UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

REGENERATION IN CONTESTED

POST APARTHEID URBAN SPACE:

Towards the design of a Remediation Hub in the Durban South Basin

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Dissertation submitted to the School of Built Environment and Development Studies, University of KwaZulu-Natal, in partial-fulfilment of the requirements for the degree of Master in Architecture (Prof) Durban, 2014.

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Part one of document | March 2015

|DECLARATION|

A document submitted in partial fulfilment of the requirements for the degree of Masters, in the Graduate Programme in Architecture, University of KwaZulu-Natal, Durban, South Africa.

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. It is submitted for the degree of Masters in Architecture in the Faculty of Humanities, Development and Social Science, University of KwaZulu-Natal, Durban, South Africa.

None of the work has been submitted previously for any degree or examination in any other university.

…….

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|DEDICATION|

This document is dedicated to my wife, **Liezl Gevers**, without whose support I would have not made it this far. Thank you for all your patience through all the sleepless nights of toil and acting as a sounding board during the times of self doubt. Your love, dedication and support mean the world to me.

|ABSTRACT|

Currently the world sits in a state of global economic, ecological and social crises. The city, the icon of triumph of human civilisation, needs to respond to these crises with sustainable and innovative solutions. South African cities are burdened by the history of planned segregated urban spaces that brutally fragmented communities. This induced urban sprawl, inequality and exclusion which was exacerbated by current global economic and environmental strains. South Africa cities are characterised by a high Gini coefficient, low skill levels, high unemployment contrasted by inefficient and rapidly sprawling urban forms that promote exclusion and economic segregation.

This dissertation will seek to explore the relationship between space and place and how architecture can act as a catalytic regenerative tool. The various urban intervention processes will be outlined and will seek to introduce and research how architecture can remediate and regenerate the economic, social and environmental strains in the Durban South Basin Area. This will be explored through an urban and architectural intervention that generates skills, economic opportunities and resources (water, energy, food).

The research method used is qualitative in nature and sought to glean research data on the topic through a literature review, precedent and case studies and finally through informal loose interviews and a qualitative questionnaire that utilised a random purposive sampling method.

The findings revealed a need for an architecture that empowers and for urban interventions that are community focused that remediate environmental and economic stresses. The need for skills development, and economic opportunities in this empowerment process was highlighted in this regenerative approach to architecture. The approach should induce a site sensitive architecture that is responsive to the issues on the site while seeking to establish a sense of place in the contested urban spaces in which it is situated.

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|CHAPTER ONE| DISSERTATION INTRODUCTION|

Figure 1: (Left) Conflict and contestation in public space. (www.theguardian.com)

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> *"[F]ew appreciate that the 'built environment' (cities, buildings, landscapes, products) could generate healthy ecological conditions, increase the life support services, reverse the impacts of current systems of development and improve life quality for everyone...For development to become the solution instead of the problem, it must provide the infrastructure for nature to* ***regenerate****, flourish and deliver ecosystem goods and services in perpetuity...." Janice Birkeland via (Swilling and Annecke, 2012: 135)*

1.1 INTRODUCTION

1.1.1 Background

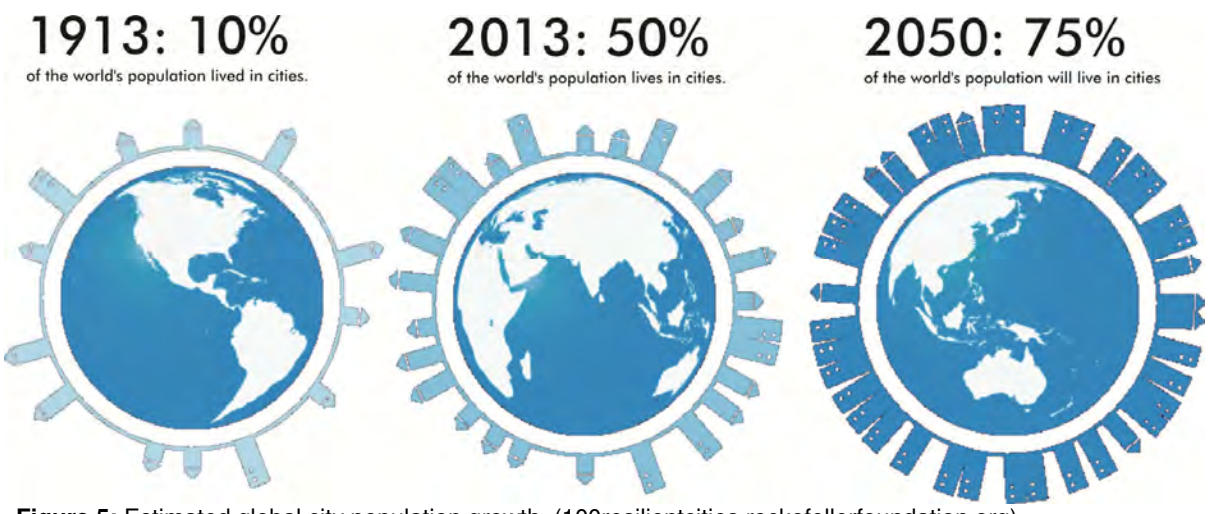


Figure 5: Estimated global city population growth. (100resilientcities.rockefellerfoundation.org)

Globally resources are strained, population growths are rampant, political turmoil is rife, public space is under siege and the climate is changing, all paving the road for an unpredictable future. Cities are urbanising at a much higher rate than any other period in history (Harsch, 2012). In this globalised culture, the quality of cities and the access to urban space and public space is crucial to a sustainable future.

Cities need to respond to these issues with sustainable, progressive solutions. Planners, designers and policy makers need consider, when thinking about sustainable development, how 'The 21st century City', and more importantly 21st century African cities, will respond in this world of inequality and globalisation.

South African cities were founded on spaces that were contested, controlled and surveyed, built around principles of exclusion and segregation. The urban morphology was one that induced, either through intentional design or default, a low density sprawling city that was dominated by mechanised transport. Due to the structuring of the city and the migrant labour laws, informal settlements were developed on the edge of the city which had little or no services (water, health or education). The Apartheid government actively tried to prevent Africans from living in the city and thus the creation of the informal settlements and townships were unavoidable (Frescura, 2001: 118).

The apartheid city model encouraged decentralised city forms, often with industrialisation on the borders of the city, on the edge of the 'homelands'. The 'homelands' were constructed zones African only areas within South Africa that were created ad enforced by the Apartheid state. This enabled the white government to control the distribution of African labour in the

centre of the cities (Houghton, 2010: 78; Frueh, 2003: 41) The exclusionary and segregationist approach resulted in large disparities in the quality of the services of the different ‘zones’; services including health, education and transport.

South African cities today still carry the burden of Apartheid’s spatial geography and remain largely segregated. The areas of manufactured division and exclusion only perpetuate the growing gap between the privileged and the marginalised, exacerbating the problem of urban sprawl and the effects of the neoliberal economic system.

Space in apartheid South Africa had historically been used as a tool of domination and control. This domination was achieved through planned segregation and violence with the deliberate unequal distribution of resources, land and services. Space was used as a tool of the apartheid regime to help control and oppress the previously disenfranchised populations of South Africa. Spaces that were once symbols of the past oppressive apartheid regime are still interpreted as such and as a result are treated and interacted with as such.

1.1.2 Motivation/Justification of the study

Currently the future of cities face growing global and local issues and in order to achieve effective growth one must move towards more sustainable models of development and city governance. Sustainability does not only entail environmental concerns but social and economic as well.

South Africa has unfortunately inherited a city form that is burden, with planned segregation, echoing into our present. But the current approach to city governance and development has only exacerbated the issues reinforcing a city that is inefficient. The urban fabric is fraught with large economic disparities, excluding and marginalising those in the need of services and a functioning place within the city.

This dissertation seeks to explore the effect of contested space on the urban environment and whether regenerative processes can aid in creating a more sustainable city in the context of urban design and architectural issues. This dissertation will ultimately look towards a solution that responds to urban stresses, seeking to remediate between economic, social and environmental strains, in a specific city zone, through an architectural intervention. The intervention will focus on the idea on empowerment of the poor and the previously excluded and will take the form on a built intervention. The approach of the research is not to develop a universal solution to urban stresses and placelessness, but rather it will look at the city of Durban for a contextual approach while analysing global issues that impact this context.

1.2 DEFINITION OF THE PROBLEM, AIMS AND OBJECTIVES

1.2.1 Definition of the Problem

This dissertation's problem takes a socio-economic approach, leading from a historical perspective. The issues of sustainable regeneration, urban space and place, skills development (education) and empowerment are rooted in a historical backdrop which is influenced by social and economic factors.

The main problems which influence the approach to this research are the following:

1) Urban sprawl is inefficient and not only is a financial burden in terms of maintenance for the city but it also reduces job opportunities, increases pressure on resources and promotes social disconnection (Harsch, 2012)(Brunner, 2012).
2) There is a skills shortage due to poor education resulting in low human capital for South African cities (Statistics South Africa, 2011: 34).
3) Currently the world's resources (water, food, energy) (United Nations, 2011) are under great strain leading to further environmental, social and economic pressures.

The problem is this: South African cities are still fragmented through sprawled Apartheid planning which is only exacerbated by the current economic system and global environmental stresses(climate change). The culmination of all these issues has greatly affected the previously marginalised who were denied access to adequate facilities and infrastructure and economic empowerment.

1.2.2 Aim

The aim of this research is to understand how architecture can promote socially responsive regeneration, and boost economic prospects of the marginalised, in contested urban space while aiding a process of enabling a more sustainable city.

1.2.3 Objectives

- To explore the relationship between space and place.
- To understand the effect of power (autocratic control) has on space and place.
- To explore how architecture can assist in placemaking.
- To determine how architecture can aid regeneration in the strained urban fabric.
- To determine how architecture can sustainably respond to current environmental, social and economic problems in an urban context.
- To explore how skills development (education) and economic empowerment can be used as a tools to facilitate the socially sustainable regeneration process.

1.3 SETTING OUT THE SCOPE

1.3.1 Delimitation of Research Problem

This study seeks to research how the built environment can be used to facilitate urban regeneration in the economically segregated post apartheid city of Durban. The study's location will be centred on the urban environment, due to the nature of the study. In terms of the built environment typology the project will focus on, but a variation of, adult education and skills training/development.

While this study will be set in present day events (socio-economic and environmental) it will also briefly look to history to see how the past shaped the city of Durban, thereby rooting the problems of this study in a context.

The topic of regeneration is made up a number of activities and approaches therefore this study will be focused on the issues, as mentioned above, that are related to this research topic, centred on achieving a suitable architectural response. Due to the time constraints the scope of the research will have to limited and focused. This does not allow a full in-depth study of regeneration in the contested built environment but rather the author will have to adhere to strict guidelines and limitations.

The study will be focused on the large Gini coefficient gap that exists in South Africa (Durban) and the impact this has on the built environment. Therefore the people that are affected and involved in this project will be the following:

- Adults that based in the city or wish to be based in the city who are seeking economic opportunities and skills development. The study will be focused on empowerment of the marginalised members of society.

The author will also need to be aware of his position of privilege in relation to power dynamics in the post apartheid city and when dealing with the marginalised and poor. The author will approach the subject matter with sensitivity.

1.3.2 Definition of key terms

REGENERATION	Restoration, regrowth and repair, of not only the urban fabric, but of environmental, social and economic systems, leading to the sustainable (re+) generation of scarce natural resources.
CONTESTED SPACE	"Place, both as a concept and as a discrete space on the earth, is a contested terrain" (Shibley and Schneekloth, 2000: 132) Contested space is the tension and power dynamics that exist between two or more parties in shared (same) space, caused by one or more issues, resulting in inequality, strife and turmoil.
SUSTAINABILITY	Can be defined as the synthesis of and the balance between the three main factors that affect humans and development; society, environment and the economy. This is referred to as triple bottom line sustainability; a synthesis of the three factors. This relates to the two preceding definitions below.

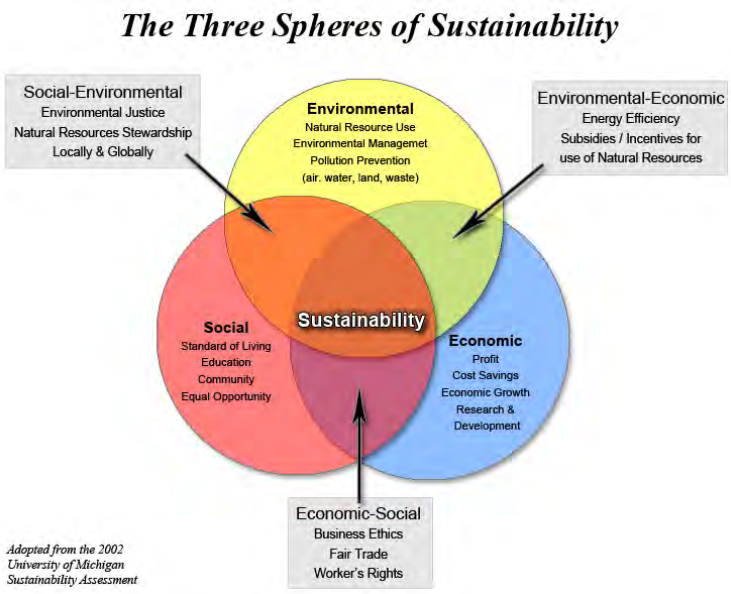


Figure 6: Three spheres of sustainability. (www.vanderbilt.edu)

RESILIENT CITY	"A Resilient City is one that has developed capacities to help absorb future shocks and stresses to its social, economic, and technical systems and infrastructures so as to still be able to maintain essentially the same functions, structures, systems, and identity." (resilientcity.org, 2012)
SMART GROWTH	Smart Growth is development that serves the economy, the

	community, and the environment (EPA, 2013). Smart Growth advocates compact (controlled outward growth), land and resource preservation, inner city revitalisation, transit-oriented, walkable centres focusing on neighbourhood schools, complete streets, and mixed-use development and a range of housing choices (Burchel, Listokin and Galley, 2000: 824). Smart Growth is a reaction to urban sprawl.
URBAN SPRAWL:	Continuous development from compact to the completely scattered low density development that is beyond the edge of service and employment, which separates where people live from where they shop, work, recreate and educate thus requiring cars (and other mechanised transport) to move between zones.
URBAN DECAY	The process where a previously functioning city, or part of a city, falls into disrepair resulting from disinvestment. The decay is linked with one's perception of the supposed abandonment and misuse urban space. Often used in conjunction with terms such as urban creep and urban blight
URBANISM	Is the process or rate at which people migrate toward urban centres in the pursuit of specific needs.
ECONOMY(INFORMAL & FORMAL)	"A community's system of using its resources to produce wealth" (Oxford, 1991: 216). The economy though can be divided into two categories, the informal and the formal. The informal economy is characterised by these key points: "small scale, low level of organisation and low productivity; happens outside of state licensing and regulation framework; and “legal and economically sound” activities (differentiating the informal economy from hidden or underground economy)(led.co.za: 2010)
NEO-LIBERAL ECONOMICS	Neo-liberalism was essentially about rethinking income distribution (you are paid what you are worth), insecure employment market (labour market deregulation) (Palley, 2004:3), reduced union control, and deregulated financial markets (Palley, 2004:5) and more power to private enterprises

	and less government intervention (Cowen, 2004:1). Neo-liberalism is linked to globalisation.
GINI COEFFICIENT	A measure of the income gap between the wealthy (rich) and the poor.
GENTRIFICATION	"Involves the restructuring of urban space for wealthier clientele." (Hackworth, 2007:98), It is the process of 'restructuring' and often involves revaluation of the inner city spaces with the displacement of the poor by the wealthy. Sometimes the two groups are racially polarised (Tochterman, 2012:66).
URBAN REGENERATION	"a comprehensive and integrated vision and action which leads to the resolution of urban problems and which seeks to bring about a lasting improvement in the economic, physical, social and environmental conditions of an area that has been subject to change." (Colantonio & Dixon, 2011:8).
EDUCATION	The process of receiving or giving systematic instruction, or the process of learning new skills that are conducive towards the positive development of an individual/s.
ENTREPRENEUR	A person who sets up a business or businesses to pursue a opportunity, taking on financial risks in the hope of profit.
SEGREGATION	The active process of discriminatory separation pursued by one party on another party. The separation can be a combination of the following: gender, race, age, income group, religious group etc of people from one another. Achieved through either force or threat of force. In this context, the impact of segregation is focused on urban planning.
POST APARTHEID	Time in South Africa from 1994 to the present, signifying the birth of democratic South Africa.
UTOPIA	An imagined place or state of things in which everything is perfect (Oxford, 1991: 767).
RIGHT TO THE CITY	The struggles between exclusion and inclusion were conceptualised by Lefebvre in his concept of "The Right to the

	City" and were based upon the conflict the residents of Le Halles had with Haussmann's urban renewal plans. The Right to the City represents the right for one to participate in society through every day practices; everyday practices such as work, housing, education, leisure (Gilbert and Dikeç, 2008: 261).
SENSE OF PLACE	'Place' can be created by the association of knowledge, history, and memory over time to space. Norberg-Schultz (1979) speaks about the "creation of a place that has a distinct character in the micro and macro context, the atmosphere of a place" (Norberg-Schulz, 1979:5).

1.3.3 Stating the Assumptions

- Generally city space is perceived to be in a state of 'decay' and 'disinvestment'.
- The Durban metropolitan area is characterised by a large area of urban sprawl.
- There is contested space in the city and lost space which is contested between the privileged and the marginalised. (Perception of urban decay versus reality)
- Finally it is assumed, in the context of this dissertation, that a built intervention will be an appropriate response to the problem outlined.

1.3.4 Key Question

How can the architecture remediate and regenerate a contested urban space?

1.3.4.1 Secondary questions

- How can architecture empower people?
- What building function, configuration and location can aid socially sustainable regeneration?
- How can architecture respond to environmentally sustainably in the urban environment thereby contributing toward a more resilient city?

1.3.5 Hypothesis

This dissertation hypothesises that sustainable architecture can be used as a regenerative tool which remediates the social and economic struggles while lessening environmental exertions in globalised contested post apartheid urban space.

1.4 CONCEPTS AND THEORIES

Below is an outline of the theoretical framework used in this dissertation. The research will draw on the work of various theorists and architects, economists and sociologists. The framework will make use of a significant body of literature on the concepts of space and place in order to establish a great understanding of these terms and their relation to regeneration in the city. These concepts and theories will be examined in further detail in the literature review.

1.4.1 Theories

1.4.1.1 The Panopticon (The Power, Control & Surveillance Of Space)

Foucault's work on the panopticon (1977) can be used in critiquing the spatial policy and urban design of apartheid South Africa, with the panopticon - constant surveillance as a means of control - being central to the apartheid government's policies on controlling black South Africa. Power in post apartheid South Africa is diffuse but still exists under the influence of cultural, social and economic legacy of apartheid. The theory will be interpreted in the non literal sense. It will be used as a metaphor for power in contested space (the apartheid city and gentrified neoliberal space). This theory will establish criteria for this dissertation that will guide one's understanding of the power dynamics of apartheid and post apartheid contested spaces (cities) and the impact this has on the marginalised of society (the poor).

> The panopticon is a *"diagram of a mechanism of power reduced to its ideal form; it's functioning, abstracted from any obstacle, resistance or friction must be represented as a pure architectural and optical system." (Foucault, 1980:201).*

1.4.1.2 Critical Regionalism (Toward An Architecture of Place)

The theory of critical regionalism will help explore a contextual based architectural response. Critical regionalism is an architecture response that sought to remediate placelessness and lack of identity in modern architecture by incorporating the building's local context (geographical, climate, culture) in the design process. Critical Regionalism was seen as a reaction to top-down autocratic planning. It seeks an appropriate architectural a response in a local context.

This theory will provide a suitable framework to create an architecture that is rooted in 'place' and sustainably responds to the site conditions and issues of the place. This approach supports a grassroots architecture that promotes sustainable regeneration through a contextual architecture that resists placelessness, leading towards a sustainable design approach.

1.4.2 Concepts

1.4.2.1 Placemaking (Converting public space into public place)

"Placemaking is both an overarching idea and a hands-on tool for improving a neighbourhood, city or region...." (P.P.S, n.d)

Placemaking is concept that is derived from the works of Jane Jacobs and William Whyte and was developed by an urban planning organisation called Project for Public spaces (P.P.S). It has eleven key elements to the placemaking process. The successes of these spaces are governed by 4 factors as per Project for Public spaces diagram: Access and linkages, Comfort and image, Uses and activities and Sociability.

Placemaking facilitates creative patterns of activities and connections (cultural, economic, social, and ecological). Exploring mixed use, 24 hour city use and heterogeneous sustainable urban development, the transformative approach of placemaking encourages people to create and improve their public places. Placemaking is about how people are more collectively (as communities) and intentionally shaping their urban spaces. Placemaking is focused on local communities and their assets, empowering positive ideals that inspire, and realise a person's potential, ultimately leading to the creation of good public spaces that promote people's health, happiness, and well being (P.P.S, n.d).

This concept will help guide the dissertation in a response to the placeless city. In spaces that are in need of appropriate intervention this concept will help guide the process of effective regeneration.

1.4.2.2 Architecture of Empowerment (A Response To Power(lessness) & Exclusion)

Marschall (1998) speaks about an architecture of empowerment arguing that architecture can be used to empower the powerless aiding the previous concept of placemaking. Empowerment according to Marschall is crucial to making a development or an intervention sustainable.

From Marschall's work three steps can be outlined that can guide a process of empowerment through architecture. This process begins with the design process, continues through the construction stage and flourishes with the support of the building's function.

This concept will form a response to the issue of exclusion of space resulting in possibly a contribution to the problem outlined in the document.

1.4.2.3 Livable Urbanism (Toward a Resilient City)

Swilling et al's (2012) concept of liveable urbanism illustrates the process of attempting to achieve a more sustainable equitable city. Liveable urbanism is the combination of socially inclusive development and environmentally sustainable design.

This concept will help guide the dissertation's attempt to define a socially sustainable regeneration processes and how the architecture can facilitate these processes.

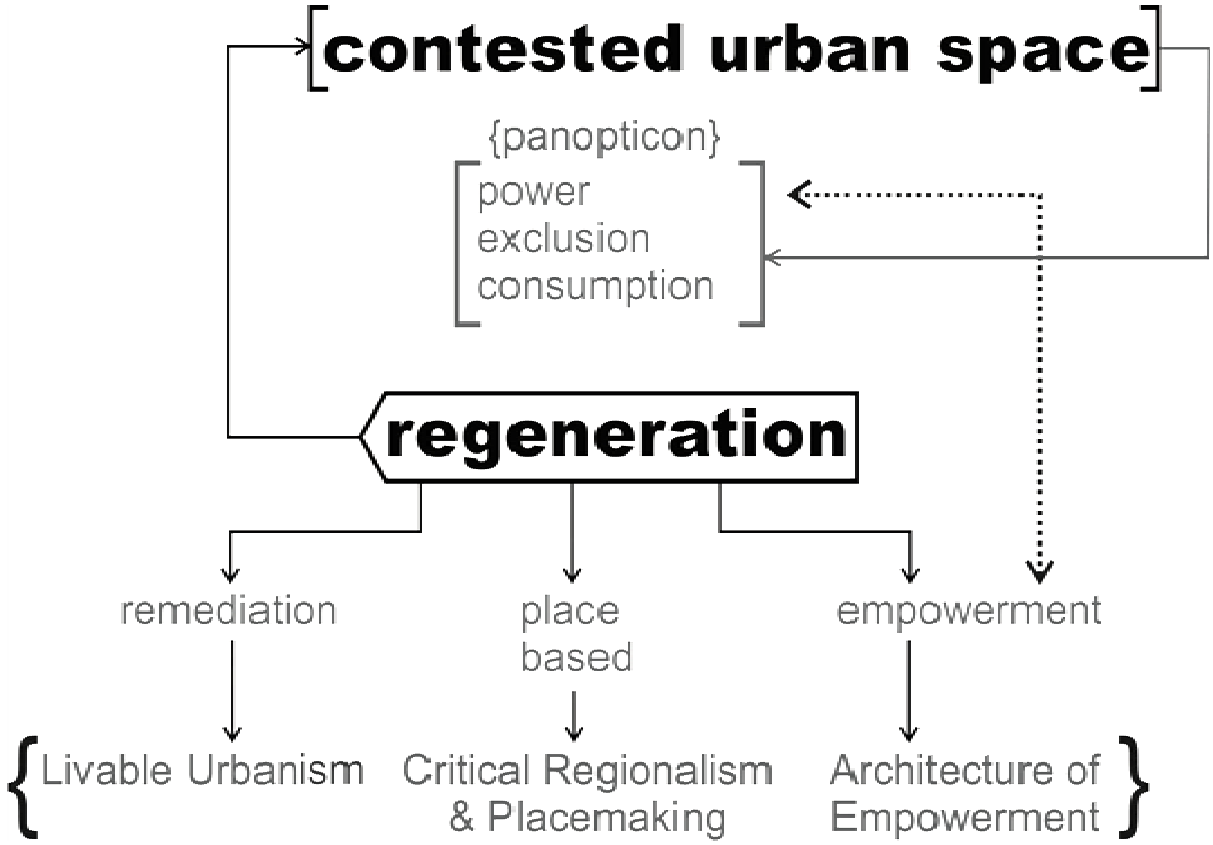


Figure 7: Mind map of theoretical framework used. (Author)

1.5 RESEARCH METHODS AND MATERIALS

1.5.1 Primary research sources

This research will primarily make use of qualitative research methods. The selection of this method is due to time limits and budgetary constraints. Quantitative methods require intense and time consuming analysis making the use of the quantitative methods impractical given the nature and timeframes of the project.

A qualitative research approach also suits the theoretical and conceptual framework of the dissertation and allows for smaller sample groups to be taken. A purposive sampling method will be used within the qualitative research. Purposive sampling (non-probability sampling) will be used due to its flexibility of use, allowing the researcher to judge and decide the

parameters and 'units' that need to be measured. There are a number of different purposive sampling techniques that will be used; these will be outlined in this section.

The primary materials that will be used will be:

Primary material	**Reason for use**
Built environment case studies (Observational method)	Allows for a greater understanding of the relationship of architecture and people. Also allows one to explore the theoretical framework in a tangible situation.
Interviews	Interviews allow for one to gain a greater understanding of the challenges or opportunities in the context of this dissertation.
Questionnaires	Questionnaires will serve to supplement the qualitative information.
Site Analysis	To enable an appropriate site for the design and a suitable design response.

Below is an outline of the process of data collection and the sample methods used.

1.5.1.1 Case studies

Case studies will serve to analyse how projects, which range in scale, achieve certain criteria. The criteria will be outlined in greater detail in the literature review conclusion.

The case studies will be chosen according criteria outlined in literature review, derived from the theoretical framework. Case studies will form a foundation for the data collection for part one of this dissertation.

The case studies consist of the following researchable elements:

- architecture and design
- human aspect

The architecture will be analysed using the non participatory observational method. This will utilise drawings and photos as means of recording the primary information; Information such as people's movement, interaction and use of the spaces and the built form. Analysis will also include the built form itself (the design, the performance and its function).

This research will help with the formulation of the design brief and schedule of accommodation, leading to the design stage of this document.

Case studies will be conducted on relevant facilities, practices and interventions in South Africa.

1.5.1.2 Interviews

The human aspect will be researched using the following methods:

Semi-structured and non-structured interviews will be conducted with applicable people using two techniques of purposive sampling methods; expert and opportunistic.

- Expert sampling - The researcher will look for particular individuals who have certain expertise that will advance the research such as related professionals in the field. They will interviewed with a rough agenda or interview structure This type of interview will be pre arranged and will not be on the case study area but related to the topic as a whole.
- Opportunistic sampling- Following new leads found during fieldwork, taking advantage of the unexpected, leading to a flexible approach with pedestrians or users of the respective building.

1.5.1.3 The Questionnaire

The questionnaire will attempt to glean information related to or around the topic that will reinforce an approach to the design response. The group will be found in the case study area or other relevant areas of interest.

- Random sampling - Each individual is chosen randomly and entirely by chance enabling a broad sample of a wider population.

1.5.1.4 Site Analysis

Site surveys and analysis of the various components are a further component of primary research which will come in part two of this dissertation. The site analysis will involve a comprehensive 'mapping' process of the selected site which will reveal pertinent design informants. Site visits and analysis will use similar observational methods outlined above used in combination with published data on the respective site. The information will be gleaned through secondary and primary sources including own photos and sketches. The site selection criteria will be set out in a later section of this document.

1.5.2 Secondary Research Sources

This research will make use of a number of different secondary sources as outlined in the literature review and bibliography. These will include discourse on relevant background

information and theories, referencing precedent studies pertaining to the literature. Some precedents that are part of the literature review will not necessarily be of the exact same building typology; same scale or may be unbuilt projects, but will pertain to certain applicable elements such as theoretical approach, design concept, technology, construction or the spatial arrangement. This secondary research will form the bulk of the document and research approach for the dissertation.

Important knowledge on the subject will be obtained through careful examination of appropriate published (and unpublished) work through the form of books, published journals, electronic sources such as reputable internet sources ebooks, websites and e-journals and unpublished relevant theses. The documents will range from notable authors on the subject to government, NGO and UN factual planning (feasibility studies) reports which can be compared to the primary data collected. Newspapers and media articles will be used to highlight the need for a change in the urban environment from a social qualitative perspective.

1.6 CONCLUSION: DOCUMENT OUTLINE

Chapter one serves to introduce the problem that is being researched and the approach the author is taking to research the problem.

Chapter two will form the bulk of the document and will be the literature review where the author searches and compares solutions and positions pertaining to the research problem. This critique will be thematically discussed linking in the concepts and theories.

Chapter three will form another part of the secondary source analysis. This chapter will analyse and critique the key precedent studies that will inform the design approach/solution to the research problem.

Chapter four will form part of the primary empirical research and will, like the precedent studies, analyse and critique interventions, helping to inform the design solution.

Chapter five will serve as the analysis and discussion of the interviews, and the questionnaires and will compare all the data analysed at that point.

Finally chapter six will draw conclusions from the findings and data and look towards recommendations that will inform the design or the part two of the document.

2.1 LITERATURE REVIEW INTRODUCTION

This literature review seeks to systematically breakdown the problem statement into its parts in order for a greater understanding of the subject matter.

The first section will seek the definition of space and place that will guide the reading of this dissertation and understand how power effects space and place using Foucault's theory of the panopticon.

The second section will establish a historical background of the conception of cities and context of the research. First by starting in the past, looking to the global and then local production (construction) of urban space and the contribution to urban form. Then secondly, by looking towards the current state of cities and urban space and how globalisation and globalised economic policy (and related urban development practices) have further exacerbated the problem of contested space.

The third section will outline the urban intervention processes of urban renewal, gentrification and urban regeneration that will serve as a platform for this dissertation. This section will also attempt to differentiate between the three processes.

The corresponding sections (the last two sections) will outline a response, or solutions, to the issues and opportunities outlined in first three sections. First the review will explore the socially sustainable response to urban interventions and secondly, and finally, end with how an architectural (design) intervention can assist in the approach to a possible solution.

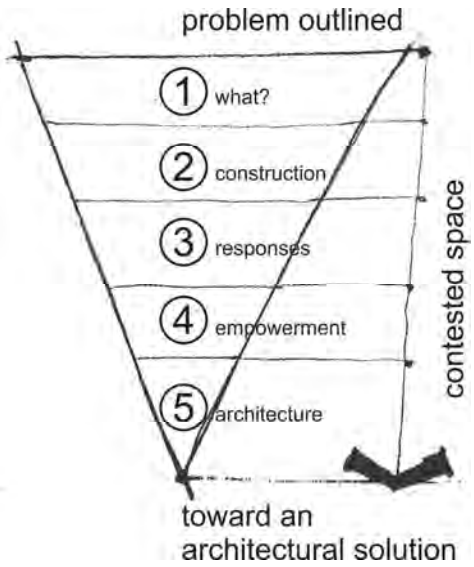


Figure 8: Mind map of literature review structure. (Author)

2.2 SPACE, POWER AND PLACE

2.2.1 Space

When looking at the following literature it will be important to note the difference between space and place. Space can be an abstract notion to define therefore this section will seek to differentiate between the terms 'space' and 'place' in the context of this dissertation and will analyse the effect of power on these terms.

Space is that which separates us and that which can bring us together (Lawson, 2001: 6). In terms of the built environment, architecture organizes and structures space for us. The way it is structured can either inhibit or enhance our use of space. Therefore the same process of construction can be argued for urban space (Lawson, 2001: 6). But how does one use space, control space and how does this organisation of space affect us? Lawson (2001: 6) argues that this process of spatial construction is crucial to how our relationships work.

The theorists that will be outlined below hold the view that space and time are linked. The Kantian perception of space moves toward an idea of "space as process and space in process" (Thrift and Crang, 2003: 3) with the concept of time-geography describing movement through space and time.

Henri Lefebvre's and Michel Foucault's works on 'space' represent space as a political construct. This extends from Kant's view of space that space and time are interlinked. Lefebvre says that activity over a time (history) produces a space. This history can only obtain practical reality or existence within that given space.

But is this 'social space' a socialised space? Lefebvre thinks not (Lefebvre, 1991: 190) and argues that this social space is not an empty void within which social action takes place but rather it is a powerful and creative social force in its own right (Murray, 2008: 6).

How is space constructed, created or produced? Space, according to Lefebvre, is produced in two ways. First as a social formation (a mode of production) and the second is a mental construction (conception) of space (Elden, 1998: 5).

This constructed space can be viewed in three forms: First is the perceived (physical) space that is generated. Second as the conceived (mental) space of our minds, which is the space of maps and mathematics, and is the instrument used by social engineers and urban planners. And the third, the most important, is the lived or social space. This type of space is produced and modified over time and, through its use, these spaces are then invested with symbolism and meaning (Lefebvre, 1991: 33). This social space is a constructed product

which affects one's spatial practices and perceptions. It seems this socially constructed space implies the hand of a 'grand architect/s' or 'master 'plan.

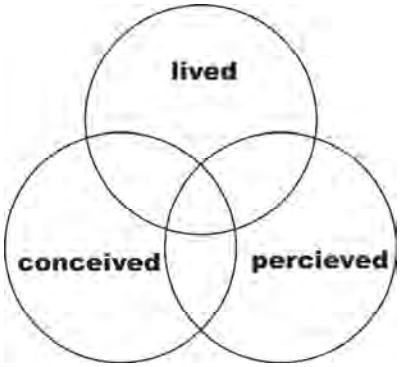


Figure 9: Vein diagram illustrating the relationship between the three different aspects of Lefebvre's space. (Author)

An example of the production of space from Elden (1998: 5) shows how spatial constructs are experienced in a modern city:

> *"A park is conceived, designed and produced through labour, technology and institutions, but the meaning of the space, and the space itself, is adapted and transformed as it is perceived and lived by social actors and groups."*

Therefore it is this idea of the constructed social space that will form a focus for this dissertation; how can space be used to control and how does this affect people in these spaces?

Lefebvre's argues that Capitalism, which organises the everyday working life, has great influence and control over people's private life. This control and organisation is often achieved through a designed organisation of space (Elden, 1998: 3); an intentional construction and manipulation. Lefebvre views Capitalism as a great colonizer, not only over everyday life but over its host location and the 'social space'. It is therefore crucial to understand how space is socially constructed and used.

Lefebvre considers control of space to be a specific expression of the Capitalist mode of production. He sees the production and control of space as the Capitalist means of 'occupation' (Löw, 2008: 27). Lefebvre's social space is constructed according to class and implies a strong relationship between power (hierarchies) and space, that these are purposively constructed into space.

Social planning is a process which reproduces this class structure in urban geography and the built form. These plans are either based upon utopian ideals which are birthed from autocratic approaches or are intentionally segregationist. Often the city space, whether it be past or present, involves the disproportionate distribution of space for the wealthy and too

little for the marginalised of cities (Elden, 1998: 3). This creates an unequal space; a contested space. Like all economies, the political economy of space is based on the idea of scarcity (Elden, 1998: 3). Therefore space is controlled and divided up unequally using socially constructed class structures as a form of division. This is illustrated in Lefebvre's (1991) Production of Space:

> *“Today more than ever, the class struggle is inscribed in space.” (Lefebvre, 1991: 55)*

Löw (2008: 26) argues that the modern age has systematically established a spatial differentiation between two forms of socialisation. First the ‘state/exclusion’ and second the ‘city/inclusion.' Lefebvre argues that space is the ultimate place and medium of struggle, illustrating the contested nature of space:

> *“There is a politics of space because space is political.” Lefebvre via (Elden, 1998: 3).*

2.2.2 Place

Above the abstract notion of space was discussed leading to the idea of socially constructed space and what occurred in this socially constructed space. It can be argued that space is transformed into place through the interaction of man "related to his activities, emotions, needs and faculties and invested with form and meaning" (Wilkinson, 1994: 97; Mcnulty, 2005).

> *"Whatever space and time mean, place and occasion mean more. For space in the image of man is place, and time in the image of man is occasion." Aldo van Eyck via (Lawson, 2001: 28)*

Van Eyck illustrates the importance of place in the above quote. The importance is the human in the space, that space is not just an abstract notion but serves to ground objects and people in reality. Van Eyck called place the appreciation of space. But a place is not necessarily a quality related to an entire space, it can also be a part of it, forming a smaller place but also making it possible to experience the larger space (Lammers, 2012). Barker (2000: 291) elaborates on place and states place is the focus of: "human experience, memory, desire and identity." Place is a subjective notion that is open to interpretation. But place seems to emerge from space once meaning has been ascribed to it through the interaction of people. According to Lawson (2001: 28) places also provide security and stability in peoples' lives. Wear and tear and historic buildings give a place character and can even help people inscribe memory into a place, anchoring people to a place. Historical context is important to studies of place.

Place according to Augé “can be defined as relational, historical and concerned with identity” (Auge, 1997: 77). According to Cresswell (2004: 7) places are spaces that people have made meaningful while the term space is a more abstract concept than place. Yi Fu Taan has likened space to movement and place to pauses one makes on a journey (Cresswell, 2004: 8).

Cresswell argues a meaningful location is comprised of three elements, as defined by Agnew (Cresswell, 2004). The three aspects of meaningful spaces are location, locale and sense of place.

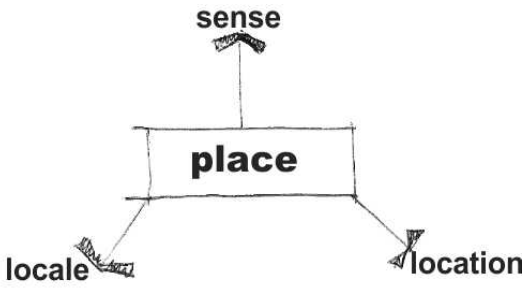


Figure 10: A diagram indicating Agnew's approach to the factors that make up place (Author).

Location, according to Cresswell (2004: 7), can change but is anchored to an object or region. He uses the example of a ship that can be a 'place' or point of destination but its location can change. Therefore its location alone is not a sufficient condition of ‘place’ (Cresswell, 2004: 22). Locale refers to the material setting for social relations. The actual shape of a place allows people to freely conduct their lives as individuals, no matter who they are or what they believe (Cresswell, 2004: 7), implying a sense of freedom of expression in place. Places must have some relationship to humans and the human capacity to produce and consume meaning (Cresswell, 2004: 7). This ‘sense of place’ implies a subjective and emotional attachment people have with place. This notion of sense of place is developed further by Norberg Shultz's concept of Genius Loci.

Naming is one of the ways in which space can be given meaning and become a place, providing a sense of place. For example, in South Africa, roads (streets etc) often were named after an important figure (often colonial, which in themselves contain negative connotations for some) linking a location to history while township road names were merely a code or serial number; placeless, lacking history and meaning.

The socially produced space of Lefebvre (1991) is the same as a place (Cresswell, 2004: 12). Place at a basic level is a space invested with meaning in the context of power and it is this ‘place’ that determines our (human’s) experience in this world (Cresswell, 2004: 12, 32).

