

Finding Common Ground

Restoring the mutualistic relationship between generations through an intergenerational hub



Vishanka Vish Naidoo
2019

Inter generational

between age

“they need to pass the torch, to share lifetimes of wisdom, to feel they’re leaving a legacy behind.”
Erik Erikson, 1989

Finding Common Ground

Restoring the mutualistic relationship between generations through an intergenerational hub

A Dissertation Presented by:
Vishanka Vish Naidoo

Submitted to the Architecture School of the
University of Pretoria in partial fulfillment
of the requirements for the degree of:

Master of Architecture (Professional)

Faculty of Engineering, Built Environment and Information Technology
Department of Architecture, University of Pretoria (UP)

Study Leader: Dr Carin Combrink
Co-ordinator: Prof Arthur Barker
Year: 2019



Figure 1.2: Intergenerational activity (Author 2019)

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 of Master of Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution. I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma or other qualification.

A handwritten signature in black ink, appearing to read 'Vishanka Naidoo', written in a cursive style.

Vishanka Naidoo
2019

Acknowledgements

With special thanks to:

My family

These past 6 years have been quite a journey and I am enormously grateful for the opportunity and endless love and support. Thank you all for all the guidance, patience and belief in my ability.

My friends

It is always comforting knowing that I was not on this journey alone. It was an honour learning from and growing with you all.

My supervisor, Dr Carin Combrink

Thank you for believing in my passion, refusing to let me doubt myself and for making me realise my power and potential. I appreciate your motivating words that kept me pushing right to the very end.

Lizann

Thank you for taking the time to unscramble my brain and help me think clearly. Your positive energy and motivating attitude is contagious.

This dissertation is dedicated to you
and to the students who have had a tough
time but still continue to push through

Abstract

World ageing is rapidly increasing and a dramatic demographic shift in South African population is therefore also expected to grow. The increase in the proportion of the elderly population has led to the global issue of social isolation (Statistics South Africa 2014). Today, the elderly is regarded as less valuable to society because of their dependency on civil society and government funds for health care and social support. Many elderly persons do not feel valued due to their health and/or physical state.

This dissertation explores Laudium, a suburb west of Pretoria. In a time of significant demographic change, to investigate the means of empowering the elderly community of Laudium through an intergenerational community care facility to address the global issue of social isolation and loneliness that plagues majority of the aging population.

As many changes in society, such as increased geographic mobility and improved technological advances, have led to generations frequently becoming segregated from one another, the development of intergenerational shared sites (IGSS) presents a unique opportunity to foster mutual exchange between the generations.

The goal is to investigate the potential of civic architecture to bridge boundaries and divides and develop a physical environment that is accommodating and empowering for all age groups, specifically the vulnerable and supports their physical and social needs to stimulate positive intergenerational exchange.

This dissertation aims to implement a design framework based on guidelines as set out in the Policy on Integrated Delivery of Social Infrastructure and Management drafted by the Department of Social Development (DSD) (DSD 2012). To address the current shortcomings in service delivery and infrastructure (architecture) in South Africa.

Project summary

Project Title:

Finding Common Ground

Restoring the mutualistic relationship between generations through an intergenerational hub

Address:

235 Bengal street, Laudium, Pretoria
Gauteng, South Africa
25.7836° S, 28.0976° E

Client:

The Department of Social Development

Programme:

Intergenerational Hub

Research field:

Human Settlement and Urbanism

Theoretical premise:

Active ageing in the Built Environment

Architectural approach:

The Small City approach

Keywords:

Intergenerational exchange, Active Ageing

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CHAPTER 1

INTRODUCTION

1.1 Introduction

As population ageing increases, it becomes more and more important to create places for intergenerational exchange where the elderly can contribute to society. Traditionally, the elderly minded their grandchildren (in many cases they still do). Such caregiving strengthens intergenerational relationships by allowing boundaries to be crossed and lessening ambivalence between generational groups. It allows generations to appreciate the other's experiences, skills and knowledge and enhances understanding of generational needs (Tighe, Birditt & Antonucci 2016). Intergenerational exchange is a factor in the promotion of lifelong learning and skill sharing, which both contribute to the development of a resilient, well-integrated community (Sánchez, Whitehouse & Johnston 2017). Intergenerational and multigenerational housing has become not only an influential architectural approach but also a necessity in civic architecture. This dissertation discusses the design of an intergenerational hub in Laudium that aims to reintegrate the elderly into society. The White Paper on Families in South Africa (South Africa 2013) provides guidelines to address the socio-economic issues faced by the marginalised, vulnerable members of communities. Except for the standard references

to the public works guide (2012) to design for individuals with disabilities, it does not address (nor has there been other response to) architectural consideration. This inadequate architectural consideration has led to the building and use of sub-standard facilities, which, in turn, contribute to the creation of a negative urban environment. There is thus a gap between design implementation and the aims and deliberations of The Integrated Service Delivery Policy. In this policy, the Department of Social Development (DSD) emphasises the importance of integration and sets out processes to address this challenge, but a more developed architectural framework is required to create a well considered architectural intervention.

RAPID AGEING

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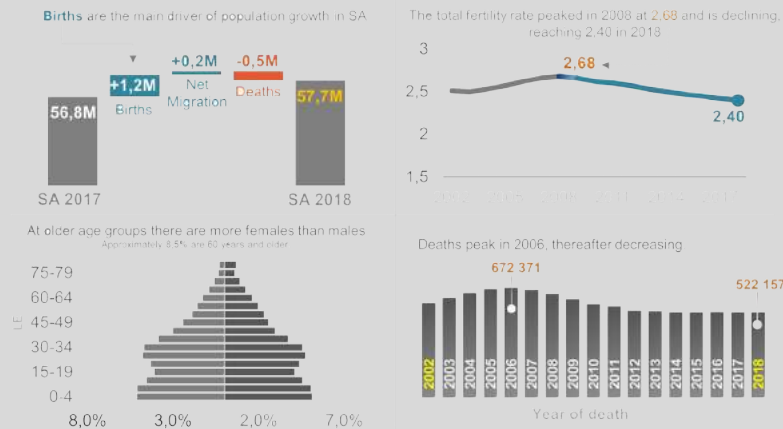


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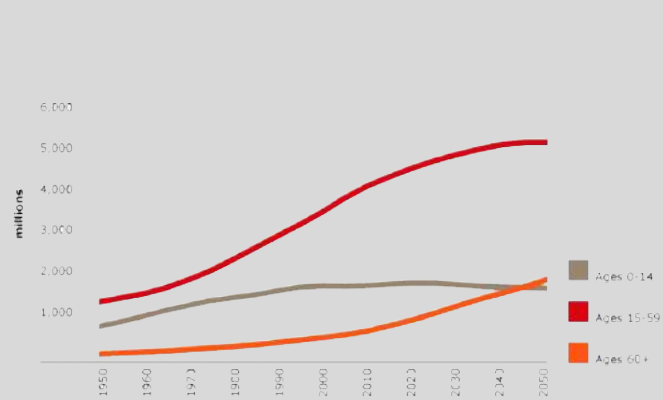


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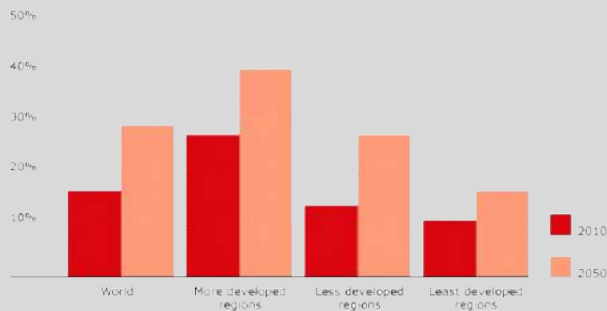


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Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. *World Population Prospects: The 2008 Revision*, <http://esa.un.org/unpp>, accessed 14 May 2010.



Figure 1.2: collaged stats (Author 2019)

1.2 General Issue

World ageing is rapidly increasing and a dramatic demographic shift in South African population is therefore also to be expected. The proportion of elderly in South Africa is predicted to grow from 9% to 20% by the year 2050 (Statistics South Africa 2014).

Today, the elderly is regarded as less valuable to society because of their dependency on civil society and government funds for health care and social support. Many elderly persons do not feel valued due to their health and/or physical state.

According to (Statssa), the life expectancy increases each year and as people are living longer the priority of their needs become increasing important therefore it is important to discuss what it means to age successfully, post retirement, in a modern society.

Ageing in South African cities is particular different to aging in the suburbs. During the Apartheid era, many minority group traditionally lived together in an extended family style as this provided for a strong support group both financially and socially within the family unit (Schoeman 2018). However, the abolishment of the apartheid rule gave rise to a shift from

extended to nuclear family living as residents of group area settlements were no longer bound by law to a specific region. This resulted in pendulum migration, a common occurrence in periphery settlements whereby young adults ventured towards the city centres or relocated for reasons such as proximity to services and access to work opportunities, leaving the elderly behind (Christopher 2000). A common occurrence in suburbs as many elderly residents are left to live alone in big homes, prefer to age-in-place due to religious, educational and historical ties, or are sent off to care facilities dislocated from society.

This has resulted in the global issue of social isolation that plagues majority of the aging population. Social isolation can be defined as the state of being disconnected from community or people (Cornwell, E.Y& Waite, L.J 2009). It is the lead causes of depression and an overall decline in health and wellbeing of elderly member's world-wide. In 2009, research from the National Social Life, Health and Aging Project found that elderly individuals who felt lonely and isolated were more likely to report having poor physical and mental health (Cornwell & Waite, 2009) (Cacioppo &

Hawkey, 2009). As a result of elderly individuals negative physical and mental performance their dependency on civil societies and government funds for health care and social support limit their ability to remain active and independent (Cornwell & Waite 2009).

According to (Cornwell, E.Y & Waite, L.J 2009) social engagement is vital for successful aging, however as a result of decreased physical mobility, technological advances and accessibility to transport and services people are less engaged in their communities (Cacioppo & Hawkey 2009). Elderly citizens should be seen as an asset to the country as they possess a wealth of knowledge, experience and invaluable skills. To ensure that they age successfully and are valued in their communities, post retirement age, the South African government needs to ensure the same constructive schemes in the financial, housing and the healthcare sectors to the public sectors as it is overlooked.

SOCIAL ISOLATION

LAUDIUM



Figure 1.3: Collage of Laudium (Author 2019)

1.3 Contextual Investigation

1.3.1 Background

Laudium, as a residential suburb, houses various ethnic groups that form a culturally diverse Indian community, which has resulted in the building of a large number of schools and religious monuments. The current demographics of Laudium include pioneering residents, member of the community that survived the apartheid regime and helped establish Laudium; children from Laudium, Atteridgeville and Itireleng that attend the many schools housed in Laudium and. Laudium is currently undergoing pendulum migration and in turn mass relocation authority (De Bruin 1992).

1.3.2 Locality

Located to the west of Pretoria, Laudium is situated on the far edge of the city centre towards an industrial area. This location is similar to that of many other single-race townships (such as Mamelodi and Eersterus) established by the apartheid government. Laudium straddles the R55 directly, which directly connects to central Pretoria (in a south-easterly direction) and Centurion (in a north-easterly direction). Its closest neighbouring settlements are Atteridgeville and Itireleng (a squatter camp established post-apartheid): located to the north and west respectively (Statistics South Africa 2014).

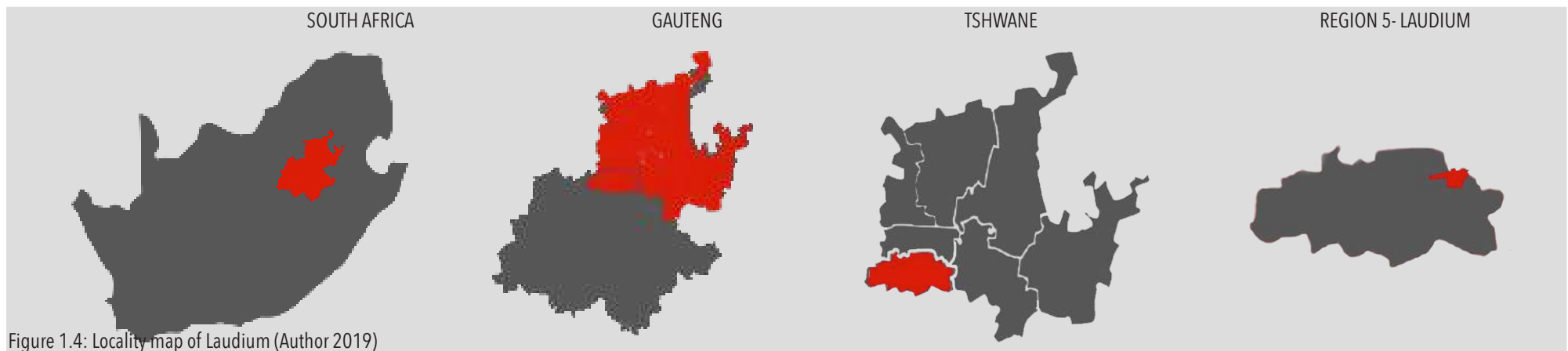


Figure 1.4: Locality map of Laudium (Author 2019)



DEMO-GRAPHICS

70%
18-65 YEARS

23%
UNDER 18 YEARS

7%
65 AND OVER

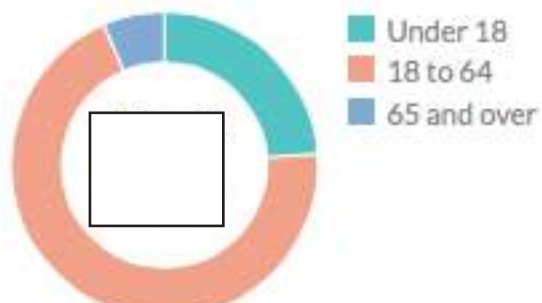
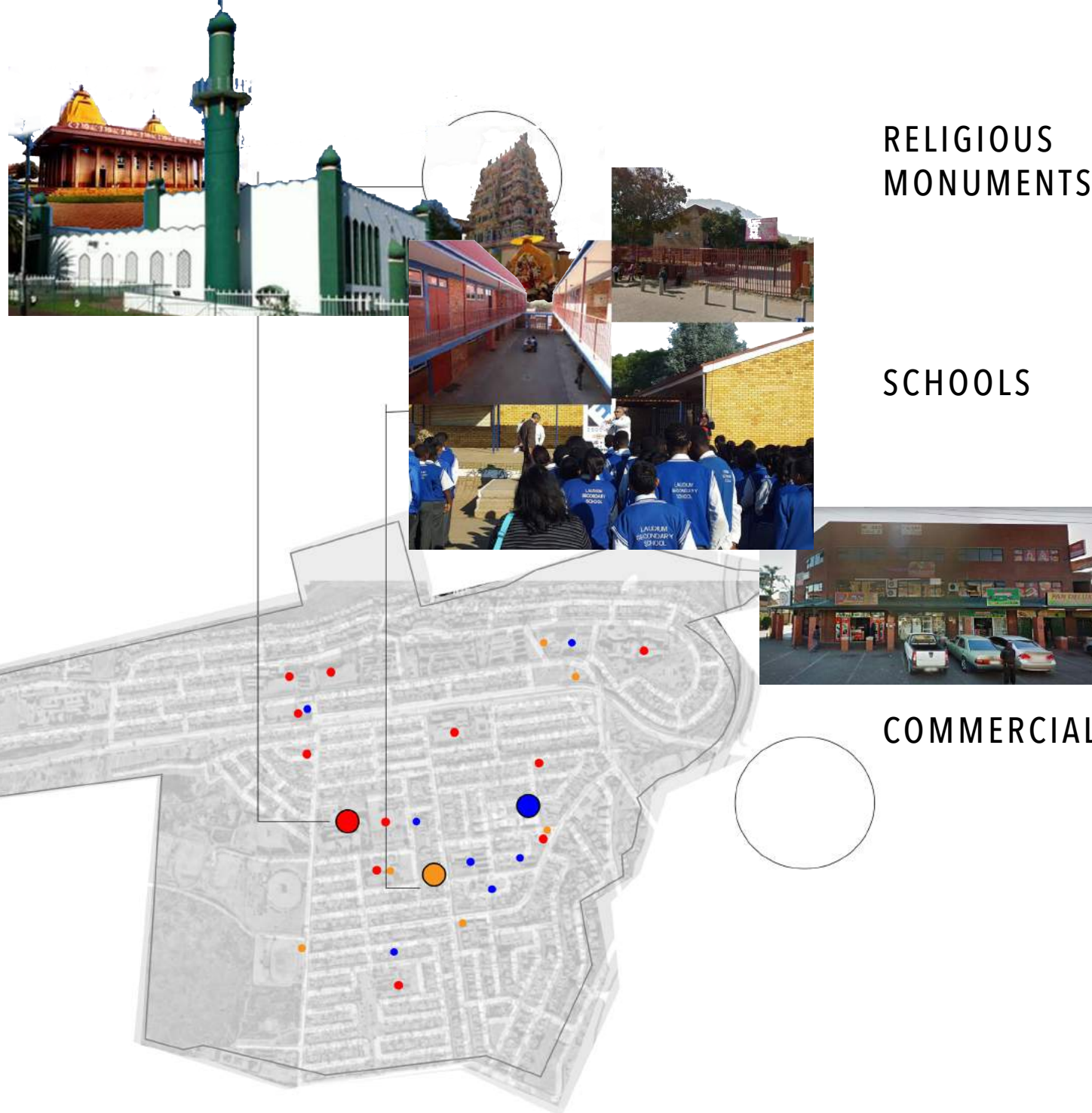


Figure 1.6: collaged image of Laudium (Author 2019)

1.3.3 History of Laudium

Urban segregation and the Apartheid city

Laudium was Pretoria's first Indian township but one of the many "settlements of colour" in Gauteng established on the grounds of spatial segregation enforced by the South African Apartheid government as a form of oppression and authority (SA Web n.d.) It was established in 1961 by the Apartheid government under the Group Areas Act (Act 41 of 1950) (SA Web n.d.). The township is one of numerous 'coloured settlements' established to accommodate people of colour displaced from Marabastad – a business precinct near central Pretoria. Single-race townships, such as Laudium, were established to drive people of colour out of city centres (De Bruin 1992). Laudium, as a residential suburb, houses various ethnic groups that form a culturally diverse Indian community, which has resulted in the building of a large number of schools and religious monuments.

Marabastad is an important point of departure for the study as it was first evidence in Gauteng of racial and spatial unity and in turn the first signs of segregation. Marabastad was a mixing pot of many different cultural and racial groups until the passing of the Group areas act that involved forcibly removing individuals of colour to race specific settlements situated on the periphery of the city. Indians were relocated to Laudium, black to Mamelodi and coloured to Eastrust (De Bruin 1992). Although individuals of colour were relocated to the peripheries of the city, the apartheid government went as far as to introduce buffer strips namely railway lines, rivers, industrial buffer zones, roads, natural and constructed features, as a tool for separation to further exclude these areas from "White" areas (Schoeman 2018).

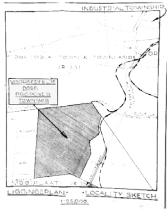
MARABASTAD



Figure 1.7: A glimpse into Marabastad (6th Street, Marabastad, 1970)



PRE-1960



original plot_1959

LAUDIUM

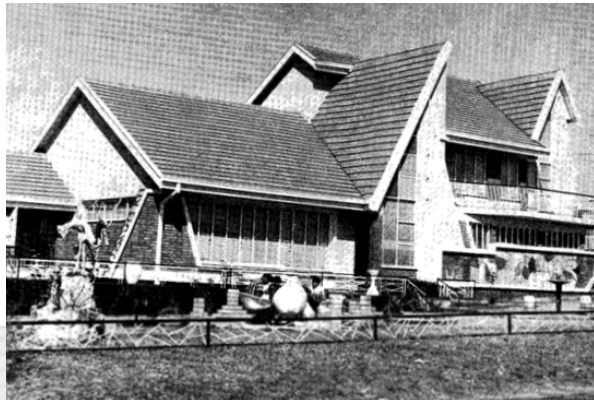
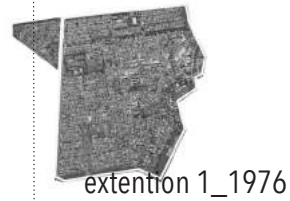
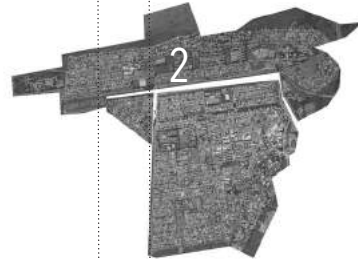


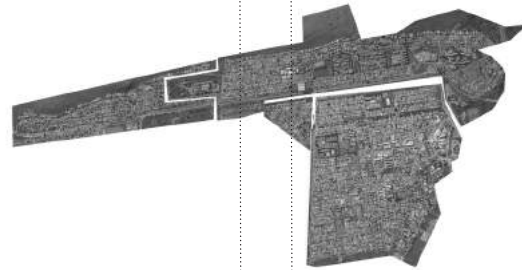
Figure 1.8:Laudium (article nd)



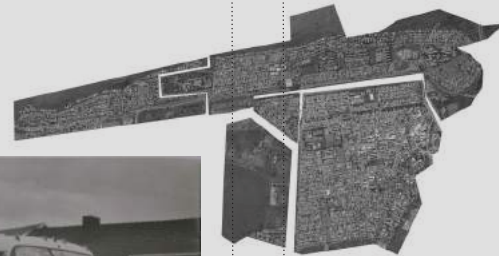
extention 1_1976



extention 2_1978



extention 3_1983



Signs of Apartheid spatial planning is particularly evident in Laudium. In 1961 Indian citizens were relocated from Marbastad to extension 1 of Laudium. Reference to figure 1: locality plan of original plan reveals that Laudium is buffered by a railway line and ridge to the north, a single road to the city centre and industrial areas all the way around. Laudium, populations grew over time, was extended by means of extensions. Laudium's current state comprises of 4 extensions: Extension 1 was established in 1971 following the need for pension homes and low income housing as individuals of a higher income were given first priority to the original plot. Extension 2 was established in 1978 and extension 3 in 1983. Extension 3 also known as Katmandu exists beyond the hospital is evidence of settlements forming around and within close proximity of public infrastructure. Extensions 4, the recreational precinct was developed 4 years later in 1985 (SA Web n.d.).

POST-1960



Figure 19:Collaged timeline (Author 2019)

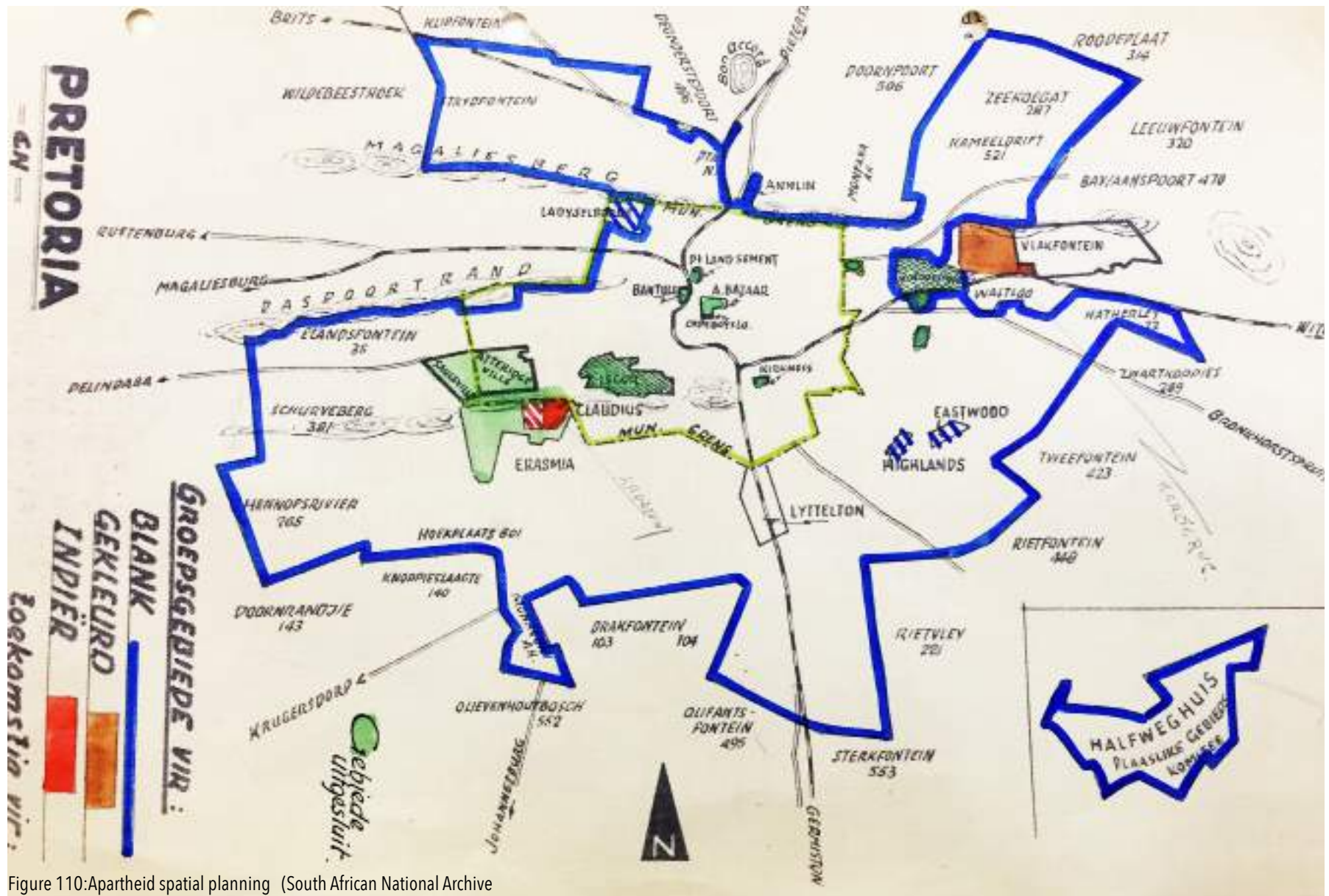


Figure 110: Apartheid spatial planning (South African National Archive)

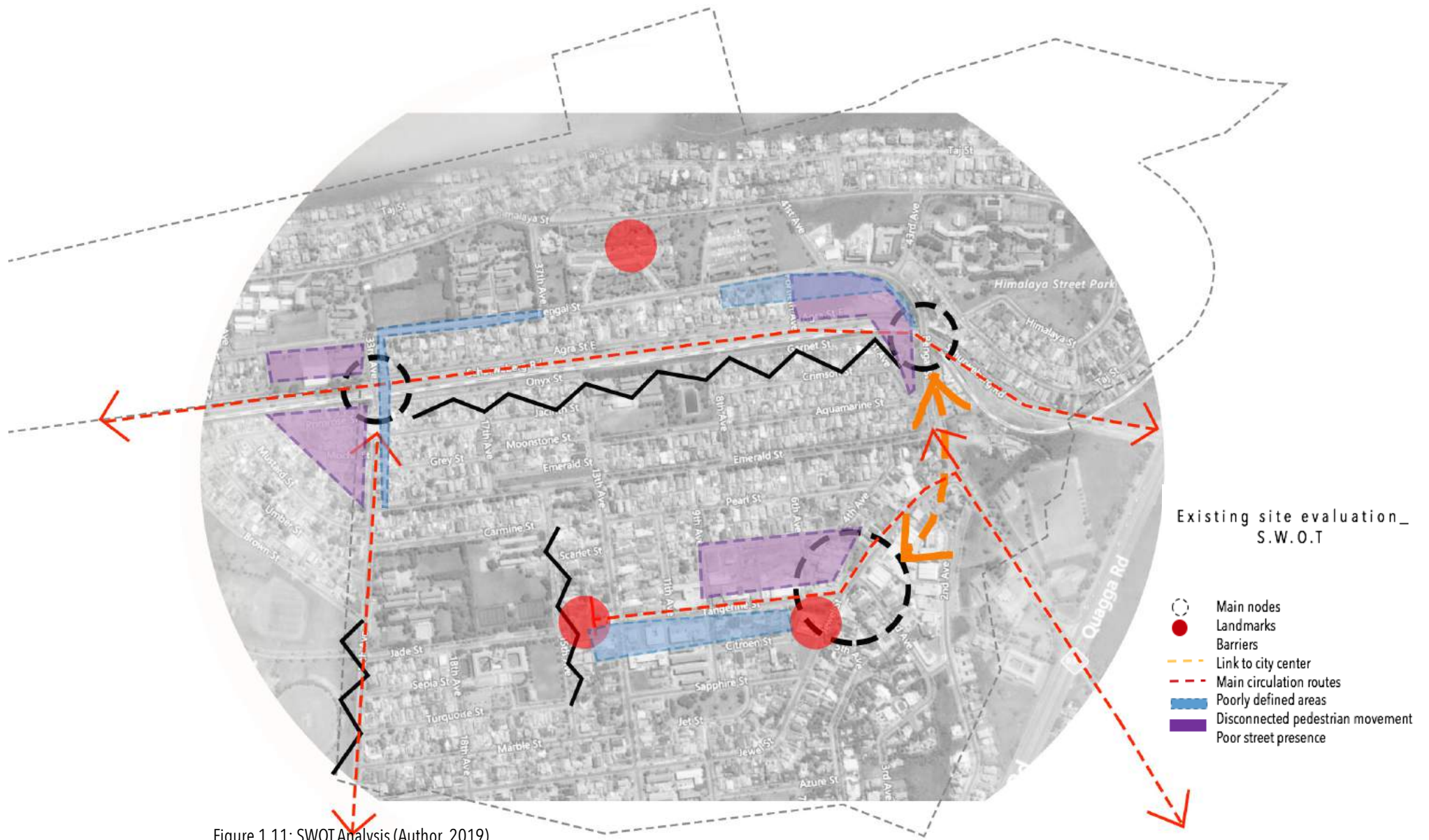


Figure 1.11: SWOT Analysis (Author 2019)

