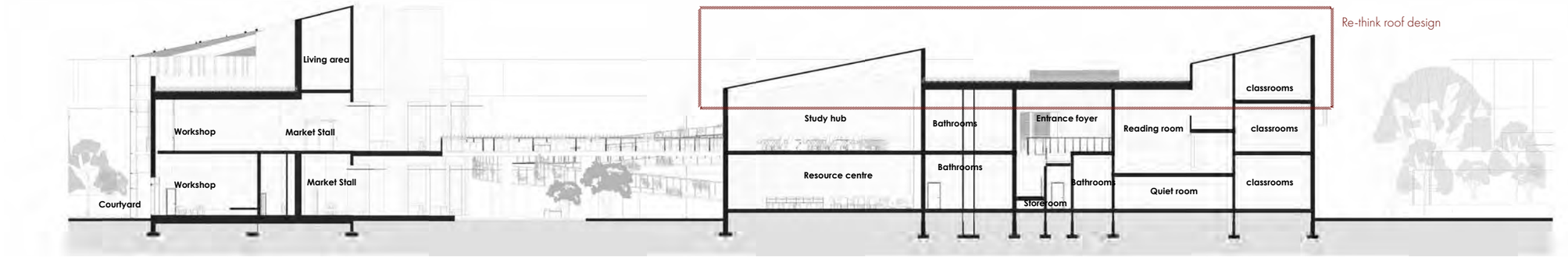


Creators port



Care centre

Sectioning straight across thresholds



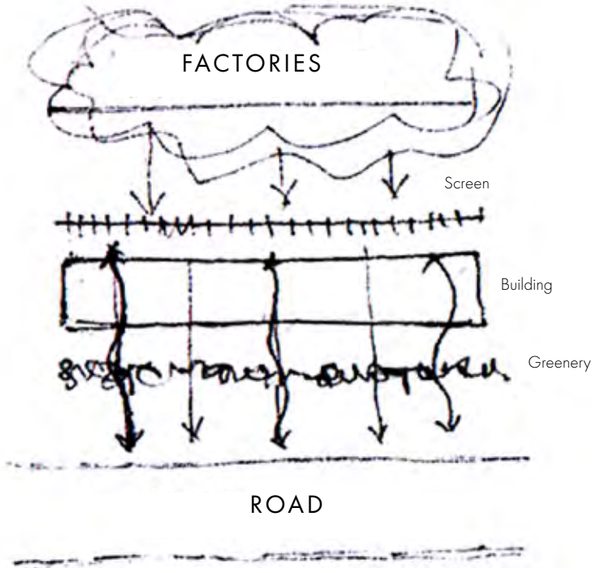
4.4.3 Detailing thresholds

The main exploration of the design become exploring the buildings various thresholds, such as the

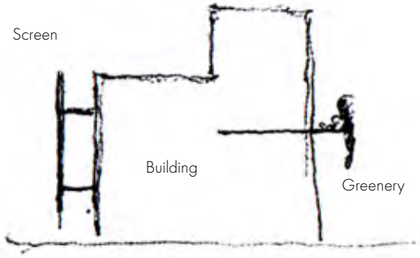
-Ground vs walkway vs roof
-Industrial to residential (Filter)
-Roof-canopy-filter

This took the form of the two main components, the filter screen and the walkway.

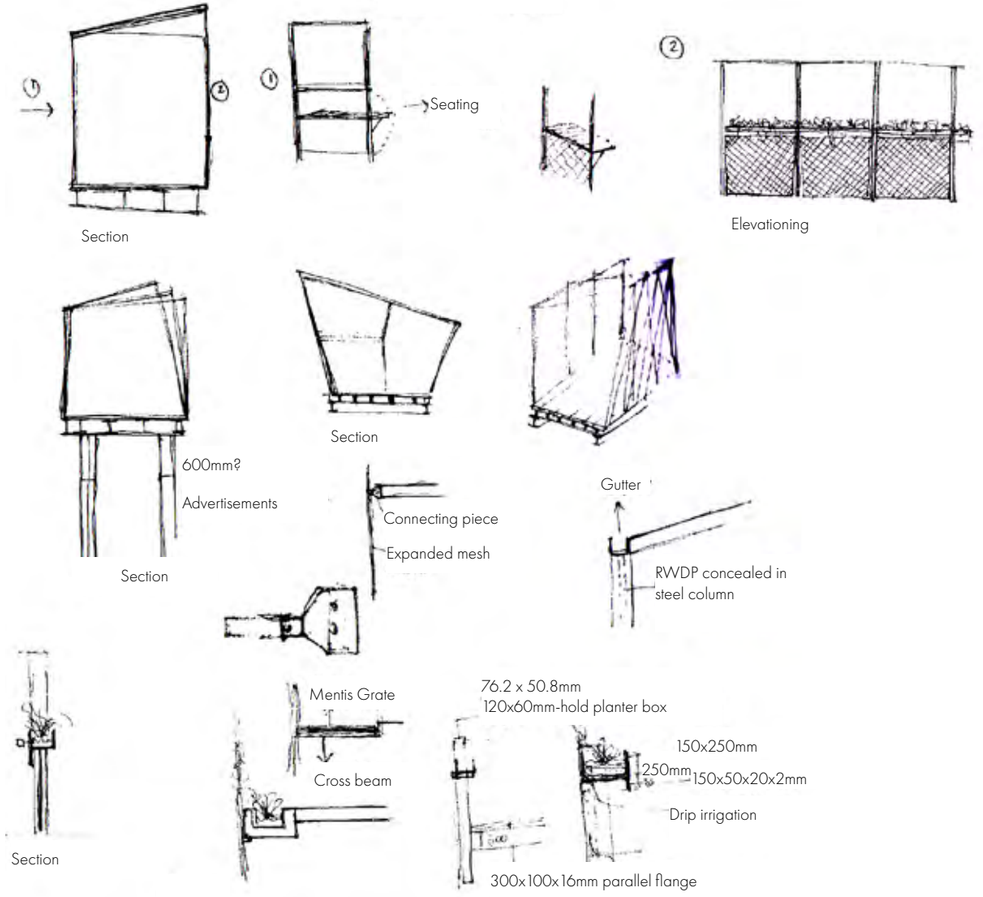
The filtering screen sits on the north facade and explores filtering air, light and noise from factories situated on the northern edge of the site(Above building). The screen consists of steel components coated in titanium dioxide that together with a planter system that begins to filter pollutants in the area.



Plan exploring filter thresholds.



Section exploring filters on North Facade



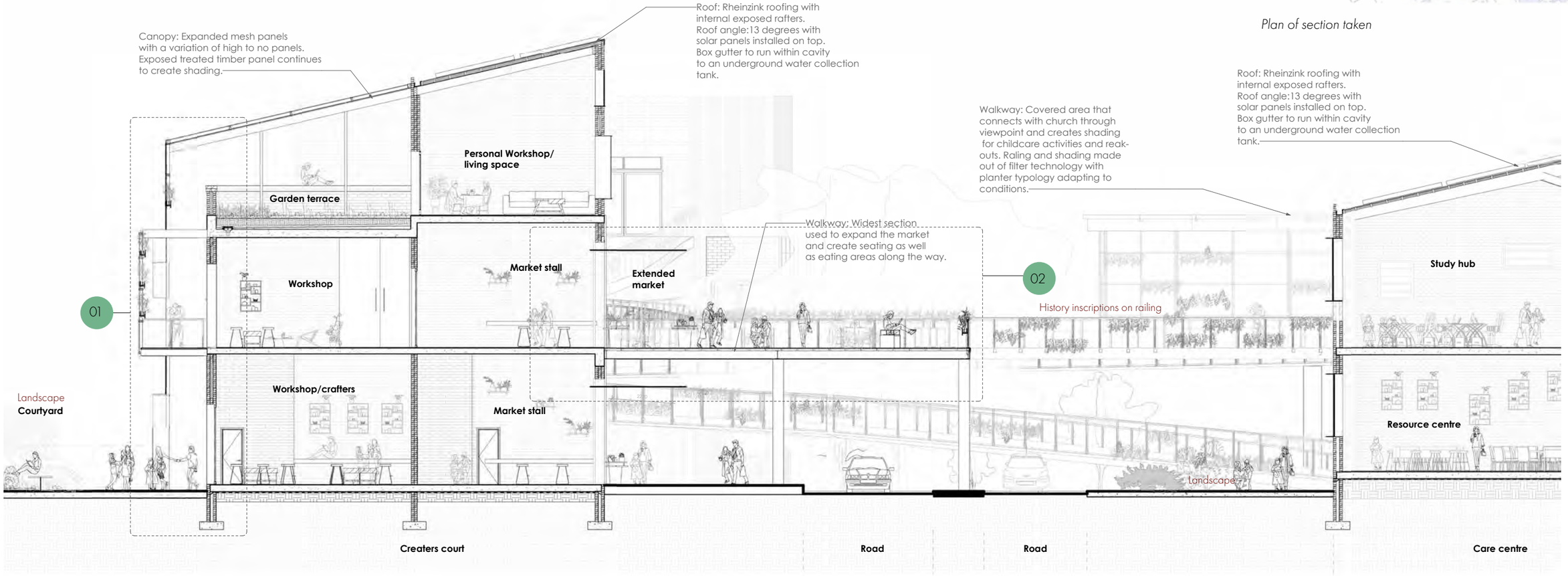
Section exploring detailing of walkway and filter.

Fig 4.60 - Detail exploration sketches *(Author,2022)*

Sectioning through creators court



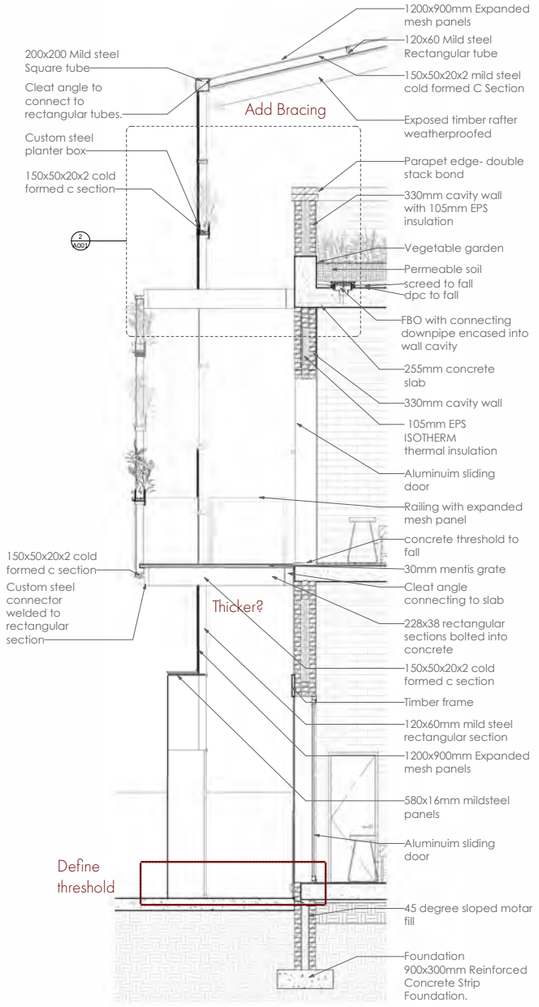
Plan of section taken

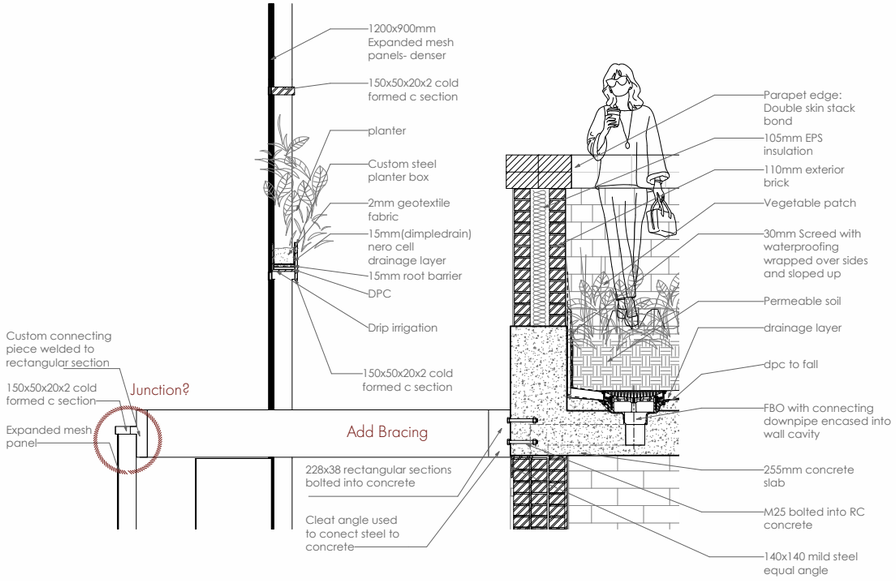


Filtering thresholds

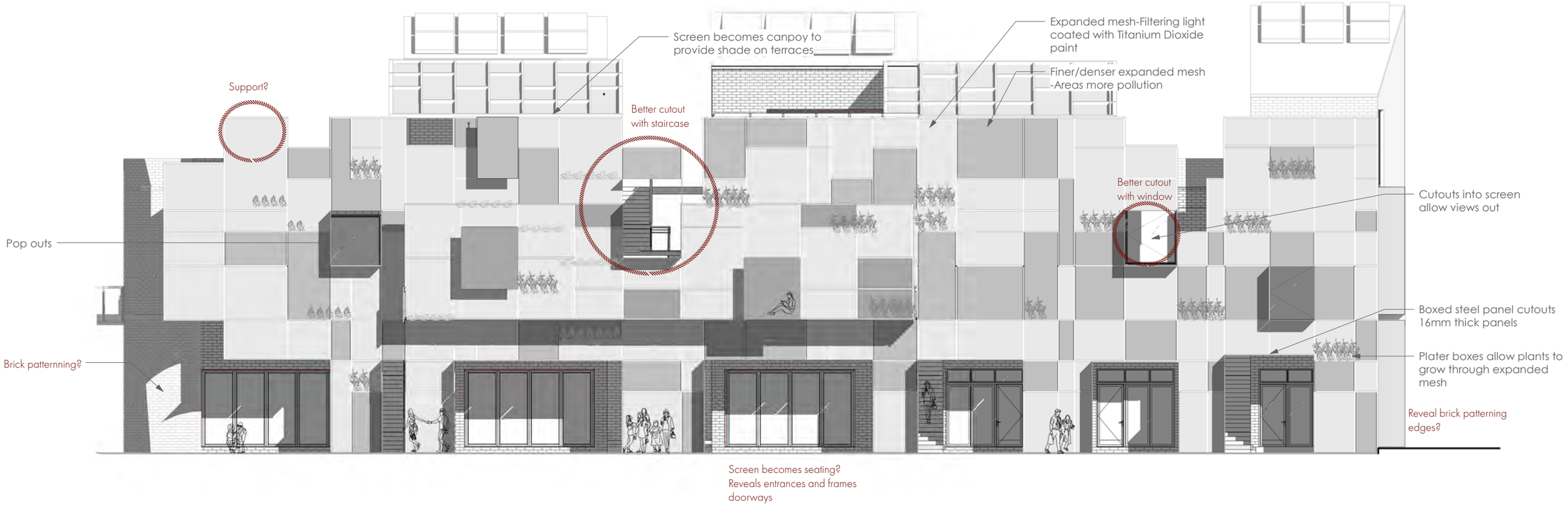
The call-out explores the connection between the roof-canopy and screen.
It looks at connections of how this screen pop-outs as well as connects back to the structure.

The detail explore the connections in more detail as well as the green roof and planter boxes that fit on to the screen.





Developing filtering elevations



Developing walkable thresholds

Curving movements

The various sections begin to explore what the walkway becomes and how it adapts to various conditions such as the market or care center.

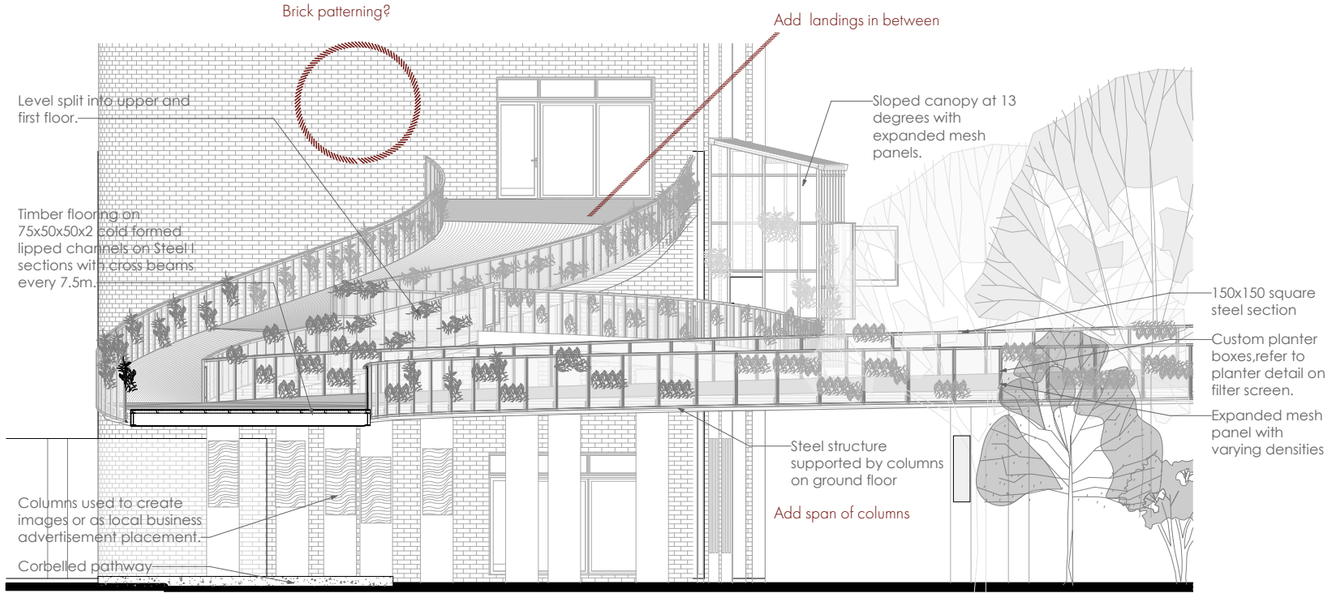
It creates conditions of seating, shading, movement and views that connect users to their context.



3D of walkway



Plan of section taken.

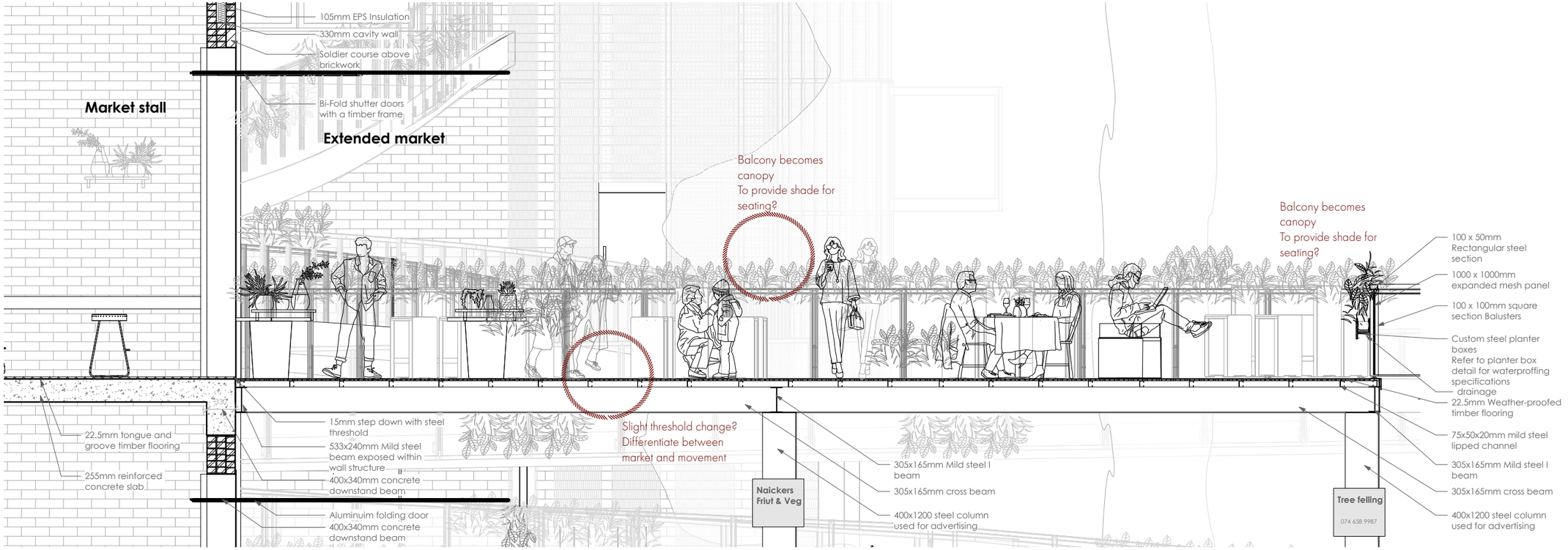


Detail of walkway

Developing call-out 02 of section 01



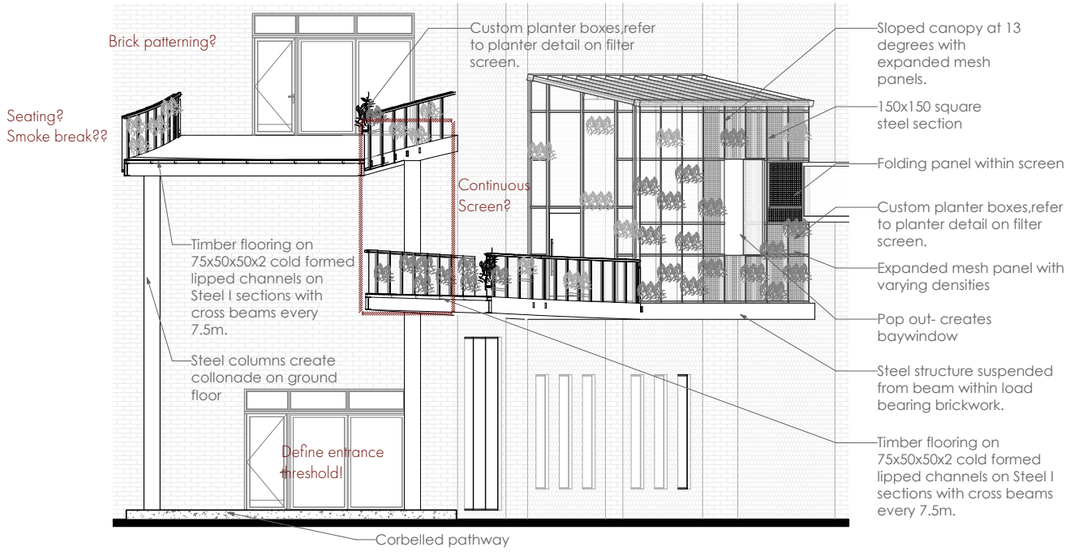
Plan of section taken.



