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MOST ALIVE, MOST DEAD.

ARCHITECTURAL DISSERTATION 2017

Finding spatial solutions to insularity, space shortage and loss of value in a rapidly changing urban cemetery and context by investigating new relationships between the sacred and profane

Heiko Erich Himmel

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Research Field:
Environmental Potential

Site Location:
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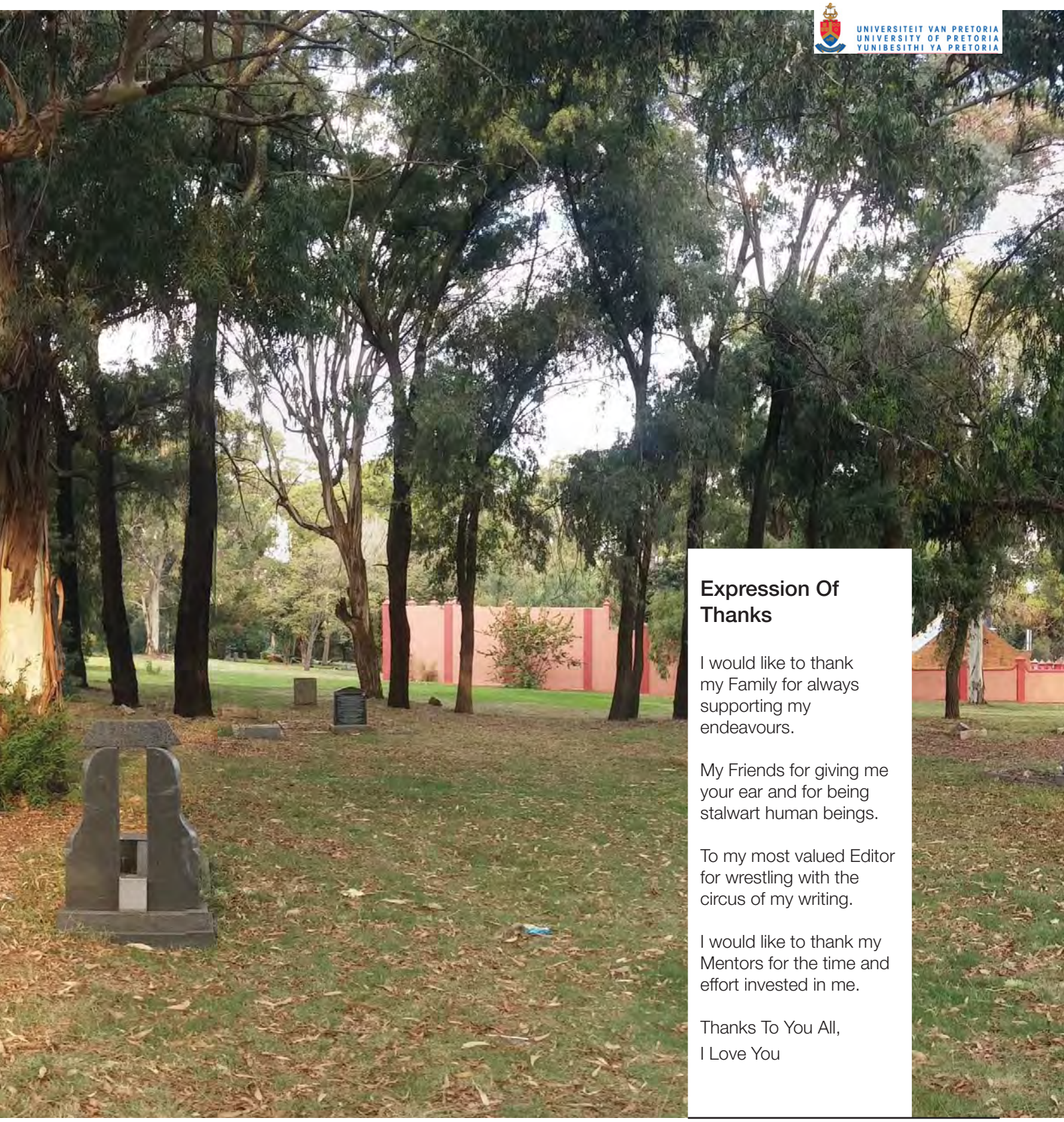

Expression Of Thanks

I would like to thank my Family for always supporting my endeavours.

My Friends for giving me your ear and for being stalwart human beings.

To my most valued Editor for wrestling with the circus of my writing.

I would like to thank my Mentors for the time and effort invested in me.

Thanks To You All,
I Love You

Fig 1 Brixton Cemetery West (Author)

Declaration

In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree 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 thesis has already been, or is currently being, submitted for any such degree, diploma or qualification.

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

Heiko Erich Himmel

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Abstract

Brief Introduction to the Dissertation

In contemporary South Africa, architectural solutions can provoke dialogue, questioning the current spatial practices and associated spatial realities connected with the rites of burial. This dissertation in Johannesburg's Brixton cemetery aims to provide a better architectural platform for engaging with a pressing current day burial crisis, as well as to investigate the possible architectural moderation of sacred spaces and those of a more profane nature. These are usually seen as divisive forces that manifest in isolated and segregated, dysfunctional spatial realities. It is envisioned that in a state of architectural mediation they can act as catalysts for engagement and urban upliftment. This is in an attempt to create mutually inclusive spaces that mediate these apparent dichotomies in the best interest for the future of human habitation and co-habitation.

Assumptions and Delimitations

Delimitations

The aquisition and legal availability of the Brixton Cemetery land used for the site of the dissertation is delimited to enable a proposal that is not yet legally possible due to restrictions imposed on it.

Assumptions

It is assumed that with gentrification and the corridors of freedom project Brixton will go through a process of densification and demographic shift that will alter its current old low rise fabric heavily as well as exert new pressures and needs on the infrastructure.

Samevatting

Kort inleiding tot die Dissertasie

In hedendaagse Suid-Afrika kan argitekturele oplossings dialoog ontlok wat die huidige ruimtelike praktyk en verbonde ruimtelike realiteite van die begrafnisritus bevraagteken. Hierdie dissertasie in die Johannesburgse Brixton begrafplaas beoog om n beter argitekturele platform daar te stel om die dringende begrafniskrises aan te spreek, asook om ondersoek in te stel betrekkend die moontlikheid van argitekturele bemiddeling tussen gewyde- en ongewyde ruimtes. Hierdie realiteite word dikwels gesien as verdelende invloede wat tot geïsoleerde en gesegregeerde spasies lei. Dit word beoog dat, binne die konteks van argitekturele mediasie, hierdie invloede as katalise vir die deelname van stadsinwoners en stedelike bevordering kan optree. Hierdie dissertasie is ‘n poging om inklusiewe ruimtes wat hierdie oënskynlike digotomie bemiddel tot die bevordering van menslike bewoning en medebewoning in die toekoms te skep.

Johannesburg

South African Metropolis - Urban Theory and Context

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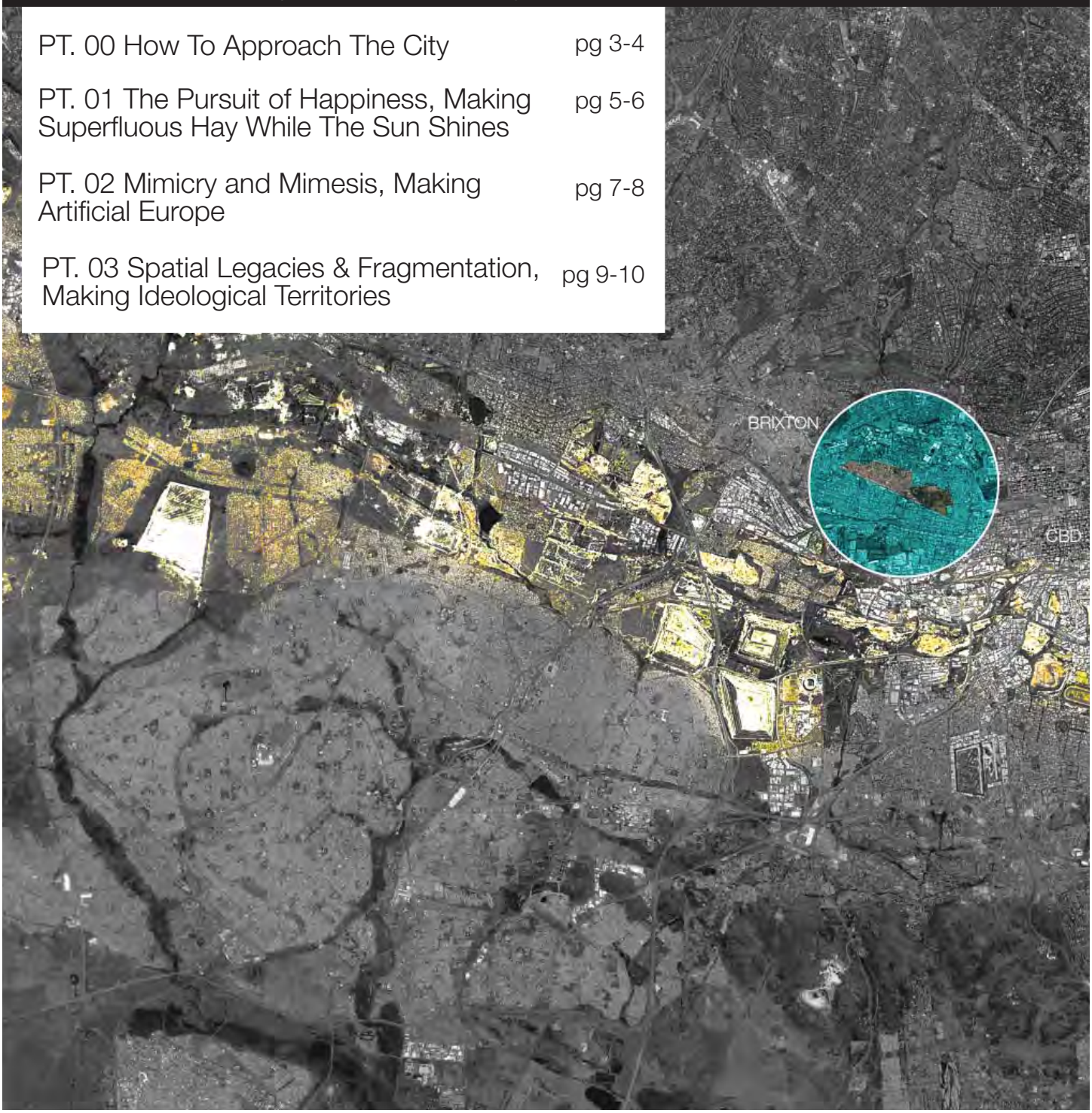


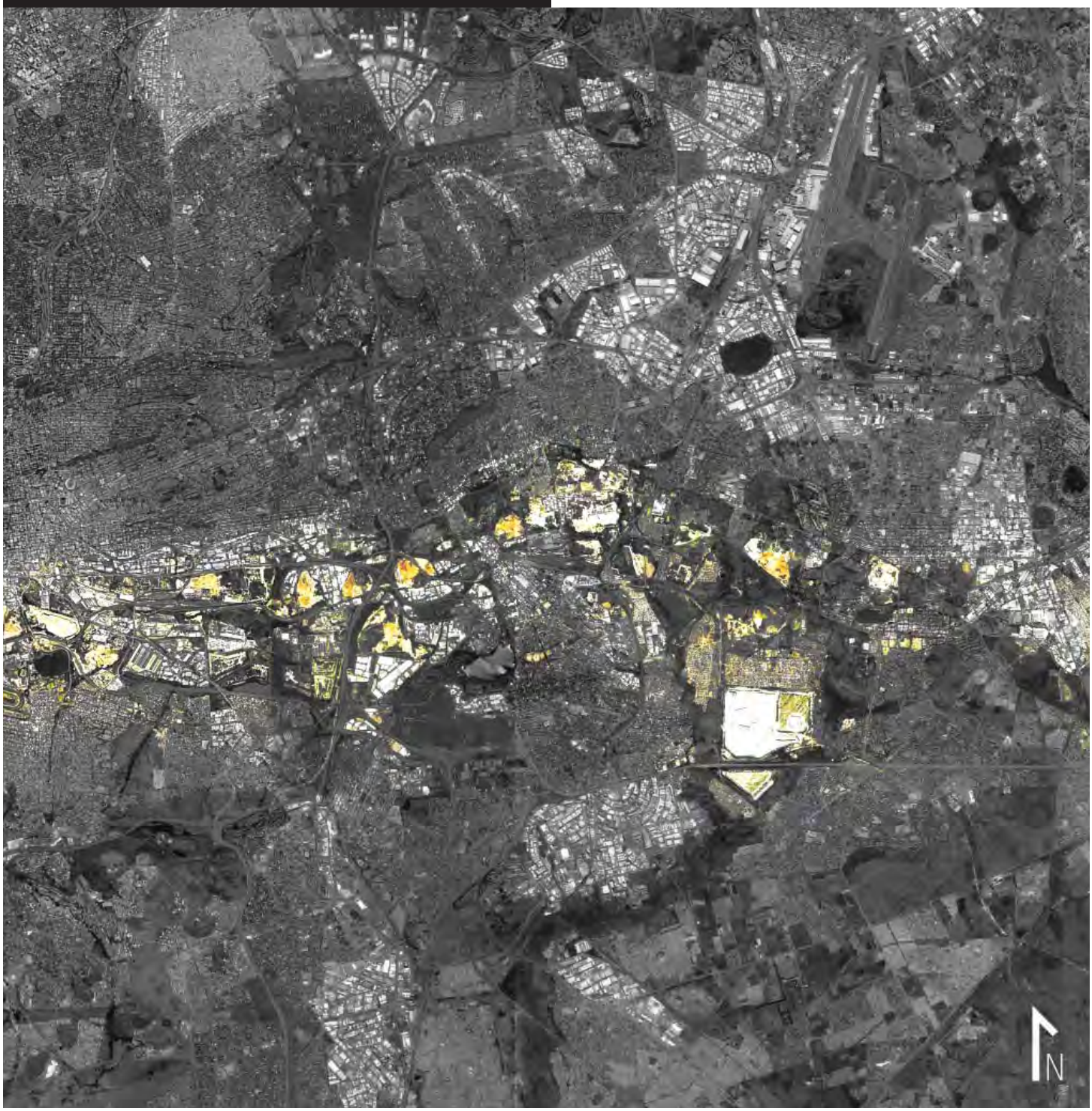
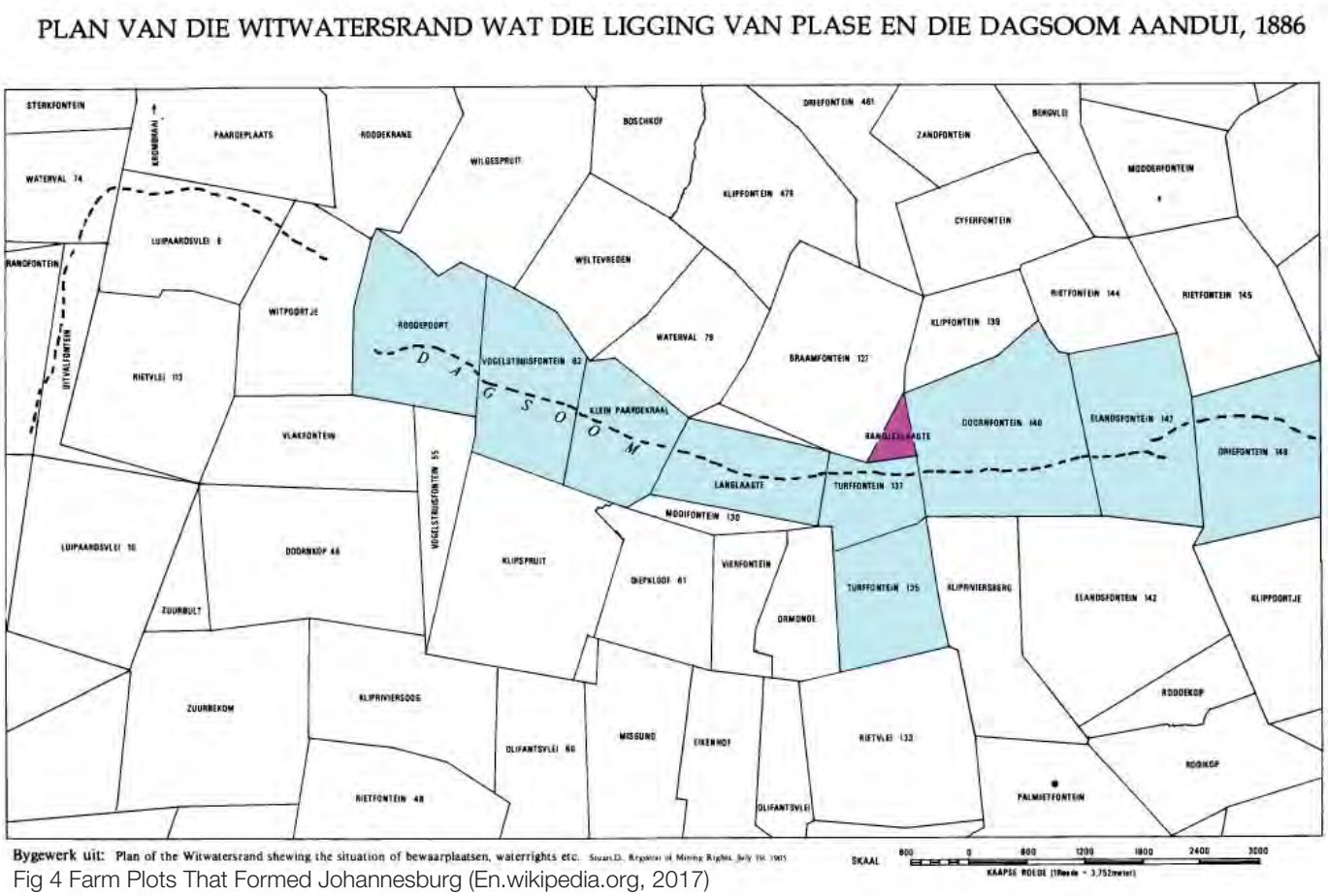


Fig 2 Brixton in Johannesburg (Google Earth Edited byAuthor)

When dissecting the physical and social geographies of Johannesburg, it becomes clear that several major forces overlap with the city's complex history to shape its current form. These forces will be categorized into three informants spatially, ecologically and socially relevant to the thesis. These are first and foremost the historical omnipresence of mining activity, the creation of an artificial Europe, and the spatial legacy of Apartheid. The importance of these issues lies in understanding not only the socius of a city, but also its grain and spatial ethos. Through understanding this ethos, meaningful projects can find a foothold in the zeitgeist of a place for today and the future.
These aspects are not divorced from one another, but for the sake of clarity will be investigated individually. A linear chronological progression is projected for the sake of simplicity—as opposed to a difficult-to-define, non-linear progression.

Fig 3 Map Of Johannesburg 1931 (Latilla, 2017)

"Cities, by their very nature, amass people. They bring us close together, cheek by jowl, in teeming crowds; they bless our yearnings for the social. Yet one of the oldest impulses in city design is to drive people apart: to rend the urban fabric into separate and unequal zones, to indulge our just-as-human penchant for distinguishing the 'we' from the 'them.' It was not until the 1890s that city-splitters first used the word 'segregatio' to describe their work, but the impetus to divide cities is as old as cities themselves — in fact, it's our urban original sin."
(Nightingale, C. 2017).



Bygewerk uit: Plan of the Witwatersrand shewing the situation of bewaarplaatsen, waterrights etc. Stuart.D. Register of Mining Rights, July 16, 1905

Fig 4 Farm Plots That Formed Johannesburg (En.wikipedia.org, 2017)

Johannesburg epitomizes consumer culture in South Africa; though superseded by many African metropoles in size and economic standing, it has set itself apart as a gateway for Africa. Which is not surprising, as its founding on the extraction of mineral wealth clearly delineates the ethos of the city as enterprising (to say the very least). This is an ethos strongly embedded in the accumulation of wealth and making such visible. Engaging with the urban ramifications of this mentality and functional past is paramount in framing an architectural response within it.

Even before the gold rush pre-historic man exploited Johannesburg for iron ore, but with the advent of gold discovery, an agricultural landscape made the rapid transition to one scarred by exploitation and urbanisation. It realised itself in the urban fabric in the form of large tracts of land being dedicated to mining activity and the accumulation of displaced earth. This activity informs the material culture, the social structure, and influx of workforce into the city even now. Johannesburg can be said to be the strongest driver of urbanisation for a very rurally oriented population of South Africa. The magnetic force of the promise of purpose and economic stability exerted by this city has pulled many disenchanted or simply ambitious individuals and families into its orbit. This phenomenon is well documented in the cultural artefacts produced in and pertaining to Johannesburg, and particularly in the literature relating to it. It has been given particular social impetus in that it outlines the human condition in the post-modern. The drive for survival inscribes a strong ambition for employment: if this ambition fails to be met, abject poverty, crime, drug use, prostitution and a more severe social divide is

Fig 5 Crown Reef Gold Mining Co. (Miningartifacts.org, 2017)

evident. This phenomenon further exacerbated social and urban divide as driven by fear and violence.

The spirit instilled by such a city is that determined by domination and separation from nature, natural forces and systems. Most cities are founded on the resource of water, which Johannesburg was not, making it a clear outlier in the world and in our country. Access to nature, trees and parks were an urban asset reserved for affluent areas and not treated as a common good for all people. Although there is no lack of these amenities in Johannesburg, they are and were always restricted to specific users, or they end up being no man's land due to safety concerns. Metropolitan life is not exhibited by showing off civic life in parks but rather in large flashing billboards and exhibition of material wealth. The disdain for the natural has also had a profound impact on the natural needs of humans and their respective psychology, in that many mine workers existed in the constant limbo and darkness distanced from the natural world by delving underneath it. Once exiting the underworld they would resurface, just so that they could face an already dark surface world.

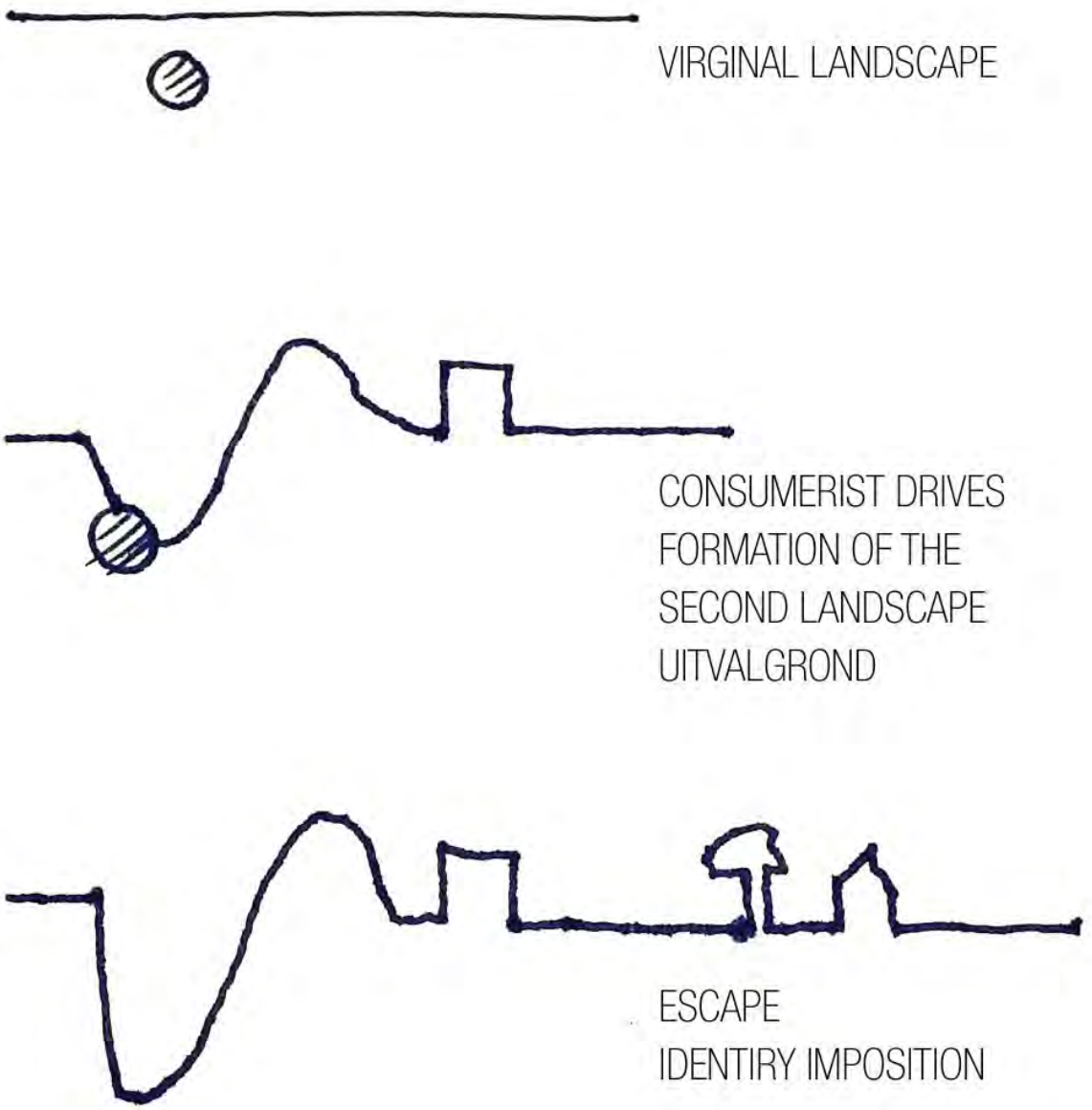


Fig 6 Johannesburg in Section (Author)

Fig 7 Cable Cars In Victoria Avenue as part of Rand Show (Latilla, 2017)

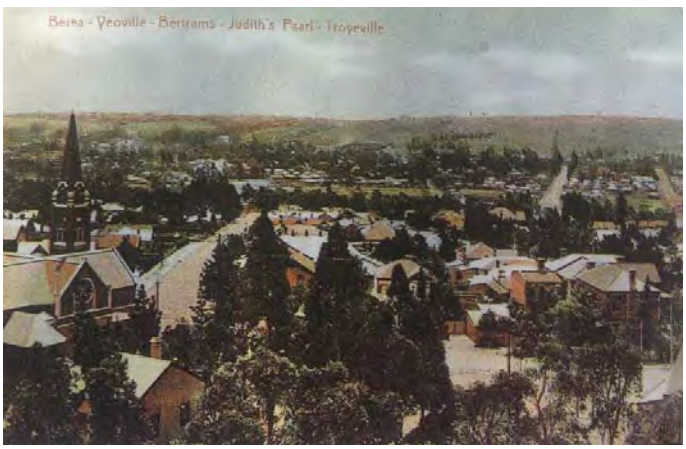


Fig 8 Postcard Photo of Troyeville in 1910 (Latilla, 2017)

The allocation of the small leftover “uitvalgrond” on the farm called Ranjieslaagte was just the beginning of an escapist and ever expanding town and later sprawling city. From this utilitarian hub and centre all the social strata had to find their place without competing with the fruitful gold fields. Upon settling, the social faction that could afford it wished to disconnect spatially from their workplaces; this is where a second major force enters the process.

A large portion of Johannesburg’s heritage and built fabric exhibits itself in a very European manner, due to the dominance exerted by colonial powers in the city and broader national context. This increasing westernisation continues into present day, bringing along its own sets of crises. When considering Johannesburg’s and South Africa’s identity and diverse nature, this artificiality has to be understood in order to spatially engage with it.

To dispel of the discomfort of having to choose a site for the archetypal home and settling down due to economic incentive, new utopias and artificial European landscapes could be constructed by those most enriched by the mining activity. The colonial influx into South Africa and Johannesburg being largely European (or of European descent) imposed itself ideologically and therefore culturally, onto the landscape occupied. This need by colonial immigrants for establishing home in the foreign or the other would not only necessitate spatial dislocation from the mines but would need a stylistic driver, namely the “homeliness” that would be associated with European building and landscape. The order imposed by the importation of the structured familiarity and cultural order of European artefacts and species was to dispel the natural wildness that

Johannesburg presented. The home was however not the sacred space where consumer culture had no place, but rather social status was expressed in "…the sensuous impact of the building materials and investment in visual surfaces…" (Nuttall, S. and Mbembe, J., 2008) The less wealthy resorted to more financially attainable material fakery. This created another layer of divorce from the local landscape especially the relationship of inside and outside.

The affluence of the town brought forth the dominance of adherence to the artificial. This phenomenon deeply permeates the city even now, an escapist mentality that in its excesses leaves many moral or ethical concerns by the wayside to remake itself daily. Particular peaks of this are exemplified by the architectures exhibited in theme parks and entertainment venues. Prime examples of this typology are Emperors Palace, Monte Casino, Melrose Arch and Gold Reef City, but this can also be seen in the domestic by way of Tuscan housing styles. Here the artificial elevates the everyday to constructed outlandish realities. In these spaces of consumption a diverse group of Johannesburg residents buy into a collective fiction, one that does not divide on racial but on economic standing. It is the new means by which they "…manifest the spectacle of capital in the same way the gold mine did in the early twentieth century…" (Nuttall, S. and Mbembe, J., 2008)

Fig 9 Gold Reef City Entrance (Tsogosun.com, 2017)

Fig 10 Melrose Arch (Melrose Arch Blog, 2017)

Fig 11 Emperors Palace (Southern-africa-travel.com, 2017)

Fig 12 Palazzo Montecasino (Tsogosun.com, 2017)

This is by far the most well documented and idiosyncratic ailment to befall Johannesburg and South Africa. Although this problem has been exposed ad nauseam must be briefly unpacked and synthesised for this thesis.

Overlaying the previous spatial realities was a social and ideological reality, one that manifested most destructively in Johannesburg. This was particularly dangerous due to the social conception of ethnicity being expressed in town planning, so as to separate the familiar from the other, the unknown. This could be said to tie back to an extreme version of creating comfort, homeliness, order and purity, but more prudently ties into the economic appropriation of race. This establishes a circular relation in which wealth accumulated by the use of racial discrimination could further be used to deepen this divide spatially, by erecting edifices of divide but also to drive a segregationist financial and social hierarchy, that, as a result, cannot be anything but racially biased.

It is therefore no surprise that segregation of ethnic groups according to apartheid town planning has further deepened the divisions in a landscape already divided. Geographical features like rivers or high speed highways separate black townships and suburbs from the rest of the city. Walls both physical and metaphysical sprung up all over Johannesburg, and continue to spring up; a city of walls pervades into current day. The continued fetishization of walls and the denial of this trend will mean our eventual doom, and in order for it to be remedied, it must be addressed spatially as well as socially.

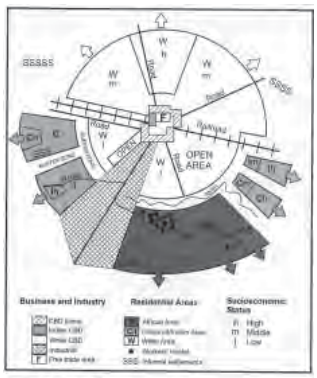


FIGURE 24-14 The late apartheid city. *Adapted from Simon (1989).*

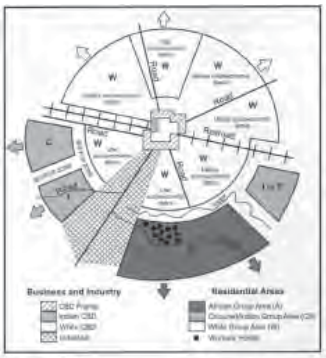


FIGURE 24-12 The model Apartheid city, showing residential and industrial areas and central districts (CBD). *Adapted from Davies (1981).*

FIGURE 24-15 The postapartheid city. *Adapted from Christopher (2001).*

Fig 13 Evolution Of The Apartheid Model (People.uwec.edu, 2017)

Fig 14 Existing Condition in Johannesburg, Fourways, Kya Sands Township (the Guardian, 2017)

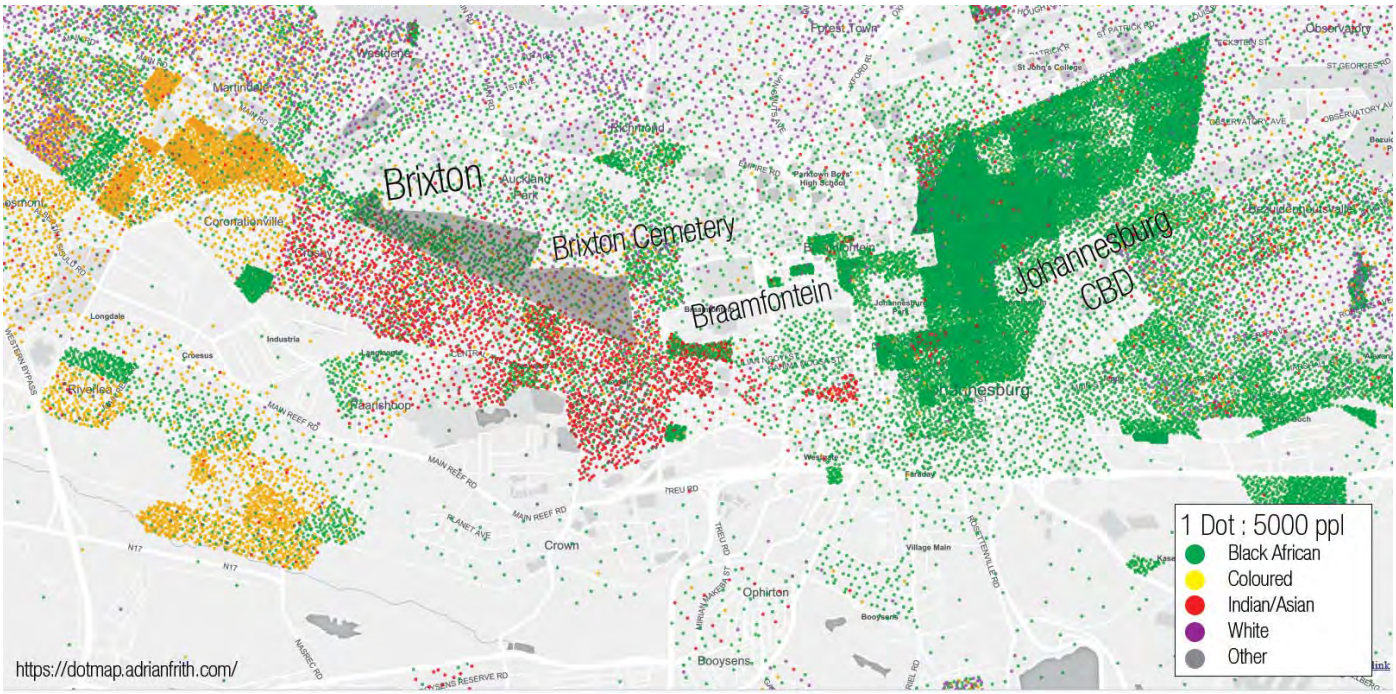


Fig 15 Race Distribution Map of 2011 Census Data (Firth, 2017)

Synthesis: Relevance To Framing A Thesis

PT 1 Outlines the social and ecological tendencies of the city, its origins and history. This is the metanarrative to which any work in Johannesburg must be privy to so as to contribute to its positive future development. The relationship to natural systems and the human body is particularly important, as will be made clear in the proposal.

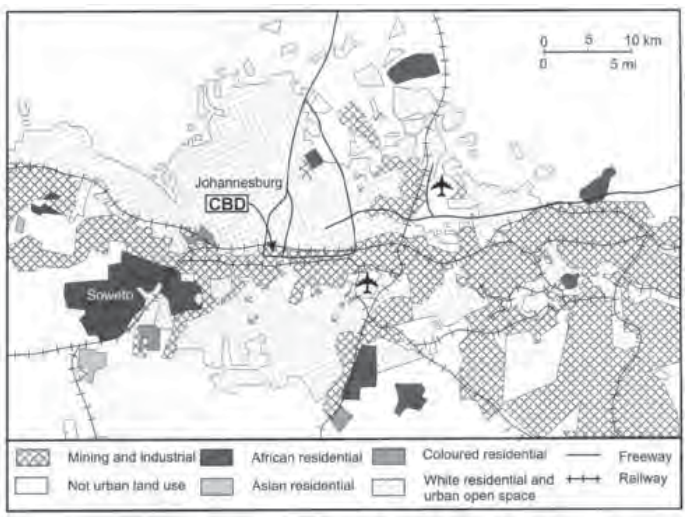


Fig 16 Johannesburg in 2006 (People.uwec.edu, 2017)

PT 2 Illustrates that the creation of an artificial Europe becomes very valuable for engaging with the suburban context and the cemetery landscape in the proposal. It enables situating the proposal within the continuum of how spaces of retreat, consumption and culture have been expressed and how they have changed or remained the same.

PT 3 This is essentially an elaboration on themes influenced by PT 1, but the focus here must be on racial and social status, or economical standing—particularly how architecture engages with these still-prevalent forces and schisms, be it socially or through physical embeddedness in the context.

Brixton

Suburb Contextualisation and Mapping

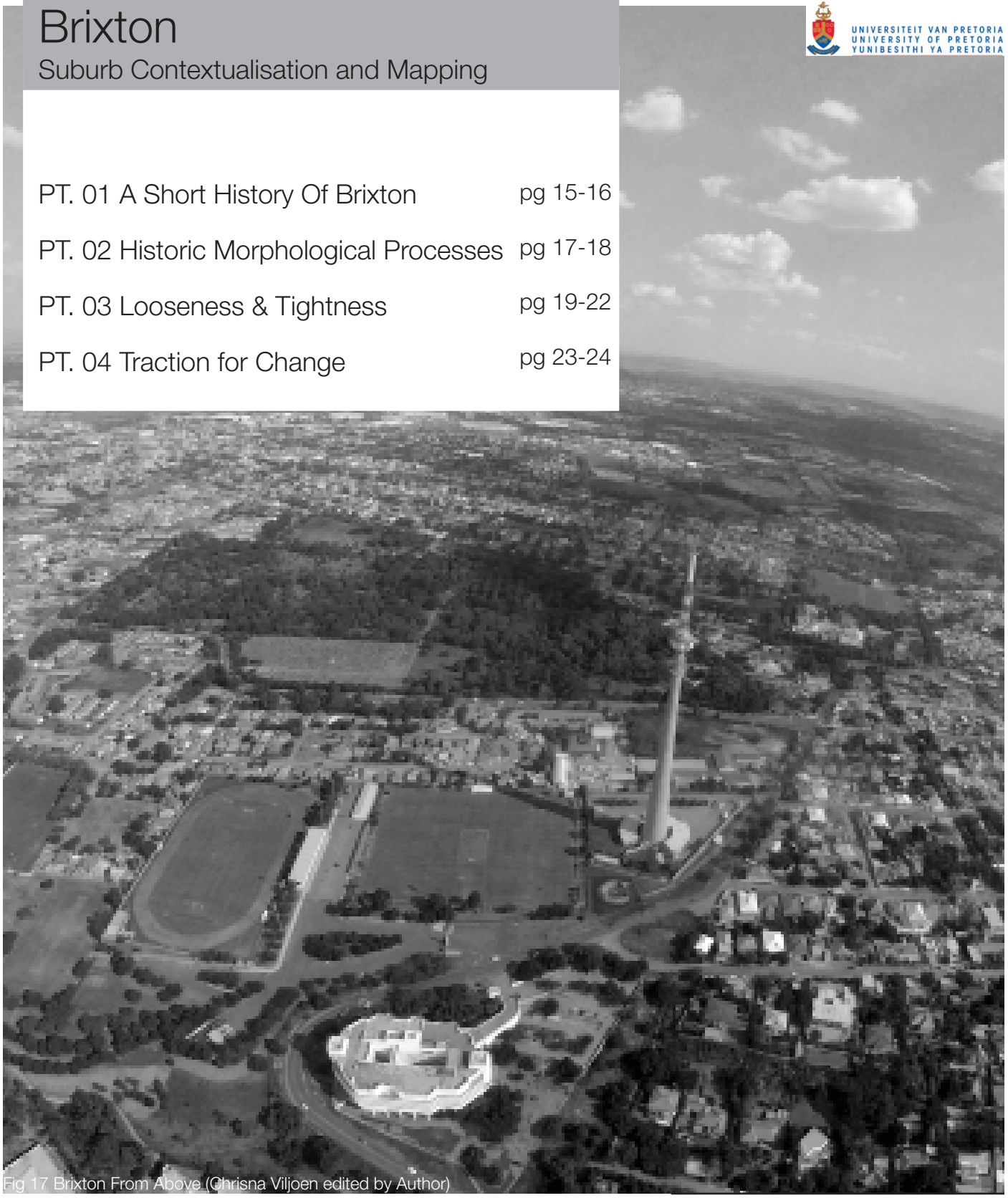
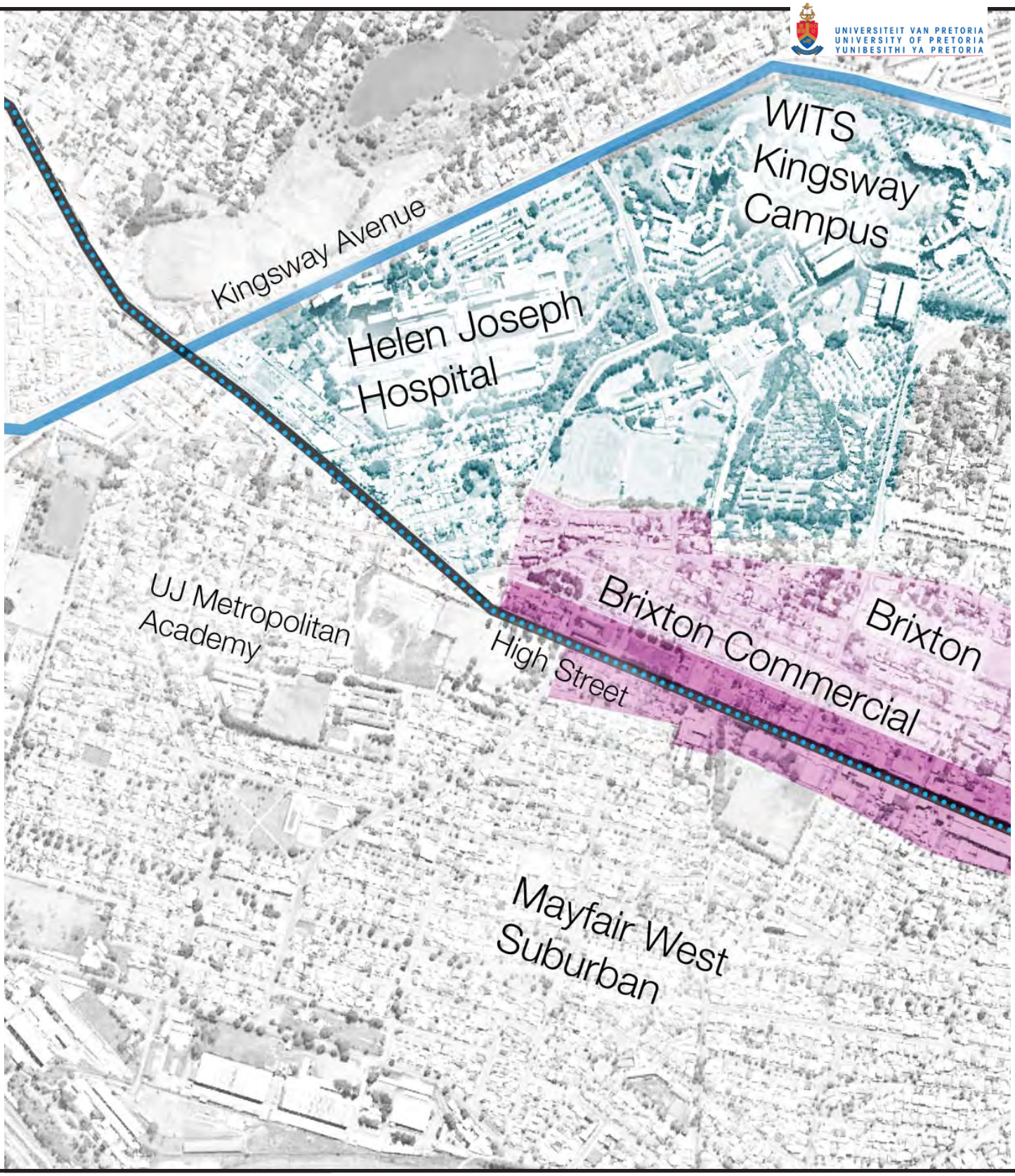


Fig 17 Brixton From Above (Chrisna Viljoen edited by Author)



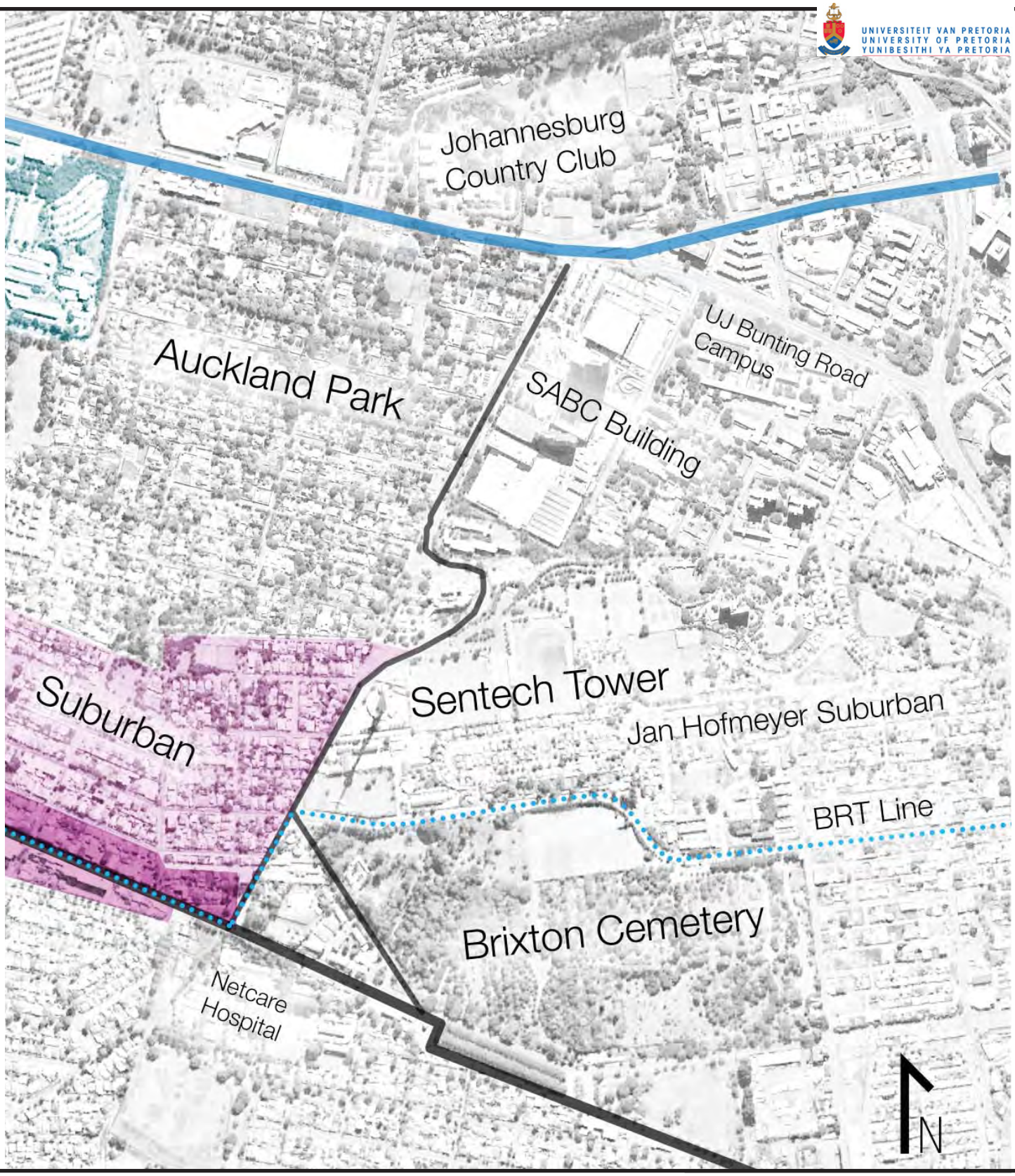


Fig 17.1 Bricton And Surrounds (Author)

PT. 01 A Short History Of Brixton

Key Events in Brixtons History

1902 Brixton proclaimed

1906-1914 First Indian Passive Resistance Campaign against Apartheid Oppression led by Mahatma Ghandi

1912 Brixton Cemetery Opened as Braamfontein Cemetery Full Due To Disease and Population Growth

1918 Wood-fired Hindu Crematorium Built on Land in Brixton Cemetery Acquired by Mahatma Ghandi

1922 Site of Pitched Battle during Red Rebellion Miners Strike

1955 Group Areas Act

1956 Gas-fired Crematorium Built

1962 Sentech Tower formerly named after Mayor Albert Hertzog

1991 Formal End Of Apartheid

1991 BAPS Shri Swaminarayan Mandir Established as First Hindu Temple in Johannesburg

Fig 18 Rand Rebellion Trenches (En.wikipedia.org, 2017)

Fig 19 Afrikaner Commando Manning a Roadblock During the Strikes (South African History Online, 2017)

Fig 20 union Leaders at Magistrates Court Johannesburg (South African History Online, 2017)

Fig 21 Indian Passive Resistance Mass Meeting 1946 (South African History Online, 2017)

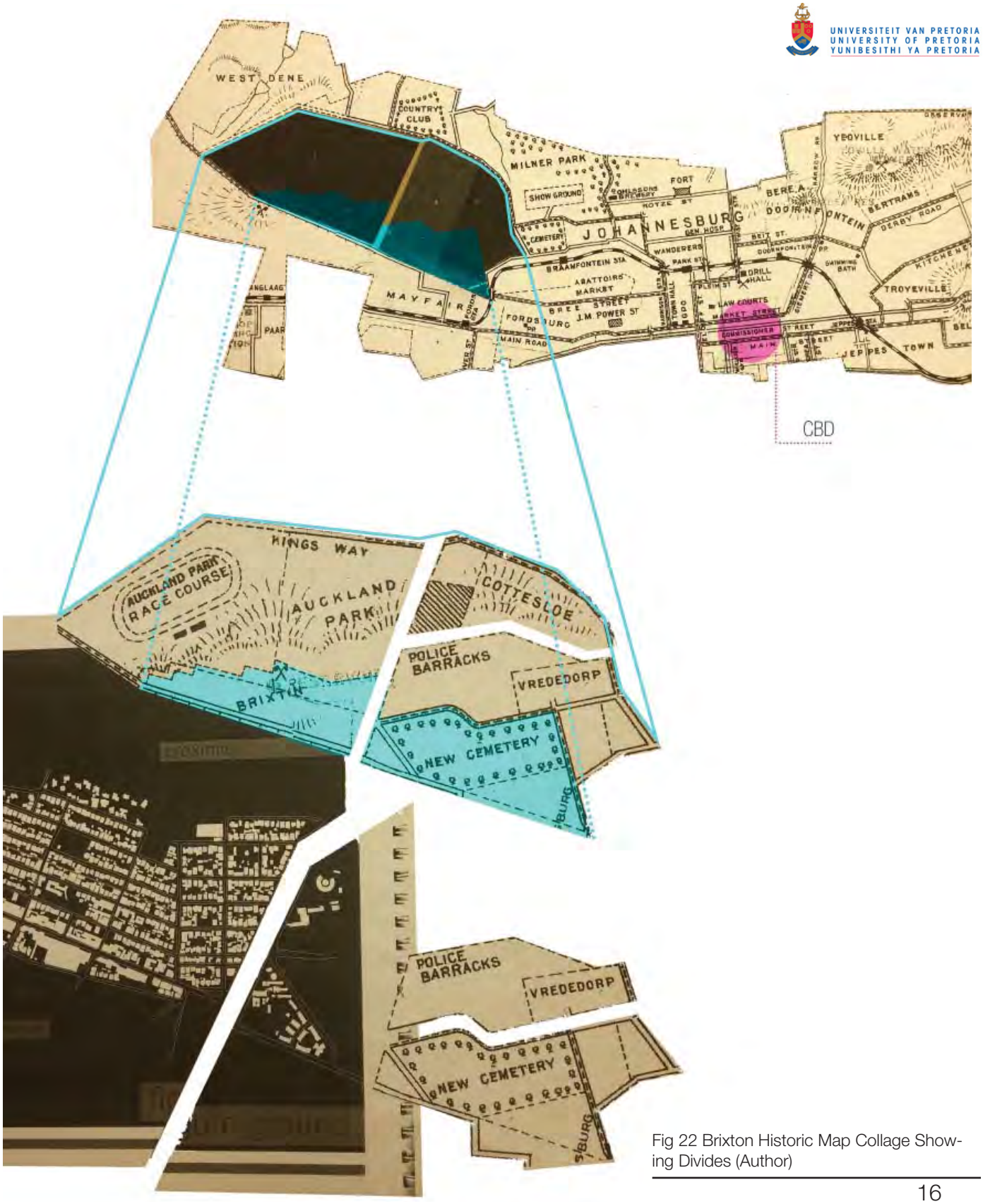


Fig 22 Brixton Historic Map Collage Showing Divides (Author)

To dissect the Past, Present, and Future of Brixton a set of contextually informed themes and lenses were set up to execute a mapping exercise. Elaboration on these themes gave spacial and perceptual insight into the urban fabric.

Brixton Cemetery was first set out as a native location to the west of the CBD. It was purposefully designed to be contained by the hillside north and west of it, the large Braamfontein cemetery toward the east, and the train tracks to the south. These physical buffers separate it from the residential development of Auckland Park to the north and Braamfontein to the east and later Mayfair to the south. To this day, legacies of this separation remain in the fabric of this place. The plan for a native location was however superseded by the need for cemetery space. Turning this allocated land into a European style cemetery, extending the function of Braamfontein cemetery adjoining it. The Brixton residential development, named for the district of London, extends past the cemetery to the. It would, due to its physical and temporal proximity, give its name to the neighbouring cemetery. A largely working class white population would reside here as black locations were moved even further away, in lockstep with ever intensifying trends of separation. Institutional presence was expressed in a police barracks occupying a preferential spot for visual access on the hillside of Brixton. This was the beginning of the institutional belt now extending over the hill towards the north into Auckland Park.

