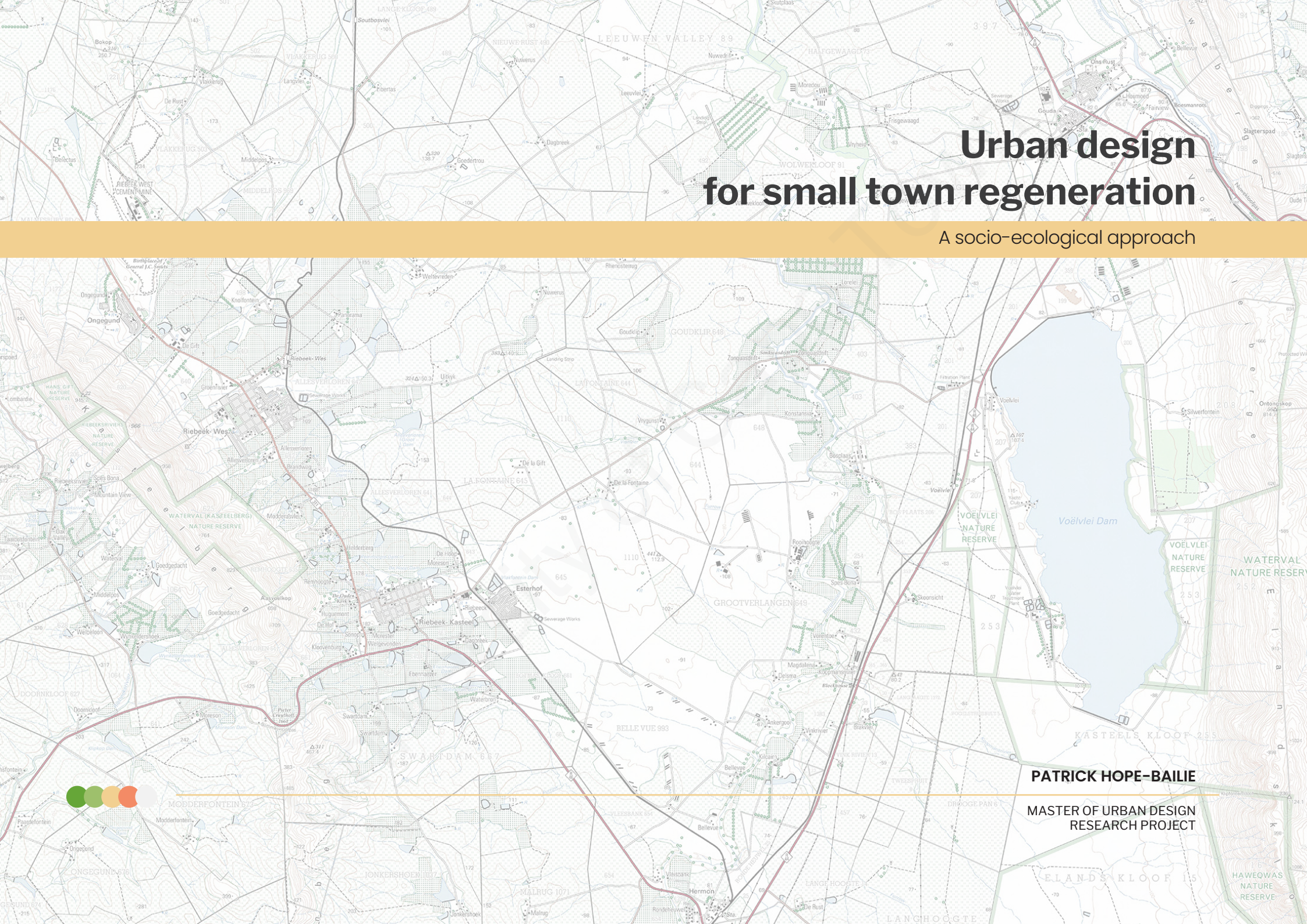
# Urban design for small town regeneration

## A socio-ecological approach

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# ACKNOWLEDGEMENTS

This is just one step in the journey. Although small in the grand scheme of things, it is a milestone.

I would like to thank all of my family and friends for the continuous inspiration to make this world a better place than we found it. To my colleagues and classmates, studio pals and strangers- thanks for all the support, encouragement, assistance and honest conversations.

To my supervisors Dr Katie Ewing and Hedwig Croojmans-Lemmer, thanks for the inspiration, guidance and motivation. Your support has been invaluable over the course of this research. To my past and present mentors, thank you for sharing your wisdom. It has been such an honour to learn from you, and to continue to pursue design excellence in the built environment.

I look forward to the next few decades with gratitude and curiosity.

See you in the wild, my friends.

# ABSTRACT

South Africa is a country with many small towns, each rich in heritage and culture and with their own unique spatial character. Unfortunately, most small towns are in distress. The focus of investment to bring about spatial transformation has typically been in either cities, or villages; i.e. urban or rural. However, Arndt, Davies and Thurlow (2018) suggest that a 3rd way would be to invest in secondary cities and small towns.

Small towns are embedded in the cultural landscape, and sit at the intersection of rapid urbanisation and industrial agricultural practice- two of the most significant features of the Anthropocene.

The broad aim of this research is to explore potential solutions to the regeneration of small towns in South Africa. This research applies urban design thinking and practice in a rural context; using evidence-based design research and a socio-ecological approach. Urban design is a critical spatial practice to ensure there is a focus on urban form and structure, and the creation of positive, enabling environments. An approach that balances the social order with the ecological order produces a spatial structure that heals and repairs the whole.

This is urban design, giving form to life.

Design anticipates new ways of
how people live. It reflects rural
habits within an urban setting -

**a culture going through transition.**

*Mpethi Morojele*
(overheard in conversation)

Bartholomeus' Klip
*Carol Mangiagalli*

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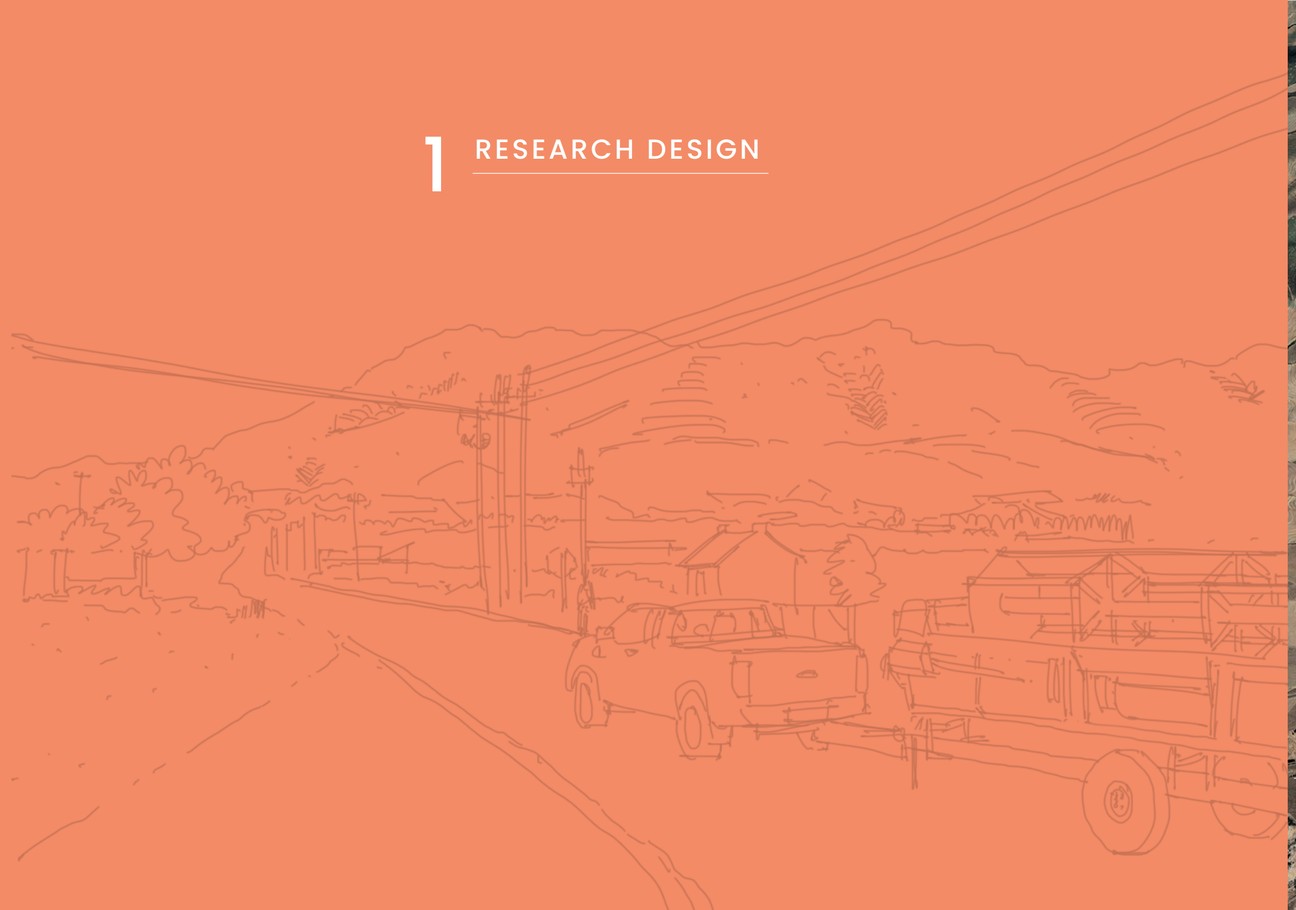


# 1. INTRODUCTION

## 1.1. RESEARCH OVERVIEW

Conceptually, this research is centred on the overlapping concerns of sustainability and wellbeing- and the relationship between humans and nature. It seeks to explore the spatial dynamics that play out at the intersection of the built and non-built environments.

My primary concern is spatial integration. But not just from a policy standpoint, or from an ethical and moral perspective. Integration goes beyond different groups of humans, and needs to be seen in the light of a planetary objective for the larger whole, the global ecosystem. I propose to explore how we begin to reconnect people to each other and the land(scape) at the interface of the urban and rural.

This conviviality can be pursued through design (Marcus and Colding, 2014), where design is a practice that anticipates new ways of how people live. I intend to explore the spatial manifestations of this dilemma and potential local solutions through the lens of 3 overlapping fields; landscape, urbanisation and agriculture.

**LANDSCAPE**

Two of the most significant features of the Anthropocene are urbanisation and agriculture (Morris et. al, 2022). These can either be threats or keys to the future sustainability of our world. Both of these forces play out on the natural landscape, shaping, twisting and transforming it to suit the needs of our growing populations. Expanding cities and metropoli tend to distance our connection to the primeval landscape, but it is "increasingly clear that social and ecological systems truly are interconnected across spatial and temporal scales" (Ganji and Rishbeth, 2020).

If we are to succeed as a species, a praxis is required of "simultaneously permitting urban growth, and the enhancement of critical ecosystem services provided by agricultural hinterlands" (Morris et. al, 2022; 1).

In this way, we are called to develop an integrated morphology that leads to resilient urban and natural systems. Human activities have driven enormous changes in the biosphere, the modification of landscapes, loss of biodiversity and climate change. Devising a methodology to foster the ecosystemic reconciliation of urban and rural is therefore, critically important.

**AGRICULTURE**

One of our most fundamental relationships with land is in tilling and cultivation. The birth of towns and cities is a result of this turn to pastoralism, farming the land and tending to livestock. The rural agricultural landscape is what keeps cities and towns alive.

Planned settlements arose out of our ability to tend the Earth, and cities themselves only exist because someone is farming somewhere. "Food and cities connect in multiple ways, and yet, most policy and governance responses view cities simply, as recipients of food produced in rural or even peri urban areas." (Haysom, 2021: 291)


FIGURE 1. A SCENIC AGRICULTURAL LANDSCAPE BY SOLLY MANTHATA

**URBANISATION**

Over the last 2 decades, South Africa has experienced a steady increase in the rate of urbanisation. Current urbanisation and migration figures indicate South Africa's population to be more urban (67.35% in 2020) than rural. These numbers comprise the total population living in cities, towns and small towns rather than rural areas. Unfortunately, processes of urbanisation are driving an urban-rural divide, resulting in spatial fragmentation, racial and social division, poorly developed public services and infrastructure as well as failing local economies. The transformation of our inherited spatial structure is a high priority in South Africa (COGTA, 2016).

The focus of investment to bring about spatial transformation has typically been in either cities, or villages; i.e. urban or rural. However, Arndt, Davies and Thurlow (2018) suggest that a 3rd way would be to invest in towns and secondary cities.

**SMALL TOWNS**

South Africa is a country with many small towns, each rich in heritage and culture and with their own unique spatial character. Current South African spatial practice (as well as its unfortunate historic legacy), negatively impact many of these settlements and has resulted in sprawl, fragmentation and separation (Todeschini and Dewar, 2013).

The South African government, through SALGA, has recently published the Small Town Regeneration Strategy, to outline a programmatic approach for their regeneration. The aims of the STR are (1) regeneration, restoration and fulfilling the economic potential of under-performing small towns, as well as (2) embracing the significance of small towns and their crucial roles in larger hierarchy settlements.

**CRITICAL REFLECTION**

The NDP 2030 recognises that there has been a lack of progress in the physical and social integration of cities. There are many emerging challenges, not least of which is transforming human settlements.

With further review, my concern is that spatial planning (implemented through SDFs) tends to focus on quantitative service delivery, as opposed to the provision of positive, enabling environments. This is a hangover of modernist town planning ideology. The settlements central to this debate are arguably then, small towns.

My argument is that urban design is a critical spatial practice to ensure there is a focus on urban form and structure, and the creation of positive, enabling environments. This approach is starting to receive some traction in well-resourced metropolitan regions, however the same benefits should extend to the public realm in small towns across the country as well.

## THE METABOLIC RIFT

'**alienated humans** from the natural environment and disrupted our traditional forms of **"social metabolism"**, the material transformation of the biophysical environment for the purpose of social reproduction' (McClintock 2010, p. 192)

| | |
|---|---|
| **(i) ecological rift,** | break in the nutrient cycle |
| **(ii) social rift** | commodification of land, labour and food |
| **(iii) individual rift** | alienation of humans from nature |

FIGURE 2. THE METABOLIC RIFT. OUR FRAGILE RELATIONSHIP WITH THE NATURAL ENVIRONMENT AND EACH OTHER

CITIES AND CITY REGIONS

MEDIUM + SMALL SIZED TOWNS

RURAL SETTLEMENTS

FIGURE 3. DISTRIBUTION OF DIFFERENT SETTLEMENT TYPOLOGIES ACROSS SOUTH AFRICA

SOURCE: AUTHOR

## 1.2. RESEARCH QUESTION

How can the regeneration of small towns be encouraged by a socio-ecological approach to urban design?

Sub-questions:

- What constitutes a 'small town' in the scope of this research?
- What is meant by regeneration?
- What defines a socio-ecological approach?

The focus of this research project is predominantly in the Western Cape; using one small town as the chosen site. The idea is to understand how the application of urban design thinking and practice could influence the regeneration of small towns in South Africa more broadly. My intention has been to frame possible urban design strategies through a socio-ecological lens, and interrogate what this could mean.

**This research, attempts to determine how a socio-ecological framing to urban design could contribute to improved spatial form, integration and equity, positive environmental quality and an enabling economy in small towns.**

FIGURE 4. 'CROSSWAYS VILLAGE' PROJECT
SOURCE: CMAI ARCHITECTS

## 1.3. RESEARCH AIMS

**The broad aim of this research is to explore potential solutions to the regeneration of small towns in South Africa.**

This research applies urban design thinking and practice in a rural context. Using evidence-based design research to propose a new (socio-ecological) way of looking at small towns to encourage their regeneration.

FIGURE 5. NIEU BETHESDA IN SOUTH AFRICA
SOURCE: GROBLER DU PREEZ

The main problem being addressed in this research is how to regenerate small towns.

My argument is that small towns in South Africa need to be supported as they are currently in distress. They suffer from various developmental challenges that include failing economies, lack of service delivery, racial and social divides, lack of spatial integration and access to opportunities. This lack of spatial integration, and the failure of current spatial policies to equitably improve the urban environment point to the need for small town regeneration. (Arndt, Davies and Thurlow, 2018: 1, COGTA, 2016)

The aim is, firstly, to define small towns in the context of this research. This requires unpacking the way that small towns are understood to form part of the South African settlement hierarchy. Out of this research, I intend to unpack and explore the value of small towns in the context of vital urban-rural linkages.

Secondly, it is important to interrogate the developmental approach for small towns. The aim is to evaluate the current policy responses to the challenges and opportunities presented in small towns. The primary focus for this research is on a recently published policy called the Small Town Regeneration Strategy 2021, prepared by Citeplan/ Restaurare for SALGA.

The third aim of this research is to clearly define the socio-ecological approach. I have used my theoretical framework and literature review to inform this approach to the design research.

At this point, I intended to start the process of data collection. My research methodology (discussed further in Section 2) was supposed to be flexible, iterative and reflexive. It has been guided by a desire to better understand the broad development challenges of small towns in the Swartland, and a deeper understanding of my chosen site; the town of Riebeek Kasteel.

The final aim of this research, is to explore the contribution of urban design to the regeneration of small towns.

This process started with the selection of a site. It has been followed up by the identification of stakeholders to interview and chat with, multiple field trips to the region and a site walkabout. The intention was to get a better idea of the spatial challenges specific communities face, and probe for ideas on how to solve them.

This design research process aims to solve for the lack of spatial integration within the chosen community through applied urban design thinking and practice.

### RESEARCH AIMS

1. Focus on small towns
2. Evaluate current approaches to regeneration
3. Define the socio-ecological approach
4. Choose site and collect data
5. Apply urban design thinking and practice

# 2. CONTEXT

## 2.1. SMALL TOWNS IN SOUTH AFRICA

**The spatial context for my research is on small towns in South Africa, with a predominant focus in the Western Cape.**

'Small towns' is an interesting nomenclature used in South Africa, depending on which policies you refer to. It can describe a vast range of settlements situated between the largest metropolitan regions and the smallest rural villages. The CSIR produced a document titled Functional Town Typology (van Huyssteen et al, 2018) in which they classified these settlements into various categories based on their size, space economy and functional characteristics.

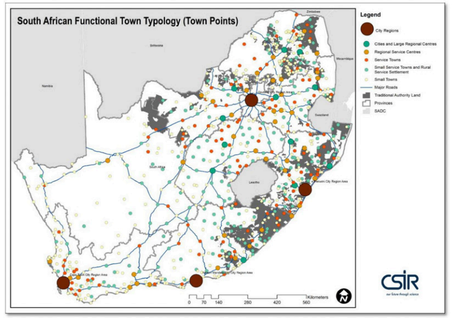



FIGURE 6. SOUTH AFRICAN FUNCTIONAL TOWN TYPOLOGY
SOURCE: CSIR (VAN HUYSSTEEN ET. AL., 2018)

These categories include:

- City Regions
- Cities and Very Large Regional Centres
- Large Regional Centres
- Regional Centres
- Service Towns
- Small Service Towns
- Rural Service Settlement
- Small Towns
- Rural Settlement Areas and Villages
- Sparsely Populated Rural Areas

Outside of metropolitan areas, cities and large regional towns, the remaining settlements in South Africa are home to 47% of the population, i.e. 26.3m people (van Huyssteen et. al, 2018). According to the NSDF (2018) these settlements are not expecting the population growth to decline in the decades to come. In fact, there is also a sizable counter-urbanisation trend and consequently quality 'urban living' is required in both urban and rural contexts.

More importantly, we must recognise that small towns are embedded in a 'rural' landscape. Rural areas, by definition are:

- Areas of national significance for surface water and food production and key ecosystem services.
- Home to millions, vulnerable and isolated from the broader national economy
- Places of retreat, rest and cultural practice (away from urban areas)
- Sought-after domestic and international tourism and retirement destinations (NSDF, 2018; 52-53).

The peculiar context of small towns, situated in the "peri-urban multiscape" (Morris et. al, 2013: 1) and the urban-rural continuum come with it's own unique conditions that shape their particular morphology and relationship to the surrounding environment.

The list below highlights the complexity of factors influencing their spatial patterns:

- Increasing urbanisation (an expanding urban edge)
- Rural in-migration, natural growth and semigration
- Distorted development intensity
- Uneven historical patterns of ownership
- Racialised settlement patterns
- Lack of spatial integration
- Resilience to climate shocks
- Provision of ecosystem services
- A concentrated and centralised food supply system
- Balancing economic development and natural preservation

## 2.2. WESTERN CAPE- RIEBEEK VALLEY

**The intention has been to focus on small towns in the Western Cape as a start, and then choose one particular town to apply the design research methodology.**

### SWARTLAND

The Swartland Municipality comprises 13 towns and settlements ranging from the regional service centre of Malmesbury, to tourism nodes such as Riebeek Valley and Yzerfontein, to the growth nodes Moorreesburg and Darling. There is a range of small towns (various sizes and functions).

In the Swartland, the majority of the municipal area consists of farmlands, natural areas and coastal areas. I have been particularly keen to focus on an area with competing interests and pressures from increasing urbanisation, industrialised agriculture and regional conservation efforts. This combination provides an amazing opportunity to test the socio-ecological approach to urban design.

### RIEBEEK KASTEEL

After much consideration, I landed on the town of Riebeek Kasteel in the Swartland as the site for my research. Riebeek Kasteel sits in an areas known as the Riebeek Valley, on the eastern side of the Kasteelberg.

It forms part of a small development corridor along the R311 on the Swartland Wine and Olive Route. It sits adjacent to its sister town of Riebeek West and the small village of Ongegund, adjacent to a large cement factory (PPC). Riebeek Kasteel is about 13km away from the nearest regional service centre of Malmesbury and approximately 43km from Paarl. It sits about 85km north east of Cape Town and is reachable within approximately 1 hour's drive.

FIGURE 7. PICTURESQUE LANDSCAPE OF RIEBEEK KASTEEL WITH THE NG KERK IN THE FOREGROUND AND VINES BEHIND

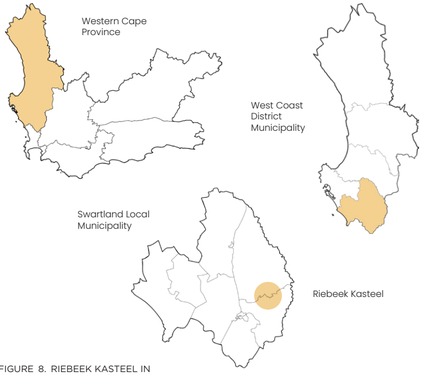



FIGURE 8. RIEBEEK KASTEEL IN CONTEXT OF THE WESTERN CAPE

FIGURE 9. PHOTOGRAPH OF THE RIEBEEK VALLEY THAT SHOWS HOW TOWNS ARE 'EMBEDDED' IN THE RURAL LANDSCAPE

# 3. RATIONALE

**Small towns in South Africa are in distress. The reasons for this vary, but may be attributed to rapid urbanisation, loss of economic vitality, dependence on a single industry and the lack of economic diversification (COGTA, 2021).**

Urbanisation processes have also created an urban-rural divide resulting in spatial fragmentation, racial and social division, poorly developed public services and infrastructure and failing local economies.

Urbanisation and shifting policy responses have impacted the shape and form of South African cities dramatically. But it has also had deleterious effects on settlements outside of the large metropolitan regions. Urbanisation has altered the urban-rural dynamic in significant ways, and the consequences of this imbalance are evident. Many cities struggle to deliver adequate services to their growing populations, as a result of rural-urban migration and population growth. (Arndt, Davies and Thurlow, 2018; Atkinson, 2008). Smaller towns face the loss of economically active populations, decline and stagnation as a result of ineffective local governance (Duyar-Kienast, 2010).