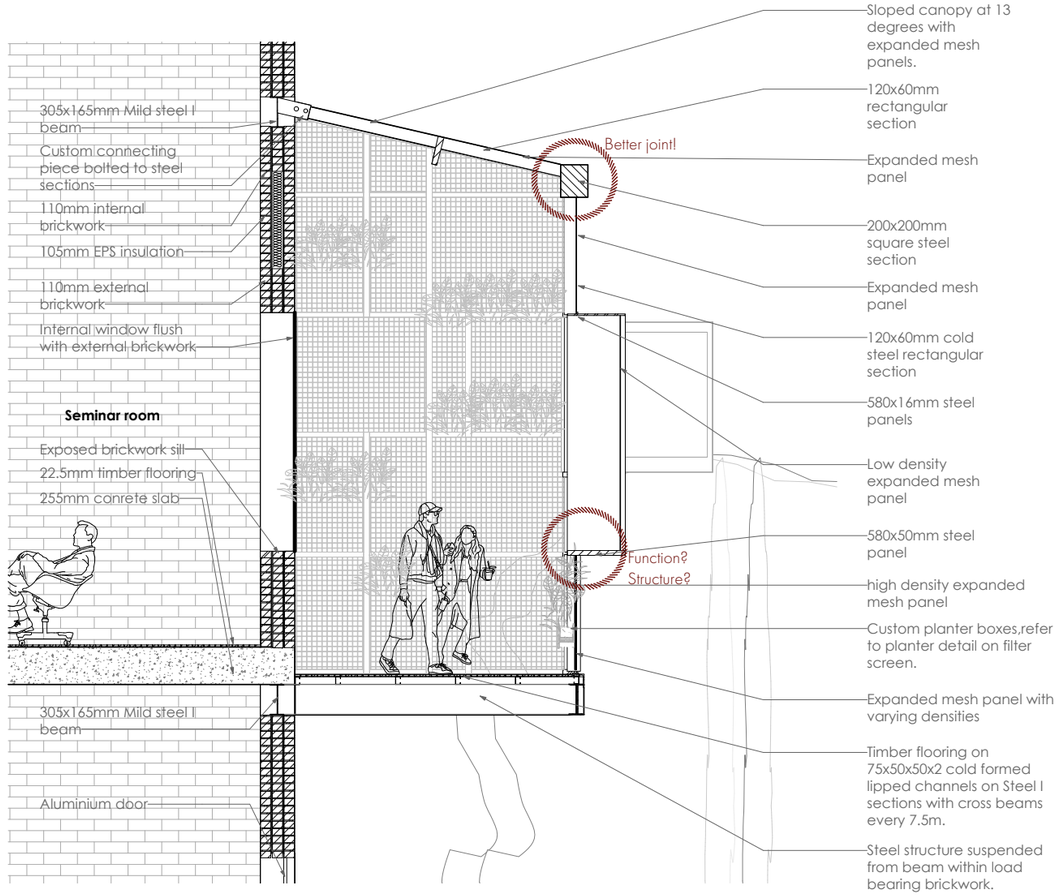
Developing splitting thresholds(A)



Plan of section taken.



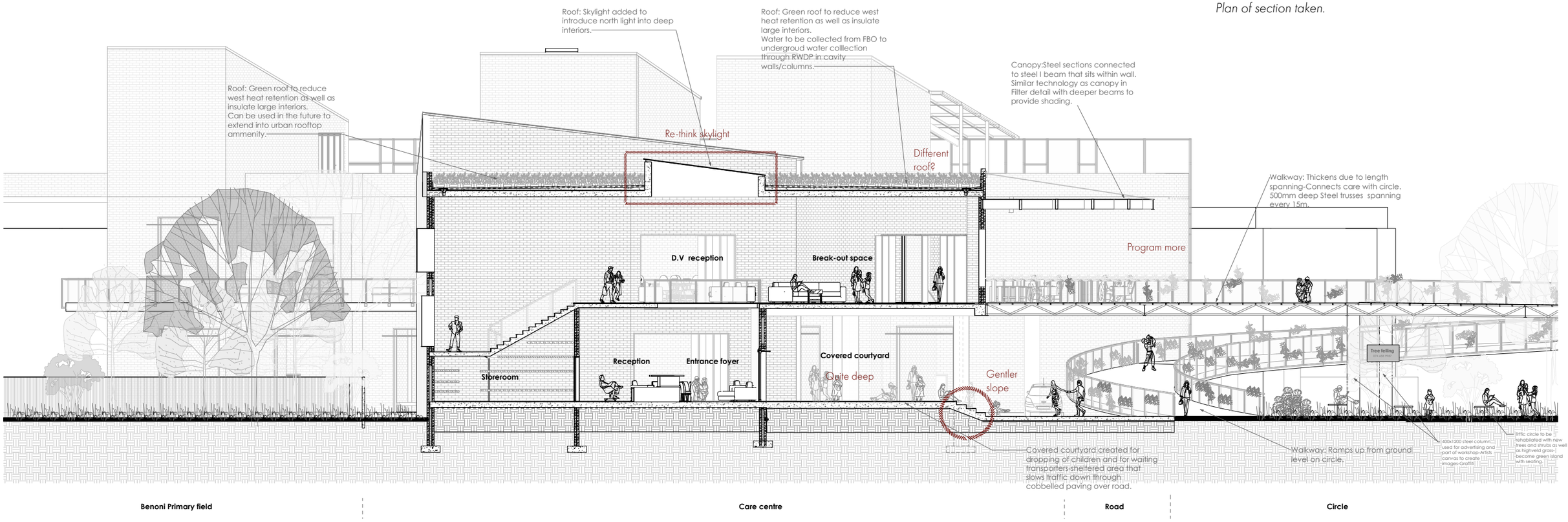
Developing sheltering thresholds(B)



Developing, Sectioning into circle



Plan of section taken.





ULTIMATE BIND

CHAPTER 05

This chapter will contain the final design proposal as a result of the research and analysis depicted in this report.

5.1 Planning

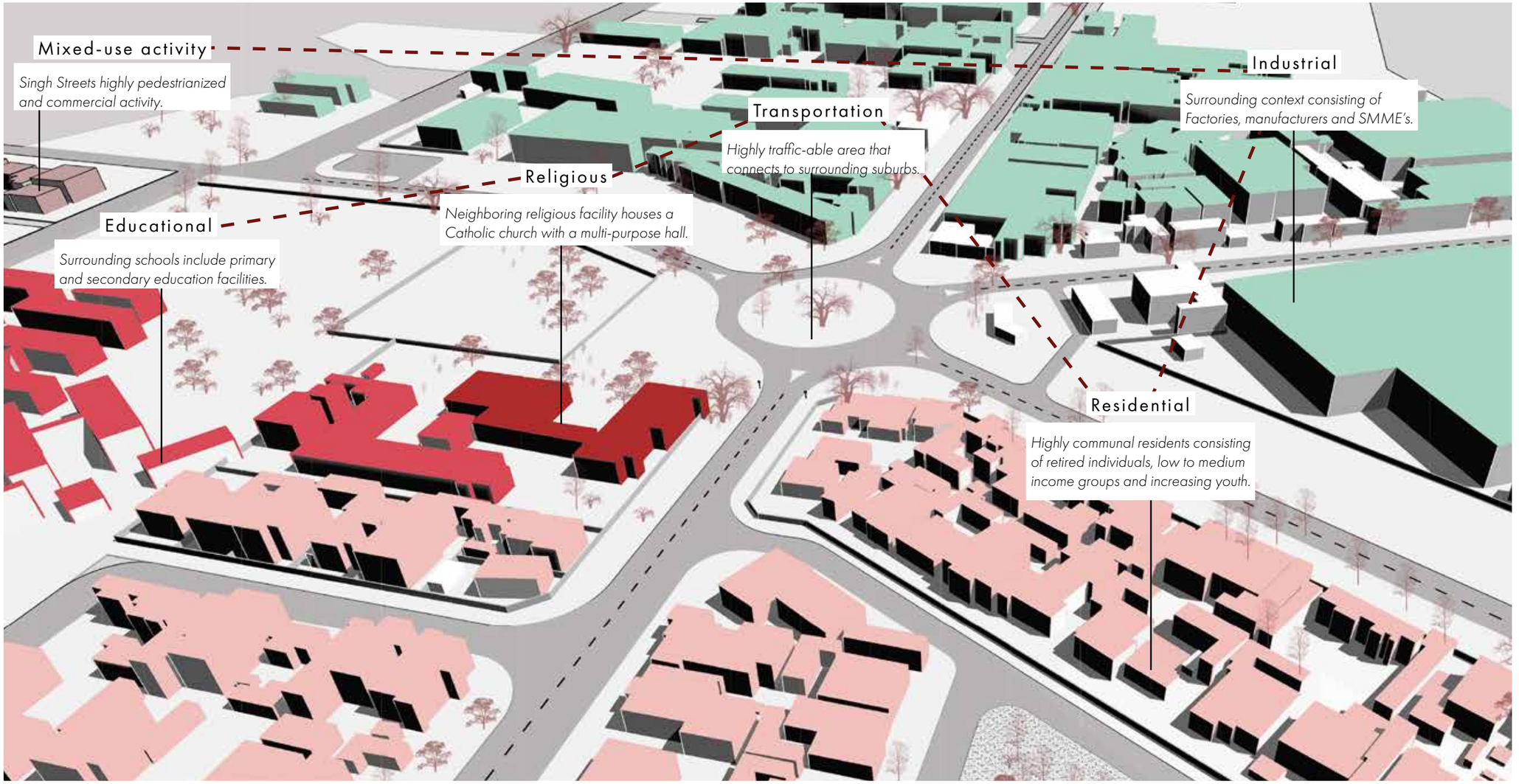
- *Contextual*
- *Program*
- *Site intentions*
- *Urban planning*
- *Circulation*
- *Form*

5.2 Thresholds

- *01- Creators court*
- *02- Care center*
- *03- Growth hub*

5.3 Details

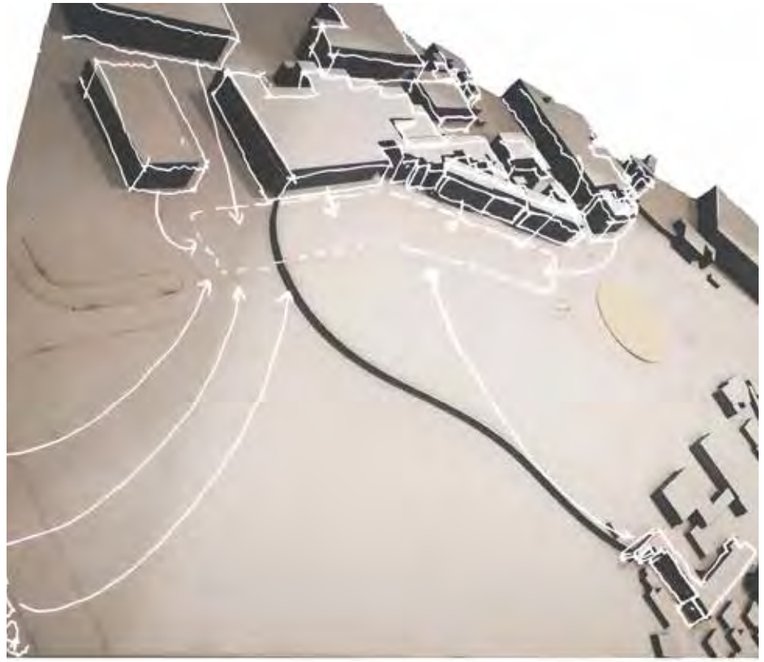
- *Materiality & Structure*
- *Building*
- *Envelope*
- *Walkway*



5.1 Planning

Existing context and connectivity

Diagram highlights existing context that connects to the building as well as informed urban intervention.



01-Creator's Court

Creator's Court connects the commercial activity on Singh Street and the industrial character of the factories to create a space of creation through an exchange between workshops and market spaces. It also creates a space for warehouse employers to engage in a public threshold.



02- Care Centre

The Care Centre supports the neighboring educational facilities through spaces of care, nurseries, aftercare and extra care. This results in classrooms, reading, study and resource spaces for the youth and retired professionals to engage and transfer knowledge and skills.



03- Growth Hub

The Growth Hub is designed to further support locals and small entrepreneurs in the area through up skilling and networking spaces that can further develop the local economy and community.

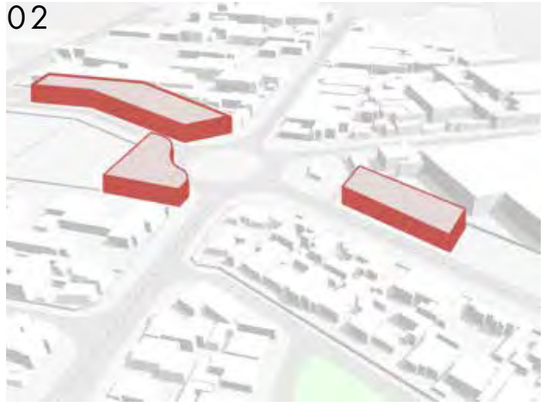
01



Site area

The combined site area is approximately 11 000 square metres.

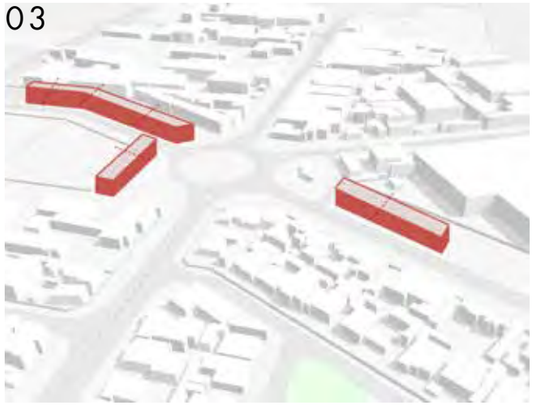
02



Massing site

Site demarcations area extruded to create 3 floors.

03



Pushing mass

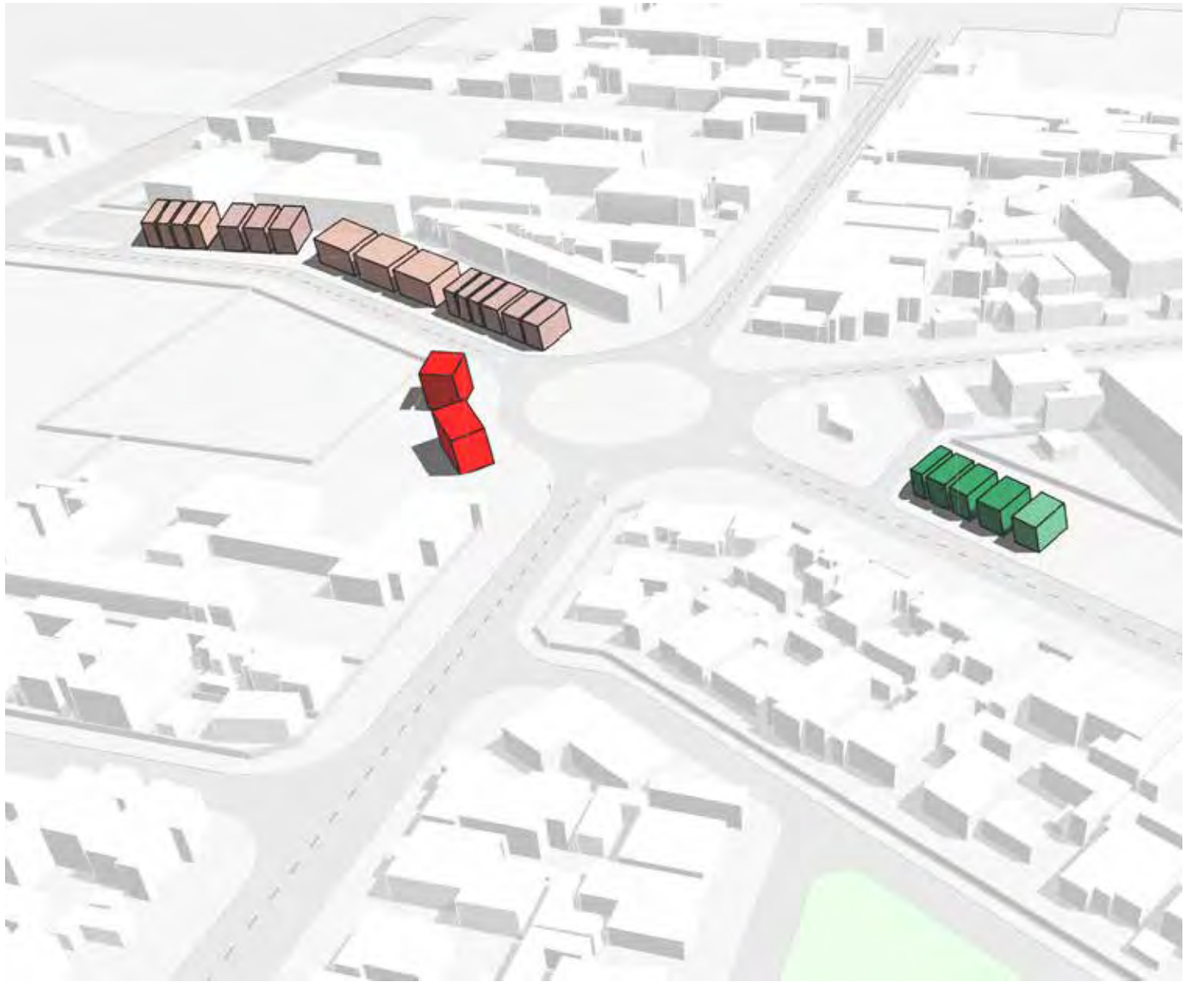
Mass is pushed within boundaries and considerations and cut into desired areas.

04



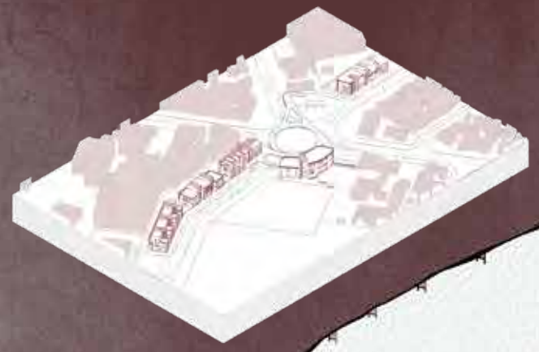
Segmenting & clustering

Mass is further segmented and clustered to create groups of program and activity.

