



ways of remembering

the restoration of an urban landscape and community in Mabopane

project title and concept

ways of remembering: the restoration of urban landscapes and communities

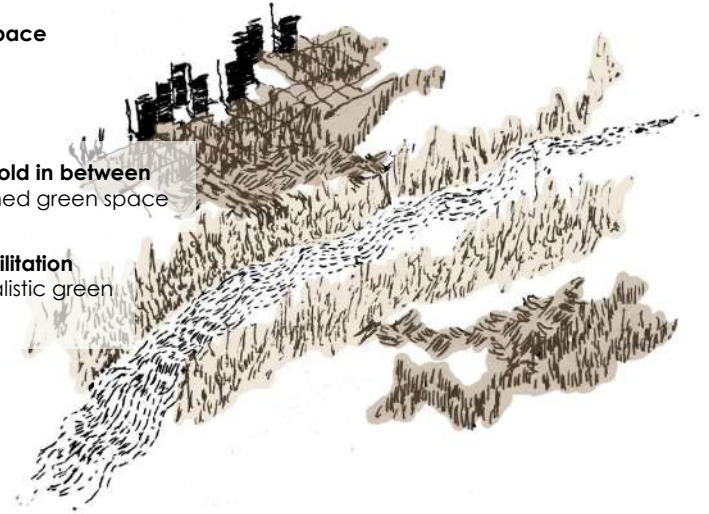


ancient **futures**
.....
remembering as a way of healing
going back as a way to propel you forward

Built Space

Threshold in between
Designed green space

Rehabilitation
Naturalistic green space



Remembering/ returning
hardscape

..... → softscape

project title and concept

ways of remembering: the restoration of urban landscapes and communities

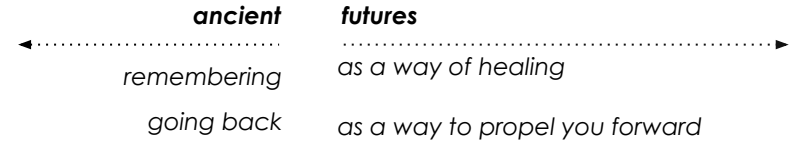
Concept Inspiration

Ancient Futures Workshop hosted by Zayaan Khan (Artist, Researcher)



Themes:

- ❑ **Stories** of landscapes (remembering)
- ❑ Cultivating **sustainable relationships with the land** (healing)



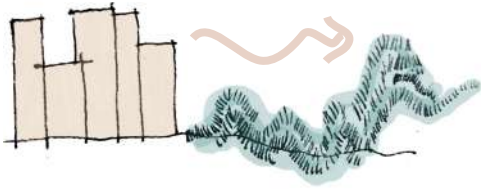
need for the restoration of urban landscapes and communities

Infrastructural Development in Urban Areas:

- ❖ Accommodates population growth
- ❖ 67.4% of South Africa's population are in urban areas.

(Schaffler et al., 2013)

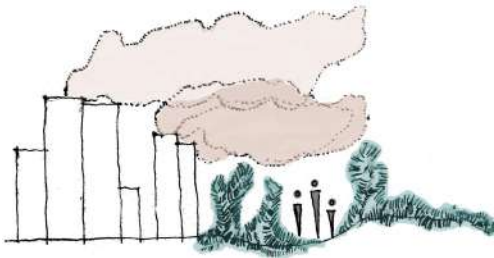
Compromised Green Space



Minimised and degraded
green space and biodiversity

(Cardoso et al., 2020)

Compromised Human Wellbeing



e.g: via air pollution

(Taylor et al., 2014)

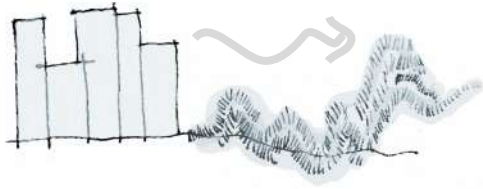
need for the restoration of urban landscapes and communities

Infrastructural Development in Urban Areas:

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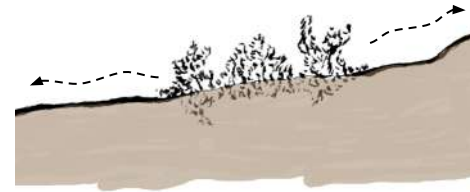
How Landscape Architecture can address this

Compromised Green Space

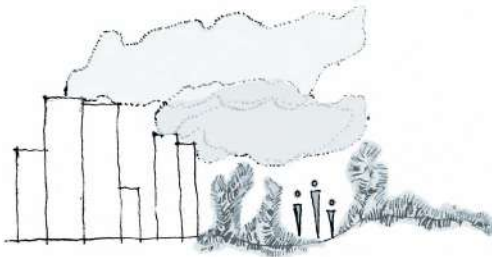


Minimised and degraded
green space and biodiversity
(Cardoso et al., 2020)

Urban Landscape Restoration



Compromised Human Wellbeing



e.g: via air pollution
(Taylor et al., 2014)

Urban Community Restoration (Therapeutic Landscapes)



site selection

Concept supported by theory



Site selection criteria



- ❖ Urban Environment in Tshwane
- ❖ Land in need of Restoration
- ❖ Urban Community

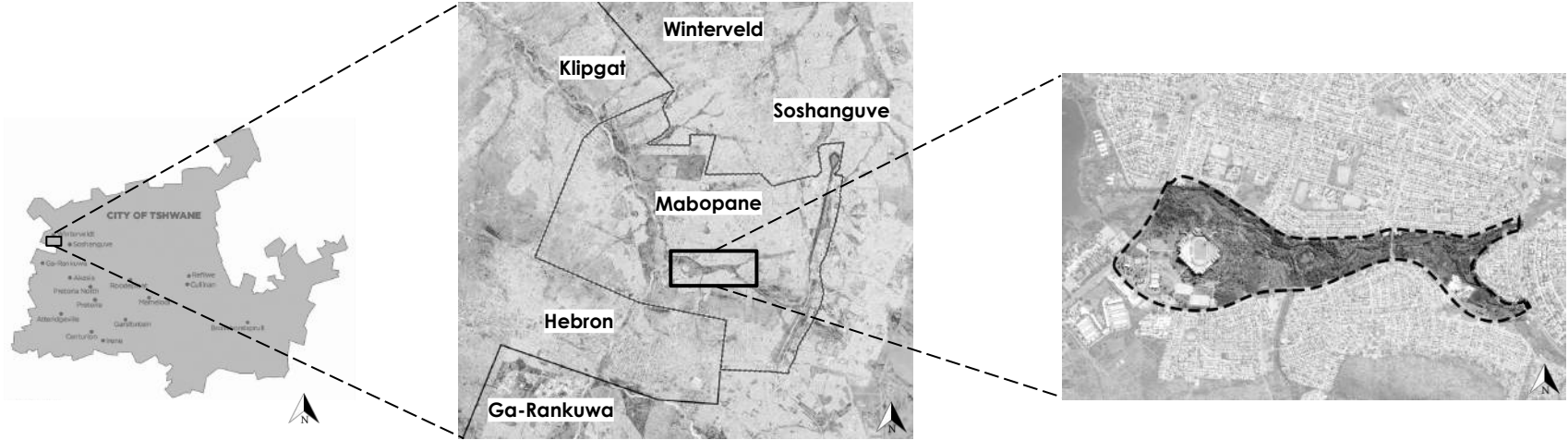


Green Space requiring an upgrade
Identified by the City of Tshwane



Tolwane Tributary and surrounding green space, Mabopane

site locality



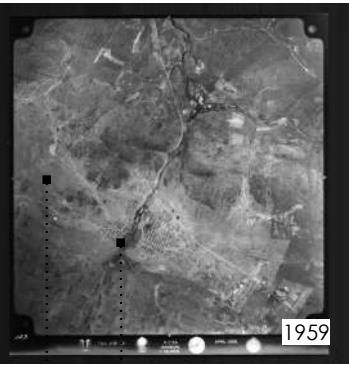
City of Tshwane

Mabopane

Tolwane Tributary and surrounding green space

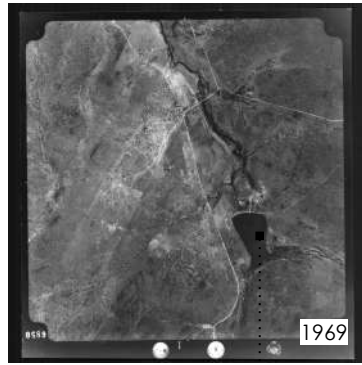
site history

ecological



Tolwane River

Green Space:
Natural and Cultivated
(farms)



Nooitgedacht Dam

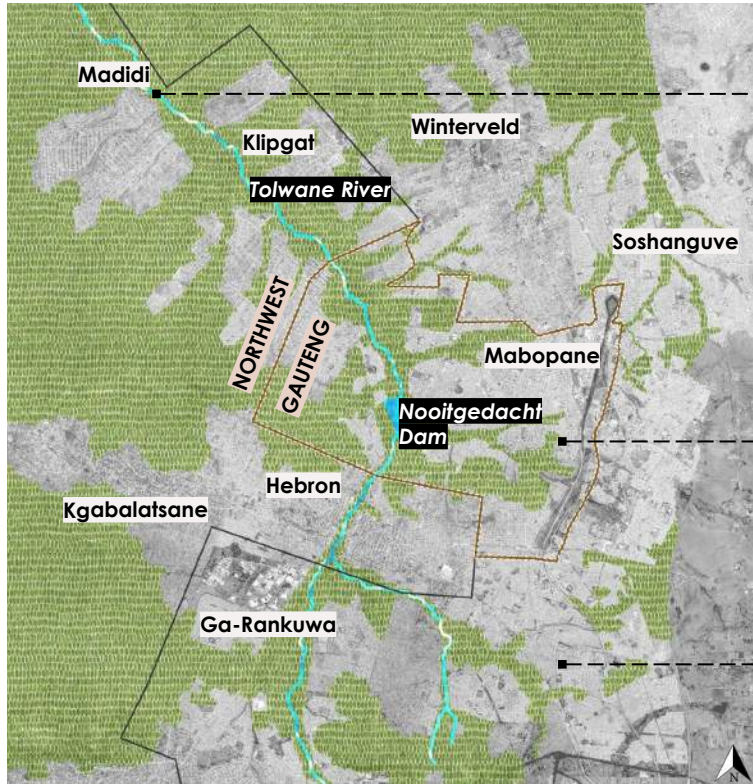
Built 1960s
Function: reservoir



← →
ancient

..... →
futures

ecological analysis (macro)