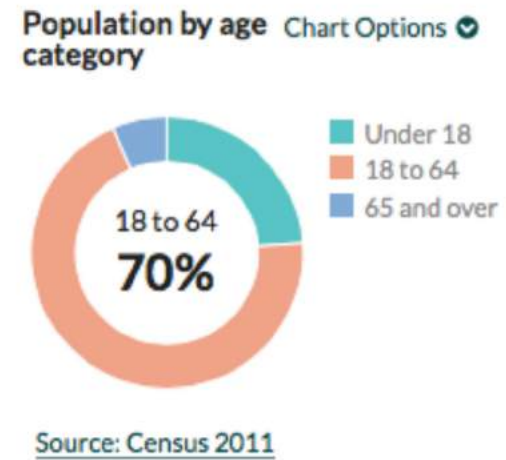
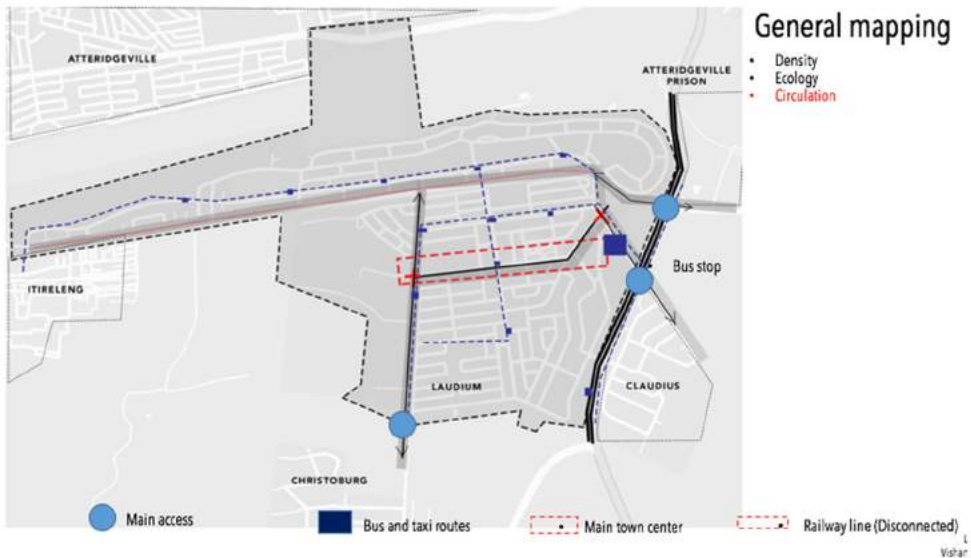
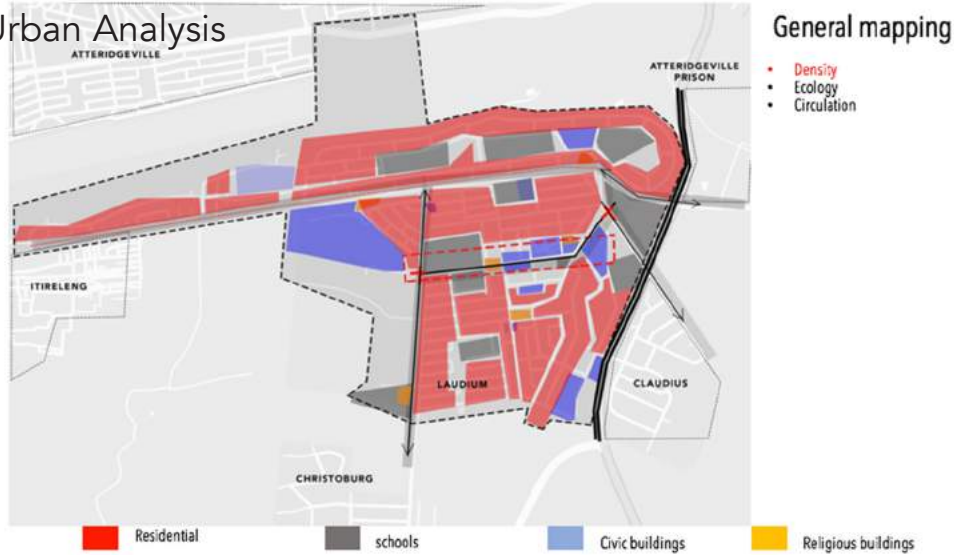


Figure 1.12: Boundary of Laidum (Author 2019)



Figure 1.13 Boundary of Urban precinct (Author 2019)

1.4 Urban Analysis



Users and demographics

Figure 1.14: General mapping (Author 2019)

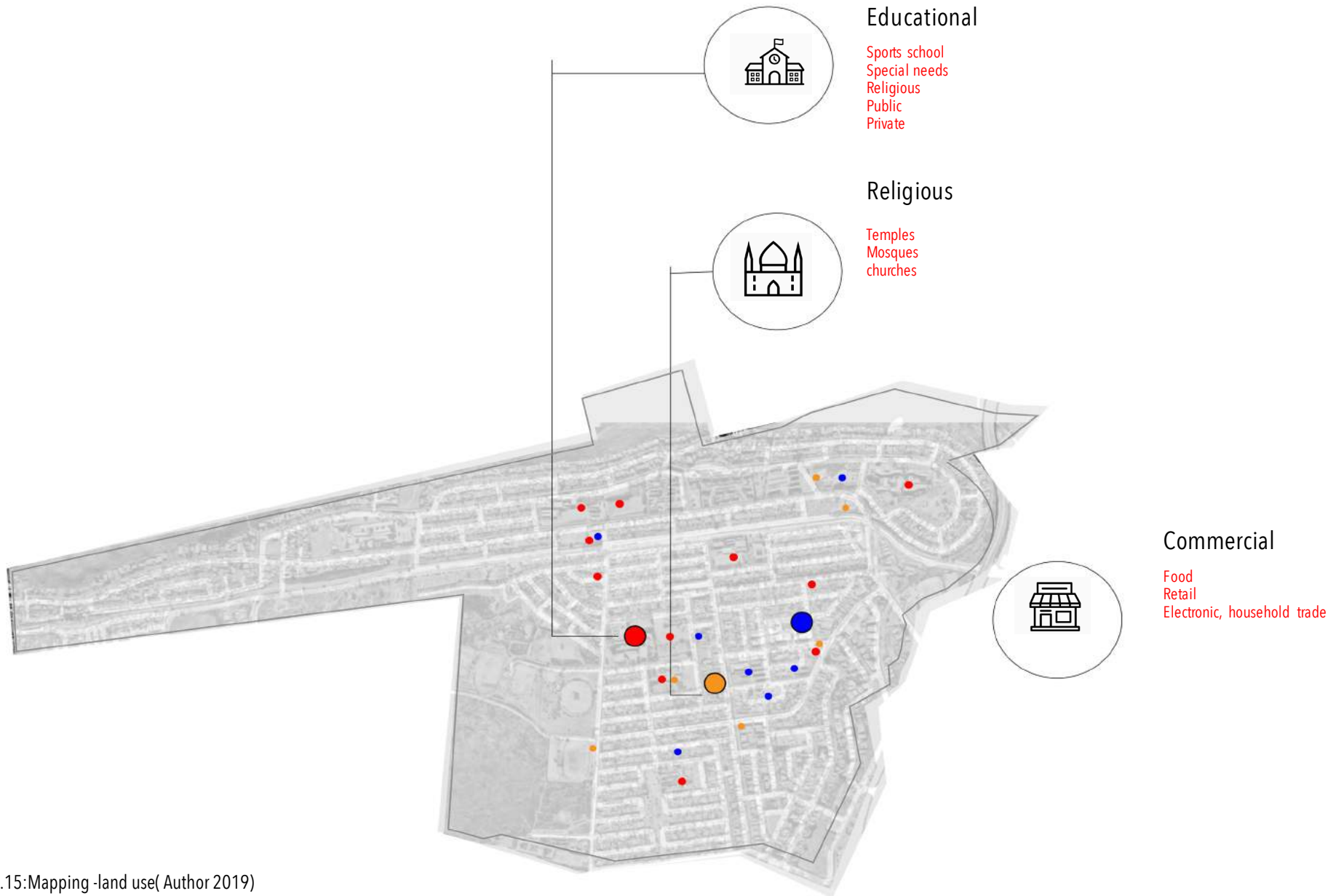


Figure 1.15: Mapping -land use(Author 2019)

1.4 Urban Analysis

An analysis of the current urban condition of the area through mapping and general observation has been conducted in order to better understand the social and spatial challenges as a result of the Apartheid spatial planning, presented in Laudium.

The current urban fabric of Laudium is based on apartheid spatial planning. It is observed that the Apartheid spatial planning model adopted a similar strategy to the Modernists urban planning strategies which aimed to separate areas into specific zones of activity as a means of urban segregation for the development of segregation and isolation of people of colour to the periphery of the city (Cole & De Blij 2007).

Access and movement

As a result of the limited access the speed of the traffic movement is high for a residential community particularly on the Military road. The abandoned railway line and green strip is a predominantly evident buffer zone as it divides Laudium into two halves: the upper (extension 2 and 3) from the lower (extension 4 and 5). The abandoned railway line once serviced the PPC dolomite quarry by connecting it with Iscor's Pretoria Works. According to the urban analysis this specific buffer zone obstructs pedestrian and vehicular movement and limits access between the two extensions. This results in illegal footpaths and obstruction of boundaries to allow for ease of movement and access. Therefore, creating hard, unsafe and restricting edge conditions especially for vulnerable individuals and the children that walk these paths to school as buffer zones are often perceived as tripping hazards.



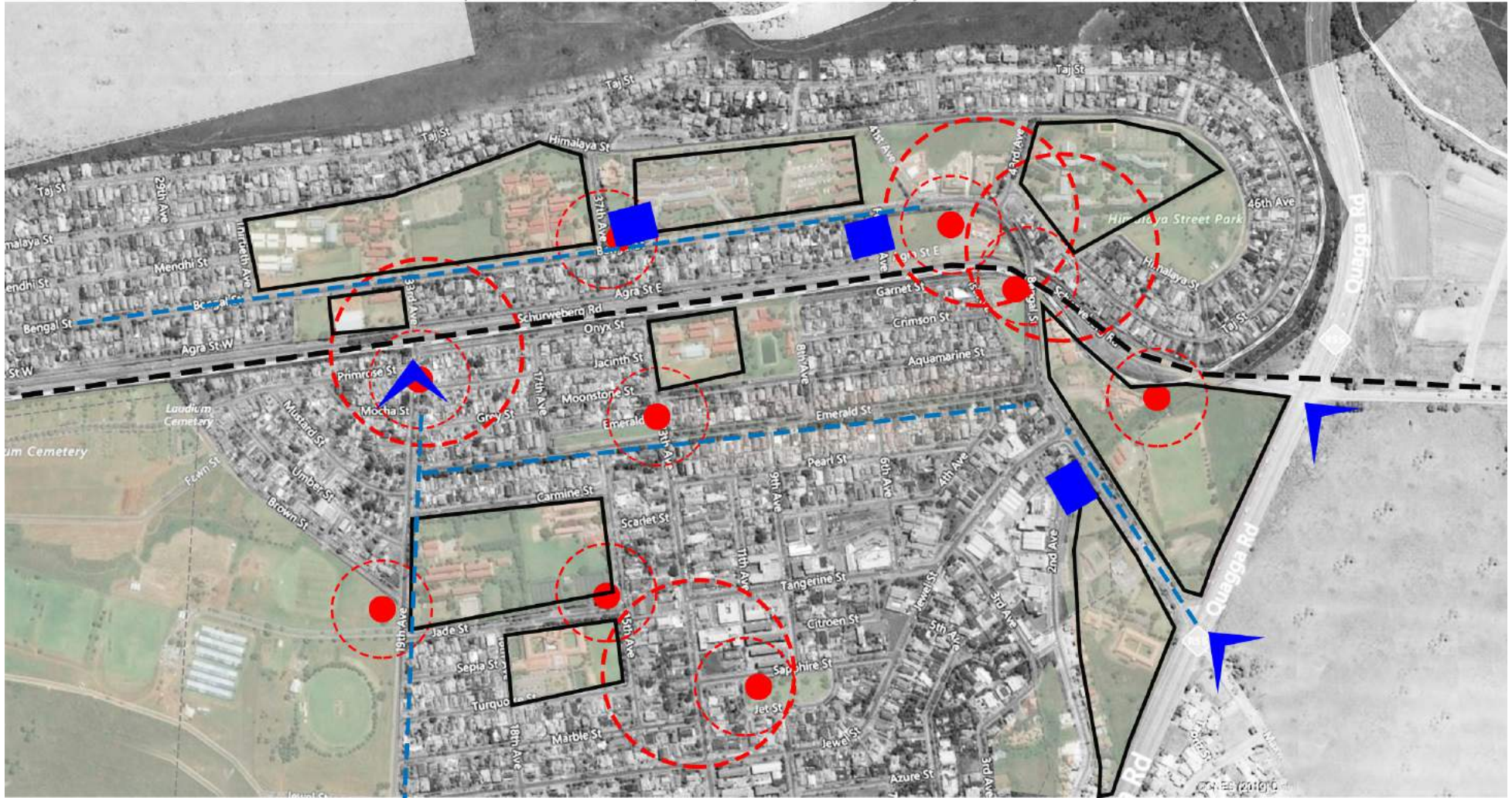


Figure 1.17: Urban analysis access (Author 2019)

Public space and edge conditions

According to the urban analysis, underused open areas and abandoned land has developed as a result of inaccessible boundaries. Spaces along these buffer zones are either unusable and often abandoned or allocated as government parks that are un- kept. These conditions have encouraged illegal dumping, therefore creating unsafe and unmaintained urban public space and edge conditions. This creates a lack of public appeal and prevents social cohesion and integration amongst school children and community members.

boundaries. Spaces along these buffer zones are either unusable and often abandoned or allocated government parks that are un kept. These conditions have encouraged illegal dumping therefore, creating unsafe and unmaintained urban public space and edge conditions. This creates a lack of public appeal and prevents social cohesion and integration amongst school children and community members.

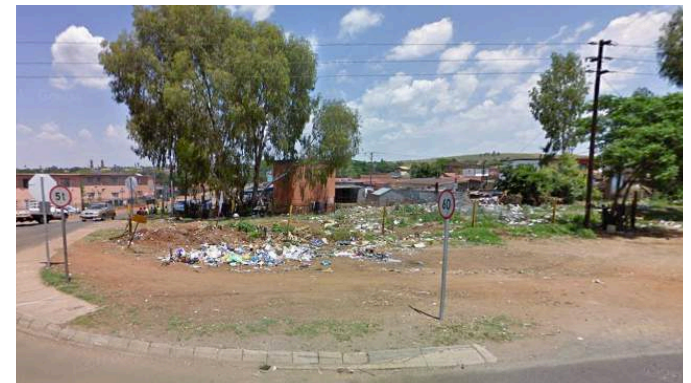
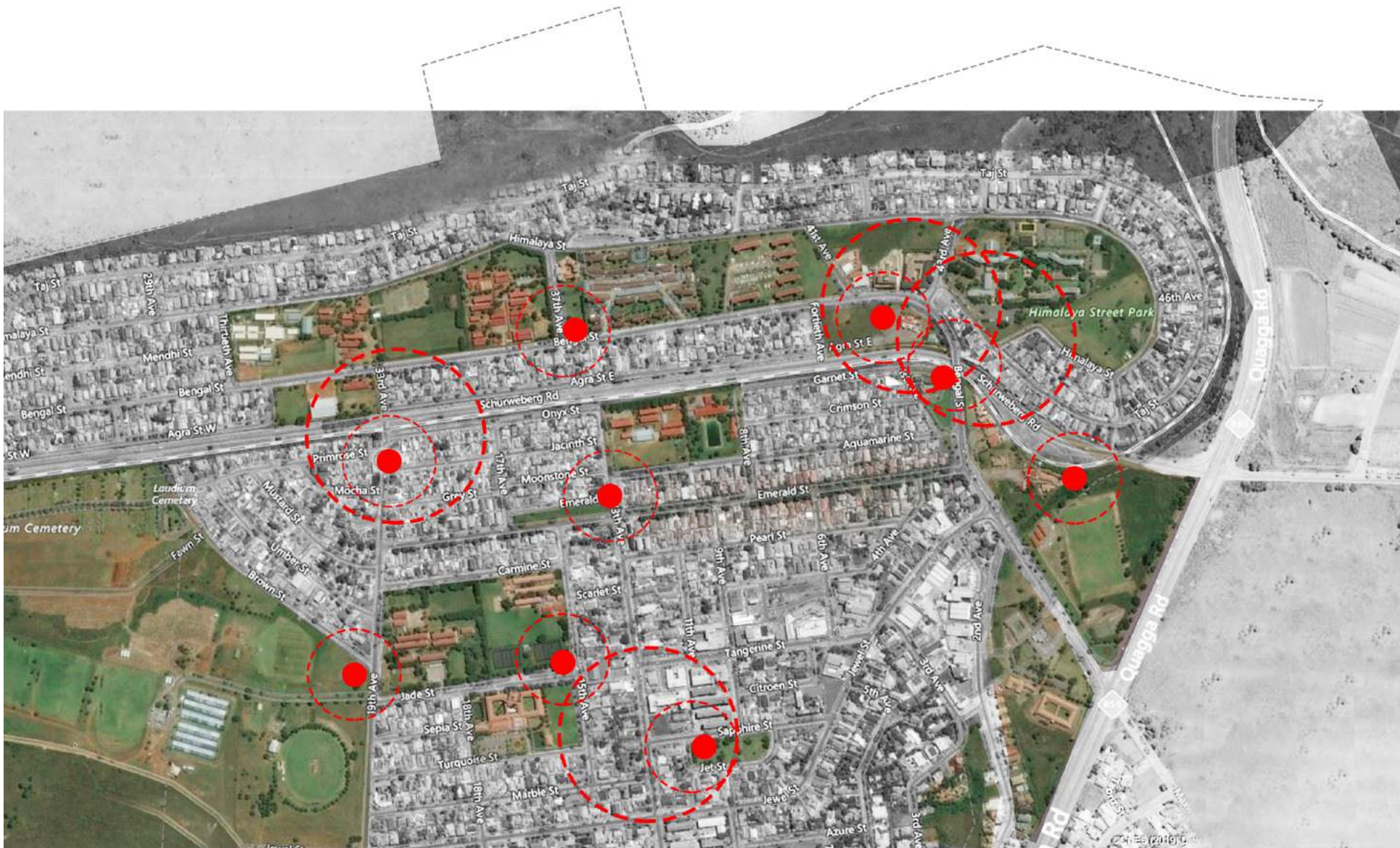


Figure 1.18: Urban analysis street images (Author 2019)



1.5 Urban Issue:

Social and Spatial Disconnect and Separation

As the urban fabric of Laudium is based on apartheid spatial planning based on the Group Areas Act, architecture that caters for the elderly has been pushed to the peripheries. A result of this age segregation is a lack of social cohesion between generations. Many urban environments are not age-friendly as elderly people are forced to be relocated to inclusive care centres that are usually displaced from society.

Although Laudium is home to a large homogenous group of people, separation and segregation are still evident. These are reinforced through natural and man-made features, such as railway lines, stormwater trenches and green strips. This spatial disconnect also extends to intergenerational separation, as such barriers prevent the elderly from actively engaging and participating in community or day-to-day activities. Priority is given to the youth, while eldercare facilities are on the peripheries – isolated from basic services and transport routes.

Globally, the modernist approach to urban planning has resulted in compartmentalised zones of activity that separate living, working and playing. Apartheid spatial planning utilised this approach to separate and compartmentalise areas for the development of black townships: placing these on the periphery of cities.

The findings from the urban analysis reveal that the current urban fabric of Laudium is socially and spatially disconnected as a result of apartheid spatial planning. The use of buffer zones limited access into Laudium as well as within and restricted pedestrian and vehicular movement between extensions. In addition, these boundaries divided economic groups and most evidently created unsafe environments for vulnerable individuals. Although Laudium accommodates over 20 schools according to the urban analysis the urban conditions of Laudium is not age-friendly or accommodating of less mobile and vulnerable individuals. According to

Gehl, (2010) in the book: *Making cities for people*, barriers prevent elderly individuals and other vulnerable individuals from having an active engagement and participation in community or day to day activities.

Although Laudium is home to a large homogenous group of people, separation and segregation are still evident, through buffer zones namely railway lines, storm water trenches and green strips etc. This spatial disconnect also extends to intergenerational separation, as such barriers prevent the elderly from actively engaging and participating in community or day-to-day activities. Priority is given to the youth, while eldercare facilities are on the peripheries – isolated from basic services and transport routes. (Emler & Moceris 2012). According to the WHO there is a growing global interest on how to foster age-friendly environments and urban space as age-friendly infrastructure is crucial to facilitate safety, accessibility and mobility, and social exchange.

According to (Evans 2009) Many urban areas are not accommodating of vulnerable members and their growing needs of social engagement. Accessibility and mobility within the urban environment that has been dictated by the layout of infrastructure have created unsafe and limiting environments for vulnerable individuals. The current restricting and disconnected urban conditions area not accommodating to vulnerable individuals to age actively and successfully. The lack of inclusive and safe urban features contributes to elderly individual's negative experience of urban spaces.



Figure 1.16:Urban analysis street images (Author 2019)

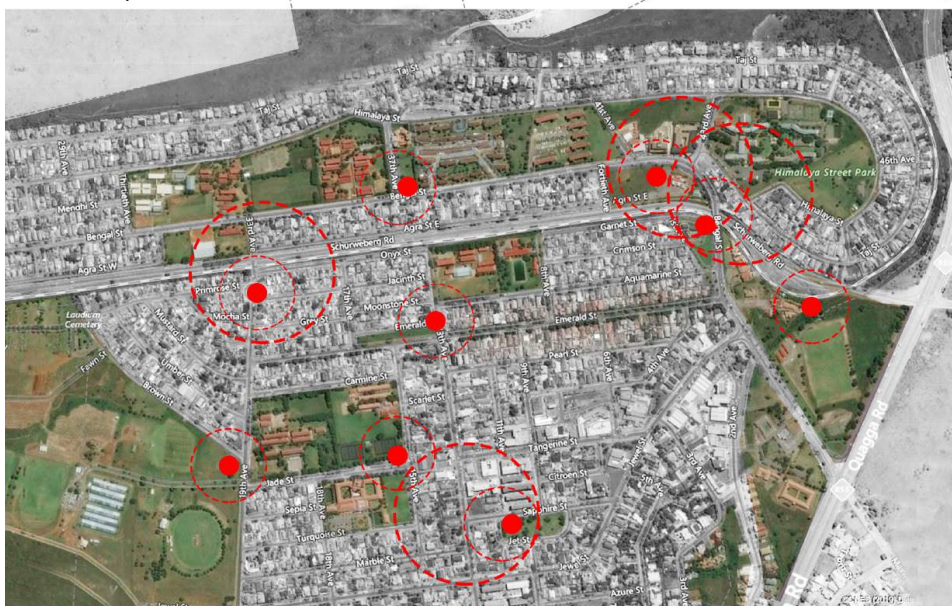


Figure 1.19 :Urban analysis public space(Author 2019)

1.6 Urban framework

To address the urban issues identified an urban vision is introduced as a small scale intervention within the proposed urban block in Laudium to create an overall framework which will serve as a platform for the proposed architectural intervention. From the analysis of the current urban condition of Laudium the issue of social and spatial disconnect had been identified to create conditions that area not supportive of an age-friendly urban environment. The proposed urban vision aims to explore the relevant urban strategies that address spatial disconnect to promote social cohesion and an age-friendly environment within the urban context of Laudium.

Age- friendly urban environments

The World Health Organisation WHO (2019) defines age-friendly environments as those environments that “foster health and well-being and the participation of people as they age.” WHO (2019). Such environments seek to improve general connectivity, safety and public appeal.

Where the elderly are not valued or considered in urban settings, the lack of inclusive and safe urban features contributes to their negative experience of urban centres. According to the WHO (2007), an age-friendly environment “adapts its structures and services to be accessible to and inclusive of older people with varying needs and capacities.” Interventions are, therefore, needed to support the use of urban spaces and creation of age-friendly environments that promote active ageing (Handler 2014). Active ageing as a concept derives from gerontology and has been adapted to suit the built environment in its association with the active participation and involvement of older persons in their social and community settings (Handler 2014)

1.7 Urban Vision

*“An impairment becomes a disability only when the built environment does not compensate for impairments.”
Utton (2009: 380)*

The urban strategy follows the design of urban conditions and spaces with the consideration of the needs of elderly individuals and the varying levels of ability and mobility. To support active ageing, initiatives to create age-friendly urban environments focus on retrofitting or modifying existing conditions. The approach for the urban strategy is based on the following aspects that Scott Ball (2012) identifies as necessary for an age-friendly city:

Connectivity:

Elderly individuals struggle to navigate in unfamiliar or busy areas therefore well connected spaces allow for better social connections and networks. According to Lynch (2009) wayfinding in urban areas is essential for social cohesion and safety. Well connected street could possibly double up as a shared street for drivers and pedestrians.

Access:

Barrier-free areas are proposed as elderly individuals perceive barriers as an obstruction and threat to their sense of safety and wellbeing. Therefore, they are discouraged from moving freely outdoors. In addition, pedestrian movement and public transport routes should correlate to accommodate for user mobility. Walking path options and walking distance should be considered in relation to bus stops. Accessibility to transport is essential to encourage physical mobility and social inclusion among elderly residents (Ball 2012)

Program diversity:

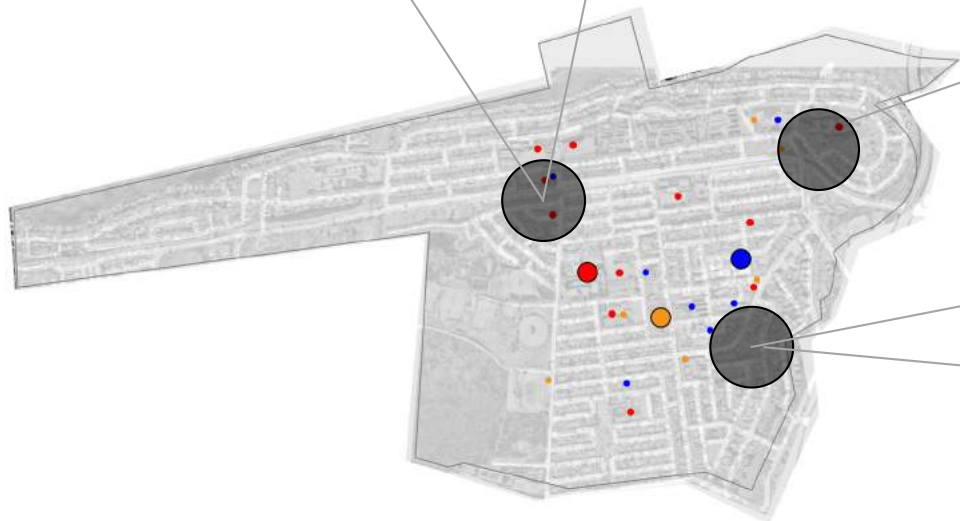
According to Gehl (2012) eyes on the street contributes to public safety. Basic service provision within walking distances of residences is essential to the physical and mental wellbeing of elderly individuals as proximity of service provision increases the chances for social interaction, therefore reducing social isolation. Activity on street level encourages individuals to partake in activities within the community and variety allows for choice (Gehl 2012).



NODE 1



NODE 2



NODE 3

Figure 1.20 :Urban framework - nodal development (Author 2019)

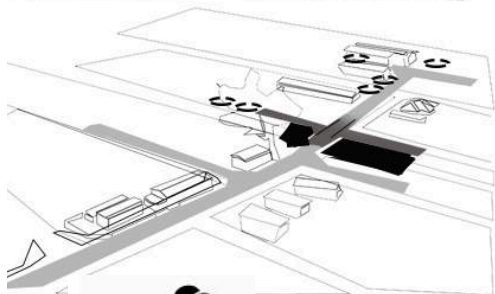
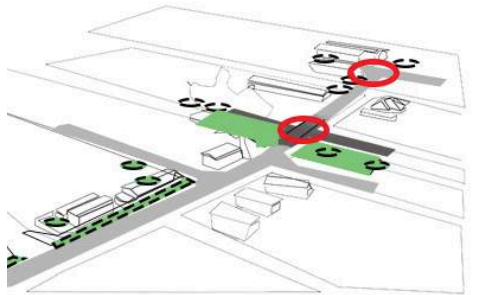
NODE1



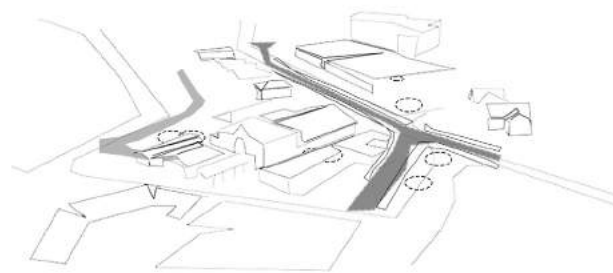
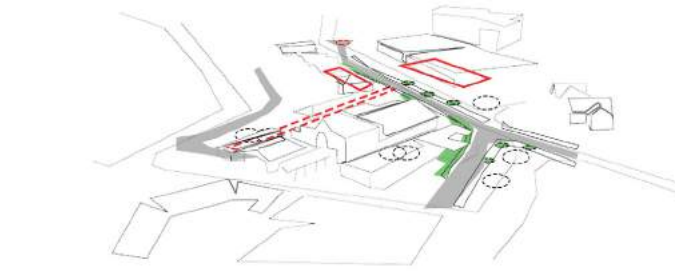
NODE 2



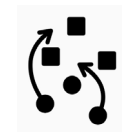
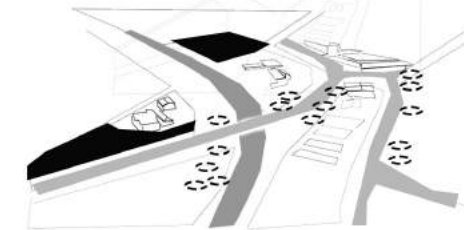
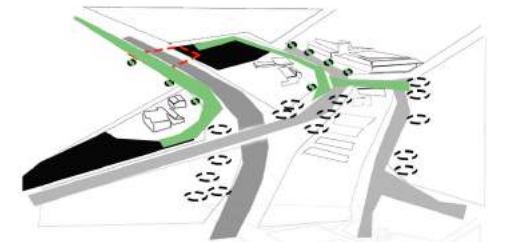
NODE 3



- Permeability
- Visual appropriateness
- Legibility



- Variety
- Legibility
- Robustness



- Permeability
- Visual appropriateness
- Robustness

Figure 1.21: Urban framework - nodal development 2 (Author 2019)

1.8 Urban Vision Precedent

Well-designed urban environments for the elderly reduces social isolation and promotes physical mobility, therefore enhancing the overall health and wellbeing of the user. The urban strategy follows the design of urban conditions and spaces with the consideration of the needs of elderly individuals and the varying levels of ability and mobility. To support active aging, initiatives to create age-friendly urban environments focus on retrofitting or modifying existing conditions. The following precedents demonstrate infrastructure that has been retrofitted or modified to accommodate the needs of the user whether they be physically able or not.