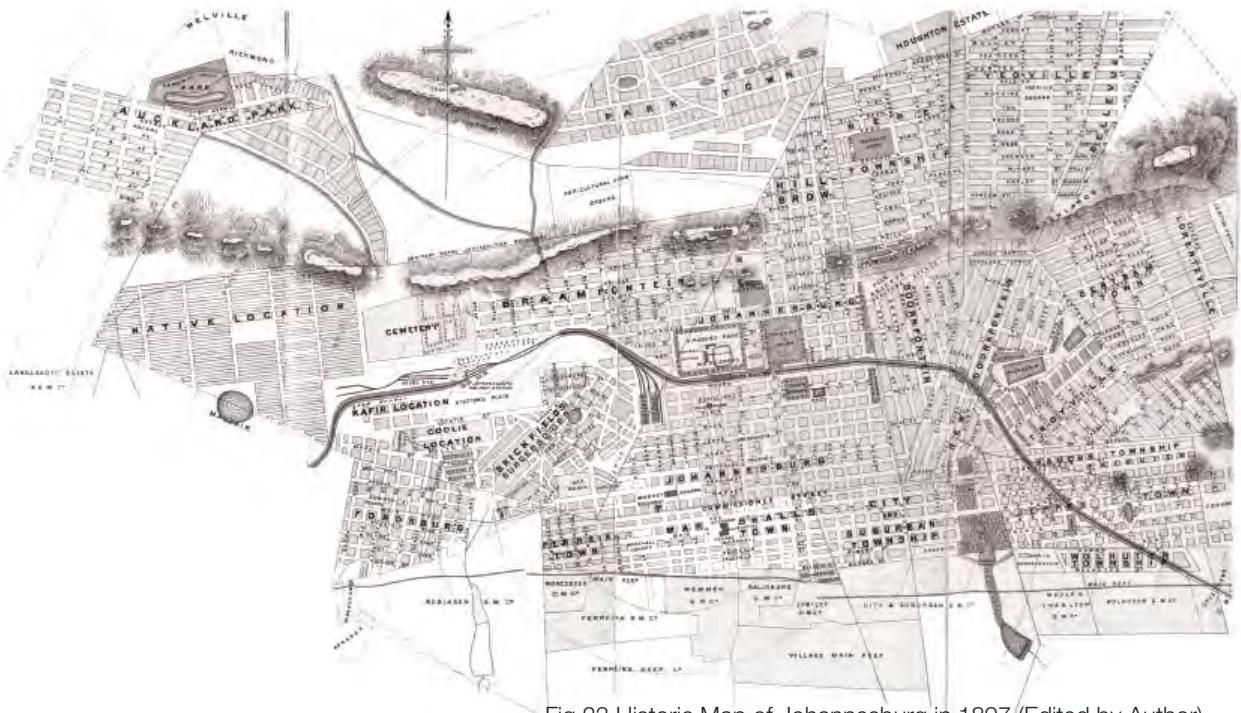


Fig 23 Historic Map of Johannesburg in 1897 (Edited by Author)

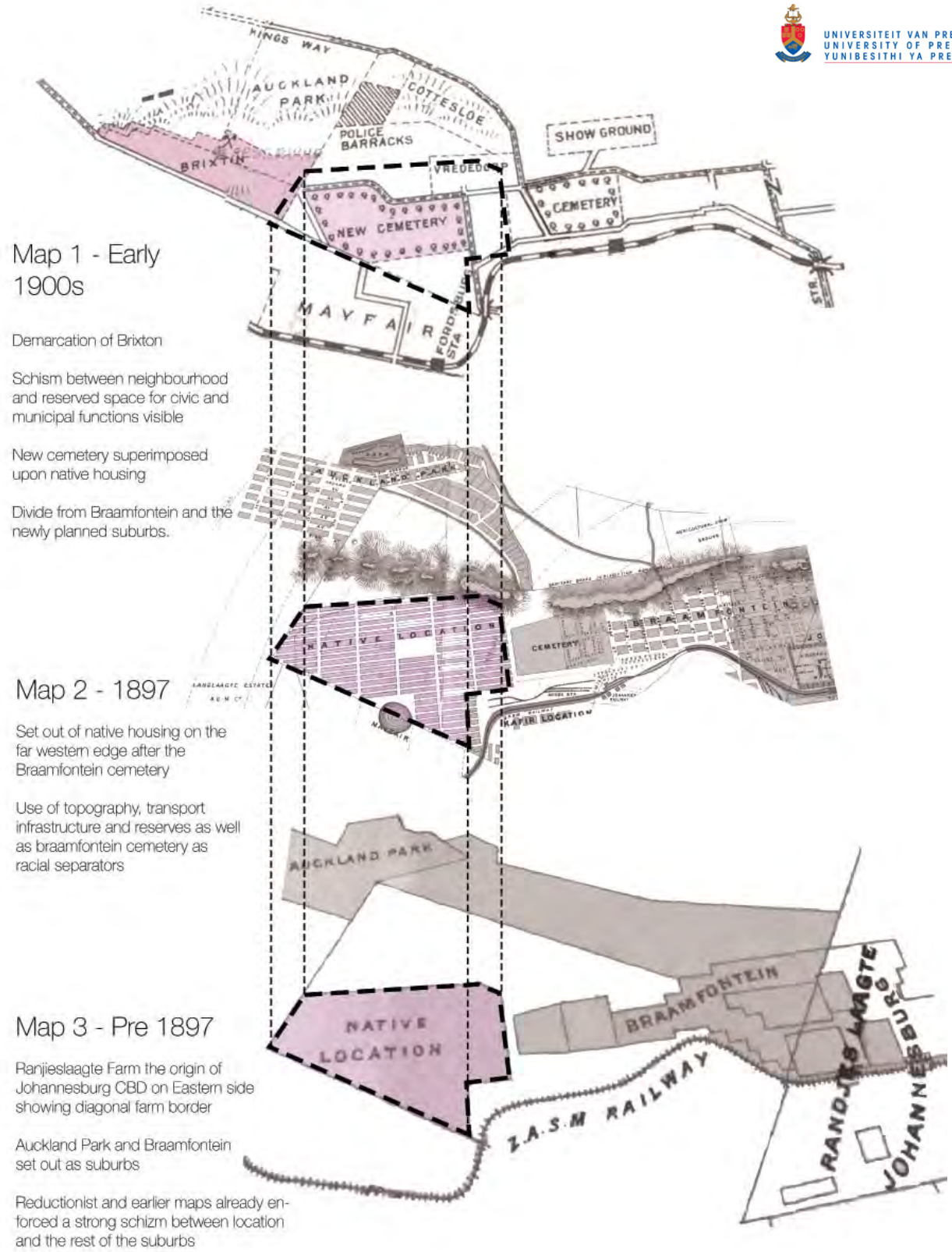


Fig 24 Morphological Changes of Brixton to Braamfontein (Edited by Author)

PT. 03 Looseness & Tightness

To get to grips with Brixton it was explored by a mix of physical mapping and documentation overlaid with a phenomenological assessment to understand it morphologically, spatially, and as a living, breathing entity. On street level this was characterised by simplifying it to a visual planar experience that would prescribe opportunities like views and site choices as well as delineate problematic edge and spatial configuration or definition problems.

Photographs of key precincts and areas would be cut up to exaggerate divides and distinct visual planes. Experiential aspects would be particularly clear in the deconstruction of streetscapes as matters of access and height differences would make huge differences in safety and overall public use. This information was extrapolated into the macroscopic, by using the description of urban looseness and tightness which were graphically explained and explored by using maps as a main medium.

Maps displaying urban grain and Nollie maps were used, and superimposed by graphs, to track macroscopic urban looseness and tightness as perceived and as physically present. This superimposition allowed different sections of the context to be separated and analysed understood as distinct entities framing its spatial experience. This gave an insight into densities, fragmentation and compartmentalisation on a street and suburb level as not evident by conventional maps.

The precinct analysis retained, by being informed by the photographic exploration, a phenomenological aspect. In this way micro- and macro scale could together communicate a spatially focused unpacking of the context.

Fig 25 Brixton 1939-2015 Nearly No Change (Made By Chrisna Viljoen)

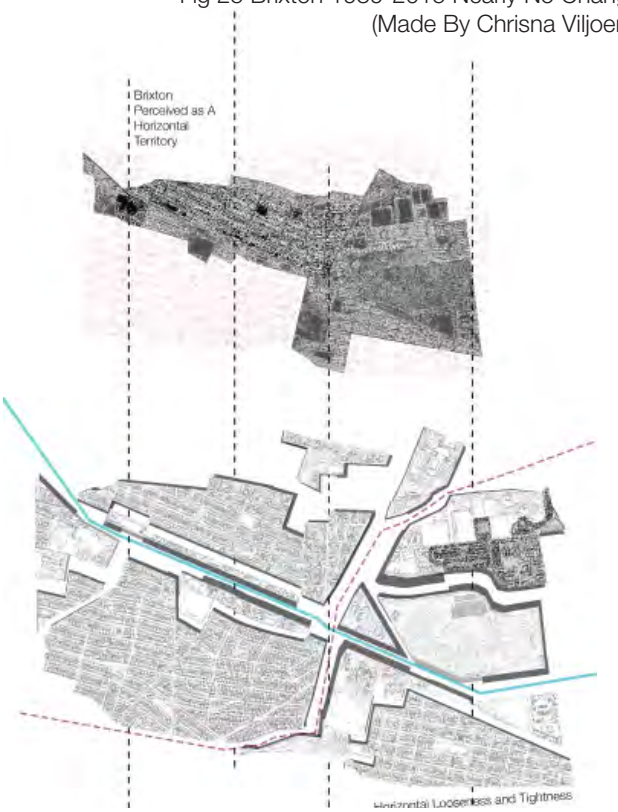
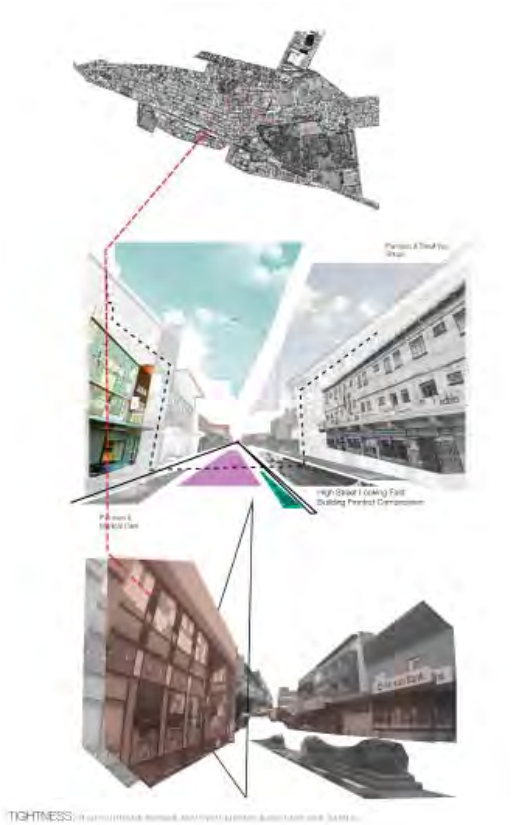


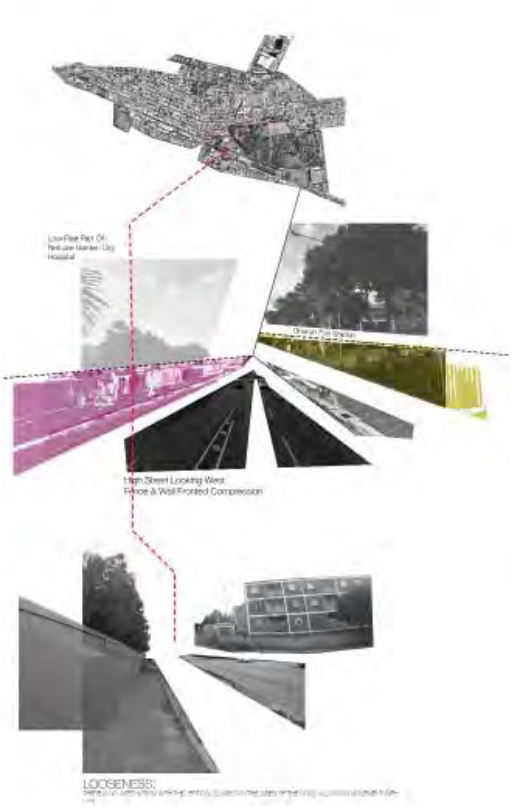
Fig 26 Urban Grain, Edge and Core Routes (Author)

Fig 27 Urban Vertical Looseness and Tightness Mapped In Areas and Sections Across Suburban Brixton (Author)



C_ Johannesburg Church of Christ

D_ Seventh-Day Adventist Church



A_ NG Gemeente Vergesig

B_ St. Nicholas Orthodox Church

Fig 28 Key Areas of Suburb Abstracted Into Spatial Looseness and Tightness (Brixton Team Groupwork)

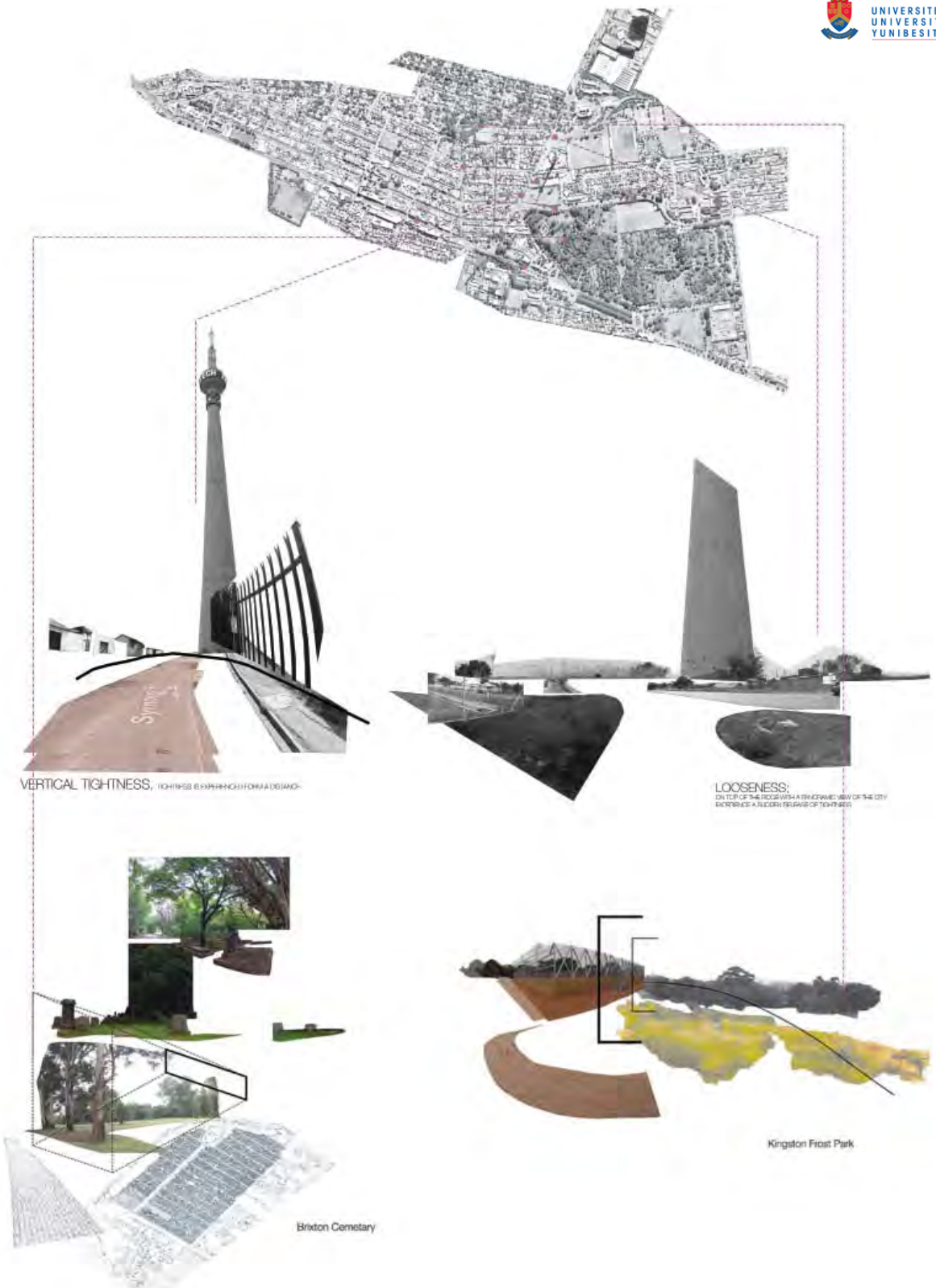


Fig 29 Key Areas of Suburb Abstracted Into Spatial Looseness and Tightness (Brixton Team Groupwork)

A major force of change projected for the Brixton context is the Empire Perth Development Corridor (and the associated Corridors of Freedom project) anchored around Kings Highway toward the north, as well as the densification within Brixton to accommodate growing student demographic due to the proximity to the University of The Witwatersrand. Focus is also cast on social infrastructure like sports fields, parks and library in Brixton. Some pedestrian connections are envisioned, but these are few and far between. The proposal at this point only requires 10% of the original low rise heritage fabric to be retained, with aspiration of densifying up to 8 storeys high.

The publication with the title Brixton Urban Renewal Project – Brixton: a Neighbourhood in Transition, by the ShiFT Social Housing Focus Trust under Professor Lone Poulsen (Poulsen, L., 2007) , is a proposal for the area that was analysed and researched to inform departure points and overlaps with what is experienced and necessary today. This had to be seen and

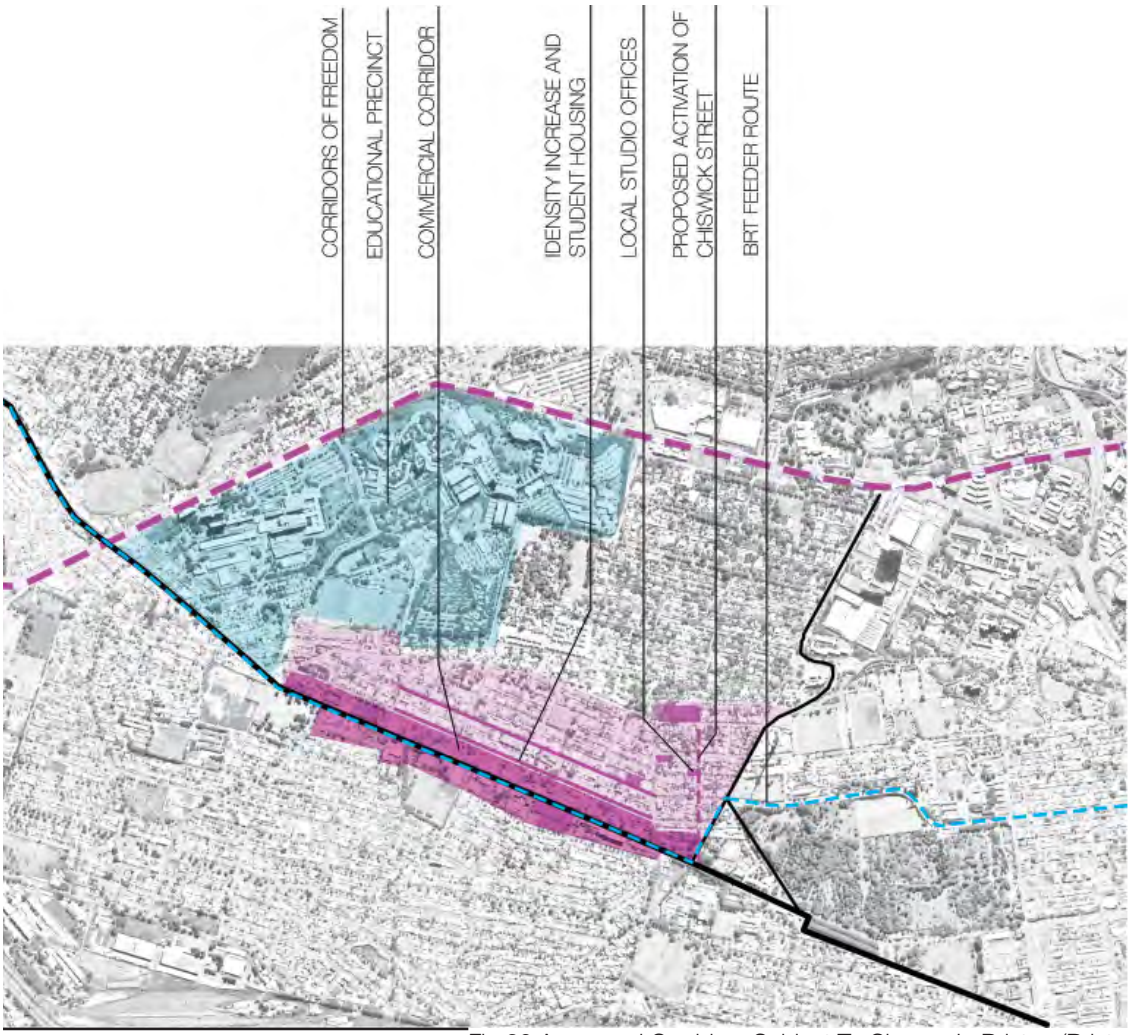


Fig 30 Areas and Corridors Subject To Change In Brixton (Brixton Team Groupwork)

re-interrogated in terms of how it would have to adapt to the urban development schemes. The importance of the commercial spine around High Street and the abundance of social infrastructure are key elements in Brixton's built fabric and need to be respected as valuable assets.
The proposal is largely focused on the student demographic, even though a broadening of this demographic focus would be beneficial. Parking space allocation meets adjoining existing fabric in an abrupt way, and streetscape design is very rigid; it does not deepen the sidewalk edge to create landscapes engaging to pedestrians. Pedestrian-focused design, which is important in this social context and in order to minimise safety concerns, is also less prevalent in this proposal.

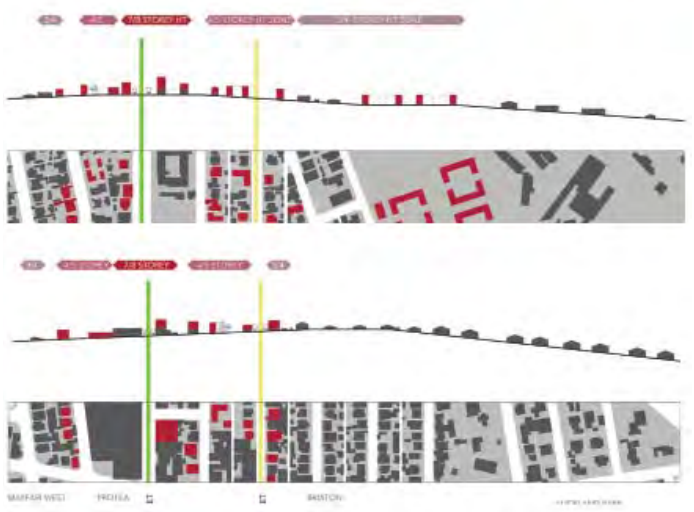


Fig 31 Strategic Area Framework for the Empire-Perth Development Corridor (Edited By Author)

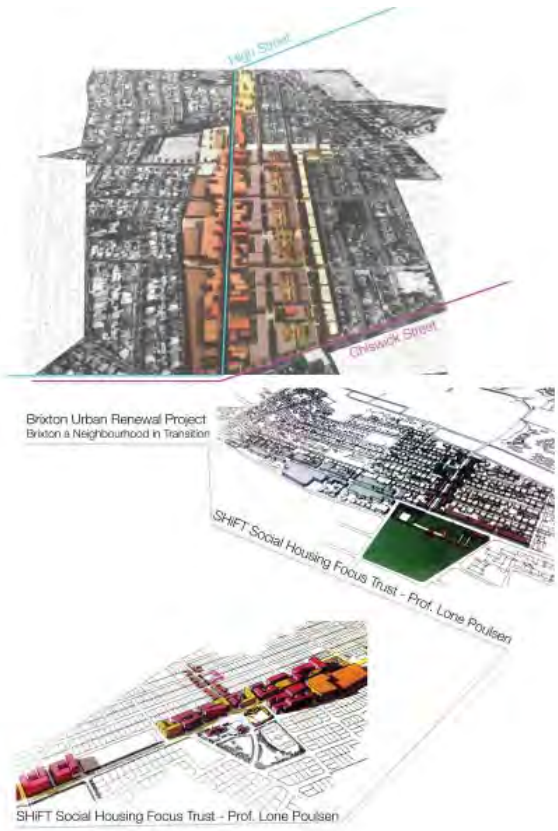


Fig 32 Brixton Urban Renewal Project - Shift Social Housing Focus Trust (Poulsen, L. 2007) Edited By Author

Urban Vision

A Vision to Shed the Burdens and Connect the Urban Assets

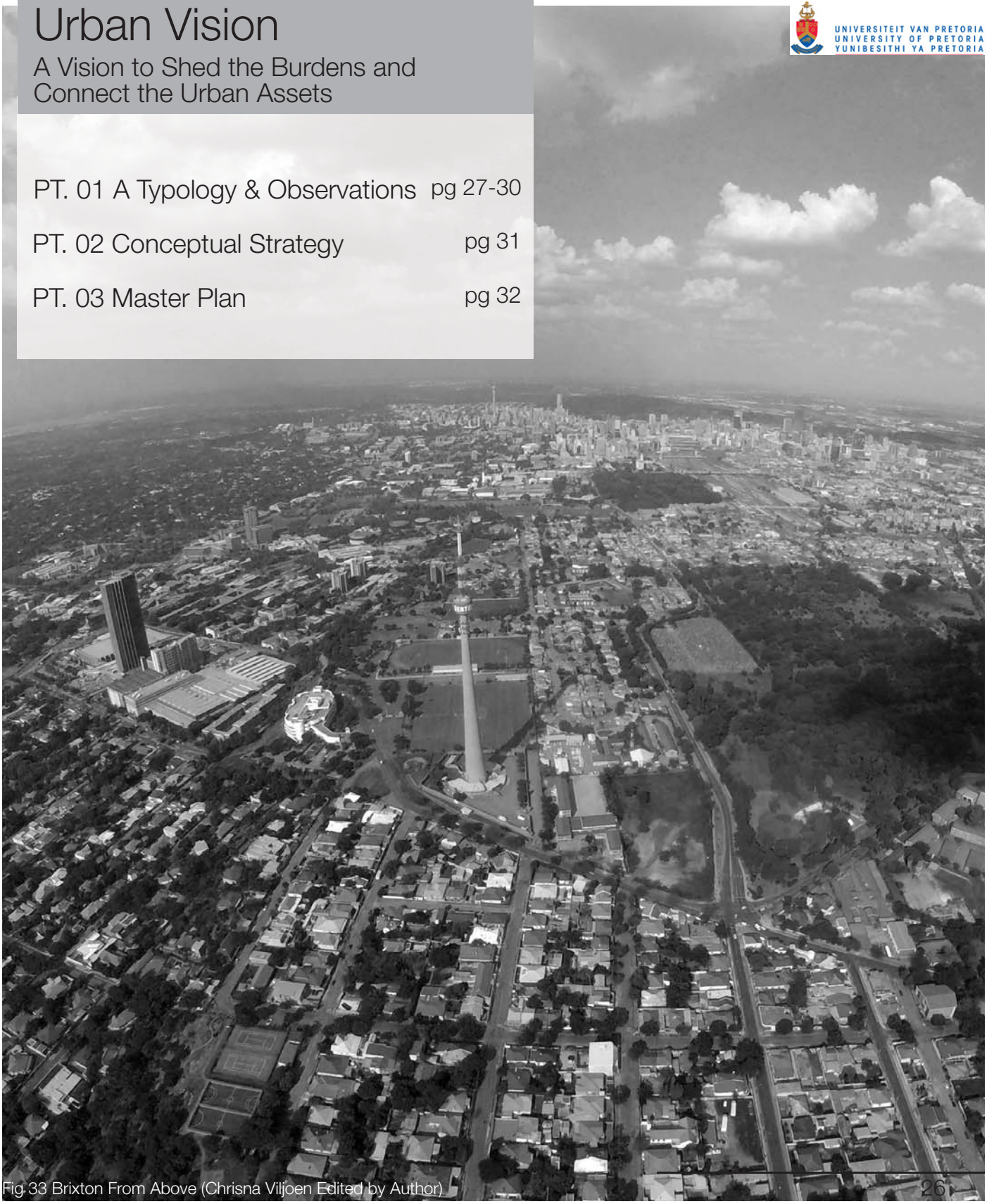


Fig 33 Brixton From Above (Chrisna Viljoen Edited by Author)

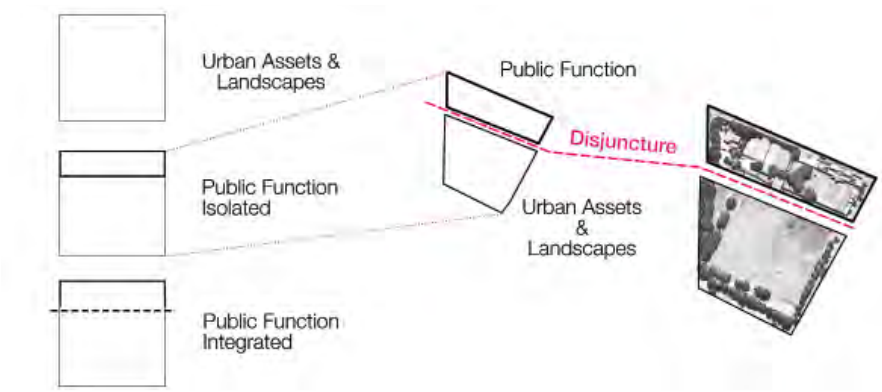


Fig 34 Urban Space Typology (Author)

Urban Vision

Brixton is a fairly well serviced suburb, with good social infrastructure and a strong commercial edge. Its historic low rise suburban fabric, though heavily altered, still presents a fairly homogenous and stable neighbourhood. Sub-letting and back yard sheds are a growing trend. Housing pressures in general, as well as the opportunity to gain additional income by renting to students who enjoy the proximity to university campus make this process appealing to home owners. Since future densification in the area in accordance with the corridors of freedom project, retaining around only 10% of the historical fabric, will alleviate this problem and is therefore only a temporary problem. Overriding most concerns however, is the safety concern associated with its much cherished urban parks. Surveys and literature suggest major the concerns of residents relating to muggings, violence, dumping, and public misconduct in these spaces. It is therefore paramount to investigate alleviating the ills marring what could be Brixton's biggest urban asset now and in the future.

Typology and Observations

Kingston Frost Park, Brixton Park, and Brixton Cemetery are just three main parks among many formal and informal parks existing in Brixton. They share the feature that they are public outside spaces that have a social amenity manifested structurally on them. However, instead of generating safety benefit by allowing visual or access links, these structures make the spaces more unsafe. The group proposal interrogates this across the precinct and suggests opening up visual and access lines across these sites to reactivate and integrate these spaces into daily ritual.

Unique Local Condition

This has been successfully proven to work for the ample churches in Brixton that have purveyed urban public spaces that open onto the streets of Brixton on Sundays and special holidays. This inspired using this approach for the aforementioned parks, reinforced by international precedent relying on the same principles.

A problem specific to the expansive and iconic Brixton Cemetery is the slow dissolving of its edges, making it more accessible and useful to a destitute public. This challenges the sacred space of the cemetery, with vistas out of and into it being pervaded by completely profane and spoiled landscapes. Instead of seeing this as a problem the group decided to capitalise on the secularisation of the cemetery to open it up for use and integrate it as a functional urban asset and public space.

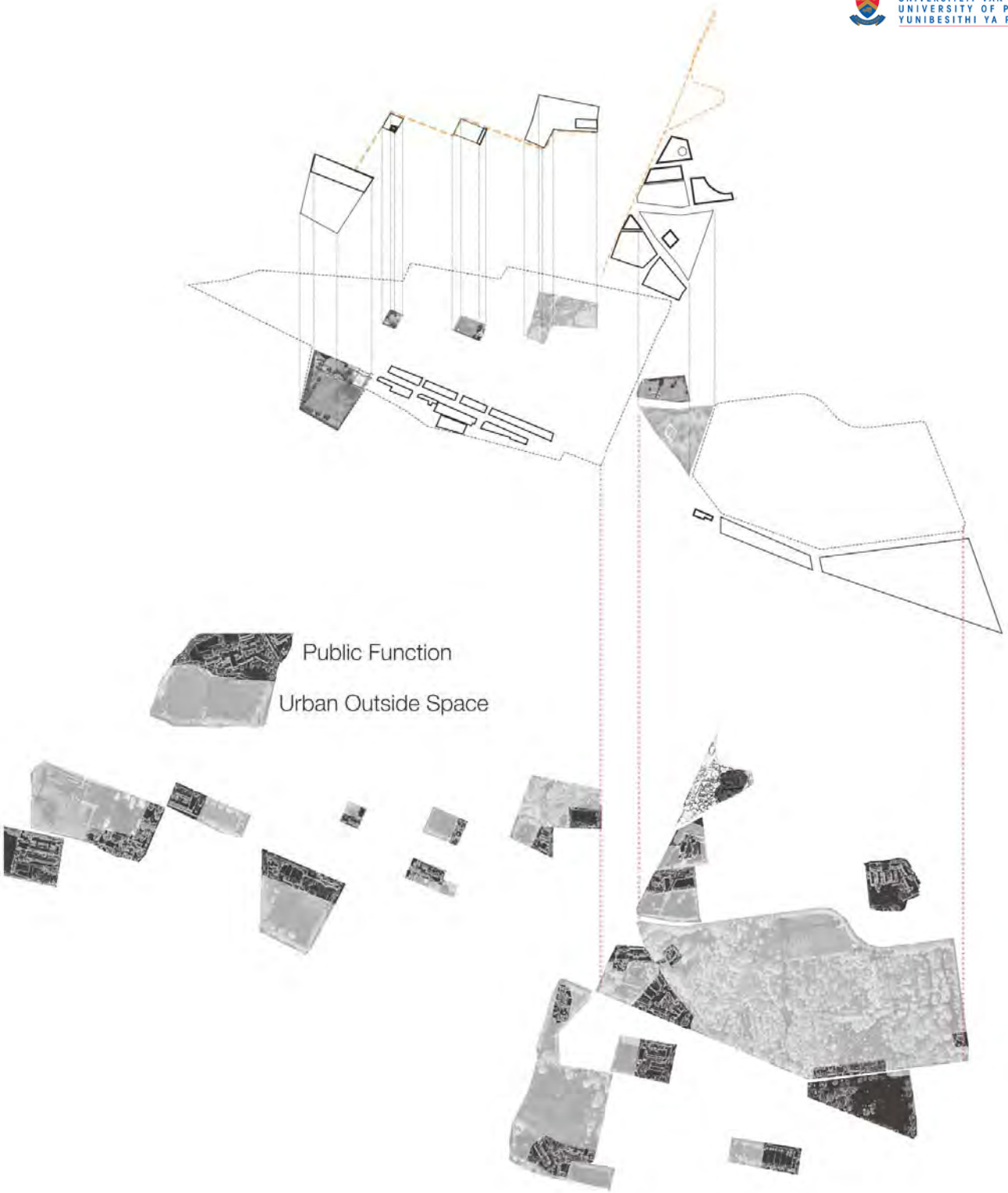


Fig 34 Urban Space Assets of Brixton (Chrisna Viljoen Edited By Author)

Processes & Future Change

Suggestions for Brixton have been largely student focussed. It is however clear that a sub urban space needs more than a single demographic to flourish. Our proposal is therefore more mixed and supports existing residential and commercial sectors. Proposals studied have had several problems with regards to street relationship, which is very important in Brixton.

It is however clear that densification is necessary and with the Corridors of Freedom project, the push for vertical density is frankly inevitable.

It is therefore paramount that we as a group suggest mediation in scale to preserve the appropriate suburban living conditions and sense of homeliness, in close proximity to higher density developments. This would manifest as a corridor of mixed-use residential and commercial buildings around four stories high to blend into the surrounding higher density developments. This area of higher density forms the core of the development. Extending dilapidated urban grids in and around the cemetery can aid in integrating the cemetery as useable urban surface and change visual surveillance and agency for this part of the precinct.

Urban infrastructure like bicycle lanes and the way they connect to the bus network become very important to connect around the precinct. This gears the precinct for the future, with public transport hopefully being embraced by the public in coming years. This bus stop infrastructure is usually coupled with urban pubic space and waiting space connected to urban green corridors.

This gives the entire precinct a greener, livelier impression to all arriving pedestrians and cyclists. These retreat spaces are also fused to the main routes used by the inhabitants of the local high and medium rise residential developments in the precint. They remediate the largely decrepit and anti-social urban fabric by revitalising urban outside spaces that function as meeting and social spaces. These strategies based around deepening edges into the residential fabric and loosening it there gives new prevalence to cyclists and pedestrians instead of cars, providing a platform for Brixton to become a more human friendly suburb.

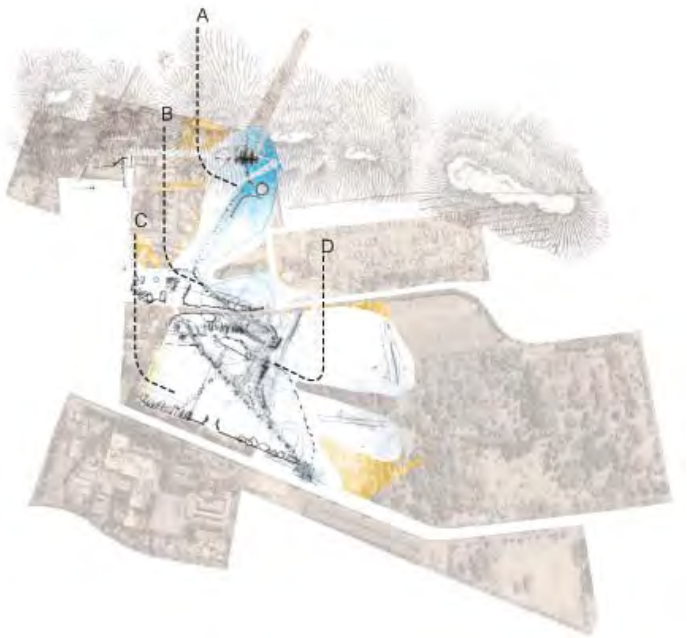


Fig 35 Textures and Precincts (Pieter Swart Edited By Author)

Fig 36 Cemetery Edge Band Aid (Pieter Swart)

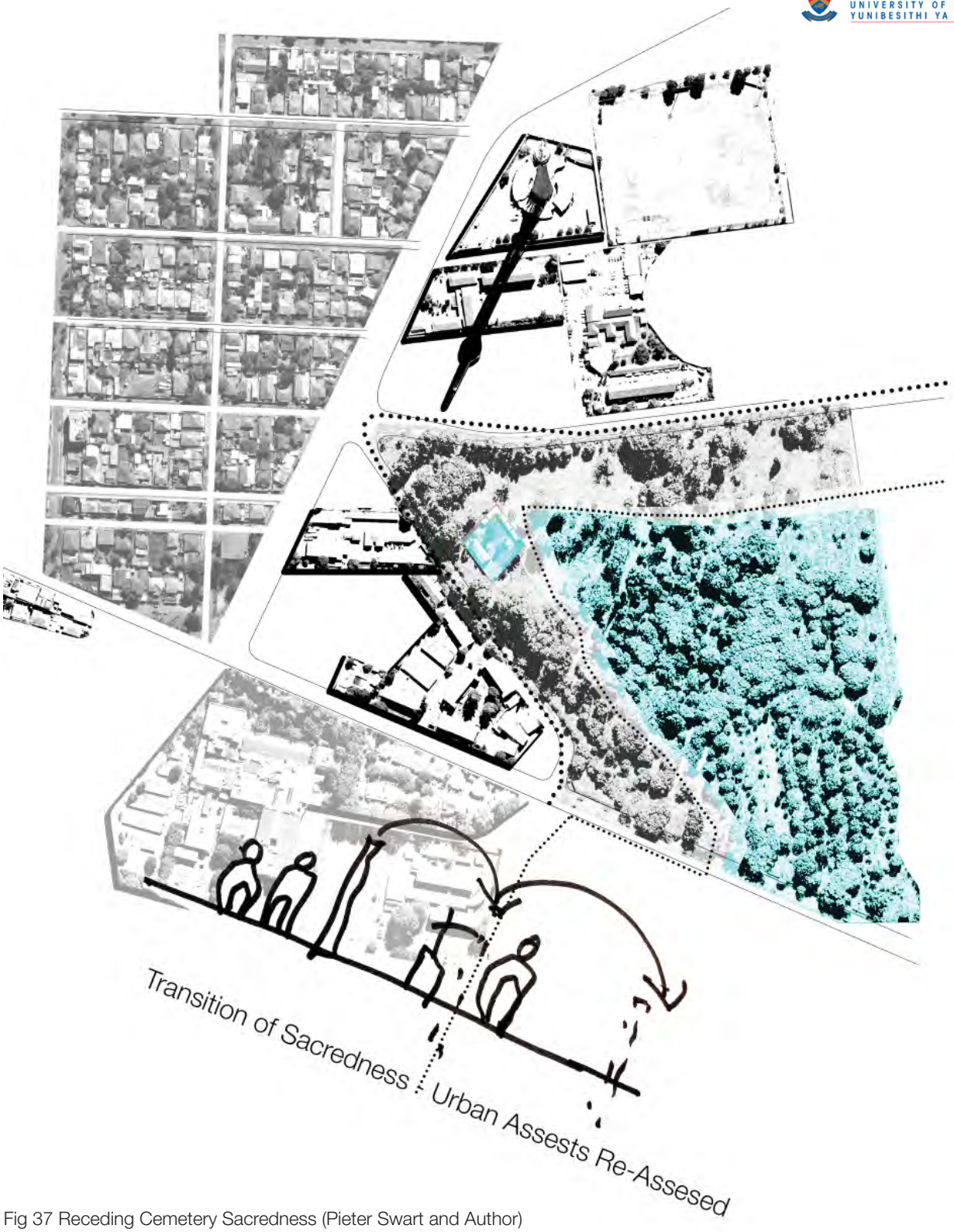


Fig 37 Receding Cemetery Sacredness (Pieter Swart and Author)

The pragmatic concerns of the vision are overlaid with more phenomenological, intuitive and emotional mapping layer in which a textural binding is envisioned. This is like a tool, or a plaster patched over a wound. Just like an Arcadian carpet, this can roll out across the precinct in the form of surfaces, walls, lighting, and infrastructure in general, to generate local identity and guide the users of the spaces. This tries to further the agenda of the practical master plan as it fosters internal connections that allow Brixton to connect back to itself so it can ultimately connect back to the city of Johannesburg itself. A textural patchwork of interventions also emphasises the high value of public infrastructure and civic space, which is an overarching aim of the proposal.

Fig 38 Architectural Insertions and Connectors (Author)

PT. 03 Master Plan

The master plan is primarily structured to deal with the expansive Brixton cemetery and its edges. In this way it opens up the underutilised space and ties it into the larger surroundings. The idea being that, by dealing with this problem, all surrounding suburban areas can benefit. Important here is the use and connection of different modes of transport and utilising the cemetery as part of the public space. Focus on routes and access is intensified by North-South movement though and along the cemetery and beyond, to perforate existing large tracts of disconnected spaces. Johannesburg city's investment in public transport is increasing; in line with the future densification plans, more public transport facilitation and use is envisioned. Projecting densification and appropriate urban responses to such are important on the periphery of the cemetery, particularly in designing nodes where bus, cycling and pedestrian activity can exchange and interchange. Deepening edges and linking those edges gives the street and the inside of blocks more space and connection. It is vital to include a band of surrounding commercial and residential edges in this network and the integration of these to shield from the busy road, but still respect existing adjoining residential areas. Its size can facilitate urban outside space for a large tract of vertical living. Breaking this fabric up into strips to insert parking and open space between larger tracts of development results in fewer divides between vehicular, pedestrian, and living spaces.

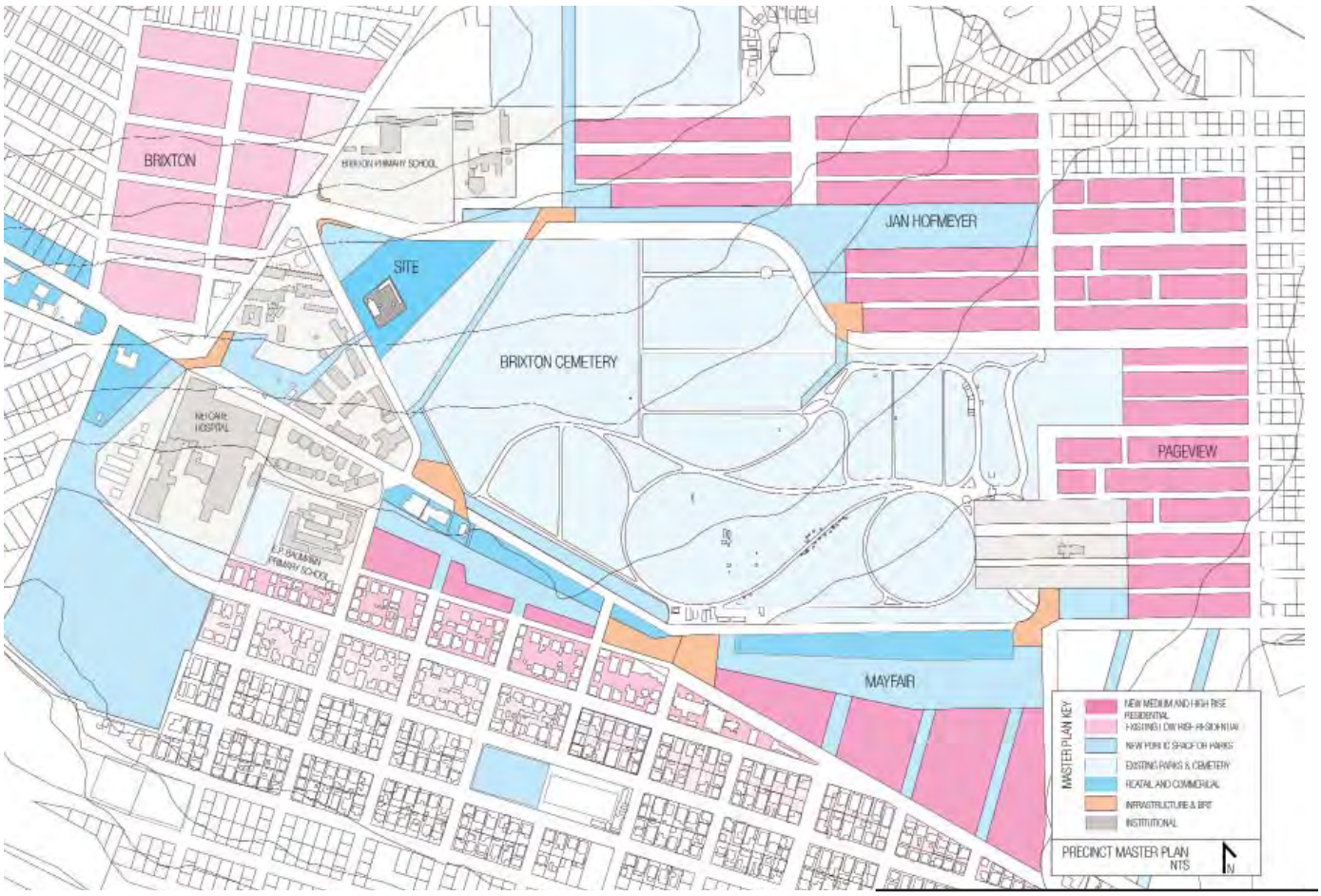


Fig 39 Cemetery Precinct Master Plan (Author)

Proposal

Formulating the Argument

Fig 40 Ecalyptus Tree With Coffin Plaques (Photo by Author)

Research Methodology
Analysis and research into the social context of Johannesburg, and the reconciliation of those findings with the metaphysical- and physical suburb and site conditions is considered as the starting point for methodological inquiry. The synthesis of accumulated literary sources and the intersection with the local problems and opportunities within the social and physical geographies of the chosen site is to be investigated, in order to pave the way for a meaningful architectural intervention. Thus architectural intervention is framed by the most poignant and prevalent forces surrounding it.

Research Intentions
Revealing how architecture can accommodate the rituals of death and grieving in a dignified and appropriate spatial manner for our current time and place in Johannesburg. The aim is also to reaffirm architecture as an ambitious and invigorating experience that goes beyond practicality and functionality. Investigate mixed use cemetery space and place making in a large landlocked urban cemetery. Experiment with social space as it intersects with architecture of the sacred and profane. How does the ordinary meet the metaphysical and revered, the taboo meet the acceptable?

Research Question
How does one open up the public assets and connect the visitors and inhabitants to the cycle of life as represented by a cemetery and associated functions, but also to each other, their place, and nature, given the imminent and drastic future change and our social climate?

Force Structure Diagram
This force structure represents a map of the causal relationships between major forces are charted visually and contextualised to integrate and adject their impact and importance in the project. The main factors moderating the intervention are the specific site forces, the macroscopic urban forces, and he manner in which they all intersect with local social theory. Themes and problems are grouped in proximity to their thematic umbrella and so show relationships among sub themes that are investigated in this thesis.

Force Structure Diagram

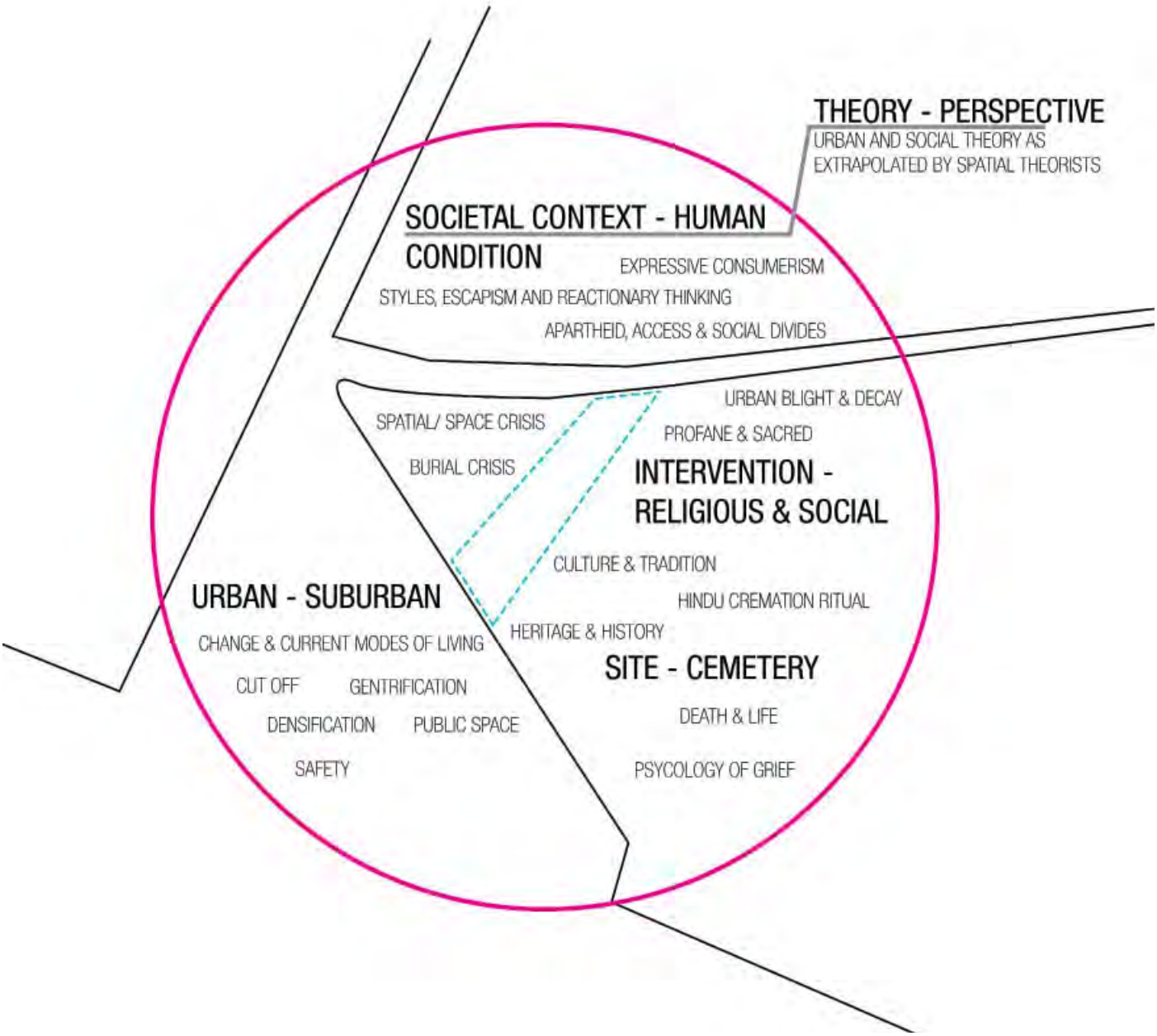


Fig 41 Diagram of Forces and Themes (Author)

Global Human Condition

Lack of societal cohesion can be seen as the most pressing crisis, locally and internationally. In our increasingly globalised, information-age world, it becomes far too easy to witness atrocities perpetrated by our fellow man. The question of how architecture and the built fabric of our global community should respond to this reality arises; of whether architecture occupies a critical position in human existence and development.

Local Human Condition

In South Africa such conditions, which although unique, share similarities with other global communities and places, have been more exacerbated and are more part of everyday life, especially in terms of racial divides. So in that sense we have more challenges but also more opportunities and precedent to enrich the process of unity by exporting our knowledge and insights and even solutions to the world.
It is therefore very relevant to look at social theory as it is made relevant to architecture and urbanity by specific architectural practitioners as informant for architecture and urbanity of the future.

Theorists exploring these socio-spatial geographies in South Africa like Lindsay Bremner, Thomas Blom Hansen, Achille Mbembe and Sarah Nuttall have been heavily consulted to extend the social agenda and concepts of the project into an appropriate local response. If any holistic progress is to be made in architecture the apartheid legacy has to be addressed, even though many consider it an expired scapegoat, which in my eyes is a wild dismissal of a whole range of spatial and cultural remnants still in force today. Particularly considering Johannesburg's

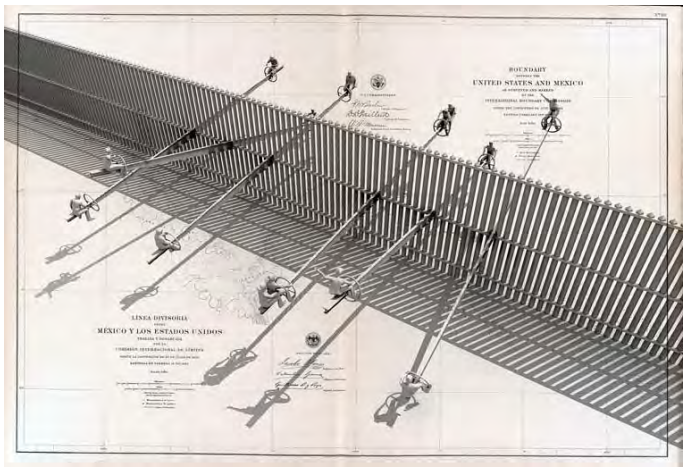


Fig 42 Rael Sanfratello Teeter Totter Wall Proposal For the Wall Between Mexico and the USA (Rael-sanfratello.com)

and Brixton's historical context it would be negligent to dismiss this past or to not engage with the even bigger global movement to greater intra human harmony. A personal preoccupation with understanding urbanity and living in terms of edges, safety and social disparities has reinforced investigation into this theme. The furthest extent of this inquiry dares to pose that ecological sensibility is tied into this struggle and could run as a resultant or parallel process in enabling our lives into the coming generations.

Lindsay Bremner is a preeminent architect and social theorist that has especially focused on post-apartheid Johannesburg during her tenure at the University of the Witwatersrand . Her book Writing the City into Being is still one of the most relevant in disseminating the city's spatial practices, territoriality and the city zeitgeist. (Bremner, L., 2010) She focuses on the melting pot culture and its intersection with the urban as a way to hint toward solutions and elucidate the reader on sub contextual and hidden disparities

in the urban. Her occupation with the edge and security in particular guided my thinking about civic, public and private space in modern Johannesburg. The psychological phenomenon of terror and its relationship to the self and the other is explored as the origin of cities as well as that of social divides as expressed by walls. This phenomenon has become topical again since President Donald Trump of The United States of America is proposing such walls at a country scale to shield from the other, in this case Mexico.

Thomas Blom Hansen is a Danish anthropologist that most eminently comments on the religious and political landscapes of India. His work also included the Indian community in South Africa, which due to the client and site choice was important to get to grips with. His strong social analysis but also spatial awareness lends itself to a spatial understanding of Indian life in South Africa. He alludes to the "physical and mental walls of apartheid" (Hansen, T., 2012), which as a concept extends the physical divides imposed by apartheid, which was also discriminatory in the treatment of the Indian community in South Africa, to the mental and psychological realm where it was equally as destructive. He extends concepts encountered in Bremner's occupation with walled homes and security by saying: "…families are today less produced by what happens inside the house than by the fact that secure walls separate them from the bush—perhaps the richest metaphor in South African social life." In so doing Hansen asks us to consider the way we wall ourselves in from each other, but also brings the plight of Indian society in the South African context to the front. It becomes clear that mall layers and races of society in the country addressed their problems with similar destructive ways.

In Johannesburg: The Elusive Metropolis Achille Mbembe and Sarah Nuttall bring the social currents underpinning the built fabric into the realm of physical elements. Civic space is analysed from the envelope to the rooms themselves, the ideological forces are discussed in a uniquely insightful manner. The display and accumulation of wealth is one of the biggest social forces that fills Johannesburg's psyche and it is mapped spatially. The conversation between historical analysis, understanding, and precedent and current day Johannesburg shows the transformations and hidden dangers in our architectural practice. This socio-spatial critique asks architects to be in touch with their ideology and sub contextual social implications; to avoid exclusionary, overtly detached and elitist spatial practices in a country working its way out of the past. (Nuttall, S. and Mbembe, J., 2008)

Finally, within a world of social turmoil, we must find a foothold in how we interact with the other—and that includes nature—in an effort to afford us the time to resolve this conflict and find ecological ways of living. I see this as a parallel, nonseparate effort included in social reform. Just as May Leung in Surviving Versus Living: Nature and Nurture stipulates: "Can the socially vitalising role of nature be brought back to our urban lives to re-nurture a sense of our human instinct and bring us closer to the otherwise ignored 'other' – neighbour, animal, plant or stranger?" (Leung, M., 2013)

Brixton is a neighbourhood robbed of its escape. Its urban goods shrouded in security concern, locked away and stagnant. An old beast nestled in the furor that is the city of Johannesburg, a city which in its very fabric exemplifies the separate enclaves created to distinguish rather than unite. Although segregated, the local demographics are very mixed and exhibit a very unique urban condition in which these groups have to mediate their everyday lives. Brixton uniquely hosts a large variety of religious institutions to cater for this diversity, which, although distinctly separate, find a unifying platform on the streets of this quiet but dilapidated suburb. Proposals for the densification and integration of a largely student oriented demographic will change how these rituals will function.