Places according Harvey are a form of "fixed capital" that exist in tension with other forms of more "mobile capital" (Cresswell, 2004: 26). According to Harvey the tension between fixed and mobile capital produces "cycles of investment and disinvestment" which contributes to "uneven development in cities across the globe".

> *"Place in whatever guise, is like space and time, a social construct. This is the baseline proposition from which I start. The only interesting question that then be asked is: by what social process(es) is place constructed" Harvey via (Cresswell, 2004: 26).*

Harvey argues that meaning and materiality of place are socially constructed. This meaning is constructed due to the nature of Western Capitalist cultural values which are determined by the media, politicians and by the people that live in the place. Harvey states meaning inscribed on a place is developed by the local society (Cresswell, 2004: 32). Materiality is a constructed feature due to the nature of cities and man's control over nature. All roads, parks and buildings are constructed often for the production of profit in Modern and Post Modern capitalist cities.

According to Cresswell (2004: 33) place did not appear before there was humanity but once we, humanity, came into existence then so did place. David Seamon (Cresswell, 2004: 36) argues that places are not fixed and that it is difficult to apply measurable attributes to places. Seamon argues that place is never 'finished' but always 'becoming'. Place rather is an endless process that contributes to history in a specific context through the utilisation of a geographically specific physical setting (Cresswell, 2004: 36-37). Place is the "raw material for the production of identity" (Cresswell, 2004: 39) and place provides the conditions of possibility for a creative social practice. Therefore place becomes a tangible event rather than a philosophical or conceptual idea. (Cresswell, 2004: 39).

Edward Relph speaks about a placelessness that afflicts place (Cresswell, 2004: 43) an erosion of place that occurs with globalisation and placeless architecture, through mass communication, increased mobility and a consumer society leading toward homogenisation of the world (Cresswell, 2004: 43). He argues our globalised lives take place in spaces that could be anywhere. Spaces that are detached from their local environment and tell us nothing about the particular locality in which they are located (Cresswell, 2004: 43). An example Relph uses for placelessness is Disney World; an acontextual universal architecture that can be re-manufactured across the globe. He also uses the example of superhighways, the transport links between sprawled areas of a city, are also generators of placelessness. They do not connect places and are separated from the surrounding

landscapes that it passes through, Relph states that "..they start everywhere and lead no where" (Cresswell, 2004: 45).

2.2.3 Section Conclusion

It can be concluded that a place is space that is defined by physical boundaries is not a static element but rather is in a constant process of change and that socially constructed space is a place. People make spaces into places by inscribing their history and memory into the space through expression, movement and activity.

> *"A space is a physical description of a piece of land, whereas a "place" connotes an emotional attachment to the piece of land." (Project for Public Spaces, 2008: 7)*

2.3 THE CONSTRUCTION OF CONTESTED URBAN SPACE

2.3.1 Panopticon: Power, Control & Surveillance Of Space

Like Lefebvre, Foucault also views space as a political tool. Foucault proposed that we can use the organisation of space to analyse power relationships, exploring a connection between space and power resulting in the theory of the Panopticon. Foucault agues physical and psychological control over individuals can be achieved through controlling and manipulating spatial relations (Foucault, 1977).

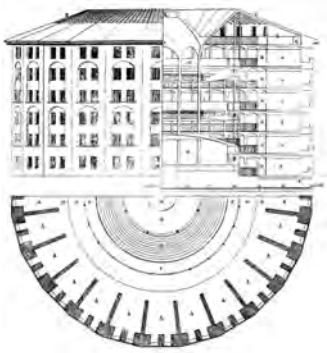


Figure 11: (Left) Jeremy Bentham's panoptic prison design. Elevation, section, plan. (www.wikipedia.com)

Figure 12: (Right) View from inside the prison with the watch tower in the middle. (www.wikipedia.com)

> *"Is it surprising that prisons resemble factories, schools, barracks, hospitals....?" (Foucault, 1977: 228)*

Foucault's Panoptic theory is derived from the prison design of Jeremy Bentham, an English philosopher, who formulated the design in the late 18th century. The panoptic prison creates a sense of consciousness in the prisoner of permanent visibility as a form of power resulting in the need for no bars, chains, and heavy locks for domination (Allmer, 2012: 22). The Panoptic architecture takes the form of a ring-shaped building with a watchtower at its centre

(Refer to Figure 11 & Figure 12). This ring-shaped building is divided into cells of equal size with multiple floors. Each cell contains two windows through which light can enter. Thus giving perfect visibility to whoever controls the watchtower. Shutters in the cells prevent the prisoners from knowing whether the watchtower is occupied. The prisoners cannot see the occupants of the watchtower nor can they see other prisoners; the prisoner “is seen, but he does not see..” (Cordenier, 2011: 1-2; Foucault, 1977: 200; Miller and Miller, 1987: 3).

The design of the prison was approached from the same position of control and surveillance, transforming the “confused, useless or dangerous multitudes” (Foucault, 1977: 148) into ordered masses. Foucault compares the concept of a zoo (an area to view, observe, animals behind a controlled veneer) to institutional architecture and space. Divide, classify, control; dividing the weak from the strong, the privileged from the underprivileged, the ‘clean from the unclean' (Foucault, 1977: 147). These controlled spaces, which are more about control than the quality of place or human well being, are established in a utilitarian functional format. These spaces not only enforce the obedience of the individual but build a better economy of time (made one more productive; increased production) (Foucault, 1977: 147).

Foucault was interested in the architectural structures and the design of urban spaces that have power built into them with "urban planning ... (utilising) the lines of the map as a technical means of politically defining space" (Darian-Smith, Gunner and Nuttall, 1996: 14; Mcnulty, 2005). Panoptic architecture is designed with an immediate mistrust of its users with the perception that the future building users need to be controlled and watched. The architecture’s design is such that it seeks to break up the collective (community) and the space is generally divided up into as many spaces as there are people. The aim was to know where and how to locate each individual (control), to assess, rationalise and quantify the individual as a commodity or an object. Therefore the spaces are purposefully constructed to be spaces of control. The building encourages the victims (prisoner, scholars, patients) to be caught in a power situation where they are themselves the bearers.

> *“The power control was less on direct control of the body and shifted more on techniques designed to elicit ‘self regulation’ thus people began to behave not knowing who is watching.” (Mckinlay and Starkey, 1998: 68)*

Foucault's panoptic theory can be applied in the non literal sense and it can come to represent more than just a physical manifestation. Legg (2007: 279) compares this panoptic power to the use and control of space in apartheid South Africa due to the state's manipulation of the populations through determined locations (Robinson, 2001: 292). These locations were definite, controlled and surveyed, segregating people to spaces according to race. Murray (2008: 55) argues that architecture and urban design mediate power by

applying a blend of "seduction, authority and oppression" into the built form of the city which was present during the apartheid regime. He argues that the exercising of this power moves seamlessly from one form to another, often being able to mask itself behind legitimacy. Murray goes onto quote Foucault who says “...power is tolerable only on condition it masks a substantial part of itself. Its success is proportional to its ability to hide its own mechanisms.” (Murray, 2008: 55). Murray states that the built form of the city, the architecture, is saturated with power struggles that are simmering below the surface which can often boil over into open conflict over the use and meaning of spaces (Murray, 2008: 55).

> *"Rather than creating a police state, the makers of modern apartheid wanted to create a self policing state in which blacks knew their boundaries. When the government boasted that New York City had more police per capita than Soweto, it was boasting about the success of the psychology of repression which had blacks so convinced of their impotence that actual repression became necessary only on occasion." (Frueh, 2003: 43)*

Freuh (2003) above is talking about the surveillance and control. Like Bentham's prison design that required less physical control due to self regulation through fear and anxiety, so was apartheid South Africa ruled with fear, the threat of violence that could strike at any time.

Power in post apartheid South Africa is diffuse but still exists under the influence of cultural, social and economic legacy of apartheid. For Foucault, space is fundamental to any exercise of power with a change in space indicating political change. This is apparent when looking at the changes in use and construction of space that occurred in South Africa post apartheid. The transition was from a space in apartheid South Africa that was so heavily controlled to a space that could be used by all with the means to do so.

2.3.2 The Apartheid City

The World Bank has labelled South African cities some of the most inefficient (in terms of resource usage) in the world (Houghton, 2010: 194; Haarhoff, 2011). With a sprawled urban form, unnecessarily long transport routes and duplication of amities, the apartheid city model has become expensive to service (Frescura, 2001: 121). The legacy of apartheid planning still seems to be evident in the current city form. Townships, which house a large portion of city populations, are located on the urban peripheries creating many negative effects. This sprawled form requires large scale commuting between different city centres in order for people to reach economic opportunities and higher order facilities. It seems that this form seems to create unnecessary economic strain on the majority of the population and induces an unsustainable situation.

The modernist planning ideology described above was adapted into the South African context in the 1950's. Haarhoff argues that Modernism has been used to support social and political aims in various ways (Haarhoff, 2011: 184). The apartheid government adapted this ideology to suit their needs resulting in a space that was constructed around race, power and control. Through a combination of laws and planning practices the apartheid regime was able to achieve a panoptic like control of the landscape; a forced restructure of space in a land of conflict.

According to Haarhoff (2011: 185-186) South African planners and architects in the 1930's were so taken by utopian Modernist planning's approach to city design that many were convinced that it was a solution to the "problem" in South Africa. The idea of adapting Modernism, which in itself was originally conceived as vehicle for social change, as a tool for segregation, seems to highlight the many glaring contradictions in logic that were peppered throughout apartheid ideology and planning.

The planning of the apartheid city was focused on segregation of race but the conundrum was how to get black labour in white designated areas of the city while enforcing separation. Cities and towns in South Africa were perceived mainly as "white" places, or socially constructed spaces. Thus a 'solution' was needed to the "problem" of "black" labour in the cities. The rapid urbanisation was due to manipulative and destructive social laws (Hut taxes, Native Act) that induced labour migration toward cities. In response to this urbanisation the city planners decided to implement low-cost mass housing programmes. These housing areas were often located on the urban peripheries in designated "black" zones. The enforcement of racial segregation was done through all aspects of social, economic and political life (Haarhoff, 2011: 185). An extract from the Native Act also illustrates the urban governance in 1923 towards this issue:

> *"…the natives should only be allowed to enter urban areas which are essentially the whites man's creation when he is willing to enter and minister to the needs of the white man and should depart there from when he ceases to so minister."*

In 1950 the government implemented the Group Areas Act, which forcibly segregated the city and rezoned residential areas according to race groups. The apartheid planners adopted Ebenezer Howard's green belts by using it to justify placing large greenbelt separations, which translated easily into the idea of planning racially distinct zones (Haarhoff, 2011: 190). These buffer zones were sometimes 100m to 250m in width (Frescura, 2001: 118)

> *"...lay-out of new townships, the re-planning of existing ones and the erection of state-subsidised housing schemes, full use should be made of the principle of*

planned neighbourhoods, protected from other neighbourhoods by 'green belts' of cultivated and park land…" (Mabin and Smit, 1997) via (Haarhoff, 2011: 188).

Buffer zones were formed between settlements to thereby ensure the physical separation, reinforcing the contested nature of urban space. These buffer zones, and the policy of forced removals through the Group Areas Acts, were all visible signs of power being enforced through urban space in South Africa during the apartheid era. Townships were built in such a way that they could be constantly surveyed by the oppressors and physically contained if necessary by military and police force, further demonstrating the panoptic nature of apartheid planning.

..in Soweto for example empty space was allocated to allow machine gun nests to cover troops in a time of unrest enabling an easier method of control and suppression. Access into these townships were also limited to sometimes four or even three main road and choke points.." (Frescura, 2001: 119)

The buffer zones were not only greenbelts but were sometimes industrial zones. These industrial townships utilised the local African labour force (Frescura, 2001: 118). The Apartheid model encouraged decentralisation with industrialisation on the outskirts of the homelands. This enabled the white population to control education and the distribution of African labour (Houghton, 2010: 78). Le Corbusier's vision of cities set amongst large landscaped parks seems to be also a prevailing inspiration to apartheid city planners.

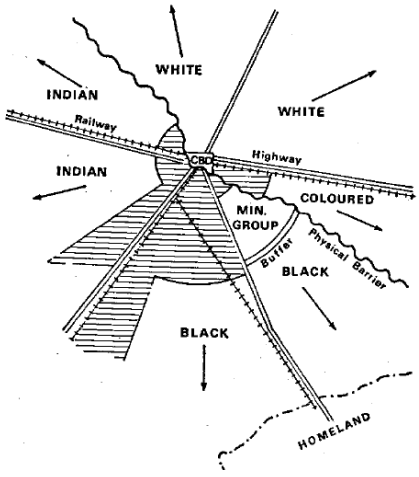


Figure 13: The model Apartheid city. (Rosenberg, 2012: 20)

(Refer to Figure 13)This sprawl can be seen in the apartheid city which generated a sprawling urban mass. In order to establish some sort of urban 'permanence' african 'homelands' or Bantustans were established. These artificial places were located outside the 'white' cities (Haarhoff, 2011: 192).

In combination to buffer zones, other key features of the apartheid city were extended road links between the segregated areas. The apartheid city seems to be focussed, like Le Corbusier's city visions, around the machine, motorised transport and vast highways, thus allowing the low density segregated city form to be possible. The housing that was provided was not viewed with a sense of permanence but rather one of transience. Frescura notes that housing stands were small and the texture was one that resembles a squatter camp (Frescura, 2001: 120).

Urban areas of the apartheid city were distinctive in that the poor (african) population came to be located, with few exceptions, furthest from city centres. This was in the form of state planned ‘townships’ and in unregulated and under-serviced settlements on “homeland” borders closest to the main urban areas. These spaces were another demonstration of power and control in the apartheid city, reinforcing a constructed place of manipulation and domination (Robinson, 2001: 297). The viability of urban apartheid (for whites) was secured in the short term by the exclusion of africans and indians from the centres of economic power; the minimisation of social and infrastructural expenditure for africans and indians (Marx and Charlton, 2003: 1).

Durban's urban form took a different shape after 1950. The outlying areas north and south ere zoned for africans and coloureds while indians and whites occupied the more central and favourable geographical areas (Figure 14 & Figure 15). The current urban form of Durban echoes the planning of the past through exclusion and racial segregation with racially homogenous residential areas separated by the buffer strips. During apartheid this form was achieved through forcibly removing african and indian residents in some areas, in well-located areas such as Cato Manor, to more peripheral constructed pre-determined locations (Marx and Charlton, 2003: 3).

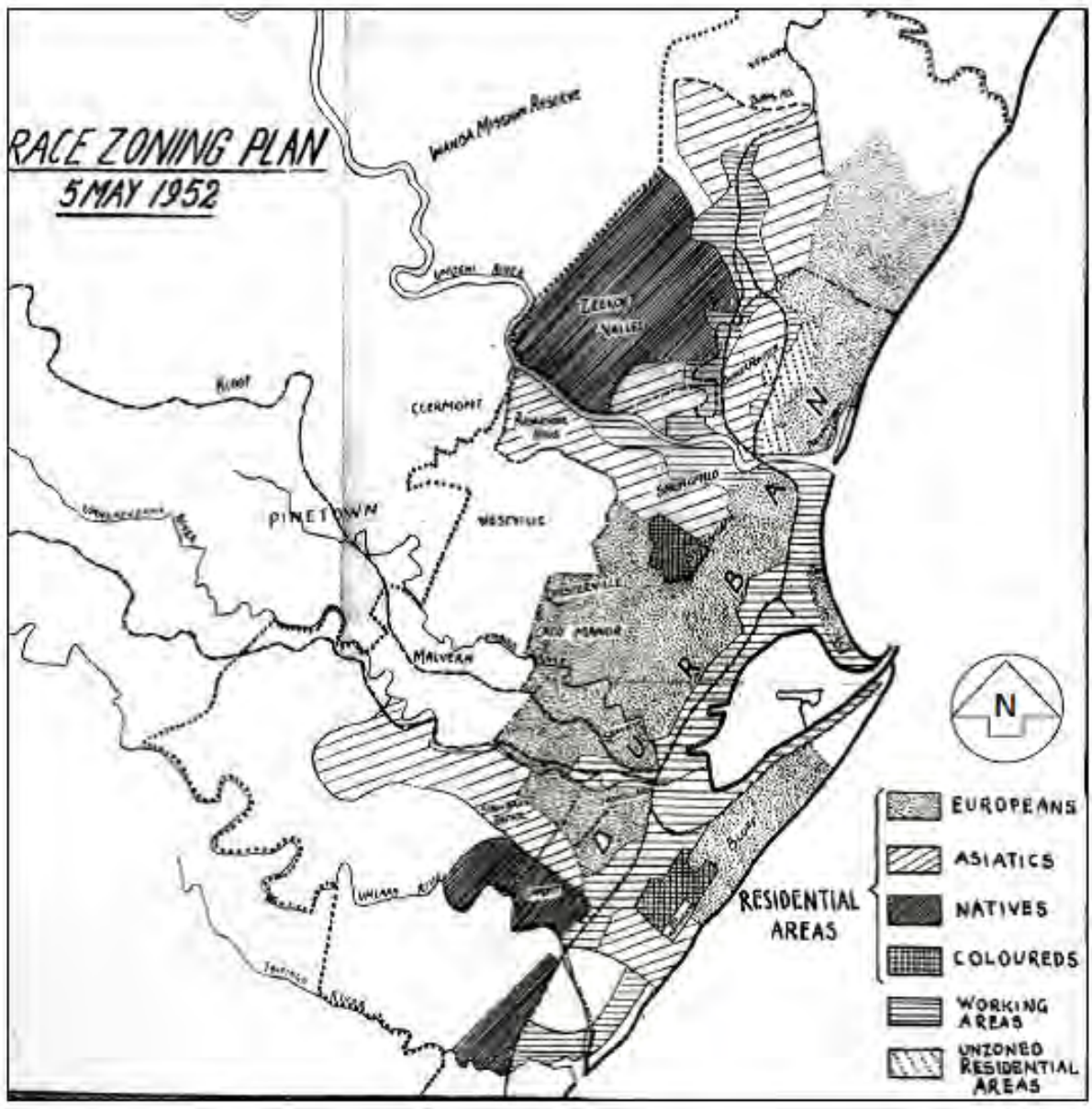


Figure 14: Race zoning plan of Durban 1952 (Rosenberg, 2012: 47).

The central, well connected areas (at the centre of the transport network) are occupied by the wealthiest with the poorest segments of the population located furthest from amenities and economic opportunities (refer to Figure 14 & Figure 15). Twenty years into the post-apartheid era and urban areas, by and large, continue to reflect the pattern of racially homogenous and separate residential zones that were the product of the Apartheid years. This history of exclusion from the city and resultant economic pressure contributed to a contested urban landscape in South Africa. This will form a focus in this dissertation.

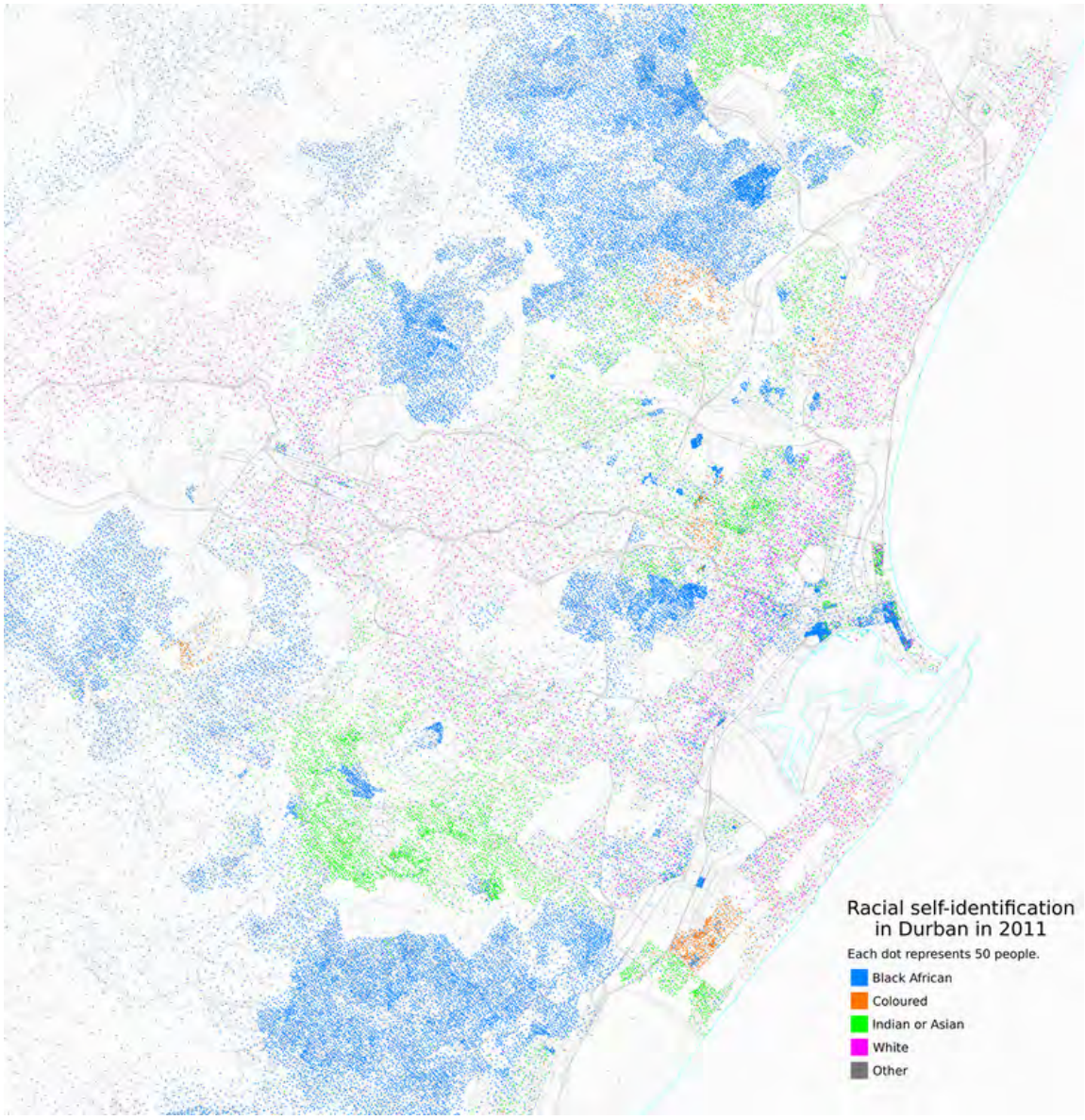


Figure 15: Dot matrix map of racial distribution in Durban in 2011. (adrianfrith.com)

2.3.3 The Post Apartheid City In The Globalised World

2.3.3.1 Introduction

After the fall of apartheid South African cities still remain divided through economic and social barriers that are afflicted with the unequal spatial hangover of apartheid (Murray, 2008: 1). Instead of a resolution of past inequalities, new economic and social policies have further perpetuated another form of discrimination.

According to Harvey (2005: 3) the South Africa government, after the fall of apartheid, embraced neo-liberal economics: "Post-apartheid South Africa quickly embraced neo-liberalism...". Harvey goes on to state that this change in economic position by the new ANC lead Government was due the government's "desperation" to rejoin the global market, stating this was influenced by the IMF and the World Bank. Harvey argues that this new

economic apartheid has just replaced the racial apartheid that preceded it (Harvey, 2005: 116; Oranje, 2012; Hart, 2002: 23). But what does this imply for the cities and what does this form of governance mean?

Oranje (2012: 184) argues that blanket term of neo-liberalism for post apartheid South Africa is somewhat reductionist. He argues that it is not specific enough in terms of the context of the place or the time of the event. The adoption of neo liberal economics was not as simple as a 'yes' or 'no' answer but was driven by global and local conditions. He goes onto mention that while there may be attributes of neo-liberal economics the situation has more layers that a single statement can portray. Oranje argues that the collapse of the East Bloc (Fall of the Berlin Wall and end of the Soviet Union) saw the end of the ANC's major socialist supporters (Hart, 2002: 23).The apartheid economy was interventionist and isolated therefore at the fall of the Apartheid a change was required to expose the South African economy to "winds of the global economy". The government, desperate to rejoin the world economy, joined the global trend.

The term neo-liberalism applies (in the context of this dissertation) to first an economic system and second an approach to city planning. While both are controversial in terms of their definitions, the latter will form more of focus of this discussion with the former helping to provide context. First this review will begin with a broad general definition of neo-liberal economics in relation to this topic which secondly will move onto a definition of neo-liberal planning and the neo-liberal city.

2.3.3.2 Neo-Liberalism & The Neo-Liberal City Defined

Set in the confines of a Capitalist system, neo-liberalism, or neo-liberal economics, was seen to have been a reaction to the failure of capitalist Keynesian welfare state.

This restructuring took shape during the 1980's in the West. Swilling et al. (2012: 122-123) refers to the Keynesian post World War two state was an 'inclusive urbanism' that was equitable, state run but unsustainable and environmentally destructive. Swilling argues that a key theme of this type of urbanism was 'universal access' (Swilling and Annecke, 2012: 125).

The election of Thatcher (UK) and Reagan (USA) in the early eighties is viewed as the formal beginnings of neo-liberal economic policy (Palley, 2004: 5). Neo-liberal economies favoured privatisation of all essential services, smaller governments, less government spending (smaller public sector) and reduced government control (Palley, 2004: 3-5). Neo-liberalism was essentially about rethinking income distribution (you are paid what you are worth), an insecure employment market (labour market deregulation) (Palley, 2004: 3),

reduced union control, deregulated financial markets (Palley, 2004: 5) and more power to private enterprises (Cowen, 2004: 1). Neo-liberal economics argues for a 'trickle down' approach that implies that as the wealthy get wealthier the poor, in theory, will benefit. Peck (Taşan-Kok, 2012: 1) states that neo-liberalism is a "prevailing pattern of market-oriented, market-disciplinary regulatory restructuring".

Swilling et al. (2012: 122-123) refers to the neo-liberal economy and city as the 'splintered urbanism'. This is an urbanism that is involved with the creation of global markets including cheap labour, higher consumption of goods, and a transfer of urban services from public to private sector all aiding further environmental strain. A key theme of this type of urbanism was 'commodification' (Swilling and Annecke, 2012: 125).

But how does this apply to a city planning context?

Taşan-Kok (2012: 1) argues that while there may be contradiction in the terms of neo-liberal planning, or planned neo-liberalism, the concept of the neo-liberal city is a reality. While planners try reject the idea that neo-liberalisation is occurring in urban spatial development and policy processes, Taşan-Kok argues that neo-liberalisation is slowly finding its way into every subfield of planning.

According to Taşan-Kok (2012: 1) a result of globalisation, in combination with neoliberal cities, allows large scale property development projects to occur. These reinvestment opportunities become a target for capital investors, who replaced small-scale individual property owners. The city is thus then divided among major capital holders who are willing to pay the high cost of land development (and redevelopment) (Taşan-Kok, 2012: 2). This illustrates that economic forces and sources of capital are influencing the city's development and the approaches to planning.

Neo-liberal urban growth is often characterised by profit based gentrification (or urban renewal) and commercial mega projects (Hill, 2008: 3; Hackworth, 2007). Increased availability of private capital becomes available through general cutbacks from national sources (government) in conjunction with deregulated finance (Hill, 2008: 3; Hackworth, 2007). The neo-liberal city often supports investment in the inner city (gentrification) and suburbs (Hill, 2008: 3; Hackworth, 2007) in some cases even while moving investment away from the inner ring suburbs and reducing land use controls and public investment (Hill, 2008: 3; Hackworth, 2007). But in Durban urban sprawl is still perpetuated by private developers and endorsed by the city.

2.3.3.3 The Post Apartheid City

The post apartheid South African city differs from the generic definition outlined above, primarily due to the legacy of apartheid and its impact on city form. The key theme to the post apartheid city is inefficiency. The major features (in the interest of this dissertation) of the post apartheid city are the following:

- A 'flight' (aka white flight (The Economist, 2008)) of capital (disinvestment) and corporate formal businesses from the city centres or former white C.B.D's. This often results in the perception of an inner city 'decay' or 'urban blight' with the end result of urban sprawl.
- New town centres (refer to Figure 16) and vast unchecked greenfields development, often only catering for the private wealthy investors, with the main focus of being developed for a large private sector profit.
- Sprawling low density suburbs (high and middle income), townships and planned low income housing developments are a main feature in the cities, often still echoing the segregation and economic disparities of the past. Some of the higher income housing is found in the 'gated community' typology. These housing estates create (refer to Figure 17) 'walled private cities' that seek a utopian, 'disneyworldesque' environments that often become panoptic spaces of control, surveillance and exclusion. Located on the edge of cities, on prime agricultural land, these estates are branded as 'eco' or 'golf' estates (Oranje, 2012: 178). These estates are privately funded homogenous places of segregation, regularly 'supported' by the local municipalities.
- Large unplanned informal settlements or 'slum' areas that exist on the periphery of the city centre. These 'inbetween' spaces have little or no services and have been established out of desperation for

Figure 16: New uMhlanga town centre outside of Durban CBD. (www.wikipedia.com)

Figure 17: Plantations gated community In Hillcrest. Based on an Italian 'old world Tuscan' kitsch. (J. Frobes via panoramio.com)

housing. These settlements are an adhoc response to the lack of housing due to mass urbanisation. The rapid urbanisation process in combination with the housing shortage can be characterised by to what Swilling et al. (2012: 124-125) refers to as 'slum urbanism'. This form of urbanism he argues runs congruently with 'splintered urbanism'.

Figure 18: Khayelitsha township in Cape Town. (www.theguardian.com)

2.3.4 Section Conclusion

This section has outlined the processes of constructing urban space and how, through autocratic planning practices, the current city has been left divided and contested. The study has looked at the utopian cities of Howard and Le Corbusier, to the apartheid city of planned exclusion, division and control to the current city. A city impacted more by economic ideologies than just planning practices alone. The processes of exclusion are still very much evident in the city today.

2.4 RESPONSES TO DECAY IN CONTESTED URBAN SPACE

2.4.1 Introduction

"The old city dies and the new city rises on its ruins- not gradually, but in a burst, suddenly- as the butterfly merges from the cocoon of the caterpillar." Le Corbusier via (Murray, 2008: 41)

South African urban landscapes at the end of apartheid were characterised by uneven development, urban decay, urban sprawl and the 'flight' of capital from city centres. The result was a exodus of higher income groups to communities located a great distance from the city. These groups often had a perception of the city as a dangerous place that one must avoid. This perception of decay and urban blight in South African cities has resulted in a urban spaces that are contested: where one set of stakeholders in the city perceive the city to be in chaos and in need of intervention others have forged a home and a living. The approaches to urban interventions in this contested urban space will form a focus in the following sections.

Murray (2008: 1) argues that the "middle class residents" look upon the city and its informal elements with “great deal of trepidation and anxiety” due to the perceived lack of symmetry and order. This anxiety was often used as a platform for urban interventions. These dystopian images of the city, Murray (2008: 2, 65) states have lent a sense legitimacy for various kinds of urban interventions into the existing social fabric of the urban landscape.

According to Murray (2008) city officials would rather erase or conceal what they do not want to see rather than search for the root cause of the problem. This imagined view of a dystopian city has aided in gathering support for grand plans of urban intervention over the perceived mis-use of and deterioration of urban space and place. These interventions have often taken the form of urban renewal plans, racial segregation and forced removals (Apartheid governance) the demolition of old historic buildings, elimination of city streets and inner city revitalisation to "stylised experiments" with New Urbanism through gentrification (Post Apartheid era) (Murray, 2008: 2). Murray states the causes of urban blight, decay or decline are due to city building processes that reinforce the uneven development of the urban landscape (Murray, 2008: 129).

For the purpose of this dissertation the process of urban regeneration is the preferred process but the other urban intervention processes of urban renewal, gentrification will also be outlined. The terms are often conflated and therefore this section will seek to outline how the terms will be used in this document.

2.4.2 Urban Renewal and Gentrification

2.4.2.1 Urban Renewal

Urban renewal can be seen as an autocratic response to urban blight and decay (Lang, 2005: 25). This form of intervention was used during the apartheid era for slum eradication and clearance. This relocation strategy would entail moving poorer black communities from one location to another pre-determined location. In some instances white residents would move in to redevelop the confiscated space.

According to Lang (2005: 49) urban renewal, as its name suggests, refers to the process of rebuilding areas of cities that have become "obsolete and abandoned", or are in a state of perceived decay.

Urban renewal is typically characterised by autocratic 'top down' planning, often with drastic changes to an urban landscape with little or no consideration or consultation with the affected communities. An example of autocratic urban renewal is Baron Georges-Eugène Haussmann's grand plan for Napoleon's Paris (suburb of Le Halles) and later that of Robert Moses' New York scheme. Hitler, Stalin and Mussolini all had similar grandiose projects on the drawing board for their respective cities (Lang, 2005: 25).

2.4.2.2 Gentrification

Gentrification, as defined by Hackworth (2007: 98) "...involves the restructuring of urban space for wealthier clientele...". This process of displacement of the poor by the wealthy

exacerbates the social and economic problems of those affected. The poor, in this case, can be defined as a group of people who lack ‘choice’ due to their financial power, or lack thereof, and the resultant failure to be able to exert positive changes that can impact on their lives and visa versa for the wealthy (Jacobs, 1965: 290)

Smith states that gentrification forms part of "neo-liberal urbanism" (2002: 438). According to Cowen neoliberal cities have corporate or private sector interests and have replaced community involvement and public planners in the planning process (Cowen, 2004: 1).

According Smith to the term gentrification first stems from Ruth Glass's 1964 description of a gentrification 'process' (Smith, 2002: 438). This process occurred when working class quarters in London were "invaded" by the London 'gentry' fitting the description Hackworth outlined above. Colantonio et al (2011: 58) refers to gentrification as "property led regeneration".

Harvey argues that cultural and tourist focused development, creative freedom, political tolerance and the “diversified consumerism of gentrification plays a role in cities' evolution into neoliberal tendencies.” (Tochterman, 2012: 66). The process and experiences of gentrification are highly varied and differ according to place (Smith, 2002: 439). Basically gentrification tends to exclude the marginalised through either planned or unplanned interventions that promote large investment thereby making the areas unaffordable to live or work in for the original inhabitants (Smith, 2002: 440; Murray, 2008: 128).

Figure 19: Graffiti in Newtown, Johannesburg. (Taken 2007. By Author.)

2.4.3 Urban Regeneration. Toward A Resilient City

2.4.3.1 Introduction & Setting The Scope For Regeneration

Urban regeneration is an interventionist process that consists of more of a holistic grassroots approach, instead of the autocratic top down planning perspective, often with a focus on sustainable development (social, economic, and environmental) (Colantonio and Dixon,

2011: 8; Roberts and Sykes, 2000: 17). But this is contested as some regeneration projects can be seen to be another form of gentrification. This will be explained in detail later.

Colantonio et al (2011: 6) argues for a form of urban regeneration that has a strong relationship with socially sustainable projects and socially sustainable development. He argues cities should have a long term plan for all the different factors influencing sustainable growth. Regeneration, according to Colantonio et al (2011), is seen as a force to not only be commercially viable in its focus but to incorporate elements of social and economic diversity to improve local communities (Colantonio and Dixon, 2011: 57).

Colantonio et al (2011: 6) states that economic measures must be sustainable in social and environmental terms and take more of an integrated approach to development, due to the fact that urban regeneration is a dynamic process and should be centred on creating sustainable communities. Colantonio et al (2011: 57) further argues that urban regeneration should be about economic inclusion and the process should ensure that economic development improves the lives of those living in the most deprived urban areas(the marginalised).

2.4.3.2 Application & Approach To A Socially Sustainable Response

Roberts (2000: 18-19) indentifies key elements in the process of urban regeneration in relation to the definition outlined in chapter one of this document. Roberts et al (2000: 9) argues that urban regeneration is specific to a particular place and that it should be constructed with a longer term and a more strategic purpose in mind (Roberts and Sykes, 2000: 18). Urban regeneration should not be focused on homogenous development but rather on providing a mixed use (heterogeneous development) and mixed communities (Jacobs, 1965). Though Jacobs warns of a deliberate and ordered separation of city functions from ordinary functions as this can cause a decline and a reduction in diversity (Jacobs, 1961: 181). Homogeneity, argues Jacobs, does not result in diversity and aesthetically does not look better. Homogeneity promotes sameness and monotony, while conveying no direction (Jacobs, 1961: 236).

This is explained further by Power and Houghton via (Colantonio and Dixon, 2011: 70):

> *"… houses people from different incomes and varied ages, different tenures, ethnic and cultural backgrounds, providing within walking distance a mix of activities, spaces and services, close to a public transport hub. It always implies at least moderate density; otherwise a mixed community of varied services, tenures and types of people cannot work. It may not mean the top elite living next*

door to the very poor – such utopias rarely if ever, exist – but it does mean a range of different people."

Jacobs called for a similar 'grassroots' approach to regeneration and urban interventions, instead of the top down renewal processes or the economic exclusion of gentrification (Jacobs, 1965). Instead Jacobs called for diversity (land use, culture, race age, gender) in neighbourhoods that promoted a more organic and spontaneous growth, preserving and empowering the existing community. Jacobs argued that this could be achieved through her four diversity generating factors (Jacobs, 1965: 164-234).

Dewar states (2001: 247) "that appropriate urban environments are dense, complex and richly mixed in terms of uses." Implying heterogeneous development that depicts a 24 hour, mix use, family orientated cities that can be used by all. The diversity can be seen in the agglomeration aspect of cities, where the 'diversity generators' have different but related economic, cultural and recreational opportunities; there must be development that of "qualities of the city and not suburbia" (Dewar, 2001: 247).

2.4.3.3 Cautions

While the literature above paints a picture of a hopeful alternative, the process must be constantly evaluated according to current political, economic, social and environmental concerns before one falls into the utopian visionary trap as Murray illustrates in the following:

"..behind every city plan, architectural project and physical modification of existing urban fabric is a utopian belief that deliberate interventions inevitably result in collective improvements to the cityscape. " (Murray, 2008: 5)

Murray goes onto state that urban regeneration process is a "complex story" due to the involvement of "money and location". Neil Smith notes that urban regeneration, if unchecked, can represent the next "wave of gentrification". But Smith goes onto argue that regeneration is not gentrification and that some regeneration processes are disguised as powerful "Trojan horses for gentrification" (Smith, 2002: 446) with the two terms often being conflated resulting in gentrification camouflaged under the rhetoric of urban regeneration. This idea of "camouflaged urban regeneration" seems to be reinforced by Murray.

Murray states that some property developers have borrowed design patterns from successful urban regeneration strategies from America and Europe, adopting them in Johannesburg (and other South African cities) retrofitting old historic buildings, often former industrial spaces (former spaces of production, a link with Lefebvre (1991)) into upmarket condominiums and apartments. In the context of "neo-liberal" post apartheid urban governance, city management have only a fleeting regard for the urban poor. The poor are

often excluded through these so called "regeneration" processes and prevented access to these newly resurrected places (Murray, 2008: 131).

2.4.3.4 Section Conclusion

This section has outlined the main processes of urban interventions and their effect. The study looked at the slum eradication, to the privatised spaces of exclusion to an attempt to introduce socially sustainable interventions. While rhetoric can be used to hide interventions intentions the approach to inclusion and community involvement are a true measure of the process. Cites should be moving towards creating a more compact intensively used and convenient cities. This should operate as an integrated system that caters for those on foot and is sensitive to the environment, making the most of limited natural resources.

2.5 EMPOWERMENT IN CONTESTED URBAN SPACE

2.5.1 Introduction

This section will highlight the response to the urban challenges that have been outlined previously. The city is a constant state of 'flux' and this 'flux' is perceived in many ways by the different users of the city.

Some of the users of the city, the privileged, have better access to city infrastructure and opportunities than most, being able to retreat behind walls while the "jobless poor" are forced to survive in "atrophying public spaces of the city, with their deteriorating infrastructure, inadequate services and limited opportunities for income generation." (Murray, 2008: 16).This income generation and how architecture can empower the users of the city will be a focus of this concluding section.