Seat-able city in Griesheim, Germany,

Griesheim, Germany - the 'seatable city for seniors' - is an example of small-scale adjustments that can be applied consistently in a city. In this case there was not a "wholesale installation of benches across the city" (Handler 2014:74). Rather, the urban fabric was discreetly modified by tweaking the city's street features, for example, changing bicycle stands to also function as "rapid rest stop areas" (Handler 2014). The provision of plenty of 'rest stops' enables the elderly to be more active and independent, as they know that a rest area is available when needed. A well-designed urban environment can thus promote physical activity and reduce social isolation. This enhances the overall health and well-being of the user (especially the elderly).

The High Line in New York, USA

The High Line was an elevated railway in Manhattan, New York. It was in use from 1934 to 1980, after which it was unused for about 25 years (Brooks 2010). In 2005, the City of New York purchased the High Line for a dollar and by 2009 the High Line had been transformed into a park (Brooks 2010). This intervention tackled the urban divide that had been enforced by abandoned and neglected infrastructure. The High Line project was a combined effort to promote user appropriation and reuse obsolete infrastructure. The transformation of the High Line took advantage of an abandoned and obsolete piece of infrastructure to create community benefit by turning an obstruction (the abandoned railway line) into a connector.

user appropriation and reuse obsolete infrastructure. The transformation of the High Line took advantage of an abandoned and obsolete piece of infrastructure to create community benefit by turning an obstruction (the abandoned railway line) into a connector.

project was a combined effort to promote user appropriation and reuse obsolete infrastructure. The transformation of the High Line took advantage of an abandoned and obsolete piece of infrastructure to create community benefit by turning an obstruction (the abandoned railway line) into a connector.



Figure 1.22: New York High Line (Baan 2009)

1.9) Architectural issue

The current civic architecture in Laudium does not support an ageing population as the buildings do not support the social and physiological needs of the elderly (Wiles et al. 2012). Many elderly citizens feel unable to identify with such places, making it impossible for them to cultivate a sense of attachment and resulting in a lack of ownership and belonging (Gusmano, Rodwin & Weisz 2018).

Civic and public buildings are meant to support and foster civic life by bringing people together through shared community interests and needs. However, in many suburbs, these buildings are either spatially isolated or display a dominance designed to represent authority. This is in reference to the classical architectural approach where structures were constructed to convey an image of power, dominance and civic unity. Ref These issues are particularly apparent in Laudium, where civic buildings such as the community centre, clubs for senior citizens and libraries (particularly those that elderly persons visit for social or physical support) are detached from the urban fabric.

An analysis of these buildings indicates that they are either intimidating and dominant or isolated, inaccessible and impermeable. These buildings restrain both visual and physical movement as they have no connection to the street and there is a lack of cohesion between building and context.

An analysis of these buildings indicate that many of the civic facilities in Laudium adopt an institutional presence as they either turn their backs to the street or retreat from the street resulting in inaccessible and impermeable conditions between the building and user and building and the context. Fenced boundaries fail to connect architecturally and spatially with the surrounding context and public realm. From these observations is currently a lack of civic facilities that actively promote intergenerational exchange. This then requires a critical re-examination of facilities that cater for the elderly. Such a re-examination would not only determine whether a facility is conducive to intergenerational exchange but also enable the provision of facilities that are appropriate to their context and address the issues faced by the elderly in South Africa (Gnade, Blaauw, & Greyling 2017).

1.10 Aims & Objectives

The aim of this dissertation was to design an intergenerational hub that promotes active ageing and ageing in place for the elderly of Laudium. Four objectives were identified to facilitate the aim.

- Addressing social isolation through the design of a multifunctional space that encourages integration, collaboration and co-existence to empower the elderly community (general objective)
- Addressing social and spatial disconnect through an age friendly approach that removes boundaries to create a safe and socially cohesive/inclusive urban environment (urban objective)
- Addressing the current state of public architecture through an improvement in physical and social accessibility, as current service infrastructure does not facilitate social development specifically for the elderly (architectural objective)
- Creating a space that is conducive to programmes and initiatives and policy implementation for intergenerational exchange (programmatic objective)

1.11 Assumptions

For the purposes of this study two assumptions were made. Firstly, the Frontline supermarket (recently built on portion two of the proposed site, next to the park) can be demolished. Secondly, authorities will approve the modification of the stormwater trench present on site.

1.12 Limitations

Some limitations apply to this dissertation. Firstly, studies and design consideration were restricted to specific age groups: elderly persons (from the age of 60) and children (one to 18 years old). Secondly, any mention of intergenerational activities or programmes was specific to the elderly and children (as defined above). This is not interchangeable with the term 'multi-generational' (Larkin, Kaplan & Rushton 2010). Lastly, elderly persons in need of frail care (who are unable to independently support themselves) were not considered in this specific study.

1.13 Delimitations

Site analysis was restricted to Laudium, Extensions 1 and 2. The proposed architectural intervention was fully developed, but the urban vision for the green strip to extend through Laudium was limited to diagrammatical development.

1.14. Research methodology

A synthesis of context and theory was employed to implement a socially responsive architectural intervention. Field research was the primary informant and drove the design intervention. The architectural intervention resulted from use of a qualitative methodology – specifically, a multi-method approach with focus on the interpretation and meaning of data collected in the context

The research done for this study comprised of contextual analysis, informal interviews, a theoretical investigation and precedent study.

Contextual analysis, which included an analysis of the context of Laudium, was done to provide insight into Laudium’s urban characteristics. The analysis consisted of the mapping, observation and documentation of not only current tangibles (such as the built fabric) but also intangibles (such as social activity). These factors were analysed as they contribute towards the urban condition of Laudium. Additionally, the analysis identified site needs and informed the programme. Finally, the analysis also incorporated the existing condition of architectural envelopes in order to identify limitations and opportunities.

Informal interviews with elderly community members, volunteer groups and civic officials provided information on the demographics of Laudium, which was captured through documentation and the creation of user profiles. The interviews were structured to comply with ethical requirements as stipulated by the M(Prof) blanket ethics approval (Appendix A*).

The theoretical investigation was into published works on theories of social inclusion and active ageing. It contributed to the development of a theoretical foundation and framework and assisted in the identification of principles for exchange.

To inform the design approach, a precedent study was conducted into international and local precedents that display related fields of study. Groat and Wang (2013:418) defined a case study as an empirical enquiry that investigates a phenomenon or setting. As part of a case study approach, the review of precedent studies during the design process attempted to assess the knowledge gained by others, rather than conducting research in its strict definition (Groat & Wang 2013:68).

1.15 Research Intention

Project intention

This project intends to contribute to the policy drafted by the DSD (2012) to integrate social service infrastructure and promote the use of mixed-use architecture.

The purpose of the intervention is to strengthen the social and economic ties between generational groups simply by removing social boundaries and providing opportunities for generational groups to cross paths.

Urban intention

The urban intention is to improve general connectivity and enable urban upliftment in Laudium. The project intends to promote active ageing by not only implementing small-scale inclusive interventions to promote social inclusion but also creating a cohesive urban environment for the elderly in Laudium.

Architectural intention

This project acknowledges contextually and socially responsive architecture through the application of theory. It intended to create a contemporary built environment that creates supportive environments and enables social empowerment. A further intention was to bridge the generational divide and lessen the social exclusion of the elderly by connecting eldercare and childcare facilities – architecturally demonstrating the benefit of intergenerational collaboration and coexistence.

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Figure 2.1 : Photo of "WHITE BLOCKS" (Author 2019)

CHAPTER 3

PROGRAMMATIC INVESTIGATION

Intergenerational Hub

The building hosts a series of public spaces with the intention of enhancing skill sharing and wellness while serving the Laudium community.

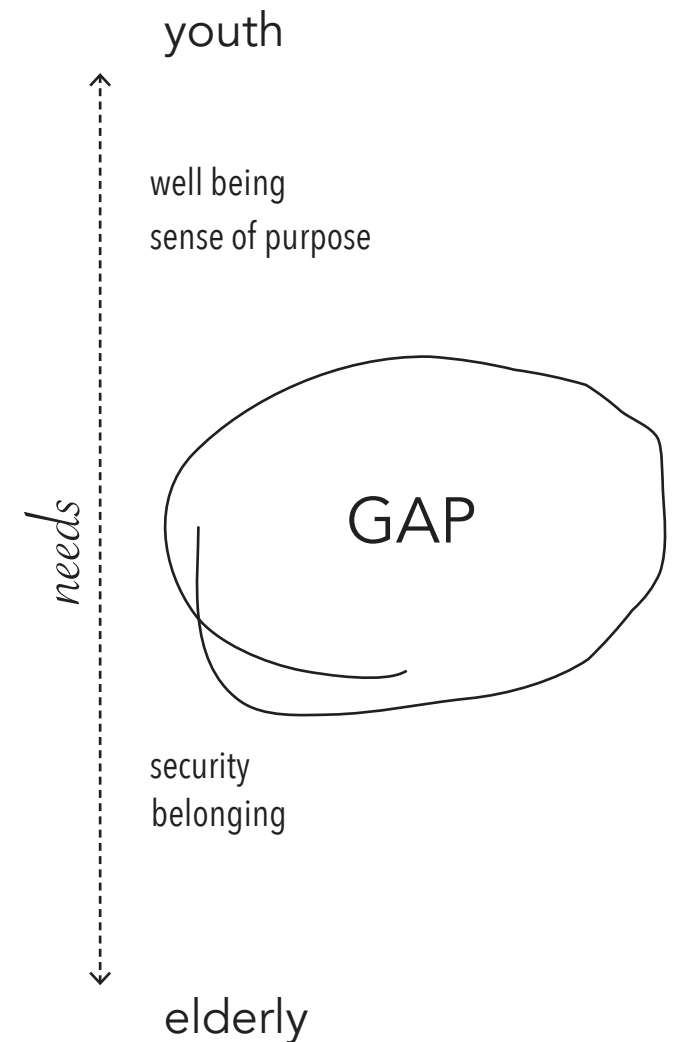
Keywords: co-existence, co-location

3.1 The programmatic intent

At present there is no space in Laudium that facilitates intergenerational exchange. There is, thus, a clear need for intervention. This drove the development of this design programme. The programme aims to create space that is conducive to programmes and initiatives, policy implementation for intergenerational exchange

The implementation of an integrated social development service model as developed by the Department of Social Development intends to empower vulnerable and marginalized community members (DSD 2012). The services provided are aimed at helping individuals regain control of their lives. The focus of this dissertation is on integrating programmes that specifically cater to the youth and elderly.

This integrated model can be defined as an intergenerational shared site (IGSS) that creates opportunities for individuals of different age groups to interact and engage and provides a space where they can thrive and mutually benefit from one another (Butts 2003). An IGSS is thus a space or place dedicated to the integration of services and programmes orientated towards a specific demographic group. These shared spaces allow for the youth and elderly to interact with one another and participate in activities together, instead of independently or separately (Butts 2003). This then is the case for integration: separate facilities do not stimulate social cohesion and the inclusion of different generations and community members (Butts 2003). Most importantly, an IGSS promotes active ageing, public education, outreach, and community participation.



There are several benefits to using an IGSS, it:

- Strengthens care facilities.
- Allows for the sharing of resources, service and sites.
- Enhances diversity.
- Ensures affordability of health and elder care facilities.
- Increases community participation.
- Improves the collaboration of agencies or entities.

The one-stop development centres in KwaZulu Natal (KZN) are a good example of integrated service delivery models. The centres facilitate a wide range of programmes and services that are orientated to the social development of the community.

The one-stop development centres offer the following programmes:

- A community hall.
- An early childhood development (ECD) centre.
- A day care centre for senior citizens.
- Administration offices for DSD services.

3.2 Programmatic precedent

Barcelona nonresidential
Day care center

Location: Jardins del Príncep de
Girona, Barcelona

Client: Barcelona Town Council

Architects: BCQ Architects, Barcelona

Location

Corner of street and park

Situated at the edge of a public park, the non-residential day centre for the elderly is intended as a hub for informal social encounters.

“an entrance pavilion from the street to the park and not something embedded in the urban fabric, a highly visible landmark.” - Toni Casamor

Programmatic layout

Intergenerational programs

Matthew Kaplan refers to these as “social vehicles that create purposeful and ongoing exchange of resources and learning among older and younger generations”. Programs are strategically spread over three levels. The lower ground floor contains a multi-purpose recreation space which is accessed directly from the park. The ground floor accommodates informal social spaces and main lecture hall. The top floor accommodates formal education and training spaces. Cognitively challenging programs, starting from childhood through to adulthood, can contribute to the prevention or delay of dementia and other mental and physical illnesses



Figure 2.2 : Intergen centre (Evidence based design Journal)



Churchill Intergenerational Hub

Location: Churchill, Australia
Client: Town Council
Architects: Suters architects
Completion Date: 2009

Location

Situated in community centre and displays strong civic presence

Programmatic layout

The co-location of services within a larger community building; it allows crossover of services; engages the user in spaces and services they would not have been exposed to; increasing connectedness within the community, and reducing the resources and services required to operate Council facilities. The hub contains a childcare center, preschool, parenting facilities and adult day care (Archdaily 2009)

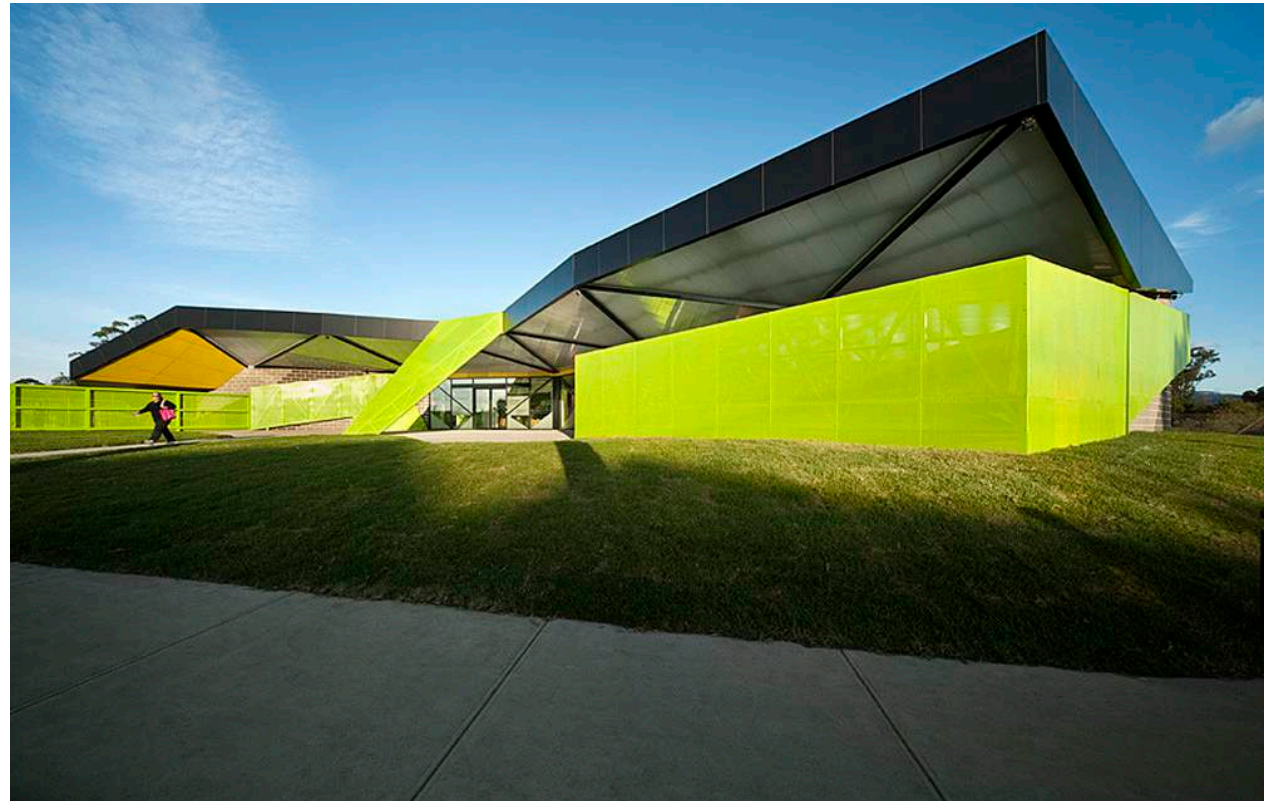


Figure 2.3: Intergn centre (Archdaily 2009)



3.3 The client

The Department of Social Development



Figure 2.4: (The Department of Social Development, nd)

The Department of Social Development (DSD) is a state-owned entity that represents the citizens of South Africa, in particular the vulnerable and marginalised that are in need of social development services, such as social protection and welfare (DSD 2012).

The DSD consists of national and public sector officials that are tasked with reducing poverty and promoting social integration and empowerment by implementing and planning social policies (DSD 2012). These policies consist of frameworks within which planning, funding, delivery and management of social services and infrastructure can take place.

Social infrastructure enhances social well-being and economic growth by providing a range of choices regarding basic services that create conditions for sustainability welfare (DSD 2012).

The Policy on Integrated Delivery of Social Infrastructure and Management (DSD 2012). This dissertation aimed to implement a design framework based on guidelines as set out in the Policy on Integrated Delivery of Social Infrastructure and Management (DSD 2012).

To address the current shortcomings in service delivery and infrastructure (architecture) in South Africa. The community-based approach introduces and regulates mobile services and the use of integrated service delivery points such as: one-stop development centres and Thusong Service Centres to reduce the demand on institutional based services (DSD 2012).

This approach best suits the social context of Laudium because current service infrastructure is disjointed and could possibly integrate to promote social cohesion.

3.4 The user

The elderly and the youth

Intergenerational programmes are those where “children, youth and older adults participate in ongoing service and or programming concurrently at the same site, and where participants interact during scheduled planned intergenerational activities, as well as through informal encounters” (Generations United, 2002). Intergenerational exchange is the practice of bringing two demographic groups together for mutual benefit (Buffel et al. 2014).

Intergenerational programmes seek to engage and include children and the elderly. This is to the mutual benefit of both generations and establishes stronger intergenerational connections (Buffel et al. 2014). Intergenerational exchange is particularly common and important in Indian cultures and communities as extended family living is the norm. This also holds true in Laudium.

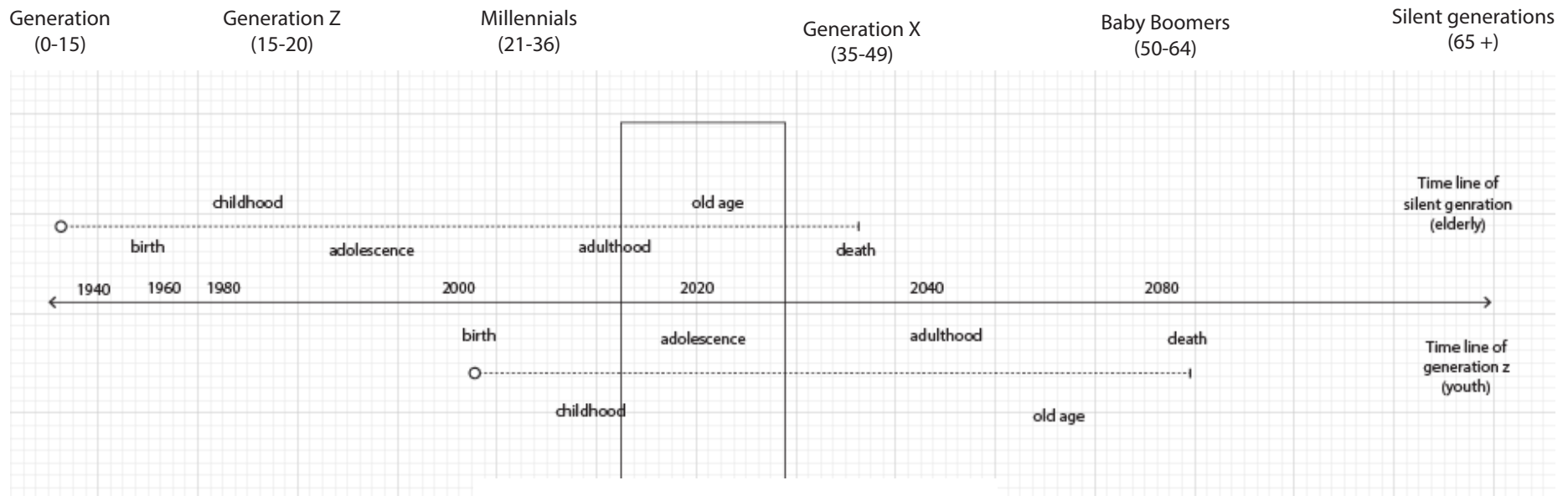
Due to technological advances and shifting socio-cultural norms, generations are becoming more segregated from one another (Hatton-Yeo & Ohsako 2000 ; Izuhara 2010). Today, generations tend to live their lives separately, which results in a generational divide. This situation puts pressure on public resources and infrastructural needs. Therefore, policy makers are looking to intergenerational programmes to alleviate the pressure on public resources and address service delivery needs

in poverty-stricken communities. In South Africa, integrated social development policies, such as the Policy on Integrated Delivery of Social Infrastructure and Management (DSD 2012) are a means of bridging the generational divide and building more cohesive communities (Buffel et al. 2014).

Before implementing an intergenerational programme, one should understand intergenerational exchange in terms of what each demographic group can offer and needs to receive (Buffel et al. 2014). When considering this from an Indian perspective:

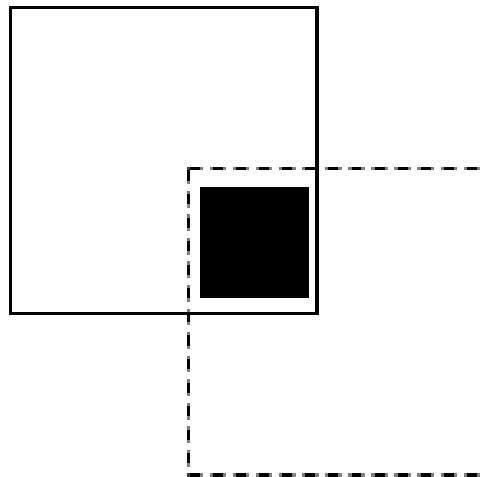


Figure 2.5 : Intergenerational exchange (Author 2019)



The elderly:

- Share traditions and stories of Indian heritage.
- Steer children away from trouble and bad habits.
- Share skills and experiences.
- Invest time in the younger generation
- Create understanding of their generation by talking through misconceptions
- Share practical and life skills.



Children:

- Share skills and experiences.
- Invest time in the older generation.
- Create understanding of their generation by talking through misconceptions.
- Share technical and physical skills.



Figure 2.6 :Laudium residents (Scnc.ukzn.ac.za, 2019)

eldercare facilities vs schools

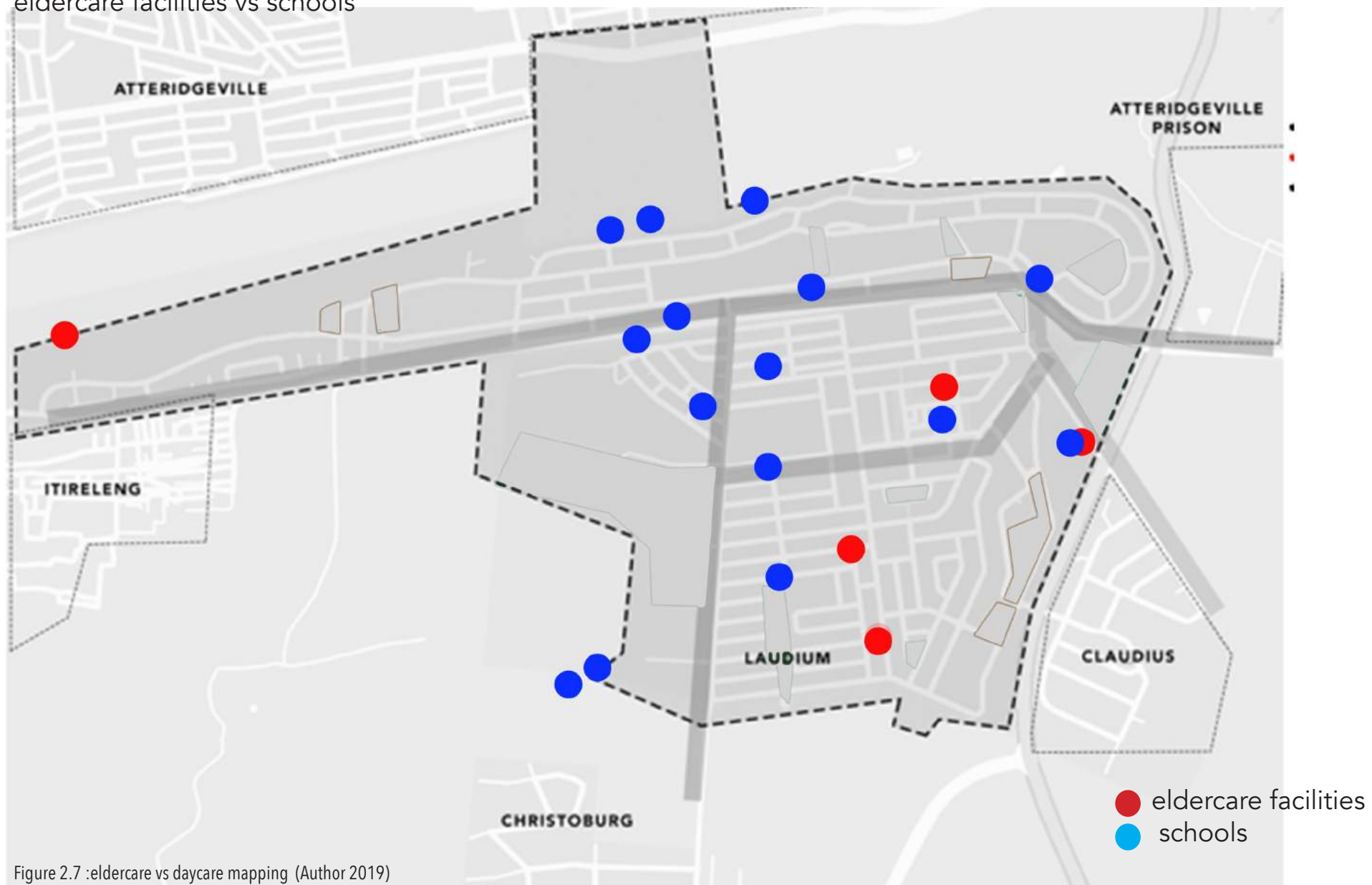


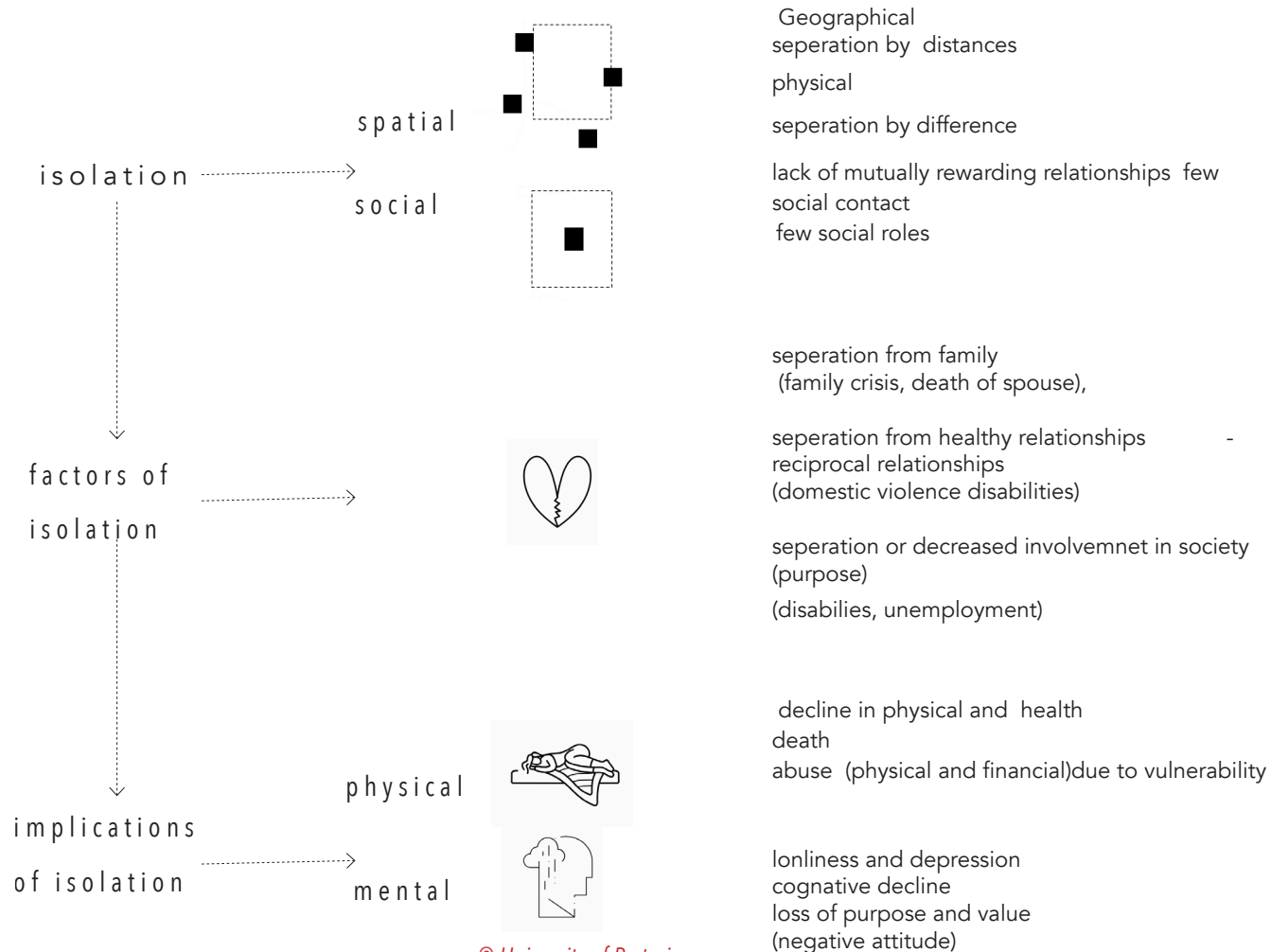
Figure 2.7 :eldercare vs daycare mapping (Author 2019)

isolation | alienation | exclusion

a lack of meaningful, extended relationships, and especially close intimacy

“a state in which the individual lacks a sense of belonging socially, lacks engagement with others, has a minimal number of social contacts and they are deficient in fulfilling and quality relationships”

(Nicholson, 2009, p. 1346)



3.3.1 The senior citizens of Laudium

As stated in the limitations, the elderly, in terms of this study, is limited to able-bodied individuals from the age of 60. The elderly of Laudium are the heart of the community, as many of them are first generation, 'pioneering residents.' In many cases elderly people in Laudium are also apartheid survivors that come from a wide range of cultural backgrounds, for example, Gajarati, Hindi, and Tamil people. The elderly are a strong group of highly engaged community members who want to be purposeful and valued in their community setting. Even though the apartheid government had restricted Indian residents to certain careers (teachers, bazaar traders, seamstresses). Laudium's elderly collectively possess a

diverse range of cultural skills and knowledge.