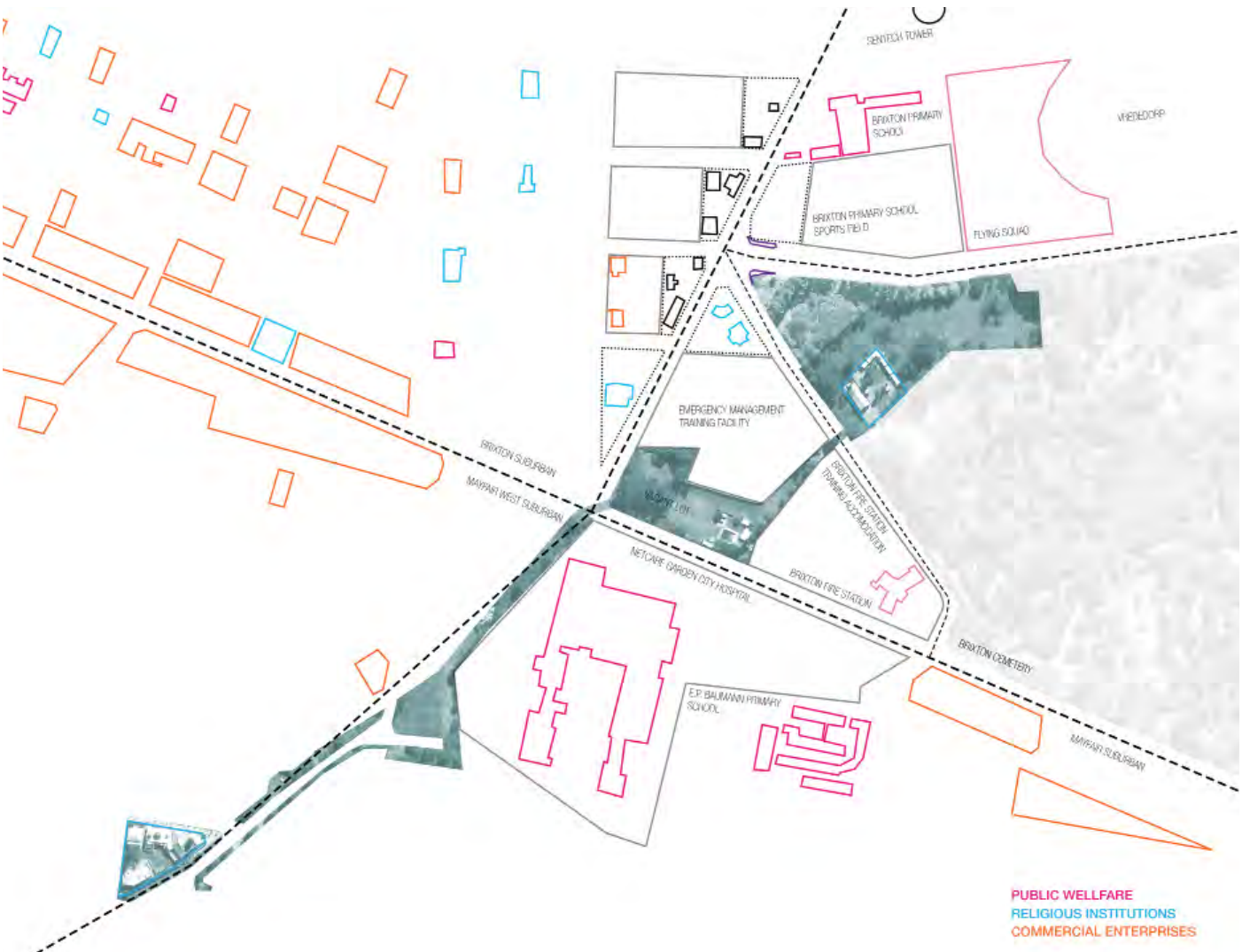


Fig 43 Urban Mapping and Hindu Ritual route Proposal (Google Earth Edited By Author)

Fig 44 Edge Condition Mapped Out From Street (Google Earth Edited By Author)

The cemetery is a space of intensified contention, in an already fractured cultural and geographical context of South Africa. It could, however, be reimagined as a productive landscape that could foster national identity by stringing together of memories of vastly disparate cultural realms. This is particularly the case with the very diverse Brixton cemetery. It has been neglected, forgotten and is ill-used, yet still fulfils a particular function for the local Hindu community in enabling the rite of cremation, and is a host to the graves important historic figures from a wide temporal and cultural range. Loss of memory and spatial demands from an ever growing urbanisation of Johannesburg accelerate an increasing secularisation, thereby necessitating a re-imagination of how it could be an urban asset to all of Johannesburg—but more importantly, to the local community.

Fig 45 Gravestone Damaged By Falling Tree (Photo By Author)

Fig 46 Fenced Areas and Littering in Cemetery (Photo By Author)

"The rarity of urban silence is an inspiration. Multiplicity, distraction and cacophony epitomize the desirable complexity of the metropolis, yet spaces of contemplation, focus, and reflection are integral to our existence."
(Latentnyc.com, 2017)

Since the architectural proposal has to respond to the abstract and strongly emotional reality of death, which can be seen as the culmination of a life on earth, the psychology of such an experience should be tailored appropriately to our current understanding of this phenomenon. It is important to grasp the diverging philosophies of understandings of death in different cultures and religions. Some encourage contact with and celebration of the dead body, as Hinduism does; some disconnect from and abstract the body, as Christianity does. The truth more likely lies in between. Important is not only the memory of the deceased but the ability of family members to process the experience as brilliantly outlined in the journal article titled The Psychology of Funeral Rituals:

"The funeral ritual provides a context for remembering, storytelling, and creating cherishable moments, an opportunity to validate the life of the deceased. Across the multiple moments of the funeral process the family and other survivors have the opportunity to tell and listen to stories and so develop balanced images of the deceased."

This reaffirms its value in memory and as for its value to the relatives. It is stated:
"...funerals are 'must attend' moments in the lives of all surviving family members. These moments are viewed as highly sensitive and narrow windows of opportunity to rework the dynamics of intimate relationships, to establish connection and facilitate differentiation, to offer and receive forgiveness and healing, and to balance 'relational ledgers'. Depth psychologists concur and view the funeral ritual as a unique coming together of the conscious and unconscious dimension of the individual and corporate psyche. 'Grief offers a perfect opportunity for our unconsciousness to permeate our consciousness. The reason is that grievers usually go through an altered state of mind that is not otherwise available to ordinary people, and therefore grievers find it hard to act upon their conscious judgments or their personality. This is a good opportunity for us to come in contact with our soul. Crisis is the way the soul reminds us of our true nature, of our spiritual needs. Grief is an extreme form of emotional crisis.' This state of crisis and the immediacy of one's soul caused by grief make funeral rituals a pastoral necessity, regardless of what our culture may imply by its avoidance of death." (Giblin and Hug, 2006)

Fig 47 Angel Headstone In Brixton Cemetery (Photo By Author)

Hindu Religion is a very inclusive religious system, so much so that they are usually open to all religious denominations using their cremation facilities. This is also the case at the Brixton Crematorium. It is however important to observe tradition and allow for the required religious experience spaces for Hindu cremation specifically. To give insight into the processes of Hindu cremation to the reader I will describe a simplified version of the processes most common in Hindu tradition. These rituals vary strongly according to place, time and caste among many other variants. The described process is more common in higher castes, but a similar general outline is applicable to these rituals across the caste landscape. Therefore this shall serve merely as a conceptual outline to clarify this mystical process.

After the death of a family member the dead body is given a room in the house, usually the former bedroom, and laid flat on the floor in this space. All family members residing together would gather here to see the deceased in his/her altered state. The audible and emotional processes of grieving as a healing process are encouraged, which usually includes loud wailing and crying communally. All processes, which are usually highly detailed by liturgy, invariably include communal gathering, shared duties and high activity around organising the event of death. It is also highly hierarchical and ritualised, with different genders ages and relatives occupying different tasks in organising and ensuring the smooth progression of the funeral. Until the house visits and preliminary organisation is concluded the body is kept on ice in the room. This room is usually strongly adorned by many flowers and accompanied joss sticks (incense) burning. The deceased is usually clothed in

Fig 48 Hindu Traditional Cremation Pyre (WordZZ, 2017)

white red and orange garb. Funeral attendees are reserved to wear completely white robes. Then by means of a bier the shared carrying of the corpse out into the hearse takes place. This procession is usually divides the gender specific tasks with women staying at home and the men following the body to the funeral home or crematorium. The crematorium attendant is usually from the “untouchable” or lowest Hindu caste. The body is filled and smothered in ghat. This serves as fuel for the fire and reserves a high spiritual value due to its origin in cows as a form of butter. If possible a sandalwood pyre is erected and straw interspersed for better fire. The oldest son usually reserves the duty of lighting the pyre with a torch. Traditionally the family waits in an adjoining space to the pyre until they hear the skull pop. This is considered the point unto which the spirit leaves the body. The ashes are then gathered and placed into an urn. Depending on available means and the wish of the deceased the ashes are spread in the river Ganges, or in a similarly holy river. The eldest son is in charge of this ritual, which is accompanied by the family priest and includes immersion in the river. Higher caste Hindus usually have to arrange to feed a varying number of beggars by food donation. (Parkes, C., Laungani, P. and Young, B.,1997)

Rapid urbanisation and densification has created a high demand for burial space by accommodating ever larger human populations in close proximity. Meeting this demand has become ever more difficult with half the country's cemeteries at full capacity. More specifically, only five of the thirty-seven total cemeteries in the city of Johannesburg are actives. Traditional burials are still the cultural norm with not much change in sight. A total of at least 490 recorded burials still take place in Johannesburg per week, and the vast majority, usually around 85%, are traditional burials. (Joburg.org.za, 2017)Land use is concluded to be pivotal category when it comes to dealing with human remains, with cremation offering up to 30% less in ecological shadow costs primarily due to land use (Keijzer, 2016).

Considerations as which practices would relieve the burial pressure, and how they would do so, are sought in alternative modes of burial. These include above and below ground mausoleums, second burials, grave recycling, promession, cremation and alkaline hydrolysis. The largest hurdle presented by these alternatives is that of traditions and public perception. The religious freedom to bury your dead in whichever fashion you deem applicable overrides spatial concern, privacy, the livelihood and health of the remaining population, and most vitally natural ecology. This creates a unique situation in which the dead compete with the living for space, as cemeteries use up large tracts of prime land that could accommodate other vital urban functions. This situation has led to a shocking trend of unlawful back yard burials or misuse of cemetery land by enterprising funeral directors. It is therefore no surprise that serious conferences are held nationwide in which local authorities are looking at all possible ways of alleviating this problem.

Beyond the space concern however extends the appearance of several new societal problems associated with burial that cannot be ignored. First and foremost a very apparent and physically visible process is the loss of meaning due to the age of most cemeteries and their strongly European nature. Its day to day users are also

"The living body has long been the site of cultural, political, and principled debate. The dead body amplifies these and other contested positions related to identity, strategic re-use, and commemoration. "
(Latentnyc.com, 2017)

Fig 49 Hindu Traditional Cremation Pyre (Ballim, 2017)

faced by more pressing everyday needs and problems that are mainly centred about survival and utility. This creates unsafe, neglected and underutilised space where the sacred loses its value that took so many resources to establish. This, among other factors, drives development of private cemeteries now allowed under new legislation, in which exorbitant fees are being collected for an exclusive cemetery experience. This does not only introduce new levels of social divide, in a realm that previously existed as one of the only shared spaces among a divided South Africa, but also exacerbates the establishment of more large areas of well-maintained monoculture in which the rich can be buried far away from all other city dwellers.

Another concern for grieving communities is the overlapping of ceremonies in large public cemeteries in which up to 50 families compete for space. The accompaniment of burial with music and song being a large part of the ceremony has led to undertakers competing with volume and advertising. This among the spatial overlap diminishes the ceremonies and the privacy required for this important process.

A social factor that is often overlooked is the price of the burial process, which is usually quite unattainable by the lower earning communities. Social pressure requires a ceremonious and well attended festival, so skimping on a funeral could heavily tarnish the social status of any bereaved family member. (Ballim, F., 2017). The costs of the coffin and the sacrificial cow usually outweigh that of the burial site, the funeral service, and the feeding of all attendees. Burial societies are a way in which communities establish financial support amongst each other, but still families are struggling economically to deal with current burial trends.

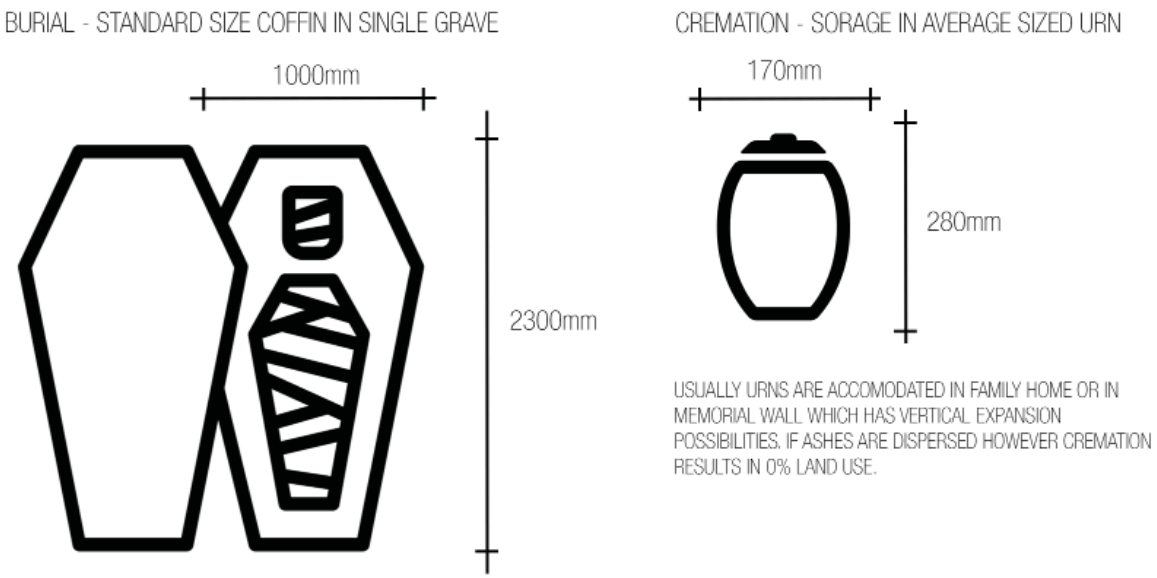


Fig 50 Ergonomics of the Human Body After Death (Author)

Beyond spatial and social concerns, traditional burial has several drawbacks in terms of sustainability. The main concern here is the energy requirements for the treatment and preparation of the deceased. This has to be weighed up against material requirements, spatial requirements as well as more subtle downstream ecological effects.
The technologies analysed range from very new to well-established techniques that dominate the modern field of burial practice. Traditional embalmed burial is still very common and must be used as the baseline case; this usually entails a treated body with a deep dug grave and coffin, sometimes even a burial vault to protect the grave from vandals or grave robbers, or even from collapsing in certain soil types. The most subversive and troubling component that is often overlooked in traditional burial, however, is the leaching of toxins and pollutants from the buried remains and accompaniments. The substances we consume these days from vaccinations and medications to physical alterations like implants, as well as the veneers and timber treatment products of coffins, leech into the soil. This has a devastating effect on our water sources and soils, impacting natural systems way beyond the cemetery. (Latentnyc.com, 2017)

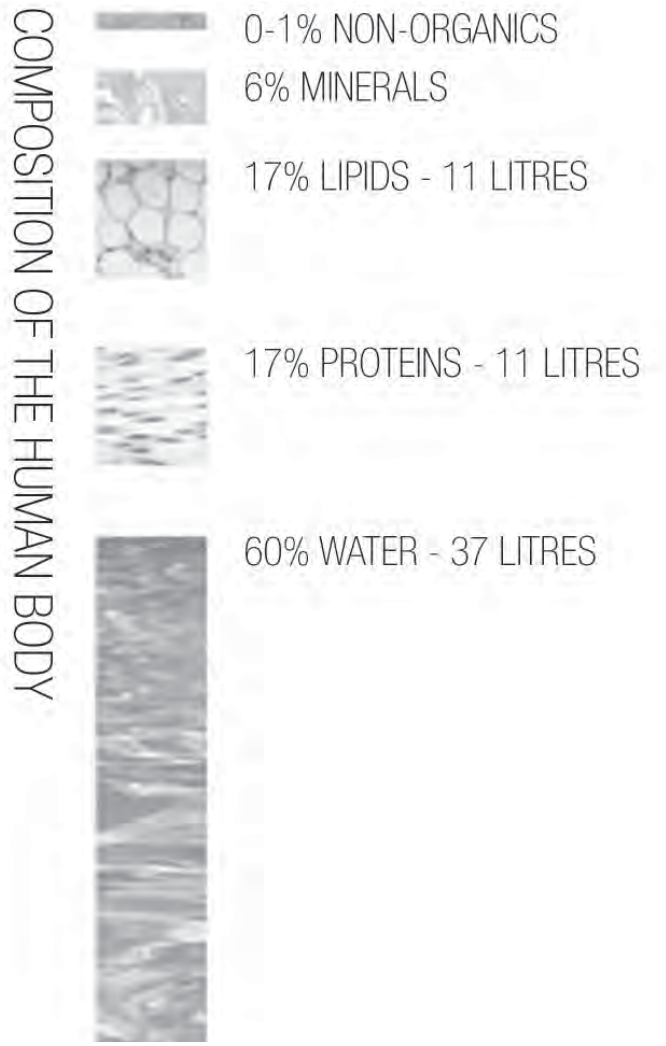


Fig 51 Composition Of The Human Body (Author)

Cremation is a very popular technique in eastern and recently also the western world, and has a specific relevance to the local site requirements and the Hindu community in Johannesburg. Here natural gas is used to burn the body at high temperatures, with the resulting ash being stored in urns or spread in nature. False teeth and implants must be removed beforehand to reduce toxins introduced into the air and filters have to be used on the chimneys exiting the cremation chamber.

Promession and Resomation are two pioneering modern techniques that pose a real alternative for more ecologically and spatially sensitive solutions. Promession is the process of freezing the human body with liquid nitrogen to such a point that with the help of vibration the body can disintegrate into its constituent parts.

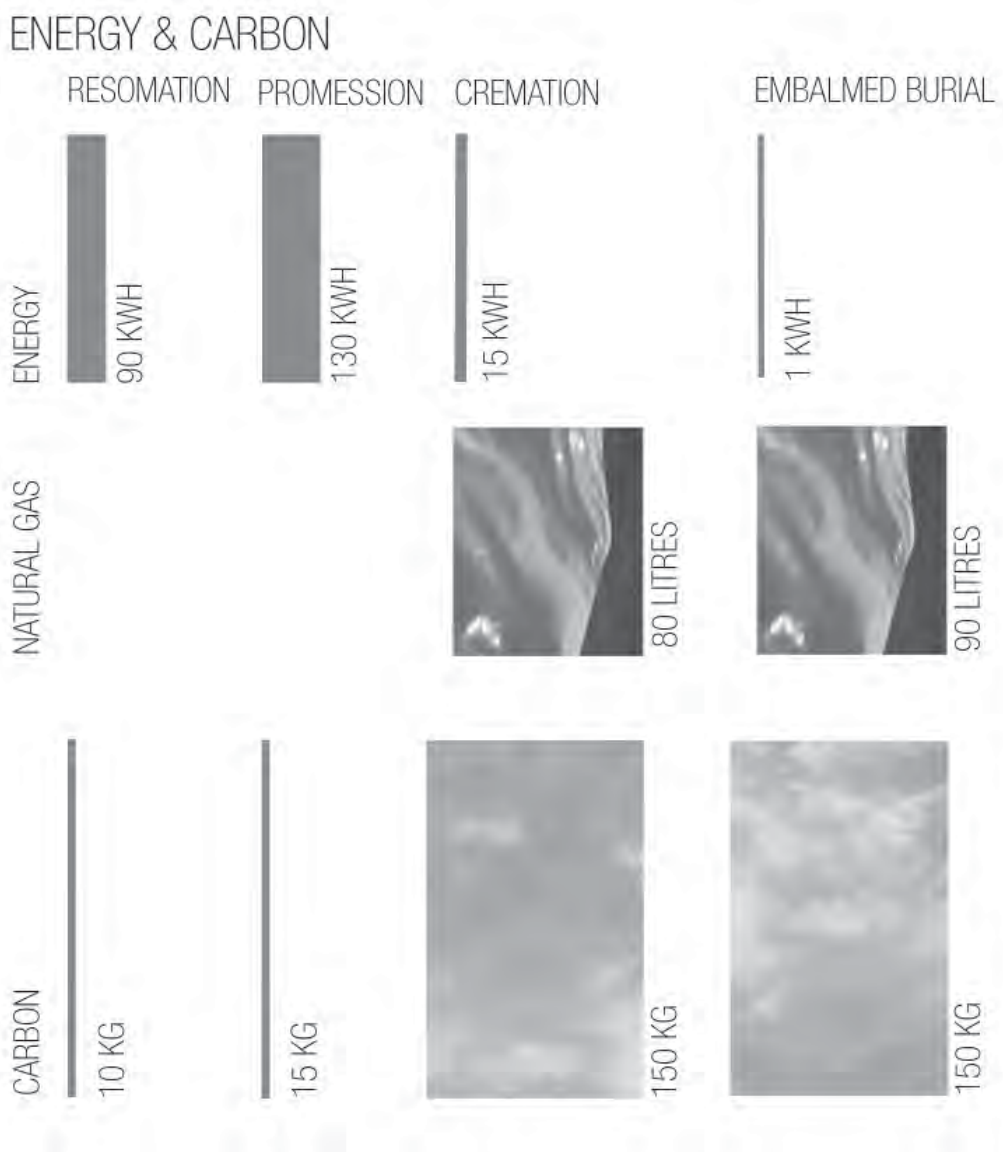


Fig 52 Energy Needs and Carbon Result (Author)

This process also makes it easier to filter out impurities or foreign objects in the human body. The resulting “dust “is therefore not dangerous to nature and can easily be distributed has a small volume and can used by vegetation as a nutrient source. Resomation is the process in which the human body is dissolved by alkaline hydrolysis, which usually entails potassium hydroxide or similar chemicals that decompose the body in a water filled chamber that is heated to speed up the process. Here non soluble artefacts can be removed easily as well but some impurities will

also dissolve into the mix. Main problem with this technique is that the resulting liquid is not easily disposed of and this is often introduced into the sewage system which is rather insalubrious for the deceased but also problematic for the water quality and water recycling. (Deathlab.org, 2017)

The material resource necessary for traditional burials exceed the alternatives easily, especially if the a burial vault is employed. The tombstone and coffin however are more regularly employed in South Africa, both of which are quite material intensive. The large amount of natural gas required and the resulting smoke are a large drawback for cremation, however, it does drastically lower the space requirement of the corpse, and is a well-accepted method. Promession and Resomation are still very uncommon, due to the price of the machines and lack of social acceptance, which is the Achilles heel of these splendid alternatives. They both use less energy and material resources than the other methods and also eliminate the largest problem of downstream ecological contamination.

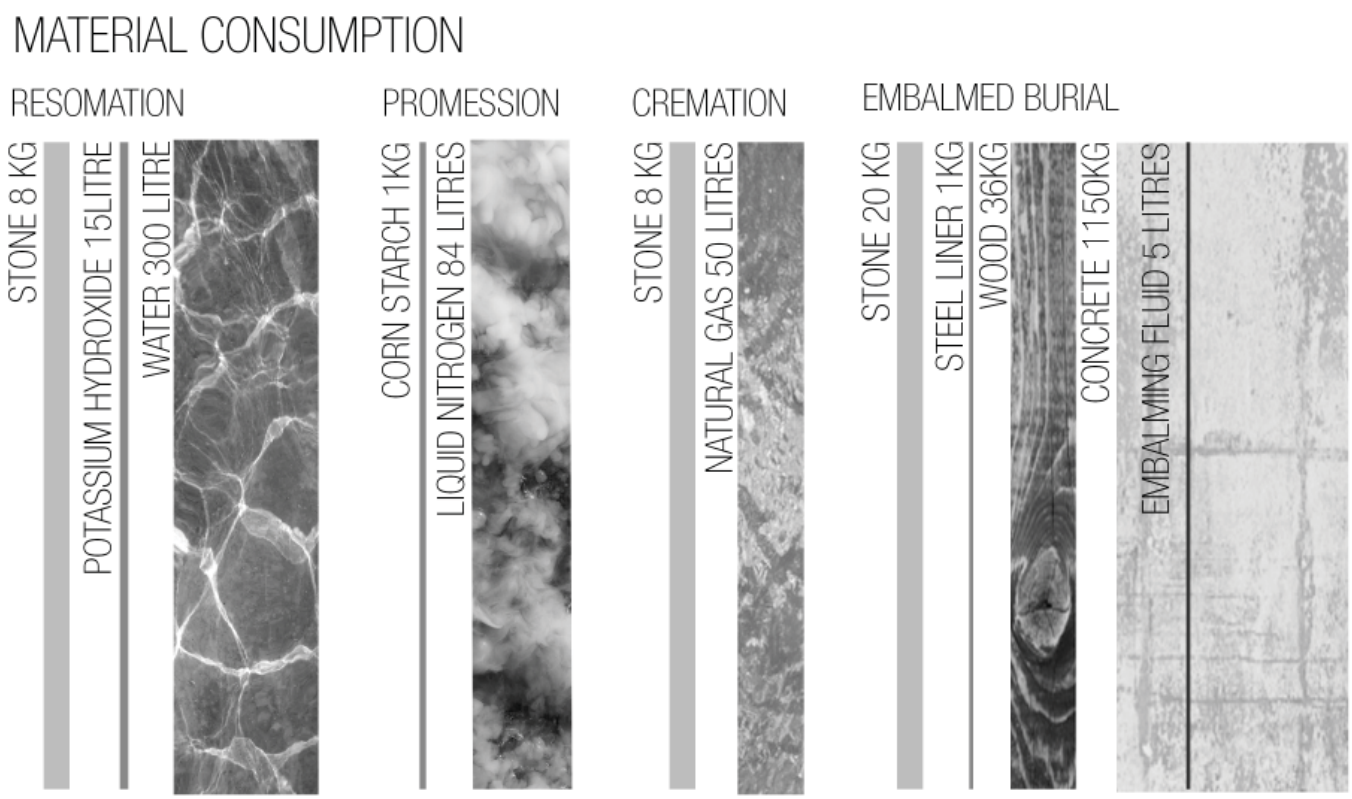


Fig 53 Material Consumption Of Different Treatments of The Body After Death (Author)

Programme: Crematorium, Funeral Home, Urn Making Workshops and Public/Festival Space

Client: Aum Hindu Crematorium and BAPS Shri Swaminarayan Mandir

Community Partners: Hindu Community, Schools and Religious Institutions

Adopting the approach to cemeteries as multi use spaces, as pioneered by cemeteries like the Pinaroo Cemetery in Perth Australia, which doubles as a nature reserve, recreation facility and urban outside space. Multipurpose cemeteries create more cost effective and sustainable cemetery spaces for all city dwellers. The questions that follow this realisation pertain to how religious institutions could catalyse and add value to public spaces: how do the sacred and profane complement each other?

The intention is to formulate an architectural response that acts as space for religious and cultural expression for a wide variety of publics, to engage in the on-going process of reconciliation and nation building.

It is important however that it retains the ability to function and accommodate the ritual processes of the local Hindu community. It is also envisioned that the heritage of the Hindu community in South Africa be exhibited within the proposal, particularly pertaining to the Indian passive resistance struggle during the apartheid era. To add value to the functioning of the crematorium, auxiliary functions and religious requirements to the cremation ritual are made available on site. The highly sensitive site and the natural surroundings must be integrated and exhibited in an architectural language of respect.

The architectural proposal must sensitively expose the public to the processes of cremation by making it more available, understood and attractive, whilst enabling them to use their public spaces to exercise their very liveliness in the face of impermanence.

"From the highly pragmatic logistics of what we do with dead bodies, to temporal repositories of public and personal archive, to the eviscerating intensity of grief - new spaces of mortality contribute to the civic life of the city...Conceptual and operational positions critically contend with time, duration, transience, and the liberation of letting go."
(Latentnyc.com, 2017)

Fig 54 New Gas Cremation Chamber of Hindu Crematorium (Photo By Author)

Existing Significance

The Brixton Cemetery, reincarnated after initially planned as a native location, saw its first burial in 1912.This sets it into the beginning phases of apartheid zoning intentions. Furthermore it responds directly to the city's growth and need to accommodate increasing deaths around the 1920's. It contains the graves of historical figures like Taffy Long, Mary Fitzgerald, Herbert Evans, Sir George Albu and Dr. Alfred B Xuma, whose grave was declared a national heritage site due to his fruitful presidency at the ANC from 1940-1949. Most of the 1922 rand rebellion casualties interred in and around Brixton were laid to rest in this cemetery. (Jhbcityparks.com, 2017)The mix of races and military and non-military graves is unique and valuable in the divided history of Johannesburg. Furthermore it is the site of a well-kept Jewish cemetery on its North-eastern reaches. It has ample old trees, planted in very strict geometric arcades.

Fig 56 Monument Status Plaque of Wood Fired Crematorium (Walker, 2017)

Fig 55 Historic Wood Fired Crematorium (Walker, 2017)

The Crematorium

It has particular value to the Johannesburg Hindu community to facilitate the rite of cremation, as granted by the land acquisition of Mahatma Gandhi. The wood fired crematorium is a very sculptural brick edifice that coincides with the establishment and acquisition of the land for the Hindu community in 1918, which makes it one of the most significant and oldest structures on site. It was the first brick built crematorium in Africa. Messrs Damania and Kalidas were the builders tasked with its erection. It was declared a National Monument on 24 September 1995. (Jhbcityparks.com, 2017)

A newer gas crematorium that put the old one out of work was introduced in 1956. It is a very plain brick structure whose chimney replicates

the sculptural quality of the old counterpart adjacent to it. The pavilion on site is a circular seating area that was intended as waiting space for the family. It is fairly dilapidated and small however, and must be of more recent origin given its absence from older documentation. The wall surrounding the compound is along with newer service and administration buildings a recent development.

These spaces currently diminish the appearance and spatial quality of the crematorium. It consists of plastered concrete block walls finished in pink and maroon paint and galvanized steel roof lean-to spaces. Parking for the facility is a newer tar patch connected to the tar access roads of the cemetery. European style landscape geometry dominates the whole site—reminiscent

Fig 57 Entrance To Hindu Crematorium (Photo By Author)

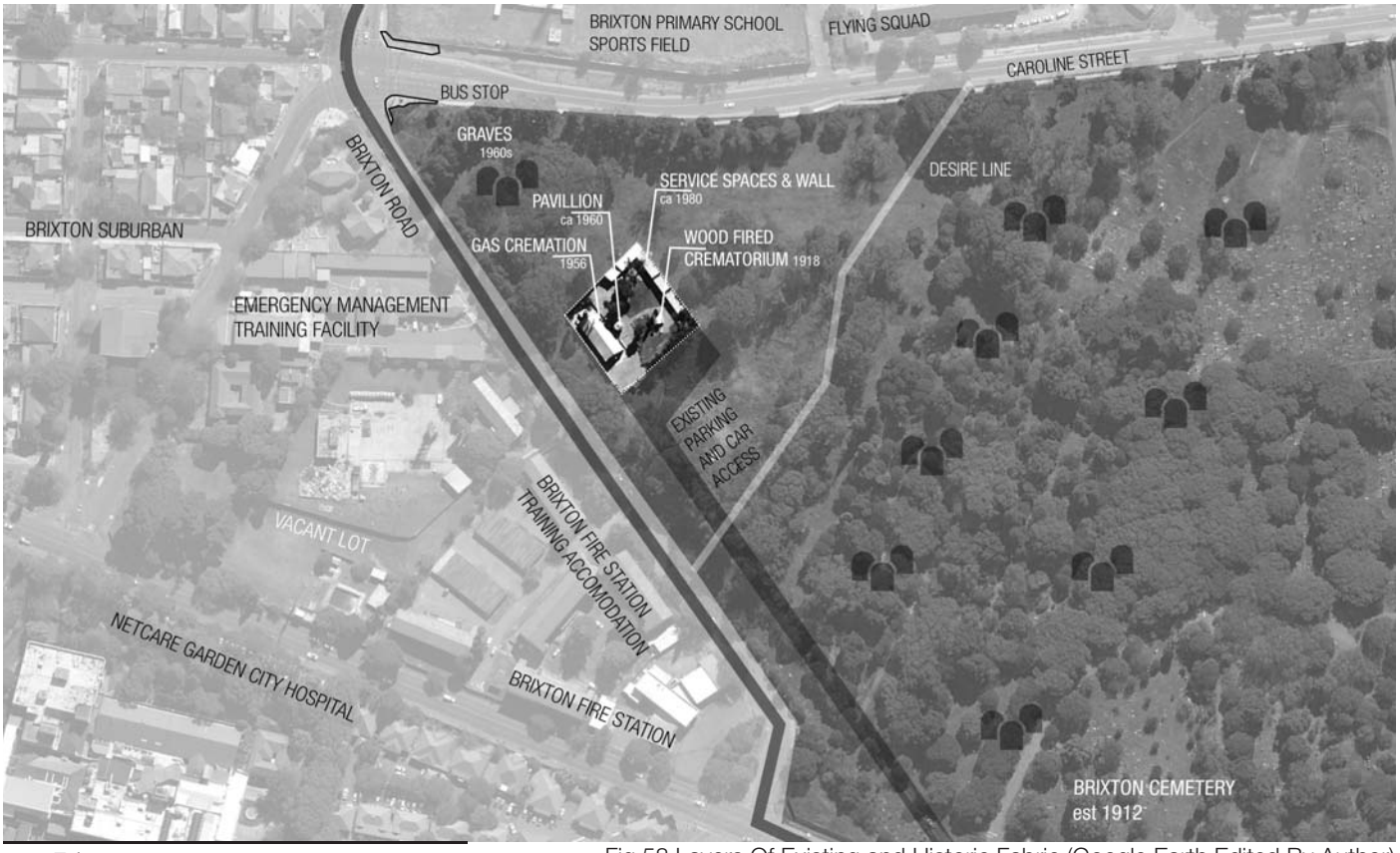


Fig 58 Layers Of Existing and Historic Fabric (Google Earth Edited By Author)

of 17th century landscaping, with large looped paths connecting long arcades into a continuous experience of route.

Response to Site Specific Heritage

The old wood fired crematorium is retained due to its age, aesthetic quality, and historic value as described above. It is a particular determinant for site development geometry to be optimally exhibited. The newer gas fired crematorium is not as valuable as a space, which is essentially a much altered shed with galvanized roofing, but its gables are visually attractive brick edifices crowned by the brick chimney that replicates the sculptural quality of the old crematorium. This should be retained as a memory of the structure, its aesthetics, but also as a tribute to the effort that went into it. In this way it can act as the entrance to the site, in which haptic and visual interface with it are encouraged. Since the stories of the Indian passive resistance and it protagonists are not well known this structure could house informative display to exhibit this history. On-site parking is too small for large groups of cars for family and impedes upon the cemetery and adjacent graves. The access road to these is superfluous given Brixton road parallel to it and its removal would open up and reduce very odd and disjointed grave sites. The pavilion is a rather superfluous structure at this point and would be absorbed into new functions proposed. The wall and service spaces are considered detrimental to the value of the historic fabric and the site as a whole.

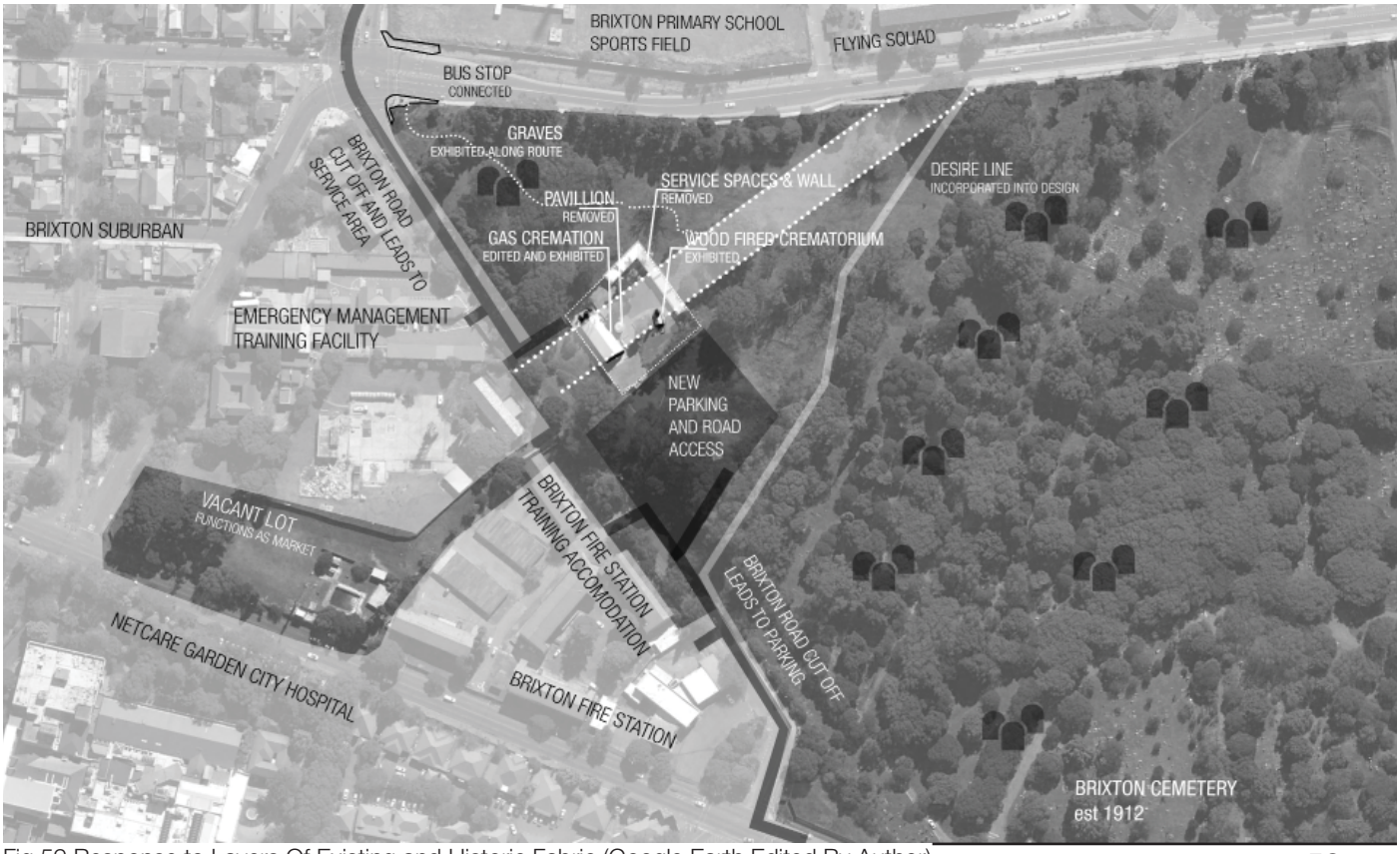


Fig 59 Response to Layers Of Existing and Historic Fabric (Google Earth Edited By Author)

Precedent

Informants and Stimulation

Fig 60 Sentech Tower From Cemetery (Photo by Author)

The design was tailored to the climatic requirements of a dry and hot Ahmedabad. The focus is on creating a warm and high quality living environment for a young family and their parents. A strong presence of nature pervades throughout the entire design with trees light and a large courtyard space entering the living environments. The design is highly sculptural and haptic, with a strong expression of material qualities.
Particular value is gained from this precedent in the way that heavy and light elements meet in a near sacred way, here heavy walls guide eye to lighter elements. This creates a varied experience and establishes a relationship to the natural.

Fig 61 Diya Residence Foyer (ArchDaily, 2017)

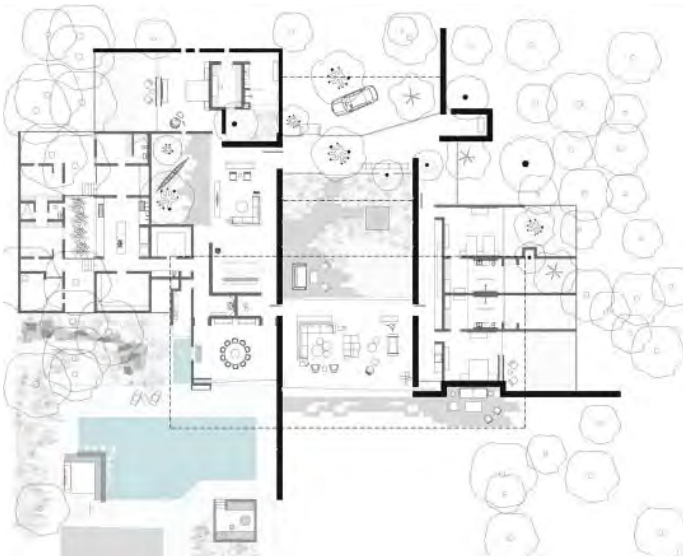


Fig 62 Diya Residence Floor Plan (ArchDaily, 2017)

Fig 63 Diya Residence Circulation (ArchDaily, 2017)

Fig 64 Diya Residence Section (ArchDaily, 2017)

Typological Precedent

The Five Dragons Temple dating back to the Tang Dynasty in Chinas Shanxi province occupies an important historic position in that it is the second oldest of that period in China. It suffered from loss of meaning and deterioration and needed to be reintegrated into the little village that it is part of. The design is guided by telling the story of Chinese architecture in overlapping outside spaces as well as allow for the use by the everyday user as a gathering and social space. The local spring, which the temple was originally reverent to, was rehabilitated in an effort to revive the sacred aspect of the project and its ecological benefit.

The precedent served to help formulate a response to sacred and public space, which is central to the proposal. The approach of using enclosed courtyards to frame functions and existing fabrics to choreograph them into a historical narrative gave a good spatial connection to a complicated and layered site. Responses to the historic and current day context show a respectful intermingling of daily profane needs and its cultural and religious significance, the typology that therefore arises is one in which the sacred and profane can complement each other in a religious compound. In so doing value and meaning are less exposed to decay as the space can contribute to the daily lives of its people even if times and conditions change. The weighty and sturdy material choice reflects an elevation of the project to a place of deepened experience and reverence.

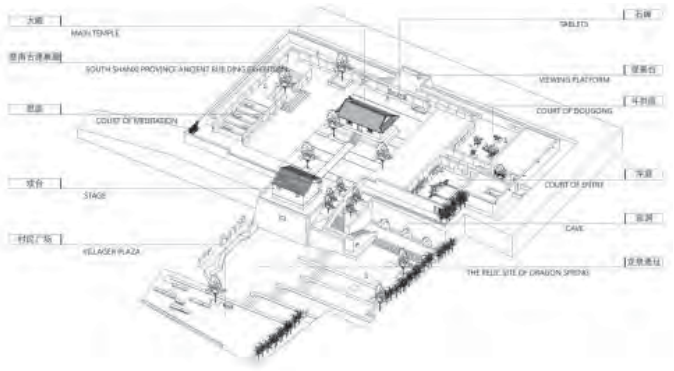


Fig 65 Five Dragons Temple Axonometric (ArchDaily, 2017)

Fig 66 Five Dragons Temple Axonometric (ArchDaily, 2017)

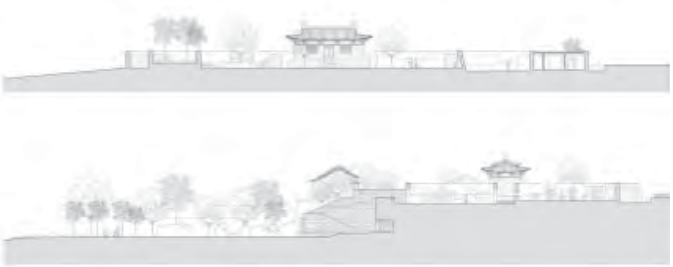


Fig 67 Five Dragons Temple Site Sections (ArchDaily, 2017)

Fig 68 Five Dragons Temple Section Through Temple and Site (ArchDaily, 2017)

PT. 03 National Museum of Anthropology Mexico - Pedro Ramírez Vázquez, Jorge Campuzano, and Rafael Mijares Alcérreca

Formal Precedent

This highly popular museum in Mexico City is a prime site for the exhibition of the indigenous pre-Columbian heritage. Its collection was envisioned to be exhibited in a less overwhelming spatial configuration (in contrast to the style of exhibition in European museums), as a rhythmic experience. Main architect Pedro Ramírez Vázquez took compositional inspiration from the Quadrangle of the Nuns in Uxmal. It is evident there are no formal overlaps other than the stereotomic nature shared by both structures and the use of a courtyard type space to unite forms.

This last aspect is one of the main influences the project had on the proposal, the way in which the outside shapes and is being shaped by the formal language of the architecture. This is particularly well executed in the dominance of the large covered outside space, which acts almost as an extension of civic space, by forming a courtyard framed by the buildings surrounding it. These spaces are arranged like beads on a string. It could be said that the envelope is carved and used in framing the relationship of inside to outside, with very minimal and sheer volumes set against each other. This is evident in the integration and visual access—even haptic access—to the outside, the natural and water, which is an excellent way to contextualise the indigenous nature of the artefacts' history and jungle origins. This is further extrapolated in façade use and articulation, by using severely geometric and weighty forms for the expression of volume and natural rhythm.

Fig 69 Inner Courtyard of the Museum (ArchDaily Brasil, 2017)

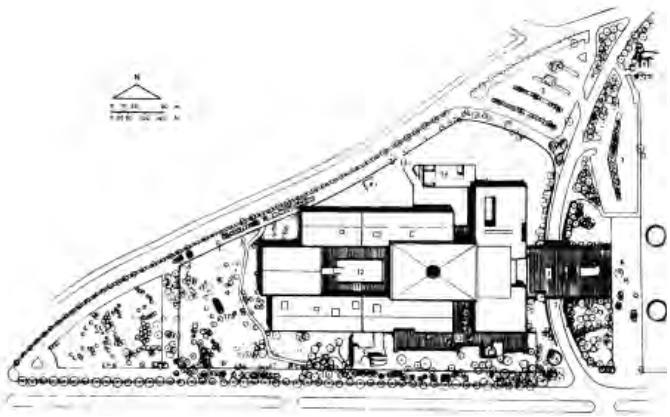


Fig 70 Site Plan (ArchDaily Brasil, 2017)

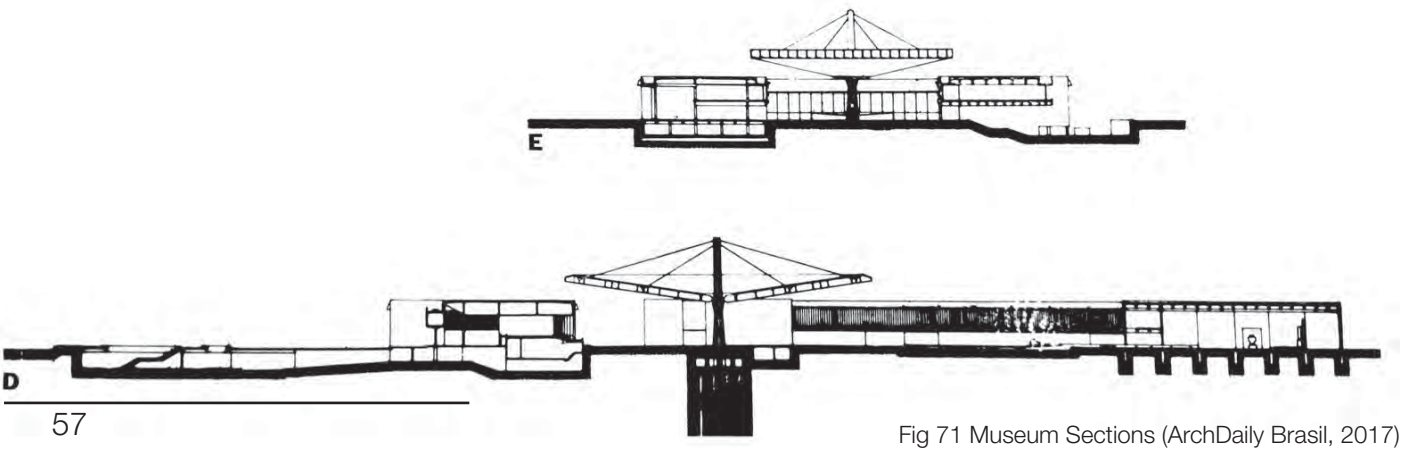


Fig 71 Museum Sections (ArchDaily Brasil, 2017)

The Meiso no Mori funeral home and crematorium in Japan is a secular space that the architects wanted to liberate from the usually weighty architectural language associated with the rites of death. The site on the park cemetery in Gifu, Japan, is defined by green hills and a sizeable lake into which it is designed to nestle in a soft, lightweight manner. It is dominated by a cluster obscured under an undulating roof with trademark Toyo Ito geometry and tree-like columns.

Fig 72 Meiso No Mori Crematorium from the Lake (OpenBuildings, 2017)

The main informant derived from this precedent is the way the spaces of the crematorium work effectively inside the building. A very simple and minimalist rectangular language of spaces and their functional arrangement is choreographed into a well flowing sequence. Their simplicity is underlined by understanding a range of size requirements as well as their hierarchies in terms of value and experience. Circulation paths are simple and allow easy movement from entrance to exit in a fully circular fashion. The waiting spaces are designed to make use of the scenery and its calming qualities, enhanced by its natural site integration in terms of overall architectural articulation, especially internally.

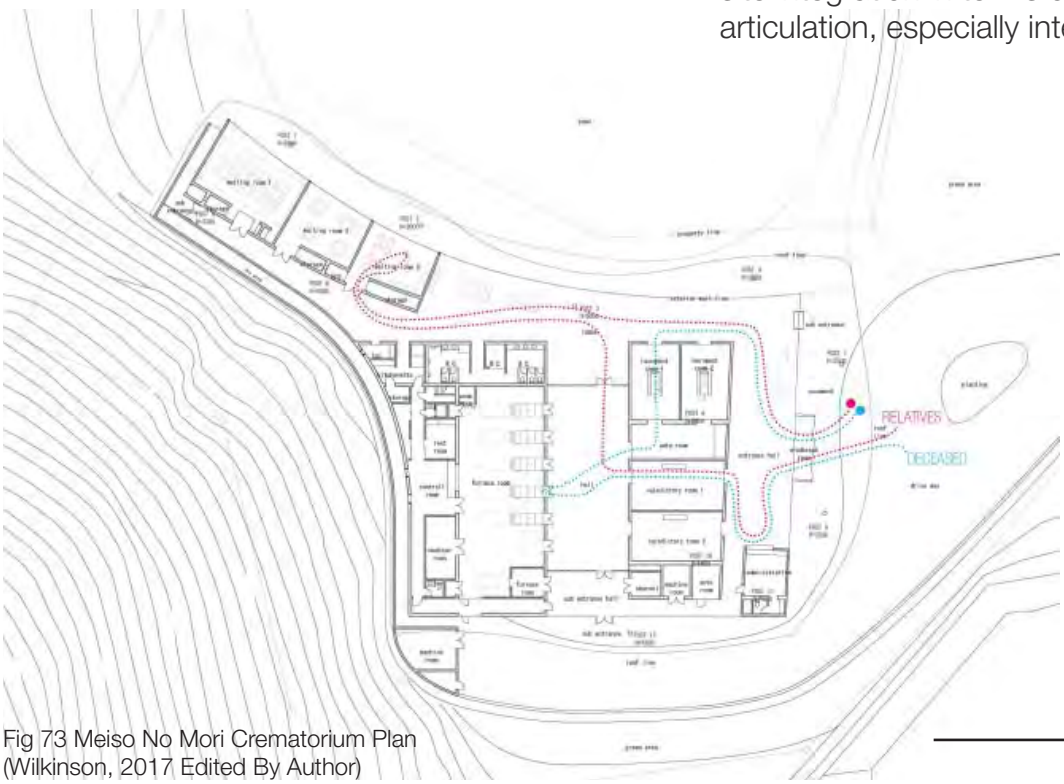


Fig 73 Meiso No Mori Crematorium Plan (Wilkinson, 2017 Edited By Author)

Design Development

Drivers and Driving

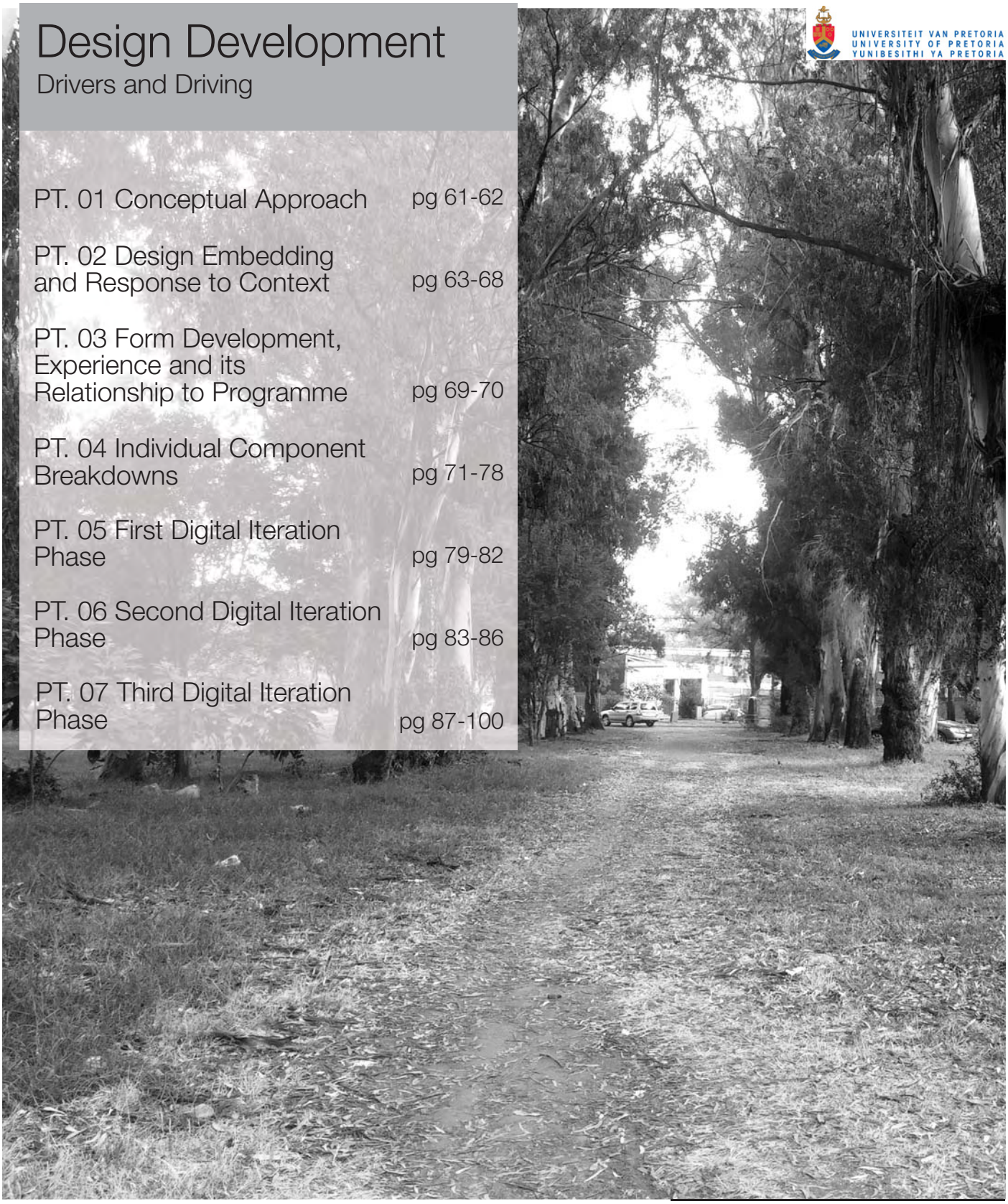


Fig 74 Eucalyptus Arcade Brixton Cemetery (Photo by Author)

Concept to Objective Reality

Concept is thought about as a collection of ideas and ideals, like a design ideology, that would directly respond to very pragmatic needs and spatial realities, which can easily translate as spatial manifestations. Concept is thus an intellectual construal of a given situation to formulate an approach to and find its solution through spatial exercise guided by it.
Witnessing the intrusion of the city into the cemetery in the form of disappearing barriers, rubbish, the visual intrusions of advertising and fast food restaurants, the noise of traffic, and utilisation of niches by the homeless sparked the understanding of the site as a dialogue between the sacred and profane. Here the sacred realm of graves, which exist and are intended to present permanence and a state of stasis, was competing with nature and the city, which inherently favour entropy. Not only was the cemetery losing meaning, but it was now becoming multi-purpose without its consent. A marble headstone, shaped as an angel, faced a KFC, and with that the purpose for concept was clear. Sacred spaces had to be strengthened but the profane had to be allowed to wash around it, as it was already starting to do.

