

THE BATTERED WOMAN CALLED
 EERSTERUST: Exploring Thresholds
 Through Urban Regeneration and The
 Re-adaptation of Religious Buildings.

by Nikola Marianne Redelinghuys
 2021

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Client: The City of Tshwane, Department of social development,

Vodacom foundation, Victim empowerment programme.

Research field: Heritage and Cultural landscapes

DECLARATION:

In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses, I declare that this dissertation which I hereby submit for the degree Master of Architecture (Professional) at the University of Pretoria, is my own work and has not been previously by me for a degree at this or any other institution. I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma or other qualification.

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

Nikola Marianne Redelinghuys

2021

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2. I declare that thismini dissertation..... is my own original work. Where other people's work has been used (either from a printed source, Internet or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.

N.M.R

29/10/2021

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DATE

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for their unwavering support, love and opportunities they have provided me with.

Jannus and Jean-Mari Redelinghuys

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United Studio Student Republic, architecture friends far and wide

for hard work, the late nights together, camaraderie and thought provoking chats, without these people I would not have come this far. You have enriched my studies and I will forever cherish the friendships made within the studio walls.

My heavenly father:

without whom this all would not be possible.

ABSTRACT:

In post apartheid South Africa, an attempt to develop the influential church typology has been made on a micro scale, but within the community of Eersterust, the building has stayed frozen in time, not allowing the role of the church to extend to help this poverty stricken community in need.

Safe spaces have become scarce within this community and the issue of gender based violence has escalated. The church complex has the capability to become a catalyst and a refuge for the abandoned nature and gender based violence victims.

The vast cluster of churches developed within this community has the infrastructure and community in the form of congregations to uplift the community and create opportunities for the overlooked inhabitants.

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PART 1

CHAPTER 1

- 1.1_ Introduction and background
- 1.2_ Situating the problem
 - General issue
 - Urban issue
 - Architectural issue
- 1.3_ Urban development scheme
- 1.4_ Intentions/ outlining the brief
- 1.5_ Site choice
- 1.6_ Methodology
- 1.7_ Theoretical framework
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INTRODUCTION AND BACKGROUND:

In Eersterust, approximately 500 churches can be found, with a ratio of 1 church for every 50 people. The churches vary in size and permanence. This phenomenon is prevalent within surrounding communities such as Diepsloot and Mamelodi and even manifested in other provinces, such as the Western Cape (Mitchells Plain and Khayelitsha). The communities comprising of this phenomenon have something in common, their origin took place within the period of the apartheid city planning, which allowed for spatial injustice and inequality (Stals 1998:4).

Religious buildings were only built by the reigning apartheid government within the predominant white areas (De Wit & Theron 2010:7), mainly excluding communities such as Eersterust, Diepsloot and Mamelodi, leaving the responsibility of constructing religious buildings to the communities themselves (De Wit & Theron 2010:7). Resulting in a more modest building style, if any, and a larger variety of denominations to feed the abundant religious identities evident within the community.

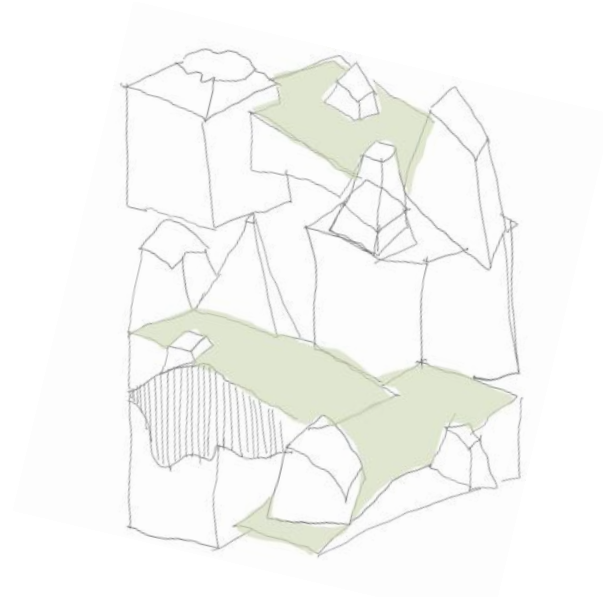


Figure 1: Construction of churches in Eersterust by Author 2021

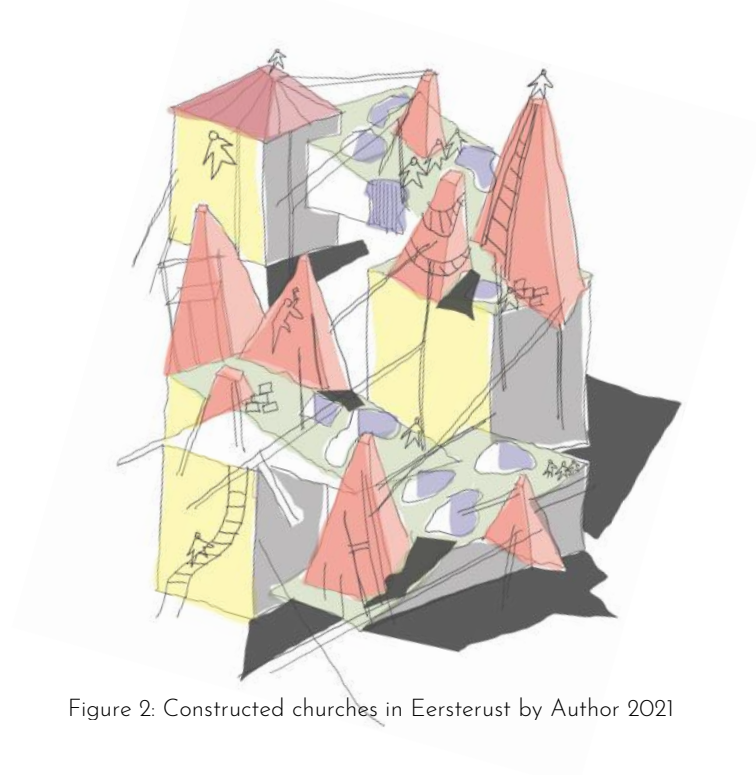


Figure 2: Constructed churches in Eersterust by Author 2021



Figure 3: Churches in Eersterust by Author 2021

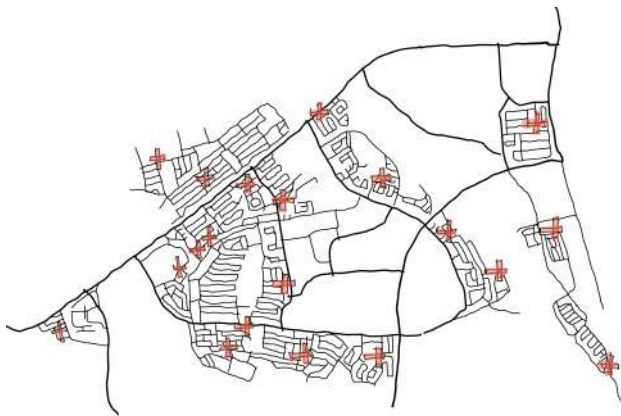


Figure 4: Churches in Mamelodi by Author 2021



Figure 5: Churches in Diepsloot by Author 2021



Figure 6: Churches in Atteridgeville by Author 2021



Figure 7: Churches in Khayelitsha by Author 2021

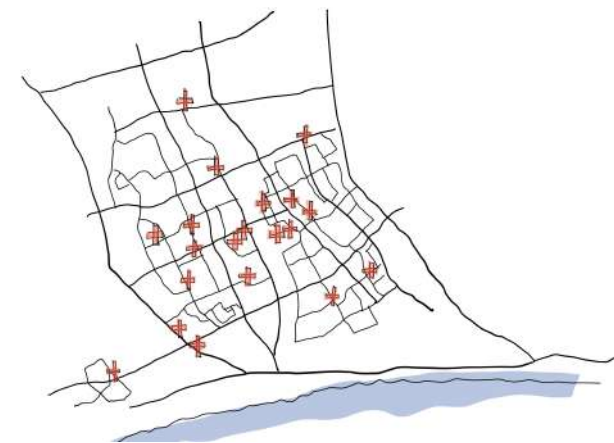


Figure 8: Churches in Mitchells Plain by Author 2021

SITUATING THE PROBLEM:

Eersterust was rezoned in 1958 due to the Group Areas Act of 1950, to become a “Coloured area”, this entailed forcibly removing residents from the area who do not fit the criteria as well as forcing people living within different suburbs of Pretoria, who fit this criteria to relocate. To this day the community is predominantly “Coloured” (Potgieter 2004:46 & Van der Walt 1966:33). Eersterust was set out on the farm Vlakfontein, in the early 1900’s by B & IHJ Wolmarans (Potgieter, 2002:32 & Van der Walt, 1966:32).

Eersterust formed part of the City Council of Pretoria in 1994 and by the year 2000 it formed part of the City of Tshwane Metropolitan Municipality (Potgieter 2004:46).

The origin of the suburbs name is uncertain, translated from Afrikaans it means “first rest”. Theories about the origin of the name is that after the siege of Pretoria, the Boer troops rested here (Van der Walt 1966), or that mail coaches rested here on their way to Lydenburg (Potgieter 2004: 46). The last theory entails that the Farm owners of Vlakfontein wanted the “Coloured community” to have a permanent place of main residency (Potgieter 2004: 46).

Gender based violence (gbv) is an underlying problem in Eersterust, the neighbouring suburb of Mamelodi East is a hotspot which spills over into the suburb of Eersterust (Stats online 2020). Unsafe spaces are found in open lots and parks, they are undesigned and abandoned, resulting in a fractured ecology. This becomes a nesting ground for illegal trade, theft and various crimes. Due to the Covid-19 pandemic the amount of homeless people has increased, resulting in an informal settlement, located at the western side of Eersterust. In addition to this, the amount of backyard dwellers grew, a phenomenon found within the community, where backyard rooms are rented out on a monthly basis at astronomically high prices.

Barriers within Eersterust:

Stark barriers can be seen within the community, this is done for an attempt of safety, but rather the street edge becomes unsafe and the amount of safe gathering spaces becomes even less.



Figure 9: Collage of Eersterust by Author 2021



Figure 10: Collage of Eersterust by Author 2021

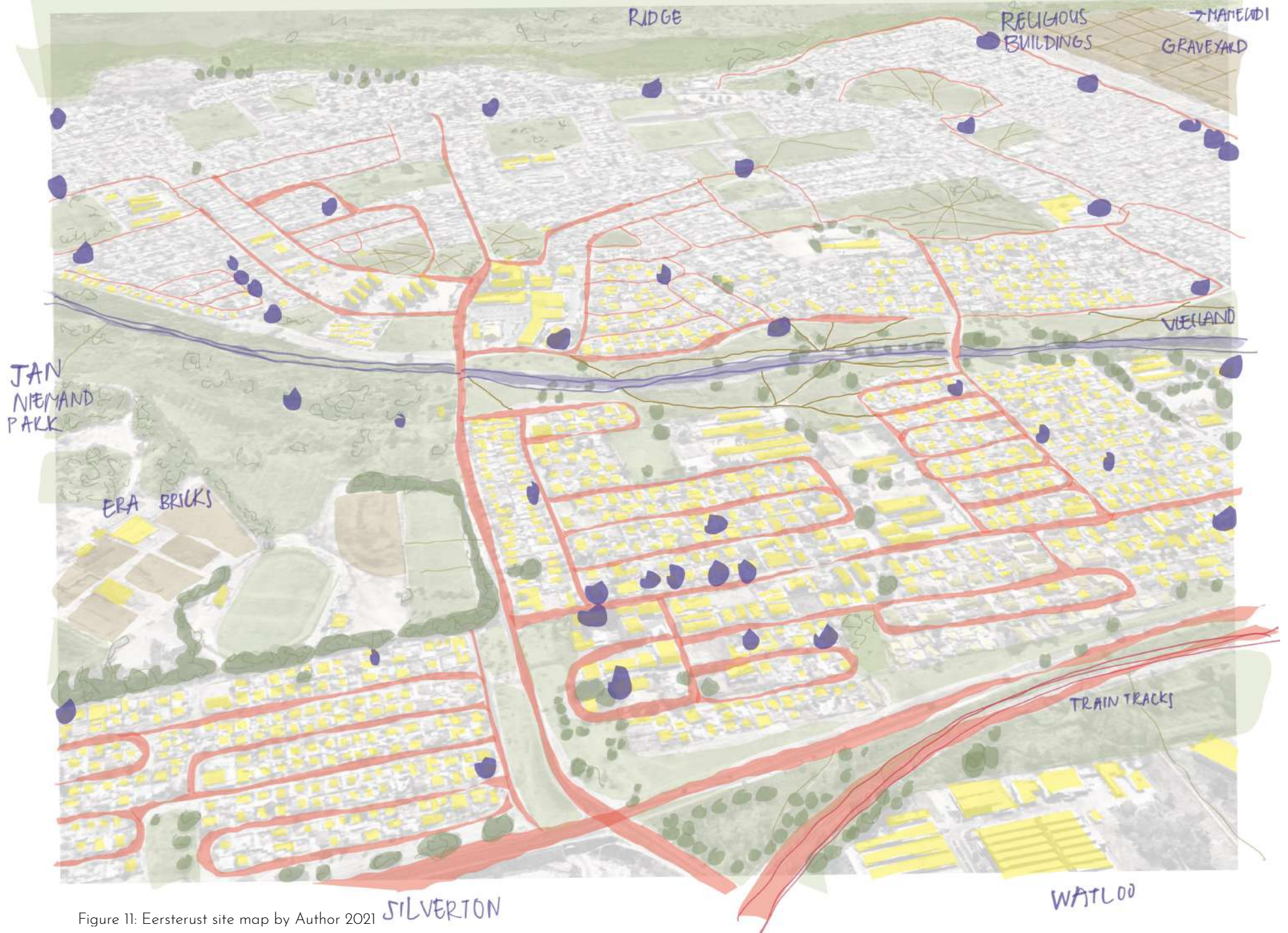


Figure 11: Eersterust site map by Author 2021

SILVERTON

Within the socio-political climate of South Africa, violence has escalated. It is now “a country at war with itself” (Altbeker 2007) and the phenomenon of gender based violence has become an epidemic, evident through domestic violence, rape, sexual assault, sexual harassment or the murder of intimate partners. The perpetrators are mainly men.

The post-apartheid democracy developed the Domestic Violence Act (No. 32 of 2007) to protect groups such as woman and children or other vulnerable groups who were historically discriminated against due to a background of inequality (Nadvi & Naidoo 2013: 143). The act however focusses on justice for victims and punishment for the perpetrators, emitting to the actual cause which is the unjust behaviour. Within the demographic of South Africa and the astronomically high crime rates, poor prosecution rates arise. Due to these low rates domestic violence becomes one of the ‘safest crimes’ to commit within the country (Nadvi & Naidoo 2013: 145). Mamelodi is a hotspot for gender based violence within South Africa (the neighbouring community of Eersterust), this has spilt through to Eersterust. The route of the behaviour must be addressed in order to lower the statistics.

Traditional power relations place the man at the head of the household and at the head of the church. The community of Eersterust and the

church are indistinguishable. By placing woman on a lower ranking order than men, the chance for abuse is bigger as one party is seen to have more value than the other.

Khnesani de Klerk depicts the role of woman within the profession of architecture on her website Matri-archi (2017) (see figure 12), with the help of a scene on a beach. The white men are placed on the sand overlooking the vista, followed by black men with wet feet, who to the white men look perfectly fine, but are stuck halfway in the ocean on their way out. The white woman are gasping for air as the ocean becomes deeper, while the black woman are drowning and swimming for dear life. At the bottom of the ocean, decomposing, lies the imbalances causing the scenario that is played out.

Discrimination against woman in the church and at home can be represented similarly by placing the toxic patriarchal system next to the dead fish, polluting the ocean/ community, the woman in the sea, the men on the beach and the home as an umbrella which creates a veil shielding the view of the drowning woman and hiding her battered body. Finally the church is represented by a lifeguard, who can be on or off duty.

The children are placed in the wake of it all.

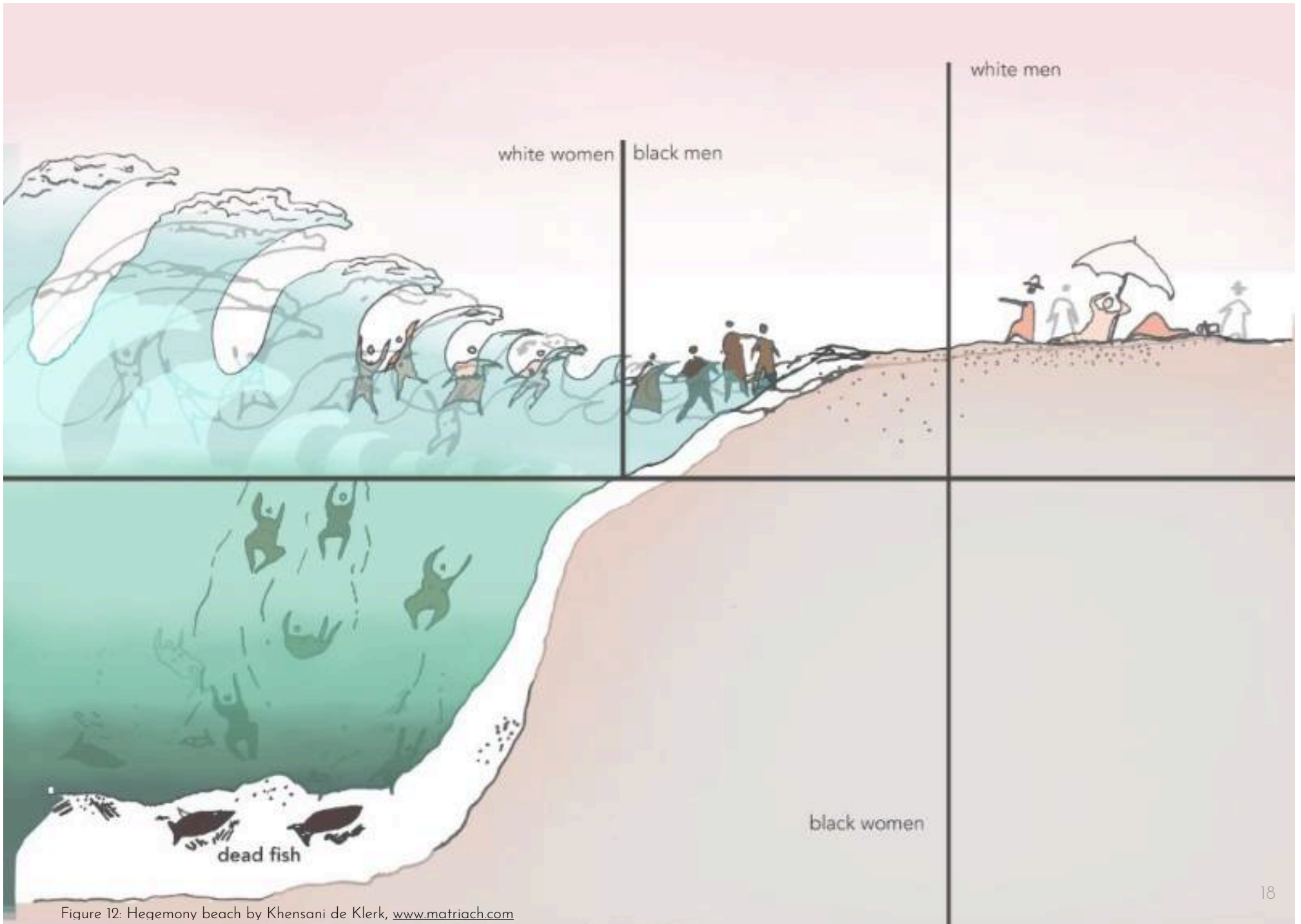


Figure 12: Hegemony beach by Khensani de Klerk, www.matriach.com

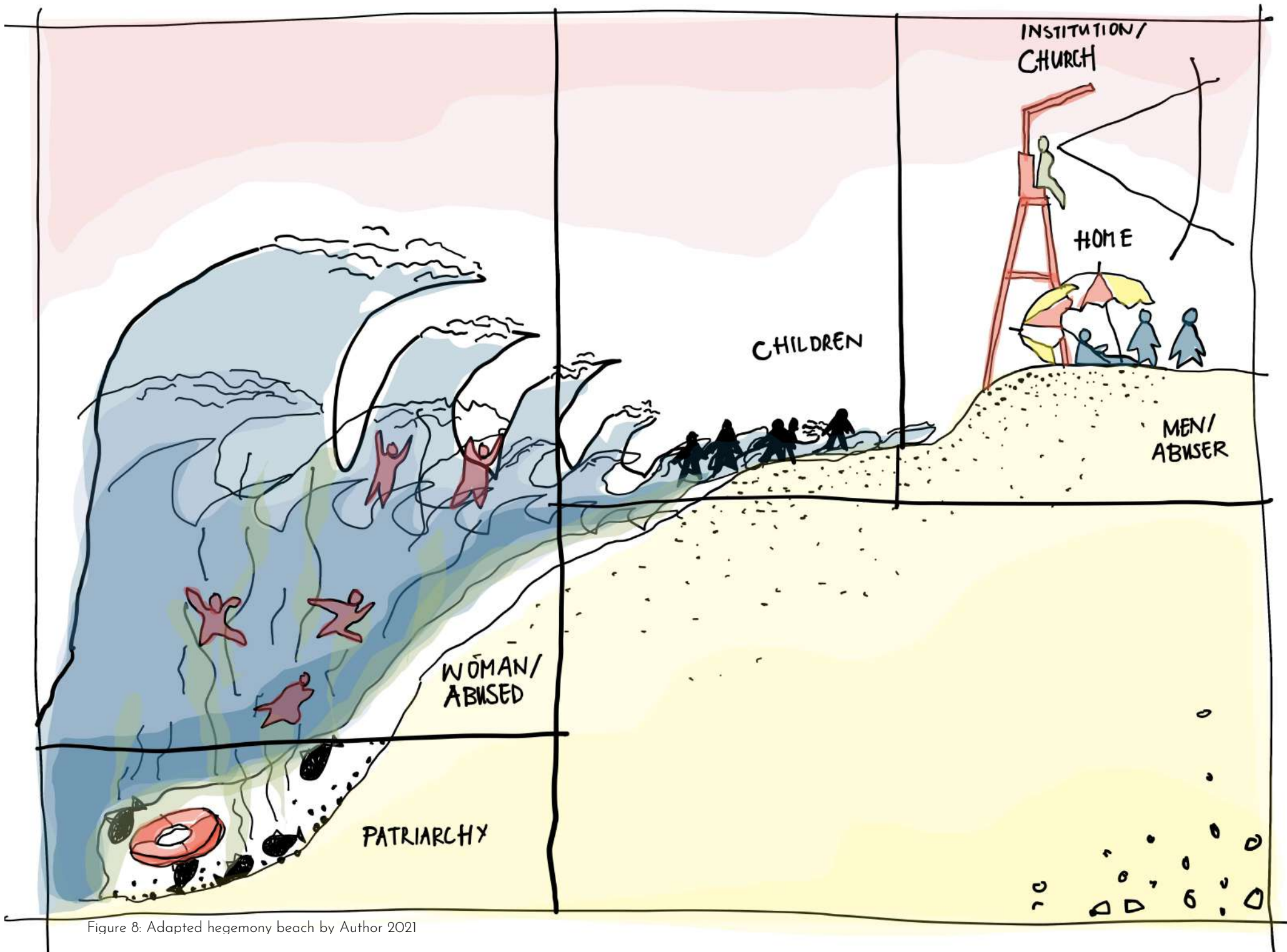


Figure 8: Adapted hegemony beach by Author 2021

Remnants of the apartheid city planning can be seen through the vast amount of churches within the community. Afrikaner nationalism was used largely to develop Pretoria with the church built in the heart of the city as the centre of trade and education, with roads aligning to this nucleus (Fisher 1998). Within Eersterust, the churches are not aligned with the infrastructure such as streets as the church was built on a palimpsest and not a tabula rasa. Spatial inequality is prevalent due to buffer zones.

Patterns of fragmentation and displacement are apparent within the urban edges of post apartheid environments (Stals 1998:4). Informal settlements/ apartheid developments in the form of 'large dormitory townships' (Todes 2003:109 in Nel 2010:3) kept the power relations of hierarchal governing bodies dominant.

A natural buffer zone in the form of a ridge can be found to the northern side of the suburb. A buffer zone compiled out of a graveyard to the east, separating Mamelodi and Eersterust and an industrial buffer zone separating Silverton and Eersterust with the help of large access roads and a train station. Towards the Western side the abandoned industrial ERA brick works factory, creates a harsh edge condition. Within Eersterust itself a layer of disconnect can be seen between the north and south. The

Rietspruit river forms the barrier between parts of high and low income, the latter being more prevalent in the south.

Silver was found on the farm Koedoespoort, 11km east of Pretoria, but did not last long as the silver reserves were quickly exhausted. This sparked the promise for industry and trade and became the birth place of Silverton (Pansegrouw 2013:30).

The owner of the farm Derdepoort, started manufacturing bricks with top-quality clay, located on his farm (Van Dijkhorst 2013 in Pansegrouw 2013:32), creating a client base and a demand for bricks. In 1980 Rosema & Klaver bought the thriving company and Era Bricks was founded (Pansegrouw 2013:32). The production was changed to a coal-driven process and became too expensive to sustain. Eventually an application was made to decommission the unsustainable production site (Pansegrouw 2013:32).

The ERA brick works factory shows the disconnect and estrangement between man and the industrial. The decommissioned industrial site leaves scars of erosion on the ecology and an abolition of work opportunities.

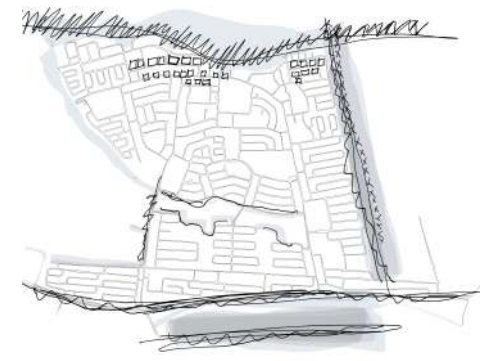
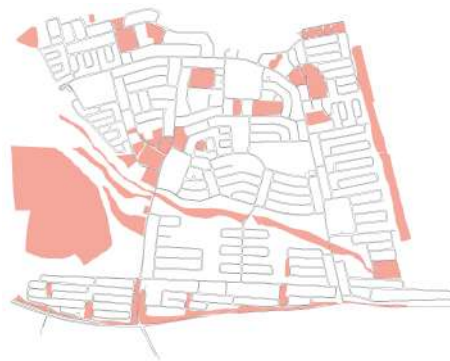
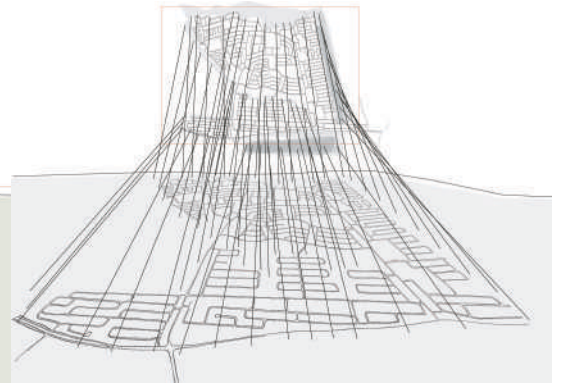
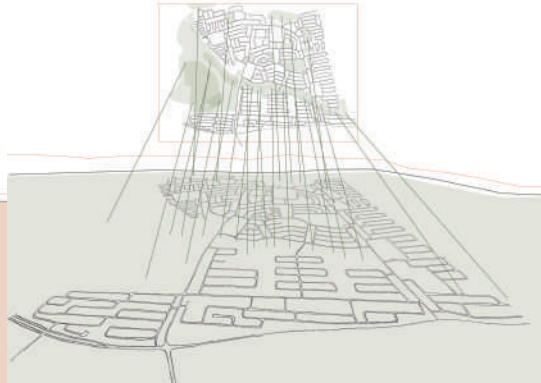
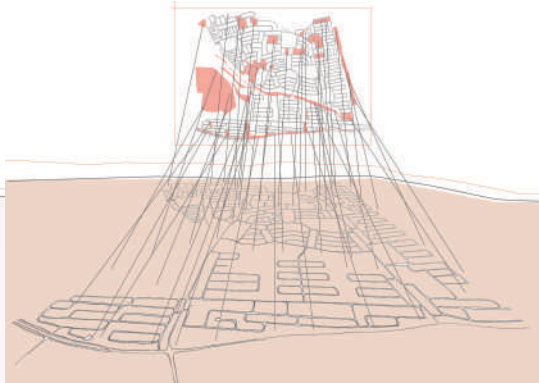
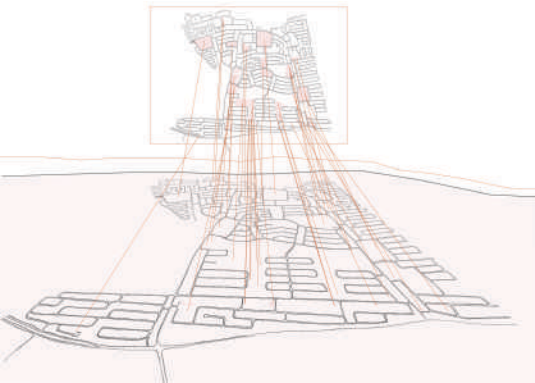


Figure 15: Safe spaces by Author 2021

Figure 16: Unsafe spaces by Author 2021

Figure 17: Fractured nature by Author 2021

Figure 18: Boundaries/ buffer zones by Author 2021

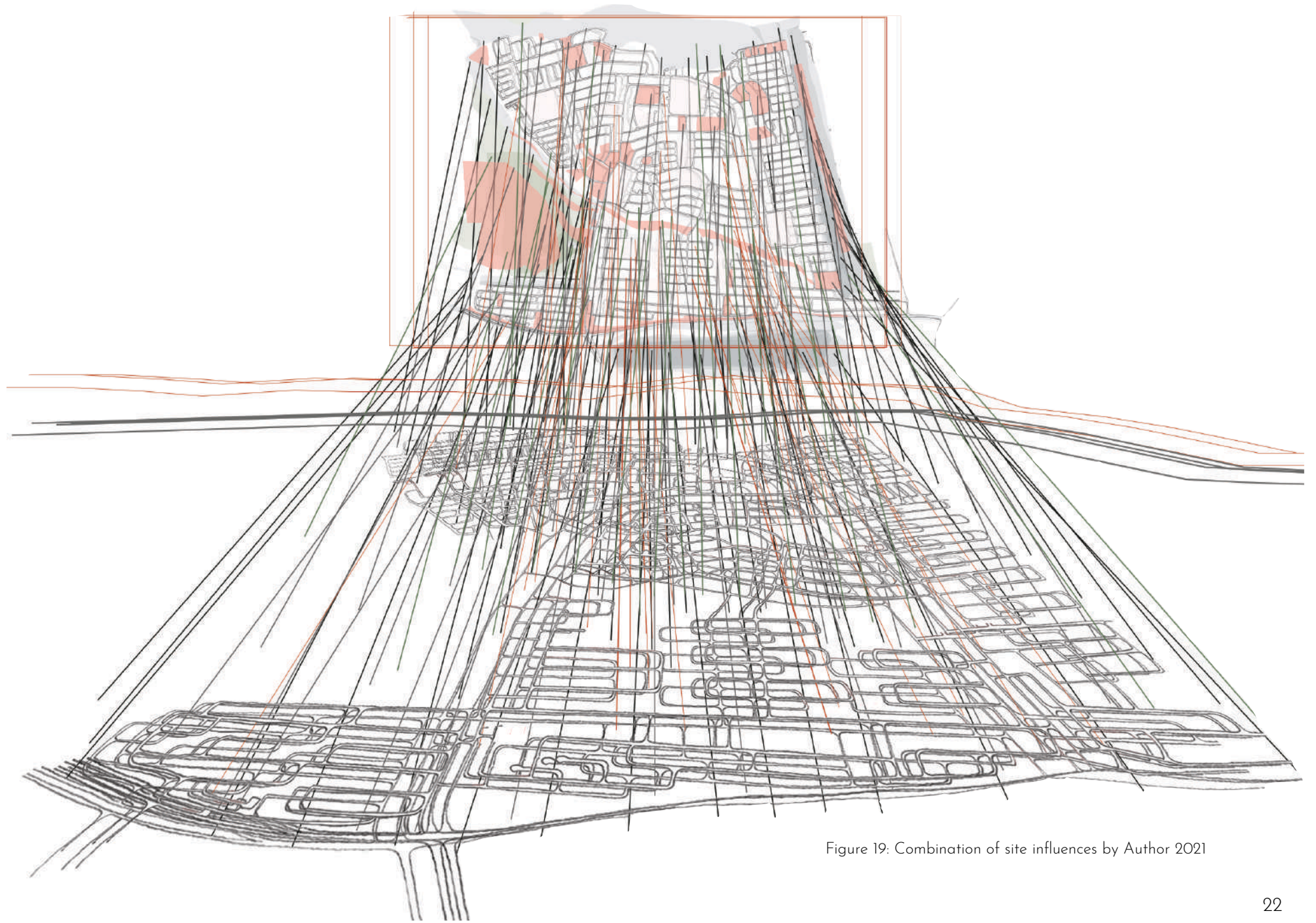


Figure 19: Combination of site influences by Author 2021

ARCHITECTURAL ISSUE:

The abundance of churches within Eersterust becomes ironic when the layers of problems within the community start to present themselves. The lack of identity due to being pushed aside during the apartheid era and being forgotten post apartheid has taken a toll on Eersterust as well as the inhabitants. This can be seen through a lack of social housing leading towards a new and developing informal settlement aiding in poverty, pollution, theft and gender based violence (gbv). Existing infrastructure is available within the churches that are predominantly used on Sundays.

The church can be used to intervene in the problems raised above and become more than just a religious building, it can aid in creating a safe space useable during the week, rather than just being used during weekends. Within Eersterust, identity is searched for and related to the church, but as the building becomes isolated, identity too becomes isolated and left within this space. How can this identity be found or evolved when the building typology has made limited room for change. Institutionalised buildings such as schools and churches use the same typologies frozen in time. Schools built within the Apartheids era did not consist of school halls, the same principles developed during apartheid are still prevalent within the church complex, therefore a need for intervention occurs. The community of Eersterust calls for a decolonisation of the church complex to create a building addressing the current needs.



Figure 20: New informal settlement by Author 2021

URBAN DEVELOPMENT SCHEME:

The National Development Plan; Vision for 2030:2014 for Region 6 (Eersterust is located within this region), states the principles that are focussed on (City of Tshwane 2018:5):

Spatial justice: Public resources unfairly distributed can be changed through densification. “Transparent networks are seen as the key to spatial transformation”.

Spatial sustainability: By creating “walkable neighbourhoods” to aid sustainability within the urban fabric.

Spatial resilience: Environmental sustainability should be the goal, by protecting the existing ecology and restoring the fractured.

Spatial quality: “To create more liveable vibrant and valued places” by improving the functional and aesthetic properties of the built fabric.

Spatial efficiency: “Job creation must be supported” by obtaining or adding potential through development.

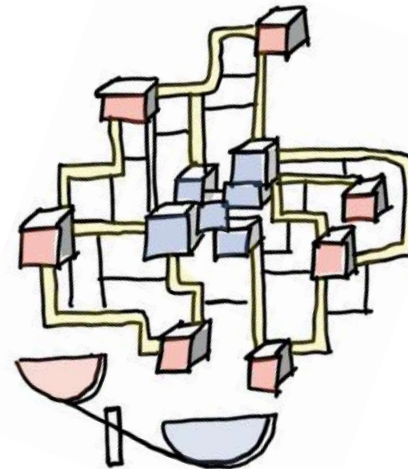


Figure 20: Spatial justice by Author 2021

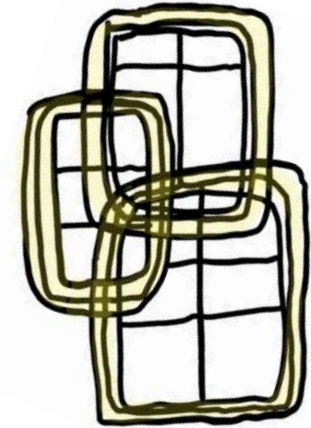


Figure 21: Spatial sustainability by Author 2021

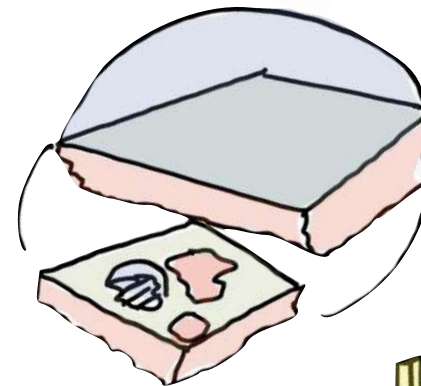


Figure 22: Spatial resilience by Author 2021

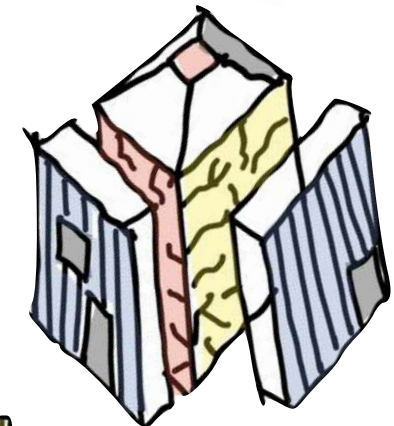


Figure 23: Spatial quality by Author 2021

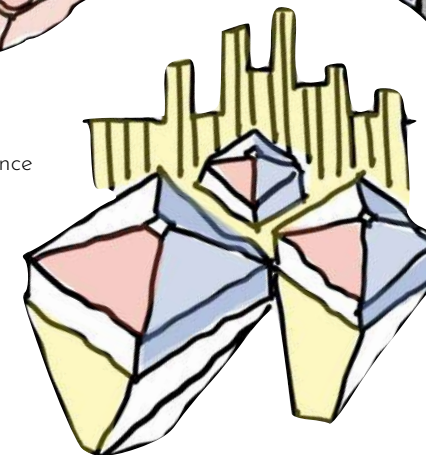


Figure 24: Spatial efficiency by Author 2021

INTENTIONS/ OUTLINING THE BRIEF:

"Since today's religious buildings get used more than one day a week, the architect is prompted to design his program with the day-to-day needs of the community in mind... an emphasis on secular and religious functions of the community ensures that the building will be used, that the neighbourhood is aware of its usefulness, and in a way, guarantees the longevity of the building itself... we know these buildings are serving their communities to the maximum capacity." (Thompson 1979:ix in Nel 2010:5).

To create a space of refuge and ritual within the urban edge, creating a building that is a catalyst, providing social services for community upliftment and empowerment using the existing Christian churches located within the suburb by adapting them to be more relevant within this community of need.

By creating a multi-nodal, polycentric community of adapted churches to enrich the lives of the inhabitants through a acupuncture system, many needs can be fulfilled, densifying the community.

Client: The City of Tshwane, Department of social development, Vodacom foundation, Victim empowerment programme.

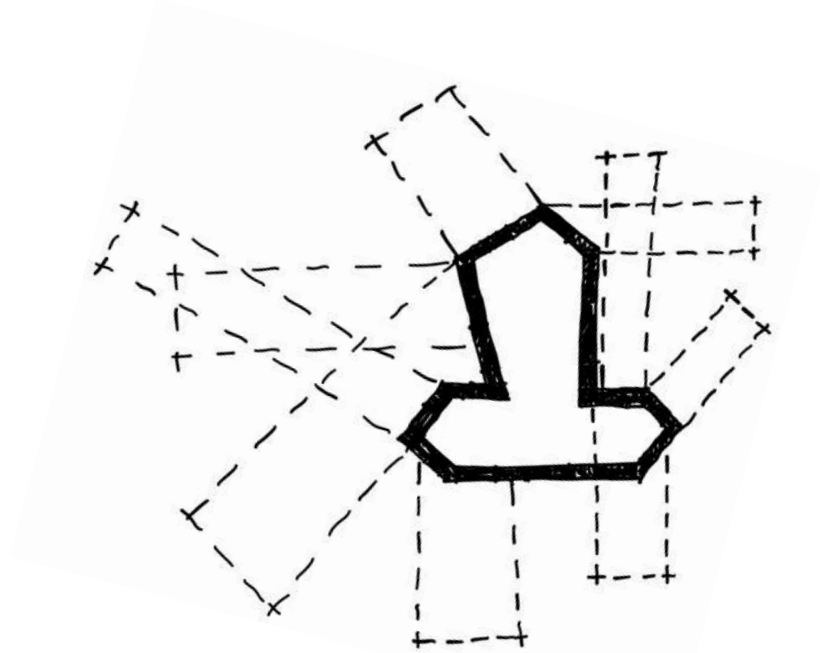


Figure 25: Readaptation of church by Author 2021

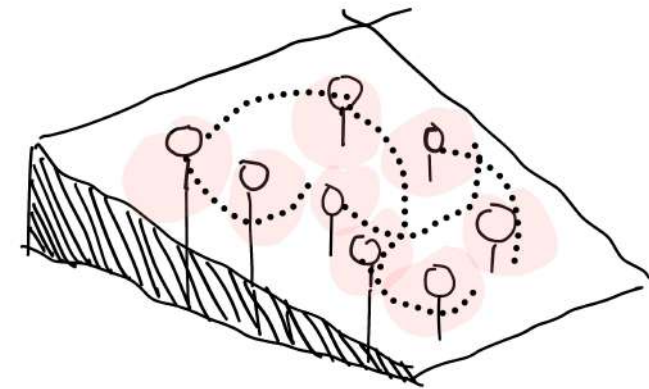


Figure 26: Polycentric development of community by Author 2021

RESEARCH METHODOLOGY:

The site choice is to be made through a comparative analysis of churches within the community of Eersterust by pinpointing the identified urban and architectural problems situated in the suburb, related to an existing church in close proximity to the plotted issues.

Theory development will be used to develop an initial theoretical framework on addressing further design informants.

Historical studies will be conducted on how the church typology has come to be as well as the thresholds used within this secular space.

Precedent studies globally and locally will be done qualitatively to scrutinise the development of the religious typology. Profane buildings that depend on being spaces of refuge will be investigated.

Case studies are to be conducted with the help of site visits and attending services on Sundays, this is to understand the manner in which the churches are currently used within Eersterust.

Interdisciplinary research will be guided by the need to understand treatment methods of gbv as well as theological data to understand the different religious nominations situated within Christianity.

Design development is to be done with an iterative process, addressing the theory and issues raised.

The design will be supported by a technical resolution using empirical quantitative data regarding environmental studies and a holistic sustainable approach.

A research-by-design methodology is developed throughout the mini dissertation with the aim to add to the architectural discourse.

SITE CHOICE:

The site is to be developed and attached to an existing church. Therefore the churches within the community are to be assessed.

The problems identified are gbv, a fractured ecology, homelessness, a lack of safe outdoor spaces, impermanent market space, a lack of school halls/ auditoriums and malnutrition due to poverty (lack of soup kitchens).

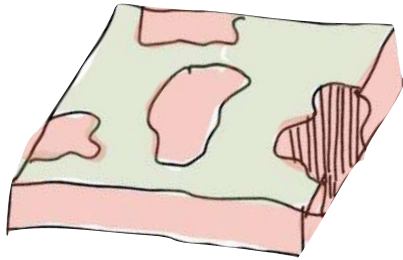


Figure 28: Fractured ecology by Author 2021

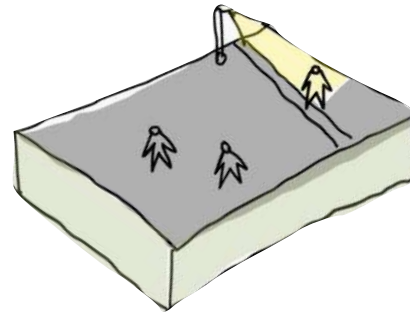


Figure 30: Lack of safe outdoor spaces by Author 2021

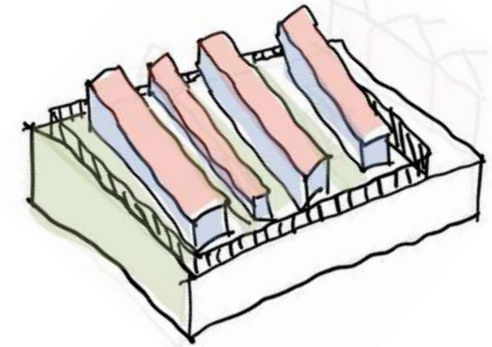


Figure 32: Lack of school halls by Author 2021



Figure 27: Gbv by Author 2021

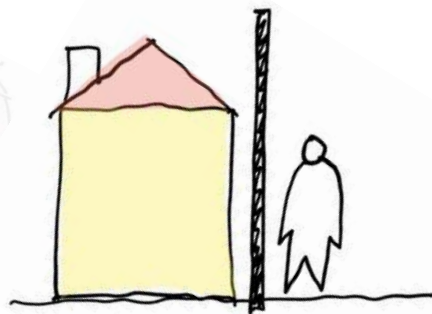


Figure 29: Homelessness by Author 2021

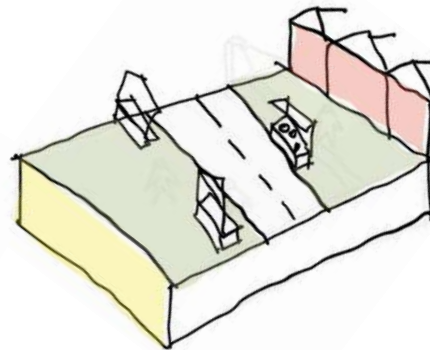


Figure 31: Impermanent markets by Author 2021

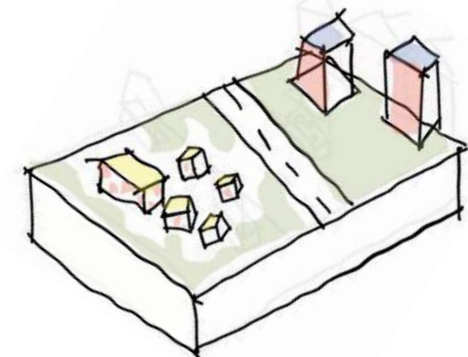


Figure 33: Poverty by Author 2021



Figure 34: Plotting Urban and architectural issues on site by Author 2021

-  Spatial resilience
-  Spatial quality
-  Spatial justice
-  Spatial efficiency
-  Spatial sustainability

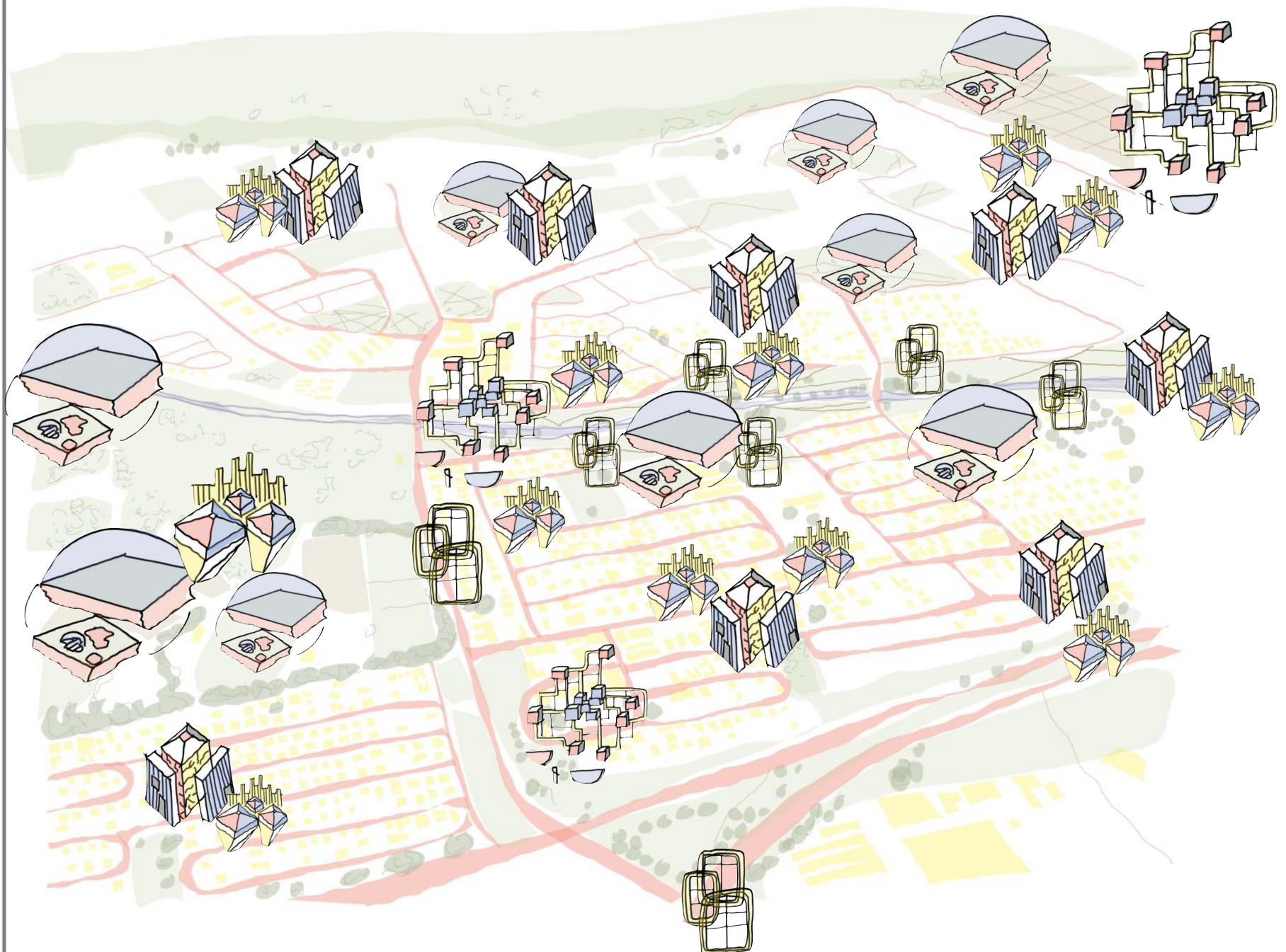


Figure 35: Places in need of urban framework Author 2021



Figure 36: Churches located in Eersterust by Author 2021

By combining the urban vision and places where intervention is needed, the urban and architectural issues as well as the location of the existing churches- it is prevalent that the vleiland area is the space with the largest need for mediation, see figure 32.

The vleiland is polluted, the open space around it abandoned and unsafe. The space becomes a corridor with vibrant desire lines used to cut through the landscape towards the schools, public swimming pool or to and from Silverton/ Watloo. Informal market places are set up around the boundaries of the vleiland and the new informal settlement is located along the vlei, towards the west.