Programmes for intergenerational exchange can take full benefit of their skills and knowledge. In the context of Laudium, elderly inhabitants have an important role to play in the community: they possess a wide range of practical skills and still have strong ties to religious systems.

This study focuses on the elderly as a demographic group, because they are the most socially isolated, misunderstood and mistreated group. The misconceptions and stereotyping of the elderly are that they are physically and mentally weak and that they are financially dependent on their children (Franz & Scheunpflug 2016). These misconceptions and stereotypical views need to be changed.

3.3.2 The youth of Laudium

As stated in the limitations, the children of Laudium include children from 1 to 18 years of age.

The large number of schools in Laudium suggests the presence of plenty of children in the township. Pupils who attend school in Laudium are locals of neighbouring settlements, such as Atteridgeville and Ilerileng (Sunday times Neighbourhood 2019). These children, Generation Z, possess a wide range of technical and physically orientated skills

(Nielsens' Generational lifestyles report, 2015) A simplified timeline of the most prominent occupations of Indians who were relocated to Laudium:



Figure 2.8 :Laudium taj eldercare facility (Author, 2019)



Figure 2.9 :Laudium Daycare(Author 2019)





3.5 The Programme

The IGSSw includes an adult and child day care centre (where the built environment allows and encourages interactions between generations); an ECD facility; a luncheon club and service centre; homes for people with disabilities and sheltered workshops; and shelters for victims of crime and abused women (DSD 2012; Larkin, Kaplan & Rushton 2010).



Intergenerational hub (day care and after care)

Intergenerational learning programs are defined as planned ongoing activities that purposefully bring together different generations to share experiences that are mutually beneficial.

User	Child	Senior	
Care facilities	Child care	Elder care	
Skills	Technical	Practical	
Program			
Physical activity	Multimedia	Arts and craft	Workshops
yoga studio dance classes stetching gym	computer room movie room printing room	cooking classes art classes language classes	sewing classes woodwork classes
			

3.5.1 Early Childhood Development (ECD) facility

ECD is the process of emotional, cognitive, sensory, spiritual, moral, physical, social and communicative development of children from birth to school-going age. The IGSS programme aims to provide this vulnerable group with spaces that facilitate a sense of freedom yet provides them with guidance. This includes a day care centre for children under school-going age and after care facilities for pupils in primary and secondary school (DSD 2012; Larkin, Kaplan & Rushton 2010).

The ECD and after care facilities include:

- Classrooms
- Reading rooms/library
- Play areas
- A multifunctional space
- Sleep facilities (DSD 2012).

3.5.2 Luncheon Club/Older Persons' Service Centre

A luncheon club or older persons' service centre is a meeting place for the over-60s. It is a place where the elderly can have a hot meal (saving people having to cook their own) and sustain social contact. Various services and programmes can run concurrently – providing this vulnerable group with spaces that facilitate a sense of purpose an autonomy (DSD 2012; Larkin, Kaplan & Rushton 2010). The facilities include:

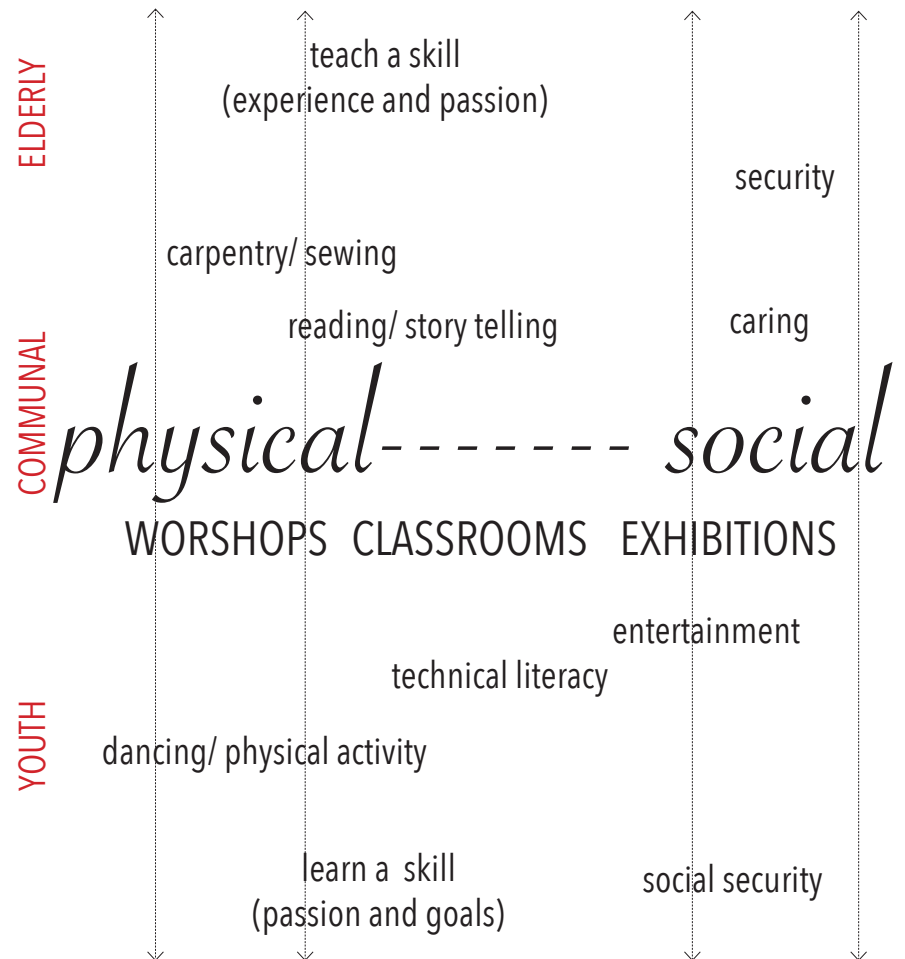
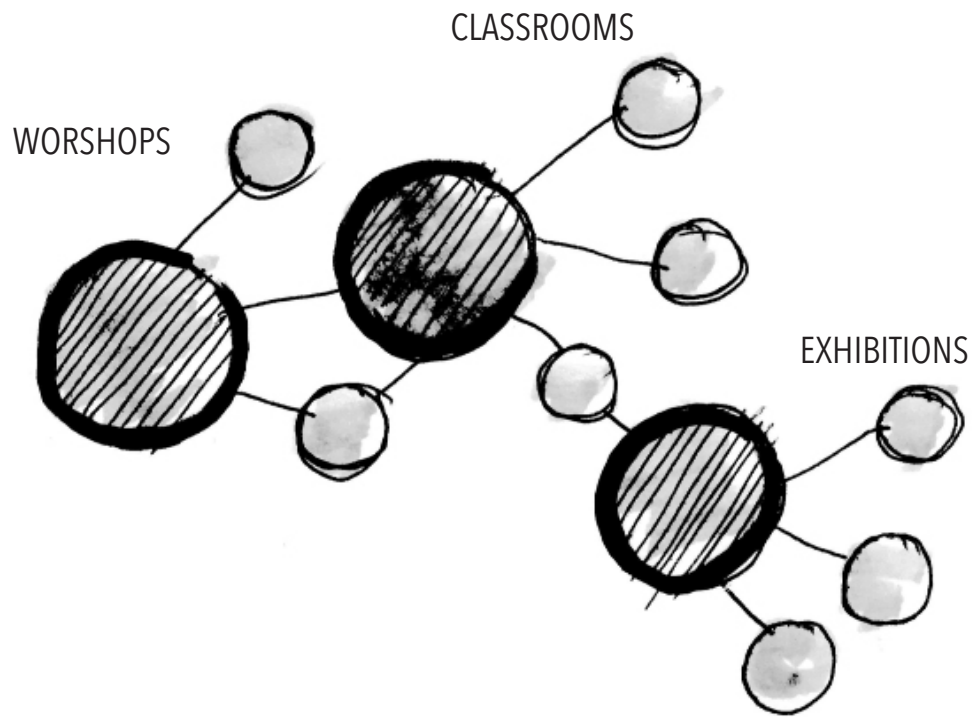
- Classrooms
- Reading rooms/library
- A leisure area
- A multifunctional space
- Workshops

3.5.4 Shelters for victims of crime and abused women

This was formerly separated into two facilities: 'Shelter for Abused Women' and 'Shelter for victims of Crime' (DSD 2012.) The aim of a victim empowerment shelter is to provide short term residence (24 to 72 hours) for victims of crime, domestic violence, abuse and related social problems. This intervention includes meeting basic needs and providing support, counselling and skills development. Currently service delivery is mostly done at an early intervention level.

The facilities include:

- A common area/ lounge
- An auditorium
- Consultation rooms
- A studio and media room for skills development
- DSD administration offices
- Temporary residences



3.6 Site selection

3.6.1 Site vision

The site is located on the boundary of a divided settlement and at the end of a school route. This design aims to create an architectural connection to stitch together the township's extensions– making both more accessible – and to establish a hub for and of connections. The hope was that a platform of exchange would be set through the architectural design.

3.6.2 Site selection

The proposed site was selected based on the overarching concern of spatial and social disconnect identified in the analysis of Laudium. This disconnect has been present since the township's establishment. As stated, natural and man-made features form physical boundaries that divide Laudium into two halves. The proposed site is located on this boundary. It is between two extensions: the northern section, where the economically privileged of Laudium live, and the southern section, identified as the more economically deprived half of Laudium. The southern section is known as "white blocks" a name the locals gave based on the big white blocks of council homes that flood this area (previously built and allocated as pensioner residences). A large intersection at the bottom left of the site is beneficial for transport drop offs and a feeder to surrounding schools and other service centres in Laudium. The site creates the opportunity to bridge a divide and for the site to serve as a connector and catalyst for growth and upliftment.

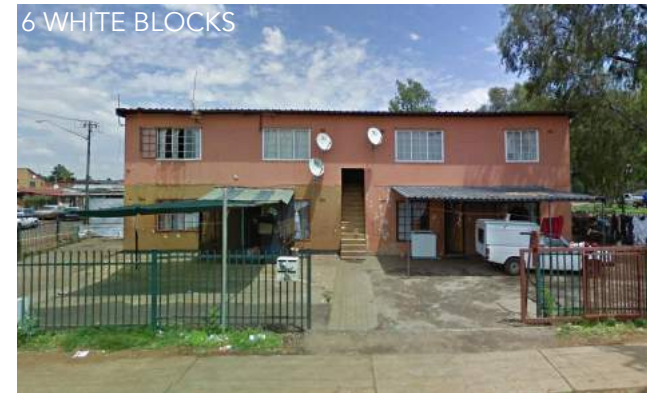
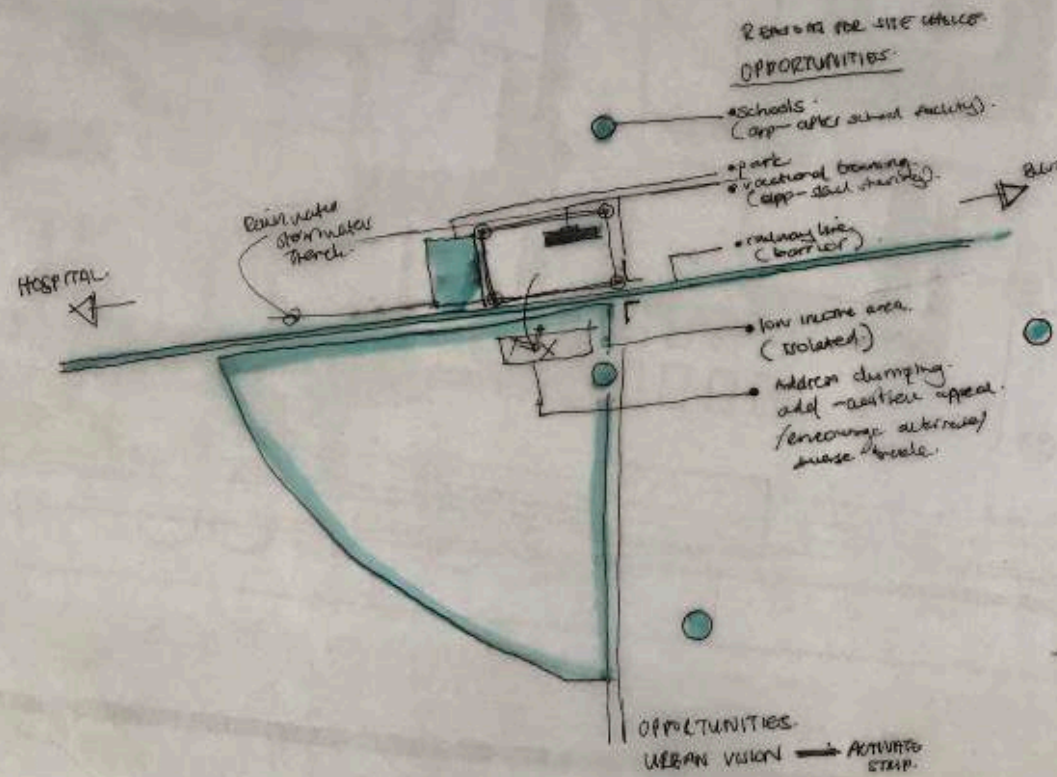


Figure 2.10 : Aerial image of site (Department of Geography 2019)



Figure 2.11: Aerial image of site (Department of Geography 2019)

SITE OPPORTUNITIES → NEED FOR ACTIVATION.



OPPORTUNITIES

1) relationship to schools → (after school core)

↳ support urban vision to be ecological strip.

2) vocational training facility (art)

↳ previously cultural centre.

↳ skill sharing

2) park - app

↳ to re-activate points (common use in LB)

3) low income area (isolated)

↳ segregated from society

↳ segregated by railway line

↳ need for activation

↳ need to reintegrate by accommodating for.

- Time + low cost.

→ actually dependent on transport.

directional order
Opportunity here → id

Figure 2.12 : Site analysis opportunities (Author 2019)

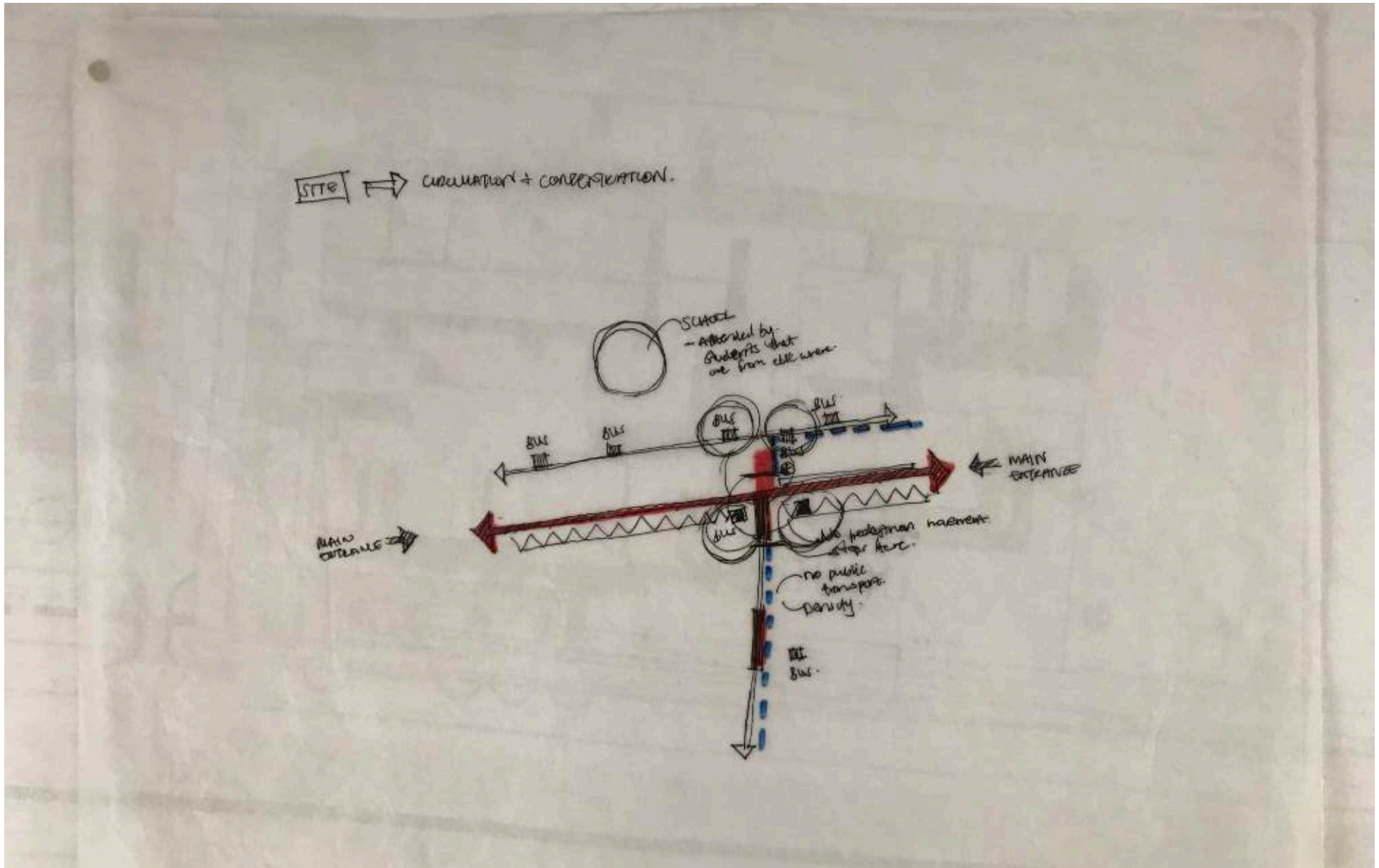


Figure 2. 13: Site analysis circulation (Author 2019)

SITE → THRESHOLD + BOUNDARIES → OPPORTUNITY TO BRIDGE DIVIDE.

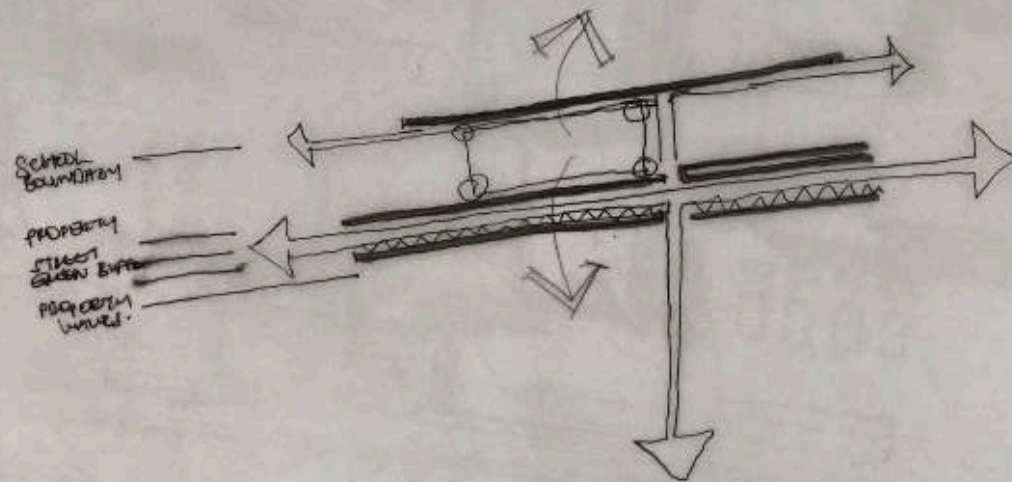


Figure 2.14 : Site analysis thresholds (Author 2019)

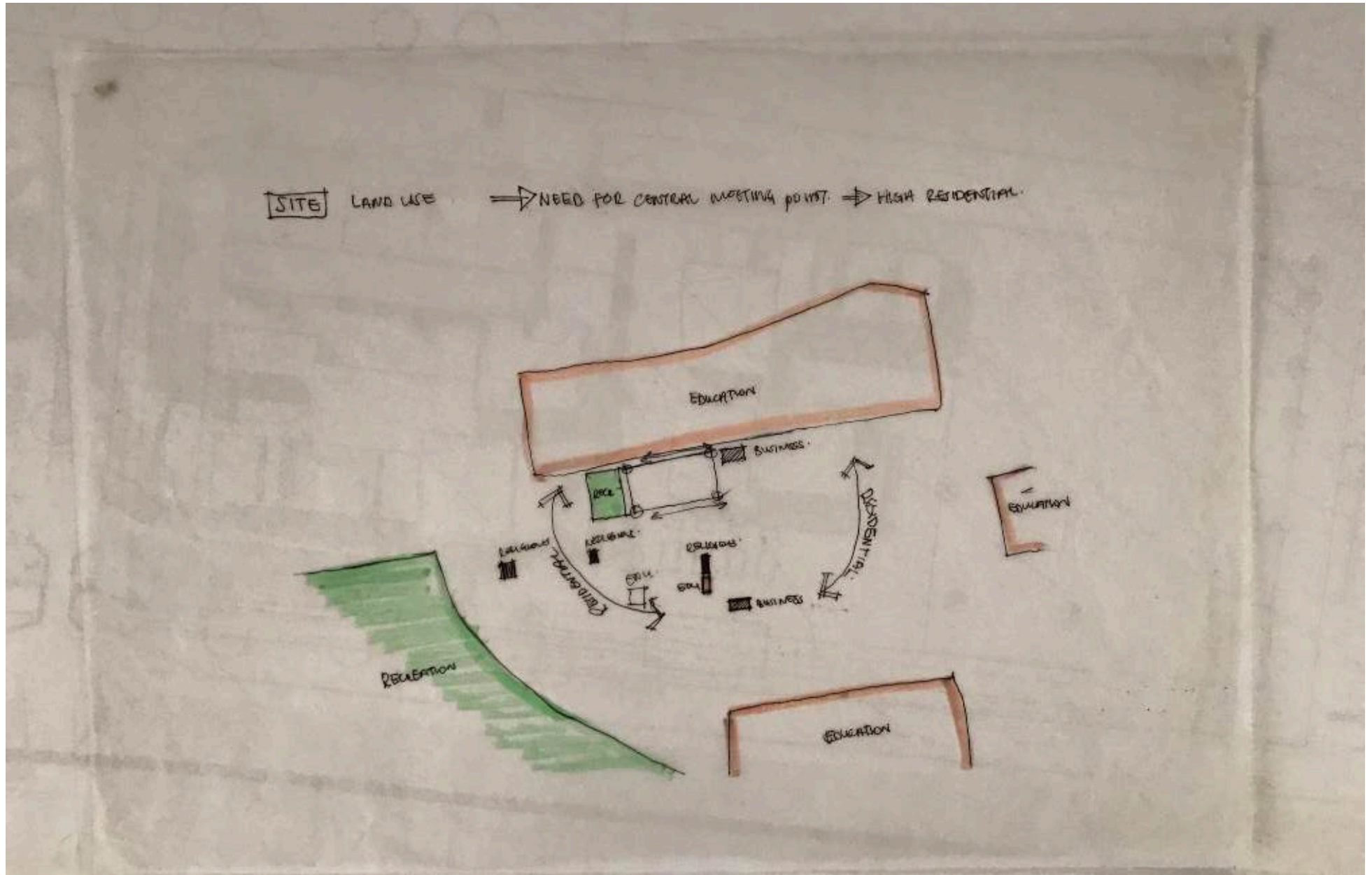


Figure 2. 15: Site analysis land use (Author 2019)



Figure 4.1: Photo of Laudium streets (Author 2019)

CHAPTER 4

THEORETICAL INVESTIGATION

4.1 Theoretical investigation

The theoretical inquiry presented in this chapter investigates the influence architecture can have on people's well-being and their engagement with the space around them. This chapter briefly discusses the theory of power and heterotopia, studied by Michel Foucault (1986), as it relates to Laudium's current state of disconnect. It also explains society's division into separate uses and user groups – a division stemming from the attempt to reach perfection.

This chapter also explores the theoretical premise of active ageing and Hertzberger's (2000) approach to spatial organisation for connection (and active engagement): both of which were used to drive the design principles in the architectural application and the way in which they relate to the physical environment. Further, this chapter investigates a sample set of precedents to identify common characteristics and features in architecture for active ageing. Lastly, the findings of the precedent study are unpacked and discussed not only regarding their impact on spatial layout but also to illustrate connections to the theoretical premise to determine how architecture can facilitate intergenerational exchange in Laudium.

4.1.1 Power and the divided society

In his book, *Of Other Spaces*, Michel Foucault (1986) explored the concept of heterotopia. Foucault (1986), an influential philosopher, studied the concepts of power present within society and helped define our understanding of the human condition in relation to architecture. He stated that architecture can render power to the user or oppress that user (Foucault & Miskowiec 1986). The idea of heterotopia can be illustrated through an analysis of Jeremy Bentham's 1791 Panopticon. The Panopticon is a prison designed in a circular manner (a rotunda with an inspection house at its centre). Its purpose: allowing a single guard to observe all prisoners, while the prisoners cannot see the guard. Although a single guard could not possibly observe every prisoner all the time, the fact that he theoretically could be looking at any prisoner at any given time leads to prisoners effectively policing themselves. The Panopticon's spatial conditions and design were intended to broadcast psychological power and oppress its inmates (Foucault & Miskowiec 1986).

According to Foucault (1986), western society is divided into two spaces: utopias and heterotopias. Each represents a specific order of power, but the meaning of these spaces can change over time (according to social and cultural changes). Utopias represent spaces that are unreal in nature while heterotopias represent those spaces that are real. Foucault (1986) used the concept of a mirror to explain: a mirror is a virtual space where one could be represented but not exist (a utopia). On the other hand, a heterotopia consists of multiple layers of meaning, which one can physically occupy: a juxtaposition of spaces.

Active Ageing (Handler 2014) is a concept derived from gerontology and adapted to suit the built environment. It promotes the active participation and engagement of older persons in their social and community settings (Handler 2014). Active ageing also derives from Havighurst's (1961) activity theory on the relationship between activity and successful ageing. The activity theory posits that staying active in old age and maintaining social interactions are key to successful ageing. This

concept is particularly important to this study: as discussed in earlier chapters, elderly individuals who lack social support usually withdraw from society as they age. Thus, the elderly are not being physically and socially engaged poses a threat to their well-being (Lemon et al. 1972, Leontiev 1978).

Winston Churchill famously stated, "We shape our buildings: therefore they shape us" (Anderson 2018). As physical environments impact user well-being, it is essential to develop physical environments that enable older persons to be active for as long as possible and enjoy optimum social engagement and participation. According to the WHO (2012), physical and social environments should cater for the elderly and promote social engagement.

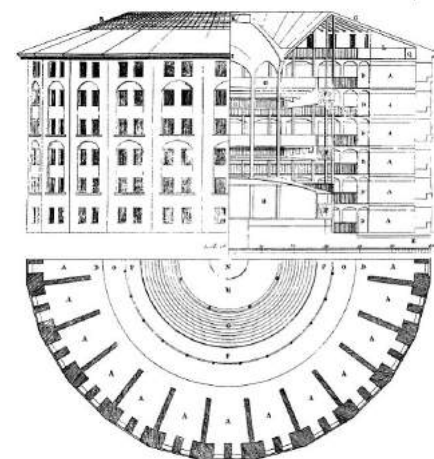


Figure 4.2 :Panopticon (The gaurdian 2015)

4.1.2 Social engagement in the built environment

Social engagement and Foucault's theories of heterotopia spaces can be spatially understood through the lens of Herman Hertzberger's work. According to Hertzberger (2000), architecture should be a means of connection – it should bring people together. He stated that the spatial organisation of institutions revolves around separating people into groups. Rather than this separation, attention should be on establishing more frequent opportunity for connection

(visual, spatial and social) between people (Hertzberger 2000).