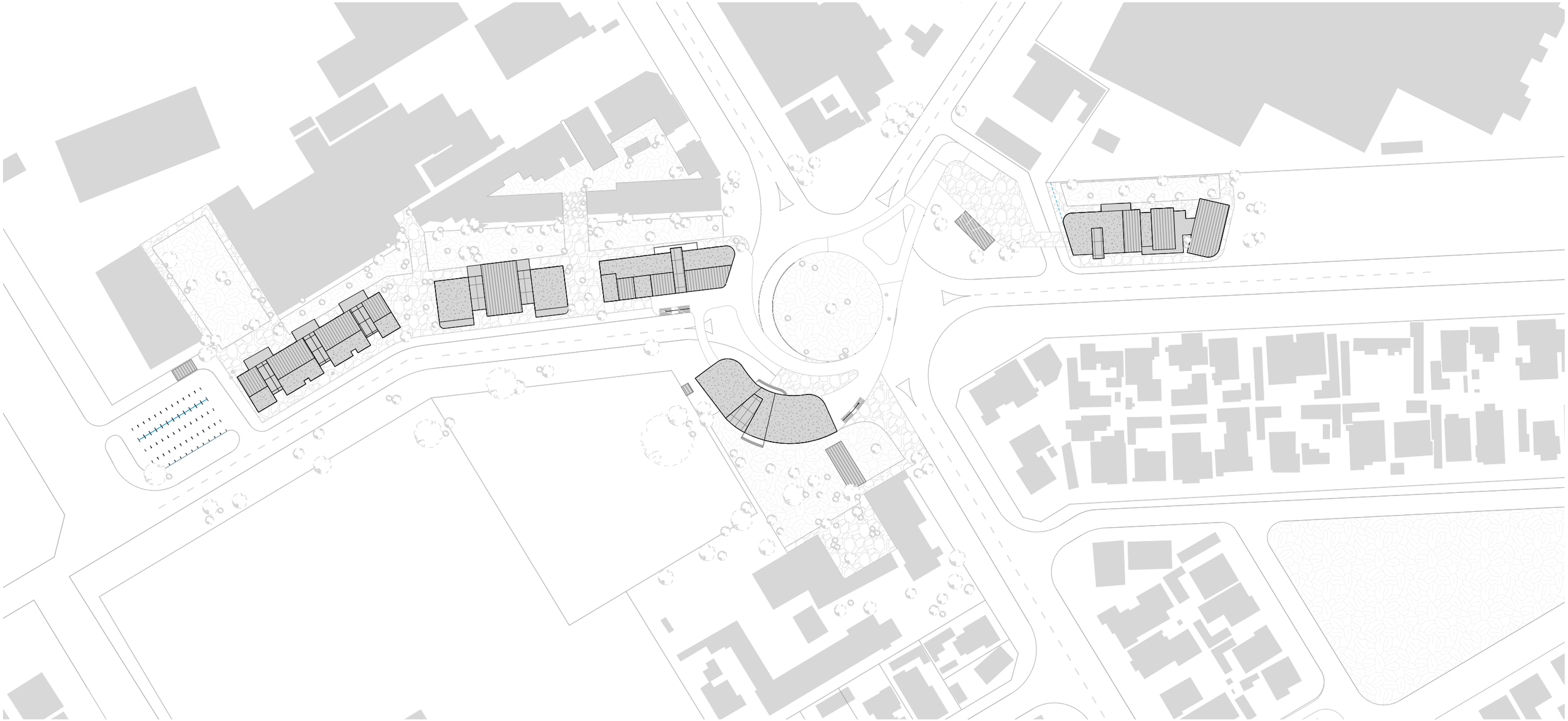


Final mass

Final massing depicts segments and clusters that enable a visual of slowing time down while producing connections between existing and new buildings.

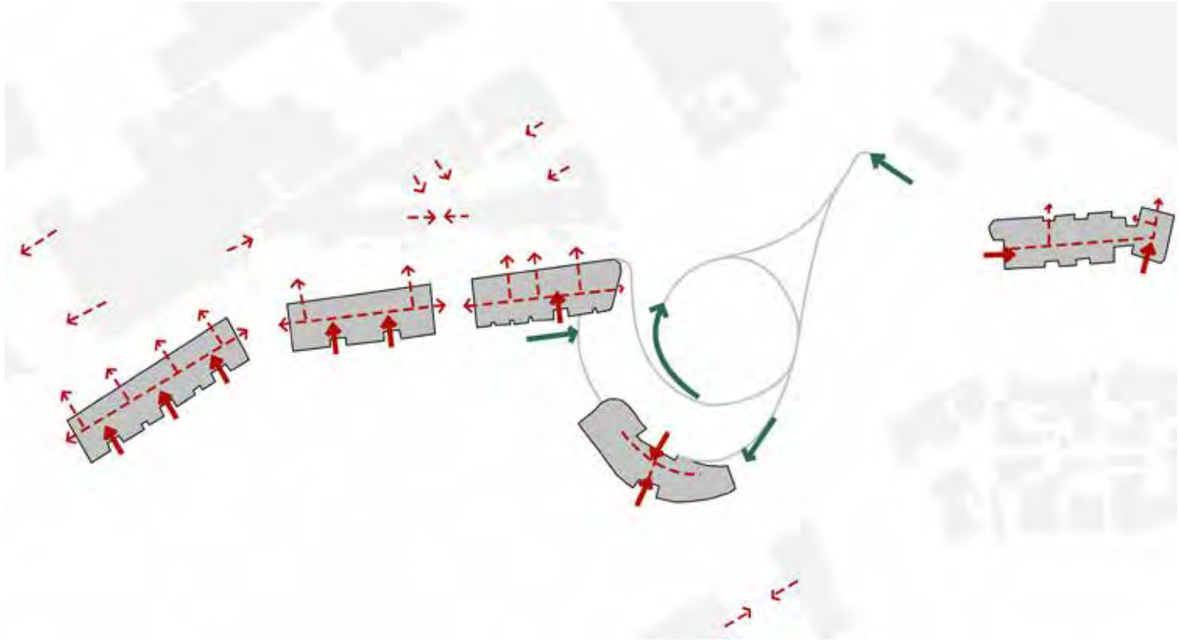


5.2 Thresholds



Context plan

timeless thresholds



Ground floor access and movement



Movement through levels

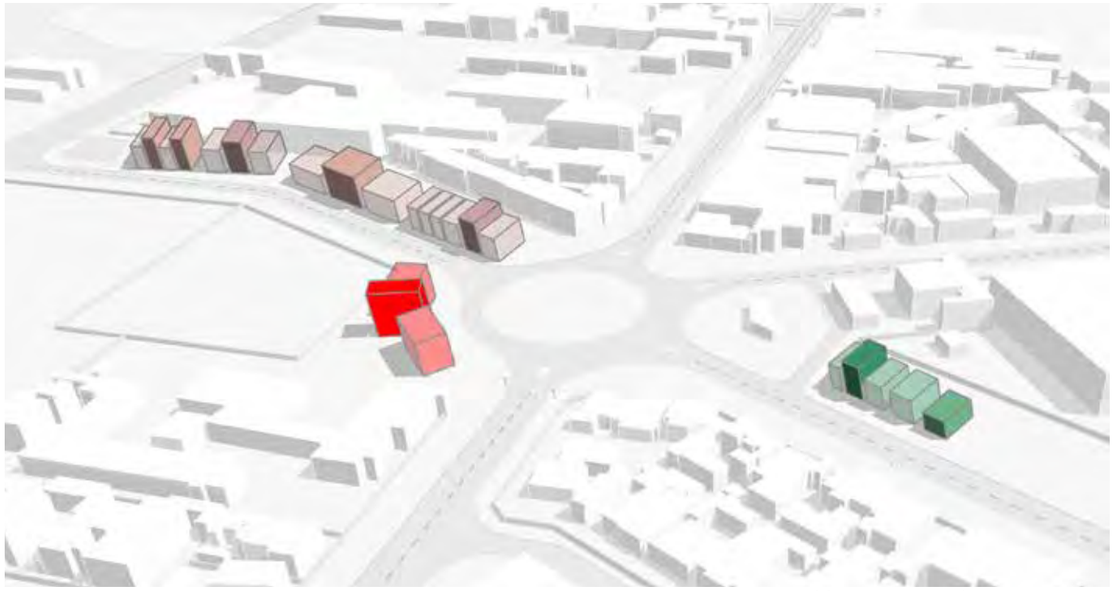


All accessible levels



Walkway movement into different buildings

Exploded axonometric of movement



Volumetric Axonometric



Entrances

Entrances given height to mark as entry points and threshold markers that break visual of heights.



Green roof

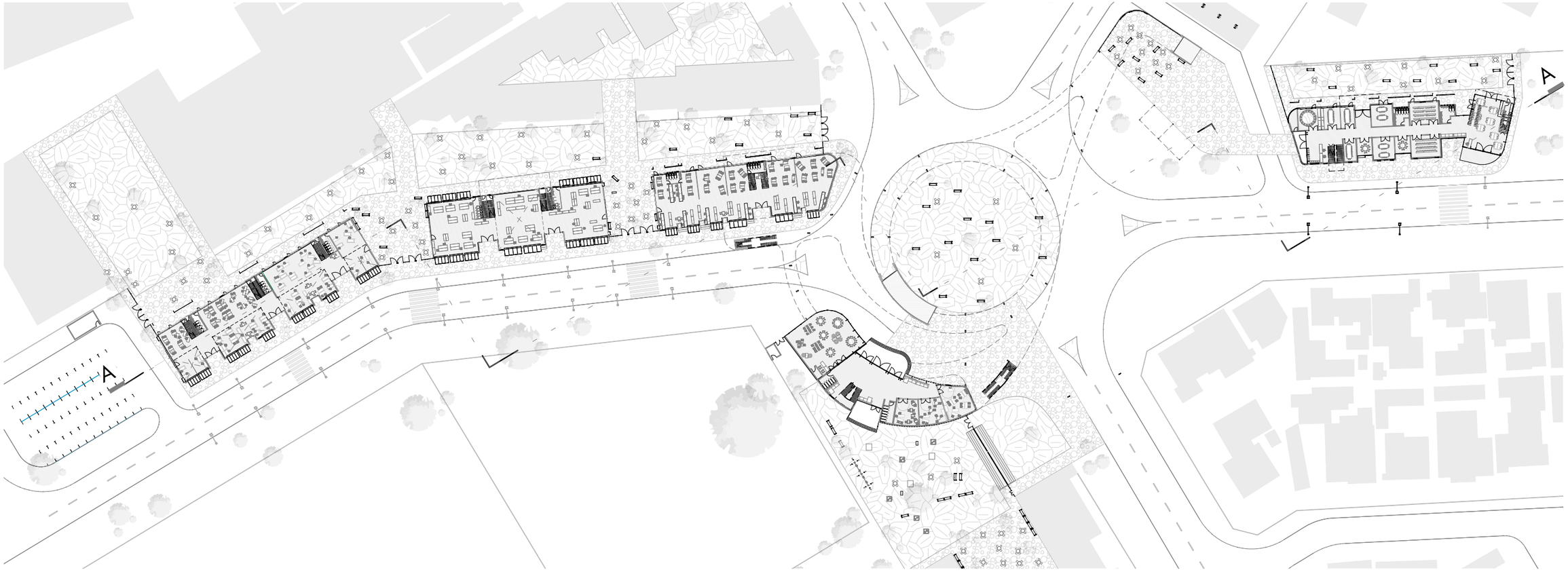
Green roofs characterized by perforated brick walling.



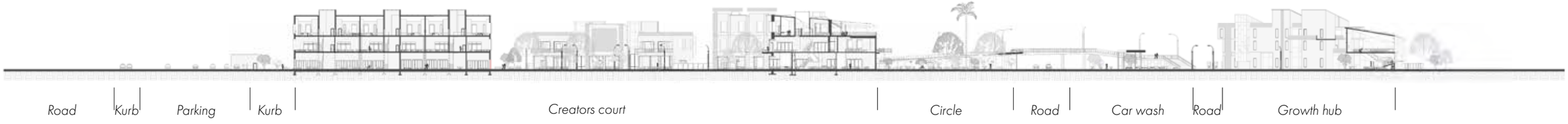
Mono-pitched

Mono-pitched roofs internally exposed with timber rafters and added height to space.

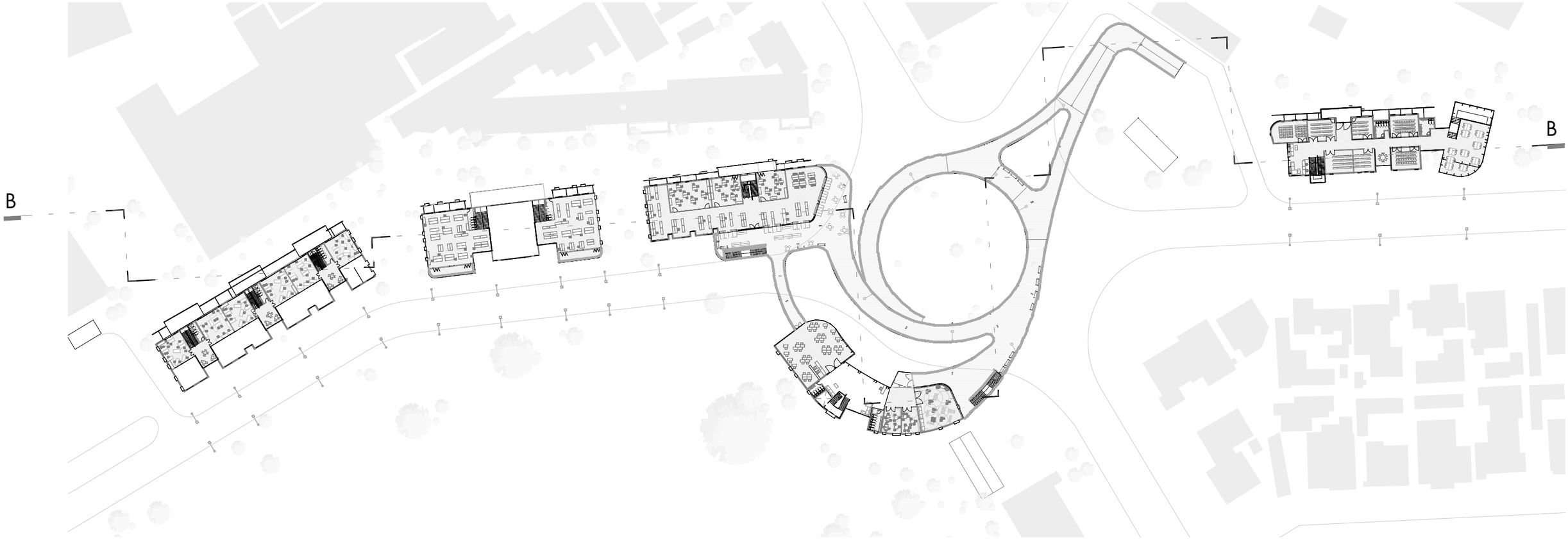




Ground floor plan



Longitudinal section A-A

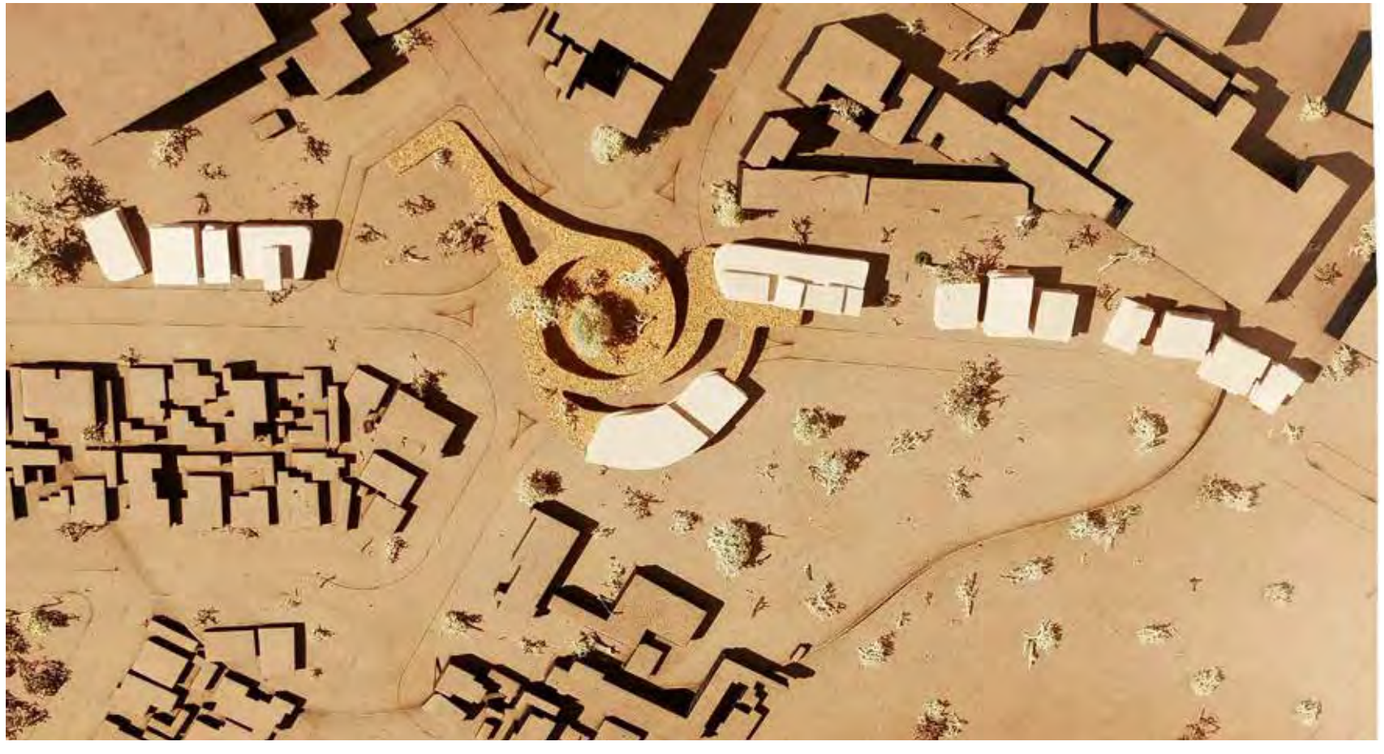


First floor plan



Longitudinal section B- B









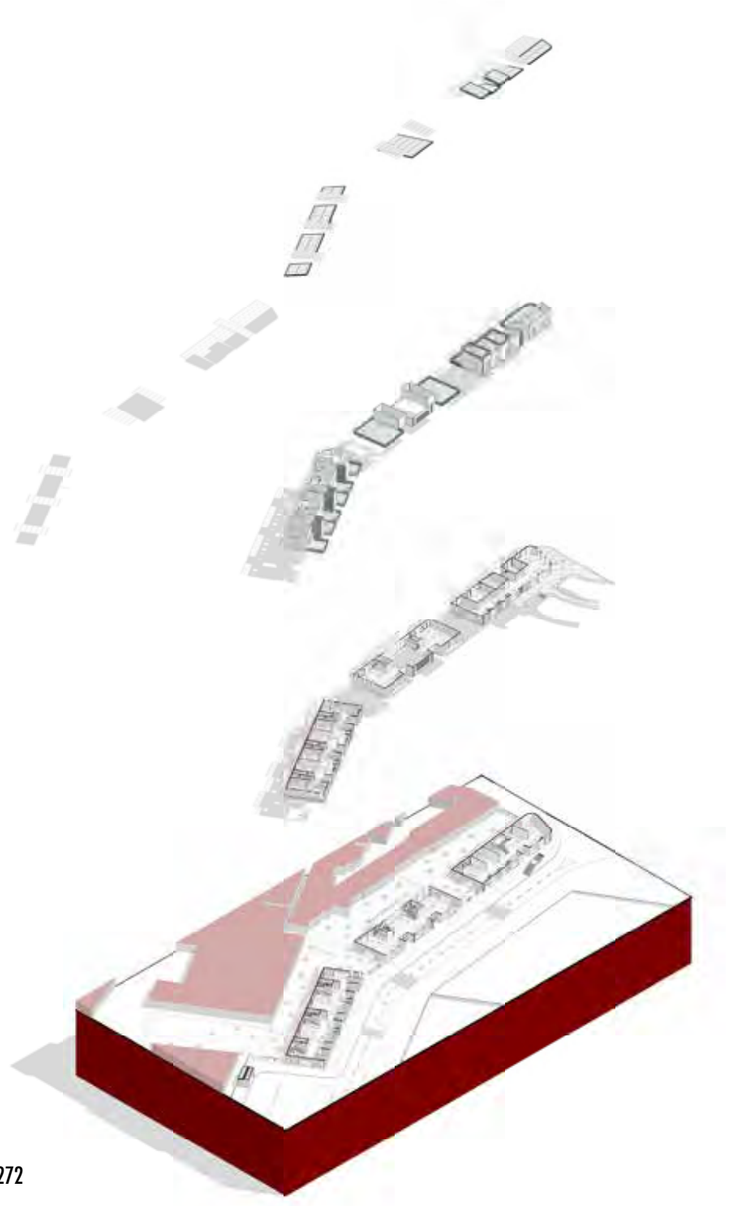




Model imagery



Threshold 01
Creator's Court

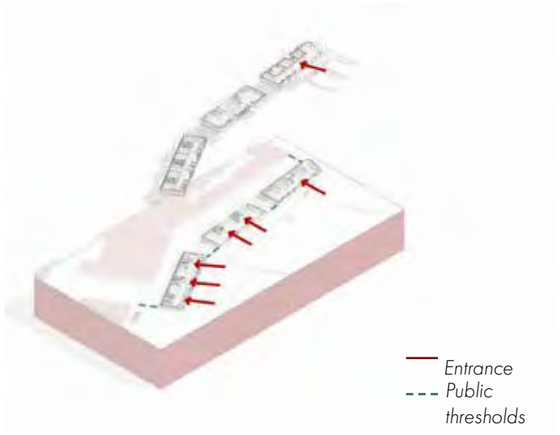


Roof

Second floor

First floor

Ground floor



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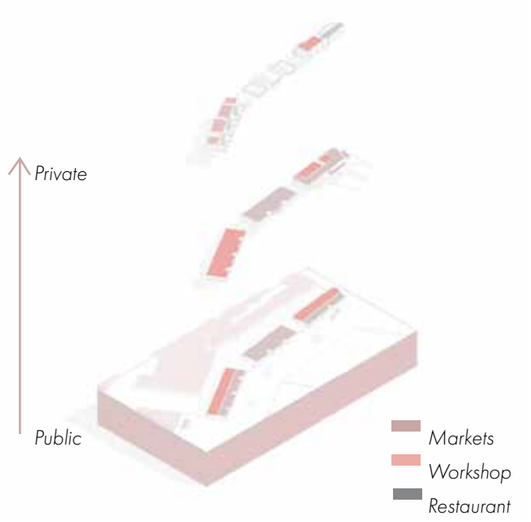
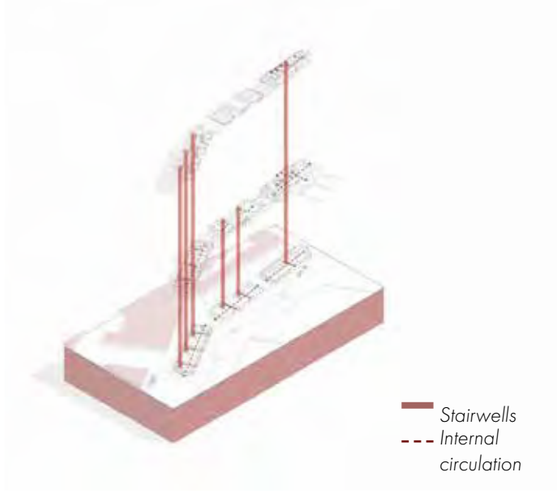
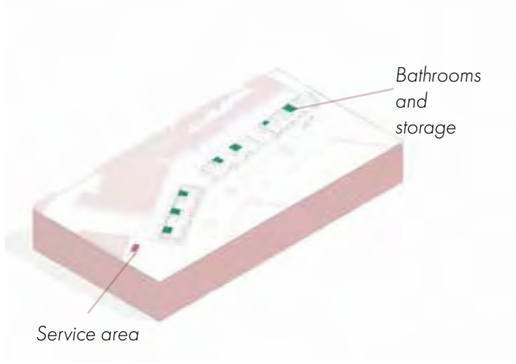