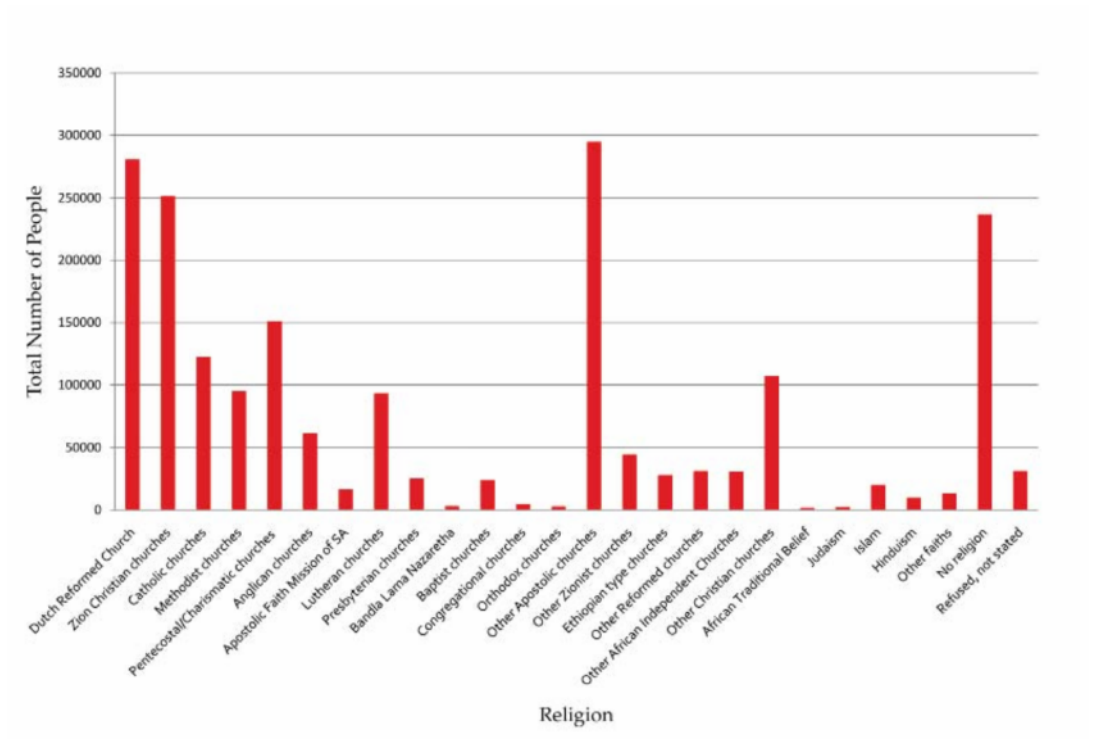


Figure 37: Statistics South Africa 2001, number of people following certain religious nominations, from Census 2001 for Tshwane Metropolitan Region

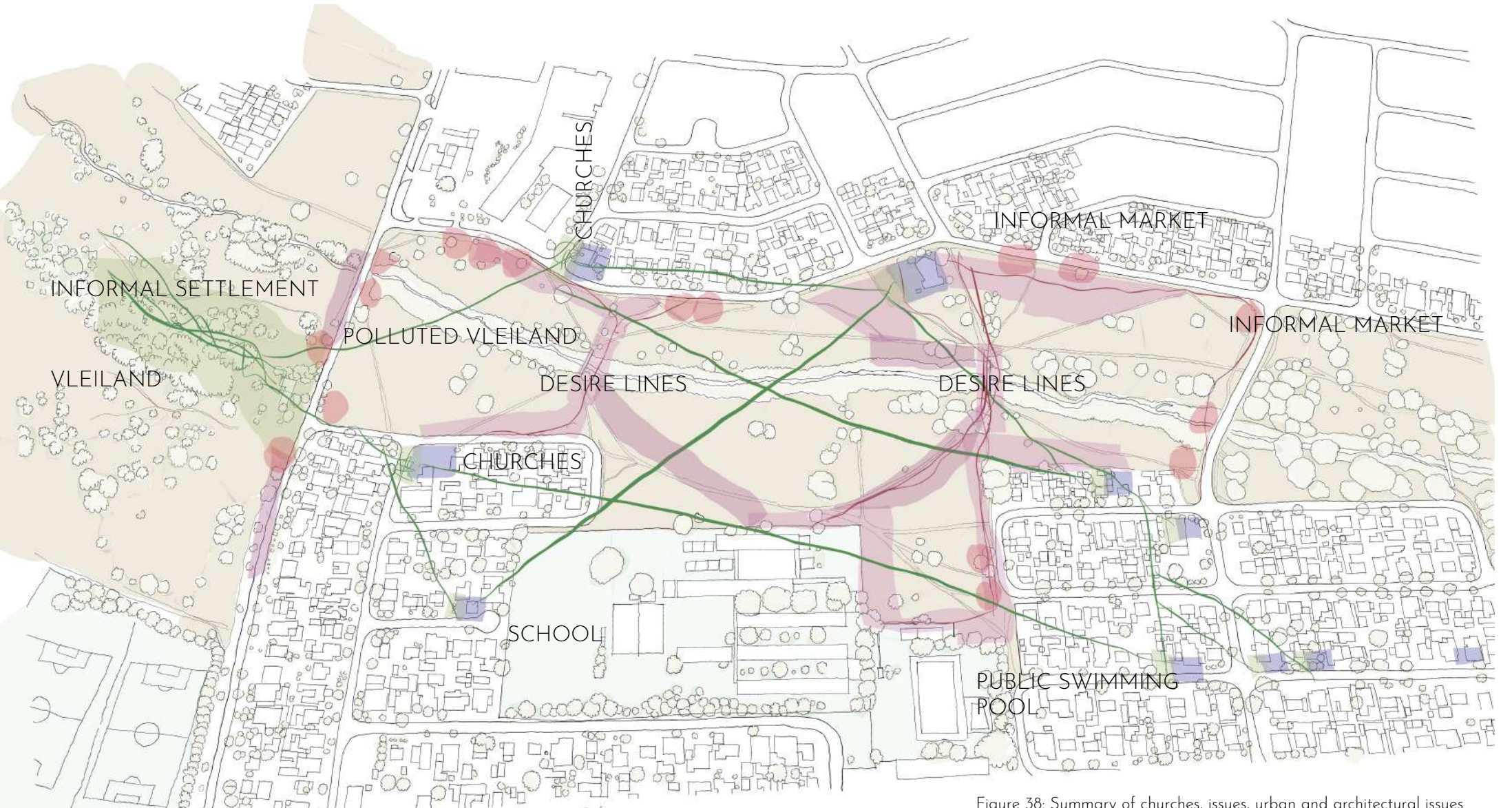
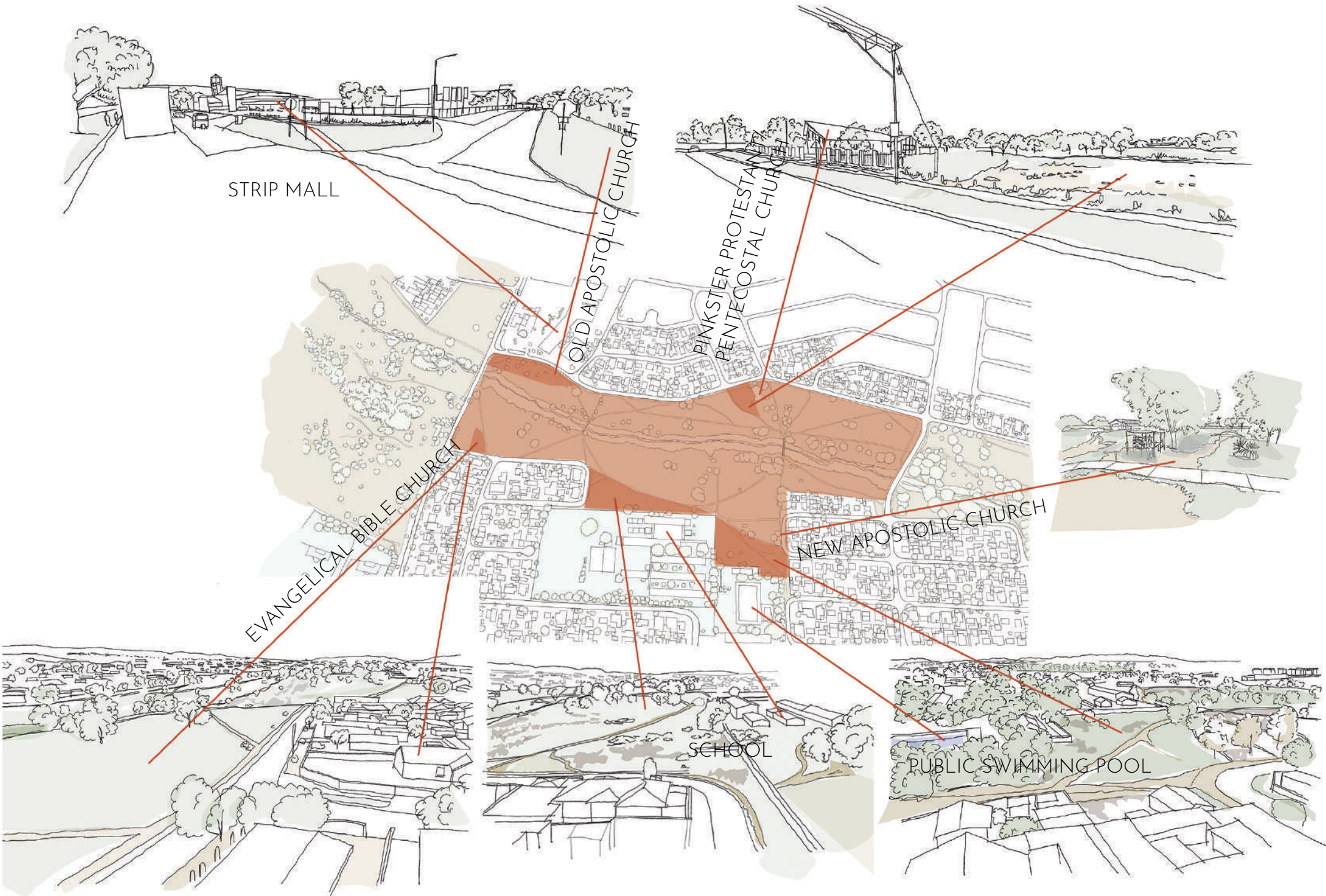


Figure 38: Summary of churches, issues, urban and architectural issues by Author 2021



STRIP MALL

OLD APOSTOLIC CHURCH

PINKSTER PROTESTANT PENTECOSTAL CHURCH

EVANGELICAL BIBLE CHURCH

NEW APOSTOLIC CHURCH

SCHOOL

PUBLIC SWIMMING POOL

EVANGELICAL BIBLE CHURCH

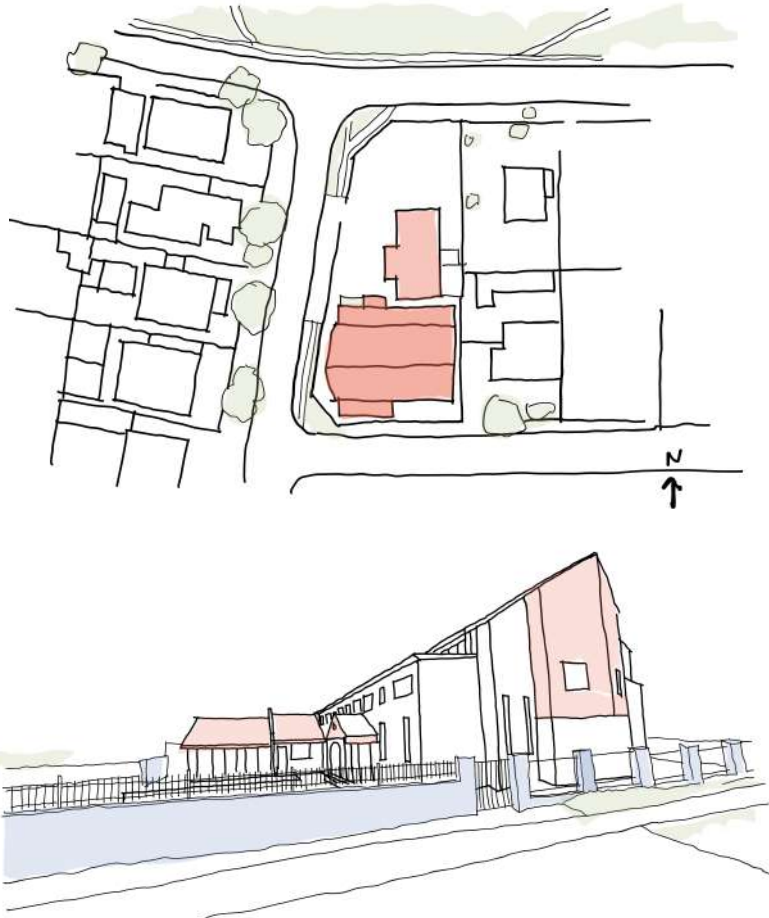


Figure 41: Evangelical Bible Church by Author 2021

OLD APOSTOLIC CHURCH

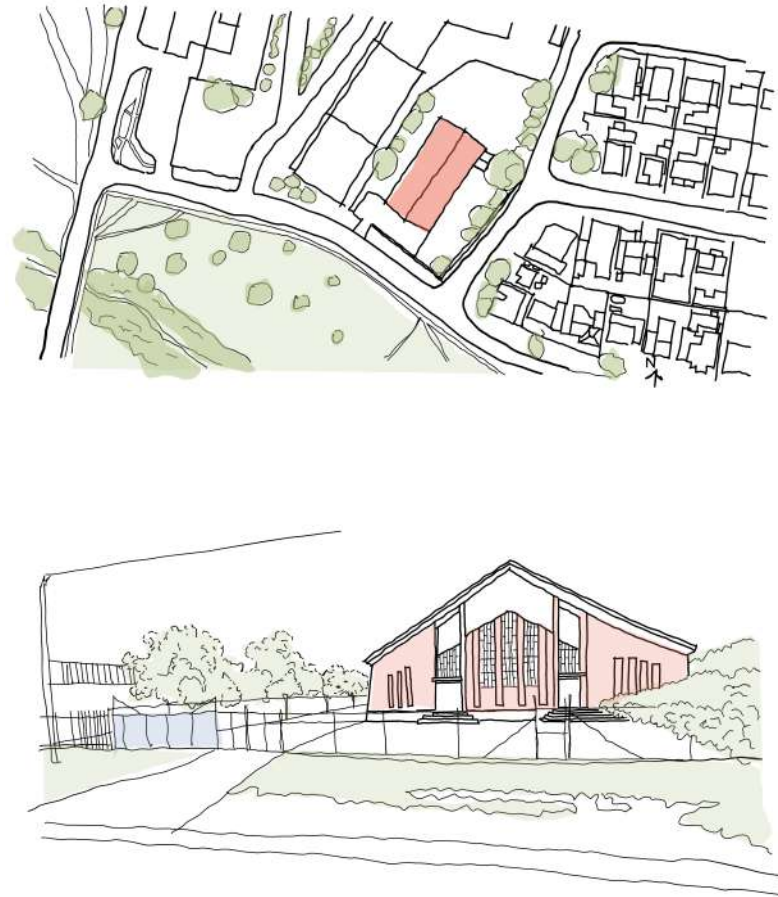


Figure 40: Old Apostolic Church by Author 2021

NEW OLD APOSTOLIC CHURCH

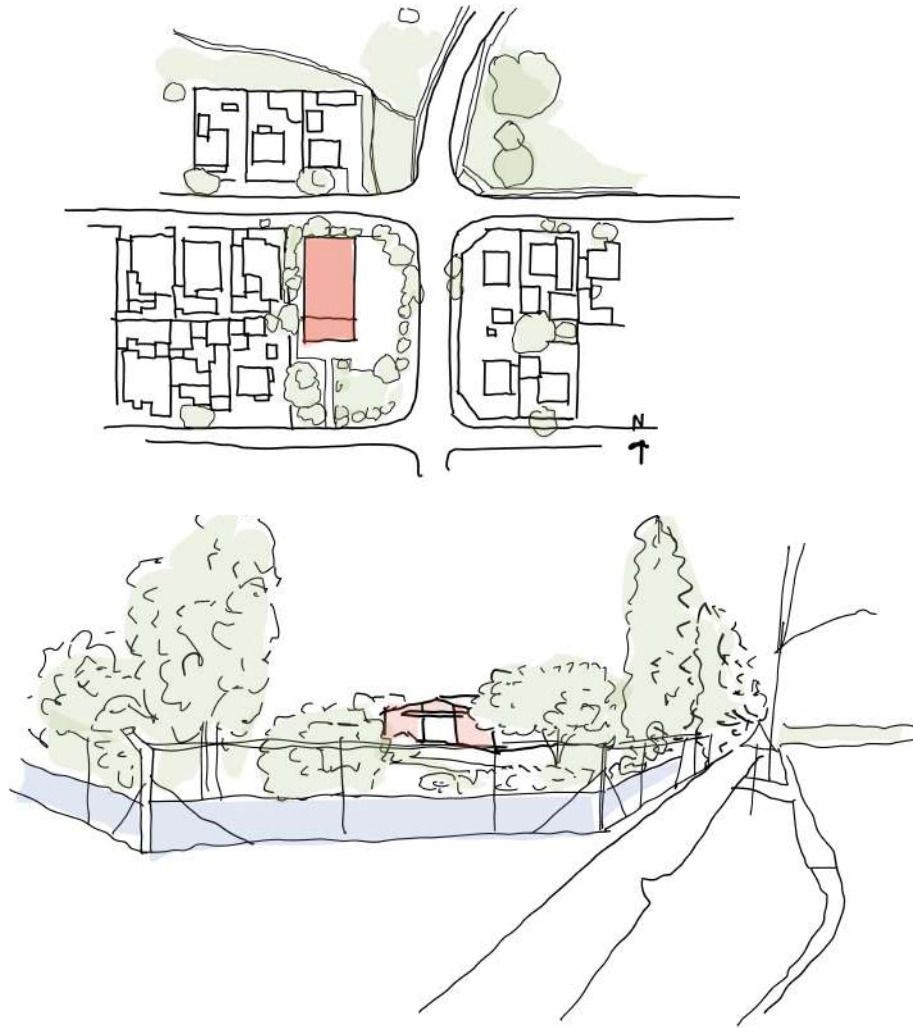


Figure 41 New Old Apostolic Church by Author 2021

PINKSTER PROTESTANT/ PENTECOSTAL CHURCH

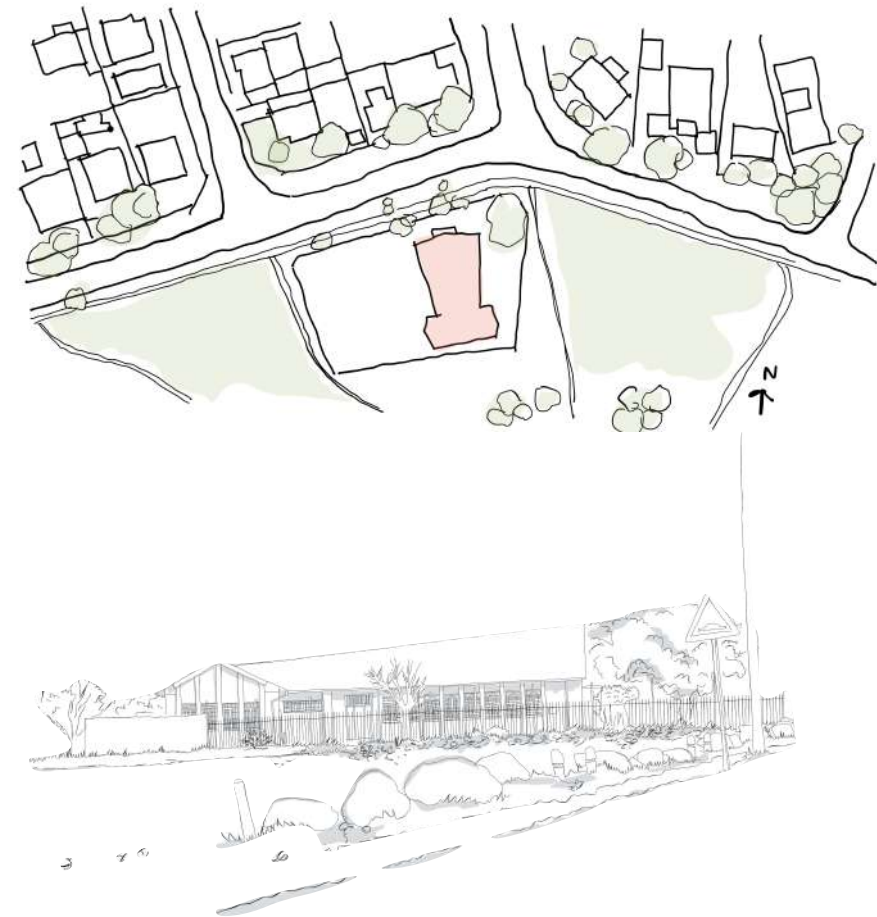


Figure 39: Pinkster Protestant church by Author 2021

The four potential sites are compared in terms of the prevalent edge conditions and potential for development. The Pinkster Protestant Church creates an interesting dialogue between nature and man-made with the possibility of expansion towards the east, west or south. The vlei land which is polluted and fractured is in need of spatial resilience. The church situated within this corridor of Eersterust can help create spatial sustainability by constructing a permanent walkway with lighting and a promenade of semi-permanent market space where vendors can easily lock up their goods rather than having to portage it daily.

The chosen site is thus the Pinkster Protestant Church.



Figure 43: Pinkster Protestant/ Pentecostal Church by Author 2021

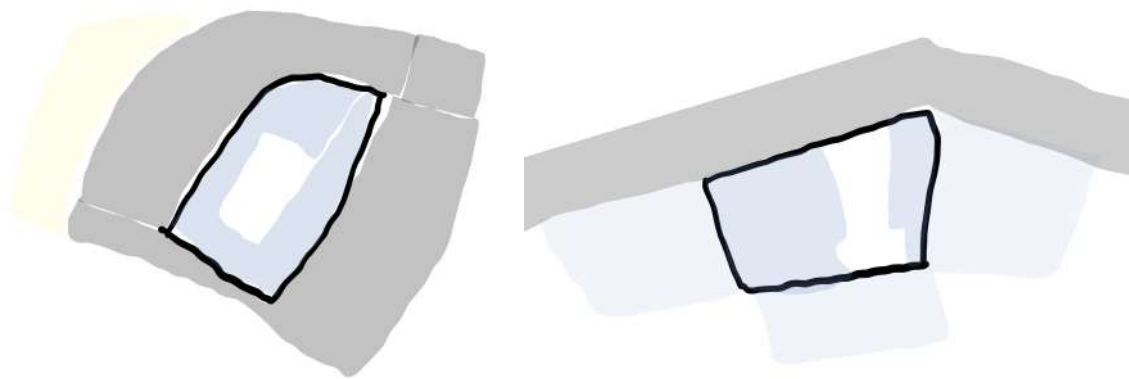


Figure 42 Old Apostolic Church by Author 2021

Figure 45: New Old Apostolic Church by Author 2021



Figure 47: Evangelical Bible Church by Author 2021



Figure 48: Chosen site by Author 2021



Figure 49: Chosen site by Author 2021

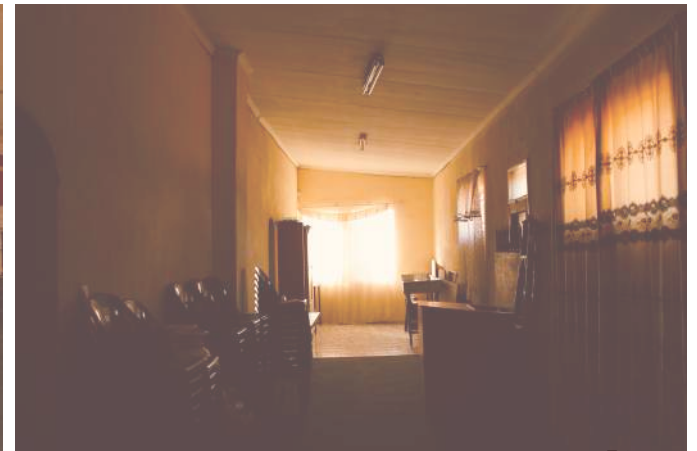


Figure 50: Pinkster Protestant Church by Author 2021

THEORETICAL FRAMEWORK:

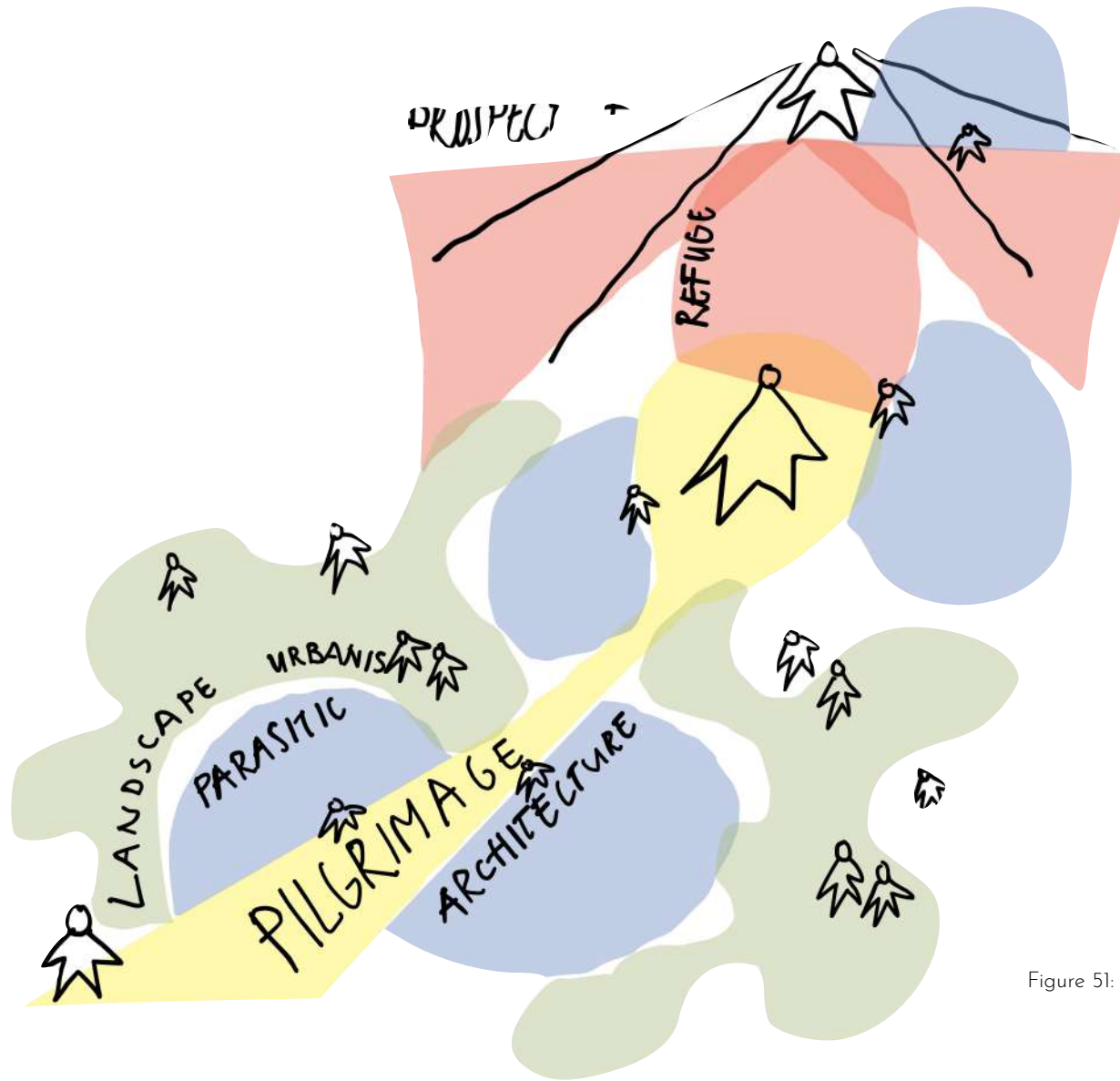


Figure 51: Theoretical framework by Author 2021

Pilgrimage

Within the church complex an idea of pilgrimage is induced. The building itself is constructed to allow for a journey. The Spire or steeple, draws people in from the street as this is visible and becomes a form of hierarchy and the most public node. The forecourt then allows for people to gather before entering the sacred and more private narthex leading towards the nave. The nave creates a dramatic hallway housing the seating area and space up to the pulpit or altar. This is the most sacred space which is private and designated for the minister or pastor. Behind the Pulpit is the vestry which becomes the most private space used for baptism. Pilgrimage is penitence (renewal or birth) (Thompson 2015:32).

Types of Pilgrimage

- Mini pilgrimage, short journey to a local holy site.
- Long distance, lengthy journeys to a shrine or other sacred space.

The pilgrimage within the building can be enhanced through slowing down movement, ordinary activities (festivals) or vertical movement (Thompson 2015:36). A forced pilgrimage materialised with the Group areas act of 1950, forcibly removing people in and out of Eersterust. Churches settled within Mamelodi had to move after the law was implemented. Pilgrimage is undergone by the informal vendors by setting up their informal stands and goods each day with the promise of a sale and livelihood.

A pilgrimage from battered to healed is called for within the community, physically, mentally and ecologically.

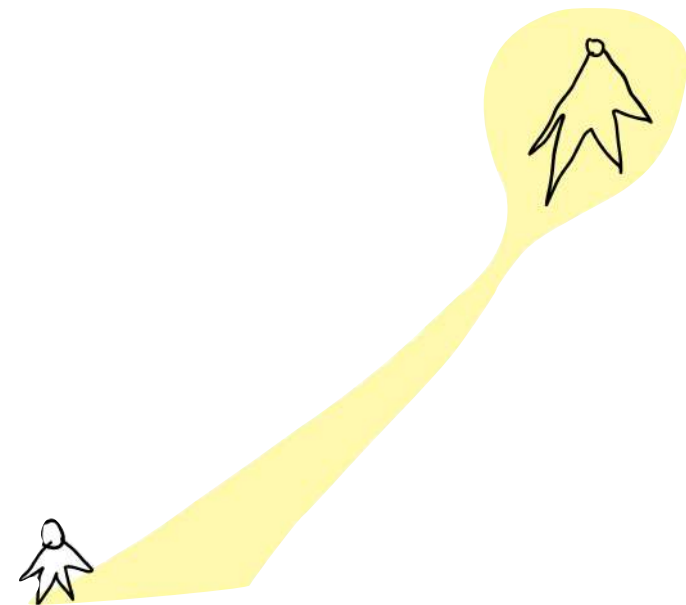


Figure 52: Theoretical framework, pilgrimage by Author 2021

Parasitic architecture

The early modernists were tasked with rebuilding the war ridden buildings which have a connection with calamity by adding a new layer, to improve (Woods 1993:10) allowing the dweller to integrate freely, outside of the ingrained system. Woods (1993:14) suggested that the war wounded buildings must not commemorate the tragedy or celebrate the possible change in current dogma, but rather through acceptance.

To heal a scar with a scab architecturally, as this becomes the connection and progression between old and new. The existing church was built during an era of tragedy and the nature surrounding it is scarred due to pollution and abandonment.

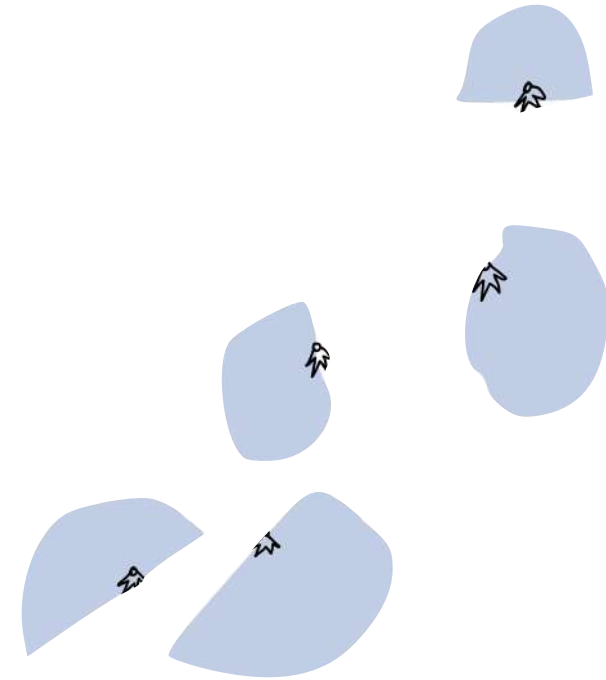


Figure 53: Theoretical framework, parasitic architecture by Author 2021

Prospect and refuge theory

The “prospect and refuge” theory relates to the ethos of secure environments, which meet the needs of basic human psychological needs (Dosen & Ostwald 2013:4). To observe (prospect) without being seen (refuge) (Dosen & Ostwald 2013:4). According to Dosen & Ostwald (2013:5), the origin of prospect-refuge theory can be detected through the means of the survival instinct (Darwin 1958). Descartes separation of body and mind within Cartesian dualism or phenomenological philosophy, aimed at the exchange that happens between environment and the human body (Husserl 1913).

To better understand the theory explorations of Appleton and Kaplan within this field is explored (Dosen & Ostwald 2013).

Prospect-refuge-hazard (Appleton 1984).

The natural landscape can be perceived through hiding and seeing, as well as the layer of hazardous conditions- this being the reason to hide or see as the opportunity calls for, Appleton in (Dosen & Ostwald 2013:7). Appleton claims that if scale is further added then the effect and approach is easier to determine, the prospect which is observed by the individual can split into two categories. Primary vantage points are directly perceived, while secondary vantage points are predictions made indirectly as they are anticipated (Dosen & Ostwald 2013:7). Psychological

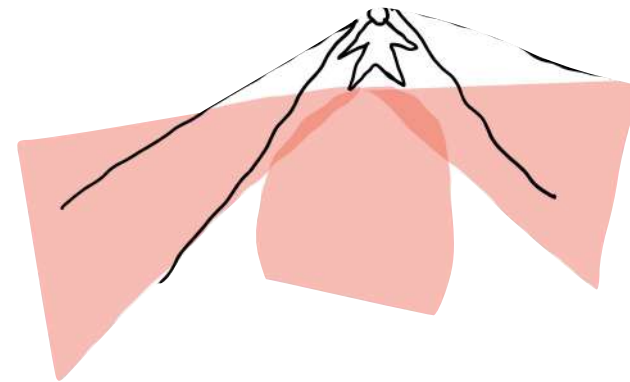


Figure 54: Theoretical framework, prospect and refuge theory by Author 2021

hreats are divided into groups of “incident hazards, impediment hazards and deficiency hazards” (Dosen & Ostwald 2013:7).

Prediction of preference (Kaplan 1983)

Human needs relating to environmental conditions, including a factor of “mystery”. Here the preference by reaction “pleasure and pain” and interest “like or dislike” becomes important (Dosen & Ostwald 2013:9).

Kaplan and Appleton’s explorations are then compared by Hildebrand (1999).

The main elements encompassed by the theory is (1) a view is needed, the view can be further categorised and varies, but an outlook is always constant for the theory to apply. (2) The space of refuge, a viewing point in the form of frame or dwelling. (3) Safety, or the perception of comfort is needed. (4) The relationship between the view and frame evokes mystery, complexity. The path taken to make a cross over (Dosen & Ostwald 2013:15).

The prospect-refuge theory can be summarised to be “a particular environmental pattern, made up of spatial and formal relations that induce feelings of safety and well- being” (Dosen & Ostwald 2013:15).

Places of refuge were traditionally religious, sacred or hallowed spaces (Sennett 1992:33) allowing for a break from the everyday into a space of enlightenment.

Landscape urbanism

Nature is in need of refuge within Eersterust. James Corner analyses landscape urbanism with the help of surface strategies to enable a open-ended contemporary city. Demarcation, infrastructure and adaptation are the lenses he uses to scrutinise.

Demarcation and infrastructure are used in a traditional way to plot the building, whilst adaptation is the more abstract as it creates the framework and allows for transformation over time (Waldheim 2006:5).

Adaptation becomes important within designing for a building which will outlive its initial purpose.

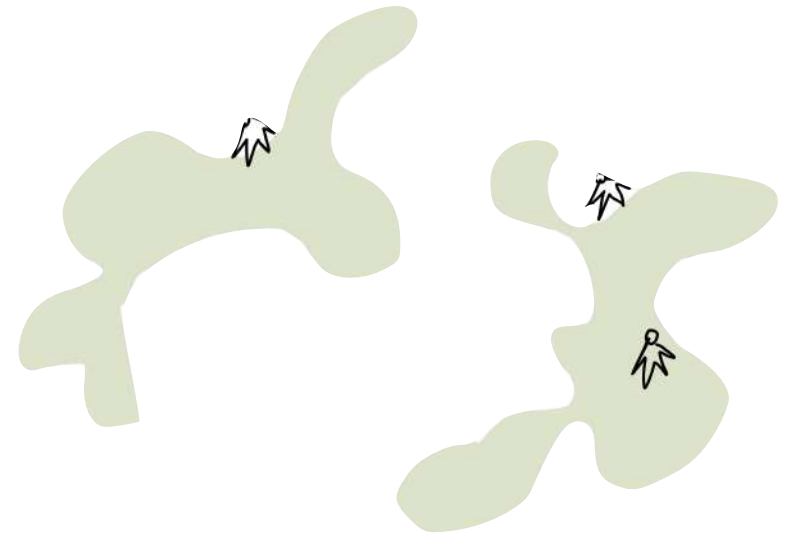


Figure 55: Theoretical framework, landscape urbanism by Author 2021

Reuse and adaptation:

According to Worthington and Bond (2008:148), if a build were to be re-adaptable then it would adhere to the following points.

Flexibility- the building allows for expansion of the plan (Douglas 2002:5).

Expandability- expansion in terms of volume, for example an addition of floors.

Compatibility- keeping the spirit of the building by adapting a church to become a community centre rather than a casino, the adaption is to be similar to the character of the building (Binney 1977:167).

Honesty- recyclability of built materials.

Convertibility- changes made to be legal.

Reversibility- if the building can easily be dismantled or demolished if needed, leaving the existing site as it was.

Minimum intervention- the original building is not to be fractured (Worthing & Bond 2008:101)

(Verster 2010:48-49).

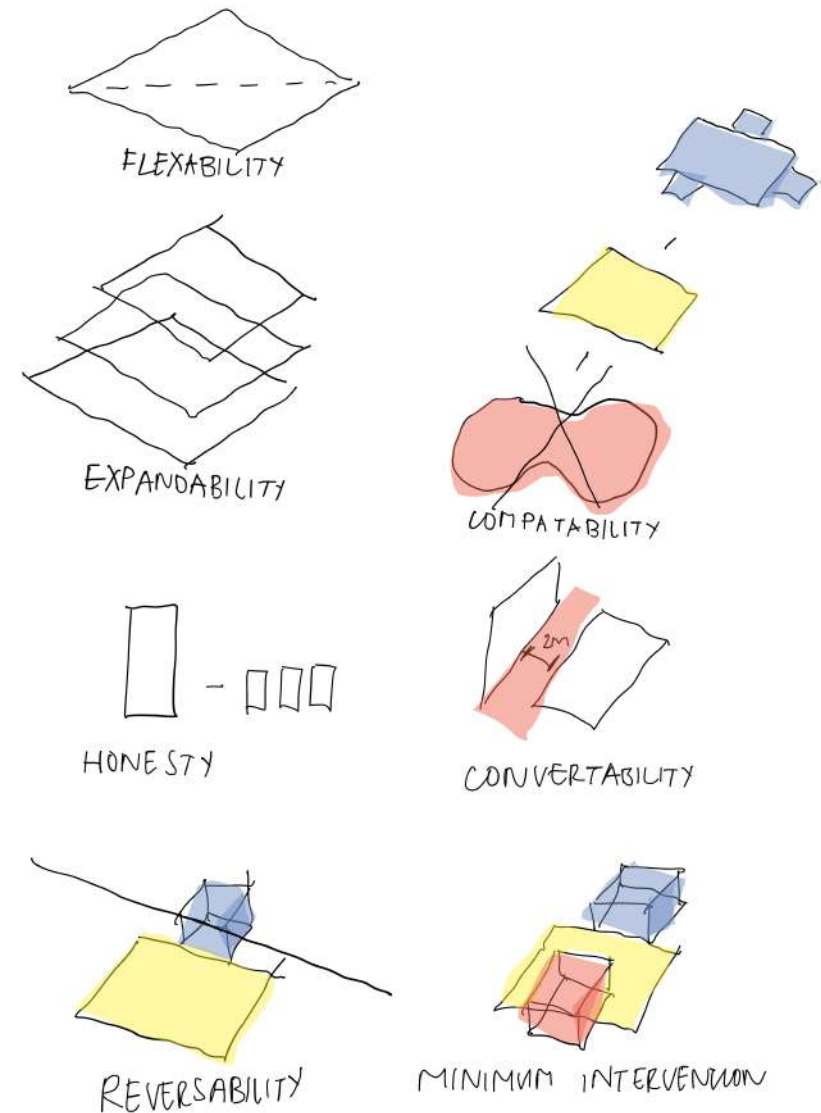


Figure 56: Adaptation explained by Author 2021

NORMATIVE POSITION:

It is argued that architecture is not art because what separates the two is function.

The idea or construct of art is stereotypically displayed in a gallery/ museum space. This is a space removed and isolated from the everyday. Architecture too is removed from the everyday, For the majority of South Africans it is reserved for certain groups- excluding people near or within the poverty line, leaving poorly built RDP houses, low cost apartheid flats or informal shacks to their dismay.

Architecture has the capacity to become a catalyst. To create functional art with the capacity to uplift and enrich communities in need, is the goal.

Buildings do not forget and stay frozen in the typology it was constructed in. A building is a testimony of its time and its authors (people in control). The building cannot speak further than its own walls (Young 1994). Therefore buildings must be able to expand their lifespan by being able to adapt for the future.

Plural identities and plural programs are to be integrated into architecture, to allow inhomogeneous life to take place within a space.



PART 2

Chapter 2

Role of the church

Religious identity

History of the church

Power dynamics within the church

Colonisation and Christianity

Conclusion

THE ROLE OF THE CHURCH:

“To cities filled with homeless and impoverished, Christianity offered charity as well as hope. To cities filled with newcomers and strangers, Christianity offered an immediate basis for attachments. To cities filled with orphans and widows, Christianity provided a new and expanded sense of family. To cities torn by violent ethnic strife, Christianity offered a new basis for solidarity. To cities faced with epidemics, fire and earthquakes, Christianity offered effective nursing service... No wonder the early Christians missionaries were so warmly received... For what they brought was not simply an urban movement, but a new culture capable of making life in Greco-Roman cities more tolerable” (Stark 1996:34) cited by (Nel 2010:8).

The church building played the part of the community centre, relieving those in need. The building became a home for the people. Community centres and the ruling authorities walk hand in hand.

“The Church can assist here in a way which the local council cannot” (Cochrane 2008:20).

The church can therefore become a veil between the governing body and community in the form of community support (Thompson 2015:9.) A food

drive (ecumenical outreach, see case studies) is conducted once every quarter to feed the poverty stricken day labourers. A pastors paternal has been created in the wake of the covid-19 pandemic, when physical church going was not allowed or limited. A small specific group of churches formed a ministers *faternal* together to brainstorm on the issues spiralling after the national wide lockdown.

The church has a social role to play within the suburb. It is a place of social gathering, networking and opportunity and political engagement (Thompson 2015:9).

Religious advancement is one of the main goals within the secular building. The congregation joins together on their holy day and pray, praise and sing. The church typically has a Sunday school or youth group, educating the young about the bible, morality and rituals (Thompson 2015:9).

Churches play an important role within the community of Eersterust, they become a home for community support, social engagement and religious advancement. The spatial form of the building is to be investigated



Figure 57: Religious building in Eersterust by Author 2021

RELIGIOUS IDENTITY:

The church becomes a part of everyday life within Eersterust, religious identity is formed here and becomes indistinguishable between

“The first step towards a church architecture for our time is to recognise that a Christian church is essentially a house for a community and that has no independent meaning apart from that community” (Hammond 1962:28 in Nel 2010:8).

According to Nel (2010:8), a church is not a physical structure, but rather the gathering of Christians. The building houses the secular rituals and rites which is encompassed by the community of Christians using the space. The rituals evolved to include the building within the identity of religion.

What is the church currently and what can it become?

To understand what the church currently is and how it came to be the typology and evolution thereof must be investigated to identify into what it needs to evolve.

HISTORY OF THE CHURCH TYPOLOGY:

Religion along with mind capacity, evolved as the human race did (Davies 1897:2). W. Robertson Smith wrote in his book, *Religion of the Semites* (1889), that various tribes had their own individual ways of worship, which did not reflect each other (Davies 1897:2). The tribes all had a designated special sacred place where the tribe would pray and make sacrifices to their deity, this can be seen through the shrines found by the Israelites in Canaan (Davies 1897:3). Upon finding these hallowed sites, they were seized by the Israelites and used to worship Jehovah. The Jewish religion has a strong connection to the tabernacle which developed into a temple, the development that took place for the tabernacle to arise started at the creation of Asheras and Masebahs, which can be found within the Old Testament (Davies 1897:3).

Asheras are known to be trees worshiped as deities, this developed into being tree stumps and then later timber pieces planted into the earth. Masebahs were similar to Asheras, but made out of stone, originating as raw stone- progressing to obelisks (Davies 1897:3). At this time, no dwellings were erected for deities and no priests existed, tribesmen sacrificed as they saw fit. This did however lead towards the advancement of the head tribesman to play the role of king and priest as well as the evolution of thought. The need to handle deities in the same manner as

one would handle oneself arose, by sheltering them from the elements through the creation of a sacred dwelling (Davies 1897:3). These dwellings were preserved for the god's not for the people, this phenomenon can still be seen within certain Eastern religious worship rituals (Davies 1897:4).

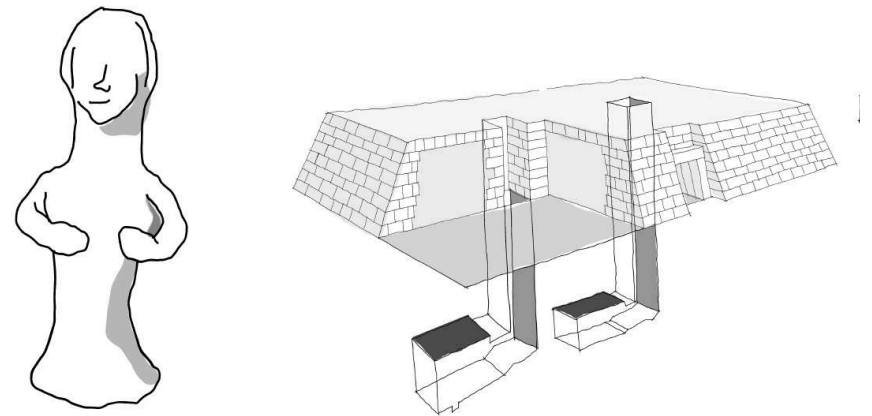


Figure 57: Ashera and maseba by Author 2021

The Solomonic temple is also known as the first temple and paved the way for the temples to follow. Solomon envisioned a temple as an adaptation of the archaic temple to fit the new age (Davies 1897:8). It was destroyed by the Neo-Babylonian Empire in 586 BCE, after the Israelites were in exile in Babylon.

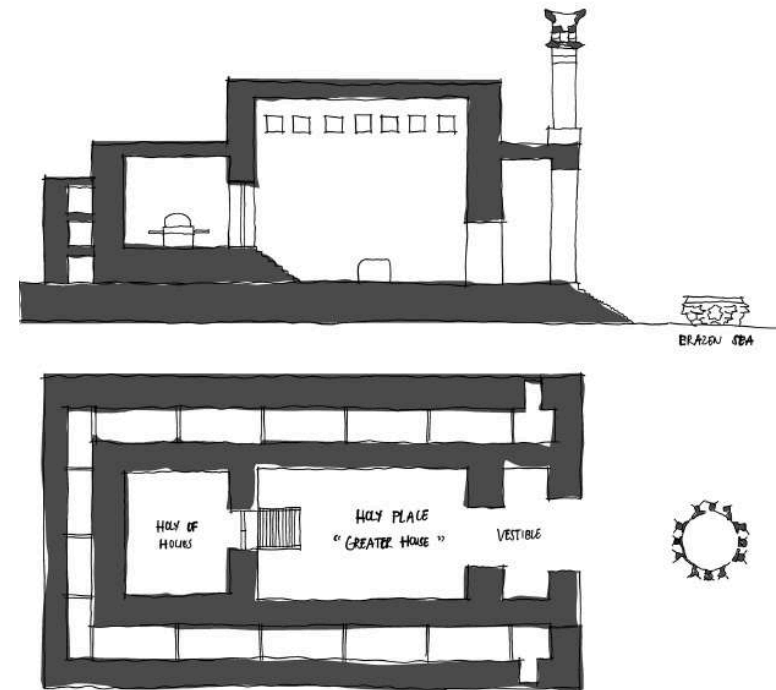
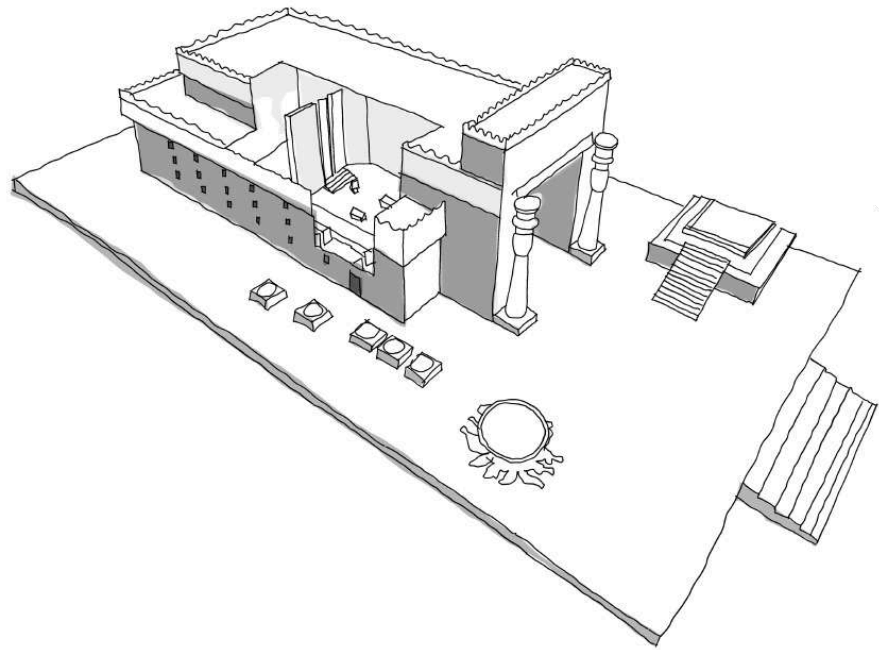


Figure 58: Solomonic temple by Author 2021

The second temple, known as the temple of Herod, replaced Solomon's temple and stood at the location of temple Mount within Jerusalem, roughly between 516 BCE and 70 CE. This temple was constructed by returning Jewish exiled groups, the temple was humble at first, whereafter it was refurbished to be more exuberant when Herod the Great was in power. The second temple lasted for 585 years before being destroyed by the Romans in 70 CE.

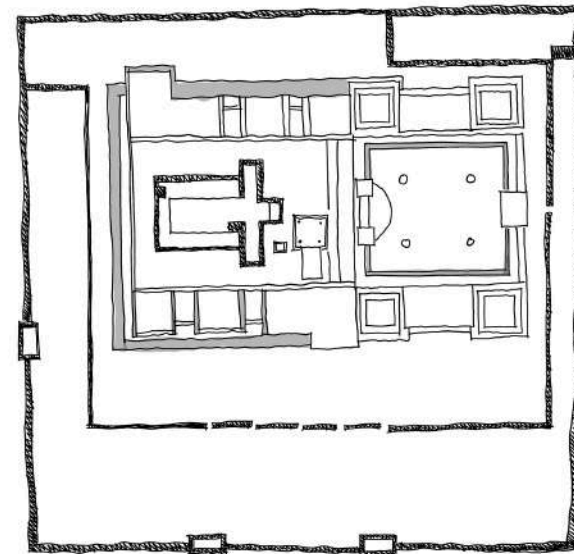
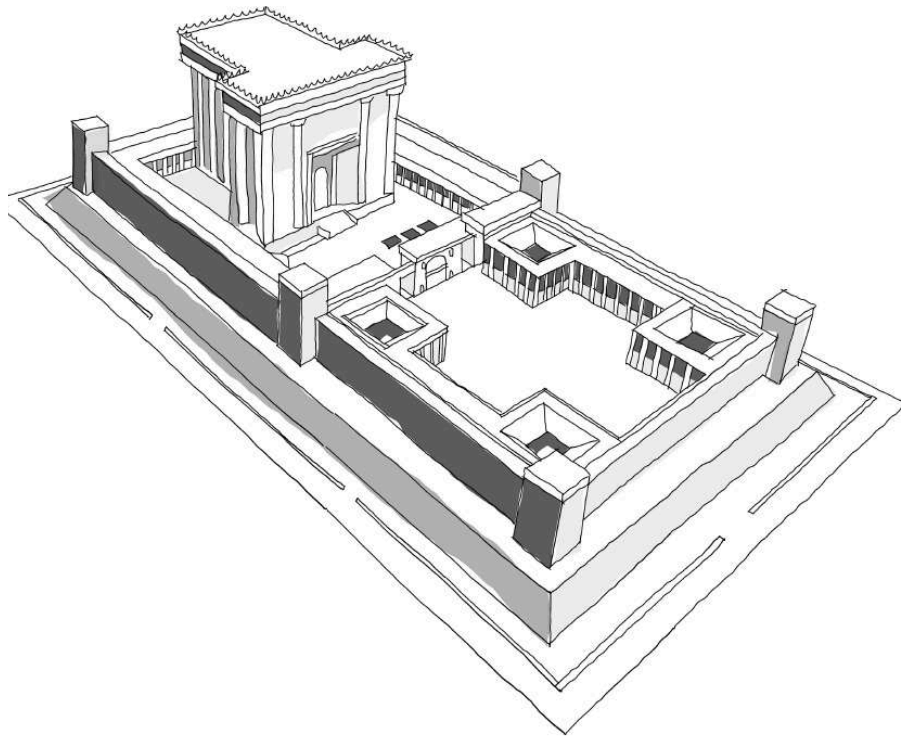


Figure 58: Second temple by Author 2021

The Third temple is an unbuilt theoretical temple to be built on the place where the first and second temples stood, on the historic site of the Temple Mount. This is to be built before or in conjunction to the Messianic Age (universal peace brought on by the reign of the Messiah on earth) (REF). The contested Third temple creates a divide between the Jewish and Muslim people and forms part of the proceeding Israeli- Palestinian conflict. A Fourth temple was envisioned by Ezekiel the prophet's prophesy in the Old testament. This is a temple that Emperor Zerubbabel was to build and represents the reign of God on earth. The temple is to be built when the Third temple is debased by the Antichrist

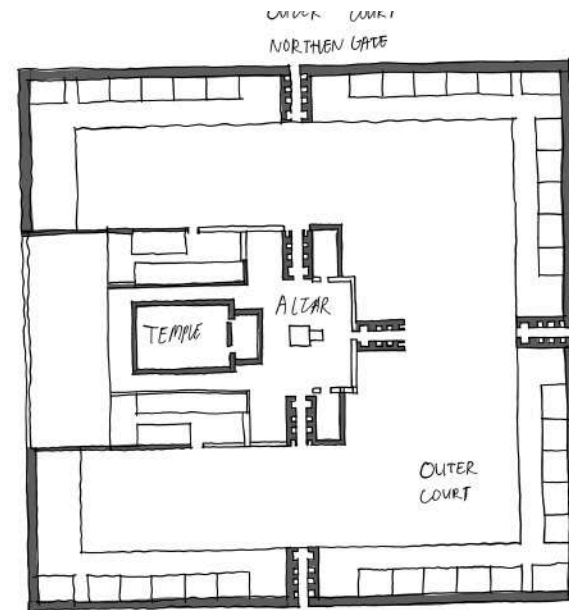
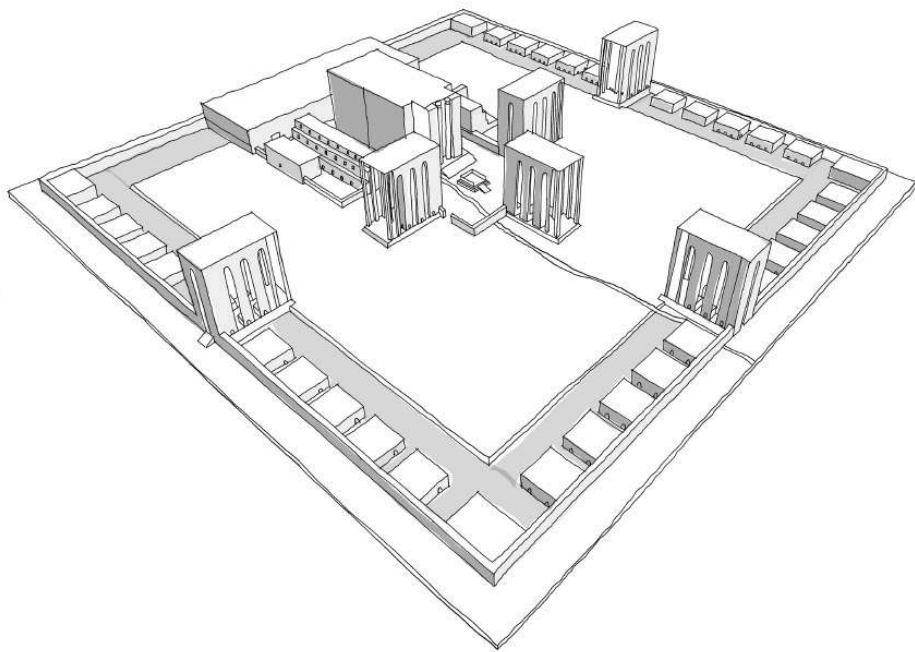


Figure 59: Third temple by Author 2021

The origin of the synagogue is not known. It is thought that it was developed within the timeframe of the Second Temple, when the exiles'

returned from Babylon, reference was made to the synagogue (Davies 1897:16). This was a building that was organised very similar to the Hebrew temple, with the main difference in the divide between people and priest. The Synagogue was made for both (Davies 1897:18).

Early Christians gathered within the Synagogue to try and spread their views on Christ towards the people, creating a new sect was not yet a reality (Davies 1897:18). The early Christians then created meeting places and societies of their own (Davies 1897:19).

Christian communities started to gather secretly within houses, this is the first form of church within a built form. After the victory of Constantine, Christianity became the main religion within the Roman empire (Edict of Milan). The religion needed a building to house the now lawful gatherings and the civic building form of a basilica was coined. The basilica was changed from civic to religious by removing an apse, adding a nave, aisles, clerestory windows and occasionally a gallery (Roth 1998:243).

The building shifted from being a church of people to being an earthly home for God (Nel 2010:23).

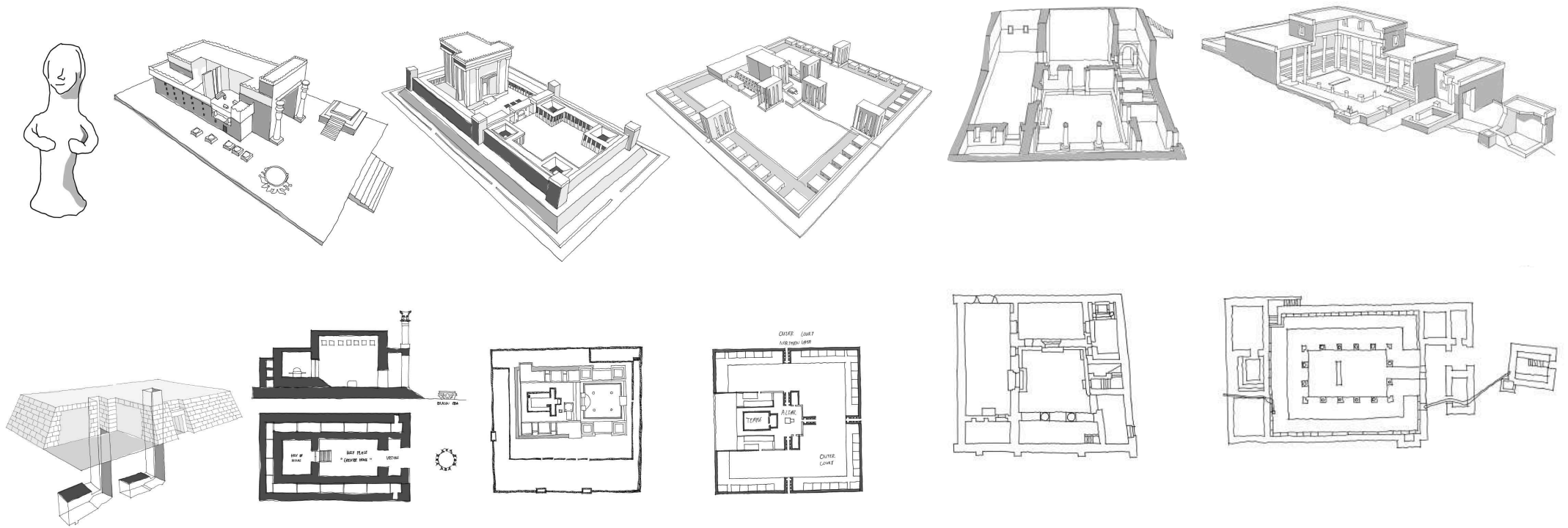


Figure 60: Temple development by Author 2021

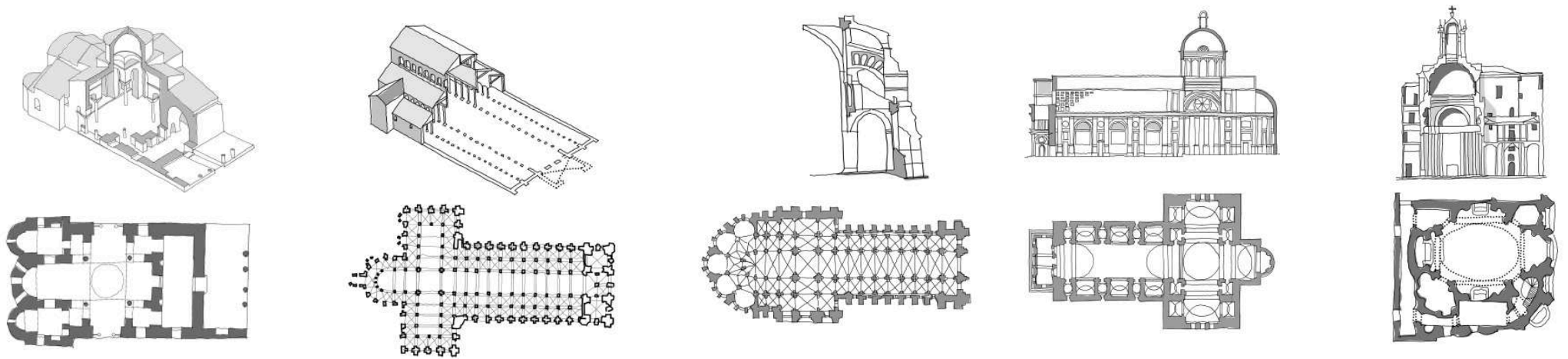


Figure 61: Church typology development by Author 2021



Figure 62: Church typology development by Author 2021

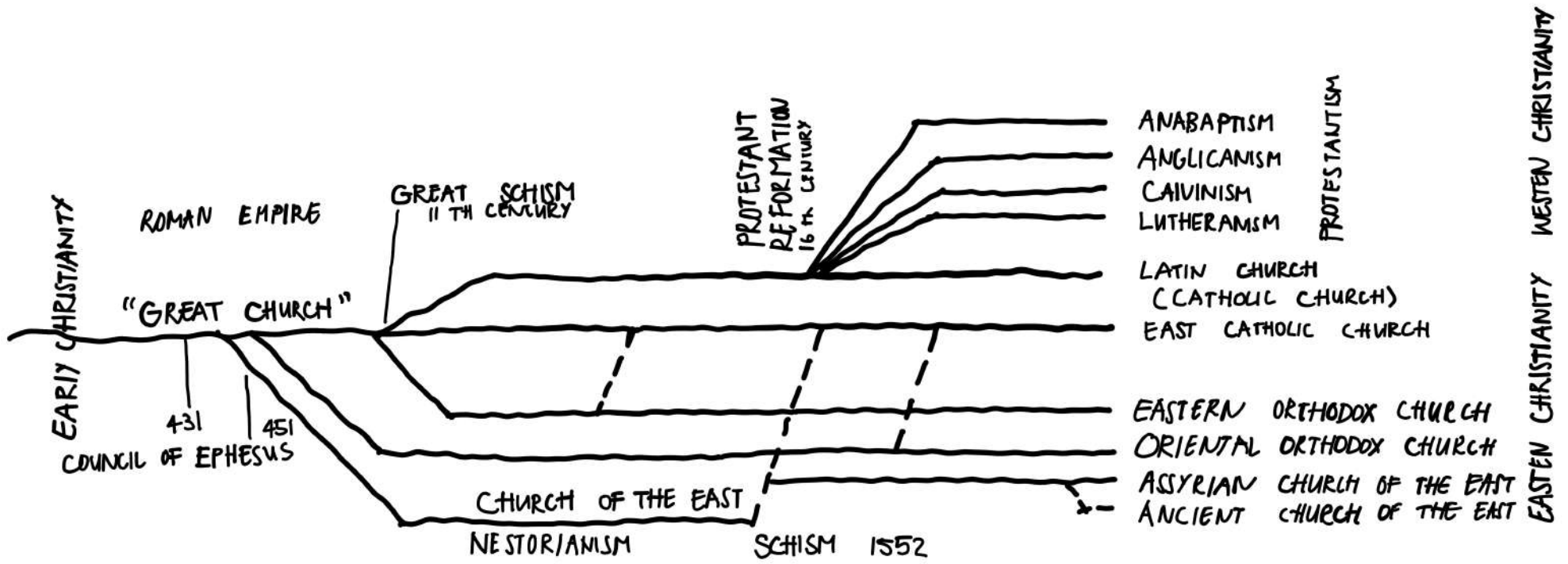


Figure 63: Schism in global churches by Author 2021

The Christian church developed in chronological order from Byzantine, Romanesque, Gothic, Renaissance, Baroque, Rococo, Revivals, Modern to Post modern. Allowing the building to be used by priest and congregation, after the cruxifixion, the veil fell down symbolically and the church became an inclusive space. A woman's place within the religious complex has been overlooked and in certain aspects discriminated against by misinterpretation of sacred texts and archaic patriarchal ways of thinking.