A good starting point was Frampton's (1998:52-53) definition of heterotopia as a condition in which cohesion is achieved "through adjacency, where edges touch, where the fringes intermingle, where the extremities of the one denote the beginning of the other, there is a hinge between two things and an unstable unity appears." Hertzberger (2008) represented heterotopia as the in-between spaces: the spaces that form thresholds and overlaps where one space begins and another ends (instead of strict demarcations). The entrance to a home would be such an in-between space as it is the transition from the public to private domain. In this space, children can experience aspects of freedom and wonder, yet be close enough for security through parental surveillance (Hertzberger 2008). Thresholds should be celebrated as they are meeting points where people share space and common interests.

Polyvalence is "the inherent capacity of an object to be reinterpreted for different uses over time" (Ring 2017). The concept was introduced

to architecture by the Dutch architect Herman Hertzberger in the 1960s. Hertzberger (2000) believed that the occupants of a building should engage with the environment by adding personal touches to it rather than simply accepting things as they are. Therefore, this should be allowed to promote active engagement with the environment and subsequently promote active ageing (Suckle 1980). It refers to spaces that offer various possibilities for use or interaction, such as balconies, ledges and courtyards (Hertzberger 2008). Hertzberger is famous for designing schools. Flexibility was considered in terms of a child's growth, leading to the design of a building that was adaptable and customisable to constant change.

Hertzberger (2000) stated that buildings should not act as islands (on their own) but be integrated into society. The design for this dissertation adapted the spatial layout of Hertzberger's (2000) educational buildings to suit the proposed civic building. His approach to educational buildings was that they should act as "small cities" – a system of street and square where maximum social contact can occur (Hertzberger 2008). Corridors thus become streets and courtyards become squares with the building forming an urban community.

4.2 Theoretical approach

This **small city approach** thus supports the in-between spaces of transition and circulation, as these spaces create a sense of community, belonging and autonomy (Hertzberger 2008).

The following factors are important in a small city approach:

- 1 Creating voids, as these help to divide spaces (that would otherwise have been layered); promote visual connection; and allow in natural light in.
- 2 Designing internal connection devices, such as open indoor spaces (e.g. courtyards), as visible internal circulation connection devices make for good meeting spaces.

4.3 Design Principles

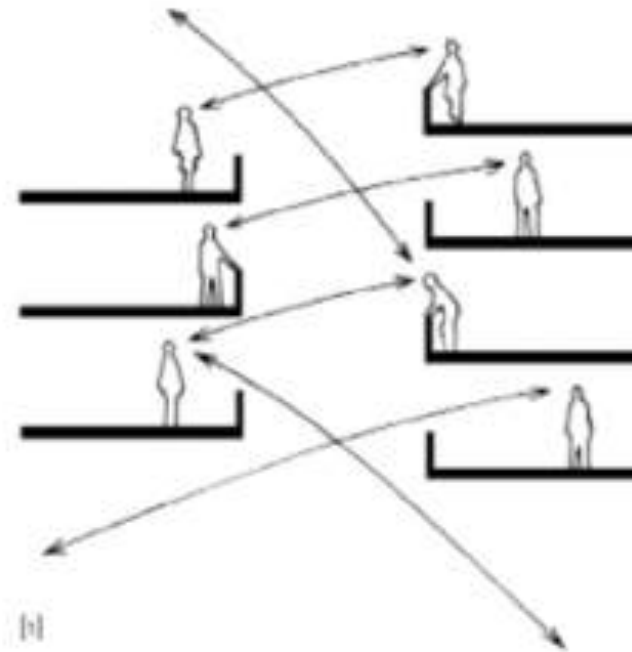


Figure 4.3 :Small city approach (Herman Hertzberger nd)

Active ageing (also referred to as healthy ageing) ref calls for spatial organisation that is highly functional and supports social engagement. The following design principles were derived to achieve social engagement: accessibility, wayfinding, connection to nature and shared and private space.

- **Accessibility and circulation**

(social engagement)

The design emphasises circulation spaces, such as staircases, as they are where maximum social contact occurs through visual and physical means (Hertzberger, 2008). Staircases are spatial devices for social contact as they bring people together through movement (Hertzberger 2008).

- **Wayfinding**

(ease of movement and circulation)

Alexander (1977) discussed the issue of circulation in buildings and that wayfinding requires ease of movement and circulation. He suggests that buildings should have a sequence of spaces that are ordered by hierarchy for ease of orientation. The design principle is based

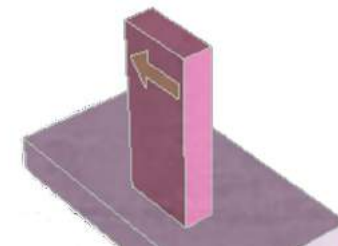
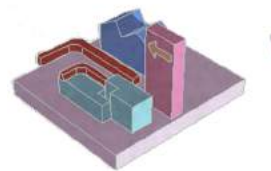
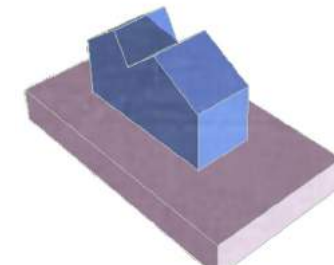
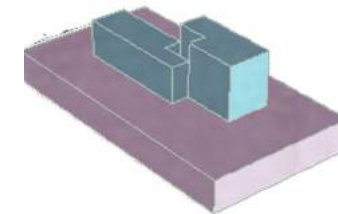
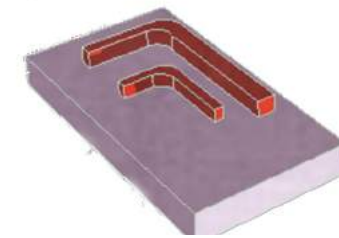
on Hertzberger's (2000) courtyards, which then orientates a user: allowing for easy wayfinding (and spontaneous interaction).

- **Inside and outside**

Moughtin (2009) connection to nature can be used as a tool to empower the elderly and promote active ageing.

- **Shared and private space**

According to Porter (2004) shared and private spaces give people the opportunity to assemble and interact informally. They are a result of two separate spaces or functions overlapping to create a common space. Shared space links two areas and include, for example, arcades or courtyards. According to Saraswat (2011), shared spaces within buildings provide not only opportunities for interaction but also a sense of security and privacy, climate control and the articulation of space.



playful element

Figure 4.4: Active ageing graphics (Author 2019)



Figure 5.1: Photo of Laudium (Author 2019)

CHAPTER 5 PRECEDENTS

5.1.1 Westbury Clinic

Location: Westbury Johannesburg

Client: Private

Architects: Ntsika Architects

Completion date: 2016



Westbury Clinic is designed to mitigate the transmission of diseases in clinics by making use of courtyard as transition spaces between indoor environments. These spaces also double up as comfortable waiting areas space.

The connection between indoor and outdoor environments is beneficial for healing and moments of pause and exchange as patients are in direct contact with the natural environment.

The courtyards not only assist with providing spaces for transition and healing but also provides sufficient ventilation for the building (Apsidal 2019).

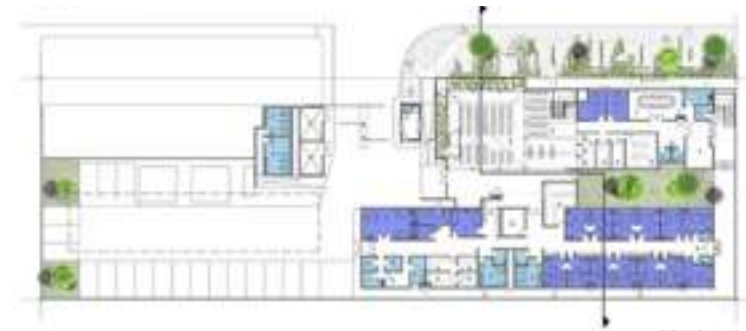


Figure 5.2 : Precedent analysis of Westbury Clinic (Author 2019, photographs from Africa Architecture Awards 2017)

5.1.2 Hermanus Community Day Centre,

Location; Hermanus, Western Cape

Client: The Department of Transport and public works

Architects: GLA Architects

Completion date: 2014

The Hermanus Community Dayis designed to offer health and care services to vulnerable individuals in areas with minimum service provision. (Leading Architecture and design 2015). The process of design is interesting and efficient as the layout of the building takes into account the surrounding and the movement of the user.

The building is also designed making use of courtyards to create degrees of access and privacy and separation and privacy. (Gallagher Lourens Architects 2015)

(Leading architecture and design 2015)



Figure 5.3: Precedent analysis of Hermanus centre (Tina Galagher 2015)

5.1.3 Seattle Public library

Location: Seattle, New York

Client: Deborah Jacobs, Seattle's city librarian

Architects: OMA/ LMN Architects

Completion date: 2004

The Seattle Public library is designed to create a comfortable and fully user friendly building. the layout of the building and programs is arranged specifically to create visual and or physical transparency for the user. this helps to create a strong sense of social space and enhance social contact. in addition this allows the user to feel within and without. a sense of privacy and shared space when needed. civic buildings should allow for choice and the seattle public library allows for that by means of overlapping of spaces and programs. (Archdaily 2019).

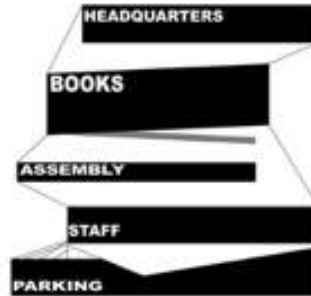
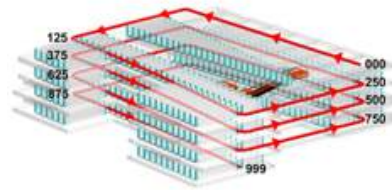


Figure 5.4 : Precedent analysis of The Seattle Public Library (Author 2019, photographs from Africa Architecture Awards 2017)

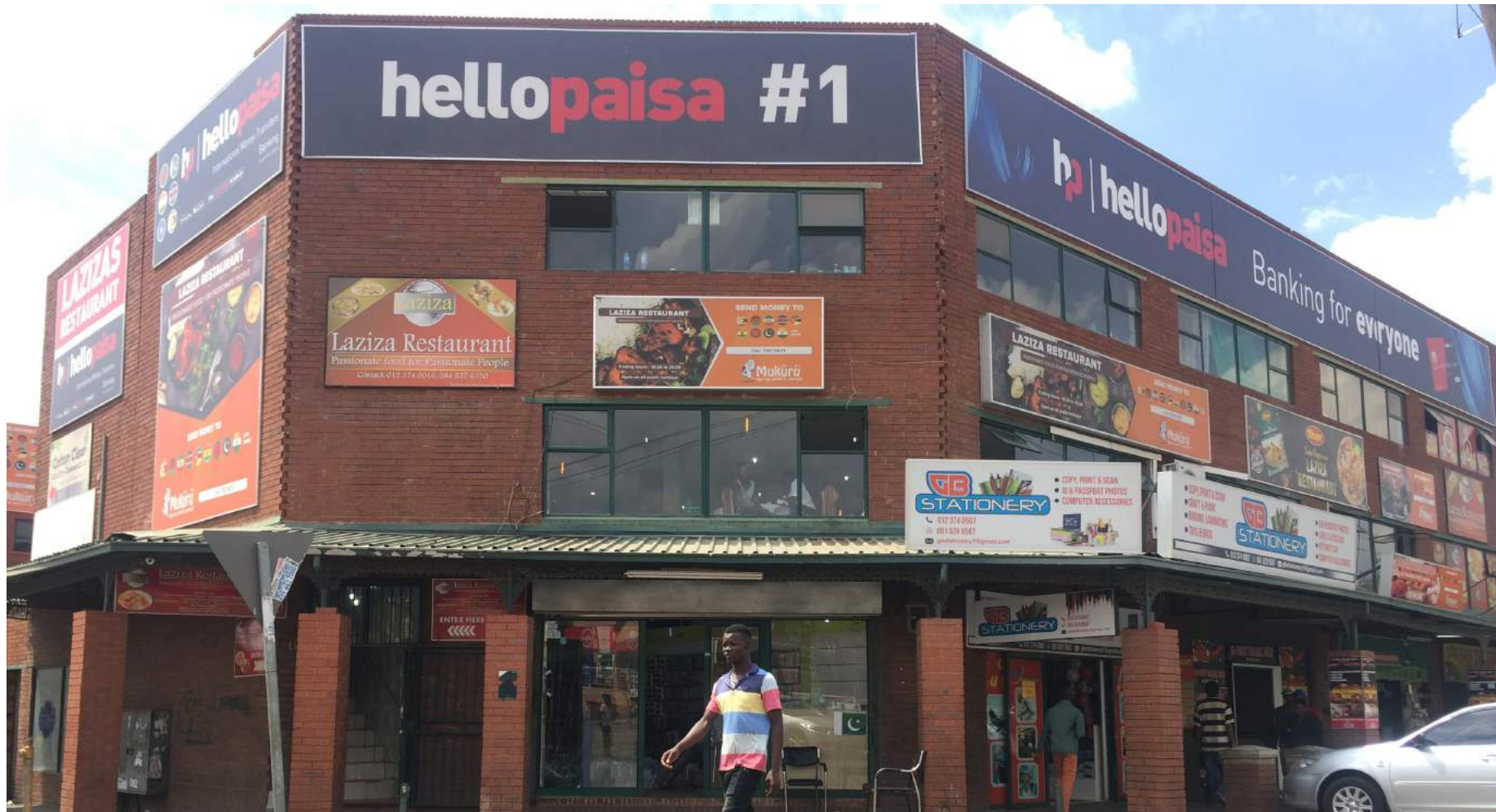


Figure 4.1: Photo of Laudium shops (Author 2019)

CHAPTER 5

CONCEPTUAL INVESTIGATION

4.1 Concept generators

Context, programme and theory are summarised below as contextual generators. These aspects have contributed to the development of a well-informed and responsive contextual approach to the design.

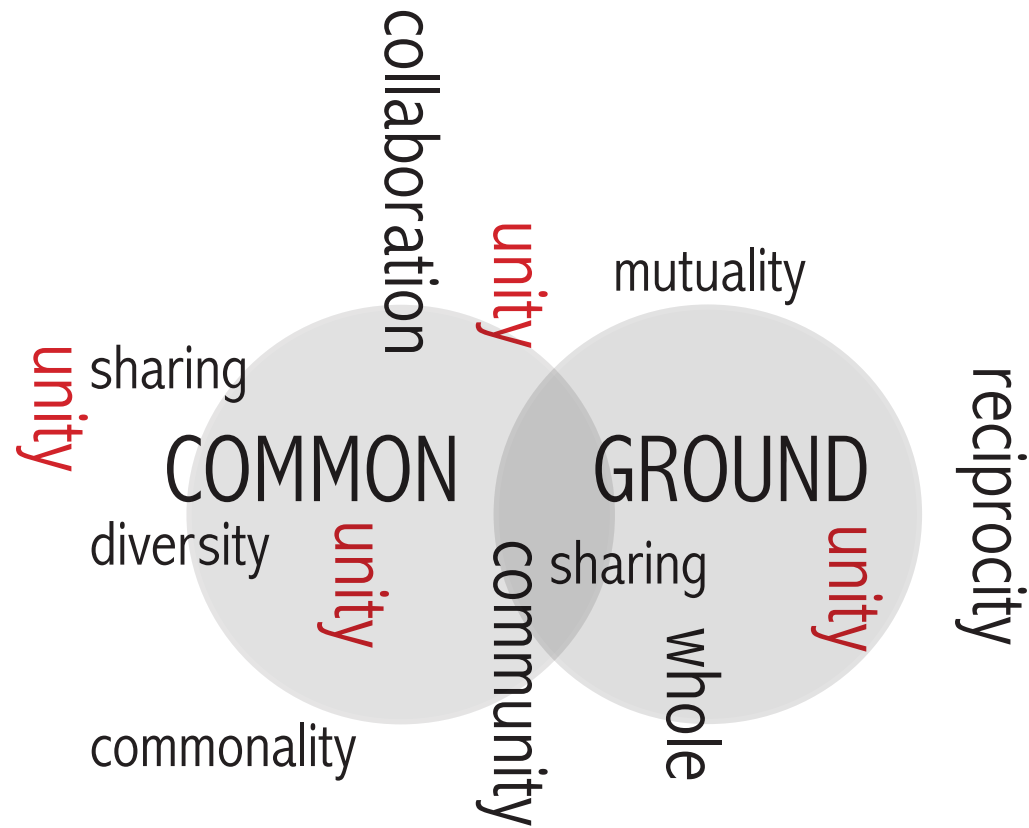
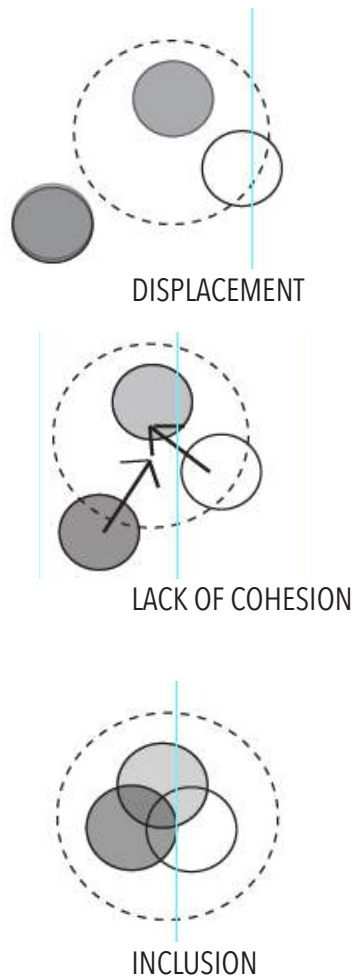
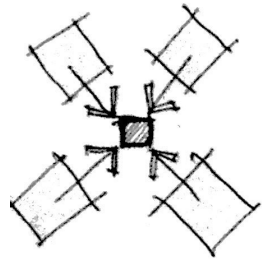


Figure 4.2: Word collage of architectural concept (Author 2019)

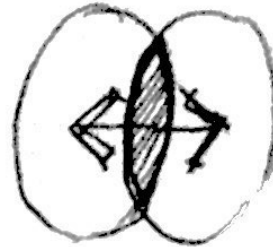
4.1.1 Context as informant



As identified in the chapter on contextual investigation, the site conditions are indicative of spatial disconnect and inequality. The disconnected and hindered nature of the site indicated a clear need for architectural intervention to promote social cohesion and age-friendly living in Laudium.

The site is on a major line of divide. Through intervention, the design bridges the divide to create physical and social exchange between the parts. By creating a better connection between the parts, the site can be developed into a civic landmark; a hub for exchange; and a point of arrival and departure. The site's location in relation to a feeder route that joins school and public transport routes (in and out of Laudium) supports the argument for the planned development of the site.

4.1.2 Programme as informant



The premise of this design was the global need to promote and strengthen intergenerational relationships and solidarity through reciprocity and exchange. Locally, this need is supported the DSD Policy on Integrated Delivery of Social Infrastructure and Management (DSD 2012). The policy aims to provide social development services and facilities to vulnerable and marginalised individuals, such as children and the elderly. It thus seeks to address the socio-economic issues these individuals face. Architectural consideration, however, has been limited to a standard reference to the public works guide (2012).

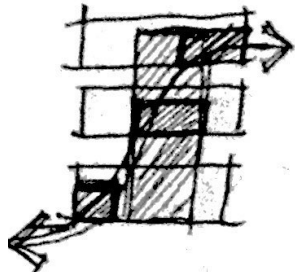
As discussed, the gap between the design implementation and the aims and deliberations of the policy is evident. Therefore, this study aimed to intervene – in terms of architectural consideration – by highlighting and responding to the shortcomings of the policy.

This was done by developing an architectural framework that can be applied to the existing policy for future development and to thus change the way civic architecture is approached. The proposal to integrate and co-locate facilities for child day care and elderly day care creates mutual benefit. This approach is supported by the policy, theoretical investigation, and architectural precedents.

The mandate of the DSD is to ensure protection against vulnerability by creating an enabling environment for the provision of a comprehensive, integrated and sustainable social development service. The DSD is mandated to:

- Reform social welfare services
- Expand ECD provision
- Offer programmes to alleviate poverty, vulnerability, social exclusion and inequality

4.1.3 Theory as informant



The design promotes active ageing through the design principles derived from the theoretical investigation. Those principles include: accessibility, wayfinding, outside and inside and shared and private space. As they influence the spatial layout and for the proposed architecture

- Accessibility and circulation
(social engagement)

The design emphasises circulation spaces, such as staircases, as they are where maximum social contact occurs through visual and physical means (Hertzberger, 2008). Staircases are spatial devices for social contact as they bring people together through movement (Hertzberger 2008).

- Wayfinding
(ease of movement and circulation)

Alexander (1977) discussed the issue of circulation in buildings and that wayfinding requires ease of movement and circulation. He

suggests that buildings should have a sequence of spaces that are ordered by hierarchy for ease of orientation. The design principle is based on Hertzberger's (2000) courtyards, which then orientates a user: allowing for easy wayfinding (and spontaneous interaction).

- Inside and outside
Moughtin (2009) connection to nature can be used as a tool to empower the elderly and promote active ageing.

- Shared and private space
According to Porter (2004) shared and private spaces give people the opportunity to assemble and interact informally. They are a result of two separate spaces or functions overlapping to create a common space. Shared space links two areas and include, for example, arcades or courtyards. According to Saraswat (2011),

shared spaces within buildings provide not only opportunities for interaction but also a sense of security and privacy, climate control and the articulation of space.

4.2 Conceptual approach



Figure 4.3: Hands (Author 2019)

An evaluation of conceptual generators has led to the development of the following conceptual approach:

COMMON GROUND

opinions or interests shared by each of two or more parties. "Artists from different cultural backgrounds found common ground."

- Oxford Learner's Dictionary

The design approach was to find common ground: contextually, programmatically and socially. Common ground was found in the need to employ connection and exchange to address the overarching issues of social and spatial division and separation present in Laudium. Common ground was contextually reached by bridging the spatial divide; programmatically reached by connecting eldercare and childcare facilities; and socially reached by addressing social isolation and bridging the generational divide. This design thus intends to architecturally demonstrate the benefit of collaboration and coexistence by bridging the generational divide through the connection of eldercare facilities to childcare facilities.

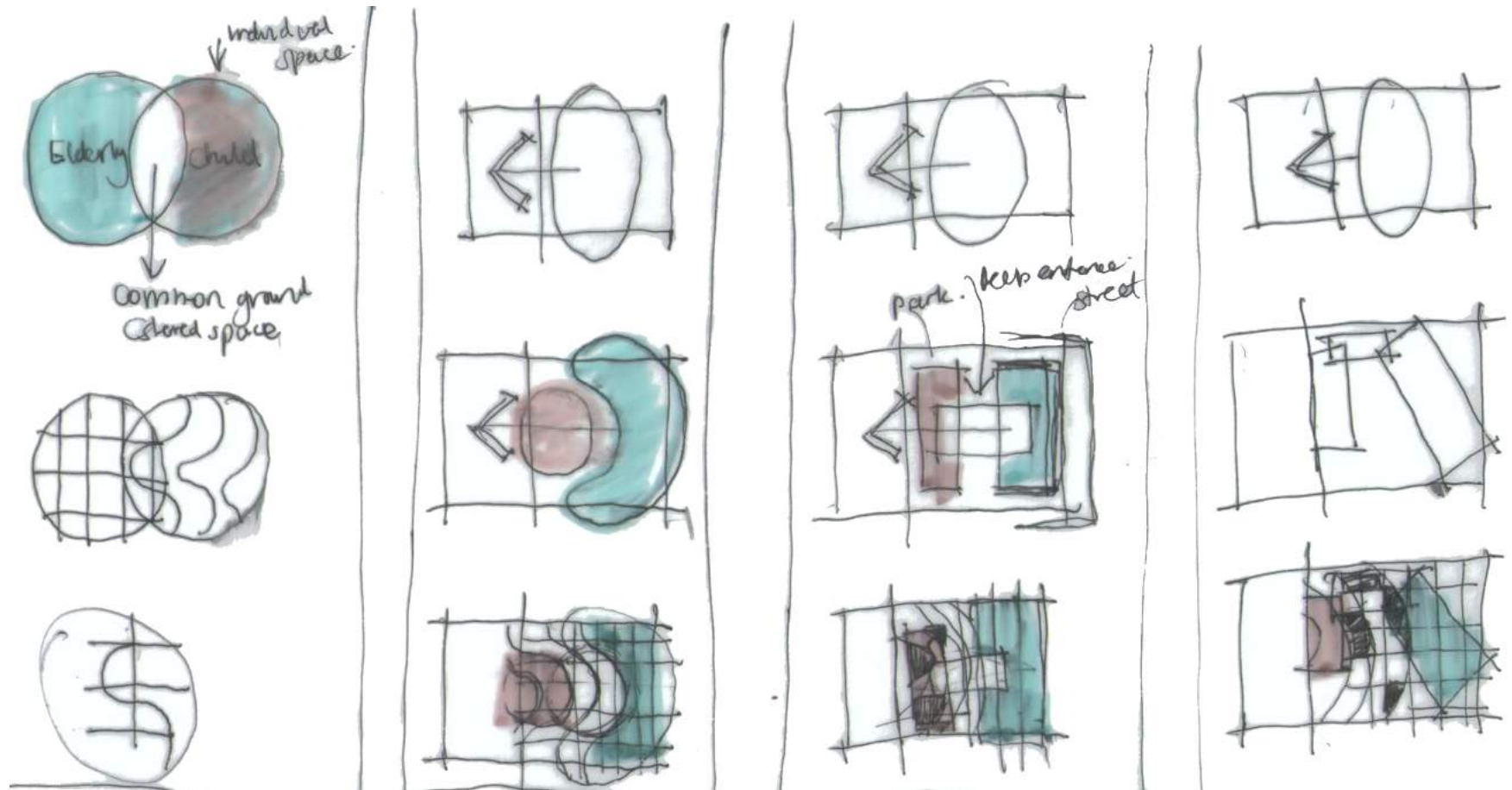


Figure 4.4: Concept sketches (Author 2019)



Figure 6: Photo of Laudium shops (Author 2019)

CHAPTER 7

DESIGN DEVELOPMENT

7.1 Design Development

The following informants have been identified as design generators and will be summarized in order to develop and guide the design process: context, programme and theory

7.1.1 Context as design generator

As discussed in chapter 1, the project attempts to dissolve social and physical boundaries present on site to connect the divided extensions of Laudium. The proposed site is situated along a main transport intersection and currently hinders pedestrian movement to and from drop off. The requirement for the site to act as a connector determined the layout and the orientation of the building on site. The urban strategy to revitalize and reuse the abandoned railway strip as an urban green public strip further informed the requirement to bridge the site vertically. This assists in slowing down traffic for school children to move across safely and creates an accessible and safe public space for people to wait for their transport. The building is orientated in a northerly direction to accommodate for the length of the site and to align with the natural fall of site.

7.1.2 Programme as design generator

As discussed in the previous chapter, the project explores the co-location of programs stipulated within the “integrated social development policy” namely a child day care facility with an elder daycare facility to demonstrate architecturally how the co-location and integration of spaces with similar functions can encourage intergenerational exchange and a well-connected and equally safe community hub. The program informed the zoning of the. The existing park that sits alongside the proposed site complements the proposed program and influences the zoning layout.

7.1.3 Theory as design generator

The design is guided by principles derived by the theoretical premise. These principles influence the form. How theory is approach in the design for active ageing. The following principles include Accessibility andv wafinding, shared and private space and access to nature.

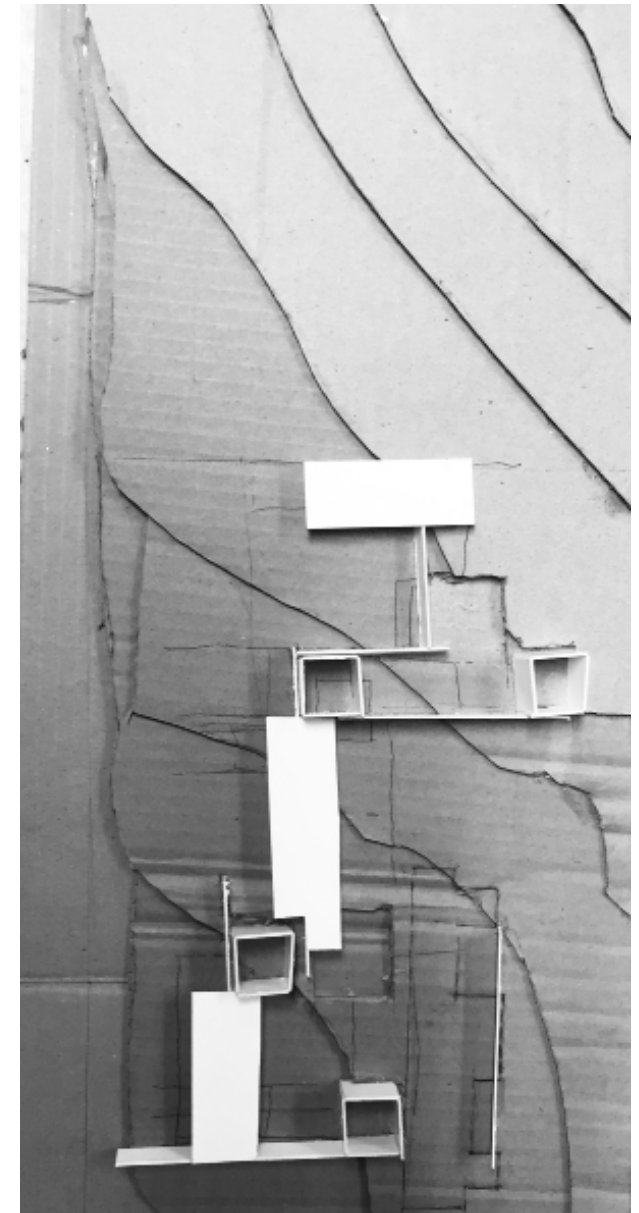


Figure 7.2: Iteration 1 model no.1 (Author 2019)

7.2 Design iterations

Iteration 1

The first iteration explores the programmatic layout of spaces in relation to contextual influences by means of a loose massing layout. Based on the conceptual approach the hierarchical layout of the programme was planned along a vertical axis through the site, In an attempt to tie the park (public space) to the proposed architectural intervention. The building is based on the concept of two parts joined by a connecting and shared space. The use of courtyards assisted in ease of movement and orientation.