Program

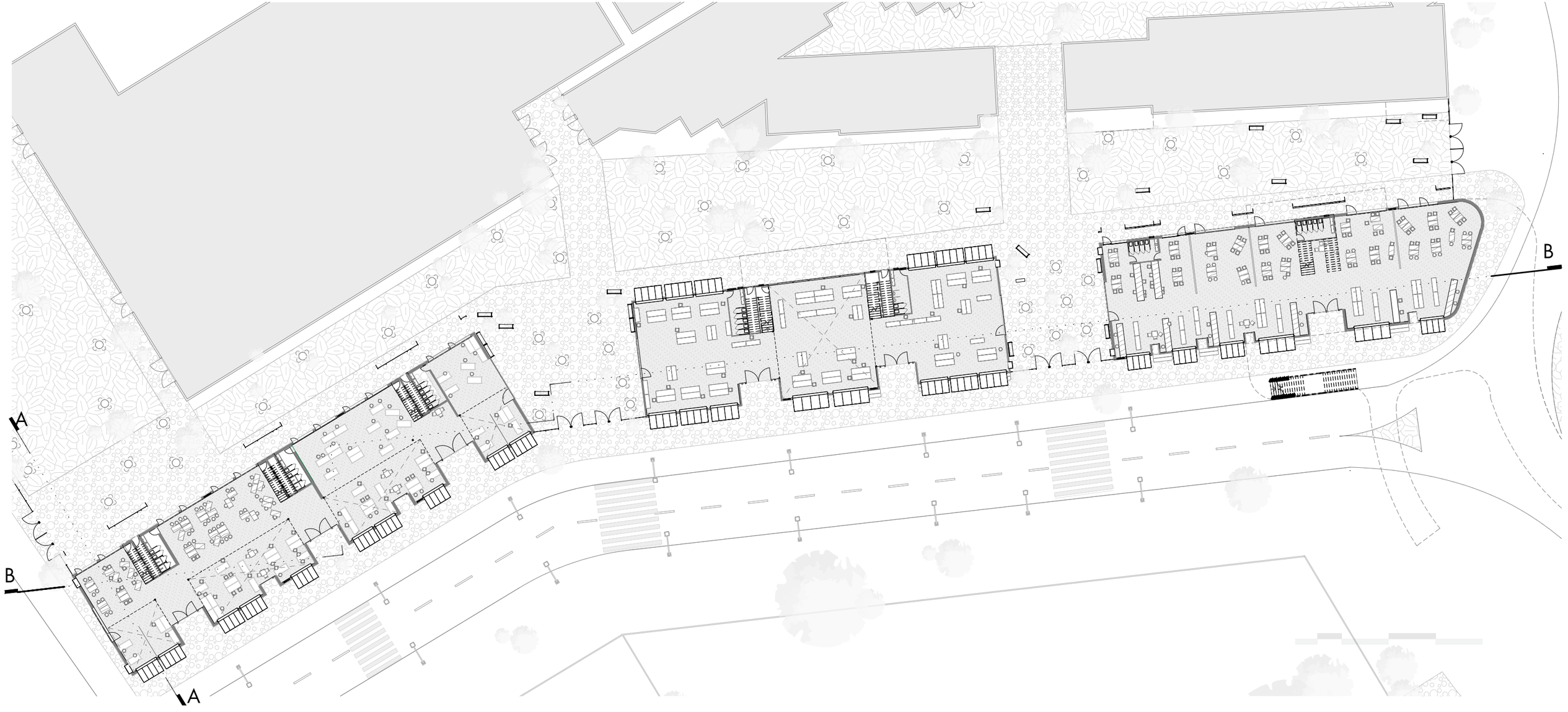


Circulation

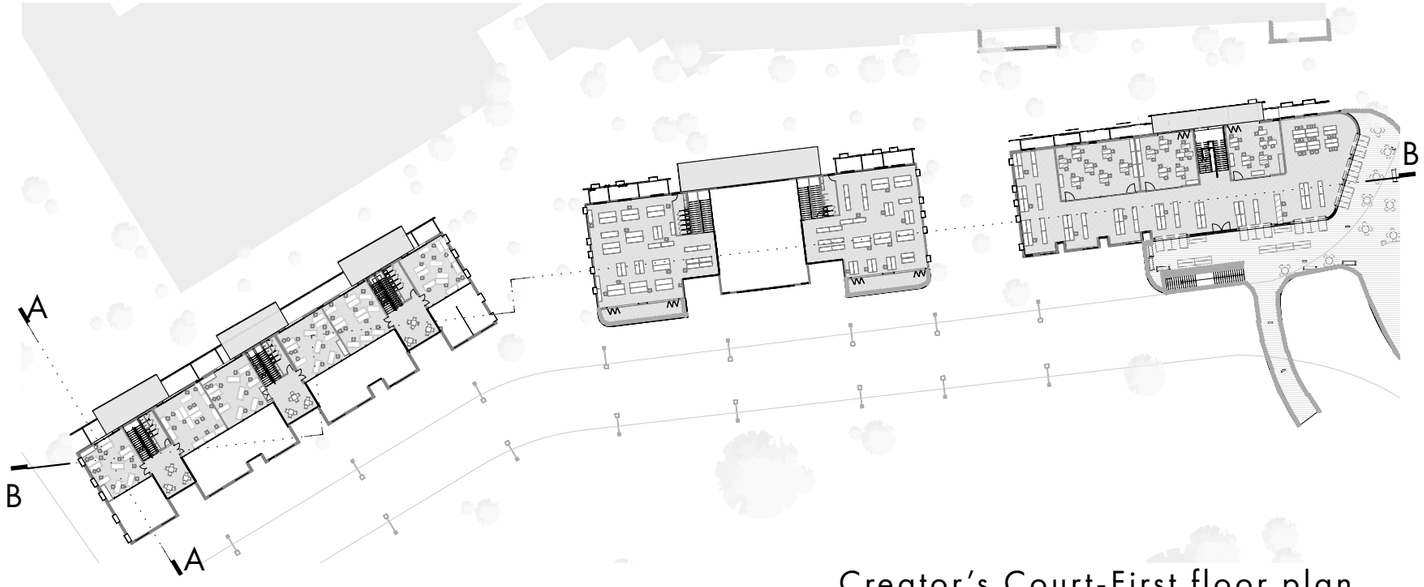


Services

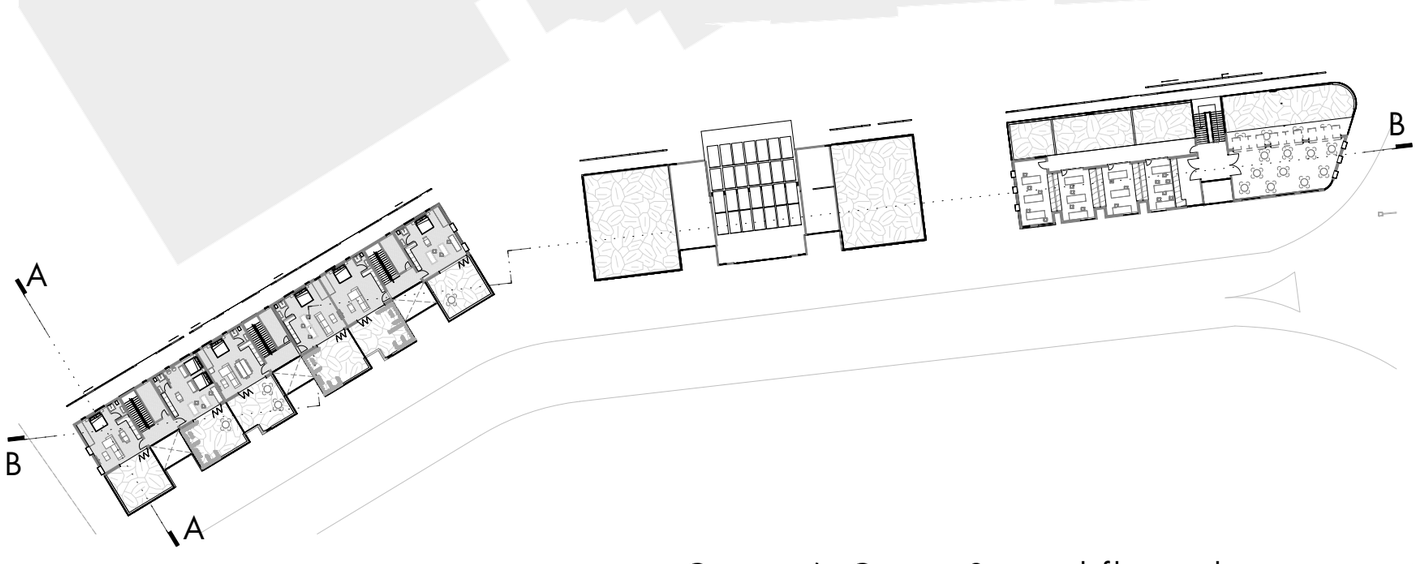
Relationships



Creator's Court-Ground floor plan



Creator's Court-First floor plan



Creator's Court -Second floor plan

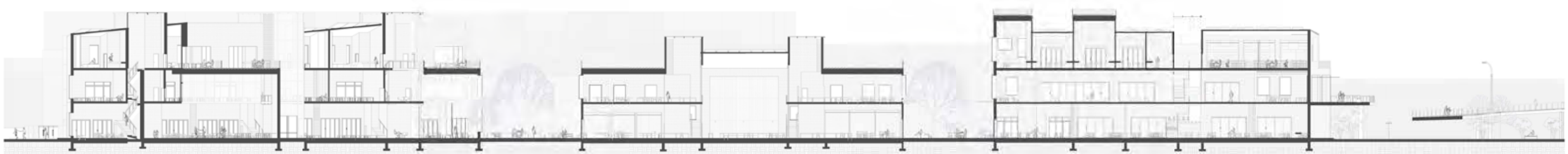


Internal view of workshop with public space.



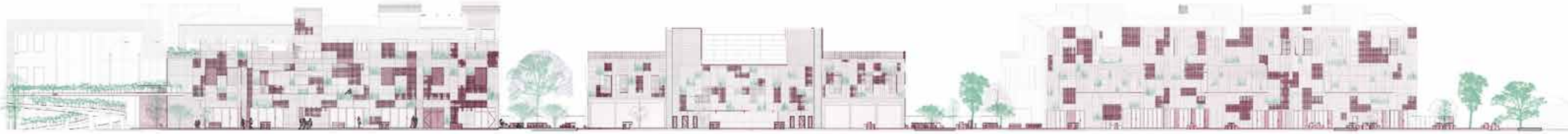
Creator's Court | *Walkway* | *Care Centre* | *Liverpool Secondary sports field*

Creator's Court-Cross-section A-A



Creator's Court | *Road* | *Circle*

Creator's Court-Longitudinal Section B-B



Creator's Court-North elevation



Creator's Court-South elevation



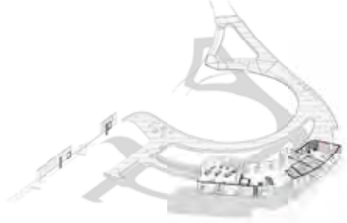
Threshold 02
Care Centre



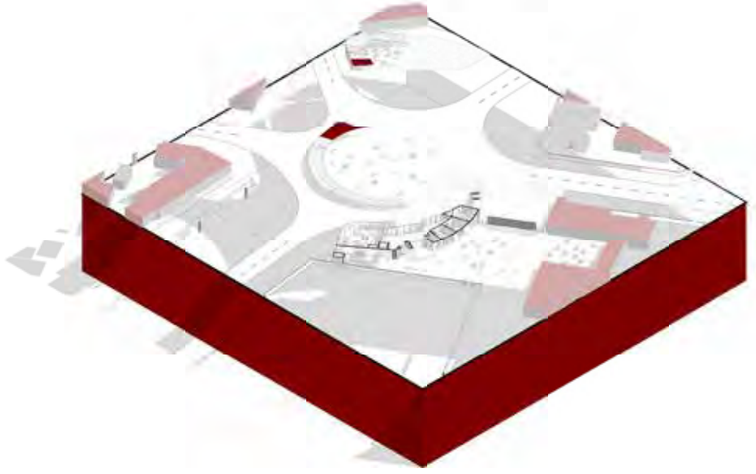
Roof



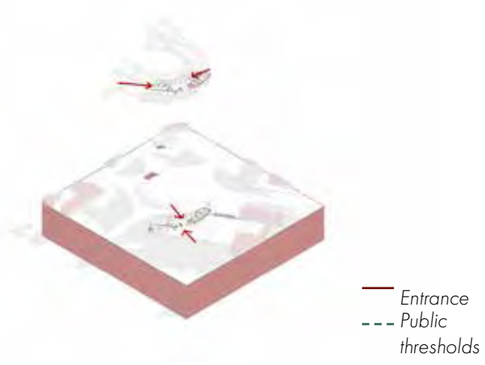
Second floor



First floor



Ground floor



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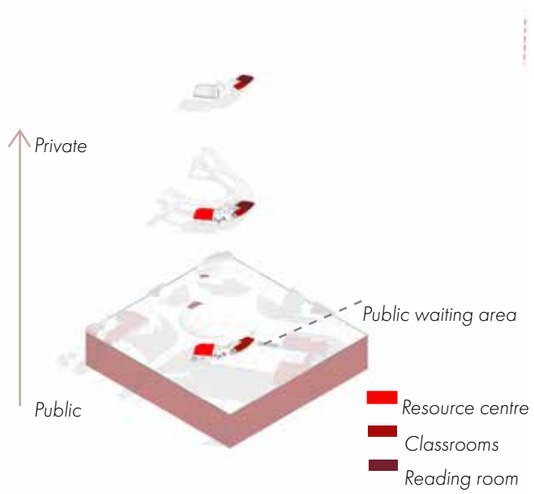
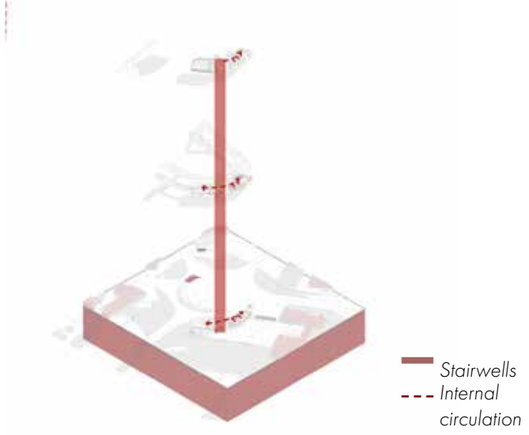
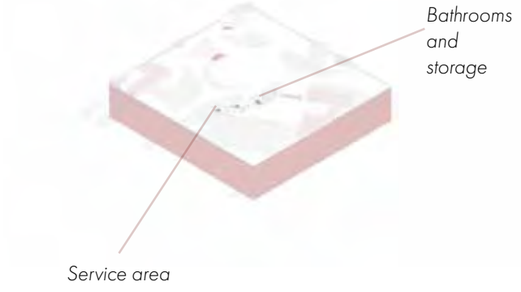