Fig 75 Angel Headstone Looking For KFC (Photo by Author)

Concept To Projected Reality

The aim is to establish ritual spaces that are of a very private nature, but adjacent to public open and movement spaces. These could relate to each other without conflict and create meaningful space; the concept had to mediate this relationship between what can be seen as the sacred and the profane realms. The conceptualisation of a “Death Axis” and a “Life Axis” relies on this contrast, in which programmatic needs are married with spatial arrangement and relationship. The transition between them had to be understood on a temporal scale as fast or immediate, to slow and gentle transitions. This culminates in a proposal guided by site access and axis, as well as public space, walls and their associated volumes and routes created, and how they form protected retreat spaces and pockets without giving the impression of dividing outside space harshly and creating disconnect. This gives outside open spaces framed volumes to give definition to space for daily activities and festivities, and inside spaces more privacy and deeper experience, without creating insularity.

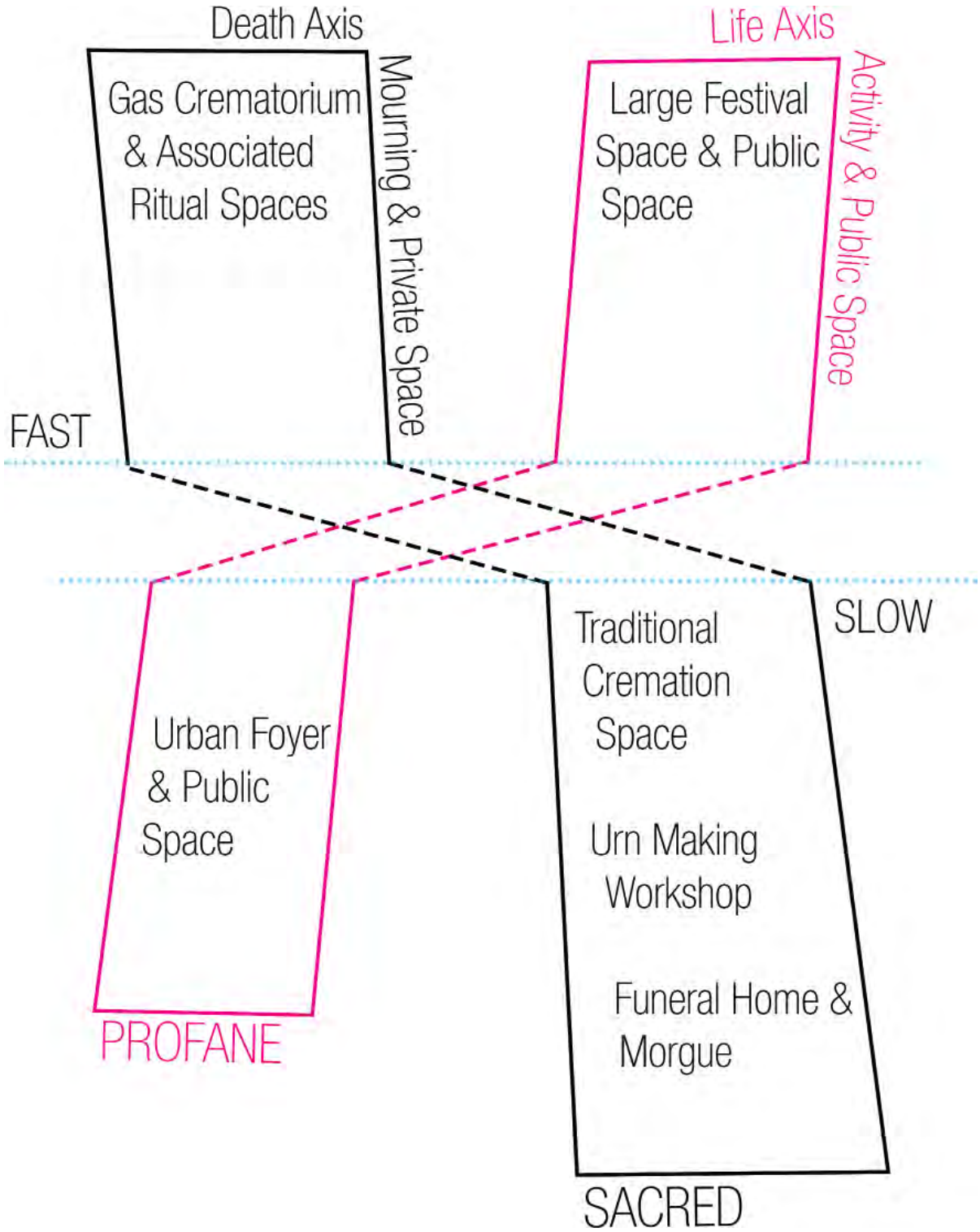


Fig 76 Spatial and Site Concept Diagram (Author)

Site

Site access is geared toward the future by connecting to Johannesburg's bus network and bicycle lanes. Brixton road is serving the fire station and the emergency management facility as access; it could however be cut off without impeding traffic flow as a well-used alternative exists. On its northern inlet it serves the emergency management services, but also enables deliveries to the urn workshop. The hearse gains access to the site from here. A walking ritual route from the Hindu Temple can hereby progress to the crematorium without more traffic imposition. In addition to this, the site will be more quiet and pedestrian oriented. Existing parking space on site was very limited and impeded onto lawn and cemetery space. It would therefore benefit from formalisation. It however needs to wrap around vegetated spaces and be served by the remnants of Brixton road. In this way the suburb's namesake road would be retained but repurposed for the sake of tranquillity and pedestrian friendliness. This serves as one of the first acts to uplift the sacred nature of site. The proposal is tied to the site access points by a singular wide axis extending to both edges of the site, access to which was at first allowed from many angles but lost its potency, therefore entrances and exits from and to this axis were reduced, with much effect. On the south it projects and lifts up as a heightened platform which is accessed from the parking, ritual route and sidewalk. This creates a new site threshold that announces the site formally and invites in. In the north it meets the sidewalk on near level surface, where two existing trees form a gate, formally used by a desire line created by pedestrians crossing the cemetery. East access

Fig 77 Site Enclosure And Framing Sketches (Author)

is very limited and would mainly serve as a shortcut from the parking area to the traditional cremation buildings. The west connects thought a set of graves and trees to the dominant site bus connection and would be a slow and natural path to the site.

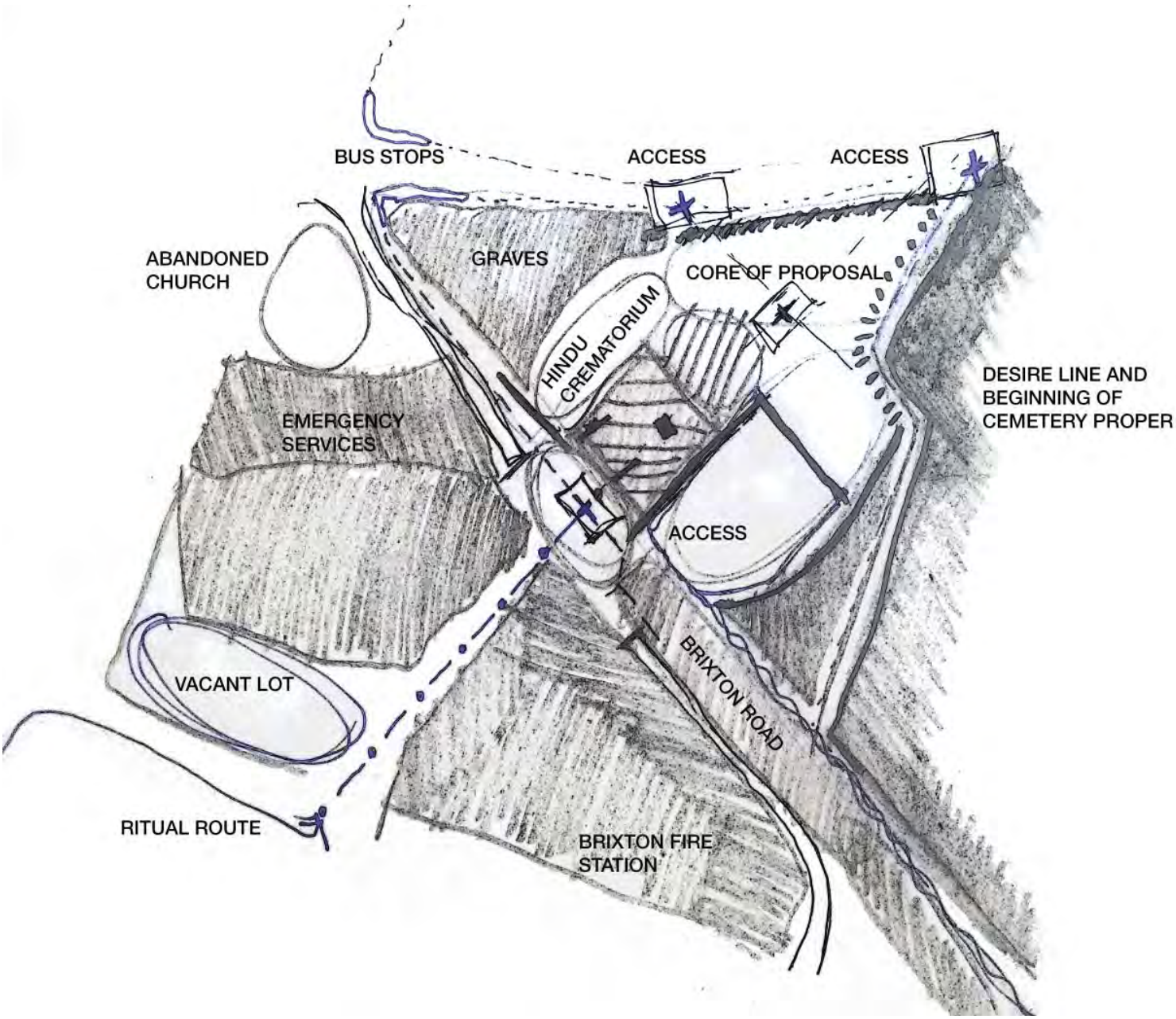


Fig 78 Site Areas, Route and Threshold Sketch (Author)

Public Space

Internalised and legible public space that has direct public interest and agency can make a spatial typology largely left vacant, misused (or even privatised) act as part of Johannesburg city life. Mixing the interest of the crematorium creates this necessary attendance and agency on site. Effort is made to create an open and natural space, framed and clearly defined so the space can be used and altered with temporary structure to fulfil different purposes, from night or day markets to music festivals. In its presence it can extend on unifying and beautiful expressions of shared cultural expression such as colour festivals, Diwali, spice and food markets, yoga and mindfulness meditation now uniting eastern and western culture. This can be seen as a new catalyst to unity and reduction of the culture of separateness.

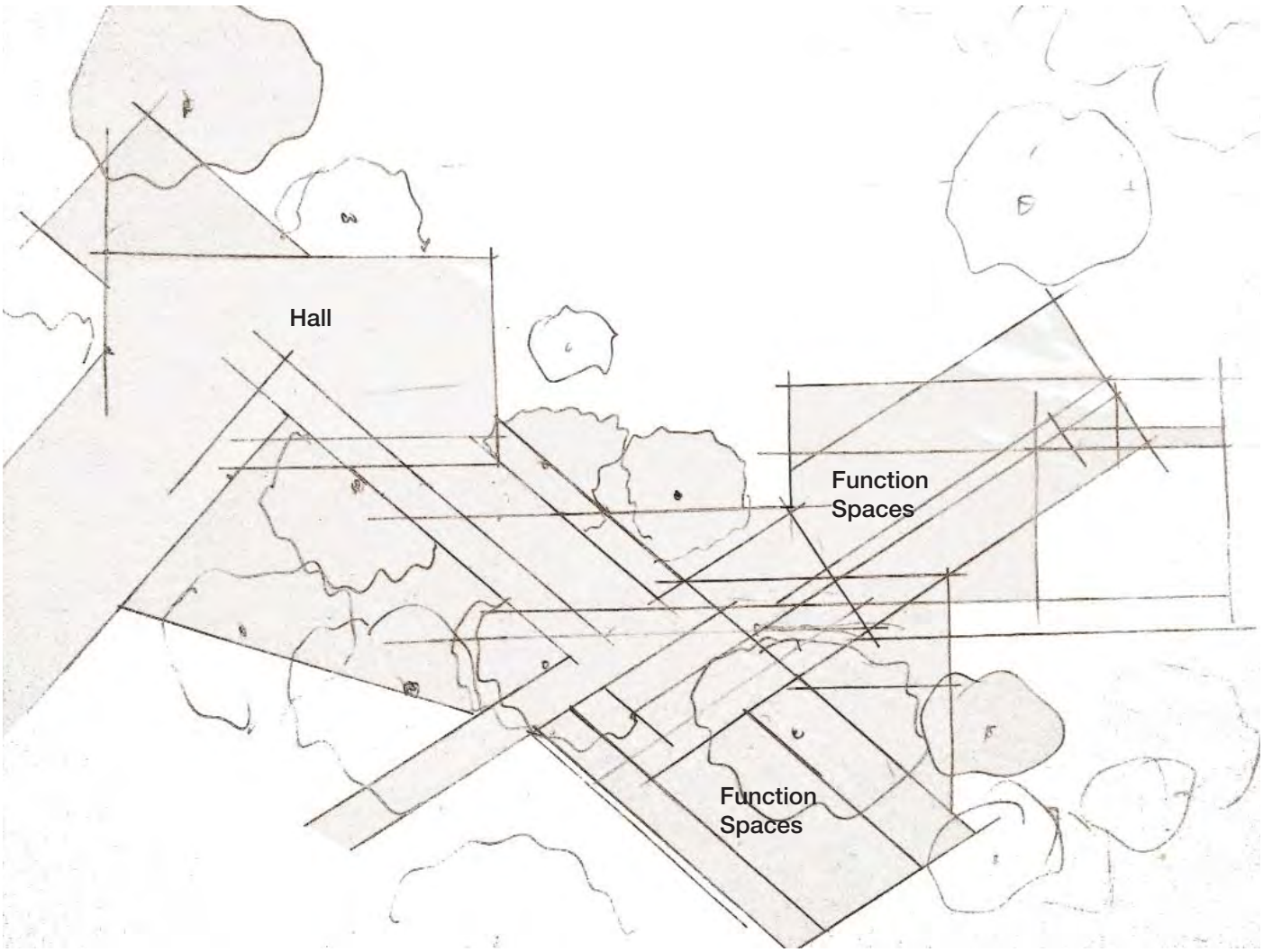


Fig 79 Plan Geometry Around Trees Iteration (Author)

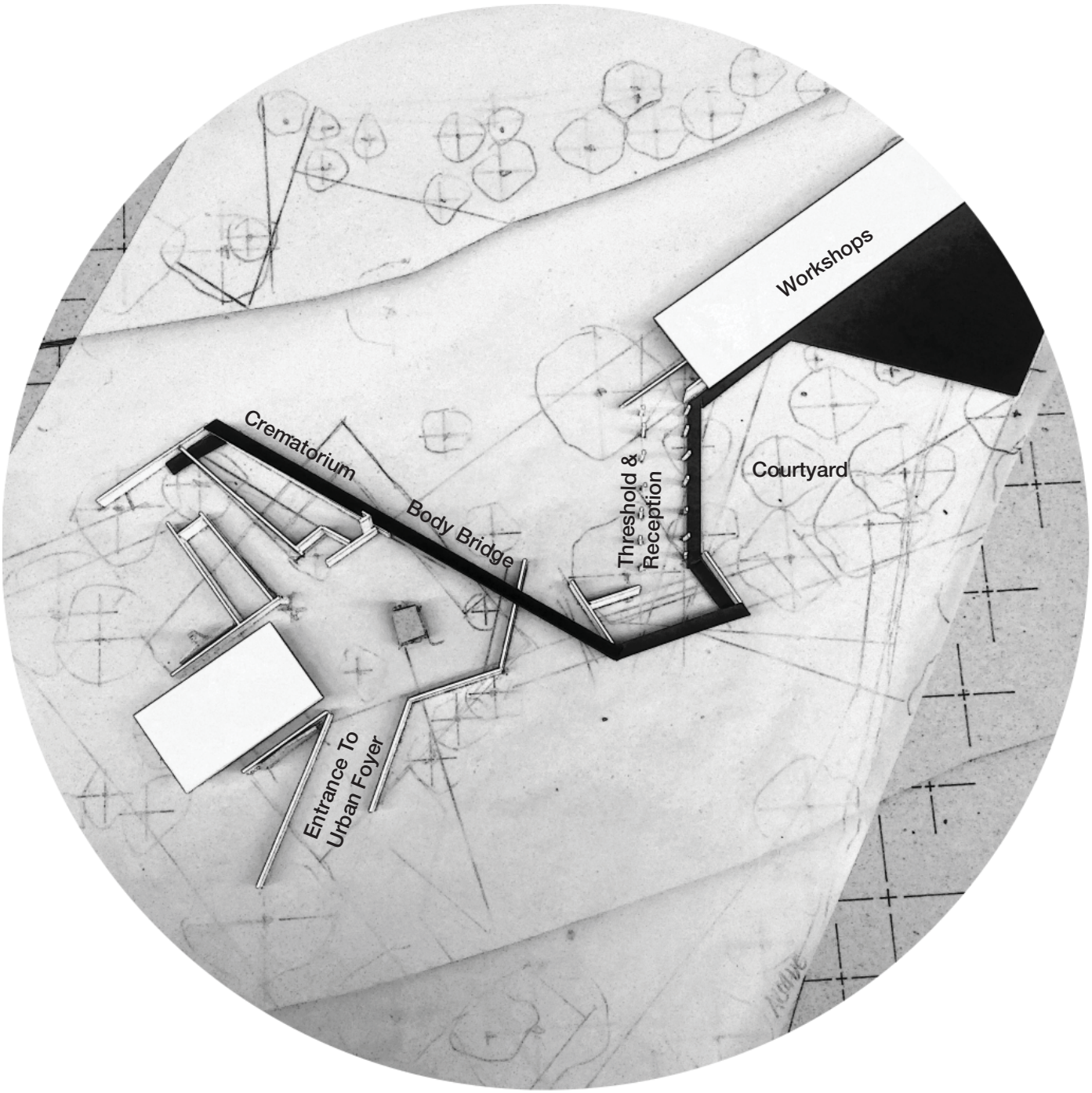


Fig 80 Site Enclosure and Connection Model (Author)

Existing Fabric

Existing and historic structures are exhibited and physically used to guide the experience of place; with existing site features like chimneys and the brick material being used to tie the clustered spaces into a continual axial narrative that lifts the existing fabric to a more sacred level. Tree life guides how spaces are arranged to retain the maximum amount of trees possible, and existing arcades and desire lines are taken into the spatial response to site by regulating wall geometry. The geometry arising from overlaying axis, existing fabric, trees, desire lines and programmatic and conceptual ideas results in a clear arrangement of site and buildings. In so doing marries profane needs for connection, movement, public outside space and programme with the sacred nature of retreat, expression, historic built artefact, tree life, landscape and feeling of the site as place with identity.

Fig 81 Existing Fabric and Site Wall Articulation Model (Author)

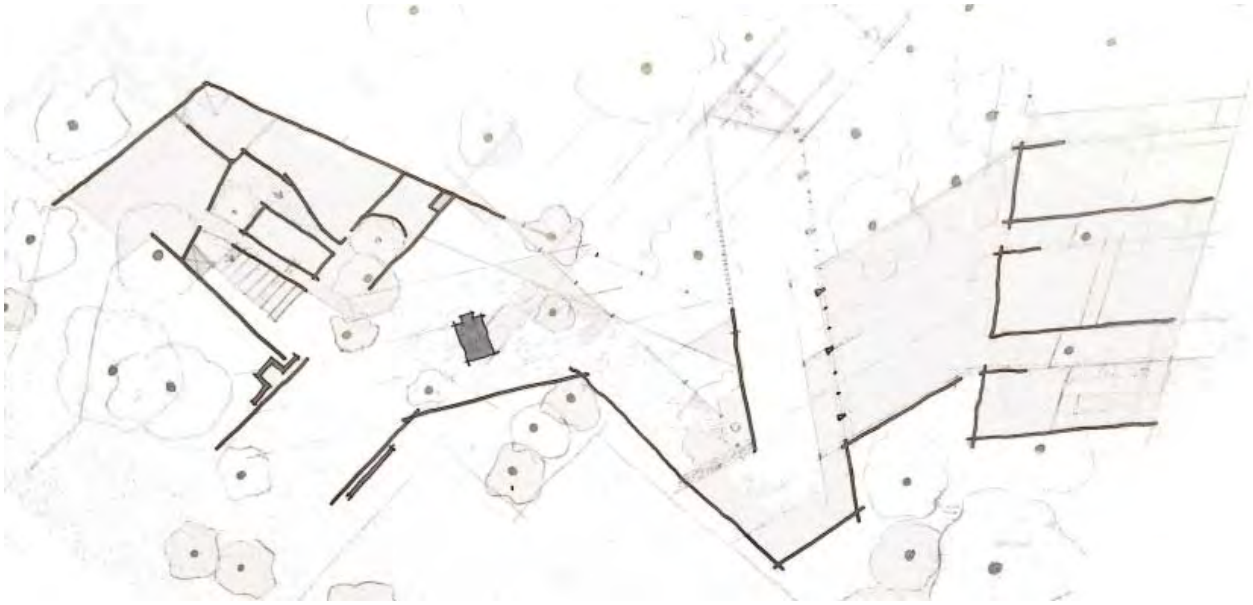


Fig 82 Cremation Relationship To Adjacent Buildings (Author)

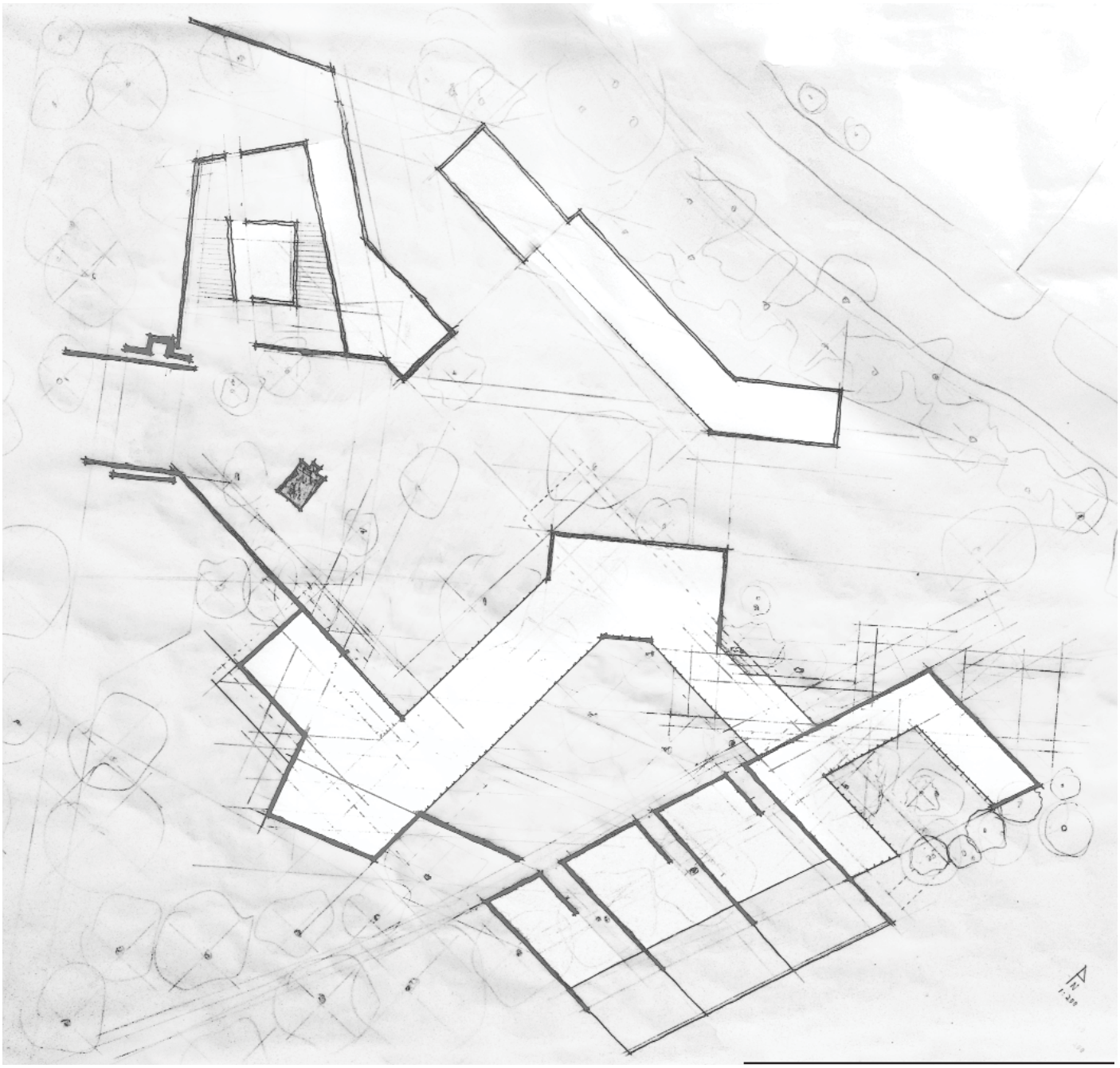


Fig 83 Finding The Right Angles For Final Building Plan (Author)

Built Form and Spaces

Formal arrangement and articulation is framed around heightening experience along routes and through thresholds, so as to elevate the pivotal moments of death and grieving as a defining element of life to a more celebrated state. Courtyards, lowered spaces and ritual routes create experiential thresholds that are intensified by elements like light and water to guide and orchestrate spatial experience. Abstracting but retaining contact through mainly light, water and air as well as plant life to the outside creates spatial temperatures and enclosures distant from everyday experience to mark these as extraordinary experiences. In keeping with this, spirit spaces that do not need to be fully enclosed are left open. Circulation elements like stairs are used to focus experience inward and downward and are released onto large level surfaces to let spatial experience wash around and into the mourner. Circulation twists to abstract inside space from perceived outside space and invites the mourner to enter the process as a new reality. Conversely movement out and up are more linear, aimed at and supplied with ample light to create the feeling of upliftment and release. This very much correlates with the spiritual idea of moving towards the light, but also our inherent psychological need to follow light to the outside. Moments of pause and reflection are encouraged with continual access to seating and retreat niches.

Material to Form

IIn the face of impermanence and our eventual death, having an architectural response that gives grounding and strong spatial experience is extrapolated as a language of the more monolithic built form that revels in permanence

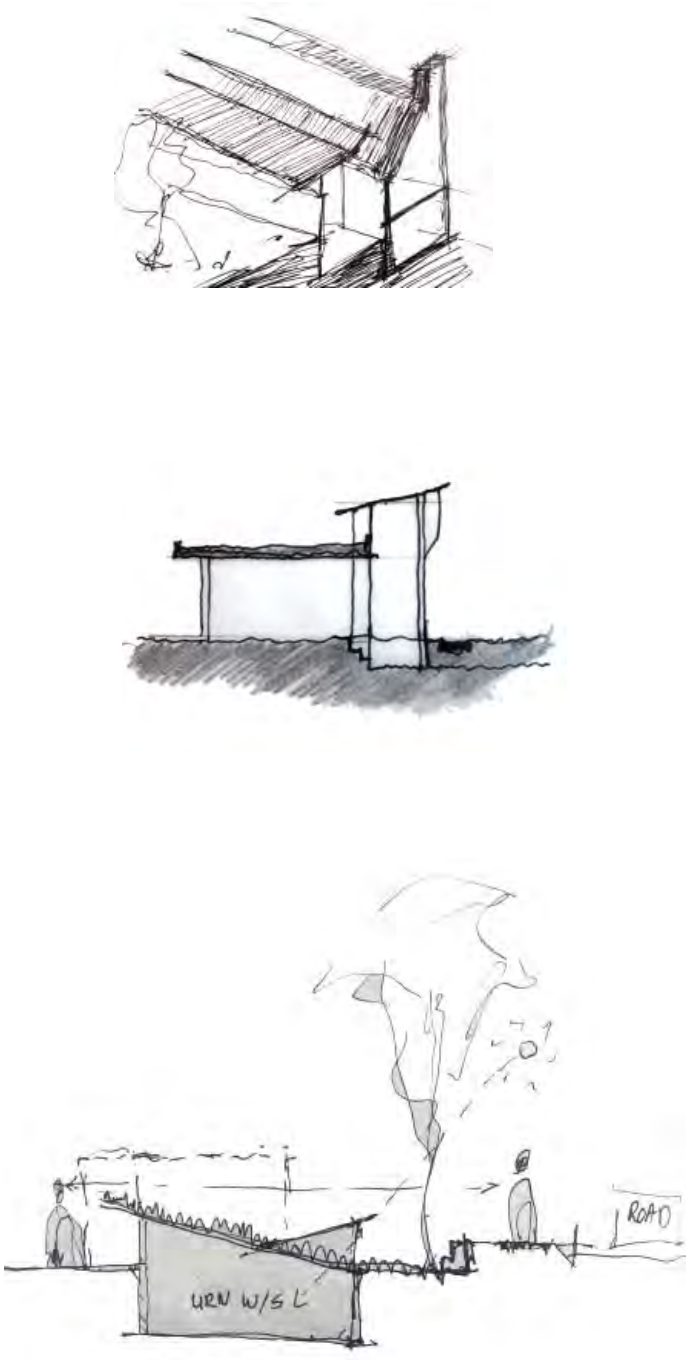


Fig 84 Space Typology Intentions and Daylighting (Author)

and weight. Brick is a material that can easily achieve warmth but retain the wanted weight; buildings should appear to sink into the green and treed cemetery site. Playing with architecture as a protrusion from ground and embedded in it also relates to burial and the introduction of the body into the eternal cycle of nature. The material response also relates to the historic brick structures on and around site as well as the soil colour, which binds it to the ground.

Hierarchy

Spatial hierarchy responds to the interaction between corpse, family and visitor. Spaces in which the corpse and the family interact are most spatially generous to create an atmosphere of awe equivalent to that of cathedrals, temples and mosques worldwide. This monumentality is not seen as a flight of fancy but rather a necessity in giving the rite of burial the required sense of dignity and spiritual depth. Monumental spaces without acoustically absorbent material create spaces that encourage silence by amplifying even the smallest sounds. In so doing the sounds of movement, around which the valedictory spaces are ordered, create a rhythm in which this space is experienced and which amplifies a shared experience. The spaces where family moves are arrange around this culminating space and are second in the hierarchy of spaces. Service spaces are lowest in the hierarchy, superseded by the visitor who has the most human scaled experience, which responds back to the definition between the more profane everyday experience and that of spiritual turmoil. This ordering principle is rigorously applied to all spaces on site.

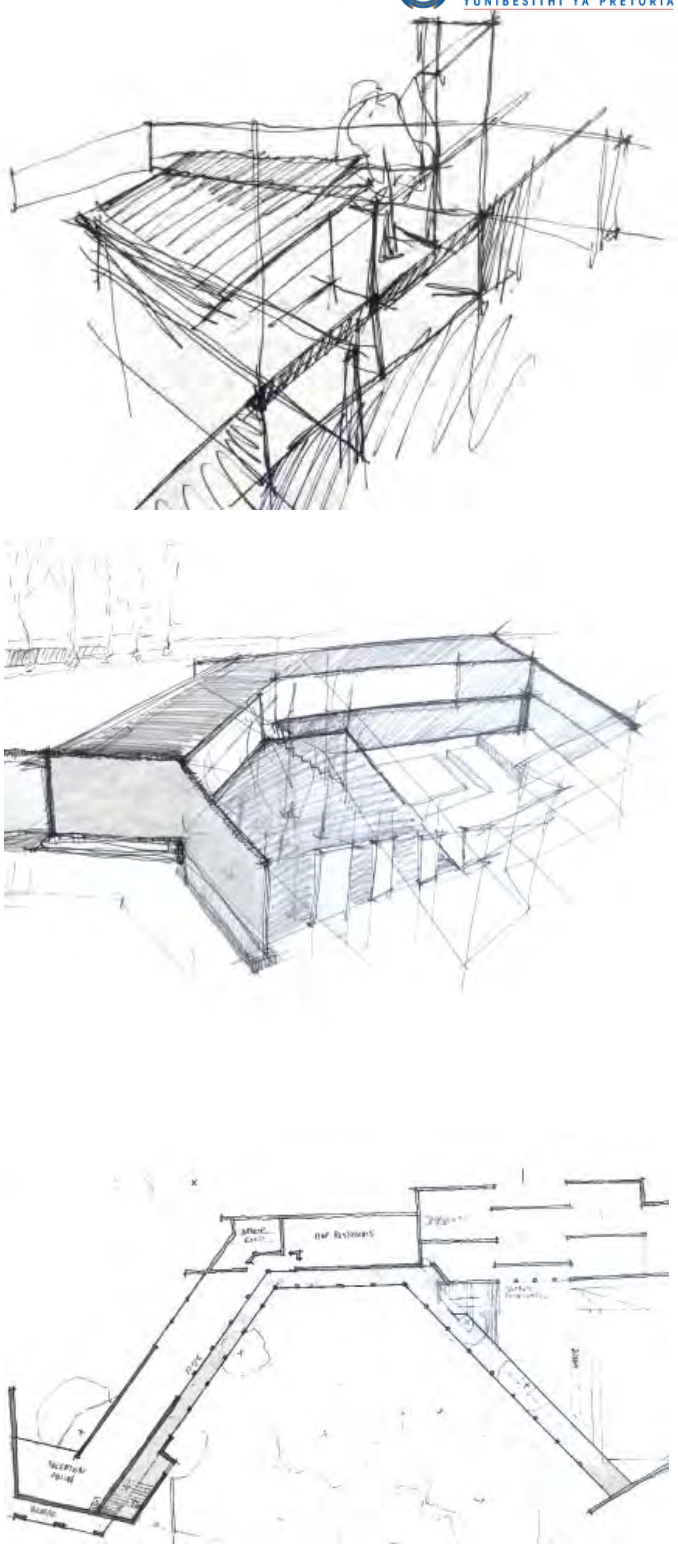


Fig 85 Formal Language and Plan Shape Experiments (Author)

The Crematorium – Saying Last Goodbyes & Entering the Body into the Eternal Cycle

The crematorium takes up a pivotal space in the scheme and would be the first building to be built, in order to allow more people access to a dignified cremation process. The current facility is fairly ramshackle and could benefit from a better image to advance the causes of alternative burial. Promession was added as an optional process that could be crucial in the future of more ecologically sensitive treatments of corpses, as its acceptance grows and ecological pressures grow. The procession starts at the reception, where a given family announces their presence and fills out the required paperwork. They enter this space which is recessed from the main axis by means of an internalised treed courtyard. From there the southern wing opens up to them, where they descend into the route toward the valedictory room. This transition is composed by a 180 degree angle to completely liberate the entrance from the public realm and perception. Stairs are elongated and gradual to allow for introspection and slowing down. A strong axial shift disconnects and opens up for new experience. The path toward a courtyard is filled with a mixture of ambient and direct light which intensifies as it proceeds toward the valedictory room, and further intensifies after that. This is accomplished by orientation and increase in openings. The circulation is essentially lowered and covered outside space; the element of water is welcomed in this sacred space and is a visible element along the whole procession. The courtyard space that the procession permeates into is a moment of pause available before and after saying one's last goodbyes. A large deciduous tree gives a natural relief to the mourner. Adjoining this courtyard is where the earthly remains of the deceased are laid out in

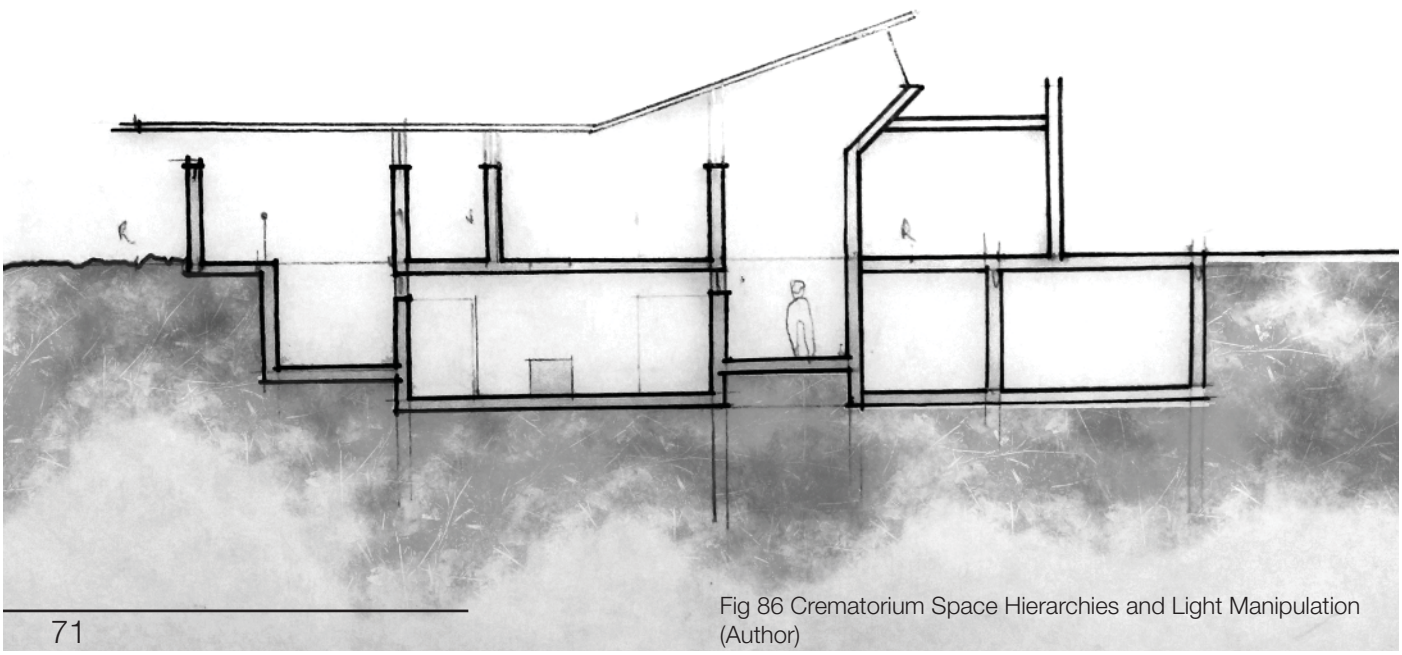


Fig 86 Crematorium Space Hierarchies and Light Manipulation (Author)

a sparse but vast room that asks the family to slowly move toward and around the body before re-emerging in the same courtyard they left. From here they can leave upward and outward. Restroom facilities are immediately available upon exit to wash ones face and retreat for a moment. Families that wish to follow the body all the way to the cremation or promession chamber can do so before exiting the facility.

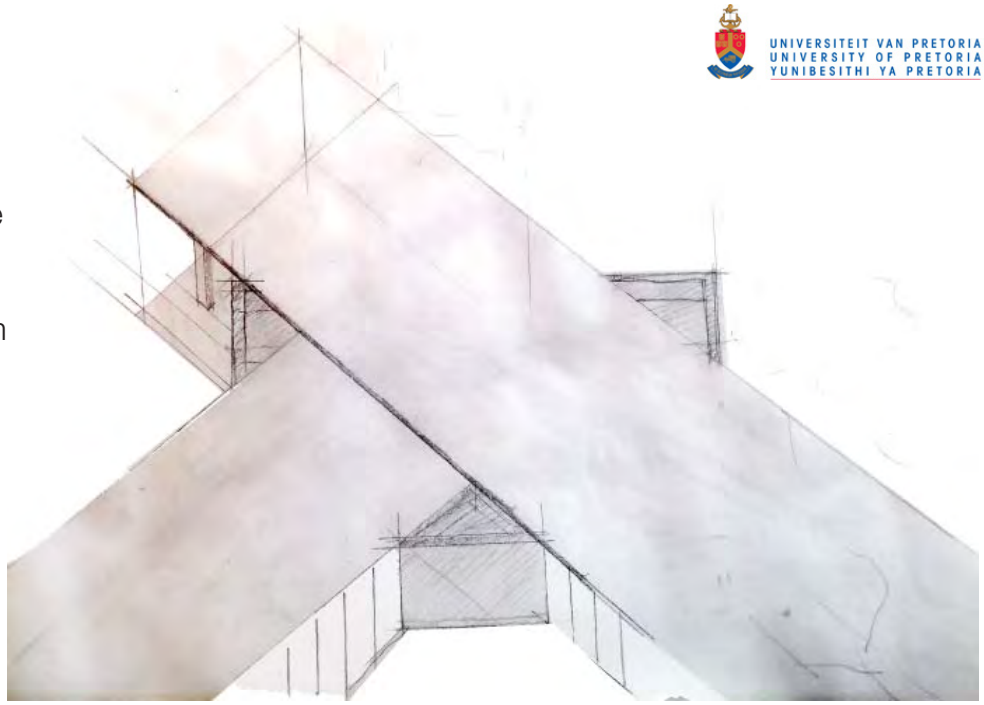


Fig 87 How Volumes Can Meet Each other (Author)

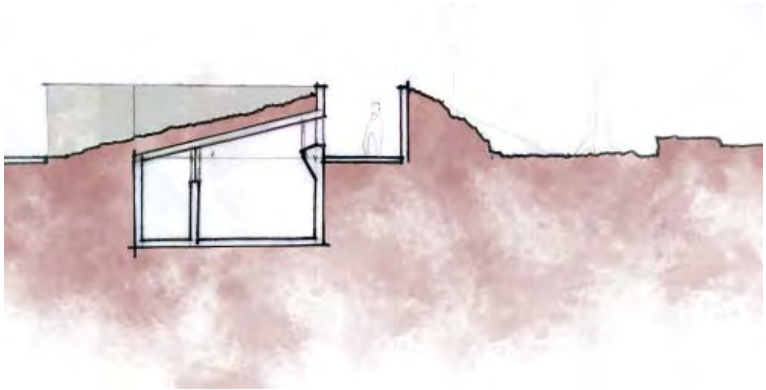


Fig 88 Sectional Exploration Of Workshops (Author)

Fig 89 Traditional Cremation Spaces In Section (Author)

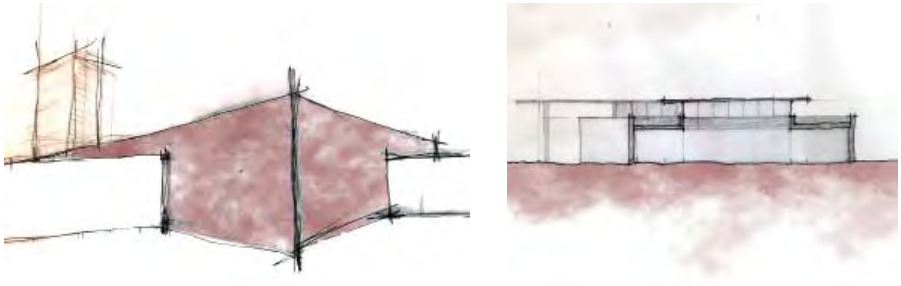
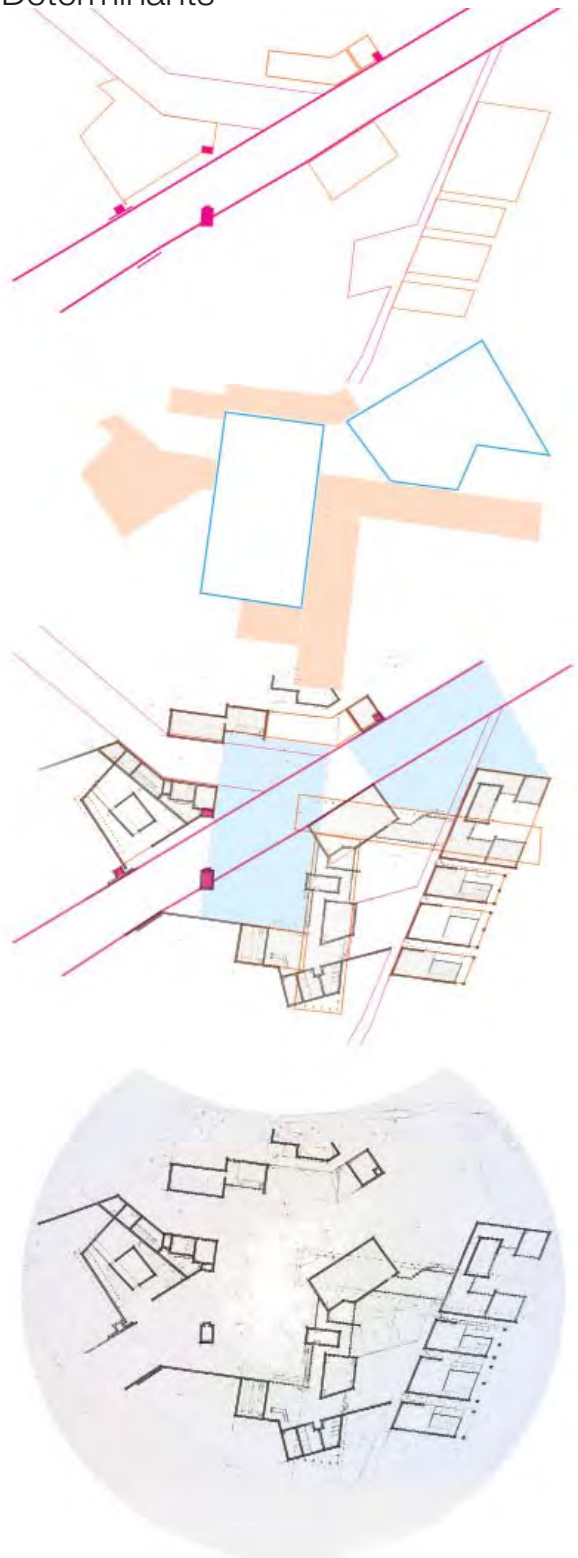


Fig 90 Volumetric exercises, Hall Section and Crematorium Section Ideas (Author)



Axis

Existing Structures

Desire Lines

Public Space

Programmatic Requirements

Trees Retained

Ritual and Functional Paths

New Gas Crematorium

Fig 91 Site Plan Geometry and Crematorium Routes & Relationships (Author)

Traditional Wood Cremation and Related Spaces

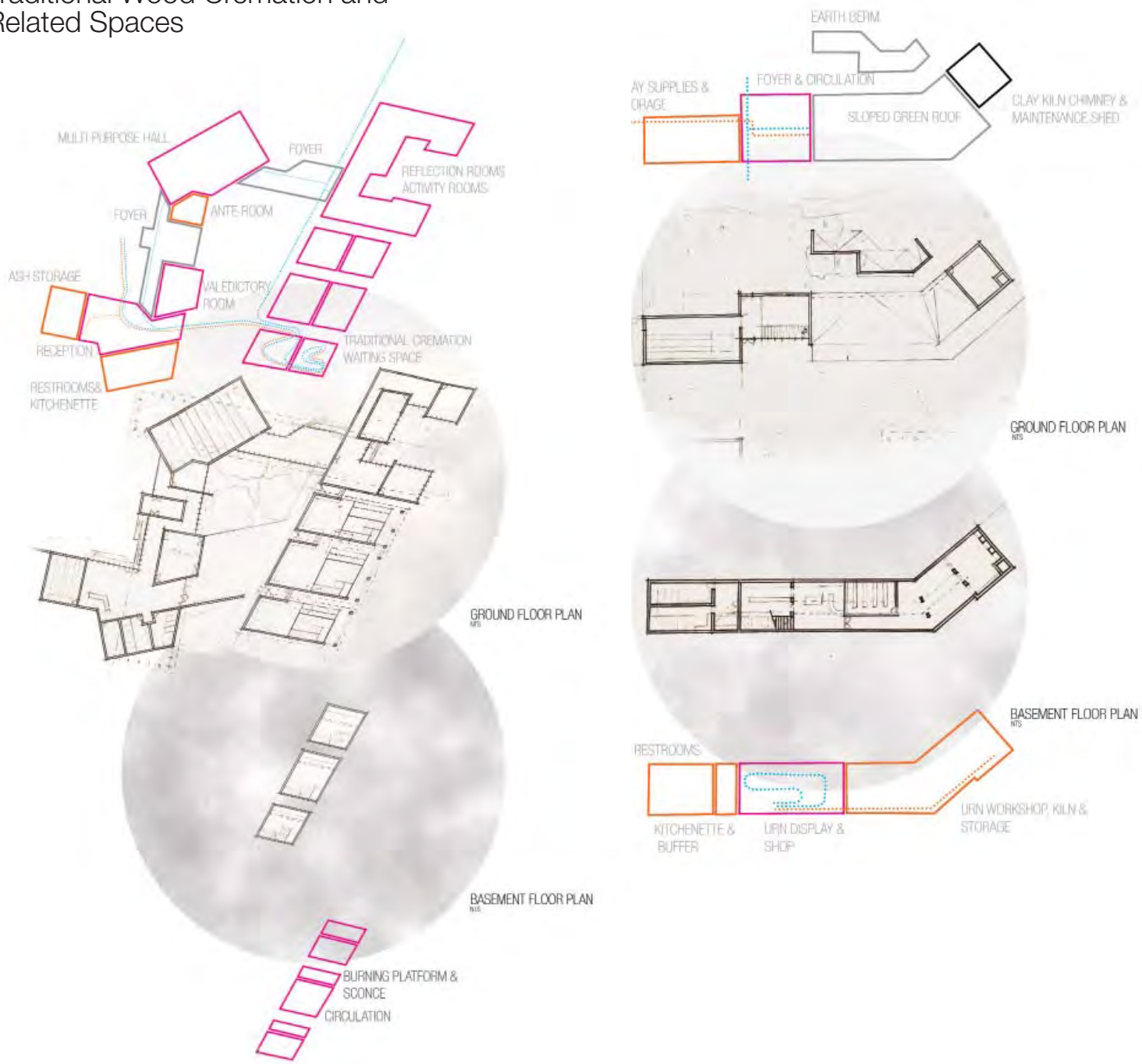


Fig 92 Multi-Purpose Hall and Workshop Spatial Relationships (Author)

Traditional Cremation Spaces – Cultural Expression and the Value of Tradition

Facilitating the process of the traditional Hindu cremation on a wood pyre is not only of cultural value but is far more ecologically sensitive than natural gas cremation. The cremation spaces are dependent on more profane spaces like the reception and restrooms, which have been separated to allow more flexible use of the service spaces for other functions, but also to give the traditional cremation more privacy. Here the cremation site, as on the banks of the river Ganges, is also the valedictory room, where the family can view the body to say their last goodbyes. The lowered cremation spaces have a waiting area in which the family, in traditional manner, can wait after the lighting of the pyre for the skull to pop, in what is believed to be the moment the spirit is released from the deceased body. Smoke, just as is practice with modern crematoria, must be channelled into a chimney with a smoke filter to reduce smells, contaminants and reduce environmental damaging particles. In earlier programmatic iteration the bodies destined for traditional cremation would have been moved above or below ground. Below ground would result in a quite invasive procedure with rather sad submerged spaces, the disconnect created by floating it above, and the effort of getting a body up and down made these options practically unappealing. By moving the body across the site, the procession could be visible to the everyday user without presenting an indignity or ethical dilemma—since the body itself would not be made visible, but transport carts would be a reminder of what is happening. In this way the mortuary can also function for both cremation facilities. The body would be checked in after arrival, checked out, and checked in again as soon as it arrives a few meters away at the reception dedicated to the traditional cremation facility.

The original design foresaw one large sunken courtyard for this purpose, but its integration into the cemetery and adjoining structures was reconsidered to allow up to three funeral pyres at any given time, to give families more privacy and space. Ashes left after burning would be collected and inurnment in a room dedicated to this purpose on site.

Multi Use and Spaces for Festivities

Spaces that accommodate the festivities preceding and following the rites of passage are made available on site, but also double as the most mundane active spaces, as well as the most profane spaces, in order to increase their 24 hour usefulness. These spaces are used as yoga studios and workshop- or community spaces, if they are not rented out for the festivities. These include an auditorium style hall, large inside spaces with foyers and access to the outside for dining and celebration, as well as spaces with ample light and smaller dimensions as studios for meditation and yoga.

The Urn Making and Pottery Workshop

The productive component of the proposal is the pottery workshop, which, although a programmatic outlier, has a very direct need and site relationship to uphold. Not only are dignified, affordable, personalised, and local urns largely unavailable to the South African marketplace, but clay products have a long history in the Hindu culture, and can be a valuable and easily

facilitated source of income. The inverse parallel is seen between cremation – as a once living entity being transformed into its constituent parts by fire—and pottery—fire forging clay into a state in which it is a productive and wholesome asset to daily life. The kiln ties this programme into the exposition of chimneys on site.

Fig 93 Crematorium Spatial Exploration Model (Author)

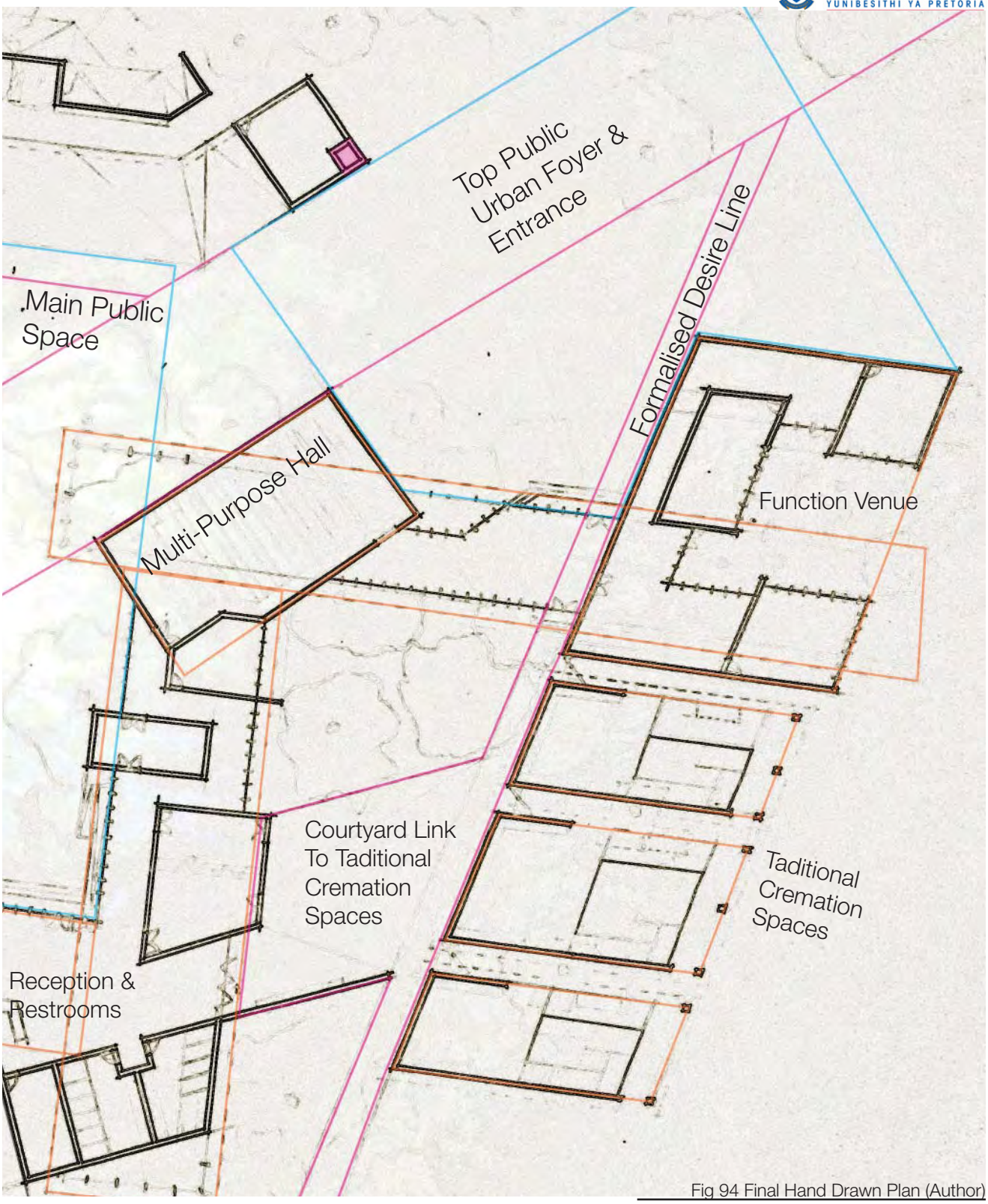


Fig 94 Final Hand Drawn Plan (Author)

The first digital iteration was very important to establish the language and geometry explored by hand before as accurately as possible. This Iteration managed to establish the inside/outside relationships and general gestalt of the project. It however lacked vast amounts of internal spatial and formal articulation. The functional relationship and its conceptual realisation had not established discernable hierarchies. Architecture evocative enough to illicit deepened experience still had to be severely strengthened. The form expressed itself in a very drab floor, wall and roof assemblage without deeper manipulation, which is a common downside inherent to the nature of architectural software. Public space needed formal articulation beyond being framed by architecture. Relationships between buildings started to evolve, but were mostly tentative. Altogether the formal language did not present itself with the required ambition or vitality to create the heightened experience suitable for the theme of mortality as it is represented by function and site (namely cremation, and an old cemetery).