In South Africa, patterns of spatial segregation reveal themselves from thousands of feet in the air, and the reality on the ground is stark. The negative impact of spatial apartheid planning and rapid urbanisation continue to shape our cities and towns in profoundly unequal ways. (Turok, 2012)

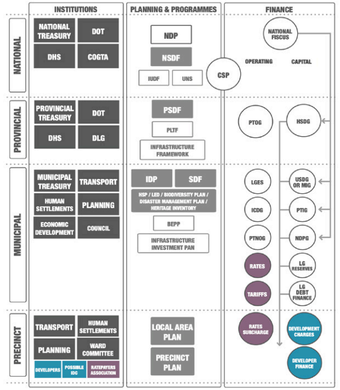



FIGURE 10. SPATIAL PLANNING CONTEXT IN SA. SHOWS THE RELATIONSHIP BETWEEN INSTITUTIONS, PLANNING PROGRAMMES AND FINANCIAL MECHANISMS ACROSS VARIOUS SCALES

SOURCE: DRDLR- SDF GUIDELINES (2014)

## 3.1. SOUTH AFRICAN SPATIAL POLICY

Why urban design is important?

Recent SA spatial policy places an equally important emphasis on small towns and rural areas. Small towns are recognised for the contribution they make to the national space economy (NSDF, 2018; 62). And further, vital urban-rural linkages become an incredibly important issue in the drive towards sustainable development.

The main planning instrument is the Spatial Development Framework, to guide and direct spatial planning and land use management.

My 'global' concern is that many local governments are dysfunctional and do not have the capacity to produce a SDF that focuses on issues such as urban structure and form, and the production of 'urban qualities' beyond the requirement to provide adequate services. It should be noted that, for certain municipalities, insufficient capacity and fiscal resources limit their ability to implement the requirements of SPLUMA.

As such, urban design does not feature as a prominent spatial practice in South Africa. Smaller towns (due to their size, and low regional priority) receive little attention in the form of forward planning frameworks to improve the quality of the built and natural environments.

## 3.2. TAKING THE COUNTRY'S SIDE

Why small towns are important?

**There is no longer a clear distinction between urban and rural areas. It has become a continuum in so far that, urban issues affect rural areas and vice versa.**

Small towns across the country remain vital for national ecosystem services, the sustainability of metropolitan regions, production of food, fuel, feed and fibre, conservation of the natural environment, and housing millions of people. This points to their significant role in a larger settlement hierarchy (NSDF, 2018).

Small towns themselves suffer from numerous problems such as poor basic services, failed infrastructure projects, unemployment and severe poverty, demographic revolution, lack of support for small business and a lack of development opportunities. This includes the shortfall of government-funded programs as well dependence on local natural resources (Arndt, Davies and Thurlow, 2018).

Beyond these challenges, small towns are key entities in promoting the economic growth of the surrounding remote areas as they create access to markets for economic activities taking place in the rural surroundings.

Small towns are also the link between cities and rural areas and provide vital social, economic, environmental and spatial functions (Ndabeni, 2016).

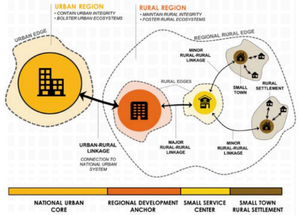



FIGURE 11. URBAN-RURAL LINKAGES

SOURCE: NATIONAL SPATIAL DEVELOPMENT FRAMEWORK (2018)

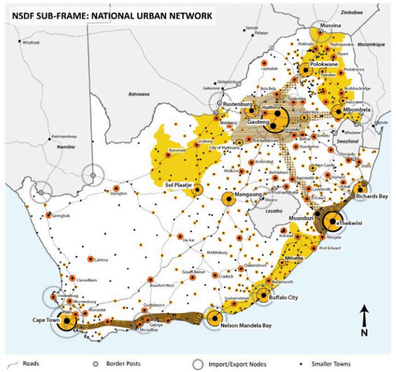
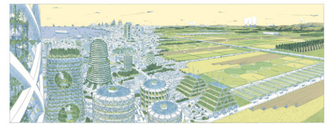



FIGURE 12. NATIONAL URBAN NETWORK

SOURCE: NATIONAL SPATIAL DEVELOPMENT FRAMEWORK (2018)



INCORPORATION

INFILTRATION

INTEGRATION

SUCCESSION

FIGURE 13. IMAGES FROM SEBASTIAN MAROT'S EXHIBITION TITLED 'TAKING THE COUNTRY'S SIDE'

SOURCE: ARCHITECTURE TRIENALLE IN MADRID, SPAIN (2019)

## 3.3. TIMELESS URBAN QUALITIES

Why regeneration is important?

**Regeneration is important because it is clear that small towns are struggling. Failing local government, resource constraints, economic collapse and the ineffective application of spatial policy have destroyed the quality of the environment and provision of services.**

My concern in this regard is that spatial development frameworks are driven by modernist town planning ideology, and the application of normative standards (Low, 2005). They tend to focus on the quantity of services delivered, rather than the quality of the environment produced. This is a failure in the role of spatial planning which is to show new horizons of opportunity, and create an enabling urban environment. My hope is that this highlights a new role for urban design, and perhaps a formal consideration of the role of urban design as a discipline in South Africa. The art of settlement-making is a creative discipline that requires a design response (idea) to identified needs.

Dewar and Uytenbogaardt (1991: 13) go on to suggest that: "This task (settlement-making cannot be successfully pursued from a base of purely functional, programmatic and technocratic considerations: it also calls into play intuition, imagination and insight."

### TIMELESS URBAN QUALITIES

- Balance
- Freedom
- Equity
- Intensity, Diversity and Necessary Complexity
- Integration
- Community

Malmesbury

Moorreesburg

Riebeek Kasteel

FIGURE 14. SMALL TOWNS IN THE SWARTLAND

The aerial photographs on this page provide an easily discernible view of the physical mainfestation of spatial segregation in a selection of small towns in the Swartland.

Townships are divided and segregated from the original settlement via buffers of industrial use, green open space, major transport infrastructure (highways and railways) as well physical distance. They require restructuring and the production of good urban form to become sustainable, timeless and regenerative.

## 3.4. AGRICULTURE AND URBANISATION

Why a socio-ecological approach?

**Our cities and towns are "budding outward" (Morris et. al, 2022: 1), rapidly consuming land and natural resources for energy, water and food production as well as producing more wastes.**

As cities and towns expand, their outsized influence and impact on the surrounding rural areas continues to grow. The traditional urban/rural dichotomy becomes less and less apparent. The clear geographical and territorial distinction between these settlements is no longer clear. The buffer zone between these two areas has been overgrazed.

Both urban and rural areas face pressures such as urban sprawl, environmental degradation and an industrialised and globalised economy.

Broadly, the 2 biggest threats to sustainability are urbanisation and agriculture. They are both similar blights with unintended consequences and externalised environmental costs. The space in which these competing dynamics play out is in the peri-urban areas of metropolitan regions and in the backyards of small towns and rural areas. This transect now resembles more of an urban to rural continuum, and is the recipient of subsequent dispersed ecological pressures.

Urban design/ planning needs to move rapidly towards designing human settlements that are ecologically oriented, that value environmental assets and considers the spatial dimension of food (Pothukuchi 2009; Viljoen and Wiskerke 2012).

FIGURE 16. COMMERCIAL AGRICULTURE IN SOUTH AFRICA
SOURCE: AFRICA ON THE RISE

FIGURE 17. URBANISATION IN SMALL TOWNS PERPETUATES SPATIAL APARTHEID
SOURCE: GROUNDUP

FIGURE 18. FARM LABOURERS HARVEST GRAPES IN THE SWARTLAND
SOURCE: SWARTLAND WINE AND OLIVE ROUTE

FIGURE 19. SMALL TOWN URBANISATION- NEW REST TOWNSHIP IN ESTERHOF
SOURCE: JAFTA HENDRICKS

FIGURE 15. ALLEGORY OF GOOD AND BAD GOVERNMENT
AMBROGIO LORENZETTI (1338)

# 4. METHODOLOGY

**The proposed methodology for this design research project was "participatory action research".**

The desire has been to follow a qualitative research paradigm focused on gathering input and data from the targeted community and adjacent stakeholders to assist in the 'design-as-research' process.

The research design employed a 'mixed-methods' approach. This approach prioritised using qualitative study, blended with normative data gathered from historical and current surveys, policy documents and geospatial information. I aimed to pursue both quantitative and qualitative methods to produce a research product comprised of narrative inputs and data collected both in field and as desktop studies.

The intention has been to understand how various spheres of government understand and pursue small town regeneration as a policy directive and to balance this with a developmental approach taken by local stakeholders. These two groups have been my primary sources of information to understand the current approaches (both top-down and bottom-up).

My third source of information has been from residents and visitors to Riebeek Kasteel. I wanted to understand the perspective of the town from people on the ground, and this information has came from various sources.

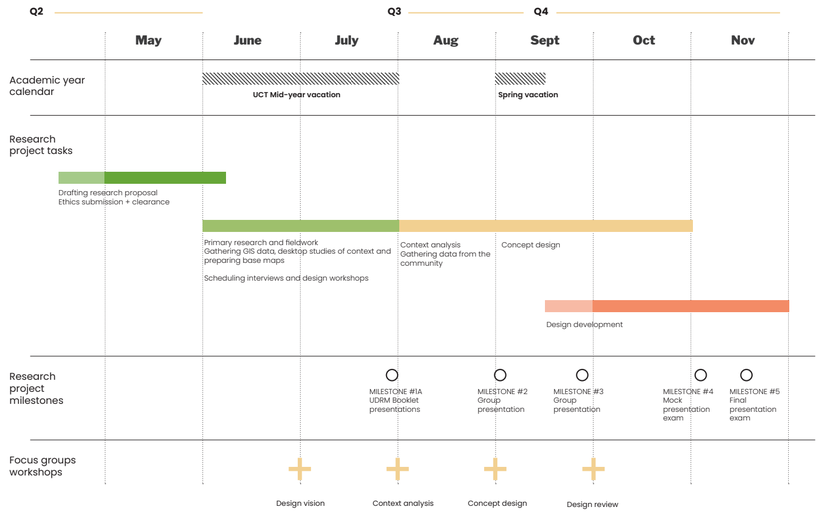



FIGURE 20. ORIGINAL PROPOSED RESEARCH SCHEDULE

The research methods chosen were directed at pulling together quantitative and qualitative data regarding the research topic, and providing informants into the design process. Below is a list of the research methods chosen and further explanation on how they were conducted:

- Desktop study
- Semi-structured interviews
- Fieldwork
- Informal conversations
- Site walkabouts

## 4.1. DESKTOP STUDY

The starting point for this research project required a desktop study of various topics relating to the intersection of urbanisation and agriculture-

- A critical review of South African spatial policy targeted towards small towns
- Frameworks, report and plans produced by the Swartland Municipality
- Theoretical approaches to improving spatial structure
- Case studies of small town regeneration
- Exploration of theories and concepts that might help to define a socio-ecological approach to urban design

**Below is a list of the spatial policies I reviewed in this phase of the research and some of the findings**

- National Spatial Development Framework (NSDF), 2018
- Western Cape PSDF
- West Cost District Municipality SDF
- Swartland Municipality SDF
- Swartland Municipality Human Settlements Plan and IDP.
- Socio-economic profiles of the Swartland Municipality (2019 + 2020)
- SDF Guidelines (DRDLR)
- Case studies of Napier and Amathole through the STR 2016

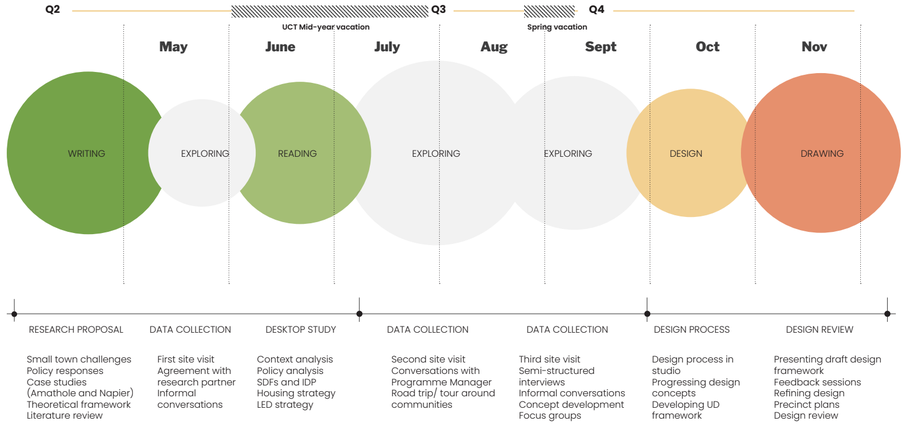



FIGURE 21. RESEARCH PROCESS AS IT UNFOLDED OVER THE COURSE OF 2022

## 4.2. SEMI-STRUCTURED INTERVIEWS

One of the primary sources of information that I have used to gather data for this research project has been through semi-structured interviews. My focus has been on understanding government's approach to small town regeneration, the value of urban design in this process and getting a better grasp of the local conditions in Riebeek Kasteel.

How I went about choosing the participants for my interviews?

I came across most of my sources through mutual relations and contacts, and/ or reaching out to people via email and phone.

The interviews that I have conducted so far include:

- Istell Orton and Eriva Nanyonjo- Town planners from Citeplan/ Restaurare who were the authors of the Small Town Regeneration Strategy 2021
- Annelie de Jager- a Town planner from Swartland Municipality
- Anelia Rumboll from CK Rumboll and Partners- a Town planning and surveying consultancy who were responsible for preparing the Swartland SDF 2021
- Jafta Hendricks- Project manager from Goedgedacht's Care for the Planet (Cftp) team, responsible for all community development programmes and outwork done in surrounding communities
- Desiree Bess- Ward Councillor for Ward 12 (Riebeek Kasteel) in the Swartland Municipality. *This 'interview ' was in the form of a site walkabout and is detailed in the next section.*

My first interview was with Istell Orton and Eriva Nanyonjo from Citeplan/ Restaurare. This firm has been responsible for the production of the review of the Small Town Regeneration Strategy 2021, for COGTA (Department of Co-operative Governance and Traditional Affairs). We had a 2-hour long conversation about the process of developing this policy, how conditions on the ground informed the content, case studies highlighting positive responses and how urban design forms a key part of the policy response in the years to come.

My second interview was with a contact at the Swartland Municipality; a town planner in the Land Use Management Department. She typically oversees/ reviews development applications that fall within the municipal area, and has also been part of the team responsible for reviewing the production of the Swartland Spatial Development Framework. We had a fascinating conversation about the role of local government in small town regeneration, and the opportunities and challenges in providing usable and meaningful public space in communities across the municipality.

The third interview I had was with the local town planning firm, CK Rumboll and Partners based in Malmesbury. They have been contracted by the municipality to prepare the SDF 2017-2022 for the Swartland Municipality. This was an interesting interview to conduct in that it gave me a lot of insight into how growth is planned for in the municipality, the challenges of working in a rural context with limited municipal budgets. This SDF is really comprehensive and includes land use proposals for each settlement (13) within the municipality. This allowed me to understand the primary concerns of the municipality and their spatial response.

The fourth interview I conducted was with Jafta Hendricks, a project Manager for the Care for the Planet (Cftp) team at Goedgedacht. Jafta is a wealth of knowledge and has been working in the surrounding communities for close on 30 years. He has extensive experience as a community liaison, is a Ward Committee member for Ward 12 (which includes Riebeek Kasteel and surrounding areas) and is the project lead for all outwork undertaken by Goedgedacht.

His experience on the ground, dealing directly with beneficiaries has been incredibly informative and eye-opening. His main aim is to empower community members and "Champions" with knowledge about food gardening, and provide them with supplies where necessary. On a weekly basis, he conducts site visits and delivers vegetable seeds, tools and compost to community members.

He works across numerous communities including Riebeek Kasteel, Riebeek Wes, Saron, Hermon, Kalbaskraal, Riverlands, Chatsworth and Malmesbury.

These interviews were incredibly helpful in piecing together a narrative for this research project that regenerative practice through the lens of urban design in the small towns of South Africa.

## 4.3. FIELDWORK

My fieldwork for this project has included multiple trips to Riebeek Kasteel, and several surrounding towns and villages in the Swartland, namely: Riebeek Wes, Ongegund, Riverlands, Chatsworth, Malmesbury, Hermon and Darling. I have spent time travelling across the Swartland and documenting some of these trips with video footage, audio recordings and photographs. The idea has been to try a generate an idea of the inherent 'genius loci' or sense of place in this part of the Western Cape.

I have tried to spend as much time as possible on site, touring local retailers, curio shops, art galleries, butcheries, bakeries, coffee shops, real estate agents, nurseries, hotels, farms, vineyards and restaurants. The 3 weekends that I was able to spend in the Swartland and on Goedgedacht farm) sparked many conversations about both the good and the bad in Riebeek Kasteel.

## 4.4. INFORMAL CONVERSATIONS

An important part of the research methodology has been 'situated research'. I have spent as much time as possible on site, with no particular agenda other than to develop a real sense of place, to experience the social dynamics of the town first hand and to engage locals in conversation. During the course of my site visits and studio work, I have been grateful to have the opportunity to informally discuss my research with a number of different people.

There have been several workshops held on Goedgedacht farm which I have luckily been a part of- as well as a WhatsApp group for the Cftp team. Successes, failures, challenges and opportunities in the field have all been shared openly. These conversations with Bulelane, Jabulani, Paul, Ashraf, Nosi and Valma have all been most welcome and enlightening.

I have also met some incredible local residents, community activists, NGO board members and other urban practitioners travelling around Riebeek Kasteel and Riebeek Wes. We shared stories and thoughts on migration, rising property prices, urban safety, small town emergency services, local arts and humble architecture. The list of people I spoke to include Tannie Marie the local librarian, Ann from the Tourist Information Centre, Nicole from Pam Golding Properties, Ashwin from the Tin Roof Taverna, Frik and Alida from Riebeek Wes (Krem a tart) coffee shop, Jill from the Wine Collective, Sybrand from Le Parilla and Max Melvill from the MAAK Architects.

FIGURE 22. BLUE SKIES, DIRT ROADS, GRANARIES AND GROWING TUNNELS
SOURCE: AUTHOR

## 4.5. SITE WALKABOUT

One of the primary sources of information for my design process was a lengthy site walkabout that I undertook with the local ward councillor, ward committee member, and staff of Goedgedacht's Care for the Planet (Cftp) team.

The local councillor, Mev. Desiree Bess, has been in office for Ward 12 for about 6 years. She lives in Esterhof (Riebeek Kasteel) and is well-known throughout her community. She is supported by 5 other ward committee members, who are each allocated a 'block' or 'zone' in Riebeek Kasteel to attend to citizens' affairs.

The site walkabout was eye-opening and really helpful in getting to see parts of the community that I had never been to before. It was an amazing feeling to comfortably walk the streets, greeting passers-by and checking in with neighbours. Almost everybody knows the councillor, and occasionally wanted to check-in with her quickly on an issue, question or concern that they had. The atmosphere felt very friendly, open and welcoming.

We started at the community hall on Lelie Street, and walked in a large loop heading south through the 'Old Scheme' and 'Asla' towards 'New Rest'. We only walked through Esterhof, the 'low-income' community in Riebeek Kasteel who live on the far side of the railway line. We didn't venture into 'Upper Town' of the old CBD of Riebeek Kasteel as it is conventionally known.

As we walked and talked, we discussed many issues relating to land ownership, service delivery, municipal budgets, backyarding, explosive growth, wide sidewalks, use of the railway land, zoned property, empty space, power struggles and planned developments. There are many challenges that the community faces; kids drowning, the lack of sports facilities, drugs and alcohol abuse, few job opportunities, seasonal labour, rising crime rates and a legacy of separation.

Often times, the starkness of the environment didn't match the energy of the place. My biggest take-away was that contrast. As much as I am concerned about the quality of the environment, the atmosphere of 'life' in the community was irrepressible.

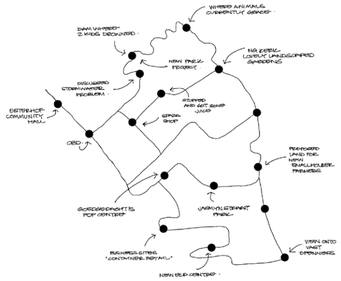



FIGURE 24. SITE WALKABOUT- TRACING OUR ROUTE THROUGH ESTERHOF

FIGURE 23. PHOTOS OF SITE WALKABOUT WITH WARD COUNCILLOR AND CFTP TEAM MEMBERS
SOURCE: JABULANI NGWENYA

# 5. ETHICAL CONSIDERATIONS

### CURRENT LEVELS OF INEQUALITY

The topic of spatial integration remains a sensitive topic of discussion, conversation and practicality. South Africa's urban and rural settlements both continue to display historical patterns of distorted land ownership, lack of spatial integration, improper budgeting and failed service delivery. The aim of this research is to explore options for overcoming this divided spatial pattern in small town South Africa, through applying a socio-ecological lens to urban design and planning.

In partnership with Goedgedacht, I have been dealing with vulnerable communities, following a community mapping process. I've been excited to be partner with a local NGO that undertakes development work in the region as I plan to use their network as an entry to finding participants for my research. The communities they work alongside continue to suffer from lack of social integration and reduced access to economic opportunities. The communities are vulnerable and care needs to be taken in dealing sensitively with this issue.

### DATA COLLECTION WITH LOCAL YOUTH

As a part of their own research process, Goedgedacht are going to be undertaking data collection within the communities they serve. They employ local youth and providing them with a stipend and tablet devices to commence with the data collection process. I hoped to use some of the data that they are able to collect, as well as doing some data collection and sampling of my own.

While we are working simultaneously on similar issues, I have to ensure to be clear about the data that I wish to use, the accuracy of it as well as the confidentiality of the information as well. I have taken the data collected through a process to anonymise it, and also make sure that it is stored safely and securely. This data contains valuable household and land-based information. It is important to maintain the integrity of this data and prevent it from being used and/or interpreted incorrectly. The raw data has not been made publicly available.

### LOCALLY DESIGNED SOLUTION

The product of this research project has ultimately been delivered in the form of a spatial design solution, a framework plan for the community. It has been prepared on the basis of inputs from local stakeholders and development partners. It is important to clarify with all participants that the intention is to test the design solution against a conceptual model. It is not a framework or plan that will be implemented. There is no intention to action it. However, I would like to encourage my NGO partner to adapt parts of the plan that they might find useful for the continuation of their development work in the community.

### OBSERVATIONAL DRAWINGS AND PHOTOGRAPHS

I intend to spend several weekends in the field, travelling through the Swartland and documenting the quality and discerning features of the natural and built environments, as well as evidence of spatial integration and separation. These drawings and photographs have been used to inspire creative ideas for enhancing the sense of place in the design process, as well as being used for discussion and presentation. I have only been taking pictures from the public space.

I have done my best to ensure that I do not invade people's privacy and security, and have only published evidence of their identities where I received their consent to do so. I have been careful to portray the living conditions of community members and stakeholders as accurately as possible, and not misrepresent any of the facts or circumstances. These drawings and photographs have been used as a record of settlement conditions; to analyse the use of public space and quantify the availability of ecological assets.