Program



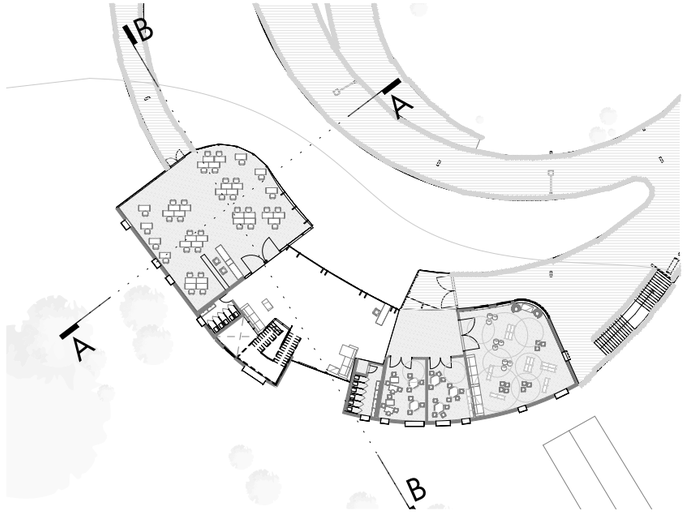
Circulation



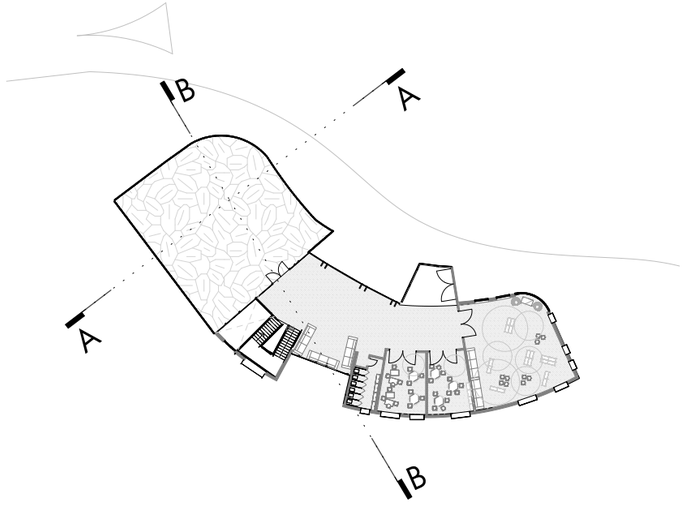
Services



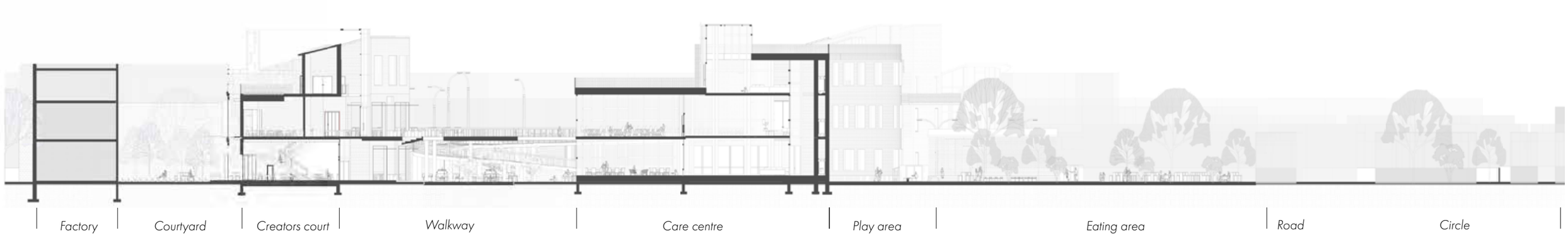
Care Centre-Ground floor plan



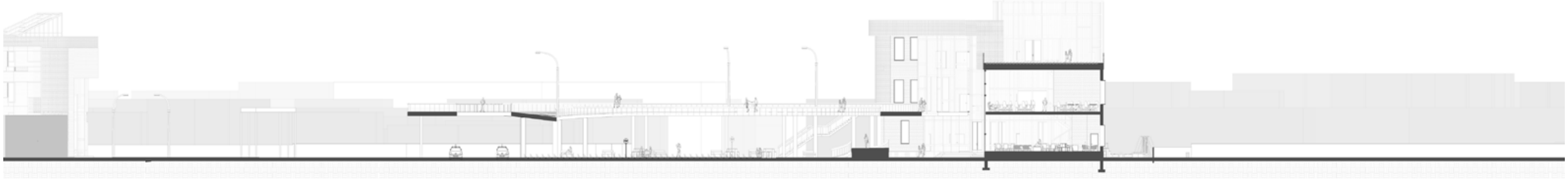
Care Centre-First floor plan



Care Centre-Second floor plan



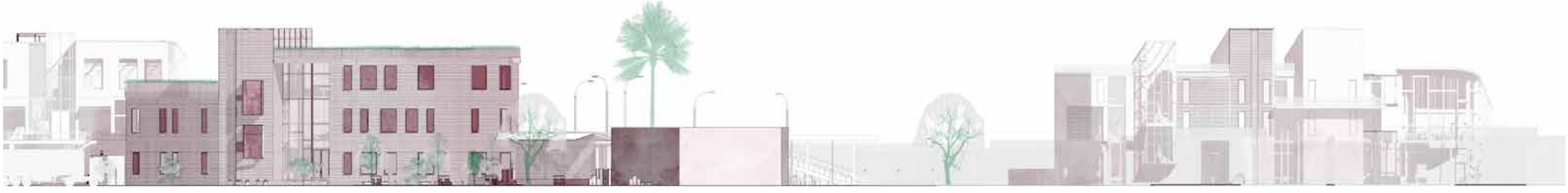
Care Centre-Cross section A-A



Care Centre-Longitudinal section B-B



Care Centre-North elevation



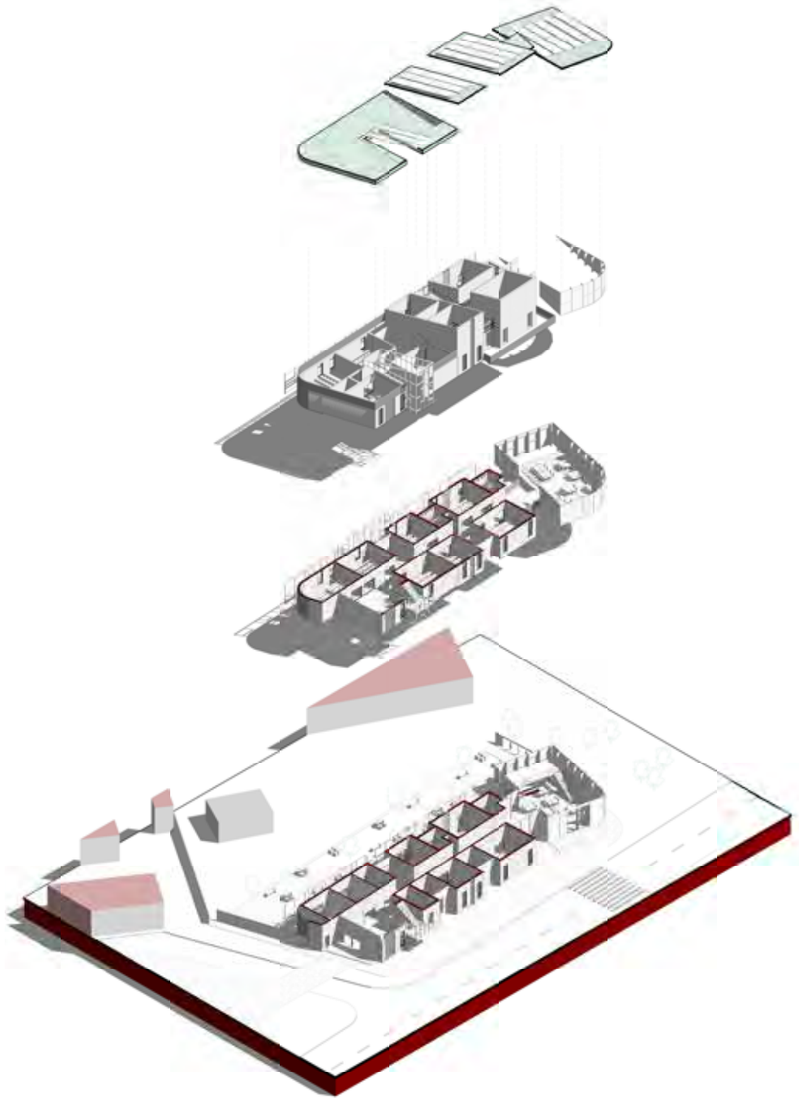
Care Centre-South elevation



Internal view of Resource space



Threshold 03
Growth Hub



Roof

Second floor

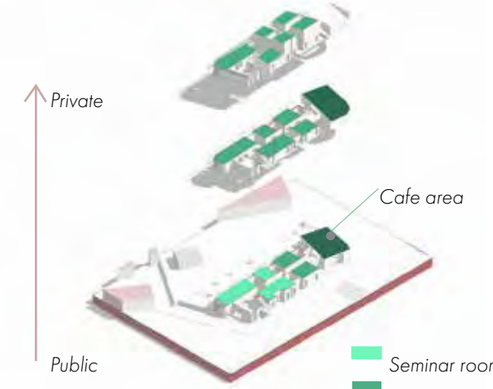
First floor

Ground floor



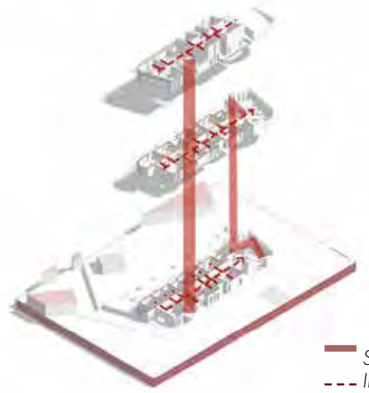
Entrance
Public thresholds

Access



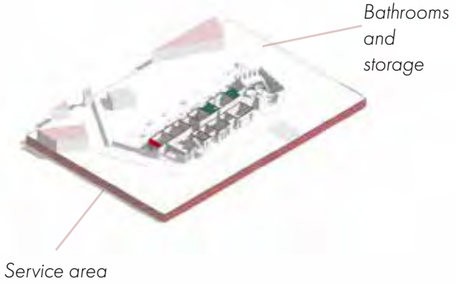
Seminar rooms
Training rooms
Co- working space