POWER DYNAMICS WITHIN THE CHURCH:

The church/ Christianity and its beliefs have a certain dogma on femininity and masculinity. Christianity inherited views on woman from Judaism, as the sect found its origin within the religion. The creation story, located within the Old Testament tells the tale of the first man and woman on earth, Adam and Eve. In this infamous story woman is made from man's rib which can signify two things 1) that man is deemed more than woman as he was created first and through him women would not exist or 2) that woman and man are equal as they are made from the same flesh.

Gender equality is one of the main problems that need to be addressed by the modern church (Woodhead). The views towards woman within

Christianity can be divided into four categories: Christian feminism, Christian egalitarianism, complementarianism and Biblical patriarchy.

Christian feminism refers to the feminist position from a Christian perspective, by confronting certain scripture interpretations. This movement advocates for LGBT and pro abortion rights.

Christian egalitarianism can be defined within Galatians 3:28 "There is neither Jew nor Greek, slave nor free, male nor female, for you are all one

in Christ Jesus". This passage shows us that man and woman are deemed to be equal. Neither man nor woman were cursed when Eve gave Adam an apple, it was the serpent who was cursed: "You will crawl on your belly and you will eat dust all the days of your life", in Genesis 3:14. Gender is equal within marriage as well as in religion. Complementarianism refers to woman and men, both with similar worth, but difference in roles to be fulfilled. This category interprets the bible quite literally (inerrantists) by interpreting through scripture that woman are the reason for the fall of man, they were easily misled by the "serpent"(Genesis 3:16). The bible also clearly states that the 12 most known disciples were men and that men were created before woman and therefore must take the leadership position (Genesis 2:22). Male leadership and female submission.



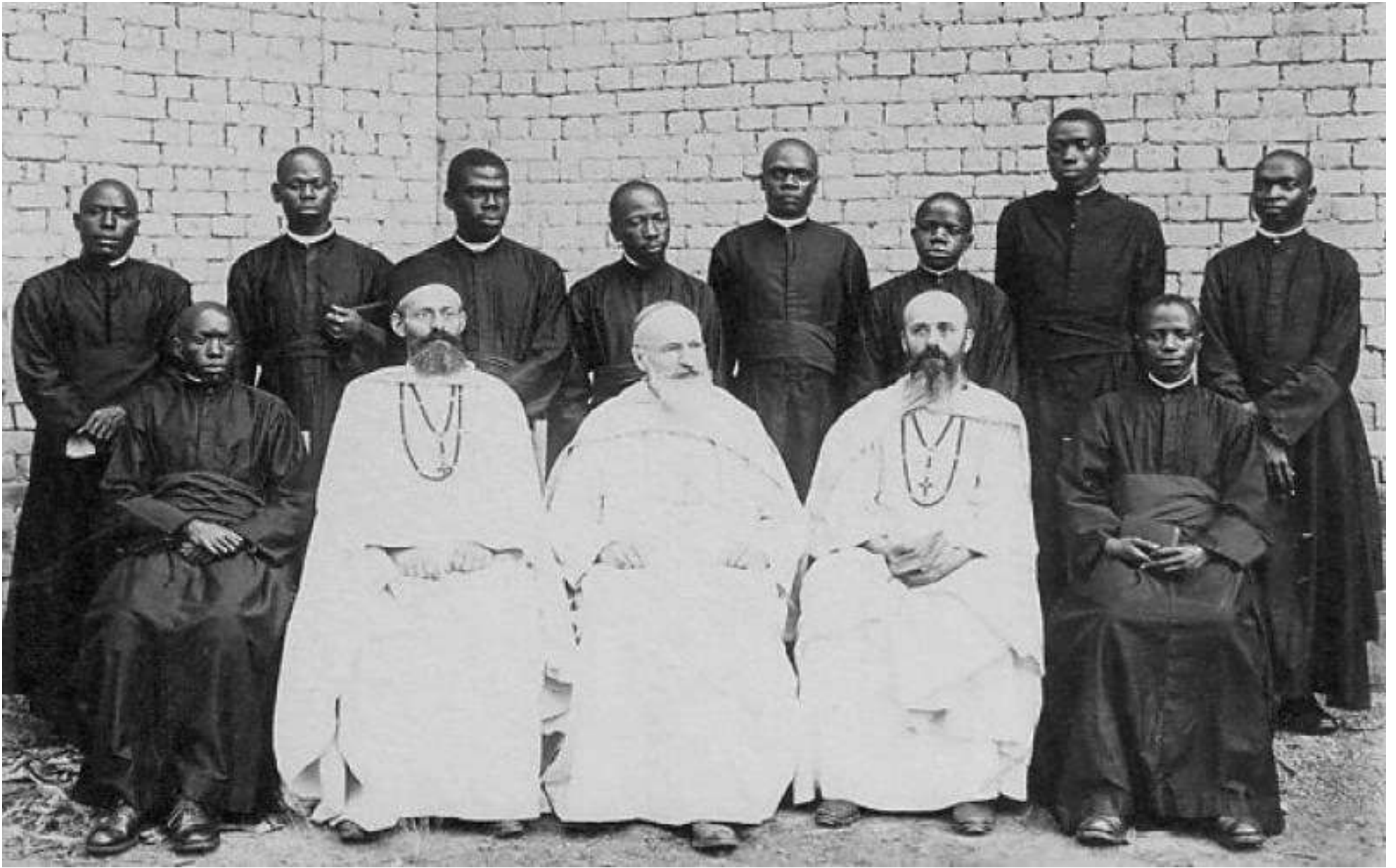


Figure 64: Colonisation, africamission-mafr.org

Biblical patriarchy.

Similar to complementarianism, woman and men are equal, but men exclusively may be leaders at home as well as in the church (Grudem).

“Churches are not regulated by government policies that seek to redress past wrongs towards women of colour and White woman, including affirmative action and equal opportunity legislation (McCluney 2018).

exploitation. The missionaries favoured South Africa in becoming a British colony as this was to help create a more religious and therefore a more civilised country, to their meaning.

COLONISATION AND CHRISTIANITY:

When the missionaries came to Africa they had the Bible and we had the land. They said 'Let us pray.' We closed our eyes. When we opened them we had the Bible and they had the land.” (Dube 2000:3) in (Nkomazana & Setume 2016), this shows the connection of christianity to colonisation. Religion acted as a medium to promote political oppression. The missionaries came from a religious background, including church buildings as representation of belief. The lack thereof allowed them to believe the indigenous people of Africa to be heathens who needed to denounce their culture and embrace western ways (Nkomazana & Setume 2016). Trade was introduced to further ‘spread christianity’ (Tlou & Campbell 1984:129) in (Nkomazana & Setume 2016), but rather had the implication of



Figure 65: Colonisation, <http://usslave.blogspot.com>

Colonisation of South Africa through christianity

The history of Pretoria is connected to the development of various churches and religious groups (De Wit & Theron 1999:1). The church and state had a big impact on each other within the founding years of Pretoria, these two institutions kept each other safe and consisted mainly of the same group of influential people (De Wit & Theron 2010:1). The church influenced the state and the state influenced the church. The people in power were often religious leaders as well.

Upon arrival in the Cape (1652), Jan van Riebeeck made the decision to uphold the "public religion", the Reformed church (Van der Watt 1976:2-4) in (De Wit & Theron 1999:9). The reformed church was predominantly located in the Eastern and Western-Cape, the church was left behind by the Voortrekkers when they journeyed to a more central part of the country. Ministers would visit, but the DRC and Cape Synod were no longer associated with them (Els 2007:291). The Voortrekkers settled within the newly established Transvaal, Zuid Afrikaansche Republiek (ZAR), where they formed a church with the help of a minister Rev. Dirk van der Hoff, from the Netherlands. This was the origin of the NHK. Paul Kruger and various members of the church did not agree with the liberal thinking of the NHK and created a schism in the form of a new church,

the Gereformeerde Kerk (RCSA) under leadership of Rev. Dirk Postma (Els 2007:292). The NHK or Die Volkskerk (*State Church*) was decided in 1858 to be the church for whites only, this is known as Acticle III and was ultimately changed in 1996 (Els2007:292). The settlers' churches were

reserved for predominantly Afrikaans- speaking people who were white (De Wit & Theron 2010:7). Gerdener (1930:628), supports this by stating a form submitted by a church located in Lydenburg: "*The church wants to put on record that if the preaching of the Word would be done amongst the Black nations it would not be allowed in church buildings belonging to the white community. And furthermore, would any church exist or building be erected for Black people it should be done at their own cost or be generated by collections with the intention to conduct their religious services in a separate church or home*" (Translated) (De Wit & Theron 2010:7).

In 1880 the DRC and NHK merged to create NH of G Kerk which only lasted for 10 years. The churches were then spilt up into 3 main church divisions: NHK, RCSA and the NH of G Kerk (Els 2007:292). In 1939 the DRC and RCSA unified and in 1943 the NHK joined them, creating the Inter Church Commission (ICC) (Tussenkerklike Kommissie), later the Inter Church Council established in 2003 (Els 2007:292). The churches struggled individually to make their opinion heard on behalf of racial tension views opposing the governing body, but during the 1980's the DRC and RCSA openly discouraged discrimination as it did not fit their ethos

(Els 2007:292). Contrasting this, the NHK did not change, allowing political figures such as Beyers Naude, Ben Marais, Ben Keet and others to arise (Els 2007:293).

Archbishop Tutu used the term Reconciliation in a biblical meaning as this can be argued to be the place of origin. Els (2007:296) states that reconciliation is necessary in various instances within the New Testament, between: man and God, man and nature, man and himself as well as man and man.

Colonisation of the "Cape Coloured community" and christianity

The East India Company extorted slaves from Western Africa, India and Malaysia, three-quarters of the children born from slave mothers had European fathers within the first 20 years of settlement (Buchanan & Hurwitz 1950:395). Religion was the main reason to extort power and discriminate within South Africa, later race replaced religion as the main power dynamic for discrimination (Buchanan & Hurwitz 1950:398).

The DRC had main monopoly within the Cape, it was vital that children with minimum one parent be baptised. This was extended to slaves that the VOC owned (Els 2007:50). Unrest arose when Khoisan converts were baptised, some settlers did not approve, according to them the new converts were not born in christianity and therefore not seen as equal, this

was the start of formal church apartheid (Els 2007:50). The DRC had no concern with inter racial worship as in 1828 it was made clear that all people are equal and in 1852 a pastoral circular of the DRC established this notion, but in 1857 a synod was dispersed to divide the church into segregated institutions (Els 2007:50). This led to the divide of the church, 'n "DRC Family of churches": The Nederduitse Gereformeerde Kerk, The Nederduitse Gereformeerde Sendingkerk (NGSK (coloured) 1881), The Nederduitse Gereformeerde Kerk in Afrika (NGKA (black people) 1910), Reformed Church in Africa (RCA (Indians) 1965) (Els 2007:51). The division has not yet been closed between the various "family members" (Crafford 1982:37-42) in (Els 2007:51).

The NHK was resistant to do missionary work among black people, the Dopper church allowed it if worship stayed separated. The Apostolic Faith Mission of South Africa (AFM) was popular under the black people of South Africa in 1910 with the Pentecostal movement (Els 2007:57).

The Pentecostal movement, with focus on healing through spirituality, can be divided into three main sub- categories: Classical, Independent and Independent Pentecostal. This was one of the main voices on injustice during the apartheid era (Dhlamini 2018:19).

The religion of the "Cape Coloured community" documented in 1941 in the then Transvaal area existed of 32.1% denominations of Protestant as the most affluent religion and Islam, 5,2%, as the lowest documented secularisation (Buchanan & Hurwitz 1950:406).

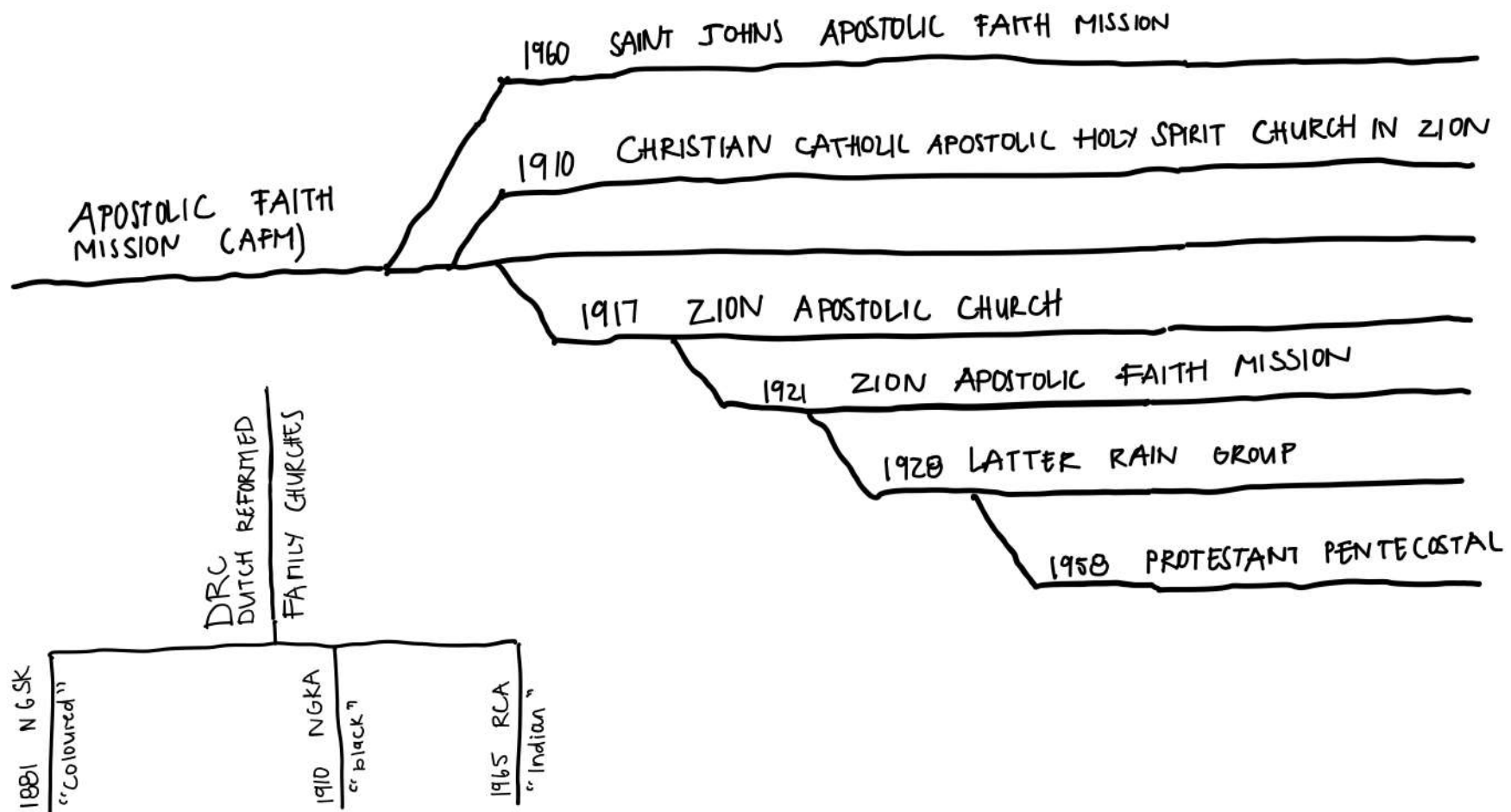


Figure 66: Schism in South African churches by Author 2021

CONCLUSION:

The church was used as a political tool to respond on unjust views, to address them and heal the people within them spiritually. The church is prone to create plural identities in the form of schisms, reconciliation is needed within communities with socio political issues, if the churches work together they have an increased amount of resources and connections. Churches can once again become political tools to solve the injustices still prevalent within the urban fabric. To develop the church the unfolding of the typology must be inspected as the building has evolved over time, to inform the new adaptation.

Chapter 3

3.1_Precedent studies

3.2_Global

3.3_Local

Apartheid

Post apartheid



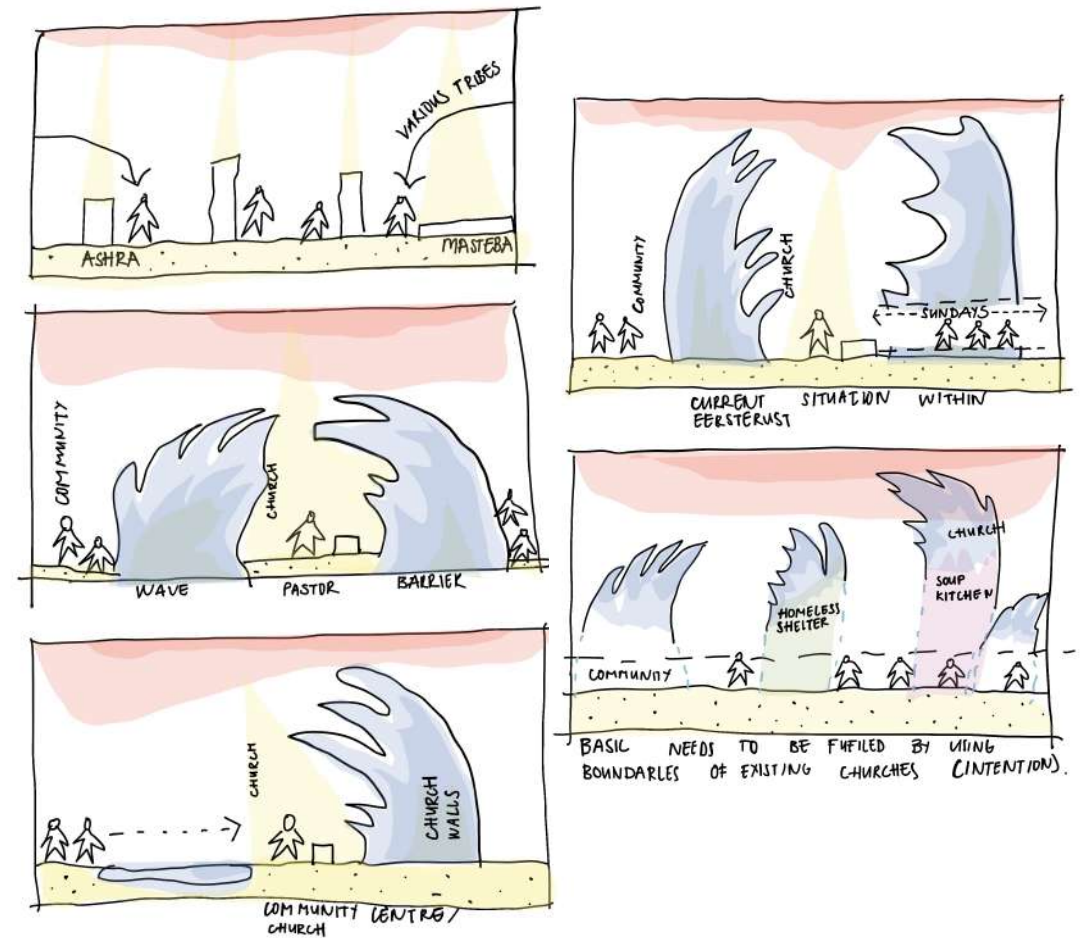
INTRODUCTION:

Religious identity has become an occurrence within socio political communities. How this has developed and the important role it plays within these communities is identified through reflecting on the origin of churches within South Africa and the place they were positioned during apartheid.

Religious precedent studies will be chosen during and post apartheid to identify the change in typology. They will be scrutinised through the lenses of thresholds between the sacred and profane as well as the community, priest and congregation.

Precedent studies will also be conducted on buildings focussing on safety and refuge in the form of a day care centre and monastery.

Case studies are done to comprehend the current typologies and religious spatial design present within Eersterust. To further identify churches within the community, which are in need of intervention.



PRECEDENT STUDIES, GLOBAL:

Notre-Dame du Haut Le Corbusier Ronchamp, France, 1954.

A pilgrimage is undergone to reach the building. The natural channeled light enters the building in a baroque way.

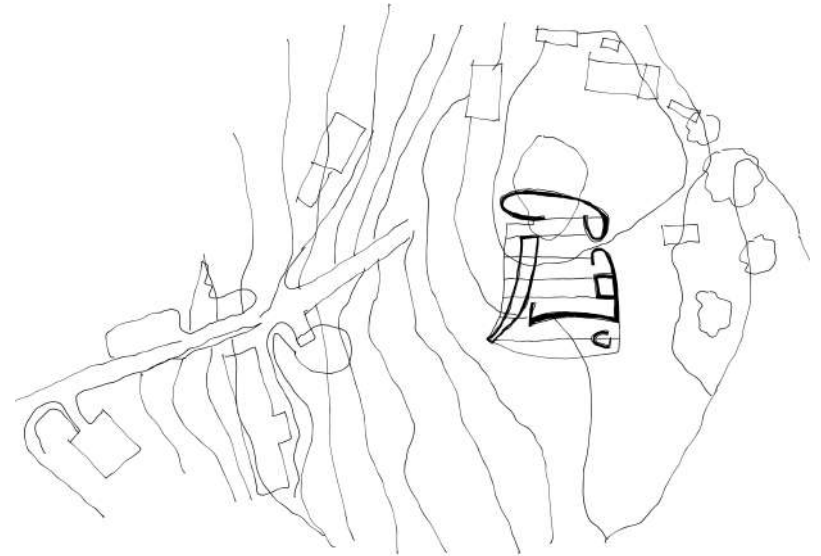
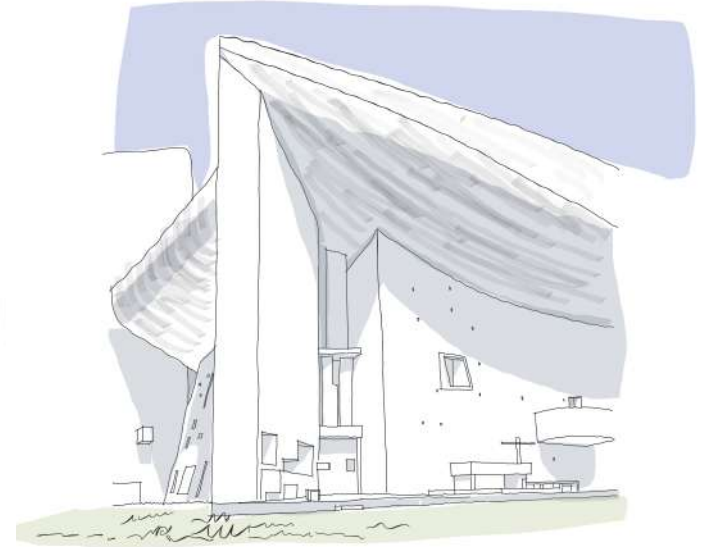
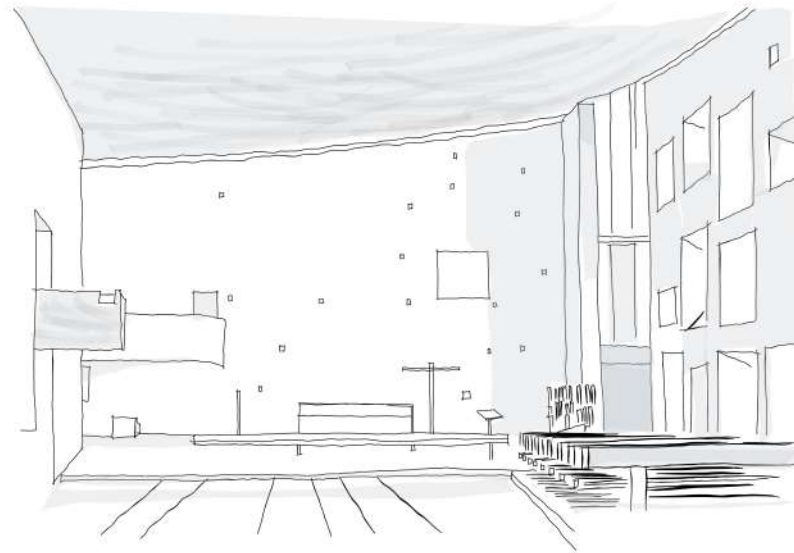
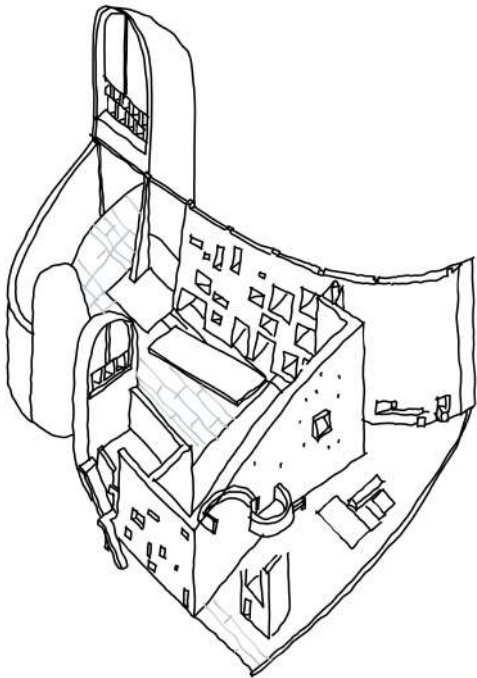


Figure 67: Ronchamp by Author 2021

Pilgrimage is induced within the religious complex, the elements create a sense of enlightenment and the simulation of a "rebirth".

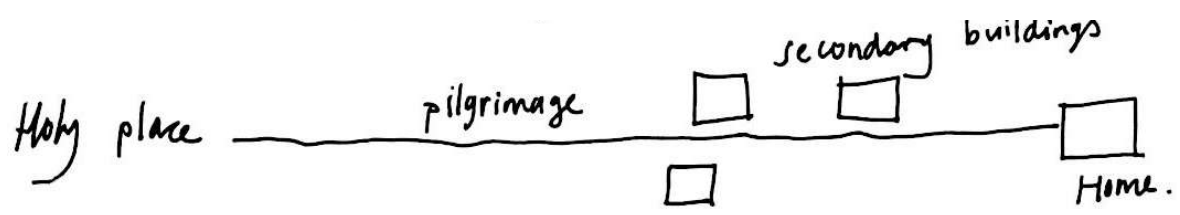
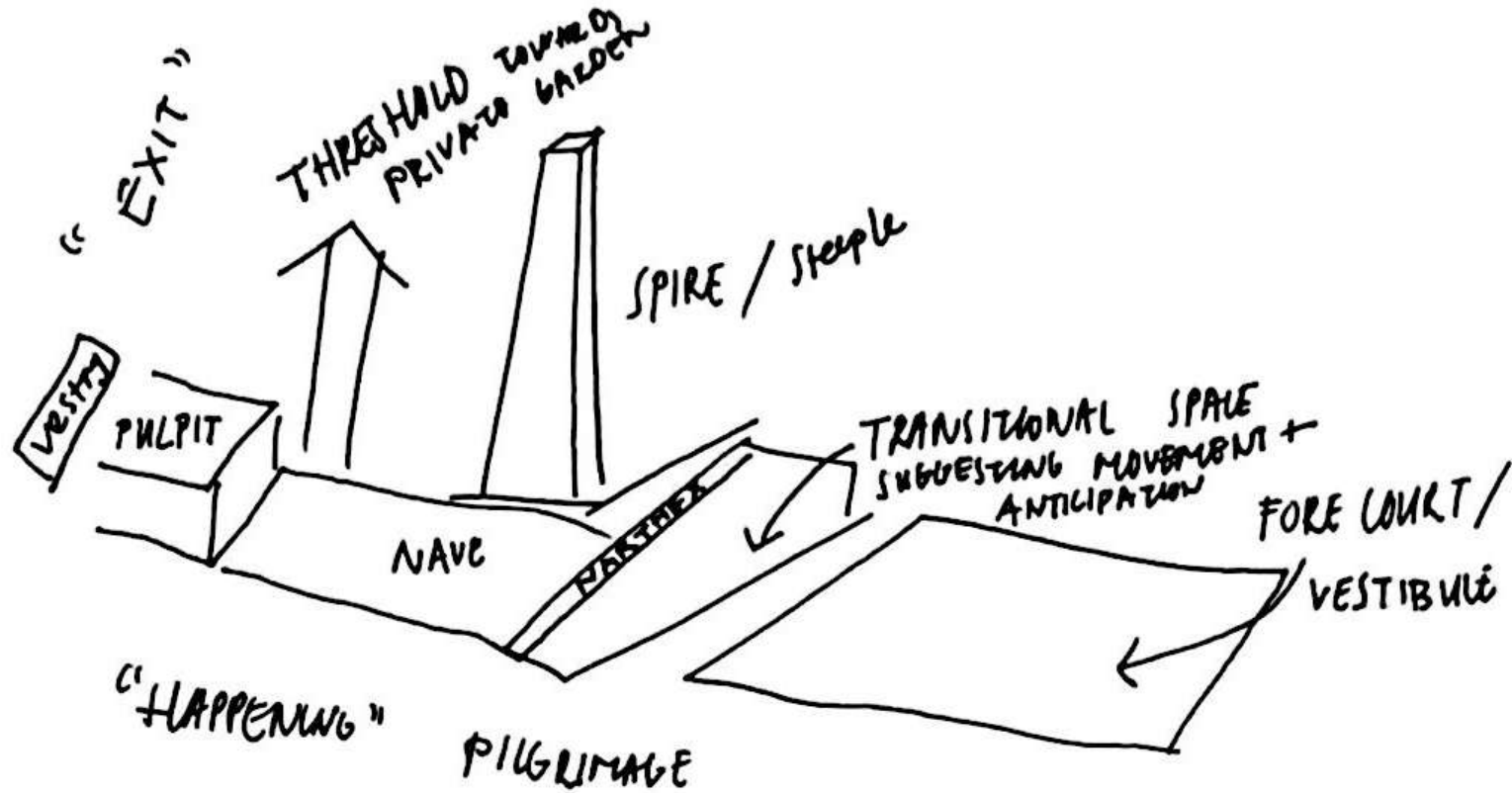


Figure 67: Pilgrimage by Author 2021

PRECEDENT STUDY, LOCAL:

[Holy Trinity church, Caledon, Sophia Gray, 1854](#)

Gray was educated on the Victorian styles of the era, when placed in South Africa her design had to adapt to the climate and construction methods (Martin 2005:9). The basilica like layout was used with a long nave and a spire.

The Afrikaans Reformed churches built within the 1930's, while Gerhard Moerdijk was prominent, were strongly influenced by the byzantine church typology (3&4). Koorts made the comparison between the centralised plan seen in many Afrikaans Reformed Churches to be distinctly influenced by the Greek cross (1&2) (Koorts 1974:57).

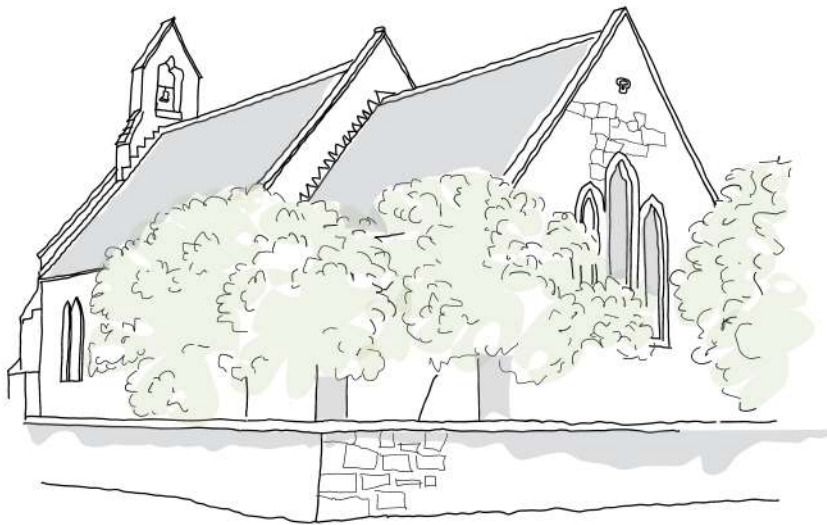


Figure 67: Holy Trinity church by Author 2021

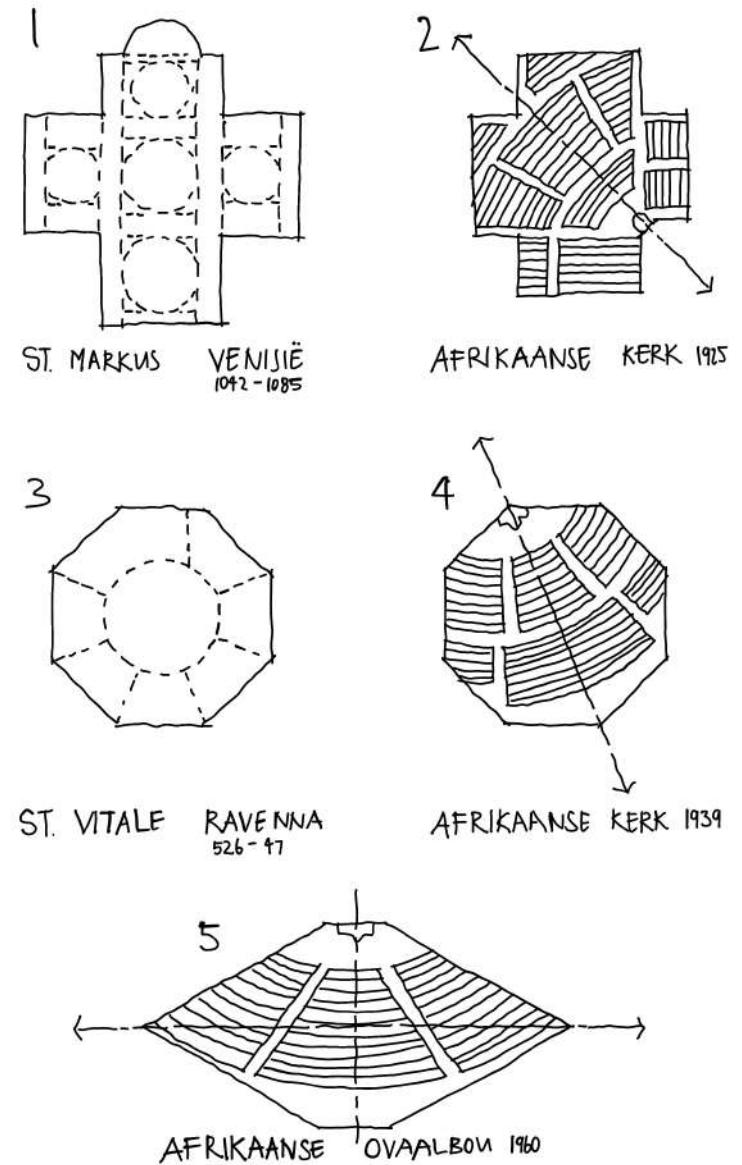


Figure 68: Dutch Reformed church, adapted from (Koorts 1974:57) by Author 2021

Dutch Reformed Church, Welkom West, Roelof Uytenbogaardt, 1964

The centralised plan creates a box within a box (Swart 2010:40). Le Roux (2008:16) states that the plan is changed from the Greek and Latin cross to this new form for a better relationship between pulpit and congregation, creating a more intimate space. The development of this formal church within South Africa uses volume, controlled light and thresholds in the form of seating to order the building and structure it accordingly.

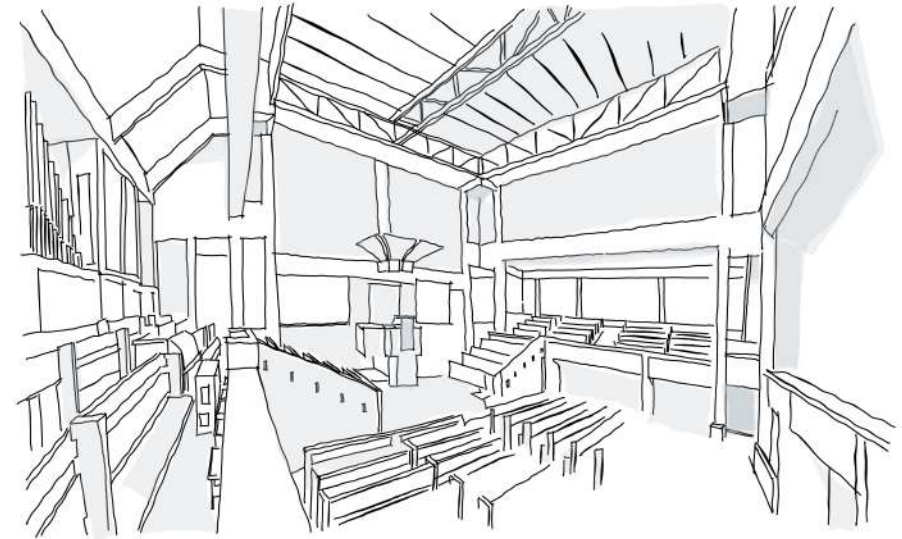
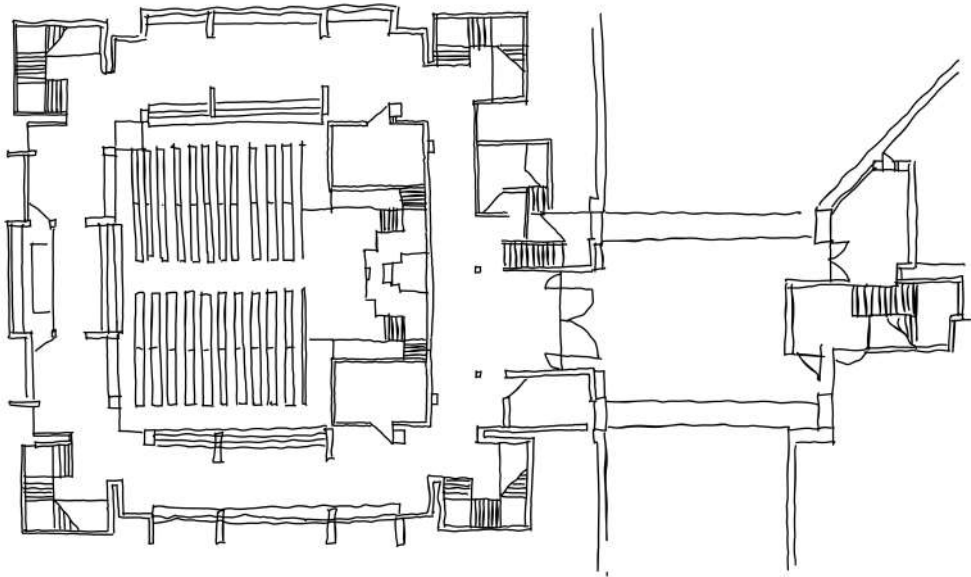
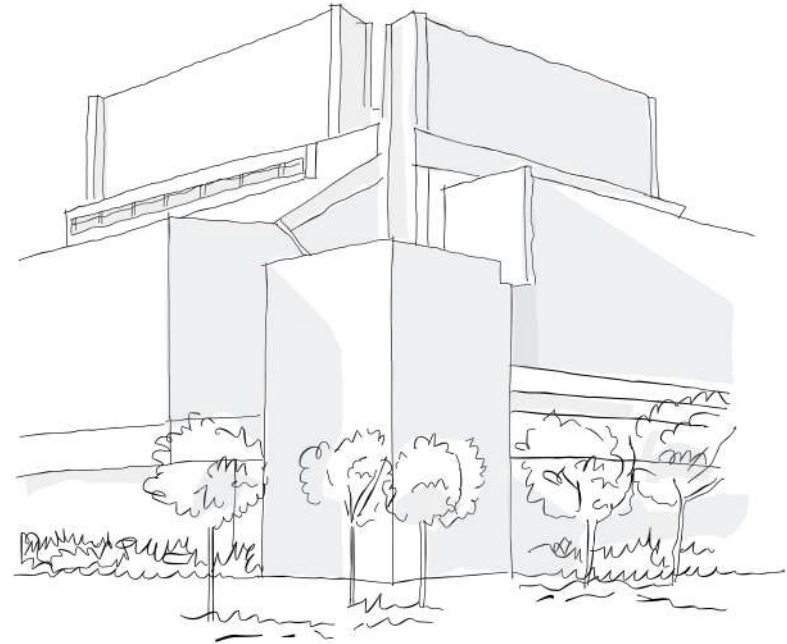


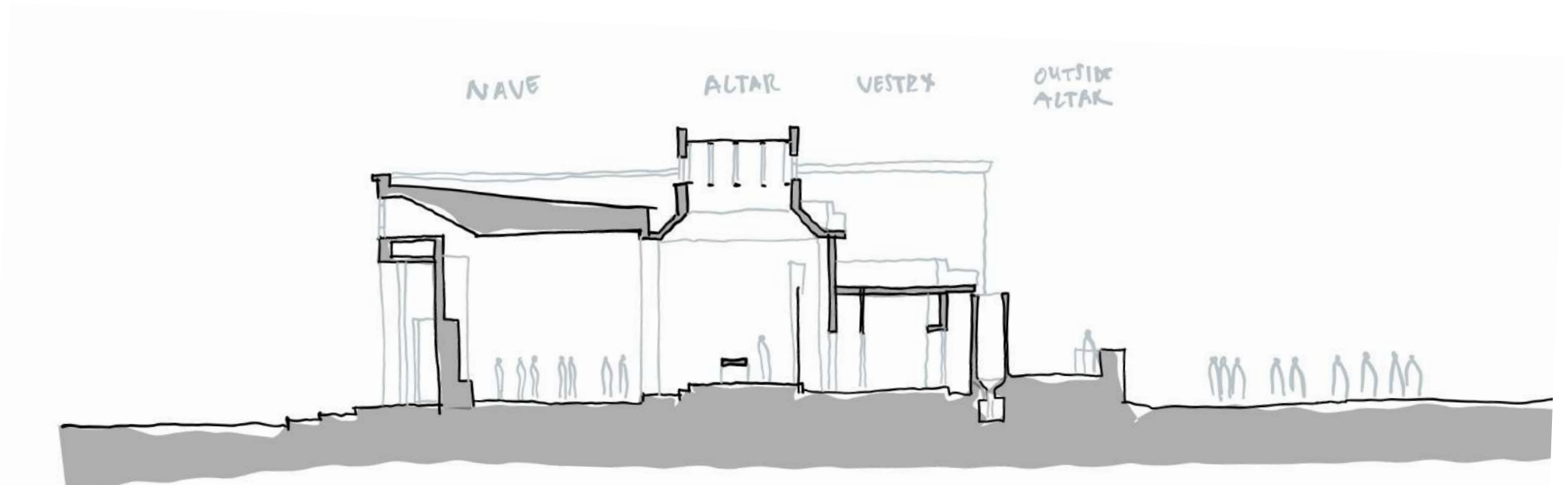
Figure 68: Dutch reformed church by Author 2021

St. Paul's Anglican Church and Ipelegeng Community Centre. Noero & Wolff architects, Soweto, Gauteng, 1984

The design is a church as well as a community centre. The church is divided into four quadrants to create a multifunctional space where the community can be addressed with the outside altar or the three indoor altars can be used simultaneously for corrugations in different languages. This intention might be too ambitious and will rather be used for different services at different times by groups with specific orientation needs. The section of the church shows the same principles used within the early temples, using scale (creating a more intimate space as one progresses through the church and a threshold between the pulpit and congregation. Urban monumental scale vs unimposing personal scale.



Figure 69: St. Paul's Anglican church by Author 2021



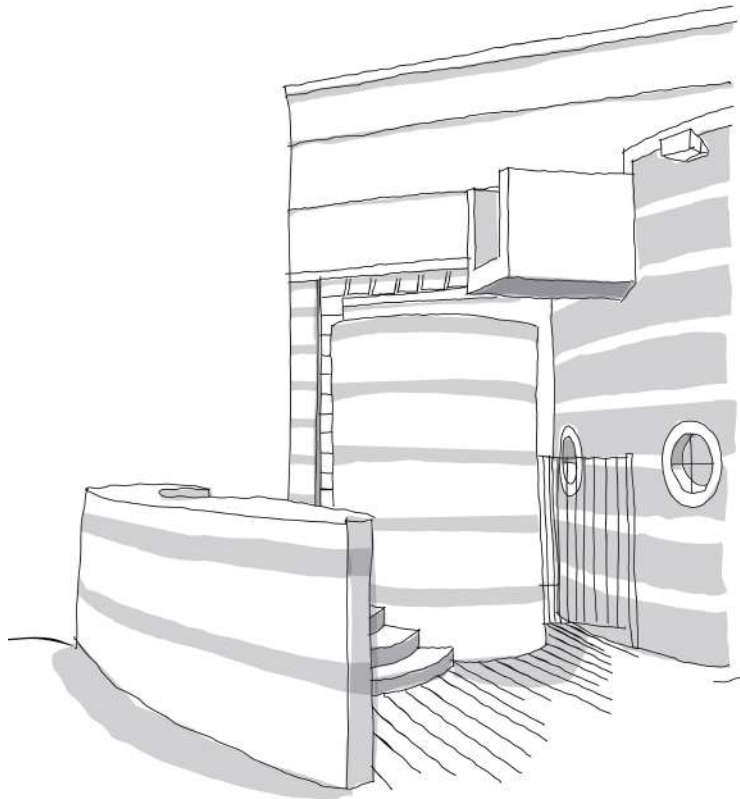
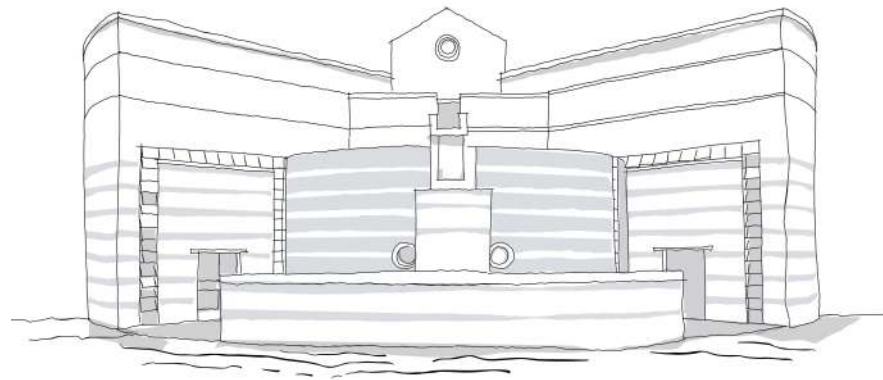


Figure 70: St. Paul's Anglican church by Author 2021

Chapel of light, Pienaar and Wilkinson architects and urban designers
Vanderbijlpark, Gauteng, 2004.

A non-denominational chapel is designed, therefore the building has to create its own context by not using specific religious symbols, but rather objective neutral light as symbolism.

Hierarchy is used throughout the building allowing the vast church tower to become a beacon in the landscape and before entering the building a more personal scaled courtyard is found.

The materials change from brick, profane and public to a whitewashed, secular, private finish.

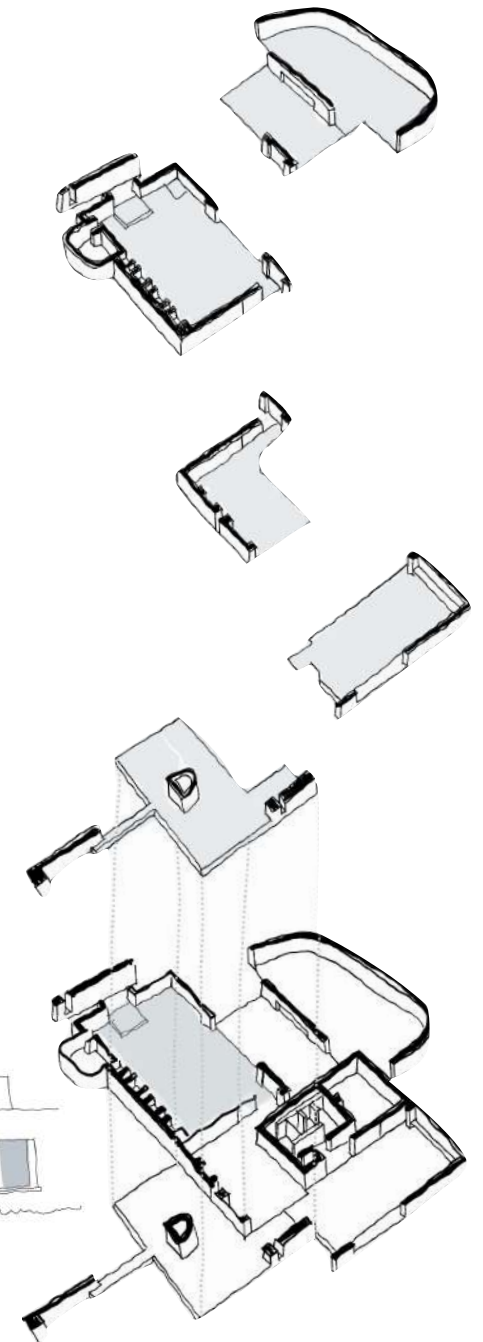
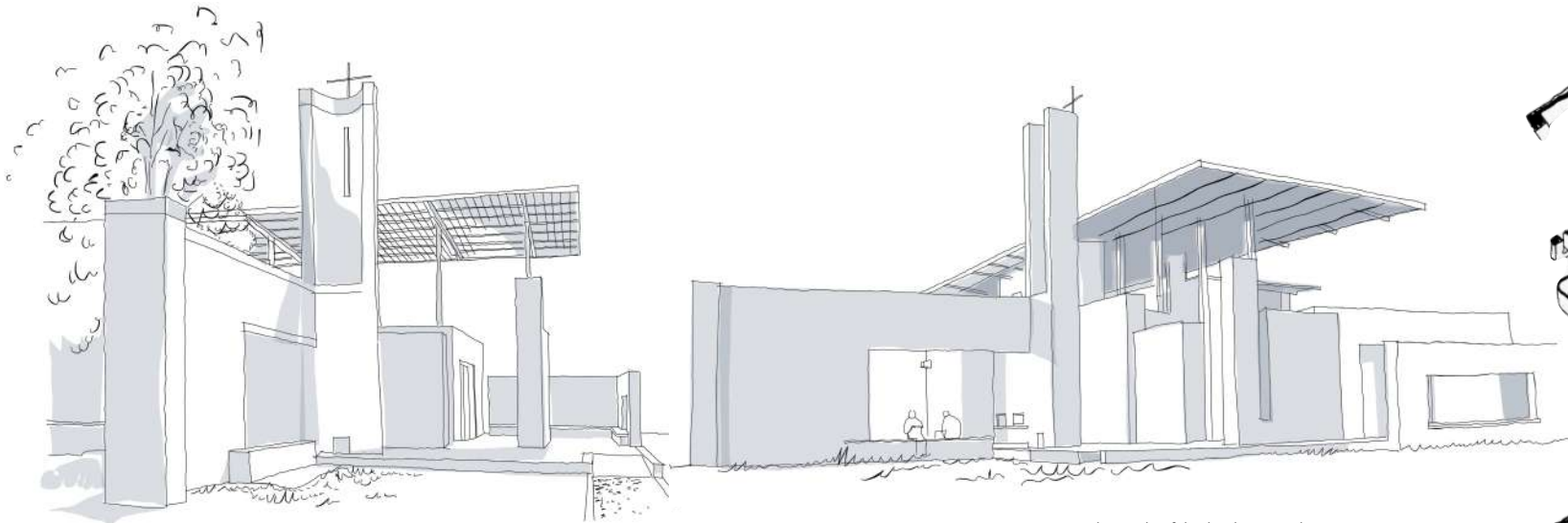


Figure 71: Chapel of light by Author 2021

Prototypical Church for rural areas by Jo Noero, 2009

A resourceful way to aid poverty stricken communities in need of proper church infrastructure. The structure is based on the shed form which is local to the areas of intervention such as Potchefstroom, Jouberton and Sebokeng (Sorrell 2009:23). The facades can be adjusted to personalise the structure for the congregation that will be using it.

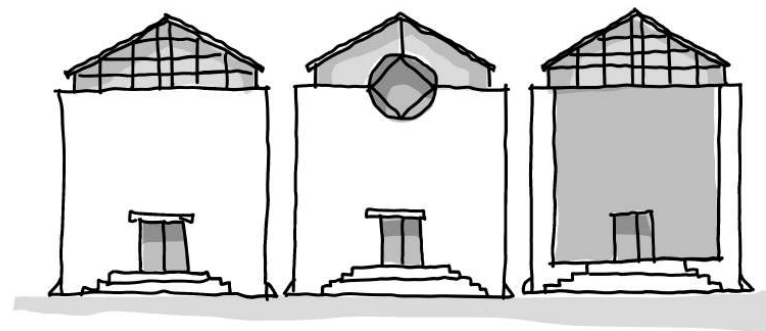
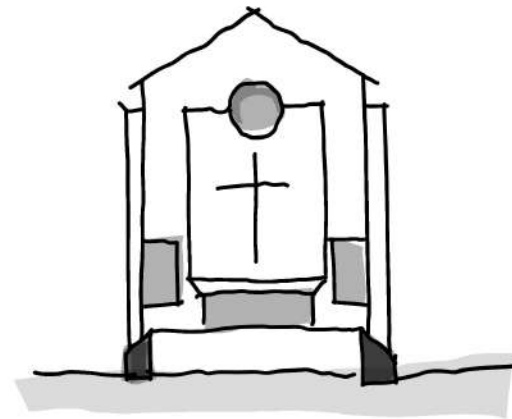
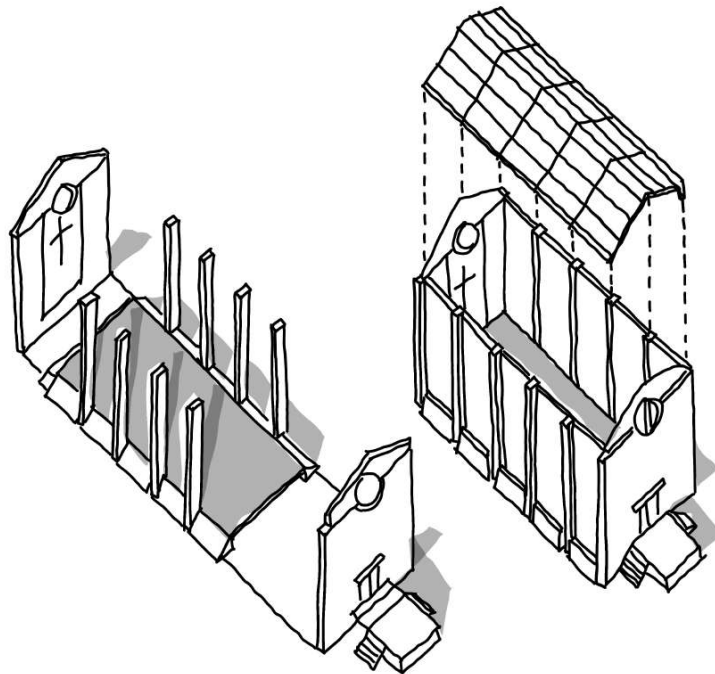


Figure 72: Prototypical church by Author 2021

St. Peter's Seminary in Hammanskraal, by Allan Konya circa 1970

The aim was to create an extension of the landscape through this design with the use of strong horizontal lines and the use of natural colours. The courtyards create useable outdoor spaces and the walkways connect them allowing nature to be in harmony with the built environment around it. The chapel at the centre of the design is located in the safest space with the most layers of thresholds surrounding it. The design becomes the boundaries rather than placing a stark wall with no potential.