### RECORDING INTERVIEWS AND SITE WALKABOUT

I have recorded the audio for the interviews, and the site walkabout was captured using both audio and video tools. The idea behind capturing the process is to ensure that information shared by participants during the design process is accurate. I have ensured that the proposed design solution when being refined and prepared for presentation in studio, is a clear representation of the inputs of the stakeholders and community members in the workshops.

All participants were asked to sign consent forms to approve of the use of photographs, video and audio revealing their identities.

## THE GOEDGEDACHT TRUST

My NGO partner for this research, the 'Goedgedacht Trust' have a farming operation near Riebeek Kasteel and undertake community development work across the Swartland.

They currently operate 2 programs across 17 communities in the nearby regions. The first program is called Paths onto Prosperity (POP); and is mainly concerned with assisting rural children by providing ECD and social/ economic support until local children finish school. The second program that Goedgedacht run is the Care for the Planet (Cftp) program that focuses on food security, nutrition education, agroecological training, farmer support and land care.

They have agreed to partner with me on this research, and assist me to meet with and work alongside some of their stakeholders and beneficiaries. This is a mutually beneficial arrangement as I believe the end product of this research project could accelerate some of their programmatic outputs.

The Goedgedacht Trust have undergone an institutional shift recently. This new development envisions an 'Agroecology Centre of Excellence' constructed and operated from their existing premises. The development of this facility has been funded by international donors and requires research, mapping and data collection to be performed in the towns and communities which they serve.

I have negotiated a relationship with them to effect my research in the communities they serve. This partnership has helped me to make contact with relevant stakeholders and work amongst the community in a conscientious way.


FIGURE 25. THE GOEDGEDACHT TRUST ECOSYSTEM
SOURCE: AUTHOR

FIGURE 27. IMAGES OF OUTWORK BY THE CFTP TEAM MEMBERS OF GOEDGEDACHT
SOURCE: JAFTA HENDRICKS

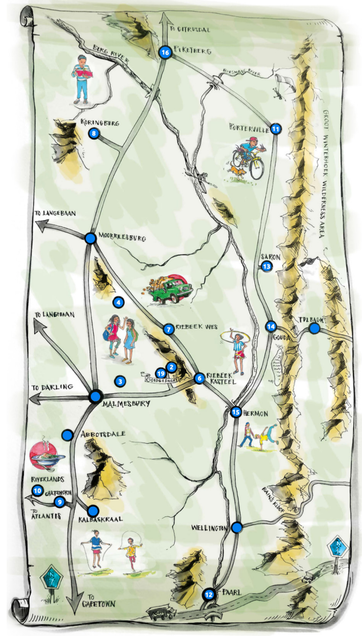



FIGURE 26. MAP SHOWING COMMUNITIES IN WHICH THE GOEDGEDACHT TRUST OPERATES
SOURCE: SUE BEATTIE

# 6. THEORETICAL FRAMEWORK

**My primary concern in this research is the poor environmental quality of low-income settlements in small towns. There always tends to be a significant discrepancy and stark contrast in the qualities of the 'old town' and the quality of the 'new townships'- located on the periphery.**

My observation is that there are two reasons for this failure.

First, there is the lack of a well-defined spatial structure that new townships and residential subdivisions introduce. Subsidised housing provision is typically located on peripheral land, and are planned and designed as isolated/ in-ward-looking developments. They do not respond to their unique context because of a standardised model of delivery. Plot sizes, street widths, utility services and public spaces are spread evenly throughout the urban fabric. There is a 'sameness' that sterilises the urban environment.

Second, conventional planning for township development is too prescriptive; the settlement-making goes too far. Freedom and complexity are reduced. Complexity cannot be designed. The environment is over-simplified, and the positive qualities of the environment are lost. In so doing, the parts become more important than the whole and the inherent beauty of the landscape is reduced through provision of private dwelling units and utility services.

This is in direct opposition to a spatial structure/ logic that places the non-programmatic quality of the public environment as it's primary concern.

The theoretical framework and design philosophy for this research draws on the work of several prominent authors and thinkers in urban planning, design and architecture. The theories that I have used to aid my research process fall into two categories that complement each other.

**STRUCTURE, FORM AND ORDER**

The first reflects a priority on the importance of spatial structure to re-order space and provide a logic to which development can respond over time. Overly-planned settlements become sterile where the emphasis is placed on the private dwelling unit. This is the failure of modern planning.

The first group of authors include Dewar, Uytenbogaardt and Todeschini. I refer to Dewar and Uytenbogaardt in their seminal book, "South African Cities: A Manifesto for Change" (1991) and Dewar, Uytenbogaardt and Todeschini in the "Guidelines for Human Settlement Planning and Design" (2000).

Structure, form and order become so important with the myriad forces at play in the urban system. The current development paradigm is reductionist and mechanistic. It reduces the urban environment into parts and the process of settlement-making into different disciplines. These disciplines all have a physical manifestation, and without a spatial structure to produce form and order, they disparately affect the quality of the built environment.

**BEAUTY, VALUE AND MEANING**

The second deals with the quality of the public environment. We derive value and meaning from our surroundings. In 'township' developments, incrementalism is an afterthought and 'beauty' is privately held.

The second group of authors is Alexander et. al and deals with several of his lesser-known books outside of A Pattern Language; including a "New Theory on Urban Design" (1987), "The Timeless Way of Building" (1979) and the compendium of the "Nature of Order" (1981). These books I found complement Dewar and Uytenbogaardt's work and focus on the quality of space, beauty in the environment, wholeness, coherence and structure.

In effect, small towns and larger urban centres suffer from a crude architecture, and basic planning that reduces land and buildings to parts. As designers, we need to focus on the whole, and creating wholeness; which leads to a "wholesome, life-supporting world" (Alexander, 1981: 3)

## 6.1. DESIGN PHILOSOPHY

I have chosen to use Dewar and Uytenbogaardt's philosophical position as described in a "Manifesto for Change" (1991) as the roots of my research. As I explore a socio-ecological approach to urban design, grounding my process in a philosophy that recognises the valuable relationship between humans and nature makes sense.

Dewar and Uytenbogaardt's philosophical position is based on two pillars:

**the first is humanist, and the second is the adoption of a 'conservation ethic'.**

**PILLAR 1: HUMANIST**

The art of urban planning and design is concerned with the making of human settlements, and the "client of planning is ultimately people" (Dewar and Uytenbogaardt, 1991: 13). Quality settlements, and enabling environments are rooted in a basic understanding of human activity and need. They enrich the living conditions for all people and provide qualities which are timeless (Dewar and Uytenbogaardt, 1991).

It is these particular urban qualities which should be included in enabling plans. We can recognise that these qualities have failed to emerge in small towns. My research has been prompted by this situation and the need to consider how to change that trajectory.

These specific qualities are explored through the design development.. How we design for these qualities in small towns becomes a focus of the design research process.

**PILLAR 2: CONSERVATION ETHIC**

Many urban theorists recognise the need to respect the environment in which settlement-making is carried out. Dewar and Uytenbogaardt (1991, 13) suggest that "planning consciousness" relate to the natural condition which provides the setting and resources for human life. Their conservation ethic invokes three central concepts.

**1. Dynamic balance**
There must be a balance between man's activities and the resource base. There are ecological considerations and determinants which must be respected.

**2. Regionalism**
An recognition of the inextricable interdependence between the characteristics of a place, people's activities in that place and the emergence of cultural expressions and forms.

**3. Resource sensitivity**
Recognition of the importance of all resources and the need to use these wisely.

FIGURE 28. 'OF HUMANS AND NATURE- OLAF HAJEK

## 6.2. STRUCTURE, FORM AND ORDER

"Spatial structure is a concept used to interpret, design and make human settlements. The spatial structure of a settlement results from an interplay between the formally planned and the spontaneous." (Uytenbogaardt, Dewar, Todeschini, 2000: 5).

The term 'structure' refers to the public environment; that realm shared by all inhabitants. It is typically the focus of public investment and the spatial structure to which private business, public investment and decision-making responds.

With regard to spatial structure, there are 3 starting points to consider in achieving positive settlements; pedestrian movement, the quality of the public environment and a minimalist approach to settlement-making.

Starting with this foundation, the suggestion is a move towards desired performance qualities in settlements. These performance qualities manifest with the following physical characteristics:

- they are scaled to the pedestrian
- they are compact, with relatively high building densities
- their structural elements are integrated
- strong, spatial feel with well-defined public spaces
- their spatial structures are complex, offering choice

(Uytenbogaardt, Dewar, Todeschini, 2000: 2)

### 6.2.1. PERFORMANCE QUALITIES

An integrated approach to planning, and the framework upon which this rests, encourages the identification of 'performance qualities' for settlement-making. Environments with these qualities share some of the following characteristics (Uytenbogaardt, Dewar, Todeschini, 2000):

- **Efficiency of resource use**- Resources including land, money, building materials, manpower, energy and water are used as efficiently as possible.
- **Opportunity generation**- Opportunities can be generated through intensification, integration, complexity and clustering.
- **Convenience**- Access is the primary factor contributing to convenience with pedestrian movement as the lowest common denominator.
- **Choice**- Settlements should offer a diversity of choices- of places, lifestyles, activities and interaction opportunities.
- **Equality of access**- It is important that all people have reasonably equal access to opportunities and facilities.
- **Quality of place**- Settlement design should respond to it's context, embracing the uniqueness of the landscape.
- **Sensory qualities**- Positive environments reflect powerful sensory qualities in public and social spaces.
- **Sustainability**- Sustainability is both spatial and temporal. One refers to the relationship between the built environment and natural landscape, and the second refers to 'timeless qualities' in structure and form.

### 6.2.2. MINIMALISM AND COMPLEXITY

Good settlement-making relies on strong actions to provide direction, and ensure minimum actions are taken to protect the integrity of the whole. This 'minimalist' approach can be seen as the enabling 'constraint' which provides some predictability. It is the goal of the framework plan and the function of structure to generate a range of opportunities to which individuals and groups can respond.

This approach is intended to enable complexity through the resources, ingenuity and energies of the community and implementing agencies. However, taken too far, programmatic 'planning' can reduce the freedom of action and discourage spontaneity, and diverse actions of members of the community. This is where a minimum number of actions are required to define the spatial structure (framework) that enables and encourages people to respond in their own, unique way.

### 6.2.3. ELEMENTS OF SPATIAL STRUCTURE

In traditional planning, the elements of spatial structure refer to circulation networks, public transport systems, open spaces, public facilities and utility services.

However, in terms of non-programmatic, spontaneous settlement-making, it is the qualitative contribution and physical characteristics of these elements which become most important. How these structuring elements manifest in settlement-making is described below:

- Connection
- Space
- Public institutions
- Public utility services

**Connection** refers to movement of all kinds, as an activity that occurs in space. The movement system is a system of spaces that people move through in various ways, from pedestrian movement, to cycling, public transport (bus, taxi and rail) as well as private transport. "It is primarily within the network of movement spaces that the public life of a community takes place" (Uytenbogaardt, Dewar, Todeschini, 2000: 6) The movement system defines the "pattern of accessibility" and is a force majeure of spatial structure.

**Space** should be approached as part of thinking about the whole, it is not just 'public open space'. Public spaces are the meeting spaces of people in settlements and comprise the "rooms and seams" of connectivity. They are many-placed places and serve a diverse range of needs. Central to settlement-making is a continuum of spaces, that provide order and structure and transition between degrees of publicness and privacy.

**Public institutions** served as the key structuring elements of settlements, and were those most valued by society. Commonly institutions occur in central places and are easily accessible- and announced by public spaces. Institutions provide location guidance to other uses such as housing, and help to structure the settlement in this manner.

**Public utility services** are those engineering services essential to the function of settlements. Water provision, sewerage removal, stormwater disposal, solid-waste removal and electricity supply. These are essential for the maintenance of public health. They should take cognisance of the human and nature-centred approach to settlement-making, and in terms of spatial structure- they should follow, now lead.

(Uytenbogaardt, Dewar, Todeschini, 2000)

"The search for ways of celebrating life, therefore must be the central issue informing thinking about urban structure and design. The capture of these qualities requires a creative act: it defies standardisation and the predetermination of form." (Dewar and Uytenbogaardt, 1991: 22).

It follows that urban design, the art of city-making, is central to the creation of structure and form, through which our communities enjoy and celebrate the beauty of life. The next section discusses the work of Christopher Alexander and his theories on value, meaning, beauty and the nature of order.

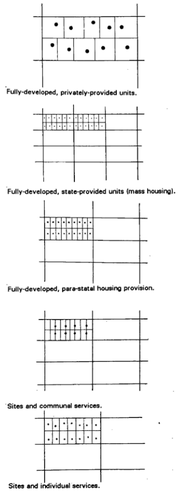



FIGURE 29. THE ESSENTIAL FORM: FREE- STANDING HOUSES ON PLOTS- AND MONOTONY IS ENSURED

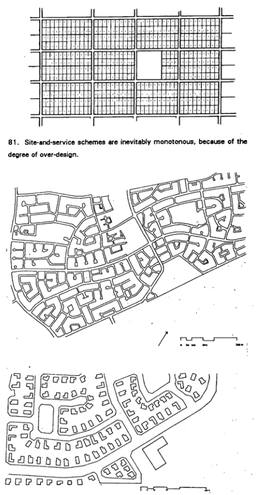



FIGURE 30. DESPITE ENERGETIC ATTEMPTS TO INTRODUCE VARIETY, THE MONOTONY REMAINS

SOURCE: DEWAR AND UYTENBOGAARDT, 1991: 61

## 6.3. BEAUTY, VALUE, MEANING AND THE NATURE OF ORDER

### 6.3.1. A NEW THEORY OF URBAN DESIGN

**Healing and generating wholeness**

Across all of Alexander's books, he talks about the idea of wholeness. In fact, it is the recurring pattern throughout all of his work.

He states that in most beautiful towns and cities of the world, we are always impressed by a feeling that they are somehow 'organic'. Each of these towns grew as a whole, under it's own laws of wholeness.

*"We can feel this wholeness, not only at the largest scale, but in every detail: in the restaurants, in the sidewalks, in the houses, shops, markets, roads, parks, gardens and walls. Even in the balconies and ornaments"* (Alexander, 1987; 2)

In a New Theory of Urban design, Alexander (1987) states that urban design (as a practice) comes the closest to accepting responsibility for the city's wholeness.

In addition, he states that the task of creating wholeness can only be dealt with as a process. My intention then is to understand how the current practice of urban design in South Africa can fit this process. How can we promote urban design as settlement-making and design a 'living architecture'? How do we avoid the mistakes that come with over-planning- using the rational, mechanistic and normative ideology that produces our most troubled townships?

It is only in defining and creating a suitable process, that there is some hope for wholeness, where "To design the built environment well is to *make life*" (Seamon, 2005, 186)

In a "New Theory of Urban Design" Alexander (1987) talks about having a design vision, encouraging piecemeal growth, defining wholes and centres, and understanding the basic rules of positive urban space. I see many similarities in the way urban design is taught to how it can be practised.

This theory is supposed to guide settlement-making based on the generating of wholes and centres. Each whole builds on the wholeness of itself, and generates new wholes both above and below it, to supercede and support it. All parts of the urban system are interdependent, and cannot be built in isolation. In building new wholes, we work incrementally to support and build on the energy of the existing whole as it is; to improve and heal the environment over time.

With regard to Alexander's "New Theory of Urban Design", which he himself states is 'incomplete and full of holes', I see value in the clarity of his one single overriding rule.

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Our single overriding rule is formulated as follows:

**"Every increment of construction must be made in such a way as to the heal the city."** (Alexander et. al, 1987: 22)

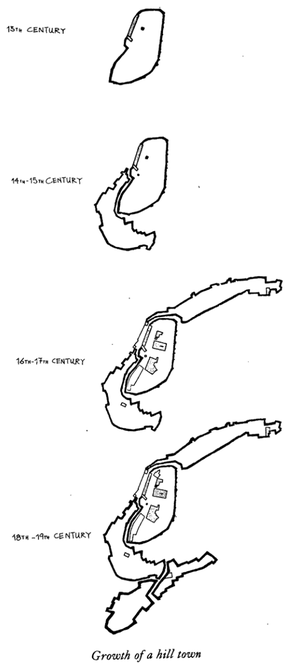



FIGURE 31. THE GROWTH OF A HILL TOWN
SOURCE: ALEXANDER (1987; 12)

### 6.3.2. THE NATURE OF ORDER

**Beauty, value and meaning**

Small towns and cities across the world are being destroyed by ugliness.

We are struggling to build beauty any longer. Function has replaced form. Our greatest challenge is that our behaviour is influenced by our environment. Where we continue to build monotonous and sterile environments, we do not introduce 'life' into our cities and towns.

Something that has always attracted me to small towns is their proximity to nature. Parks are a poor substitute for the natural environment, and similarly- agriculture. Nature is full of life and beauty. The natural environmental is inherently pleasing as it is 'built' from a place of deep consciousness about pattern and wholeness. If we are able to produce structure in the built environment, we could respond in the same organic way- and build beauty.

We have to consider this working relationship between man and his environment. This embeddedness, where access to natural resources also allows for some level of self-sufficiency. Here, phenomenology, genius loci and spirit of place become important for they are produced by the makers, incrementally over time. It is interesting that some of the nicest places in the world were built off plan. However, right now people have been removed from the means of production and are passive beneficiaries rather than active citizens.

How do we build life into our communities? The answers cannot be given by mechanistic thought models. They cannot be subjected to primitive analysis. Real phenomena- beauty, value and meaning are phenomena of wholeness (Alexander, 1981: vol. 3, 5).

**What does it mean to be an active citizen?**

To participate in the designing, making and building of our cities and towns. Surely, it should be more than commenting on spatial policies once every 5 years. Government agencies seem to be out of touch with the lived experience. Living and breathing is a very sensory experience which requires a deep connection to our environment; and people are in a tremendous state of unease. We should be trying to help people cope with their inner life and get them into a state where they are truly well.

"The shape of the environment, the buildings, the rooms, the gardens, all these things are directly connected to the degree to which a human being can compose himself or herself and which a group of people can be together under deep and valuable circumstances." (Alexander, 1981)

Beauty, value and meaning develop over time in an environment, in response to structure. If you are acting responsibly, you look at the way that the Earth is structured at that point. Somehow, contribute to the environment. And then the structure of the land is enhanced. This is what we need to do as designers- structure the places we inhabit to invite others to make them more whole.

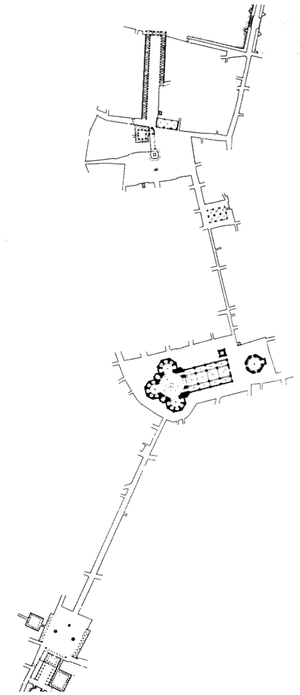


FIGURE 32. THE SHAPE OF A PATH
SOURCE: ALEXANDER (1987; 98)

# 7. LITERATURE REVIEW

In developing this research project, I have read broadly to try and better understand the social, economic, environmental and spatial factors that have influenced the development of small towns in South Africa.

This includes the following topics:

1. Spatial policy
2. Urban design theory
3. New Ruralism
4. Rural design
5. Landscape ecology
6. Ecosystem services

I have also read further on my own personal interests in agroecology, food systems and permaculture design; and their relevance to small towns. The context of most small towns is in a productive rural landscape, and hence the need to understand and design for the urban impact of these rural activities.

This has been guided by my understanding of the complex dynamics of urban-rural linkages and the competing land interests of urbanisation and agriculture. Globally, there is renewed focus on mitigating the destructive impacts of industrial agriculture and the volatility of urban food systems. There is also a desperate need for us to develop a symbiotic relationship between urban and rural areas, and plan and design our communities to foster that relationship.

There must be a way to rethink and harmonise these practices in both urban and rural contexts. The aim being to deliver settlements of enduring urban quality and places of high rural character.

The aims of this section is to provide a high-level literature review, that covers a wide range of topics, adds value and supports the choice of theoretical framework for this design research project.

**The literature covers a wide range of topics referenced to provide further insight on small towns, and contribute to a framing of theories to help define a socio-ecological perspective.**

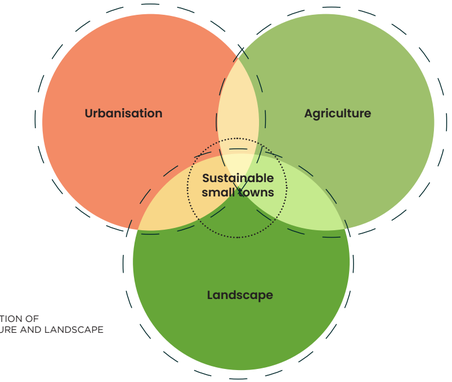



FIGURE 33. THE INTERSECTION OF URBANISATION, AGRICULTURE AND LANDSCAPE

## 7.1. URBANISATION

### 7.1.1. SPATIAL POLICY

The spatial planning and policy framework of South Africa has undergone fundamental changes since the onset of the democratic era in 1994. However very little progress is evident with the principle of physical and social economic integration of cities (du Plessis, 2014).

The South African spatial policy context that informs the development of small towns is guided by the NDP 2030, NSDF and IUDF from a national spatial planning perspective. In the context of SPLUMA, municipalities across the country are also required to produce a Spatial Development Framework (SDF) to guide investment, decision-making and strategic development.

These frameworks are mandatory at the provincial, metropolitan and local scale but discretionary at the regional and precinct scale. I think this has a significant impact on small towns as they lack focus on regional development patterns and 'town-scale' planning and design to deal with environmental challenges.

Settlements remain socially unsustainable despite several years of integrated planning and the inclusion of spatial integration measures in post-apartheid urban spatial policy (du Toit, 2007).

These spatial policies have not managed to have a positive impact on small towns. Small towns remain in distress. Hence the development of the Small Town Regeneration Strategy 2021.

### 7.1.2. URBAN DESIGN

Urban design relates to the study of how people inhabit urban areas, such as cities and towns, and their interaction with the built environment. This means they rely on appropriate form and structure to perform, and provide positive, enabling environments for their inhabitants

In addition, urban design is also a practice that integrates the visual and aesthetic aspects of urban form, strong social awareness and environmental and sustainability issues (Roberts and Greed, 2014).

This research was prompted by a realisation that the urban structure and form of small towns has started to decay with the need to accommodate their continued growth and expansion. The break down in their original urban morphology has been characterised by the creation of outlying settlements for seasonal workers, day labourers and people of colour.

Urban design is the 'mongrel discipline' (Carmona, 2014). It is the mediating force between planning and architecture, and also acts in a cross-disciplinary way between engineering services, transport and landscape. Spatially, urban design works at the edge, between public and private, built and non-built. The role of the urban designer is to facilitate complexity between fields, and provide coherence in the public environment.

However, "urban design is only one aspect of ameliorating complex social, environmental, and economic issues in today's towns and cities." (de la Salle, 2019: 118)

### 7.1.3. NEW RURALISM

Regions and cities need a vital local agricultural system that encompasses individual farms, rural communities and the stewardship of natural resources.

Against the pressures of suburbanisation, environmental degradation and an industrialised and globalised farm economy- New Ruralism provides insight into how rural can cope with these competing pressures. In many ways industrialised agriculture and urban sprawl are similar blights, and "New Ruralism provides a framework for creating a bridge between sustainable agriculture and New Urbanism" (Kraus, 2019: 27)

New Ruralism nurtures the symbiotic relationship between urban and rural areas. This is helpful, as my focus is on designing dynamic balance between natural and built environments. I am planning to show that through an ecologically minded urban design practice, we can begin to formulate a socially sustainable process of spatial integration.