Program



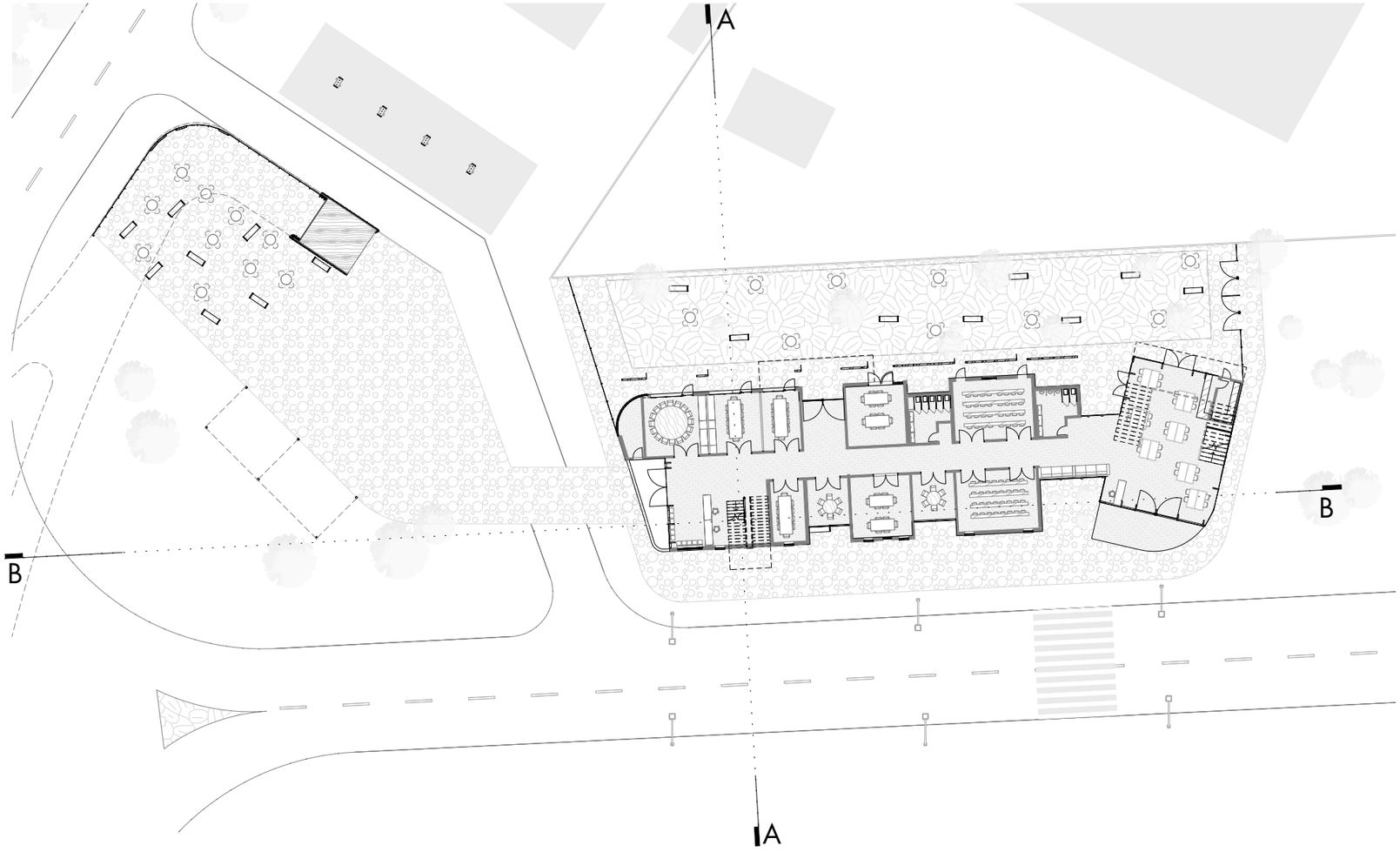
Stairwells
Internal circulation

Circulation

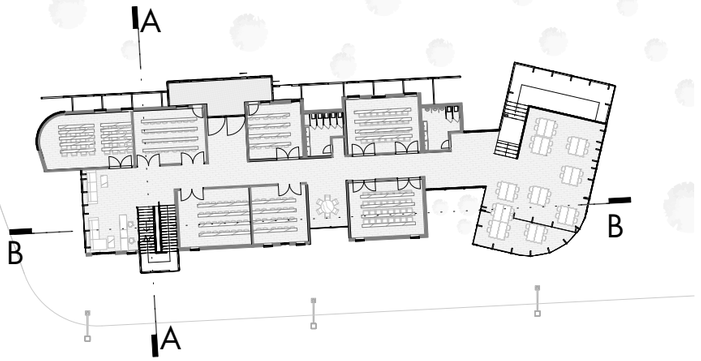


Services

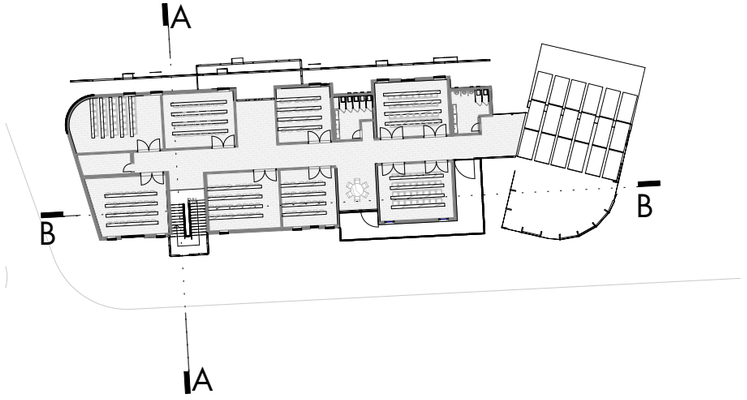
Relationships



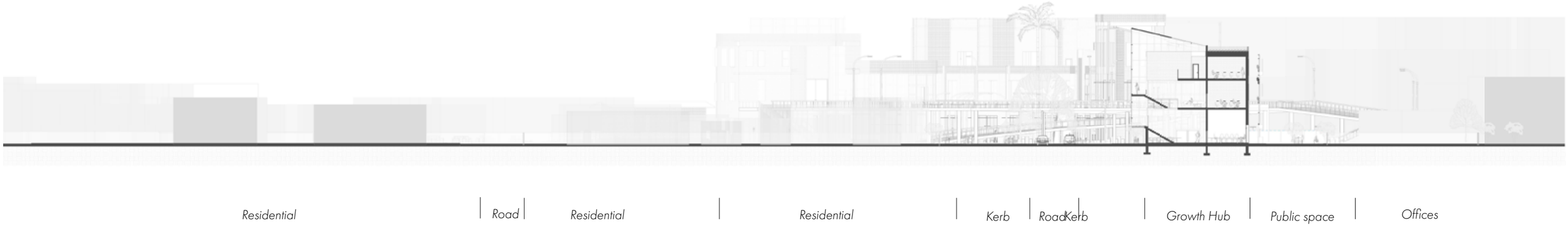
Growth Hub-Ground floor plan



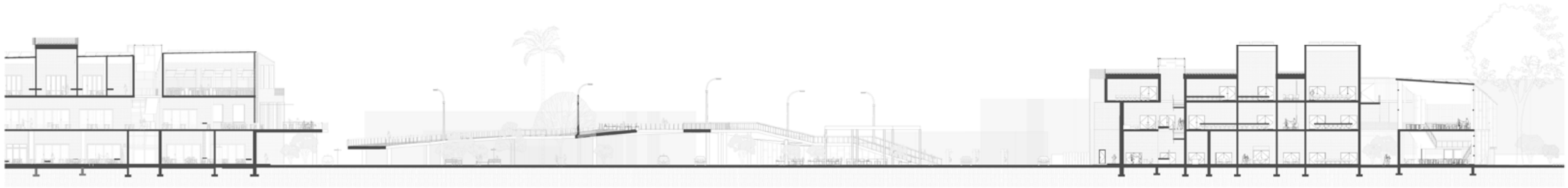
Growth Hub-First floor plan



Growth Hub-Second floor plan



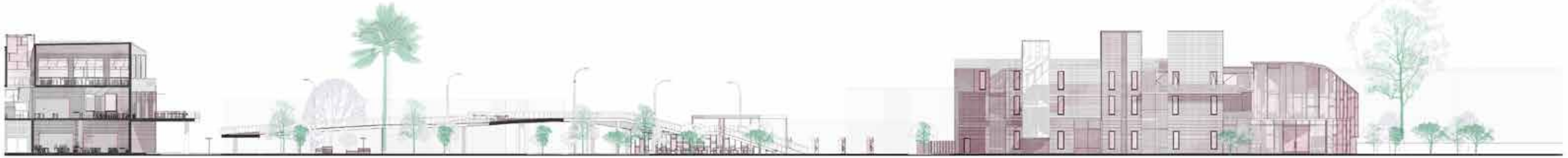
Growth Hub-Cross section A-A



Growth hub-Longitudinal section B-B



Growth Hub-North elevation

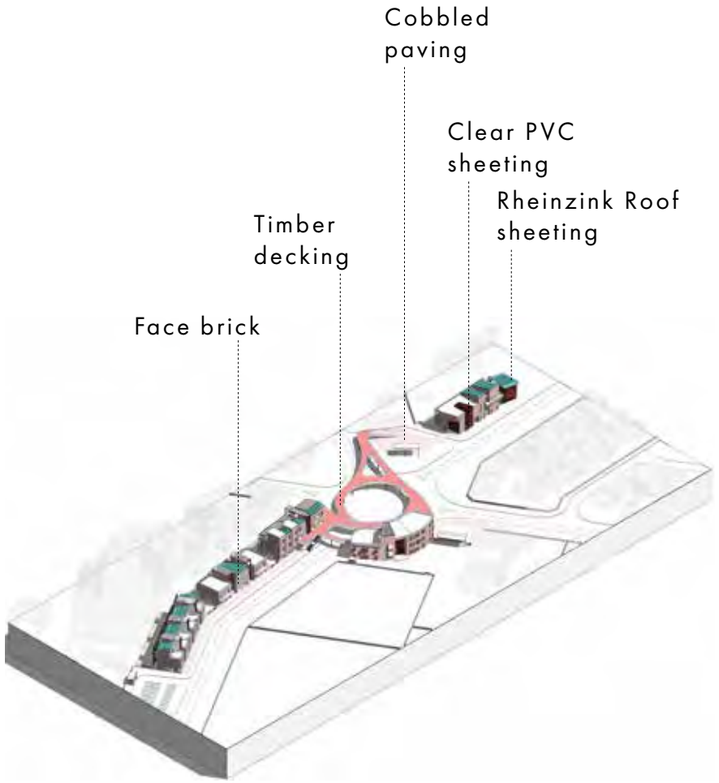


Growth Hub-South elevation

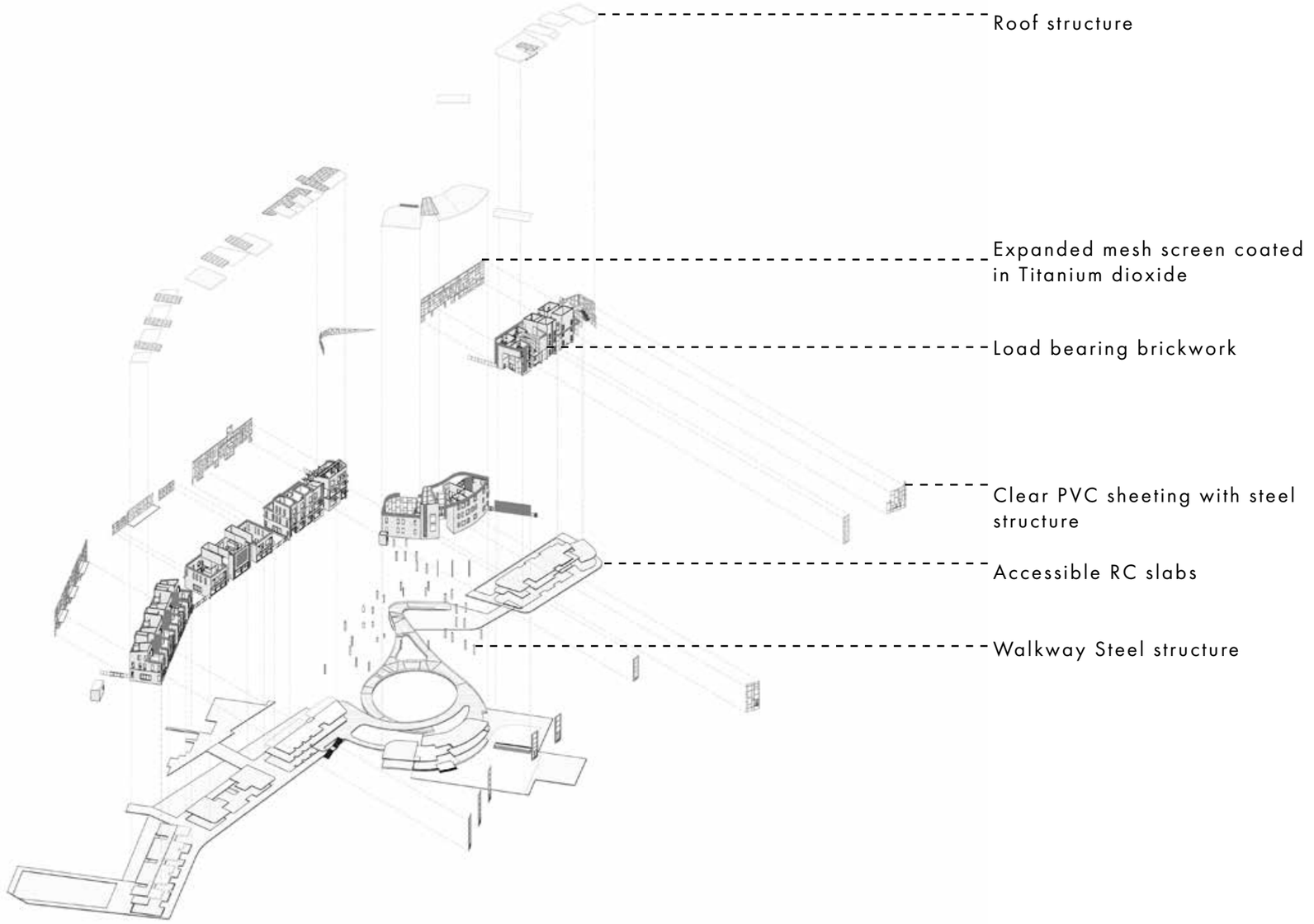


Internal view of Co-Working space

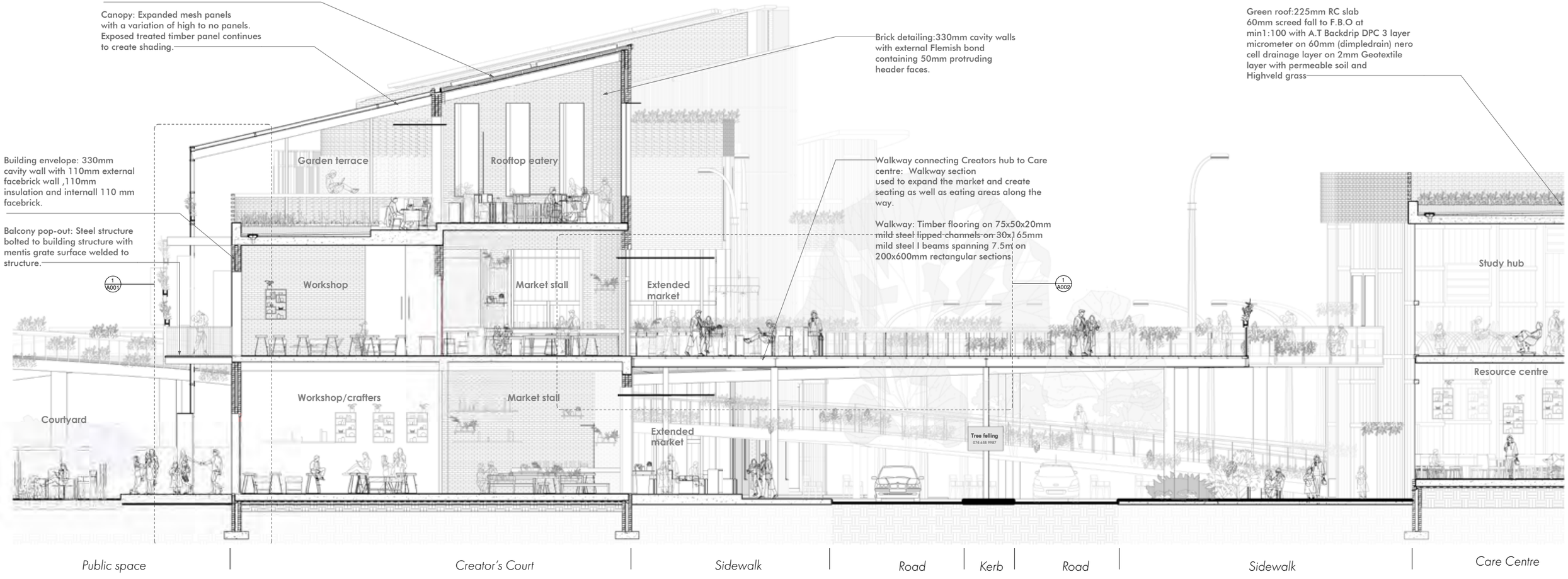
5.3 Details



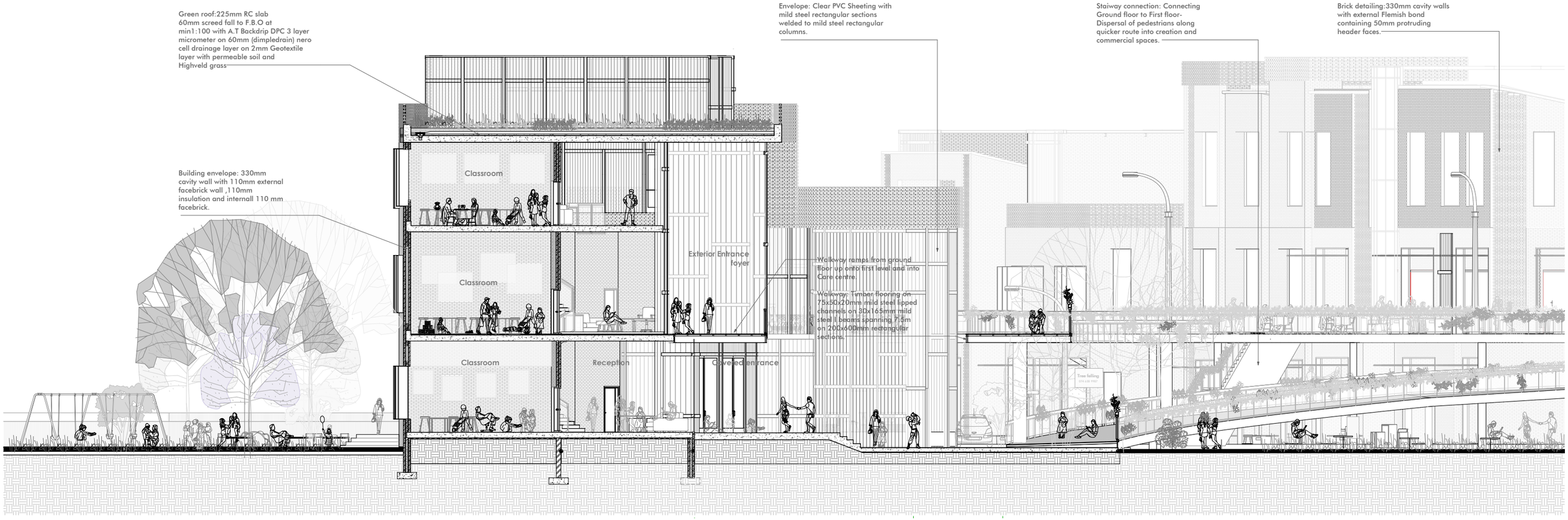
Materiality



Structure



Creator's Court-Cross section



Care Centre-Cross section

timeless thresholds

Roof: 1.5kW Photovoltaic system 250watt PV panels(3000x1500mm) at 13 degrees on Rheinzink double standing
seam with 0.8mm metal thickness on Waterproofing membrane on 38x38mm timber batterns with roof insulation inbetween on 12.5 OSB sheeting with internally exposed 228x50mm SAP timber rafters @ 13 degrees @1200 c/c.

Green roof:225mm RC slab
60mm screed fall to F.B.O at min1:100 with A.T Backdrip DPC 3 layer micrometer on 60mm (dimpledrain) nero cell drainage layer on 2mm Geotextile layer with permeable soil and Highveld grass

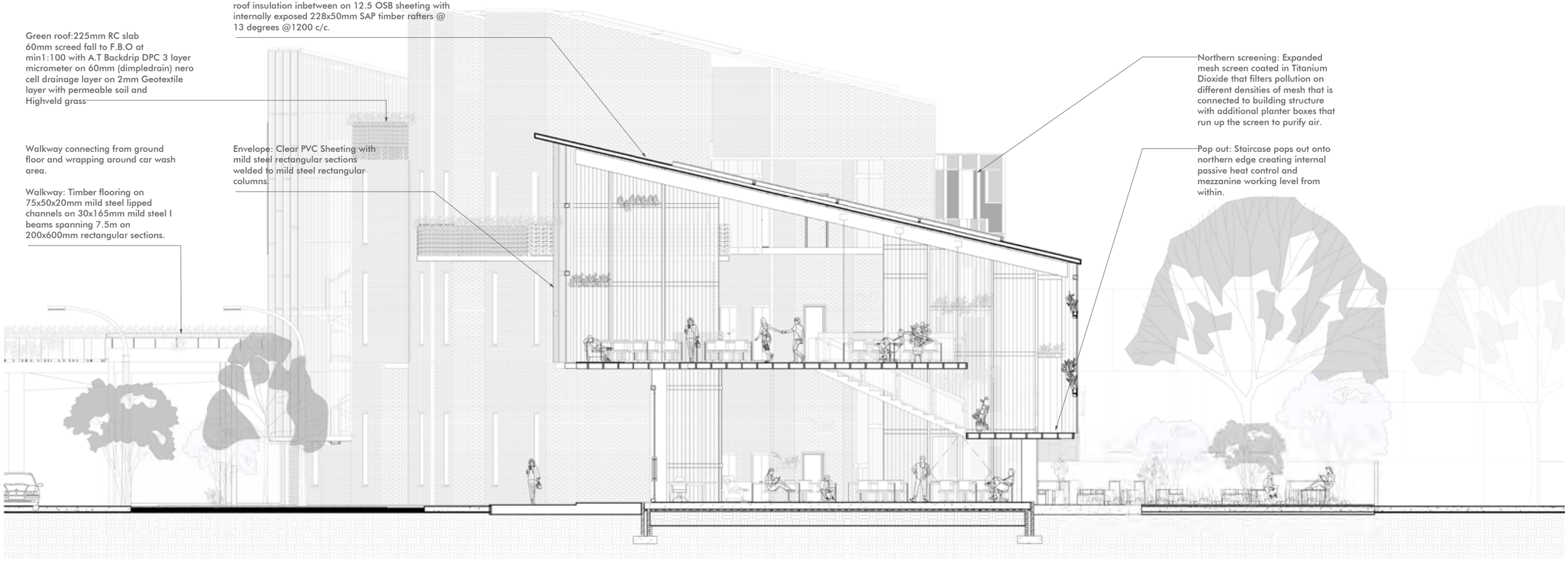
Walkway connecting from ground floor and wrapping around car wash area.

Walkway: Timber flooring on 75x50x20mm mild steel lipped channels on 30x165mm mild steel I beams spanning 7.5m on 200x600mm rectangular sections.

Envelope: Clear PVC Sheeting with mild steel rectangular sections welded to mild steel rectangular columns.

Northern screening: Expanded mesh screen coated in Titanium Dioxide that filters pollution on different densities of mesh that is connected to building structure with additional planter boxes that run up the screen to purify air.

Pop out: Staircase pops out onto northern edge creating internal passive heat control and mezzanine working level from within.



Road | *Sidewalk* | *Entrance threshold* | *Growth hub* | *Public space*

Growth Hub-Cross section

timeless thresholds

01



Extended market stalls

Walkway extends to host additional temporary stalls for vendors.

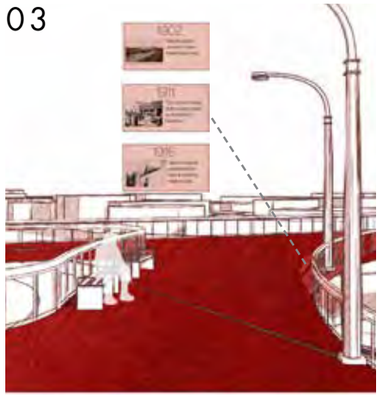
02



Seating and eating areas

Walkway is utilised as an external eating area as well as rest areas for pedestrians.

03



Historical archives

Walkway additionally creates a walkable archive with plaques containing history and stories of Actonville.

04



Stepping down

Walkway utilises stairways for easy ground floor access.

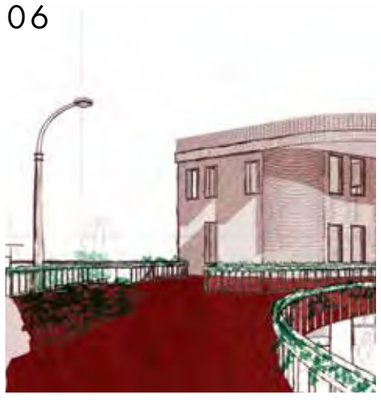
05



Ramping down

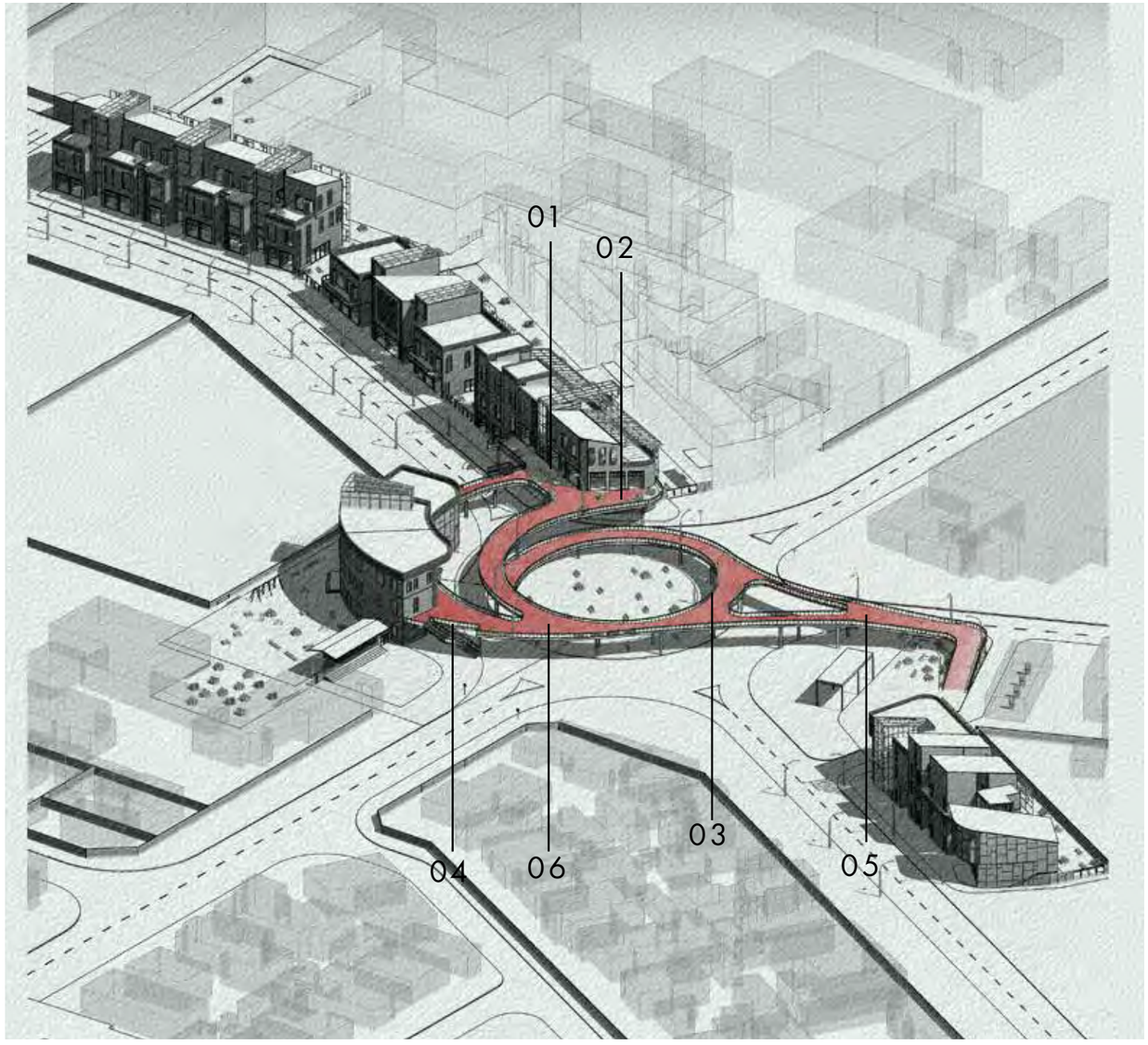
Walkway ramps down making it wheelchair and pram friendly for pedestrians in the area.

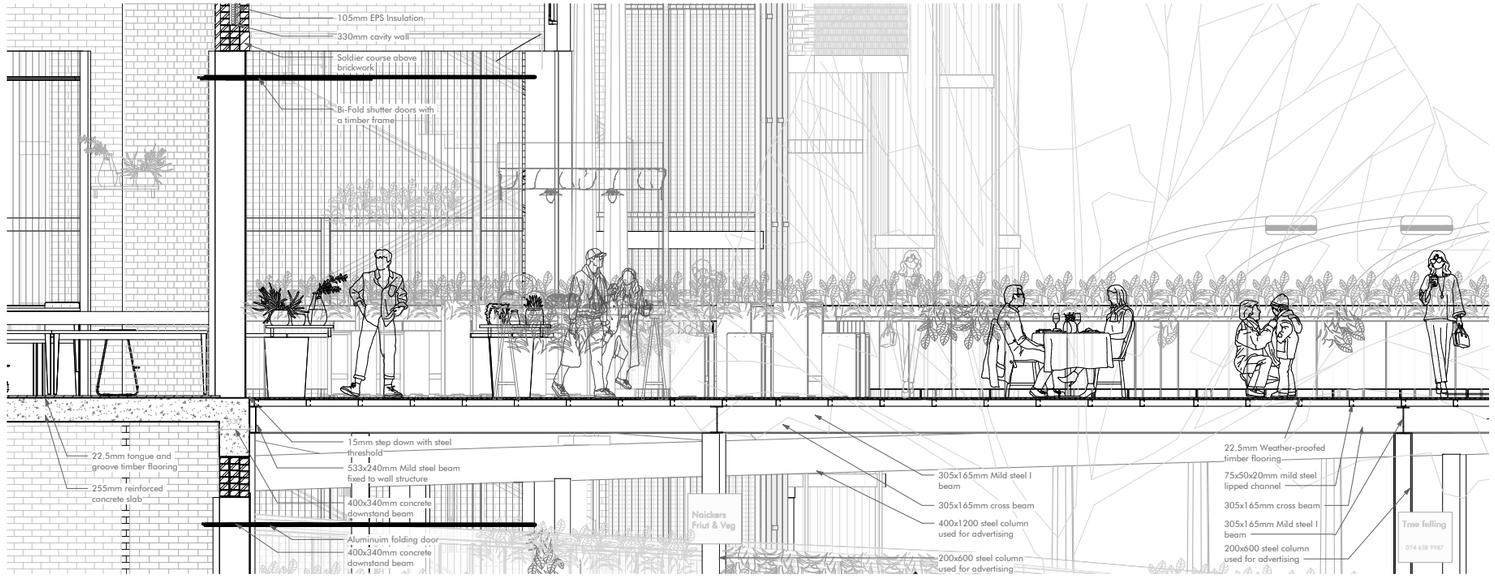
06

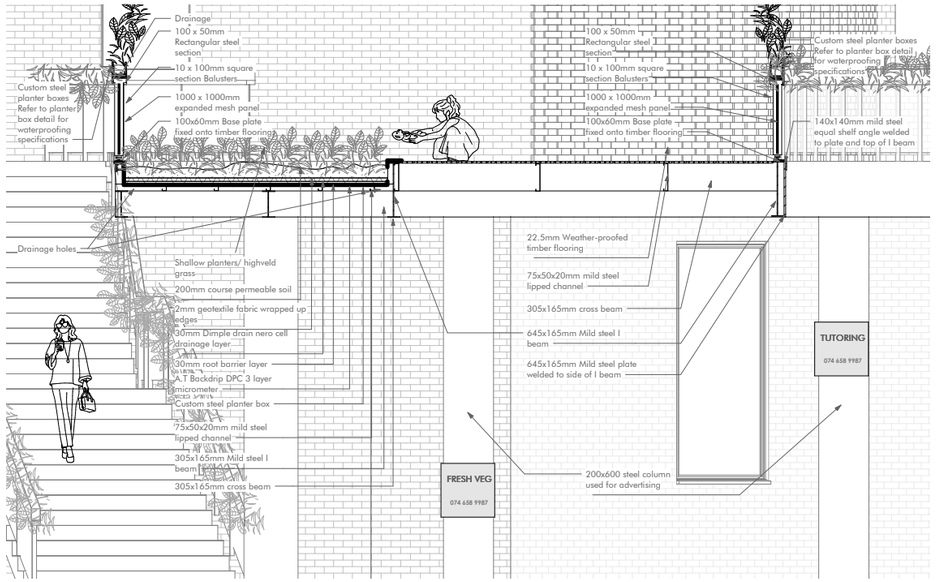


Raised park

Walkway additionally contributes to purifying area through the inclusion of indigenous plants.