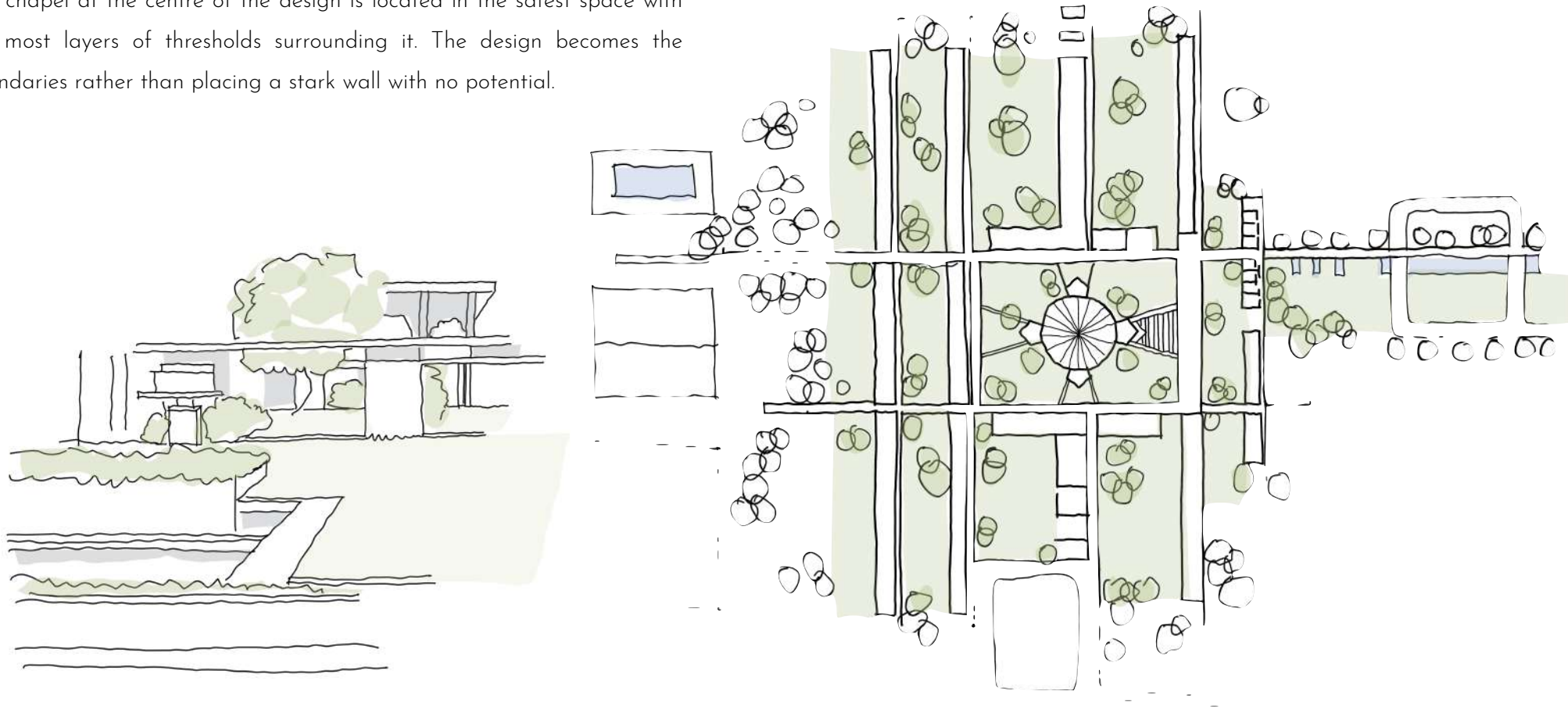


Figure 73: Prototypical church by Author 2021

Delft day care centres Noero architects Delft, Cape Town

Safety as main priority. A courtyard space is created by optimising space as the building becomes the gate and allows place for safe play in an introverted courtyard space. The street scale is personal and a tectonic shading device indicates the protected entrance.

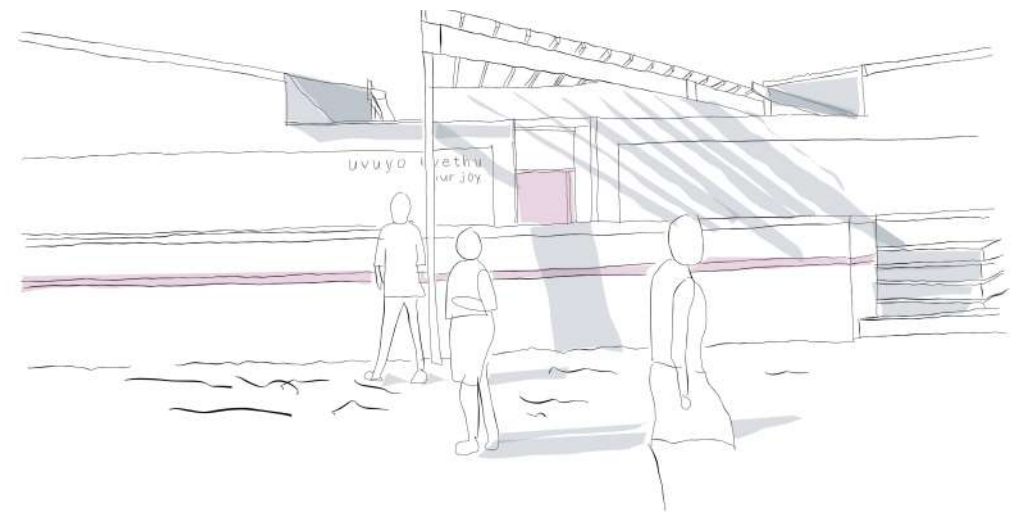
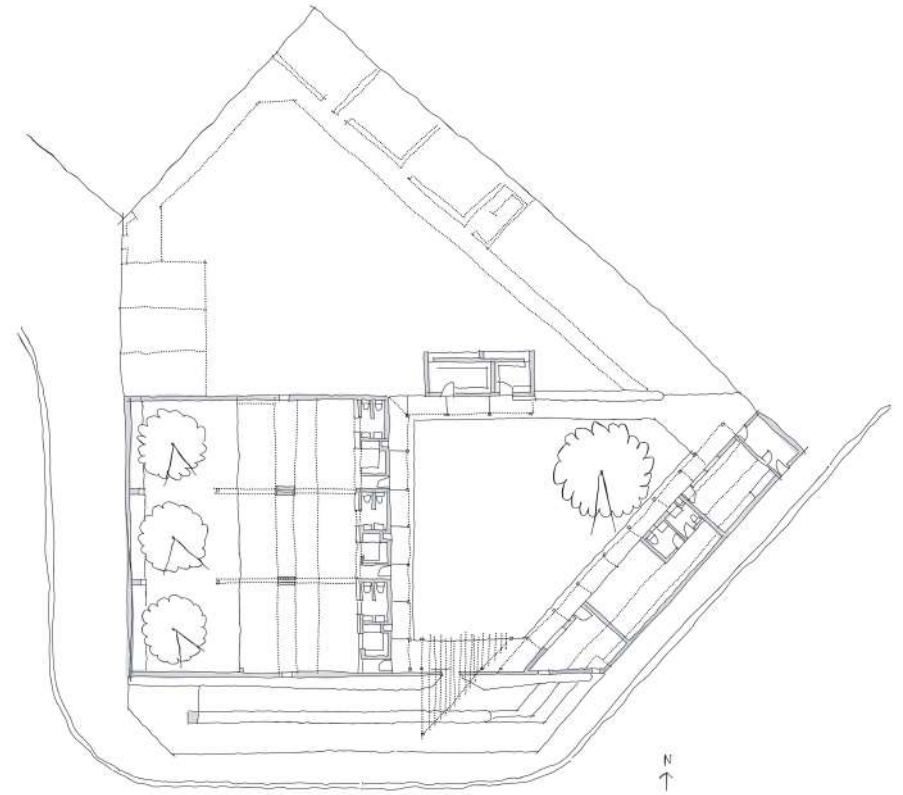
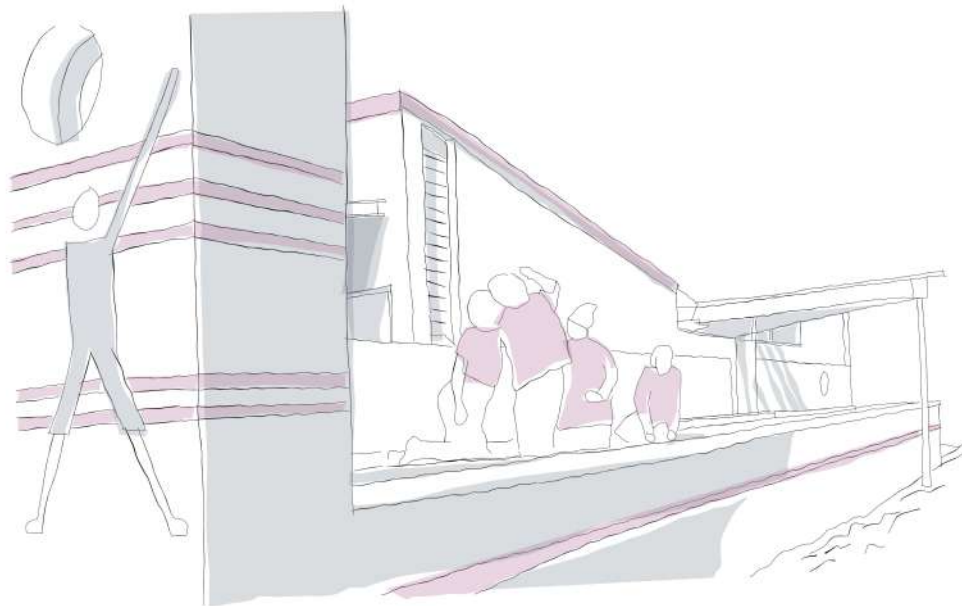


Figure 74: Delft day care by Author 2021

Theoretical non-denominational church in Diepsloot by Scott Thompson (2015).

This intervention is proposed to be created as a non denominational religious space as a future K54 road development is due to happen on a n informal religious strip within Diepsloot. A new site location with connection to these soon to be demolished buildings, is chosen, inducing a sense of pilgrimage and rebirth. An accessible community courtyard creates an open worship space and picks up on the non-secular grip of Diepsloot. The main church building uses data gathered from the soon to be demolished churches to inform the shape and orientation.

The proposed design is a good solution to the loss of religious buildings, but the differences within the various nominations, signage, dress code, orientation, and even primary days of worship creates the author to believe that the building will be best used when used on separate days by various nominations and not all on one day. The differences mentioned above might allow the users to not take ownership and feel estranged in the building. The risk of the design becoming used merely as a community centre or absolute arises. A better solution would have been to divide the church into four quadrants with separate altars, all centralised, allowing a sense of togetherness while being apart and a communal kitchen and safe outdoor space.

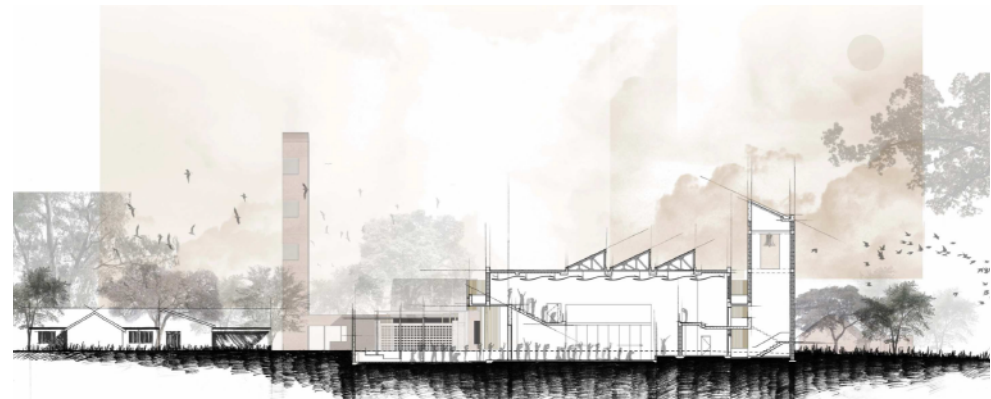
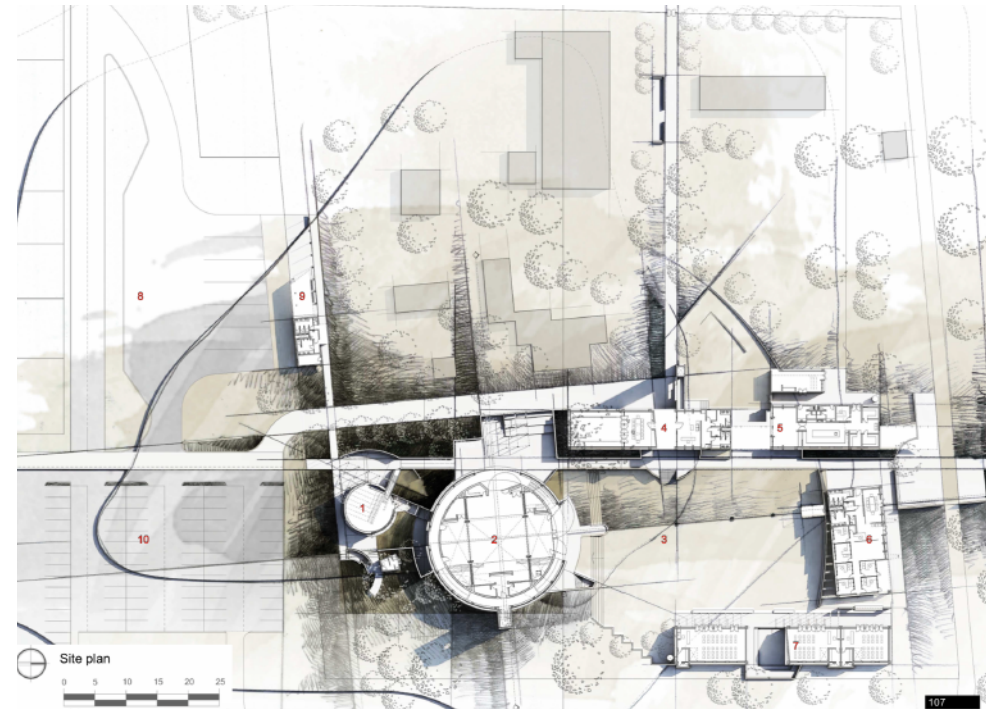


Figure 75: Non-denominational church in Diepsloot, by Thompson 2015

Chapter 4

Case studies

Statement of significance



CASE STUDIES:

Introduction:

Case studies are done to understand the current infrastructure of churches within Eersterust. Five case studies are conducted, with focus on two, the largest current church, Latter rain missionaries, with the most substantial infrastructure, community outreach and funds.

The other case study focussed on, *Ekklesia Assembly of God*, is a tented church that recently gathered funds to create a more permanent structure.

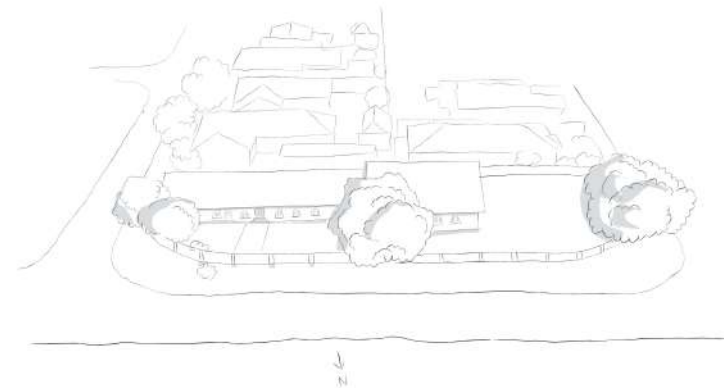
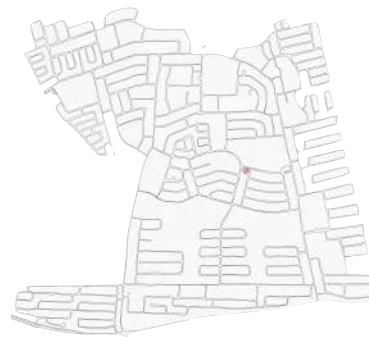
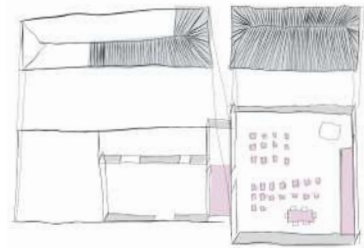


Figure 76: Baptist church by Author 2021

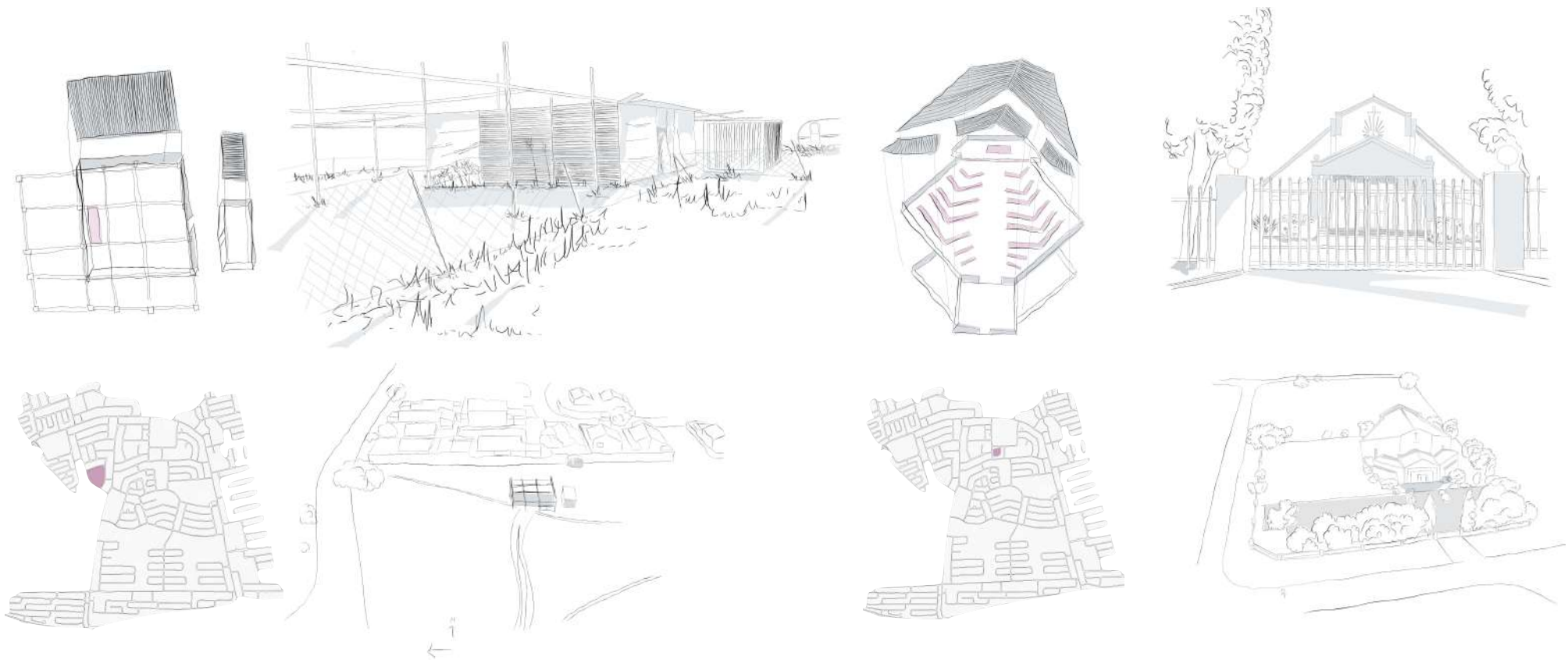


Figure 77: El Shekeia Bible church by Author 2021

Ekklesia Assembly of God

Pastor: Leonard and Ruth Saul (husband and wife)

Denomination: Protestant

Congregation size: 80

Service days:

Tuesdays-prayer meetings

Wednesday- Prayer meeting

Friday- Youth meeting

Sunday- Worship service

NGO's or community support:

Plans for expansion: Expansion was made from net church to building.

Buildings on site: Church space with non permanent seating, ablution, home for caretaker.

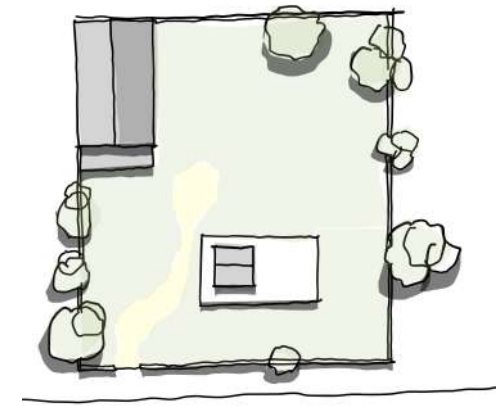
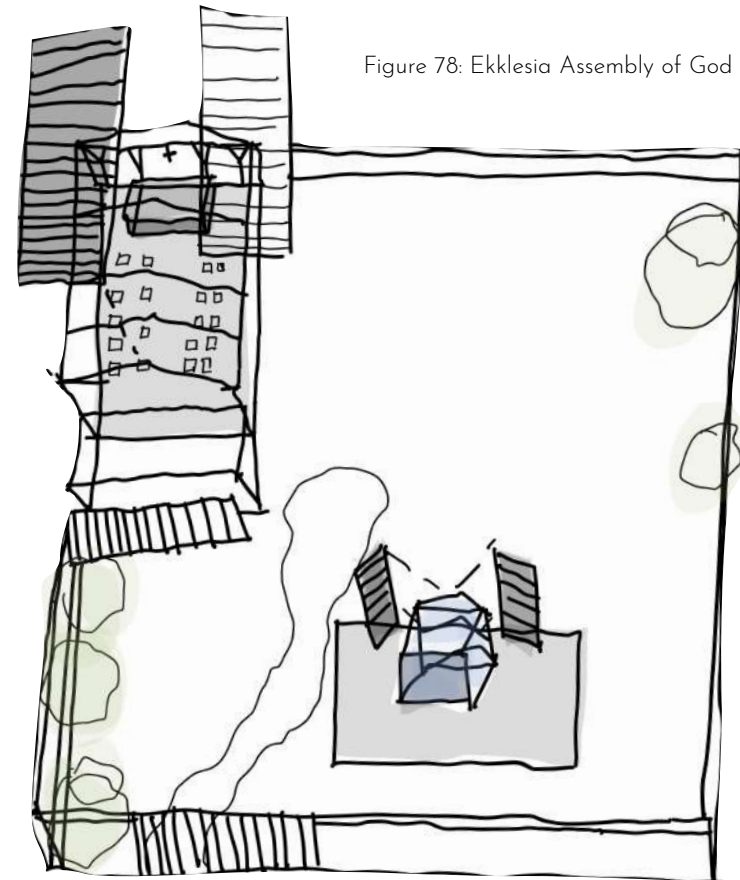


Figure 78: Ekklesia Assembly of God by Author 2021



Latter rain missionaries:

Denomination: Pentecoastal

Congregation size: 130

NGO's or community support: Ecumenical outreach once every quarter. Food is made in the large industrial kitchen and given to community. The pastor is part of the ministers paternal, a new organisation developed after lockdown to discuss the prevalent issues within the community.

Plans for expansion: Expansion of youth centre recently expanded. Two rooms are possible to rent out within this centre.

Buildings on site: Church with fixed seating, stage/ pulpit and a gallery space. Industrial kitchen, youth centre and rectory.

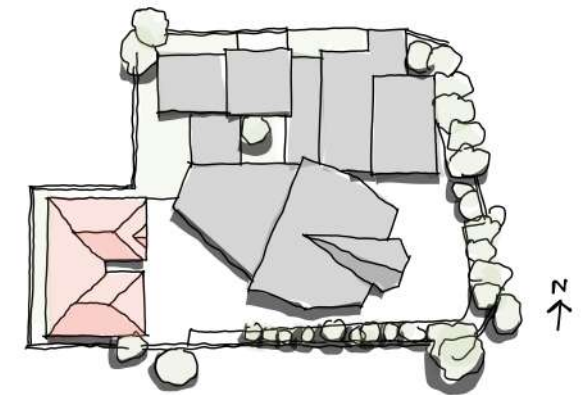
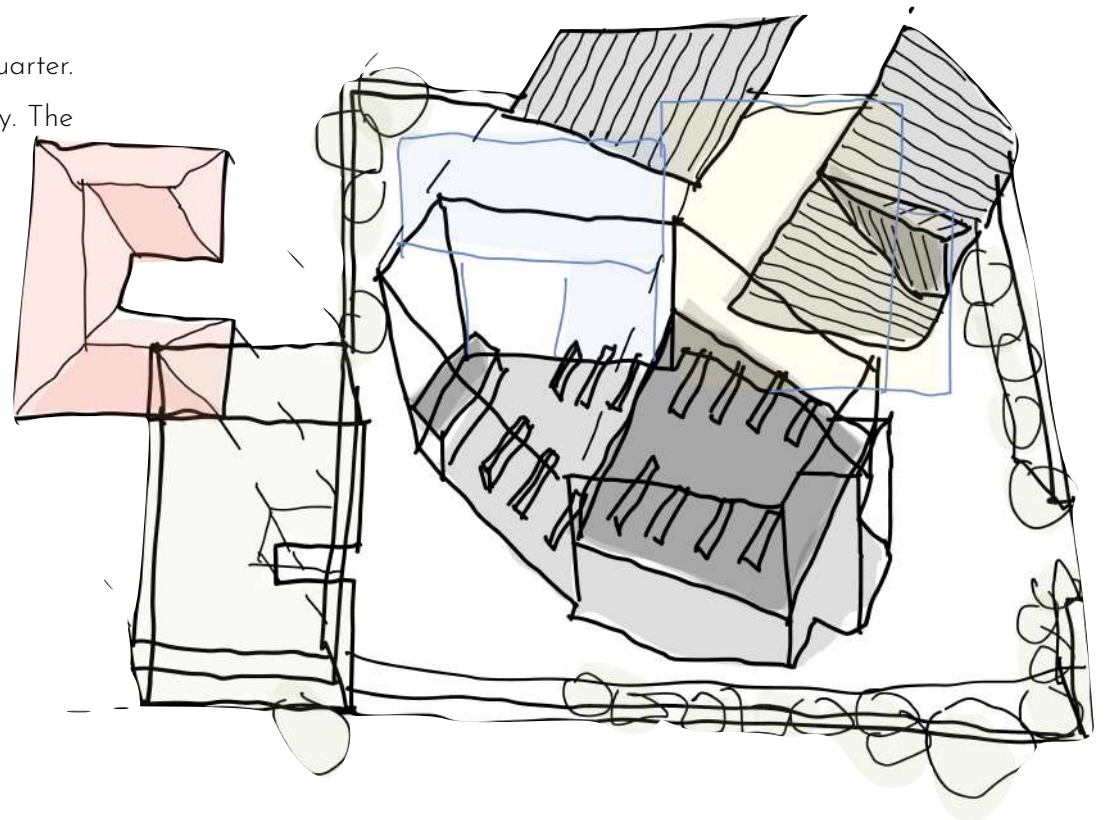


Figure 79: Latter rain missionaries by Author 2021



Statement of significance:

The building is not yet 60 years old, but the historic typology and placement of the building becomes points of interest. Churches were historically placed at the crossing of roads, this building is however situated between two roads alluding to the fact that people of colour had to build their own churches during the apartheid era, whereby the infrastructure was already set out (Group Areas Act of 1950).

The idea of leaving the old, and expanding on it to make it more relevant to heal the community becomes the main purpose.

The over exaggerated roof of the church connects the earth and the heavens and the clerestory windows allow for a dappled light to enter to evoke a feeling of *civitas dei*. According to Van Schalkwyk (1982:159) the *kappiekerk* or tent church became popular after world war two with the

rise of Afrikaner nationalism. The Pinkster Protestant church alludes to the *kappiekerk* design with the exaggerated roof and the accompanying tainted clerestory windows. The religious and spiritual program is of crucial significance.

A rectangular basilica like building is constructed, without any indoor construction visible. The pulpit is created with the use of a stage with moveable chairs in the interior. A storeroom is located to the southern part of the building, placed behind the stage (pulpit). The parts of significance are narrowed down towards the roof form, the clerestory windows and the crucifix plan. The building needs a sacred place for baptism, ablutions and more permanent seating.

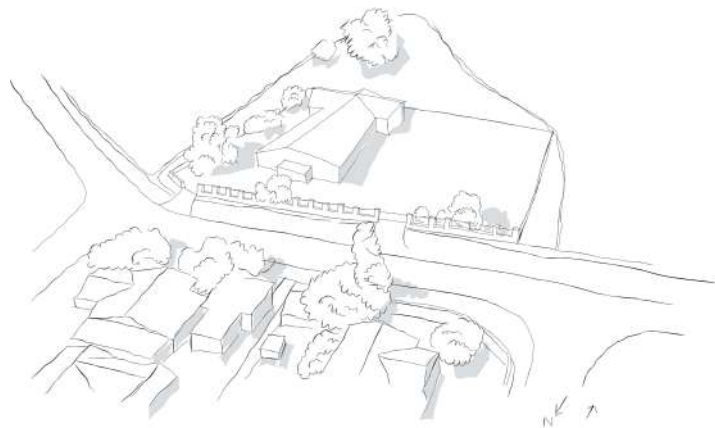
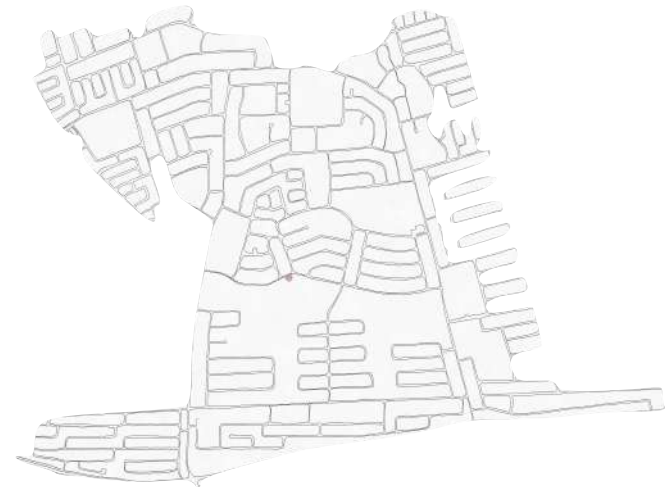
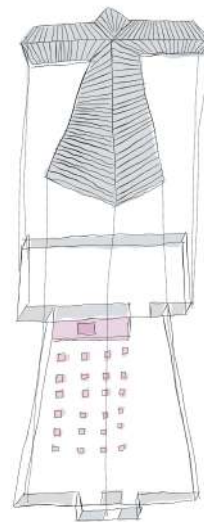


Figure 80: Pinkster Protestante church by Author 2021



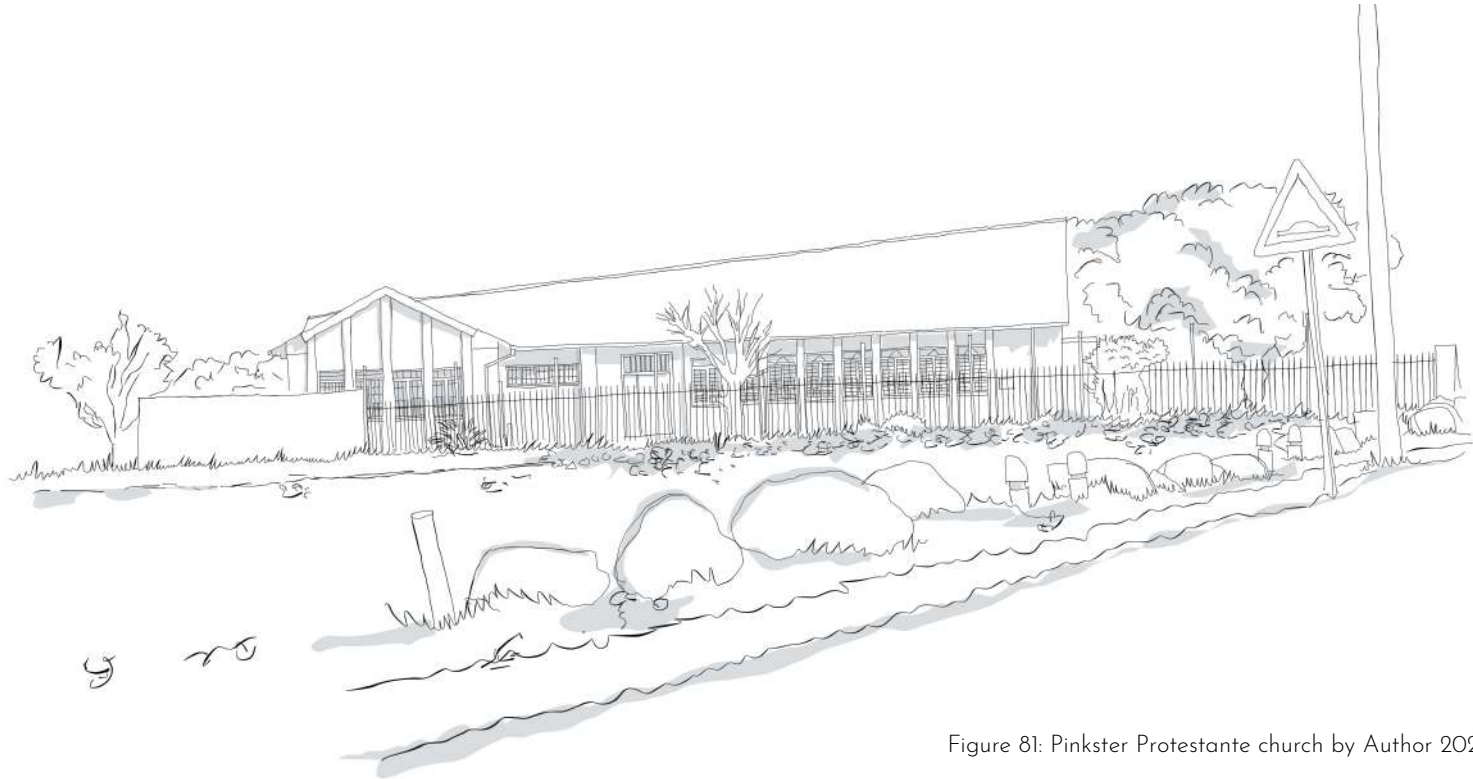


Figure 81: Pinkster Protestante church by Author 2021



Shortcomings of the Pentecostal protestant church

The church is isolated from the community. The church does not align with the vertical street leading up to it and the building is walled off, creating a contrast between nature and this one singular man made building. The walls create strong boundaries, leaving the ecology to its own devices with no form of integration or rehabilitation to the polluted nature in need of intervention.

Treatment methods for abused woman:

The post-apartheid democracy developed the Domestic Violence Act (No. 32 of 2007) to protect groups such as woman and children or other vulnerable groups who were historically discriminated against due to a background of inequality (Nadvi & Naidoo 2013: 143). The act however focusses on justice for victims and punishment for the perpetrators, emitting to the actual cause which is the unjust behaviour. Within the demographic of South Africa and the astronomically high crime rates, poor prosecution rates arise. Due to these low rates domestic violence becomes one of the 'safest crimes' to commit within the country (Nadvi & Naidoo 2013: 145). The route of the behaviour must be addressed in order to lower the statistics.

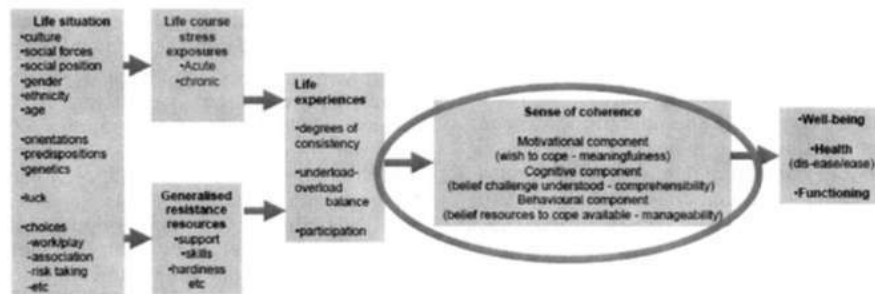


Figure 1. The salutogenic model to guide health promotion [adapted from (Antonovsky, 1996; Mittelmark, 2008: 12)]

(Nadvi & Naidoo 2013: 146)

The sense of coherence is the tools a person has to their advantage or disadvantage when handling factors that have an impact on us.

A treatment which addresses the roles of power, the patriarchal ideology which can in many instances be seen as the main aggressor, is addressed through the *Duluth* model (Pence & Paymar 1993), in Kaufman & Stover (2009:224). This model makes use of a Power and

Control wheel, to exhibit the ways in which men assert power (Kaufman & Stover 2009:224).

Cognitive behavioural treatment (CBT) focusses on how non-violence must be the main option by teaching methods to handle violence internally rather than externally (Adams 1998) in (Kaufman & Stover 2009:224).

Child-focussed treatments, aim to prevent children at risk of depression, PTSD, attachment disorders or anxiety disorders (Kendall-Tackett 2004) by allowing for group treatments whilst temporarily living within a shelter with their mothers or individual treatment within a clinic (Kaufman & Stover 2009:224).

Within the study of Kaufman & Stover (2009:225), the various treatments are put to the test. The *Duluth* model tested in a group shows that 13% of the perpetrators did not recommit, 30% did not complete treatment and formed part of the group of recidivists. The most effective way of treatment is a combination of the three treatments mentioned. It can be used as a preventative measure or as a way of healing. Therefore the abused, abuser and observer must be treated simultaneously.

CONCLUSION:

Safe spaces are limited within Eersterust, churches are historically places of refuge, but in the community they are too gated and un-inclusive.

The church typology has been challenged/ addressed through the innovation and thoughtful design of new church buildings within South Africa, post apartheid. The churches within Eersterust are stuck in the same typology of un-inclusive design and a single functioning building.

Chapter 5

5.1_Brief

5.2_Architectural contribution



BRIEF DEVELOPMENT:

The three main users in need of intervention within this design are victims of gender based violence, backyard dwellers, the fractured ecology (refuge) as well as church goers (ritual). The gender based violence victims have to do with the woman who are abused, the abuser and children who are in the wake of it all. This can also be taken further towards the church, to induce a role for the woman within the building. This can be achieved by allowing for a clinic with consultation rooms, a space for group therapy, overnight rooms and a day care centre. This all has to have layers of security with the overnight rooms at the most safe space. Thresholds must be developed to allow this layered approach with a clear progression of the battered towards the healed. The church is to be more accessible towards the community and the building is to simultaneously become part of the landscape. Courtyard spaces are to be designed to allow for safe useable outdoor spaces and the connection between nature and manmade.

The community of Eersterust needs a building dealing with the injustices of the past and present to create a prototype which can be applied to the churches within Eersterust, fulfilling the needs of the community and congregation. To ensure a space of refuge, a sense of ownership must be simulated within the interior and exterior space.

The concept is ritual, refuge and reuse.

ARCHITECTURAL CONTRIBUTION:

The existing surplus of religious buildings create a disjointed web, with the vast potential of healing a community with socio political challenges. The architectural intention is to create a new typology, which includes a religious secular space, but bridges between the secular and the profane to allow an area of release within the chaotic urban fabric, creating refuge for victims of gender based violence, backyard dwellers as well as the fractured ecology. The space is to be accessible to all with various layers of protection through developed thresholds to heal the urban fabric and its inhabitants through the development of a prototype which can be expanded towards the existing churches in place.

PART 3

Chapter 6

Design development



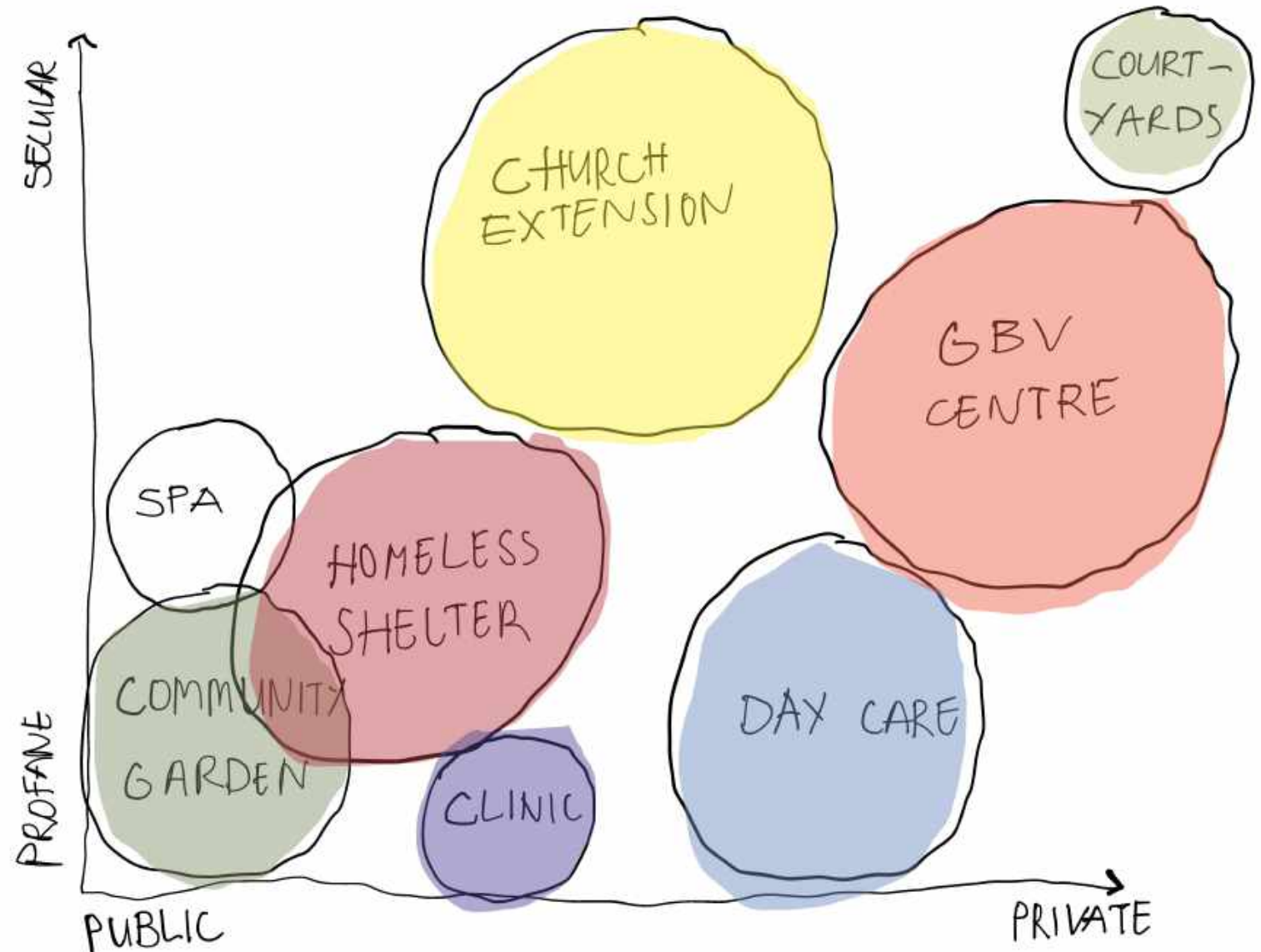
Program development

The main users identified are victims of gender based violence, people in need of consultation and rehabilitation, therefore including men and children on certain occasions. The perpetrators, who in this study are identified to be mainly men, who attend the rehabilitation centre demands that this area has a layer of security. The children who attend these sessions will not be present at all times and therefore need for a day care centre arises.

A spa/ hair and nail salon is part of the rehabilitation centre. This can also become a way to generate income for the design and the people working here.

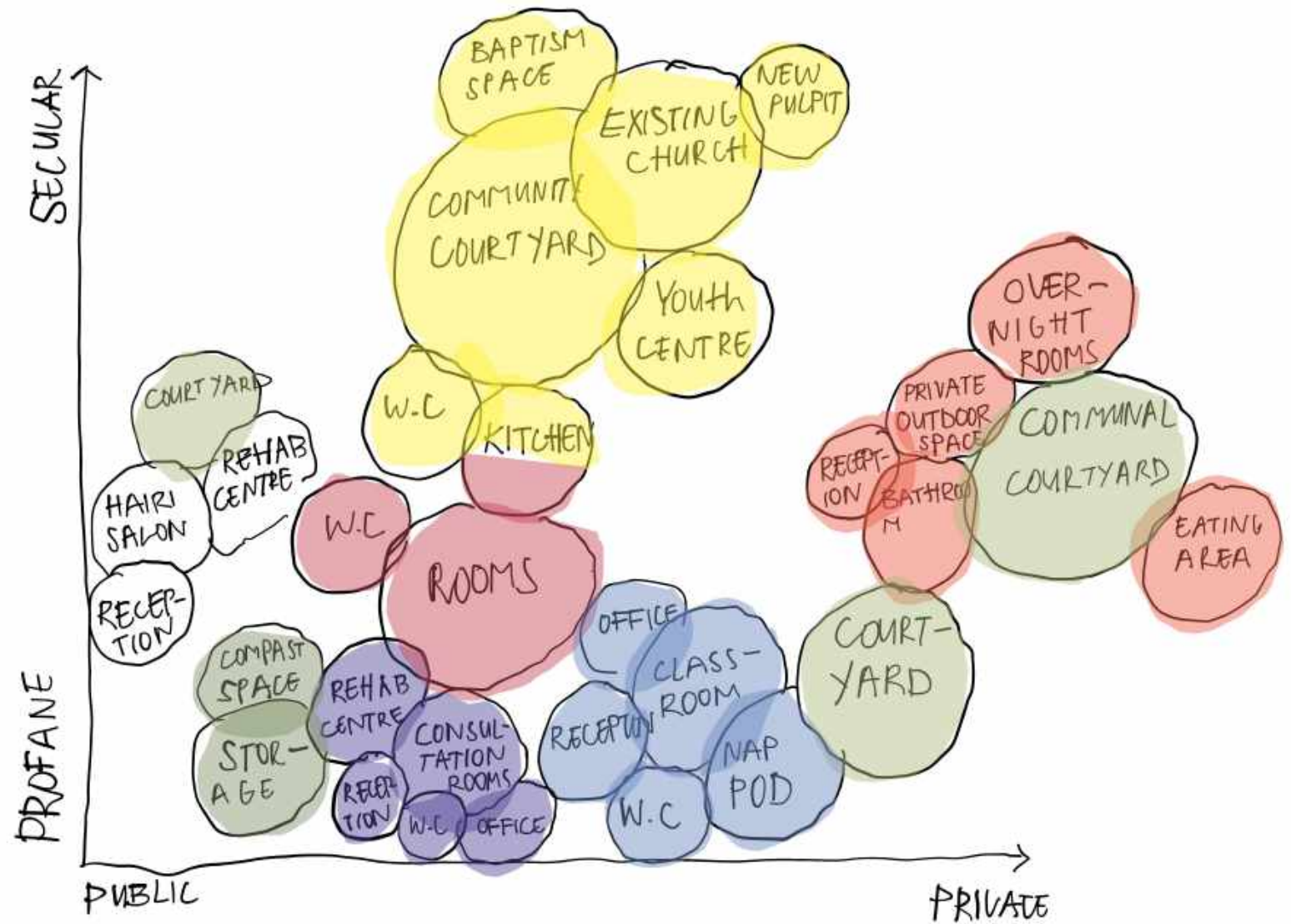
The church extension needs a space where a youth group can be held, congregation space for current users of Pinkster Protestant church, a kitchen, ablutions and a space for baptism.

The homeless shelter/ space for backyard dwellers is a private temporary dwelling. Bathrooms are to be provided which can also be accessed by the people walking past the design.



A market place is developed on the most public facade and along the design parameters.

Communal gardens are to be grown around the design to feed the community and fuel the kitchen. Courtyard spaces are to help create an ecological corridor flowing through the proposed building.



Design development:

Design iterations

An intuitive response was taken to identify the safest space on the site. The existing church is largely kept within the design iterations as the church complex is to be extended and not disregarded. Existing grid lines such as desire lines, intersecting streets, building edges and contours are defined and used as informants.

In the design safety becomes a main priority, in the community stark barrier walls are used to achieve safety, but this ends up excluding and shutting out the general public and allows for care to be applied to the perimeters of the walled site and no further, leaving pollution, the fractured ecology and outsiders to their own demise. Within the design, an emphasis was placed on not using barriers as thresholds, to allow the impression of a more accessible building which has the capacity to draw people in. The multifaceted program allows for various users and a spectrum of facilities from public to private and profane to secular.