### 7.1.4. RURAL DESIGN

Applying design to the rural context, requires one to start thinking about scale in a different manner. From the broader landscape in which towns, rural settlements, farms and conservation areas are found- the scale of design needs to change. We have to look at both a larger geographical context and smaller built forms and public space. Here, the topography typically dominates the landscape and buildings and infrastructure are components of the landscape rather than objects that define it (Thorbeck, 2013).

## 7.2. AGRICULTURE

### 7.2.1. AGROECOLOGY

Agroecology in its current form is a movement, science, political vision and a practice. It becomes a useful spatial practice when used to advance arguments for access to the 'commons' to advance social transformation (de Molina, 2013).

Conceptually, it is driven by the desire to rebuild communities through urban agriculture, to encourage mutual social relations, bring forward more equitable change and support land stewardship. In geographical terms, agroecology brings forward more just and fair models of urbanisation and agriculture.

Agroecology in the context of small towns seeks a urban and spatial dynamic for the production of sustainable infrastructure. These are continuously productive landscapes for the benefit of society over the long term. In other words, "Spatial agroecology seeks to achieve an equitable distribution of resources, dismantle asymmetrical power relations and build food democracy" (Simon-Rojo, 2019: 94).

Morris et. al (2018; 3) argue for the spatial application of agroecology as "a managed ecosystem that provides valuable ecosystem services." My argument is that this could also include local economic opportunities through biodiversity measures, conservation protection and support for agroecological production.

### 7.2.2. FOOD SYSTEMS

"More than with any other of our biological needs, the choices we make around food affect the shape, style, pulse, smell, look, feel, health, economy, street life and infrastructure of the city" (Roberts, 2001: 4)

Food systems should be considered as important as any other urban system, such as transportation, water supply, wastewater removal and/or electrification. Food systems used to be a central factor in determining the form and function of settlements.

Historically, cities were shaped by food access considerations (Steel, 2008).

"The relationship between food systems and the built environment has changed dramatically over the past 100 years. At the beginning of the twentieth century food systems were visible and part of day-to-day life. Today, much of how food has historically enlivened towns and cities has been removed from the urban setting and exported elsewhere" (de la Salle, 2019: 118)

Many scholars attribute food insecurity to our failure to adequately incorporate food systems into our urban environments. Urban form and structure plays a direct and indirect role in many components of the food system, including: production, processing, distribution, sale, waste management and safety.

Pothukuchi (2009) suggests that inaction in the food planning environment does not have neutral consequences, but often generates negative outcomes.

As designers we need to investigate and become aware of the potential role of the city/ town in governing the food system.

We need to be critical of how concentrated food retail and agro-processing shape the built form and patterns of ownership. Centralisation of the food system has changed food flows, food processing, food retail and sustainability concerns. Through a more versatile consideration of food systems, we can understand how to pattern economic opportunities and access to healthy food for both people and the planet.

As part of a socio-ecological approach, this is an important consideration as rural areas are responsible for the majority of food production. Agriculture is also the industry typically associated with the most negative impacts on the Earth, and is a significant contributor to climate change.

"A greater focus on urban planning as a way of influencing food systems development will be critically important" (Stamoulis et al., 2018: v).

## 7.3. LANDSCAPE

### 7.3.1. LANDSCAPE ECOLOGY

**Landscape ecology theory provides context for environmental factors. It seeks to ensure that the design response is sensitive to environmental and sustainability concerns.**

Landscape ecology theory provides context for environmental factors. It seeks to ensure that the design response is sensitive to environmental and sustainability concerns. Ecological considerations are vital in urban design and

Regional environmental planning emerged from the likes of Lewis Mumford, Ian McHarg and Benton McKaye, and even the early biologist Patrick Geddes. These authors all saw the importance of planning at a regional scale. This applies to understanding the natural environment as ecosystem processes occur at a regional scale. As all people and lands within a region are similarly affected, we need a better way to define landscape assets and economic opportunities within a region (Thorbeck, 2012).

According to Thorbeck (2012:82) "regional' is defined as any land area that is perceived as a common landscape with shared human and natural assets and economic opportunities" We must begin to foster a different conceptualisation of region, which includes both the global and local scale (Hamin and Marcucci, 2008).

### 7.3.2. ECOSYSTEM SERVICES

"Even though cities can only continue to exist because some- one is farming somewhere, in many ways modern cities are entering a post-agricultural phase, as the meaningful links and connections between urban areas and the hinterlands that support them have become more opaque, distant, and disconnected." (de la Salle, 2019: 120)

A clearer understanding of ecosystem services came out of the UNEP's Millennium Ecosystem Assessment (2005). These are typically categorised into three types:

- **Provisioning** - Contributing to human welfare through a supply of natural goods
- **Regulating** - control of material and energy flows towards a reduction in natural hazards, and
- **Cultural** - opportunities or experiences in connection with nature and landscape.

As urban designers we have to take more consideration of the 'inconspicuous' regulating ecosystem services and design them into our settlements as a move towards a more socio-ecological approach.

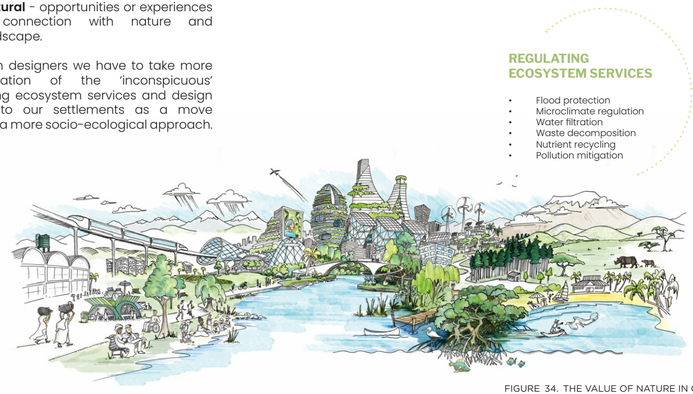



FIGURE 34. THE VALUE OF NATURE IN CITIES- ECOSYSTEM SERVICES (SOURCE: ICLEI AFRICA)
SOURCE: ICLEI AFRICA

## 8. SUMMARY- PROJECT LOGIC

| What? | Where? | Why? | How? | Who? |
|---|---|---|---|---|
| **URBAN DESIGN** | **SMALL TOWNS** | **REGENERATION** | **SOCIO-ECOLOGICAL** | **PEOPLE** |
| • Place-making<br>• Enabling<br>• Not always spatial<br>• Strategic<br>• Not always professional<br>• Personal<br>• Mongrel discipline<br>• Facilitating complexity<br>• Mediation of space and place<br>• Spatial structure<br>• Design principles<br>• Good built form | • Small size<br>• Population growth<br>• Rural context<br>• Limited economic opportunity<br>• Pace/ speed slower<br>• Resource constraints<br>• Rural-urban linkages<br>• Limited capacity<br>• Service delivery infrastructure<br>• Twin nuclei/ segregated towns<br>• Buffer zones | • Broader economy<br>• Keeping youth in town-<br>• Desirable place<br>• Attracting investment<br>• Spatial integration<br>• Inclusive<br>• Resilient<br>• Thriving<br>• Timeless qualities<br>• Spatial and temporal | • Balancing urban and natural systems<br>• Philosophical position<br>• Metabolic rift<br>• Humanist and conservation ethic (Dewar and Uyentbogaardt)<br>• Wholeness, beauty (Alexander)<br>• Landscape ecology (Ndabeni, Oberholzer)<br>• Design with Nature (McHarg) | • Land ownership<br>• Infrastructure<br>• Access and movement<br>• Land use<br>• Open space and landscape<br>• Public space<br>• Infill development<br>• Cadastral subdivisions<br>• Working<br>• Playing<br>• Gathering<br>• Socialising<br>• Making |

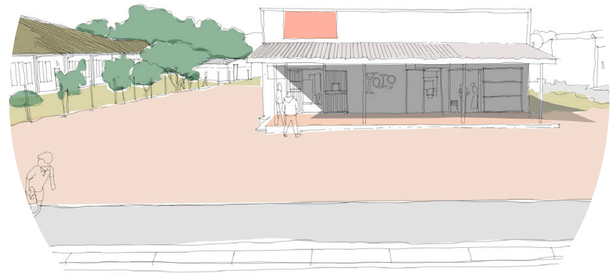
## 9. DESIGN PRINCIPLES

**PROJECT THEMES/ OUTCOMES**

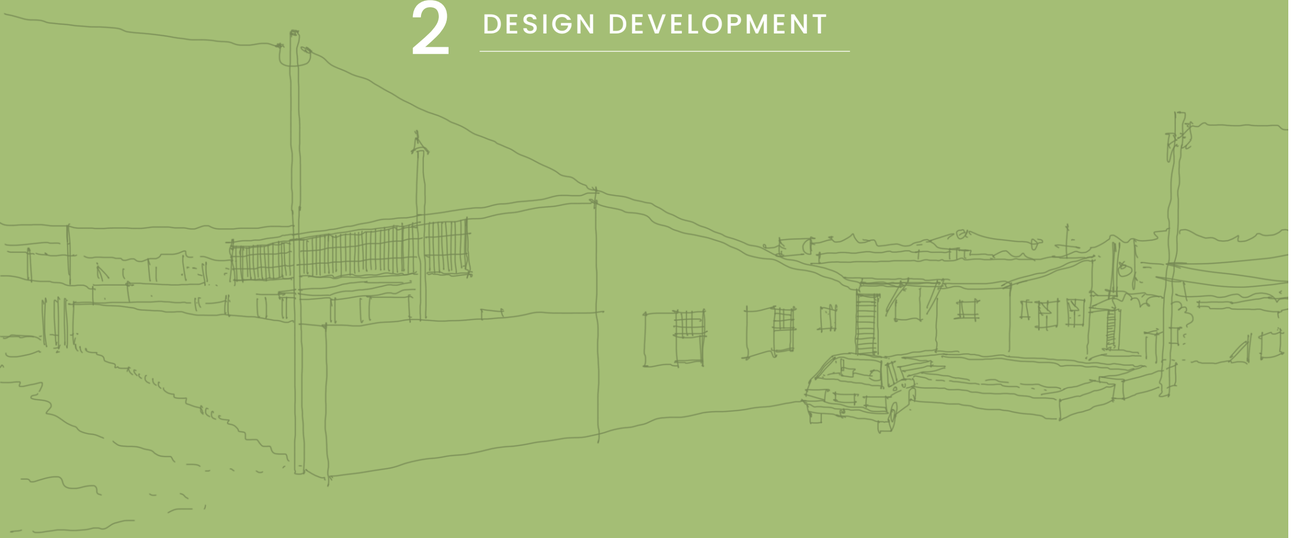
**INCLUSIVE** | **THRIVING** | **RESILIENT**

**DESIGN PRINCIPLES**

- Flexible and incremental design approach
- Start small in the biggest way possible
- Spatially integrated and connected
- Appropriate density and multifunctional
- Designing for ‘life’ at all times
- Pursue beauty, value and meaning
- Resilient and regenerative
- Support placemaking and identity
- Embedded in the landscape and local ecology



# 2 DESIGN DEVELOPMENT



## 10. PROJECT MANIFESTO

**Cities around the world are sustained by their rural hinterlands, and the small towns that support them. We might be overlooking the importance of rural settlements in the future of metropolitan regions.**

### 10.1. VISION

An incremental and piecemeal approach to designing, building and making that produces wholeness and coherence in the environment. Small towns with positive, enabling environments that balance the needs of human and natural systems through regenerative practices.

### 10.2. INTENTION

The broad aim of this research is to explore potential solutions to the regeneration of small towns in South Africa.

Beyond that, I'm exploring what an urban system could become were it to be focused on a socio-ecological approach that aims to solves the 'metabolic rift'. To repair and heal the broken relationship between humans, nature and each other.

### 10.3. OPINION

We might be overlooking the importance of rural settlements in the future of metropolitan regions. Cities around the world are sustained by their rural hinterlands, and the small towns that support them. Urbanisation and agriculture are 2 of the biggest threats to sustainability. Regeneration of small towns provides an opportunity to better manage ecosystem services, stem the tide of urbanisation and rethink our current approach to agriculture.

### 10.4. A PROCESS OF UNFOLDING

The same landscape can be transformed into many different shapes and patterns, creating bridges rather than buffers. Fixes should define the form but allow for infinite flexibility and variety.

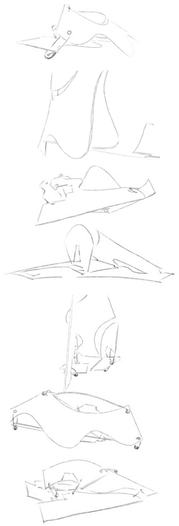


FIGURE 36. USING AN ARTEFACT TO EXPLORE THE 'UNFOLDING' OF SPATIAL STRUCTURE

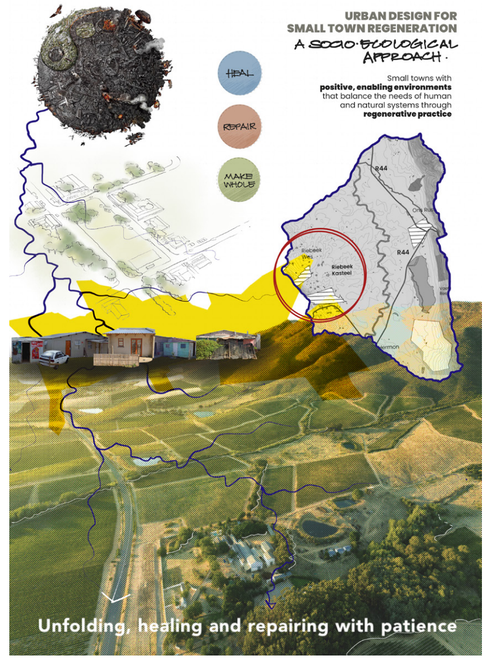



FIGURE 35. URBAN DESIGN FOR SMALL TOWN REGENERATION- A MANIFESTO

# 11. CONTEXT ANALYSIS

## 11.1. (BIO)REGIONALISM

The are several ecological concepts- natural boundaries, mutual interdependency, ecological equilibrium and landscape pattern that inform the thinking behind the value of (bio)regionalism.

Taken together, these concepts are fundamental to planning from the regional to the local scale, particularly for open space planning. The corollary to this line of thinking is that, nature reserves and open space corridors play an important role in structuring the layout of settlements.

"The bioregion can be seen as the spatial counterpart to biodiversity, providing a basis for planning and management." (Oberholzer, 2014: 63).

The concept of bioregionalism has informed my analysis of the region for my site in context. This is a significant departure from an arbitrary regional definition or political jurisdictions (municipal and ward boundaries) used by local government. My suggestion is that this framing has shifted the focus of attention from the Berg River corridor as an edge, to it's realistic position being central to the region/ catchment.

This shift relocates the potential development impetus and opportunities in Riebeek Kasteel to the east. It's strategic relationships with Tulbagh, Gouda, Saron and Wolseley as well as the Berg River, Voelvlei Lake and the Elandskloofberge become more important. This change could encourage development of an eastern gateway driving investment into Esterhof.

The following section details a contextual analysis of the region using a 'Landscape Systems Analysis' methodology.

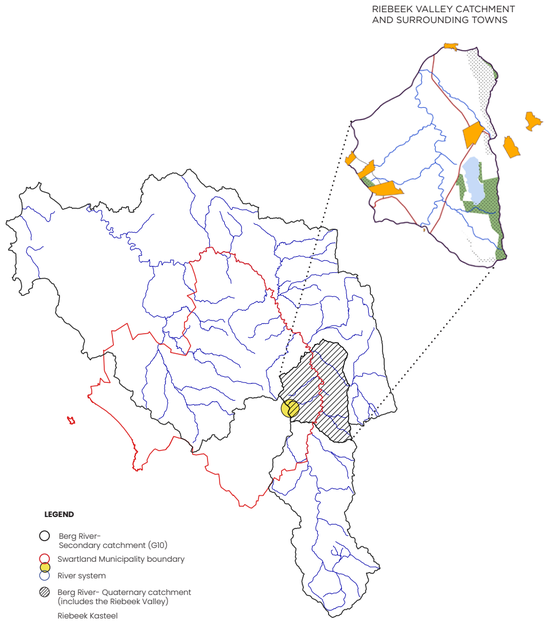



FIGURE 37. A REINTERPRETATION OF BOUNDARIES USING RIVER CATCHMENTS TO DEFINE THE SPATIAL GEOGRAPHY

## 11.2. CONTEXT ANALYSIS AT A REGIONAL SCALE

### MORPHOSPHERE

Through tectonic collisions of the continents some millions of years ago, the shale-based soils found in the Malmesbury area were infused by magma, from deep within the earth. It rose along the continental fault line into the thick shale deposit, and slowly cooled and crystalised into the granite rocks and hills we see exposed today.

The Paardeberg, Paarl, Groenberg, Klein Drakenstein and Haweqwas Mountains form part of this group of granite domes that rose up from the Cape Flats plain of Gondwana. Around the granite domes, the mountains are made up of hard sandstone, quartzite, and softer sandstone. The outcrops of sandstone quartzite provide siliceous sandstone which results in vegetation devoid of trees.

The sandstone outcrops of the Kasteelberg and Piketberg rest on granitic and shale foothills. There are granite outcrops such as the Paardeberg and diffuse hills like Porseleinberg. The main soil types in the Swartland each have different characteristics creating unique growing conditions.

- Malmesbury shale, with it's high sedimentary content, provides good drainage
- Granite-based soils of clay and sand layers provide alternating conditions of drainage and retention
- Gravel and iron-based soils with high clay content provide good water retention

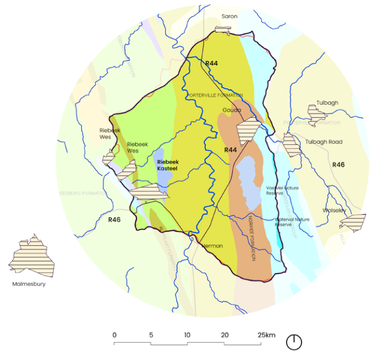



FIGURE 38. REGIONAL GEOLOGICAL FEATURES

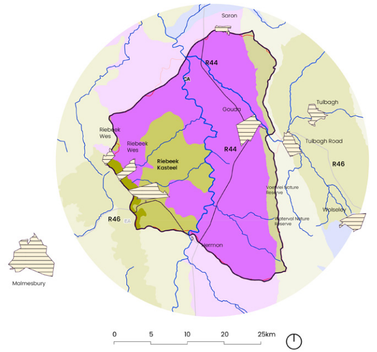



FIGURE 39. REGIONAL PEDOLOGICAL FEATURES

FIGURE 40. SWARTLAND SOILS ARE SOME OF THE MOST ANCIENT VITICULTURAL SOILS ON EARTH
SOURCE: JOHAN VILJOEN

FIGURE 41. DIFFERENT SOIL TYPES ARE EXPRESSED IN THE SWARTLAND BASED ON THE UNDERLYING GEOLOGY
SOURCE: JOHAN VILJOEN

## HYDROSPHERE

Riebeek Kasteel, Riebeek West and Ongegund sit on the foothills of the Kasteelberg. They are positioned adjacent to mountain headwater streams that flow towards the Berg River. This siting of the towns and farm can be attributed to the source of water- the basis of organised agriculture and settlements dating back to early civilisation.

It is easily discerned that the east and west sides of the drainage basin experience vastly different hydrological conditions. The west side (Riebeek Kasteel) has almost no wetlands per se, and a sparser dendritic drainage pattern. Whereas the east side of the catchment, along the Elandsberge and Haweqwas Mountains, is a far larger mountain catchment area. These aquifer recharge areas sit atop significant stores of groundwater above the geological formations of the Nardouw subgroup and the Noorree Formation.

Hatched in purple is the most significant man-made water infrastructure in the region- being the Voelvlei dam. The Voelvlei dam was constructed in 1952 to expand the capacity of the Voelvlei lake which formed in a natural depression. The dam is situated near the town of Gouda. The reservoir covers and area of 1 524 hectares, and has a capacity of 168 000 megalitres, making it the second largest reservoir in the Western Cape Water Supply System. Water from the reservoir is supplied to Water Treatment Works of the City of Cape Town and the West Coast District Municipality.

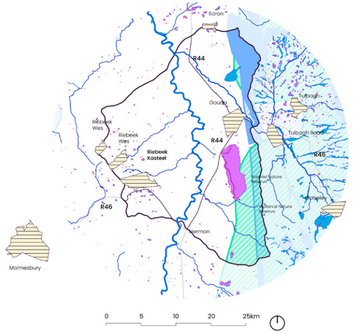



FIGURE 42. REGIONAL HYDROLOGICAL FEATURES

FIGURE 43. VOELVLEI DAM NEAR GOUDA
SOURCE: ASHRAF HENDRICKS

## LOWER BERG RIVER AND TRIBUTARIES- MAJOR IMPACTS

- River and flow modification- Greatly reduced river health scores in the lower reaches due to diversion in the Klein Berg and Vier-en-Twintig rivers.
- Alien vegetation and forestry- Lower reaches of the tributary as well as the main stem of the Berg River are still infested with river gum and black wattle. These trees destabilise river banks, resulting in increased erosion.
- Urban and agricultural development- Wastewater discharges reduces water quality. Pesticide residues washed off into surface waters result in low levels of contamination in the area.
- Alien fish- Most tributaries are infest with alien fish. These fish together with habitat degradation have resulted in the loss of indigenous species.

## BIOSPHERE

### VEGETATION TYPES

Swartland Shale Renosterveld- This unique type of Renosterveld vegetation occurs over the Swartland and Boland areas, on the West Coast lowlands to the north of Cape Town. It extends from north of Piketberg, southwards as far as Somerset West. Around 10 percent of this area lies within the Cape Town metropole (where historically it was the most widespread form of Renosterveld, especially concentrated on the Tygerberg Hills in the northern suburbs) and, overall, over 90 percent of this vegetation has been destroyed for farming and other development.

The remaining patches are threatened by invasive alien plants and further development, making this vegetation type critically endangered.

Undisturbed, it forms tall, open shrubland over undulating valleys and plains. It usually grows in clay soils that are derived from the Malmesbury Group Shales. Termite mounds create large, round hummocks called “heuweltjies”, that are a prominent feature of this vegetation type, appearing as pale spots on the landscape. Indigenous trees and older thicket often occur around these features. The Renosterbos is relatively common in this vegetation, but this may be due to recent overgrazing – renosterbos is rather inedible and consequently livestock tend to avoid it.

The vast majority of Swartland Shale Renosterveld has been lost (the target of saving 26% is now unattainable, as 90% is already completely transformed for farming). Remnants survive in tiny isolated patches within farmland, usually only on rougher, steeper ground that cannot be cultivated. Only a few pockets are actually protected, and most surviving areas are threatened by invasive species.

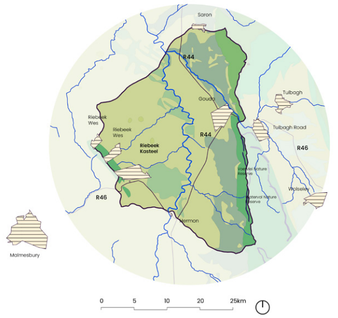



FIGURE 44. REGIONAL VEGETATION TYPES

### ENVIRONMENTAL ASSETS

This quaternary catchment bridges the Swartland and Drakenstein Municipalities. It contains several valuable environmental assets that contribute to the natural beauty and cultural value of the region.