As outlined above Murray also depicts a city that is divided and promotes exclusion. Where there is a contestation between the formal and the informal, and sometimes between the private and public sectors (Murray, 2008: 70). Murray mentions three mechanisms for social inclusions in the city: steady income, decent housing and access to basic urban services. These factors, Murray argues, give urban residents a "rootedness in place." (Murray, 2008: 18).

But how does one establish an inclusive place that empowers the powerless?

2.5.2 Resilient Regeneration: Towards a Liveable Urbanism

The idea of sustainability, more notably the socially sustainable urban regeneration that was emphasised by Colantonio et al (Colantonio and Dixon, 2011) is pursued further, albeit from a different approach, by Swilling (et al's) concept of "liveable urbanism" (Swilling and Annecke, 2012: 135).

Liveable urbanism is a reaction to the previous urbanisms discussed (splintered, inclusive and slum). Liveable urbanism is a "bio economic diversification" and is focussed on creating an inclusive sustainable city. Liveable urbanism is focused on producing a low carbon city, which is more resource efficient and less damaging to the environment. But instead of catering for an exclusive group which only generates elite "eco" residential and commercial parks, this form of urbanism argues for a socially inclusive process. Liveable urbanism advocates for a closed loop nutrient and resource system in urban environment, an approach to regenerating not only the torn social fabric of an urban environment but also the remediation of the tension and turmoil between the natural and constructed environments. A closed loop system seeks to create a cyclical system of reuse and recycling. The closed loop system attempts to establish an economy or system that does not see waste as a linear product but as a resource that can alleviate the strain cities have on the natural environment through a three tiered sustainable design approach.

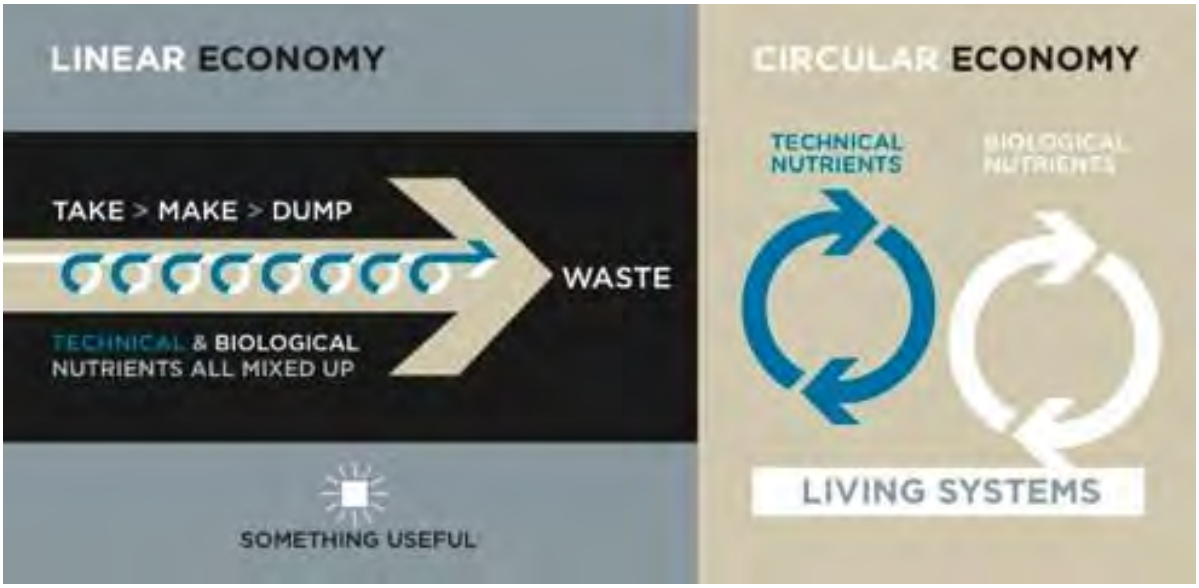


Figure 20: Diagram influenced by William McDonough's 'Cradle to Cradle' (McDonough and Braungart, 2010) design approach. The diagram indicating the traditional linear system on the left and the more sustainable circular closed loop system on the right. Technical nutrients are basically inorganic or synthetic materials manufactured by humans (plastics, metals etc). Biological nutrients are organic materials that can decompose into the natural environment, without affecting it in a negative way, providing food for bacteria and microbiological life.(heacademy.ac.uk)

2.5.3 A Response To Power(lessness) & Exclusion: An Architecture Of Empowerment

Dewar (2001: 247) argues that the more economic, social opportunities and facilities that are created the better the city will perform. He emphasises that in context of South Africa (as discussed throughout the chapter) rapid urban growth, unemployment, exclusion and increasing poverty are a dominant features on the urban landscape. There then is a need to generate opportunities for small scale, self generated and often informal economic activity. But Dewar (2001: 247) states that there must be "equitable and easy access" to the city, that

there little use in providing facilities that people battle to access. This implies not only links to basic services as Murray stated in the introduction but also links to transport hubs and nodes (Dewer and Uytenbogaardt, 1991; Dewar, 2001).

Empowerment can be extended to community participation and ownership (Jacobs and Dutton, 2000: 115). Brian Jacobs et al (2000: 115) argues that empowerment can achieved through the development of "local enterprises that employ people and develop skills for the future.". B. Jacobs et al states that in Britain, for example (acknowledged that the context is very different) the regeneration process incorporates private initiatives, public private partnerships, small businesses and entrepreneurship. This idea of empowerment allows citizens (and would be citizens) to gain greater access to services and have "more say" on the use of community resources (Jacobs and Dutton, 2000: 115) Thus "diversity, choice and enterprise" aid community focused regeneration and empowerment (Jacobs and Dutton, 2000: 115).

Conger et al (1988: 474) argues that empowerment is a "motivational construct", an enabling process rather than a simple process delegation (one does not become empowered through a delegation of a task by authority but it is a more complex process). This implies that that there is a heightened sense of self motivation and predilection to accomplish a given task or challenge. Lord et al (1993: 2) depicts empowerment, or rather powerlessness, as the following, implying empowerment is the antithesis of this:

> *"Real powerlessness results from economic inequities and oppressive control exercised by systems and other people."*

This links into the idea of panoptic control of the oppressive apartheid state and the resultant inequality evident today.

According to Czuba (1999) there are three components to the term 'empowerment':

- multi-dimensional,
- social
- a process.

Multi-dimensional because it occurs within sociological, psychological, economic, and other realms. Empowerment also occurs at various levels, such as individual, group, and community. Other aspects of empowerment may vary according to the specific context and people involved, but the three factors remain constant. How empowerment is understood also varies among perspectives and context (Czuba, 1999).

Empowerment, argues Marschall (1998: 104-105), is the crucial factor that makes development sustainable. It implies that there is shift of control and power towards the people who do the "core work" and who are at the core of the place of intervention. Upon analysis of Marschall's work (1998), in conjunction with the literature above, it can be seen that the process of empowerment through architecture reveals three conditions or phases of empowerment:

1) Community empowerment through participatory design and construction:

Community participation implies that the core stakeholders, the people on the ground and those affected, are involved in not only the design process but can partake in the construction process as well (Marschall, 1998: 105). The building becomes a symbol of the joint community effort and can even "alleviate drab surroundings" of the building's users. Marschall gives the example of opportunities gained from this community involved construction process. Examples such as small scale businesses that were established (such as brick and block yards) and skills were developed. This is in contrast to the utopian plans discussed in the earlier sections.

2) Ownership models of the building or project (Swilling and Annecke, 2012):

Swilling et al (2012: 303-308) demonstrates that in the Lynedoch Eco Village, ownership of the units enables the users of the facilities to benefit greatly. By creating a sense of place, a well designed desirable, mixed community with effectively subsidised ownership model the poor users were empowered thereby reducing the Gini-Coefficient gap. Ownership also gives the once excluded a greater 'right to the city' and a sense of permanence.

3) And how the building's function can empower the community or the users:

There are many functions of a building that can empower a community, group or individual. One of the key focuses of this dissertation is the individual and community empowerment in terms of economic enterprises.

Economic empowerment can be achieved through entrepreneurial activities facilitated by skills development processes (Ogundele, Akingbade and Akinlabi, 2012). OECD argues that small business incubators which promote, and support, small scale entrepreneurs in city in areas of decline, can aid regeneration and reduce social exclusion (OECD, 2004: 294). Although entrepreneurship on its own is not enough, it has potential to be cast as catalyst of urban regeneration (OECD, 2004).

2.5.4 Section Conclusion

This section illustrates how urban interventions can strive to achieve sustainable progress through the remediation of community empowerment and environmental sustainability with a focus on 'grassroots' approaches to the city and to city development.

2.6 AN ARCHITECTURAL RESPONSE IN CONTESTED URBAN SPACE

2.6.1 Section Introduction

This final section will serve to explore how architecture, the main focus of this dissertation, can achieve a more contextually based architectural response and how architecture can assist placemaking while facilitating regeneration and the empowerment process.

2.6.2 Critical Regionalism: A Contextual Architectural Response To Place

Critical Regionalism proposed a response to the placelessness (illustrated by Relph in the first section) and homogenization of the built environment that resulted from the Modernism combined with individualism and ornamentation (sceneography) of Postmodern architecture (Nesbitt, 1996: 469). This placelessness was achieved in form, material, spatial arrangement (Matter, 1989) through top down planning methods and according to Frampton Critical Regionalism was an "architecture of resistance" that sought "to mediate the impact of universal civilization" and "to reflect and serve the limited constituencies" (Eggener, 1984 : 228).

Critical regionalism investigated the architectural synthesis between nature and technology, an emphasis on topography, climate, light and tectonic form. While rooted in modern tradition it also explored the importance of place in architecture; how the architecture responds to its physical, social and ecological aspects. Critical Regionalism was a contextual approach to design that seeks to mediate between the tension between global and the local languages of architecture.

> *"If any central principle of critical regional-ism can be isolated, then it is surely a commitment to place rather than space..." (Frampton, 1985: 162)*

The above quote from Frampton illustrates Critical Regionalism's interest in place based architecture; reinforcing Van Eyck's quote in the first section; place and occasion really do mean more.

Figure 21 & Figure 22: Views of Alva Alto's Saynatsalo Town Hall in Finland. Displays a relationship with the context of the forest and reaching out into the landscape in a subtle sensitive manner. (www.wikipedia.com)

2.6.3 Community Inclusion: Placemaking In Contested Space

How does one establish a place (or sense of place) that promotes inclusion in contested urban space?

Placemaking is a concept that aids a community, designers and cities in creating liveable, inclusive and community based public places with the emphasis on the aspects of empowerment, community participation (Hamdi, 2010; Project for Public Spaces, 2008) and the generation of place, all aiding sustainable urban regeneration.

Placemaking is a multi-faceted approach to the planning, design and management of public spaces and is seen as a reaction to autocratic 'placeless' designs. Placemaking rather calls for small-scale, achievable improvements that can immediately bring benefits to public spaces and the people who use them (Project for Public Spaces, 2008: 5). Placemaking is not only focused on a single building or area but looks at a holistic picture of the city. Placemaking links into Jane Jacobs' four diversity generators and Jacobs' organic approach to planning (Jacobs, 1965).

Placemaking has eleven principles that help guide the 'place-maker' initiators. Quoted from (Project for Public Spaces, 2008: 7):

1) The community is the expert.
2) You are creating a place not a design.
3) You can't do it alone.
4) They'll always say "It can't be done."
5) You can see alot just by observing.
6) Develop a vision.
7) Form supports function.
8) Triangulate (agglomeration of activities)

9) Start with petunias. (Start simple, short term, small scale interventions or what is also referred to as 'tactile urbanism').
10) Money is not issue. (Search for creative affordable solutions).
11) You are never finished.

Placemaking pursues heterogeneous mixed used spaces that are not isolated areas but that link back into the rest of the city.

The 'Power of 10' concept of placemaking is the point of departure when embarking on a project. It analyses an area from a macro scale to micro scale (from city or region to a destination to a place). Within each of these three categories there should be ten points of interest. For example:

- A city/region needs 10 or more destinations. (Scale: Durban Metropolitan Area)
- A destination needs 10 or more places. (Scale: Durban City)
- Each place needs 10 or more things to do. (Scale: Warwick Junction)

Great places are spaces that have lots of activities, high proportion of people in groups, higher than average proportion of woman, and people of different ages (and cultures/races/religions) (Project for Public Spaces, 2008: 17).

Finally there are four key factors for a successful place:

1) Sociality
2) Uses and Activities
3) Access and linkages
4) Comfort and image

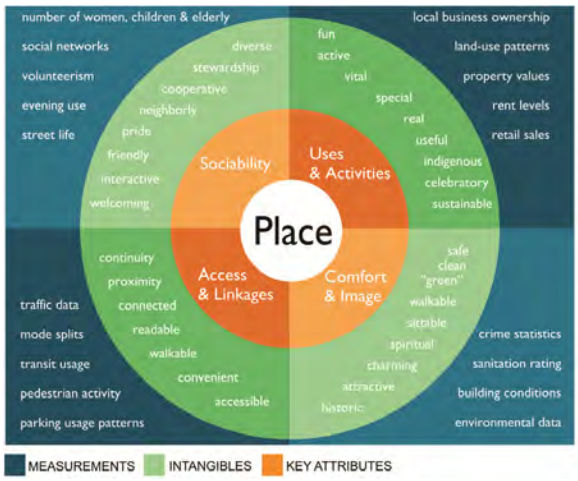


Figure 23:One can evaluate that place according to four criteria in the orange ring. In the green ring are a number of intuitive or qualitative aspects by which to judge a place; the blue area shows the quantitative aspects that can be measured by statistics or research (Project for Public Spaces, 2008: 16).

2.7 LITERATURE REVIEW CONCLUSION

This review has outlined the difference between space and place and how power dynamics have affected the construction of urban space in apartheid South Africa. This spatial inequality, which was established by past planned segregation, has further been acerbated by current economic disparities, urban planning schemes, governance and interventions.

The review also covered the approach to urban interventions in contested space and how the perception of decay and resultant exclusion can affect a city and its users. The interventions should attempt to empower the users of the city through processes of empowerment (the antithesis of the panopticon), empowerment in terms of opportunities for entrepreneurship and skills development. The design should focus on inclusion and triple bottom line sustainable development.

The case and precedent studies that will be assessed range in scale and typology. The first set are the urban interventions due to the fact that architecture alone cannot remediate the issues outlined above and buildings should not be view as islands of separate development with no relation to their context. The scale of the interventions will serve to analyse various issues outlined in the review. The second set are the architectural interventions in contested space and the approach these designs have taken in responding to the issues of place, exclusion, and context. Context is a vital component to place based architecture and architecture should seek to respond to the issues of its context creating a rootedness in place.

Due to the varied scales of urban and architectural precedents and case studies the analysis criteria then calls for two sets of themes derived from the theoretical framework and the literature reviewed thus far.

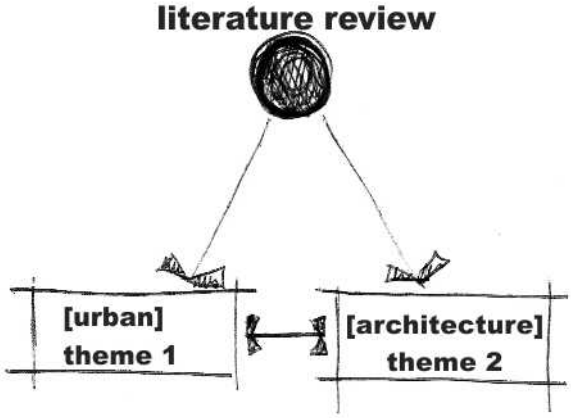


Figure 24: Diagrams indicating the 2 themes of criteria for analysis of precedent and case study analysis. (Author)

Criteria for analysis for theme 1: Urban interventions:

1) Creation of place.
2) Quality of place.
3) Toward a liveable urbanism.

Criteria for analysis for theme 2: Architectural interventions:

1) Architecture as a tool for placemaking, empowerment and inclusion.
2) A contextually based architectural response.
3) Towards a resilient city through a liveable urbanism.

3.1 INTRODUCTION

Figure 25: World map indicating locations of the precedent and case studies. (Author)

This chapter will serve to explore two pertinent precedent studies using the two theme's respective criteria as outlined in the literature review conclusion.

The two precedents studied range in scale and intervention. The first is an urban intervention in a township in South Africa and the second is an unbuilt architectural intervention in an informal settlement in Sao Paulo Brazil

3.2 PRECEDENT STUDY: Violence Prevention through Urban Upgrading Project

3.2.1 Justification For Study & Application To Topic

The precedent is applicable to the topic due to the effective regenerative processes that were implemented. The intervention illustrates how architecture can aid regeneration, empowerment and effective surveillance in a marginalised community. This community, based surveillance from ‘eyes on the street’ pedestrian activity, is reinforced through civic focused community based building typologies. The active boxes, or hubs, show how architecture can be used as an economic and social catalyst while also providing a better urban legibility through scale, colour and design.

3.2.2 Location, Background & History of Project

+ Location:

Figure 26: (Left) South Africa, Western Cape Province. (Author)

Figure 27: (Right) Western Cape, Cape Town & Khayelitsha. (Author)

+Background & History:

The project is situated in the suburbs of Khayelitsha of Harare, Kuyasa, Site C /TR section and Site B. Khayelitsha is located about 30km from Cape Town. Khayelitsha is a former african township that was constructed during the apartheid era. Khayelitsha today has one of the highest population densities in South Africa; 200 000 families (600 000 - 800 000 people) in six square kilometres (OECD, n.d; Bauer, 2010).

The township was constructed in the 1980's by the apartheid government. With limited services and public facilities the area became a place of strife and oppression. The forced resettlement to this location was to ensure that african residents were too far from white areas (the city) to walk and were forced to utilise mechanised transport (train, bus, minibus taxi) to work every day (OECD, n.d).

After 1994, at the dawn of democracy, the new government continued to develop the area and introduced a state subsidy scheme for house building and transferred land to the owner, as part of the Reconstruction and Development Programme (RDP). Population pressure continued to overwhelm formalisation; the informal settlements at the fringes kept growing. Tens of thousands of RDP houses appeared in Khayelitsha from 1995 to 2005 (OECD, n.d).

The urban fabric is characterised by low density housing, inadequate infrastructure and a plethora of paths and roads, with little wayfinding devices leading to poor urban legibility While infrastructure is currently being improved, most residents suffer the lack of social, cultural, institutional and economic opportunities for residents. In the settlement there are many services that have not been met creating a need for an appropriate intervention to assist in remediation in this contested urban space.

3.2.3 Approach to Intervention

+The Approach:

Planning: AHT Group, Sun Development PTY.

Architecture firms: ARG Design, Charlotte Chamberlain & Nicola Irving Architects, Jonker &

Barnes Architects.

Funders (Developers): City of Cape Town, German Development Bank, Provincial and National South African Government funding, private sector funding.

The project began in 2005; construction started in 2006 and is scheduled to be completed in 2014. The Violence Prevention through Urban Upgrading (VPUU) project approach is an attempt to create a safer area through tackling violent crime and the lack of income generating opportunities through a grassroots urban intervention. The project is a holistic approach to urban upgrading that is unique in contested urban space in a city like Cape Town.

The intervention aims to improve the residents' lives in a space that is characterised by violence and hardship. The design approach incorporated the residents into the design and decision making process. This community involvement and empowerment was carried throughout the project; from design to construction to land use and ownership.

Figure 28: (Left) Active street frontages through 'live work' units around public square . (Cooke, 2011: 22)

Figure 29: (Right) Active boxes create hubs for economic opportunity. (Cooke, 2011: 23)

+The Design:

Figure 30: Urban plan indicating the architectural interventions aimed at empowering the community in the contested space. Facilities or "Active Boxes" range from community support, economic opportunity generators, and education and recreation facilities; all with a focus of community surveillance and empowerment. (capetown.gov.za)

> *"One element is to improve safety on the streets with simple measures. They include the creation of well-lit spaces alongside the main pedestrian routes. At the intersections of these routes, we provided 'Active Boxes' small three-storey buildings which contain at a minimum a meeting room or public facility for the neighbourhood, a caretaker's flat and a room for facility guardians." Architect Machiel Erasmus on the design of the main hubs in the project via (OECD, n.d)*

The community helped the professional team locate multiple crime hotspots and places for the potential for regeneration. Today the community are still actively involved in not only the design and the use but also the surveillance of the area. A panoptic space that once was constructed to survey, control and disempower has been reformed into a positive place that empowers and protects the marginalised.

+The Concept:

The four key ideas of the project, quoted from Cooke (2011: 19):

"*1) The process is as important as the product.*
2) The approach has been area wide.
3) The intervention has been integrated in social, economic, spatial and management terms.
4) Measures have been setup to sustain what interventions have been put in place."

The key intervention in the project was to reduce crime the in area. The approach to violence prevention can be broken up into 3 main elements (Bauer, 2010):

1) Situational violence prevention: Physical and spatial, environment.
2) Social violence prevention: Community involvement.
3) Local governance promotion: Institutional and political environment.

The emphasis was on 'situational violence prevention'. A number of features, in terms of safety, guided the design process quoted from Cooke (Cooke, 2011: 20; City of Cape Town, 2014)

"1) Surveillance and visibility ("eyes on the street").
2) The design of public spaces that have clear lines of sight and good lighting to ensure maximum public visibility.
3) Territoriality ("owned" spaces).
4) Refers to the sense of ownership a community has over its environment that encourages residents to become involved in reducing crime.
5) Defined access and movement.
6) Easy access and well-defined routes to, and through, a public place help develop a pedestrian's understanding of the space and perception of safety.
7) Image and aesthetics (dignity).
8) A positive image of a place can be achieved by ensuring a "human scale", using appropriate materials, colours, landscaping and lighting to encourage high levels of public activity.
9) Physical barriers: This relates to the strengthening of building facades and spaces to improve personal safety.
10) Maintenance and management (pride and ownership)."

Well-managed and maintained environments encourage a sense of pride and ownership. The VPUU uses specific design "tools" to implement the safety principles and these include the introduction of a clear signage and way finding system, creating visual connections along walking routes, ensuring movement routes are as clear and short as possible, the clustering and integration of public activities and ensuring that the site layout has active edges to increase passive surveillance.

3.2.4 Analysis

+ Creation of Place:

The key to this project is an attempt to make this contested space into a community owned space, a place where people can be empowered and feel safe. The following principles are outlined as per Project for Public Spaces (2008). This is measured through three categories; 1) the four key attributes, 2) the 'intangibles' and 3) the measurements. There is not enough information available to analyse category 3 effectively.

+ Quality of Place:

Sociability:

The project has enhanced the social networks by promoting a safer street life, areas of mixed use that allow for greater sociability. The areas are more diverse and friendly, inspiring cooperation and civic pride for the residents. The mix of ages at the facilities also varies from children to the elderly.

Comfort and image:

As mentioned above, the area suffered with very high crime rates but through community involvement and well thought out built interventions the rates have lowered. Elements such as lighting and architecture have made a safer space that can be freely used by the residents of the area establishing a better quality of place.

Uses and Activities:

The intervention, through the different facilities, has enabled more community ownership, revealing a diversity of uses. The active hubs promote community engagement and interaction.

Access and linkages:

After the intervention the area has better connections and proximity to services, which are more convenient and acceptable. Most of the services are available within a walkable distance due to the nature of the intervention. Most residents walk and utilise public transport. The active hubs promote a more legible urban landscape for pedestrians to navigate through.

Figure 31: (Left) Active Box & library with mural decoration. Scale and location aid wayfinding. (Cooke, 2011: 20)

Figure 32: (Right) Example of the VPUU civic architecture; one the Active Boxes. (Cooke, 2011: 18)

Figure 33: (Left) Shops outside the 'Station'. (Cooke, 2011: 21)

Figure 34: (Right) Station Active Box as a landmark relative to RDP & informal houses. (Cooke, 2011: 21)

+Toward a Liveable Urbanism:

The project, as mentioned above, has been a strong relationship with community engagement. The very aim of the project is to improve and to empower the area, looking to the community who have been consulted from the design stage to the process of construction. The community helped to identify problem areas that needed built intervention. The process of consultation established what facilities the community required and also enabled employment during the building process helping disseminate much needed skills.

The architecture is simple but well built and durable, responding to the context and aiding the creation of place through design, form and function. The building functions aid the empowerment process through community services such as education, recreation and economic opportunity generators. The community has also been empowered through landownership. Instead of an autocratic design approach (the method upon which this settlement was created) the method has rather been a grassroots approach. The success of the project has been mainly due to this in depth community engagement and empowerment process.

While the introduction of better community services and facilities has provided a more 'inclusive urbanism' it does seem to lack a comprehensive environmental response. Given current global environmental pressures and concerns, development, existing and new, should have a more resilient response to the environment. There seems to be little evidence of resource generation such as energy generation, water collection and grey and black water processing. The houses while connected physically seem to miss an opportunity to use the waste (sewer, refuse, kitchen waste) as an opportunity for energy and income generation.

3.2.5 Summary of findings

The project has demonstrated that through community involvement and empowerment an urban intervention can have a positive impact on people's lives. The intervention has also revealed that through combination of community engagement and architecture negative elements, such as crime, can be reduced.

Instead of property led regeneration this project has demonstrated that social regeneration can have an effective impact with placemaking process being bolstered by the provision of facilities that focus on empowerment.

The architecture of the urban intervention serves a dual function; first it accommodates the functions outlined in the analysis but it also acts as a wayfinding device in myriad of dwellings, roads and paths.

But it must be noted that the project does not provide an effective enough environmental response in an age of climate catastrophe.

3.3 PRECEDENT STUDY: Urban Remediation & Civic Infrastructure Hub

3.3.1 Justification For Study & Application To Topic

The project is regenerative and catalytic nature and serves to illustrate an approach to architecture in contested urban space. The project attempts to generate a diversity and intensity of land use in an area that is otherwise desolate.

This design explores how architecture can empower and regenerate the relationship between a marginalised community and their crucial natural resources.

3.3.2 Background, Context & Concept

Location: Grotão within the Paraisopolis Favela, Brazil.

Architect: Urban Think Tank

Client/Owner: City of São Paulo Secretaria da Habitação

Current state: Unbuilt

+ The Background:

The project is an unbuilt scheme that is set in the Paraisopolis Favela. A favela is an informal settlement similar to the South African informal settlements. The favela is situated in an urban environment on contested crowded space. Like all informal settlements, little or no formal master planning was done, creating the perception of a transience space as opposed to a space of permanence. The informal nature has led to little infrastructure, no public space and ultimately a lack of spatial definition.

+ The Context:

Figure 35: (Left) Urban fabric of Favela. (Urban think Tank via (Holcim Awards, 2011))

Figure 36: (Right) The site for the intervention marked in blue. (Urban Think Tank-edited by author)

The site is a void in the otherwise dense fabric of the favlea.

Figure 37: Site plan of the intervention indicating existing paths (red) and terraces with hub in the centre. (Urban think Tank via (Holcim Awards, 2011))

+ The Concept:

According to the architect, Alfredo Brillembourg, the proposed urban model aims to *"translate a society's need for equal access to housing, employment, technology, services, education, and resources – fundamental rights of all city dwellers – into spatial solutions."* (Holcim Awards, 2011). The project is catalytic in nature.

Figure 38: Render of proposed intervention in context. (Urban think Tank via (Holcim Awards, 2011))

Figure 39: Render of proposed building with community connection and use.(Urban think Tank via (Holcim Awards, 2011))

3.3.3 Analysis of design

+ Architecture As A Tool For Placemaking, Empowerment & Inclusion:

The design has utilised a space that was a liability and made it into a place of empowerment for the community; a creative landmark and wayfinding device. It has transformed the void into a socially productive place attempting to mediate the negative aspects of the site through an architectural intervention.

The design incorporates many elements and functions into the building's use with many spaces housing a dual use. The primary function, the music school (music factory), is augmented by other functions. (Refer to Figure 39) These other functions include public transportation (bridges, staircases and a lift core on a steep site) and sports facilities. The music school contains practice and rehearsal spaces, studios, a performance hall, and auxiliary classrooms. The sports area on the ground floor doubles as a performance area that uses the terraced embankment as spectator seating. The music school augments the existing cultural and music programmes in the area. The upper zone, as seen in Figure 40, has revised housing for the residents who would be displaced in the architectural intervention. Within this housing 'commercial zones' would be introduced at ground level to aid in the empowerment process stimulating the local economy (Holcim Awards, 2011).This could potentially become a contentious problem for the development and seems to be the least integrated element of the design.

Figure 40: Section through site and intervention depicting housing at the top with terraces leading to main hub. Water storage tanks are indicated below the building. (Urban think Tank via (Holcim Awards, 2011))

+ A Contextually Based Architectural Response:

The architecture seeks to not only respond to the local climatic conditions but also to the contextual issues such as stormwater, lack of urban legibility, lack of urban services and community facilities.

The design of the also incorporates site specific elements such as light and topography, using them help govern the design approach.

+Sustainable Contribution To A 'Liveable Urbanism':

The terraced steps of the scheme serve many functions. They first act as a retaining device but also provide much needed green open public space to the area.

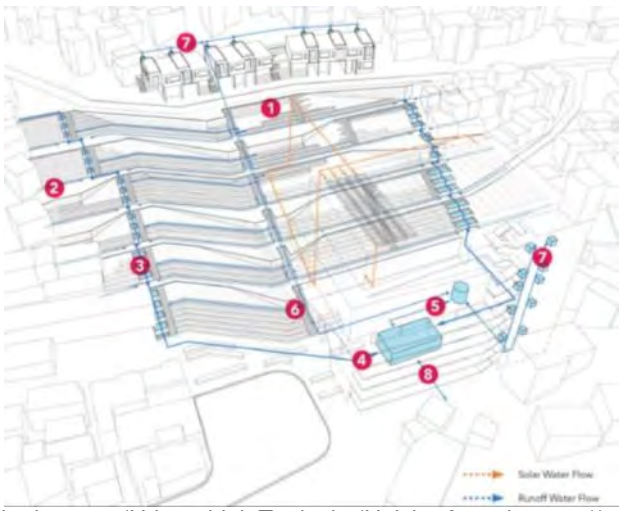


Figure 41: (Left) Axo of terraces with sports court at the bottom. (Urban think Tank via (Holcim Awards, 2011))

Figure 42: (Right) Water and solar flow diagram of site. (Urban think Tank via (Holcim Awards, 2011))

The terraces are divided up into platforms for agriculture, landscaping/open spaces, ramped circulation and finally wetlands to attenuate rainwater runoff.

The rainwater throughout the site is harvested and stored in tank under the building. In Figure 42 and Figure 43 the process is explained further by designers, 'Urban Think Tank' (Holcim Awards, 2011):

"1) Runoff cascades over permeable surfaces, absorbing excess stormwater and increasing water oxygen levels.

2) Site contours direct the water inward to minimize off-site discharge.

3) Runoff is collected into terraced wetland water gardens to trap contaminants and particulars. The system is a natural filter that enhances air quality, lowers ambient temperatures by evapotranspiration, and introduces habitat niches that attract foraging birds.

4) Treated overflow from the wetlands is collected into an underground cistern for storage and later reuse.

5) Stored water is treated to local quality standards with rapid sand filtration and pumped to elevated tanks for reuse.

6) Water is lifted during dry periods to provide irrigation in planted areas.

7) Treated water is available for non-potable uses, such as toilet flushing.

8) Minimal stormwater is discharged to the public sewer system."

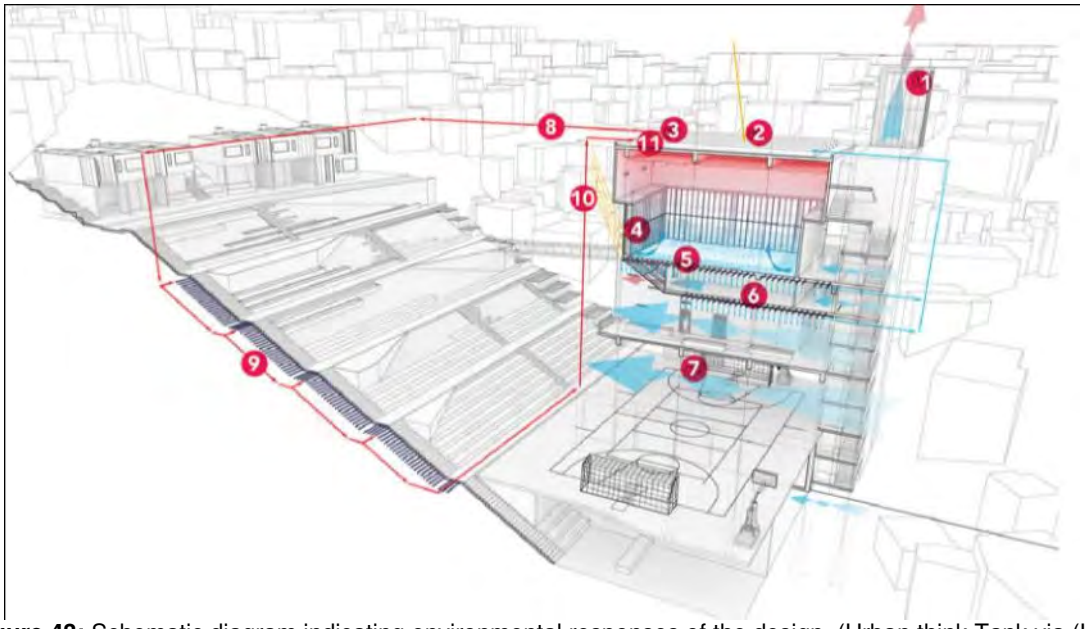


Figure 43: Schematic diagram indicating environmental responses of the design. (Urban think Tank via (Holcim Awards, 2011))

The environmental sustainability and the approach to catalytic regenerative project of is further explained in the above diagram (Holcim Awards, 2011):

" 1) Natural ventilation: chimney combination of stack, solar and wind supported ventilated system.

2) Hybrid photovoltaic panels: electricity during the day and IR-emission of water during the night.

3) Air conditioner.

4) Shading: protects against solar exposure along the east and west facade.

5) Slab cooling: tempering the concrete structure with embedded hydronic piping.

6) Hybrid ventilation: natural ventilation in cooler seasons and AC operation in humid season.

7) Cross ventilation: wind from south direction provides fresh air, warm winds coming from north direction are blocked by the hill cooling water cycle.

8) Heat rejection from air conditioner.

9) Heat sink during the day.

10) Heat emission during night by lunar collector on roof.

11) Chilled water to air conditioner."

3.3.4 Summary Of Findings

This project, while conceptual, demonstrates the potential an architectural intervention in contested space has to reconnect a community, empower the powerless while using a site which is a 'void space'. The project would generate a sense of place in the chaos of the favela planning, creating a central hub. The scheme has also outlined the process of how architecture can facilitate a more 'liveable urbanism' through natural resource generation and regeneration.

3.4 CONCLUSION

The precedents studied have revealed that through a community centred approach to design in contested space, a dynamic and progressive solution can be achieved. The designs seem to be process based seeking to console with the issues identified.

The urban remediation hub design depicts an approach that incorporates all elements of regeneration; remediating between environmental, social and economic conditions on site. Both precedents have responded to the issues of their respective contexts, creating a site specific architecture that facilitates a regeneration process the marginalised communities in which the projects are based.

4.1 INTRODUCTION

This chapter will serve to explore two pertinent local case studies using the two themes with the respective criteria as outlined in the literature review conclusion.

Like the precedent studies, the two case studies range in scale and intervention. The first is an urban intervention in Durban city centre which speaks to the VPUU precedent study. The second is an architectural intervention in Cato manor which seeks to explore architecture that aids empowerment.

4.1.1 Location and Background of Durban

Figure 45: South Africa, KwaZulu Natal. (Author)

Figure 44: KwaZulu Natal, Durban. (Author)

Figure 46: Map Of Durban Metropolitan Area indicating the locations of the two case studies; C1 & C2. (Author)

Durban Metropolitan Area is governed by the municipality of eThekwini. The metro area is 2297km^2 with a population of over 3.6 million and is expected to rise to well over 4 million by the year 2020 (Ethekwini Municipality, 2012). Durban City is the heart of the area. The city is based around the large international cargo port. The metropolitan area is still fairly segregated in terms of income, education and quality of life (Ethekwini Municipality, 2011).

4.2 CASE STUDY: The Point Waterfront Development

4.2.1 Justification For Study & Application To Topic

The Durban Point Development (DPD) represents a bold primarily private sector funded urban intervention in Durban. The point is a historic zone in Durban, having a strong history of contested space.

This study will serve to explore the affect of this style of approach to urban interventions which seem to result in placelessness. This study will also serve to explore issues of panoptic control of space, the impact of property led regeneration and exclusion.

4.2.2 Background & History Of Area

+Background

Durban's 'Point Area' is located adjacent to Durban's C.B.D, adjacent to the harbour and close to the main beaches. The only access to the site is from north. The site is 55 hectares.

Figure 47: Map of Durban indicating the Durban Point Development. (Author & Google Earth.)

+ History:

From the establishment of Durban in the mid 19th century the Point was always focused on maritime and port operations. In the late 19th century the Point was used as the main port for Durban. This resulted in a large collection of historical buildings which were related to the port activities (Gounden, 2010: 90-91).

But during the 1980's the main operations of the port were relocated across the bay to Maydon Wharf. Thus began the process of disinvestment and decay of the area resulting in the reputation of the area as "a haven for crime and prostitution" consisting of "vacant and derelict buildings" (Gounden, 2010: 92). The area was to house a number of homeless, low income residents and homeless shelters during this time.

From the 1960's onwards there were many schemes and plans for Durban's iconic point but none were fully realised until many years later (Gounden, 2010). Most of the land was state owned by Portnet and Transnet. In 1997 the private property companies Rocopoint, Vulindlela Holdings and the Malaysian owned Renong formed a joint venture and won the tender to develop the area and bought the land form the state. But the parent company of Renong was under financial pressure causing a halt to the project (Gounden, 2010).

Figure 48: Satellite photo of The Point in 2001 before development. (Google Earth and Author.)

eThekwini saw the project as "strategic investment" and therefore teamed up with the development joint venture. In 2003 the city proposed to aid the project by funding and constructing the uShaka Marine World. uShaka was envisioned to be "catalyst" for private

development and investment in the point (Gounden, 2010) but later became a financial burden for the city and the ratepayers of Durban.

4.2.3 Approach To Intervention

+ The Approach:

Lead Urban Designers: Iyer Urban Design Studio (supported by GAPP Architects). Architecture done by various architecture firms.

Funders (Developers): Durban Point Development Company Pty (Ltd) in conjunction with eThekwini municipality.

The project seeks to renew the entire Point; reusing historical buildings only were required by law. A result of this renewal was a forced relocation of the undesirable people and facilities including the homeless shelter (refer to Figure 49). The first phase of the project, which was funded by the city, was the construction of uShaka Marine World and the construction of the canals. These canals create a placeless pseudo 'Venetian' experience.

Figure 49: (Top) First phase of development indicating uShaka and canals (Google Earth & Author)

Figure 50: (Left) View of the canals complete with 'gondolas'. (Author)

Figure 51: (Right) Signage warning of the risks of walking around the canalled area. Free public use of the canals is restricted. (Author)

+ The Design:

Figure 52: Latest urban design of the Durban Point Development. (Durbanpoint.co.za)

Figure 53: Zoning diagram of the development. Low diversity of uses. (Durbanpoint.co.za)

The utopian like plan has envisioned an entirely new area in Durban that promotes the movement of high income earners to live in the city in a "live, work and play" atmosphere (Gounden, 2010). The urban design approach seems to be New Urbanist pedestrian focused model. uShaka is a primary driver to this whole development aiding the planners'

justification for this style of development. The entire development from management of services such as water, electricity, and sewerage to security is all privatised. This privatisation and commodification of land is reminiscent of Swilling et al's (2012) definition of the neo-liberal splinted urbanism.