- Strength – the strength lies in the peripheries that stemmed from the main axis of movement and the use of courtyards to define more public or more secure spaces.
- Weakness- the weakness lies in that the main axis of movement runs vertically through the site instead of horizontally as the intended in the project outline.
- Opportunity- The building possibly connecting the park and the
- Threat – the service cores that sit at the intersection of main circulation routes disrupts movement

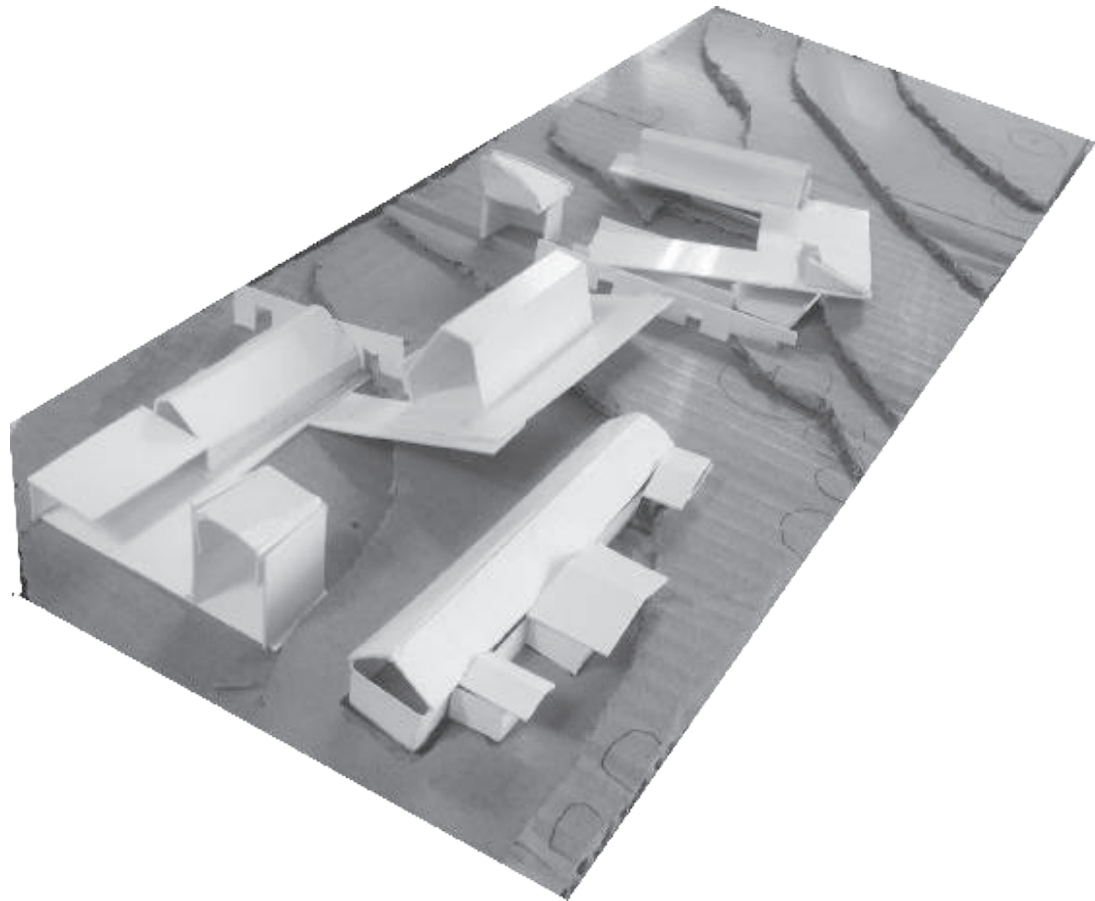


Figure 7.3 :Iteration 1 model no.2 (Author 2019)

Iteration 2

The second iteration responds to issues found in iteration 1, the service cores that restricted circulation had been addressed in attempts to create more direct connections and ease of movement from shared space to more private or from open to more closed.

- Strength – the strength lies in the courtyards as an organised tool to link function and act as way-finders for elderly individuals to reorient themselves, Courtyards act a space of convergence and have a direct link to programs.
- Weakness- the weakness lies in that the main axis of movement that runs horizontally through the site instead of vertically as the intended in the project outline.
- Opportunity- address the public edges and draw public space within the sit while creating more secure and private zones for the vulnerable without the public impeding on their space
- Threat – the service cores that sit at the intersection of main circulation routes disrupts movement

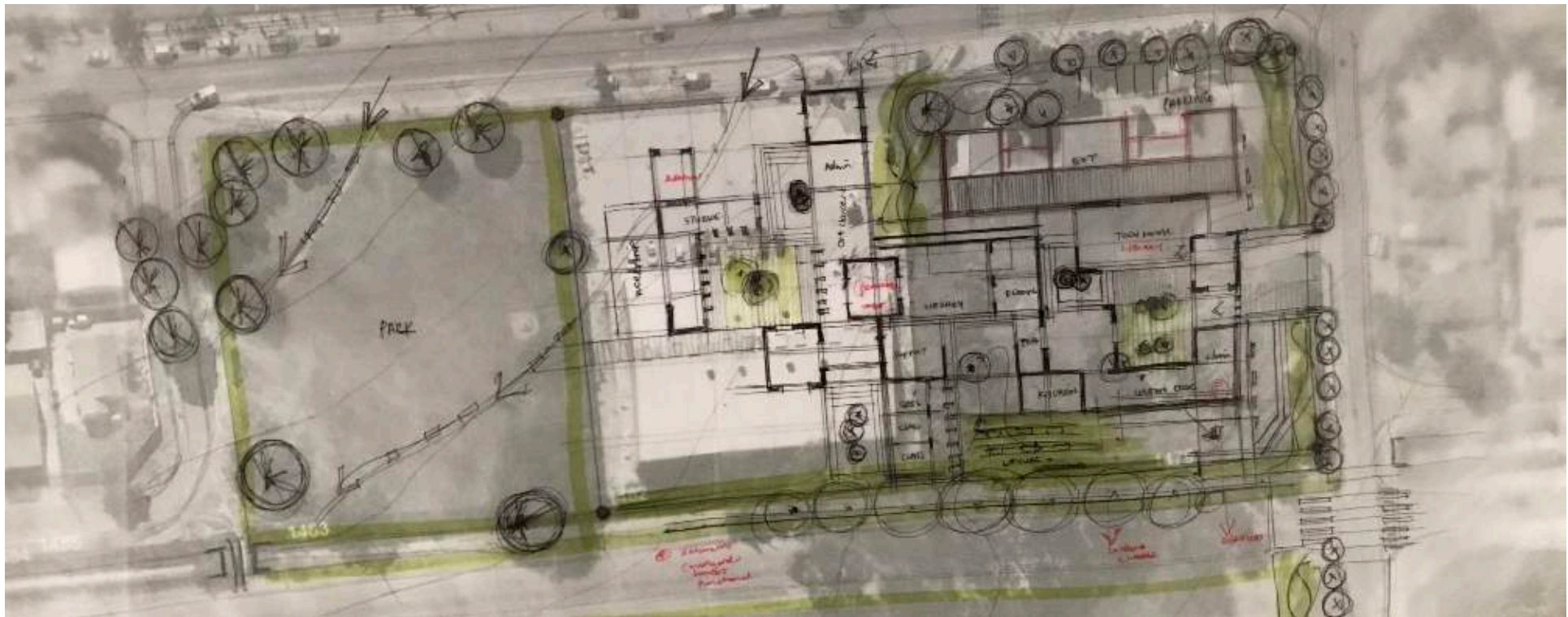


Figure 7.4 :Iteration 2 (Author 2019)

Iteration 3

Iteration 3 responds to issue in iteration 2 and attempts to create more cohesive connections from the public realm through the site to be more aligned to the project intentions and the additional barriers the current layout is creating. Volume and height of space is explored to assume a hierarchy for spatial movement and importance of space

- Strength – the double volume common areas as it allows for visual and physical connections between users. It also corresponds to the “small city approach ”
- Weakness- the strict horizontal axis of movement
- Opportunity- The falls of the site assists in creating more progressive spaces

- Threat – The location of the main entrance is not celebrated nor contributing to the busy existing public corner that needs an urban intervention or modification. The public corner requires public seating and a designated sheltered drop off area for children and adults waiting for transport to gather and wait safely and in an inviting and aesthetically pleasing public space.

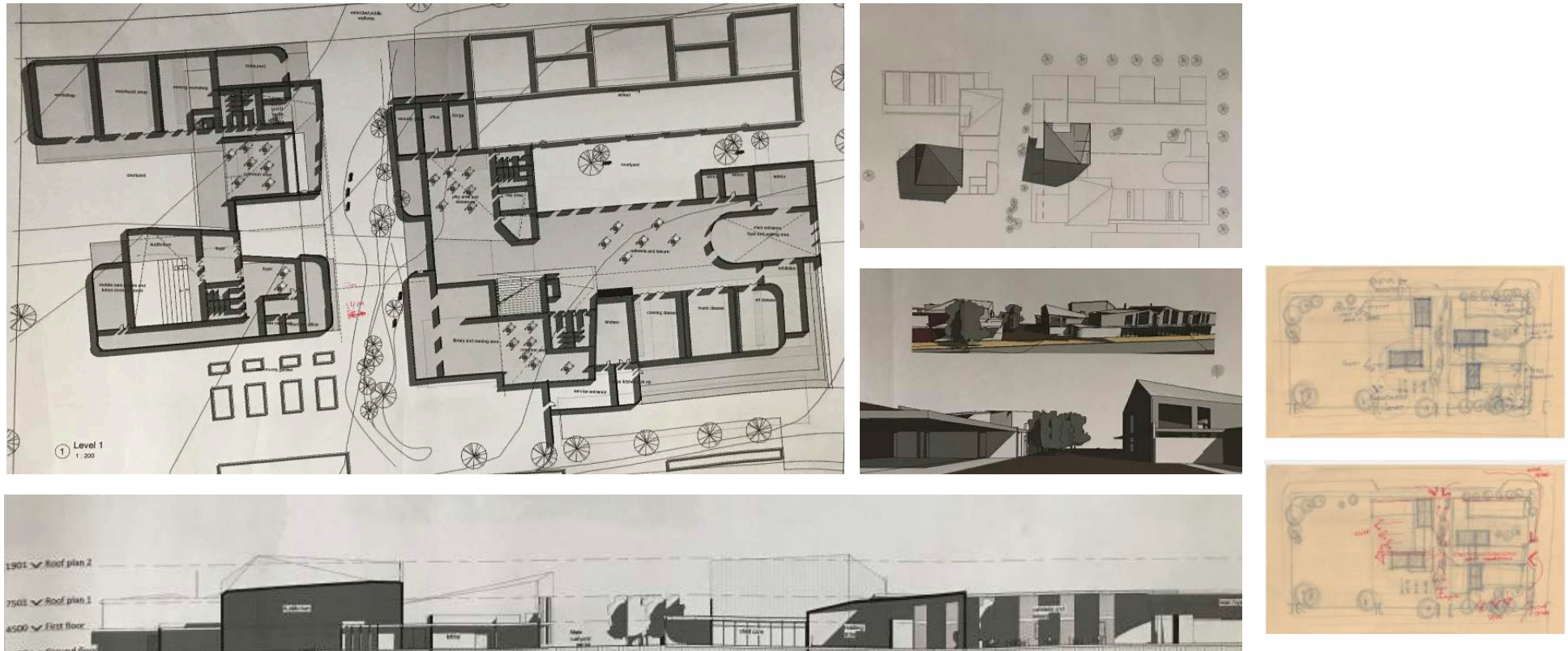


Figure 7.5 :Iteration 3 (Author 2019)

Iteration 4

Iteration 4 attempted to create a more defined public entrance along the main intersection because the entrance designed in iteration 3 was not visually or physical accessible to the public. The entrance of this public building attempted to draw the public in through a public plaza to then allow the user to circulate through the building or through the site,

- Strength – the public realm that supports the intention of the building to act as community hub for the community members of Laudium
- Weakness- the strict horizontal axis of movement
- Opportunity- The falls of the site assists in creating more progressive spaces

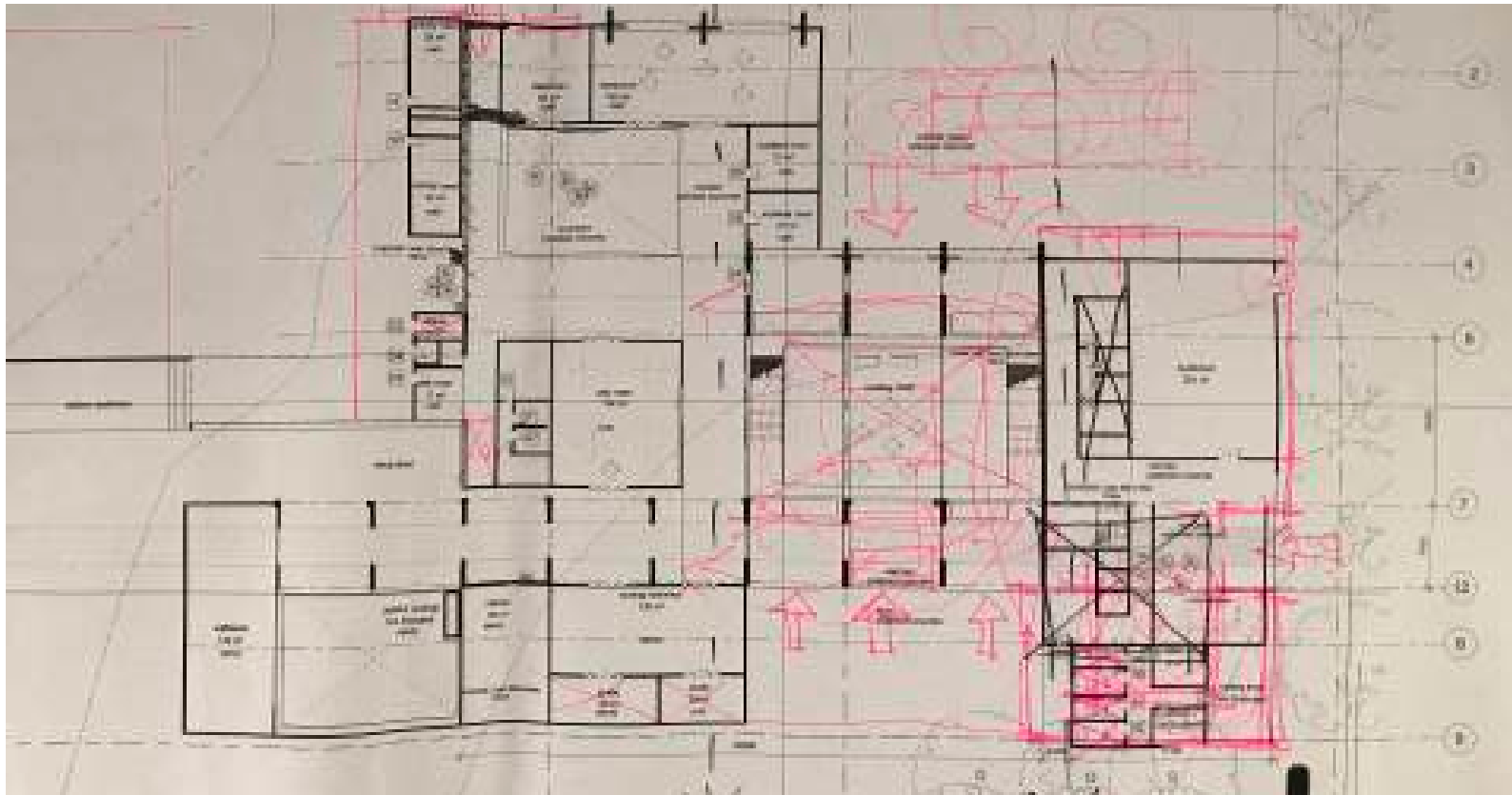


Figure 7.6 :Iteration 4 (Author 2019)

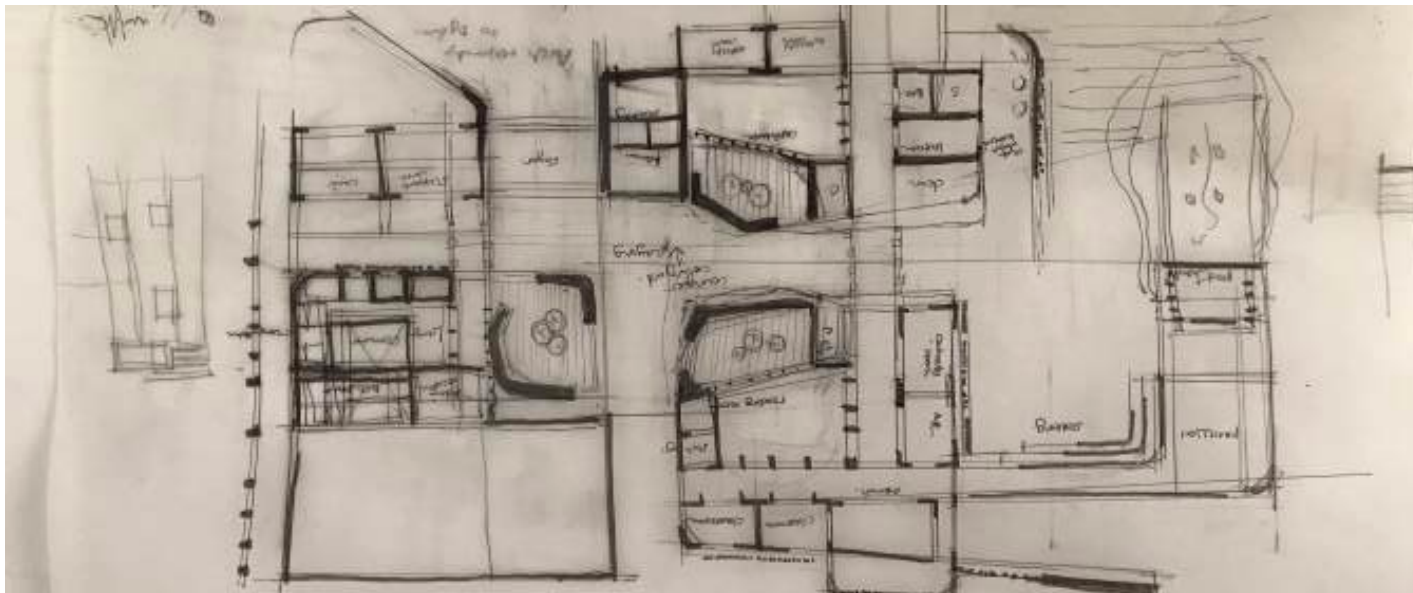
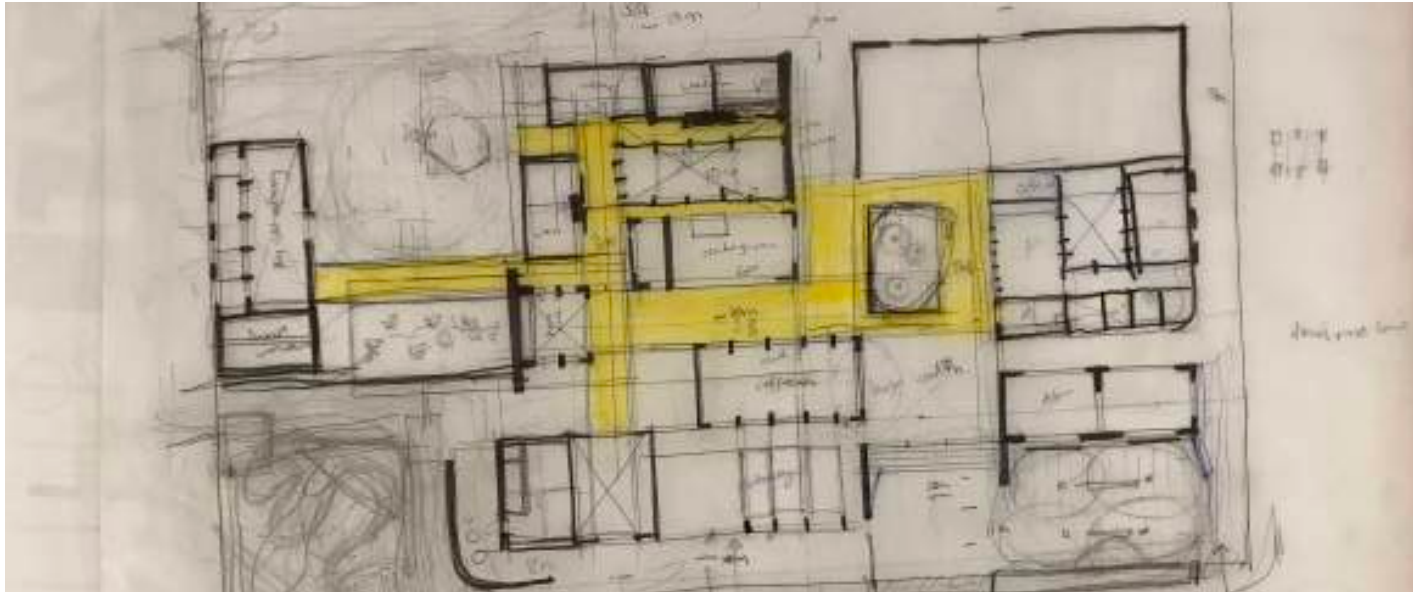


Figure 7.7 :Iteration 4.1 Plans (Author 2019)

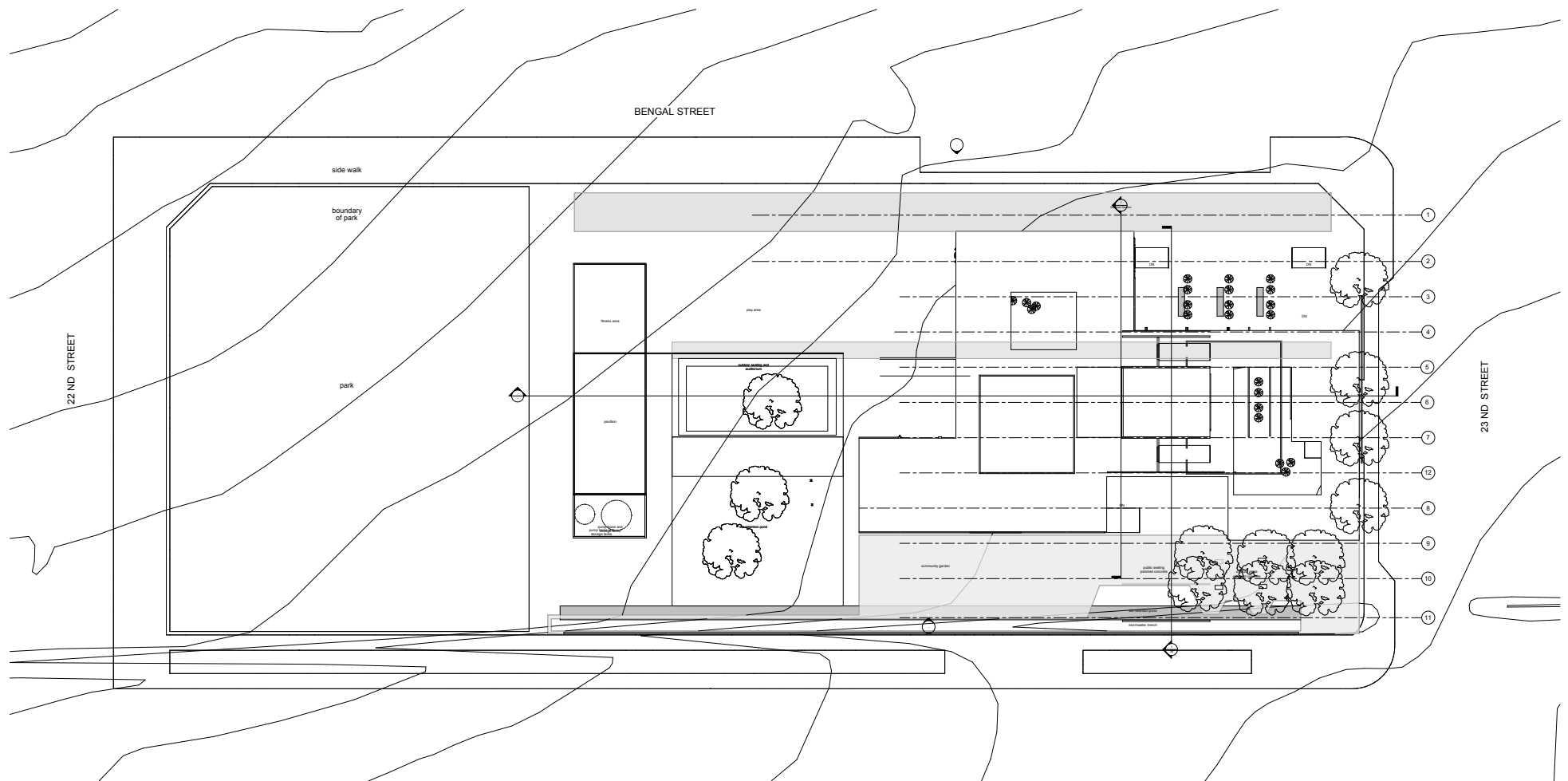
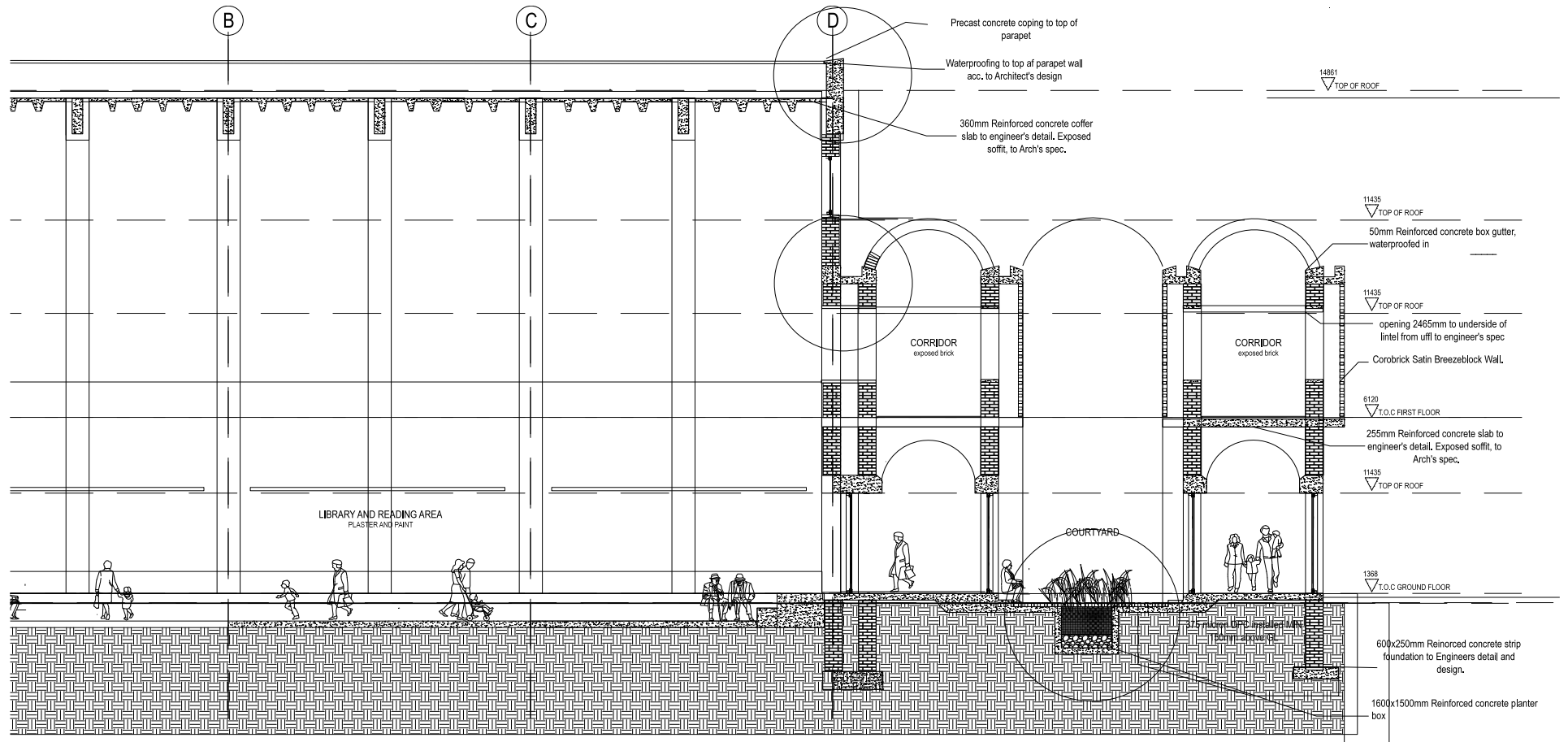
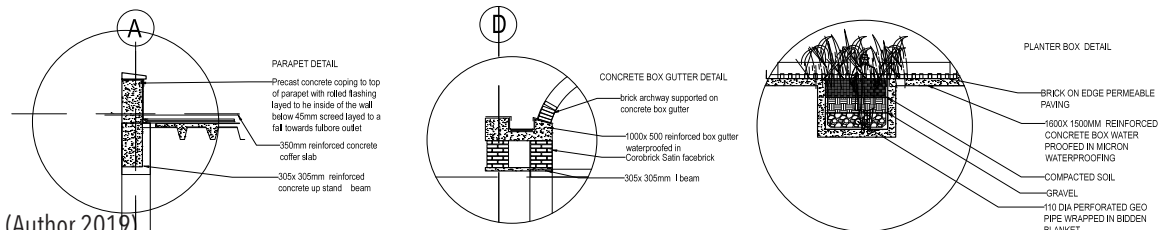


Figure 7.9: Ground floor plan (Author 2019)



SECTION A-A
SCALE 1:100



DETAILS
SCALE 1:50

Figure 7.10 : Section and details (Author 2019)

Iteration 6

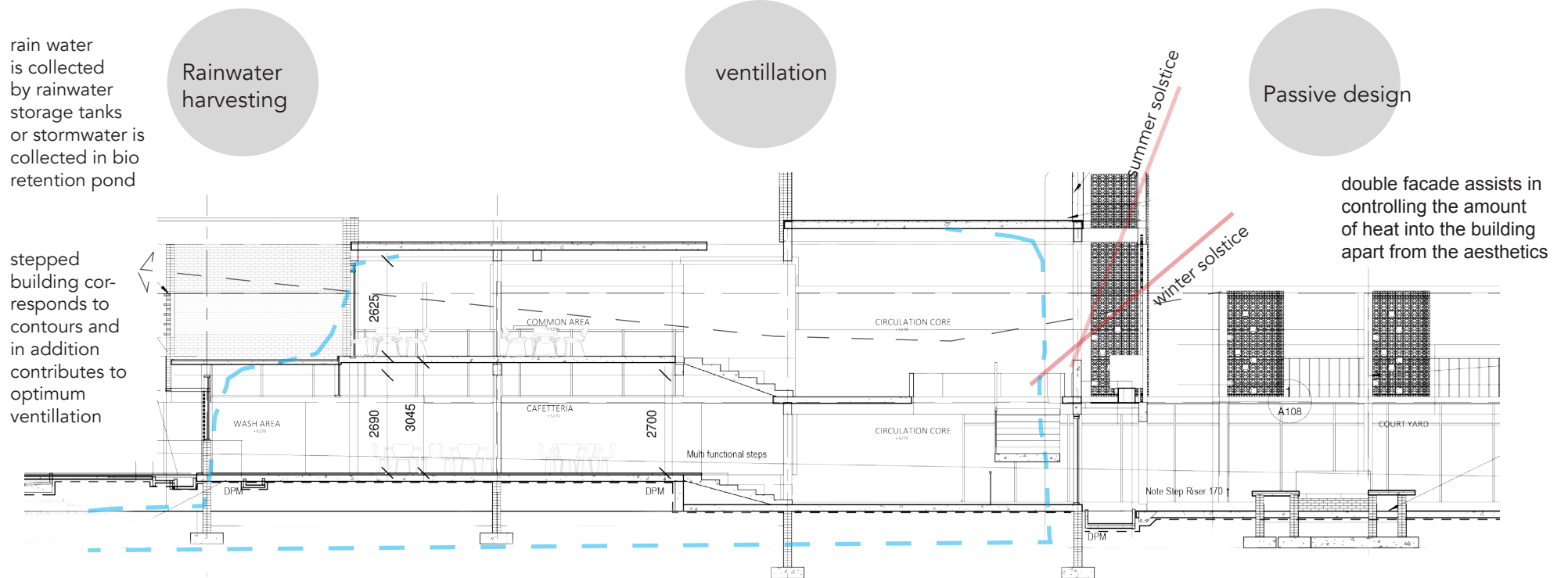


Figure 7.12: Diagrammatic section (Author 2019)



Figure 7.13: Exploded diagrams (Author 2019)



Figure 8.1: Photo of Laudium (Author 2019)

CHAPTER 8

TECHNICAL INVESTIGATION

8.1 Technical concept

Laudium is home to a diverse, vibrant Indian community. The materials, structure and services chosen for the intergenerational hub were informed by theoretical and contextual components pertaining to Indian culture, rituals and structural characteristics.