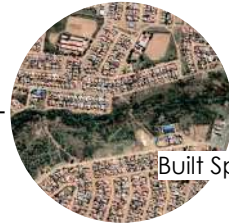
Tolwane River

Tolwane River flows through **North West** Province and **Mabopane (Gauteng)**



Open Green Space

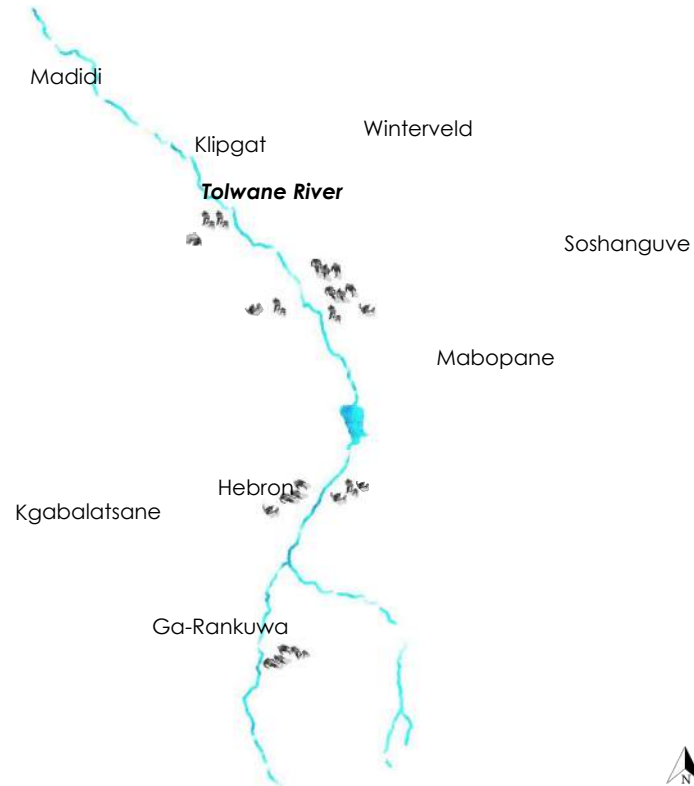
Tolwane River System and surrounding green space creates **ecological corridor**



Built Space

Ecological corridor determines **built space boundary lines**

ecological analysis (macro)



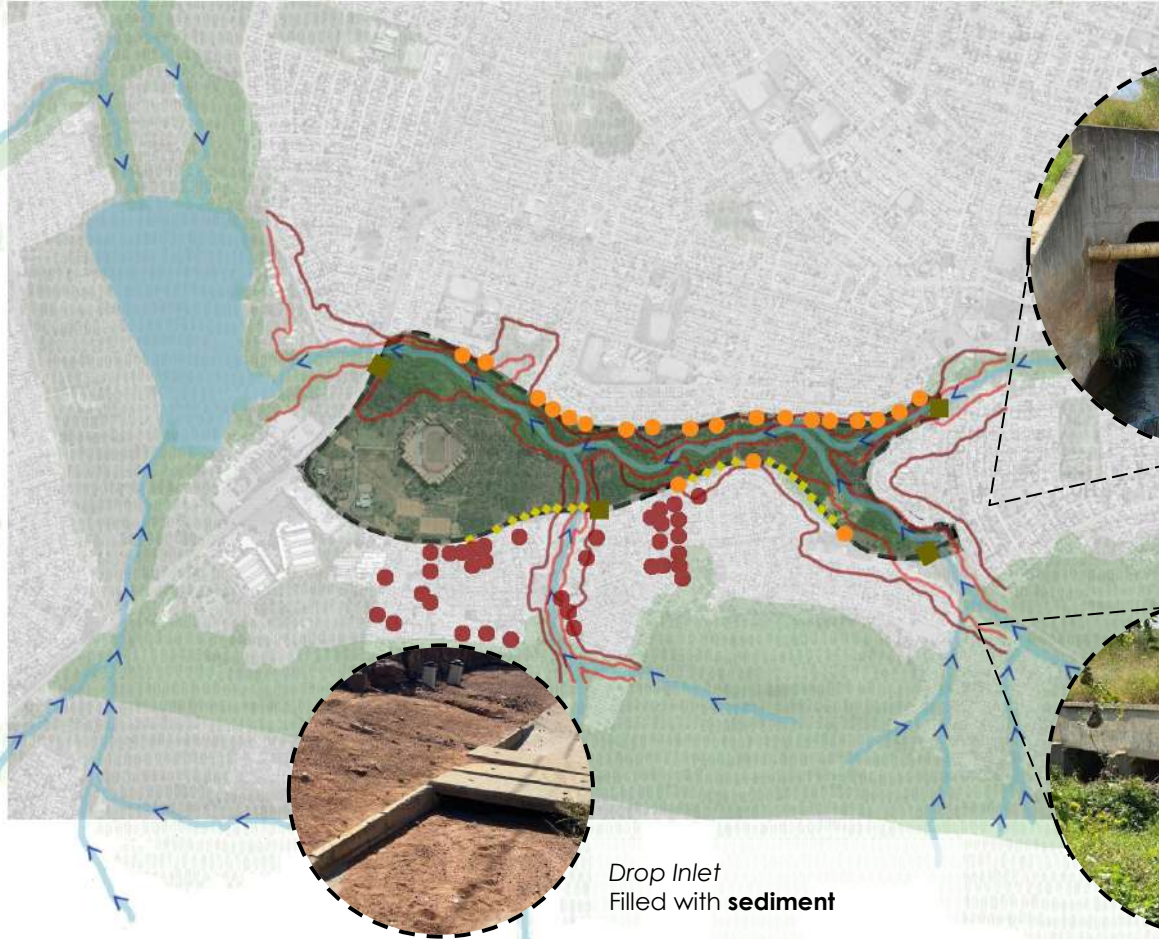
Tolwane River: A polluted body of water

- ❖ Waste water pipe spillage, dumping grounds
- ❖ Functions of river: water supply, spiritual cleansing
- ❖ Polluted water is a health risk to many communities

(Karibu, 2021)



stormwater infrastructure



Box Culvert
Carries **pollution** and **sewage**
from Soshanguve
Filled with sediment, blocking
water flow



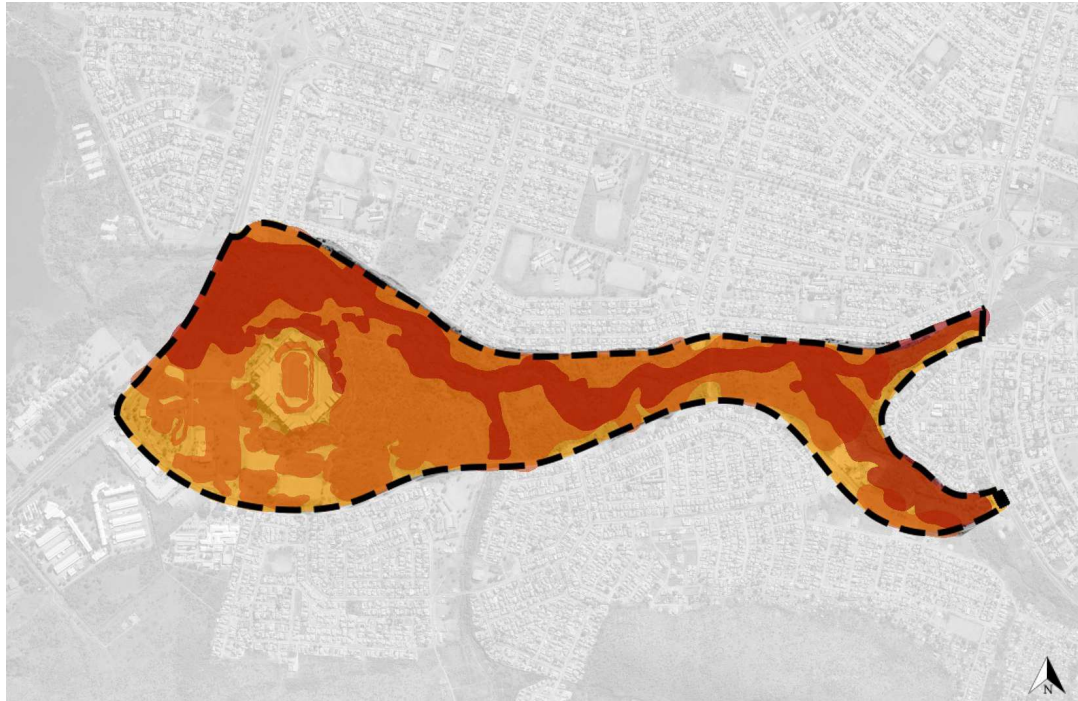
Drop Inlet
Filled with **sediment**



Box Culvert
Overgrown vegetation,
sedimentation, blocks water flow

ecological analysis (micro)

Ecological Sensitivity



High Sensitivity:
The riverline, the floodline, wetlands (protected by environmental legislation), riparian vegetation and protected species such as *Sclerocarya birrea* (Marula Trees)