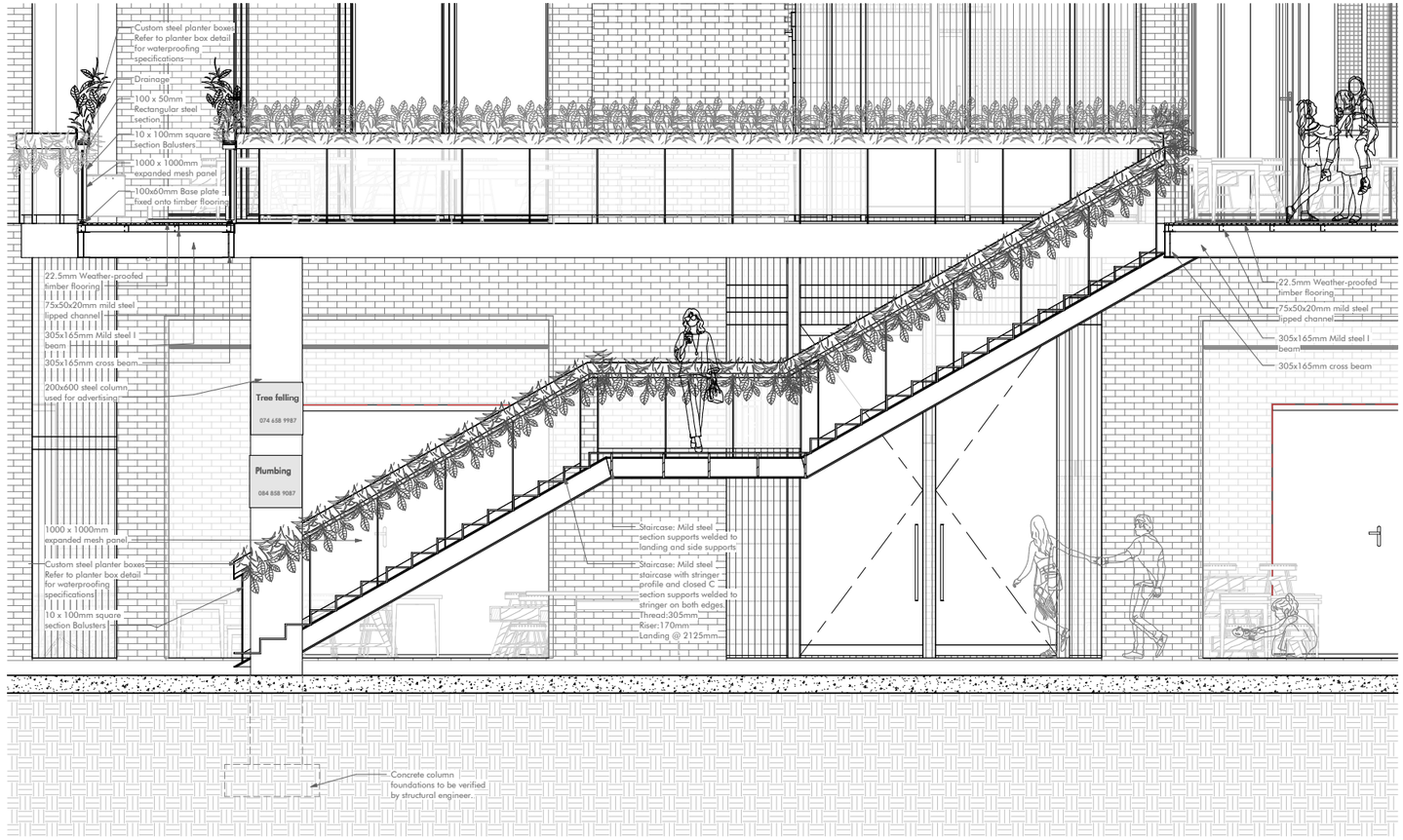




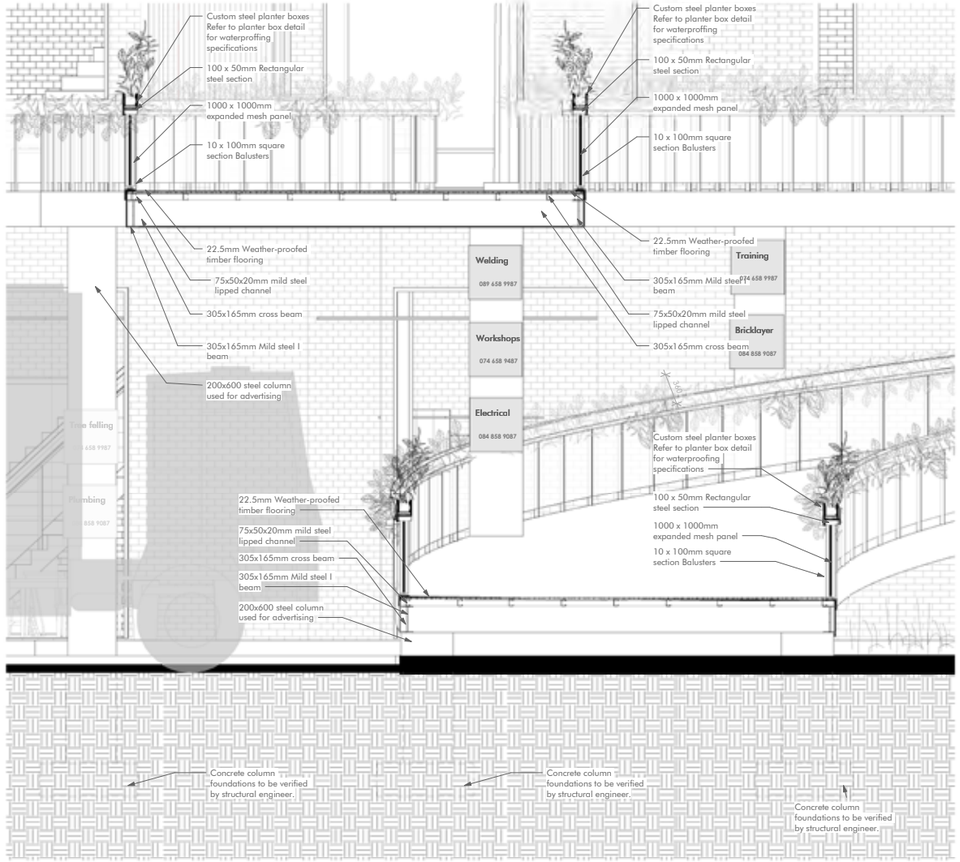


Creator's Court walkway cross section

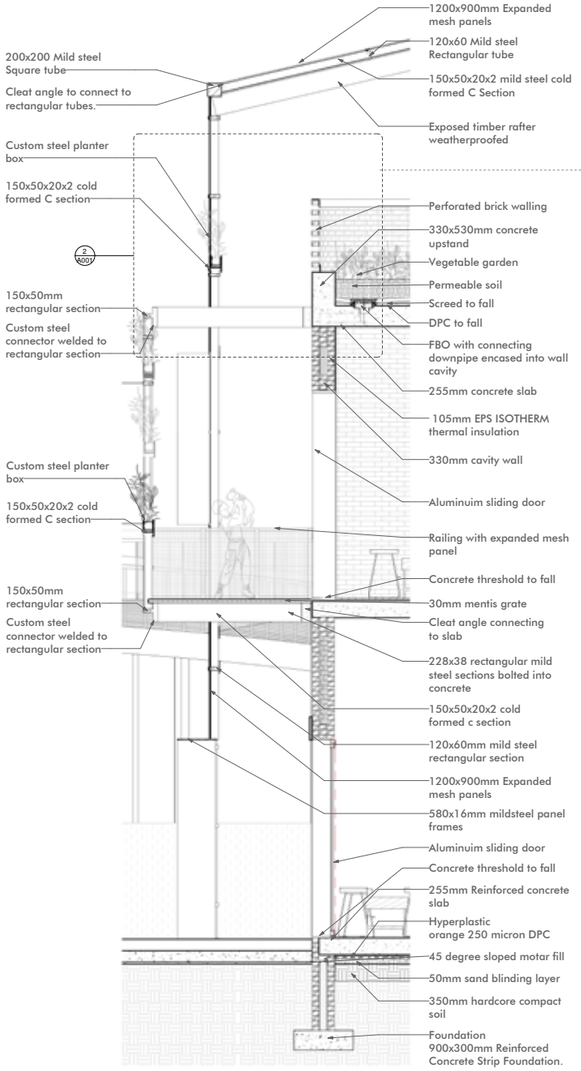
Planter walkway cross section



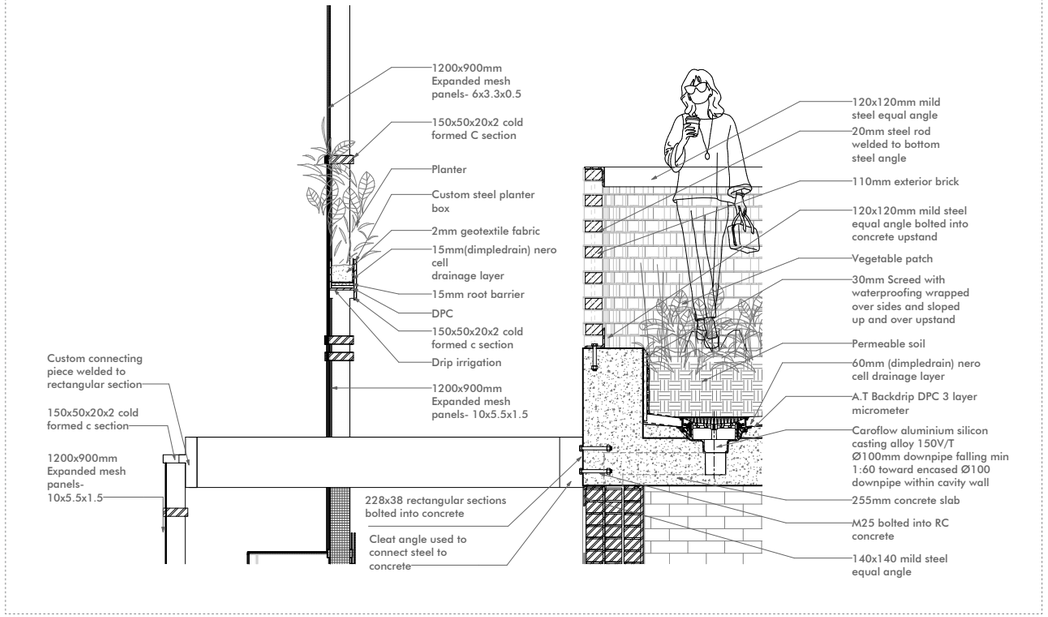
Stairway and walkway cross section



Ramping walkway cross section



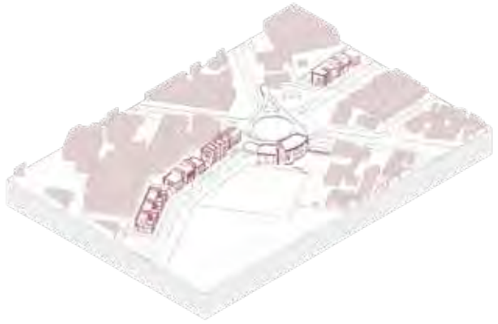
Creator's Court Screen-
Envelope connection



1m

Creators court Screen-
Detailing connection

urban





existing



adapted

threshold 01-Creators Court





existing



adapted

threshold 02-Care Centre





existing



adapted

threshold 03-Growth Hub





existing



adapted



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APPENDIX

APPENDIX A-
Viability Report

The following chapter contains a viability assessment for the project, this was done as part of anther course(ARPL 7002A). It provides the realization of the project into the real world. This is done through exploring the processes and consultants that would be involved in the project. The report was done in the early stages of conception and hence might not reflect some of the later refinements made. The project did not drastically change and is thus considered still viable in terms of its nature.

Executive Summary

The report will look at the viability and feasibility of a community centre that includes care, learning and job creation. The building caters to the pedestrians, users and community of Actonville, Benoni and the surrounding areas, as it is situated on a prominent road. The building will cater to everyday pedestrians such as workers, school children, entrepreneurs etc. The project is commissioned by the City of Ekurhuleni, as part of a precinct redevelopment of Actonville.

AIM

To prepare the viability and feasibility of the project from initiation to implementation. The report will serve as a framework to guide the project to realisation.

DISSECTION

The report will break into various sections to determine the viability of the project. It will begin with the brief, which will further be looked at through the client and the project. The client and project will be further looked at through sub-categories to assess the viability of the project.

The Brief

The project looks at improving and supporting existing infrastructure within the Actonville community. The precinct falls within the Gauteng Township Economy Revitalisation Strategy 2014-2019, which is to provide frameworks for uplifting the local and provincial economy. The project also aims to connect pedestrians, everyday users as well as the community through an adaptable building that can serve the communities changing needs as well as create a sustainable cycle within the area.

Program

The programme's nature is developed around existing frameworks and the deficiency within the community. This consists of early childhood care, learning, skills transfer, youth employment and business development. These include adaptable multi-functional spaces, for example, parking spaces that become Market spaces. This allows certain programmes to become flexible and adapt to the user's needs.

Market and Target users'

The socio-economic status of Actonville is based on the 2011 Census and is therefore being used as a basis for estimation.

The town is made up of approximately 12 729 people and about five people per household. The majority of Actonville is made up of the 15-34(4 518) age group, followed by 34-60(3 764) and 0-14(3 137) years with a small percentage of elderly (1 130). The project aims to alleviate crowding at home and is targeted at the three major age groups:

+ 0-14-Child-Development Centre and Information hub.
+ 15-34- Information hub, Business Development hub, Training Centre, Workshops.
+ 34-60- Market, Business Development hub, Workshops or volunteering.

There is approximately only 8% (1 018) of residents have completed tertiary education and an unemployment rate of approximately 37% (4 710). These are the target users for which further training facilities and job creation within the area and surrounding areas become necessary.

Refer to Appendix A-Unemployment statistics of Actonville and surrounding areas.

The Client

Commissioning agent

The project focuses on the upliftment and improvement of Actonville and the surrounding area's socio-economic gaps, it falls within the framework and guidelines of the precinct development. Therefore, it could further assist the Actonville-Wattville Railroad Reserve precinct project that is currently underway.

The CoE (City of Ekurhuleni) will be the commissioning agent, however, due to the project's civic nature and future sustainability, it will consider a joint collaboration. In which an NPC (Not for Profit Company) is required to be registered with the CIPC (Companies and Intellectual Properties Commission) in order to facilitate this initiative.

The NPC will be registered with SARS as a PBO (Public Benefit Organisation) which enables a tax deduction to donors, be it public or private entities. The NPC will also be registered as an NPO (Non-Profit Organisation) in order to apply for grants such as the Grant-in-Aid for Social Development for future expansion.

The NPC board will consist of directors, these board members would comprise of non-executive and executive directors. The non-executive directors would represent each of the stakeholders such as MerSETA (Manufacturing, Engineering and Related services Sector Education Training Association), Department of Planning, Department of Economics, CoE, and a representative from the community. The executive committee will be involved in the day-to-day strategic management. The NPC will permanently employ caretakers, facilitators and trainers, who will ensure maintenance, upkeep, and daily tasks.

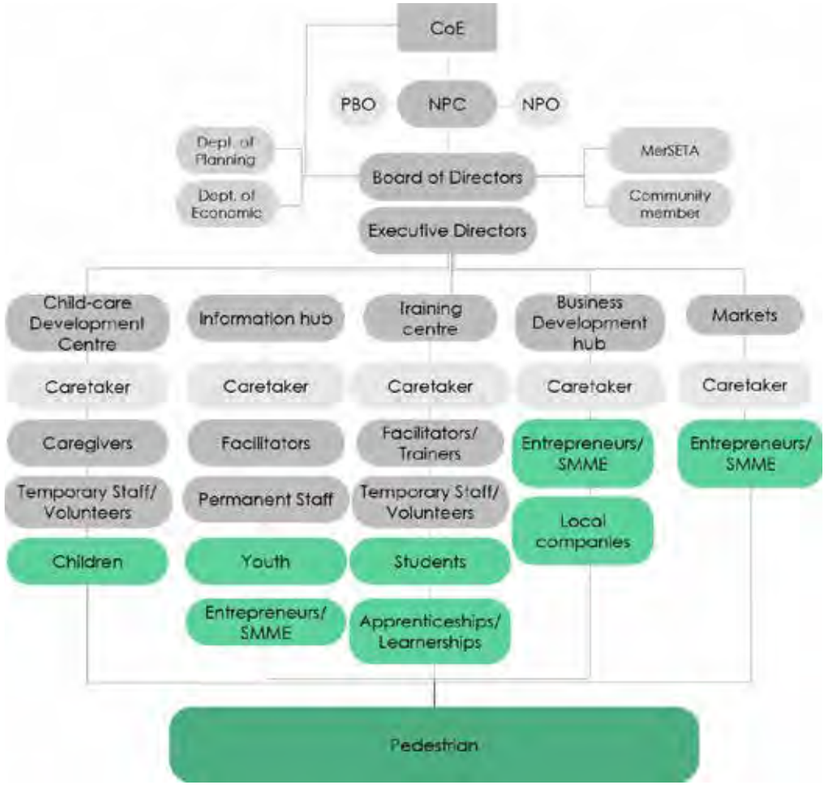


Fig 01 - Organogram of the organisation.*(Author,2022)*

The Project

Site

The site is located in Actonville, between an industrial and residential area. The site consists of three separate properties of which two form part of the road reserve. This is due to Reading Road and Lancaster Road forming part of the K-route for main motorways.
A Town Planner, with the help of an Attorney, would need to apply for a downgrade of the road with the Gauteng Department of Roads and Transportation.
Hypothetically, the roads would need to be downgraded from a K-Route to a Class 4 access road in order to decrease the size of the reserve and re-prioritise the pedestrian route. Assuming the roads are downgraded, the town planner would then need to apply for a re-zoning and sub-division of the reserve with new rights given.

Fig 02

Site 01-Corner Reading Road and Birmingham Road

	Permitted	Proposed	Complies
FAR (Floor Area Ratio)	1.2	0.8	yes
Coverage	50%	48%	yes
Use Zone	Institutional	Institutional	yes
Density	n/a	n/a	n/a
Height Zone	3	2	yes
Building Lines	3m&1.5m	3m&1.5m	yes
Parking Requirement	1.5/100m²	20	yes

Fig 03



Site 02 & 03- Road Reserve (Re-zoned & New rights)

	Permitted	Proposed	Complies
FAR (Floor Area Ratio)	1.2	1.0	yes
Coverage	50%	45%	yes
Use Zone	Institutional	Institutional	yes
Density	n/a	n/a	n/a
Height Zone	3	2	yes
Building Lines	16-30m	15m	With consent application

Fig 02 - Site zoning and rights.*(Author after CoJ,2022)*
Fig 03 - Site locations *(Author).*

Financial considerations

Land considerations

All three portions of land are currently owned by the municipality. A basic estimation of land value was done within the area. This included considerations of location, size, proximity and usage. The land measures up a total of 15 480m2 and is approximately valued at around R10.5 million. The Client (CoE) would cede the land for development, therefore affording a R10.5 million saving to the project. However, there will be additional costs for the land such as conveyancing fees, attorney fees as well as council fees. These processes might add additional time to the project timeline.
However, it is important to note that due to having three sites, the construction and labour costs may increase. The length of the construction site might also incur time delays which may impact the

cost of construction. Due to the building extending over the road, permits will be required for the construction/assembly process. This may incur other costs due to possible time delays.

Refer to Sub-Appendix B for Land estimations.

Construction Costs

Based on the AECOM Africa Property guide 2021-2022 an estimated construction cost of about R91 million is estimated as the project's cost of works based on Community centres (R10 000-R16 000/m2) and Administrative (R8 000/m2).

Refer to Appendix C for a breakdown of Construction costs.

Professional Fees

The architect is appointed for full services and professional fees will be calculated through Project-based guidelines, based on SACAP Board Notice 172 of 2021.
Primary fee+ Secondary fee x 9.36%
=R3 973 342,57+(R 91 011 000 - R40 000 001,00) x 9.36%
= R 5 146534.37

Other professional fees are calculated based on an estimated percentage.
Refer to Appendix D for the breakdown of Professional Fees.

Development Costs

The project is estimated to cost around R115 million rand, inclusive of land, construction and professional fees.

Refer to Appendix E for Development costs.

Funding

The project will consider a hybrid approach for funding, the majority of the land cost will be covered by the CoE. Additionally, the IDP (Integrated Development Plan) budget will further fund construction costs. The NPC will approach surrounding privately owned businesses as well as public companies listed on the JSE.



Fig 04 - Funding NPC. *(Author, 2022)*

CoE
The CoE will be the major funder, contributing the land of R10,5 million. Additionally, through the IDP budget, they could further provide R70 million for the project cost.

JSE (Johannesburg Stock Exchange) public companies
JSE Public companies compliancy stipulates, that these companies are required to implement a Corporate Social Investment policy as well as SED (Socio-Economic Development) which falls a part of the BBBEE Act of 2003 (Broad-Based Black Economic Empowerment). These companies are required to spend 1% of their net profit after tax on initiatives that are focused on developing previously disadvantaged communities such as Actonville. These project-specific initiatives will meet sector-specific requirements stipulated by the BBBEE Codes of Good practice. This is a motivating factor for public companies to effectively contribute their allocated budgets towards this initiative.

MerSETA (Manufacturing, Engineering and Related services Sector Education Training Association)
As part of the National Skills Development Plan (Act No. 97 of 1998) the Training Centre will develop unemployed youth to become skilled artisans in turn bridging the high unemployment gap in South Africa and focusing on scarce and critical skills.
This motivating factor allows the NPC to apply to MerSETA to be an integral stakeholder in this initiative. MerSETA may further contribute funds from the Skills Development Levies Act 9 of 1999 in order to grant the actual construction of the Training Centre. MerSETA can further sponsor apprenticeships and learnerships focusing on critical and core skills for the youth, which have completed Matric from the surrounding four High Schools.

Private Donors
Private donors in the surrounding areas are required to contribute to their Corporate Social Investment policy and SED (Socio-Economic Development) which is part of the BBBEE Act of 2003. They are required to contribute 3% of their net profit after tax on initiatives that are focused on developing SMMEs (Small, Medium and Micro Enterprises). This factor can motivate local businesses within the surrounding industrial area such as First National Battery, NOVO Energy, Idwala Industrial Minerals, David Brown Santasalo etc. can contribute to this initiative effectively and may equally benefit from this symbiotic relationship. This symbiotic relationship allows for apprenticeships/learnerships to pass through the Training Centre allowing them the opportunity to be employed, resulting in decreasing the unemployment rate in the community. These contributions can be further used to build the Business Development hub, SMMEs may use this space in order to conduct their business effectively and efficiently.

Construction industry-Construction companies that are BBBEE compliant may claim points through donating, offering discounts on materials or professional services as a part of their SED (Socio-Economic Development) contribution. Construction companies such as AFRICONSTRUCT, Gauteng Steel Structure, MATROLAB, Kwikbuild Cement etc.