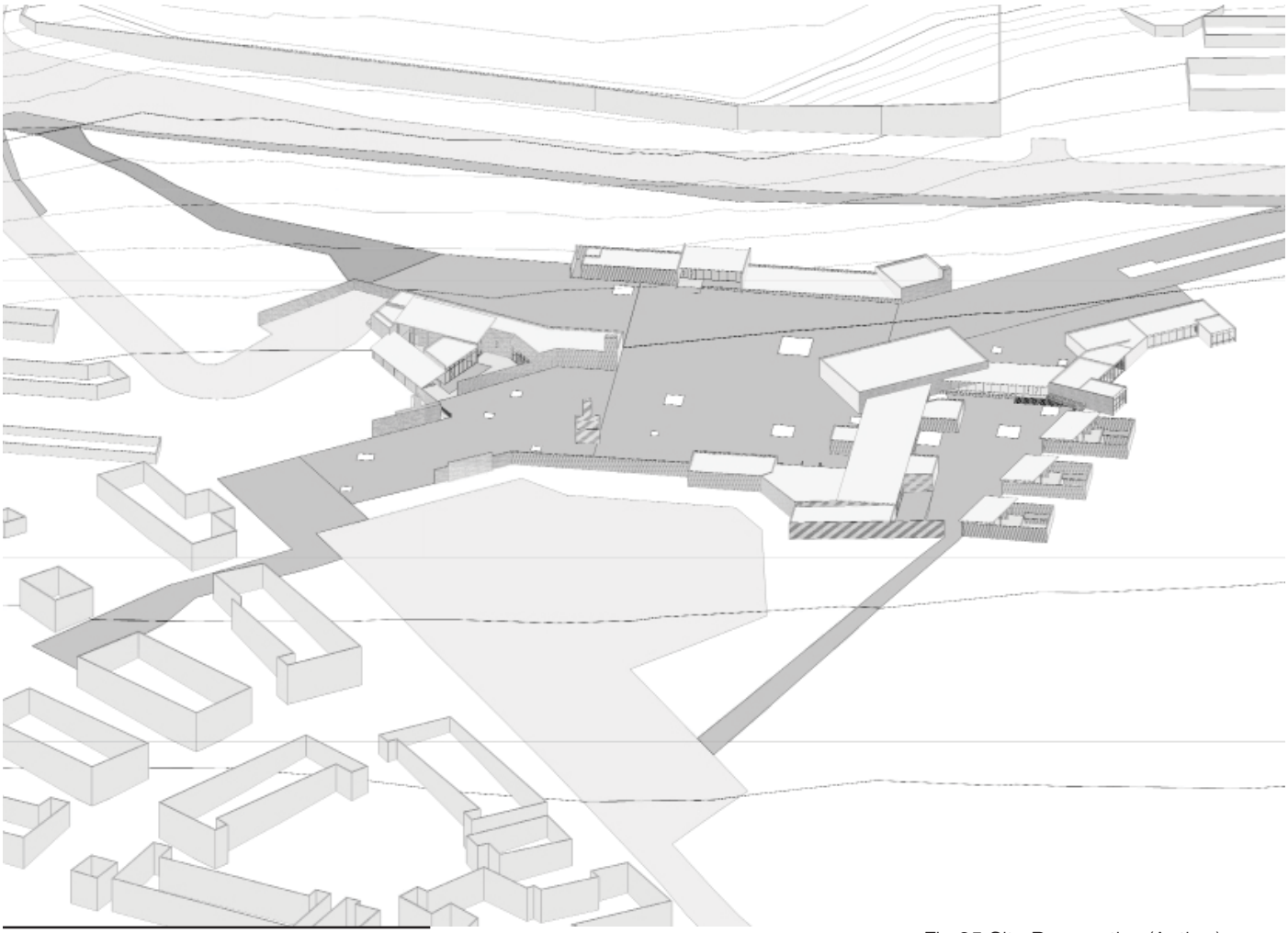
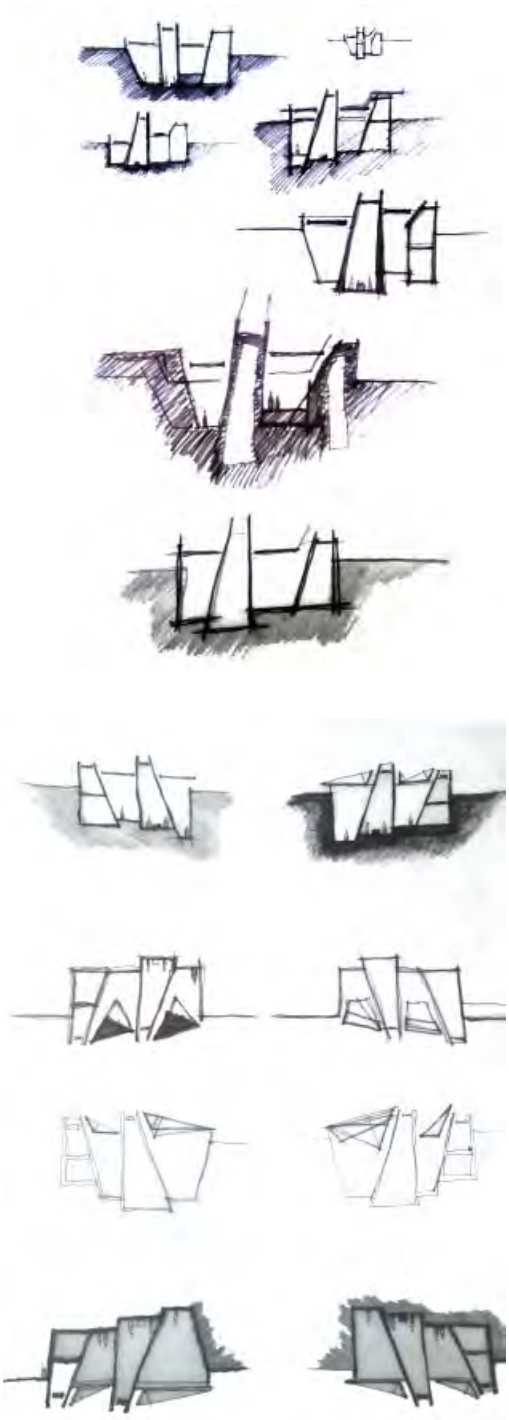
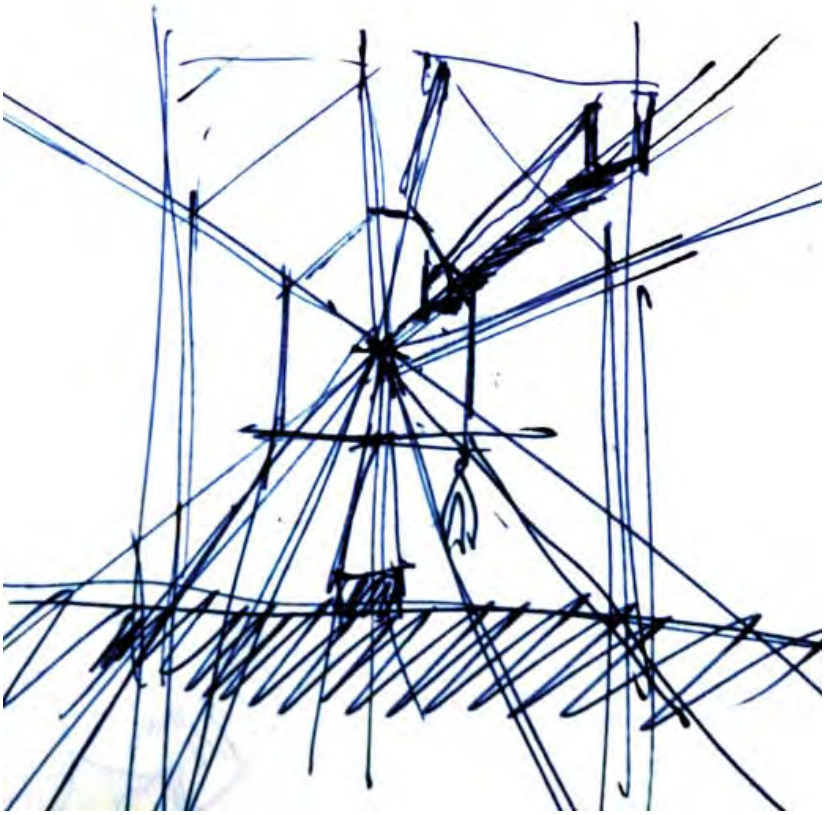


Fig 95 Site Perspective (Author)





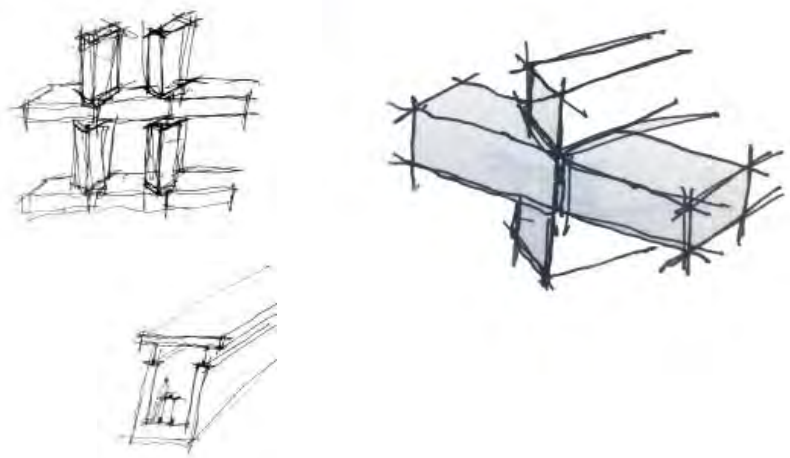


Fig 96 Sectional Gestalt, Perspective and Detail Explorations (Author)

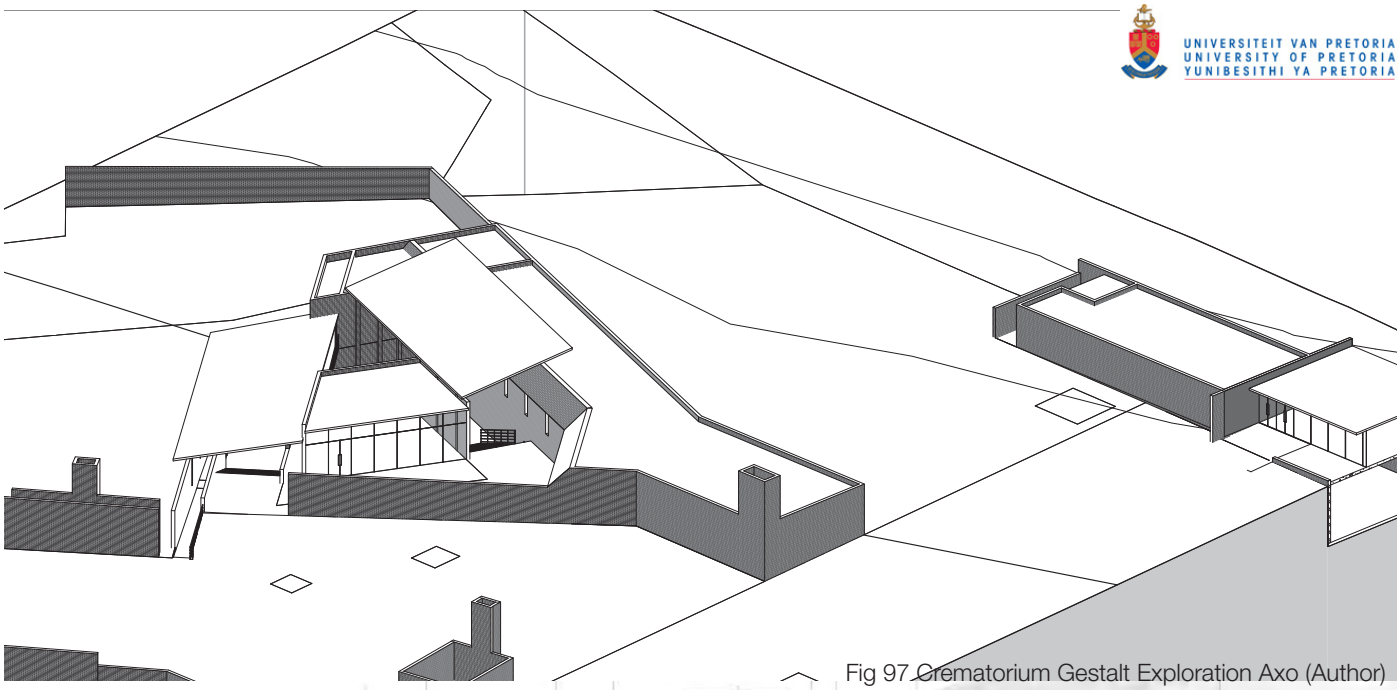


Fig 97 Crematorium Gestalt Exploration Axo (Author)

Fig 98 Site Plan Iteration (Author)

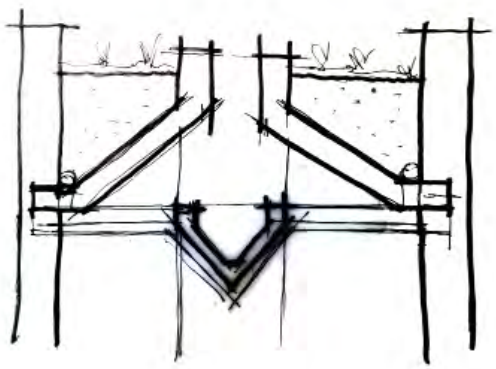


Fig 99 Roof Section Idea (Author)

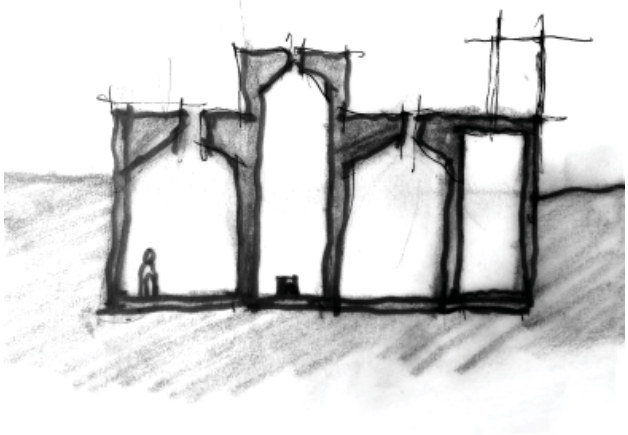


Fig 100 Monolithic Sectional Exploration For Crematorium (Author)

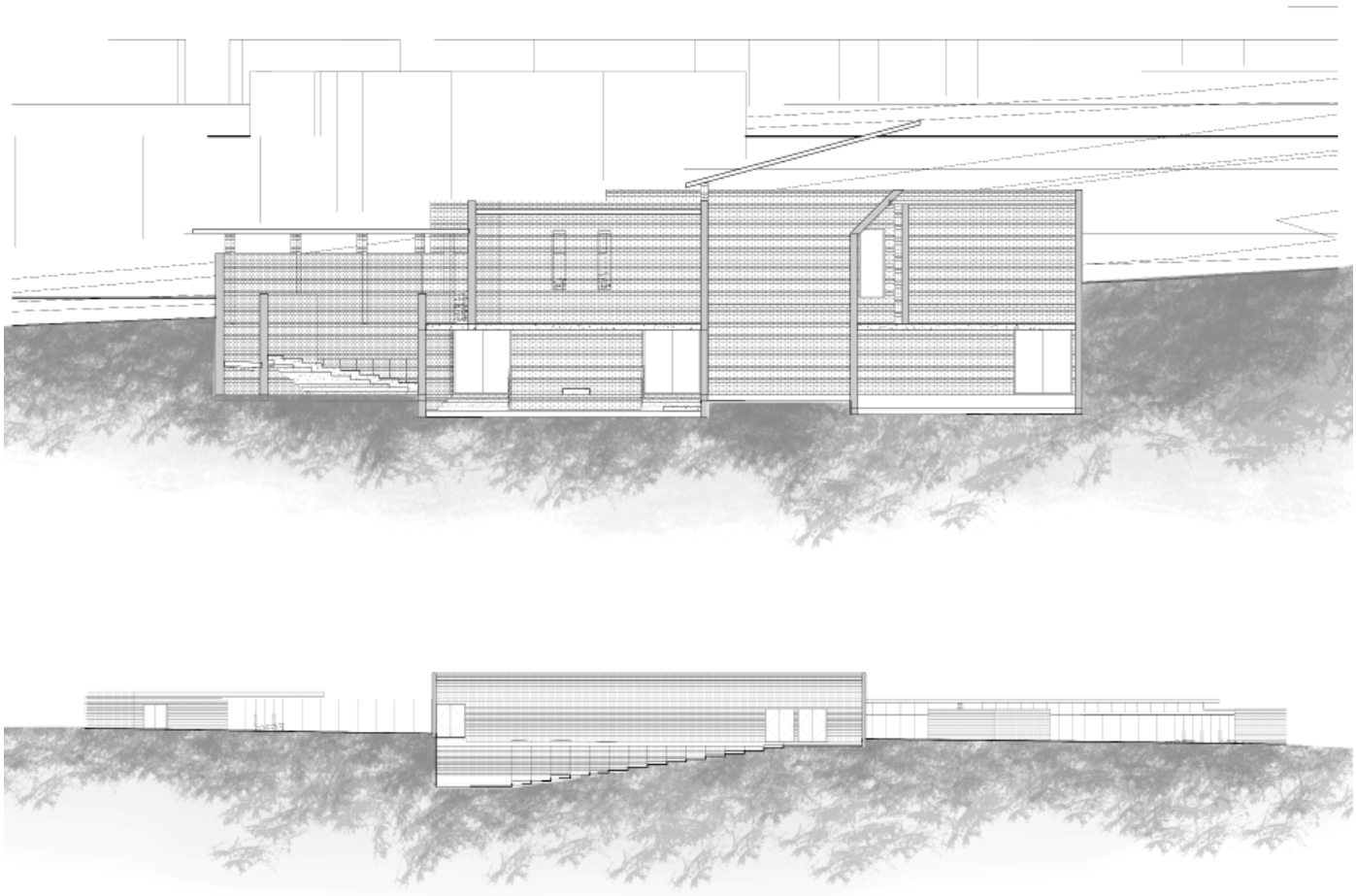


Fig 101 Early Crematorium and Hall Sections (Author)

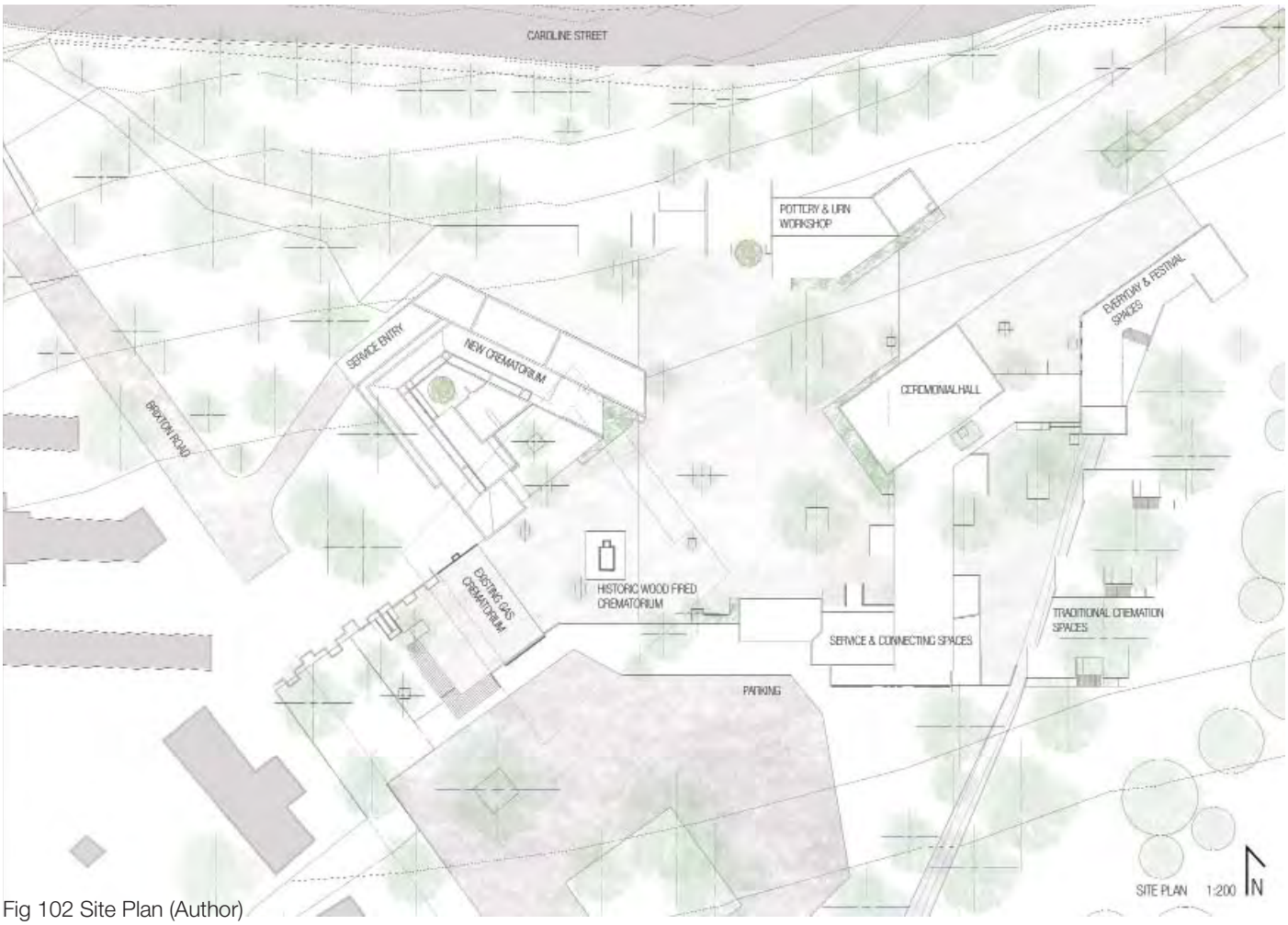


Fig 102 Site Plan (Author)

The second iteration improved on the experiential and formal articulation of the spaces, by playing with level differences and rearticulating thresholds. Each building was reassessed to distance itself from the rational and reductive nature it assumed in the translation to the digital. Site access and the ritual that goes from parking lot or sidewalk to the main entrance are designed for, and the experience lifted beyond the mundane by lifting the visitor up to the site and into its core, the framed outside spaces. The relationship of wall to roof and spatial modulation in pivotal spaces, however, still lacked experiential value, and did not conform to sensible technical realities, particularly pertaining to water infiltration and flow around the envelope. The interplay of materials and specifically the nature and tectonic of the roof planes, did not conform to the spatial intention and did not meet in either aesthetically pleasing or in technically sensible ways. Main spaces received most of the attention, with most service spaces in dire need of resolution and integration with the formal language of the proposal.

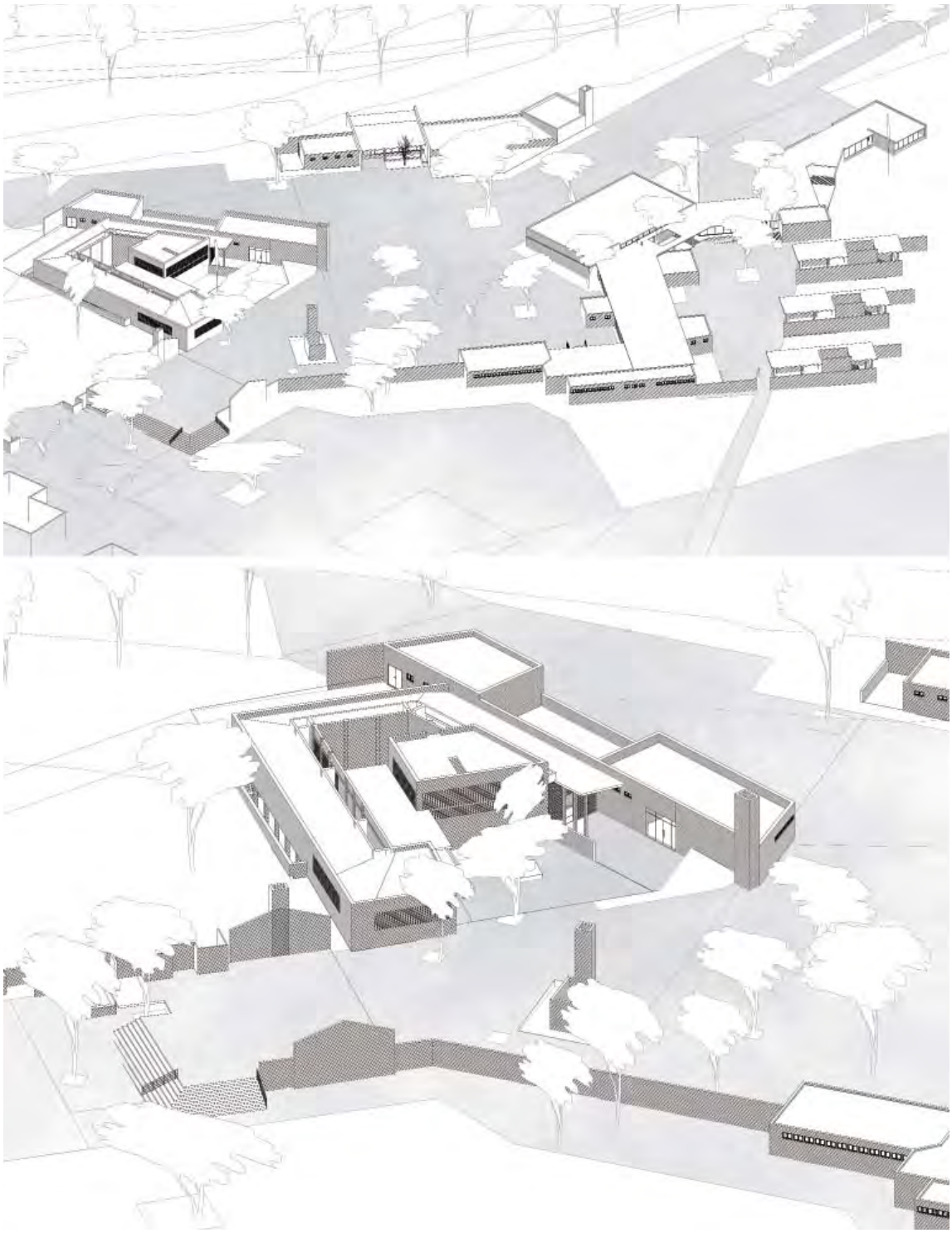


Fig 103 Three Dimensional Explorations (Author)

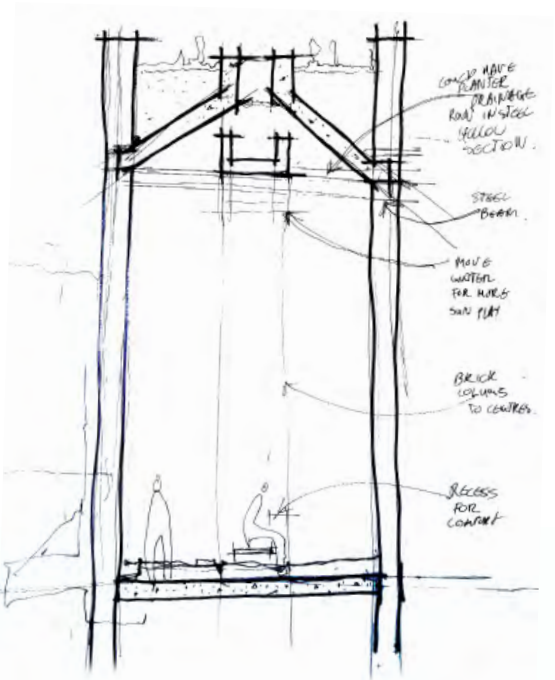


Fig 104 Experience of Height and Light in Section (Author)

The language of the brick wall was overtly dominant and did not release or exhibit roof planes which made for very uniform and unreadable spatial experience. The built fabric, although more embedded in landscape than the previous iteration, shied away from actually integrating landscape and letting it meet the building properly. Basement spaces had not been spatially explored and needed relational behaviours to adjacent spaces. Floor treatments were not well considered and needed varying qualities. More manipulation of the user surface was required for immersive interaction with the spaces designed for. The integration of natural elements and light was more convincing, bringing routes and courtyard spaces alive.

Fig 105 Sectional Sketch For Earthbound Architecture with Light (Author)

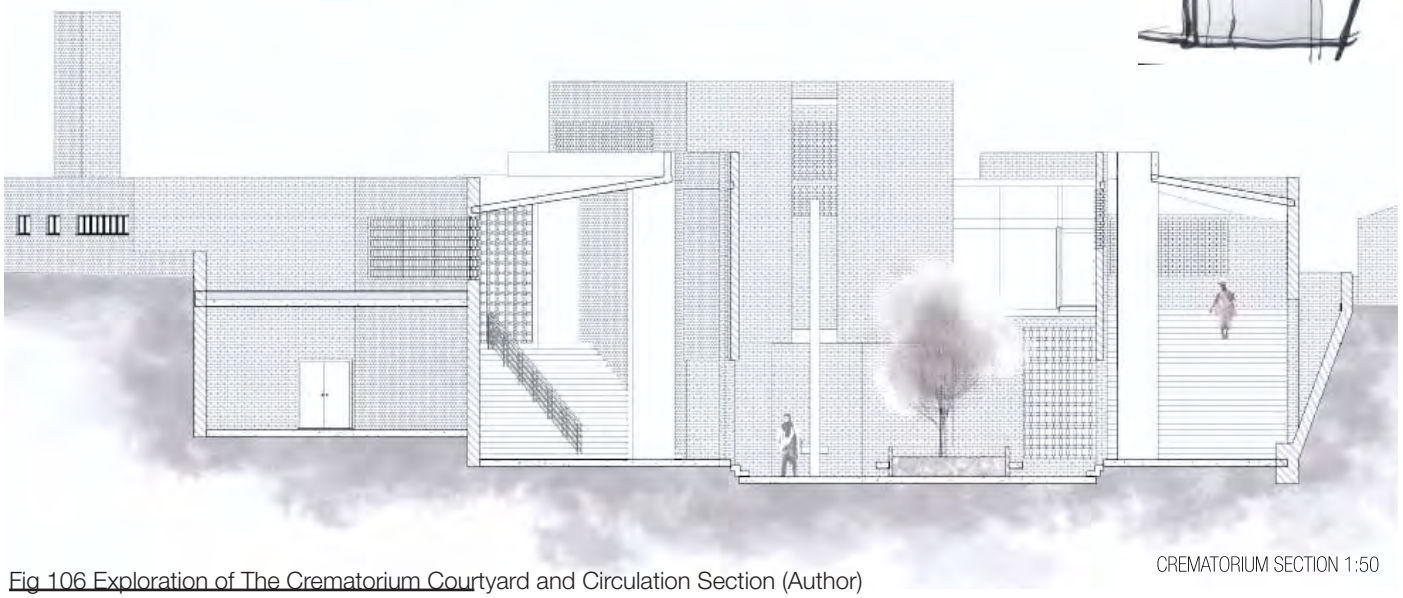
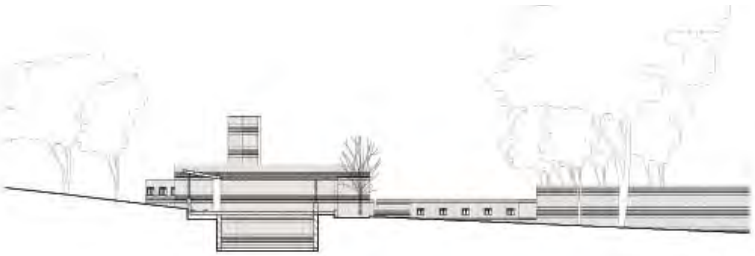
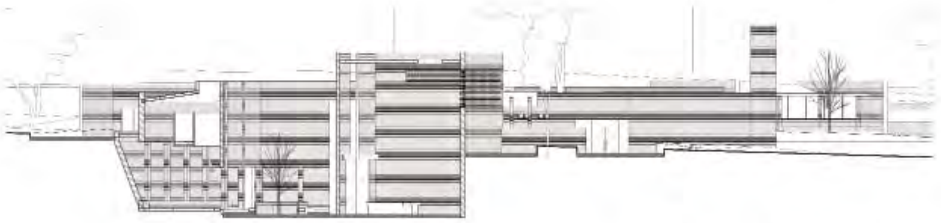


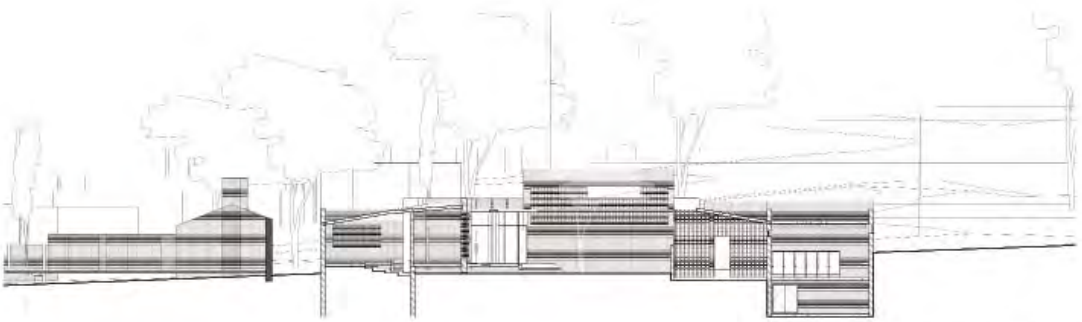
Fig 106 Exploration of The Crematorium Courtyard and Circulation Section (Author)



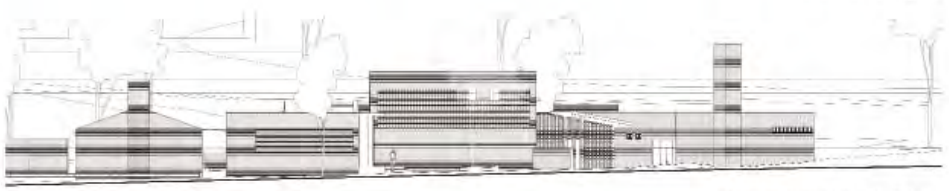
WORKSHOP SECTION 1:100



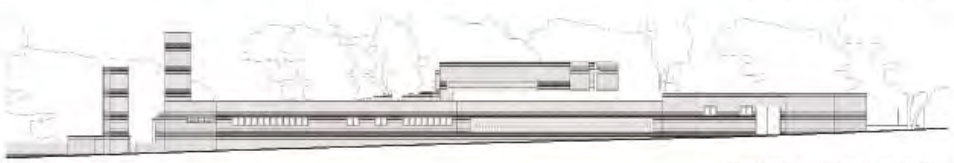
CREMATORIUM SECTION 1:100



CREMATORIUM SECTION 1:50



CREMATORIUM EAST ELEVATION 1:100



CREMATORIUM NORTH ELEVATION 1:100

Fig 107 Sections and Elevations (Author)

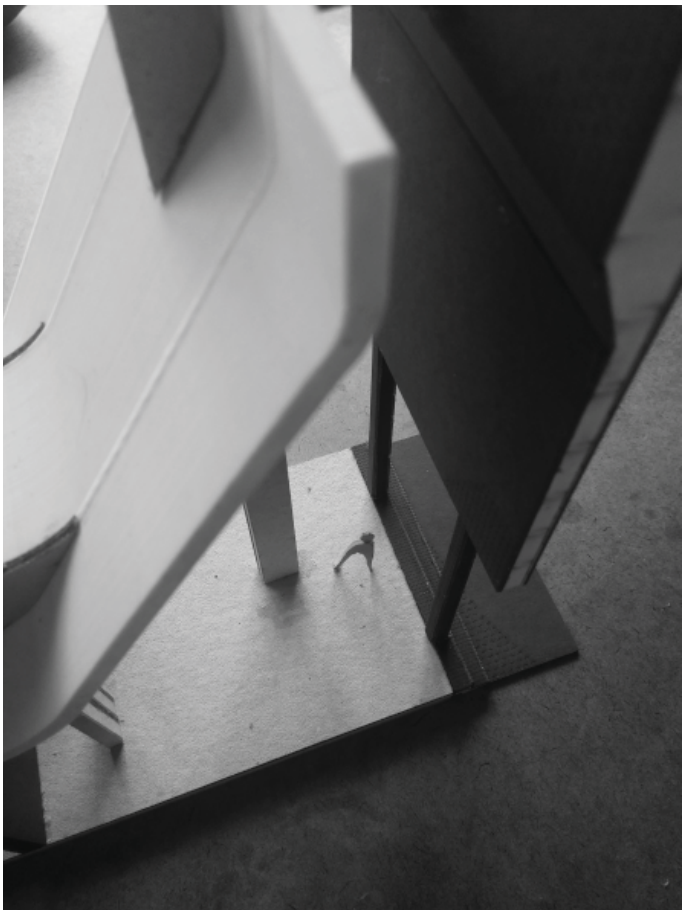


Fig 108 Space And Material Relationship Model (Author)

This is the last iteration before the final iteration. The articulation of roof and the internal programming and spatial arrangement are resolved. Technical interplay between roof and envelope are resolved by drawing the roof into and in topographical harmony with the site. The roof now plays a major role in defining inside space manipulating light and housing water services and ventilation. In this way the roof moves away from being a lid to the building but rather its defining characteristic and functional unit. Circulation tweaks and oversights of the previous iteration were fixed and showed great ease of use. Water and its passage around the envelope were designed around in detail for all structures. Functional units and components of the buildings were explored and documented in detail. The models created for this phase showed some structural fortification was necessary to retain both structural stability as well as visual stability and comfort. The retaining structures in particular needed rethinking in terms of structural rigidity and maintenance and possible water infiltration. The formal language of the traditional cremation spaces relates to the main crematorium in that both roof articulation and the dominance of circulation as experiential path is expressed. The plan geometry of the workshop is now more comfortable and functional. The design of outside seating areas and soft-scaping is treated in a manner to accentuate heightened moments of the design and to define thresholds from the main outside spaces to more secluded areas of the main circulation. This also gives trees their own space and seating walls around them to envelop visitors in the much needed respite from the South African sun under them.

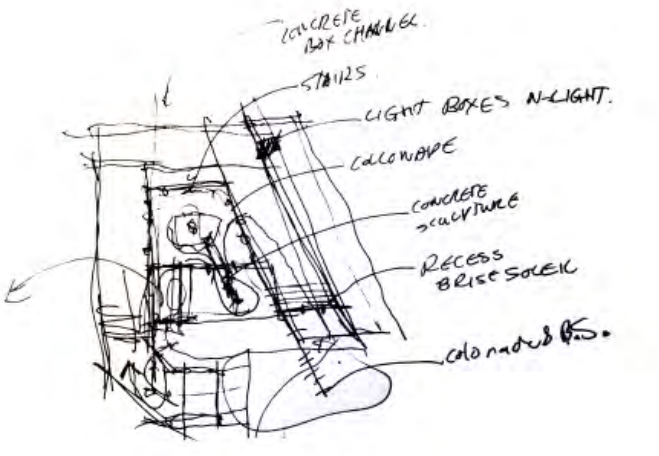
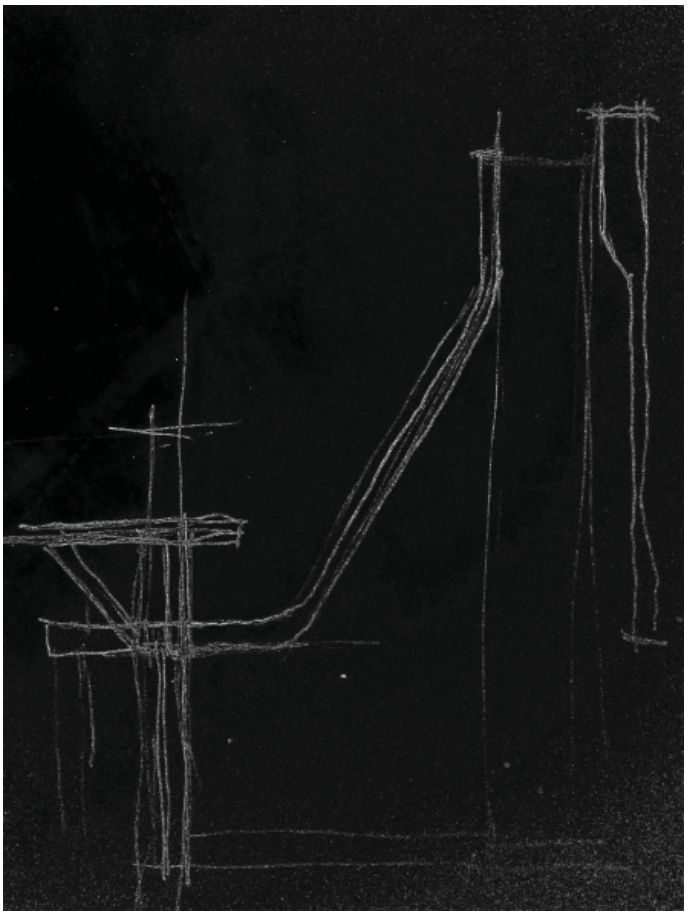
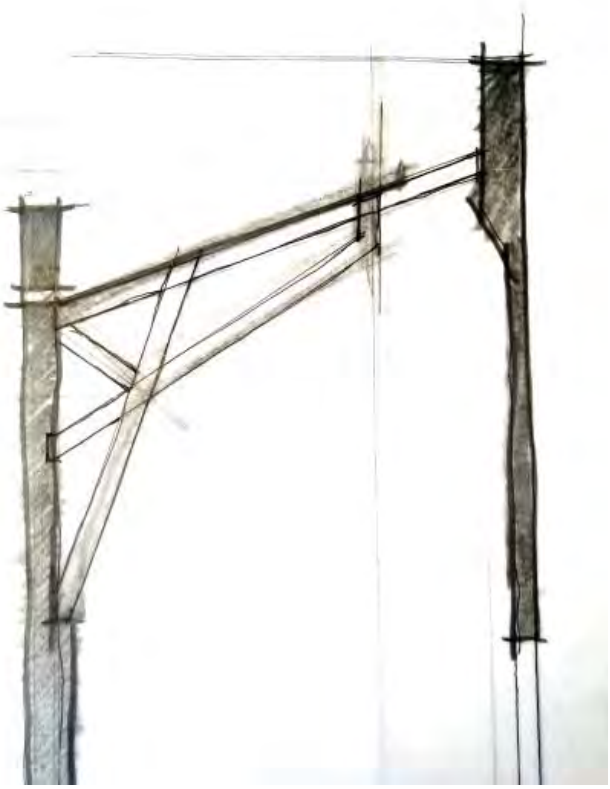


Fig 109 Choreographing Experience (Author)





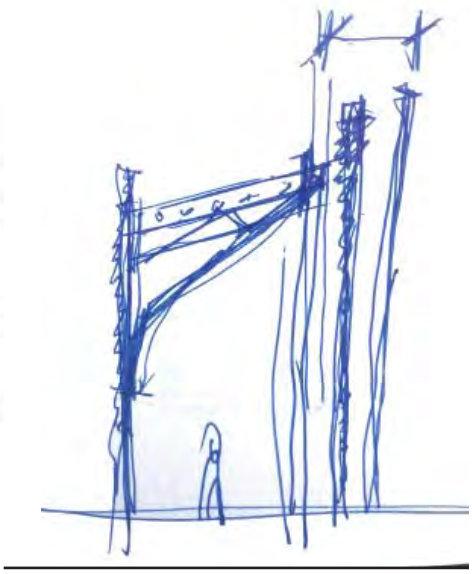


Fig 110 Roof Shape Iteration (Author)

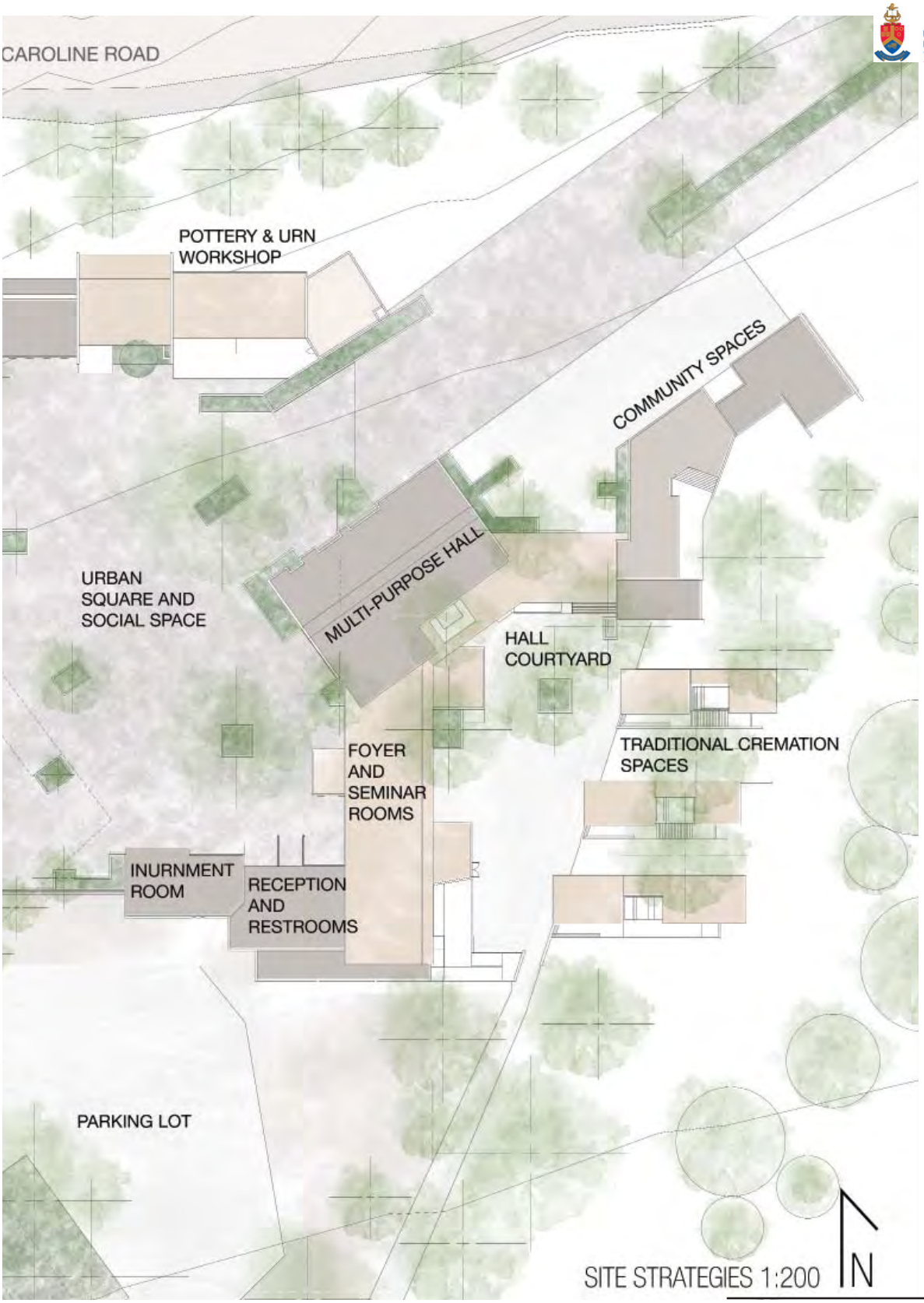


Fig 111 Site Plan (Author)

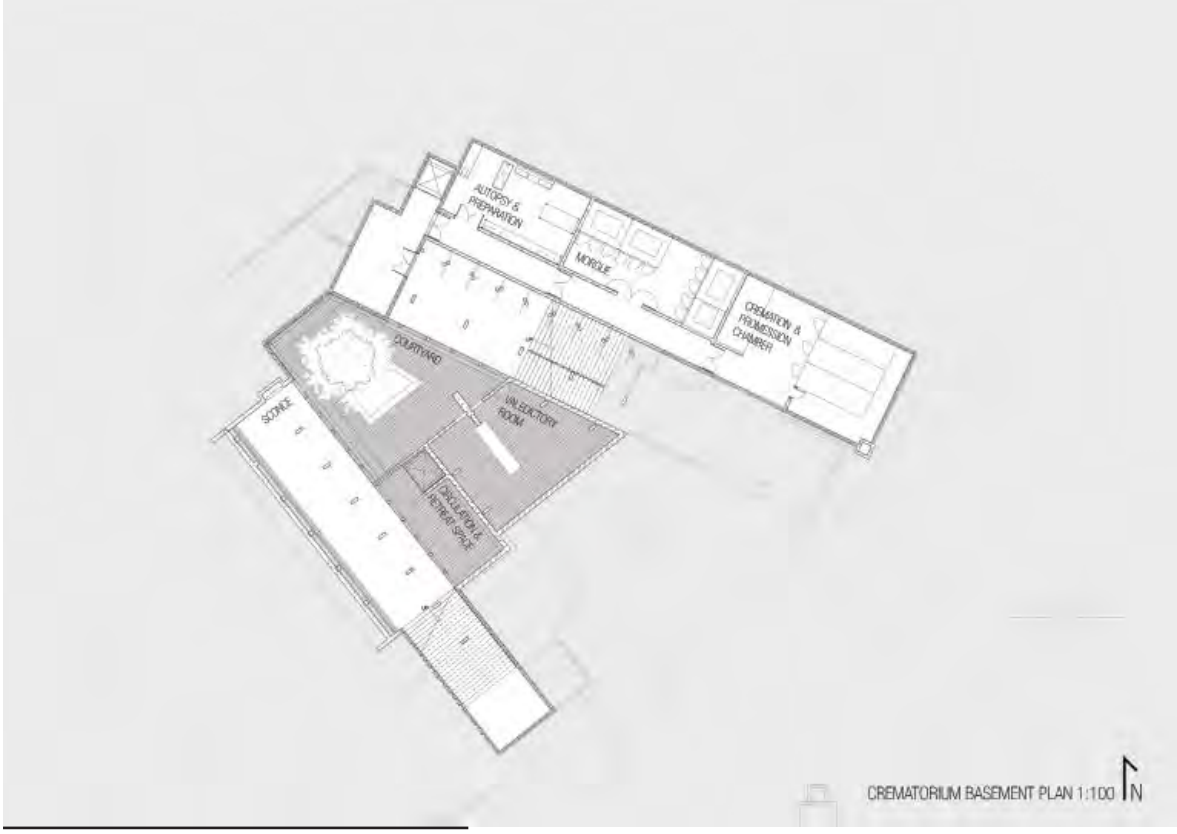
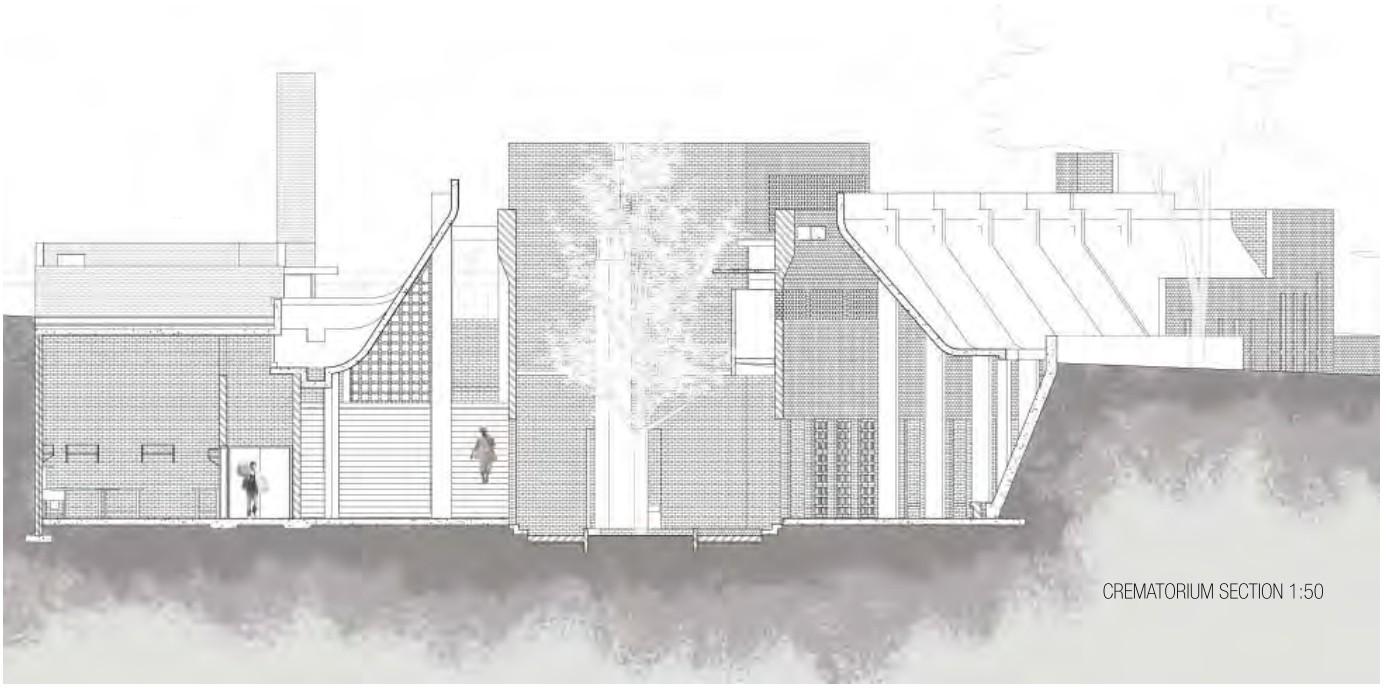


Fig 112 Crematorium Floor Plans (Author)



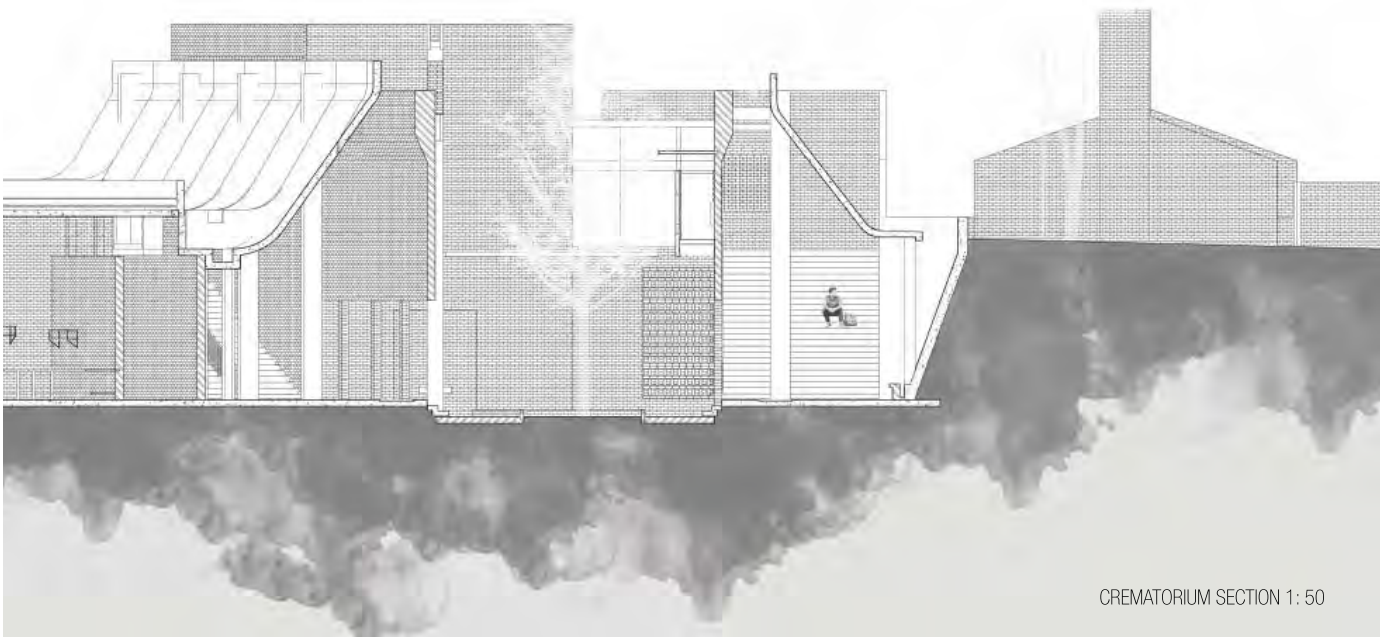


Fig 113 Crematorium Sections (Author)

Fig 114 Site Entrance Perspective Render (Author)

Fig 115 Roof Iteration Crematorium Entrance (Author)

Fig 116 Crematorium Circulation From Entrance (Author)