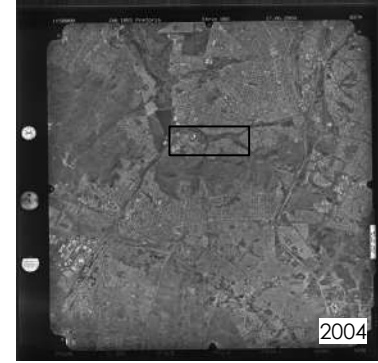
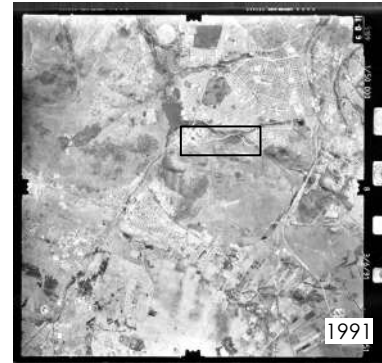
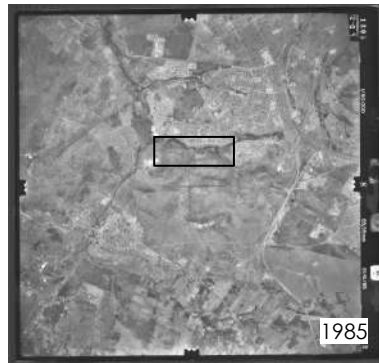
Medium Sensitivity:

Low Sensitivity: Ecologically disturbed areas are mostly on the edges of the site closer to the built infrastructure; hardscaping, eroded soils



site history

ecological



infrastructural

Mabopane

1959: announced as black only residential area
1972: established of Mabopane
1997 - 1994: part of Bophuthatswana

Residential Block Development
1958 - 1991

(north of site)

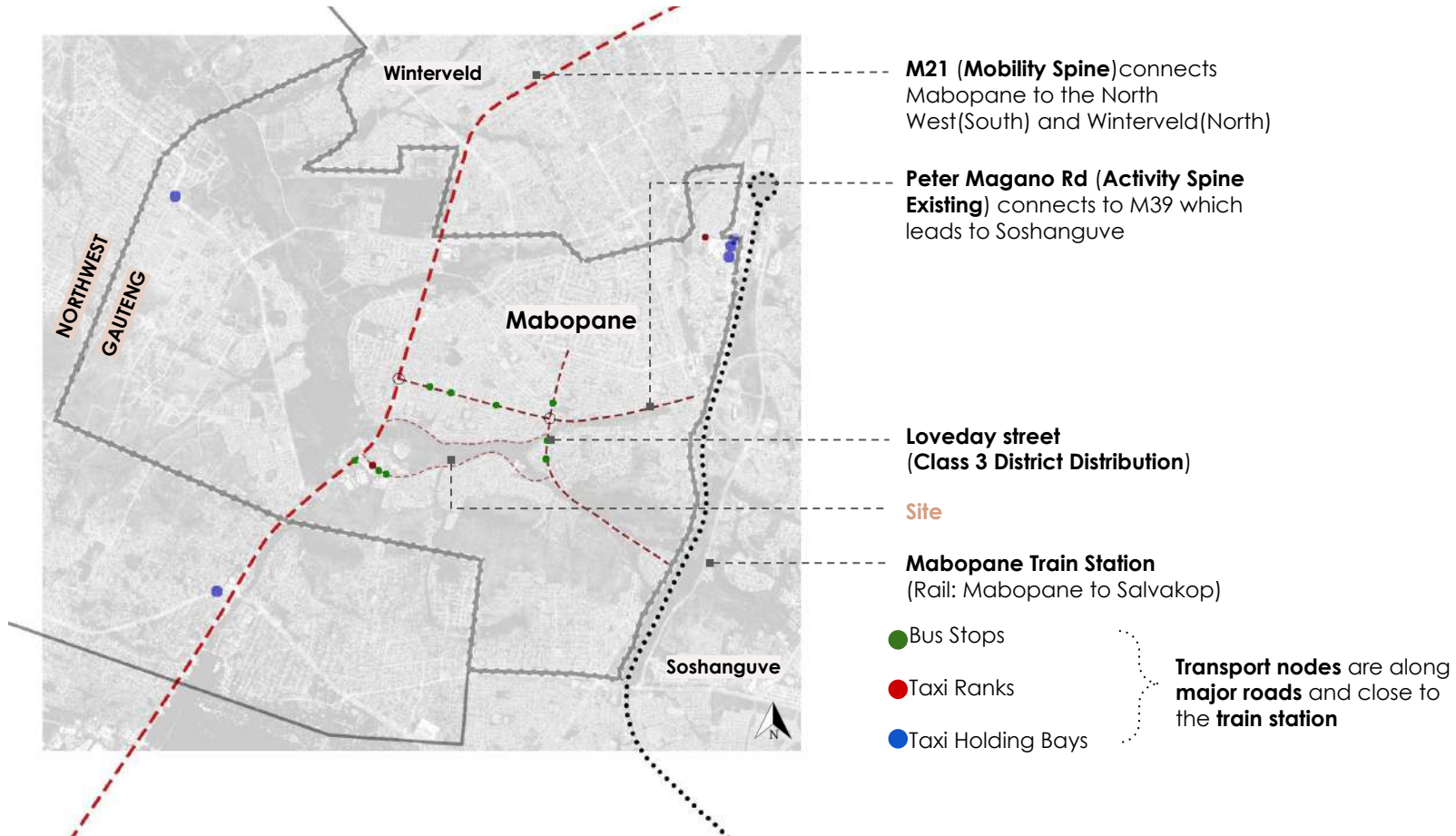
Residential Block Development
Post 1994

(south of site)

ancient

futures

infrastructural analysis: public transport (macro)



infrastructural analysis: building typologies and transport (meso)



■ **M21 (Mobility Spine)** connects Mabopane to the North West(South) and Winterveld(North)

■ **Monareng St**
(Class 4(a) Collector
(Non-resident)

■ **Loveday street**
Class 3
(District Distribution)

■ **Morula Street** (Class 4(a) Collector
(Non-resident)

Active Vehicular and Foot Traffic
Diverse economic activities

- Bus Stops
- Taxi Ranks

infrastructural analysis: building typologies and transport (meso)



- Education
- Mixed-use
- Retail
- Suburban density

Opportunity

- ❖ The **Suburban density** and **education zones** are **prominent** zones.
- ❖ The needs of the residents and the education market can inform **spatial intervention**
- ❖ **Access routes** between North and South Sites

social analysis: user profiles and rituals



User Profiles

Priests
Church Members
Traditional Healers
Residents

Rituals

Baptism
Prayer
Physical and spiritual cleansing
Meditation
Foraging Medicine



←
ancient

**Ancient
space**

**Natural
space**

**Spiritual
rituals**

Secluded Space

futures

social analysis: user profiles and rituals



User Profiles

Traditional Healers
Residents

Rituals

Prayer
Meditation
Walking



social analysis: user profiles and rituals



User Profiles

Urban Agri Farmers
Residents

Rituals

Cultivating Agriculture
Trading of food



social analysis: user profiles and rituals

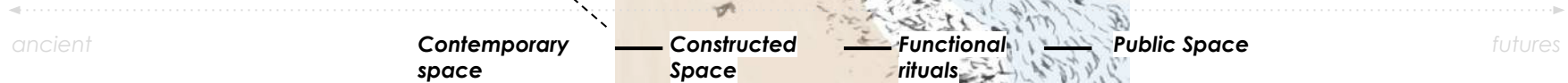


User Profiles

All:
School Children
Students
Working people
(Labourers and
Professionals)

Rituals

Walking



social analysis: user profiles and rituals



User Profiles

Street Traders
Pedestrians

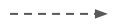
Rituals

Trading fresh produce
and food
Medicinal herbs
Sitting and Eating
Passing buy



design and programme

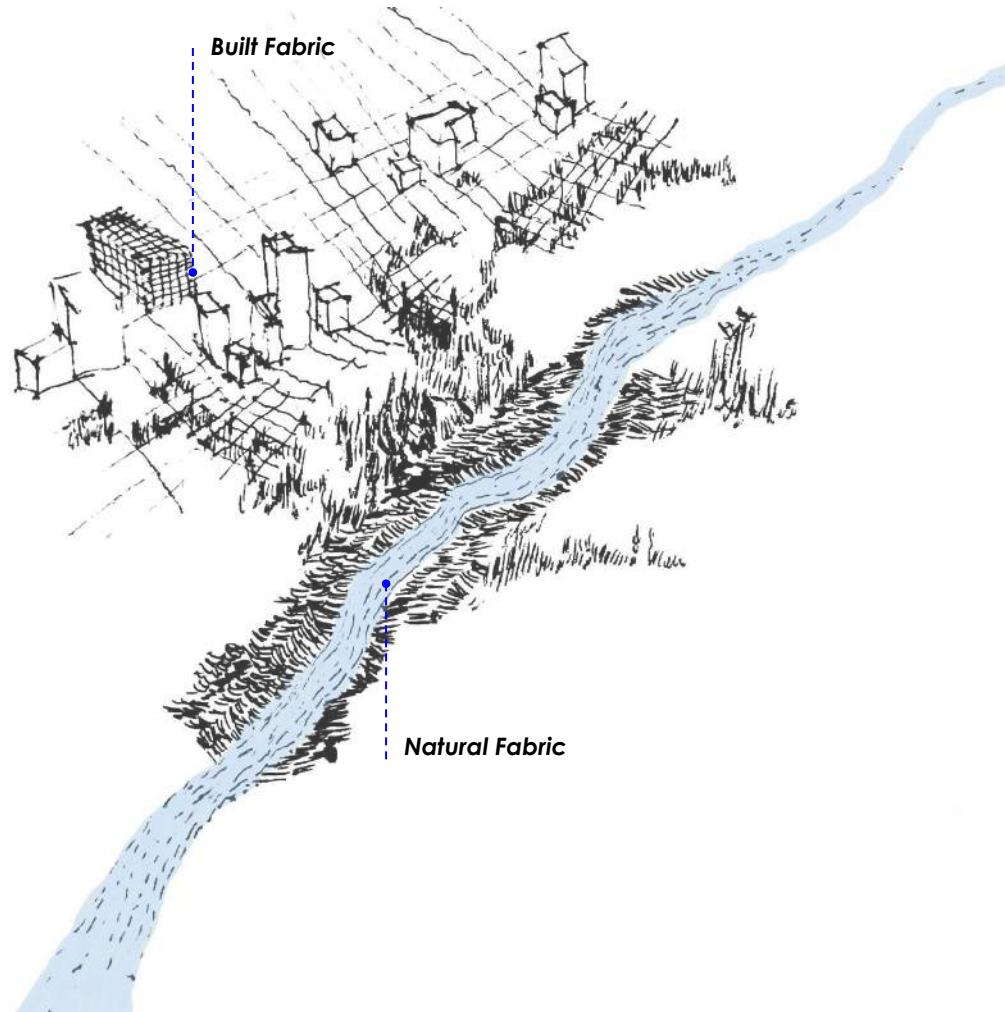
- ❖ Concept
- ❖ Theory
- ❖ Site Analysis