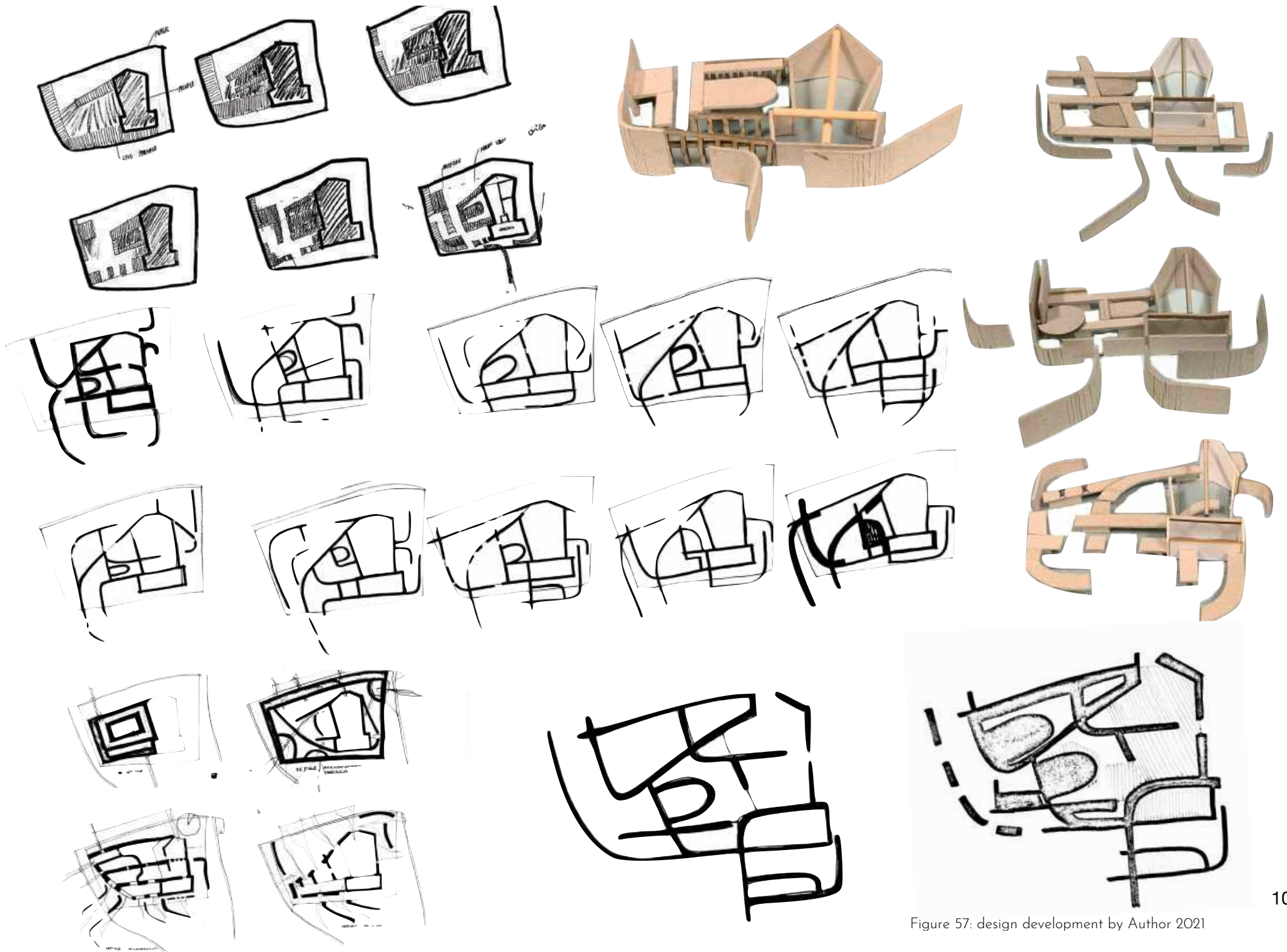


Figure 57: design development by Author 2021

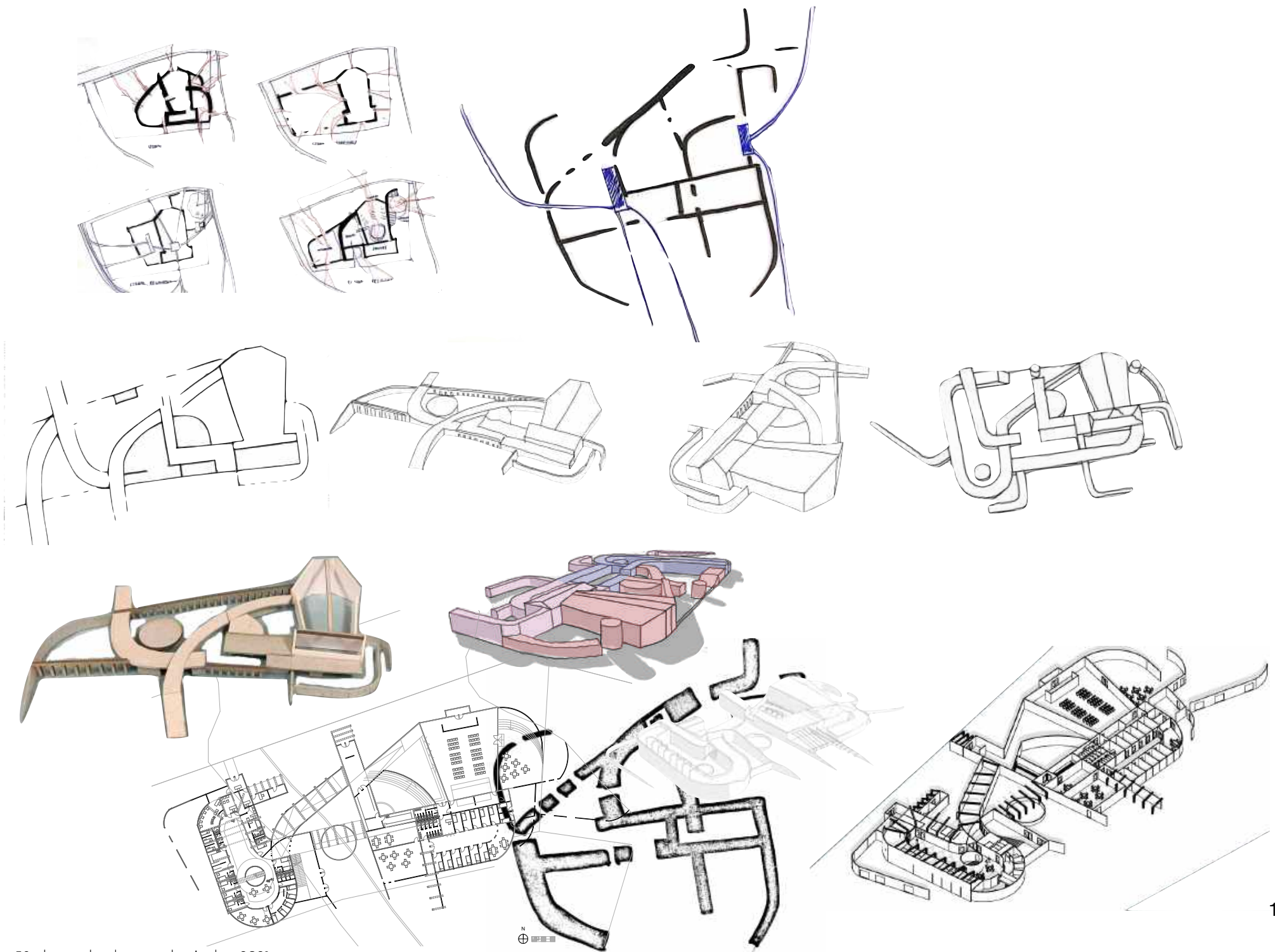


Figure 58: design development by Author 2021

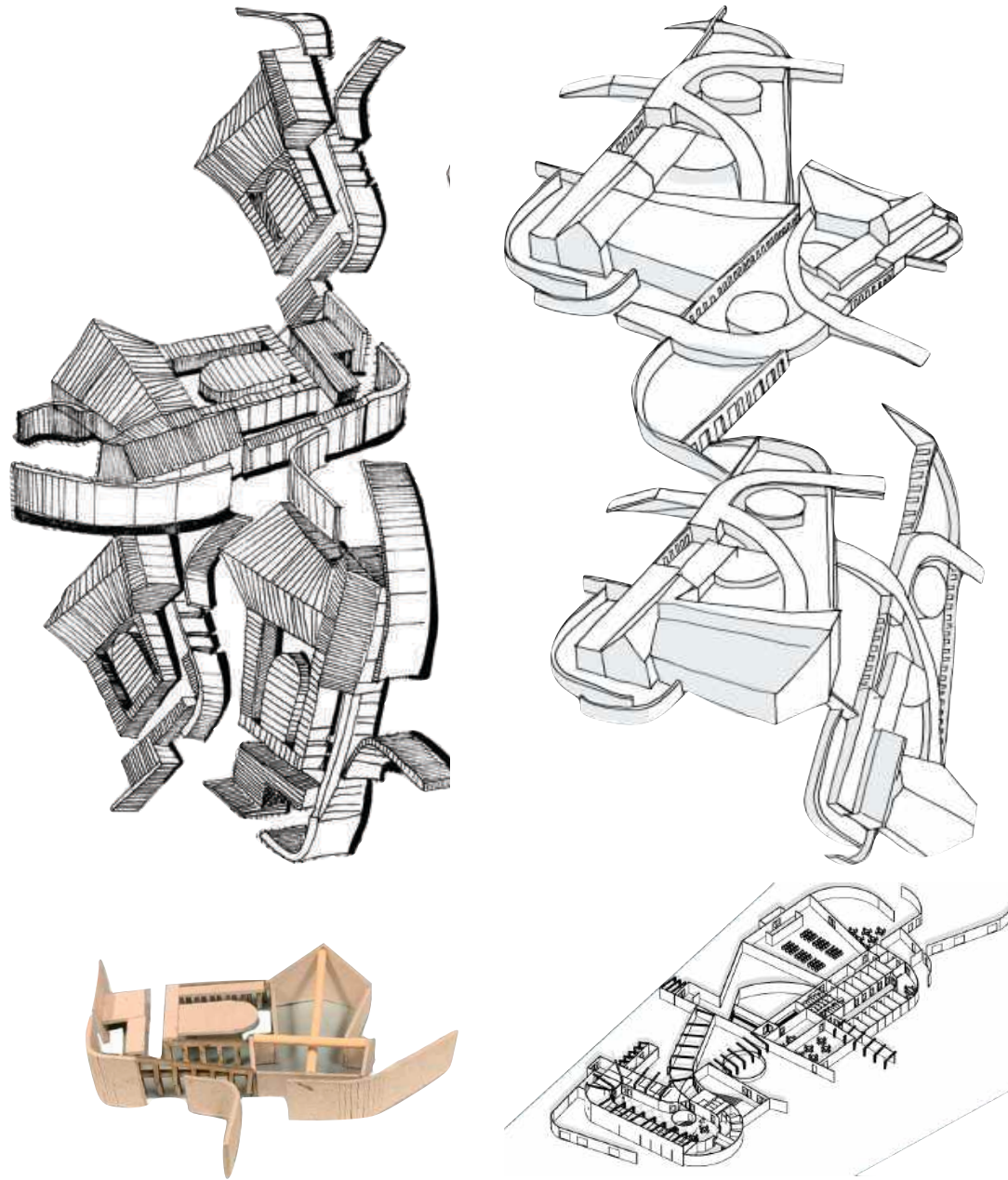
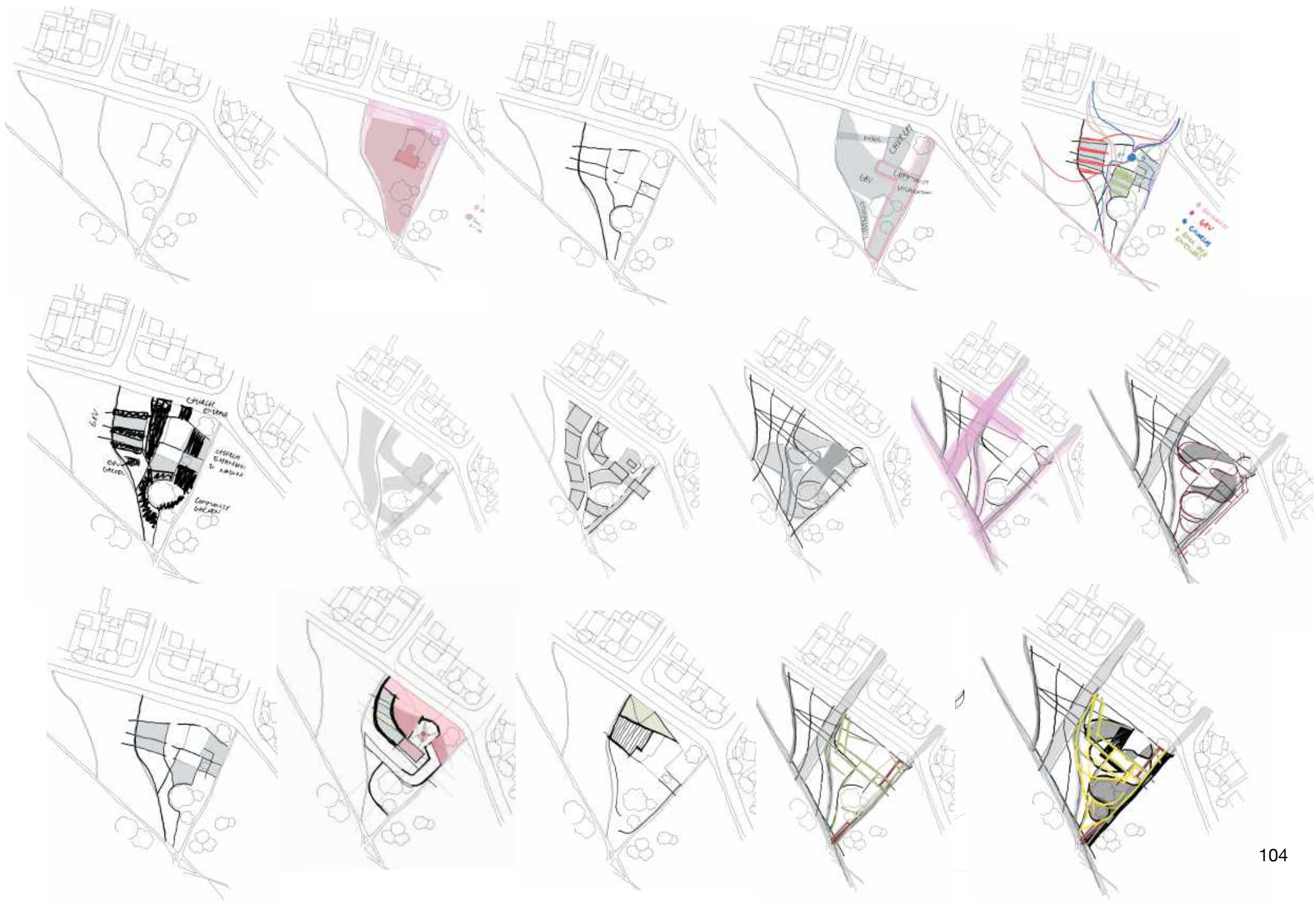
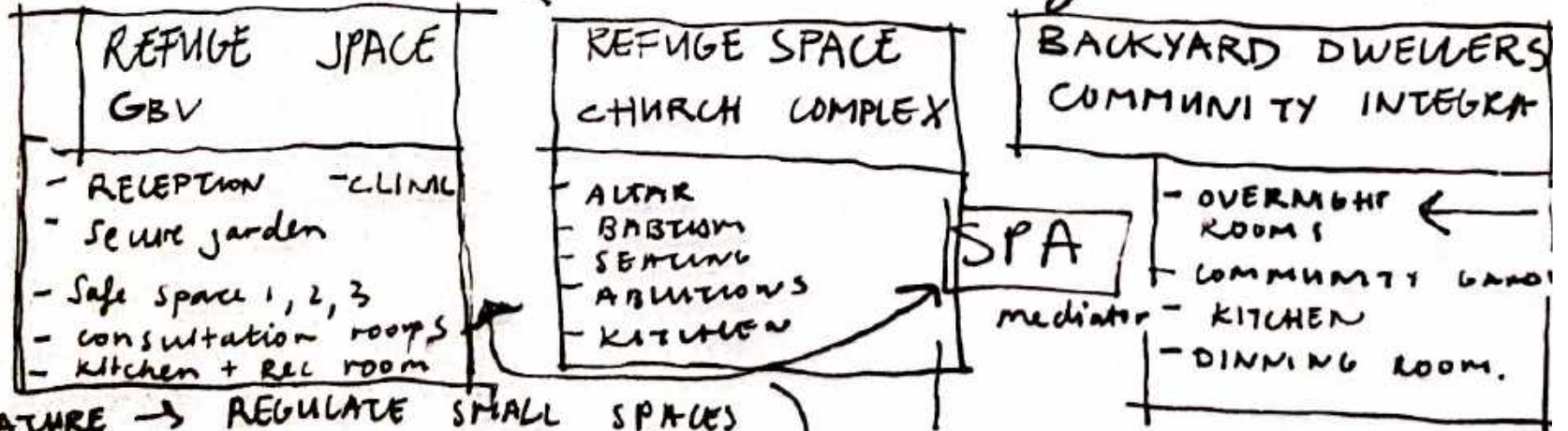
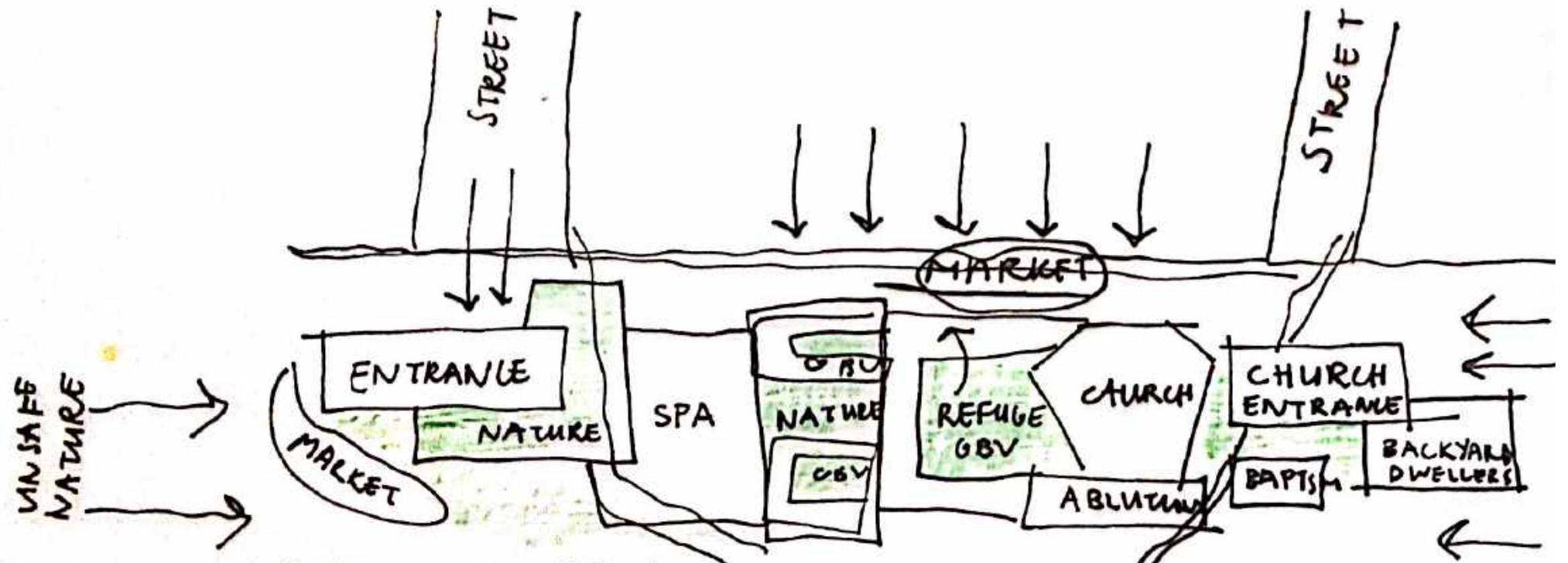


Figure 59: design development by Author 2021





1. AFF - NATURE → REGULATE SMALL SPACES
 STREET → REGULATE ENTRANCE

MARKET SPACE
 TO PLACE EYES ON SIGNS

Figure 61: design development by Author 2021

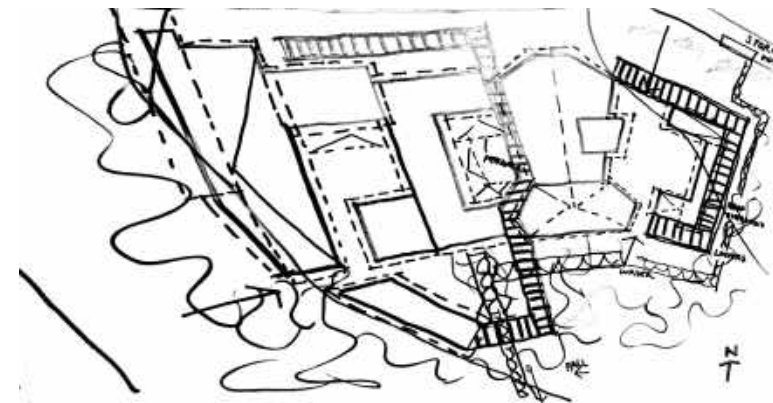
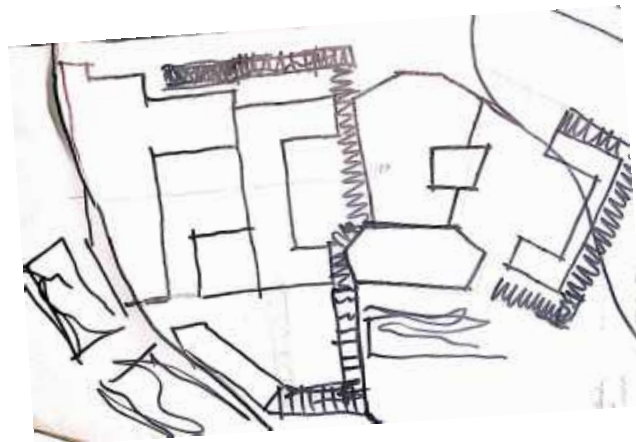
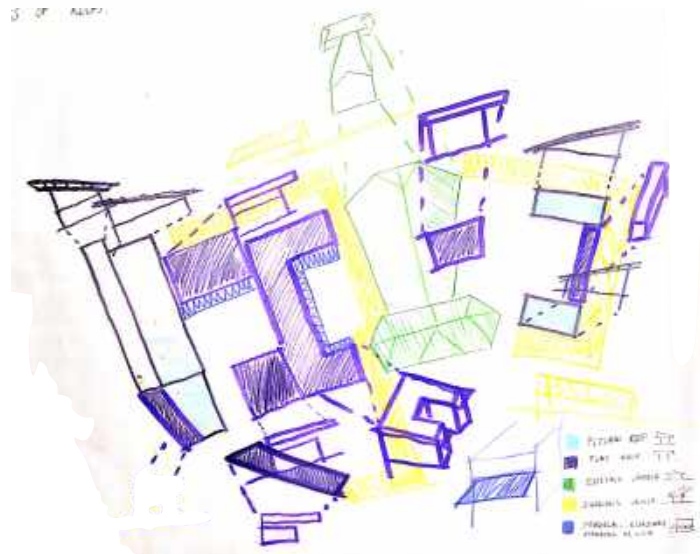
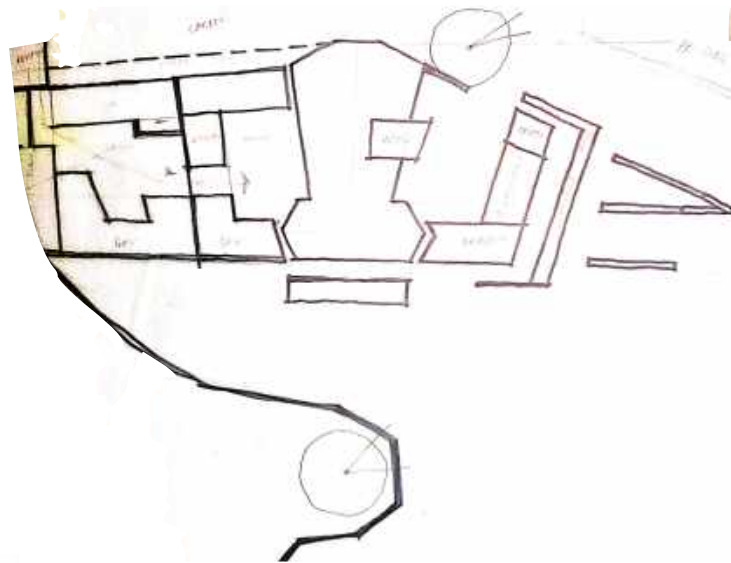
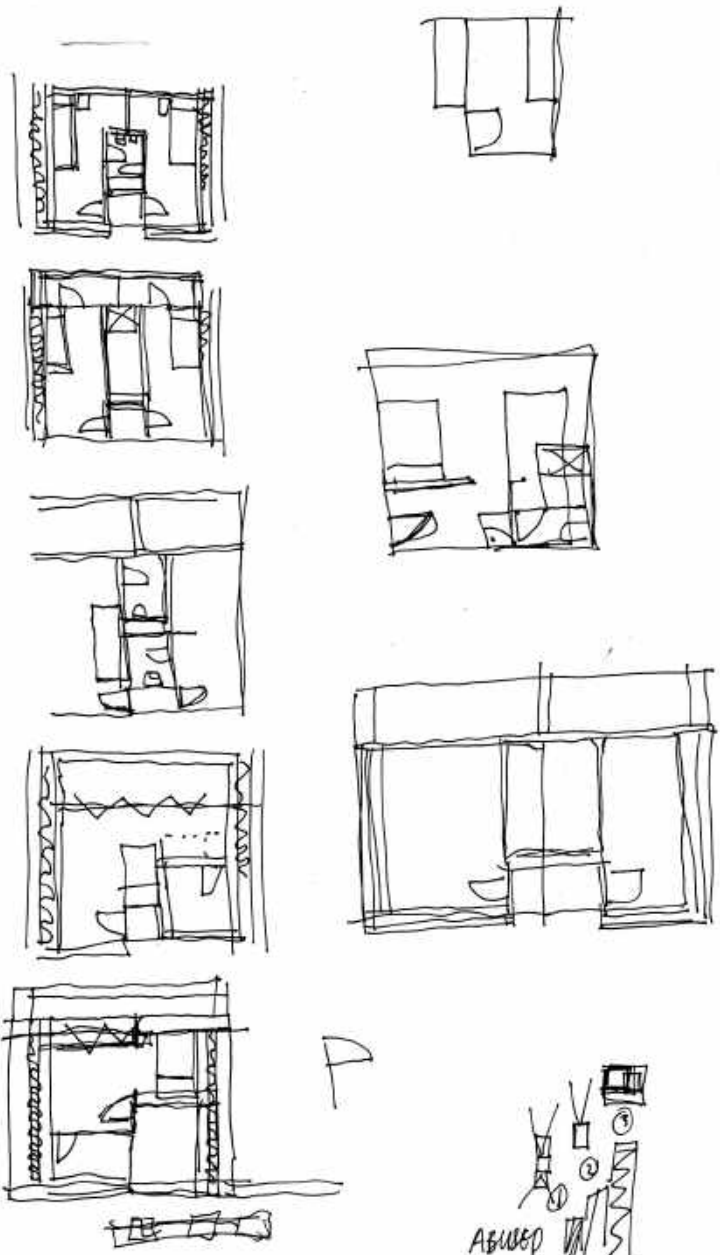
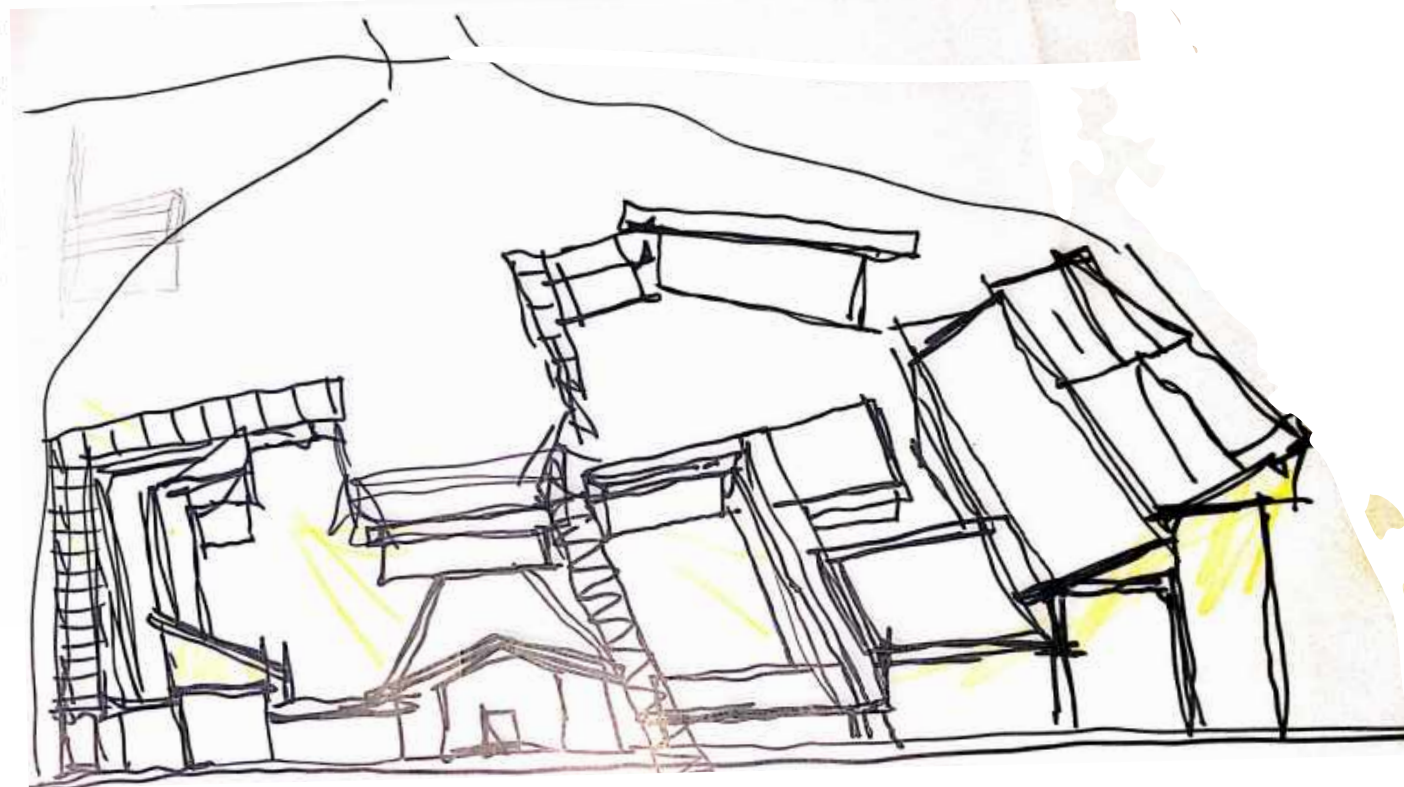
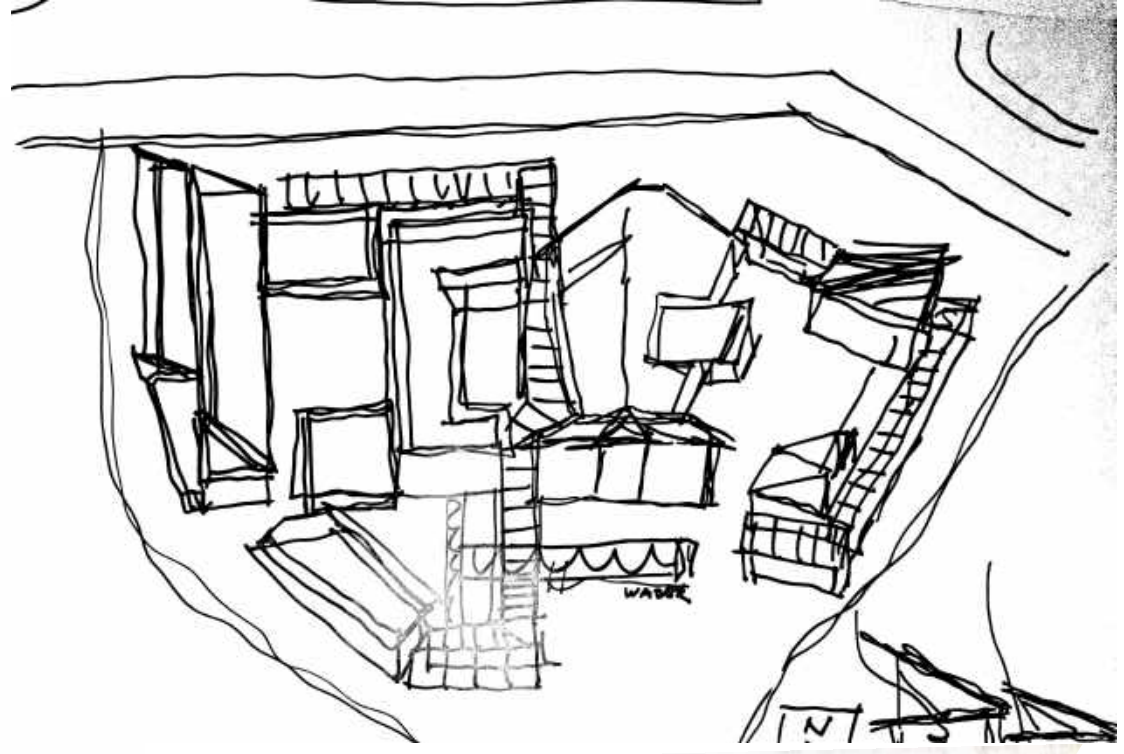


Figure 62 design development by Author 2021



ABUSED



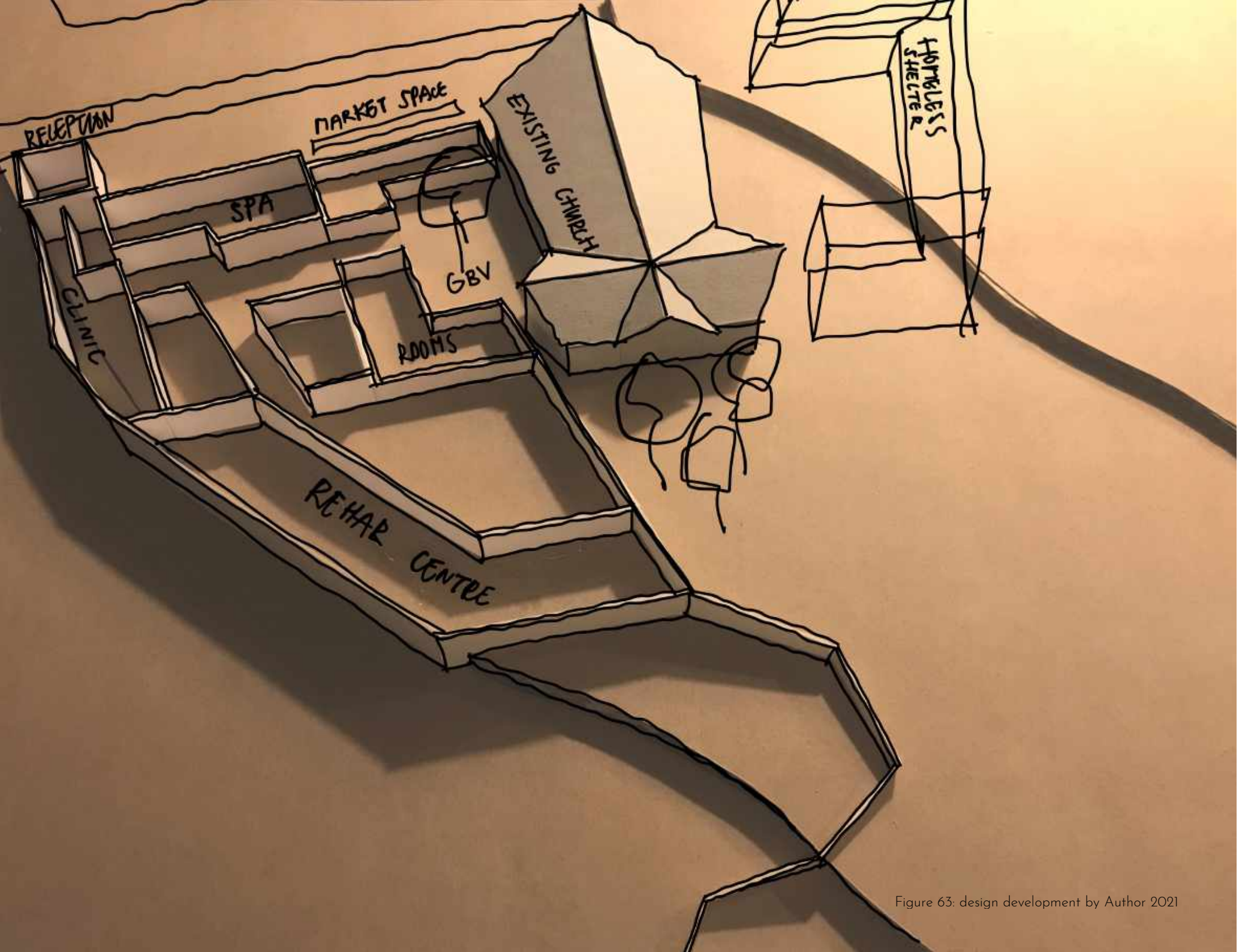
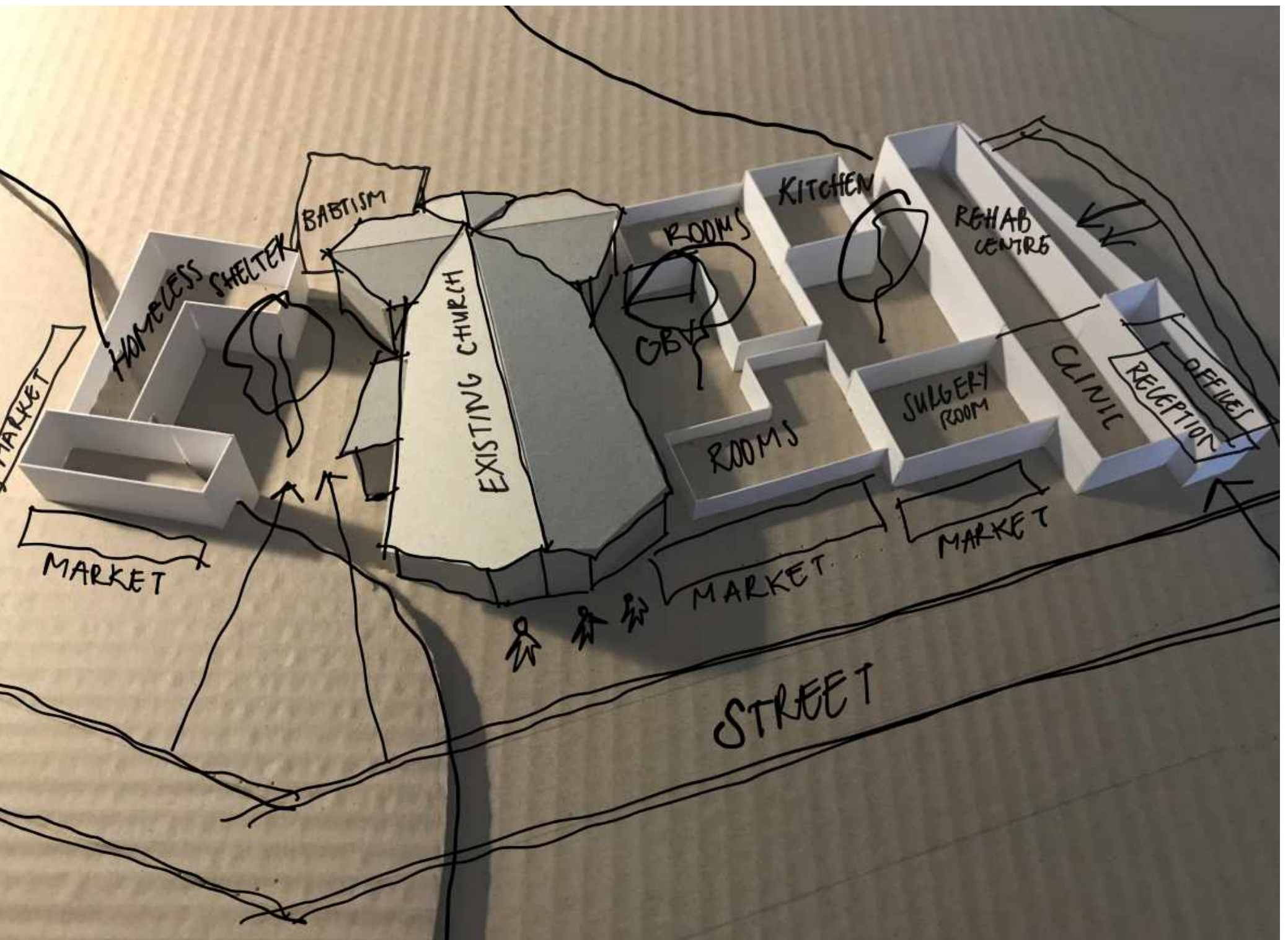
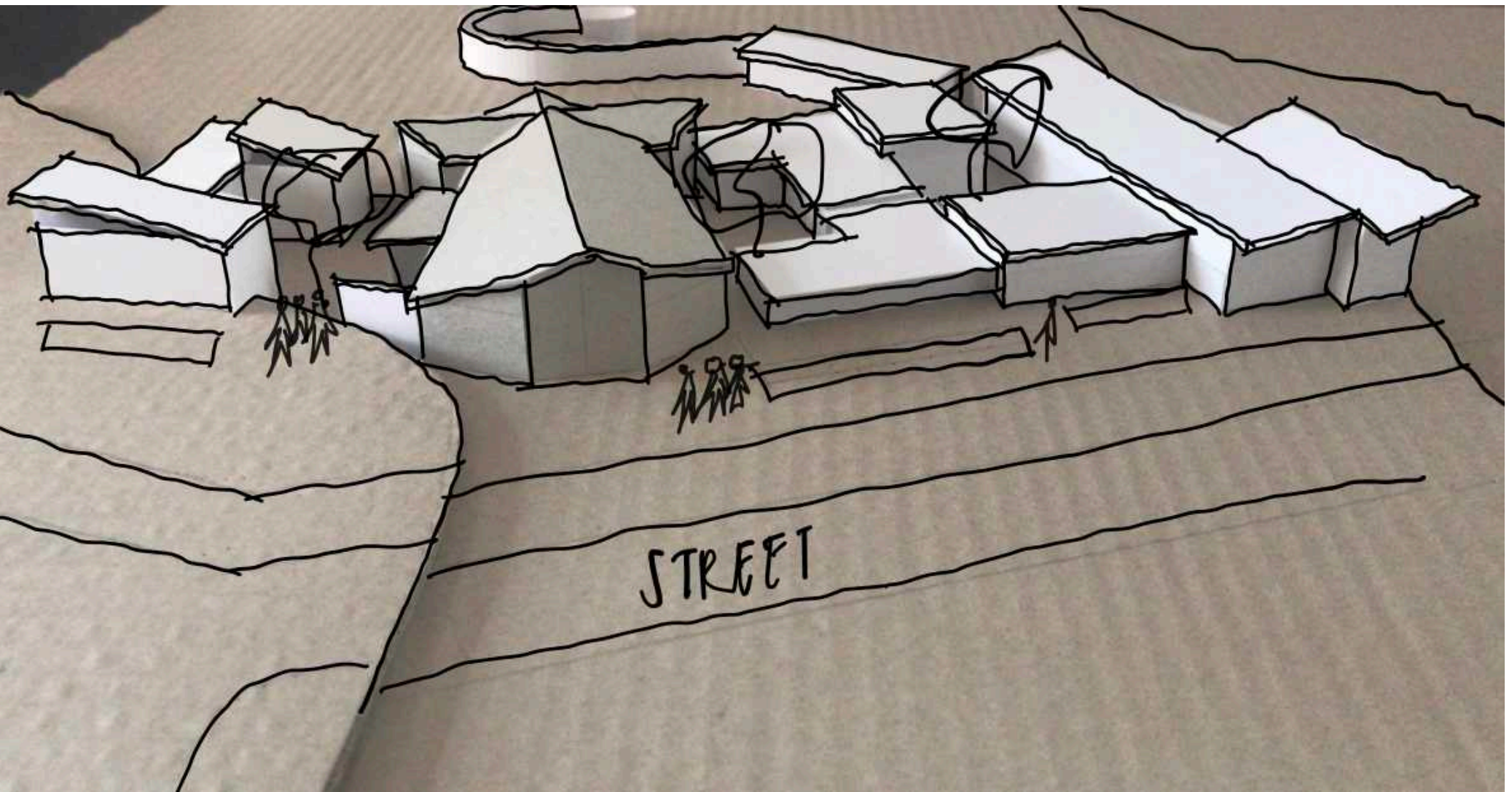


Figure 63: design development by Author 2021





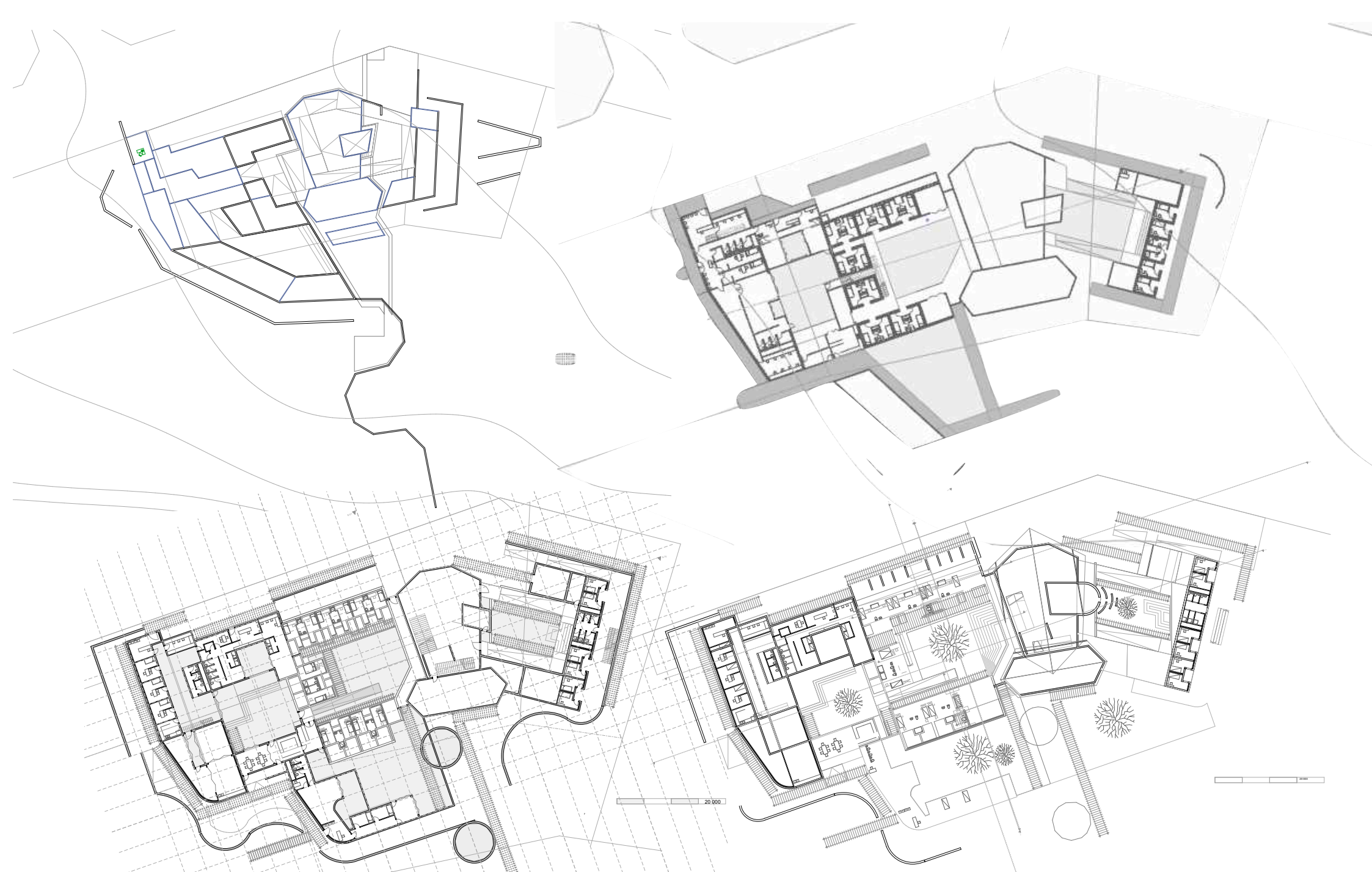


Figure 64: design development by Author 2021

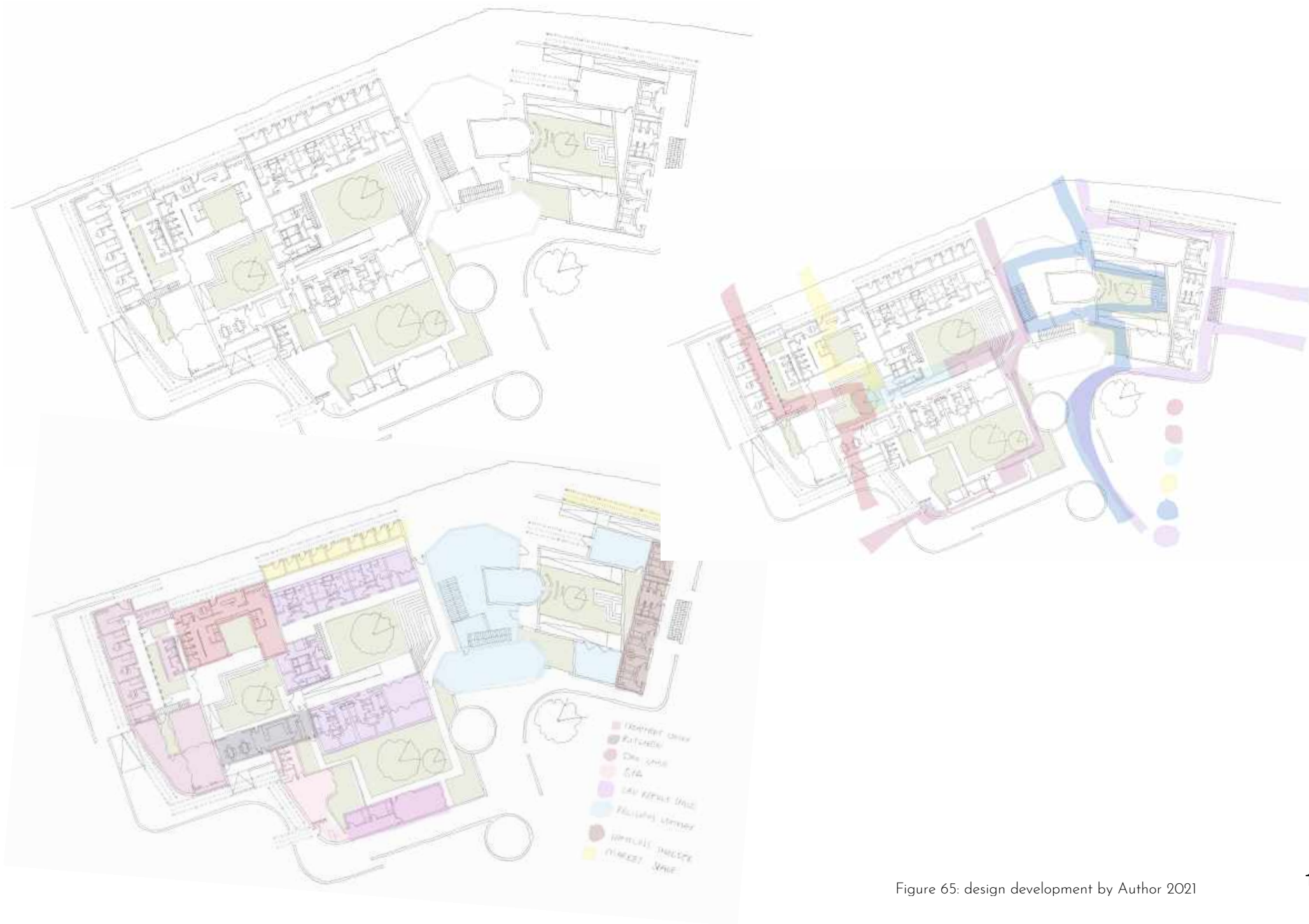


Figure 65: design development by Author 2021

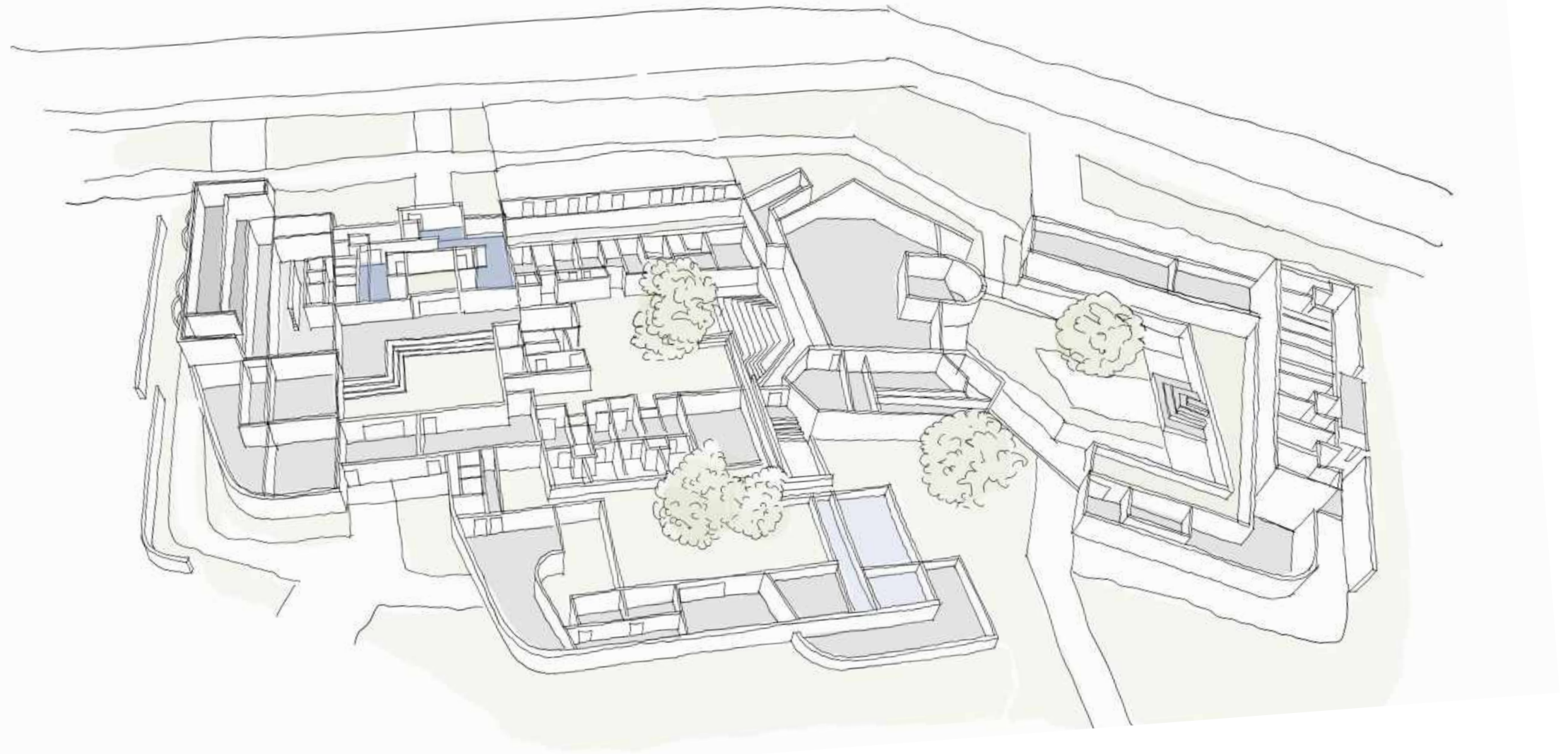


Figure 66: design development by Author 2021

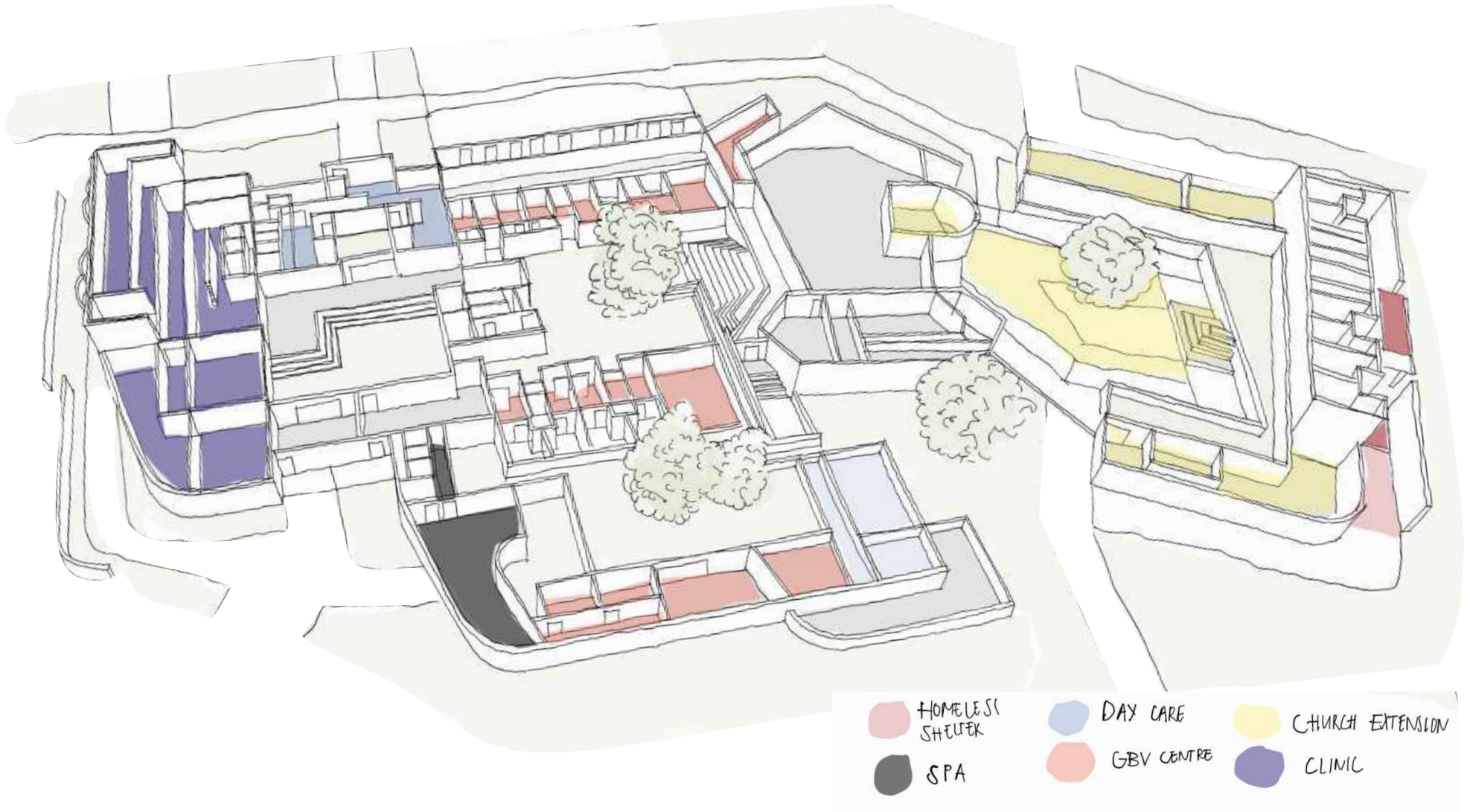


Figure 67: program design development by Author 2021

The space which must be the safest and most private is the gender based violence shelter, this is located on the western side of the existing church, making use of a courtyard to allow for sunlight, accessibility and a safe outdoor space. A day care centre is added towards the public street, to allow for a separate entrance, but allowing for a introverted space towards the south opening up on a continuous semi private courtyard which doubles as circulation space as well as safe outdoor engagement. In the later iterations, another more controlled courtyard is added to the day care centre.

The clinic located on the western side lines up with the intersecting road and allows for the main entrance towards the refuge (gbv) scheme. A reception leads the user towards consultation rooms and a rehabilitation room at the southern part of the design. The consultation rooms on the western side of the design form a linear circulation space in the form of a hallway. The hallway of rooms towards the western side create an organising open atrium space to allow for ventilation, sunlight and a threshold between clinic and the rest of the scheme. The rehabilitation rooms spill out towards the courtyard, blurring the lines between inside and outside. A communal kitchen serves the users in the facilities, with a separate access point for the gbv victims. The courtyard doubles as an eating hall, circulation space and space for relaxation.

A spa/ nail and hair salon is added towards the southern side of the design to allow for a space where the community can be drawn in and be

used as an alternate way of accessing the gbv centre, for woman who need an excuse to get away from home. The spa is divided into a public access area and an exclusive gbv consultation centre. This part of the design will become the main income of the scheme allowing for the prospect of the abused woman to partake within the spa as staff and instills a sense of purpose. A large semi public community garden is created towards the western side acting as a corridor towards the spa. Another large garden is proposed towards the eastern side of the spa, this is mainly accessed by the gbv victims and as a part of the rehabilitation program they are encouraged to work in the gardens.

The courtyards as well as the users embark upon a journey (pilgrimage) of healing. The courtyards start out as a walkway almost barren, with limited plant life, developing into an access route, manicured for movement of people, progressing into a refuge space towards a life giving vegetable garden which needs the community to participate, but can grow on its own.

The design becomes the bufferzone/ threshold between the manmade geometric and rigid built environment towards the north and the organic un-curated, natural south, where the vleiland is found.

The second part of the design is located towards the east side of the existing church, allowing the religious complex to be extended. The sense of pilgrimage which is used within religious buildings is further extrapolated by allowing a route of pilgrimage, with the help of a ramp and level changes, before the church is entered which doubles as a threshold to the non walled or barricaded design (no walls are used within the design, only buildings as thresholds). The altar position is changed from facing the southern side towards the western side, decentralising the interior of the church and allowing a change in power dynamics between the congregation and the pastor. The pulpit is accessible/ viewable from the outside creating an outdoor gathering space and room for expansion of the congregation. Ablutions and space for baptism is provided at the southern side of the church, close to nature. A reception and office is located at the entrance with a kitchen on the opposite side. The kitchen has a dual purpose, it also doubles as a community kitchen. The eastern side of the church complex is enclosed by creating a homeless shelter for the backyard dwellers of the community. A clear distinction can be seen between the grid used within the church on the interior of the extension and the homeless shelter, located on the exterior of the religious complex. The interior part picks up on the church building and the orientation thereof, while the homeless shelter mimics the desire lines that cut through the site towards the vleiland.