+ The Concept:

> *"....the overriding design philosophy for the Point was to regenerate the city centre of Durban through the reestablishment of the Point as one of Durban's most historic and significant urban quarters." Iyer Rothaug Development Framework Document (2003, 19) via (Gounden, 2010: 87)*

According to the designers the design approach to the development sought to create the following: Via (Gounden, 2010: 87-88)

- Creation of public life by emphasising pedestrian movement and human scale of development.
- A focus on fewer cars, fewer car parks and more people on the street and public spaces.
- Urban legibility allowing ease of movement through the development.
- The structure of the area is based on canals, boulevards, vistas, urban squares, avenues, lanes and parks making it easier to orient oneself within the development.
- Emphasis on public space.
- The promotion of mixed use development.
- High quality architecture.

Figure 54: Satellite photo of the Durban point development taken in 2010. (Google Ea_rth and Author)

4.2.4 Analysis

+ Creation of Place:

Placemaking seems to promote a grassroots approach utilising an existing community in the decision process, while this development, like most developments, has used a top down, profit driven planning and 'regeneration' process. Project for Public Spaces (2008) the quality of space can be analysed according the main themes as discussed below.

Figure 55:(Left) View of the Point streetscape. (Author)

Figure 56:(Middle) The Point development feels like a set of a movie; placeless & uninhabited. (Author)

Figure 57:(Right) Warwick Junction at a similar time of day. Full of life, varied connections, lots of movement and a better quality of place. (Author)

+ Quality of Place:

Access and linkages:

The development is focussed around higher income groups that are forced to commute to and from other areas of the city by car. There is little formalised public transport in the area besides buses and the buses do not seem to be fully utilised by the surrounding residents. The primary point of interest seems to be uShaka, which in itself does not seem to sustain enough public interest. The area seems to be secluded and exclusive. The edge of the development is marked by Bell Road which seems to serve as the line of definition between utopia and dystopia.

Sociability, Uses and Activities:

While there seems to be a promotion of mixed uses in the scheme, most of the development seems to cater for a higher income group with primarily high income commercial, retail and residential. This can be seen in property prices of the area which range in the millions for a typical one to two bedroom flat. There seems to be little visible promotion of social integration with other service based facilities.

There is little pedestrian movement on the street with more movement from vehicles. The area seems to have the sense of a low residential population. The majority of the night activity happens at uShaka with very little long the main road (Mahatma Gandhi Road).

Figure 58: (Left) One way glazing on ground floor shopfronts on all the buildings. This creates a disconnection between the pedestrian and the user of the building. (Author)

Figure 59:(Middle) Author & author's assistant on-site investigation in "public space" questioned by the Point security guards. (Author)

Figure 60:(Right) Signage warning of CCTV surveillance network at the Point. Used as a panoptic tool of exclusion. (Author)

Comfort and image:

As mentioned above the area has incorporated some of its historical fabric into the development. The development seems to be 'safe', clean and habitable but reads as separate 'island' like feature to rest of the surrounding city. The development feels excluded from the city through a deliberate buffer zone of uShaka, monitored by a hive of CCTV cameras enforcing those who can and can't enter. One has the feeling when in the space that everything is under surveillance, forcing one to become more introverted.

While the placemaking criteria emphasises criteria of safety, cleanliness and aesthetics, it does not take into account the context and the expense at which to achieve this 'sense of place'. The development has an almost panoptic sense when an outsider enters the development due to the large number of CCTV cameras; every move is recorded and monitored. One but cannot help notice a sense of placelessness, a sense of forged utopia, an urban fabric that feels contrived. The urban fabric feels like it has been transplanted with very little rhythm of diversity and eccentricities of a grassroots approach.

Figure 61:(Left) Diagram indicating year 2100 sea level rise and uShaka the buffer between the city and development. Bell Street marks the end of the precinct; left is the perceived area dystopia as Murray outlined and the right is the island of utopia. (Google Earth and author).

Figure 62: (Middle) UShaka Marine World. A cultural and architectural appropriation; a scenographic architecture that reinforces placelessness. (Author)

Figure 63: (Right) Sketch of Bell Street, indicating the 'buffer zone' and street edge of uShaka in relation to the context. (Author)

+Toward A Liveable Urbanism:

The project has no environmentally sustainable features, missing a unique opportunity for the development to inject a system of large scale sustainable features into the urban fabric of Durban. The project is focussed on consumption rather the production; consumption of resources and land instead of the production of energy, true public space and diversity.

4.2.5 Summary of findings

The project has revealed a form of splintered (neo liberal) urbanism that Swilling outlined in the literature. The scheme is development driven and a profit focused intervention that has done very little to fully activate the city centre for all users of the city. Through on site analysis of the intervention it has been revealed that this intervention exemplifies a panoptic like control of the urban space, reinforcing the divides that exist in contested post apartheid space.

4.3 CASE STUDY: Umkhumbane Entrepreneurial Support Centre

4.3.1 Justification for study

Architecture has the power to exclude but also has the power to become a positive tool for community empowerment. The Umkhumbane Entrepreneurial Support Centre, built and owned by the municipality, serves as a local example of how an architectural intervention can empower the marginalised. But this project will also be analysed in the context of the greater area, how it has or has not integrated with the surrounding development.

4.3.2 Background, Context & Concept

Location: Harry Gwala Road, Cato Manor, Durban South Africa.

Architect: John Royal Architects (for Durban City Architects).

Client/Owner: eThekwini Municipality & The Cato Manor Development Association (CMDA).

Current state: Built in 2003 and in use. Proposed extension underway.

+ The Background:

The project is situated in an area that has a history of contested space and exclusion, Cato Manor. During Apartheid, under the Group Areas Act, the area was reformed and reshaped, segregated by race resulting in the removal of many people. The area has high poverty, high unemployment and low education levels (Ethekwini Municipality, 2012).

The CMDA saw the facility as a business incubator and aimed the development at small manufacturers (Peters, 2004). CDMA envisioned a master plan but currently it seems the plan has been failed to be fully implemented leaving CDMA facilities, like this one, stranded and 'disconnected' resulting in an disjointed urban fabric in Cato Manor.

The manager of the complex, Ms Celiwe Nsibande, stated that the leases for the workshops are a 3 year contract with subsided workshop rentals. The applicants to the incubation process are accessed according to a needs assessment and their business proposal.

Successful applicants are then awarded a 3 year contract to lease a workshops space. During this time they are assessed and trained. At the end of the 3 year period businesses are reviewed. Rentals are around R18/msq.

According to Ms Nsibande the waiting list is long and applicants come from all around Durban area, not just from Cato Manor, indicating a need for more of these facilities.

Figure 64: Map of surrounding context indicating case study in blue. (Google Earth and Author)

+ The Context:

The site (outlined in blue in Figure 64) sits on Harry Gwala Road (formally Booth Road) which is a main transport road. The surrounding context is characterised by low density housing in the form of informal shacks and formal RDP housing. Other main facilities are a truck storage and truck depots, a social housing scheme situated to the south and a FET college to the west.

Figure 65: View on complex from road. (Google)

Figure 66: Site plan indicating current built design and future proposed phases. The bottom right(red) is the admin block which aids with surveillance of the entrance. The workshops are divided up according to size and use. The scheme is arranged around a central courtyard. (John Royal Architects)

+ The Concept:

The centre is focused around empowerment and skills development. The centre was established as a facility to help promote "competitiveness and business acumen by providing advice on tendering, business planning, access to finance, administration, management and other forms of assistance. The complex's primary target is the fledging entrepreneur in the manufacturing sector with evident growth potential..." (Peters, 2004).

The design brief called for a phased development that enabled workshop spaces in a secure environment with maximum visibility. (Refer to Figure 66) The courtyard layout of the design seems to promote a stronger self enforced security. The project's facilities range from letable workshop spaces, administration offices and training rooms.

The layout suggests the form of a right hand. The thumb is symbolised in the southern hard edge of the development with the access to the complex being obtained from the 'wrist'. The remaining splayed forms are fingers that radiate outward from the entrance (Peters, 2004). The central courtyard has a simple thatched a gazebo with benches and a public phone serving as a way finding element and common open semi public space.

4.3.3 Analysis of Design

+ Architecture As A Tool For Placemaking, Empowerment & Inclusion:

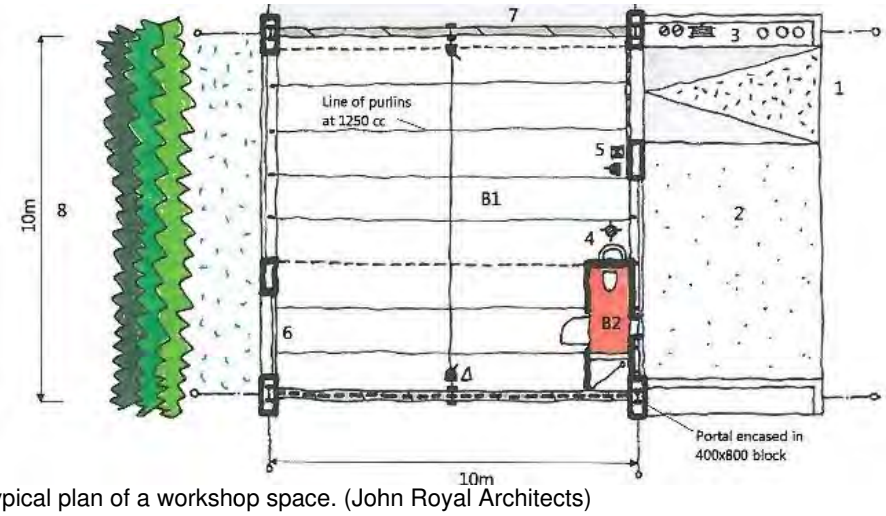


Figure 67: Typical plan of a workshop space. (John Royal Architects)

Figure 68: (Left) View of units from internal courtyard. (Author)

Figure 69: (Right) View of complex from entrance road. (Author

The project provides a unique service in an area, in an area that is in great need of interventions that empower. The projects function serves to facilitate empowerment through business incubation and skills development. This need is evident by the extensive use of the facility and the proposed extension that is currently underway.

The complex is low in density, consisting of a single storey design with factory style 'saw tooth' roofs. The layout is introverted in nature, reluctantly revealing itself once one enters and explores the complex. The complex is homogenous in use, allowing only for workshop spaces and administration facilities. While there is a large residential population in vicinity it would have been more effective to combine uses with possibly retail, other service based industries or incorporate housing into the development so as to not result in a single use workshop office park.

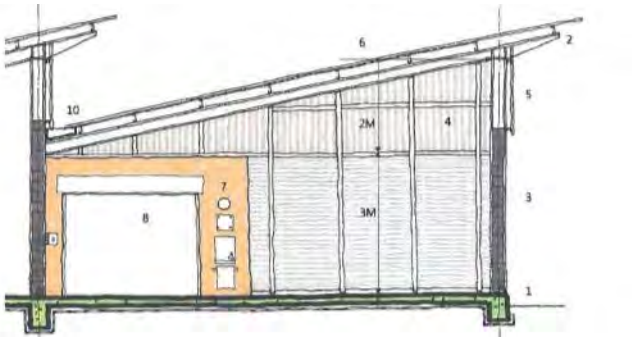
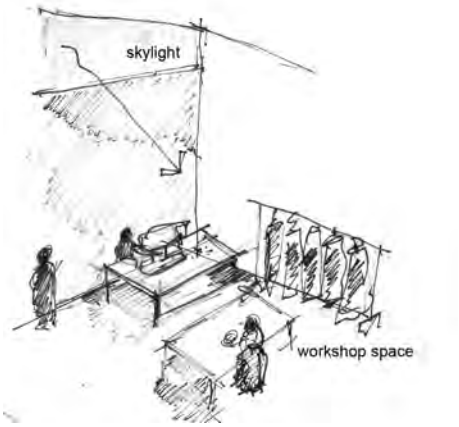


Figure 70: (Left) View of planted courtyard.(Author)

Figure 71: (Right) Typical section through workshop unit indicating skylight in the top right. Built using standard building materials; concrete, concrete block, mild steel and steel roof sheeting. (John Royal Architects)

The centre is community empowerment focused and would have employed local labour during the construction of the facility due to municipal influence. A facility of this nature was envisioned in the master plan for the area which had incorporated community stakeholders in the decision making process.



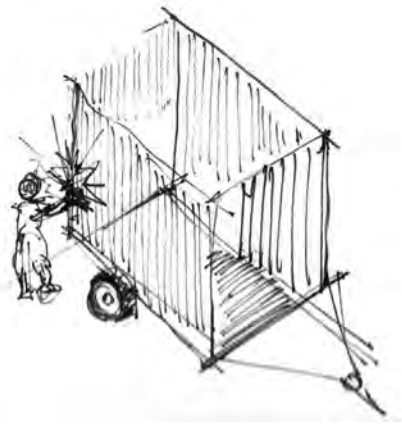


Figure 72: (Left) Sketch of workshop space indicating a clothes sewing workshop. (Author)

Figure 73: (Right) Sketch of a man welding a trailer at the ESC. (Author)

The different industries that are accommodated range from welding, sewing, upholstery, carpentry and weaving.

+Sustainable contribution to a 'Liveable Urbanism':

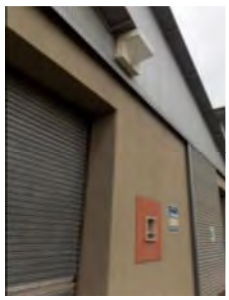
The construction of the building incorporated basic construction materials and methods using locally sourced materials where possible. The layout is orientated north with the majority of the skylights facing either east or south providing generally a diffuse indirect light. The skylight reduces the need for artificial lighting but the spaces tend to be quite dark on overcast days possibly due the decay of the translucent sheeting.

The scheme however does not maximise on the roof area for rain water harvesting and does not utilise the surrounding open space for greywater or black water treatment. Also the slope and orientation of the roofs have not been exploited to provide solar energy.

As mentioned previously the development is homogenous in its function but does contribute to the greater planning framework for the area.

+ A Contextually Based Architectural Response:

The architecture has sought to respond to contextual issues on site. The introverted courtyard form does create a semi public space for the users of the facility. The details of the building are subtle but attempt to root the pragmatic architecture with a sense of place and uniqueness. The design proposal even called for the signage to welded and crafted by local artisans that would add a hand crafted aesthetic, but unfortunately this does not seem to have taken place. The colour and architectural details provide elements of interest in an otherwise potentially bland architectural typology



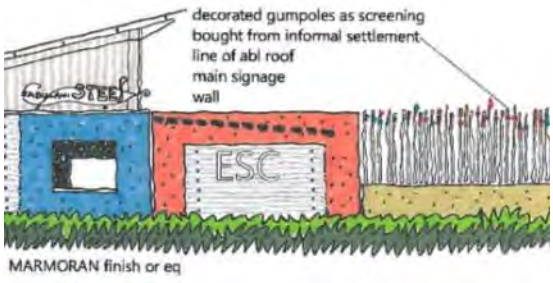


Figure 74: (Left) Simple, geometric details. (Google)

Figure 75: (Middle) Details of window surrounds and gutter box details. (Author)

Figure 76: (Right) Part of design elevation from architect. The architect proposed using local materials and crafts to anchor the project to the context and involve the community. (John Royal Architects)

4.3.4 Summary Of Findings

Besides the building function there seems to be little evidence of regenerative activity occurring. The project tends to read like an island with little integration with the surroundings but this seems to be an urban design master plan failure rather than the architecture failing to relate. It must be noted that the skills development and incubation processes only occur for the users of the complex, revealing an opportunity for a urban or architectural component that has a stronger public interface and interaction.

4.4 CONCLUSION

The two studies, when analysed utilising the assessment criteria, revealed the following key issues. The first study, the Durban Point development, has revealed an urban intervention that is profit and property led regeneration. While the designers and planners advocated for a "regenerative" approach little sustainable regeneration has been induced in reality. In fact the regeneration process seems to resemble the "camouflaged gentrification" that Smith (2002) warned of.

The Point currently seems to have created an artificial city island in the centre of the city based on exclusion and scenography, which has induced a placelessness. The absence of people and the movement of people in the area reinforces this perception. The development has no environmental or empowerment features but is rather based on leisure, exclusivity, and profit. While the VPUU intervention has little or no environmental alleviation more has been done to regenerate the affected community and establish a better place and public space than the Point development in contested urban space.

The Umkhumbane Entrepreneurial Support Centre study has revealed how architecture can aid empowerment through design and function. The simple form and construction has established a sense of place in an area that has a history of neglect and economic strain.

The study did illustrate that the facility needs a stronger environmental response and a more diversified use of land and resources. Urban Think Tank's 'urban remediation & civic infrastructure hub', while unbuilt, focused on incorporating cultural and empowerment facilities together, aiding way finding in the chaotic contested space. The intervention resembles the active boxes or hubs of the VPUU intervention.

|CHAPTER 5 | ANALYSIS & DISCUSSION

5.1 INTRODUCTION

This section will seek analyse the data gathered from the interviews and the questionnaires and will attempt to draw any themes from the respective sources.

5.2 ANALYSIS OF EMPIRICAL DATA GATHERED

5.2.1 The Questionnaires

Questionnaires (see the appendix section at the end of part one of the dissertation) were conducted on the case sites but the data that was produced is unwieldy and limited in its scope of use. This may be due to the sampling method used. There were about 50 surveys that were completed.

The questionnaires were divided into 4 sections with 25 questions. The four sections focused on the following categories: background information, education and skills, employment and transport information, and the city. The categories sought to acquire information about different users of the city looking at different pertinent aspects of their lives. The questionnaires were structured so that relevant information could be acquired allowing one to correlate different information. The style of questions range from multiple choice to simple open ended questions that required short written answers.

The sampling method choice was influenced by the time frames of the document and budgets available to conduct large scale surveys. Due to the qualitative structure of the theoretical framework and the research methods the questionnaire was conducted in a qualitative manner. The sample group used located any individuals that were most convenient (random sampling). The sample group size was set to 20 people but due to some respondents not returning the questionnaire the total count is 10 complete questionnaires.

5.2.1.1 Analysis of selected questions

+ Section C, Questions 12-14

Note: For full question examples of below questions please refer to questionnaire in the appendix.

The questions sought to investigate the perception of quality and need for skills development and if there is a need for more investment in more facilities that promote skills development and promote economic opportunities. The data revealed that majority of respondents requested more economic opportunities and skills development like that at the Umkhumbane Entrepreneurial Support Centre in Cato Manor.

+ Section C, Questions 15-16:

While some respondents used their own car for work purposes the majority used some form of public transport of the with a large portion of their incomes being used to move between work and home, another affect of the sprawling city and limited economic opportunities

+ Section C, Questions 17-18:

A majority of respondents seemed to feel that the impact of rising food, fuel and electricity prices were impact their lives and quite possibly their ability to generate income. The concern for rising food, fuel and electricity prices seemed to correlate with growing amount of questionnaire participant's income spent of transport. These factors reveal the economic strain on members of our society caused by a legacy of a sprawling and inefficient urban form based in policies on inequality and exclusion and the need for an intervention that can remediate these issues.

+ Section D, Question 20:

While the question was quite open ended it revealed that a majority of respondents seem to have a negative perception of the city due to crime and requested a need for some sort of intervention to either change this perception or aid the people who are affected by these problems.

5.2.2 The Interviewees

Three expert sampled semi structured interviews were conducted and one impromptu on site interview was conducted.

1) The expert sampled interviews are as follows:
    a. Nic Combrink, eThekwini City Architects senior staff member, March 2013, at eThekwini City Architects, Durban
        - Interview was focused around Warwick junction, public transport and empowerment of the inner city communities.
    b. Derek van Heerden, Director at East Coast Architects (a practice that seeks to achieve a socially sustainable architecture that empowers communities), April 2014, at East Coast Architects' Offices, Durban.
        - Interview was a loose discussion around education and skills development, architecture of empowerment and urban interventions.
    c. Prof. Patrick Bond, Professor and a political economist at UKZN with longstanding research interests and NGO work in urban communities, April 2014, at his office at Howard College Campus, MTB building, UKZN, Durban.

- Interview was a broad and loose discussion about inequality in Durban and the top down autocratic planning approaches of city government versus the marginalised urban communities in the context of climate change.

2) The onsite interview:
    a. Ms Celiwe Nsibande, eThekwini employee and manager at the Umkhumbane Entrepreneurial Support Centre, April 2014, at her office at the Umkhumbane Entrepreneurial Support Centre, Cato Manor, Durban.
        - Interview was an informal, loose discussion about the Umkhumbane Entrepreneurial Support Centre. This information was included in the building's case study analysis.

5.2.3 The Interview Data

The data gleaned from the interviews reveals some common themes.

Derek van Heerden (2014) spoke about how sustainable architecture should be a triple bottom line approach. Architecture should not just be 'green' but respond to social and economic issues of the site, empowering and involving the local community. He went onto discuss the approach to city governance to marginalised communities stating that an autocratic approach tends to alienate people and the interventions proposed tend to fail, further exacerbating the tension in contested urban space. The following quote demonstrates the pro grassroots approach to development that if people are treated equally in a humane manner will be less likely to have a destructive antagonistic response:

> *"If you treat people like dogs they will bite you, but if you treat them like humans you will shattered by their response..." (van Heerden, 2014)*

Professor Patrick Bond echoed similar sentiments in his interview, stating the neo-liberal approach city government has taken often left the poorer communities sidelined and even displaced. This neo-liberal governance he claims extends from Mike Sutcliffe's rein as municipal manager and Professor Bond calls for a "de-Sutcliffe-ising" of Durban; in other words, a reaction to the current system of economic and urban spatial inequality.

The example Professor Bond cites is the current port expansion plans affecting the community of Clairwood in Durban South. The port expansion plans seek to make the current harbour larger and create a new chemical port at the old airport of Durban. The expansion is said to be a national and provincial economic key point, being on the largest infrastructure projects in Africa.

The Clairwood area was a constructed as a segregated residential area during apartheid, made for the coloured community of Durban, situated in the poisonous industrial heart of Durban's South Basin at the back of the port. This segregation and location reflects the apartheid urban geography discussed throughout this dissertation of moving african and coloured labour close to the cities while utilising industry as a buffer zone.

The result today is a community that has social, economic and health issues with very little empowerment through current economic conditions. The tension between community and government has only further exacerbated the tension and division in this contested urban space.

Nic Combrink spoke about the cities plans in the area of Warwick Junction (precinct) stating that the city would be planning to implement a large scale transport network that will connect most of the disjointed urban fabric of the Durban Metropolitan area together through a system of rapid busses and trains. The system is called the Integrated Rapid Public Transport Network (IRPTN) and branded as Go! Durban.

This network will allow for easier access to the city and economic opportunities for users of the city and will seek to reduce exclusion through ‘distance from work’ related issues. The proposed facilities are not only transport interchanges but skills development centres, job opportunity centres and education facilities. This reinforces themes derived from the data from the questionnaires that there is need for more skills development (education) and economic opportunities (spaces to generate economic opportunities /empowerment).

5.3 CONCLUSION, SYNTHESIS OF RESEARCH & COMMON THEMES

The following themes that can be drawn from and between the primary researches:

1) The current urban fabric in Durban South Basin is contested and is in a state of perceived decay with the need of grassroots intervention.
2) The neo-liberal commodification of resources and land promotes economic exclusion and inequality.
3) There is a need for empowerment and regeneration through skills development, education and economic opportunities that can be facilitated through a built intervention.
4) Architecture needs to respond to more than just a functional requirement but should assist in moving toward a more resilient and sustainable city.

|CHAPTER 6| CONCLUSION AND RECOMMENDATIONS|

6.1 INTRODUCTION

This following chapter will serve as a concluding chapter for part one of this dissertation. Part one of this dissertation sought to outline the problem that is stated in the dissertation topic.

The following sections of this chapter will seek to explore the robustness of the hypothesis and aim of the research, analysing the reliability of the assumptions made and if any of the objectives were achieved or if any of the questions posed were answered.

The chapter will also seek to assess if there are any gaps in the literature, where future research can be conducted and where the perceived downfalls are in the literature and theoretical framework.

Finally this chapter will seek to suggest design guidelines which will assist in the site selection and in developing an architectural response that will from the part two of this document.

6.2 CONCLUDING ANALYSIS

6.2.1 Introduction

This following section will serve to test, answer and analyse the components of the background research in chapter one. The analysis will proceed in the following order: aim, hypothesis, key question (problem statement), and objectives and assumptions.

6.2.2 Understanding the Aim

The aim of the research was stated as:

... to understand how architecture and place can promote socially responsive regeneration in contested urban space while aiding a process of enabling a more sustainable city.

This understanding has been established in two ways through using the primary and secondary sources.

The secondary sources have revealed that through grassroots development and community engagement, architecture can empower the marginalised citizens of the city. The literature has also shown that regeneration is tied to sustainable growth and development. It should also be noted that regeneration should not just be examined in terms of urban geography and built environment but also in terms of natural resource systems and economies. The primary research revealed findings that were similar to that of the secondary sources.

6.2.3 Hypothesis that was tested

The research carried out in the literature review, precedent studies and empirical research sought to attempt to address the working hypothesis. Below is the working hypothesis that formed the approach for this dissertation.

This dissertation hypothesises that sustainable architecture can be used as a regenerative tool which remediates the social and economic struggles while lessening environmental exertions in globalised contested post apartheid urban space.

6.2.4 Theoretical Framework In Response To Hypothesis

The concepts and theories of this dissertation (outlined in chapter 1) that formed the theoretical framework sought to frame the approach outlined by the hypothesis and to guide the research methods. The application of the theoretical framework allowed for a greater understanding of regeneration in contested space and allowed for a foundation from which to approach the empirical research.

Foucault's (1977) theory of the **Panopticon** was used to understand the aspects of power and space. The first was to understand how power (autocratic control) affects space and user within the space. The second was to understand how architecture (and urban design/planning) reinforces these power dynamics in space that are enforced through either surveillance or urban planning (as seen in the Point development case study). This aspect was used to understand the contested nature of urban space. This contested space tends to promote exclusion inducing a sense of placelessness.

While the design solution does not entail a prison design or any related facility, the panopticon theory referenced Jeremy Bentham's prison design. The prison imagery was used purely as a metaphor and platform from which to understand the contested nature of apartheid and post aparthied urban space.

The Panopticon theory formed part of an antithesis when used in combination with the concept of '**Architecture of Empowerment'**. The concept was used to help understand how architecture can aid empowerment of the marginalized that have been disempowered in this contested urban space. The literature and empirical data revealed that this distribution of power can be achieved through skills development and through architecture that promotes and facilitates this empowerment process.

The theory of **Critical Regionalism** was used to understand how architecture (space, materials and form) can be rooted to its context reacting to the placelessness of Modernism.

But the Regionalism seems to be susceptible to kitsch and stereotyped iconography, becoming the very scenography which it fought against.

Architecture establishing place was reinforced by the concept of **Placemaking** which sought to understand how grassroots community focused development can establish a sense of place in an urban context. The draw back with Placemaking is that it felt a bit thin and not fully tested.

The concept of Placemaking was reinforced by **Livable Urbanism** which helped establish how architecture and urban planning can respond to the issue of global resource shortages, social issues and economic strain moving toward a process of equitable and inclusive regeneration in this contested urban space. The challenge, or design opportunity, will be the application of Livable Urbanism to an architectural project.

6.2.5 Key Question Answered

The key question and supporting questions were posed in order to aid the understanding of the problem statement. Three supporting questions were made in order to understand the different components of the regenerative approach in architecture and how this can be achieved. Below is the key question or problem statement:

- *How can the architecture remediate and regenerate its context in contested urban space?*

Architecture, as revealed through the analysis in this document, has potential to manifest beyond an acontextual solution which is only concerned with pure aesthetics having no relationship with its surrounding context. Rather architecture has the potential to empower its users, respond to its contextual issues, ranging from environmental degradation, social issues or challenging topography.

Through the synthesis of contextually responsive architecture, placemaking, triple bottom line sustainability, and empowerment, architecture can seek to respond to complex issues in contested urban space.

The processes of remediation and regeneration can be achieved through attempting to console the three aspects of sustainability; economic, environmental and social. Grassroots community empowerment in combination with environmentally responsive design indicates an approach toward a suitable architectural response.

The cases and precedent studies provided a suitable analysis of urban interventions and architectural interventions. The contextual approach to the architecture concluded that

architecture has a strong relationship with its context, including the surrounding urban fabric and conditions. The building is not an island in the sea of urbanity but should be woven into the surrounding urban fabric.

The secondary questions posed served to support the key problem statement and helped unpack a direction the research must follow. The questions were answered through the secondary and primary source analysis.

6.2.6 Objectives Complete & Assumptions Correct

The literature review sought to understand these following objectives: space and place, the effect of the power dynamics in urban space, the process of making a space into a place, how architecture can become more responsive thereby contributing toward a more sustainable resilient city and how empowerment can assist in placemaking and the sustainability of the architecture.

It must be noted though that that architecture alone cannot regenerate a stressed urban area but rather involves a complex dynamic between multiple factors and disciplines in order to be successful. But architecture can aid regenerative activities through its design and use. This can be achieved through function and through response to the site and context (economic, environmental and social conditions).

The assumptions made in this dissertation were generally correct when measured against the analysed literature and findings of the empirical research.

6.3 CONCLUDING OBSERVATIONS

6.3.1 Observations

The above analysis of the components of chapter one served to provide an approach to the secondary and primary research.

Chapter 2, the literature review, sought to answer questions, and complete the objectives posed. The review went through the aspects of space, space and power and place. The section sought to understand the meaning of the different aspects, primarily contested space versus place, in the context of this argument. Place is a far more qualitative aspect of space, with a focus on the people and their history, memory and interactions within the space.

The following sections sought to understand the process of construction of contested space and the responses to perceived decay in contested urban space. There seemed to be a common theme that runs throughout history and even today; autocratic urban planning enforcing contested space and creating cities of inequality.

South African cities still carry the burden of apartheid geography, living with the need for solutions that can seek to remediate the issues that lie within this urban form. One cannot simply wipe the urban slate clean but one should to look to the existing communities and spaces, seeking regenerative, equitable inclusive solutions that can improve South African cities. The final sections of the literature review sought to understand how architecture can aid with establishing place and how architecture can empower the powerless in contested urban space. The review revealed that skills development, support for small entrepreneurship development aided the empowerment process. Empowerment could be achieved through social entrepreneurship and skills development (investment in human capital) and the architecture could explore how to facilitate the empowerment process.

The precedents and case studies revealed that more often than not grassroots regenerative focused projects and architecture can begin to remediate the issues of exclusion and marginalisation. While developments like the Point development occur and are here to stay, the designs of these developments should seek better integration with the urban fabric within which they sit and should not induce and perpetuate the sprawl. The developments should have a stronger environmental focus that runs deeper than just mere lip service and green washing. In an age of economic and environmental strain, waste and waste management has become a burden in the sprawled urban forms of post apartheid South African cities, with the less privileged (those who do not live in these communities) having to absorb the economic and environmental shocks.

6.3.2 Possible Future Areas For Research

One of the issues that came through when analysing the precedent and case studies and the questionnaire data was that crime, and the perception of crime or lack of safety inhibited placemaking and seems to have impacted quite severely on not only public space in the South Africa but also on urban communities and the quality of urban place.

6.4 RECOMMENDATIONS: TOWARD RESPONSIVE DESIGN GUIDELINES

6.4.1 Design guidelines

The following guidelines, derived from the research of this dissertation, will aid in the understanding and resolution of a design response to the problem outlined. The guidelines will provide a valuable starting points and insight into design response. But it must be noted that these guidelines are drawn specifically from the theoretical framework and background research. A more comprehensive analysis and mapping exercise will need to occur regarding the chosen site, and area thereby providing more specific and site responsive criteria for the design.

- The facility must act as a catalysing element in the urban fabric but must attempt to tie into the existing urban fabric aiding a socially responsive regeneration.
- The facility must become an asset to Durban and the area it is located in, utilising high quality innovative architecture.
- The design must respond to the conditions and aspects of the site and context, not creating a universal solution but seeking a site specific approach.
- The site analysis will require a comprehensive mapping exercise of the area at different scales in order to reveal more pertinent information that supersedes assumptions and perceptions. This mapping exercise will aid the process of placemaking.
- Due to the aspect of regeneration and environmental systems in the project the scheme will have a small urban design approach that will seek to root the architecture to the place it is located in.
- The facility will not be homogenous in its land use but will seek to understand a mix use public facility helping guide a more specific schedule of accommodation.
- The facility should attempt to respond to not only social conditions identified on the site but the environmental conditions as well. This will entail looking at waste as a resource, food generation and energy generation. This will aid the concept of regeneration through different aspects of environmental sustainability (passive and active designs).
- The facility should be focused on skills development and empowerment through not only function but its presence in the community as well. The building should become a public resource.
- As identified in the VPUU precedent, the facility should attempt in some way combat crime possibly by using the panoptic surveillance as a positive tool. This could manifest itself in a tower element that could also aid with wayfinding in the chosen area.
- Materials should be robust and locally sourced but light, which is site specific, should be considered a material or assets. While materials weather and decay, light, and the play on light, can create a timeless inspiring architecture.
- The architecture should assist in establishing a sense of place in the contested urban space.

6.4.2 Site selection Criteria

The site chosen will be selected using the following criteria to guide the process:

- The site should be a contested space within the urban context.
- The facility must be in an urban context, preferably in Durban, using the case studies as a background to the research.
- The location of this facility is important. There must be an existing community to work with, preferably where background research that has been done. The researcher will work with other university departments in order gather this information.
- In apartheid cities buffer zones were used to excluded and segregate. There buffer spaces may provide a suitable location for a site providing an opportunity to bridge the segregated communities.
- The site must be located to near dense well uses transport connections and must have other diversity generators in its proximity (other areas of public interest).
- The facility should a reasonably sized passing trade or residential population in the area.

6.4.3 Ideas Toward A Schedule Of Accommodation

The following guidelines will help establish a schedule of accommodation in part two of this document. Due to the mix use nature of the building the facility should not only house skills development and entrepreneurial support facilities but other ancillary services such as (but not limited to):

- A crèche for children
- Live work lofts and rental units
- Community resource centre
- Job opportunity centre
- Trading areas
- Light industrial manufacturing space
- Grey water systems
- Black water systems
- Bio gas generator
- Water filtration system

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QUESTIONNAIRE:

NB: Participation in this questionnaire is voluntary. Participants are informed of the nature and purpose of the research and institution with which the research is associated with. All information gathered from the interview is solely for the purpose of this research study.
Participants are free to withdraw from the research at any time should they wish to do so.

Location questionnaire was completed:

PART A: Background information

Please tick one:

1. Age:

- ☐ 0-18
- ☐ 19-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46-65
- ☐ 66+

2. Gender:

- ☐ M
- ☐ F
- ☐ Other

3. Ethnicity:

- ☐ African
- ☐ Asian
- ☐ Coloured
- ☐ Indian
- ☐ Other (Please specify) _____

4.Which area in Durban do you live? Eg. Umlazi, KwaMashu etc

_____

5. Do you live and work in the same location?

- ☐ Yes
- ☐ No

PART B: Education and skills

6. Level of education (tick highest level achieved):

- ☐ None
- ☐ Preschool
- ☐ Junior Primary school (grades 1-3)
- ☐ Senior Primary School (grades 4-7)
- ☐ Junior High School (grades 8-9)
- ☐ Senior High school (grades10-12)
- ☐ Post school education (tech, college, university)
- ☐ Post graduate education

7. What are your most valuable skills (employable skills)?

_____

8. Where did you learn these skills? (Tick option/s that apply)

☐ School	☐ Tech	☐ College	☐ University
☐ Self taught	☐ From a friend/family	☐ Work experience	☐ Other

9. On a scale of 1 to 10, one being the poorest, how would you rate the standard of education in the entire of Durban area? Please circle a number.

Poor> 1 2 3 4 5 6 7 8 9 10 <Good

PART C: Employment and Transport information

10. Are you employed? (Formal and Informal)

☐ Yes ☐ No

***If 'yes' to the above question please answer the questions on this page. If "no"please skip to page 3, section C.**

11. Occupation? (What sort of work do you do)

_____

12. Are you self employed (do you work for yourself)?

☐ Yes ☐ No

13. Do you own your own business or do you work for another company?

☐ Own my own business ☐ Work for another company ☐ Both

14. Do you think there should be more opportunities and facilities to help people to start their own businesses?

☐ Yes ☐ No ☐ Not sure

15.What type of transport do you use to get to work from home? (please tick all that apply)

☐ Walk	☐ Minbus Taxi	☐ Motorbike	☐ Cycle
☐ Bus	☐ Train	☐ Own Car	☐ Lift Club
☐ Other _____			

16. How much of your monthly earnings do you spend on transport?

☐ Most of my earnings (over 75%)	☐ Alot (75%)	☐ Half my monthly income
☐ A small amount (25% and below)	☐ Tiny amount(5%)	☐ Nothing(0)

17. Do any of the following impact you? (are they a concern for you)

☐ Food prices ☐ Water prices ☐ Fuel prices ☐ Electricity prices

18. And have any of these had a dramatic impact on your life in any way?

☐ Yes ☐ No ☐ Not sure

PART D: The City

19. Apartheid in South Africa forced different race groups to live in different areas. Do you think the city is still segregated or completely integrated?

☐ Segregated
☐ Integrated
☐ Partially integrated
☐ Don't know

20. What do you think about the city? (Tick those which apply)

☐ No one lives or works there anymore
☐ Needs to be rebuilt from the ground up
☐ Needs more investment
☐ It is home to a diverse mix of people and businesses
☐ It is fine the way it is
☐ Improve the existing communities
☐ In a state of decay
☐ Needs to be cleaned up
☐ Dangerous
☐ Has great opportunity
☐ Preserve the city
☐ Other _____

21. Do you live in the city?

☐ Yes ☐ No

22. Would you like to live and work in the city? (Skip if you already live and work in the city)

☐ Yes ☐ No

23. If "no" what about the city should improve and change to encourage people to live in city?

_____

24. Do you feel excluded from any part of the city?

☐ Yes ☐ No

25. Is there any other information you can give that will aid this research?

_____

PART 2| DESIGN REPORT |

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1.1 PROJECT OUTLINE, RATIONALE AND BUILDING TYPOLOGY

1.1.1 The Project Outline

The research in part one of this dissertation guided a path towards a particular type of architectural response in post apartheid South Africa. One which aims to establish an architecture of place that seeks to empower the marginalized communities.

1.1.2 The Rationale (What, Why, How)

The rationale supporting this project is to remediate the social, economic and environmental pressures in order to empower the marginalised and excluded communities by providing an innovative type of learning hub that fuses vocational education with economic opportunities and responsive environmental design.

1.1.3 The Building Typology: The Remediation Hub

The remediation hub seeks to generate not only economic opportunities for the local community but also seeks to facilitate environmental regeneration and generate natural resources such as food water and energy contributing towards a livable urbanism. Serving as a catalytic community hub in the area.

Figure 1: Logo of proposed building (Author).

1.2 THE NOTIONAL CLIENT

1.2.1 The Client's Organisation

The client is a partnership between the eThekwini Municipality and the South Durban Community Environmental Alliance. A public/ government partnership.

Figure 2: (Left) eThekwini Municipality logo (durban.gov.za).

Figure 3: (Right) South Durban Community environmental alliance (SDCEA.co.za).

The South Durban Community Environmental Alliance (SDCEA) is an environmental justice organisation based in south Durban. It is made up of sixteen organisations, and it has been active since its formation in 1996. The group lobbies against the big polluters in the area and seeks to fight for the residents rights.

1.2.2 The Client's Brief

The client brief is two fold. First the urban design needs meet the City's requirement of a more "livable and resilient city" through reconnection of fragmented communities. Secondly the affected area needs an architectural intervention that can empower and act as a base or hub for said community. Through diversity and triple bottom line sustainability.

1.2.3 Requests from the community

The following via Patrick Bond (via an undated PowerPoint slide show) illustrates the main desires for the Durban South Area from the local community

" 1) reverse attempted rezoning of Clairwood

2) enforce/expand existing residential zoning of Clairwood, Merebank and Wentworth

3) mobilise solidarity in Durban & everywhere

4) take seriously climate rhetoric: shift freight to trains, lower trade vulnerability, de-smokestack

5) plan/implement post-pollution, post-carbon Durban with 'Million Climate Jobs' campaign."