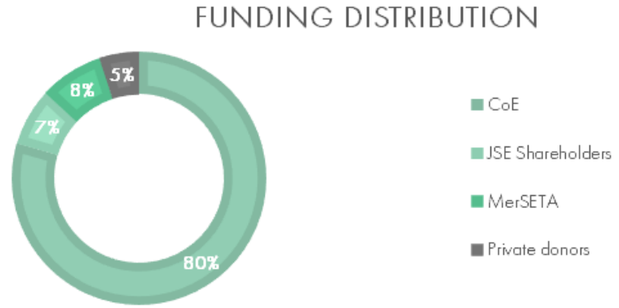


Fig 05 - Funding Distribution.
(Author, 2022)

Economic Considerations

The total cost of the project is estimated at around R88 million to build, of which 80% will be funded through the CoE. Once the project is built and gets occupied by users, there will be a steady monthly income that will cover its operational costs to ensure its future upkeep. All surplus money will be kept as part of the contingency reserve, in the case of unexpected costs. All incomes/contingency funds will go back into the NPC and be used accordingly, an accountant will manage the various accounts and payments.

Refer to Appendix G for Income and Expenses estimation.

Impact

The project's inclusion of expanding the existing Market and the inclusion of Workshop spaces in which craftsmen can sell their goods, provides a platform for entrepreneurship and small business development. These adaptable spaces will be rented out bringing an income to the building. This in turn would boost the local economy and aid job creation within the community. This would additionally improve property values that are currently on the decline in the area. The Business Development hub will allow SMMEs and entrepreneurs a space to network their business activities and engage with larger industry in the area which will result in a stronger supply cycle within its economy. The project includes an ecological aspect that aims to rehabilitate the contaminated landscape. It additionally intends to re-prioritise the pedestrian and encourage walkability and public transport in the area. In addition, improving the ecology of the area and lowering carbon emissions.

Social Sustainability

The project provides;

+ After-hour care for the young, together with volunteered retired teachers from the five surrounding schools to ensure skills transfer to the existing childcare givers via the Childcare Development Centre.
+ Information hub will provide youth with a platform for further learning, networking and sharing.
+ Encourages the youth to further learning and upskilling their competent proficiency via the Training Centre.

Provides a platform for entrepreneurship, business networking and opportunity via the Business Development Hub and Market.

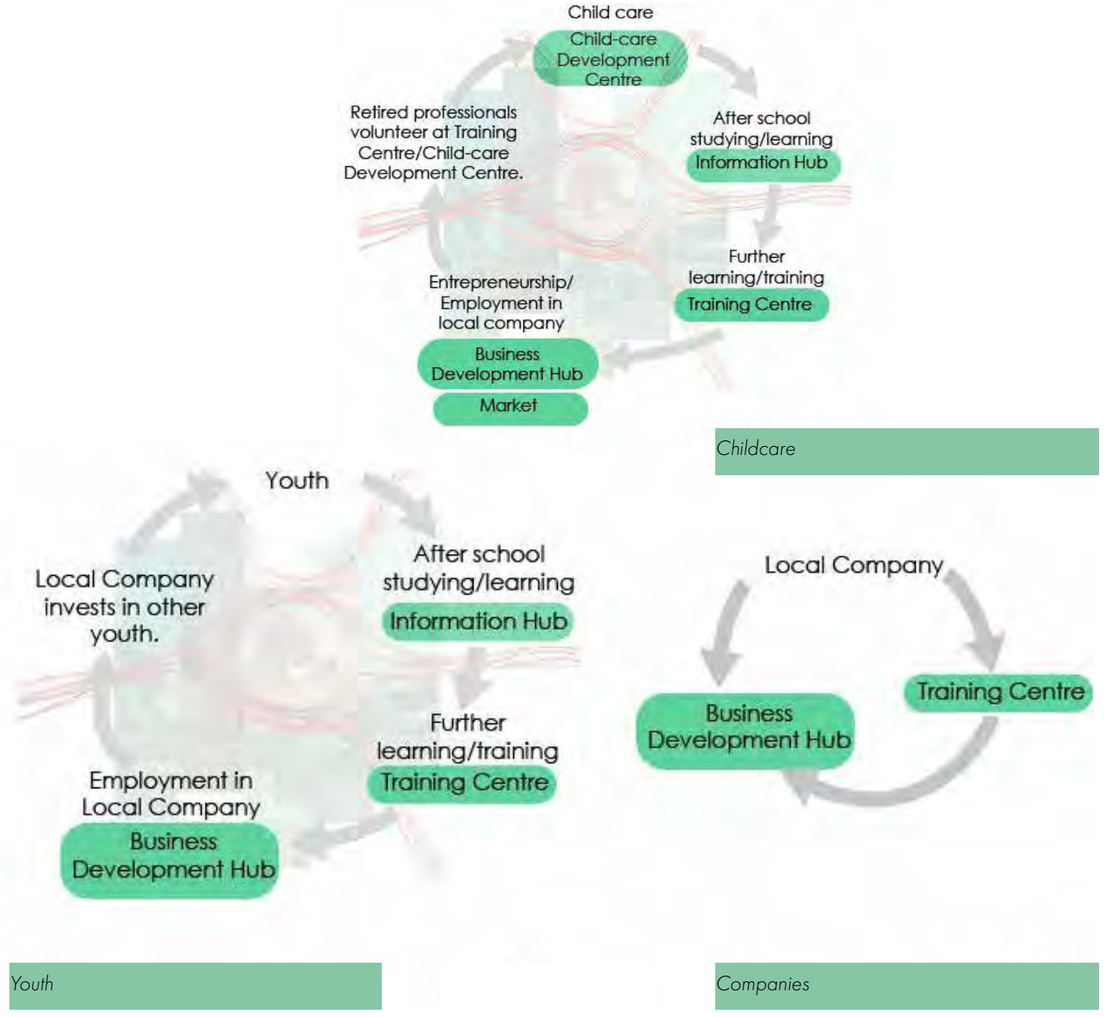


Fig 06 - User cycle in building program. *(Author, 2022)*

Flexibility

The building's design will incorporate elements within the design and planning that will allow for flexibility in use and design but also future adaptation. These includes flexible planning that is easily adaptable to various programmes or events and modular planning of markets, workshops and seminar rooms that can be expanded or contracted. This will enable the building to adapt to the community's needs.

Materials, construction methodology and sustainability

Due to the site being located between industrial and residential, the majority of materials will be sourced within a 10km radius of the site. This will save an approximate 30-40% of the cost, time and is a more sustainable option for the project. Due to less travelling it inadvertently lowers carbon emissions for delivery and supports local industries. It further supports the local industry by using existing contractors and sub-contractors which, in its initial phase will automatically create economic benefits for SMMEs. Refer to Appendix H for an estimated comparison and material source map.

The construction methodology will make use of local labour and continue to up-skill their current work skillset. Walkways and canopies will be manufactured within warehouses off-site, transported and assembled on-site, resulting in an increase of local procurement over various sectors.

The project aims to create a sustainable cycle within the building process as well as through its usage (tangible and intangible).



Fig 07 - Project sustainability. *(Author, 2022)*



Local materials-Sourced within 10km vicinity.
Local labour- A percentage of labour will be localised, thus decreasing unemployment.
Continual transfer- Continuous on-site learning will contribute to skills and knowledge.

Fig 08 - User cycle in building program. *(Author, 2022)*

Professional team

The professional team will consist of various specialists and professionals. These professionals will be contracted and consulted at various stages. As stated in SACAP (The South African Council for the Architectural Profession), the client(CoE) and Architect will sign an agreement which will take the form of a SAIA (South African Institute of Architects) contract. The client will sign a JBCC (Joint Building Contracts Committee) contract with the construction team and the principal agent. All consultants will sign a PROCSA (Professional Client / Consultant Services Agreements) agreement with the client.

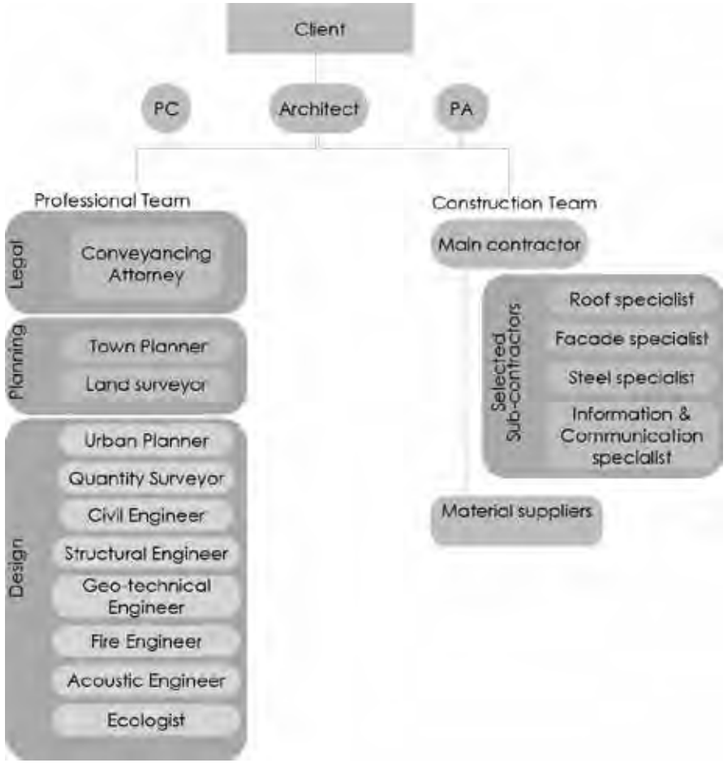


Fig 09 - User cycle in building program. *(Author, 2022)*

Legal- Professionals consulted during the inception stage (Work stage 1).

Conveyancer attorney- Attorney to manage the agreement of land use between CoE and NPC and will assist with road downgrade.

Planning-Professionals consulted during the inception stage (work stage 1).
Town Planner- To assist with the proclamation, re-zoning of the road reserve and
the sub-division of the sites.

Land surveyor- To assess the sites and provide SG (Surveyor-General) diagrams
with measurements and property boundaries.

Design-Professionals consulted during design development (Work stage 3).
Urban Planner- Due to the size of the project and the expansive nature of the project to connect to other green spaces and infrastructure in Actonville.

Quantity Surveyor-To assist in advisory of cost management, contract advisory, materials and consultants.

Civil Engineer-To assists with the design of walkways and canopies above the street in the project.
Structural Engineer-To assist with major structural components such as roofs and
walkways.

Geo-technical- To assist and surveyor with soil conditions due to oil dam situated nearby as well as industrial surroundings.

Acoustic engineer- To assist with the design of spaces that require noise reduction.

Fire Engineer- To assist with fire regulations and design of building in accordance with fire safety requirements.

Ecologist- To assist with the inclusion of plants and tree species that will assist with pollution and the re-introductory of certain insects for the rehabilitation of the environment.

Implementation

The initial stage once the NPC has been registered and has met statutory requirements to operate. It will appoint the required professionals mentioned above. It is then, crucial to make applications for the downgrading of the roads. It is assumed that if the downgrading of the roads is granted, the Town Planner can then apply for sub-division, re-zoning, and new rights.
The design stage will commence alongside the consultation of professionals listed above. The design will go through board approval and once the design has been finalised, it will be sent to the Quantity Surveyor. The Quantity Surveyor will assess the design and provide an accurate costing. Construction drawings will then be submitted and once approved construction may commence.
Construction will begin with the prepping of the three sites and the manufacturing of the pre-casted pieces of the walkway that will be done simultaneously. The assembly of walkways will be done first, in order to store the pre-casted pieces on the site rather than near the road. This can be done to avoid any congestion on the roads. The various sites will be used to store material and cause less inconvenience to road use. The building will be constructed in sections, due to the length and major road usage, building in sections will aid the process. Once construction is complete and the final completion is achieved, the building will be handed over to NPC and the caretaker. The caretakers will ensure the building, especially public walkways are properly maintained as to avoid major future upkeep costs.

Refer to Appendix I for implementation timeline.

Conclusion

In conclusion, the project prioritises community development and pedestrian activity through various forms of care, learning and employment opportunities within the community and local economy. The social driver enables financial and economic considerations that incorporate local companies and major stakeholders in government (CoE, SETA). The building bridges the gap between provincial and local, while creating sustainable developments in the community. The project shows how it can impact the community as well as sustain itself within Actonville. It depicts the social sustainability through various exchanges that are scarce and critical in the area.

Sub-Appendices

Sub-Appendix A - Unemployment statistics of Actonville and surrounding areas (GAPP Consortium 2019)

Employment status	Actonville	Surrounding Areas
Employed	32%	30%
Unemployed	12%	13%
Discouraged work-seeker	2%	4%
Other (not economically active)	23%	25%
Not applicable	31%	28%
TOTAL	100%	100%

Sub-Appendix B - Land evaluation estimations

Site	Size (m^2)	Cost estimation
Site 01	2 480 m^2	R4 500 000
Site 02	6 800 m^2	R3 000 000
Site 03	6 200 m^2	R3 000 000
TOTAL	15 480 m^2	R10 500 000

Sub-Appendix D - Professional Fees

Professional Fees	% Estimate	Cost
Architect	Project-based	5 146 534,37
Quantity Surveyor	5,5	R5 005 605,00
Engineers	15	R8 386 650,00
Consultants	5,5	R3 075 105,00
VAT	15	R8 386 650,00
TOTAL		R24 854 010,00

Sub-Appendix E -Development Costs

Project cost	
Land	R10 500 000,00
Construction	R91 011 000,00
Professional fees	R24 854 010,00
Total	R126 365 010,00
Land to develop	(R10 500 000,00)
Total cost	R115 865 010,00

Sub-Appendix F - Funding Breakdown

Organisation	Funding Distribution
CoE	R92 692 008,00
JSE Shareholders	R8 110 550,70
merSETA	R9 269 200,80
Private donors	R5 793 250,50
TOTAL	R115 865 010,00

Sub-Appendix C - Construction costs (AECOM Africa Property & Construction Cost Guide 2021/22 2021)

Programme	Size-m^2	Cost/m2	Net cost	Cost/Section	VAT	Percentage
Childcare	350	R14 000,00	R4 900 000,00			
Administrative	50	R8 000,00	R400 000,00			
		R22 000,00	R5 300 000,00	R5 300 000,00	R795 000,00	7%
Information centre/work-study	850	R16 000,00	R13 600 000,00			
Administrative	50	R8 000,00	R400 000,00			
		R24 000,00	R14 000 000,00	R14 000 000,00	R2 100 000,00	18%
Training Centre	900	R13 000,00	R11 700 000,00			
Administrative	100	R8 000,00	R800 000,00			
		R21 000,00	R12 500 000,00	R12 500 000,00	R1 875 000,00	16%
Workshop	940	R13 000,00	R12 220 000,00			
Administrative	140	R8 000,00	R1 120 000,00			
		R21 000,00	R13 340 000,00	R13 340 000,00	R2 001 000,00	17%
Market/Parking	2000	R1 000,00	R2 000 000,00			
Administrative	250	R8 000,00	R2 000 000,00			
		R9 000,00	R4 000 000,00	R4 000 000,00	R600 000,00	5%
Walkways	2500	R12 000,00	R30 000 000,00	R30 000 000,00	R4 500 000,00	38%
	8130	R109 000,00	R79 140 000,00	R49 140 000,00	R11 871 000,00	100%
				R91 011 000,00		

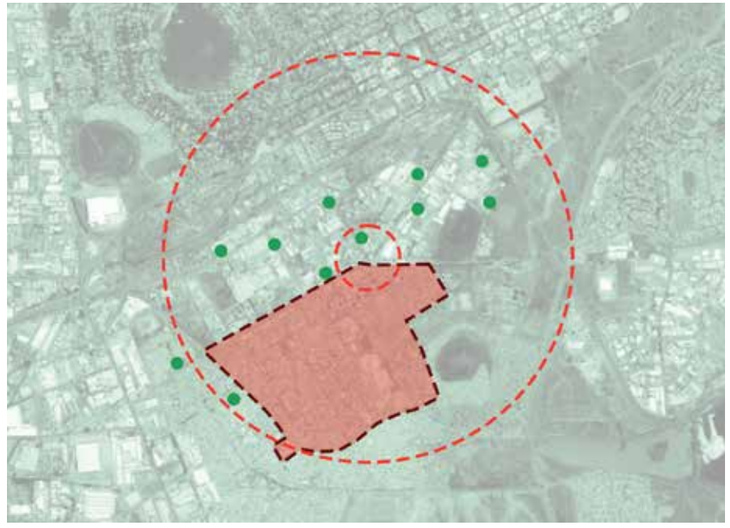
Sub-Appendix G- Income and Expenditure

Income	Leasable m^2	Qty/month	Cost/month	Total
Childcare	250	50	R500,00	R25 000,00
Information centre- Monthly pass	150	50	R200,00	R10 000,00
Seminar rooms rental	300	20	R6 000,00	R120 000,00
Training centres	1000	200	R3 000,00	R600 000,00
Workshop rental	1080	55	R1 500,00	R82 500,00
Living units	295	10	R2 500,00	R25 000,00
Market rental	2000	200	R1 000,00	R200 000,00
Cost/month				**R1 062 500,00**

Expenses	Cost/month
Salaries-childcare	R28 760,00
Supplies-childcare	R5 480,00
Salaries- information centre	R23 500,00
Supplies	R3 450,00
Services	R8 790,00
Salaries- study centre	R15 230,00
Salaries -reception	R10 650,00
Salary- caretaker	R15 260,00
Services & supplies-training centre	R126 530,00
Services -Market	R269 540,00
Maintenance	R53 300,00
Utilities	R252 460,00
TOTAL/month	**R812 950,00**
TOTAL/annum	**R9 755 400,00**

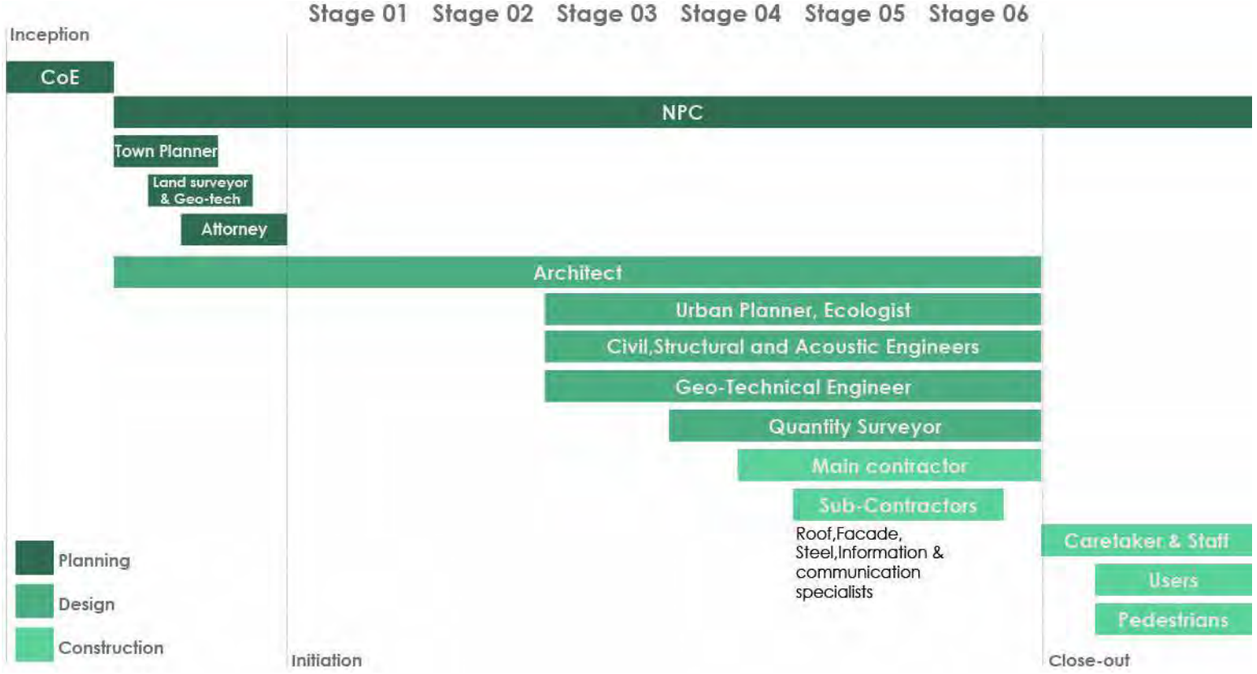
Sub-Appendix H- Local vs General Estimation

Material used	Local cost/unit	General estimation/unit
Bricks	R3,00	R8,00
Sand	R1 800,00	R2 900,00
Cement	R80,00	R110,00
Steel	R25,00	R28,00
Glass	R300,00	R500,00
Aluminium	R12,00	R15,00
TOTAL	**R2 220,00**	**R3 561,00**



Local companies
Aleef hardware & Plumbing
Build it DTM
East Rand Boards
Plywood Master
1D Steels
Atlas Engineering
Phepha Recycling
Benoni Brick Works

Sub-Appendix I- Timeline of implementation stages



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Consultants

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APPENDIX B-
Ethics

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG | SCHOOL OF ARCHITECTURE PLANNING

13 June 2022

Faculty of Engineering and the Built Environment:

Ethics clearance letter:

Dear Sivaania Naidoo

Student number (1609105), this letter confirms that your ethics application has been cleared. Your clearance/protocol number: SOAP025/03/2022

Yours sincerely

Lerato Nkosi

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timeless thresholds.

Adaptive Interchanges Supporting Pedestrian Life In Actonville.

Sivaania Naidoo
1609105