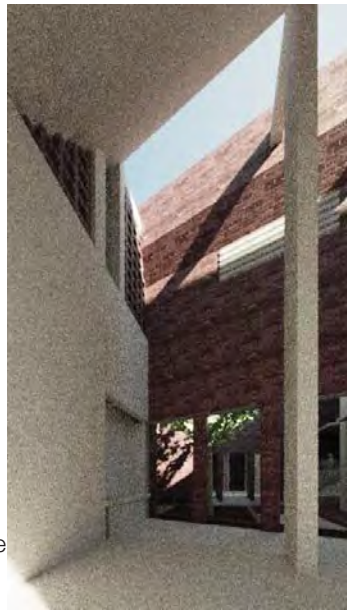


Fig 117
Crematorium Niche and View Into Courtyard (Author)

Fig 118 Crematorium Entrance (Author)

Fig 119 Crematorium Courtyard (Author)

Fig 120 Site Experience Perspective (Author)

Fig 121 Hall and Festival Spaces Plan (Author)

Fig 122 Hall Sections (Author)

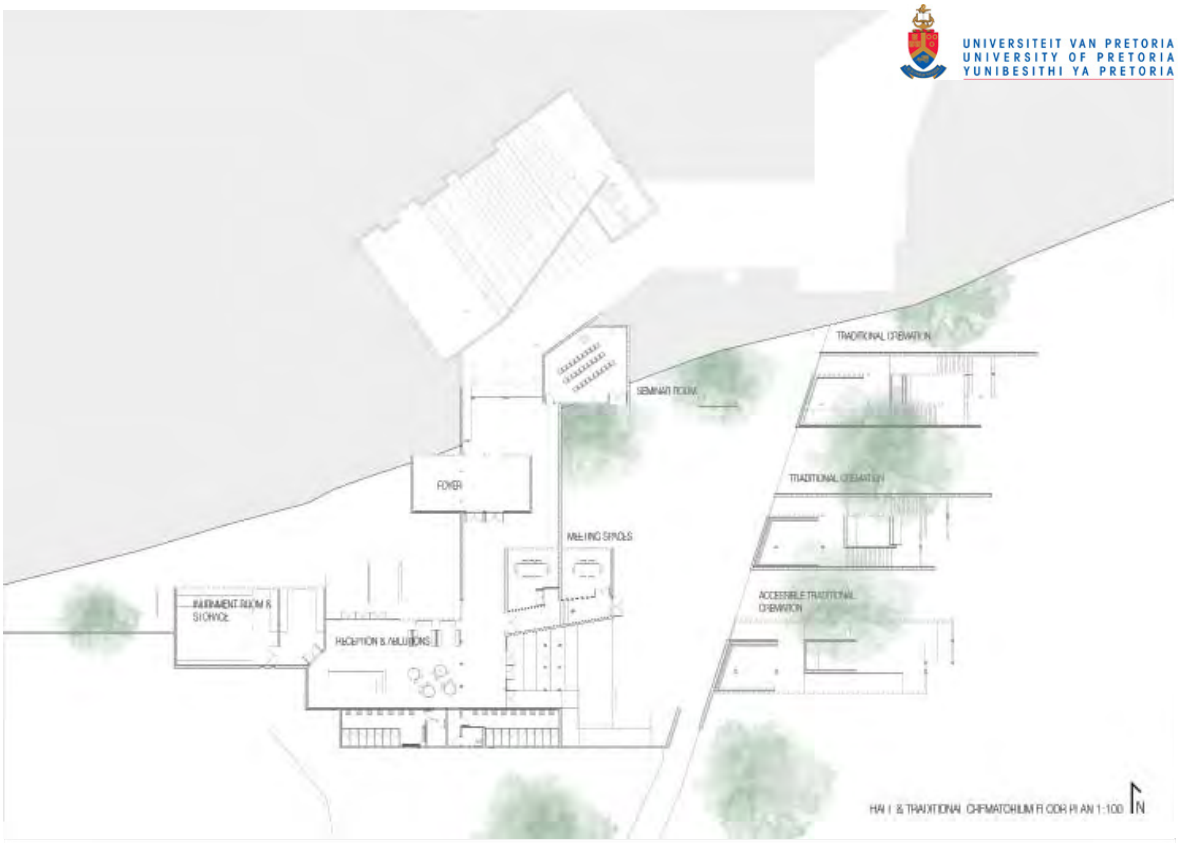


Fig 123 Hall Foyers And Traditional Cremation Plan (Author)

Fig 124 Traditional Cremation Spaces (Author)

Fig 125 Hall Courtyard From Foyer (Author)

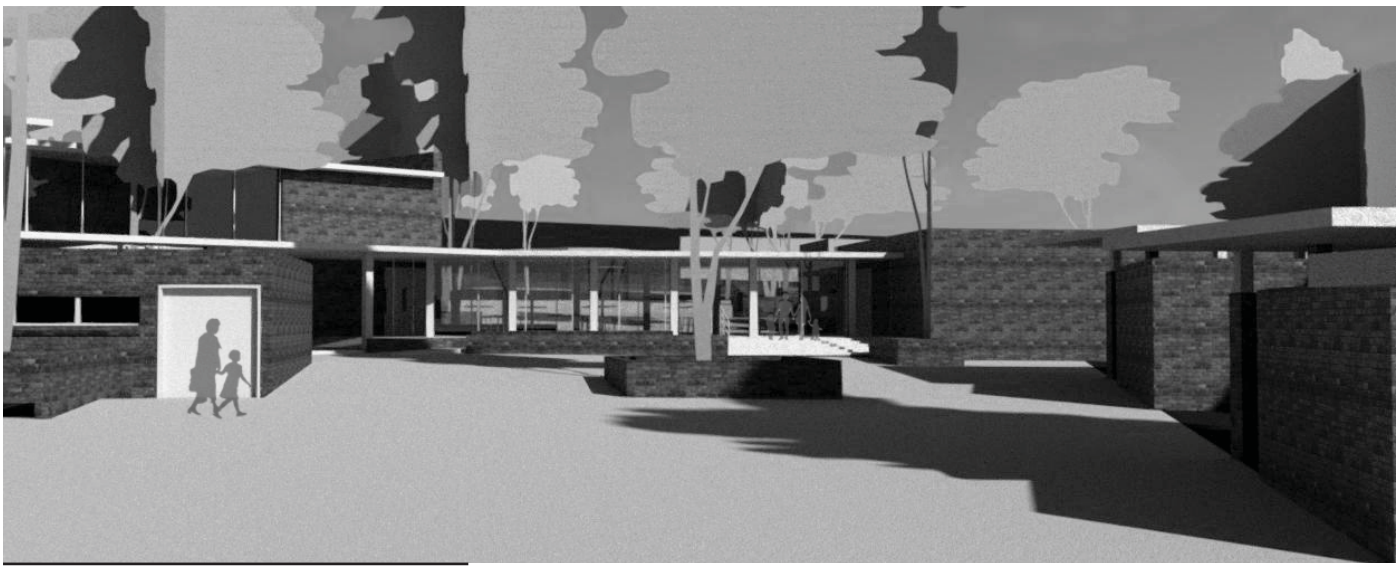


Fig 126 Hall Courtyard and Traditional Cremation Spaces (Author)

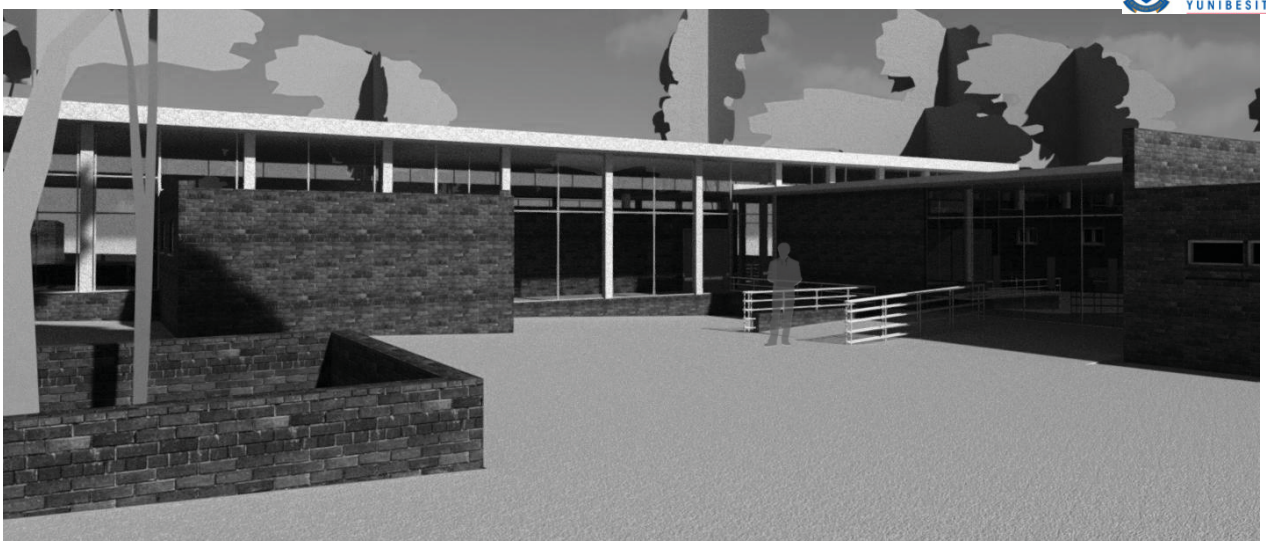


Fig 127 Hall Entrance (Author)

Fig 128 Traditional Cremation Spaces (Author)

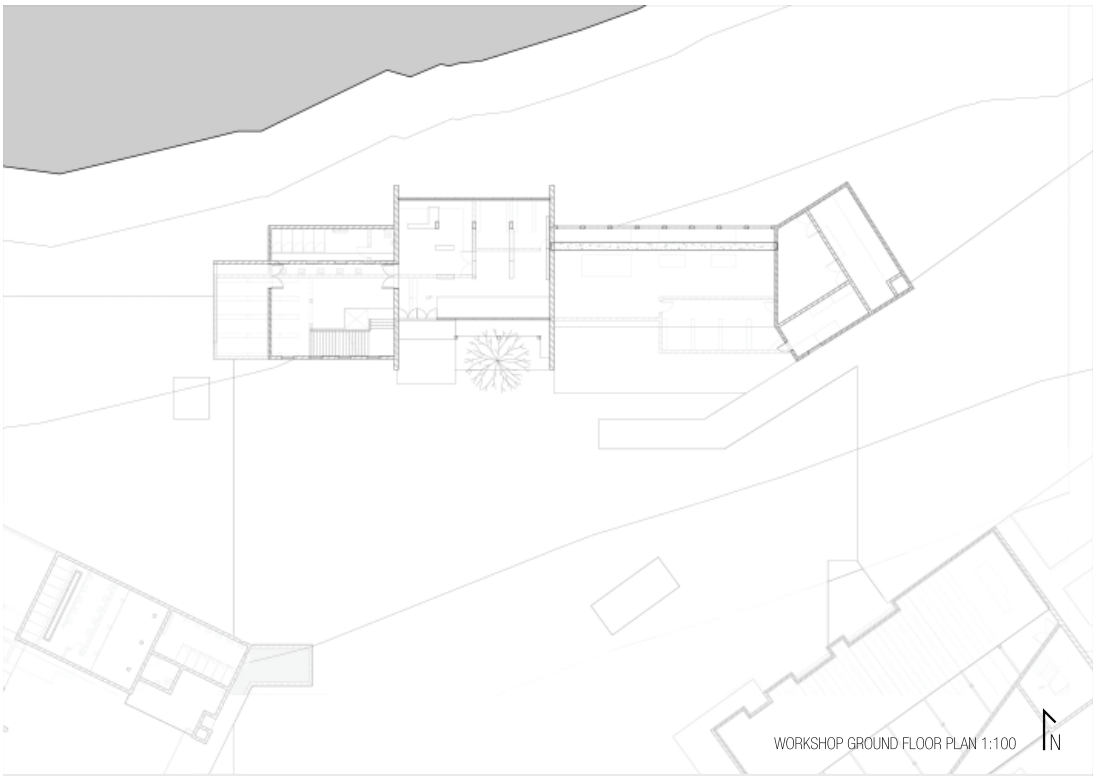


Fig 129 Pottery Retail and Workshop Plan (Author)

Fig 130 Pottery Studios and Service Spaces (Author)

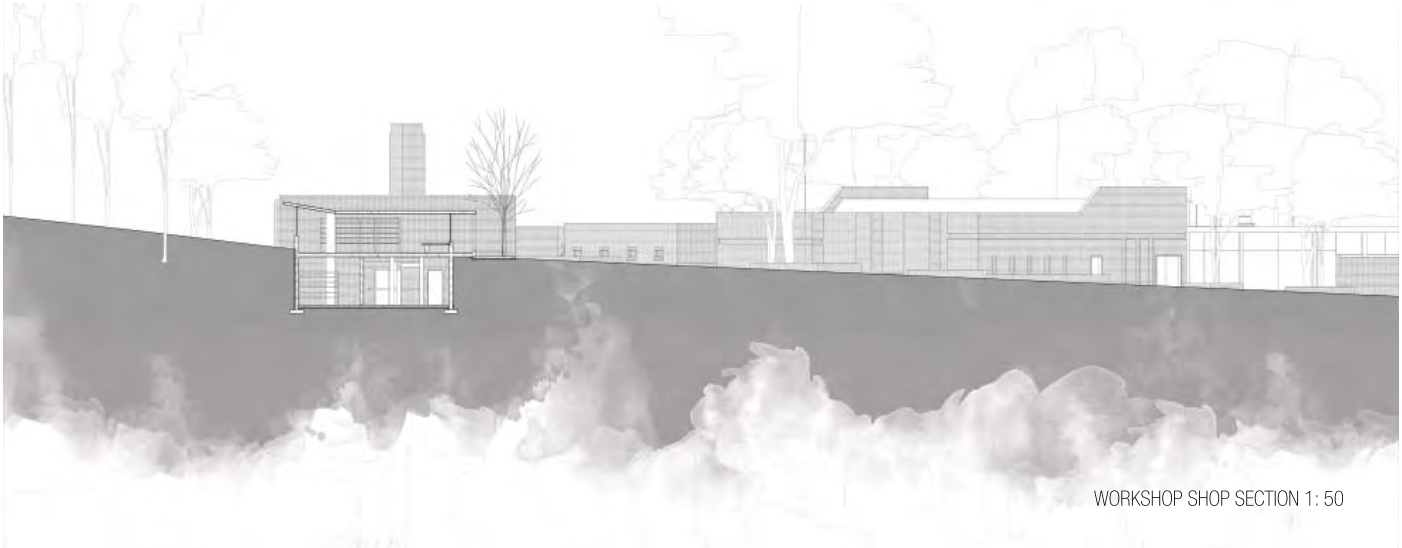


Fig 131 Pottery
Retail Section and
Basement (Author)

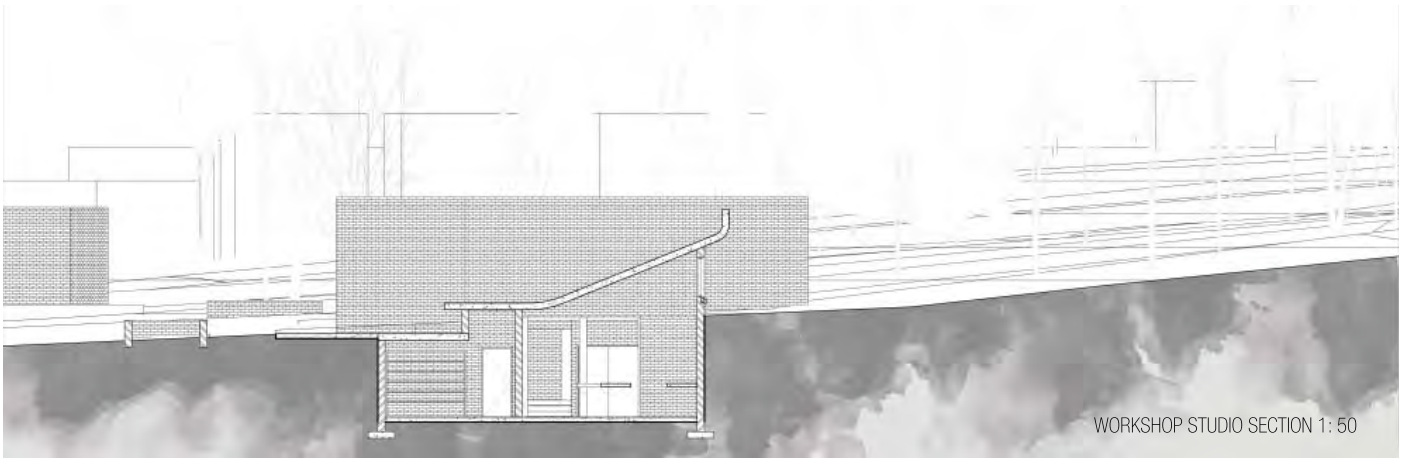


Fig 132 Pottery
Studio Section
(Author)

Technical Resolution

Connecting It All

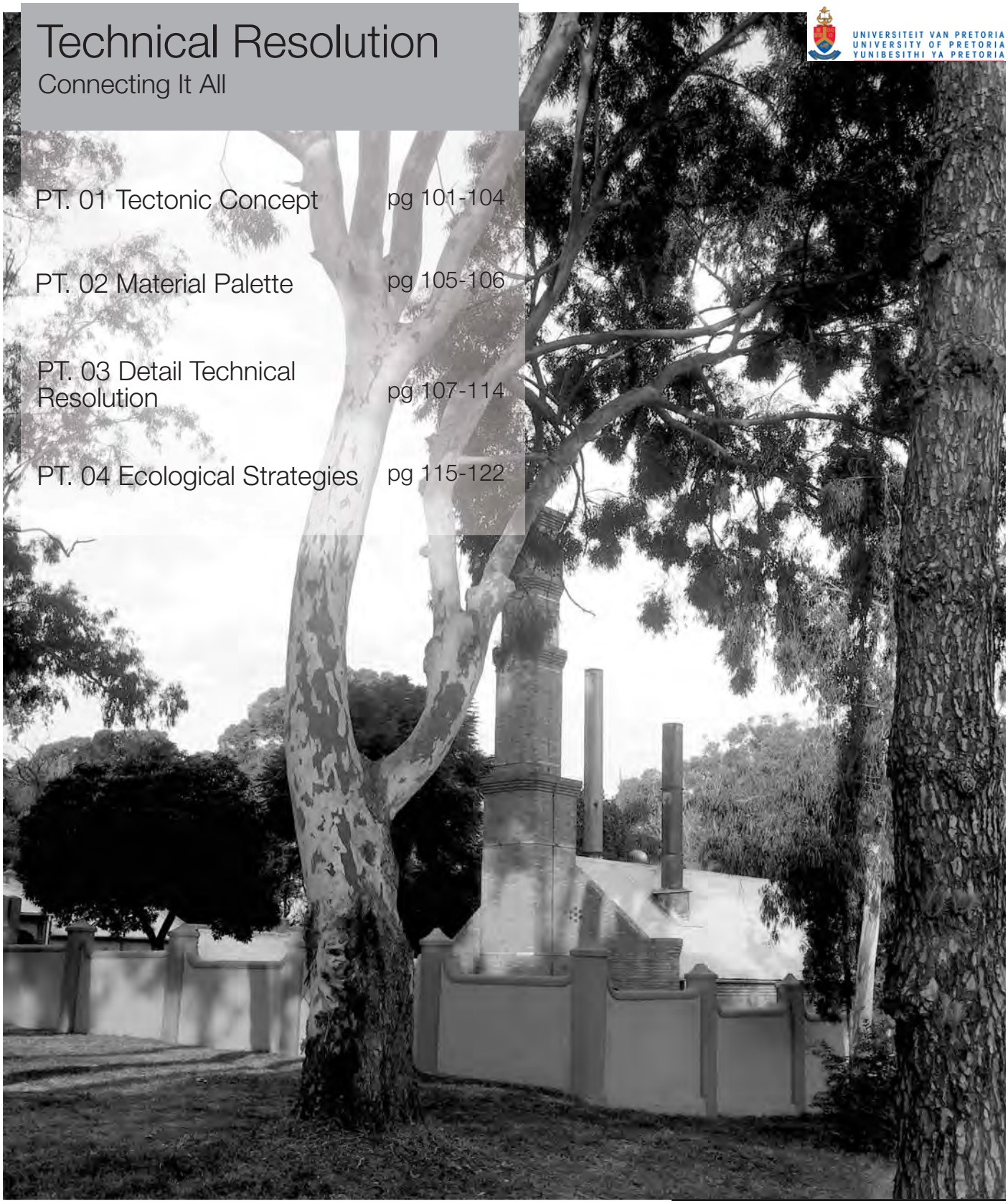


Fig 133 New Gas Cremation Chamber of Hindu Crematorium (Photo By Author)

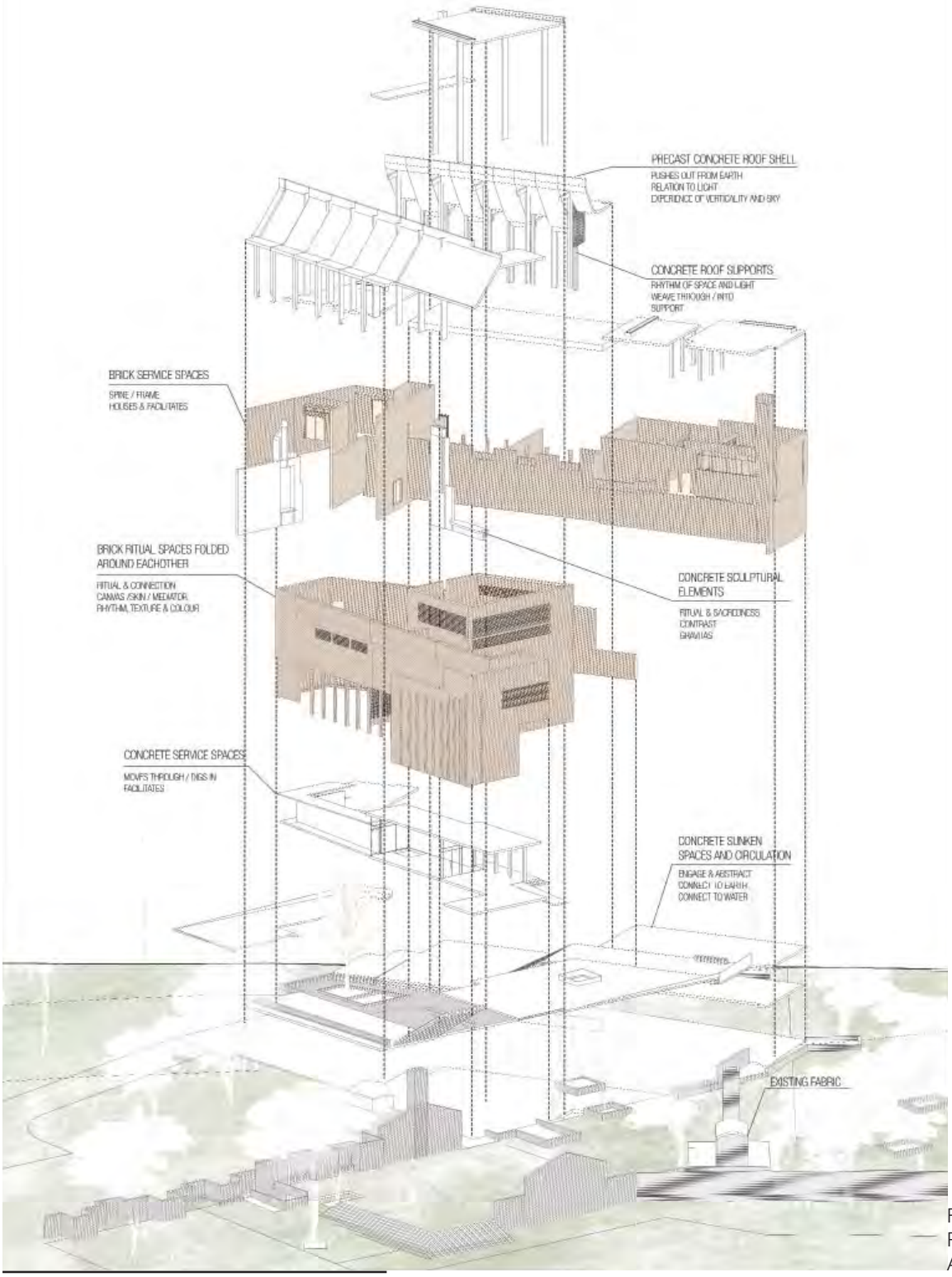


Fig 134 Tectonic Relationships Axonometric(Author)

Relationship of Form and Function to Tectonic Strategy

Formal arrangement and articulation is framed around heightening experience along routes and through thresholds, so as to elevate the pivotal moments of death and grieving as a defining element of life to a more celebrated state. Tectonic interplay and weaving of the two materials as well as the level of their articulation relates to the level of sacredness in a space or moving toward a space. In the face of impermanence and our eventual death the presence of architecture that gives grounding and establishes a strong relationship to the earth is extrapolated in a language of monolithic built form that revels in permanence and weight. Playing with architecture as embedded in and as a protrusion from the ground plane relates to burial and the introduction of the body into the eternal cycle of nature.

Relationship of Tectonic Strategy to Material Expression

The material expression as it relates to its tectonic assemblage is based mainly on the interplay of brick and concrete. A simple palate makes for a very clear association of the structures to one another and gives the proposal a dignified and minimalist appeal. A mutual relationship is established in which these two materials are used to help each other out by doing what the other cannot. Concrete can mould and bend in ways that brick cannot; brick, in return, can give more texture and warmth to a space as well as impose a strong regularity

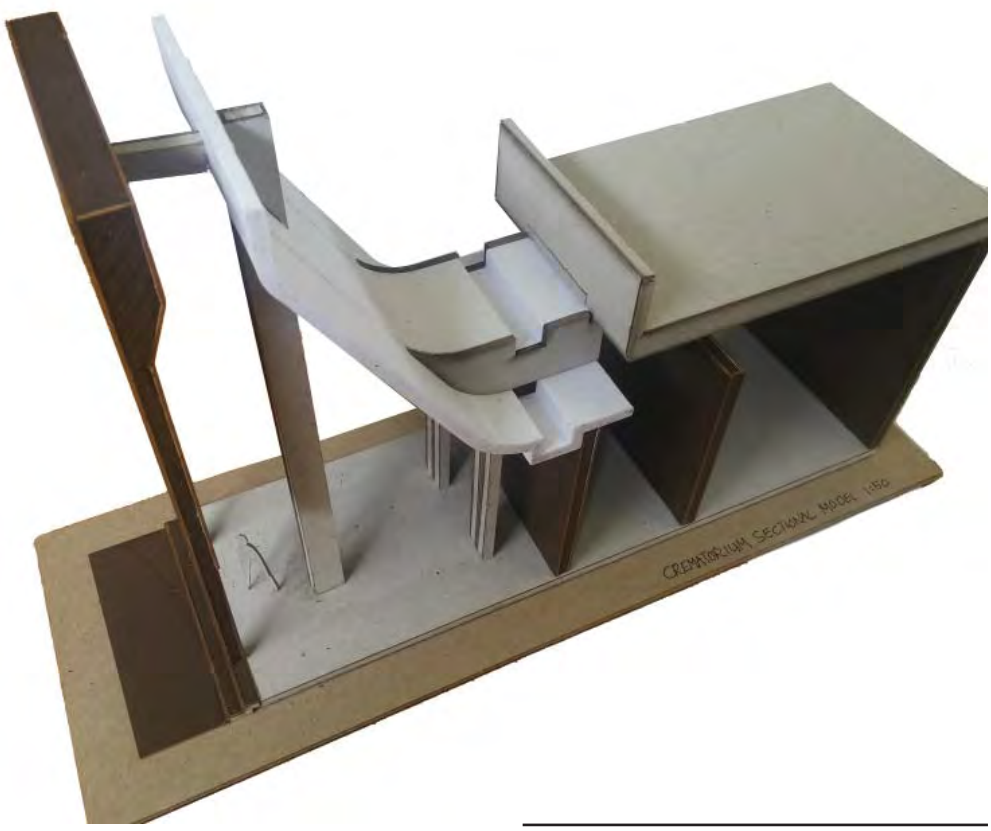


Fig 135 Tectonic Relationships in Model (Author)

in a space and to its edges. As such concrete lies adjacent to and weaves through brick skins that guide spatial arrangement. Concrete lends itself to heightening and intensifying experience of verticality and geometric expression, as it presses spaces up and down. In so doing, the concrete material is a shell that manipulates the experience of the ground plane and light, creating new topographies that contribute a sense of solidity and relationship to landscape. Brick is a material that creates wonderful surfaces that can guide planar experience as it manipulates spaces horizontally and in so doing guides ritual. The material response also relates to the historic brick structures on and around site, as well as the soil colour, which binds it to the ground. Spaces that have high spiritual significance are reinforced by the use of more elaborate tectonic interplay.

Tectonic Relationship to Existing and Historic Features

Existing and historic structures are exhibited and physically used to guide the experience of place; with existing site features like chimneys, trees and the brick material used to tie the clustered spaces into a continual axial narrative that lifts the existing fabric to a more sacred level, by approaching it with architecture of dialogue. Existing brick structures are exhibited as sculpture, due to their marvellous detailing, and in the case of lesser structures, used as gateways guiding into the precinct. These are also a main determinant for continuing the story of brick as a material on site.

Tectonics Structure and Forces

Structure and forces are exhibited in physical form by elements such as walls and columns and beams. Most structure is dedicated to carrying roof planes, which in the sense of material coherence express in concrete. Walls aid in the structural support, but they are generally space-enclosing brick walls that act as skins, working in harmony with the acupunctural concrete structural system. The concrete throats inside the massive brick walls, although visually hidden, join the concrete (otherwise very distanced and discerned from the brick) to unite these materials structurally. Brick and concrete are not mixed, to avoid awkward junctions and transitions between these materials which occur if they are juxtaposed in a single architectural system. Relationships are mostly expressed as leaning, tying and grouped support. Enclosed spaces express through solid walls and are broken up by loose arrangements of open space punctuated by columns.

Tectonics Structure and Forces

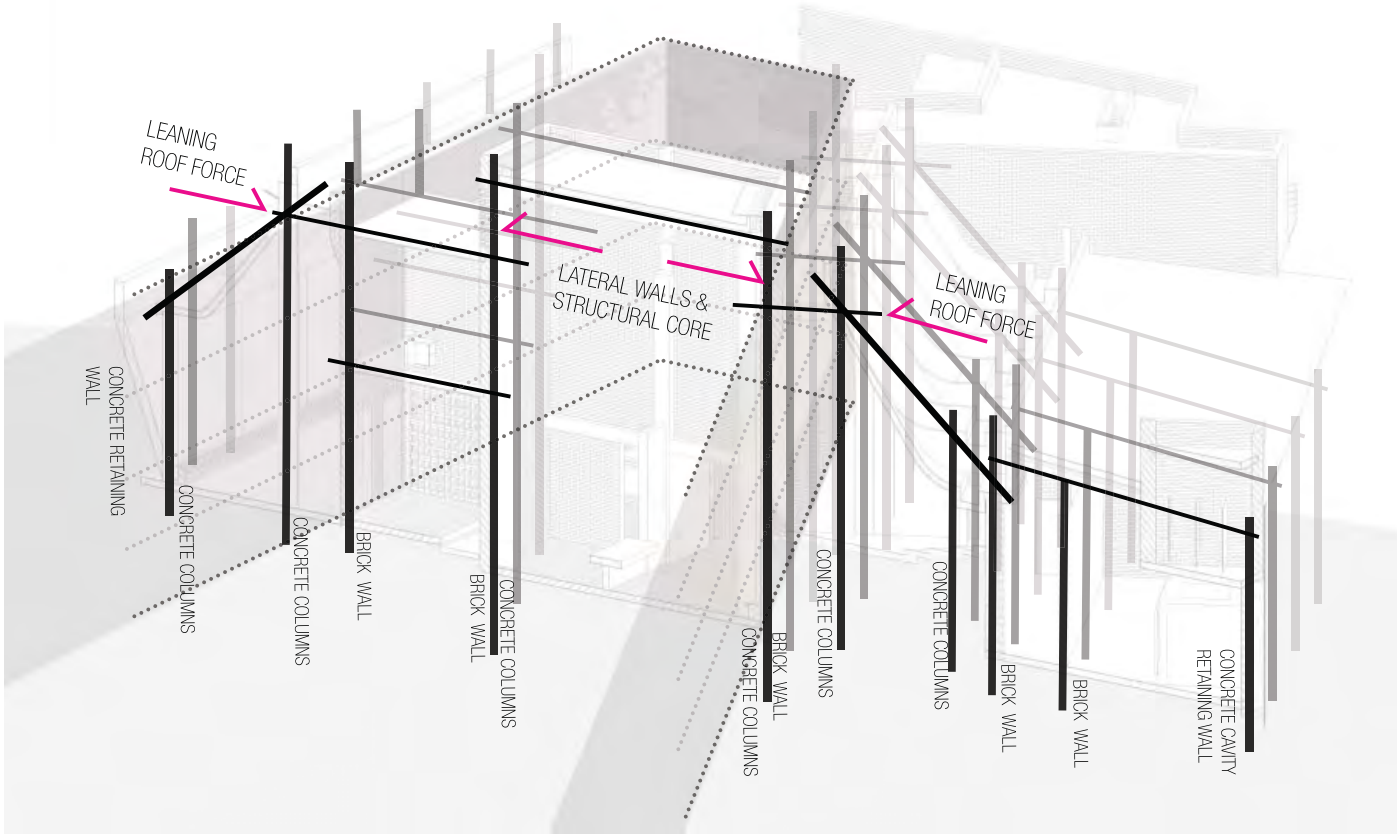


Fig 136 Tectonic Force Relationships (Author)

Material Choices
Materials are locally sourced and preferably of a high efficiency low waste production origin, with emphasis on durability and low maintenance. Permanence in material choice reflects commitment for and with the choices made, and extends on the permanence sought after for experiential reasons.

Roofs

Concrete is a very versatile roofing material that can achieve sizes and shapes unbeknownst to other alternatives; it also benefits from use in conjunction with brick walls. The tectonic language of the concrete work on site is either of a very sculptural form to manipulate light and space, or it creates topographies that blend into the site as a second landscape. The roof tends to sit inside brick walls and releases like a tongue in pivotal moments to engage an invitational dialogue with the outside un-walled space, important in allowing public space to flow inside. Thermally responsive to the Johannesburg climate, it can resist the high heat transmission from above into the inside spaces through its mass and density. Pre-Cast concrete, although preferred for its better finish and higher efficiency (due to its factory origin), does not fulfil the functional requirements for water tightness between repeating units and structural connection.

Corobrik Roan Full Body Clay Bricks

- Local Production & Minimal transport distance to site
- Produced under factory conditions with low waste and high efficiency
- Local knowledge and applicability
- Very low maintenance, can be reused
- Main Drawback: High Embodied Energy (Transport and Firing)

In-Situ Concrete

- Local Production & Minimal Transport
- Minimal usage for more complex geometry
- Local knowledge and applicability
- Very low maintenance
- Main Drawback: High Embodied Energy (Material Embodied Energy)

Precast Concrete Permeable Paving

- Local Production & Minimal Transport
- Fast and easy installation
- Alleviates drainage problems and urban heat island effect
- Very low maintenance
- Main Drawback: High Embodied Energy (Material Embodied Energy)

Gravel

- Local Availability
- Fast, safe and effective surface treatment
- Alleviates drainage problems
- Very low maintenance
- Main Drawback: Environmental Degradation of Quarries

Walls

Full body Clay Brick Walls represent a durable and aesthetically pleasing material for the main building envelope. Brixton, particularly the buildings in the cemetery area and surroundings, exhibit many different exposed brick surfaces, aligning with this identifier places the proposal into a material continuum in place. The material has a good track record in the local climate, in withstanding thermal transmission through the material and the effective timing of the flywheel effect. Most effectively, 275mm cavity walls are used for the west orientated walls, and 220mm double skin brick walls for the rest. Bricks are also used to create dappled and indirect light in varying orientations as brick screen walls.
Large area glazing in vertical application is rarely used but particularly allows for site utilisation without visually cutting of certain areas like the hall foyer and the cemetery behind. Glazing is never structural but is supported by concrete structure.
Concrete Walls are used mostly when brick will not suffice structurally. This is usually the case for retaining walls all around sunken spaces.
Concrete is used sparingly in vertical application, in order to highlight sculptural elements made from this material, particularly in more sacred spaces.

Floor Surfaces

Brick floors continue the wall finish to the floor level and tie the vertical to the horizontal. It creates an alternative and variability in floor treatments to define spaces hierarchically. It is also more suitable for outside spaces for slip resistance.
Concrete is a very well documented flooring material that easily levels and resists a lot of punishment. It has the advantage of being highly plastic and flexible to plan shapes and can be floated to a very low maintenance smooth surface.
Gravel is a wonderful way to involve the element of sound in a floor treatment. It announces movement and contributes to a natural feeling in the city. It can also contribute to the safety of outside space in this way. Drainage especially in outside spaces is well afforded with gravel and it is low maintenance.
Permeable paving is a highly resistant and aesthetically pleasing floor finish for public spaces, as it retains growing natural surface with high traffic. It can also take a lot of punishment, such as vehicular movement for setting up markets, or larger pavilions, or ever stages in the public space. As an external floor finish it most effectively allows for effective large area site drainage in rain events. Permeable hard-scaping and interspersed soft-scaping strategies alleviate water damage and reduce irrigation needs as well as urban heat island effect.

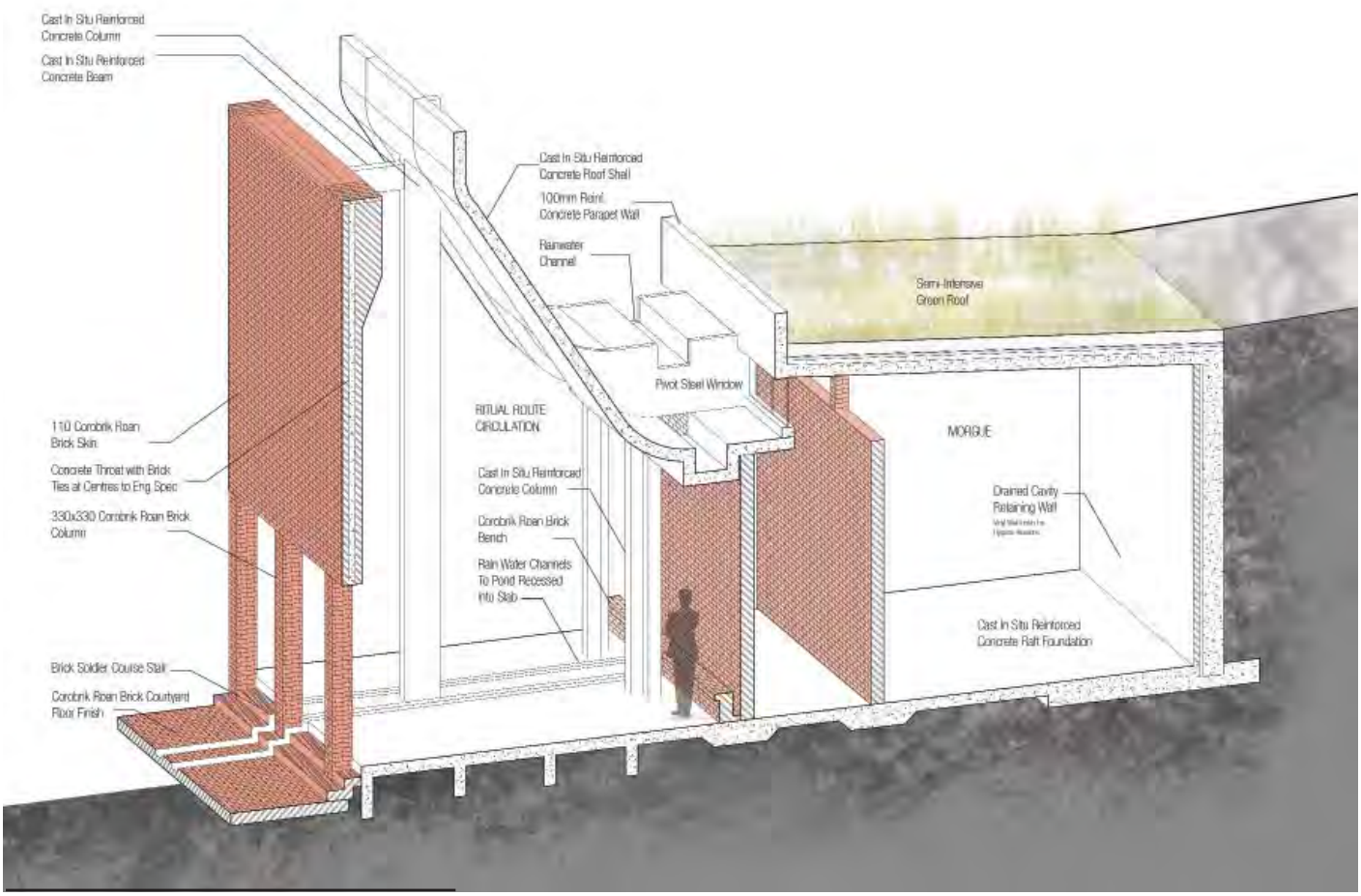
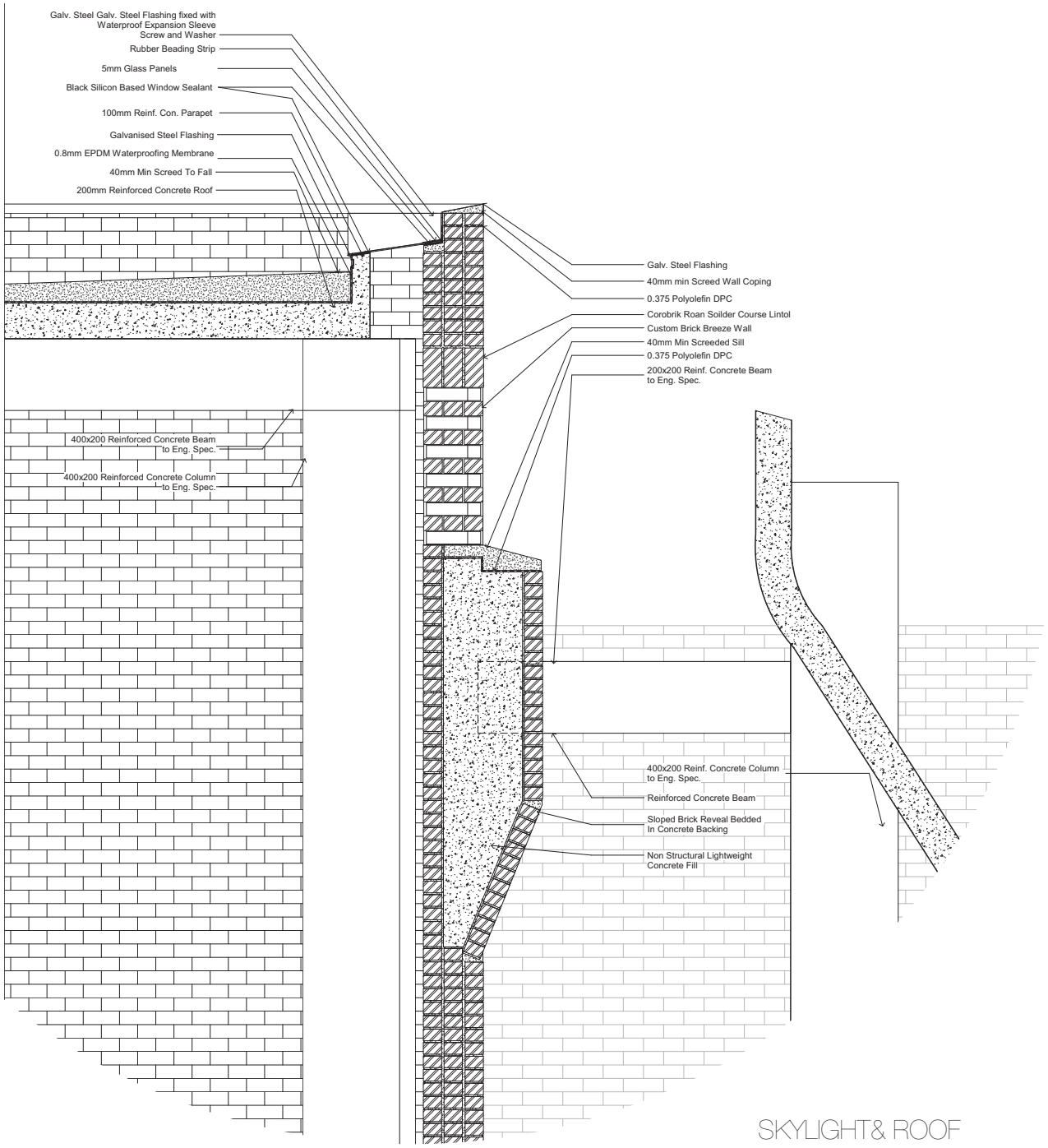


Fig 137 3D Detail of Crematorium (Author)

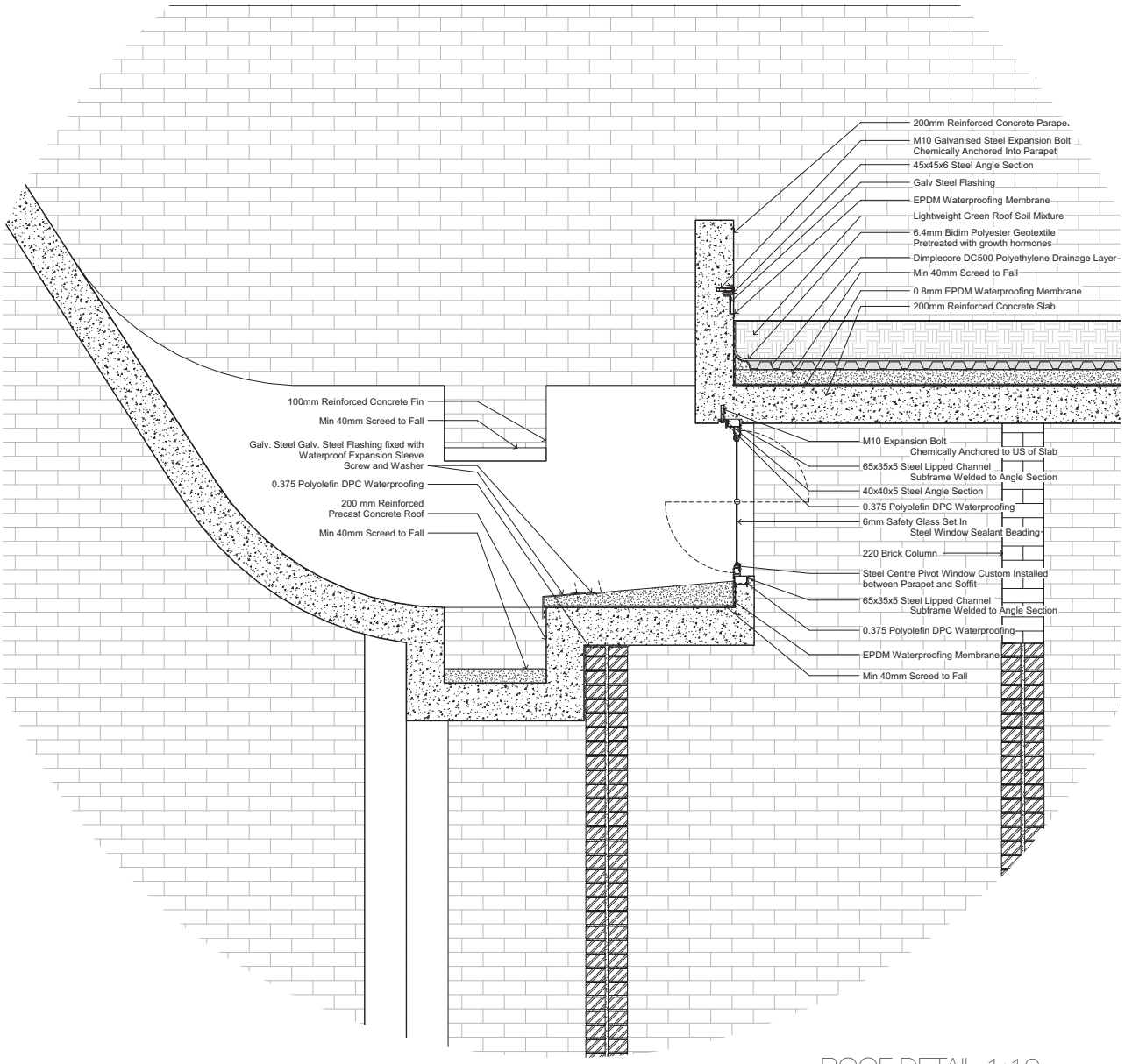
CREMATORIUM ENVELOPE
TOP SECTION



SKYLIGHT& ROOF
DETAIL 1:10

Fig 138 Iterated Detail of Crematorium (Author)

CREMATORIUM ENVELOPE
MID SECTION



ROOF DETAIL 1:10

Fig 139 Iterated Detail of Crematorium (Author)

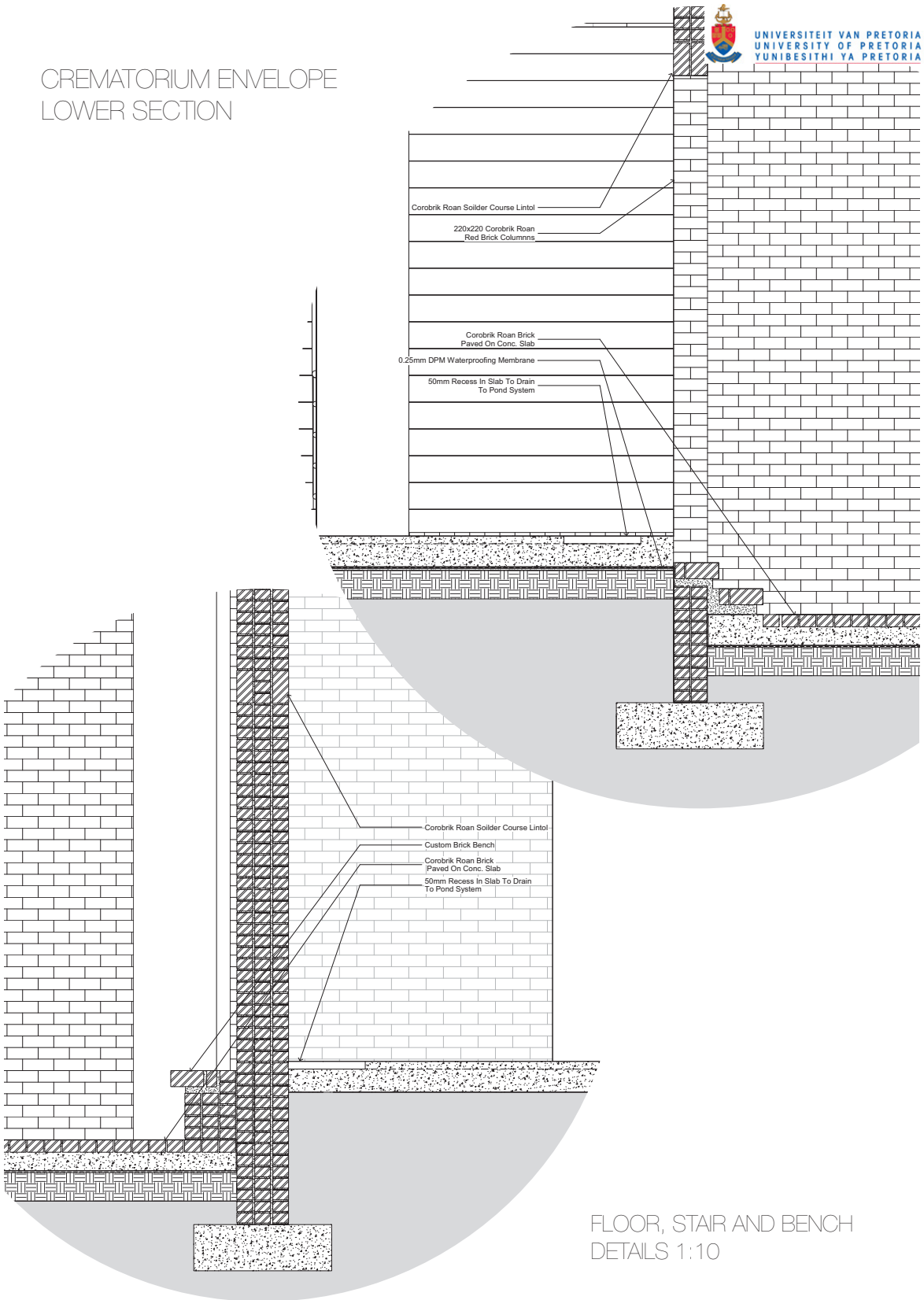
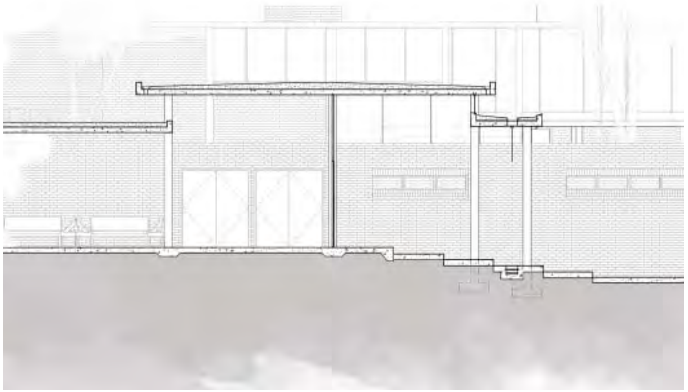
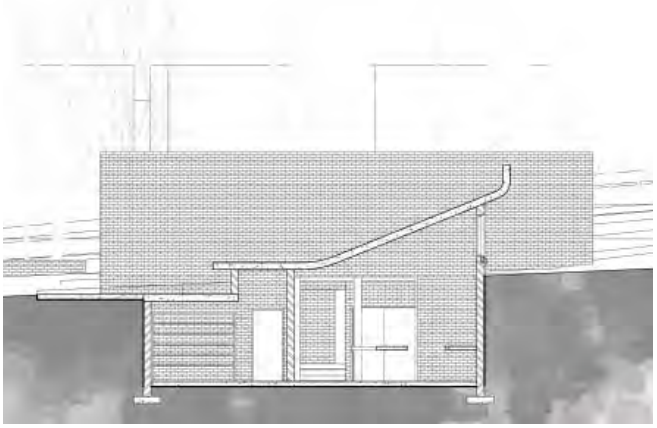


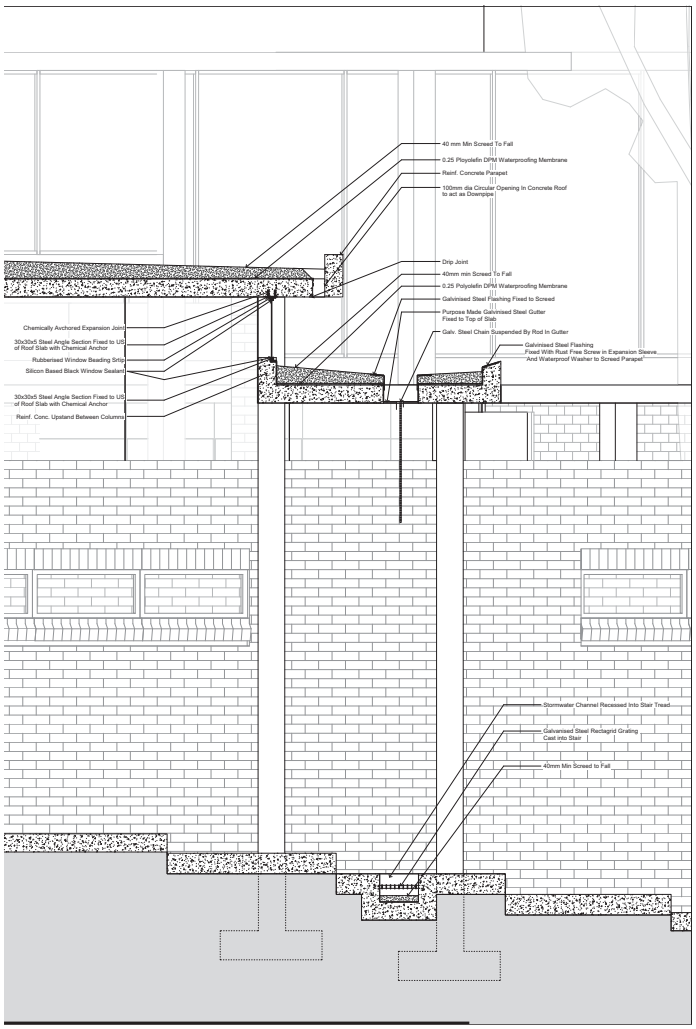
Fig 140 Iterated Detail of Crematorium (Author)