Contextually responsive materials and structural systems can allow the youth and the elderly to identify with and attach value to the space, thereby creating in them a sense of comfort and belonging (Rubinstein 1990; Taylor 2001). Therefore, the technical concept for this project revolved around promoting the well-being and exchange between, users.

The element that best defines a place's character (and the quality of peoples' relationships) is its degree of openness and transparency (Norberg-Schulz 1980). A boundary place's level of transparency may determine its level of accessibility (progression from public and private) and the exchange it allows not only between the inside and outside but also between its users. The users in this case would be children and the elderly.

Through the use of contextually responsive materials, the tectonic language of the building aims to express the varying levels of exchange between the target user groups.



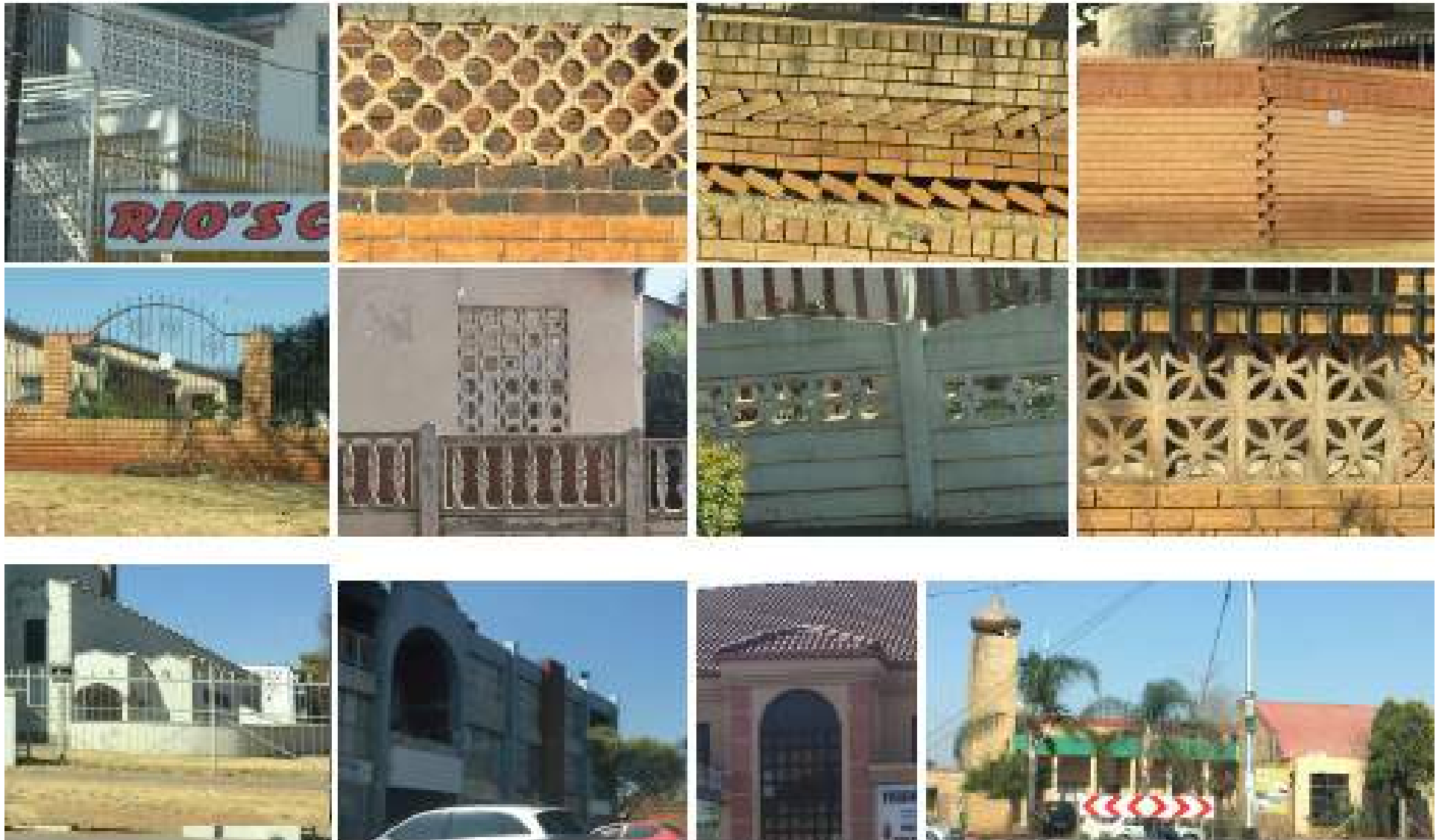


Figure 8.2 : collage of brickwork patterns in Laudium (Author 2019)

8.2 Materiality

The materials were chosen to improve the mental and physical well-being of the users of the physical environment. Materials that respond to the existing fabric of Laudium were used. In addition, comfort and safety contribute to improved mental and physical well-being. This was achieved by improving the environmental and physical conditions of the space: as the design was aimed at children and the elderly highly tactile and sustainable materials were incorporated (Rubinstein 1990; Taylor 2001).

Material choice is as follows:

- Brick
- Stone/ masonry
- Concrete
- Steel

Brick was chosen as a building material to respond to the existing fabric and language of Laudium. In the South African context, brick is commonly used as a building material due to its availability, energy efficiency, and versatility (). The versatility of brick is particularly evident in its use in the residential, religious and institutional typology of Laudium. A common feature in various Laudium building types is the decorative use of brick and breezeblock systems – where different methods of brick laying are explored. This design took advantage of the decorative use of brick ref more detail

Concrete is a versatile and reliable material commonly used in South African construction. Concrete was chosen as building material for its structural and sustainable qualities.

Steel often features as a clip feature to primary structures. Awnings, pergolas and roof structures are made from steel, as they sit up against or on top of the heavy brick or concrete structures. As the embodied energy of steel is fairly high, this design used steel sparingly (as an additional feature).



Figure 8.3: map of distance Vibro bricks is from Laudium (Author 2019)

The materials discussed above (Brick, concrete) can all be locally sourced from Vibro bricks, a manufacturer and supplier of paving and building bricks and concrete paving, that is situated 2,5km outside of Laudium. By sourcing locally, the embodied energy of the building was reduced.

8.3 Structural system

Structural system:

A concrete stereotomic structure with brick and breeze block infill

Primary structure:

The frame of the structure

A concrete frame structure supported by a reinforced concrete strip foundation.

Secondary structure:

The skin of the structure

Brickwork filled in between concrete frame structure. The method and pattern of brick laying is dependent on the level of openness (transparency) required by a space.

Tertiary structure:

The additional skin of the structure

Intensive green roofs on top of a flat concrete slab, supported by a concrete frame.

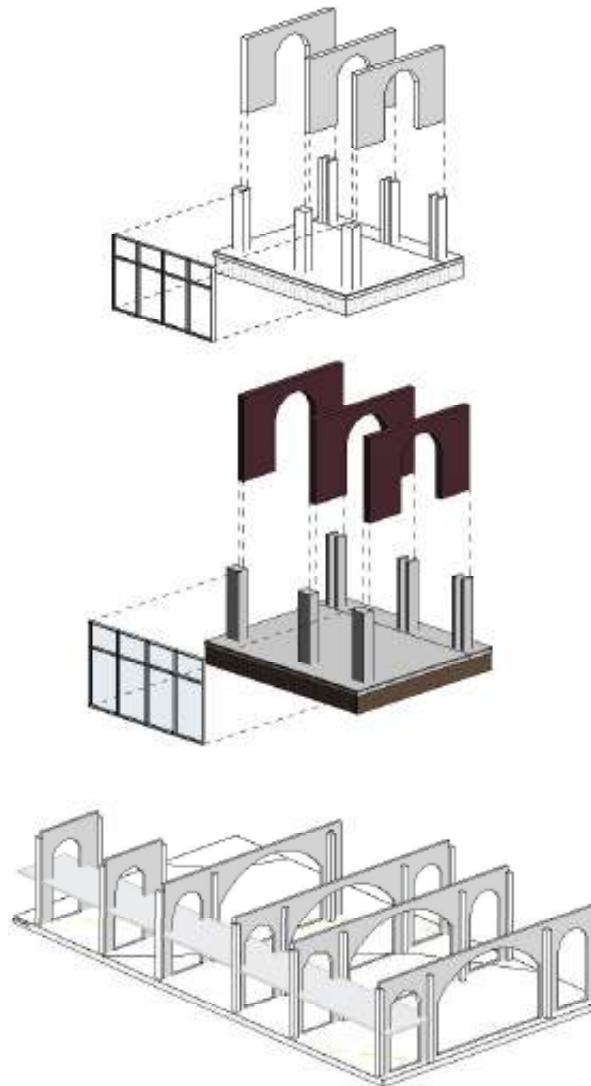


Figure 8.4: Structural system (Author 2019)

The significance of arches and archways in Islamic architecture and spatially a repetitive element and pattern is supportive of wayfinding

The arch similar to the patterned brickwork and orientation in a physical and or urban setting is a common feature observed throughout (Lynch 1960). This is particular important for elderly and children.

Laudium's architectural fabric and building types. The arch is most commonly observed in religious architecture, such as mosques, temple and churches. As discussed, arches are commonly used in religious architecture for its structural and cultural appropriateness therefore in an attempt

The arch is a highly functional and structural to promote active ageing, the arch has been architectural device employed to span large incorporated as an important architectural distances to make a space seem light and more element or device in the design. open. In addition, it is used as a symbolic device

that symbolises and embodies various things in various cultures. In many cultures the arch represents the physical threshold to a different time in space to meet a higher power and the pointed arches when observed will lift one to a higher power (Rahman 2015). Repetition, pattern and geometry is prominent in Islamic architecture.

The arch is not only used for functional and structural reasons but also decorative and symbolic purposes. Archways or arches represent the division between sacred and secular (Rahman 2015). Arches are a predominant and repetitive element

WATER

play
pray
prepare



Figure 8.5 : Water collage (Author 2019)

8.4 Regenerative system

Water plays an important role in Indian traditions and daily practice. The act of washing the feet and hands before and after eating, playing and praying is common practice in most Indian households and various Indian cultures: Muslim, Gujarati, Tamil. Many elderly people believe water has healing qualities (water in ancient India, 2019).

Previous mapping of the conditions of the site reveal that water is a prominent feature on site. The existing storm water channel that currently serves as a social and physical barrier on site and contributes to the increased feeling of disconnect and exclusion is adapted to improve the wellbeing of user and site. The recycling of water through the site by means of adapting the storm water trench to develop constructed wetlands and bio retention ponds on site that create place for diverse activities such as:

- Public space and place making
- Spiritual activity and
- Recreational activity

Green roofs and bio retention ponds are used as a regenerative system to collect and store water for recreational, spiritual and practical uses. The water collected from the roofs are stored and used for grey water purposes where as the water in the bio retention pond will be fed from the storm water line that exists on site. water will be diverted from the existing channel in to the site to various pond, filtered , any over flow will return back ot the channel. These ponds are specifically for placemaking and recreational purposes.

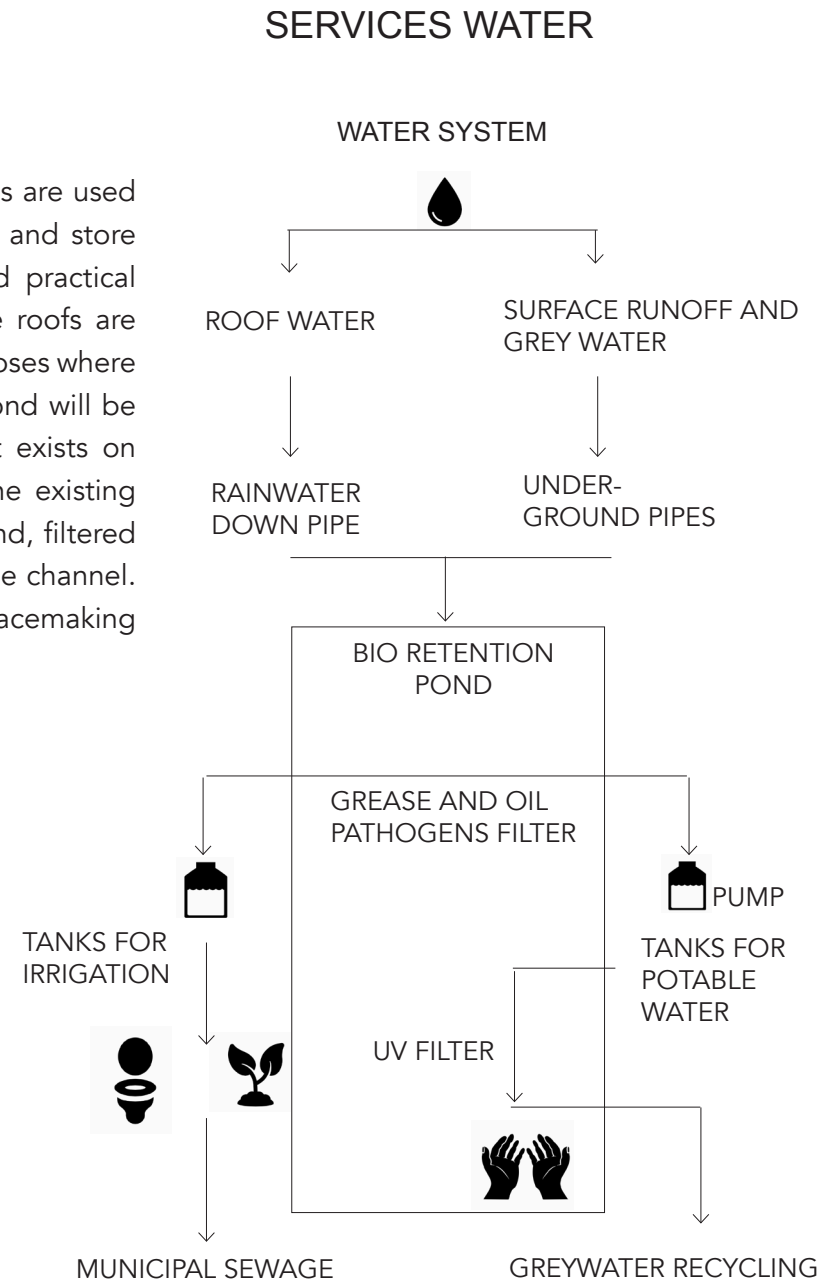


Figure 8.6 : Water diagram (Author 2019)

8.5 Final Tech drawings

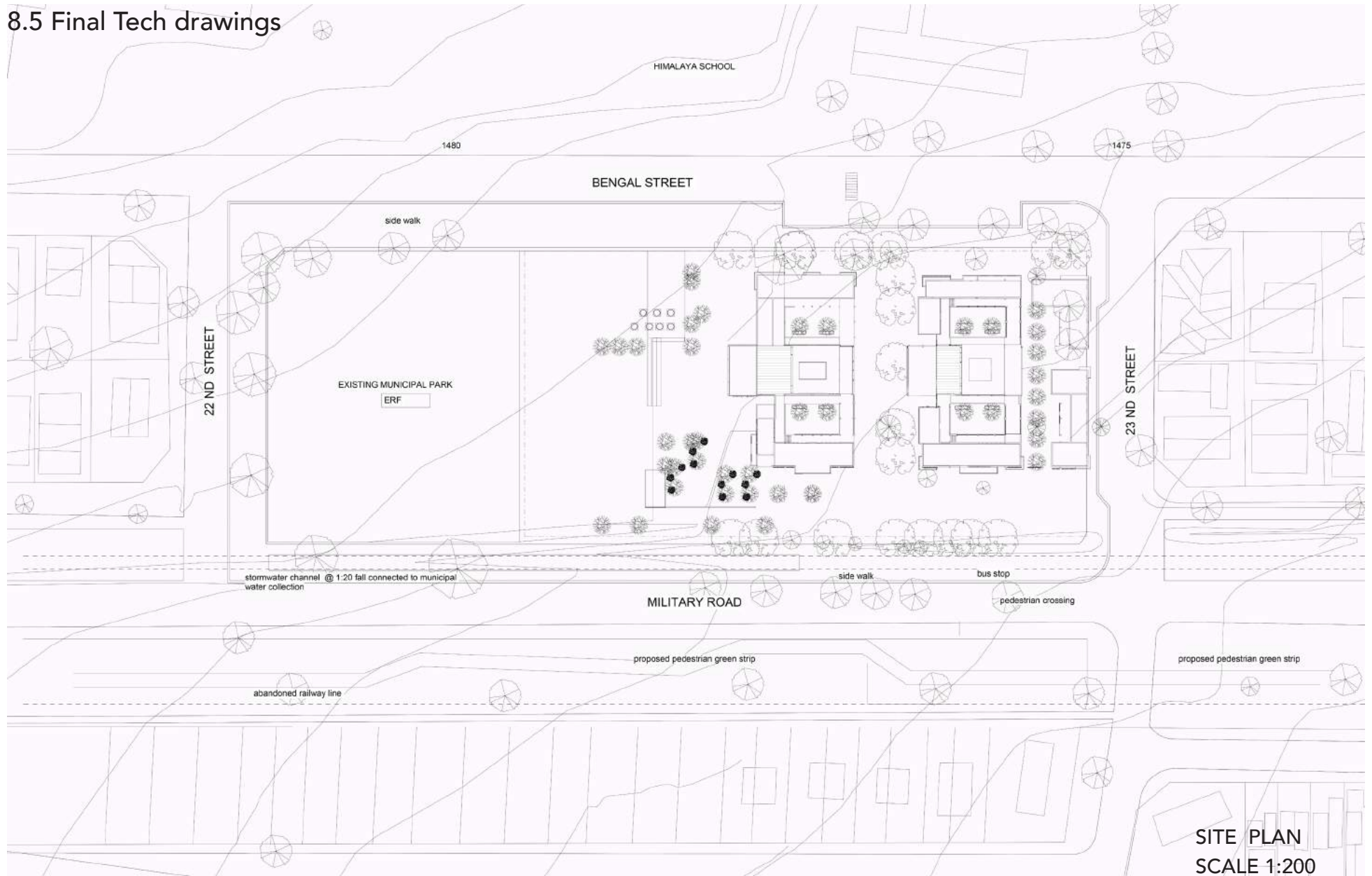


Figure 8.7: Site plan (Author 2019)

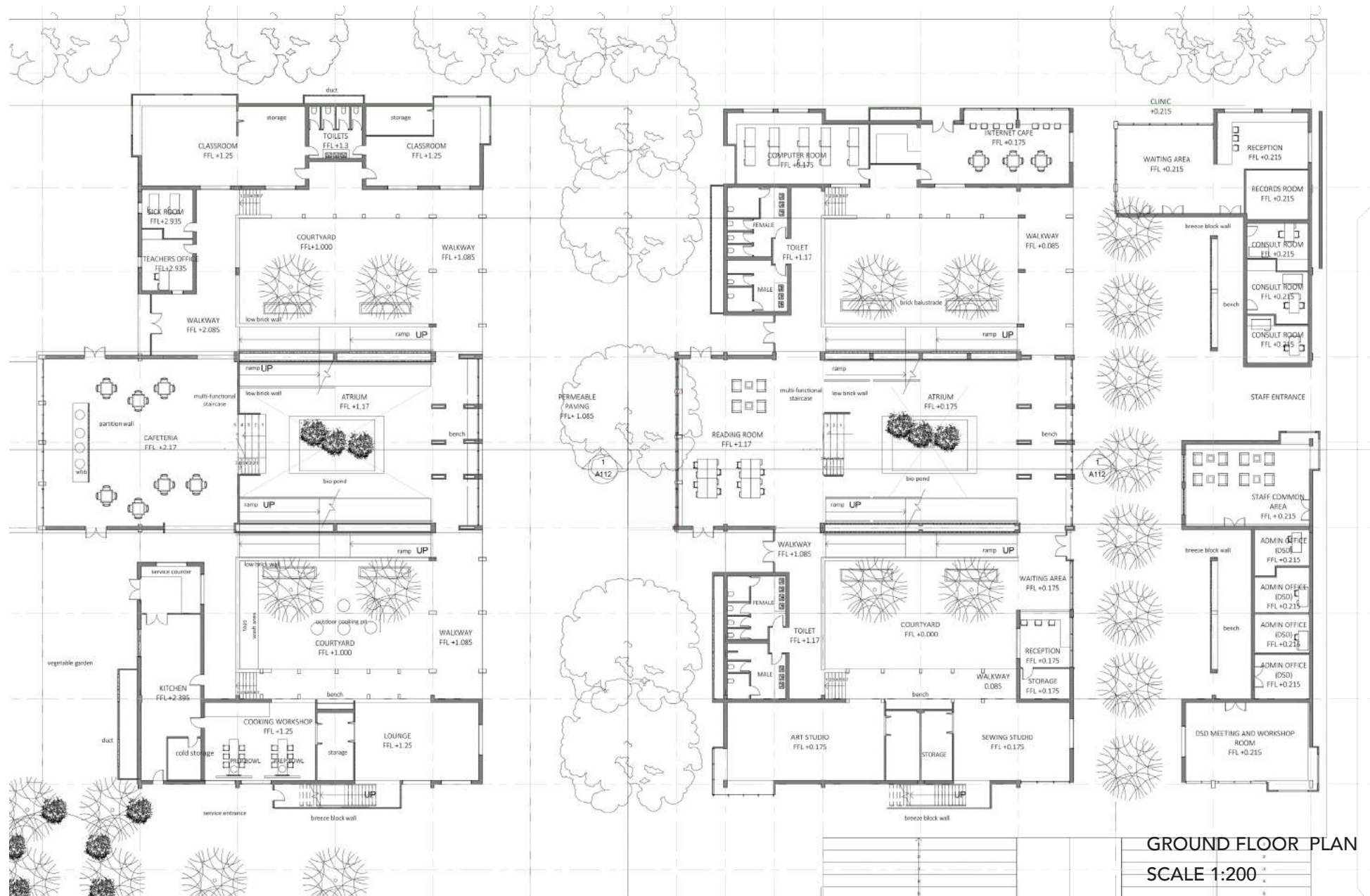


Figure 8.8: ground floor plan (Author2019)

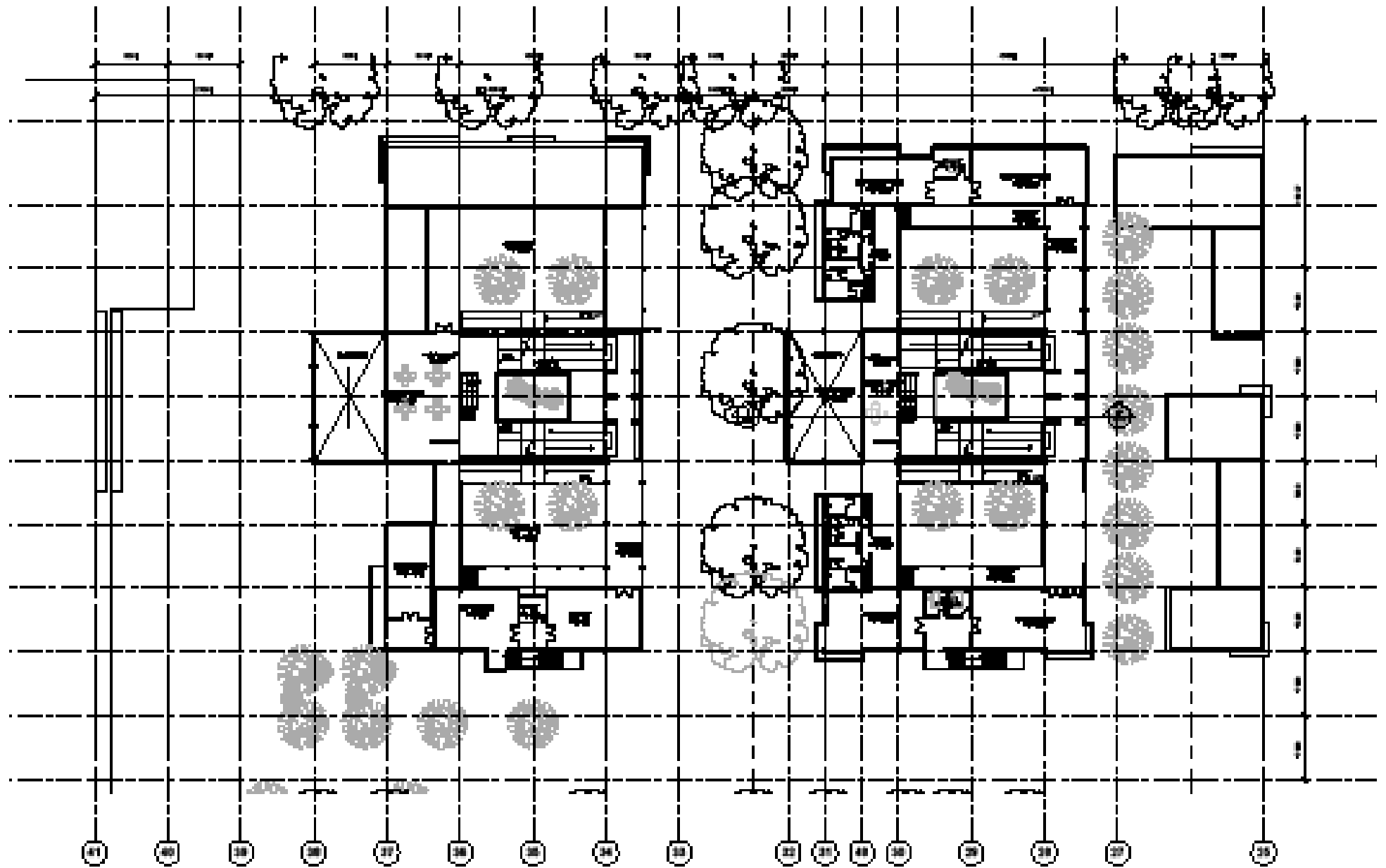


Figure 8.9 : First floor plan (Author2019)