1.2.4 **Schedule of Accommodation**

hierarchy	catergory	DESCRIPTION	AREA	QTY	AREA TOTAL
served/primary	[work, develop & learn]	PRODUCTION/INCUBATOR SPACES:			
		large workshop spaces (creation/ crafting spaces and practical learning craft spaces)	100	5	500
		smaller workshop spaces (creation/ crafting spaces and practical learning craft spaces)	60	5	300
		artist/ crafter live work studios (carpentry, sewing, welding etc)	45	5	225
		exhibition space (toilets, office, stores)	365	1	365
		BUSINESS OPPORTUNITY/ INCUBATOR SPACES:			
		ground floor retail spaces (total area)	540	varies	540
		collaborative office space	170	1	170
		office space-service/consulting based industries (flexiable)	330	2	660
		TEACHING			
		admin offices	55	3	165
		staff facilites (staff rooms etc)	25	3	75
		security	25	1	25
		admin reception	55	1	55
		student computer lab	100	1	100
		student library	100	1	100
		skills demostration workshop space	180	3	540
		skills demo space storage	25	3	75
		audortirium (av room and storage)	300	1	300
		intergrated teaching spaces (flexiable)	450	2	900
		maintanence office	25	1	25
		student ablutions	55	3	165
	[social & live]	COMMUNITY /PUBLIC FACILTIES			
		A small créche/day care facility	145	1	145
		Community resource centre -venue for music practice, community dramas etc	125	1	125
		Food dining hall	305	1	305
		residence study /library space	75	2	150
		Restuarant/ food retail	75	1	75
		RESIDENCES			
		Rent to buy one bed live/work lofts	65	8	520
		Transient accomodation	150	1	150
servant/seconday	misc	TOILETS, STORAGE UTILITIES ETC.			
		Staff kitchens	12	2	24
		material store	25	2	50
		general store	12.5	2	25
		Meter room/ BIM system room	20	1	20
		Bin Store	20	1	20
	resource generation - housed	basement- SUSTAINABILITY AND RESILIENCE			
		Basement	1000	1	1000
		Grey water systems		1	
		Black water systems		1	
		Water storage		1	
		area exlu circulation			**7894**
		Circulation-public and private	10%		789.4
		Services/ducts	2%		15.788
		struculture	7%		552.58
total area					**9251.768**

|CHAPTER TWO| SITE SELECTION, SURVEY AND ANALYSIS|

2.1 INTRODUCTION: WHY DURBAN SOUTH BASIN

The general site selection resulting from the research concluded that the site needs to have the following characteristics, which Durban South Basin meets:

- former apartheid “buffer” zone and resultant areas of disconnection
- site of environmental degradation
- neighbouring communities that are marginalised
- local communities that require skills development

2.2 BACKGROUND TO DURBAN SOUTH BASIN

2.2.1 Location

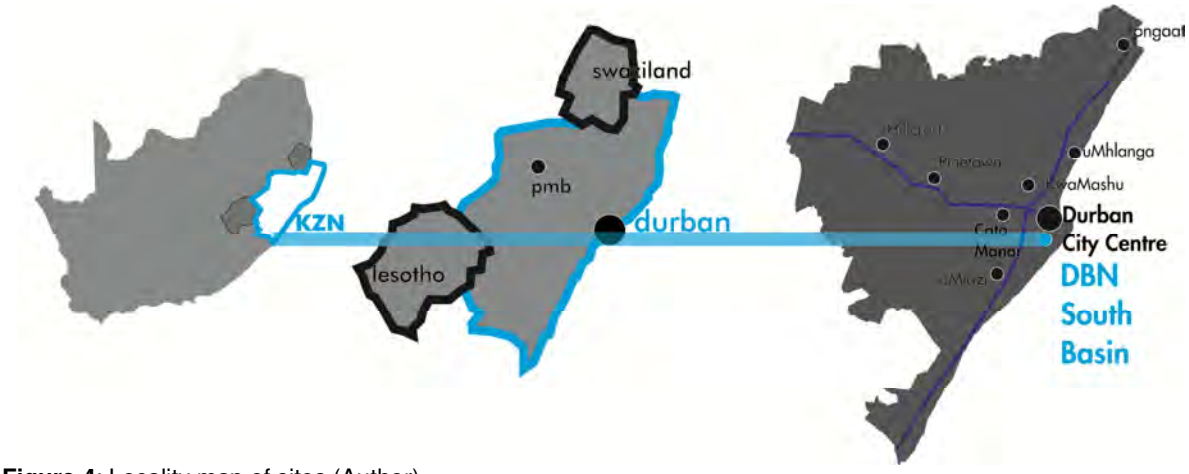


Figure 4: Locality map of sites (Author)

2.2.1 Overview of the Durban South Basin

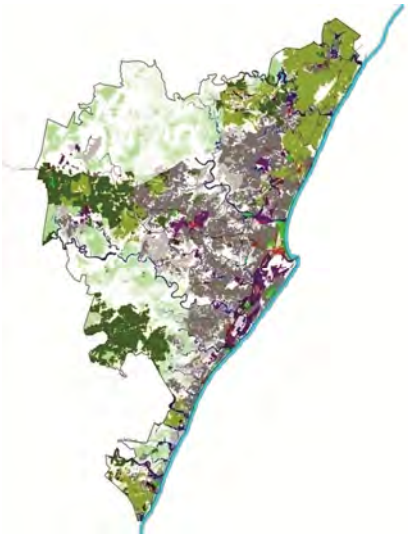


Figure 5: (Left) Built environment of Durban metro area (Iyer Urban Design Studio, 2012)

Figure 6: (Right) Natural systems of Durban Metro Area(Iyer Urban Design Studio, 2012)

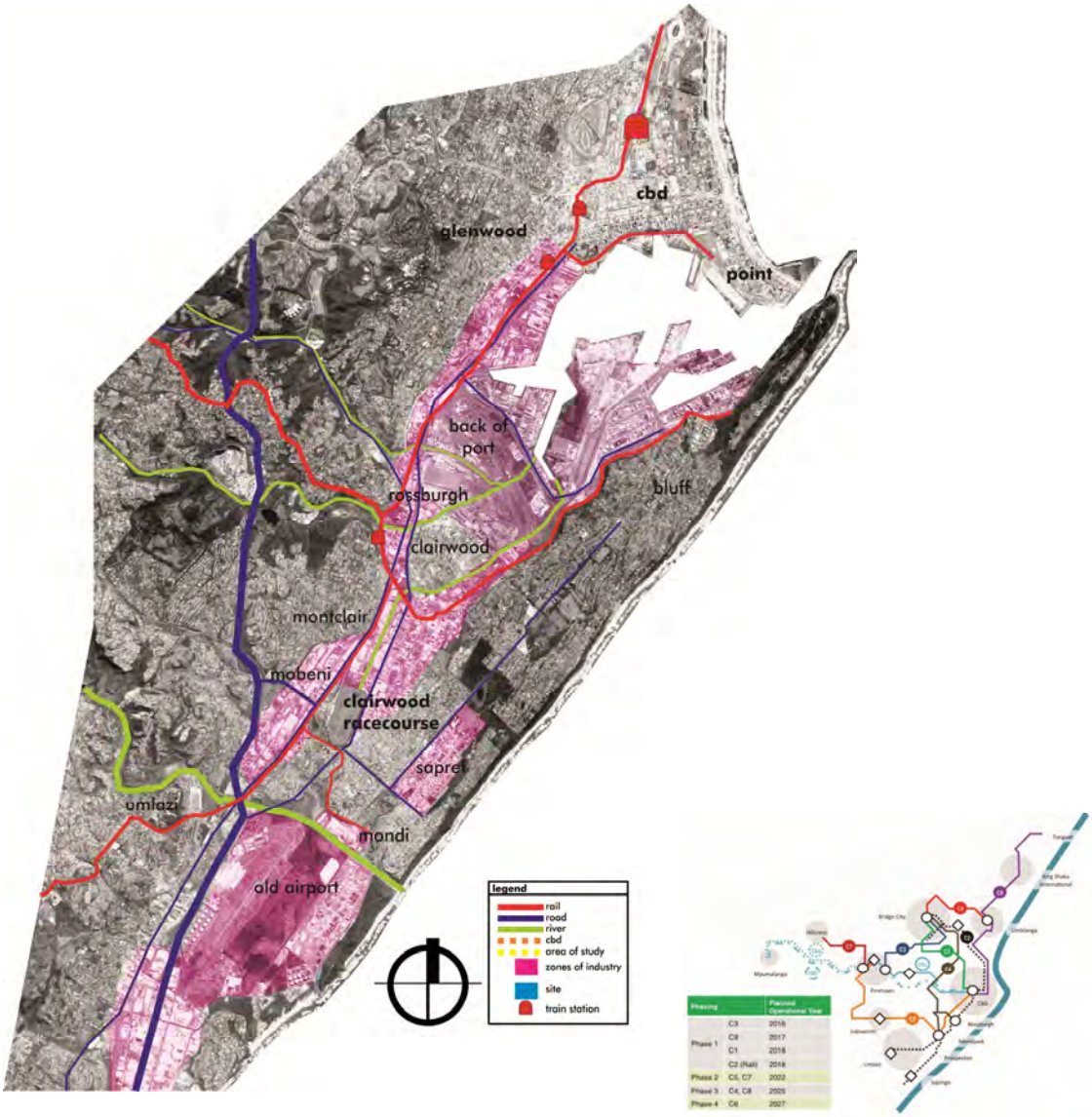


Figure 7: (Left) Overview of Durban South and the CBD (Author).

Figure 8: (Right) The new IRPTN system (Durban.gov.za).

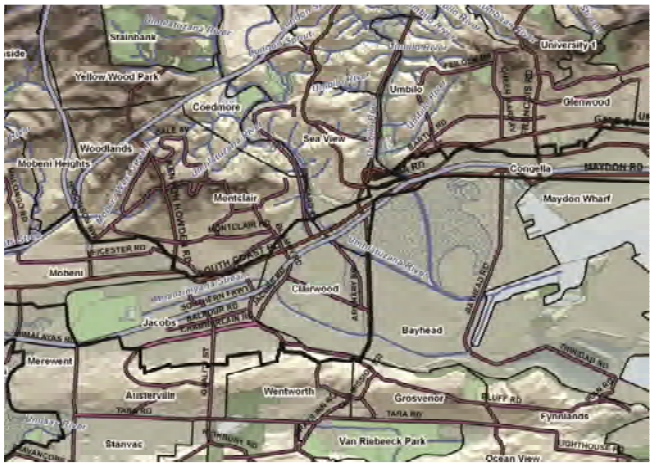
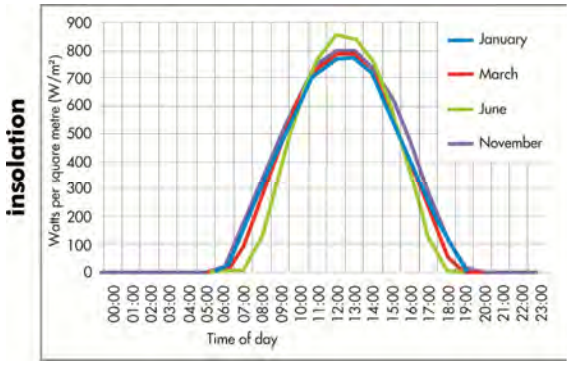


Figure 9: Hydrology map of the Clairwood area (Iyer Urban Design Studio, 2012)



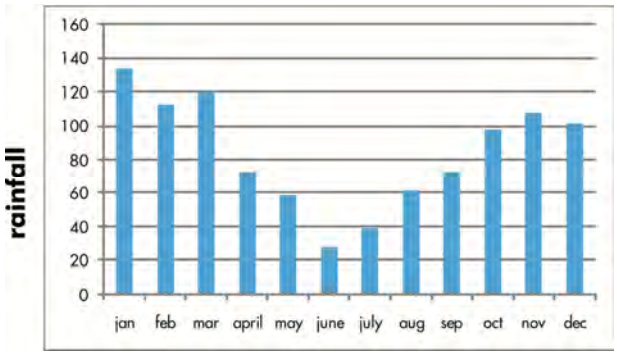


Figure 10: (Left) Average annual insolation for Durban. Redrawn. (gaisma.com)

Figure 11: (Right) Average annual rainfall for Durban. Redrawn. (wikipedia.com)

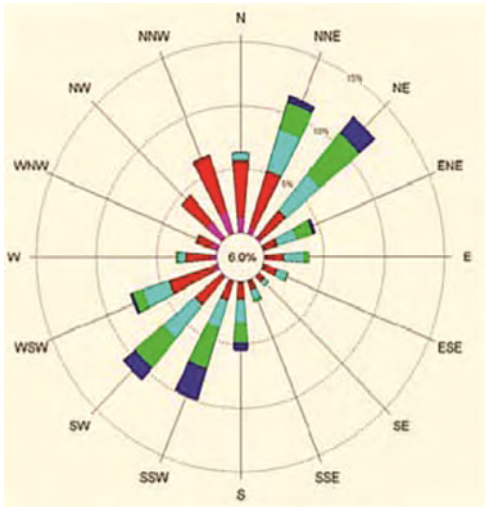


Figure 12: Predominant wind speeds and directions in Durban. (Durban.gov.za)

2.2.2 **History: Past to Present**

Durban South Basin has a contested history of exclusion, segregation, division, forced removals and more recently environmental degradation. The area that was once home to Durban's Indian community who were successful market gardeners(Scott, 1994), is now a highly polluted, marginalised and largely contested urban space. The current plans for the basin involve expanding the harbour south, demolishing the historic community of Clairwood.

Figure 13: Timeline of Clairwood (Author and info via (Scott, 1994)).

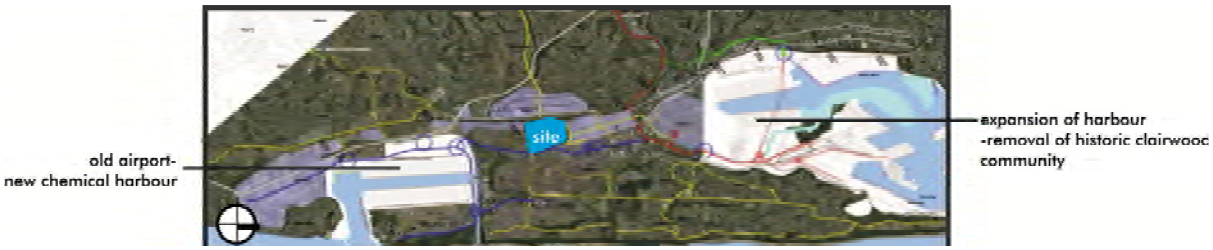


Figure 14: Back of port plan- removal of existing communities and commodification of land.((Iyer Urban Design Studio, 2012)

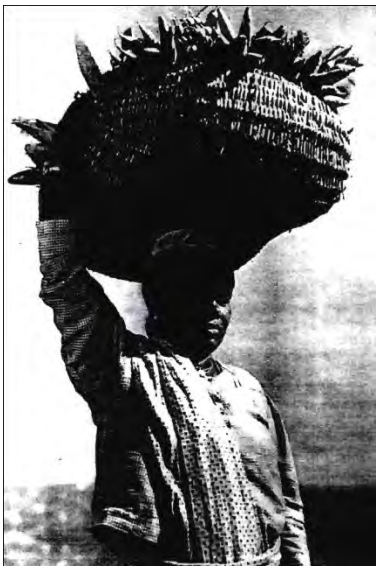


Figure 15: (Left)Aerial photo taken in 1937. Race course visible with canals rivers shown to be free flowing (Kerry Seppings Environmental Management Specialists cc, 2013)

Figure 16 (Right) A woman selling her produce in Clairwood (Scott, 1994).

Figure 17: Current view of Durban south area. The belt of industry is clearly evident. (Google.com)

2.2.3 **Sites In Durban South Basin To Be Studied**

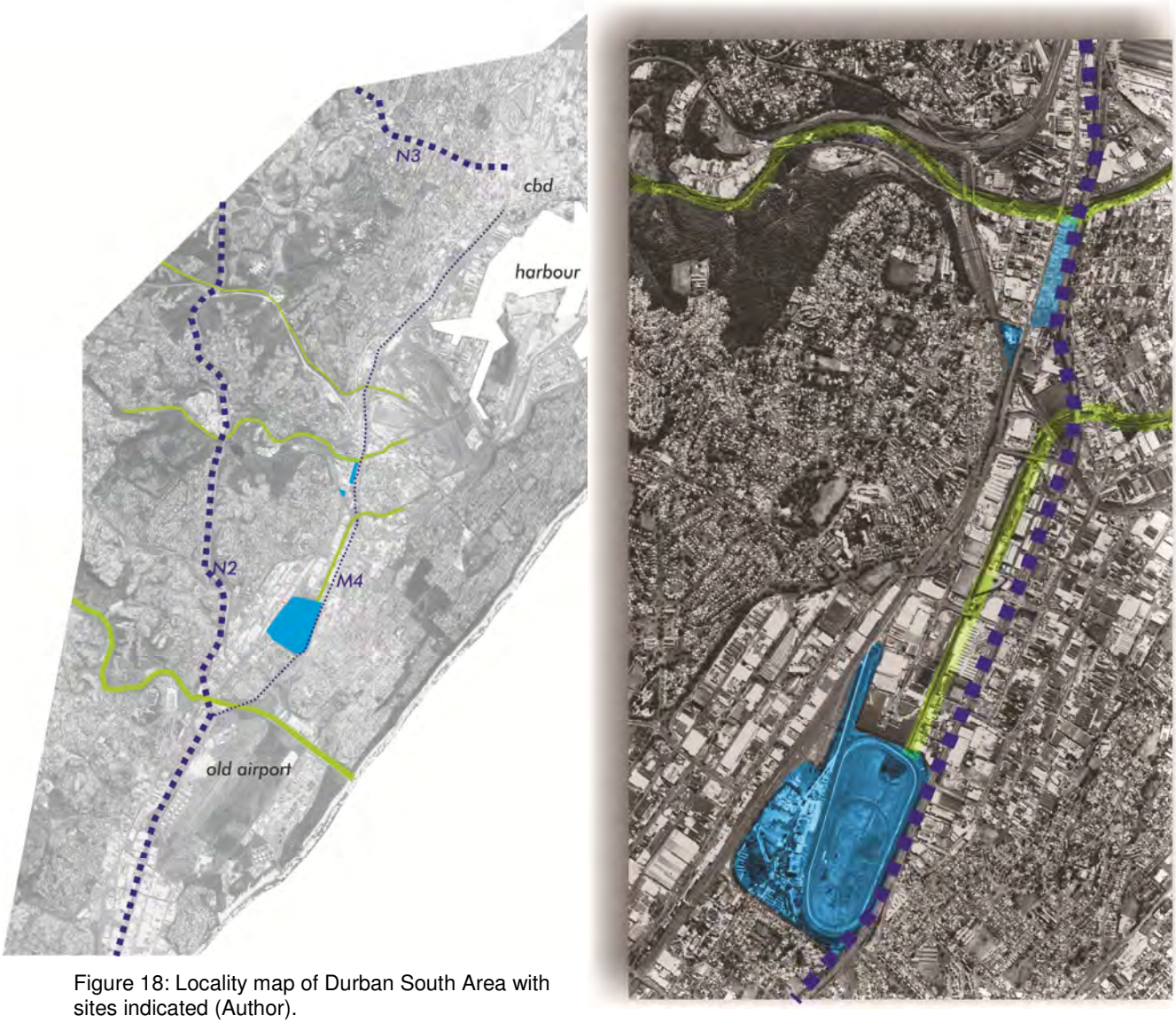


Figure 18: Locality map of Durban South Area with sites indicated (Author).

The area is characterized by back of port operations resulting in large freight trucks moving through the areas. The predominant transport routes are the M4 and R102 going north south and the rail line which also runs north south. Due to the neglected infrastructure the majority of the freight from the harbor is trucked through the area. These transport lines create barriers for the east and west communities of Montclair, Wentworth, Clairwood, Merebank and the Bluff.

2.3 SITE SELECTION CRITERIA

The site selection criteria were based on the theoretical framework . The resultant categories are as follows:

Power and space:

- Contested urban space
- Apartheid buffer zone
- Marginalised communities in the vicinity
- Potential for empowerment of marginalised communities

Place based theories:

- Sense of place
- Street front exposure
- Pedestrian movement
- Physical connection to surrounding communities and amenities
- Historical significance
- Existing building on site for reuse
- Location to varied activities and facilities
- Orientation
- Topography
- Proximity to transport routes/nodes/easily accessible
- Potential to develop effective public space

Livable urbanism:

- Proximity to sensitive environmental features
- Potential for connection between disconnected communities
- Potential for environmental regeneration

Architecture of empowerment:

- Need for skills development and empowerment
- Need for social intervention
- Need for soci-economic empowerment

2.4 SITE SELECTION OPTIONS & DISCUSSION

2.4.1 Option 1

Figure 19: Site one: bordering on the west side of the historic heart of Clairwood and on South Coast road. Once was the bustling commercial strip of Clairwood with formal and informal trading. Close to schools, transport routes and residential areas (Author)

2.4.2 Option 2

Figure 20: Site Two: bordering on the west side of the historic heart of Clairwood and on South Coast road. Currently used as a municipal depo. Located on transport routes. (Author)

2.4.3 Option 3

Figure 21: Site Three: Clairwood racecourse that has been recently been sold for commercial use and is no longer used as a racecourse. The site is large but has huge potential. Located in one of the buffer zone strip (Author).

2.4.4 **Analysis Of Sites According To Criteria**

power, control, exclusion in space

place based

equitable & empowerment sustainable

THEORIES USED	THEMES	CRITERIA	MAX POINT	SITE RATING Site 1	Site 2	Site 3
Panopticon	*Power, contested space, surveillance and control*	Contested urban space	**5**	3	3	4
		Former Apartheid buffer zone	**5**	2	2	3
		Marginalised communities in vicinity	**5**	5	5	5
		Potential for empowerment of marginalised communities	**5**	5	5	5
total for catergory 1:			**20**	15	15	17
Placemaking	*Place based, site specific, mixed uses and people based.*	Sense of place	**5**	2	2	4
		Street front exposure	**5**	5	3	2
		Pedestrian movement	**5**	5	3	2
		Physical connection to surrounding communities and amenities	**5**	5	4	3
		Historical significance	**5**	1	2	5
Critical Regionalism		Existing building on site for reuse	**5**	1	1	3
		Location to varied activities and facilities	**5**	3	2	5
		Orientation	**3**	1	2	3
		Topography	**3**	2	2	3
		Proximity to transport routes/nodes/easily accessible	**5**	5	3	4
		Potential to develop effective public space	**4**	3	1	4
total for catergory 2:			**50**	33	25	38
Livable Urbanism	Inclusive, environmental focus, sustainability, resilience and livable cities.	Proximity to sensitive environmental features	**5**	0	2	5
		Potential for environmental regeneration	**5**	2	2	5
		Potential for connection between disconnected communities	**5**	5	3	4
total for catergory 3:			**15**	7	7	14
Architecture of Empowerment	Empowerment, social inclusion and upliftment	Need for skills development and empowerment	**5**	5	5	5
		Need for social intervention	**5**	5	5	5
		Need for soci-economic empowerment	**5**	5	5	5
total for catergory 4:			**15**	15	15	15
			100	**70**	**62**	**84**

2.4.5 **Conclusion: The Site Selected**

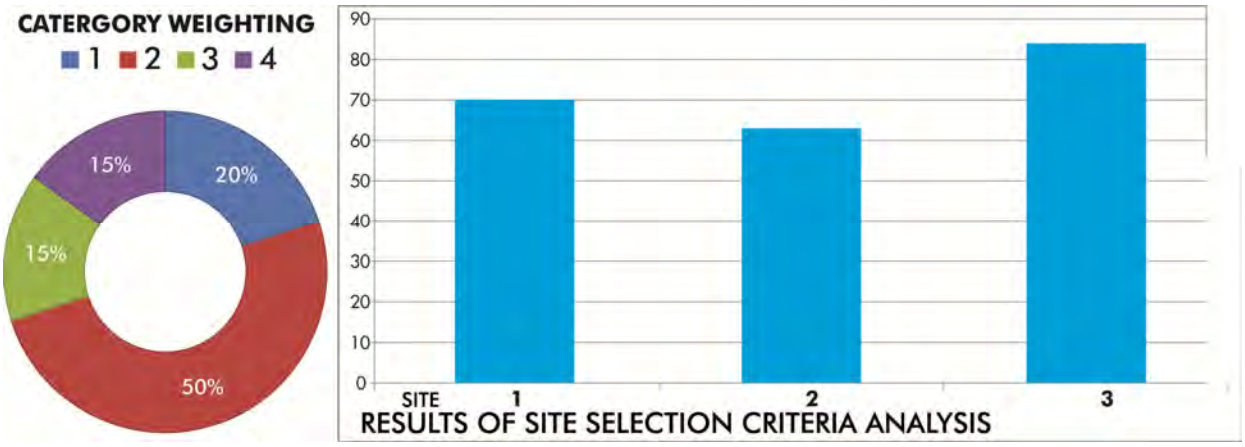


Figure 22: Graphs indicating the score weighting and the final score of the three sites (Author).

The resultants from the point system analysis of the sites revealed that Clairwood racecourse was the most suitable site for the proposed intervention.

2.5 SELECTED SITE URBAN ANALYSIS

2.5.1 **District Scale Analysis**

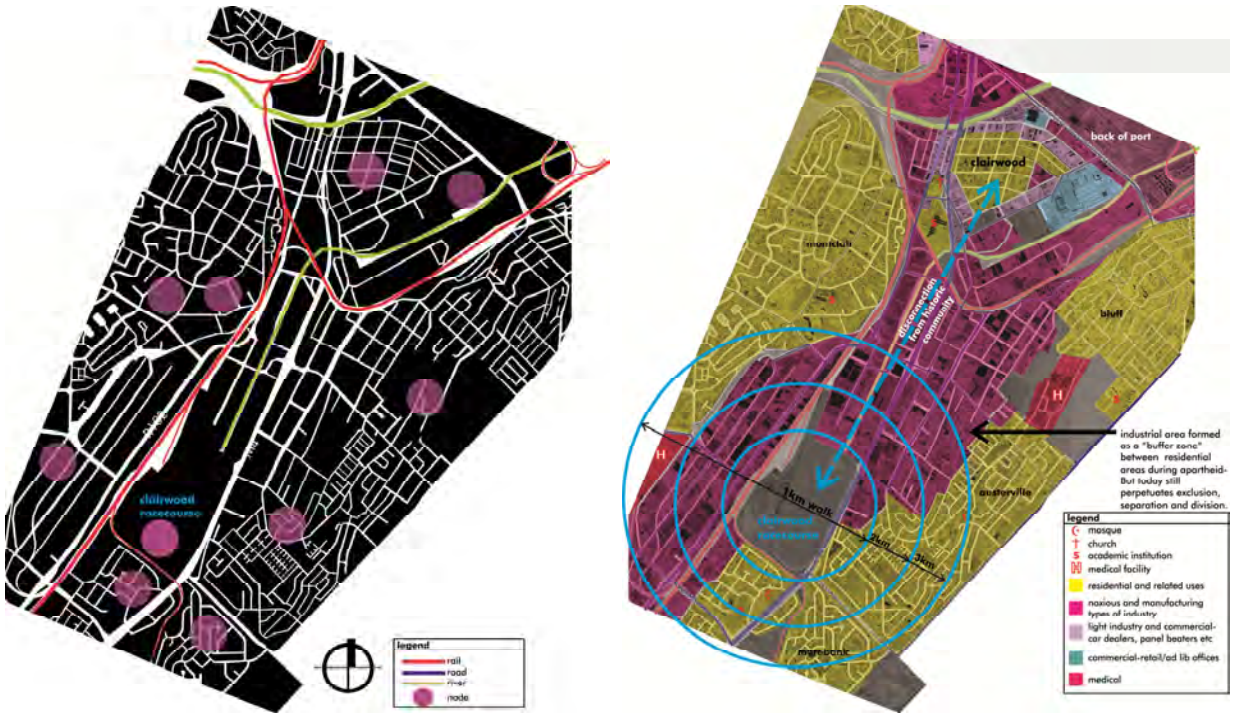


Figure 23: Analysis of movement systems, rivers nodes and block sizes. Area is low densities and large blocks (Author)

Figure 24: Analysis of zoning and point of interest in the area. The area has a homogeneous land use with little walkable connections (Author)

2.5.2 **Neighbourhood Scale Analysis**

Figure 25:(Left) Urban analysis of site and surrounds (author)

Figure 26: Diagram indicating the barriers and disconnection in the area of analysis (author)

2.5.3 **Precinct scale analysis**

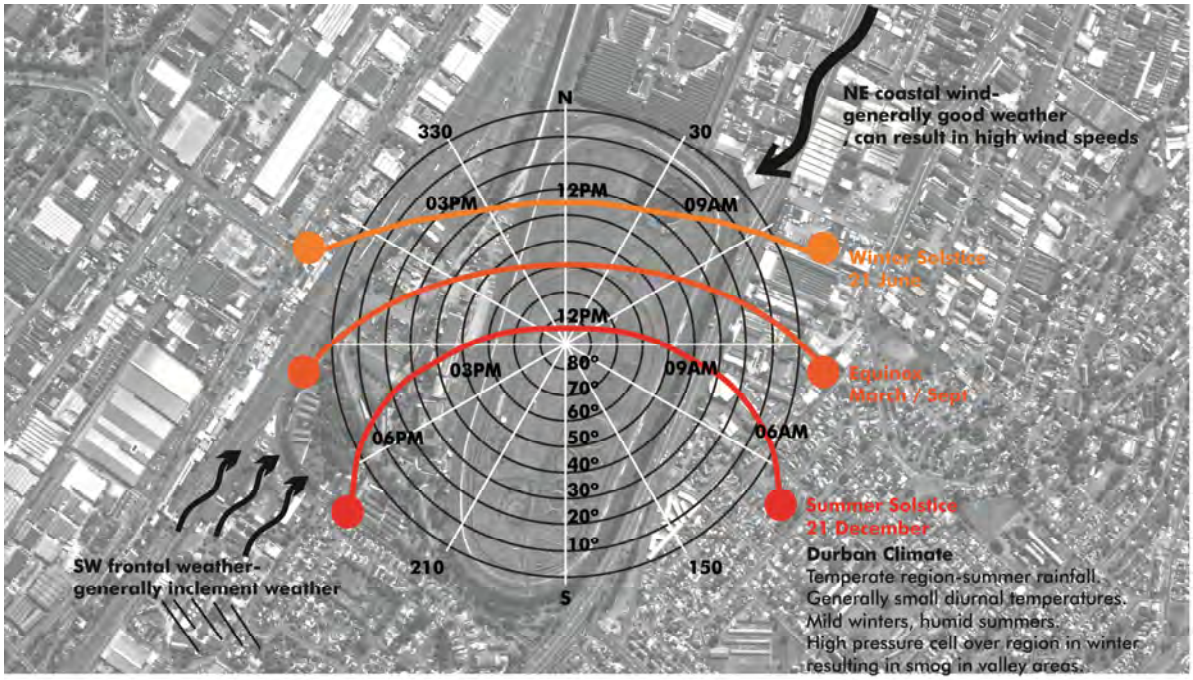


Figure 27: Analysis of the climatic conditions on the site (Author)

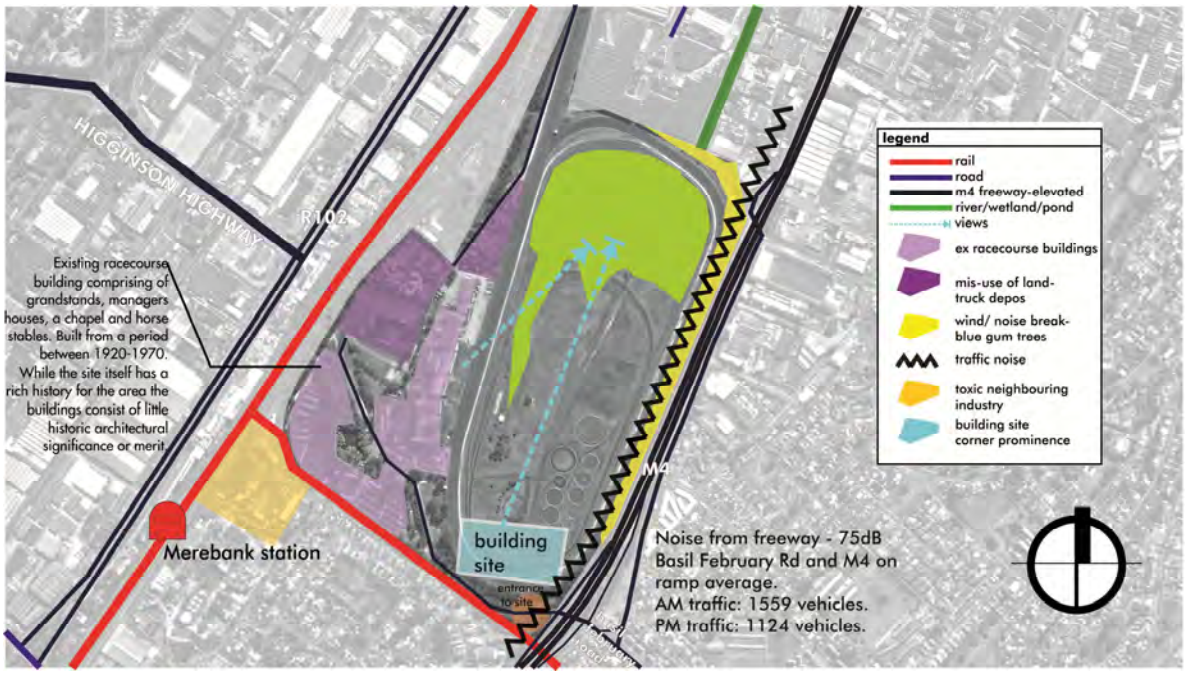


Figure 28: Features of the site. Constraints and opportunities (Author).

2.5.4 **Conditions on site**

Figure 29:(Left) View of site from south west (Kerry Seppings Environmental Management Specialists cc, 2013).

Figure 30:(Right) View of site from the north west (Kerry Seppings Environmental Management Specialists cc, 2013).

Figure 31:(Left) View of M4 bridge from Basil February Road (Google).

Figure 32:(Right) View of M4 bridge and void space under freeway (Google).

Figure 33 & Figure 34: The rare Racecourse Lily (Kniphofia pauciflora)(Kerry Seppings Environmental Management Specialists cc, 2013)

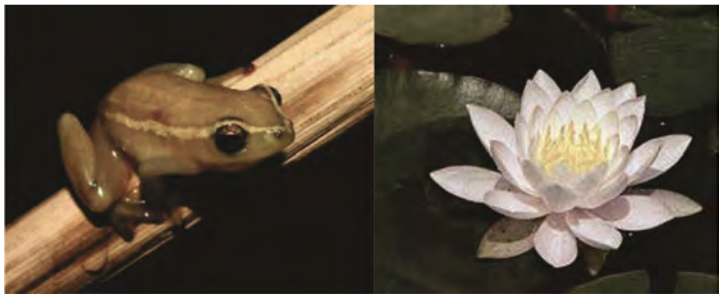


Figure 35: (Left) Pickersgill Reed Frog (Kerry Seppings Environmental Management Specialists cc, 2013).

Figure 36: (Right) White Waterlily (Nymphaea lotus) (Kerry Seppings Environmental Management Specialists cc, 2013).

Figure 37 & Figure 38: Wetland on the racecourse (Kerry Seppings Environmental Management Specialists cc, 2013)

Figure 39: (Left) Industry and residential causing massive environmental and health problems (sdcea.co.za)

Figure 40: (Right) View of Engen petroleum refinery from the air. Industry and residential side by side. (Kzntop business.co.za,)

2.6 TOWNPLANNING, LANDUSE & OTHER PERTINANT INFORMATION OF SITE

2.6.1 Townplanning & Zoning:

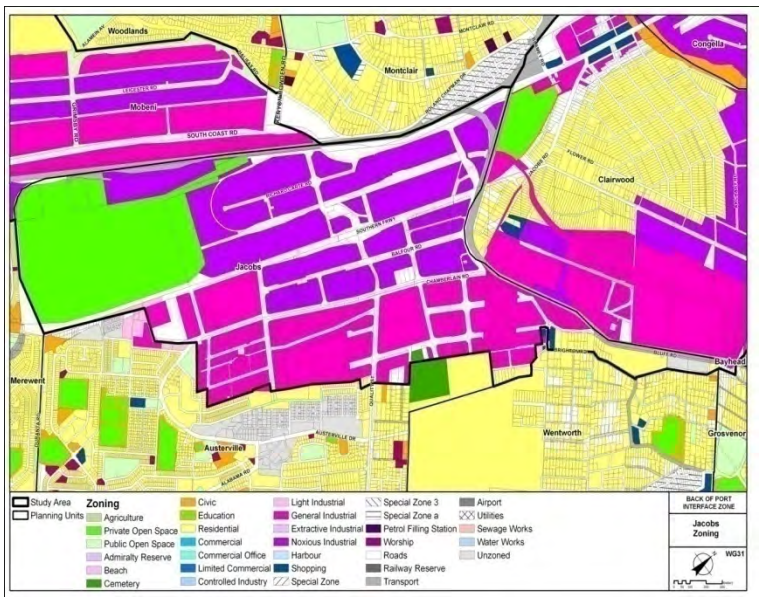


Figure 41: (Left) Zoning map of racecourse and surrounds (Kerry Seppings Environmental Management Specialists cc, 2013)

Figure 42: (Right) Zoning and landuse (Iyer Urban Design Studio, 2012)

2.6.2 Current landuse: Existing racecourse buildings on site

Figure 43: (Left) Grandstand and racecourse facility(ACTIVE HERITAGE cc., 2012).

Figure 44: (Right) Horse stable building (ACTIVE HERITAGE cc., 2012).

Figure 45 & Figure 46: Residential home on racecourse (ACTIVE HERITAGE cc., 2012)

|CHAPTER THREE| DESIGN DEVELOPMENT AND RESOLUTION|

3.1 MOTIVATING IDEAS BEHIND PROJECT

3.1.1 Main Motivating Ideas Behind Urban Design

- **Reconnect** and catalyse integration providing increased social interaction.
- **Empower** the marginalised through economic stimulation and provision of opportunities.
- **Regenerate** the neglected environment by enhancing our natural capital. Build in harmony with nature.

3.1.2 Main Motivating Ideas Behind Architectural Design

- **An architecture of contrasts**- central spine of theory/empowerment contrasting to the outer zones of practice. (theory vs. practice, solid vs. void, concrete frame vs light weight high tech steel spine, insitu construction vs. pre fabricated)
- **Divide building into parts**. Central spine to form the main connective feature between the separated communities, between empowerment. Offset angle to represent the difference in metaphorical and reality.
- **Courtyard space**- public space aiding place making, outdoor space becomes another space for interaction.