Hall Foyer Detail



Pottery Workshop Detail





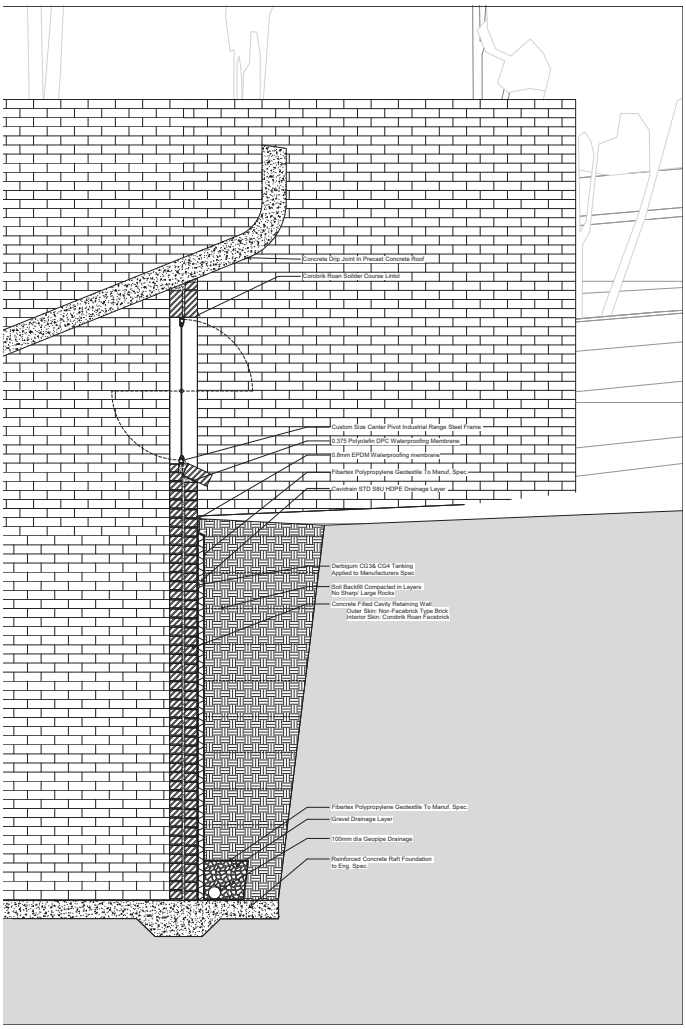


Fig 141 Iterated Detail Hall and Pottery Studio (Author)

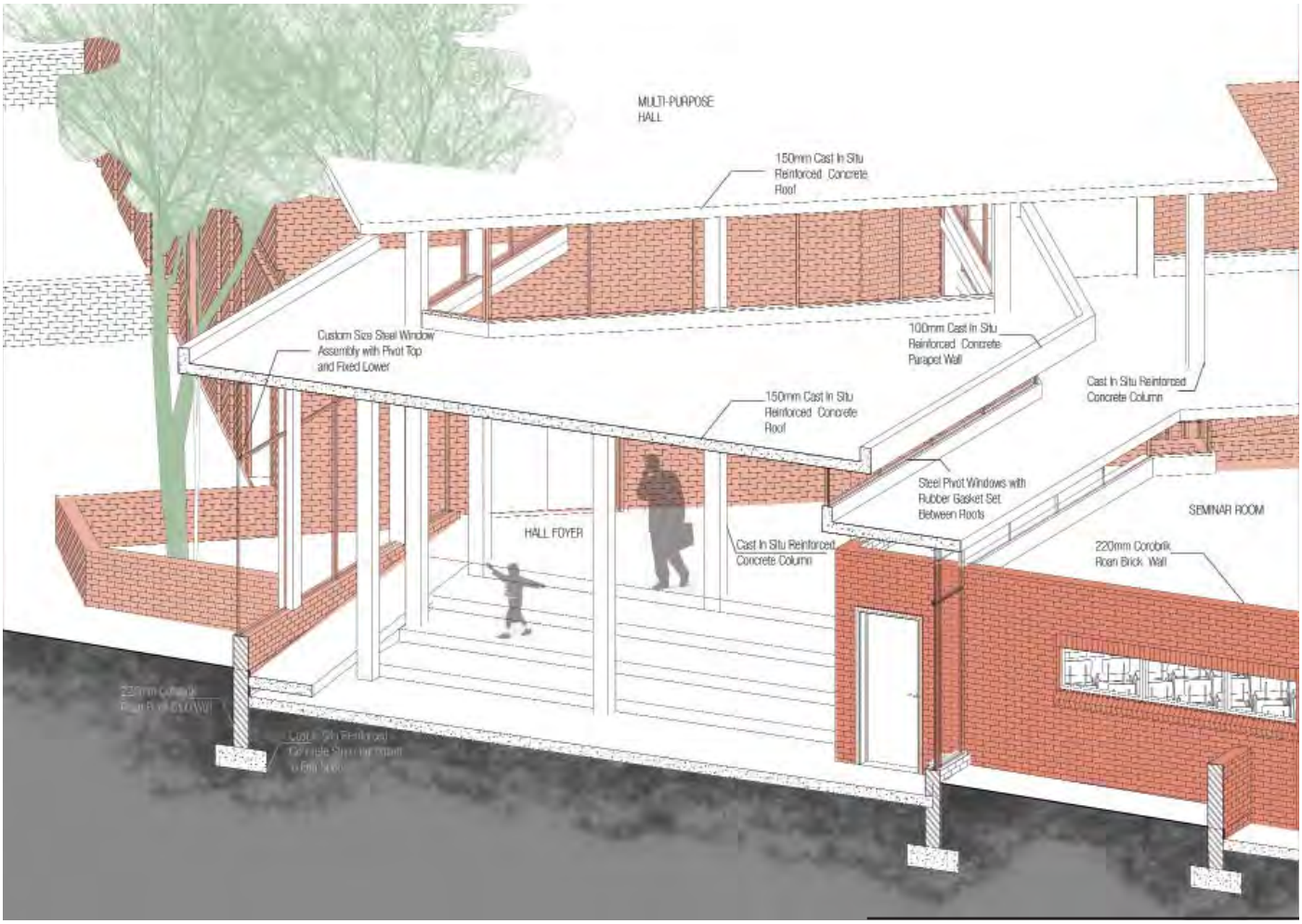
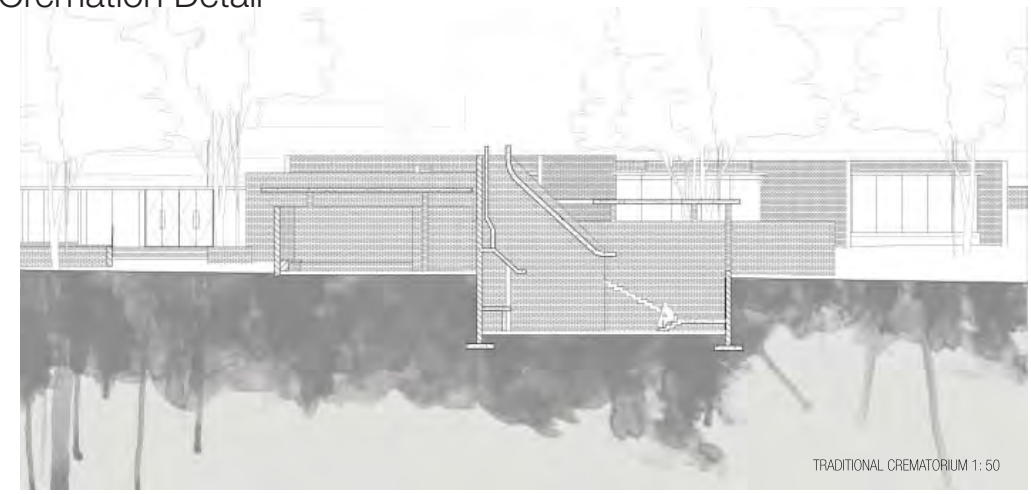


Fig 142 3D Iterated Detail of Hall Foyer (Author)

Traditional Cremation Detail



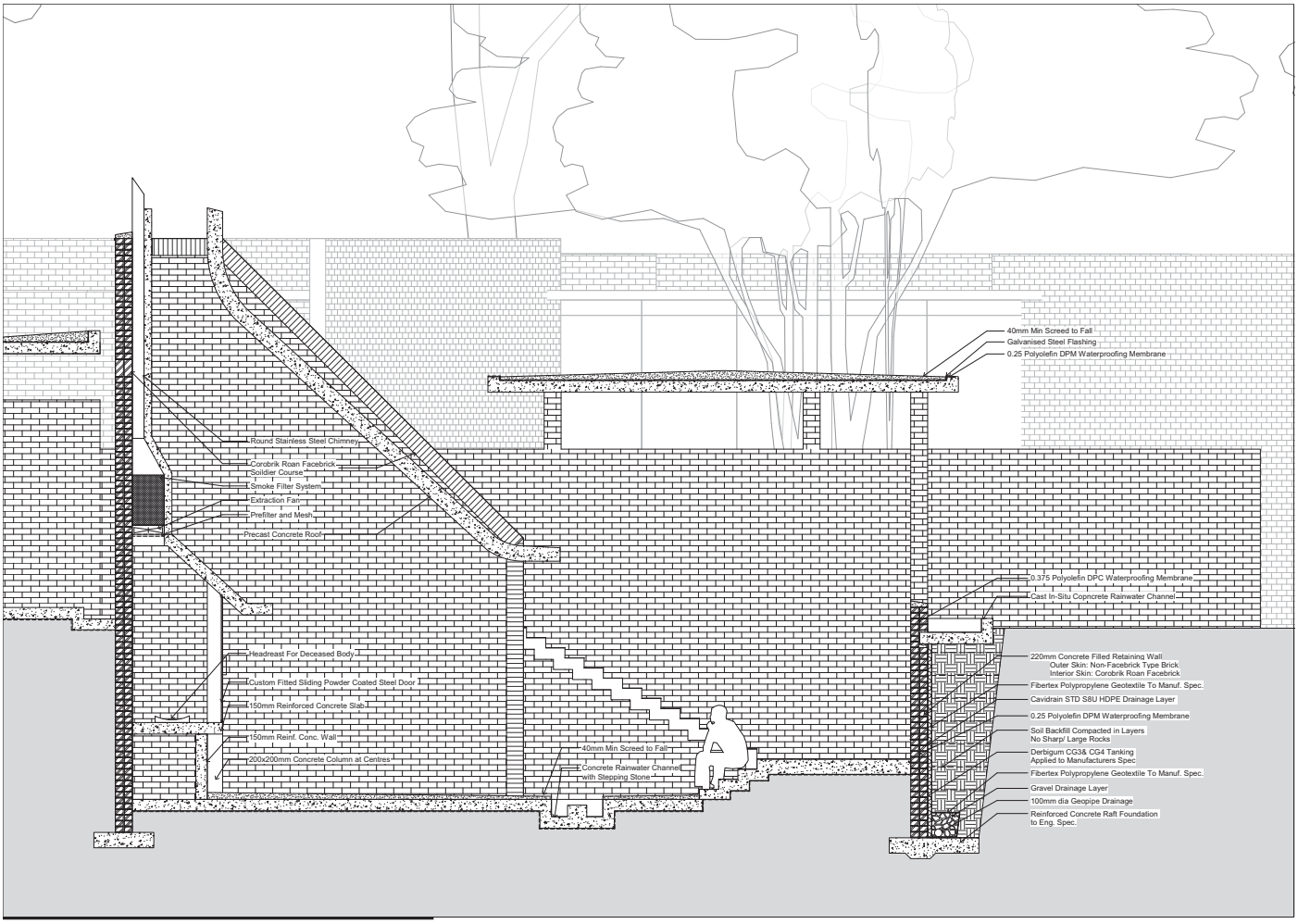


Fig 143 Iterated Detail Traditional Cremation Spaces (Author)

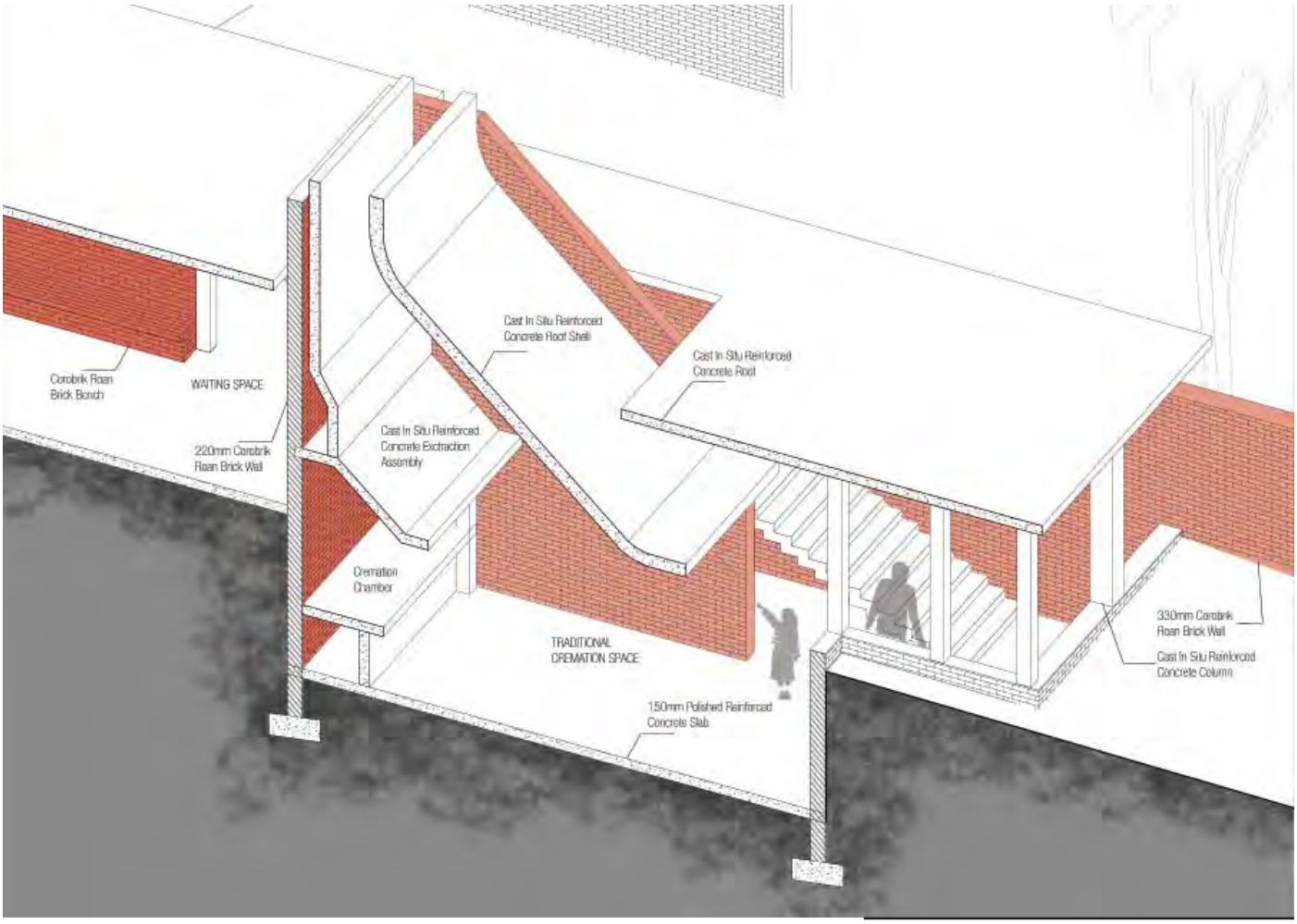


Fig 144 3D Iterated Detail Traditional Cremation Spaces (Author)

Ecological Strategies

Burial Space

The reduction in burial space and the alleviation of underutilised cemetery site, by exhibiting and making available the practice of cremation in addition to introducing positive, multi-functional urban open and green space is the paramount ecological strategy.

Natural Systems

Tree life is retained and designed around, which has massive net positive results, ranging from carbon sequestration to erosion control. It is important that the green beauty of these old trees is retained in the grey city context.

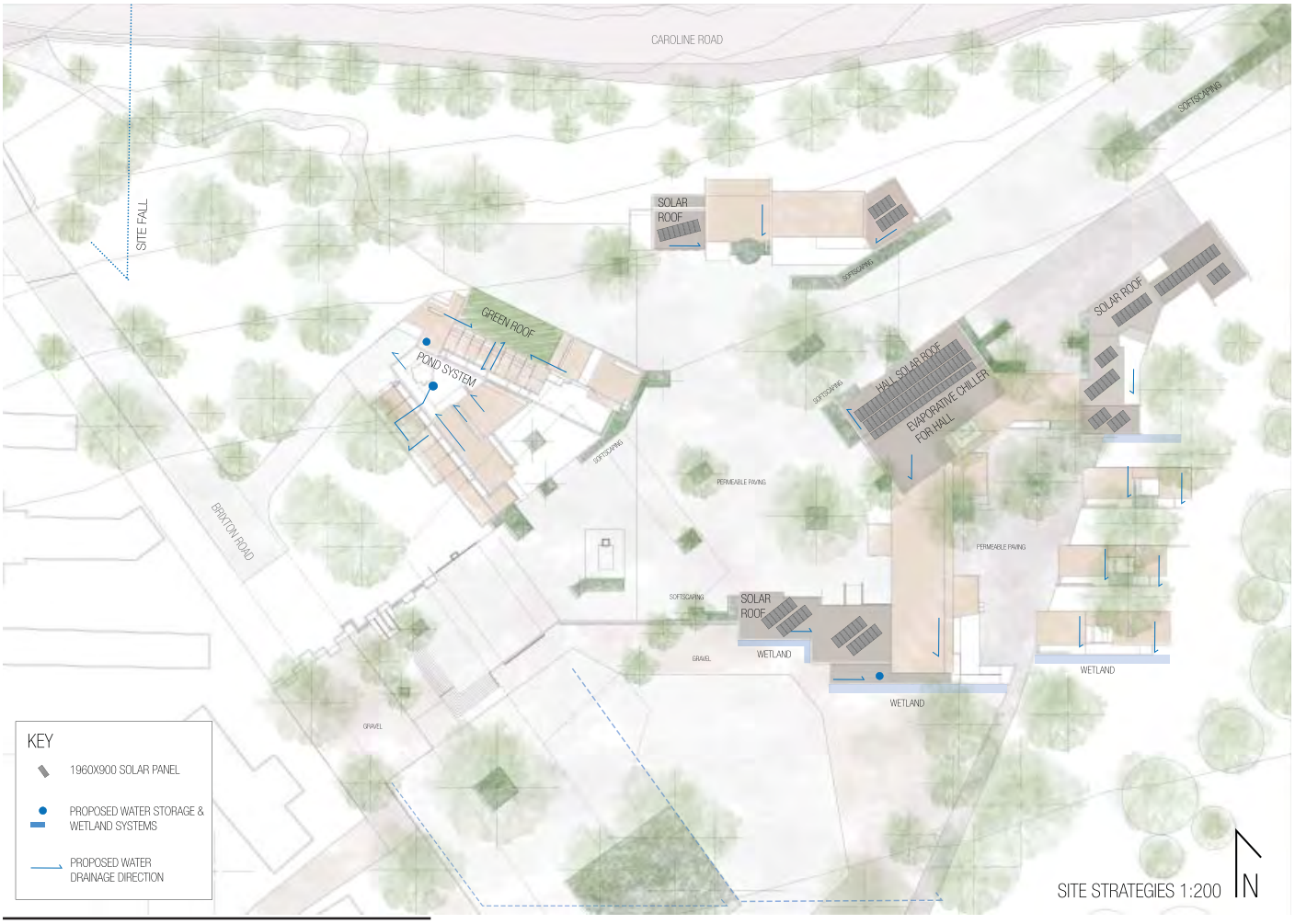


Fig 145 Ecological Straties of Complete Site (Author)

Water Strategies

Rainwater is mainly used to maintain landscaping, feed small wetland systems, and fill WC cisterns in the restrooms. Grey water systems do not present a feasible option for the typology, since piping distance would be very long. Grey water is produced in limited quantities, with the main source thereof being hand wash basins.

Energy

Main electricity need is artificial lighting for night use in most spaces and can be easily covered by solar panels on roofs. Since the crematorium runs on natural gas instead of electricity, it reduces dependency on and distance from the source of energy. Introducing promession as a viable alternative in possible future reduction in the ecological impact of the treatment of human remains. Traditional Hindu cremation is also a more sustainable practice than interment or gas cremation.

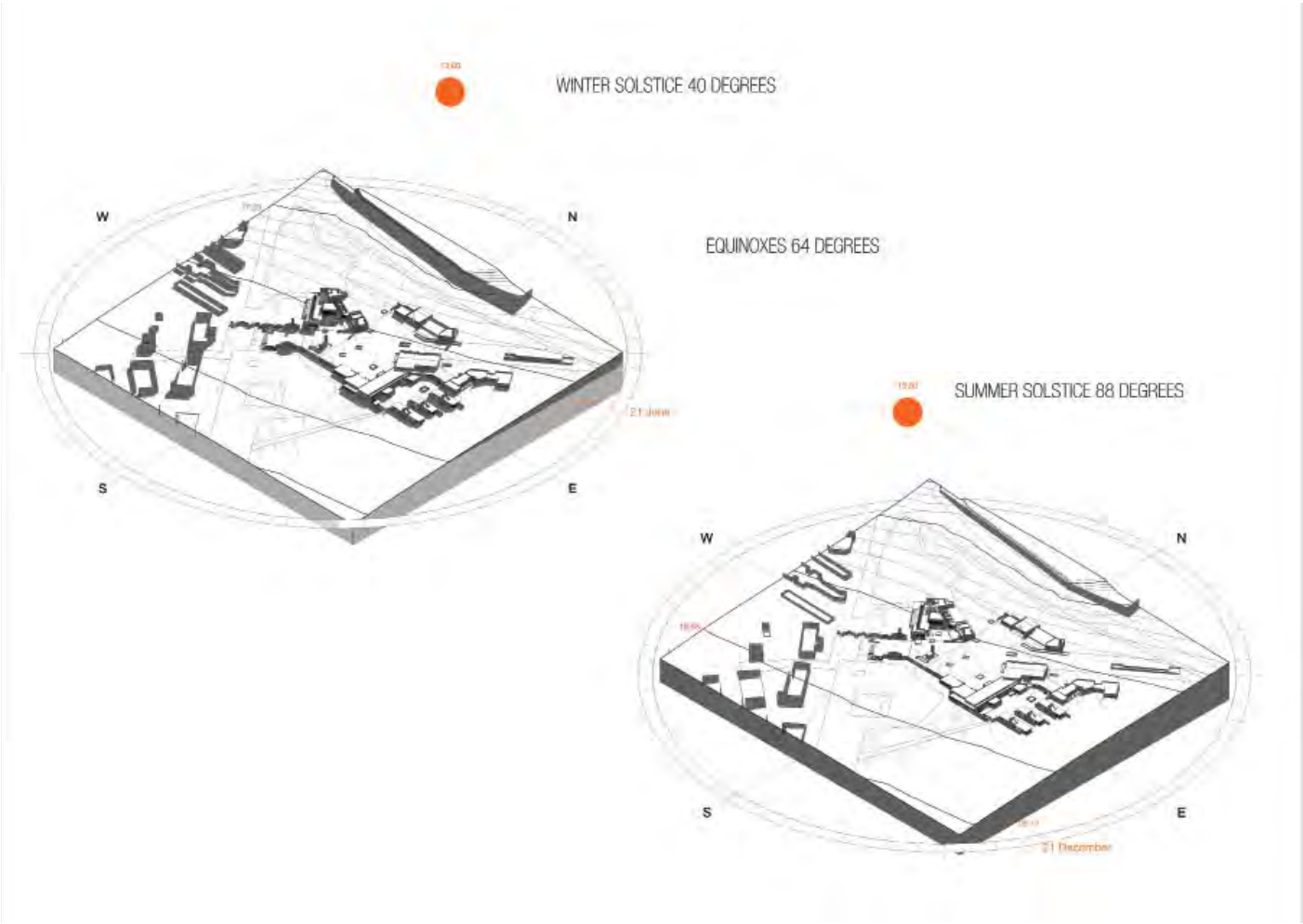
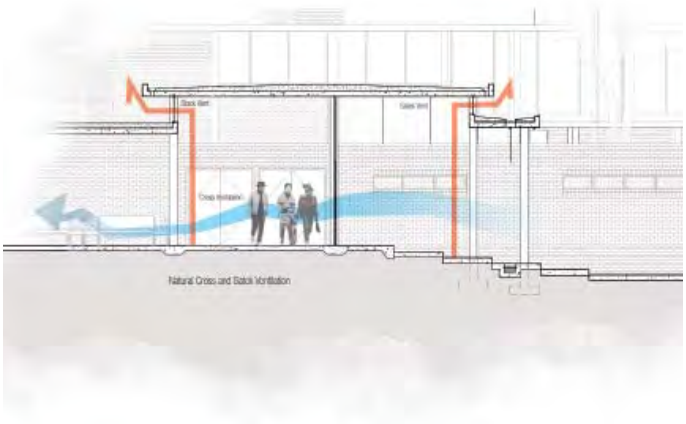


Fig 146 3D Seasonal Site Diagrams (Author)

Passive Design

Passive design for day-lighting and ventilation dominates as the prevalent environmental strategy for building climate. This is achieved by orientating building footprint to align east west to reduce solar gains on these sides but receive ample light from north and south openings. Cross ventilation is allowed by openings across spaces that are usually no deeper than 7m across, to allow for optimal air movement. Tilt-Turn windows are used to instigate stack ventilation on the fenestrated edge by allowing



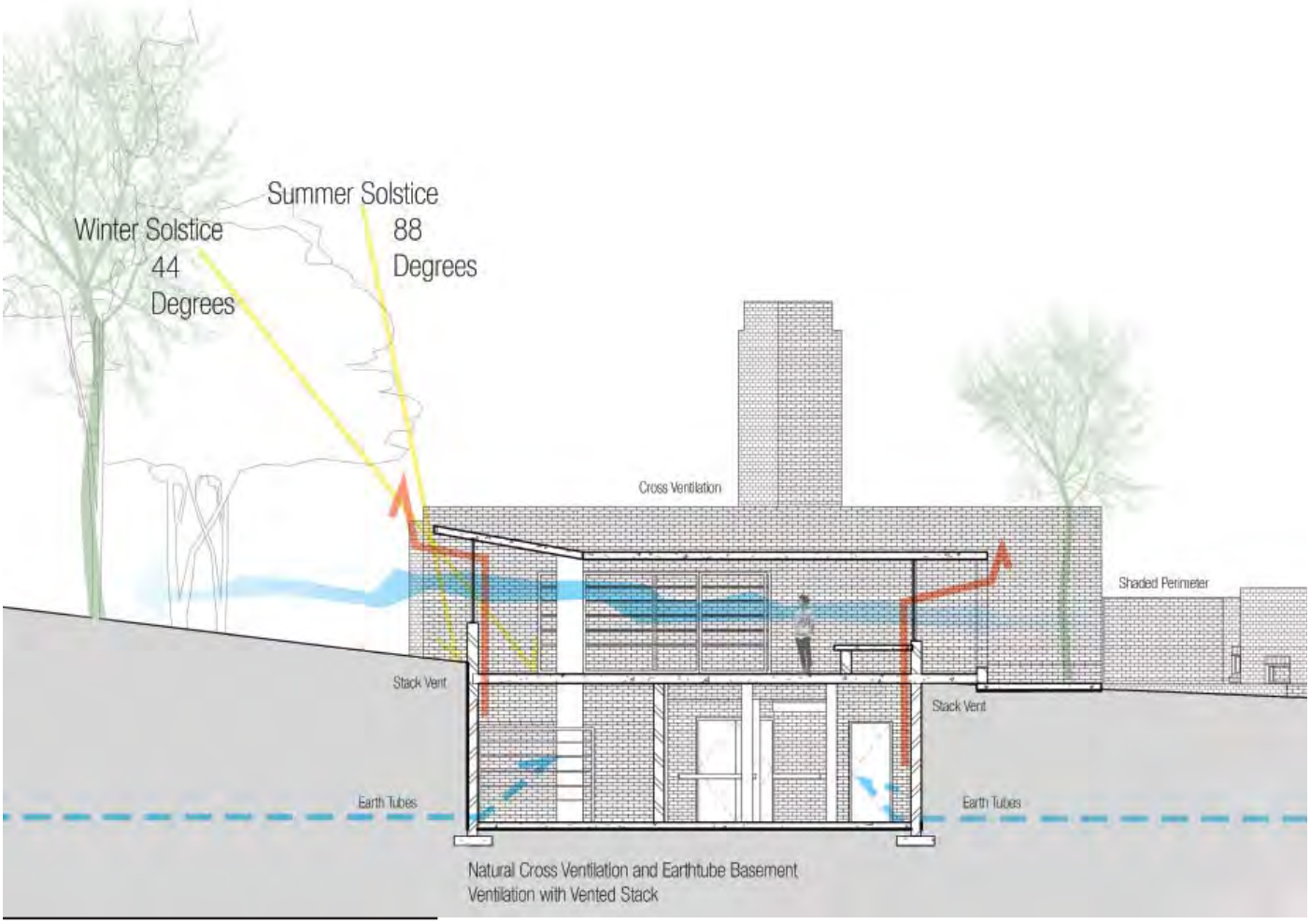


Fig 147 Hall and Shop Ventialtion Diagrams(Author)

cold air to move down through it and hot air up. Material strategies mentioned in that section also apply to achieving passive design thermal comfort in terms of seducing gains from the sun through the building envelope.

Evaporative cooling is used where passive cooling and ventilation is insufficient for space traffic and needs; air-conditioning can be circumvented. This applies particularly in the large multi-purpose hall that can easily be cooled when utilised by large groups of people. The morgue and cremation spaces are in need of higher air change rates and can easily be air-conditioned from a small unit due to their small size and close proximity to each other. This avoids contamination by small particulates and harmful accumulation of gases and pathogens. The workshop basement does not have these problems but to aid in a comfortable environment air is moved by fans from earth tubes into the subterranean spaces.

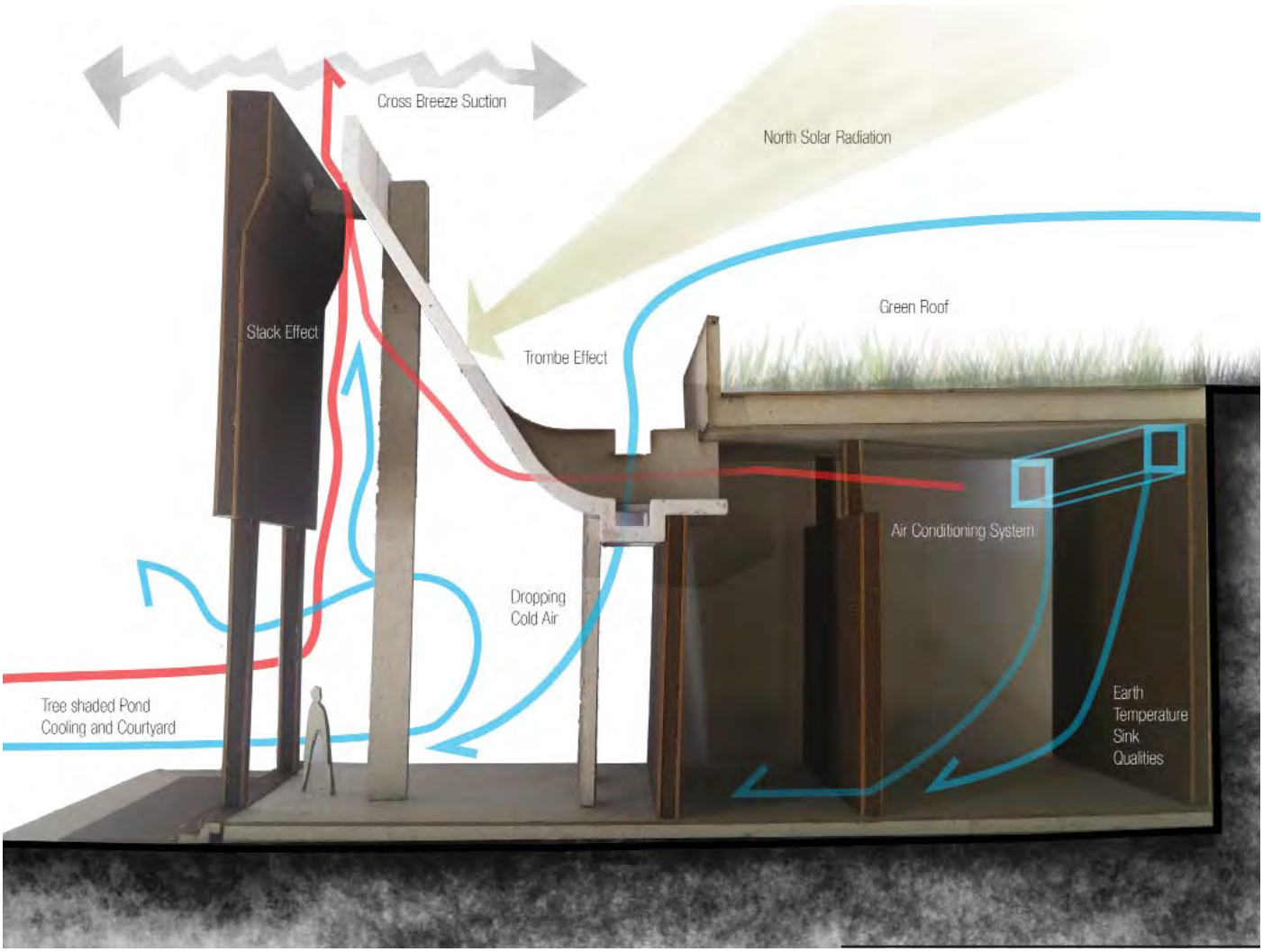


Fig 148 Crematorium Spaces Ventilation (Author)

Sefaira Ecological Simulation

The proposal uses a mere 55kWh/m2/year power for nearly 3000m2 of building area. Most of that energy goes to cooling demand, which is preferential to the equivalent heating demand, especially given that cooling strategies are the main temperature regulation focus for the thermal design. Due to wall thickness generalisation by the software, wall conduction gains are much higher than they would be, given strategies implemented to use thicker walls on the western edges of the buildings. East and north solar gains dominate, which is a good thing. North is always a dominant gain and east solar gain is far less intense and more pleasant to experience than west gains.

Earlier iterations had a very low wall to window ratio, leading to large tracts of under-lit spaces. These under-lit spaces would necessitate heating costs, which have a negative impact on energy use. Less eastern facades result in lower eastern gains but increased wall gains.

The illuminance analysis shows clearly that most north oriented spaces with south and north facades are optimal. The east west orientated spaces suffer from high illuminance, but are all not habitable spaces but rather extensions of outside spaces. The dark spaces are all purposely designed to be that way. The Multi-Purpose Hall needs to be exclusively artificial light to allow control over lighting g for projections and so forth. The morgue and cremation chambers are best served by artificial light to keep better control of temperature, but also in order to reduce visual access to these spaces. The storage spaces for pottery are best kept out of the sun, to reduce fading. The wet room for keeping clay is also best as is, with no illuminance or daylight.

Over-lit spaces are rare, but the large east west facing foyer and circulation space is highly overlit due to its orientation and large areas of glazing. This area of the design could benefit from double glazing or low-E glazing. Under-lit spaces are the spaces already earmarked for artificial lighting as discussed above.

The daylight factor, which essentially deals with the contrast of inside to outside light levels, shows large deviations in spaces with a strong relationship to the outside and high glazing percentage. These spaces have been shown to be crucial, in terms of being able to ventilate them passively, which they all can, and due to their thin nature (usually no more than seven metres across) will allow ample air flow across their width for cool down.

Earlier Iteration

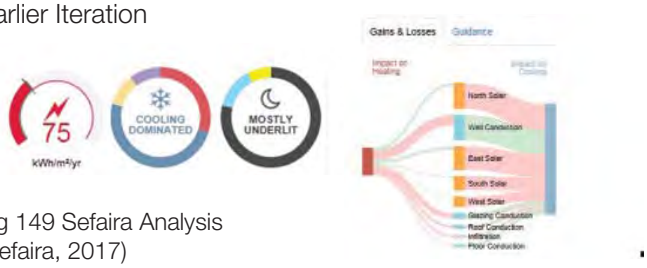


Fig 149 Sefaira Analysis (Sefaira, 2017)

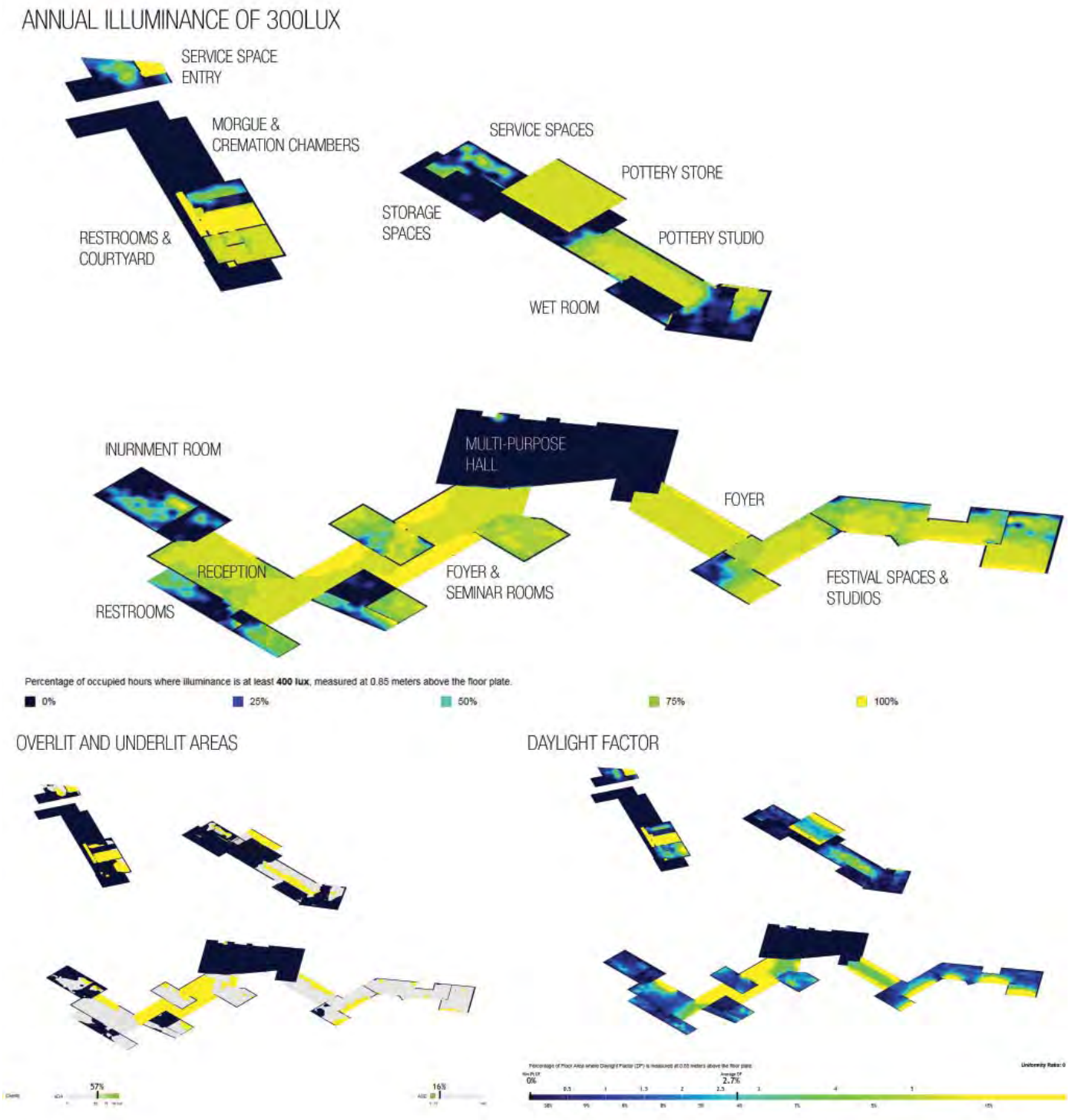


Fig 150 Sefaira Analysis (Sefaira, 2017)

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

WATER MANAGEMENT MODEL

By Fourie Pieterse (October 2014)

A WATER RESOURCE INFORMATION (YIELD, m³)

A1 RAIN WATER HARVESTING DATA

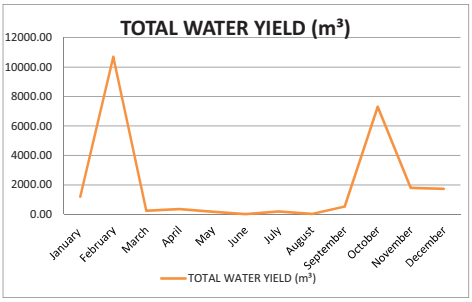
DESCRIPTION	AREA (m²)	RUNOFF COEFF. (C)
Roof structures	3564	0.8
Paving A	8050	0.8
Paving B	0	0.8
Lawn	2000	0.1
Astro	0	0.4
TOTAL AREA (A)	13614.00	
WEIGHTED C		0.70

A2 RECYCLED / ALTERNATIVE WATER SOURCE

MONTH	Wetland Water		No Source 2		TOTAL / MONTH (m³)
	WEEKLY YIELD (m³)	MONTHLY YIELD (m³)			
January	3	12.00			12.00
February	3	12.00			12.00
March	3	12.00			12.00
April	3	12.00			12.00
May	3	12.00			12.00
June	3	12.00			12.00
July	3	12.00			12.00
August	3	12.00			12.00
September	3	12.00			12.00
October	3	12.00			12.00
November	3	12.00			12.00
December	3	12.00			12.00
ANNUAL AVE.		144.00			144.00

A3 TOTAL WATER YIELD

MONTH	AVE RAINFALL , P (m)	CATCHMENT YIELD (m³) (Yield = PxAxC)	ALTERNATIVE WATER SOURCE (m³)	TOTAL WATER YIELD (m³)
January	0.13	1197.79	12.00	1209.79
February	1.13	10684.24	12.00	10696.24
March	0.02	236.33	12.00	248.33
April	0.04	340.73	12.00	352.73
May	0.02	160.40	12.00	172.40
June	0.00	9.49	12.00	21.49
July	0.02	189.82	12.00	201.82
August	0.00	18.98	12.00	30.98
September	0.06	531.51	12.00	543.51
October	0.77	7298.73	12.00	7310.73
November	0.19	1793.84	12.00	1805.84
December	0.18	1727.40	12.00	1739.40
ANNUAL AVE.	0.70	24189.27	144.00	24333.27



B WATER DEMAND

B1 LANDSCAPE IRRIGATION DEMAND (m³)

DESCRIPTION:	LAWN (m²):	2000	AGRI (m²):	0	PLANTING (m²):	20	
MONTH	WEEKLY IRR. (m)	MONTHLY DEMAND (m³)	WEEKLY IRR. (m)	MONTHLY DEMAND (m³)	WEEKLY IRR. (m)	MONTHLY DEMAND (m³)	TOTAL MONTHLY IRR. DEMAND (m³)
January	0.02	160	0.025	0	0.005	0.4	160.4
February	0.02	160	0.025	0	0.005	0.4	160.4
March	0.02	160	0.025	0	0.002	0.16	160.16
April	0.02	160	0.025	0	0.002	0.16	160.16
May	0.01	80	0.025	0	0.002	0.16	80.16
June	0.01	80	0.025	0	0	0	80
July	0.01	80	0.025	0	0	0	80
August	0.02	160	0.025	0	0	0	160
September	0.02	160	0.025	0	0.005	0.4	160.4
October	0.02	160	0.025	0	0.005	0.4	160.4
November	0.02	160	0.025	0	0.005	0.4	160.4
December	0.02	160	0.025	0	0.005	0.4	160.4
ANNUAL TOTAL		1680		0		2.88	1682.88

B2 DOMESTIC / ALT DEMAND

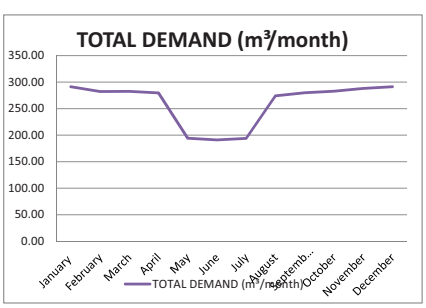
MONTH	PERSONS	WATER/ CAPITA/ DAY (l)	DOMESTIC DEMAND (m³/month)
January	200	15	93
February	200	15	84
March	200	15	93
April	200	15	90
May	200	15	93
June	200	15	90
July	200	15	93
August	200	15	93
September	200	15	90
October	200	15	93
November	200	15	90
December	200	15	93
ANNUAL TOTAL			1095

B3 EVAPORATION LOSS (For 'open' reservoirs)

35mm - 45mm/week in summer

AREA OF RESERVOIR (m²): 210

MONTH	EVAPORATION RATE (m/week)	EVAPORATION RATE (m/month)	TOTAL LOSS (m³/month)
January	0.045	0.18	37.8
February	0.045	0.18	37.8
March	0.035	0.14	29.4
April	0.035	0.14	29.4
May	0.025	0.1	21
June	0.025	0.1	21
July	0.025	0.1	21
August	0.025	0.1	21
September	0.035	0.14	29.4
October	0.035	0.14	29.4
November	0.045	0.18	37.8
December	0.045	0.18	37.8
ANNUAL TOTAL	0.42	1.68	352.80



B4 TOTAL WATER LOSS & DEMAND

MONTH	TOTAL DEMAND (m³/month)
January	291.20
February	282.20
March	282.56
April	279.56
May	194.16
June	191.00
July	194.00
August	274.00
September	279.80
October	282.80
November	288.20
December	291.20
ANNUAL TOTAL	3130.68

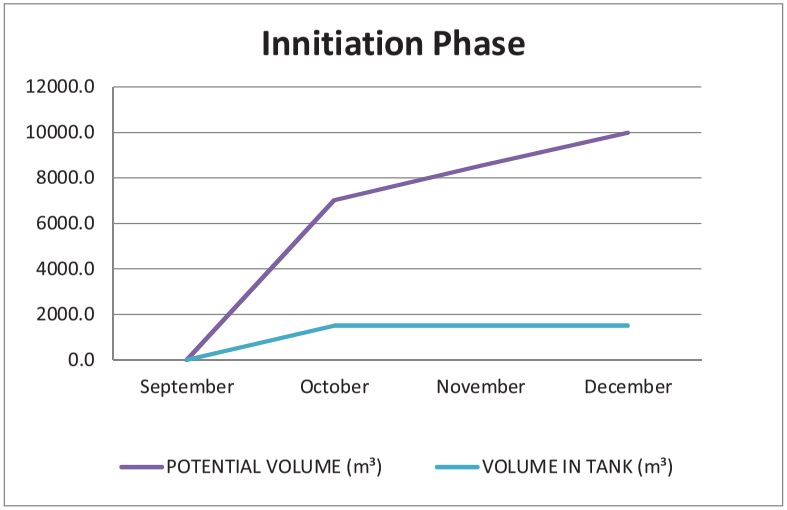
C WATER BUDGET

TANK CAPACITY (m³):	1500
MIN VOLUME (m³):	300

JoJo Tank Chosen		Diameter	Height	Lid
1 500 Litre Vertical Storage Tank	UV-resistant polyethylene BPA-free	1 410	1 200 mm	48

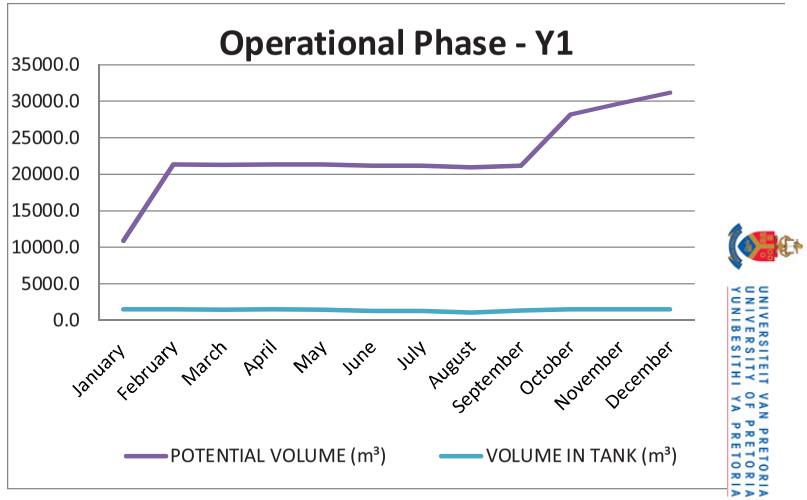
C1 WATER BUDGET INNITIATION PHASE

MONTH	YIELD (m³/month)	DEMAND (m³/month)	MONTHLY BALANCE	POTENTIAL VOLUME (m³)	VOLUME IN TANK (m³)
September	543.5	279.8	263.7	0.0	0.0
October	7310.7	282.8	7027.9	7027.9	1500.0
November	1805.8	288.2	1517.6	8545.6	1500.0
December	1739.4	291.2	1448.2	9993.8	1500.0
	11399.5	1142.0	10257.5		



C2 WATER BUDGET YEAR 1

MONTH	YIELD (m³/month)	DEMAND (m³/month)	MONTHLY BALANCE	POTENTIAL VOLUME (m³)	VOLUME IN TANK (m³)
January	1209.8	291.2	918.6	10912.4	1500.0
February	10696.2	282.2	10414.0	21326.4	1500.0
March	248.3	282.6	-34.2	21292.2	1465.8
April	352.7	279.6	73.2	21365.3	1500.0
May	172.4	194.2	-21.8	21343.6	1478.2
June	21.5	191.0	-169.5	21174.1	1308.7
July	201.8	194.0	7.8	21181.9	1316.6
August	31.0	274.0	-243.0	20938.9	1073.5
September	543.5	279.8	263.7	21202.6	1337.2
October	7310.7	282.8	7027.9	28230.5	1500.0
November	1805.8	288.2	1517.6	29748.2	1500.0
December	1739.4	291.2	1448.2	31196.4	1500.0
ANNUAL AVE.	24333.3	3130.7	21202.6		



The End

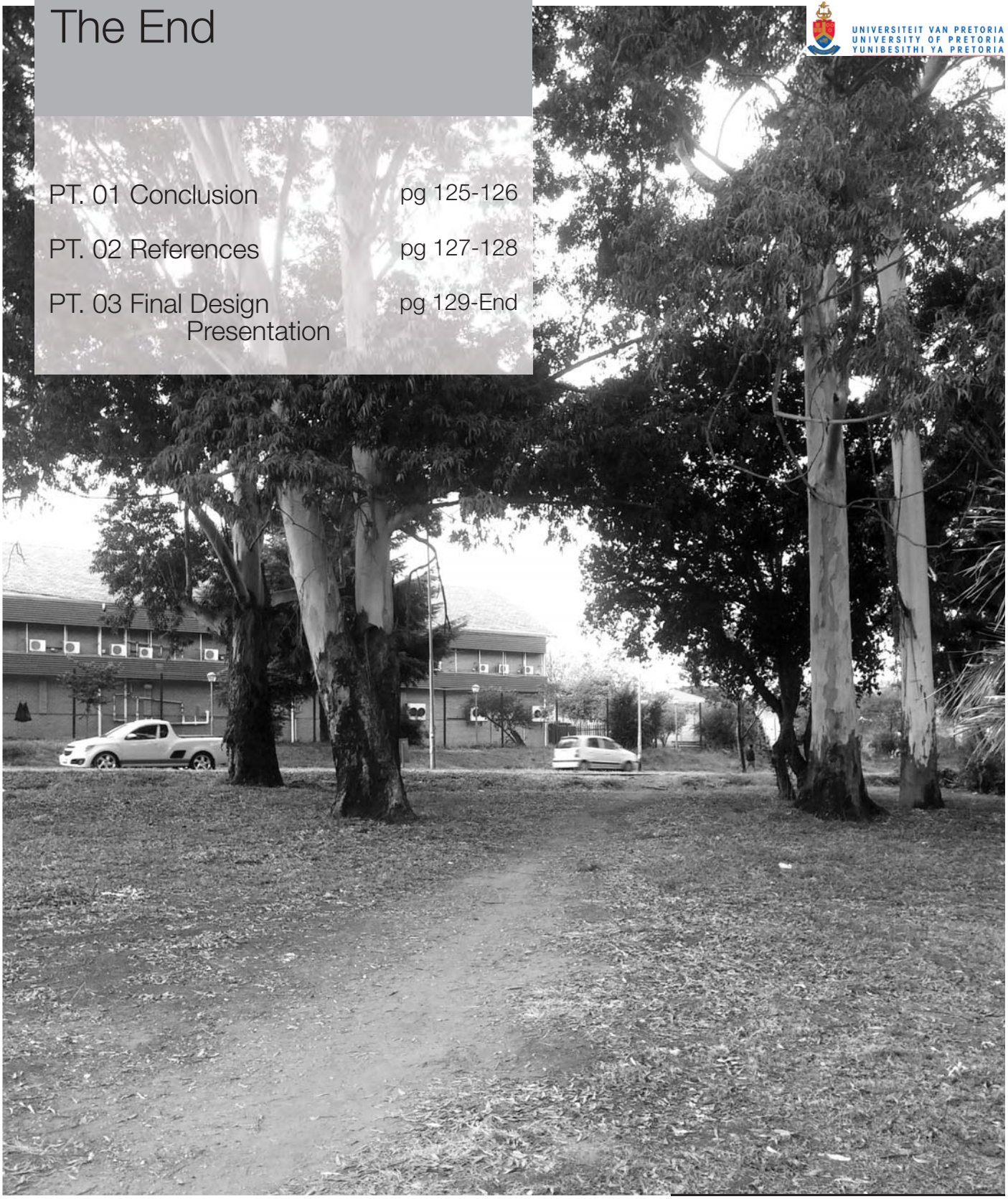


Fig 151 Site Desire Route Entrance Brixton Cemetery (Photo By Author)

Synthesis of Intentions

Brixton is incredibly valuable for Johannesburg urban context due to its proximity to both the CBD and the tertiary education belt. The loose structure and ample parks can accommodate outside urban spaces for a high density residential development. Its cultural value and the mixed demographic opens many opportunities for connecting people of different backgrounds. Well placed and considered architectural intervention and urban upgrades can make Brixton into one of Johannesburg's most vibrant and budding urban places, which could present alternatives to a gentrified Melville or Braamfontein to increase the inner city life quality. Religious and public institutions—of which there are many—could benefit from more activity and inter-connectedness brought in by more pedestrian, bus and cyclist activity as well as a change in availability of services, financial necessity and ecological mindset. The precinct could be a forerunner in the use of stagnant cemeteries, alternative burial methods and dealing with urban SLOAP. The proposal will particularly add value to the debate around religious spaces and what they can contribute to urban and social space. The proposal will also aim to revitalize urban assets, but most importantly, make vast tracts of land safer by opening up rather than closing. The connection between the social and built fabric to achieve harmonious city living is ever more prevalent in scientific, psychological and spatial practices. South Africa, particularly Johannesburg, can serve as an international precedent, if it pursues real value in life rather than monetary value, as it historically has.

Major urban and societal upliftment through the use of dormant and neglected cemetery land is not only possible, but should be encouraged by legislation, and subsequently integrated into urban planning schemes. The historic conception of the cemetery and associated subjectivity no longer override the detriment they cause to the public. Multi-purpose and relevant programming of these spaces can accumulate a growing sense of community that claims ownership of a public asset to strengthen local security and wellbeing. Exhibiting the cemetery landscape and its features makes for a strong

Fig 152 View Towards Exit Of Crematorium (Author)

cultural platform on par with – if not superior to—current affordable and accessible museums, something vital in South Africa's nation building process. Social space is the water of our nation: we are, thanks to our climate, a people of the outside, and we need to reclaim this space from commercialisation. The proposal reaffirmed and strengthened the value given to outside spaces and landscape as pivotal part in architectural place making.

We can be much more adventurous with the borders between the sacred and profane, especially in the architectural profession, where we can design appropriate thresholds and boundaries in close proximity to accommodate more engaging environments. The architecture of death should be treated with more enthusiasm and ambition, in order to accentuate its presence in our lives and make for lasting memories and allow for more spiritual growth in grief. Architecture that unburdens the insular and introverted nature of modern spaces of grief, by encouraging shared experience, can alleviate much suffering.

Remaining Issues

Current burial practices have to be challenged, questioned and understood for us to retain liveable and sustainable cities and neighbourhoods. Cremation, although vastly superior to many alternatives, has to at some point be superseded by processes like promession. Since cremation still produces large amounts of gases, necessitating filtering, it is rather costly and ecologically insensitive. We as architects can enter this discussion by recommending more sensitive methods of dealing with human remains, and more pertinently, exposing and exhibiting alternate, hitherto misunderstood practices in future design implementation. The balance between tradition and the past as seen in opposition with the present, daily ritual, livelihood and future value needs to be more central to our emotional and rational inquiry as architects and as a civilisation.