Both on the east and west sides of the catchment are protected areas and natures reserves that extend over the hills, koppies and mountains. These preservation actions are important in an area where up to 90% of the arable land across the valley floor has been transformed by agricultural practice.

These nature reserves includes both National and World Heritage sites in the following:

- Kasteelberg Nature Reserve
- Riebeeksrivier Nature Reserve
- Voelvlei Nature Reserve
- Waterval Nature Reserve
- Haweqwas Nature Reserve

This north-south chain of mountains including the Obiekwaberge, Voelvleiberge and Elandskloofberge form the ridge line separating this catchment from that to the east. It is important to ensure that these environmental assets are well-managed to ensure the long-term sustainability of the region. These areas require long-term protection to maintain the ecological health of the reserves. Development should be limited in sensitive areas. Diversified habitats and conservation measures can be extended over private property (including productive farms) to develop a ‘resilient region’.

This is important for environmental sustainability and human well-being, as well as the economic viability of the towns that support tourism here.

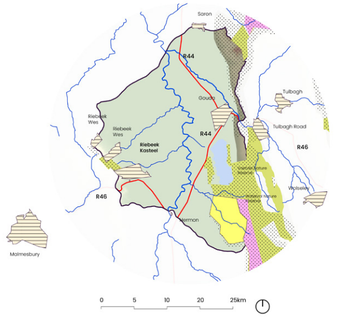



FIGURE 45. REGIONAL ENVIRONMENTAL ASSETS

## BIOSPHERE

### FARMING PRACTICES

The “Swartland” zone is considered to have the greatest production potential for winter grains and livestock in the whole West Coast region, gradually decreasing as one moves northwards towards Namaqualand. This can be attributed to the more reliable dryland conditions than further north - that is winter rains, with cool conditions, becoming hot to very hot in summer. In addition to wheat, wine and table grapes, canola and olives are also amongst the agricultural production types in Swartland. Not to mention livestock- including dairy, pigs, sheep and cattle.

The Swartland zone can be described as fertile and undulating, bordered by mountains to the east. Its fertility is evident by its relative importance in terms of various types of agricultural production. For example, the Swartland and Rûens regions are key wheat production areas for the whole country. In terms of horticulture and grape production areas in the country, the Swartland is the fourth highest with 12% of South Africa’s vines and 14% of the hectares dedicated to wine production in the whole country.

Swartland is also important for beef cattle finishing in feedlots, for its proportion of the national dairy herd, for intensive sheep and goats in coastal Swartland, and for pig and poultry production. Swartland contains almost 10% of the province’s sheep, over 15% of the cattle and 32% of the pigs. This is particularly significant due to its proximity to the market represented by Cape Town.

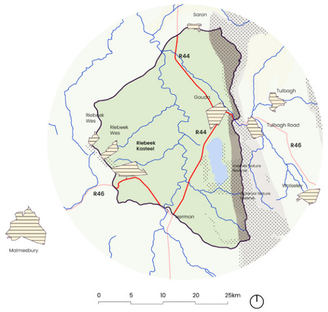



FIGURE 46. REGIONAL FARMING PRACTICES

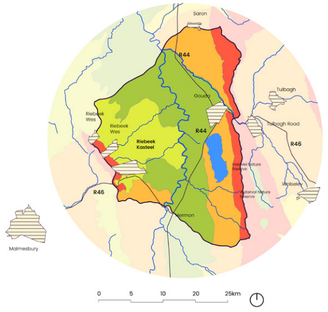



FIGURE 47. REGIONAL LAND CAPABILITY

FIGURE 48. WHEAT FIELDS IN THE SWARTLAND
SOURCE: JOHAN VILJOEN

FIGURE 49. CONTOUR PLOWING ON THE LOW-LYING ROLLING HILLS OF THE SWARTLAND
SOURCE: NEAL GELDENHUYS

FIGURE 50. SWARTLAND IS A LESSER-KNOWN WINE-PRODUCING REGION BUT ACCOUNTS FOR 14% OF NATIONAL PRODUCTION
SOURCE: JOHAN VILJOEN

## NOOSPEHERE

### ACCESS AND MOVEMENT

The noosphere has to consider the urban systems impact on the natural landscape, particularly the pattern of settlement, road and rail infrastructure, land uses (built environment and cultural landscapes) as well as utility services.

If we look at the pattern of access routes across the river catchment, it is clear that there are two main routes connecting Malmesbury to Paarl over the mountain pass. The R311 connect Riebeek Kasteel to Riebeek Wes, Ongegund and further north to Moorreesburg. There is a large area in the centre that is mainly connected via dirt, farm roads with limited accessibility between Riebeek Kasteel and Gouda or Tulbagh.

### SOCIO-ECONOMIC ENVIRONMENT

The area around the Voelvlei dam consists of large areas of government-owned farms. This land could be used to extend the nature reserve/ protected area around the Voelvlei dam and encourage new aquatic and terrestrial habitats. Encourage recreational opportunities and outdoor sports, adding further to the tourism appeal of the region.

Several land reform projects (indicated in brown) are situated just outside of Gouda. Great to see these become regenerative farms- to extend the idea of cultivation and ecological restoration on the same property. This would extend the mosaic of ecological corridors and patches to develop a broader regional patch-corridor-matrix.

### LAND USE

Land use in the central region along the Berg River corridor is primarily used for farming grains (wheat and canola) as these crops require more fertile soils and irrigation. Vineyards are located on more challenging soil profiles, and closer to the towns themselves. They also use smaller plots and are farmed more intensively than grains.

Vines are harvested by hand and don’t require large machinery such as combine harvesters, so they can be located within around the urban edge. The pattern of settlements have a regionally significant influence on water quality and management in this specific drainage basin.

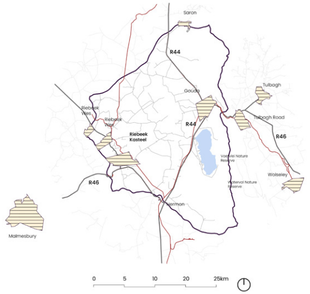



FIGURE 51. REGIONAL ACCESS ROUTES

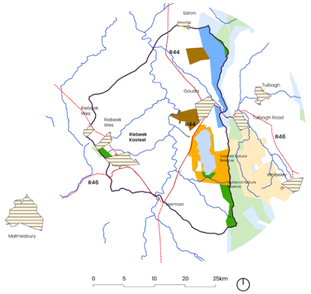



FIGURE 52. SOCIO-ECONOMIC CONSIDERATIONS

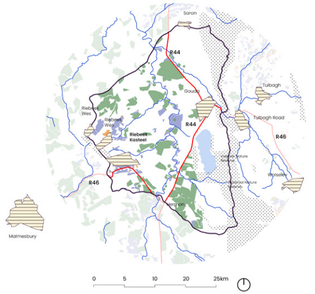



FIGURE 53. REGIONAL LAND USE

## 11.3. RIEBEEK KASTEEL

The town of Riebeek Kasteel is located in the south east of the Swartland Municipality, on the periphery, bordered by the Berg River. The extensive rural area that surrounds it contains expansive production areas including grain, canola, olives, wine and stone fruit as well as dairies and poultry farming (Swartland SDF, 2017).

Riebeek Kasteel itself is situated approximately 20km northeast of Malmesbury, and 87km away from Cape Town. It is accessed via the R45 that connects Malmesbury with Hermon. The R311 (main route through the Riebeek Valley) connects the R45 to the N7. The town is located along the slopes of the Kasteelberg and is surrounded by some of the oldest vineyards in South Africa. The town's characteristic grid layout is encouraged by the surrounding vineyards along with intensive agricultural uses adjacent to the urban edge.

Riebeek Kasteel is attractively placed between two mountain spurs, not unlike its' sister town, Riebeek West which sits 5km to the north along the R311.

Riebeek Kasteel has grown from a humble, farming town "a 19th-century kerkdorp" (Fransen, 2006: 213), to a well-known destination for Swartland wines, recreational tourism and semigration opportunities from Cape Town. It has become incredibly popular as an arts town over many years, and is celebrated for its cultural heritage. It has become a new home for remote office workers, and a preferred destination for migrating local farm workers as well.

The town is embedded in a beautiful agricultural landscape but is sadly experienced quite differently in its spatial form. The town has two centres, the original "Upper Town" and the 'separate' residential township of Esterhof- legacy of a forced removal in 1965.

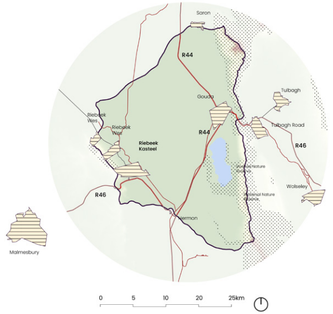



FIGURE 57. RIEBEEK KASTEEL IN CONTEXT


FIGURE 54. BIRDS EYE VIEW OF RIEBEEK KASTEEL. ESTERHOF OVER THE RAILWAY LINE TO THE EAST
SOURCE: GOOGLE EARTH

FIGURE 55. RIEBEEK KASTEEL FROM ALLESVERLOREN
SOURCE: SWARTLAND WINE AND OLIVE ROUTE

FIGURE 56. RIEBEEK KASTEEL FROM KLOOVENBURG
SOURCE: SWARTLAND WINE AND OLIVE ROUTE

### 11.3.1. HISTORICAL CONTEXT

Historically, Riebeek Kasteel is one of the oldest towns in South Africa. Riebeek Kasteel was established around the fertile vista of the Riebeek Valley and was an agricultural area with vines, olives and fruit orchards.

Unfortunately, like all other South African settlements- it fell foul of the Group Areas Act and in 1963 was divided into 2 distinct settlements, separated by race. Riebeek Kasteel A was for white people and Riebeek Kasteel B was for coloured people. The dividing line was the railway line. (www.ouklooflegacy.co.za)

All residents of Oukloof were evicted from their homes in 1965, their homes were demolished and they were relocated to new sub-economic units built on the far side of the railway line. This move significantly altered the layout of the settlement. It remains a contentious issue that highlights the contrast in the quality of the environment- making equitable service delivery a challenge. Land restitution was sought in 1997, which resulted in paltry monetary compensation. Many residents hope to see the town of Riebeek Kasteel as a whole, dismissing the name and identity of Esterhof. Spatial integration through urban design is approached as an attempt to improve the public spatial structure and access to opportunities.

FIGURE 58. VIEW LOOKING EAST OVER OUKLOOF FROM THE DAM

FIGURE 64. BUILDING NEW HOUSES IN ESTERHOF

FIGURE 63. DUTCH REFORMED MISSION CHURCH

FIGURE 62. NG MEIRING PRIMARY SCHOOL

FIGURE 59. OUKLOOF IN 1960 WAS A SETTLEMENT OF 550 COLOURED PEOPLE

FIGURE 60. OUKLOOF IN 1965- ALL DWELLINGS AND THE CHURCH ARE DEMOLISHED

FIGURE 61. ESTERHOF IN 1965- COLOURED RESIDENTS RELOCATED EAST OF THE RAILWAY LINE
SOURCE: OUKLOOF LEGACY WEBSITE

### 11.3.2. CENSUS DATA AND STATUS QUO

Population growth in the Swartland is booming. There are approximately 147 227 people in 39 929 households with an average household size of 3.5 people. From 2020- 2031 the population of the Swartland is expected to increase 2.5x to 277 529 people with a growth rate of 4.5%. Currently, 50% of households across the municipal area earned less than R3500/ month, and could be considered indigent.

There has been a 3.9% increase in migration over a 5-year period. Abbotsdale and Riebeek Kasteel are the preferred settlements for farmworkers to relocate in the Riebeek Valley. This has contributed to the increased demand for housing , with 14% of the waiting list being farmworkers.

There is 52.37ha of land is earmarked for residential development over the next 20 years, although at the current density the shortfall is almost equivalent to that figure.

| Riebeek Kasteel | |
|---|---|
| **Population** | |
| 1 700 (RK) | 5375 (Esterhof) |
| **No. of households** | |
| 664 (RK) | 1 335 (Esterhof) |
| **Housing waiting list** | |
| 1 171 households | |

| **Existing engineering sevices** | |
|---|---|
| Lighting | 99% |
| Potable water | 54% |
| Sewerage | 60% |
| **Infrastructure status quo** | |
| Electricity | Limited |
| Bulk water | Sufficient, no ext. capacity |
| Sewerage | Sufficient |
| Ward's need | HIGH |

### 11.3.3. SYNTHESIS OF NOTES ABOUT RIEBEEK KASTEEL

There are some general notes to be extracted from the synthesis diagram adjacent. A few of these are summarised below. Detailed analysis is included further on in this section:

- **Neighbourhoods**- In Esterhof, the high density area to the east of the railway line is actually four neighbourhoods (Old Scheme, Slovo Park, Asla and New Rest). Each time a new residential township is built, the settlement sprawls further, and these neighbourhoods are not integrated. There are limited connections between them, making pedestrian movement onerous.
- **New developments**- There are several new residential developments planned in Riebeek Kasteel. These are driven by private developers and are typically gated estates targeted at high-income earners. There is limited (if any) affordable housing stock available.
- **Railway**- The railway is not used as a passenger service, but PPC does still make use of the line to transport materials. The train runs adjacent to the residential neighbourhoods and is quite a disturbance. Particularly, when it rolls through at night.
- **Divisive infrastructure**- The railway has a historical legacy of being the line that divides the town. There are 2 opposing views on what to do with it. One suggests "killing it" and removing it physically, and the other suggests reclaiming it and turning it into positive public space.
- **Backyard dwellers**- Backyarding is a common practice in Esterhof. Residents build informal units/ rooms on their property and let them out. This causes significant strain on existing service infrastructure and has allowed the population numbers to swell dramatically. Formalised services cannot be provided to these residents.
- **Infill**- There are numerous portions of vacant land dotted throughout RiebeeK Kasteel. These can and should be used for medium-density infill housing on activity streets and around proposed public nodes.
- **Housing typologies**- Housing typologies available throughout Riebeek Kasteel are typically private dwellings on individual lots, with rare exception. This keeps nett density very low, dispersing the settlement. Limited options such as rowhouses or duplexes are available.
- **Plot sizes**- Property sizes in Riebeek Kasteel vary significantly based on a ordered response to the original grid layout. This creates diversity and complexity. Fixed plot sizes for the subsidised units offer limited variety, and create monotony and sterility.
- **Environmental quality**- Stark difference between the quality of the public realm in Riebeek Kasteel and that in Esterhof; although it could be hugely improved across the whole town. Mainly a lack of greenery, paved sidewalks, street-lighting and general amenity (benches, bins etc.)
- **Land acquisition**- New land is in high demand to satisfy the demand for housing. Requests are put through to the Dept of Human Settlements for budget and then approved where feasible. This perpetuates sprawl. Increased residential density would improve the pace of housing provision.
- **Maintenance**- General maintenance of the public realm, including green open spaces and sports fields is lacking. This could be handed over to local community groups/ co-operatives providing permanent employment.

FIGURE 65. SUMMARY OF CENSUS DATA FOR RIEBEEK KASTEEL
SOURCE: WARDS 2020- POPULATION, HOUSING DEMAND AND AVAILABILITY OF SERVICES

### 11.3.4. CRITICAL REFLECTION ON THE DYNAMICS OF A SMALL TOWN

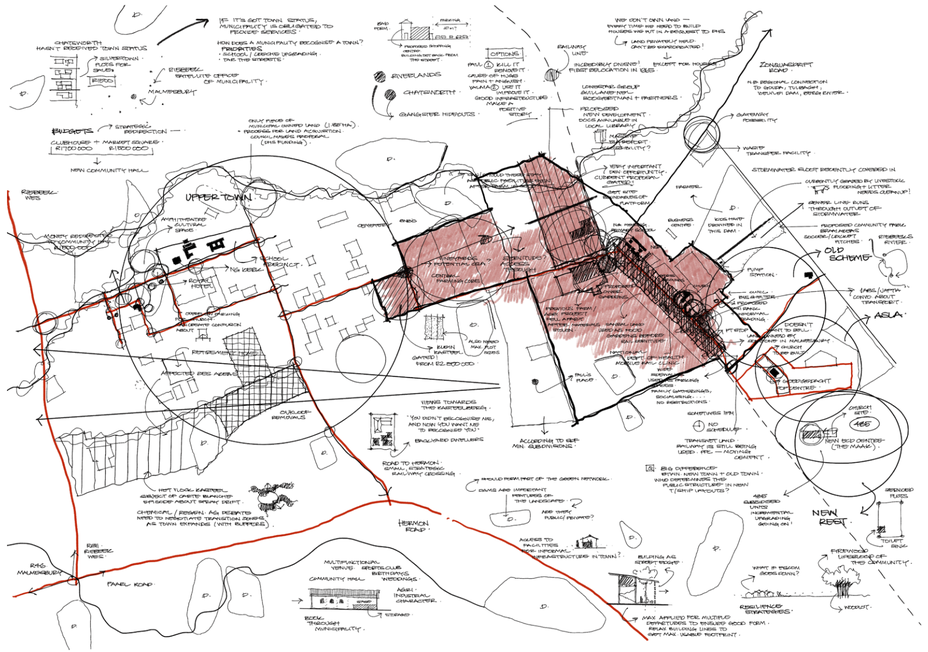



FIGURE 66. SYNTHESIS OF NOTES FROM INFORMAL CONVERSATIONS AND SITE WALKABOUT

### 11.3.5. SOCIAL READING OF RIEBEEK KASTEEL

From a social perspective, the town is unfortunately divided as a result of a historical eviction that took place in 1965. Coloured residents of Oukloof were moved east over the railway line, about 2km outside the centre of town. This unbalanced pattern of development has continued over the last 50 years. Social issues emerging from the analysis include the following:

- **Housing**- Housing is urgently needed. New housing projects providing subsidised and UISP units are built as extensions to Esterhof. Current publicly-owned land amounts to about 2.6%, and the remainder lies with private land owners/ developers
- **Access**- There are 2 entrances to Riebeek Kasteel. One via Hermon Road and the other via Church Street. These provide limited access to Esterhof and distort the balance of investment/ development.
- **Access**- There is only one entrance to Esterhof from the centre of town. This is via Kloof Street. Situated at the south end of town, with a poor public interface.
- **Vacant land**- Large plots of vacant land sit between Esterhof and Riebeek Kasteel. The lack of development makes the spatial disconnection feel even worse.
- **Public facilities**- the municipal office, library, and post office are all found in the main part of town with limited public facilities in Esterhof except for a small clinic and a new community hall.
- **Social facilities**- Facilities in Esterhof are limited. There is a need for a high school, creche and expanded clinic facilities.
- **Township development**- Erf sizes in Esterhof are small and new extensions to the township do not connect with each other. There is a lack of a clear spatial structure.
- **Railway line**- The railway line is still very clearly a barrier (even just psychologically) and separates the town by race groups.
- **Connections**- There are no formal public transport facilities in town, either for local residents and visitors to the town. Taxis operate informally, collecting fares from the roadside.
- **Economic opportunities**- There are limited economic opportunities for low-income residents of Riebeek Kasteel. Employment is mainly as farm labour.
- **Public space**- There are very green open spaces in Riebeek Kasteel. Functional green spaces are the school grounds and sports facilities. New green public spaces are required.
- **Land ownership**- Certain strategic land parcels in Esterhof are owned by people from outside the community. The land remains vacant and undeveloped, yet they refuse to sell.
- **Retail**- Some shops in the CBD of Esterhof are owned by foreigners and remain closed/ vacant. With limited opportunities, this prevents local residents from taking up these spaces for new business.
- **Land shortfall**- There is a land shortfall of approximately 52ha that is required to provide decent housing opportunities for the estimated growth over the next 20 years.
- **Density**- Proposed densities in the town remain low (8.5 du/ha) and will need to be increased to compact the town and prevent sprawl.

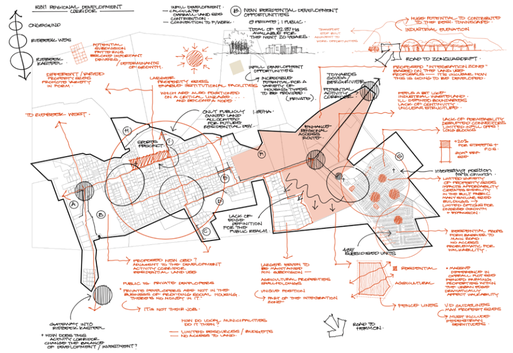


FIGURE 67. SOCIAL ANALYSIS OF RIEBEEK KASTEEL

### 11.3.6. ECOLOGICAL READING OF RIEBEEK KASTEEL

Ecologically, Riebeek Kasteel is situated in a fertile valley at the foot of the Kasteelberg, adjacent to a tributary of the Berg River. There are several issues worth pointing out regarding the natural environment and the quality of public space.

- **Connections**- There are several moments when the adjacent river, intersects with the town's edge. Unfortunately, these are not open/ visible and there is a missed opportunity to connect with the water.
- **Urban space**- The main market square is not well-utilised. It has limited amenity and currently serves as overflow parking for the adjacent shops.
- **Recreation**- Sports and cultural facilities are embedded within the school grounds and not shared by everyone. Sports fields in Esterhof require rehabilitation and maintenance.
- **Railway servitude**- The railway land and several locations around Esterhof have become dump sites. Litter is strewn across vacant land, limiting it's potential as recreational open space.
- **Dump site**- The new dump site is on Erf.... South of the Zonquasdrift Road. This dump site will need to be relocated if that road is to become a gateway into town.
- **Edge consolidation**- Esterhof has poorly defined edges particularly to the south and east of the town's urban edge. Structuring trees would help to define the settlement.
- **Farm dams**- Dams are interspersed throughout the town and in the surrounding agricultural landscape. These dams should be public and form part of the open space network.
- **Cultivated land**- Large plots of cultivated land (orchards/ vineyards) within the town's edge are important to retain for their aesthetic quality, contribution to the rural town atmosphere and cultural identity.
- **Permeability**- At the same time, these larger farms do not enable pedestrian movement through the town, and in most cases restrict access.
- **Vegetation**- There is a very evident change in vegetation gradient between Riebeek Kasteel and Esterhof. Riebeek Kasteel has established street trees and shrubs, vineyards and orchard. Esterhof has few mature trees, and as result the environment is hot, dry and dusty.
- **Stormwater management**- Stormwater infrastructure in Esterhof is not sufficient. This needs to be upgraded and improved to prevent further flooding in this part of town.
- **Local assets**- The scenic beauty of the Swartland is evident in this valley. Additional hiking routes, MTB trails, campsites and recreational areas would be beneficial to the tourism industry.
- **Food security**- Smallholder farmers have limited access to land in and around Riebeek Kasteel for subsistence cultivation. Need to prioritise local food needs over commercial production where possible.
- **Riparian corridors**- River corridors are important for biodiversity and ecological connectivity. These corridors need to be protected.
- **Agricultural chemicals**- Synthetic fertilisers and pesticide should be reduced to prevent deteriorating water quality. Promote organic alternatives.