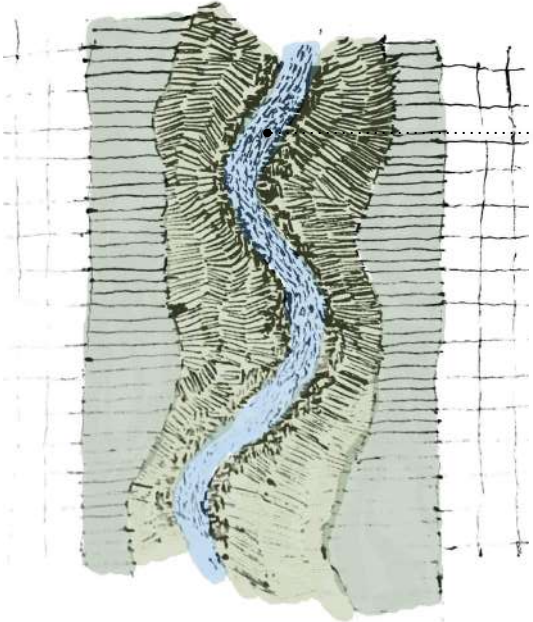
Design and
Programme

Design Question

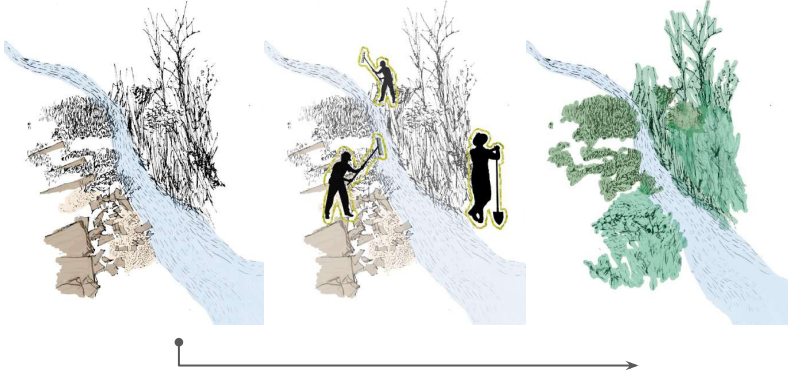
How can the **natural and built fabrics** of the site be **connected** to create a **space** that allows for the **restoration** (healing) of the **landscape** and **urban community**?



design and programme strategy



river **Rehabilitation**



current state of Tolwane River



Invasive Alien Species

Insufficient service provision
Unplanned, unmaintained and broken infrastructure

Polluted Water (sedimentation and litter block
water infrastructure)

Eroded Soils

Sedimentation

Litter

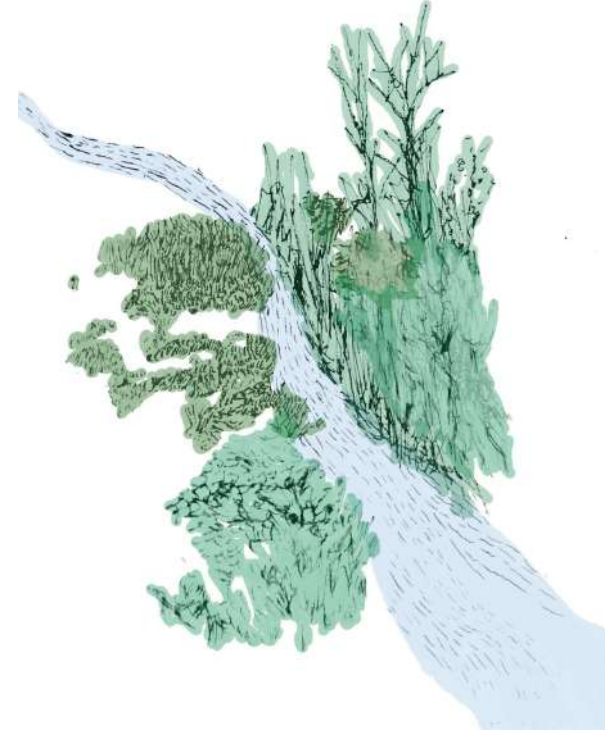
proposed future state of Tolwane River

Current State



Proposed Future State

Fully functioning water body and biodiverse green corridor



phased river rehabilitation

Phase 1

Remove dumped materials
and **chemical pollution**

Phase 2

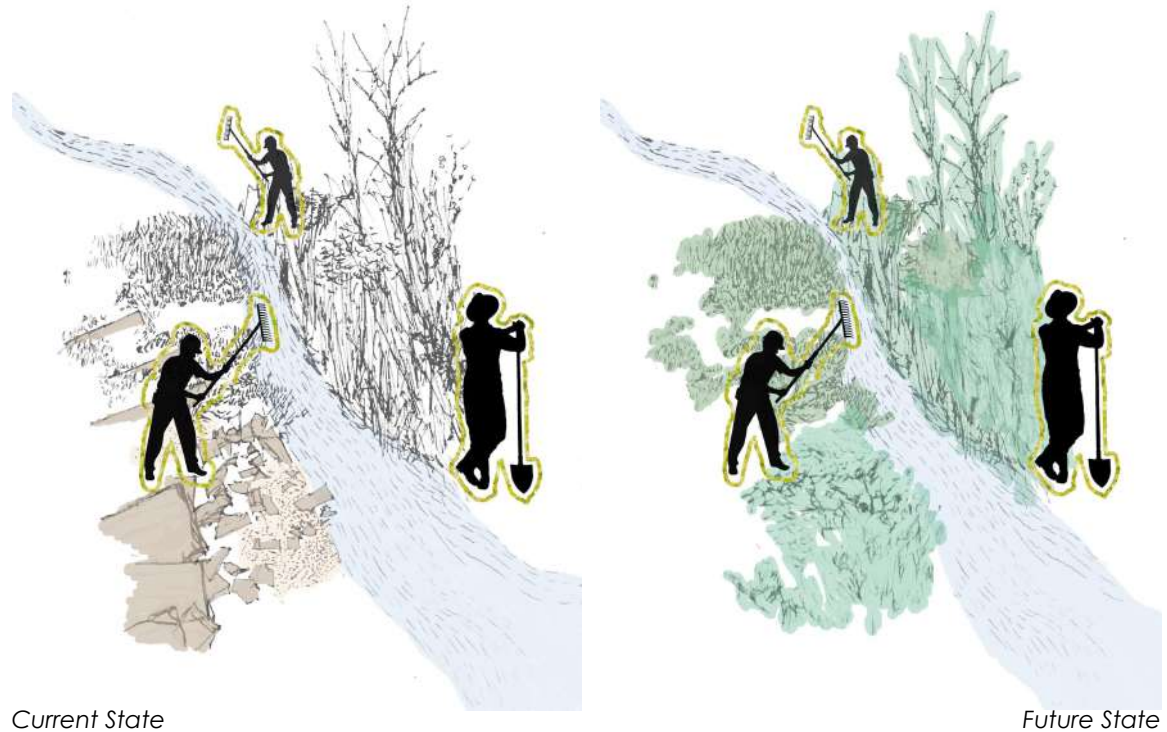
Add **sedimentation and litter traps** to
prevent pollution from flowing into
the waterbody.

Phase 3

Add **SUDs** to control stormwater
runoff

Phase 3

**Repair and maintain existing water
management infrastructure**
(including stormwater management
in context) and the hydrological
system