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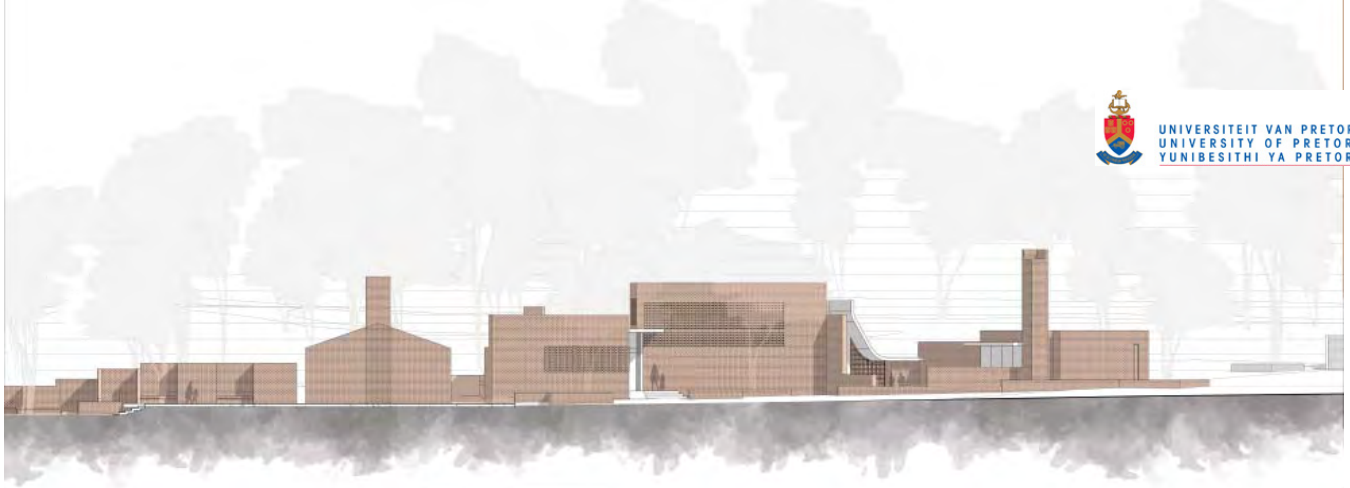
SITE PLAN 1:200

CREMATORIUM GF PLAN 1:100

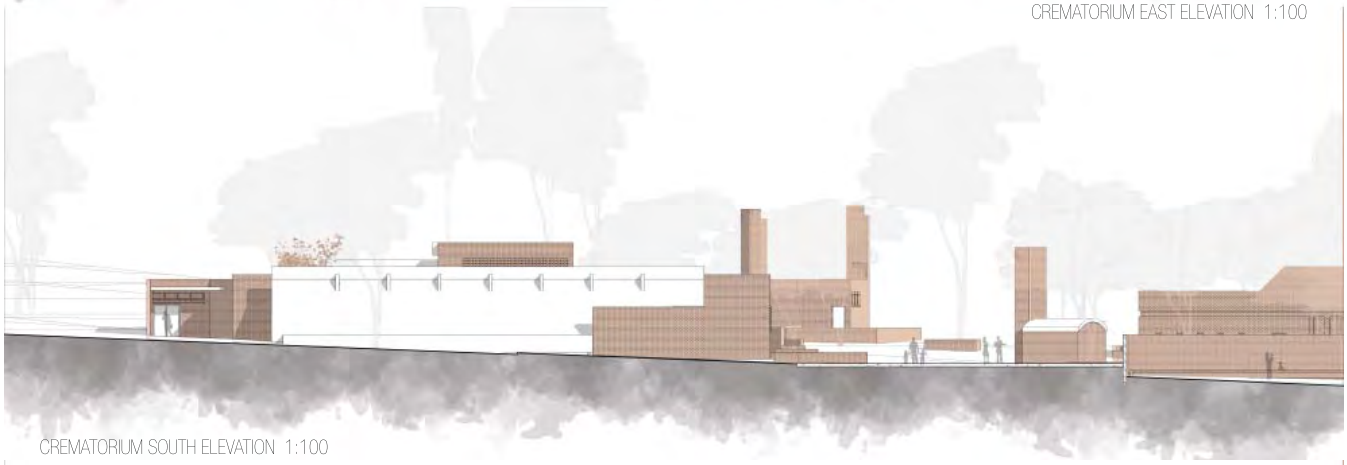
CREMATORIUM BASEMENT PLAN 1:100

CREMATORIUM SECTION 1:50

CREMATORIUM SECTION 1:50



CREMATORIUM EAST ELEVATION 1:100



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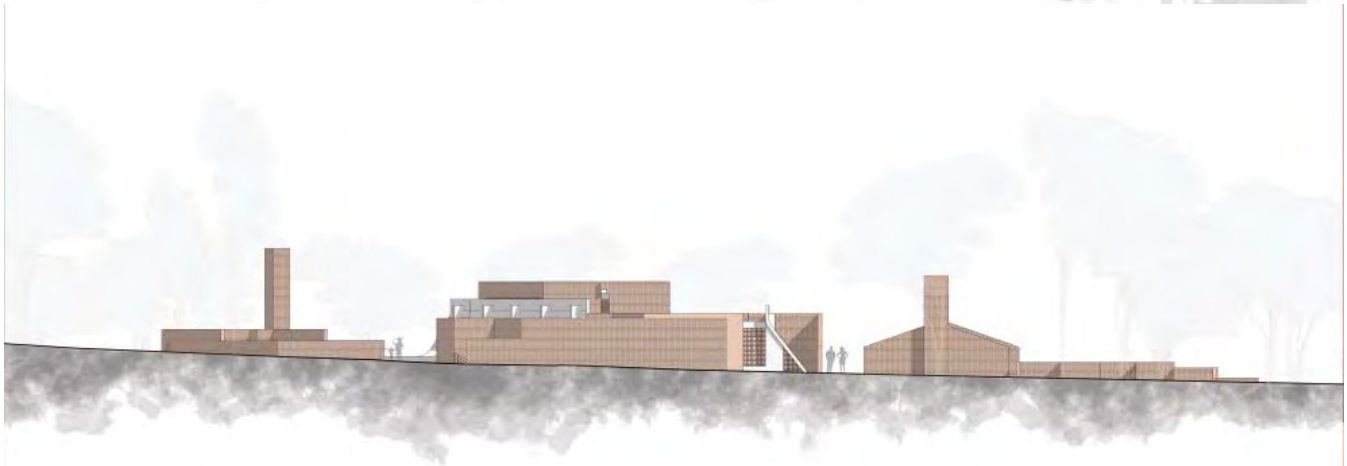

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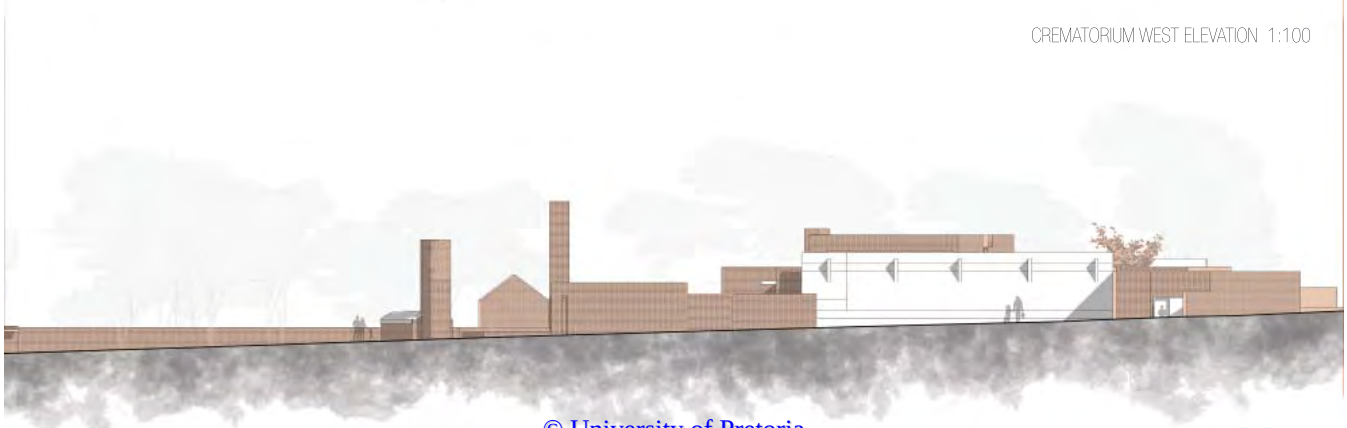
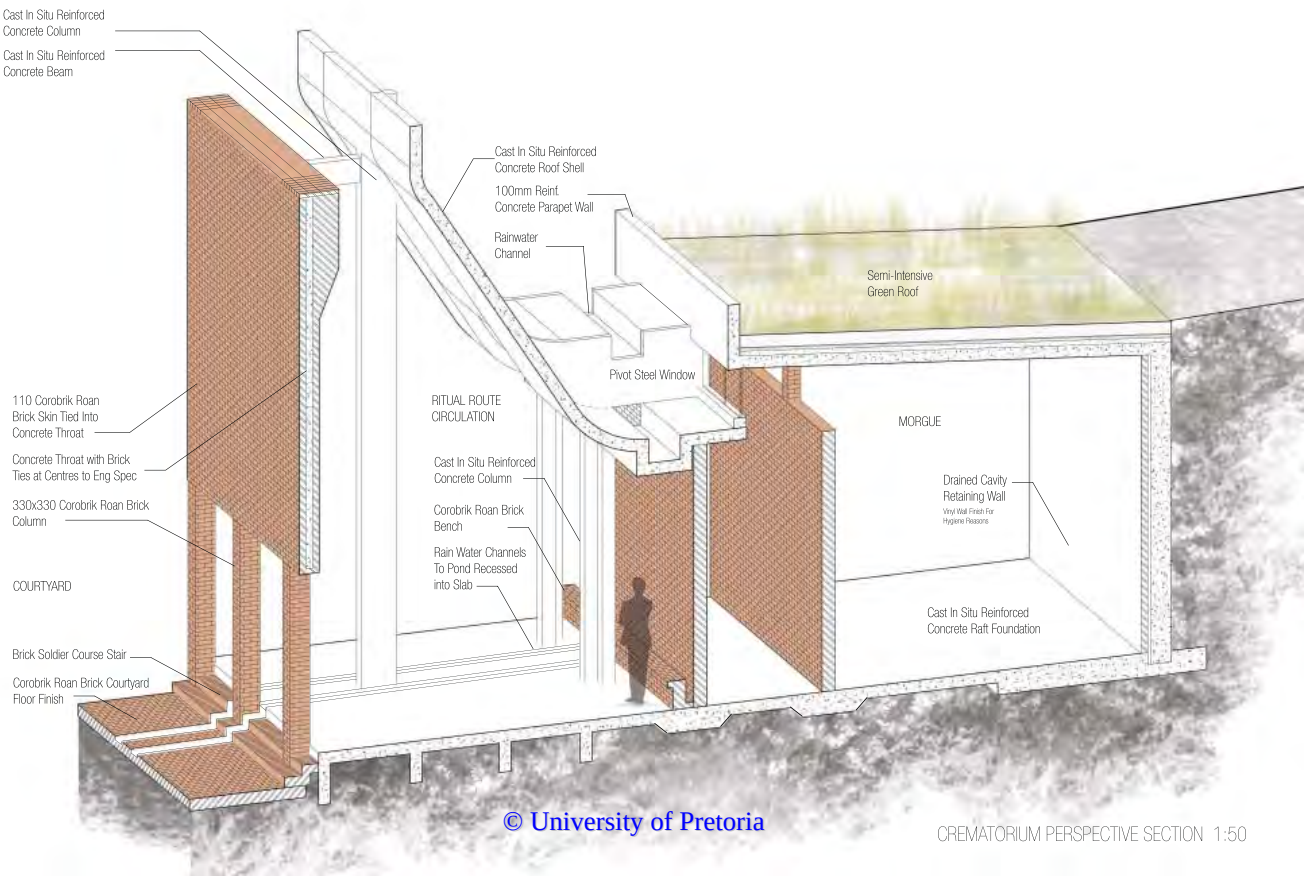


CREMATORIUM NORTH ELEVATION 1:100

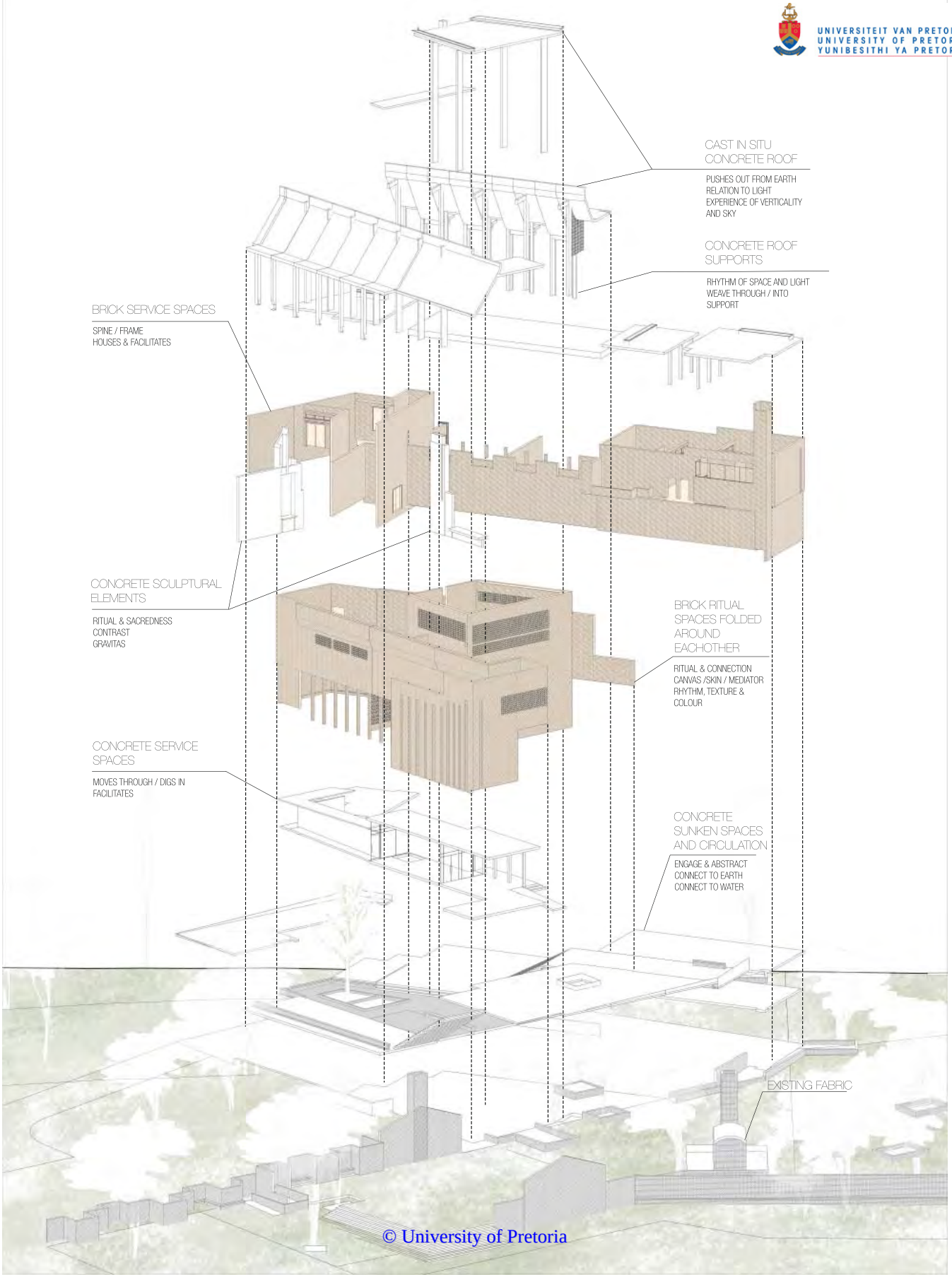
CREMATORIUM SECTIONAL PERSPECTIVE 1:100

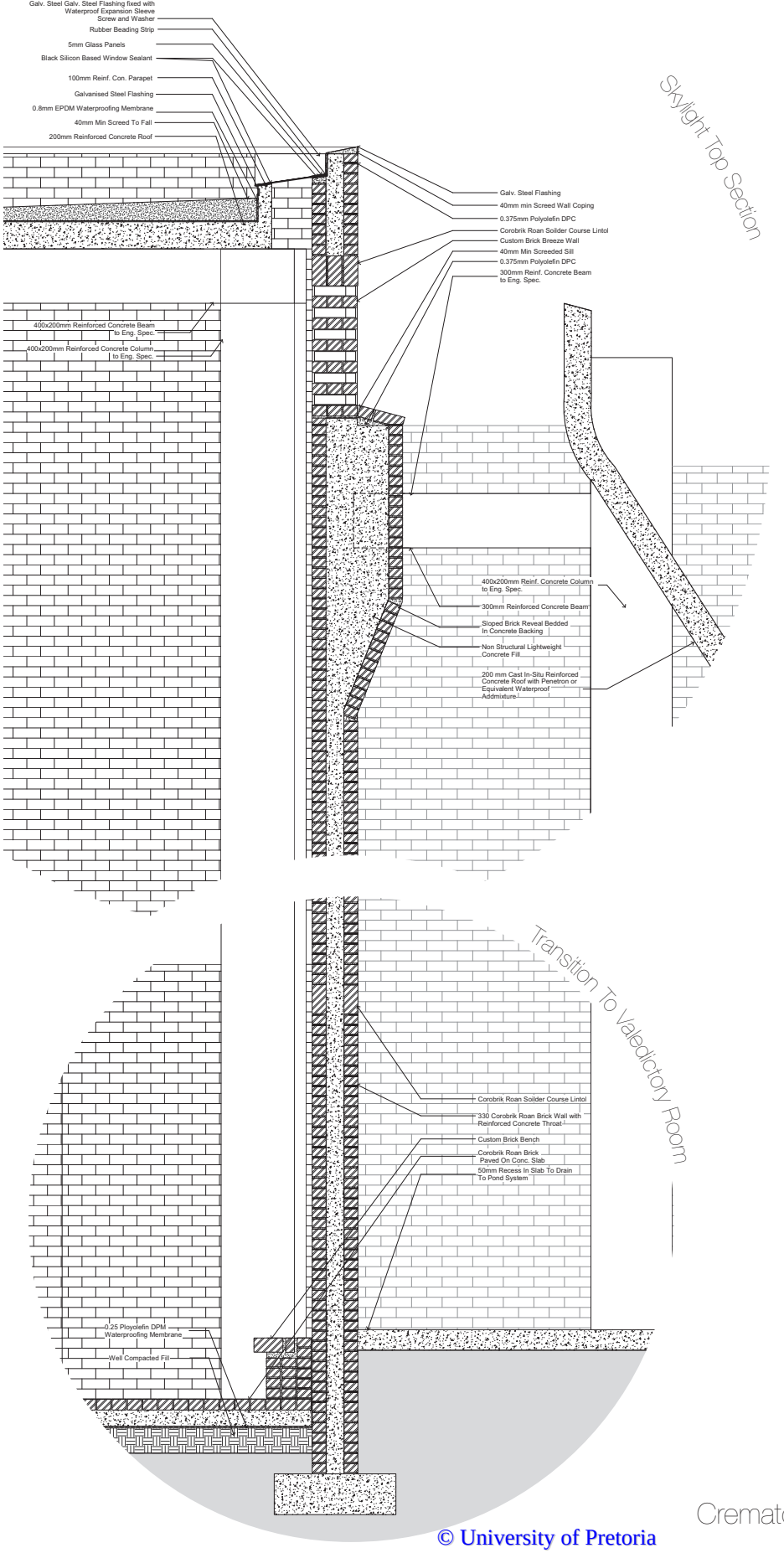


CREMATORIUM PERSPECTIVE SECTION 1:50

TECTONIC RELATIONSHIPS

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

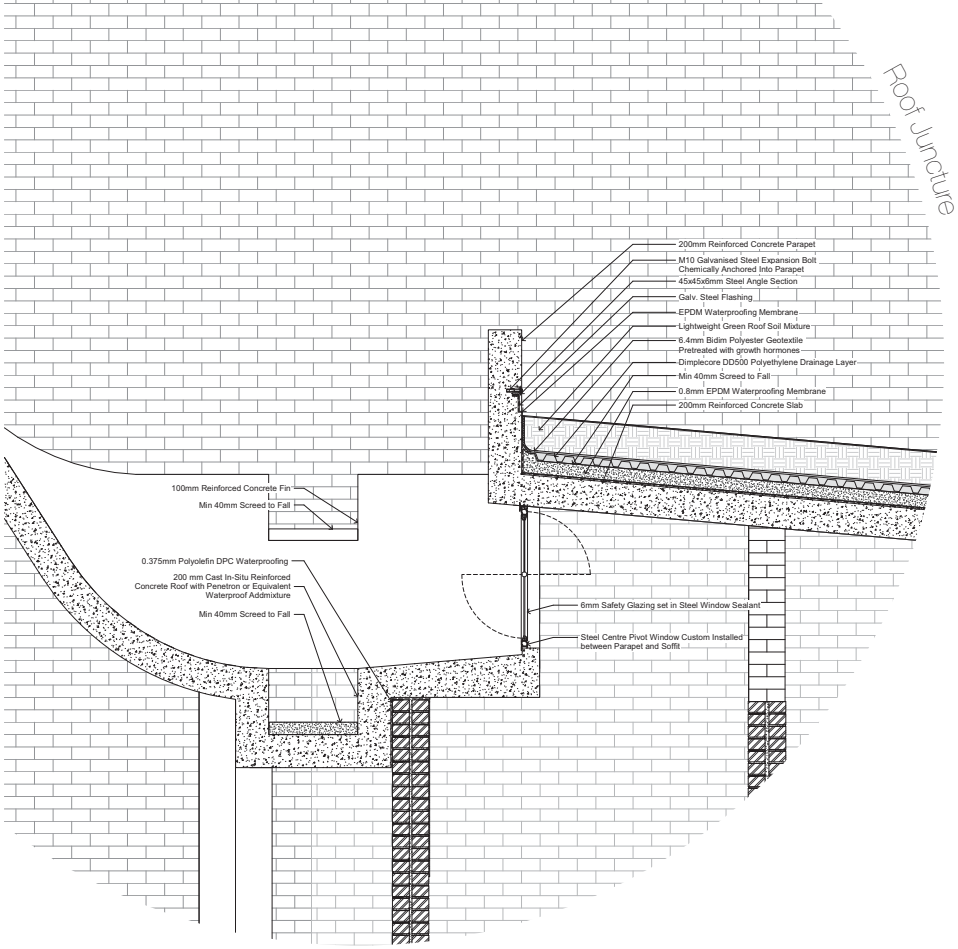




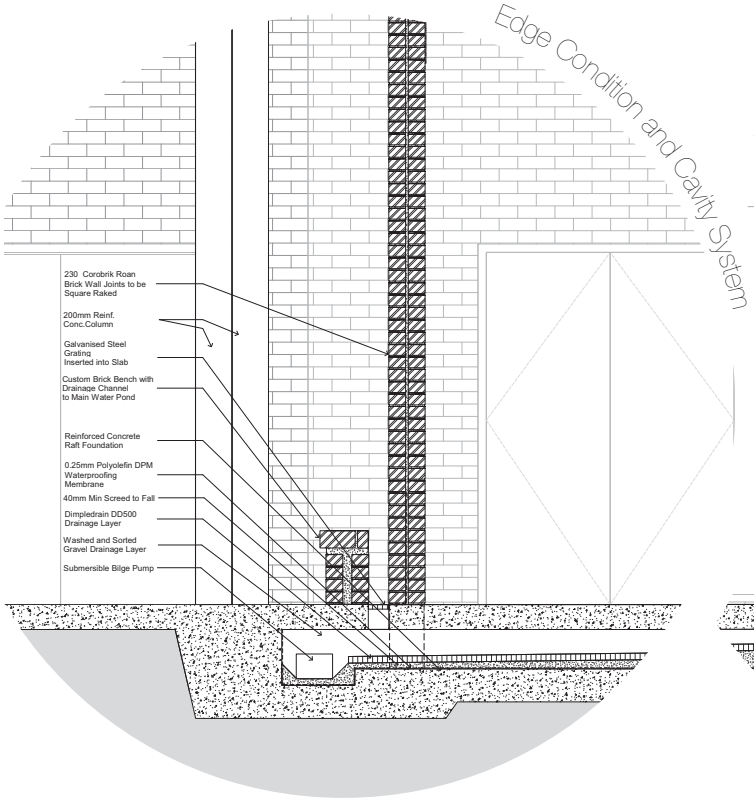
Crematorium Detail Section 1:20

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

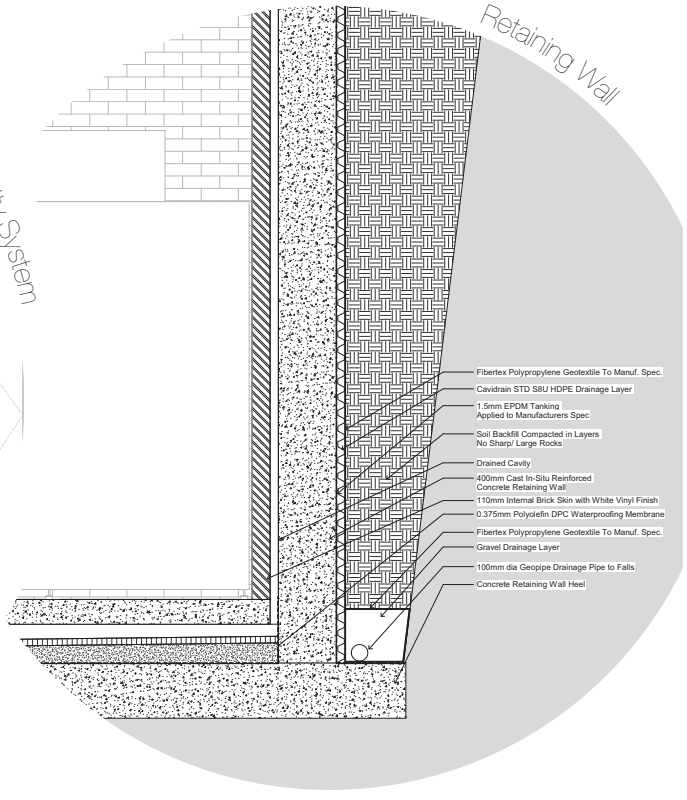
Roof Juncture



Edge Condition and Cavity System



Retaining Wall



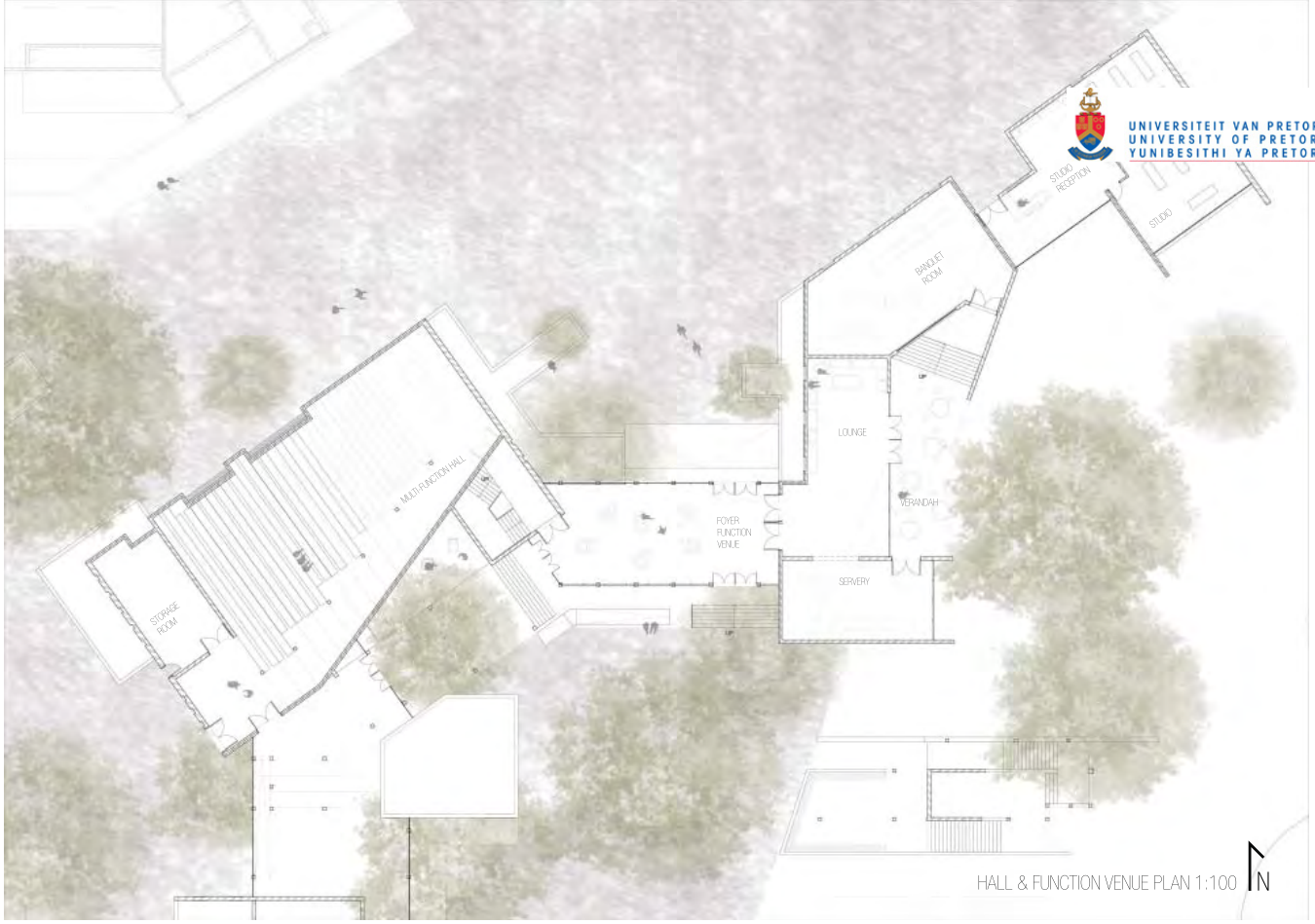
Crematorium Detail Section 1:20

CREMATORIUM COURTYARD FROM ABOVE

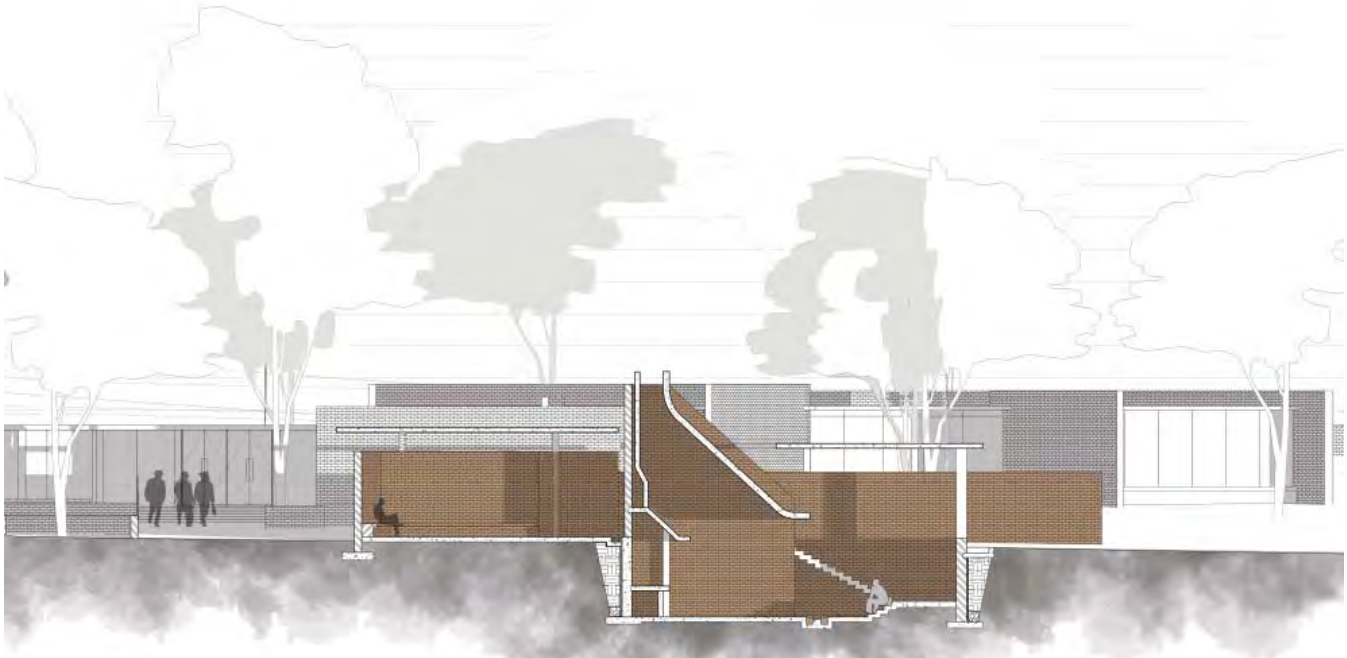
CREMATORIUM rECESS AND THRESHOLD TO COURTYARD

CREMATORIUM ENTRANCE PASSAGE

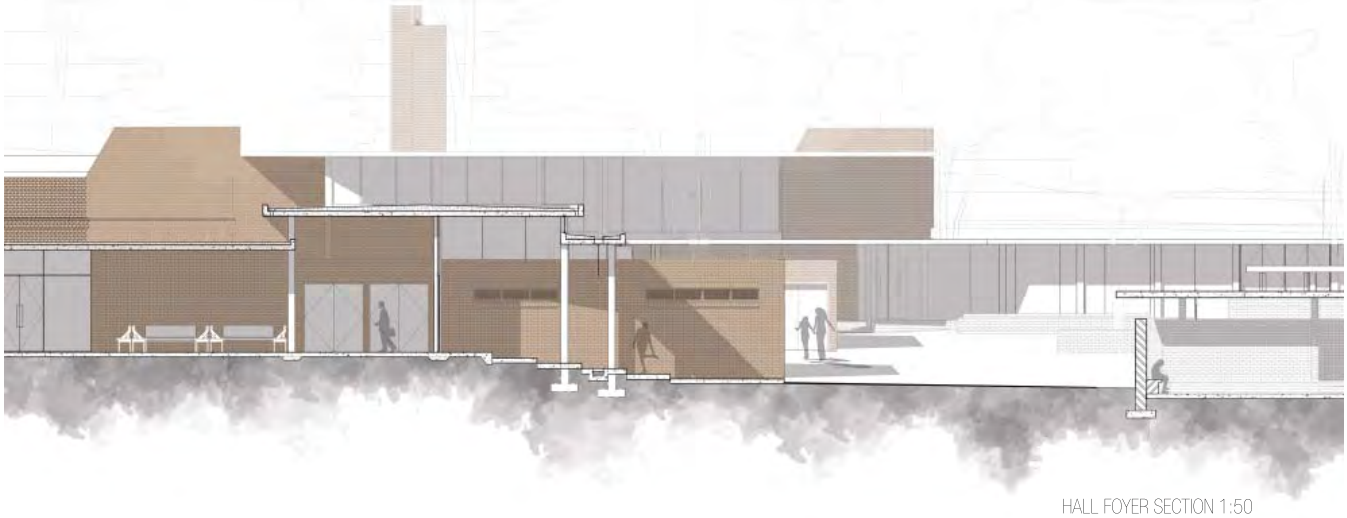
CREMATORIUM EXIT



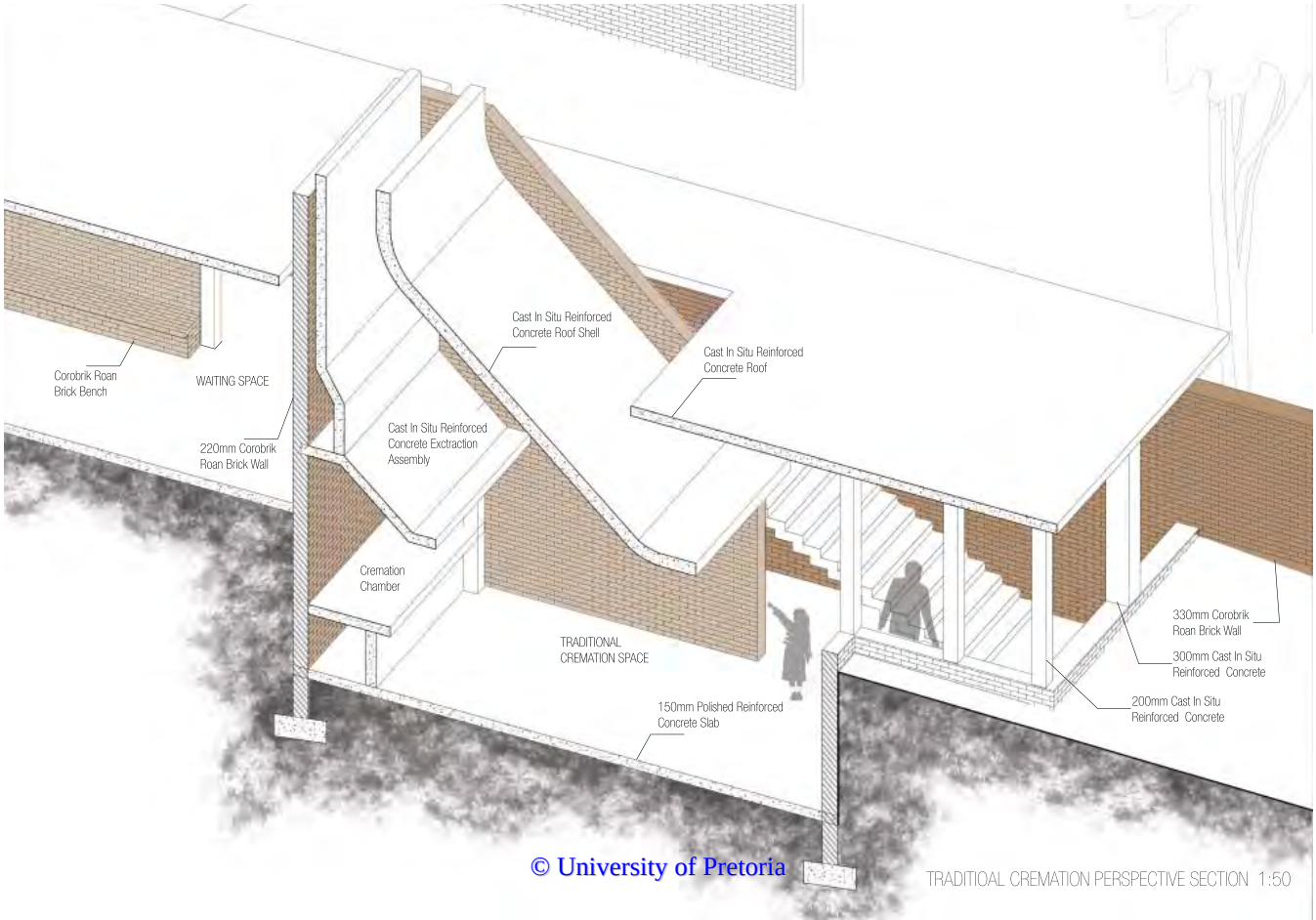
HALL & FUNCTION VENUE PLAN 1:100



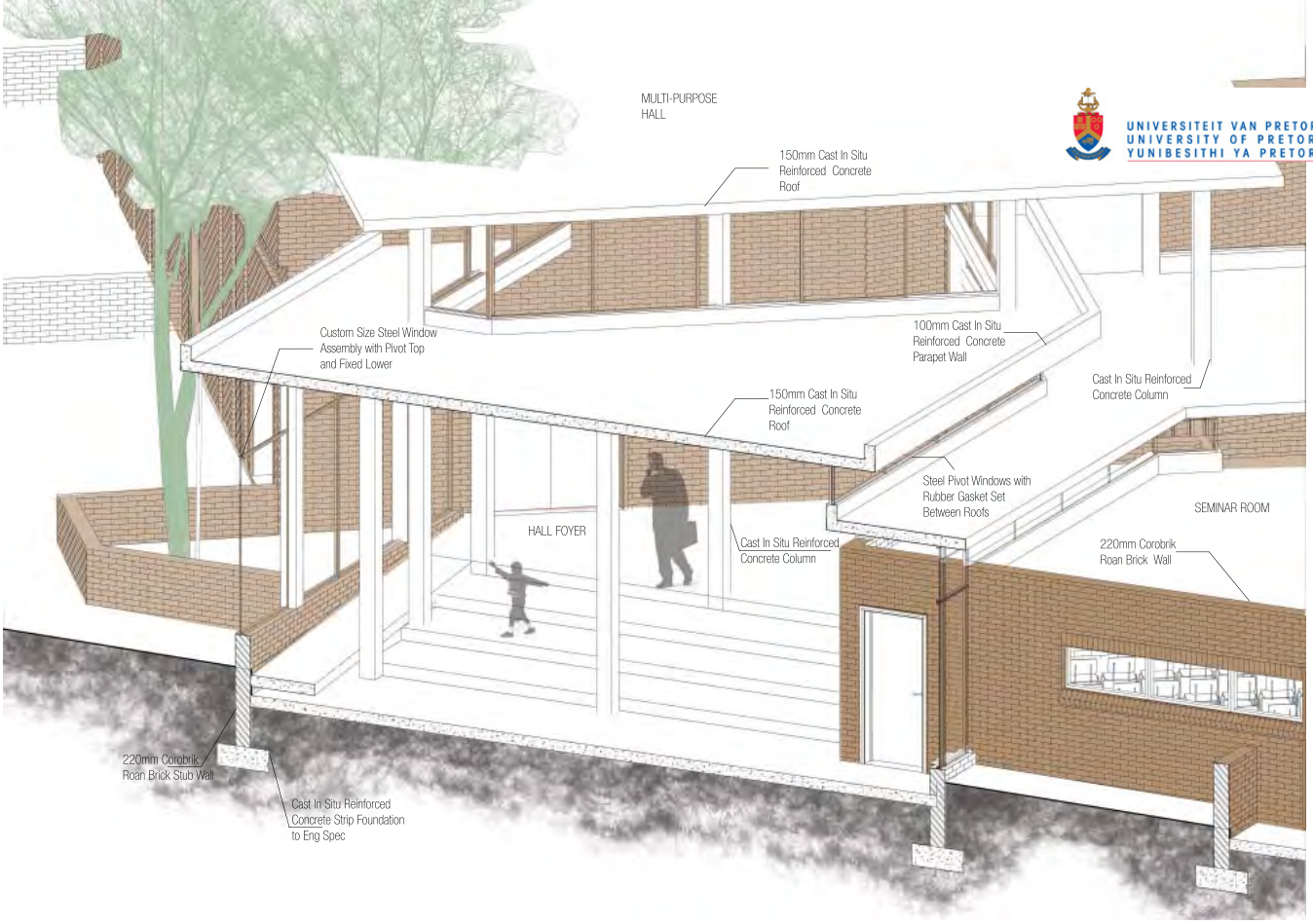
TRADITIONAL CREMATORIUM SECTION 1:50

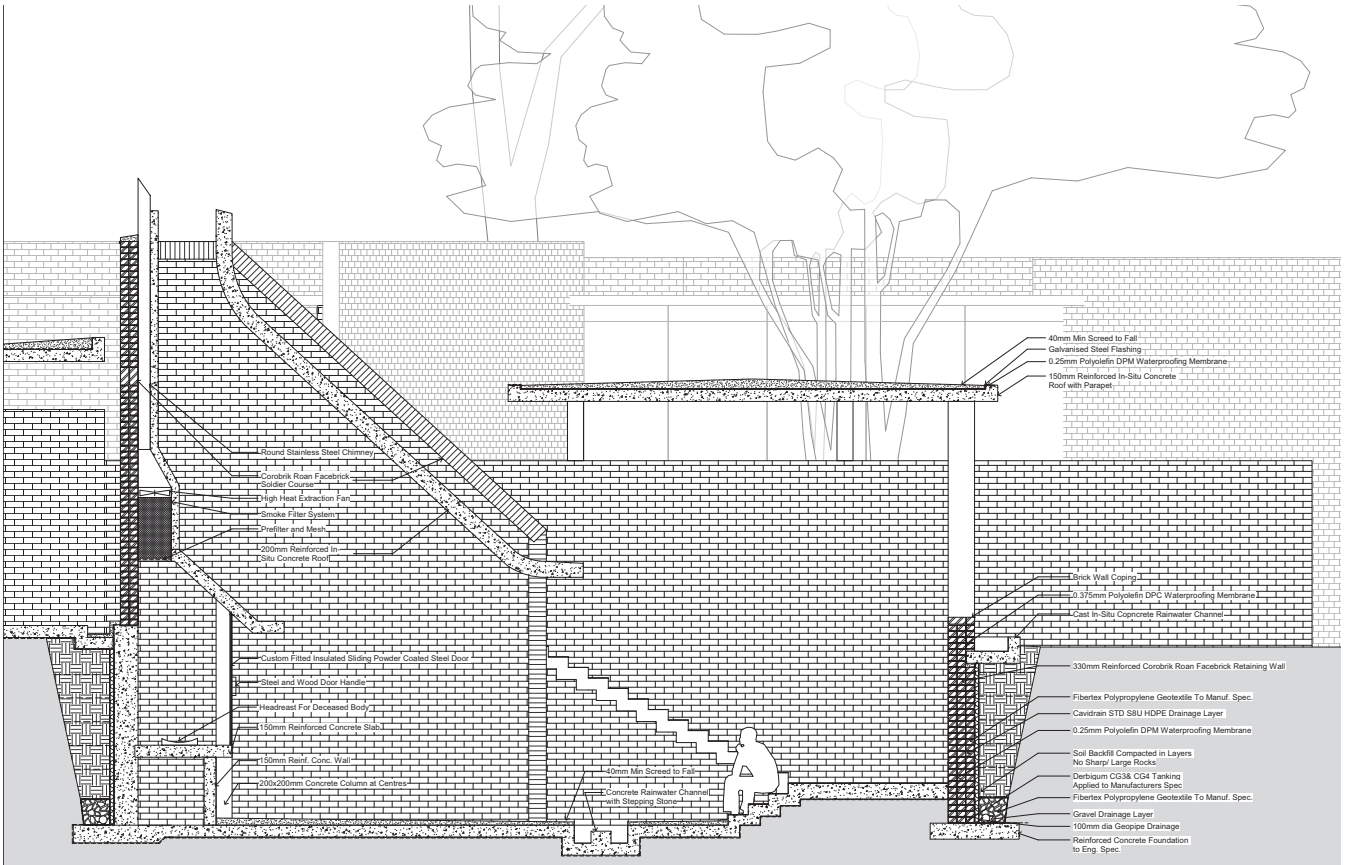


HALL FOYER SECTION 1:50

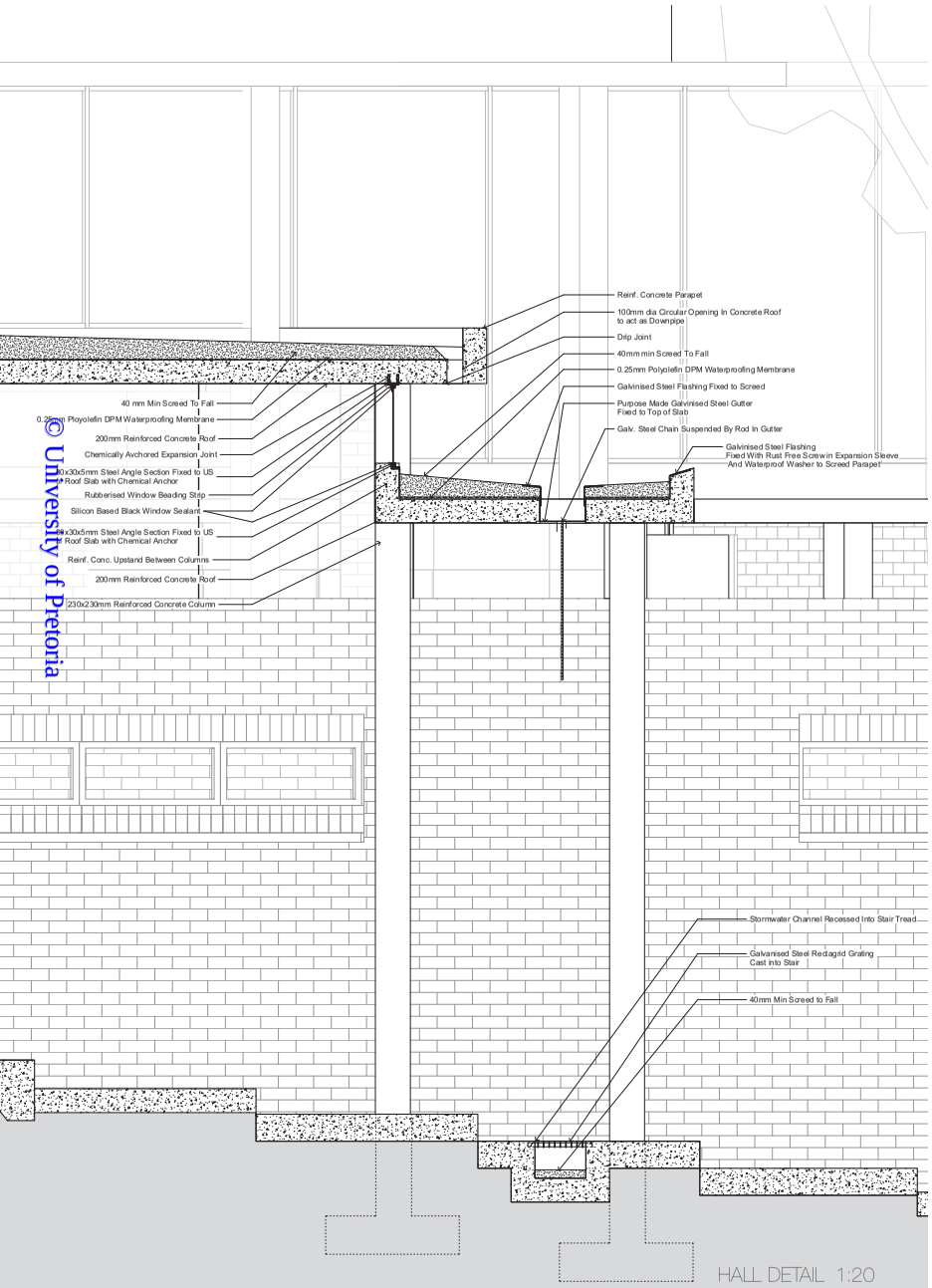


TRADITIOAL CREMATION PERSPECTIVE SECTION 1:50

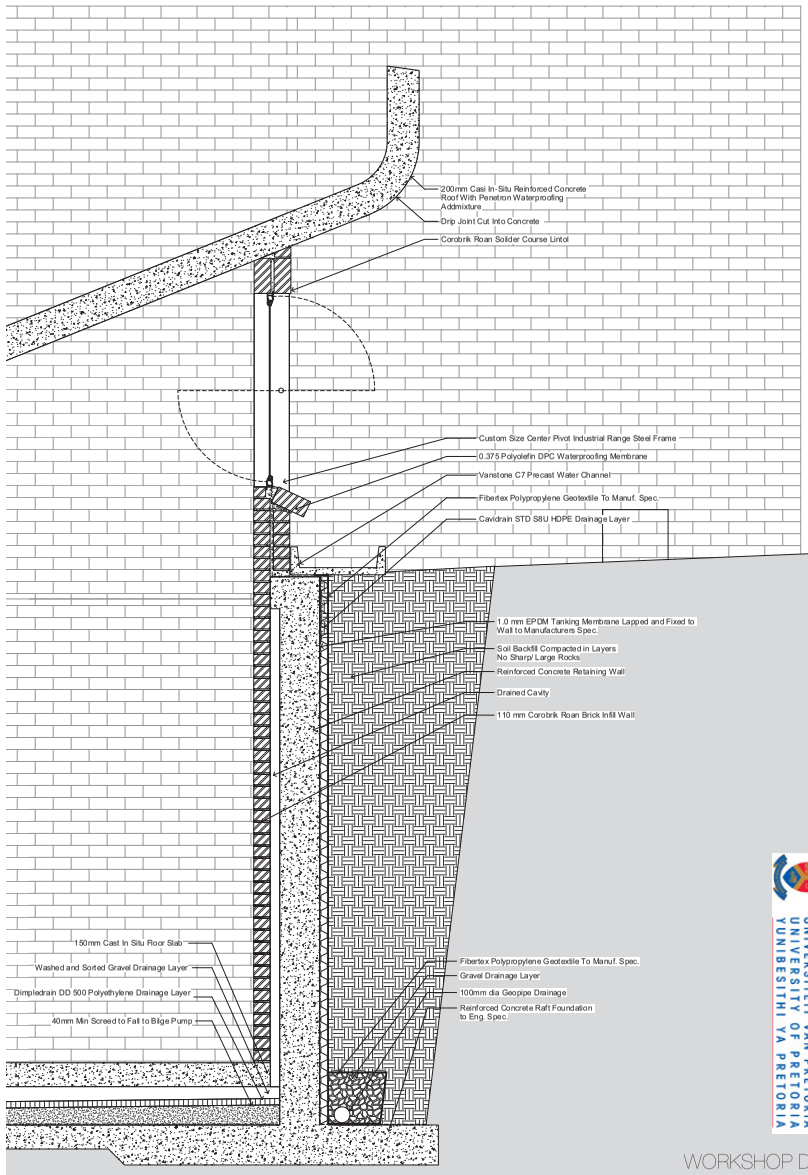




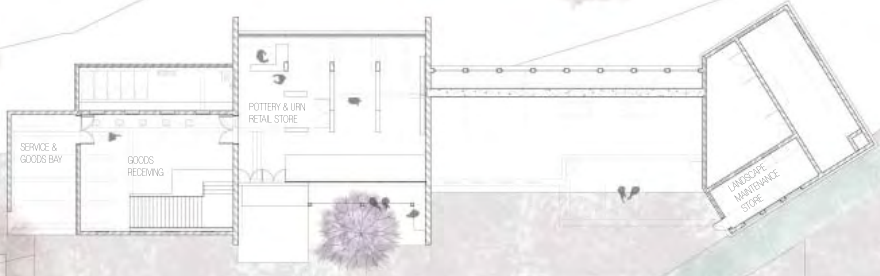
TRADITIONAL CREMATION DETAIL 1:20



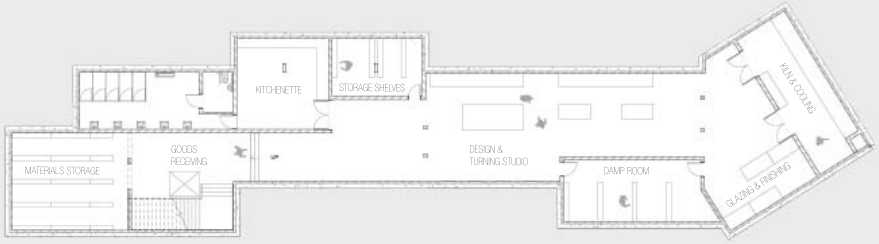
HALL DETAIL 1:20



WORKSHOP DETAIL 1:20



CREMATORIUM GF PLAN 1:100 N



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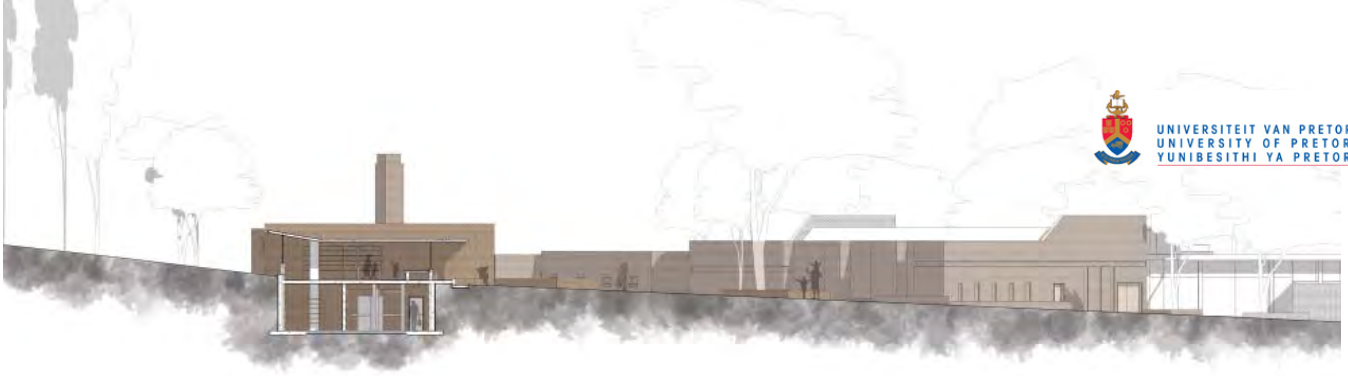

WORKSHOP RETAIL SECTION 1:50

WORKSHOP STUDIO SECTION 1:50

HALL FOYER TO COURTYARD

TRADITIONAL CREMATION SPACE

PESPECTIVE VIEW OF PROPOSAL IN LANDSCAPE NTS

END