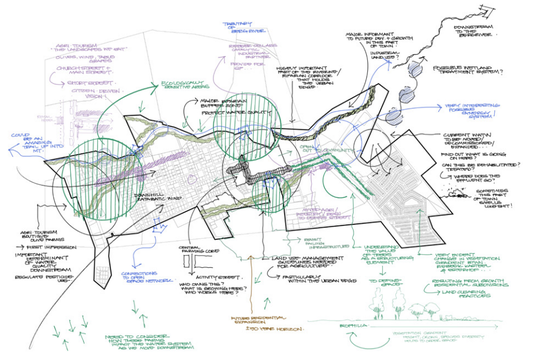


FIGURE 68. ECOLOGICAL ANALYSIS OF RIEBEEK KASTEEL

## 11.4. THE PUBLIC ENVIRONMENT OF RIEBEEK KASTEEL

FIGURE 69. PUBLIC ENVIRONMENT CONDITIONS IN RIEBEEK KASTEEL
SOURCE: AUTHOR

### 11.4.1. THOUGHTS ON ENVIRONMENTAL QUALITY- BEAUTY, VALUE AND MEANING

One of the primary concerns I have in my research into small towns is the poor environmental quality that certain groups in town are subjected to. There are historical reasons for this, but if we 'avoid the nostalgia' of separation- it is evident that modern planning makes the situation worse.

'Townships' are established, and new residential subdivisions are planned to provide subsidised housing units to a growing population. These plans are meticulously crafted, with compatible land uses and all the required services. Outside of the local residents' efforts to improve them- these settlements are lifeless. They are reductionist, purely functional and overplanned. The resulting environmental quality of the public space is quite demoralising.

A reading of the theoretical framework for my research would suggest that this is caused by a lack of structure or hierarchy, very little variety and zero complexity. There are few well-defined structuring elements to which the energies of local residents can respond organically. In this way, the environment itself is stifling- it kills creativity, innovation and intention. The makers, builders and doers squeeze their ingenuity into the small box marked out by survey points and cadastral boundaries.

Without being able to take ownership of our environment, there is precious little value and meaning to be found in efforts beyond the private dwelling unit. The public space feels alien and hostile; it is hot, dry, dusty and inhospitable for long periods of time. The public realm lacks amenity and actions that bring it to life- and where there is no life, there is no beauty.

FIGURE 70. PUBLIC ENVIRONMENT CONDITIONS IN ESTERHOF
SOURCE: AUTHOR

## 11.5. CONTEXT ANALYSIS OF RIEBEEK KASTEEL


FIGURE 71. CONNECTIONS (MOVEMENT/ ACCESS)


FIGURE 72. CURRENT LAND USE


FIGURE 74. OPEN SPACE (CULTIVATED/ NATURAL)


FIGURE 73. RIVER SYSTEM (WATER SUPPLY)

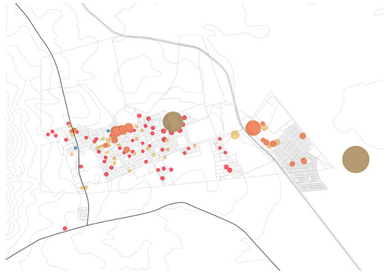



FIGURE 76. CAPITAL WEB


FIGURE 77. PUBLIC FACILITIES


FIGURE 75. CENTRES


FIGURE 78. OPPORTUNITY SITES

## 11.6. DESIGN INFORMANTS


LEGEND

- Regional route
- Railway line
- Local access roads
- 800m walking radius
- Regional dirt road
- Major gateway
- Minor gateway
- School
- Church
- Community centre
- Clinic
- Cemetery
- Nature reserve
- Sports facility
- Riparian corridor
- River
- Farm dams
- Cultivated lands
- Ecologically sensitive areas
- Vacant land
- Existing vineyards
- Proposed residential sites
- Proposed private development
- Proposed industrial land
- Current urban edge
- Development node
- Proposed Centre (1st Order)
- Proposed Centre (2nd Order)
- Existing Centre (1st Order)
- Existing Centre (2nd Order)
- Consolidated Centres (1st Order)
- Consolidated Centres (2nd Order)

FIGURE 79. COMPOSITE DESIGN INFORMANTS DRAWING

## 11.7. OPPORTUNITIES AND CONSTRAINTS

Farm dams are structuring elements in the agricultural landscape

Existing social facilities. Encourage development intensity for public support

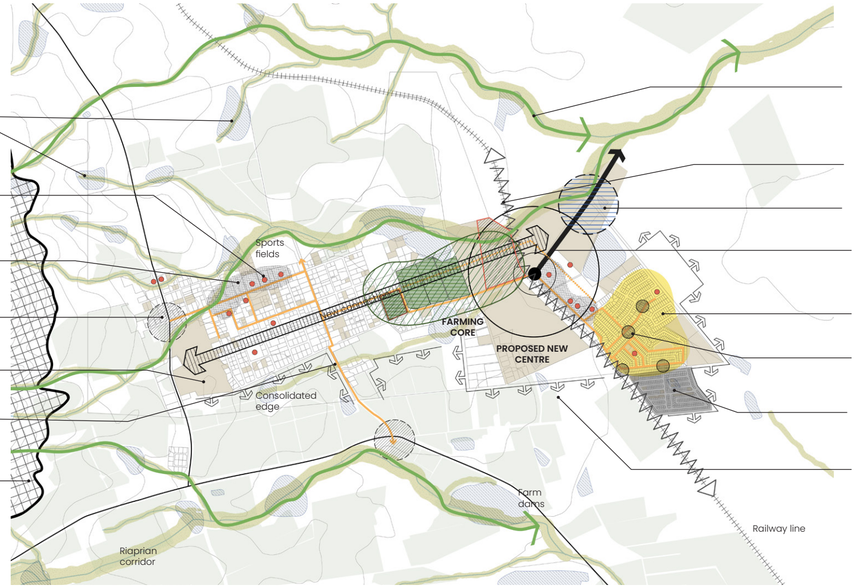
Consolidation of public facilities and improvements to the public realm required

Existing gateways into town. Require some upgrading to become established

Large plots of vacant ar available for development. Privately owned

Proposed activity routes/ streets. High traffic volumes should encourage mixed use

Limit of development on the footslopes of the Kasteelberg




Connect with hiking and MTB rails along the riparian corridor, up into the Kasteelberg Mountains

Railway has historically been a barrier and divided the settlement racially. Limited development-

New eastern gateway opportunity provides alternative entrance to Riebeek Kasteel

Upgraded Zonquasdrift Road provides access to Gouda and Tulbagh

Backyard dwellings increase population numbers and overload municipal services

Blockages to pedestrian movement created as new neighbourhoods were built

Incremental development allows for restructuring as upgrades are in progress

Settlement requires edge consolidation to 'hold' the town in the landscape

FIGURE 80. OPPORTUNITIES AND CONSTRAINTS DRAWING

# 12. DESIGN DEVELOPMENT

## 12.1. REGIONAL DESIGN CONCEPT

The regional design concept for this small town regeneration project uses the framing of the quaternary water catchment as the definition for the 'region'. In so doing, the regional ecology is clearly expressed with the Berg River running north-south through the valley bottom with the Kasteelberg to the west and the Elandsberge to the east.

The Voelvlei is highlighted as a hugely significant feature in the landscape with potential for increased recreational use, and tourism potential. The mountain range formations that run parallel to the Berg River are National and World Heritage sites, and nature reserves that form part of a chain of protected areas. The regional concept proposes an east-west ecological corridor across the catchment that serves to connect the various patches into a matrix of habitats. This may help to serve a broad environmentally restorative function, connecting protected areas laterally across the landscape.

At the same time, this new corridor opens up access to Esterhof directly from the east. It provides for a new gateway possibility into Esterhof via the Zonquasdrift Road and could flip the pattern of investment into Riebeek Kasteel, providing new social and ecological opportunities.

### AGROECOLOGY- A NEW REGIONAL, RURAL ECONOMY

Based on the production and cultivation of food for local consumption, materials for construction and building, strategies for managing the water system, techniques for managing waste and regenerating the natural environment.

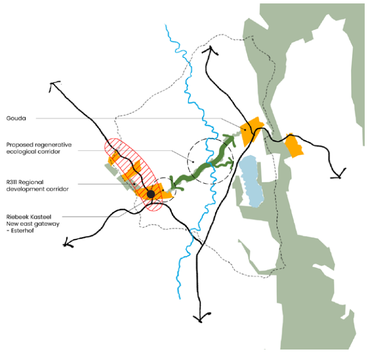



FIGURE 81. REGIONAL DESIGN CONCEPT SHOWING A PROPOSED REGENERATIVE ECOLOGICAL CORRIDOR

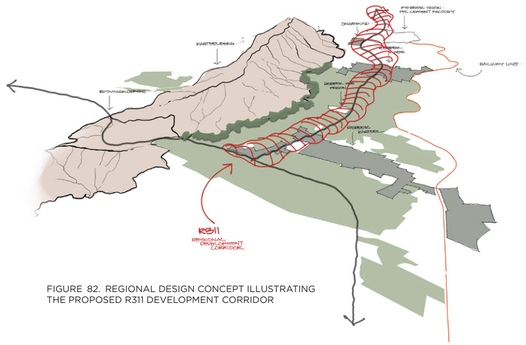



FIGURE 82. REGIONAL DESIGN CONCEPT ILLUSTRATING THE PROPOSED R311 DEVELOPMENT CORRIDOR

## 12.2. LOCAL DESIGN CONCEPT

The local design concept for the town of Riebeek Kasteel is based on the notion of regeneration. Regeneration as described earlier is about repairing the rift between communities, both social and ecological.

### 12.2.1. REPAIRING THE SOCIAL FABRIC

The social rift in Riebeek Kasteel is quite clear, observable both from aerial photographs and once you visit the town in person.

The main urban centre (CBD) of Riebeek Kasteel, is clearly separated from Esterhof by the railway line and a single access road (Kloof Street). This was a historically strategic move which has had profound spatial implications. Esterhof has mushroomed over time and quite possibly contains 4-5 times as many people as Riebeek Kasteel.

The contrast is visible, and the spatial structure of the original town has eroded as it has grown.

Riebeek Kasteel and Esterhof operate quite independently. It is a shame that they are so disconnected. The conceptual idea is to shift the energy,- the balance of investment to a shared node closer to Esterhof, with a new gateway into town. The intention is to use Community Supported Agriculture (CSA) and an integrated green network adjacent to the old railway platform to do so.

### 12.2.2. HEALING THE FARM ECOLOGY

In 'healing the town', I am mainly talking to the quality of the environment. This refers to the overall public realm, the green, open spaces and cultivated land within town, and the surrounding agricultural landscape.

Farms in the area rely heavily on dams dispersed throughout the settlement for their water. Dams are large pieces of water infrastructure that have a visible impact on the topography, view-sheds, built fabric and movement through town. Although privately built, they are also storing a public asset.

Combined with the adjacent river system, these farm dams become a structuring element of the open space system in town- improving biodiversity and habitat, cooling the air, stabilising the water supply and providing space for public swimming.

Commercial agriculture can also be an ecological disaster. Many farmers use agricultural chemicals and pesticides to manage and maintain their crops. Residues from these spraying practices are carcinogenic to humans and animals. They do untold damage to local flora and fauna, disrupt soil biota and can severely reduce water quality. This has a negative impact on the broader ecological functioning of the whole region (Lower Berg River corridor and wider catchment).

The idea here would be to use regenerative agricultural practice as a healing methodology for the local town. To provide new public space for local residents to share, generate new economic opportunity and 'open up' the town to the surrounding natural systems.

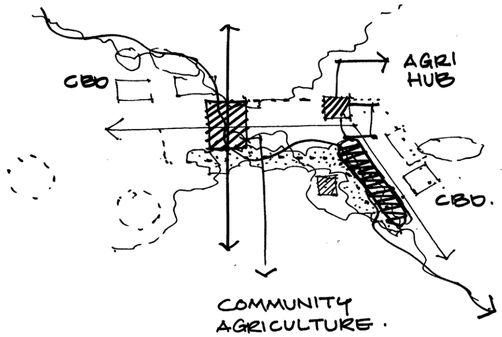



FIGURE 84. DESIGN CONCEPT SKETCH USED TO INFORM THE DEVELOPMENT OF A FRAMEWORK

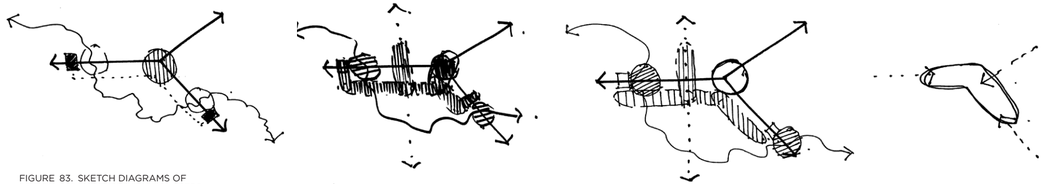


FIGURE 83. SKETCH DIAGRAMS OF DESIGN CONCEPT ITERATIONS/ STEPS

# 13. DESIGN FRAMEWORKS

## 13.1. DESIGN FRAMEWORK AT THE TOWN SCALE

The design framework for Riebeek Kasteel is premised on the need for a clear and coherent spatial structure. The current form of the town is fairly disaggregated. This results from a forced removal in 1965 of coloured residents from Oukloof to Esterhof, east of the railway line. So the town currently has two centres, which are out of balance.

Connections between these parts of town are limited, public space provision is fairly low, public facilities are primarily in the 'old town' and the utility services and amenity could be improved. Esterhof (and its internal neighbourhoods) are definitely far more vulnerable to change, less resilient and struggling to thrive.

These above images show an exploration of the concept. The main idea underpinning the concept is the need to balance the socio-ecological considerations of the town.

The design intent is three-fold:

(1) shift the focus of public investment to the east side of the town,
(2) preserve and extend the productive green space in town to provide new economic opportunities, and
(3) design a public spatial structure focused on reconnecting the two disparate neighbourhoods in town.

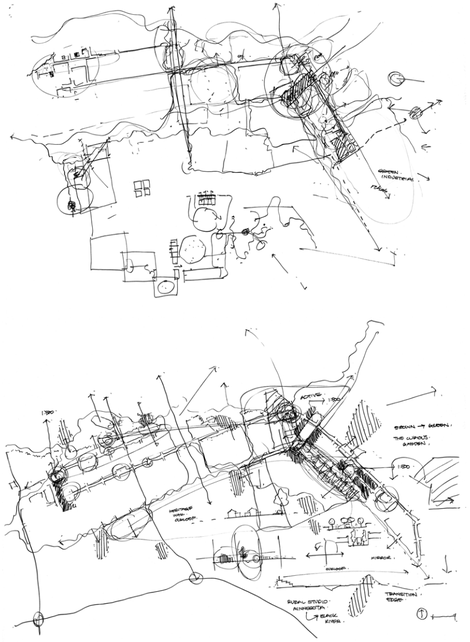
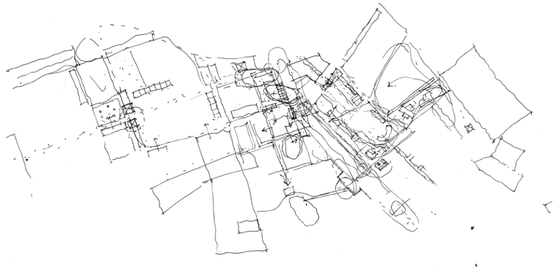
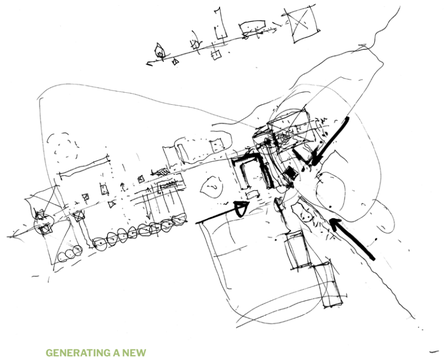


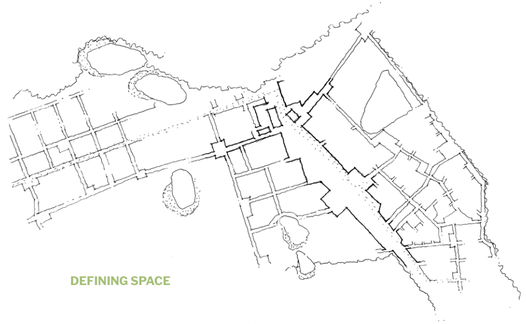
FIGURE 85. EXPLORATION OF THE DESIGN CONCEPT



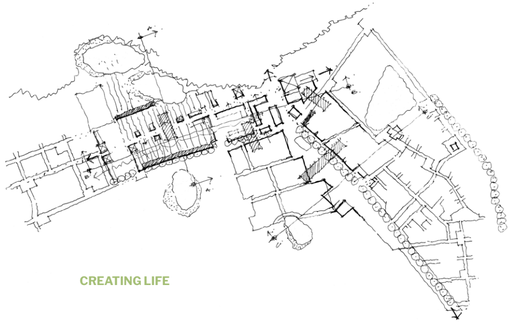
FINDING SPATIAL STRUCTURE



GENERATING A NEW CENTRE



DEFINING SPACE



CREATING LIFE

FIGURE 86. CREATIVE APPLICATION OF THEORY TO THE SITE

### 13.1.1. GENERATE A NEW CENTRE

The overall framework is established from the intersection of Kloof and Lelie Streets, and the railway crossing. The intent is to envision a new centre, and from that design a spatial structure that promotes order and good urban form.

The way to ground this shift into the existing fabric is by embedding an agricultural core into the centre of the town. This is somewhat a change in the approach suggested by the Riebeek Kasteel SDF (2017-2022), which could push most farming activities to the periphery. Nevertheless, they do identify this part of town as a secondary business node.

The idea is to have  a generative centre.

This new centre acts at multiple scales. Informed by the regional morphology, and the possibility of a strong east-west route, the eastern gateway into Riebeek Kasteel becomes this future centre. The network of primary transit modes aligns at this intersection- Kloof and Lelie Streets, the railway and the road to Zonquasdrift. This node is perfect for a small-scale PTI, informed by the potential revitalisation of the railway for commuter access across the Western Cape. There are also private rail possibilities for logistics, bulk fresh produce transport, tourism and the hospitality industry.

The possible industries that could develop out of a focus on inclusionary, regenerative farming practice embedded into the townscape are diverse. Complemented by a new high school, and an agricultural college for Riebeek Kasteel- this centre will have regional draw as well. Adjacent land uses to the railway station could include medium-density residential (rowhouses), a market space, agricultural co-op, retail space, public transit stops, and hard and soft landscaping improvements,

### 13.1.2. EXTEND THE PRODUCTIVE SPACE

The next step would be to extend it eastwards and westwards, to meet the railway, and northward to meet the river's edge. This expanded green network becomes a Continuous Productive Landscape (CPUL) per Bohn and Viljoen (2005) concept. The focus would be establishing a Community Supported Agriculture (CSA) project that provides for the food needs of vulnerable residents through subsistence farming, and extends smallholder commercial farming to local residents.

This green spine would then act as the trunk onto which additional public facilities such as a farmers market, nursery, recycling centre, agricultural co-op, local brewery and bakery, composting site, growing tunnels and agricultural college could branch off.

Developing beyond that centre of resilience, are more commercial opportunities associated with agri-tourism such as flower cultivation, beekeeping, restaurants, cafes and delis, craft market, expanded tourist accommodation (Bnb's) and a culinary or hospitality school for local training.

In the words of Simon-Rojo (2019: 99)-
"Our contribution is oriented towards translating social demands in these vulnerable neighbourhoods into spatial terms, that creates a network of cultural–social and productive spaces (for processing, collection and distribution centres) along the urban-rural transect."

### 13.1.3. FORM A NEW SPATIAL STRUCTURE

Following that, it is important to revisit the overall spatial structure of the town and see how it can be transformed into a pattern of integration and regeneration.

An informed spatial structure that arises from this centre, should look to improve the pattern of accessibility to the whole town. With this regenerative and resilient practice as the new centre, it is important to weave the existing public facilities, urban spaces and utility services into new and expanded connections. The revised spatial structure consolidates the current Market Square, municipal offices, post office, library, NG Kerk, schools, sports fields and amphitheatre into a viable precinct, with upgrades to the public realm-  to improve freedom of movement for pedestrians.

This is an existing centre that becomes more whole through a focus on connection between the various elements. Main Street, Plein Street, Sarel Cilliers, Royal and School Streets form part of the revived public realm . There is an important ecological connection to be made here. This involves opening up the existing market square to the north, clearing the bush and providing a view and new connection onto the river. It is important to re-establish the connection to water for our aesthetic and cultural purposes. We are reminded of our connection to the natural environment.

The CBD in Esterhof requires a similar approach to consolidation. There is a vacant piece of property at the intersection of Lelie and Angelier Streets which could come alive with some improvements to the amenity of the space, provide informal trading structures and a local public transport stop.

This CBD gathers energy from the adjacent retailers, small shops, creche, clinic, VGK Kerk and the newly built community hall. Combined with the NG Meiring Primary

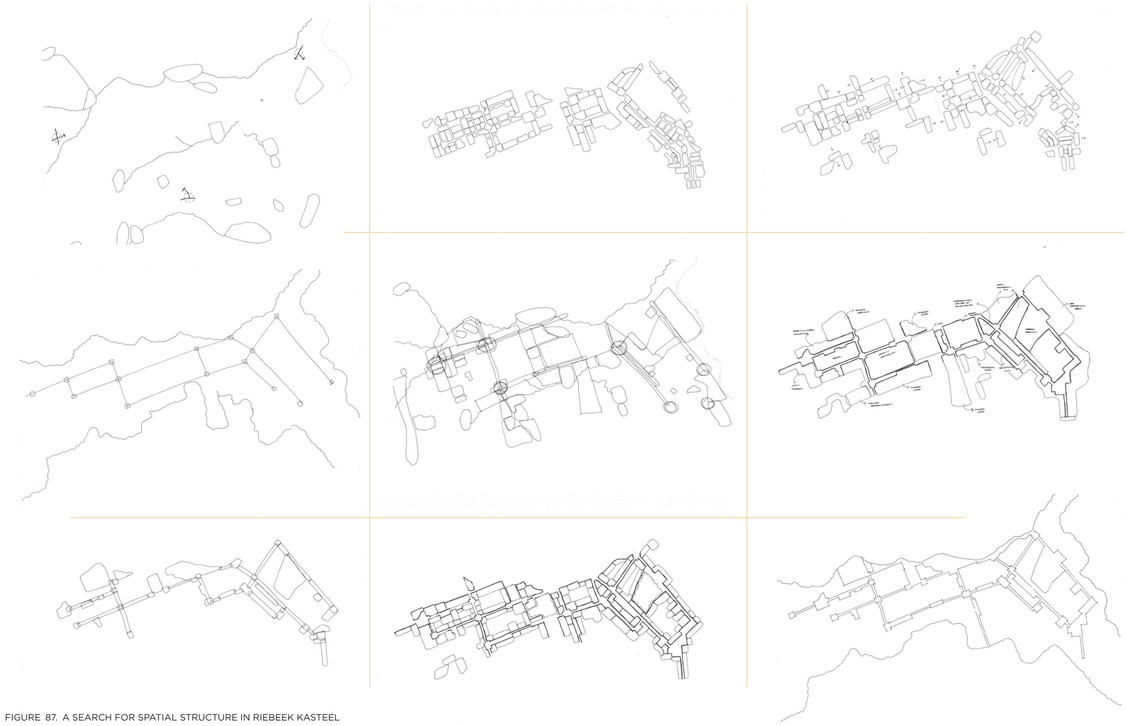


FIGURE 87. A SEARCH FOR SPATIAL STRUCTURE IN RIEBEEK KASTEEL

School, the adjacent sports fields and community park - this centre develops an energy of its own and provides all local residents with an attractive and viable centre. The adjoining streets should be upgraded, with hard and soft landscape treatment, street lighting, benches and additional amenity to improve the quality of the pubic realm. Mature street trees should be planted to give structure to the landscape along Lelie Street and on either side of the railway. The railway servitude itself can be softened to give life and beauty to the space- with a suggested memorial garden used to buffer the noise and tremor of the PPC train rolling through town.