3.2 PROCESS WORK

3.2.1 Urban design conceptual diagrams

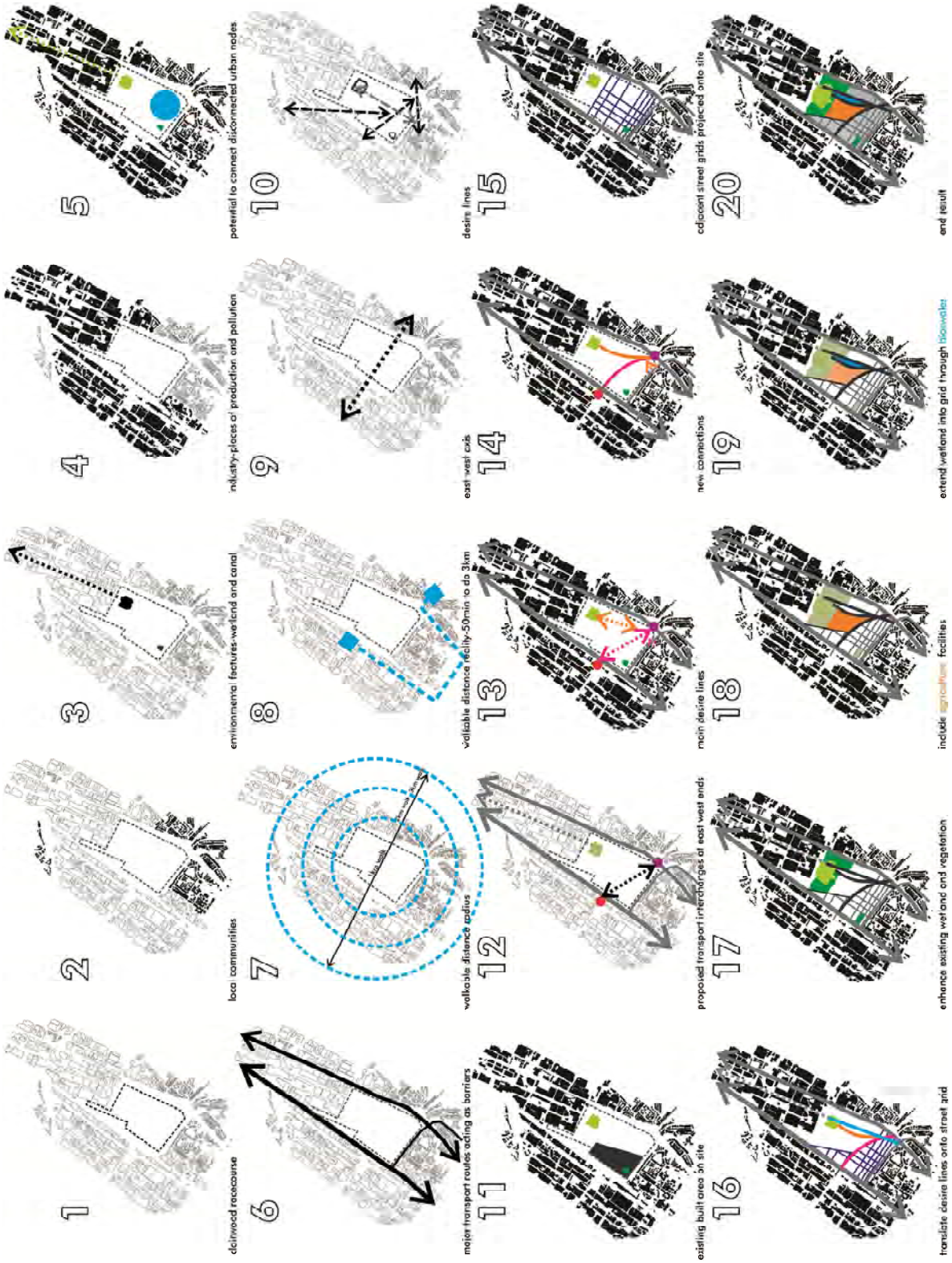


Figure 47: Urban design concept diagrams (Author)

3.2.2 **Architectural design conceptual diagrams**

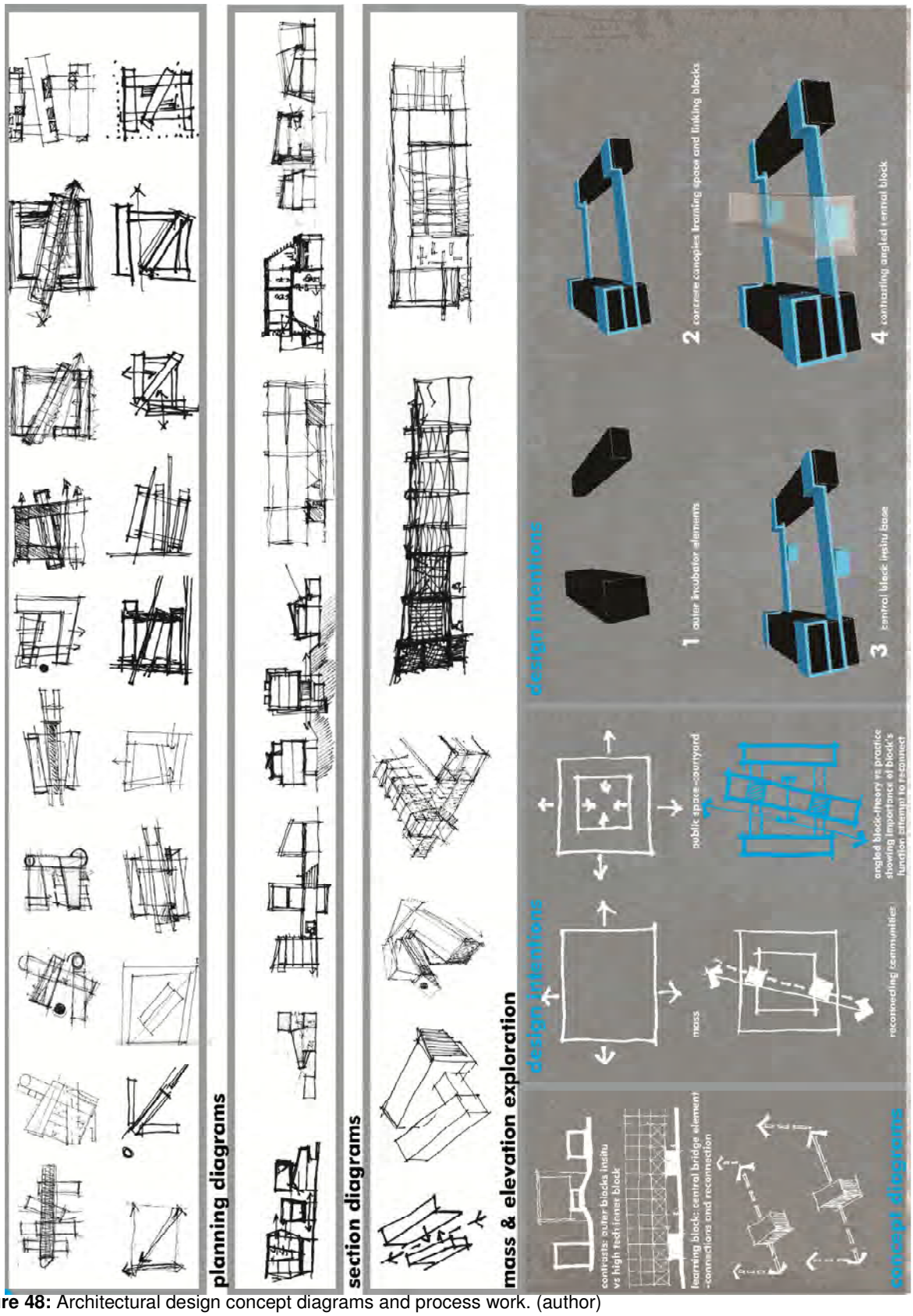
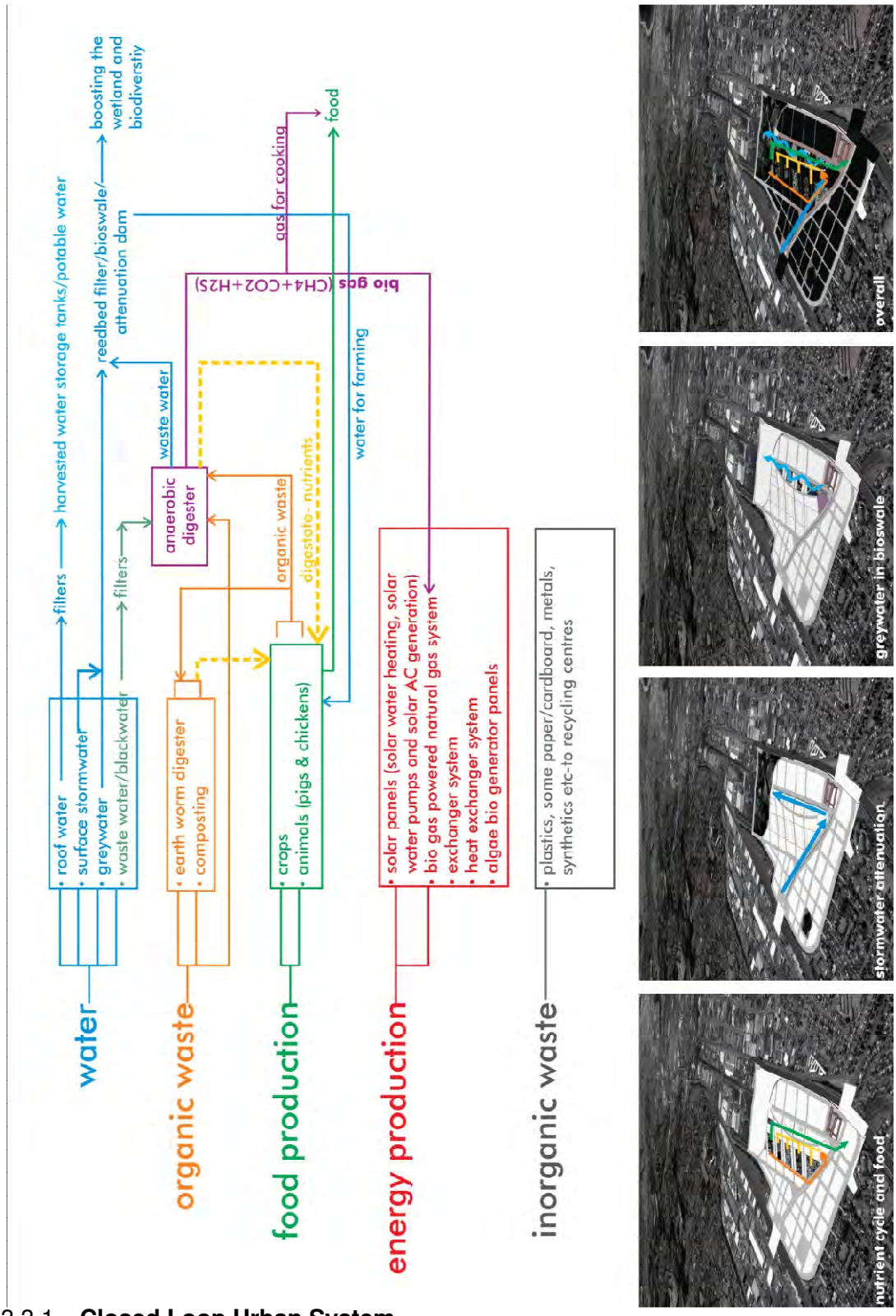


Figure 48: Architectural design concept diagrams and process work. (author)

3.3 ENVIRONMENTAL SUSTAINABLITY STUDY



3.3.1 Closed Loop Urban System

Figure 49: Closed loop urban system diagram. (author)

3.3.2 **Passive**

The following key aspects were considered in the design process:

- **Orientation and solar shading**

The predominate orientation is north south with the central spine receiving more north east and south west light due to the angle. The areas affected by high amounts of insolation will have adequate solar shading and overhangs.

- **Ventilation, cross ventilation and floor plates that allow for this**

Where possible, cross ventilation will be encouraged but in large spaces (the auditorium etc) mechanical ventilation will be required.

- **Thermal mass and adequate insulation**

The two outer blocks have a high thermal mass due to the materials of brick and concrete. This aids in keeping the building temperature constant throughout the day. Insulation will be specified for all vulnerable areas reducing the heat load on the buildings.

3.3.3 **Active**

The following key active systems were considered in the design process:

- **Ventilation systems**

In spaces that require mechanical HVAC ventilation automatic sensors will be installed with controls in every room to allow the users to adjust the temperature as required. A recommended rate of 7.5-12 litres per second of outside fresh air be provided per person that exceeds SANS10400. Exhaust heat recovery will be used to cool incoming fresh air thereby reducing the energy load of air conditioning. At night the spaces will be flushed through natural ventilation through automatic windows. This will reduce temperatures from the afternoon heat gain.

- **Biomass and Bio gas**

All organic waste and sludge from the blackwater and greywater processing will be used to produce bio gas in an anaerobic digester. The gas will be used for cooking purposes and can be sold to the local community.

- **Solar**

Solar voltaic panels will be used to supplement power in the complex. In keeping with the theme of creation and generation the panels will situated on block C. The energy harvested will be stored in a battery array.

3.3.4 Water

- **Rainwater harvesting**

All water will be harvested off the roofs and stored in the rainwater tank in the basement. The tank will be sized to store up to and above 400 000litres of water.

- **Site stormwater**

All storm water will be channelled to the bio swales which feed the wetland and aquifers.

- **Grey water harvesting**

All greywater from showers, and wash hand basins will be cleaned and synthesised through a high tech grey water filtration system in the basement and water from block will be synthesized through a natural system in a reed bed filter. The combination system allows for an active demonstration of water reuse and reconnection to natural systems illustrating an attempt to regenerate depleted natural resources. The red bed filter system does require maintenance and is seasonal therefore the high tech system, situated in the basement, will allow for more constant and reliable filtration.

- **Black water processing**

All sewerage in the facility will be processed in a black water processing plant situated in the basement. All resultant waste water will be sent through the reed bed filter which will be sent through the bio swales and into the wetland. All sludge will be fed into the biogas digester to be converted into an energy product.

3.4 MATERIALS & TECHNOLOGY

3.4.1 Outline Of 3 Buildings

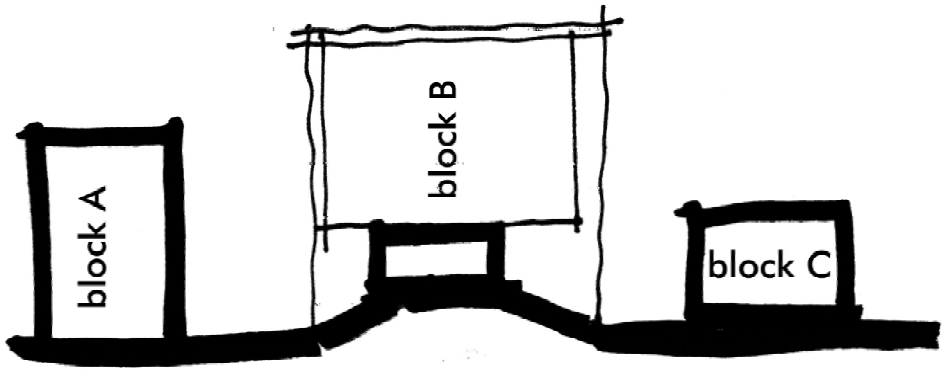


Figure 50: Diagram illustrating the different buildings or block in the design (Author).

The design is made of three building formed around a courtyard. The two outer elements (Blocks A and C) are labour intensive insitu in technology and design while the central spine (block B), which is at an angle, contrasts to these outer elements and is a predominately prefabricated high tech architecture in technology and design.

3.4.2 Proposed Materials

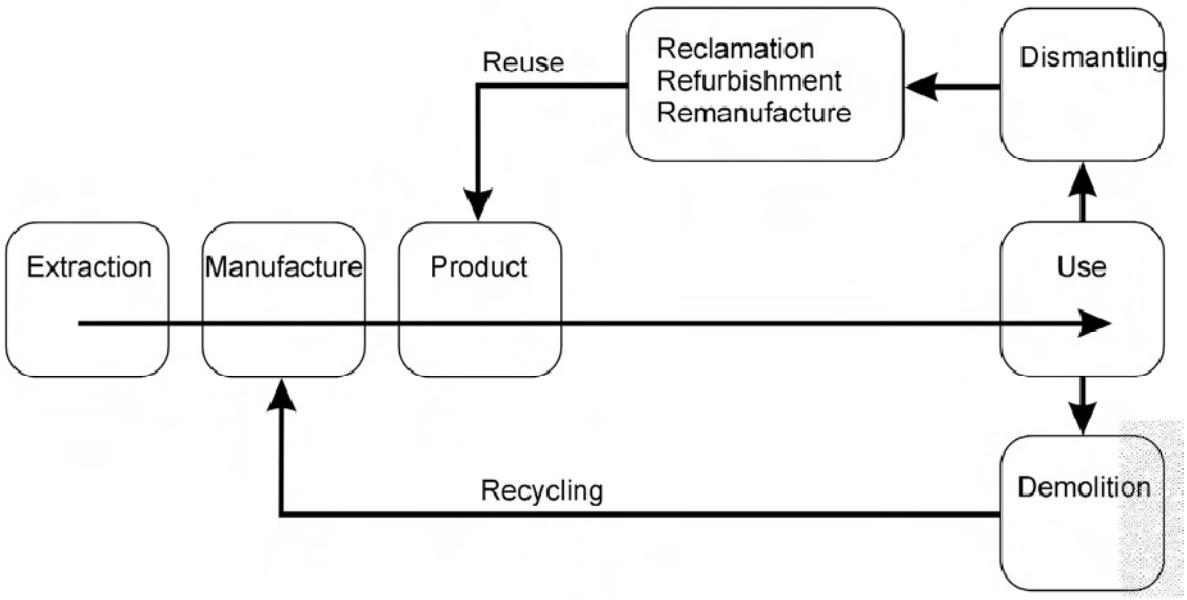


Figure 51: A closed-loop life cycle for materials (Addis, 2006)

- **Concrete**

Concrete is relatively inexpensive as a base material, but the difficulty of working with it can make the labour costs high. It is also a very energy intensive material to create (Alread, 2007). Concrete has the advantage of having a high thermal mass, which can aid with heating and cooling by releasing heat over a long period.

All concrete used on the project will use recycled slag (correctly sized rubble and recycled demolished concrete) and is to have a high fly ash (a by product of coal power plants content. The high slag content and fly ash will reduce the amount of cement needed in the mix. Recycled reinforcing will be used where possible.

The finish will predominately be smooth off shutter class 3 concrete with some sort of sealant such as Penetron added to the mix.

- **Brick**

Clay imperial brick is common throughout South Africa and has a relatively high initial embodied energy but has a high thermal mass preventing heat gain in summer and heat loss in winter. The bricks can also be reused and recycled in other projects after demolition.

Where plaster brick is to be NFP brick, all facebrick will be FBA and all brickwork below ground level will be NFX.

- **Steel**

Steel production requires a vast amount of energy. This can be offset in life cycle costs due to the extreme strength benefit and durability of steel compared to other materials. Strength means less material can be used to achieve the same goal as a less impactful material, and durability means the material will not require recycling, or downcycling, for a long period of time. The basic benefits of steel are super strength in tension and compression, precise shapes, shop, or field assembly, a limitless variety of formal possibilities, infinite finish options, and a straightforward honesty of structural expression (Alread, 2007).

Steel's properties are: a high-embodied energy, difficulty of fabrication, corrosion problems, thermal movement, high thermal conductivity (condensation issues), and fire resistance difficulties (Alread, 2007).

- **Aluminium**

Aluminium while having the capacity to fully recycled contains a very high embodied energy at about 47.2kWh/kg(Bellingham, 2009: 32). Aluminium has the advantage in coastal regions due to its low maintenance corrosion properties of the material which suits projects that require low maintenance. Aluminium can also be powdered coated for increased longevity and aesthetic appeal.

- **Glass**

The majority of glass production causes relatively minimal environmental impact compared to many other building materials, and it has no rivals in performance (Alread, 2007)

Glass has variety of properties and manufacturing techniques in construction. Ranging from safety glass, pyrex fire glass, heat treated glass, wire embedded glass, laminated glass, clear float glass, smart glass. Glass has a high light transmission and low thermal transmission and can be used in variety of applications from curtain walling, to windows to skylights (Alread, 2007).

3.4.3 **Block A & C Technology &Structure**

Refer to the construction drawings, details and specifications.

3.4.3.1 Structural System, Envelope & Foundations

The two buildings are composed of an insitu reinforced concrete column and beam system with concrete floor and roof slabs. The concrete slabs will have a 3m construction joint as per the engineer's detail.

The infill walls will be imperial clay brick and the internal. Only in block A, 1st floor, where the walls require flexibility will a drywalling system be utilised.

Due to the high water table and poor soil conditions the foundation systems are composed of an augured piling with ground beams forming a raft slab.

3.4.3.2 Fenestration and Solar control

Block A will utilize single glazed aluminum shop fronts, curtain walls and window casement systems all AAMSA approved. The casement windows will be set in 3CR12 stainless steel surround which will also aid in the solar control.

The fenestration will seek to not only bring natural light into the spaces but will also allow for fresh air to cross ventilate the floors plates. The exposed facades will be protected with

variety of solar control devices and techniques. The solar control devices will be formed from either laser cut aluminum or GKD stainless steel mesh screens.

3.4.3.3 Roof

Blocks A and C will both utilize concrete roof slabs but only Block C will make use of the roof space for a planted roof. Block A will be a fairly conventional slab with bituminous waterproofing (derbigum SP4) and aluminum paint but with rigid foam insulation panels covered by precast concrete pavers.

Block C has an access ladder in order to service the planted roof. While both roof slab contains the same material, the planted roof will need to structurally accommodate the load and in terms of waterproofing be able to consider the plants and the retention of water in the drainage and waterproofing layers. The planted roof aids in water retention, insulation and increases biodiversity.

Both roof slabs will make use of gravel drainage channels and fullbore outlets which will lead to uPVC rainwater down pipes.

3.4.3.4 Finishes

All plastered walls will be finished with 2 coats of a hard wearing an acrylic emulsion to protect the substrate. Other brickwork areas will be FBA facebrick that will have neat recessed joints.

Flooring will differ according to space use. For general corridors and public area and circulation space a homogenous 6-8mm epoxy screed will be laid in patterns. This will provide a hard wearing low maintenance finish. The bathrooms/toilet areas will use a non slip water proof homogenous epoxy screed with ceramic wall tiles. The flexible office areas in block A will use either the powerfloated floor slab, sealed, or a berber point carpet that contains recycled plastic content. Block C workshop areas, and exhibition space will have a sealed powerfloated screed that is painted with epoxy.

Where ceilings are required there will be a combination of plasterboard bulk head and acoustic ceiling tiles hang from the concrete slab with aluminum cornices. The more functional areas will use the underside of the slab with a class 3 off shutter finish painted white.

3.4.4 **Block B Technology &Structure**

Block B is the angled block, the building of education representing the more dreamlike aspects of education and creativity therefore the technology of the building represents this relationship.

Refer to the last section for construction drawings, details and specifications.

3.4.4.1 Structural System & Foundations

The structural system for this block is 2 fold but with main idea motivating the design.

The conceptual approach to this design is represented through a connective bridge. The building therefore if formed of 3 main elements; The basement, the insitu ground floor and the upper light weight suspended education floors.

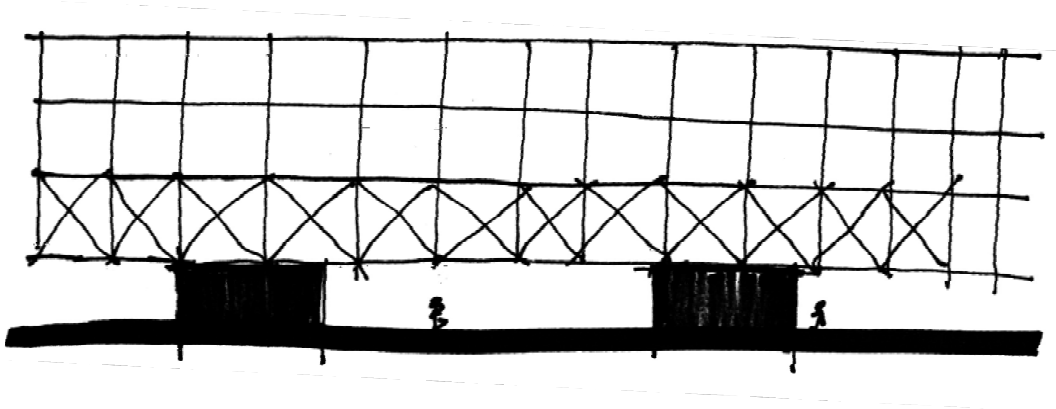


Figure 52: Concept sketch of Block B's bridge like structure (author)

The semi basement not only serves to raise the building on a podium but houses the environmental regenerative functions such as the bio gas generation, grey and black water processing, heat exchange equipment and rainwater storage.

The basement is formed with concrete contiguous piles and lined with an inner skin of bagged concrete block work. The tank is drained with a continuous agricultural drain around the perimeter formed from layered fine to course aggregate and with a bidum lining.

The ground floor mass is similar to that of block A and C, insitu concrete and brick elements that form a base for the light weight bridge element above.

The upper floors are suspended from two base elements through a galvanised steel column and beam structure reinforced by a lattice. The columnless floor plates are a composite steel (bonddek) and concrete deck supported by GMS IPE sections.

The foundations are augured piles with ground beams supporting the main structural steel elements.

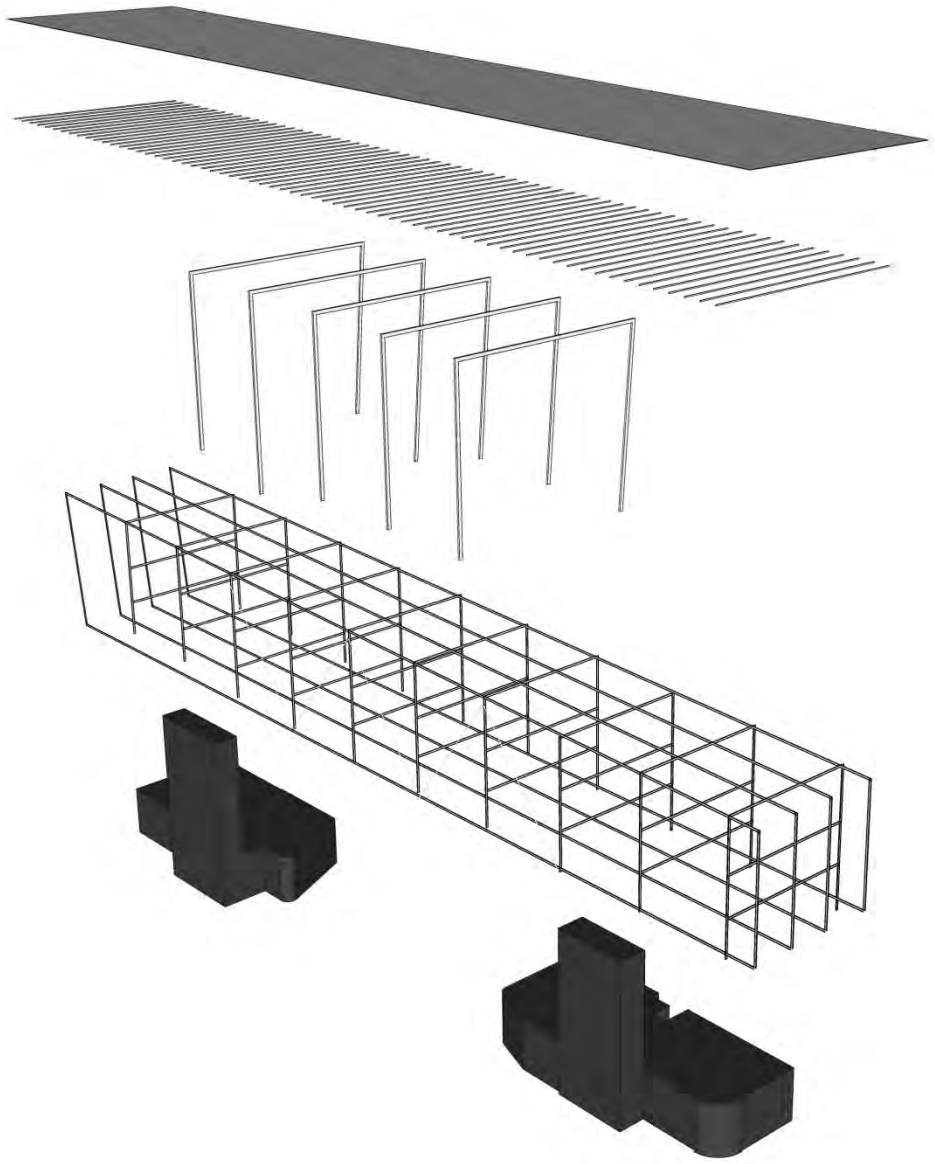


Figure 53: Exploded axo demonstration the various components of Block B learning spine. (Author)

3.4.4.2 Fenestration & Envelope

The central learning areas on the south west facing side are enclosed with an aluminum glazed curtain wall system with a laser cut powered coated aluminum solar screen to shield from the afternoon sun.

The internal partitions are made up of a high impact drywall system with aluminum louvers and glazing on the wall on the northern side. The north corridor is open to the outside and enclosed with a handrail formed from 3 CR12 stainless steel. The north light is filtered through a laser cut powdered coated aluminum solar screen.

The spaces on the end, the auditorium and skills demonstration space are enclosed with one skin of drywallling on the inside and exterior cladding of alucobond panels with insulation in between.

3.4.4.3 Roof

The roof is comprised of Klip-lock 406’ 0.80mm aluminium continuous roof sheeting fixed to GMS LCP purlins which are fixed to the IPE GMS frame. The primary roof structure is formed by 356 'I' section portal frames which also serve to support the solar shading devices aiding to the filtering of the natural elements.

3.4.4.4 Finishes

The finishes are the same as that of the other blocks. The ground floor podium is finished powerfloated sanded aggregate coated with a non slip clear epoxy screed.

The underside of the composite steel and concrete floor decks are clad with perforated alucobond panels.

3.4.5 **Conclusion**

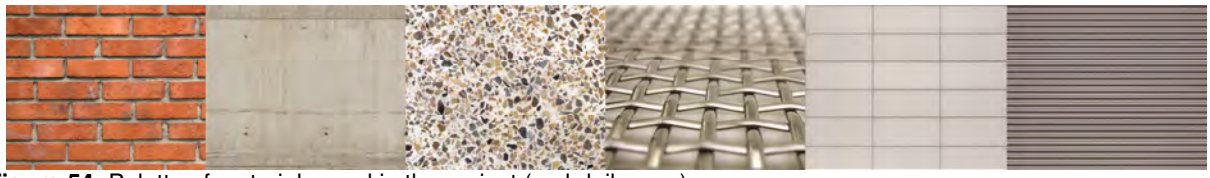


Figure 54: Palette of materials used in the project (archdaily.com)

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REGENERATION IN CONTESTED POST APARTHEID URBAN SPACE

*[towards the design of a **remediation hub** in Durban South Basin]*

RATIONALE [WHAT, WHY, HOW]

The rationale supporting this project **is to** remediate the social, economic and environmental pressures **in order** to empower the marginalised and excluded communities **by** providing a innovative type of learning hub that fuses vocational education with economic opportunities and responsive environmental design.

URBAN DESIGN APPROACH

- **Reconnect** and catalyse integration providing increased social interaction.
- **Empower** the marginalised through economic stimulation and provision of opportunities.
- **Regenerate** the neglected environment by enhancing our natural capital. Build in harmony with nature.

ARCHITECTURAL APPROACH

- **An architecture of contrasts-** central spine of theory/empowerment contrasting to the outer zones of practice. (theory vs practice, solid vs void, concrete frame vs light weight high tech steel spine, insitue construction vs pre fabricated)
- **Divide building into parts**. Central spine to form the main connective feature between man and nature.
- **Courtyard space**- public space aiding place making, outdoor space becomes another space for interaction.

1_BACKGROUND AND ISSUES

need for resource regeneration

75% of the worlds population will live in cities in 2050.

2.5 billion people in 2050 will be starving due to food shortages.

2.3 billion people in 2025 will experience water stress.

urban sprawl & low densities

South African are cities sprawled and inefficient
Sprawl perpetuated by perceived urban decay.

15 person/Ha density of eThekwini city region compared to

67 person/Ha density of Sao Paulo city region.

cities of past exclusion & division

60% South Africa's petroleum refined in Durban South Basin contributing to toxic pollution situated in the marginalised and segregated community of Durban South Basin.

need for economic & social regeneration

Need for individual small scale, local business support & sustainable job creation.

25.5% unemployment rate in South Africa.

Skills shortage and need for empowerment through education.

2_HYPOTHESIS

Sustainable architecture can be used as a **regenerative tool** which **remediates** the social and economic struggles while lessening environmental exertions in globalised contested post apartheid urban space.

3_KEY PRECEDENTS

>>Urban Remediation & Civic Infrastructure Hub, Sao Paulo, Brazil.
This design explores how architecture can empower and regenerate the relationship between a marginalised community and their crucial natural resources.

>>Le Pompidu Centre, Paris, France.
Creation of diversity and strong public place aiding in wayfinding and community interaction.
The industrial/ hi-tech aesthetic will also help inform the design given the context of the site.

4_KEY CASE STUDY

>>Umkhumbane Entrepreneurial Support Centre, Cato Manor (Umkhumbane), Durban.
Serves as a local example of how an architectural intervention can empower the marginalised

5_THEORETICAL FRAMEWORK

Based Upon 5 Theories & Concepts:
Main theories and concepts

1 Placemaking

(Converting public space into public place)
A response to the placeless city. In spaces that are in need of appropriate intervention this concept will help guide the process of effective regeneration.

2 Livable Urbanism

(Toward a Resilient City)
Guiding a process of a socially sustainable regeneration and how architecture can facilitate this process.

Supporting theories and concepts:
3 **The Panopticon** (The Power, Control & Surveillance Of Space)
4 **Critical Regionalism** (Toward An Architecture of Place)
5 **Architecture of Empowerment** (A Response To Power(lessness) & Exclusion)

James claassen| 20550337
M.Arch (Prof) 2014

6_WHY DBN SOUTH BASIN?

The general site selection resulting from the research concluded that the site needs to have the following, which Durban South Basin meets:

- **former apartheid "buffer" zone.**
- **site of environmental degredation**
- **communities that marginalised**
- **local communities require skills development**

7_HISTORY: PAST TO PRESENT

Durban South Basin has a contested history of exclusion, segregation, division, forced removals and more recently environmental degredation. The area that was once home to Durban's Indian community who were successful market gardeners, is now a highly polluted, marginalised and largely contested urban space. The current plans for the basin involve expanding the harbour south, demolishing the historic community of Clairwood.

1860's-Indutured labourers from India brought to KZN to agriculture.

1860's-Indian community settled in Durban south area forming Clairmont (Clairwood) in an ad hoc market garden format.

1920's-Spread of Capitalism and move to increase industrial production in Durban

1952-Race zoning plan of Durban created.

1960-Group areas act of apartheid the way for forced removals and the creation of the industry hub of Dbn south.

Present day-Space still contested by big business and residents.

8_CLIENT

The client is a partnership between the Ethekwini Municipality and the South Durban Community Environmental Alliance. A public/ government partnership.

9_BRIEF

The client brief is two fold. First the urban design needs meet the City's requirement of a more "livable and resilient city" through reconnection of fragmented communities. Secondly the affected area needs an architectural intervention that can empower and act as a base or hub for said community. Through diversity, triple bottom line sustainability.

10_BUILDING TYPOLOGY

Remediation Hub

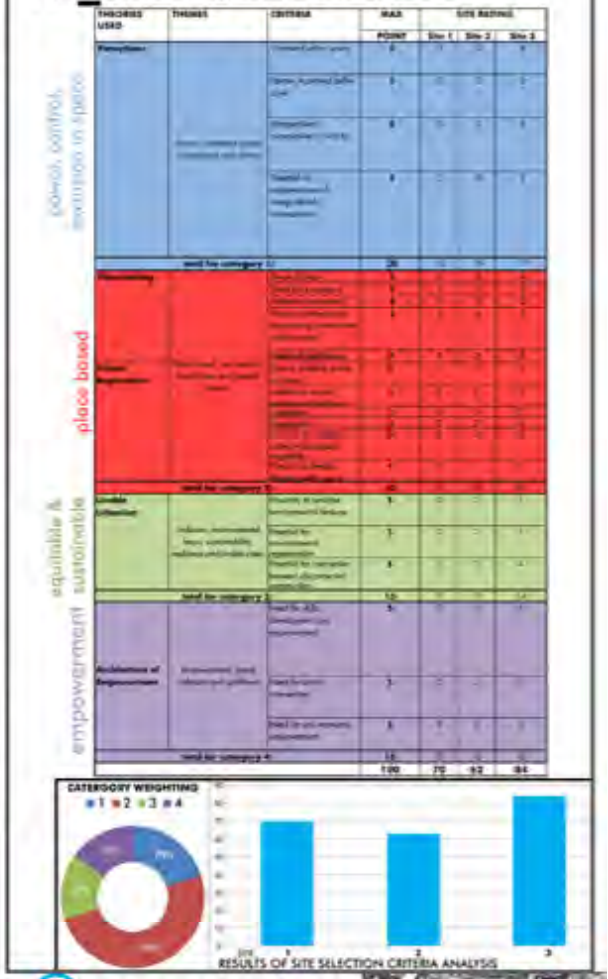
Seeking to generate not only economic opportunities for the local community but also seek to facilitate environmental regeneration and generate natural resources such as food water and energy contributing to a livable urbanism. Serving as a catylictic community hub in the area.