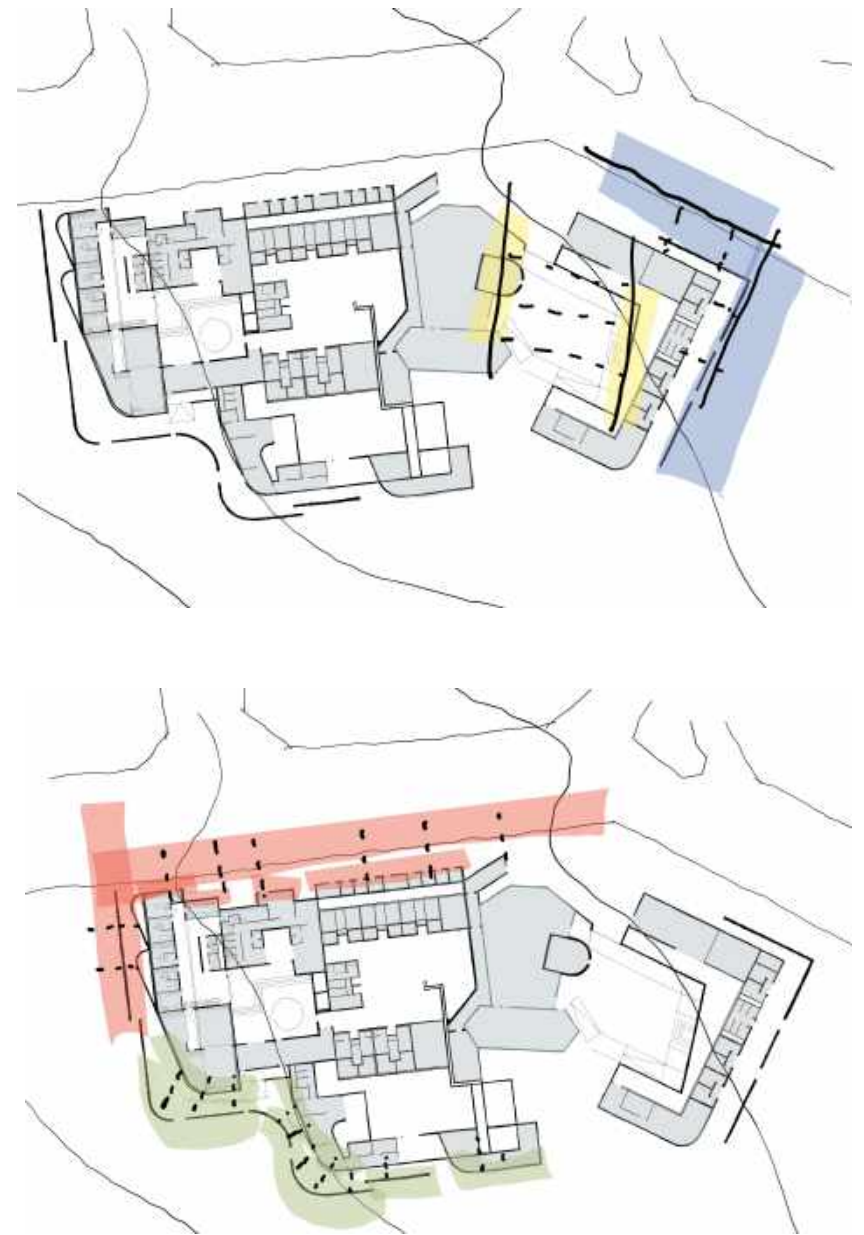


Figure 68: program design development by Author 2021

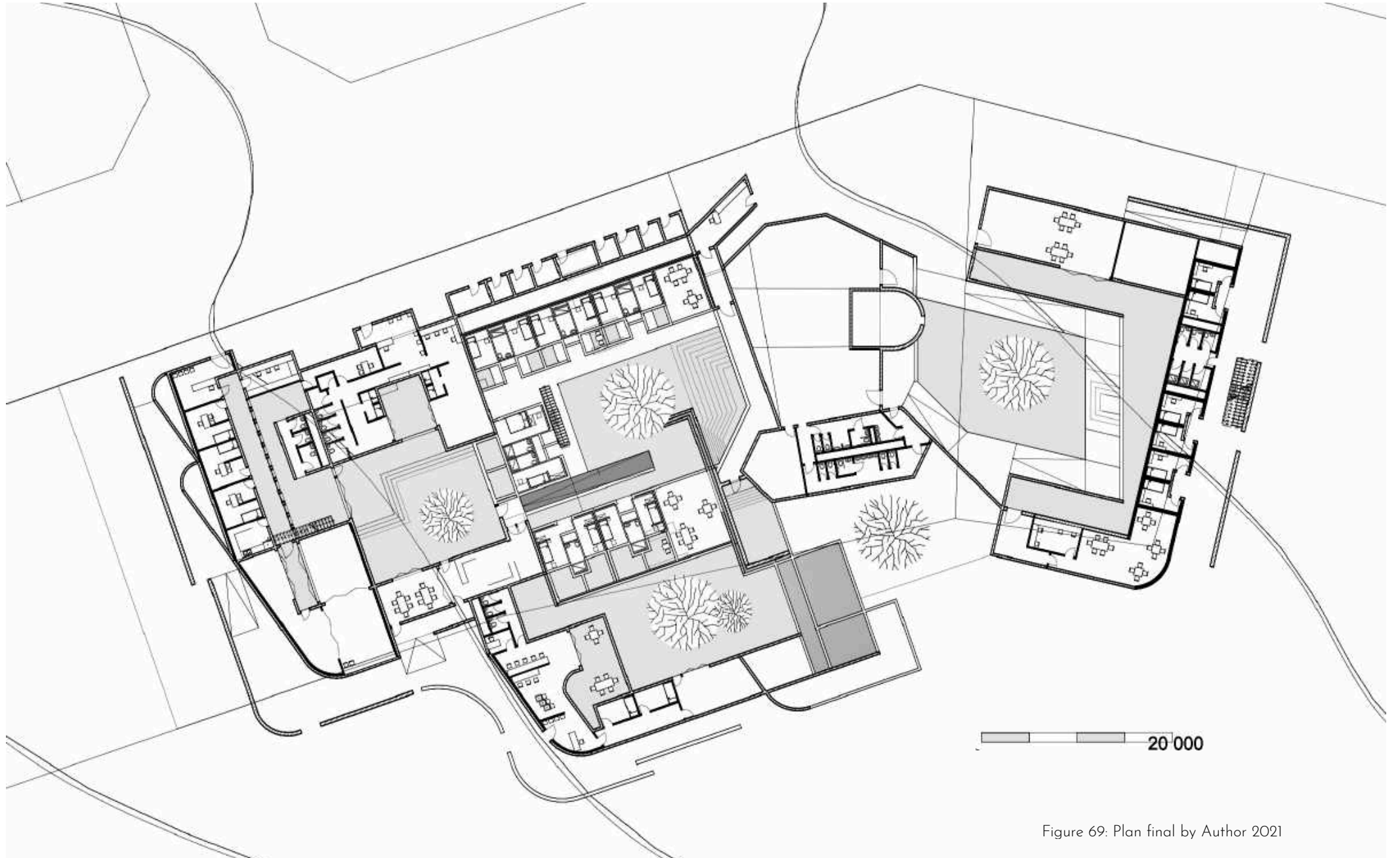
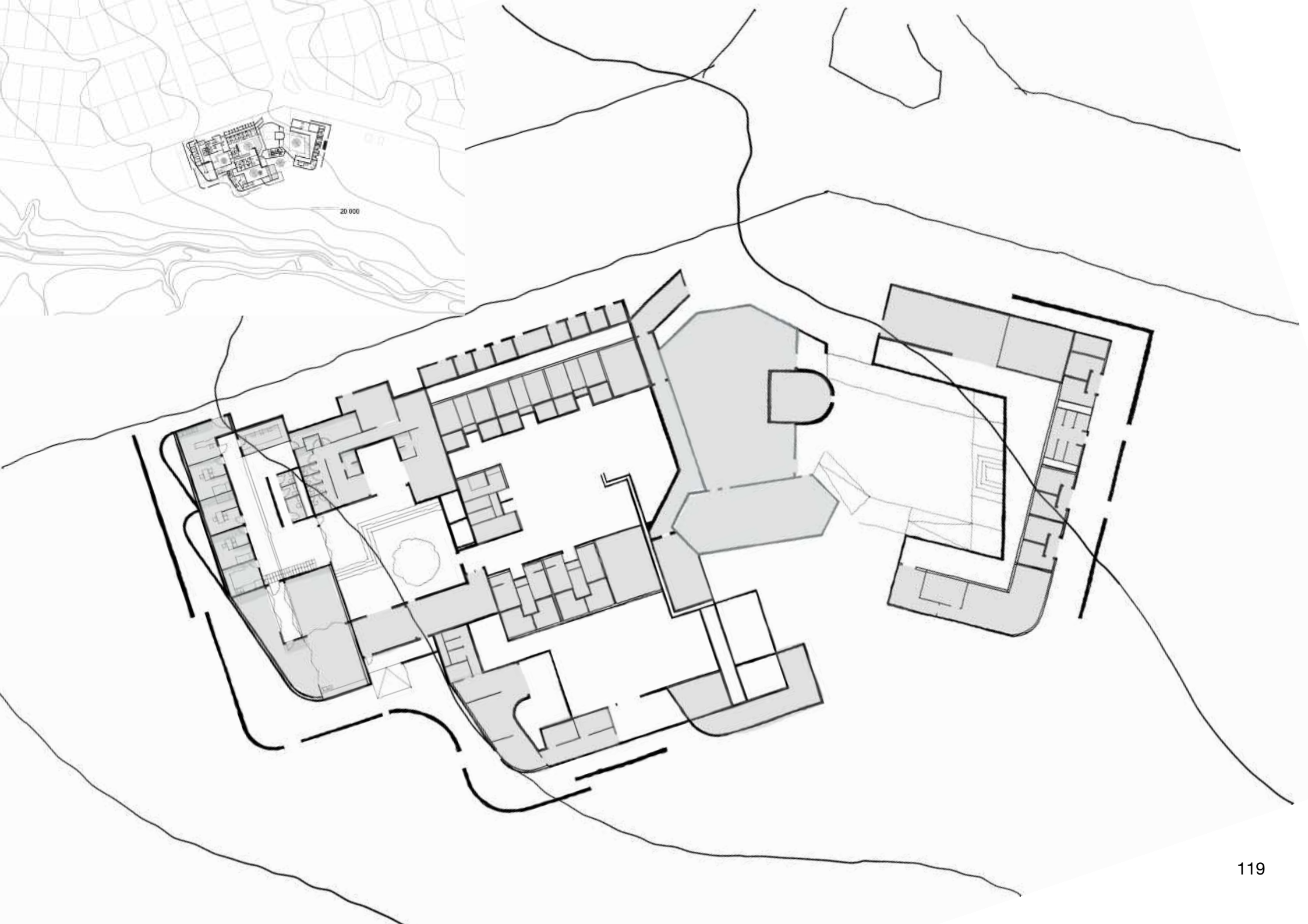


Figure 69: Plan final by Author 2021



The main concepts of refuge, ritual and reuse has to do with the safe spaces created with the help of thresholds, the landscape is cut into to allow the gbv overnight rooms to feel safe and become part of the landscape, the earth is cut into (2m) to create a cave-like feel. The church extension is a more abstract form of refuge, to create a space which is open to the community, but still controlled a level difference is constructed. The site is cut into (1m). The church extension has ramps which become the threshold as well as the sense of pilgrimage which plays an important role within the church building. The pilgrimage idea is now further extended and symbolically freed from primarily being in the building itself. The reuse of the existing building helps create a better dialogue between the existing man made church, its surrounding built environment and the nature in the form of the vlei land.

Nature becomes the ordering principle, to advance toward the safest space in the building the tress must be followed (placed within courtyards). The same follows for the church extension, the moment the dweller enters the extension the other end of the extension/ exit can be seen which has a view on the vlei land.

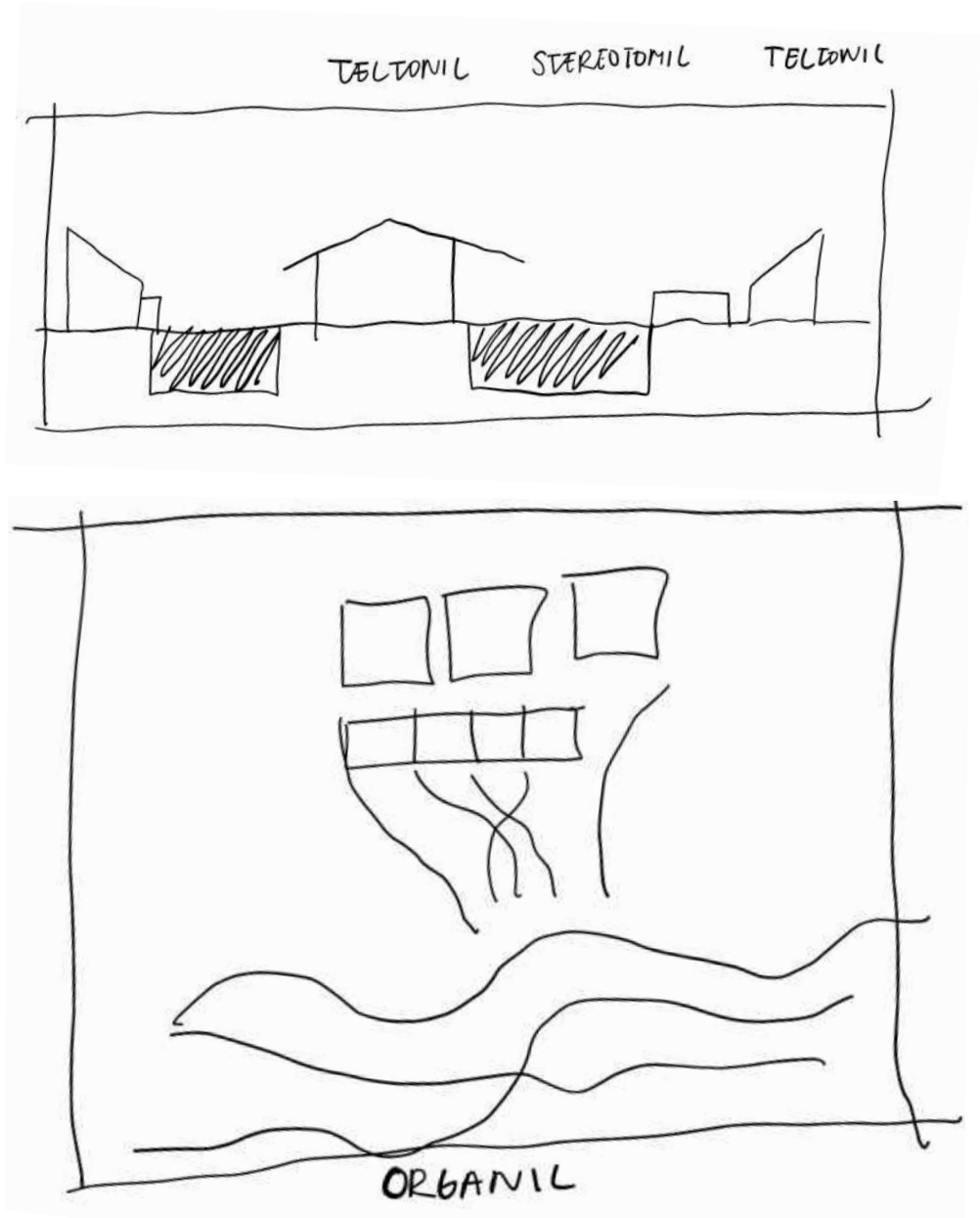


Figure 70: concept by Author 2021

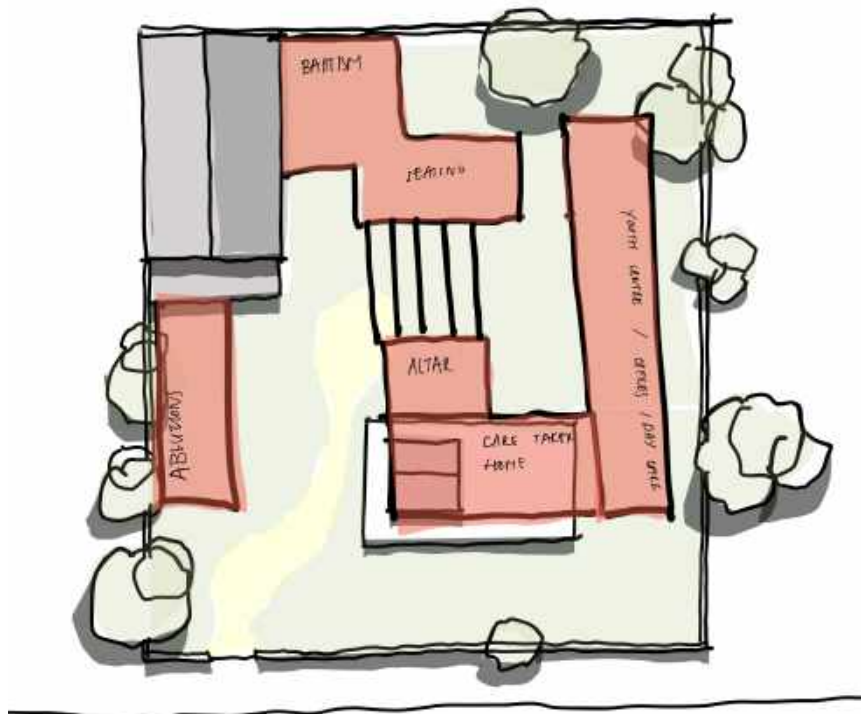


Figure 71: Ekklesia assembly of God prototype by Author 2021

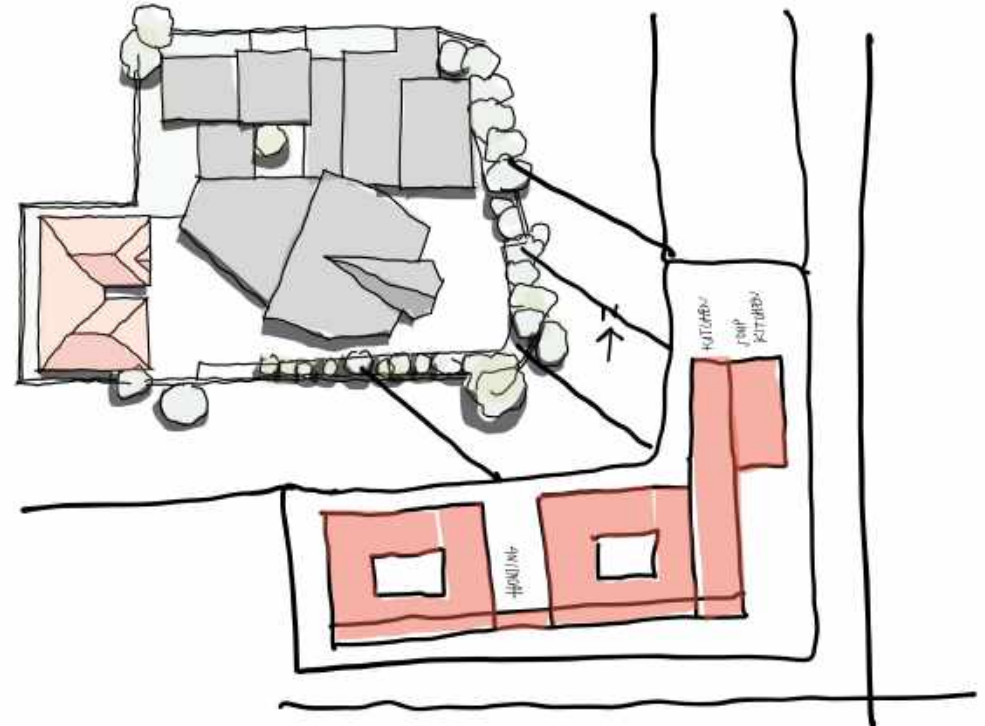


Figure 72: Latter rain saints prototype by Author 2021

A design development was undergone for the two other chosen churches, a church with small infrastructure and one with a more settled one. This can become the start of the prototype development throughout Eersterust. The Latter rain Saints have a space infant of the building where people from Mamelodi and Eersterust come to find work/ opportunities for the day, therefore a soup kitchen and housing is to be developed.

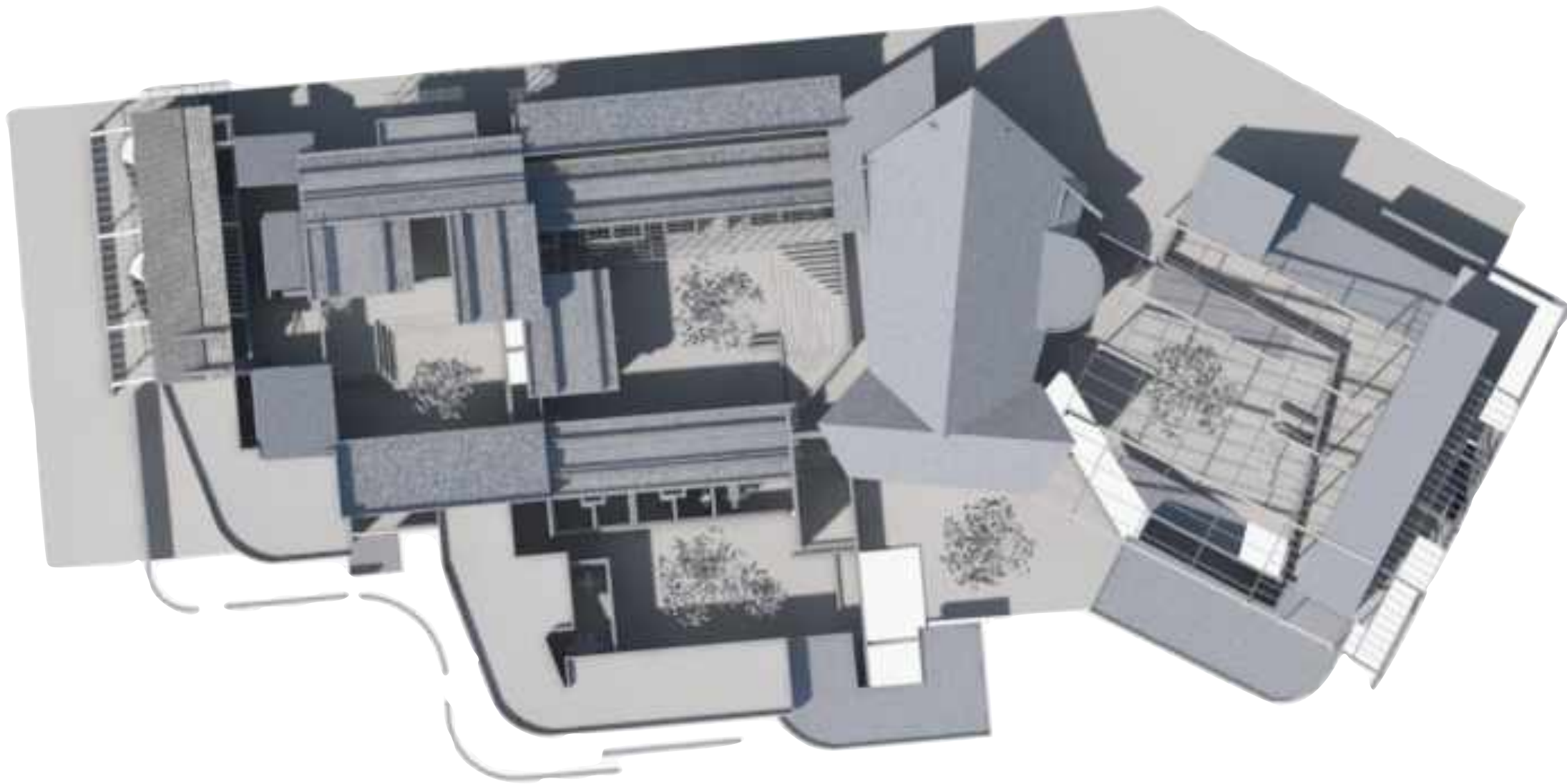
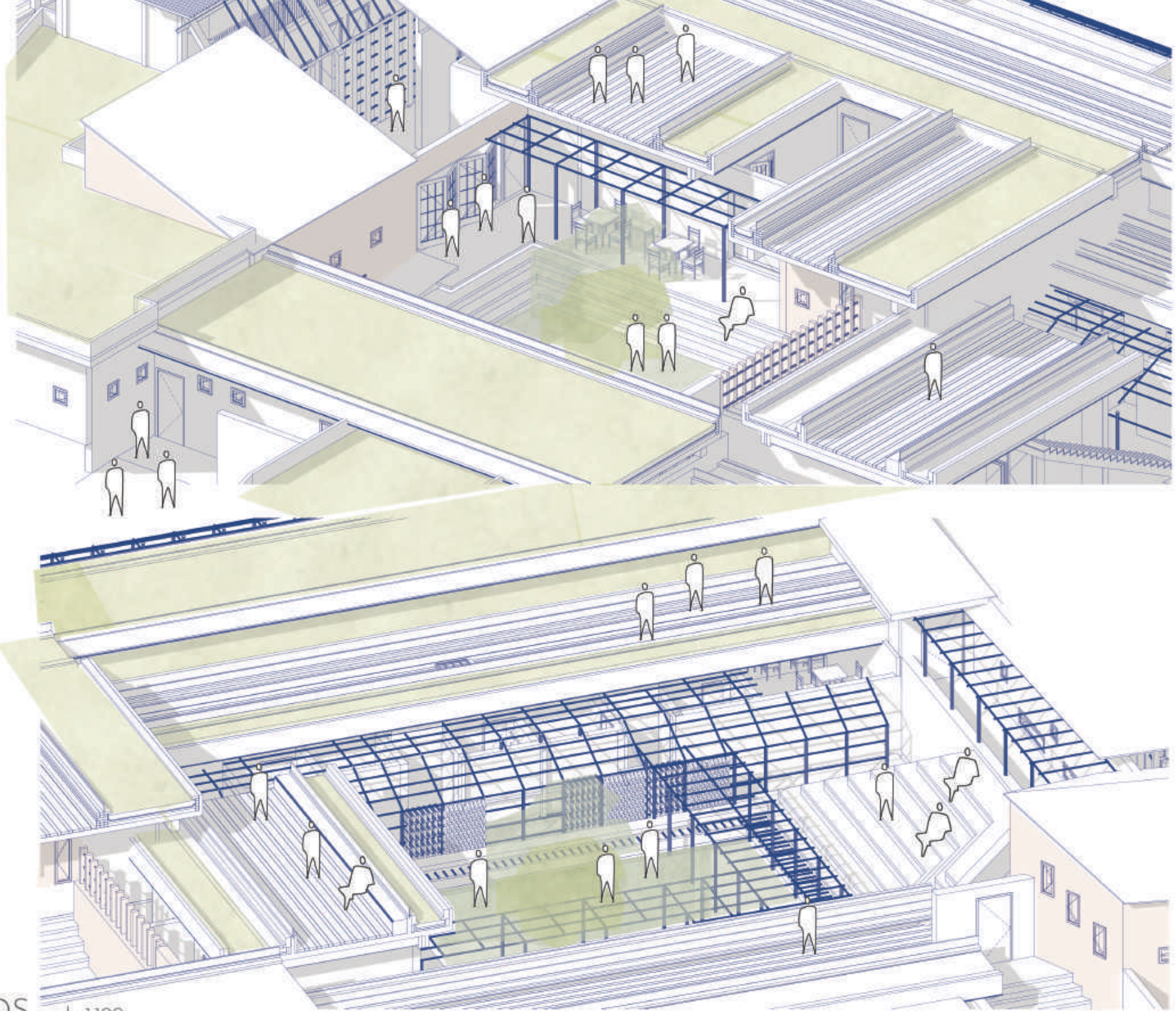
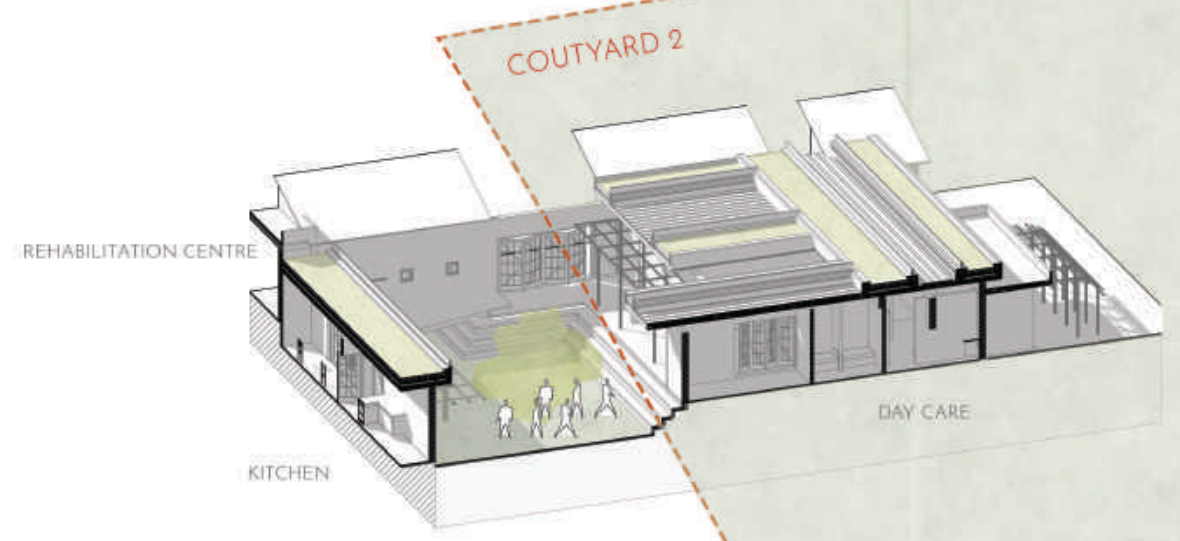
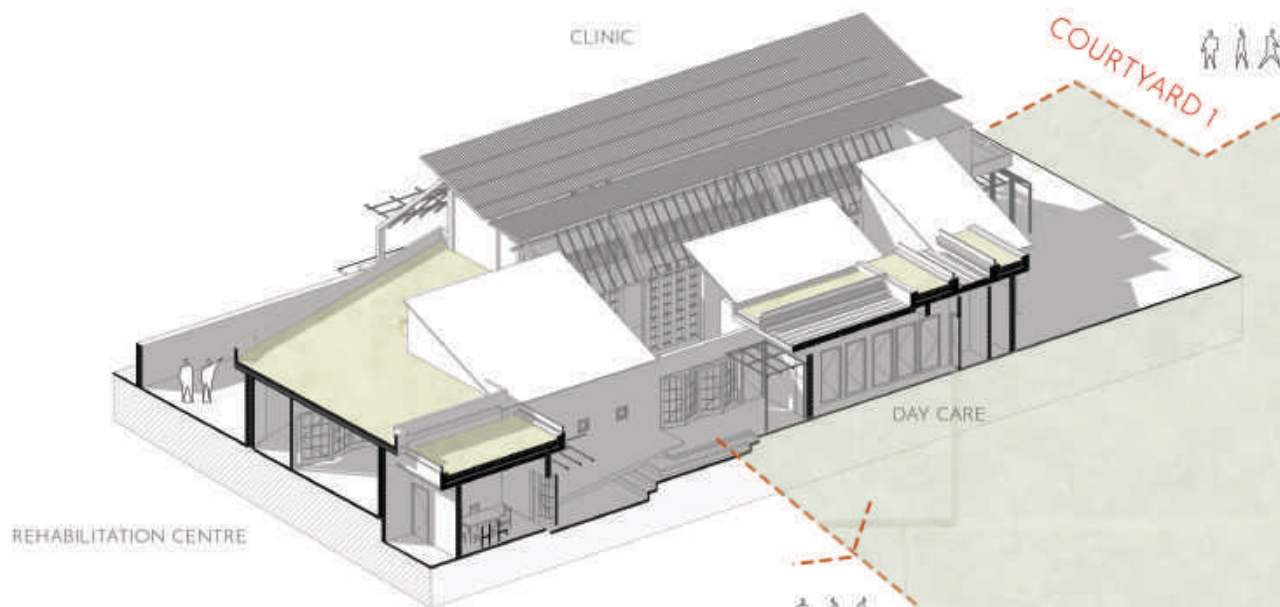


Figure 73: design render by Author 2021





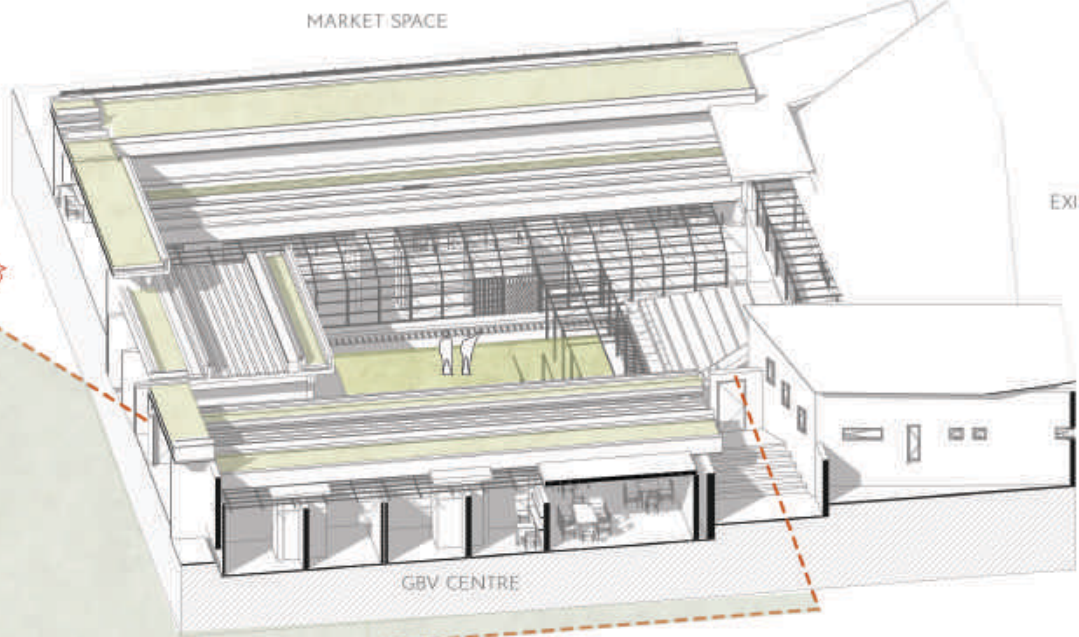




MARKET SPACE

COURTYARD 3

EXISTING CHURCH



GBV CENTRE



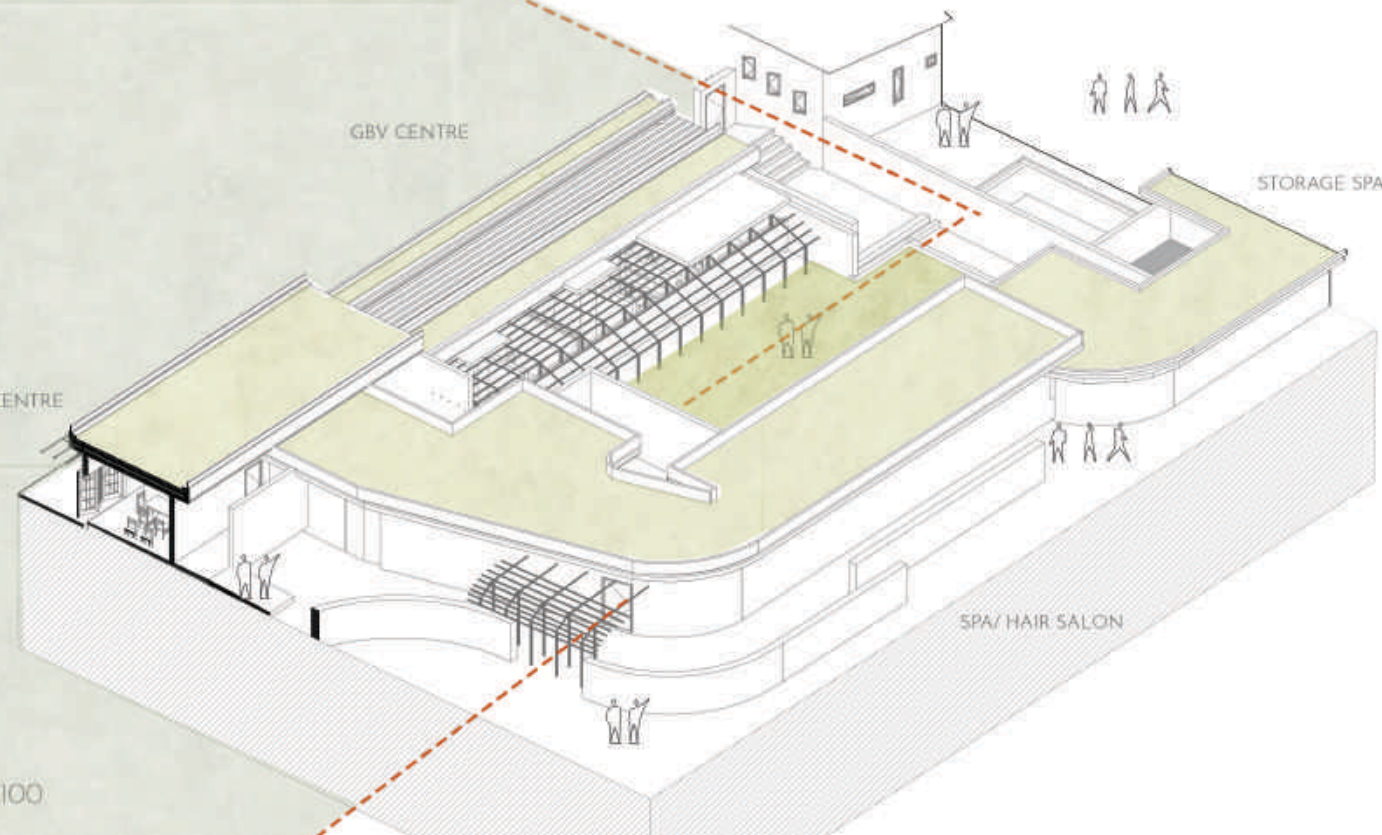
COURTYARD 4

GBV CENTRE



STORAGE SPACE

DAY CARE CENTRE



SPA/ HAIR SALON

COURTYARD PERSPECTIVES scale 1:100





STORMVOEL ROAD

MARKET SPACE

SOUP KITCHEN

EXISTING CHURCH

CHURCH EXTENSION

EMERGENCY SHELTER

PARKING

YOUTH CENTRE

STORAGE

VEGETABLE WATER STORAGE

STORAGE

COMMUNITY GARDEN

PARKING

KITCHEN

REHABILITATION CENTRE

DAY CARE

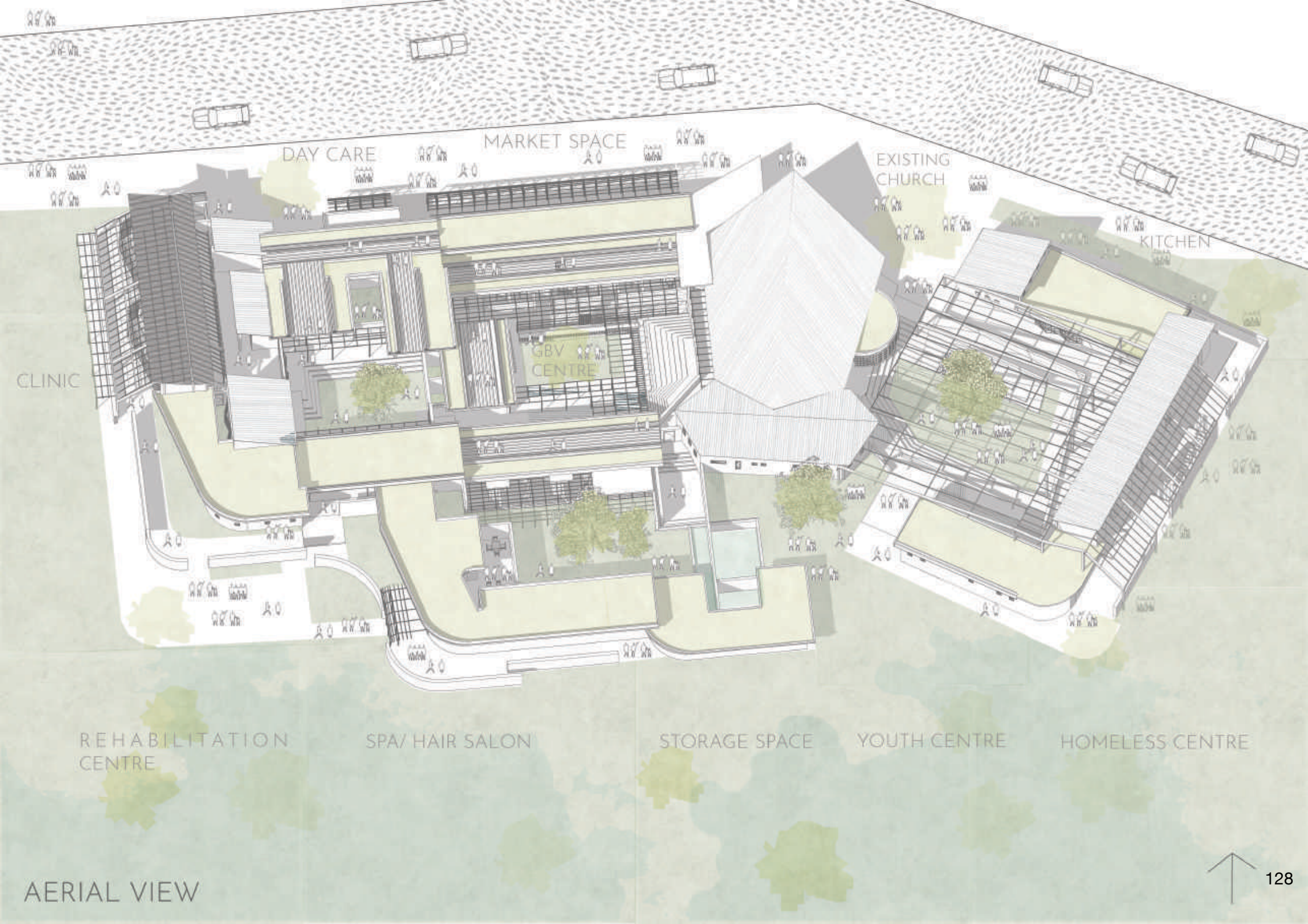
DAY CLINIC

CAFETERIA

PIZZA BAR SALON

GROUND FLOOR PLAN scale 1:200





DAY CARE

MARKET SPACE

EXISTING CHURCH

KITCHEN

CLINIC

GBV CENTRE

REHABILITATION CENTRE

SPA/ HAIR SALON

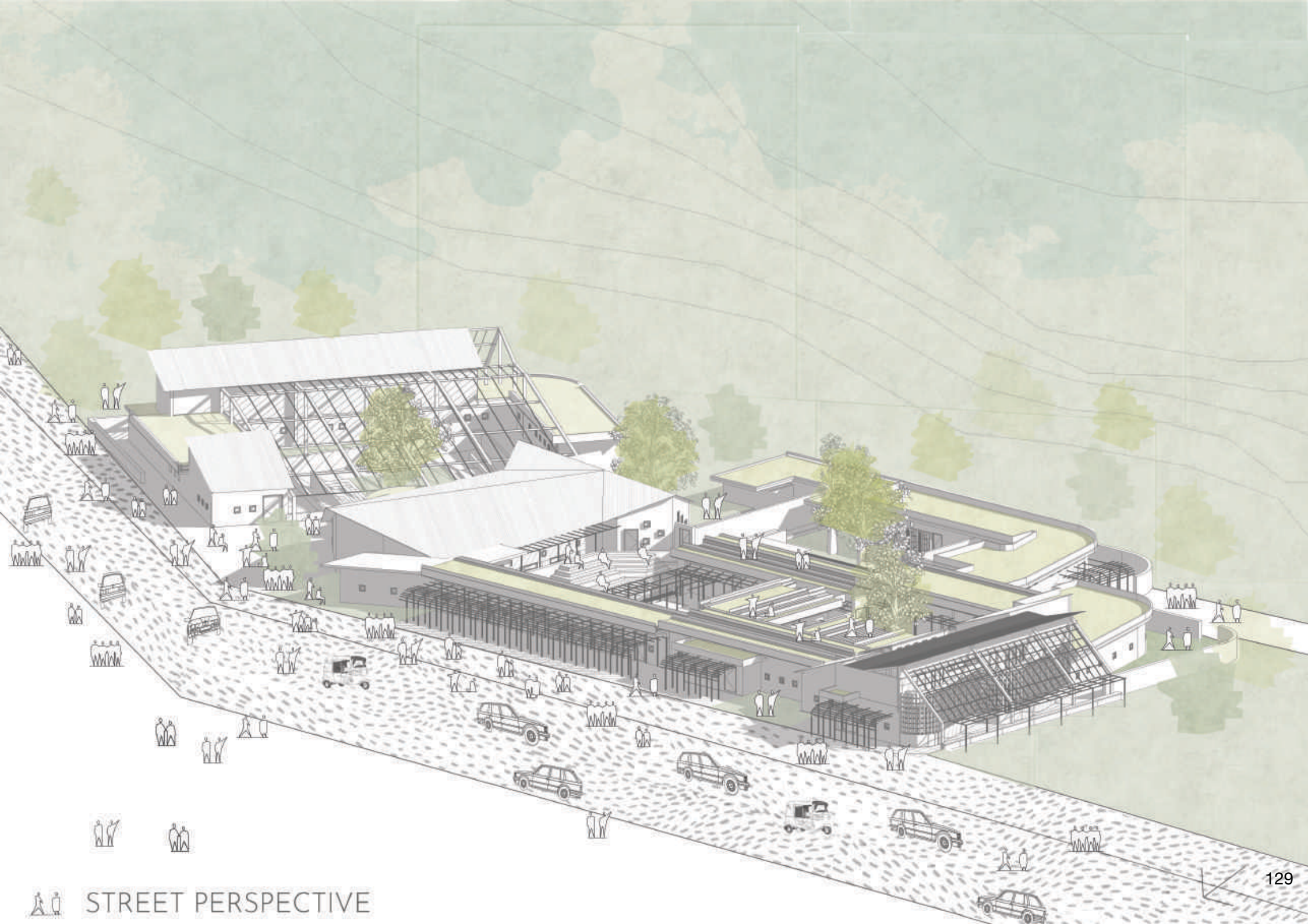
STORAGE SPACE

YOUTH CENTRE

HOMELESS CENTRE

AERIAL VIEW





STREET PERSPECTIVE

Chapter 8

Technical concept

Technical intention/ contribution

Material pallet

Technical development

Technical structure



Technological concept:

The existing church building is placed close to a vleiland, allowing for the contrast between building and nature. The new design becomes the buffer or mediation between the man made rigid north and the natural organic south. The design is also the connection between old and new as well as battered and healed. The users as well as the nature is to undergo a pilgrimage of healing.

The ecology is currently fractured and a regenerative concept is introduced. The building is multifaceted and within a community with economic struggles a phased approach must be taken. It is proposed to firstly build the clinic, spa and homeless shelter. These buildings are located at the edge of the design and creates a threshold between the public and semi private spaces. As the ecology needs intervention, the open spaces will become gardens that can feed the community and regenerate the soil. Trees are to be planted within the courtyards spaces to allow shade and enough time for them to grow before the development is constructed. Bamboo plantations are grown to become a building material with can be used by the community and a cost effective way to build the veil or shading devices.

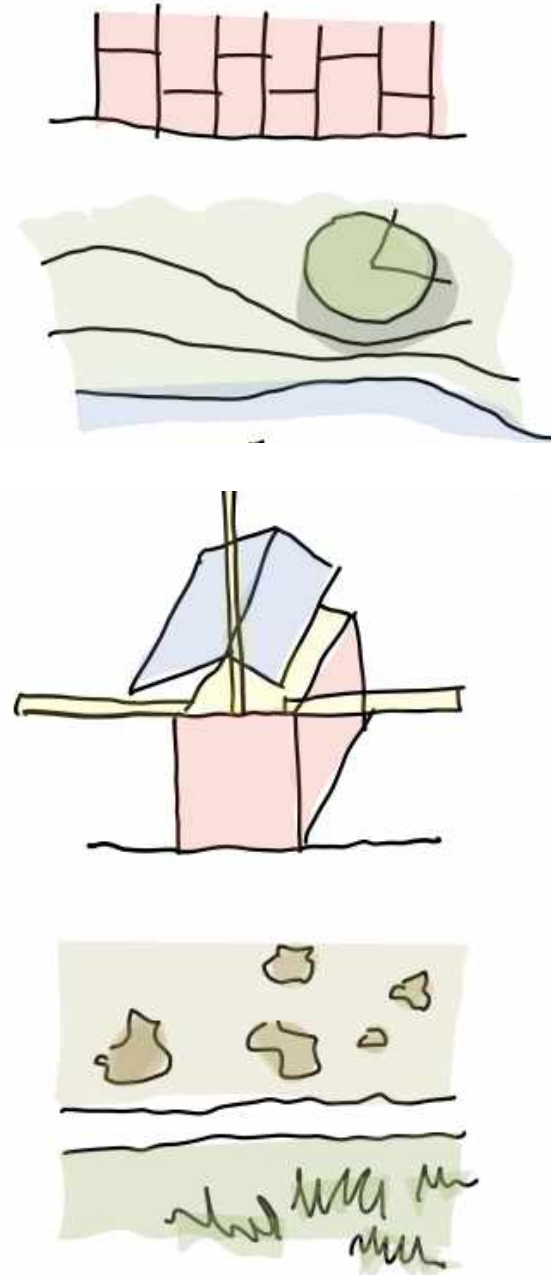
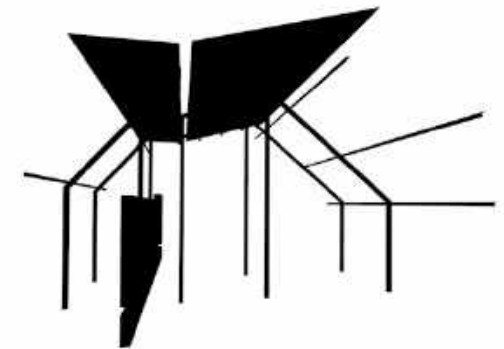
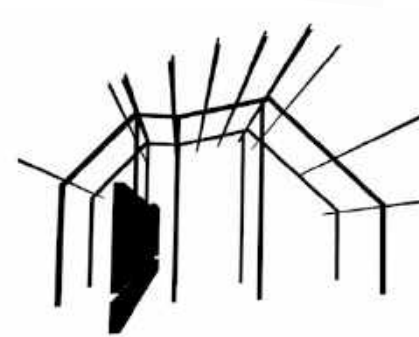
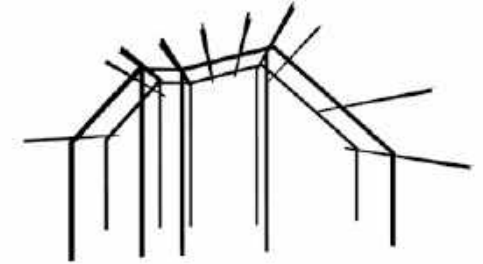
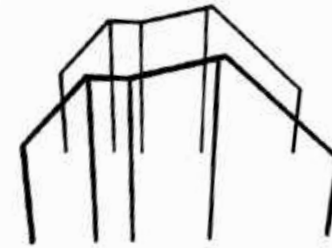
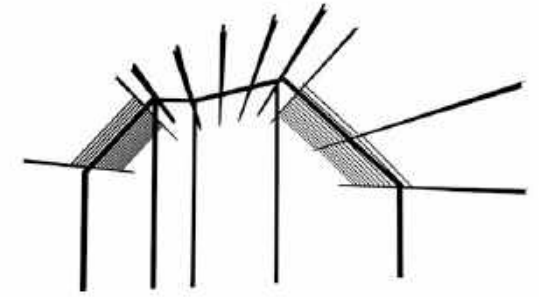
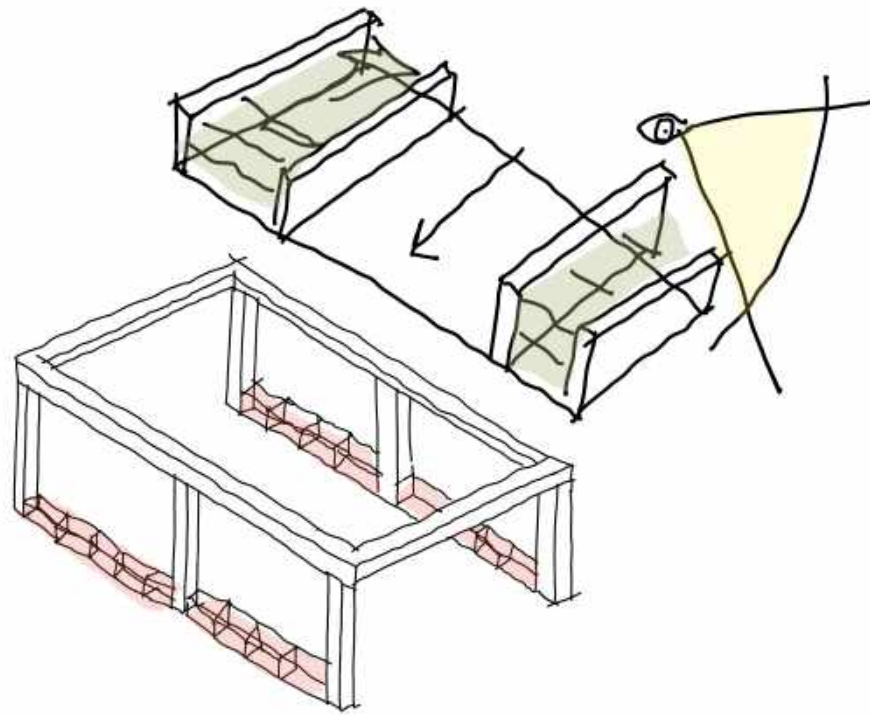


Figure 75: Technological concept by Author 2021



As funds are raised, the structure, steel portal frame and concrete columns, can be built and bricks can be added as infill, cutting away from nature to create a space where the nature can be healed as well as the inhabitants. The courtyards are to become safe natural elements within the design. They are the spaces that are built/ grown firstly, the rest of the design is then built around these regenerated nodes.

Figure 76: Structural system by Author 2021

The steel tectonic portal frame structure is to be built in the first phase, the clinic and homeless shelter are constructed out of the portal frame with supporting steel purlins and brick infill, covered with a galvanised steel IBR roof sheeting.

The ground condition progresses throughout the design form lightly toughing the earth with a light steel frame at the clinic and homeless shelter, as this is a building used for short term interactions and allows the nature to be moderately undisturbed towards the gbv centre which is cut 2m into the ground, creating a safe cavelike environment, with an accessible planter roof to see, but not be seen (prospect and refuge theory). The church expansion towards the east is cut 1,5 m into the ground allowing an elongated pilgrimage route and amphitheatre/ outdoor church. The existing church is on the natural ground level, and stays undisturbed as a beacon in the landscape. The day care centre as well as the pulpit, become the threshold between the two contrasting ground conditions.

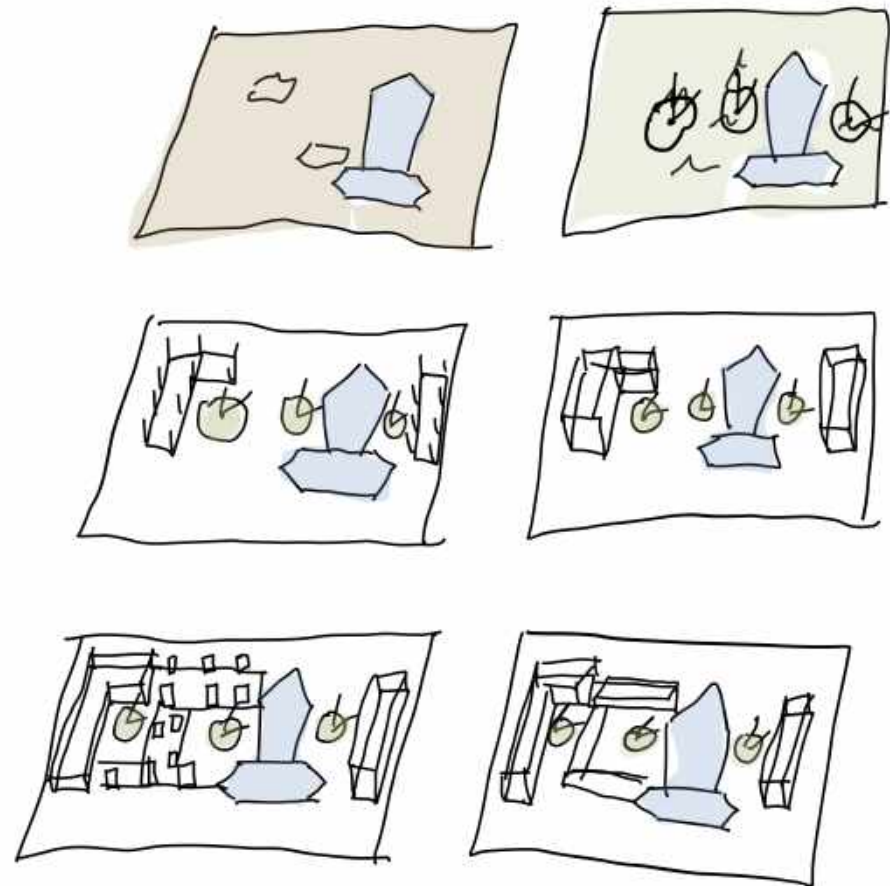


Figure 77: Phased approach by Author 2021

Technological intention:

The technological intention would be to immortalize a feeling of safety within the design, by not creating barriers that exclude, but by creating threshold spaces that can allow for healing of the user and the fractured nature. No walls are used within the design, only buildings filled with program allowing the design to become the threshold upon threshold of safety. The old must not be disregarded, but developed to keep its relevance. Within a community where funds are limited, community buildings must have a multifaceted program to aid the inhabitants. Materials used within the community are to be used as it is the most accessible and a vernacular style of Eersterust can be developed. A variation between low technological connections and high tech materials are to be made to show inhabitants how alternative construction methods can be used.