These two centres give life to the communities that they are embedded within. But the new generative centre is established to act as way to shift the balance of power and capital between Riebeek Kasteel's 'old town' and Esterhof.

The public spatial structure that provides connections between these centres is critical. Main Street, Piet Retief Street, Van Riebeek Street, Kloof Street, Hermon Road, Lelie Street, Vygie Street and Daisie Street become incredibly important connections. These streets along with 2-3 new proposed connections form the network that connects these centres and provides equitable access. The spatial structure arising from this movement network encourages improved regional connectivity, local NMT/ pedestrian and vehicular movement as well as facilities and routes for public transport.

One of the primary features of this new spatial structure (which provides regional access to the new centre) is an upgraded eastern gateway on the Zonquasdrift road.

Currently, this dirt road leads north east out of town as an extension of Kloof Street. Drawing from the regional design concept, this new access road can facilitate a tremendous shift in energy towards Esterhof. It seeks to enable public and private investment in response to the new spatial structure.

Additional facilities include potential agri-villages built up against the river bank, a braai and rest/ camping site on the dam (at the extension of Main Street) for hikers, mountain bikers and day visitors. This centre is built on principles of agroecology and regenerative agriculture and founded with the intent of re-imagining the railway as a bridge rather than a buffer.

## 13.2. FRAMEWORK COMPONENTS


FIGURE 88. RIEBEEK KASTEEL- COMPONENTS OF THE DESIGN FRAMEWORK

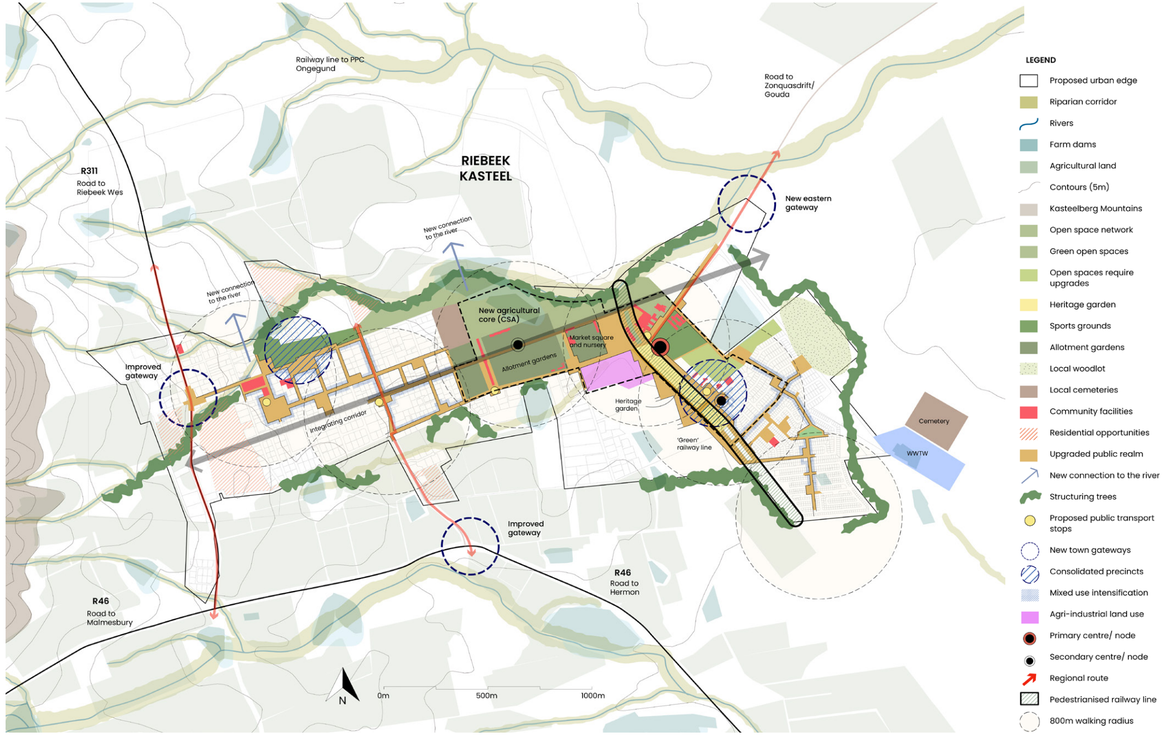



FIGURE 89. RIEBEEK KASTEEL- DESIGN FRAMEWORK AT TOWN SCALE

## 13.3. PRECINCT PLAN

The precinct plan is a close up look at the potential layout and operations of the new generative centre for Riebeek Kasteel. It is located at the intersection of Kloof and Lelie Streets, and the railway. This precinct comprises three smaller centres or focus areas, that will be looked at further in detail.

The precinct includes an area around this node that is 757 520m2, approximately 76ha. The first centre to the west of the railway is developed around a CSA Community Supported Agriculture) project, that includes residential units and allotments, orchards, vineyards and tourist accommodation. It's the agricultural focus area.

Around the railway crossing, the proposal includes restoring, and/ or rebuilding the railway station, an associated market and bulk fresh produce storage, including other agri-industries. This centre also includes a site for a new agricultural college focused on agroecology and traditional farming practice. A new high school, farm stalls, working demonstration farm and revamped public forecourt spaces show the possibility for an inclusive, thriving and resilient society. This second centre is the educational focus area.

The third centre is the community focus area in the heart of the 'Old Scheme' in Esterhof. This centre is already a lively CBD. The majority of formal shops are located at the intersection of ..... and this. Hard and soft landscaping improvements, the inclusion of parking areas, low seating walls and benches- would make an incredible public space. Covered trading areas, large trees and street lighting would be important additions.

The design guidelines alongside provide development guidance for the precinct.

## 13.4. DESIGN GUIDELINES

- Precinct plan boundary
- Primary movement routes - Improved regional and local access to better connect the 'upper town' and Esterhof
- Shared street - Mixed traffic with shared street surface along this route. Slow speed and low traffic volumes expected
- Links across the railway - New pedestrian and vehicular connections across the railway to facilitate movement and break divisive history
- Pedestrian paths - Pedestrian priority routes to encourage movement. Limited vehicle access where necessary.
- Primary NMT route - Railway servitude reduced in width and remainder opened to NMT movement facilitating north-south access
- New connections - Construct new roads over railway servitude to provide access from Esterhof to new development areas
- Farming support - Development includes support facilities to local CSA. Packhouses, office space, nursery and compost production
- Community park - Current vacant land to be used for new recreational space including braai areas and playgrounds
- Agri-industrial hub - Riebeek Cellars. Catalyst for surrounding mixed use development around agricultural industry
- CSA- Land to be purchased by municipality and held in escrow as public space. Intensive farming by local residents, using agroecological cultivation methods.
- Mixed use areas - Recommended areas for intensified development. New retail and commercial opportunities with increased residential density
- Public realm - Hard & soft landscaped areas with pedestrian street lighting
- Public transport stop - Area dedicated to the transport stop. Embayments and bus shelters provided for a comfortable waiting area
- Recreational node - Area dedicated to the development of shared sports and recreational facilities for the broader community
- New residential areas- Property to be released for new residential development. Preference for medium density schemes
- Tourism growth node - Establish tourist accommodation and hospitality. Architectural style to fit in with surrounding context. Use of shared facilities is encouraged.
- Gateway - Major entrance route into town. To be celebrated with landmark or land use that is contextually and/ or culturally appropriate.
- Heritage garden - Proposed landscaping treatment to pay respect to historical residents of Oukloof and provide a 'bridge' across railway
- Farm dams - Protect and form part of future green network. Plant indigenous and diverse flora for habitat creation. Dams to be available for public swimming.
- Wetlands - Wetlands at the inlet of existing farm dams to be improved over time. Natural water filtration encouraged to remove agricultural chemicals from water supply.
- Riparian corridor - Future urban development and establishment of farms non-negotiable in these protected areas. Land returned to natural condition where possible.
- Railway line - Existing railway line. Development encouraged to front onto railway line. To be future proofed for commuter use
- Green buffer - Vegetated buffers adjoining riparian corridors to provide protection from wind, noise and dust for adjoining land uses

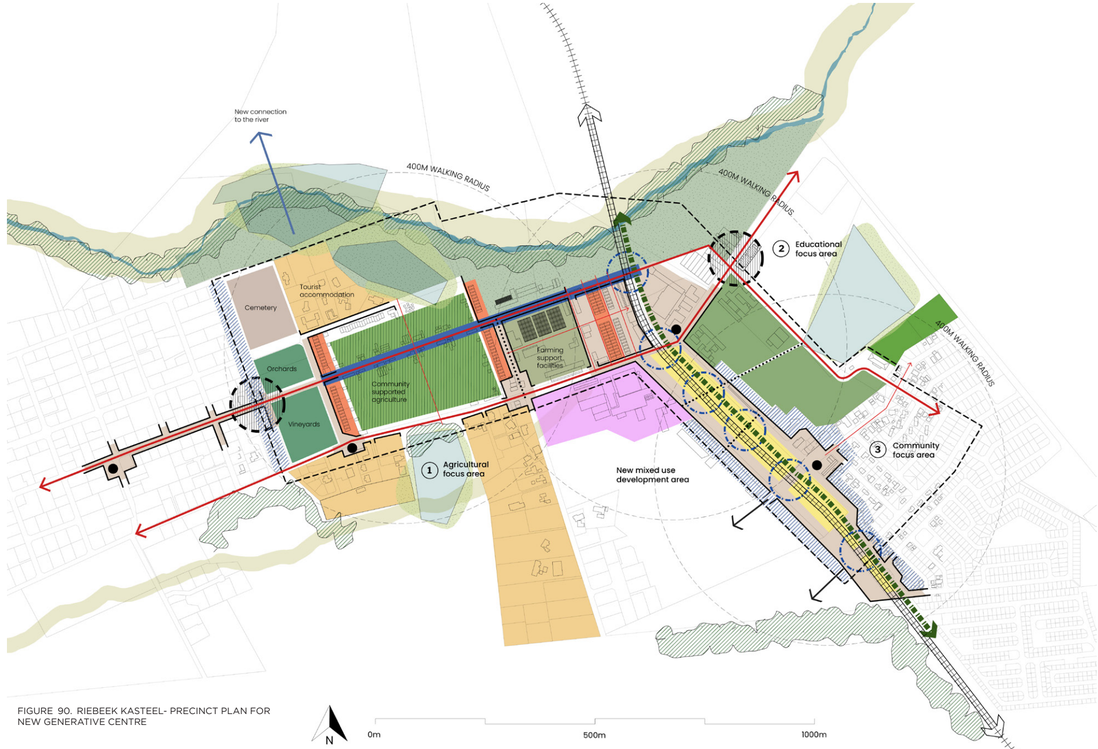



FIGURE 90. RIEBEEK KASTEEL- PRECINCT PLAN FOR NEW GENERATIVE CENTRE

## 13.5. FOCUS AREA PLANS

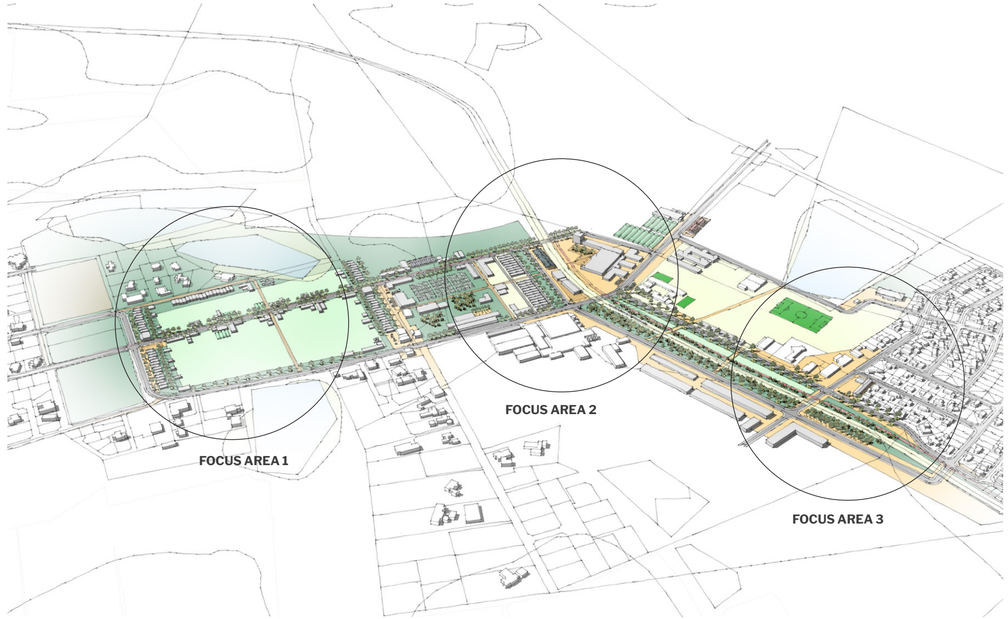



FIGURE 91. RIEBEEK KASTEEL- PERSPECTIVE VIEW OF THE 3 FOCUS AREAS


FIGURE 92. RIEBEEK KASTEEL- LOCATION PLAN FOR FOCUS AREAS

### 13.5.1. FOCUS AREA 1

Key considerations to guide future development in Focus Area 1 are indicated in the adjacent plan and summarised below:

**Farm-style woonerf:** A proposed new movement route through town- extending Van Riebeek Street to the east to connect over the railway line and south into Esterhof. This is a shared street space with a priority for pedestrian and NMT movement, as well as tractors and agricultural equipment moving at slow speeds.

Shared street space with a low order agricultural typology. Active and positive interface conditions encouraged with structures facing, or adjacent to the street. Woonerf should be surfaced for slow speeds and include space for parking, vehicular circulation, SUDS treatment, indigenous trees, street lighting and landscaping.

**Community Supported Agriculture:** The CSA is a local community-owned farming enterprise that supplies fresh produce, and other farm goods to its neighbours and businesses. This land could be purchased and placed into trust as a 'public good'. Reserved as green open space with a productive function (CPUL).

**Public forecourt spaces:** Pedestrian oriented spaces that provide amenity from adjacent buildings. Corner shops, houses and accommodation should make gestures towards the public space and gateways. Hard and soft landscaping improvements for shade, and seating.

**Hospitality school:** Institutional land use that could provide skills training and educational opportunities to young school leavers. Supporting higher education and career growth through the local tourism industry in the town and region.

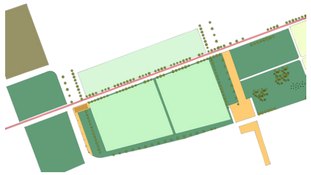
**Residential units:** Proposed rowhouse typology, multi-family homes at medium density to provide affordable accommodation in the centre of town. Rowhouses are proposed 1-2 storeys, built in a similar character to the existing. Doors, windows and balconies front onto the street.

**Allotment gardens:** Semi-public gardens attached to the residential units and also available for rental through the farm enterprise. Residents of the town are encouraged to raise a garden or purchase groceries from the CSA. All farming methods practised to be agroecological and organic.

**Open-air market space:** New buildings can be pushed back from the parcel boundary, with tree planting and trading stalls to adequately frame the streetscape. Active ground floor frontage- residential units and agri-industrial uses with retail or visible production areas to face the street.

MOVEMENT

LANDSCAPE



BULDINGS

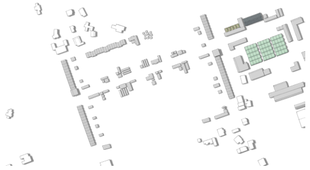


FIGURE 93. FOCUS AREA 1- STRUCTURING ELEMENTS


FIGURE 94. FOCUS AREA 1- SITE PLAN

FIGURE 95. PRECEDENT- FARM-STYLE WOONERF WITH TREES AND STRUCTURES FRAMING THE STREET

FIGURE 96. PRECEDENT- ALLOTMENT GARDENS EDGED BY HOUSING AND PUBLIC OPEN SPACES

FIGURE 97. PRECEDENT- COMMUNITY SUPPORTED AGRICULTURE (CSA) PROJECTS

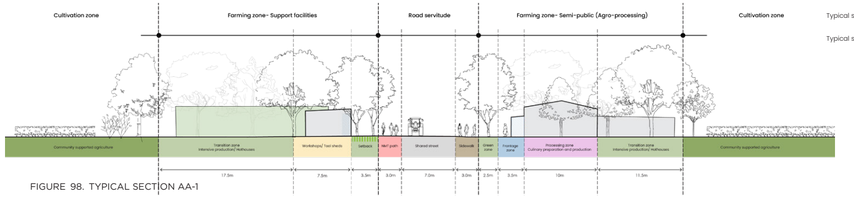



FIGURE 98. TYPICAL SECTION AA-1

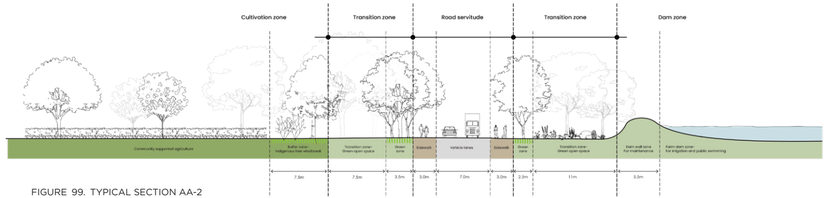



FIGURE 99. TYPICAL SECTION AA-2


FIGURE 101. SECTION AA- CONTEXT PLAN

FIGURE 100. FOCUS AREA 1 - PERSPECTIVE SECTION AA

TYPICAL SECTION AA-1

TYPICAL SECTION AA-2

### 13.5.2. FOCUS AREA 2

Key considerations to guide future development in Focus Area 2 are indicated in the adjacent plan and summarised below:

**Agricultural college:** The proposal is to expand the developable area of the property adjacent to the railway, on the east side. This should be the site for a new tertiary educational institute, focused on agriculture. It has reasonable regional access and space for an adjacent demonstration farm. Situated in the new educational heart of Riebeek Kasteel, over the road from NG Meiring Primary school and a proposed new high school as well.

**Railway station:** Revamped railway station to accommodate the existing train, and new potential rail operations. Rail is an incredibly strategic transport option for the regeneration of small towns. Continue/ extend the public forecourt from the college, to accommodate pedestrian movement
The upgraded railway station provides a multi-functional space as a market, public restrooms, meeting space and transit hub.

Public space treatment to reflect agrarian character. Hard and soft landscaping using indigenous plants and local materials, with adequate street lighting for this active pedestrian space.

**Kloof Street Interface:** This street character changes along it's length- with mixed use retail and recreational land uses, as well as existing agri-industrial buildings. It's proposed that infill buildings are built to the street edge, or setback with patios or gardens. Road is for vehicular traffic, with improved pedestrian amenity.

**Public forecourt spaces:** Pedestrian oriented spaces that provide amenity from adjacent buildings. Corner shops, houses and accommodation should make gestures towards the public space and gateways. Hard and soft landscaping improvements for shade, and seating.

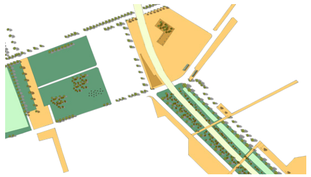
**Location of new buildings:** New buildings should be pushed to the parcel boundary, to adequately frame the streetscape. Agri-industrial buildings sized to neighbourhood scale. Housing blocks can be broken into 4 or 6 units to support implementation by micro-developers.

**Public transit stop:** Hard and soft landscaping, including bus shelters, seating and trees for inclement weather. Include lay-bys for public transport and NMT facilities. Promote overlooking with doors, windows and balconies from adjacent buildings. Universal access improvements, signage, wayfinding and street lighting.

**Regional gateway:** This intersection forms the new eastern gateway for Riebeek Kasteel. It's the proposed new development node to correct the historical imbalance of development and investment in the town. With the extension of the Zonquasdrift Road to meet up with the R46 at Voelvlei dam, this creates a new entrance into town, and growth potential with the railway.