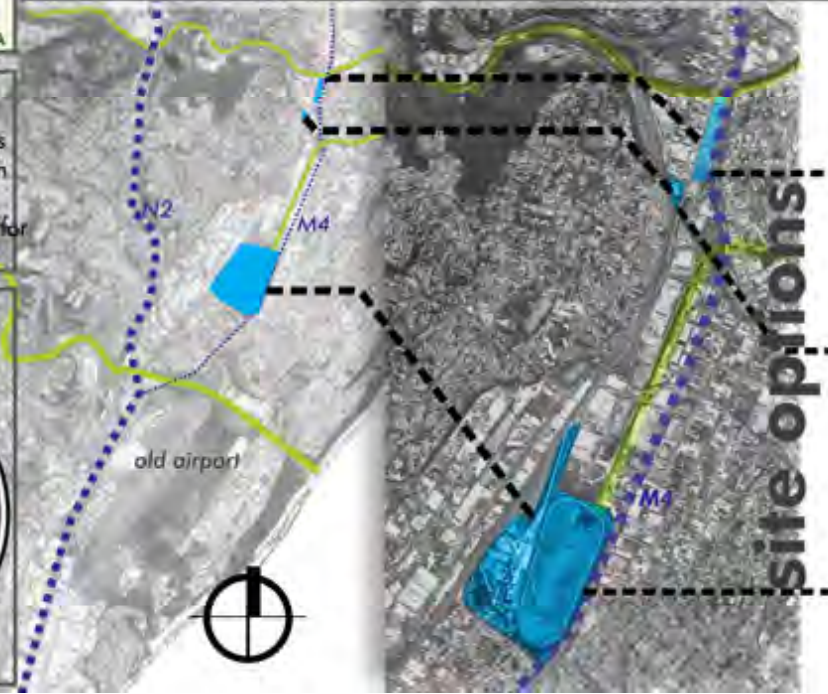
the remediation HUB

11_SCHEDULE OF ACCOMMODATION

hierarchy	category		DESCRIPTION	AREA	QTY	AREA TOTAL
served/primary	[work, develop & learn]		PRODUCTION/INCUBATOR SPACES			
			large workshop spaces (creation/ crafting spaces and practical learning craft spaces)	100	5	500
			smaller workshop spaces (creation/ crafting spaces and practical learning craft spaces)	60	5	300
			artist/ crafter live work studios (carpentry, sewing, welding etc)	45	5	225
			exhibition space (toilets, office, stores)	385	1	385
			BUSINESS OPPORTUNITY/ INCUBATOR SPACES			
			ground floor retail spaces (total area)	540	varies	540
			collaborative office space	170	1	170
			office space service/consulting based industries (flexible)	330	2	660
			TEACHING			
			admin offices	55	3	165
			staff facilities (staff rooms etc)	25	3	75
			security	25	1	25
			admin reception	55	1	55
			student computer lab	100	1	100
			student library	100	1	100
			skills demonstration workshop space	180	3	540
			skills demo space storage	25	3	75
			auditorium (av room and storage)	300	1	300
			integrated teaching spaces (flexible)	450	2	900
			maintenance office	25	1	25
			student ablutions	55	3	165
	[social & live]		COMMUNITY /PUBLIC FACILITIES			
			A small crèche/day care facility	145	1	145
			Community resource centre venue for music practice, community dramas etc	125	1	125
			food dining hall	305	1	305
			residence study /library space	75	2	150
			restaurant/ food retail	75	1	75
			RESIDENCES			
			Rent to buy/live bed live/work lofts	65	5	325
			Transient accomodation	150	1	150
servant/ secondary		misc	TOILETS, STORAGE UTILITIES ETC			
			Staff kitchens	12	2	24
			material store	25	2	50
			general store	12.5	2	25
			Water room/ BMA system room	20	1	20
			Bin Store	20	1	20
		resource generation housed	basement- SUSTAINABILITY AND RESILIENCE			
			Rainwater	1000	1	1000
			Grey water systems		1	
			Black water systems		1	
			Water storage		1	
			area exlu circulation			7894
			Circulation public and private	10%		789.4
			Services/ducts	2%		15.788
			structure	5%		552.58
total area						9251.768

12_SITE SELECTION





site options

1 69,730M²

2 13,670M²

3 670 000M²

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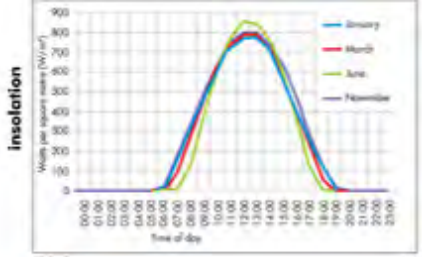
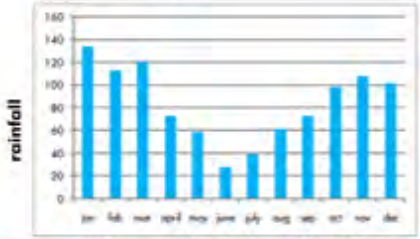
13_CONTEXT ANALYSIS-CITY SCALE

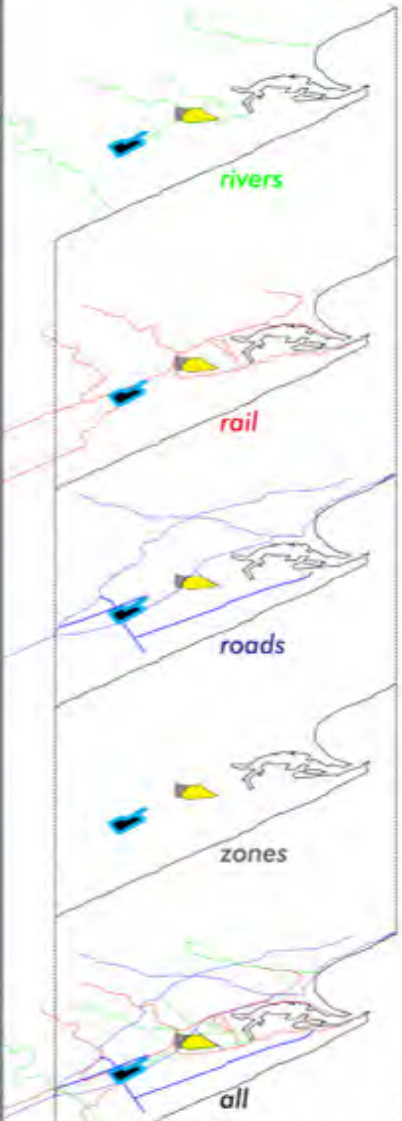
natural structuring elements

primary development pattern

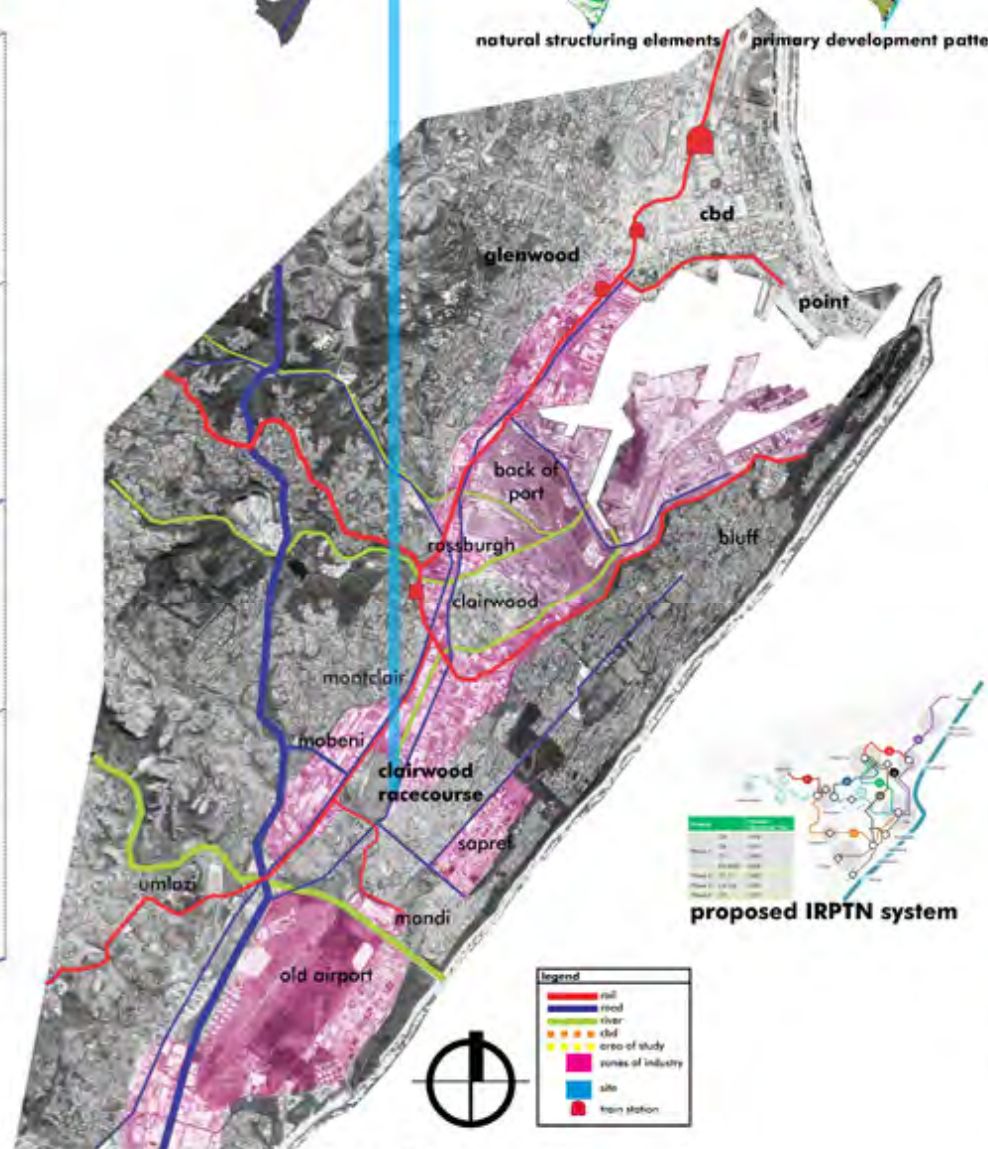
wind





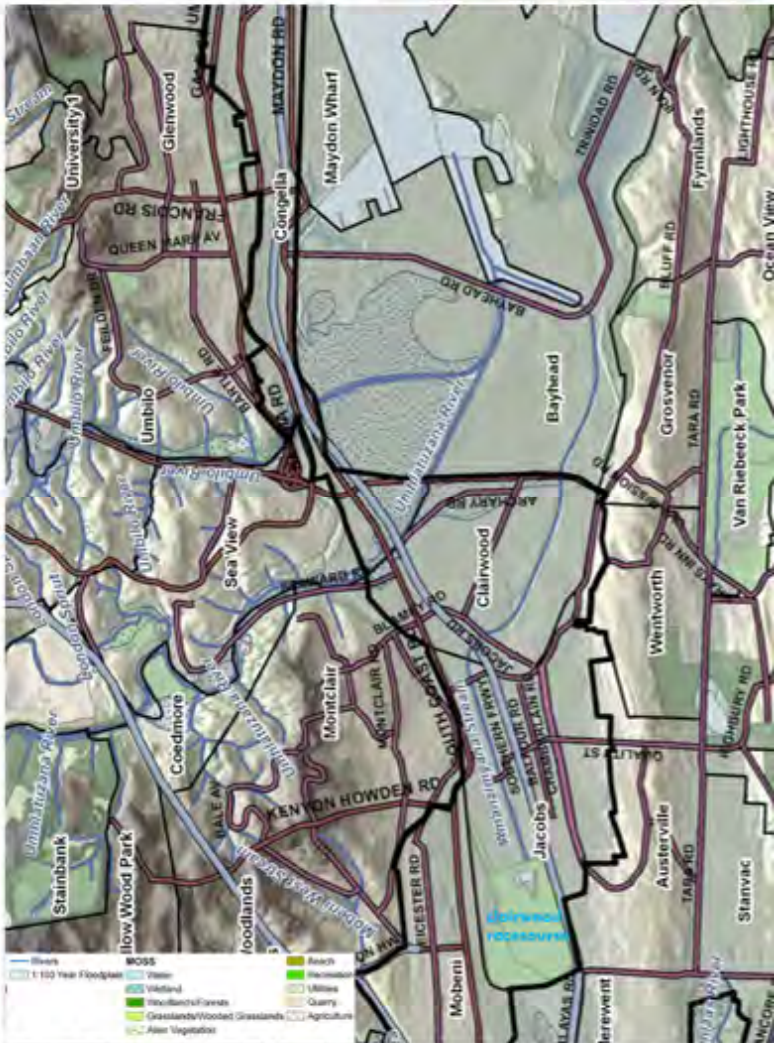


movement diagram



urban analysis-city scale

proposed IRPTN system



hydrology map

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14_CONTEXT ANALYSIS-DISTRICT SCALE

current proposal for durban south basin(Iyer, 2012)-
based on commodification of the environment and exclusion of marginalised communities

figure ground block analysis-
linkages & nodes- district scale

figure ground zoning analysis-
district scale

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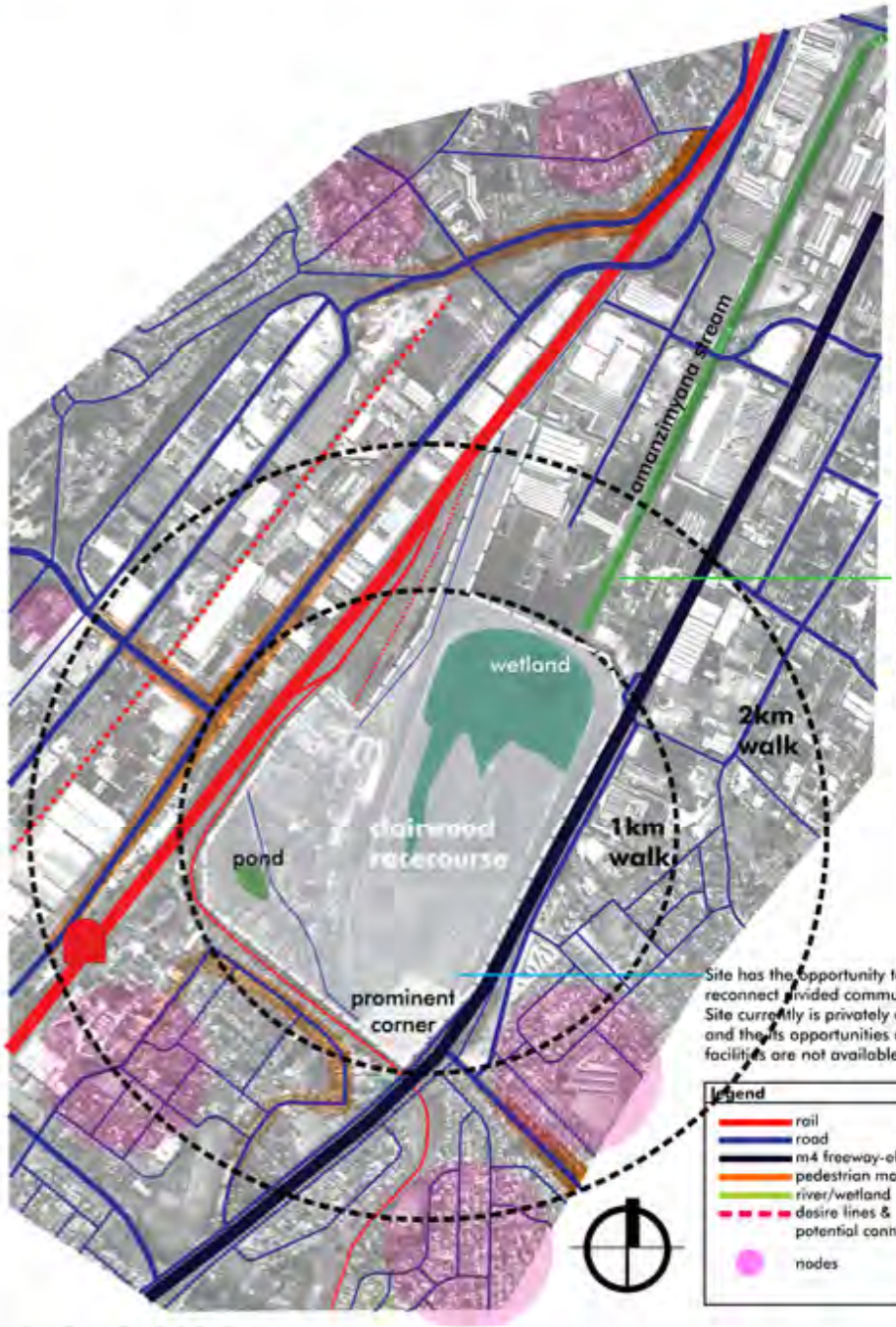
15_CONTEXT ANALYSIS-NEIGHBOURHOOD SCALE



Pickersgill Reed Frog

White Waterlily (Nymphaea lotus)

The rare Racecourse Lily (Kniphofia pauciflora)

Yellow Fire Lily (Cyrtanthus breviflorus)

Wetland and river have the potential to create public space. Wetland needs to be enhanced and opened up for public use.

Site has the opportunity to reconnect divided communities. Site currently is privately owned and the its opportunities and facilities are not available to all.

legend

- rail
- road
- m4 freeway-elevated
- pedestrian movement
- river/wetland
- desire lines & potential connections
- nodes

urban analysis
neighbourhood scale

urban analysis-figure ground
barriers- neighbourhood scale

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16_CONTEXT ANALYSIS-PRECINCT SCALE

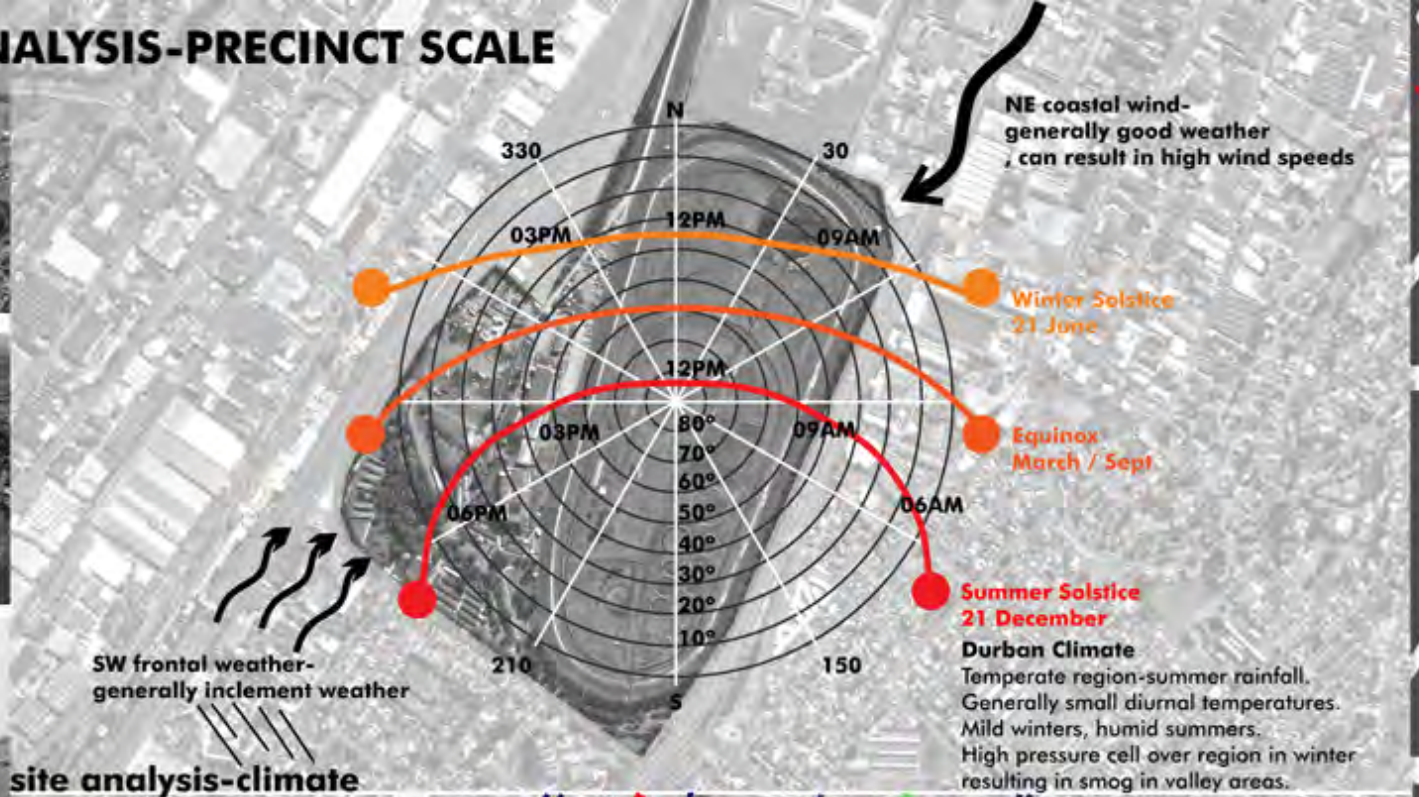
view from south west

view from north west

view from M4 looking toward racecourse

view from basil february rd

view under M4 overpass bridge

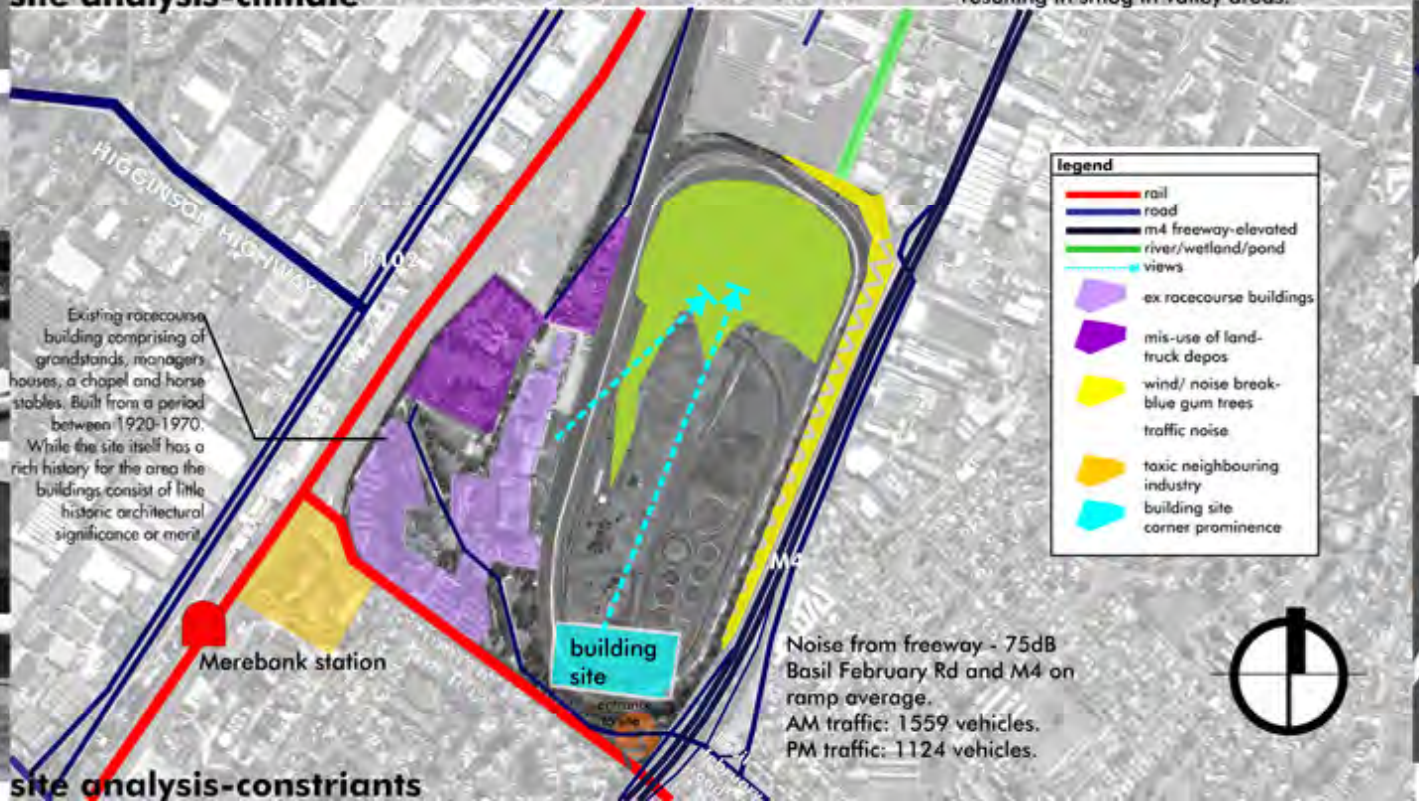


NE coastal wind-
generally good weather
, can result in high wind speeds

SW frontal weather-
generally inclement weather

Durban Climate
Temperate region-summer rainfall.
Generally small diurnal temperatures.
Mild winters, humid summers.
High pressure cell over region in winter resulting in smog in valley areas.

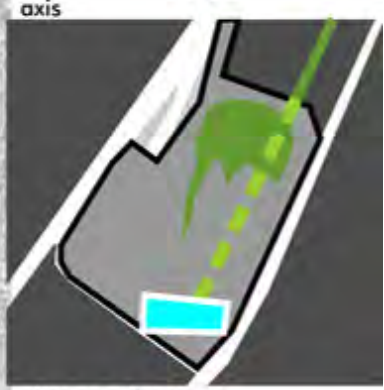
site analysis-climate



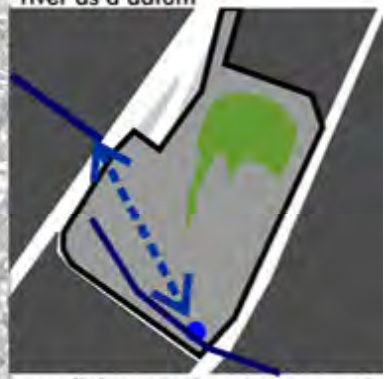
Noise from freeway - 75dB
Basil February Rd and M4 on ramp average.
AM traffic: 1559 vehicles.
PM traffic: 1124 vehicles.

site analysis-constriants

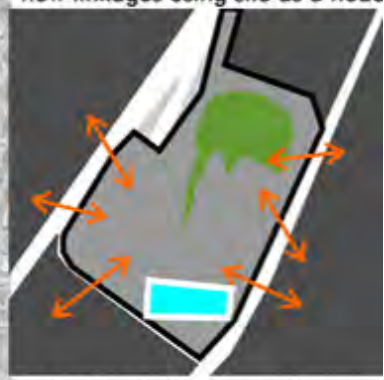
axis



river as a datum



new linkages using site as a node



pedestrian linkages over barriers

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17_URBAN DESIGN DIAGRAMS

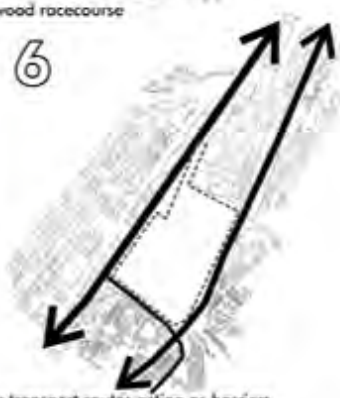
clairwood racecourse

local communities

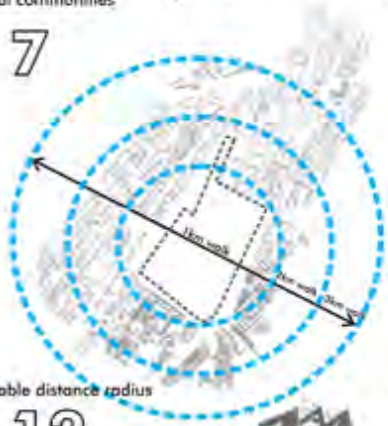
environmental features-wetland and canal

industry-places of production and pollution

potential to connect disconnected urban nodes

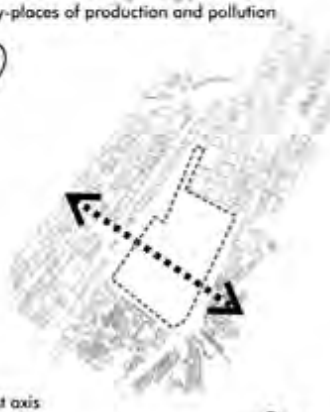


major transport routes acting as barriers

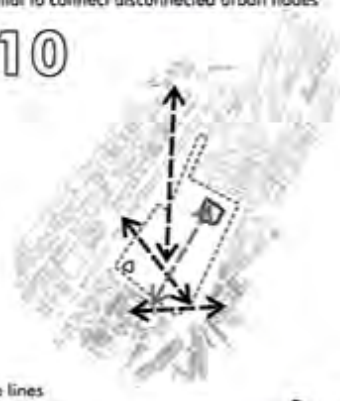


walkable distance radius

walkable distance reality-50min to do 3km



east west axis



desire lines

existing built area on site

proposed transport interchanges at east west ends

main desire lines

new connections

adjacent street grids projected onto site

translate desire lines onto street grid

enhance existing wetland and vegetation

include [illegible] facilities

extend wetland into grid through [illegible]

end result

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18 URBAN DESIGN

Durban South residents requests for their area:

"1) reverse attempted rezoning of Clairwood
2) enforce/expand existing residential zoning of Clairwood, Merebank and Wentworth
3) mobilise solidarity in Durban & everywhere
4) take seriously climate rhetoric: shift freight to trains, lower trade vulnerability, de-smokestack
5) plan/implement post-pollution, post-carbon Durban with 'Million Climate Jobs' campaign."

The proposed urban design will consist of primarily of mixed use affordable housing with a closed loop urban system

enhanced natural enviroment

farms

bioswales

celebration of wetland

hard edge to wetland

bio gas to energy plant

urban agriculture

irptn station

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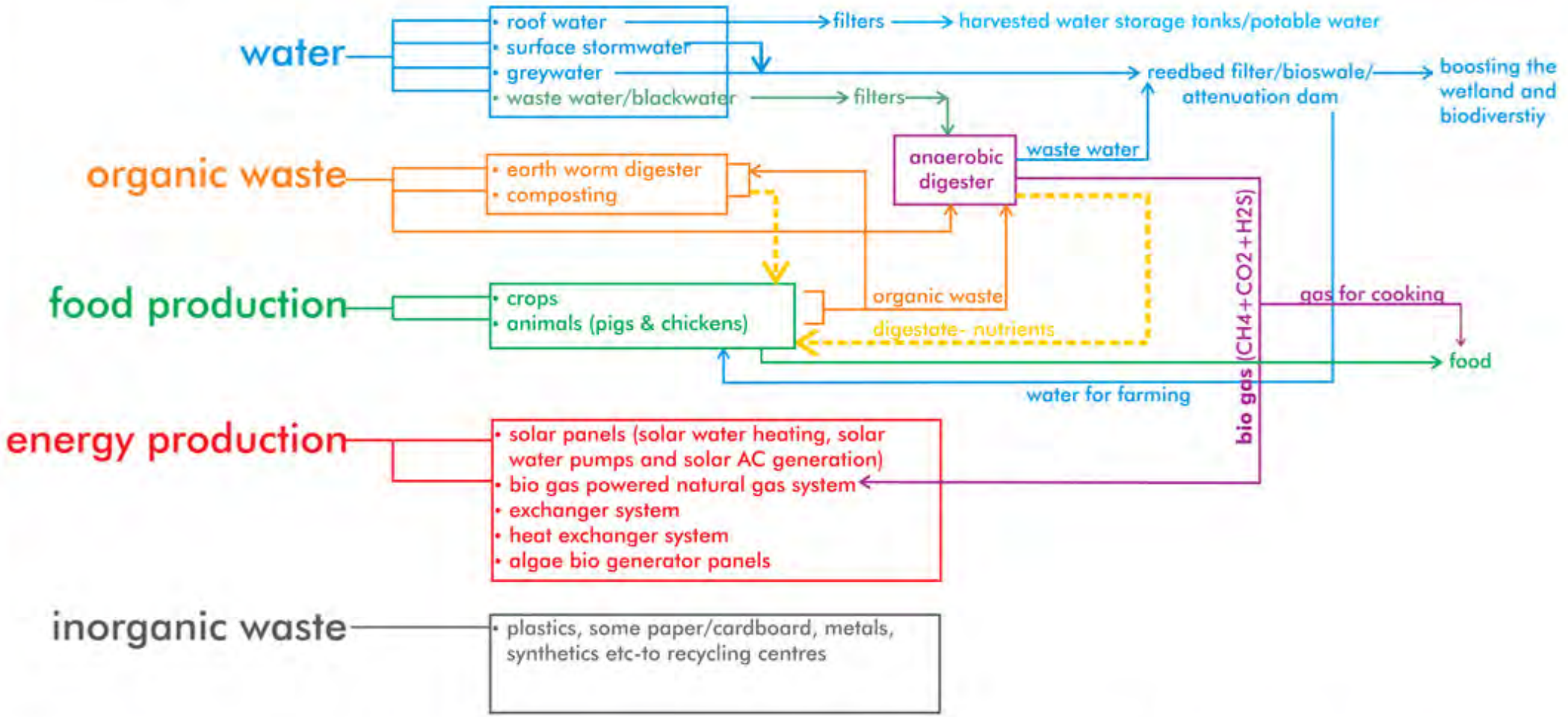
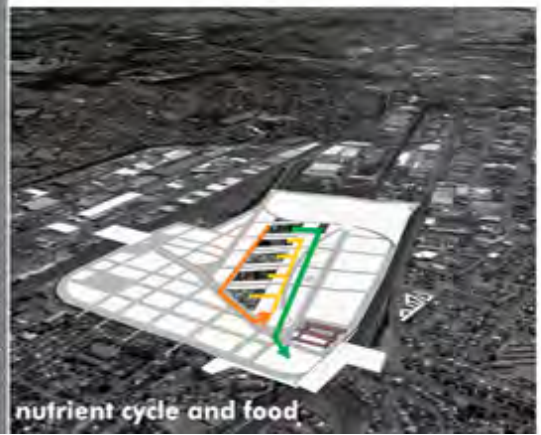
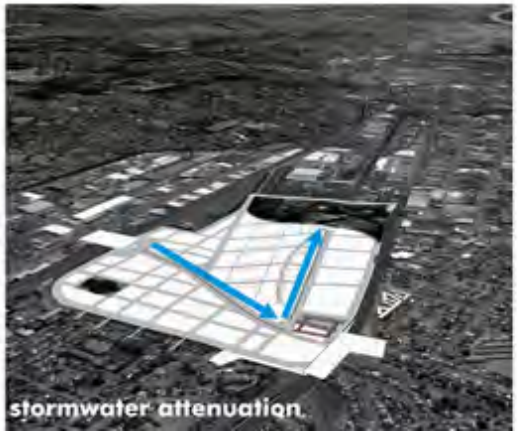
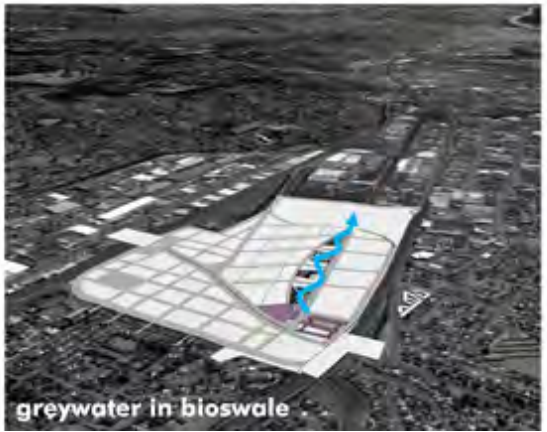
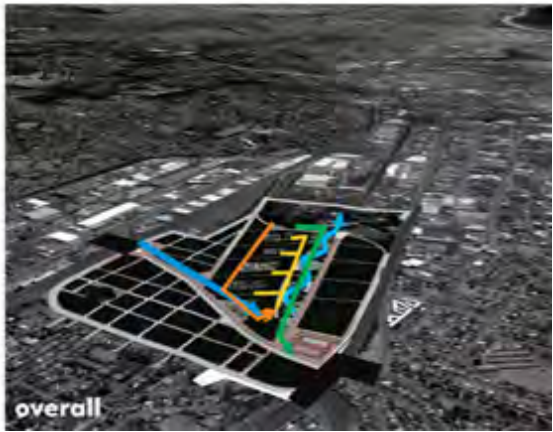
19_CLOSED LOOP URBAN SYSTEM











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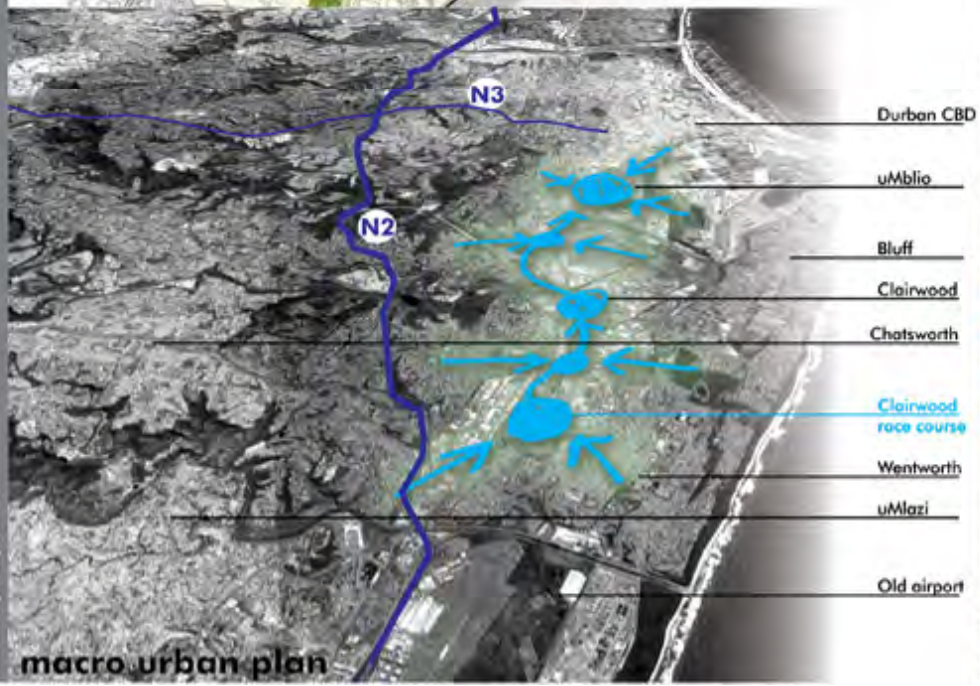
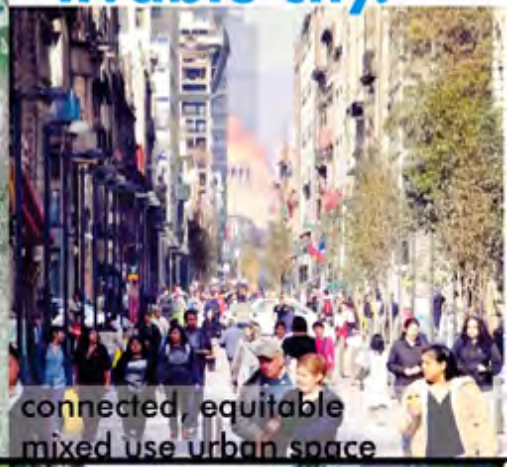
20_MACRO URBAN DESIGN-long term view



macro urban plan

Creating a connected & livable city.



connected, equitable mixed use urban space

activate canal edges

enhanced wetland

pedestrian bridges over barriers

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21_LOCAILITY PLANS

mobeni industrial

transport interchange: rail/bus/taxi/car

parking garage

anaerobic digester and bio gas energy plant

bioswale

urban farm

pedestrian link between nodes

urban farm

digester

mixed use development

site

merebank

market+ parking

irptn station

wentworth

road

mixed use development

incubation spaces block c: production & creation

semi public courtyard

education spaces block b: integrated learning

public courtyard

incubation spaces block a: retail & residential

public plaza

public parking

onramp

freeway

access into station

IRPTN station above freeway -linking to ground floor

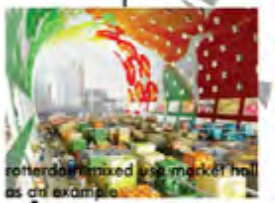
mixed use development
market+housing+public parking

8500m2 footprint/
parking for 200-300 cars

basil february road under freeway

legend

- pedestrian movement
- main vehicle routes
- connection to nature
- activated streets
- rail line



macro locality plan

locality (roof) plan

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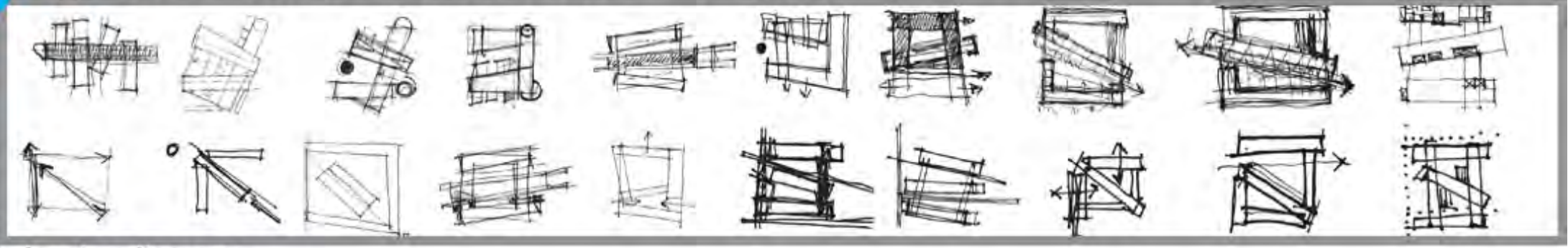
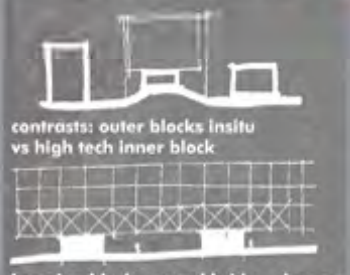
22_DESIGN PROCESS WORK & CONCEPT DIAGRAMS

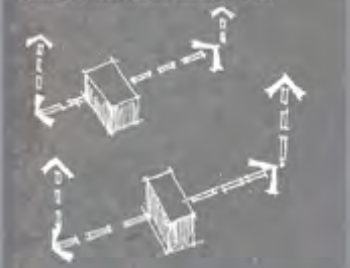


planning diagrams

section diagrams

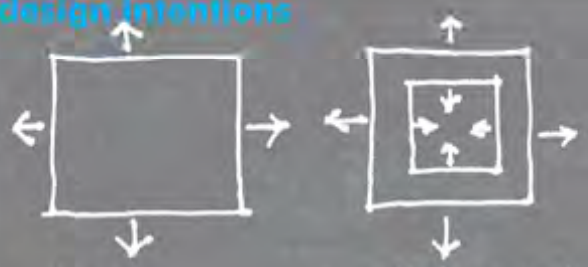
mass & elevation exploration

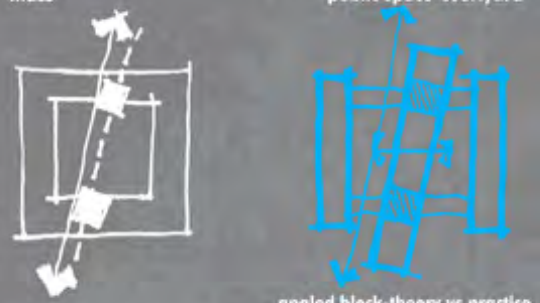




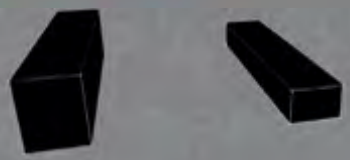
concept diagrams

design intentions





design intentions



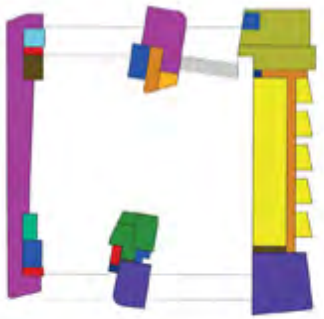
1 outer incubator elements

2 concrete canopies framing space and linking blocks

3 central block insitu base

4 contrasting angled central block

23_GROUND FLOOR PLAN
[1:250]



- integrated teaching
- admin space
- residential circulation
- service spaces
- fire stair
- wc/stores
- community space
- circulation/waiting space
- commercial spaces
- residential units
- exhibition space
- creche
- ground floor retail
- production spaces
- general vertical circulation
- goods lifts
- transient accomo.

zoning diagram & legend

- service access
- pedestrian movement
- control point/security

circulation diagram & legend

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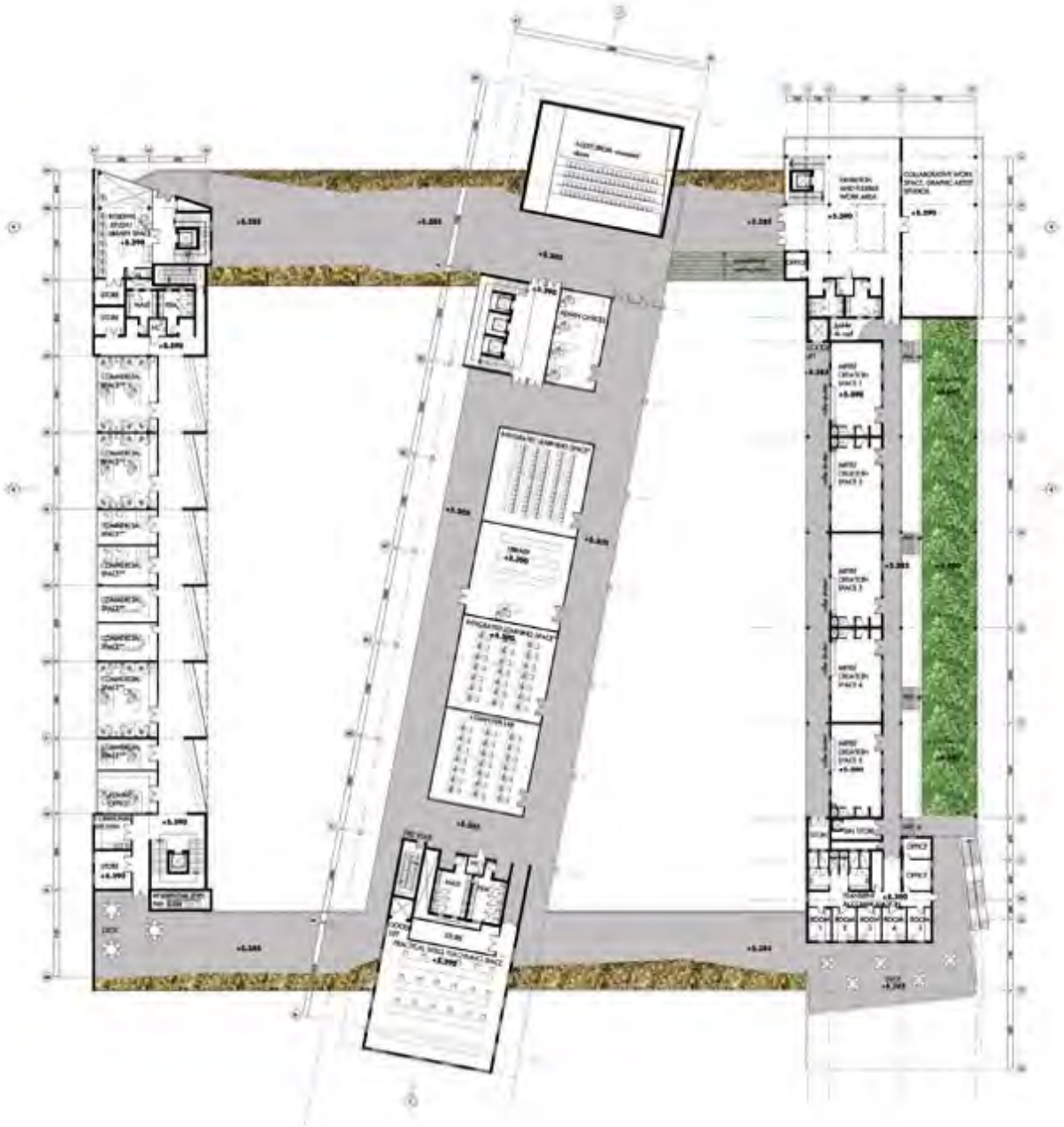
M.Arch (Prof) 2014



integrated teaching
admin space
residential circulation
service spaces
fire stair
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community space
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commercial spaces
residential units
exhibition space
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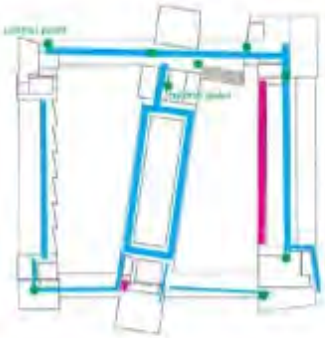
ground floor retail
production spaces
general vertical circulation
goods lifts
transient accomo.