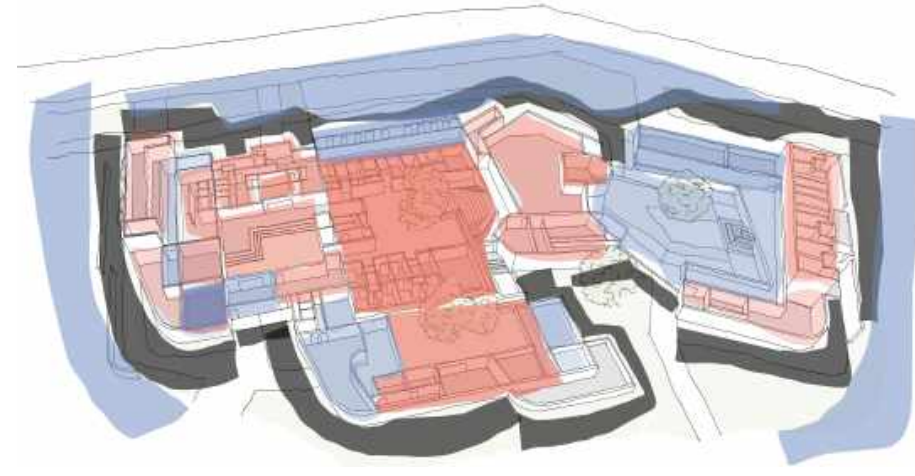
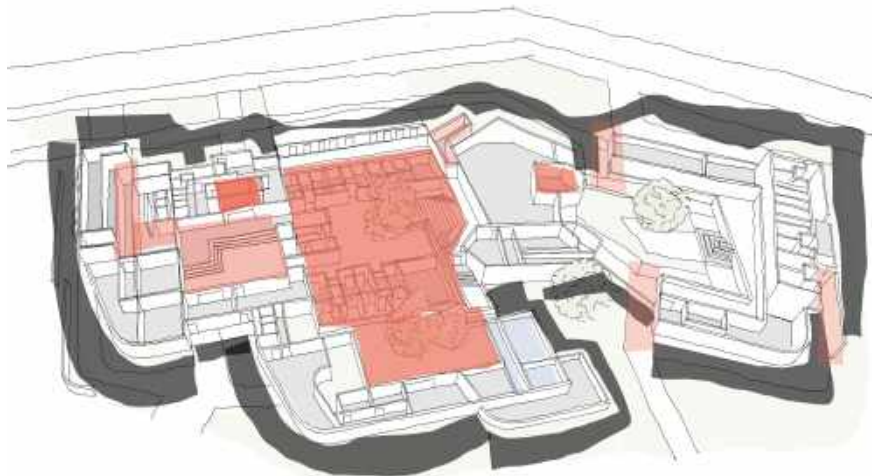
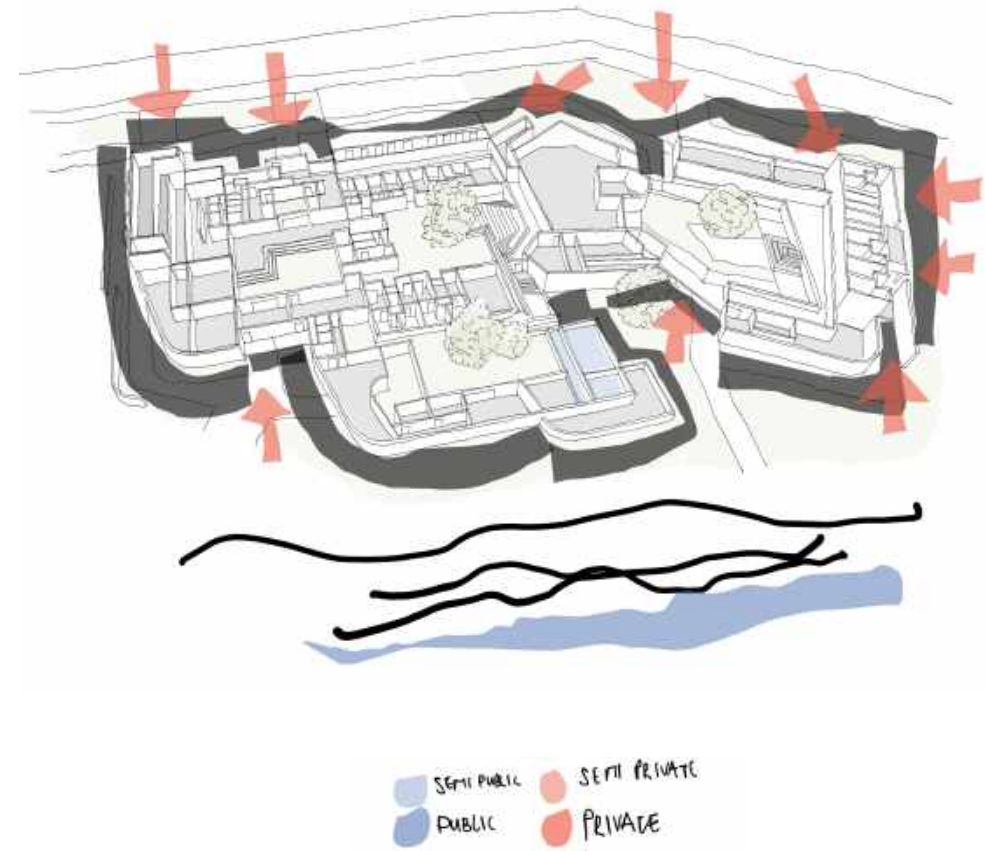
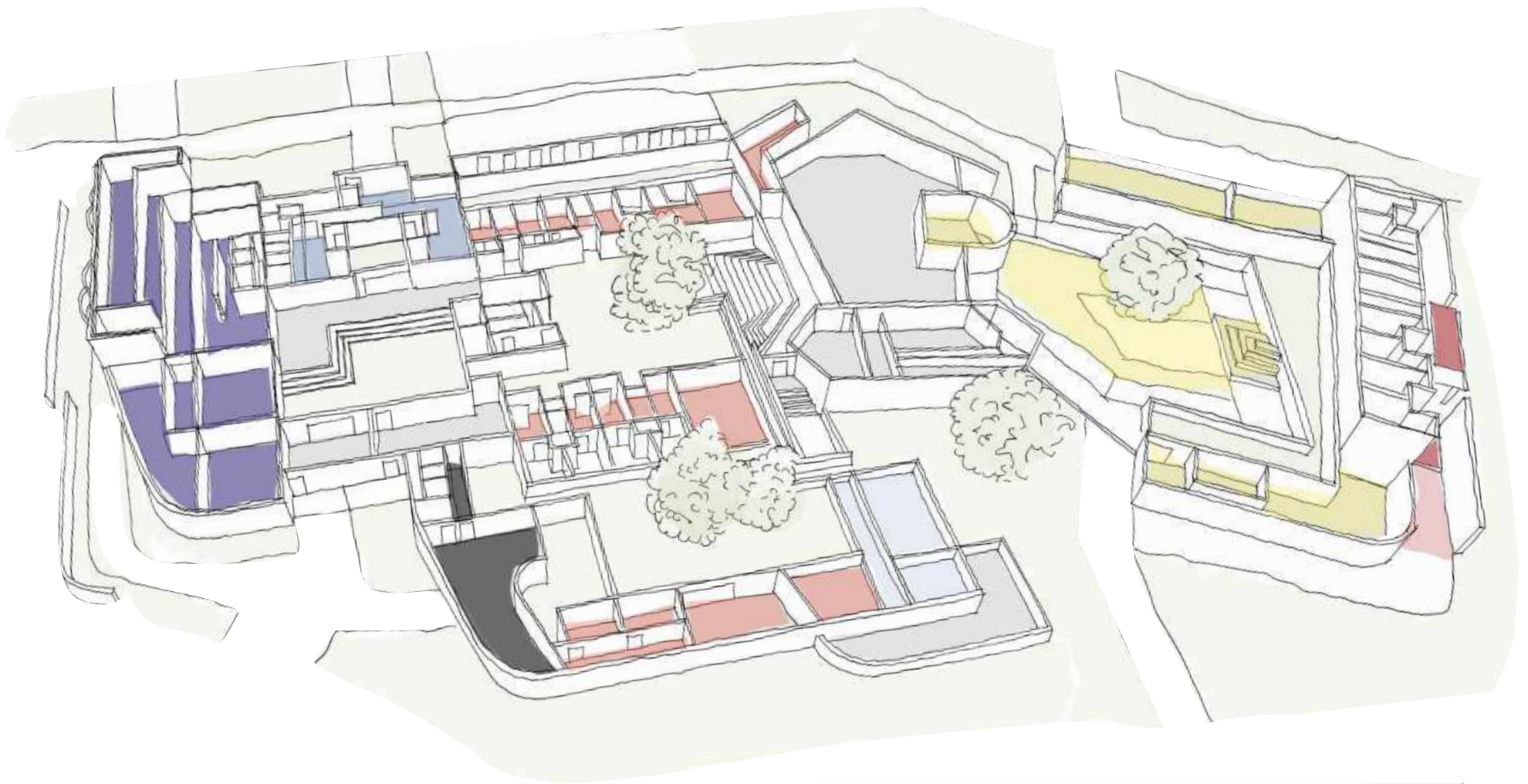


Figure 78: Technological intension by Author 2021



 HOMELESS SHELTER	 DAY CARE	 CHURCH EXTENSION
 SPA	 GBV CENTRE	 CLINIC

Figure 79: Program by Author 2021

On the most public interfaces of the design materials found within the community is incorporated. IBR roof sheeting is used, steel frame structures, tyres for retaining walls and timber poles for shading devices. The timber poles are integrated with bamboo slats as the bamboo plantation grows. The existing church roof is echoed in the design through imitating the angle and materiality in a contemporary way.

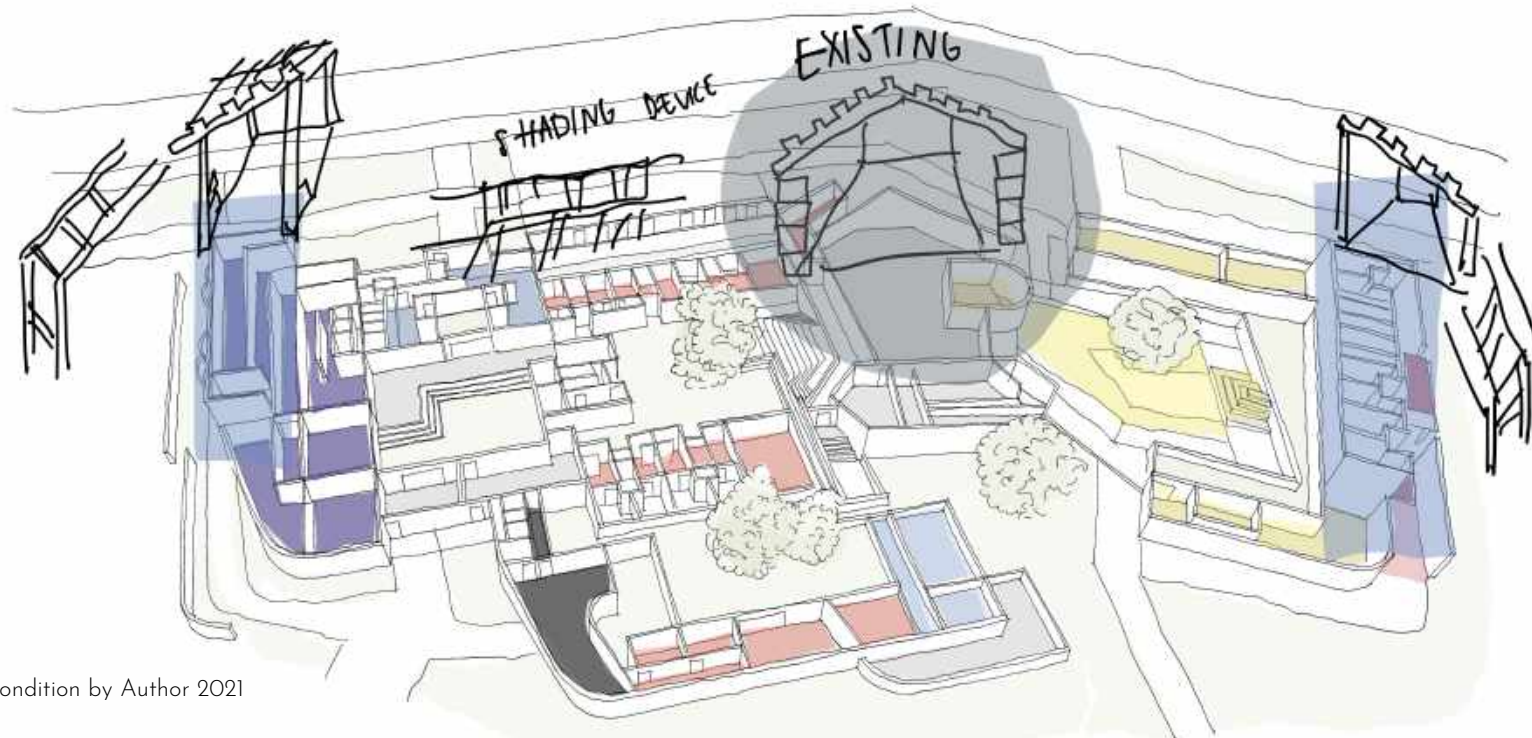
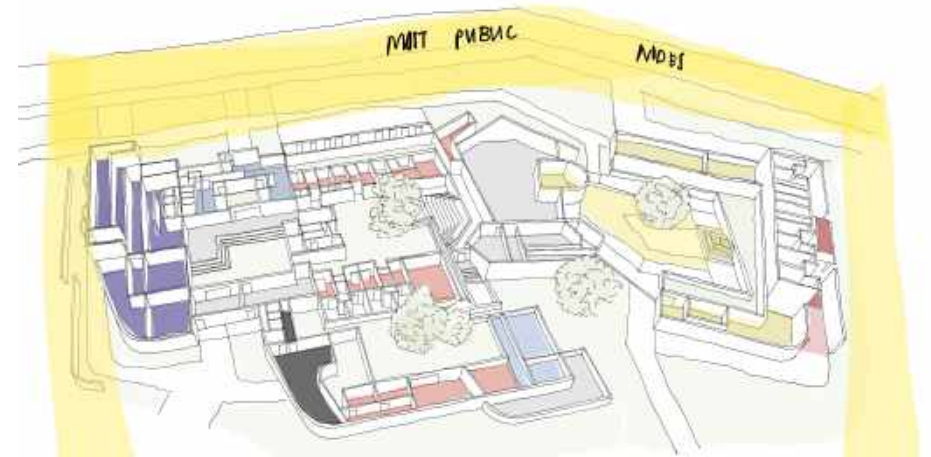


Figure 80: Roof condition by Author 2021

Local materials:

The existing church makes use of a brick structure, using a stretcher bond and a tectonic roof material made out of corrugated iron sheeting. The community mainly uses brick and the variation of corrugated sheeting or clay roof tiles. Tires are sold around the community and many street corners can be found with stacks of tyres. Sand and timber is sold within the community. A new informal settlement has started to develop from last year after the covid pandemic, timber slats and corrugated iron sheeting is used to build homes. The community is polluted, with open parks as dumping sites, rubbish can be found along the streets. Silverton is the neighbouring community and has a more industrial ethos, steel is a predominant material within this suburb.

The unemployed rate within Eersterust and the neighbouring Mamelodi is astronomically high. The Department of Public Works (2009), started an initiative to transfer skills, create job opportunities and improve infrastructure. The Expanded Public Works Programme (EPWP) was created in 2003 through the Growth and Development Summit (GDS), this is a way to educate the community on building techniques and create a true community building. The work force must include 65% youth, 55% women, 2% disabled, resulting in 90% of the employees to be from the area. The budget must be divided so that 46% is spent on equipment and materials, 35% on wages, 18% on project management, 2% on training and education on skill development, 1% wages and community facilitation (Mathews 2017:212).



Figure 81: Local materials by Author 2021

Technical development:

The technical development can be understood in terms of the roofs and the phases in which they are built.

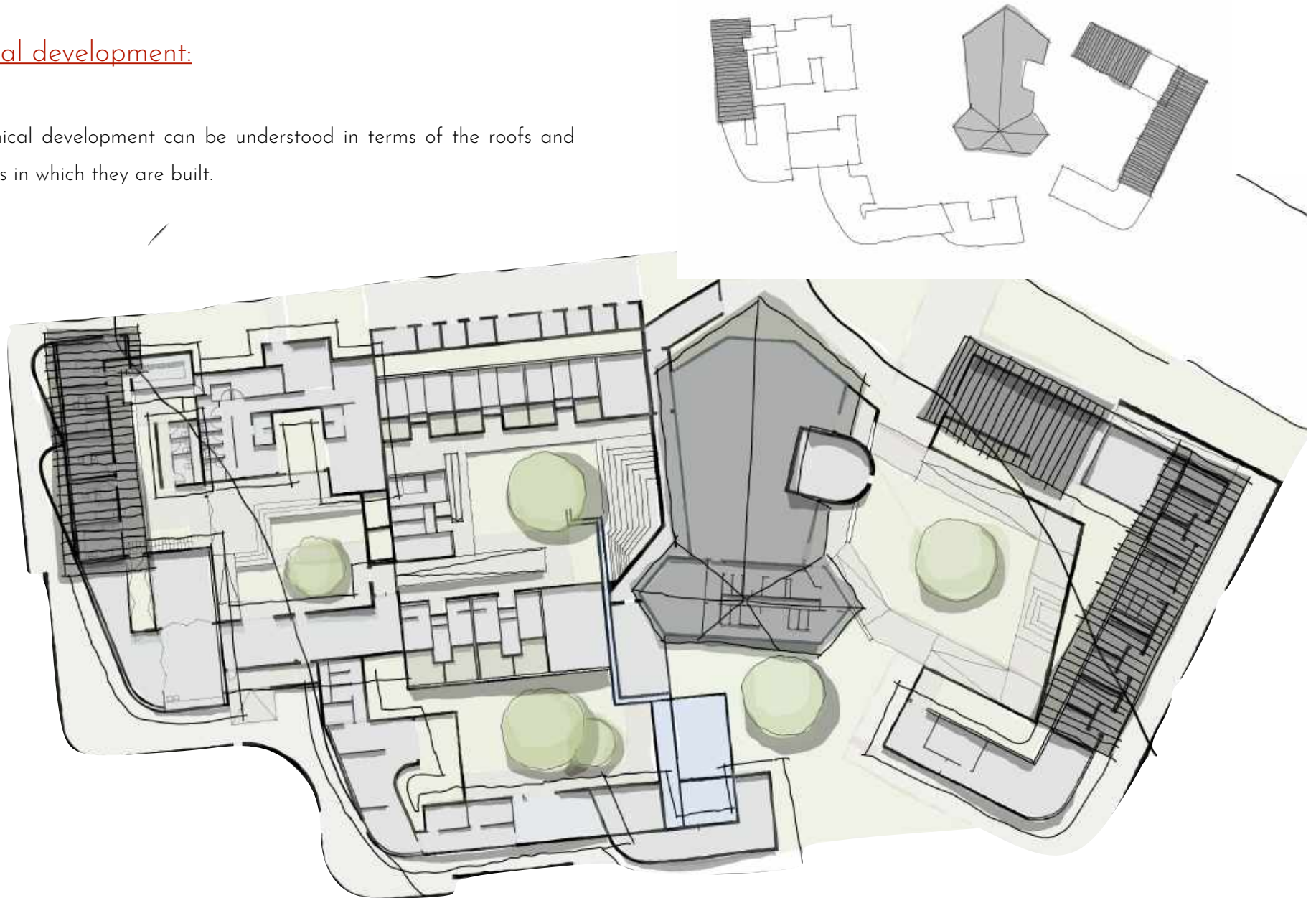
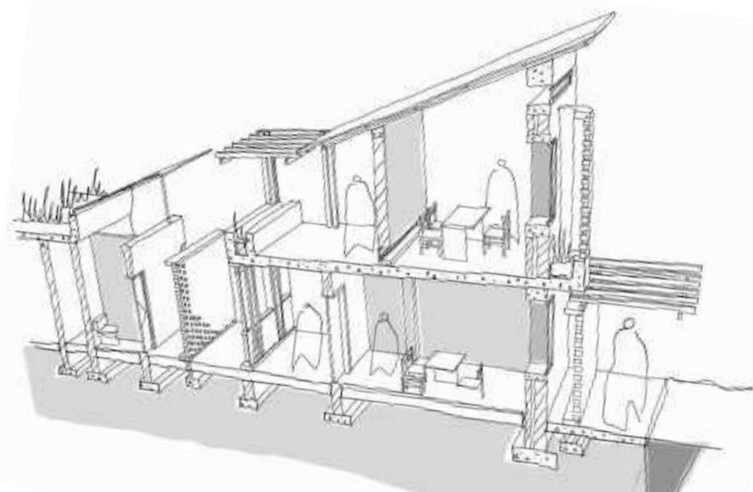
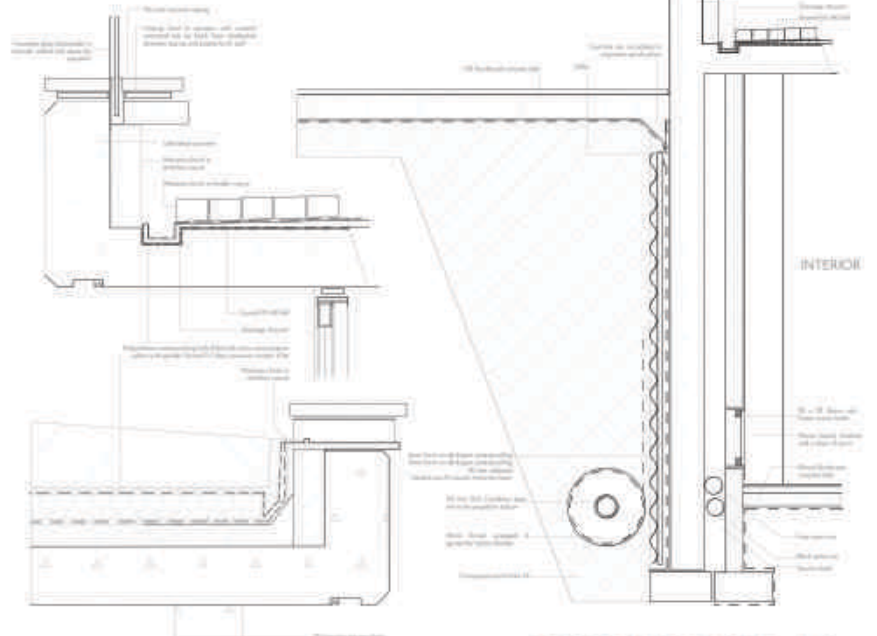
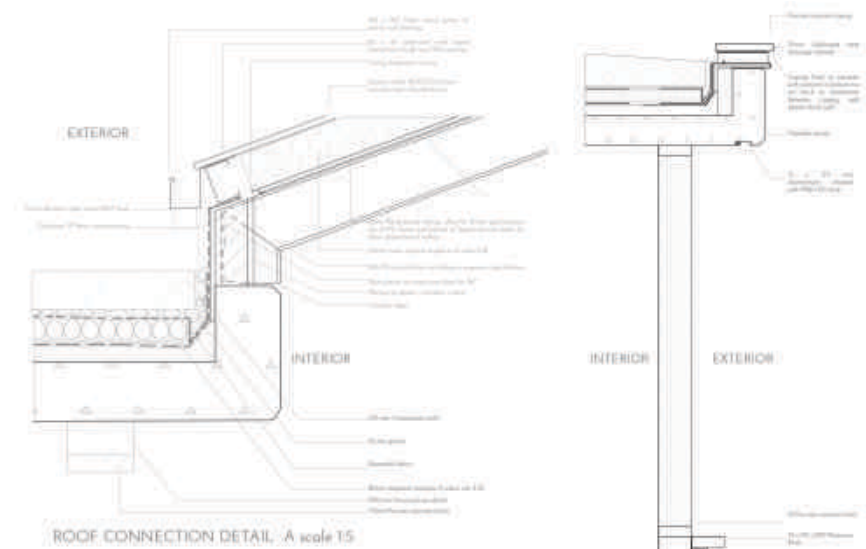
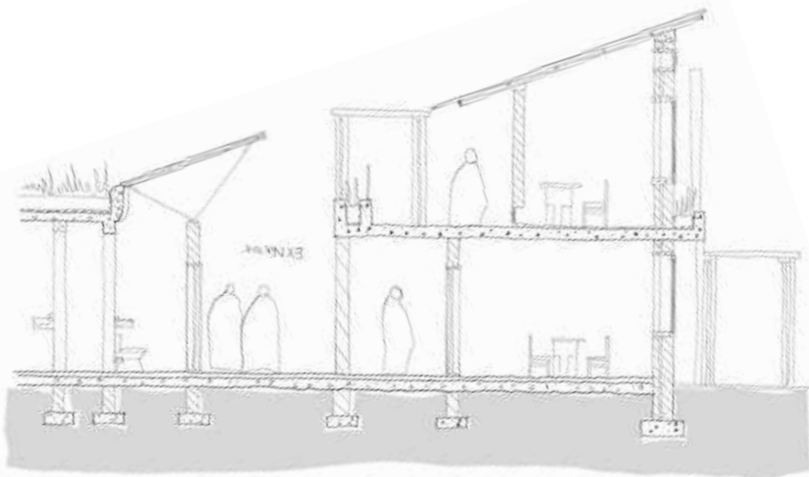


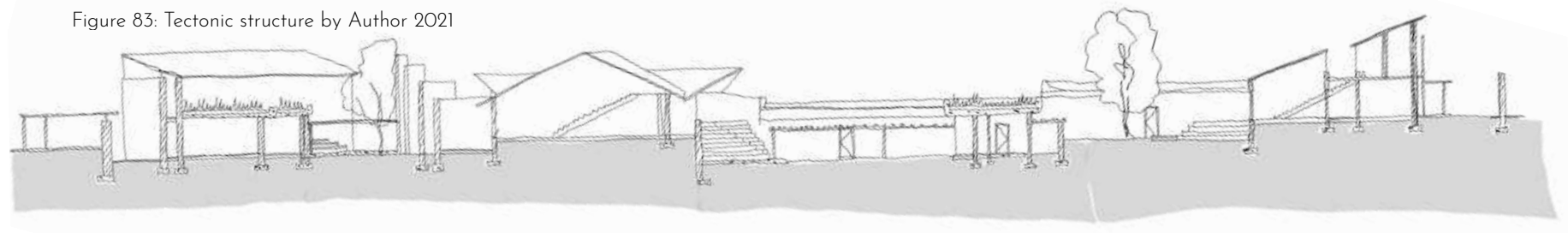
Figure 82: Tectonic structure by Author 2021

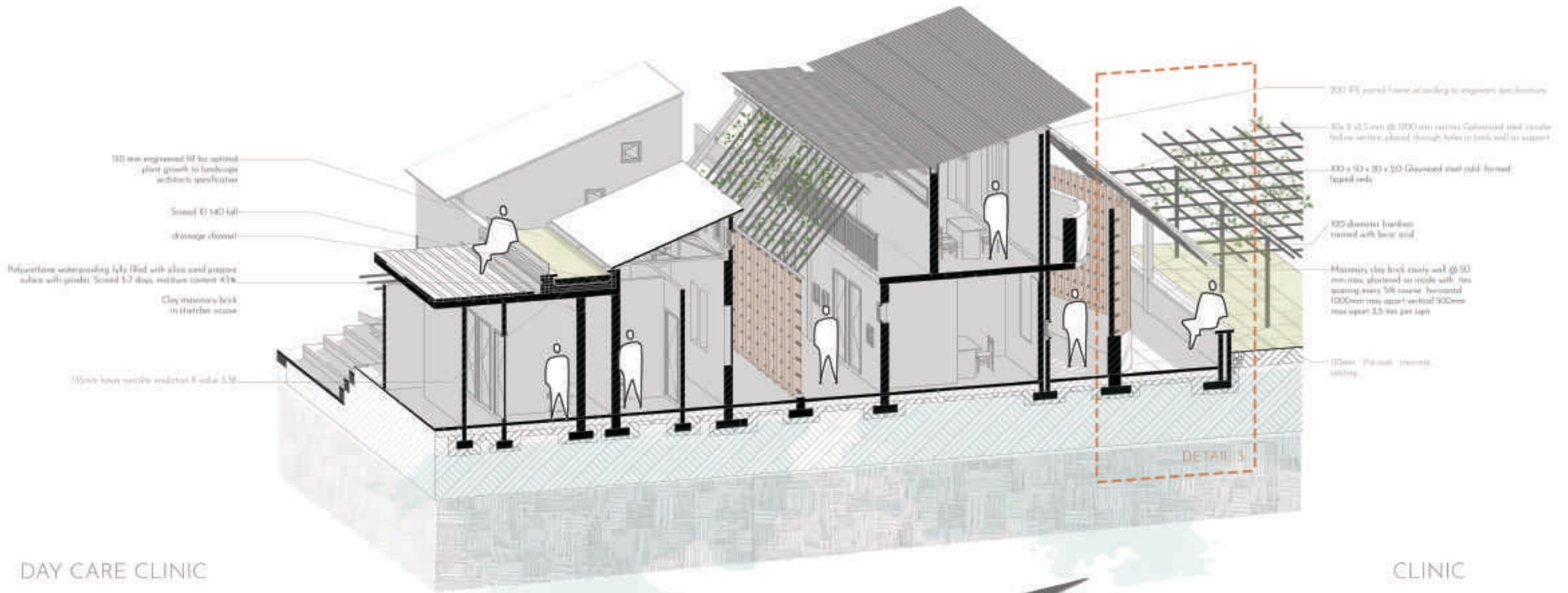


PLANTER ROOF DETAIL scale 1:5

ROOF CONNECTION DETAIL B scale 1:10

Figure 83: Tectonic structure by Author 2021





- 100 mm engineered fill for optimal plant growth to landscape architect specification
- Soiled D 140 fill
- Storage channel
- Rebar/stone waterproofing 140 fill with glass sand porous surface with grids. Soiled S7 slabs, rubber coated 43%
- Clay masonry brick in stretch course
- Warm heavy concrete radiation R value 5.0

- 300 PE panel frame according to engineers specifications
- 30x 8 45 mm @ 1000 mm carries Galvalume steel truss. Below center placed through hole in brick wall to support
- 100 x 100 x 90 x 90 Galvalume steel cold-formed Tapped joist
- 100 diameter barbed rebar with base steel
- Masonry clay brick cavity wall @ 90 mm/min placed in rows with 100 spacing every 300 course. Horizontal 1000 mm apart vertical 300 mm apart 3.5 hrs per sqm
- 10mm Thermal concrete ceiling

DAY CARE CLINIC

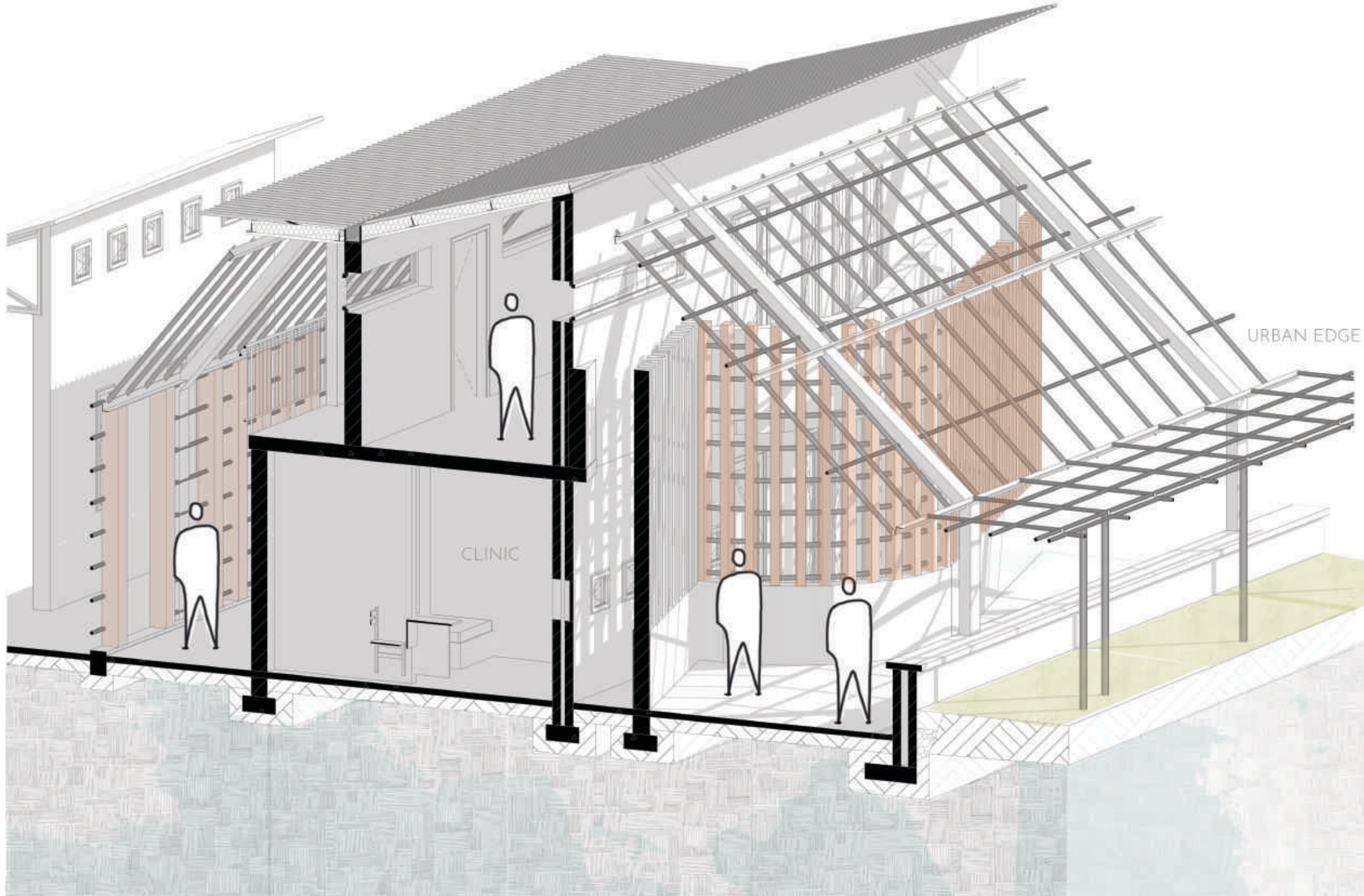
CLINIC

- 80 mm engineered fill for optimal plant growth to landscape architect specification
- Pine Galvalume steel storage channel
- 150 Concrete slab according to engineer specifications
- 80 mm Compacted earth

- Sublime color 100x2100 0.3mm composite mat (Henderson)
- 125 x 90 galvalume steel spaced lateral joist @ 1000 spacing
- Cable mesh/stone concrete

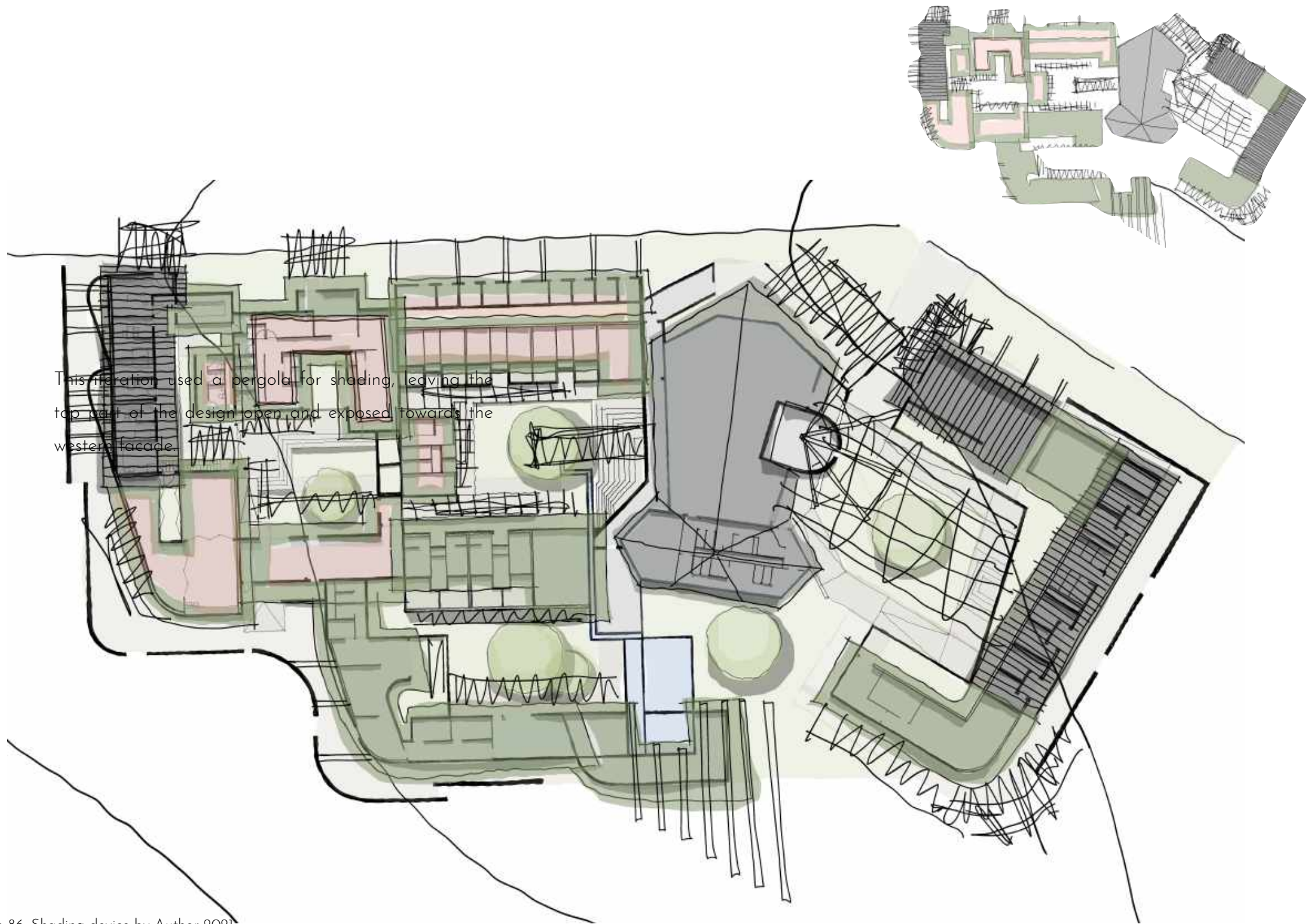
SECTION B-B scale 1:50

Figure 84: Tectonic structure by Author 2021



CLINIC
SECTION b-b scale 1:20

Figure 85: Tectonic structure by Author 2021



This iteration used a pergola for shading, leaving the top part of the design open and exposed towards the western facade.

Figure 86. Shading device by Author 2021



The shading device is used for ventilation purposes, to cool the air before it enters the building. A cavity wall is placed on the eastern and western side of the building to ensure for a better thermal comfort within the building. The steel portal frame supports the shading device on the western edge as well as the eastern edge and becomes a natural mediation between the building and the man made scale route that passes towards the vlei land. The shading device is to be filled up with bamboo reeds that are planted within the community garden. The reeds are to be further covered with plants growing over it, creating a very natural edge condition.

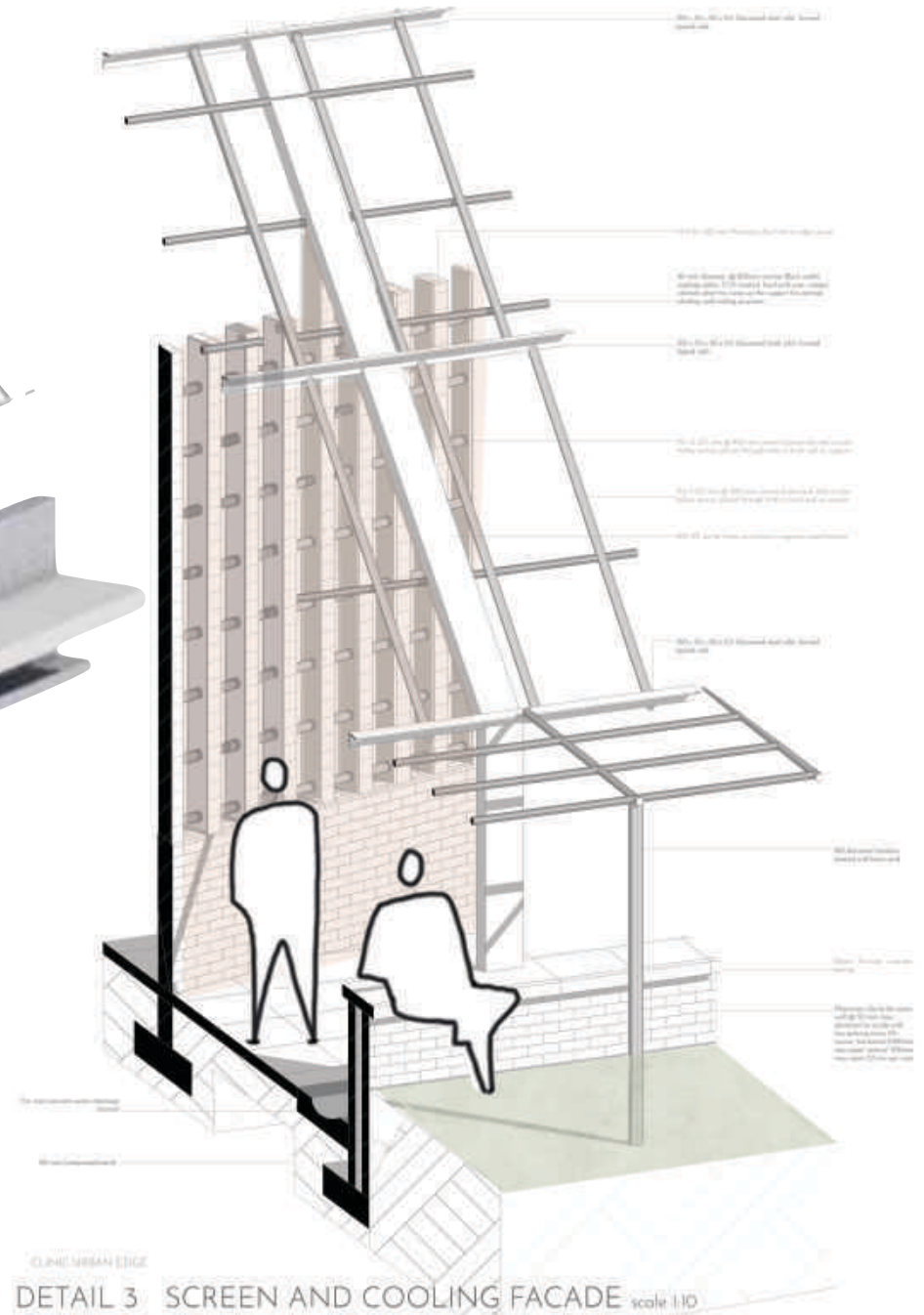
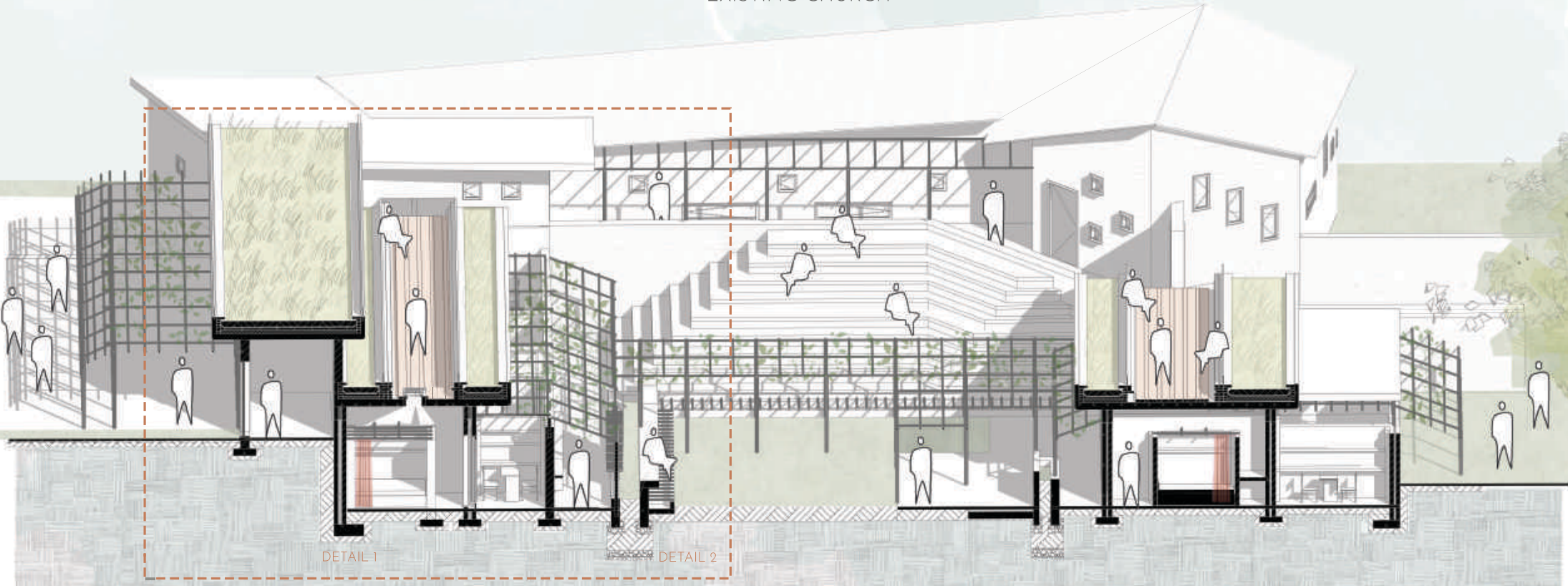


Figure 87: Shading device by Author 2021

EXISTING CHURCH



SIDEWALK

MARKET SPACE

GBV OVERNIGHT ROOMS

SPA/ HAIR SALON

GENDER BASED VIOLENCE CENTRE
SECTION A-A scale 1:50

Figure 88: Shading device by Author 2021

1000 mm by 40 mm diameter Black works
rodings poles, CCA treated, fixed with wax

250 mm Insulated concrete

Geotextile 50 mm waterproofing
Polyurethane waterproofing felt (filled with sand and gravel
subsoil with gravel. Samed 5-7 days, moisture content 4.5%)

Samed K2140 felt

150 mm engineered fill for optimal plant
growth to landscape architect specifications

Frameless glass balustrade in channel,
sealed with epoxy by specialist

Formulated bed frame

Masonry clay brick cavity
wall @ 50 mm max.
plastered on inside with
top spacing every 500
mm. Insulated 1000mm
max apart vertical 500mm
max apart 0.5 top per sqm

Formulated bed frame

Masonry clay brick cavity
wall @ 50 mm max.
plastered on inside with
top spacing every 500
mm. Insulated 1000mm
max apart vertical 500mm
max apart 0.5 top per sqm

1000 mm by 40 mm diameter
Black works rodings poles, CCA
treated, fixed on mesh fastened
with bolt to concrete

100 diameter barbed rebar
with loop seal

75 x 50 x 20 x 0.5 mm Galvalume
steel cold formed. Taped channel
used as down spout

75 x 100 x 200 Clay masonry
brick at a 45 degree angle
supported by steel rod at 25
diameters through hole in brick,
used as vertical casting device
placed in front of masonry shell
for ventilation

500 x 80 mm Precast
concrete seating

DETAIL 1

DETAIL 2

MARKET SPACE

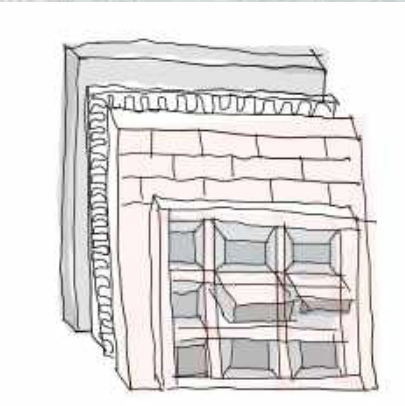
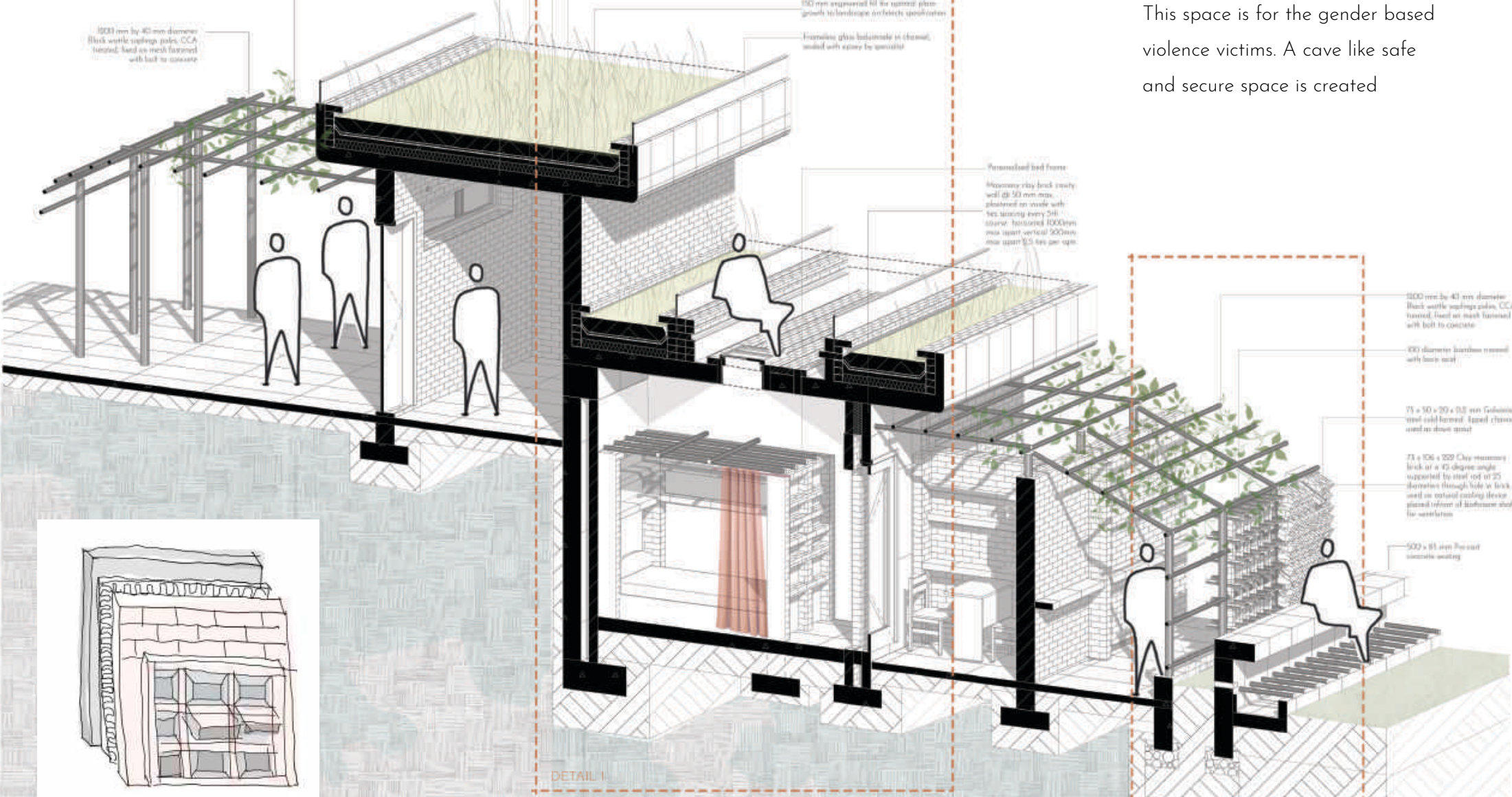
GBV OVERNIGHT ROOMS

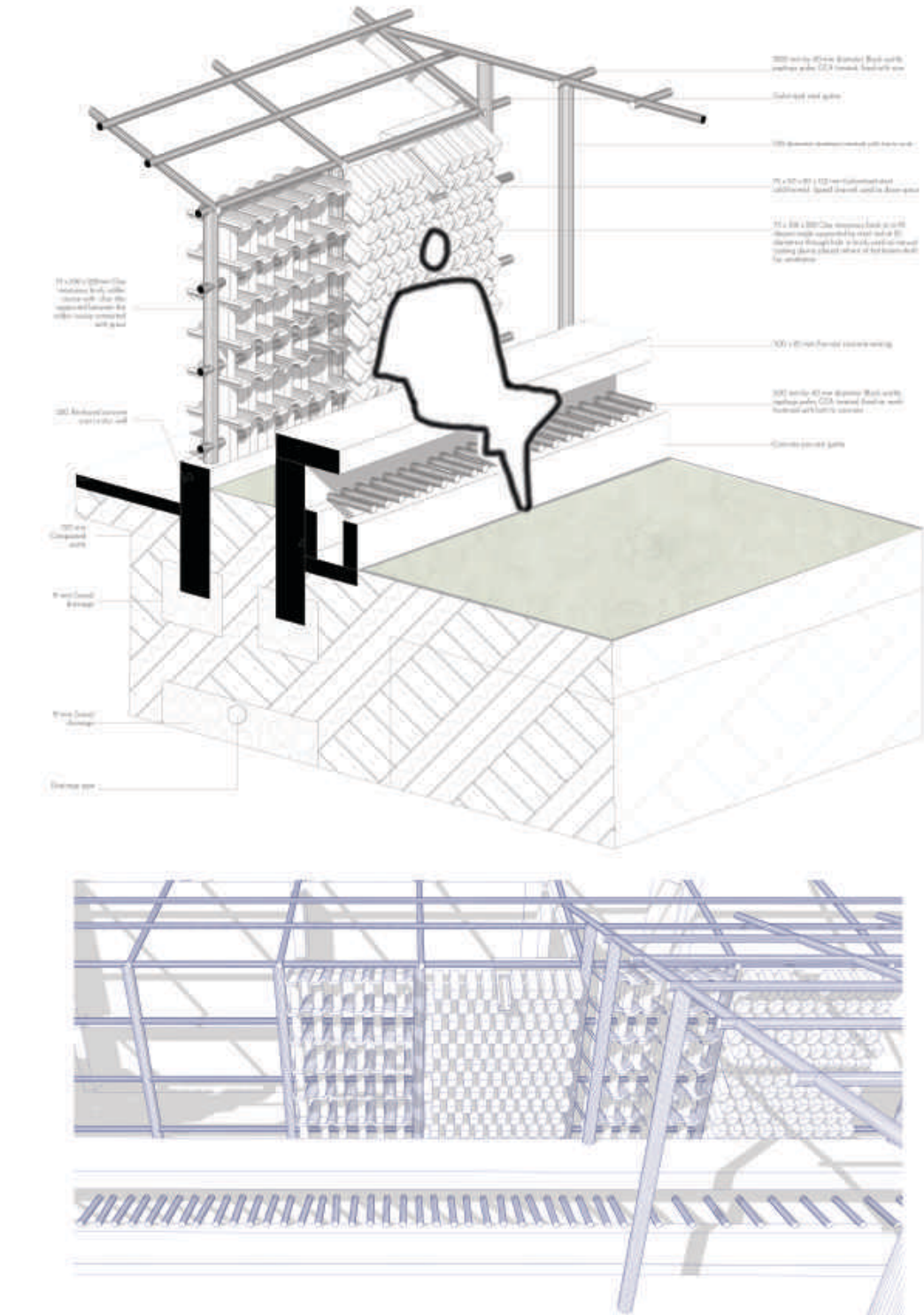
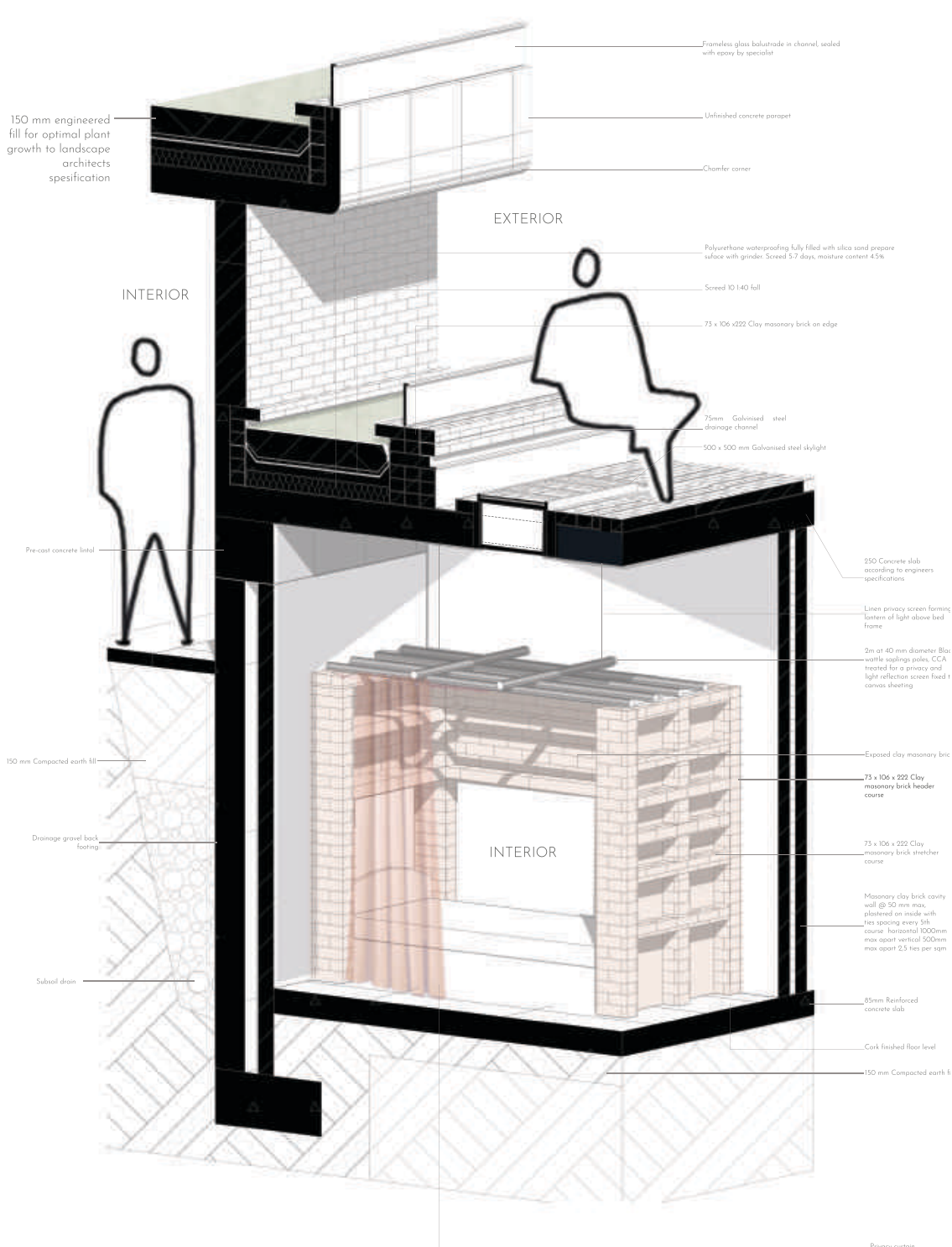
SECTION a-a scale 1:20