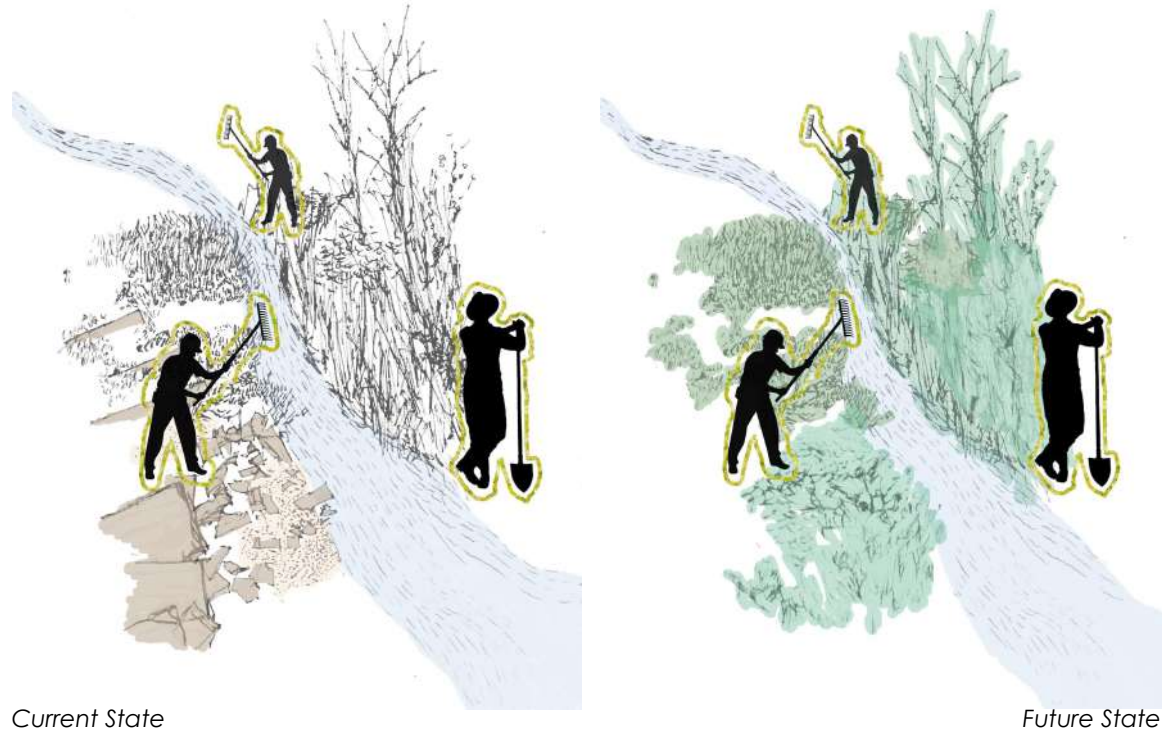
phased river rehabilitation

Phase 4
Remove alien invasive plant species

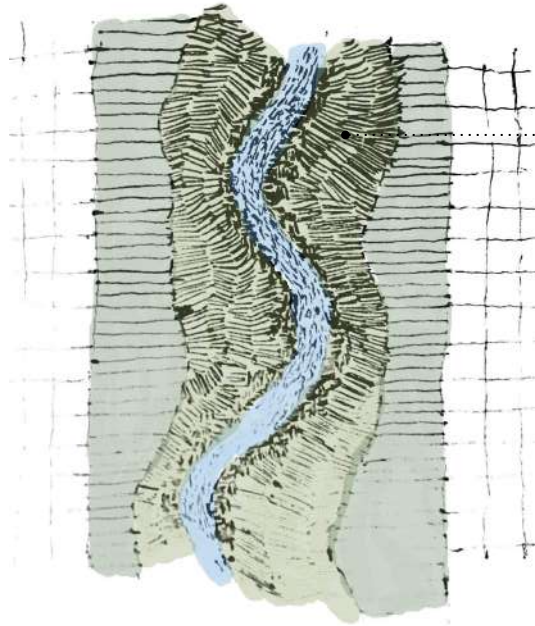
Phase 5
Rehabilitation of river bank profiles and channel morphology

Phase 6
River maintenance so that it can reach dynamic equilibrium (1 year)

Phase 7
Revegetation of native plant species and native riparian plants along river banks



design and programme strategy



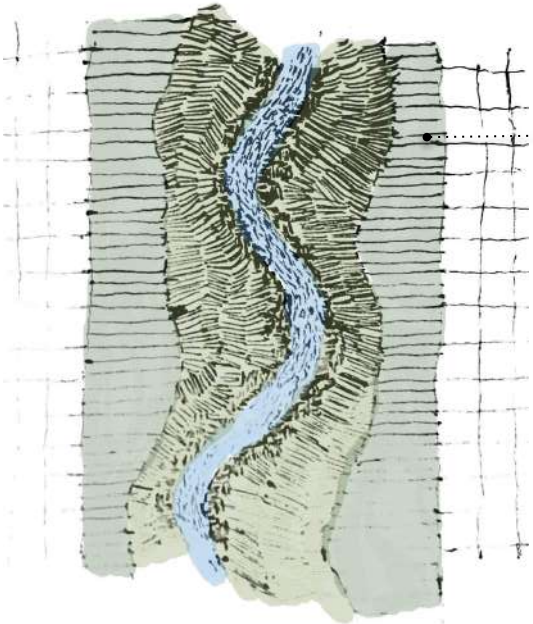
designed green space
(more naturalistic)

medicinal gardens

spiritual rituals
harvesting medicine



design and programme strategy



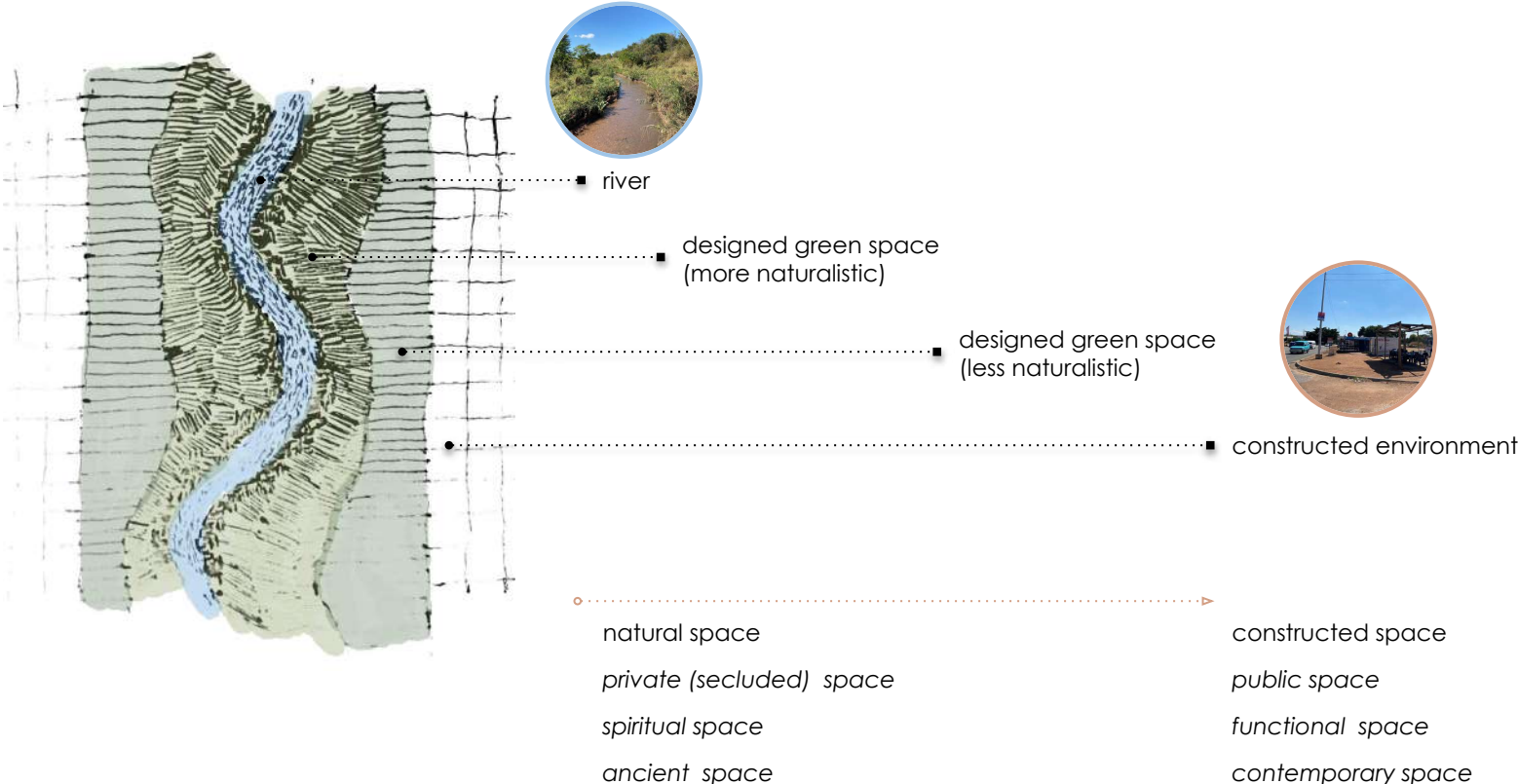
designed green space
(less naturalistic)

food gardens

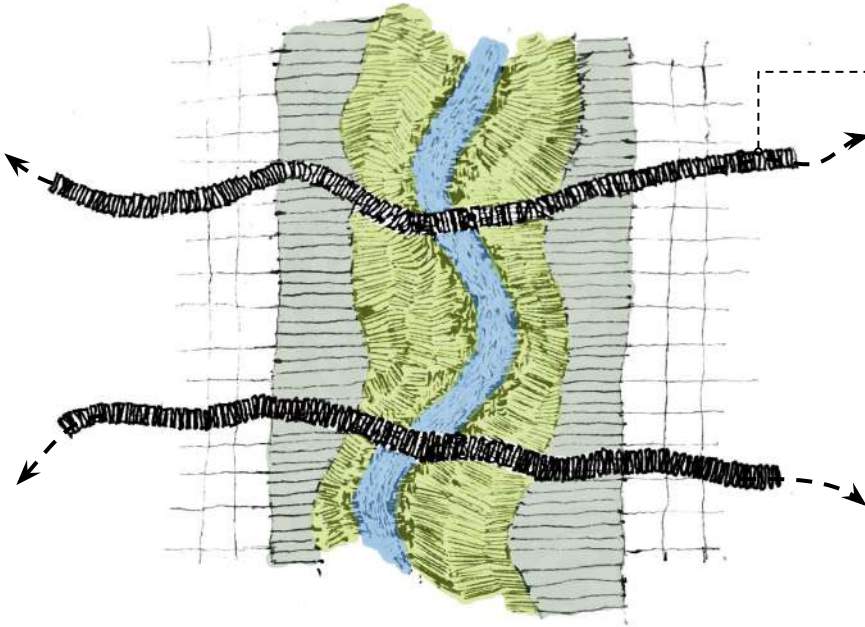
cultivating land
harvesting food



design and programme strategy



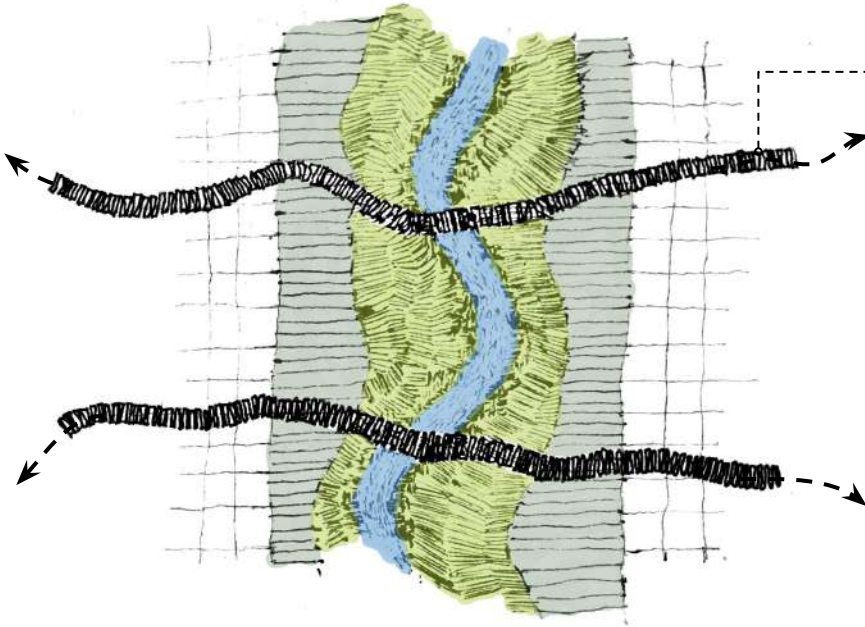
design and programme strategy



pathways connecting **medicinal and food gardens** to **street vendors** to strengthen existing economic activities



design and programme strategy



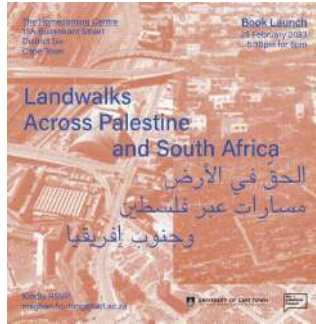
pathways connecting **medicinal and food gardens** to **institutions of education** creating learning platforms



institutions of education



precedent study: Landwalks: N dofaya hiking trail, Soweto, Johannesburg



Book:

Walking: An experience of the earth, a lens through which stories of place can be understood



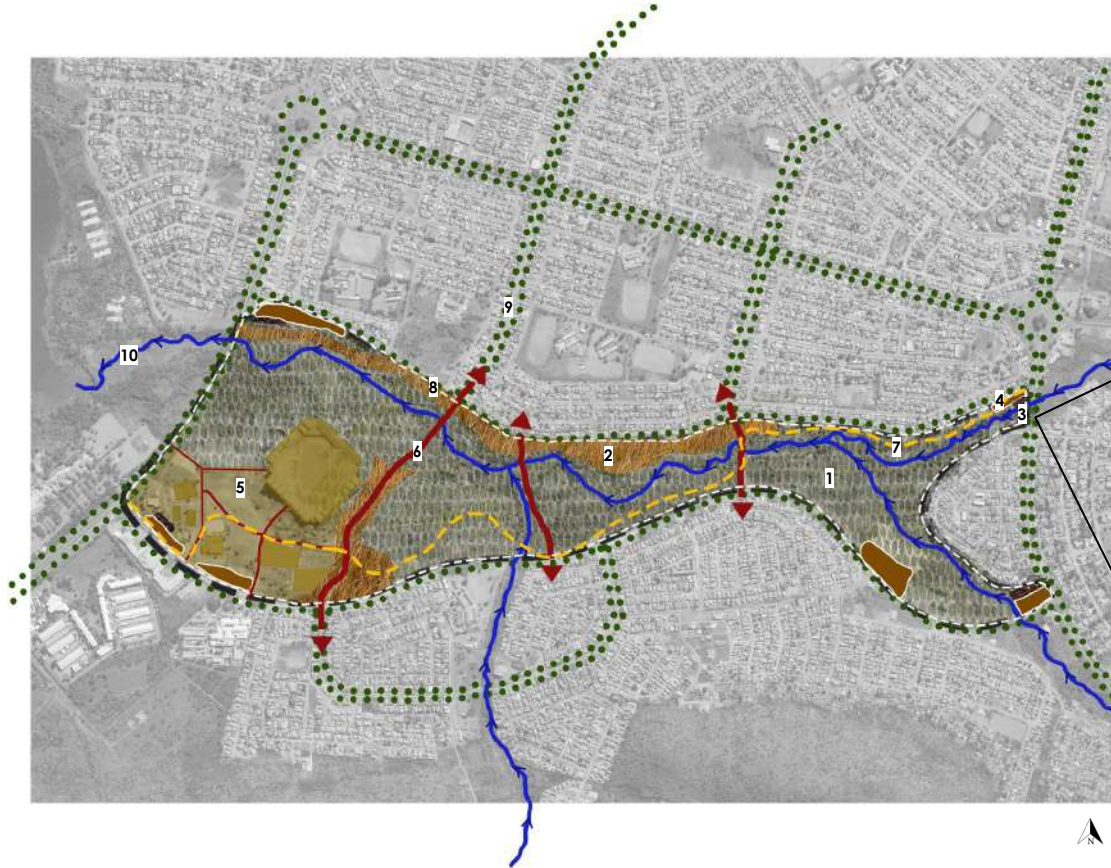
Landscape features (Mine dumps, countryside, dam, folk beliefs) **catalysts for storytelling**

A cultural and educational experience

Storytelling via guided tour : an **economic opportunity**



framework



1. Nature Conservation
2. Agricultural lots and medicinal gardens
Grazing land for cows
3. Street Vendors
4. Social and Recreational Zone



**strengthened local
food economy**

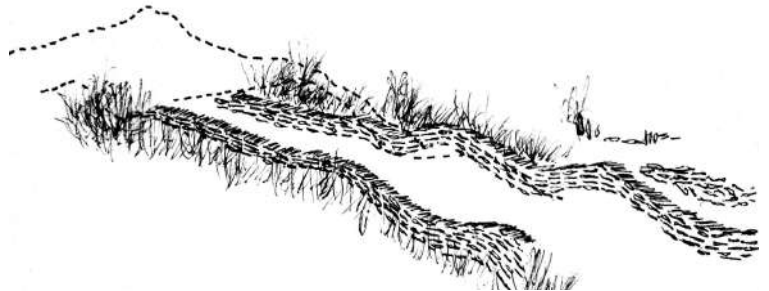
precedent study: Landwalks: Freedom Park, Tshwane



■ Pathways: **sensitive to topography, emerging** from the landscape



Minimal materials
Expressed in a variety of ways
Harmonious spatial composition



contextually sensitive pathways

precedent study: Landwalks: Freedom Park, Tshwane



pathway **unfolding** into a node



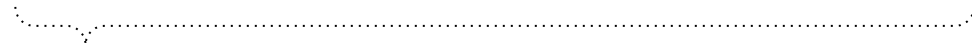
meditative node: semi enclosed, presence of water, earthy smell



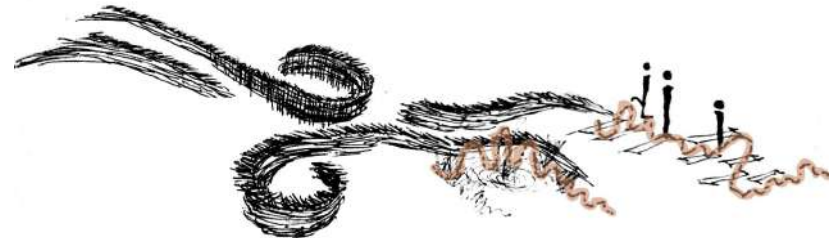
engaging nodes: dynamic elements (performance of water)



interactive node (steps in water feature)

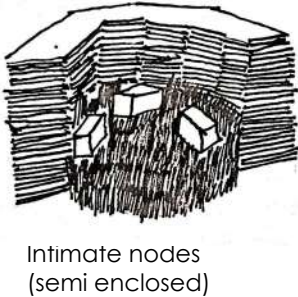
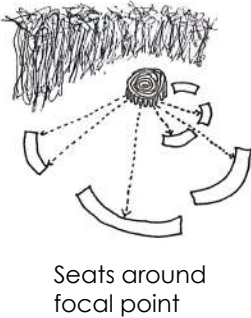
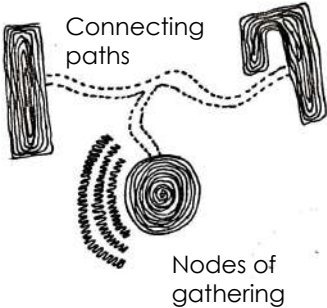


nodes of varying experiences



educational landscape precedent: *Mustardseed Junior School, Uganda*

Spatial Strategies

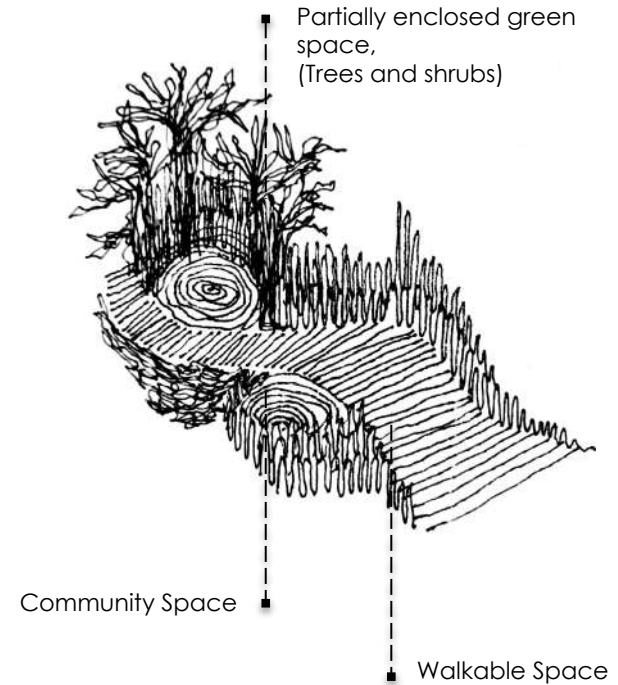
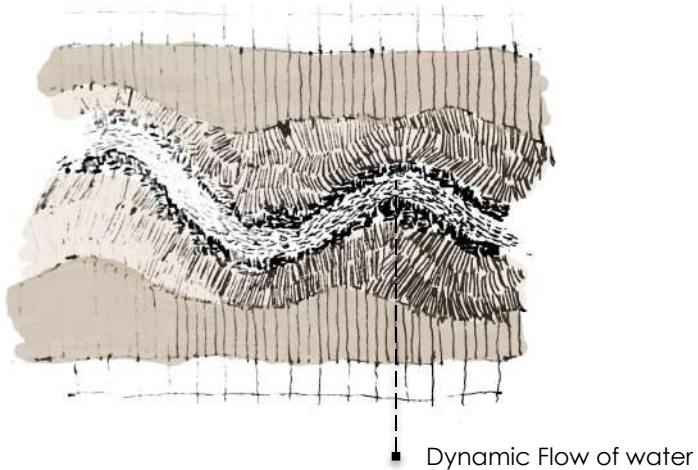


path accommodate walking groups

theory: therapeutic landscapes

Spatial Elements of Therapeutic Landscapes

Biodiverse and naturalistic green space



(Taylor et al., 2014; Liu et al., 2021)

theory: therapeutic landscapes experiences

informed by

Nature Engagements

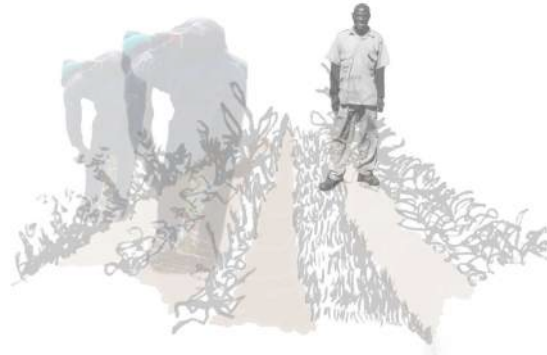
Landscape Spatial Characteristics

(Conradson, 2005)