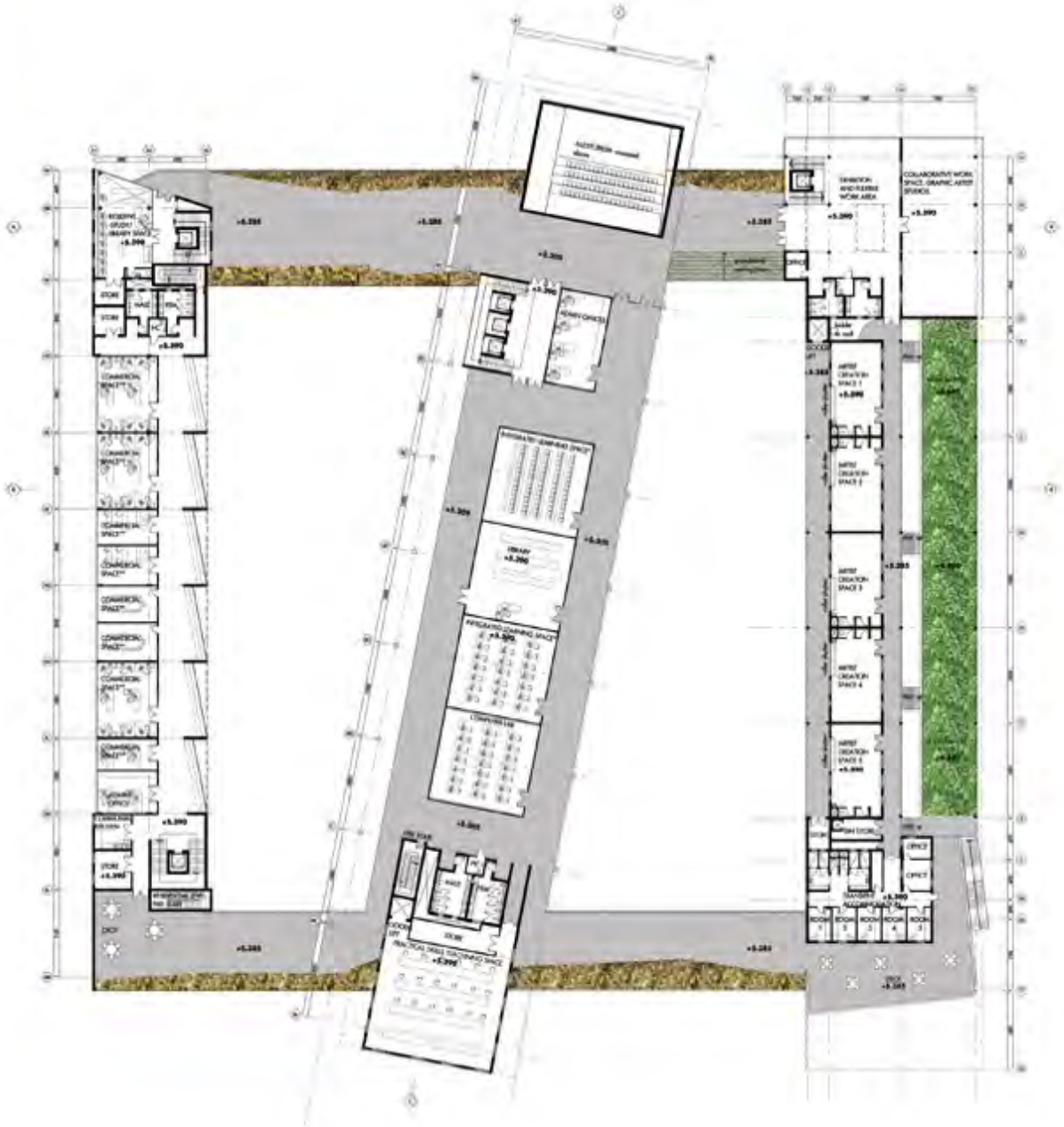
zoning diagram & legend



service access
pedestrian movement
control point/security

circulation diagram & legend

24_FIRST FLOOR PLAN
[1:250]



- integrated teaching
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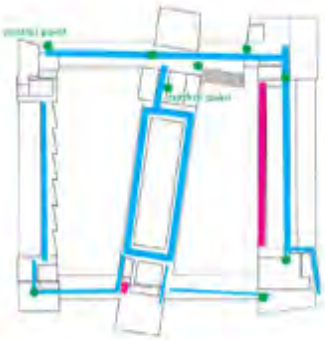
zoning diagram & legend



- service access
- pedestrian movement
- control point/security

circulation diagram & legend

24_FIRST FLOOR PLAN [1:250]

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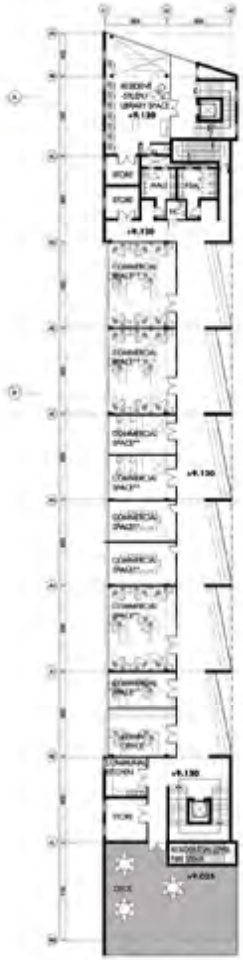

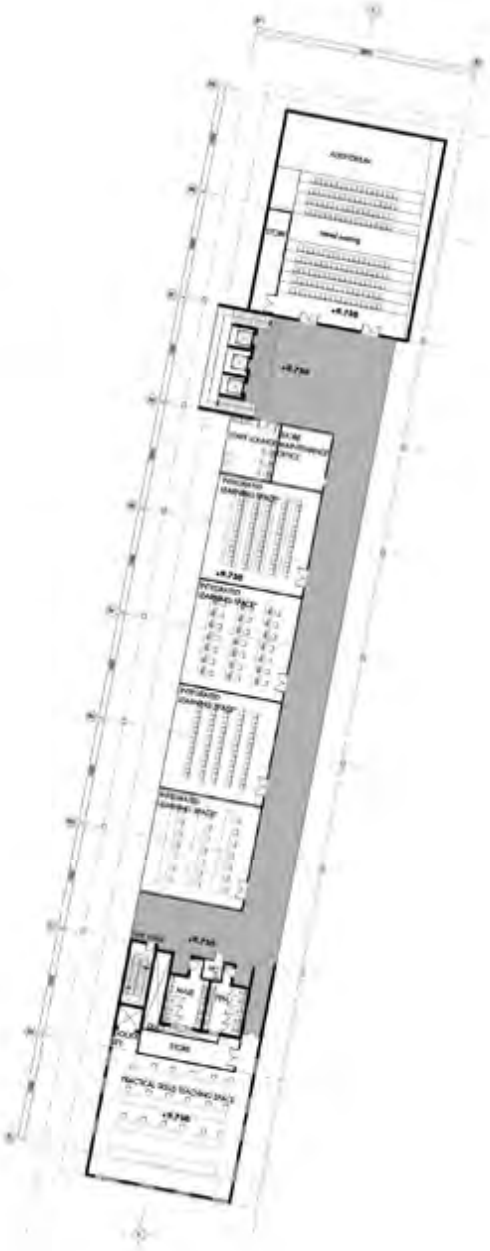

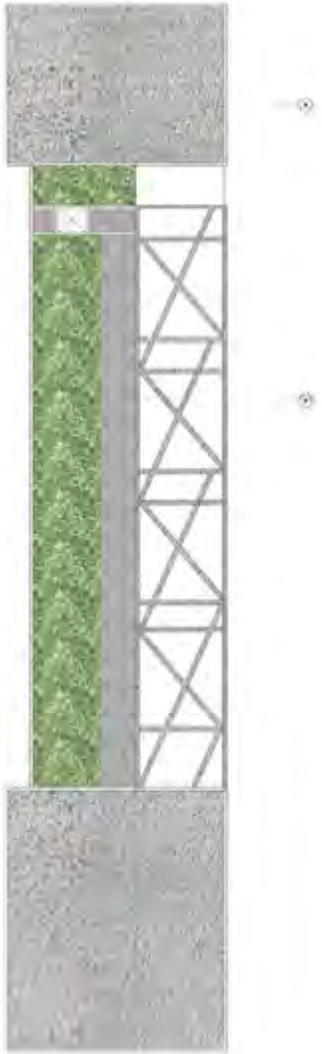

integrated teaching
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community space
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commercial spaces
residential units
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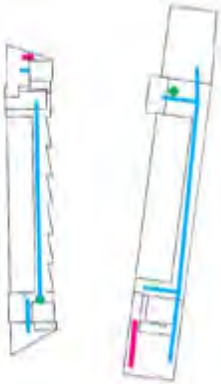
zoning diagram & legend



service access
pedestrian movement
control point/security

circulation diagram & legend

25_SECOND FLOOR PLAN
[1:250]

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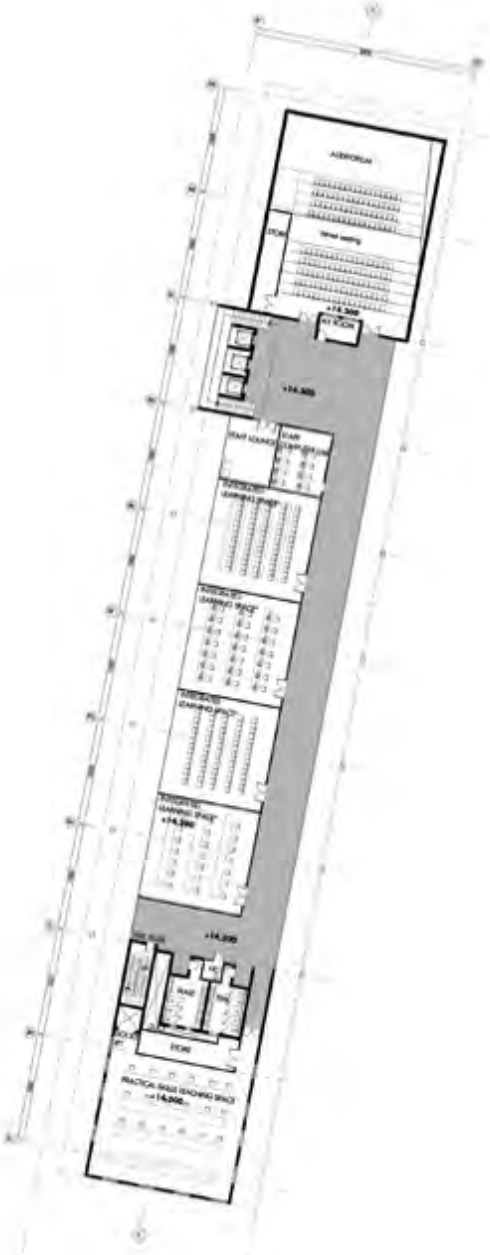
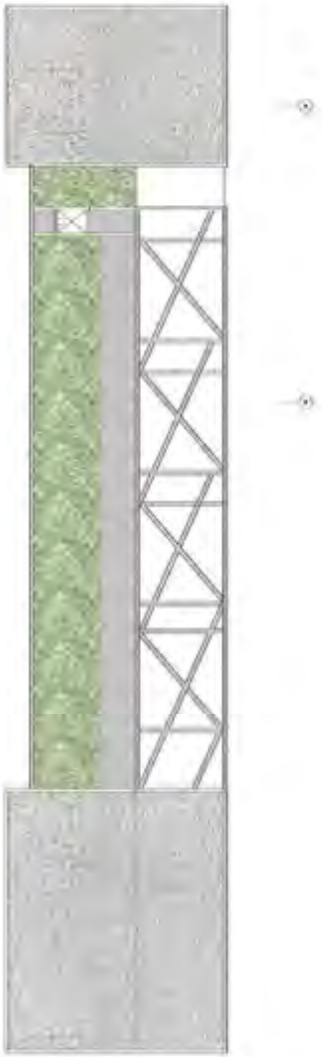
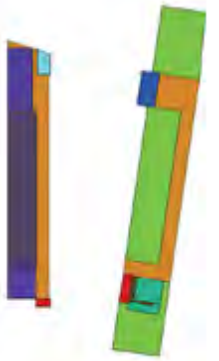
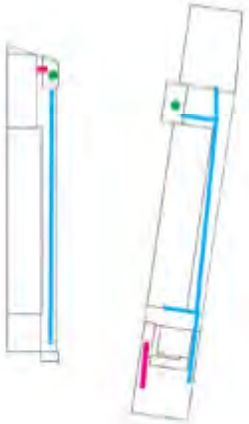






integrated teaching
admin space
residential circulation
service spaces
fire stair
wc/stores
community space
circulation/waiting space
commercial spaces
residential units
exhibition space
creche
ground floor retail
production spaces
general vertical circulation
goods lifts
transient accomo.

zoning diagram & legend



service access
pedestrian movement
control point/security

circulation diagram & legend

26_THIRD FLOOR PLAN
[1:250]

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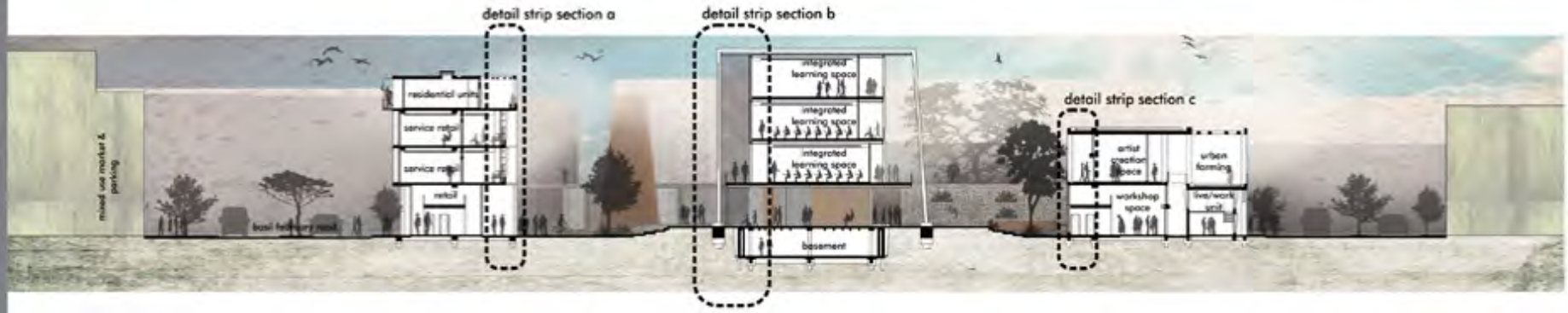
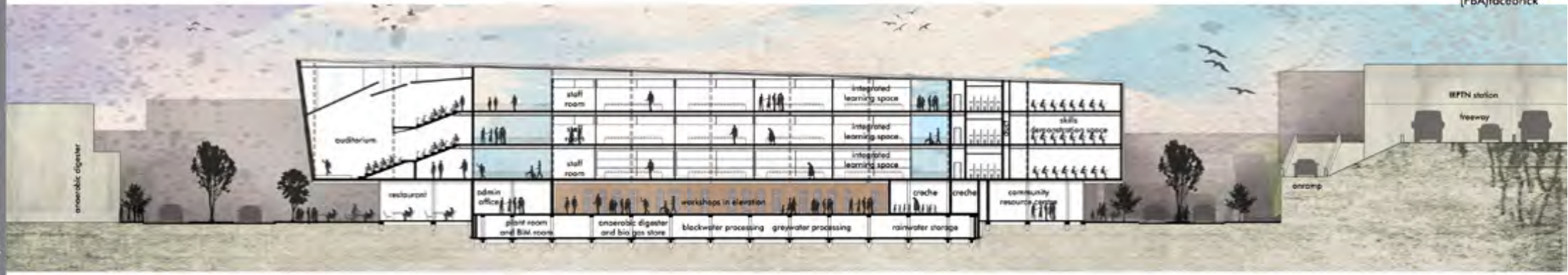
section aa
1:250

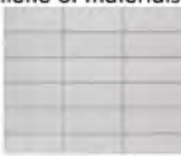


section bb
1:250



section cc
1:250

pallette of materials



alucabond cladding

aluminium roof sheeting

stainless steel mesh

epoxy/quartz screed floors

off shutter concrete

(FBA)facebrick

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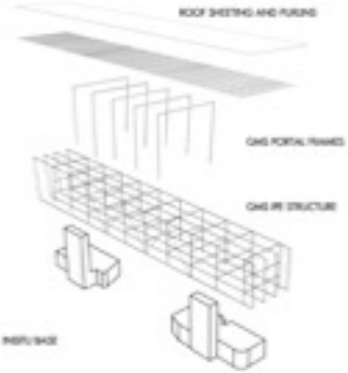
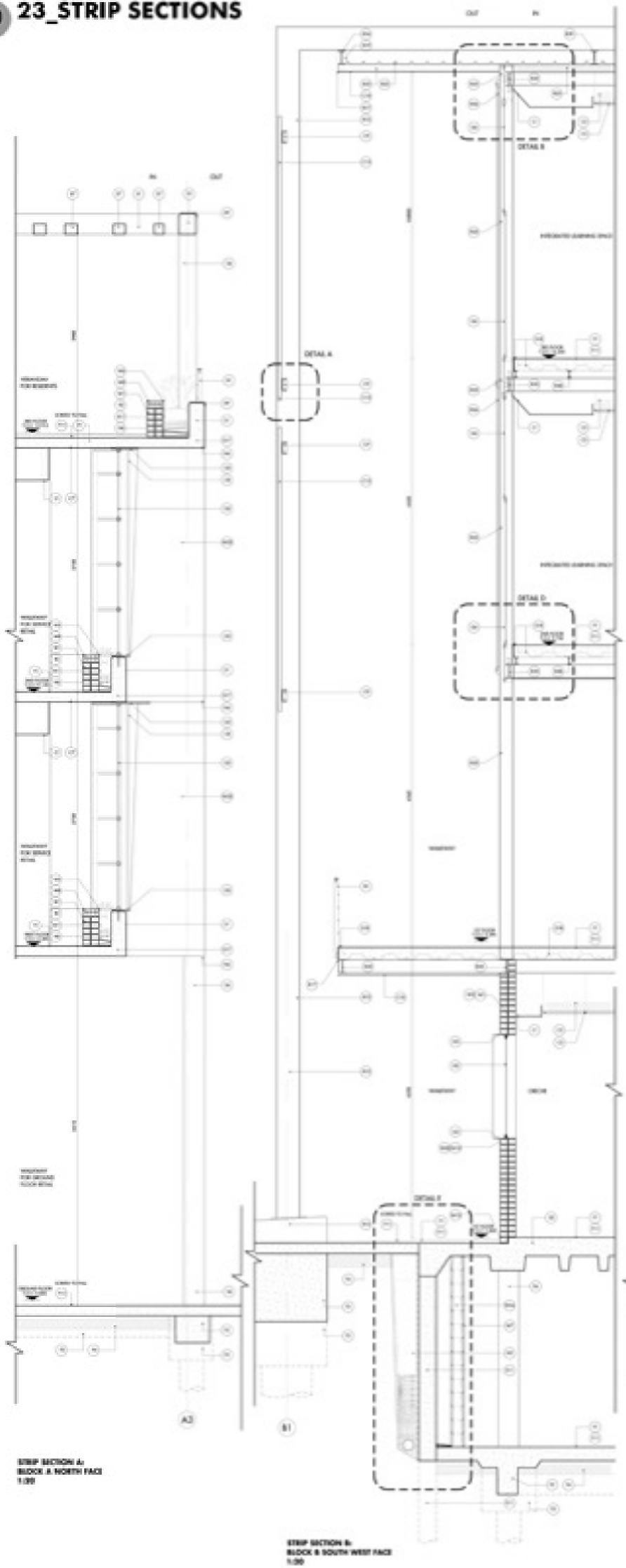
23_STRIP SECTIONS



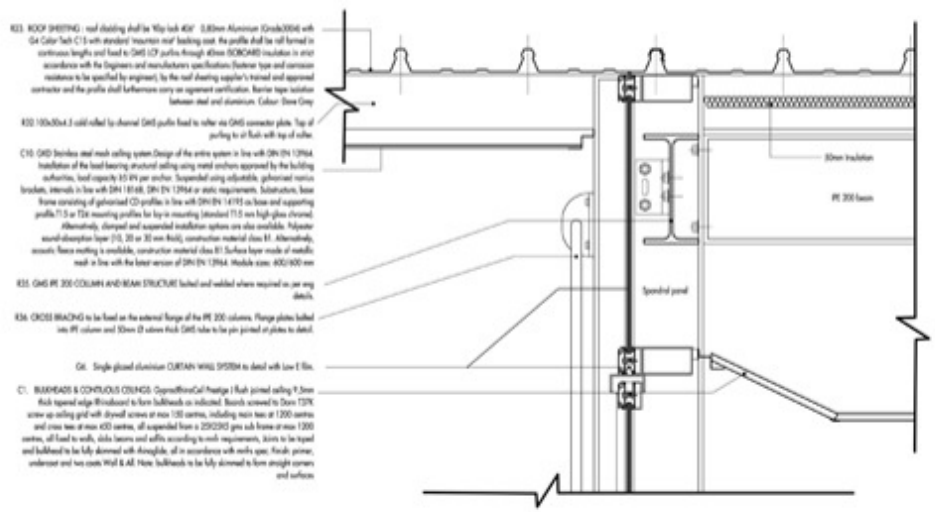
EXPLODED AXO OF BLOCK B LEARNING SPINE



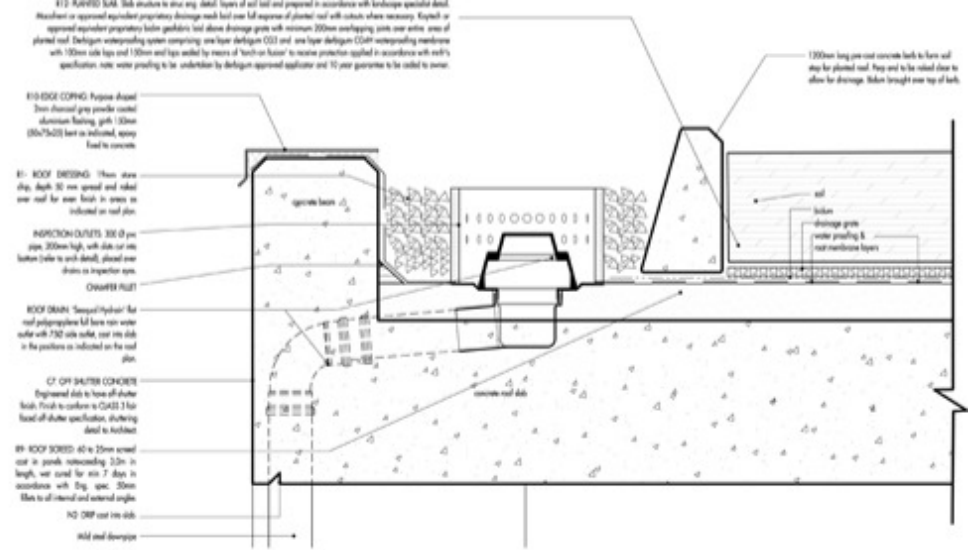
STRIP SECTION A:
BLOCK A NORTH FACE
1:200

STRIP SECTION B:
BLOCK B SOUTH WEST FACE
1:200

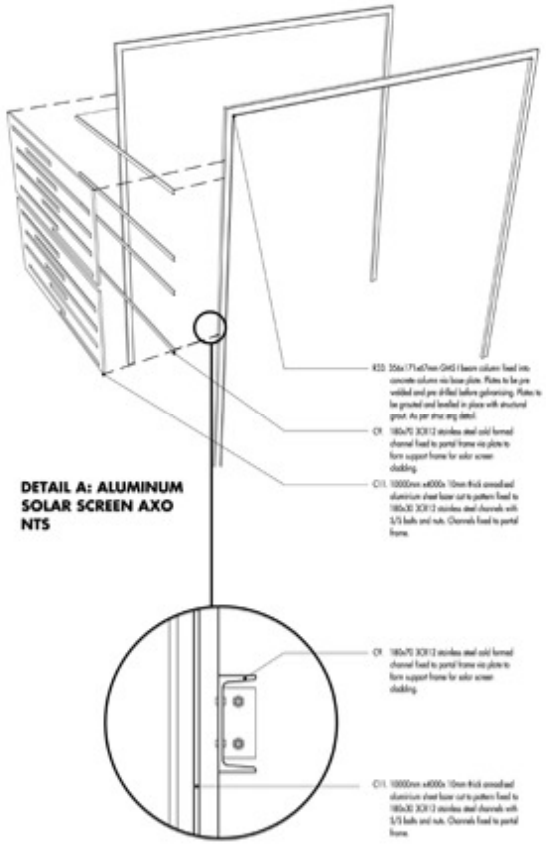
STRIP SECTION C:
BLOCK C SOUTH FACE
1:200



DETAIL B: ROOF SHEETING AND CURTIAN WALL GLAZING
1: 5

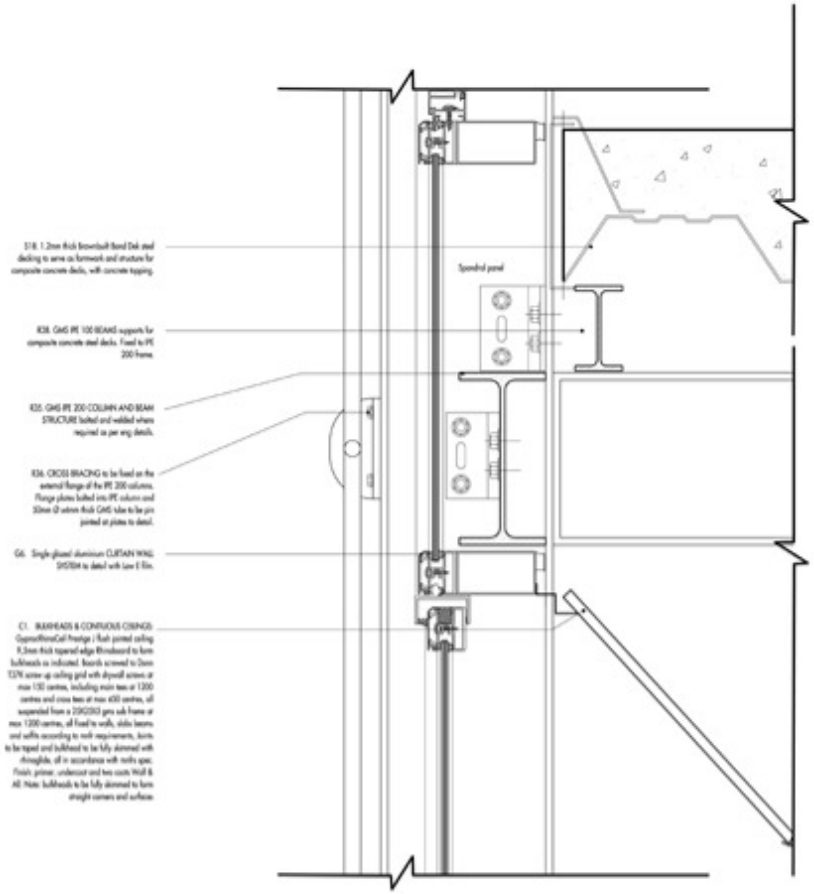


DETAIL C: DETAIL OF PLANTED ROOF FULLBORE OUTLET
1: 5

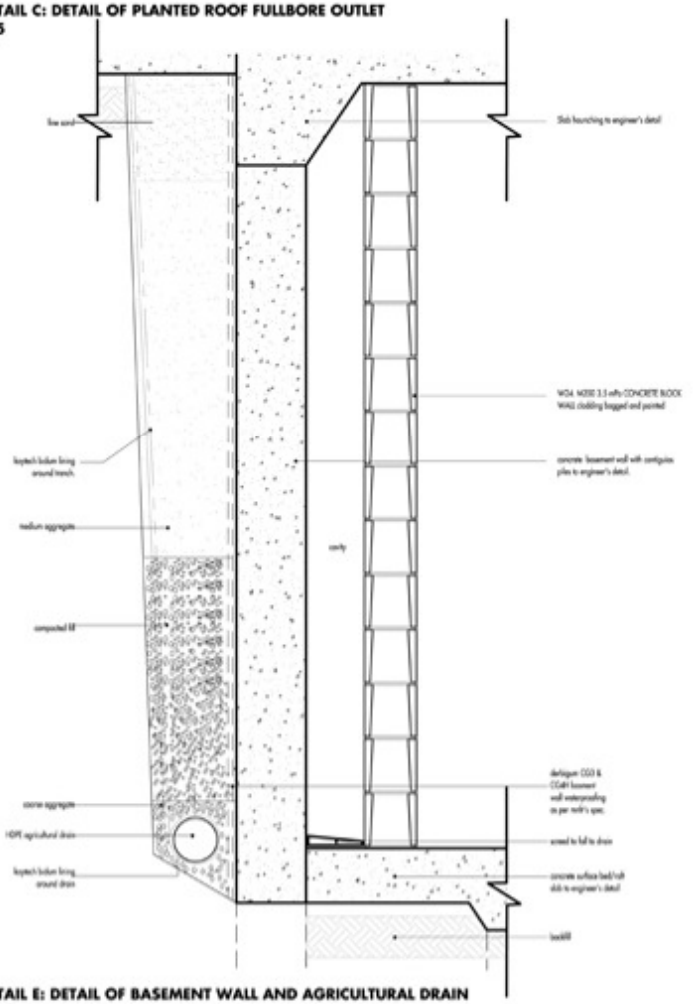


DETAIL A: ALUMINUM SOLAR SCREEN AXO
NTS

DETAIL A: ALUMINUM SOLAR SCREEN CONNECTION
1: 5

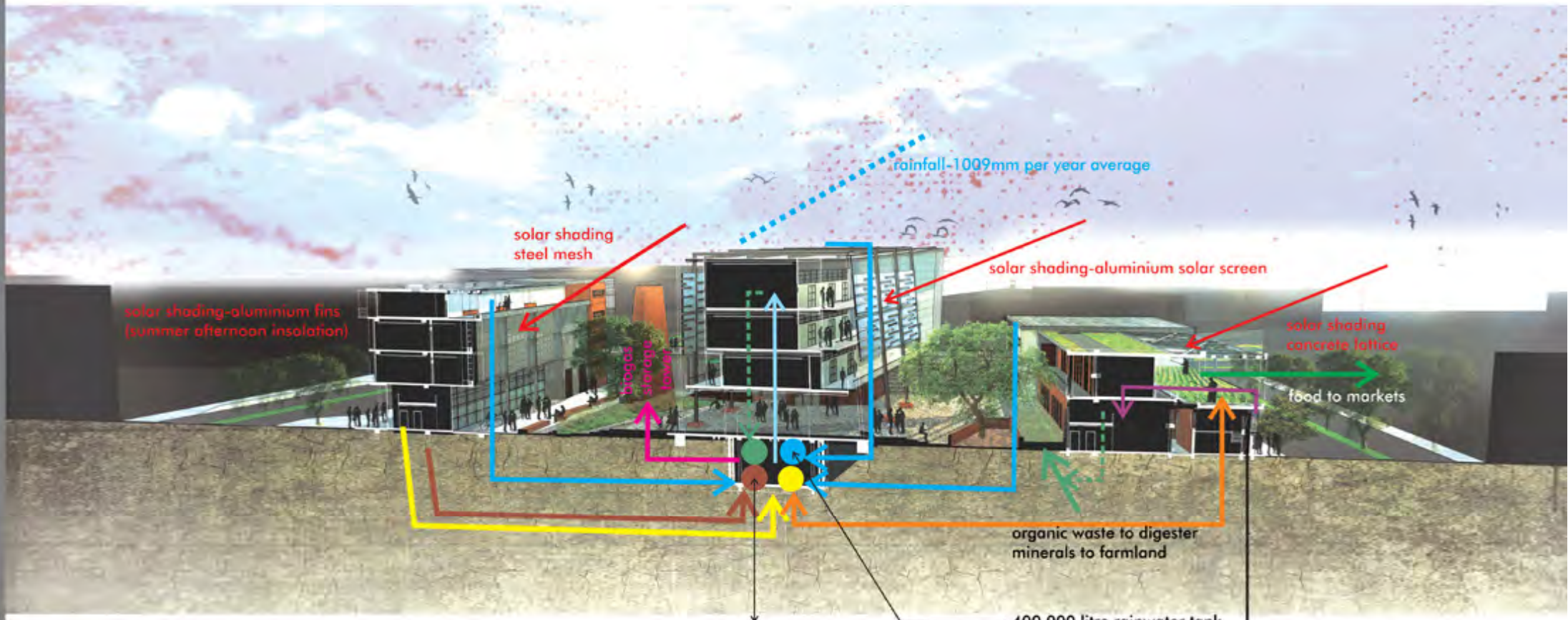


DETAIL D: COMPOSITE CONCRETE DECK AND STEEL STRUCTURE
1: 5



DETAIL E: DETAIL OF BASEMENT WALL AND AGRICULTURAL DRAIN
1: 10

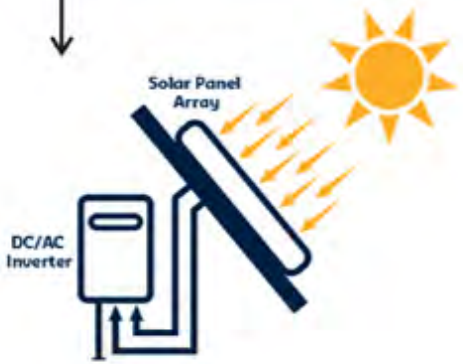
30_ENVIRONMENTAL REGENERATION SECTION



legend

- food
- urine diversion tank (nitrogen and phosphorus)
- biogas to biogas storage tower
- sewerage to black water treatment
- reused water in building
- rainwater
- grey water
- solar energy
- organic waste to digester
- insolation

example of blackwater and grey water processing unit



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31_ELEVATIONS AND 3D

south west elevation
1:250

north east elevation
1:250

view from west

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view from south

the remediation HUB

view from south west into courtyard, from learning spine 1st floor walkway

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