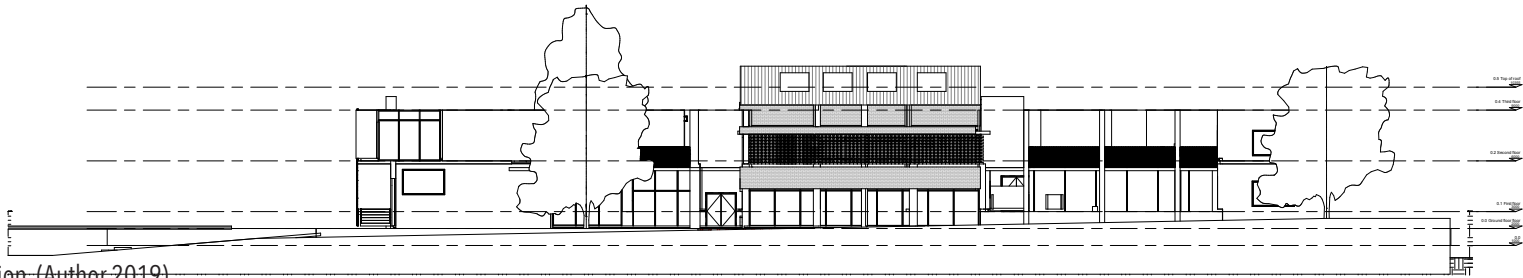
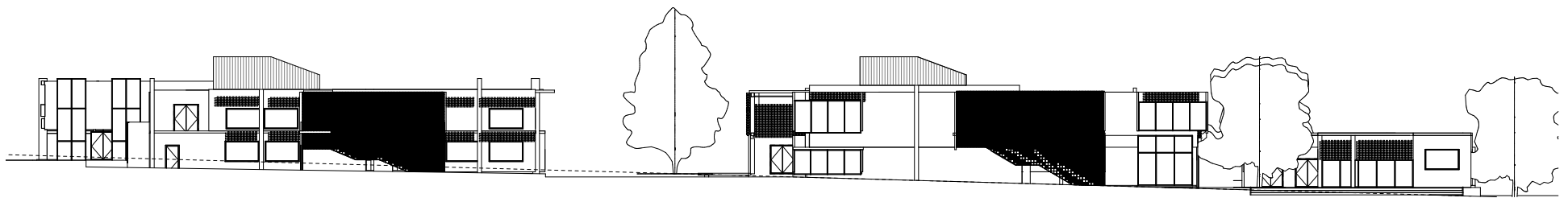


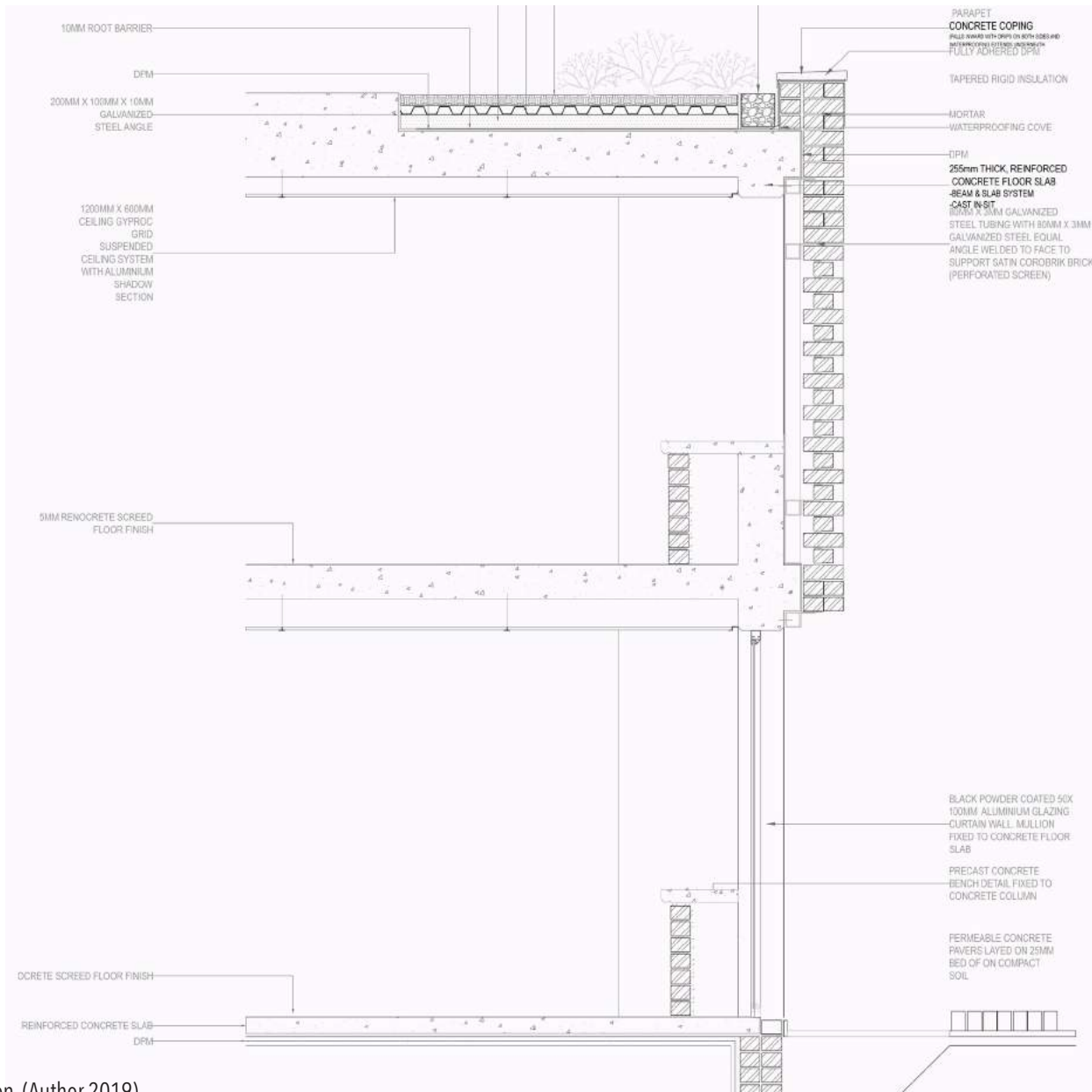
Figure 8.11 : East Elevation (Author 2019)

EAST ELEVATION
SCALE 1:200



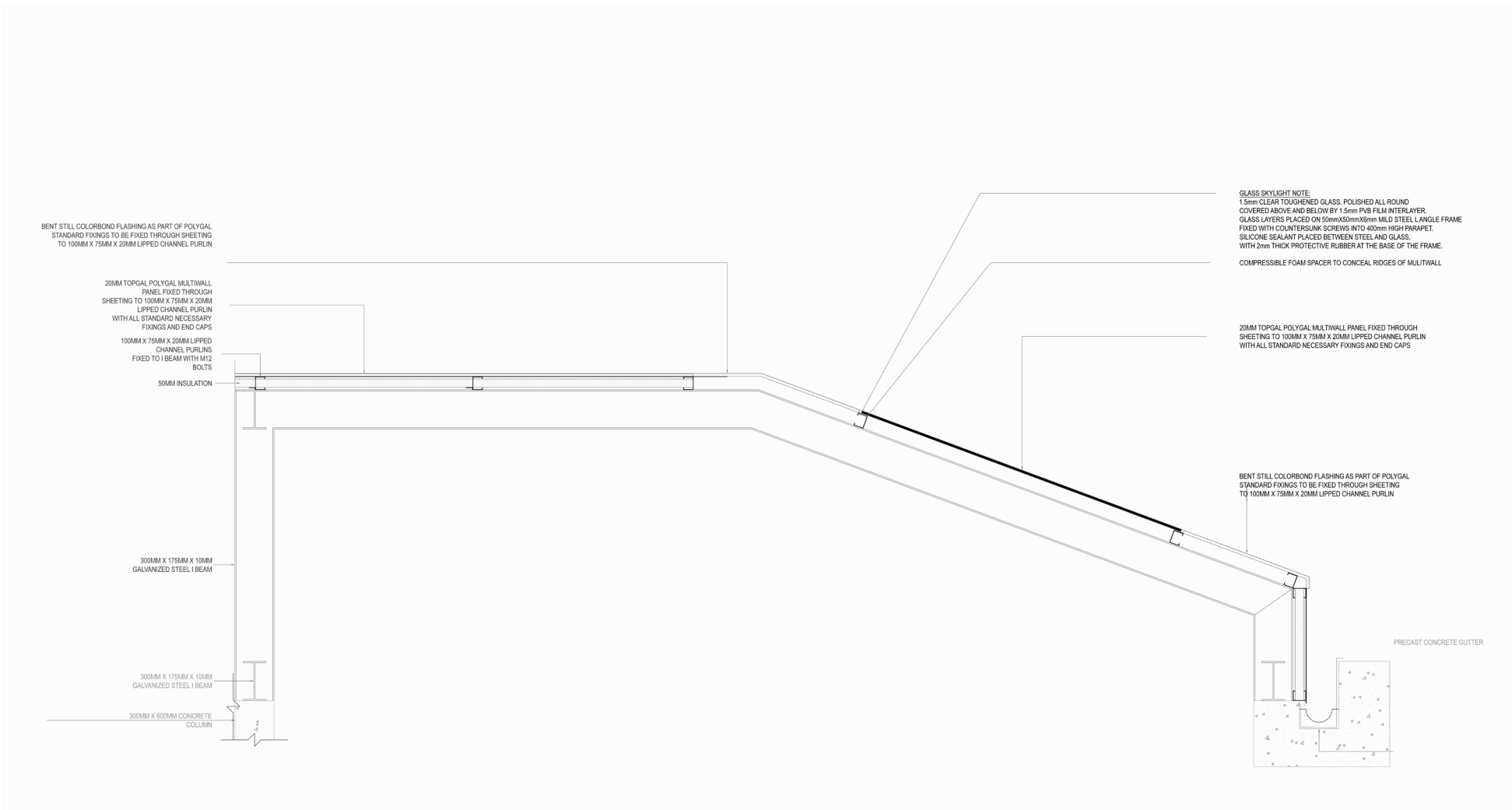
SOUTH ELEVATION
SCALE 1:200

Figure 8.12 : South Elevation (Author 2019)



PERIMETER SECTION
SCALE 1:10

Figure 8.13: Detail perimeter section (Author 2019)



DETAIL ROOF
 SCALE 1:10

Figure 8.14: Detail -roof (Author 2019)

110mm Ø AGRICULTURAL
DRAIN
PUMPED TO WATER
STORAGE CONNECTION
ON GROUND LEVEL

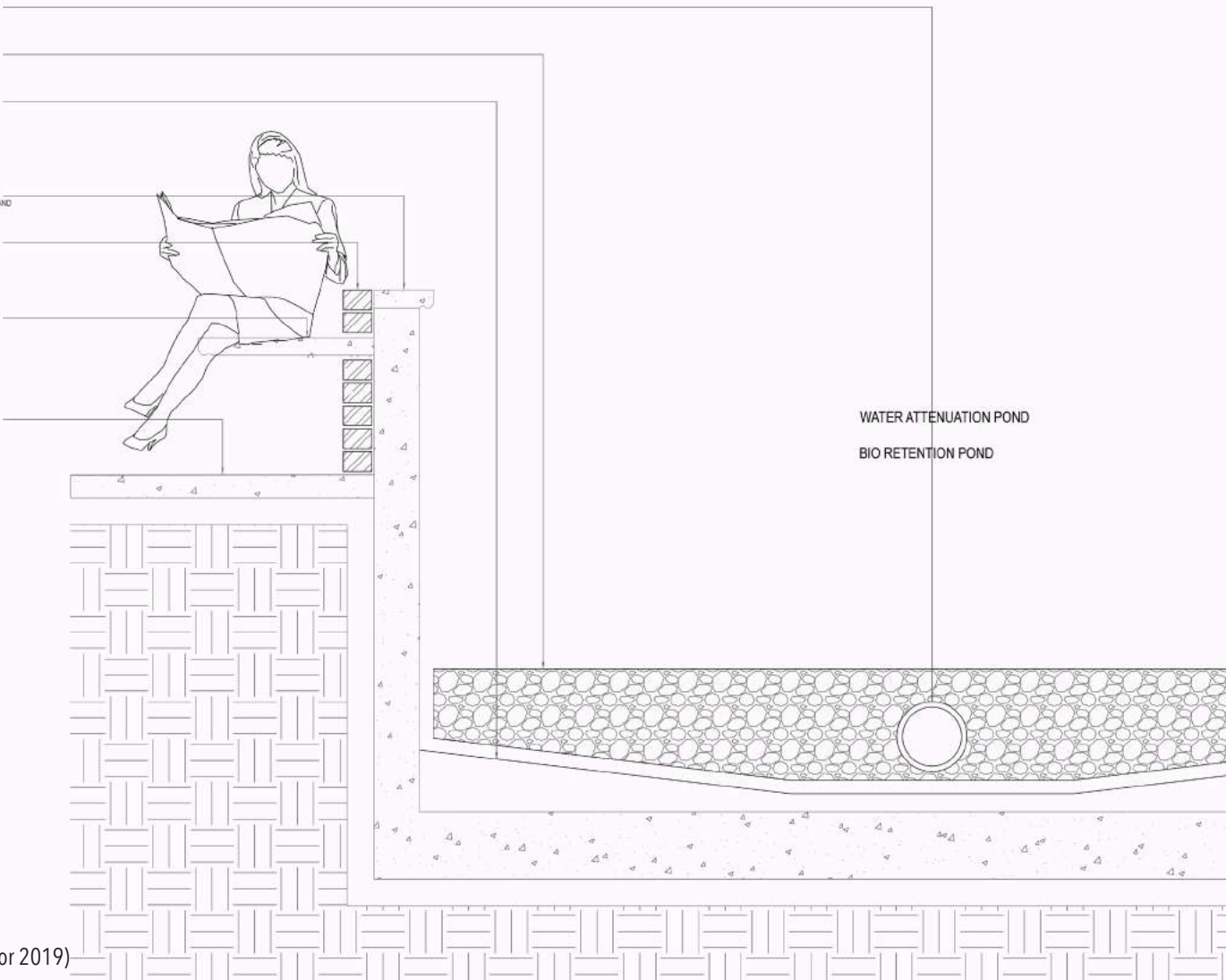
GRAVEL PLACED ON 45MM
SCREED TO FALL

PARAPET
CONCRETE COPING
(FALLS INWARD WITH DRIPS ON BOTH SIDES AND
WATERPROOFING EXTENDS UNDERNEATH)

SATIN COROBRICK
PAVERS BUILT UP
AGAINST 255MM
CONCRETE UPSTAND

PRECAST CONCRETE
BENCH DETAIL FIXED TO
CONCRETE COLUMN

85mm THICK,
REINFORCED CONCRETE
FLOOR SLAB FINISHED
10MM WITH RENOCREET
-BEAM & SLAB SYSTEM
-CAST IN-SITU



WATER ATTENUATION POND
BIO RETENTION POND

DETAIL FLOOR
SCALE 1:10

Figure 8.15: Detail - floor (Author 2019)

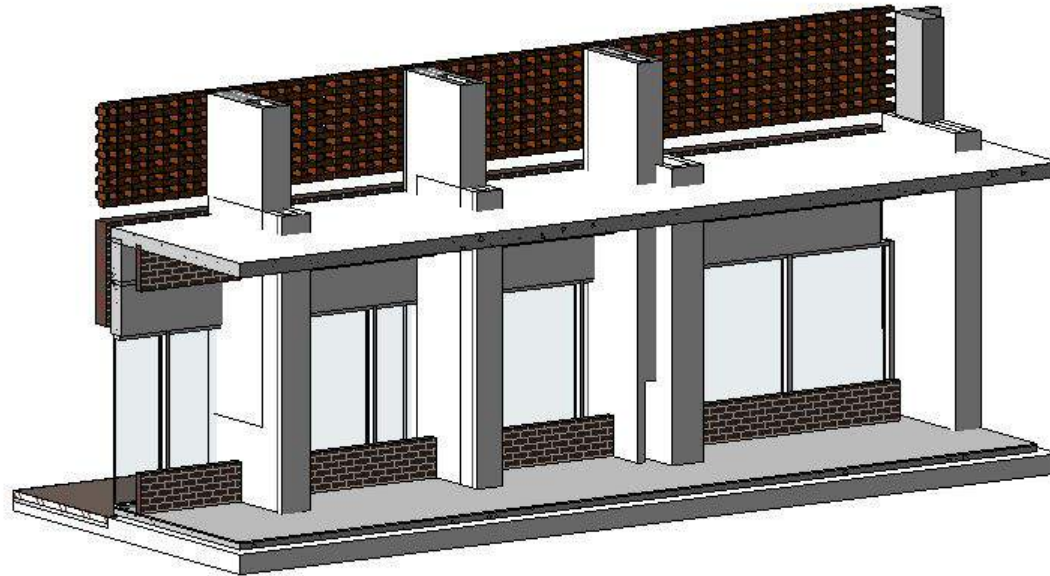


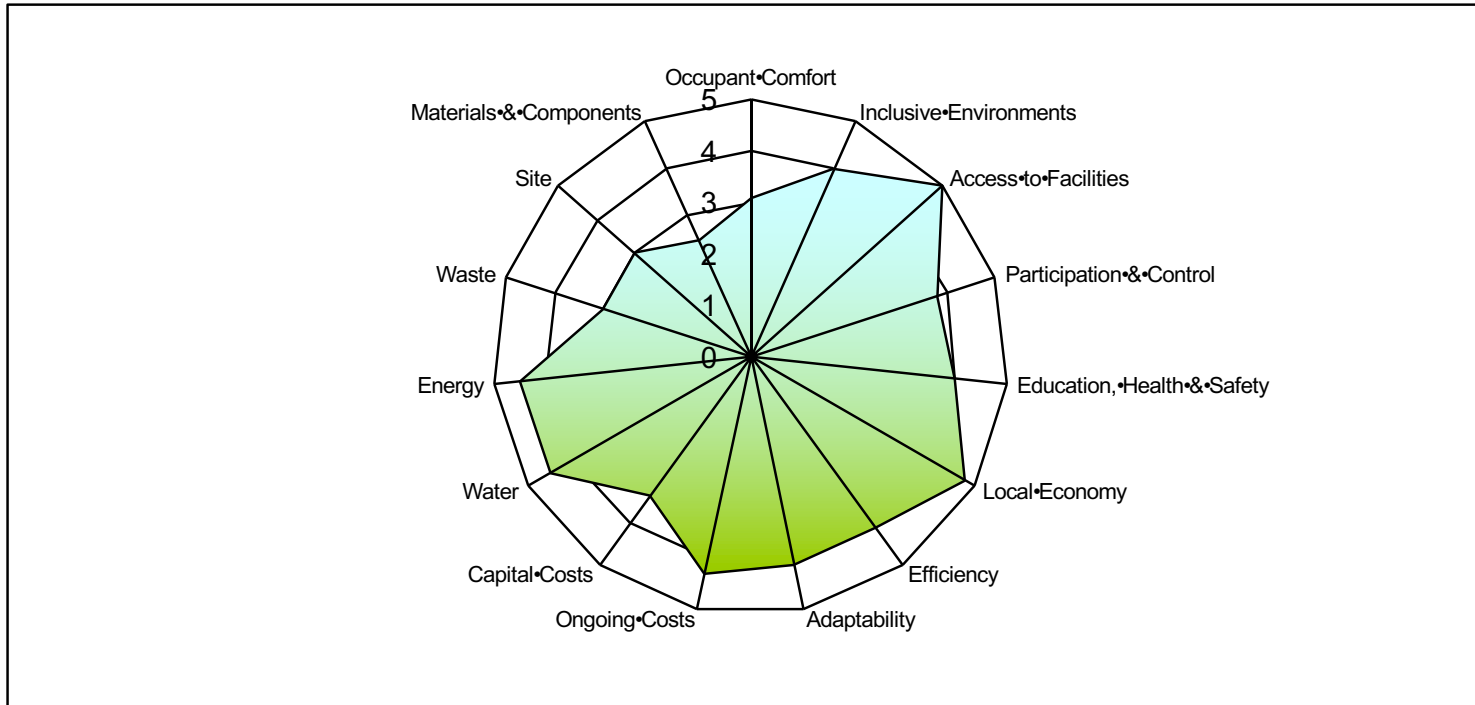
Figure 8.16: 3D Facade (Author 2019)

8.5 SBAT

(Sustainable Building Assessment Tool)

SUSTAINABLE BUILDING ASSESSMENT TOOL

PROJECT	ASSESSMENT
Project title: Intergenerational Centre	
Location: 235 Bengal	
Building type (specify): Community centre	
Internal area (m ²):	



Social 4,0

Economic 4,1

Environmental 3,5

Overall 3,9

Figure 8.18: SBAT Rating (Author 2019)

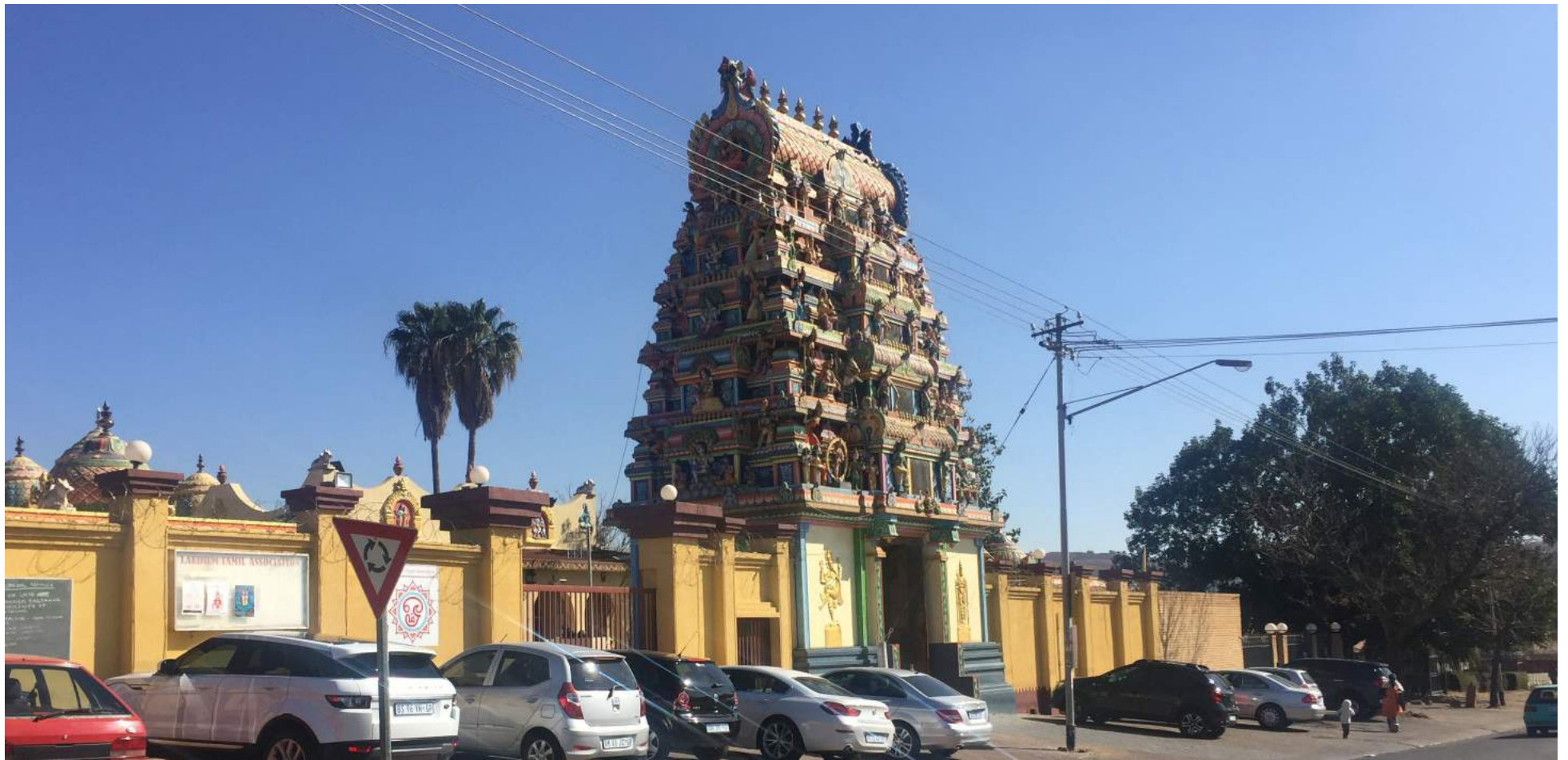


Figure 9.1: Photo of Laadium (Author 2019)

CHAPTER 9

CONCLUSION

9.1 Conclusion

With the increasing rate of ageing and population growth in South Africa, the importance of shared social development facilities and its role in promoting inclusion and structuring an age-friendly urban environment has to be considered more seriously. By recognizing multi-functional and co-located civic architecture, sustainable communities can be created in an otherwise disconnected and fragmented urban fabric currently present in South Africa.

Laudium, which is used as an example in this dissertation, is one of many suburbs that sit on the peripheries which rely on social and civic facilities to sustain a socially cohesive and active ageing society.

By creating well designed contextually and socially responsive civic architecture within small residential communities, common problems associated with them could be addressed. Civic architecture should include programmes that are lacking within these communities as well as provide ease of access to facilities needed for intergenerational exchange and active ageing. Acknowledging the role, civic architecture can play in creating a more cohesive and empowering physical and urban environment, more can be done to meet the needs of this growing population to ensure people age positively to that individuals feel valued and connected at every stage of their lives.

9.2 Final exam



Figure 9.2: Photo of final presentation 1 (Author 2019)

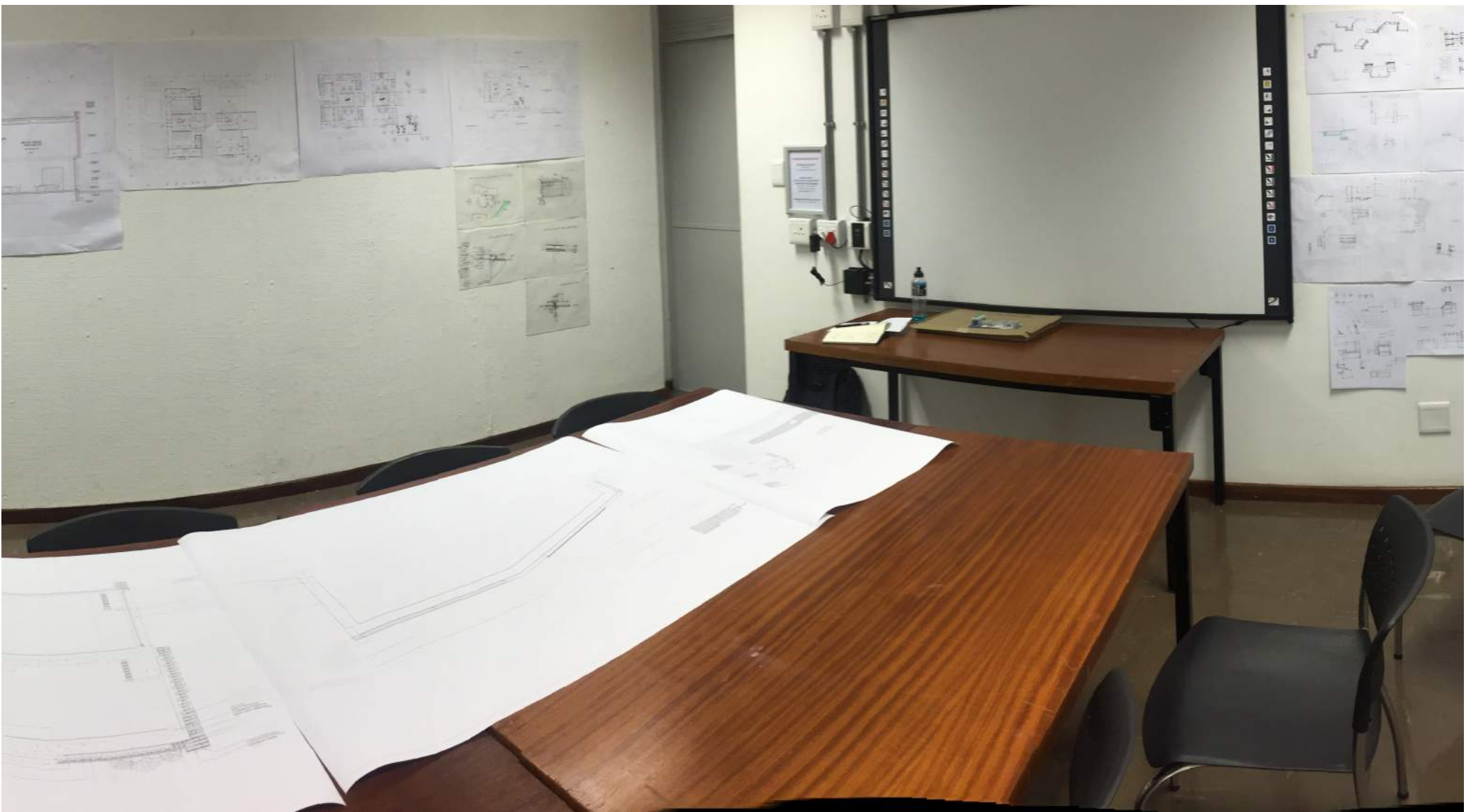




Figure 9.3: Photo of final presentation 2 (Author 2019)





Figure 9.4: Photo of final presentation 3 (Author 2019)

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2019