Intimate Nature Engagements of Programme



Revegetating indigenous plant species



Cultivating Land

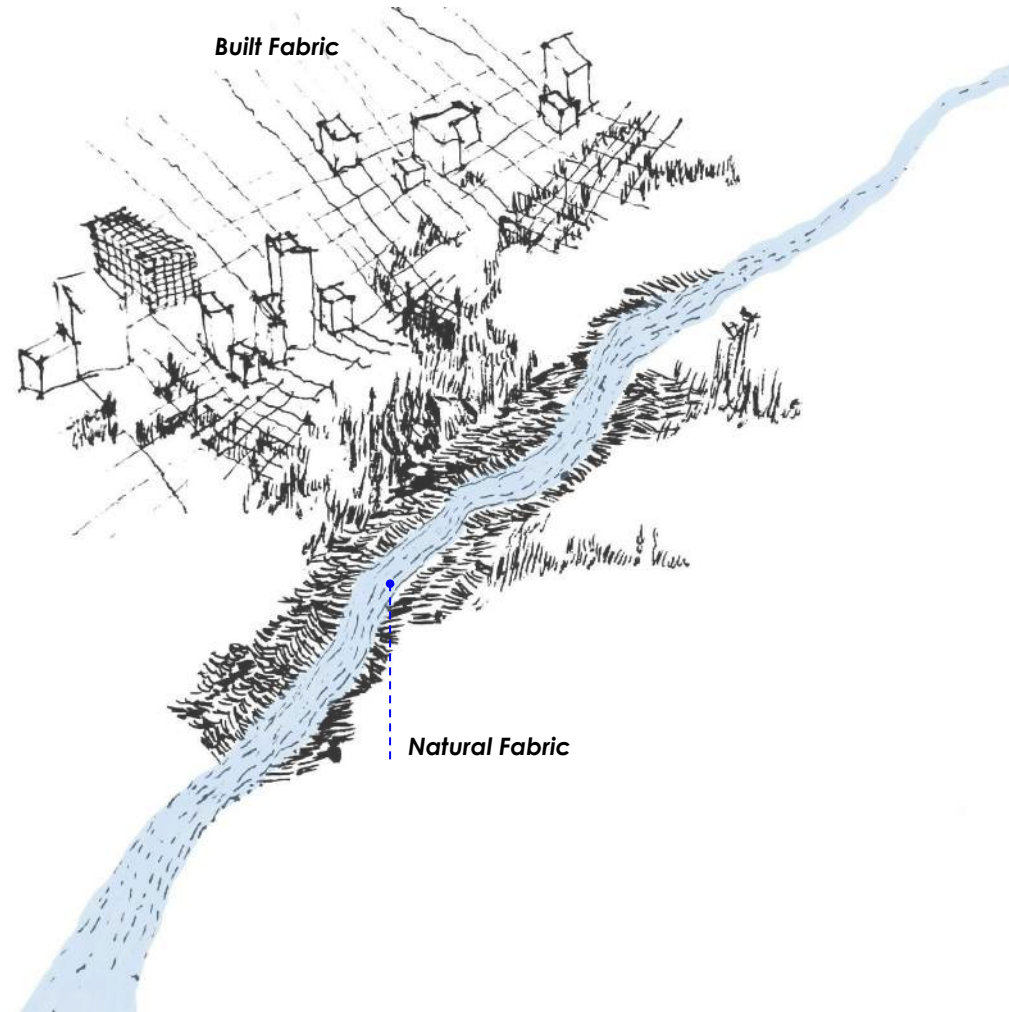


Foraging medicine

design and programme

sketchplan objectives

- **Restoration(healing) of Land and People**
- through designed thresholds from **natural space to constructed space**
- together with **ecologically restorative and socially empowering programmes**



references

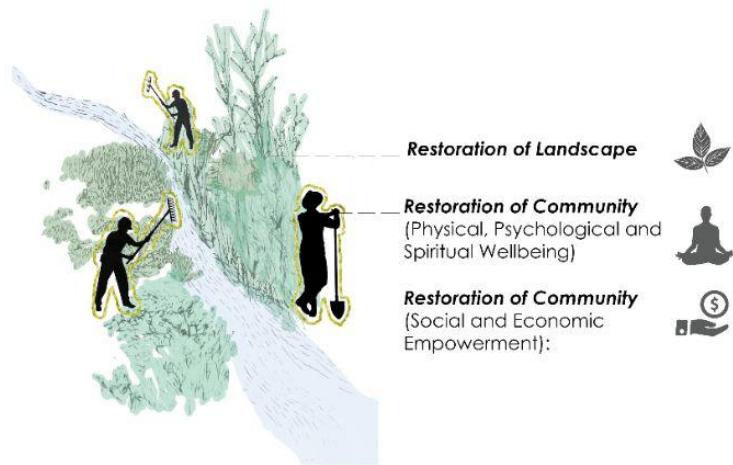
- ❖ https://issuu.com/eljays44/docs/prolandscaper_feb2019_issuu_1
- ❖ (no date) *Legislation: National Environmental Management act*. Available at: http://www.waternet.co.za/policy/le_nema.html (Accessed: May 2, 2023)
- ❖ <https://rekord.co.za/316606/mabopane-ngo-a-beacon-of-hope-for-the-vulnerable-2/>
- ❖ Cardoso, P., Barton, P. S., Birkhofer, K., Chichorro, F., Deacon, C., Fartmann, T., ... Samways, M. J. (2020). Scientists' warning to humanity on insect extinctions. *Biological Conservation*, 242, 108426. <https://doi.org/10.1016/j.biocon.2020.108426>
- ❖ Shwartz, A. et al. (2014) 'Outstanding challenges for urban conservation research and action', *Global Environmental Change*, 28, pp. 39–49. doi:10.1016/j.gloenvcha.2014.06.002.
- ❖ *LEARNZ navigation* (no date) LEARNZ. Available at: <https://www.learnz.org.nz/rivers201/discover/restoring-rivers> (Accessed: 11 June 2023).
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- ❖ Schäffler, A. & Swilling, M. 2013. Valuing green infrastructure in an urban environment under pressure - The Johannesburg case. *Ecological Economics*. 86:246–257. DOI: 10.1016/j.ecolecon.2012.05.008
- ❖ *Bontle Ke Botho Community greening program* (2021) SA Cities. Available at: <https://www.sacities.net/bontle-ke-botho-community-greening-program/> (Accessed: 20 June 2023).
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- ❖ Neke, J. (2022) *Friday activist: Refiloe Molefe uses her green fingers to revive Johannesburg's Bertrams Inner City Farm in Naturena*, Daily Maverick. Available at: <https://www.dailymaverick.co.za/article/2022-06-30-friday-activist-mam-refiloe-grows-a-new-community-after-bertrams-inner-city-farm-removal/> (Accessed: 23 August 2023).

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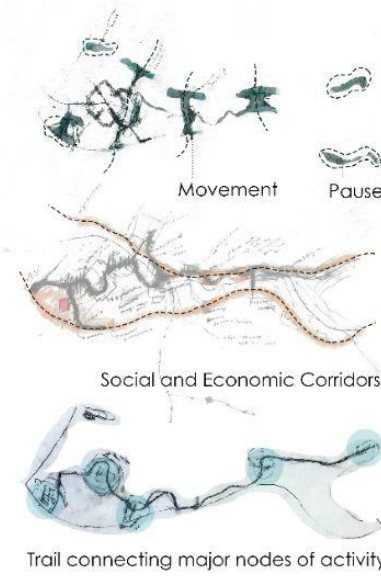
**ways of remembering,
the restoration of an urban landscape and
community in Mabopane**