This space is for the gender based violence victims. A cave like safe and secure space is created

40 x 7 x 23 mm @ 100 mm centre Galvalume steel rodings
followed by mesh placed through holes in brick wall to support

1000 mm by 40 mm diameter
Black works rodings poles, CCA
treated, fixed on mesh fastened
with bolt to concrete





NORTHERN GENDER BASED VIOLENCE OVERNIGHT ROOM
 DETAIL 1 bed frame scale 1:20

PROSPECT AND REFUGE PRIVACY SCREEN
 DETAIL 2 SCREEN AND WATER HARVESTING SYSTEM scale 1:10

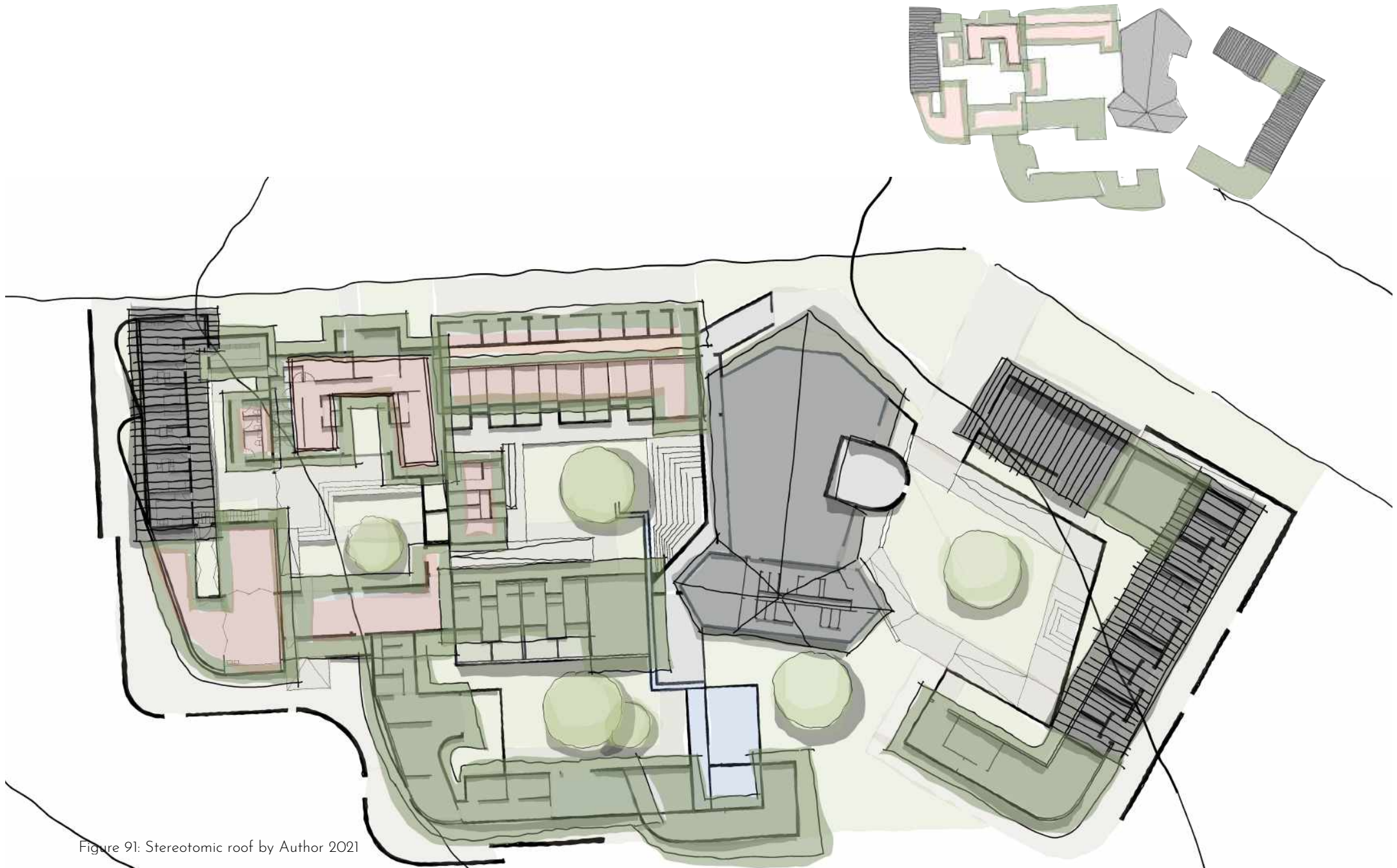


Figure 91: Stereotomic roof by Author 2021

EXISTING CHURCH

NEW ALTAR

ENTRANCE TO GBV CENTRE

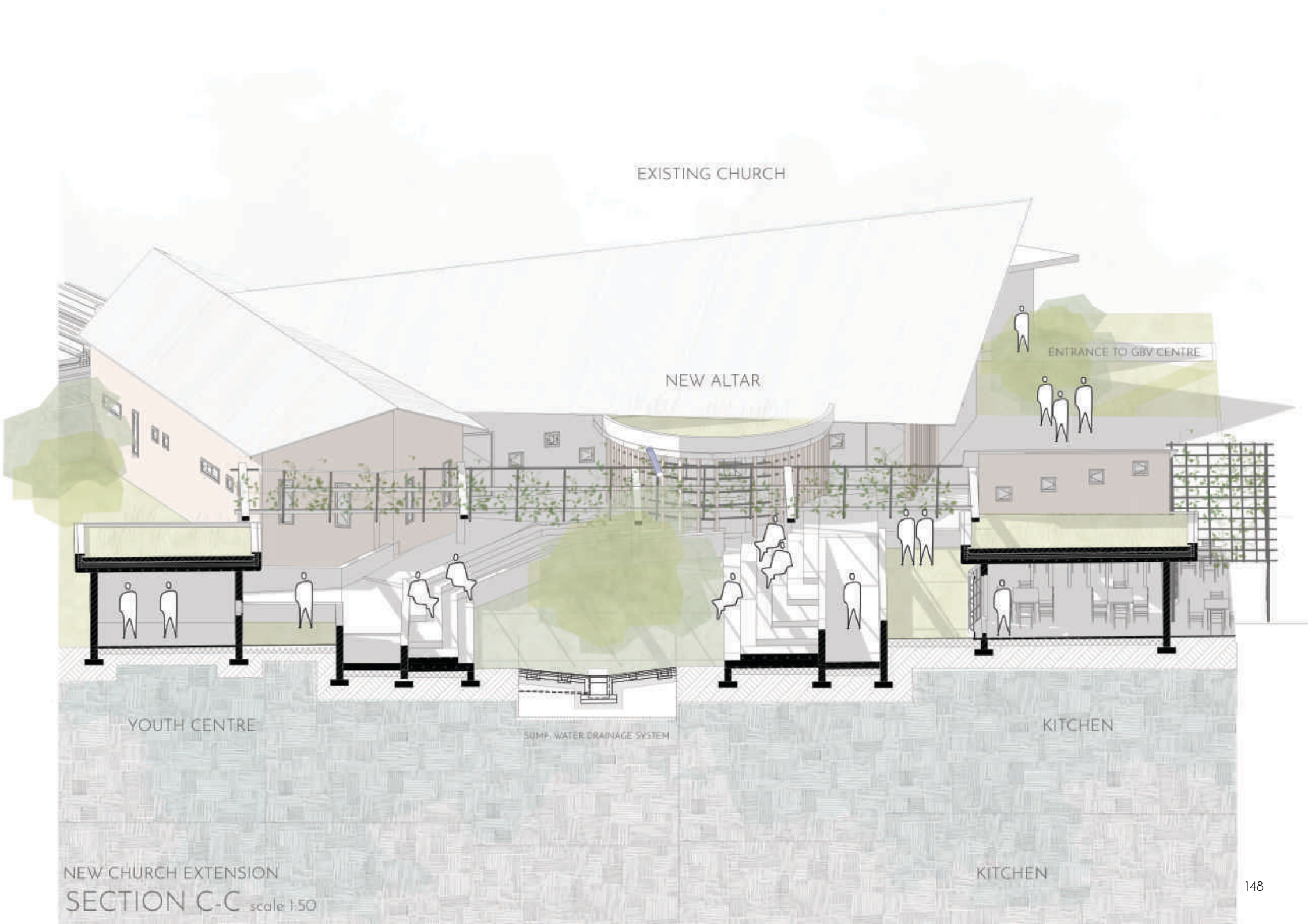
YOUTH CENTRE

SUMP, WATER DRAINAGE SYSTEM

KITCHEN

NEW CHURCH EXTENSION
SECTION C-C scale 1:50

KITCHEN



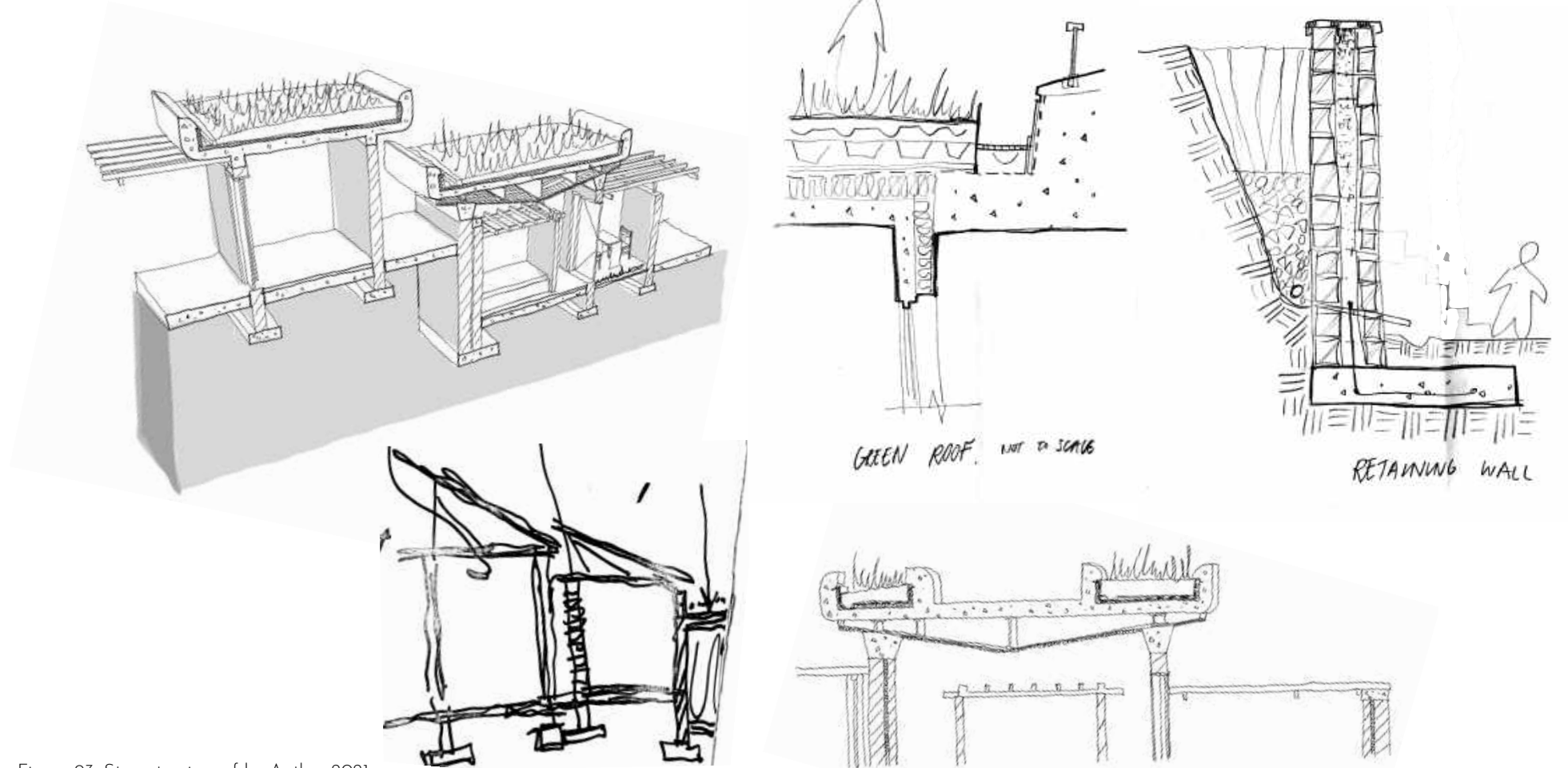


Figure 93: Stereotomic roof by Author 2021

Using the same principles used with the construction of the clinic, the eastern and western side of the homeless shelter becomes shaded by the same steel portal frame with galvanised steel purlin support and bamboo infill. The portal frame supports the brick infill used for the building, also using cavity walls to ensure a high thermal comfort. The shading device becomes part of the church extension, filtering the light and creating a public reinvented spire, towards the existing church the new altar sits towards the courtyard to allow for an outdoor sermon and bigger groups of people to attend. The shading device is more intimate and private towards this edge. the shading device does however end 1m before the altar to create dramatic lighting and a threshold between congregation and pulpit as well as old and new.

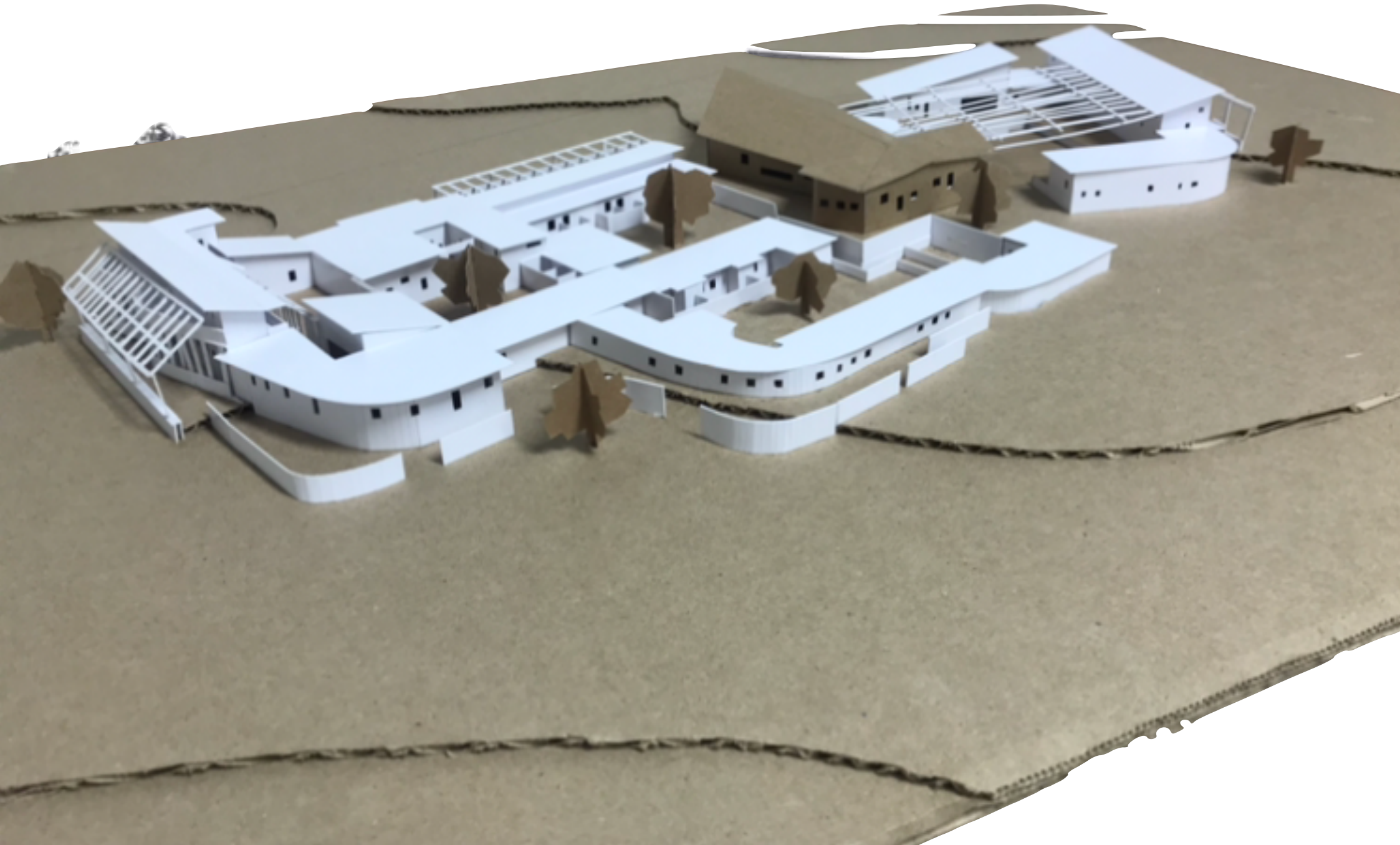


Figure 94: Model by Author 2021



Figure 95: Stereotomic roof by Author 2021

Environmental studies:

Thermal comfort is an important aspect of the design as overnight rooms are designed, where people of abuse will find solace. The design is in zone 2 with a temperate interior (Harris). A passive design approach is taken and enhanced by roof insulation, cavity walls towards the west and east. The west and east facades are horizontally and vertically shaded, to cool the air before it enters the building. The northern side of the design has a timber pergola to regulate the temperature.

Green roofs have a high thermal comfort value, and by allowing the open parts (accessible parts on roofs with planters) to be painted white, the Albedo effect can partake to cool down the roof between 2- 4 degrees Celsius.

Insulation/ thermal comfort is a good way to improve the energy efficiency of a building. When done well thermal comfort can be achieved in winter (warm) as well as summer (cool) by giving resistance to heat flow.

Insulation loses its insulating effect when in contact with moisture or air, therefore moisture barriers and sealing must be developed within the design.

The total R value for roofs within a climate 2 zone must be a minimum of 3.2. The minimum R value of the roof material and ceiling (excluding the insulation) is 0,35-0,40 and the R value of the insulation must be no less than 2,30-3,35.

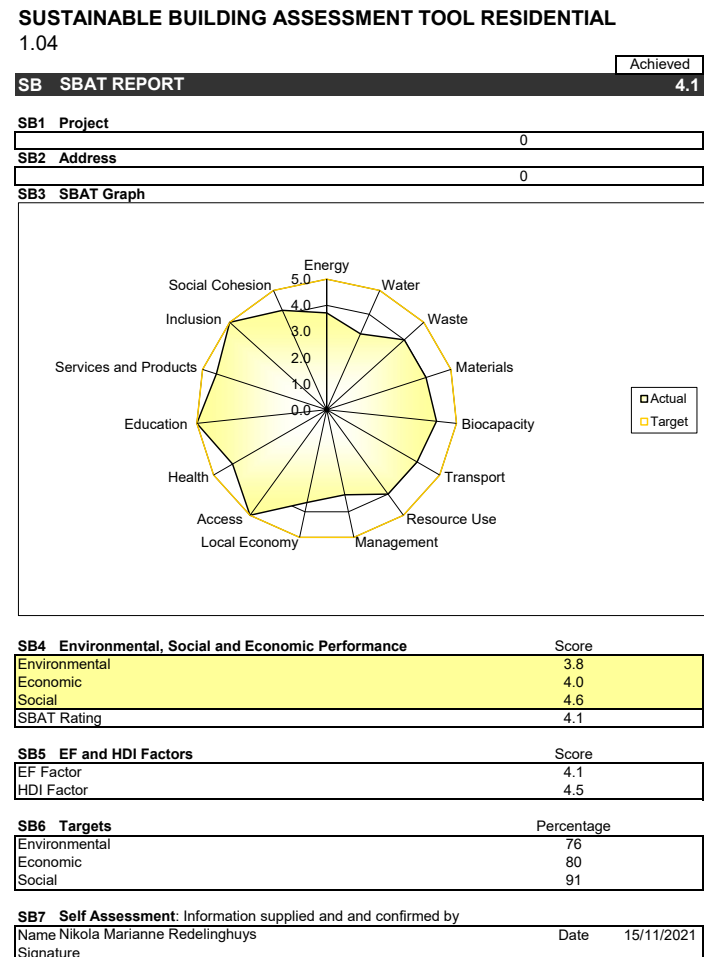


Figure 96: SBAT by Author 2021

Water harvesting:

Rainwater will be gathered through the roof and taken down with the help of a gutter. The gutter will release the rainwater on the courtyards where it will be taken through a sump pipe and gathered in a tank towards the lower side (south) of the site, where water can either be filtered, used for grey water or taken towards the vleiland with the help of gravitation. The size of the tank is to be determined by the amount of water that will be harvested through the design, mainly through the roofs as well as the courtyard spaces. The annual rainfall is used to project the average expected rainfall.

Total roof area: 1350m² (A)

Run off roof coefficient= 0,9

40L x hand wash basins=800L

9L flush x 3/per day/person= 45 000L

800+ 45 000=45 800L

=45,8m³

=46m³

The courtyard surface area is 820m².

courtyard 1 = 95m²

courtyards 2 = 181m²

courtyard 3 = 252m²

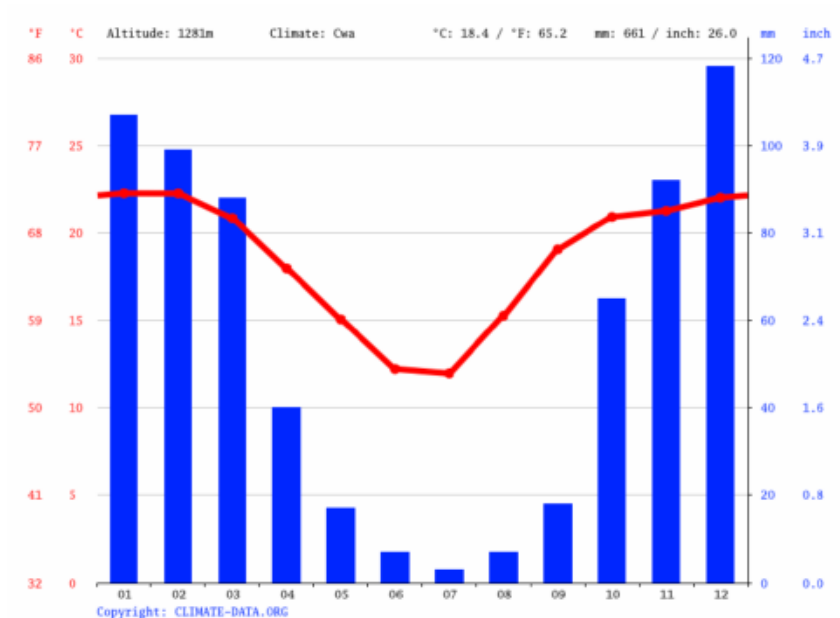


Figure 97: Rainfall by Meteoblue 2021

courtyard 4 = 112m²

courtyard 5 = 180m²

total= 820m²

12 ml water is needed per square meter to water the garden.

820m² x 0,012 =9,84m³

9,84x4 times per week=39m³

The roof rainwater gathering will harvest enough water for the water basins as well as the toilets within the design. In the months of May to

September, too little water will be harvested and the excess water in storage, gathered within the other months must be used.

Rainwater harvest on roof				
Month	Monthly average rainfall in Pretoria (mm) (P)	Yield = P x A x C	Demand per month (m3)	Excess/ shortage in water
January	0,154	187	46	141
February	0,075	91	46	45
March	0,085	103	46	57
April	0,051	62	46	16
May	0,013	16	46	-26
June	0,007	9	46	-37
July	0,003	4	46	-42
August	0,006	7	46	-39
September	0,022	27	46	-19
October	0,071	85	46	39
November	0,098	119	46	73
Desember	0,15	182	46	136
Total:	0,735	892	552	

Stormwater harvest on courtyard				
Month	Monthly average rainfall in Pretoria (mm) (P)	Yield = P x A x C (m3)	Demand per month	Excess/ shortage in water
January	0,154	126	39	87
February	0,075	62	39	23
March	0,085	70	39	31
April	0,051	42	39	3
May	0,013	11	39	-28
June	0,007	6	39	-33
July	0,003	3	39	-36
August	0,006	5	39	-34
September	0,022	18	39	-21
October	0,071	57	39	18
November	0,098	80	39	41
Desember	0,15	123	39	84
Total:	0,735	603	468	

Figure 98: Rainwater by Author 2021

Natural swimming pool:

A natural wetland is to be created to filter the harvested rainwater, and spilt over to the freshwater pool (Aquadesign 2014). This is to be used within the spa area as well as for baptisms.

A skimmer is to be installed in the natural swimming pool to keep the water clear on the surface of leaves and other natural elements (Verster 2014:181).

The water is gathered within the courtyard, gravity is used to let the water flow down towards the lowest point of the site.. In the other courtyards the water from gutter systems are collected



Figure 99: Natural pool by Verster 2014:181

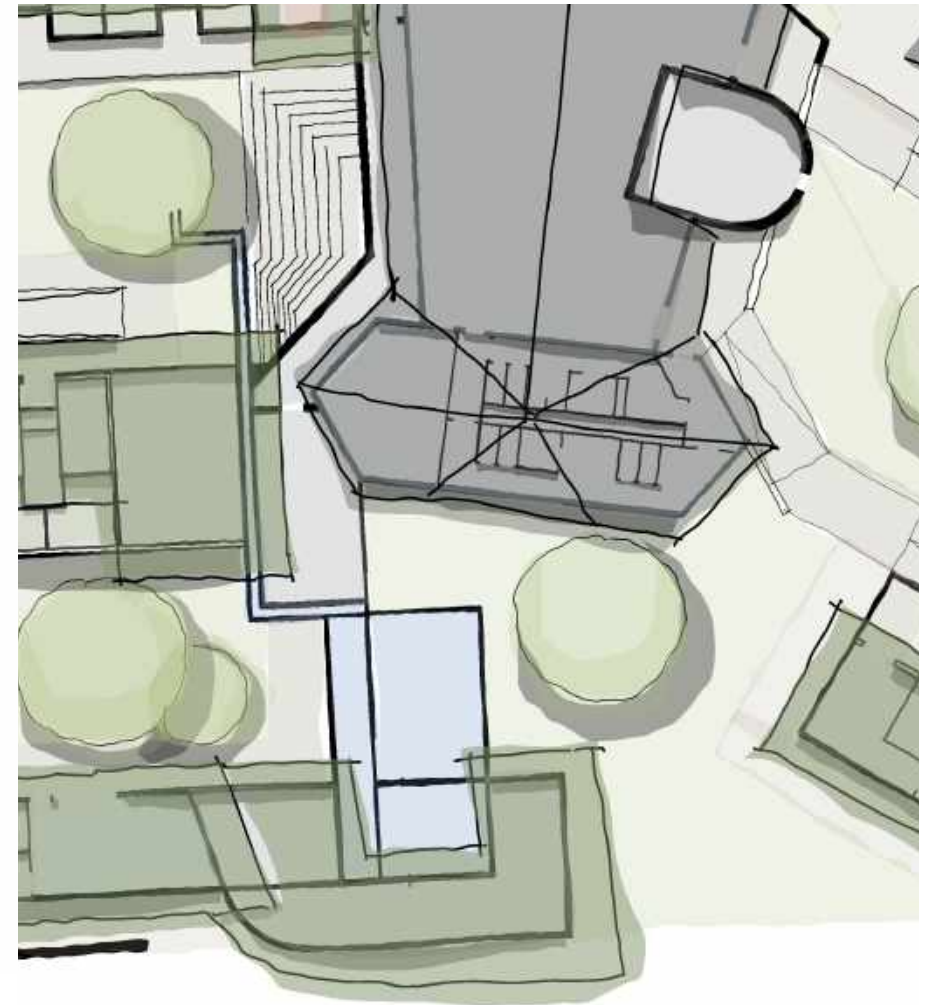
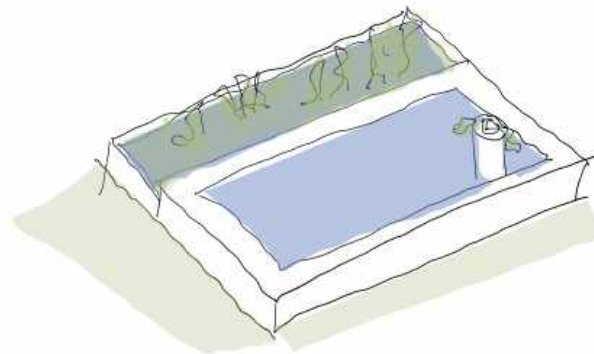


Figure 100: Water harvesting method by Author 2021

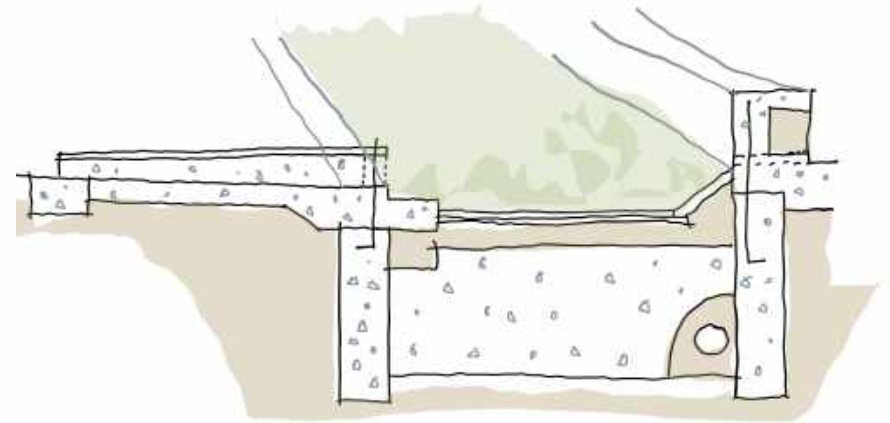
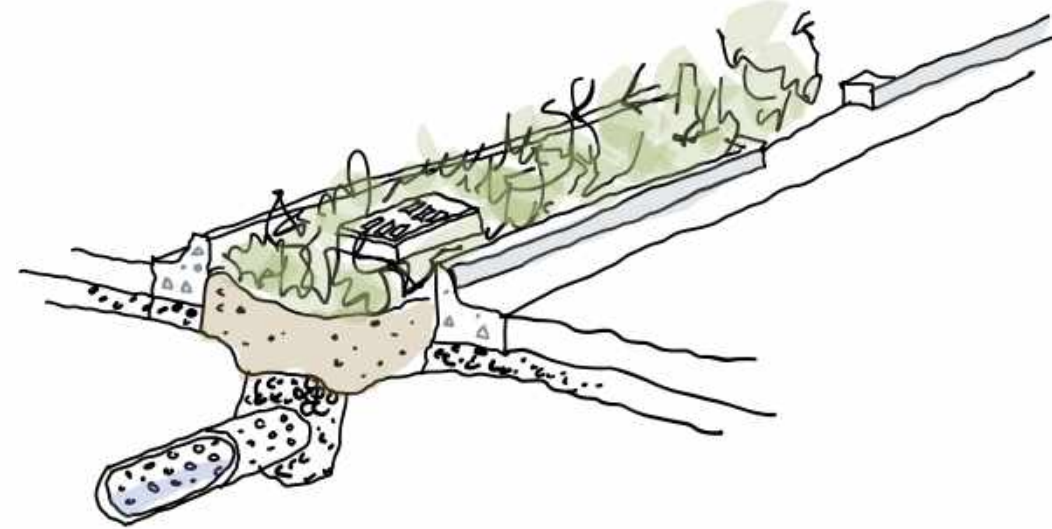
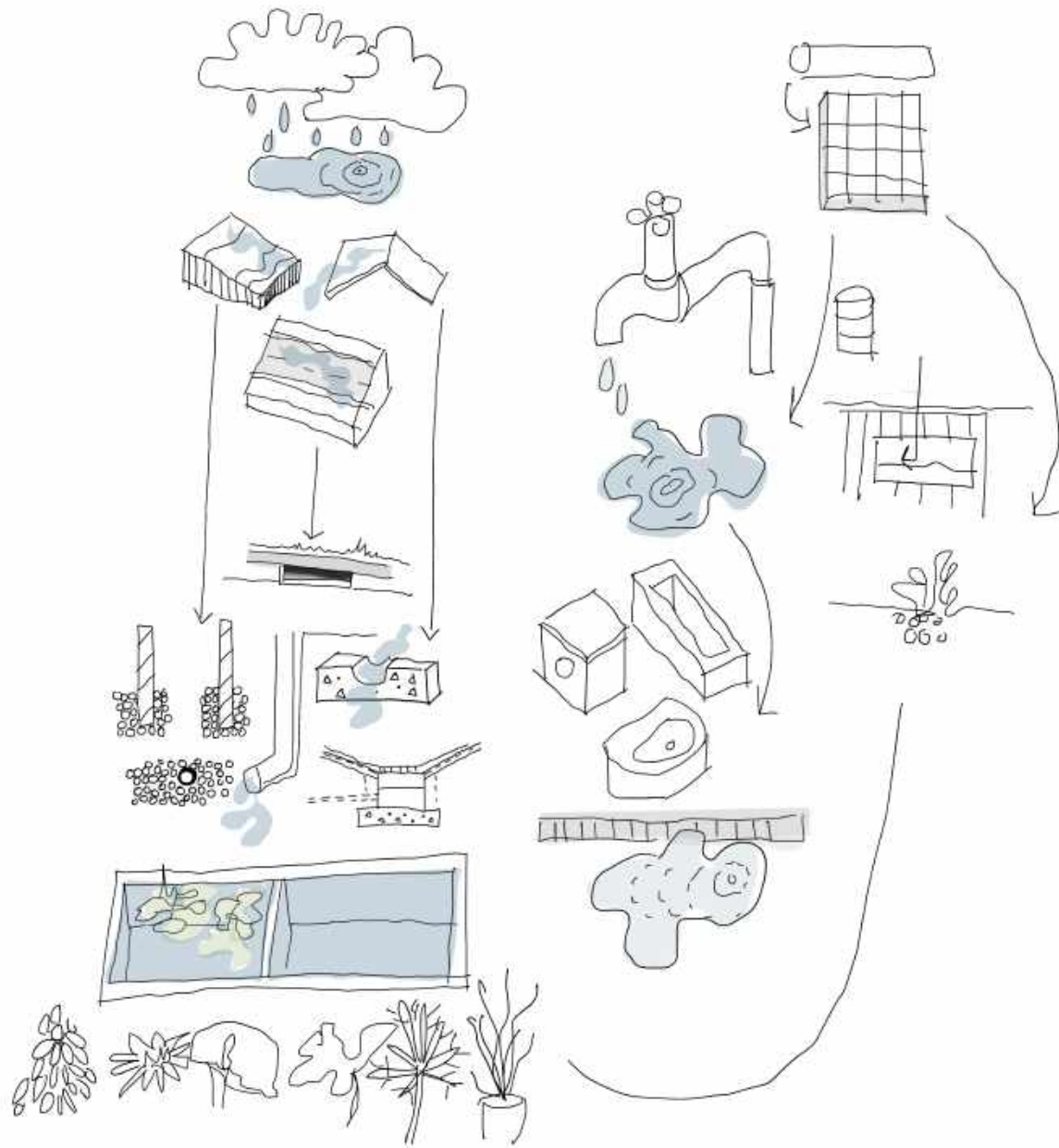
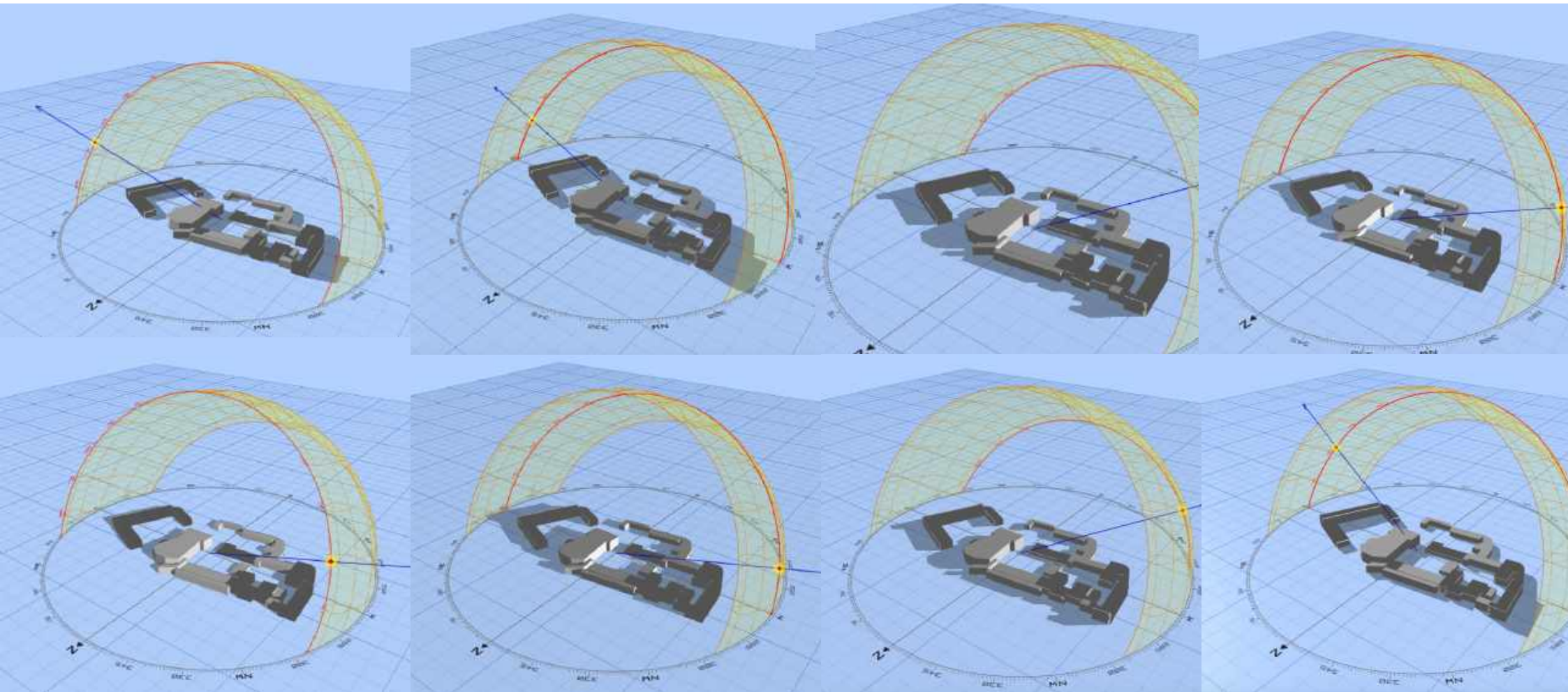


Figure 101: Water harvesting method by Author 2021

Sun study:



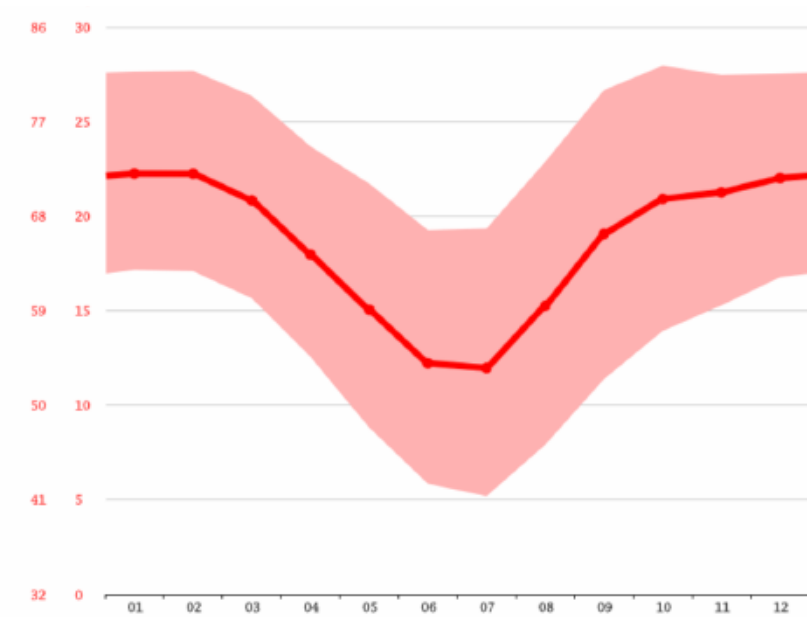
Summer solstice

Autumn equinox

Winter solstice

Spring equinox

Figure 102: Sun angle by andrew marsh.com 2021



The temperatures are highest on average in January, at around 22.3 °C | 72.1 °F. At 12.0 °C | 53.6 °F on average, July is the coldest month of the year.

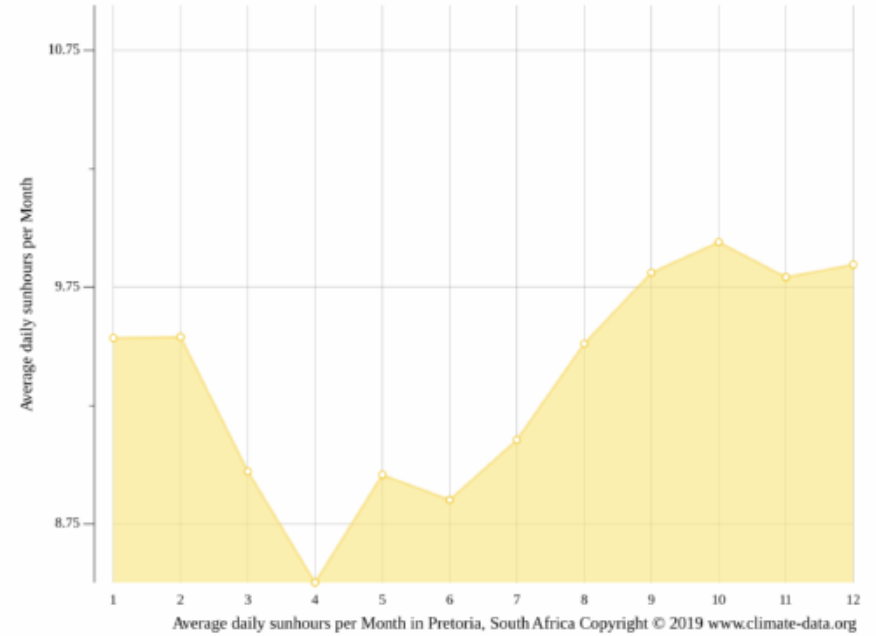


Figure 103: Rain and temperature graphs by meteoblue 2021

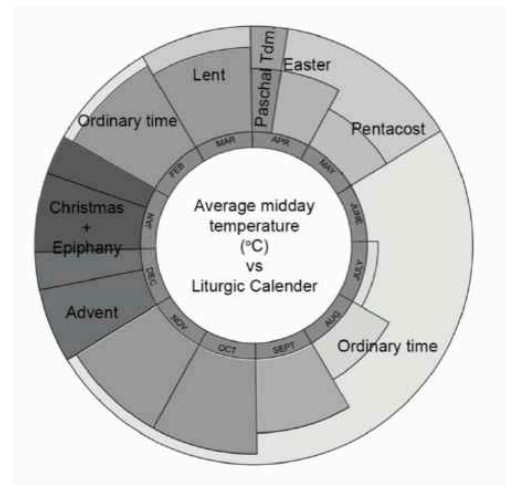
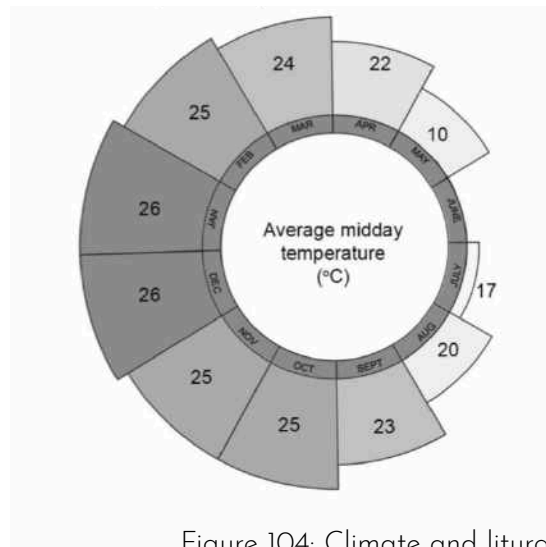


Figure 104: Climate and liturgical calendar compared by Thompson 2015:79

Within a religious building light plays an important aspect therefore the sun study was important while designing the extension of the religious program. The temperature as well as rainfall plays a role as on the important days within the liturgical calendar the church will be at its fullest and the design must accommodate this fact.

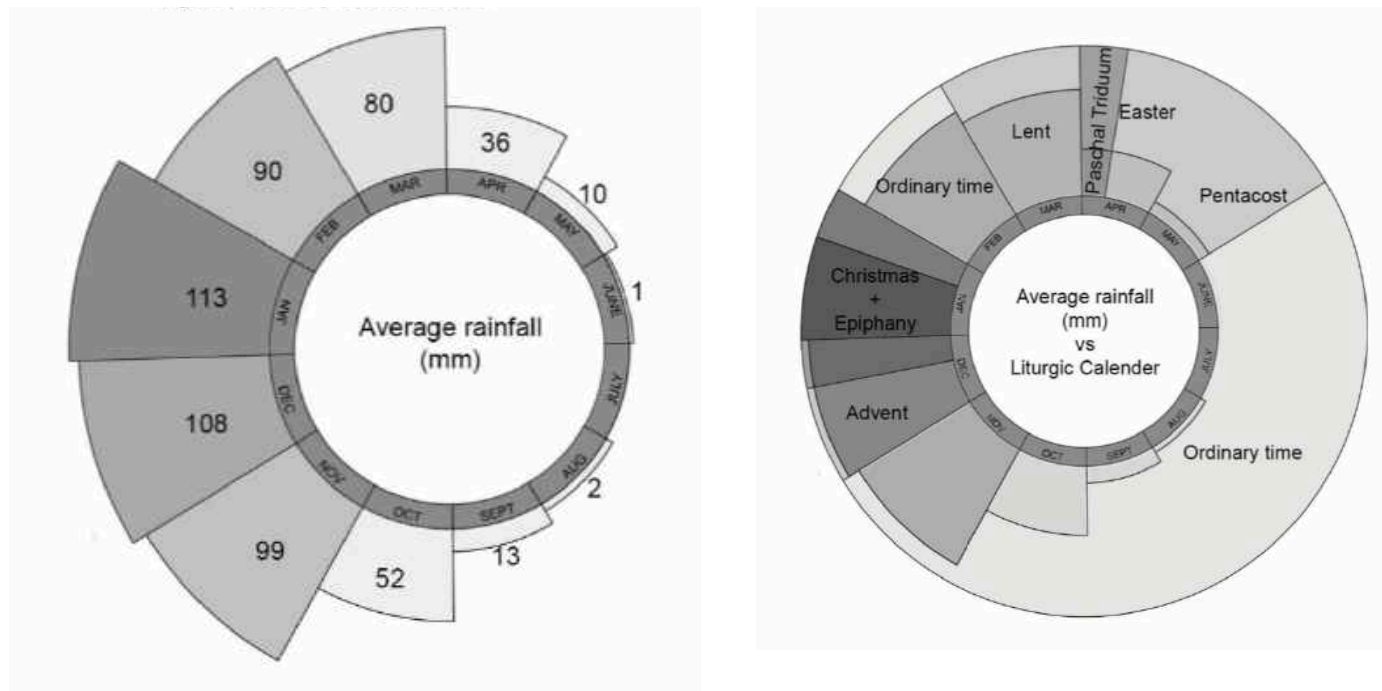


Figure 105: Climate and liturgical calendar compared by Thompson 2015:79

Ventilation strategies:

A passive design strategy is implemented, cooling the air before it enters the building as well as cross ventilation within the scheme. When the plants start to grow on the shading device the amount of cool air produced will be enlarged.

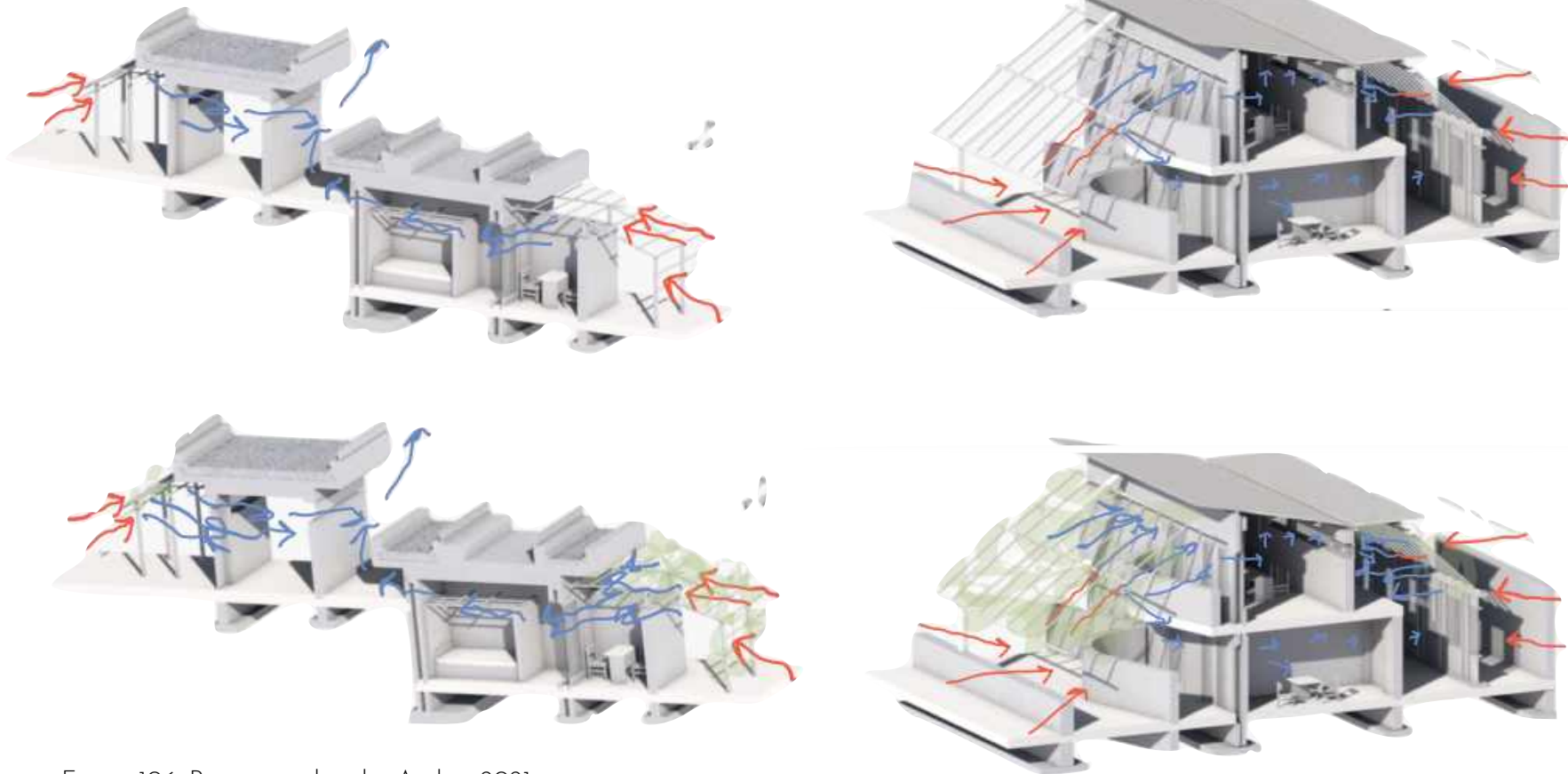


Figure 106: Passive cooling by Author 2021

Technological contribution:

To create a safe gathering space within Eersterust, allowing for an existing typology to be developed, creating a prototype and developing alternative methods of construction using a range of materials and assembly methods found within the community to serve as an educational and thought provoking building. To create a building protecting its inhabitants and the nature, healing the community.

Stark barriers are not the answer to create a safe space, by doing this more unsafe spaces are created. Design should include thresholds in thresholds to layer spaces from public to private, allowing for open spaces that are designed and integrated within the design, blurring the line between indoor and outdoor, producing spaces that are thought through and relevant as they are used as part of the program and not just designated open parks that become forgotten and unsafe. Sustainability is key, by allowing natural ventilation, thermal comfort during various seasons and water harvesting techniques to fuel the community garden and be used as grey water. The design becomes an ecosystem of the manmade and nature in harmony working together to heal the suburb prototype to prototype.

Critical reflection:

Research:

The research was routed in history, site visits and interviews with pastors, if this was expanded to interview the users rather than the users in a leadership position it would have been more helpful in hearing the direct need rather than from a secondary source. Due to covid-19 and gbv victims being part of a very sensitive group this was not possible.

To have shifted the design towards creating a new church within the community of Eersterust, the author would have been able to create a space with the direct vision of including woman more within the church building itself.

Contribution:

The issue of gbv within the community was to be further explored first hand with a local NPO, Shalom Safe Spaces ministries (part of Immanuel congressional church in Eerstersust). This crucial problem was to be attended to and create a safe space with a hotline and group consultation sessions. They have not yet achieved what they set out to do, due to covid-19 and a lack of follow through. The willingness of the group, portion of funds collected and the idea of refuge and readaptive design techniques must be further advocated within the suburb to gain a bigger

following to bring the project or a similar project into fruition. This is a way forward for the design.

Design:

A smaller scale project could have been suggested, using more alternative building materials, by planting and incorporating the plants within the design as well as a bigger community garden. If the cost of the building is brought down it, the design can be built and help the community in need.

New normative position:

The idea of parasitic architecture in terms of healing and using what is already there is important when designing within a post apartheid era.

Extension towards career:

The vast process of design development which was undergone, learnt the author to pick up on existing grids, building styles, the local building materials and the needs within the community to create a more relevant design which can help solve problems through architecture.

The first idea is never to be used, but not to be disregarded as intuitive design plays a big part in the design process, this must however be scrutinised and every decision made must have a reason for being.

Architecture must be used to enhance the life of man and nature, as the middleman between them, allowing them to interact and allowing the dependance they both have on each other to help both thrive.

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Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en
Inligtingtegnologie / Lefapha la Boetšenere,
Tikologo ya Kago le Theknoloetši ya Tshedimošo

1 September 2021

Reference number: EBIT/74/2021

Ms NM Redelinghuys
Department: Architecture
University of Pretoria
Pretoria
0083

Dear Ms NM Redelinghuys

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

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

1. This means that the research project entitled "Re-adaptation and integration of religious buildings in Eersterust" has been approved as submitted. It is important to note what approval implies. This is expanded on in the points that follow.
2. This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Code of Ethics for Scholarly Activities of the University of Pretoria, or the Policy and Procedures for Responsible Research of the University of Pretoria. These documents are available on the website of the EBIT Research Ethics Committee.
3. If action is taken beyond the approved application, approval is withdrawn automatically.
4. According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of the EBIT Research Ethics Office.
5. The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

A handwritten signature in black ink, appearing to read 'Kui-Y. Chan'.

Prof K.-Y. Chan

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