MOVEMENT

LANDSCAPE



BULDINGS

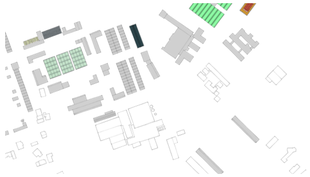


FIGURE 102. FOCUS AREA 2- STRUCTURING ELEMENTS

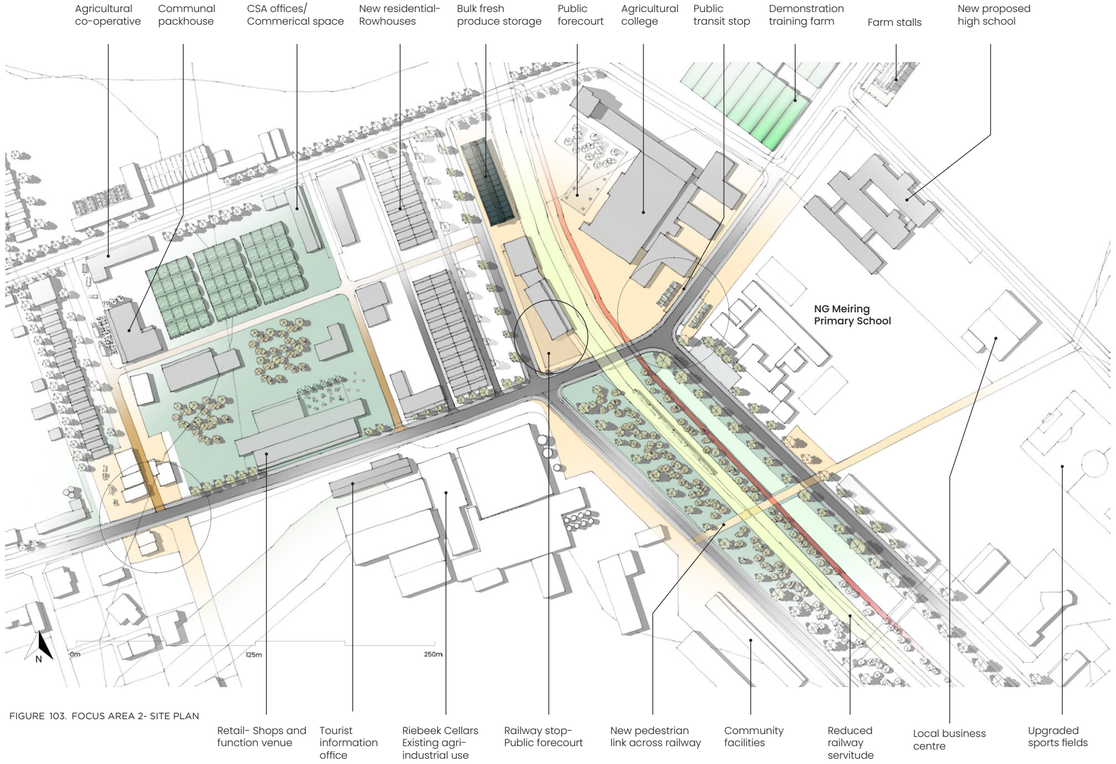



FIGURE 103. FOCUS AREA 2- SITE PLAN

FIGURE 104. PRECEDENT- INTENSIVE PRODUCTION AND NEIGHBOURHOOD-SCALE FARM BUILDINGS

ELSENBURG AGRICULTURAL COLLEGE, STELLENBOSCH

CEDARA AGRICULTURAL COLLEGE, HILTON

WESTON AGRICULTURAL COLLEGE, MOOI RIVER

FIGURE 105. PRECEDENT- AGRICULTURAL COLLEGES ACROSS SOUTH AFRICA

RESTORED BUKIT TEMAH RAILWAY CORRIDOR IN SINGAPORE IS A NEW PUBLIC OUTDOOR AMENITY

RESTORED ELGIN RAILWAY MARKET IN GRABOUW, WESTERN CAPE

FIGURE 106. PRECEDENT- RAILWAY STATIONS TURNED INTO MARKETS AND COMMUNITY SPACES

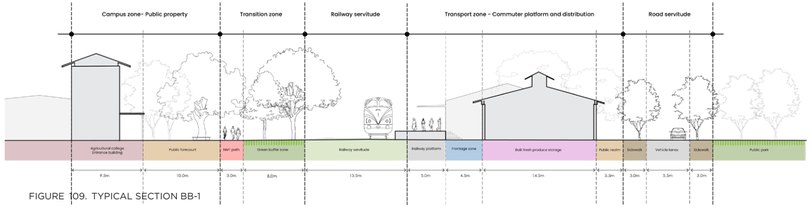



FIGURE 109. TYPICAL SECTION BB-1

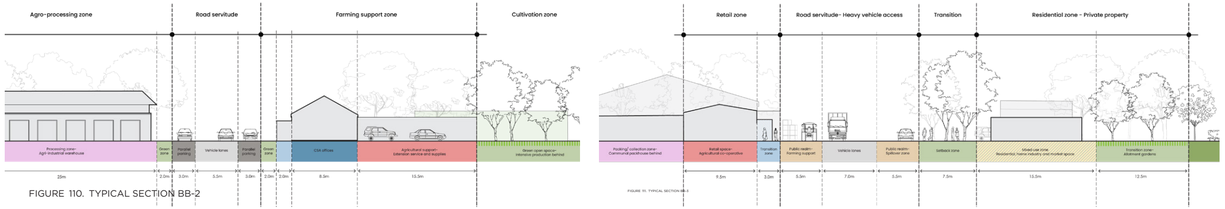



FIGURE 110. TYPICAL SECTION BB-2




FIGURE 111. TYPICAL SECTION BB-3

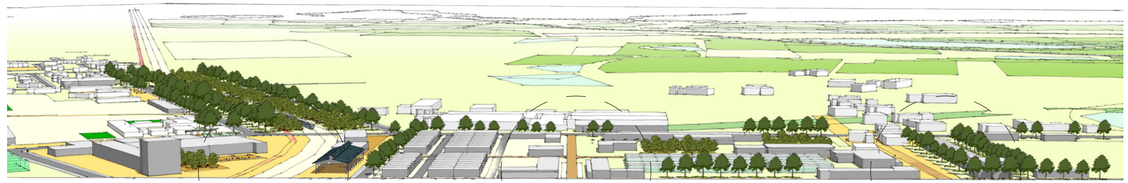


FIGURE 107. FOCUS AREA 2- PERSPECTIVE SECTION BB


FIGURE 112. SECTION BB- CONTEXT PLAN

TYPICAL SECTION BB-1

TYPICAL SECTION BB-2

### 13.5.3. FOCUS AREA 3

Key considerations to guide future development in Focus Area 3 are indicated in the adjacent plan and summarised below:

**Green 'Railway Corridor':** Proposed investment into upgrading the railway corridor into a usable, public space- a linear park that links the south of Esterhof into the centre of Riebeek Kasteel. Reduce width of the railway servitude, and create public open space. Built for multiple users and for all NMT modes of transport. Hard and soft landscaping improvements for ease of movement, benches, seating and street lighting. The idea is to create a locally public park that can also accommodate the railway being used regularly again.

Retain the existing mature trees on site, and encourage growth of a planted landscape.

**Upgraded NMT route:** Continue/extend the street treatment from Allotment Avenue, through the CSA project. Wide sidewalks and street lighting to cater to this primary pedestrian and cycle route.

**Lelie Street Interface:** Buildings developed to the street edge, and used to frame the streetscape on the east side of the road. Wide sidewalks for pedestrian movement, benches, low seating walls, trees and street lighting. Doors, windows and balconies facing the street, covered setback zones

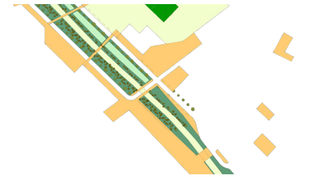
**Oukloof heritage garden:** A symbolic gesture that pays homage to the forced removals of 1965 from Riebeek Kasteel to Esterhof. This move shaped the pattern of development significantly. The railway line becomes a bridge rather than a barrier, restoring this infrastructure as an indigenous landscape that captures the spirit of life that existed in Oukloof at the time-

**Public forecourt spaces:** Pedestrian oriented spaces that provide amenity from adjacent buildings. Corner shops, houses and accommodation should make gestures towards the public space and gateways. Hard and soft landscaping improvements for shade, and seating.

**Community facilities:** Existing community facilities along Lelie Street include a new community hall, the VG Kerk, and small local retailers. There is scope for additional infill buildings to create a cluster of community facilities, between NG Meiring Primary school and the Esterhof CBD. Complement with mixed use retail/ residential uses and active frontage.

MOVEMENT

LANDSCAPE



BULDINGS

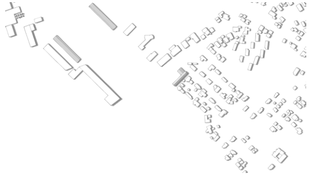


FIGURE 113. FOCUS AREA 3- STRUCTURING ELEMENTS

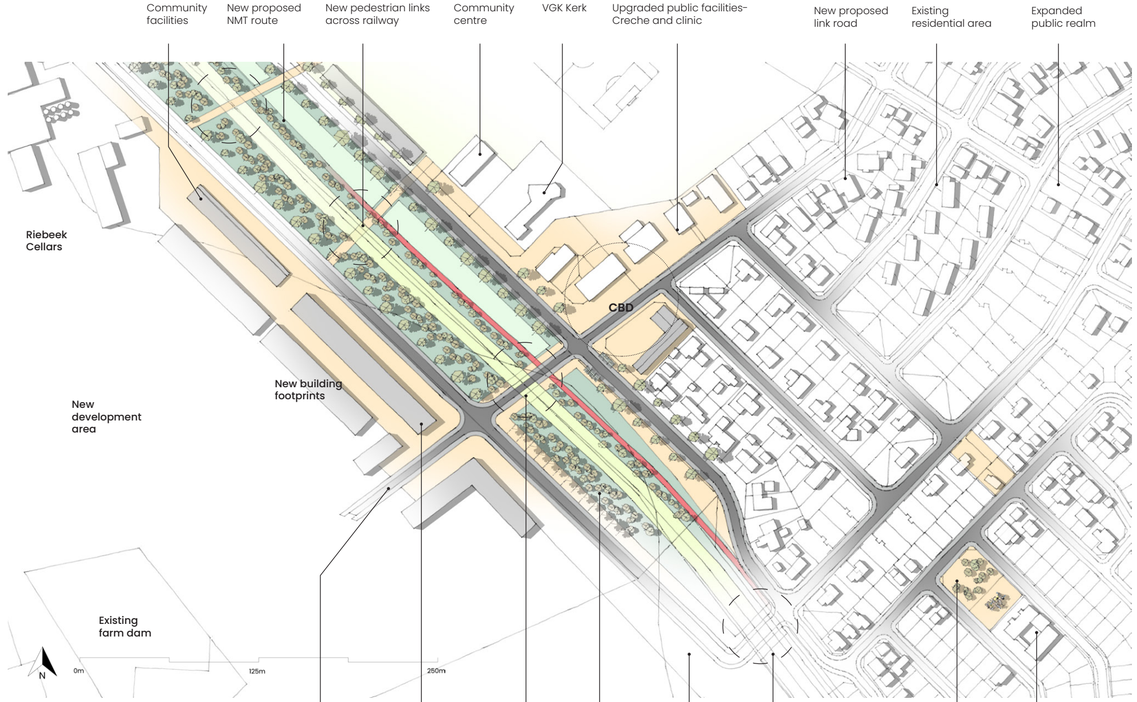



FIGURE 114. FOCUS AREA 3- SITE PLAN



FIGURE 115. PRECEDENT- PROPOSED ACTIVE RETAIL FRONTAGE AND AMENITY FOR THE ESTERHOF CBD

FIGURE 116. PRECEDENT- LELIE STREET INTERFACE. SHADED ACTIVE, MIXED USE STREET FRONTAGE

TAICHUNG GREEN CORRIDOR, TAIWAN

BUKIT TEMAH RAILWAY CORRIDOR, SINGAPORE

FIGURE 117. PRECEDENT- GREEN 'RAILWAY CORRIDOR' AS RECREATIONAL PUBLIC SPACE AND NMT PATHWAY

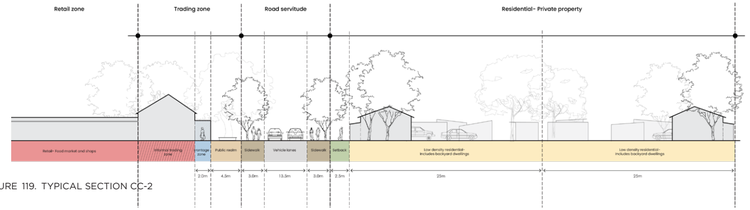



FIGURE 119. TYPICAL SECTION CC-2

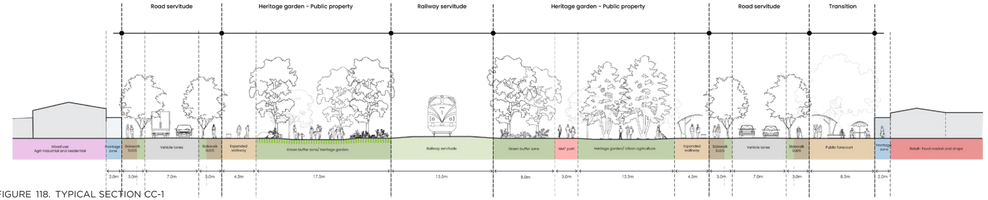



FIGURE 118. TYPICAL SECTION CC-1

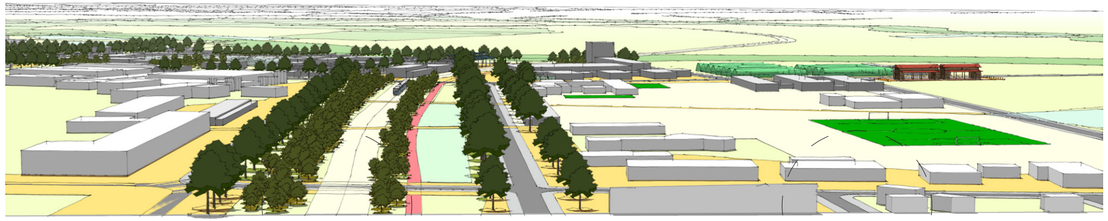


FIGURE 120. FOCUS AREA 3 - PERSPECTIVE SECTION CC


FIGURE 121. SECTION CC- CONTEXT PLAN

TYPICAL SECTION CC-1

TYPICAL SECTION CC-2

## 13.6. 3D VIEWS

FIGURE 122. RIEBEEK KASTEEL- PROPOSED EASTERN GATEWAY

FIGURE 123. RIEBEEK KASTEEL- OPEN AIR MARKET AND M.U. HOUSING

FIGURE 125. RIEBEEK KASTEEL- UPGRADED LELIE STREET

FIGURE 124. RIEBEEK KASTEEL- FARM-STYLE WOONERF THROUGH CSA

## 13.7. PROJECT PHASING

The phasing and programme for this project is flexible, and should follow the principle of 'starting small in the biggest way possible.'

This may be require going after low-hanging fruit, and building on the momentum of current community projects outlined by the Swartland Municipality and ward committee. However, in principle- the phasing is driven by the needs of the community as a priority, guided by the overall design intent.

The design intent is three-fold:

(1) shift the focus of public investment to the east side of the town,
(2) preserve and extend the productive green space in town to provide new economic opportunities, and
(3) design a public spatial structure focused on reconnecting the two disparate neighbourhoods in town.

The proposals are intended to transform the town and place agroecology as the centre of a new regional, rural economy.

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PHASE 1 **EXTEND THE PRODUCTIVE SPACE**

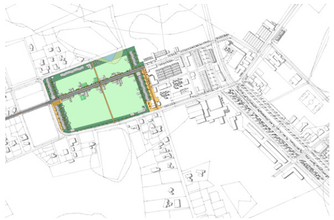

FIGURE 126. PHASE 1 OF THE PROJECT- DEVELOP THE CSA AND SURROUNDING AMENITIES

PHASE 2 **GENERATE A NEW CENTRE**

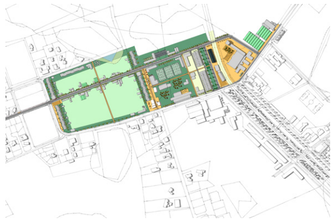

FIGURE 127. PHASE 2 OF THE PROJECT- CREATE A NEW CENTRE AROUND THE UPGRADED RAILWAY STATION

PHASE 3 **REDEFINE THE RAILWAY**

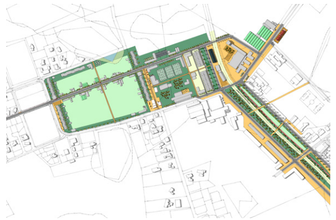

FIGURE 128. PHASE 3 OF THE PROJECT- REDEFINE THE RAILWAY AS A GREEN NMT CORRIDOR

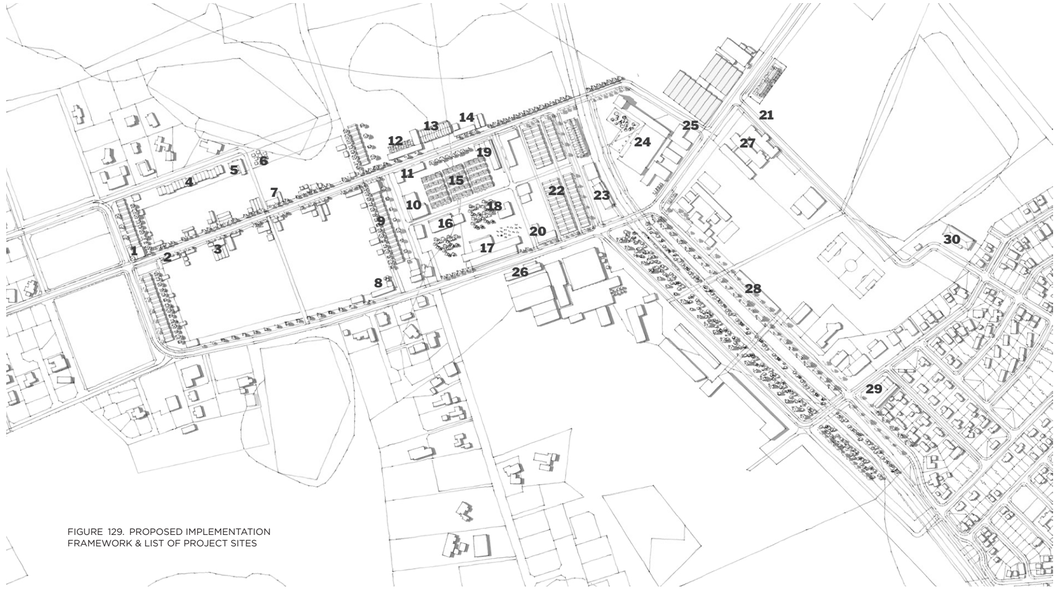


FIGURE 129. PROPOSED IMPLEMENTATION FRAMEWORK & LIST OF PROJECT SITES

## 13.8. IMPLEMENTATION FRAMEWORK

1. Hospitality training school
2. Vehicle and tractor parking
3. Hothouses and tunnels
4. Visitor accommodation
5. Caretaker's cottage
6. Apiary (Beehives)
7. Sheds and tool storage
8. Kasteel- Local brewery
9. Allotment units
10. Common packhouse
11. Agricultural co-op
12. Plant and seedling nursery
13. Composting centre
14. Workshop and tool sheds
15. Intensive tunnel production
16. Mill
17. Retail- Restaurants/ cafes
18. Function venue
19. CSA Office building
20. Retail- Corner shops
21. Farm stall
22. Residential rowhouses
23. Railway platform
24. Agricultural college
25. Demonstration farm
26. Visitor and info centre
27. High school
28. Community facilities
29. Market square- Coffee shops
30. Clubhouse

# 14. CONCLUSION

I began this research looking for sustainability. Seeking an approach to designing and making space for life, beauty, value and meaning. Space that mediated the overlapping threats to our natural environment expressed spatially as urbanisation and agriculture.

## 14.1. THE MIDDLE WAY

These two forces can be seen as similar blights, devouring the landscape as they reinforce and provoke each other's devastating bad habits. Urbanisation is spurred on by the flight of social capital from the rural domain, leaving small towns and rural villages to wither. The inverse correlation is that cities and towns expand their urban edges, eating into the minerals, soils, habitats and biomes of the natural environment.

There is no dynamic balance here.

In terms of the future of human settlements, we are typically far more myopic and see the dichotomy of urban and rural contestation play out in real time. On the one hand, investing heavily into metropols and urban centres that act like magnets drawing people in, to empower commercial agglomerations. On the other hand, we reach out to rural villages and offer monetary support and infrastructure to support a dwindling economy and marginal populations.

**There had to be a third way; a middle way.**

FIGURE 130. RIEBEEK KASTEEL- AN IMPROVED EASTERN GATEWAY
SHOWING THE NEW SPATIAL STRUCTURE FOR THE TOWN

## 14.2. SMALL TOWN REGENERATION

There is a way that found the balance between the hard geometry of the city skyline and the soft nurture of a distant forest edge. The mediating point between urban and rural.

As it turns out, the settlements at the interface of the built environment and the natural environment are those embedded in the non-built environment- in the cultural/ cultivated landscape of the countryside.

**Small towns are so much more important than we originally presumed.**

While much of the attention of today's globalising economy focuses on large urban centres, and those industrialised fields that support them- it is the small towns in between these conurbations that support and give life to the broader network.

Small towns and the surrounding rural areas that they inhabit are the lifeblood of cities and metropoles, as well as outlying villages and hamlets. There has been a steady (and growing recognition) of the importance of small towns more recently. This has been paired with renewed focus on the importance of shifting our consumption patterns, particularly our food system- in order to make some headway towards a sustainable future.

Globally, emerging trends such as New Ruralism, rural design, conservation ecology, agroecology, landscape urbanism and food sensitive planning and design have moved to the forefront of our design consciousness. This is many years after practical attitudes towards these same solutions were expressed by people such as David Holmgren in "Permaculture 2.0".

Fundamentally, the importance of small towns lies in their being the interface between the urban and rural. They are the harbingers of food production, the home of regional ecosystem services and the national carriers of our resource economy and primary production efforts.

Small towns in South Africa have been steadily ignored as the race to house and feed millions of new migrants took place post-democracy. Cities and/ or rural villages became the focus of investment and political energy.

Recent policy developments have suggested a newly invigorated intention to support and develop small towns. This has come through in policy statements in the National Spatial Development Framework (2019) and the more recent Small Town Regeneration Strategy (2021).

## 14.3. A SOCIO-ECOLOGICAL APPROACH

From a philosophical position of adopting a human and nature-centred approach to development, urban design has the capacity to imbue new life into small towns.

Small towns in South Africa typically thrive on their ability to capitalise on the surrounding natural assets, for farming, for job creation, for tourism and for recreation. Similarly, small towns also thrive collectively when they are socially integrated and the whole population has access to the same opportunities.

This is not the case for most South African small towns. They are historically divided and segregated, and historical land ownership patterns distort their spatial layout. Land use patterns typically split the town in two, through the commodification of land, labour and food. This metabolic rift is so clear, and displays a breakdown in social, ecological and individual relationships.

**The socio-ecological approach is a remedy to heal and repair the rift, and make it whole.**

The socio-ecological approach looks at producing a dynamic balance between our own human needs and the needs of the natural environment. It looks at attempting to integrate these dialectic concerns into an overarching whole. The socio-ecological approach looks at preserving and growing our natural capital by investing in people. It looks at making nature more visible as an intrinsic part of settlement design that adds value, cultivates meaning and emanates beauty.

A socio-ecological approach to small town regeneration looks at making the total environment whole and coherent. It looks at understanding how and where social and ecological patterns overlap and produce order- then building on the nature of order.

This is where a design solution, a creative act; a framework for the organic proliferation of form becomes important.

## 14.4. URBAN DESIGN- GIVING FORM TO LIFE

This research project has looked at the potential of adopting a socio-ecological approach to urban design to produce wholeness in the environment.

Through investigation into the spatial form of Riebeek Kasteel in the Western Cape, I have started to understand the pattern of spaces and events that both shape and coerce life (beauty) and death (ugliness) into a small town.

The original pattern is a structural grid, adjacent to a river and on the foothills of a slope.

The town fills out from it's emergent centre at the alter of the local church, into a market square, corner shops, a hotel and squat, humble village houses. These buildings are acclimated to the natural environment with deep, adobe walls, stoeps and verandahs, east-facing windows and foundations built from local rock. Cow dung floors, and indoor wood-burning ovens with a sturdy kitchen table for baking and cooking.

Beyond that, the family has a vegetable garden and perhaps some sheep, goats and a cow or two roaming nearby. The town provides for most of their needs with a small, general store, agricultural co-op and a bar to relax and socialise with friends.

The town grows organically, unfolding into the landscape as new centres emerge. New houses, new shops, a post office, museum and schools gracefully fill the space and blend into the existing environment- making it more whole.

The new pattern is rigid and controlled.

It is ruthless and overbearing, providing endless rules and limitations to growth. The constraints are tight, reducing the dimensions of possible effort to a minimum property size. The roads weave this way, and that- disjointed; making movement frustrating missing opportunities to connect. The parts do not expand in relation to the whole. They are separate, executed with reckless abandon. Gruesome subdivisions, insensitive to their context and dismissive of the makers, builders and doers already in place.

These new patterns, these 'townships' have no empathy. They are monotonous and functional- they do not welcome good form. If only, they could be more forgiving. If only they could be more conducive to life, the expression of beauty and wholeness.

Urban design as a practice comes closest to accepting responsibility for this wholeness. Urban design should be an empowering act. An active force that produces structure in the environment, that is coherent with the natural landscape.

Urban design is the creation of pattern for human settlements. In engaging this research, I have attempted to understand how urban design can be applied in small towns to encourage their regeneration. This seems possible through an approach that balances the social order with the ecological order to produce a spatial structure that acknowledges the value of both systems.

I have applied the knowledge of form, order and structure (Dewar and Uytenbogaardt, 1991) to try and reproduce the "quality without a name" (Alexander et. al, 1979). This effort to develop a spatial structure for Riebeek Kasteel and imbue it with wholeness, has been informed by a socio-ecological approach to the design.

I believe that meaning, life and beauty are emergent values in the presence of structure. Where it is possible to interrupt the pattern of normative town planning in South Africa, and use urban design as tool for the good of the community, we should do so.

This research happened to explore that possibility at the zero point of sustainability; small towns embedded in a rural landscape.

I hope to show that urban design can be used to cultivate complexity in small towns; healing them, repairing them and making them whole once again.

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# 16. APPENDIX

## 16.1. PLAGIARISM DECLARATION

24/11/2022

## 16.2. ETHICS APPROVAL