Phumzile Konile

**Framework
Objectives**



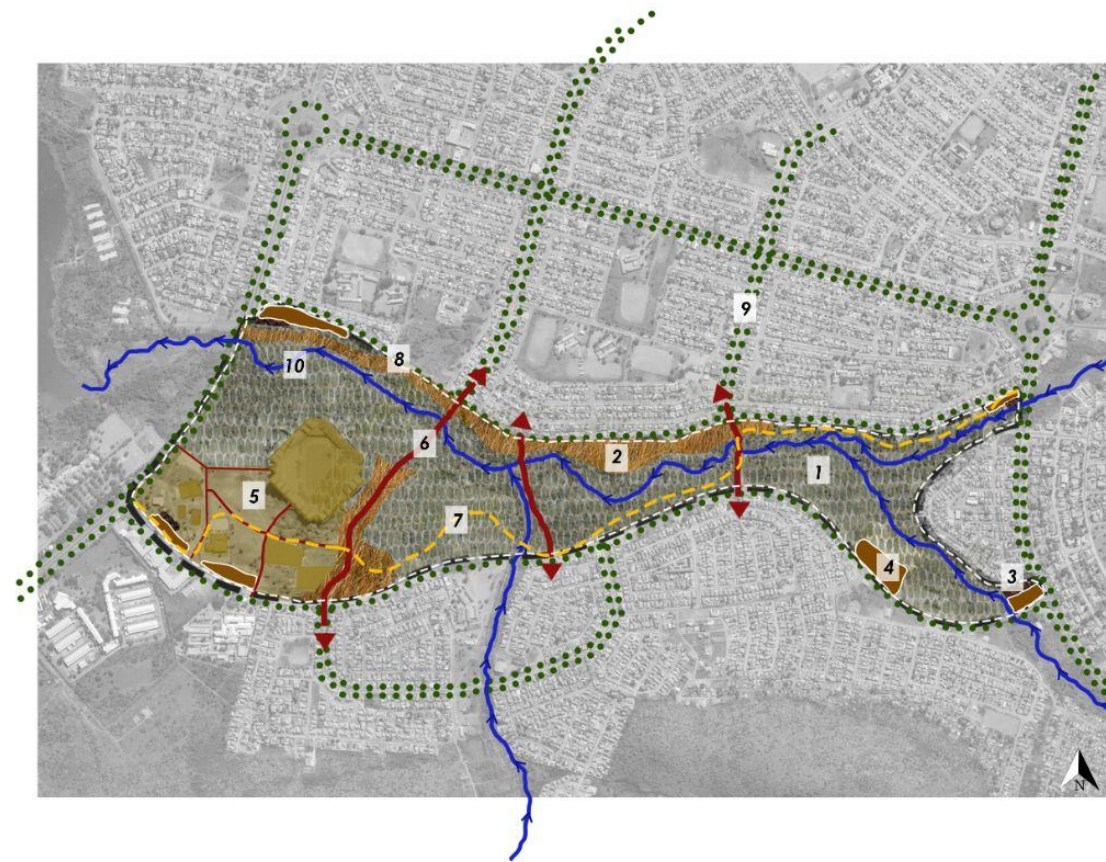
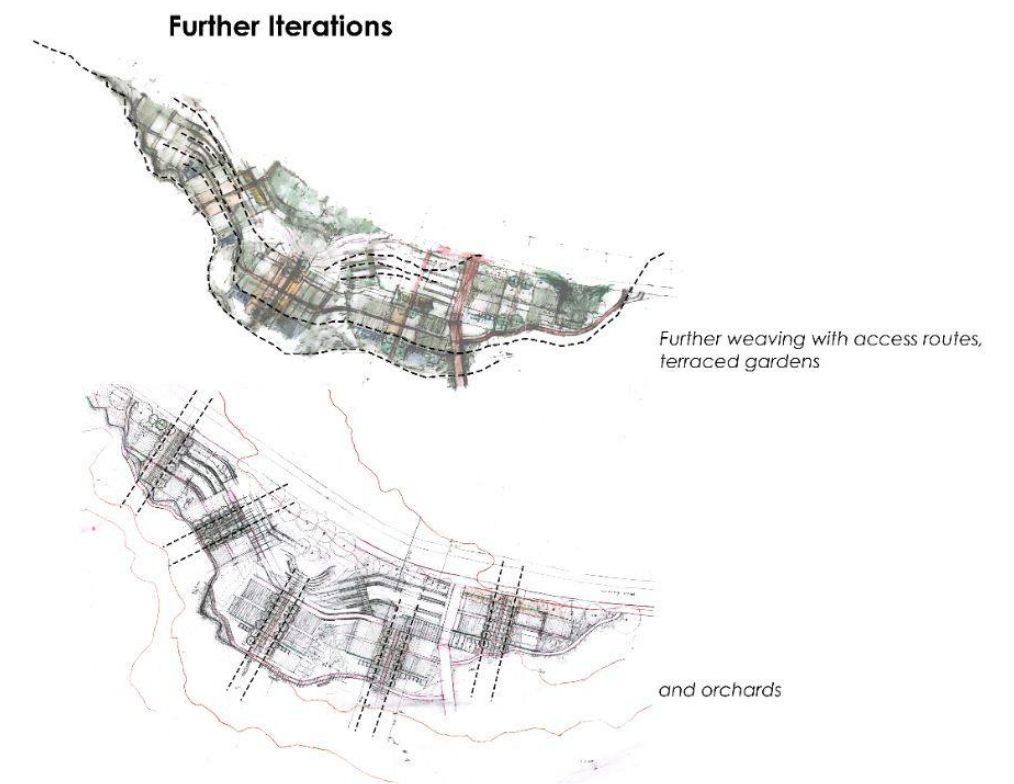
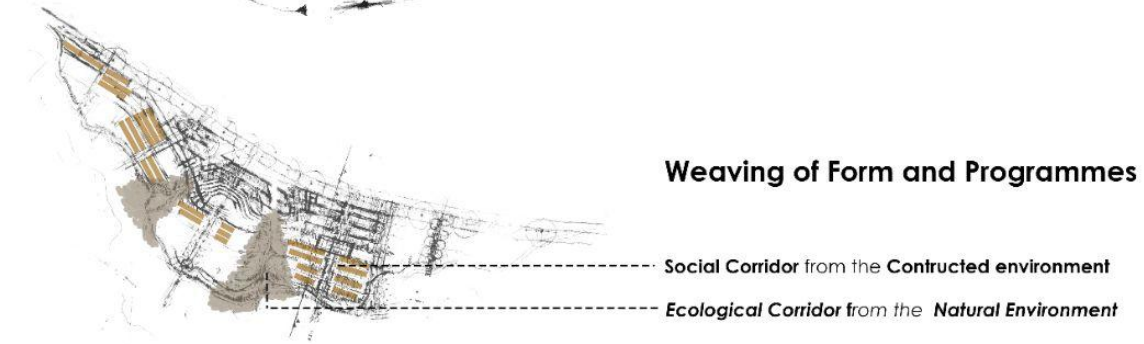
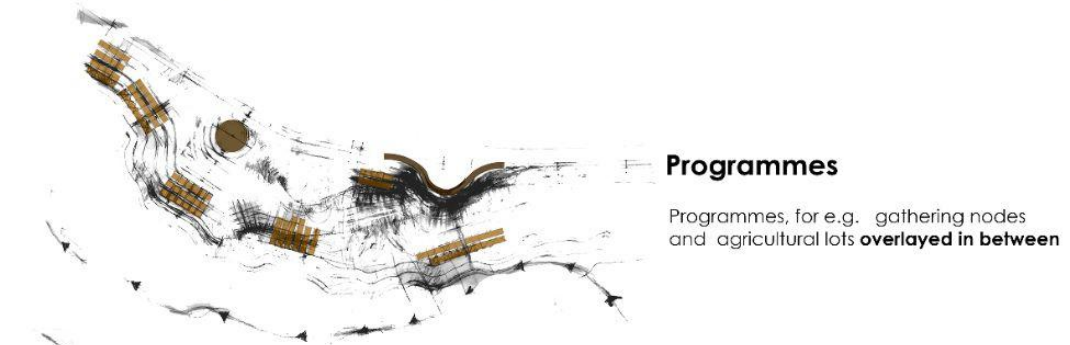
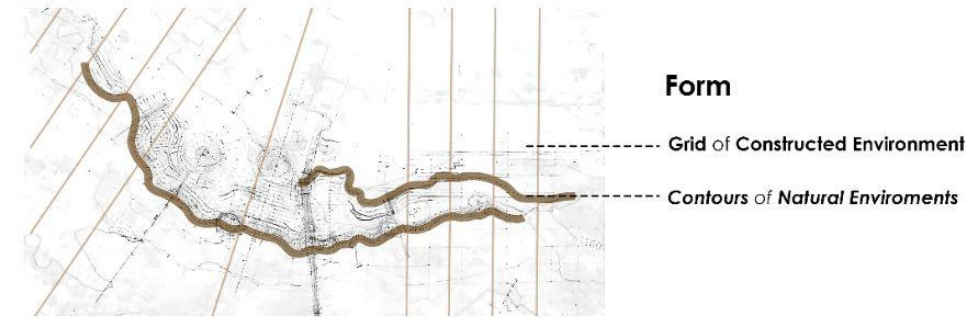
**Framework
Process Drawings**



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Phumzile Konile

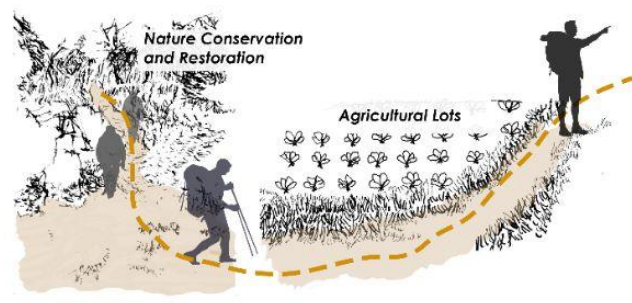
Sketchplan Iterations



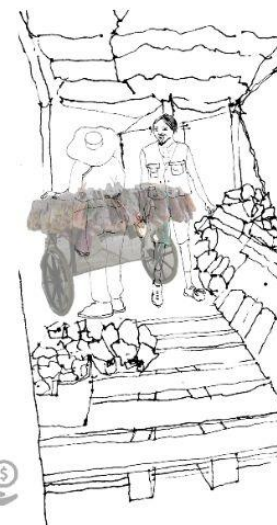
- 1.) Nature Conservation and Restoration
- 2.) Agricultural lots and medicinal gardens
- 3.) Street Vendors
- 4.) Social and Recreational Zone
- 5.) Sports Zone
- 6.) Access Routes
- 7.) Hiking and Running Trail
- 8.) Running Track
- 9.) Green Corridors
- 10.) Tolwane River

Framework Outcomes shaping the Sketchplan

hiking trail connecting different zones of site
hikes lead by We Give Thanks Nursery



- 2.) Agricultural lots and medicinal gardens
 - 3.) Street Vendors
 - 4.) Social and Recreational Zone
- Strengthened local food economy**



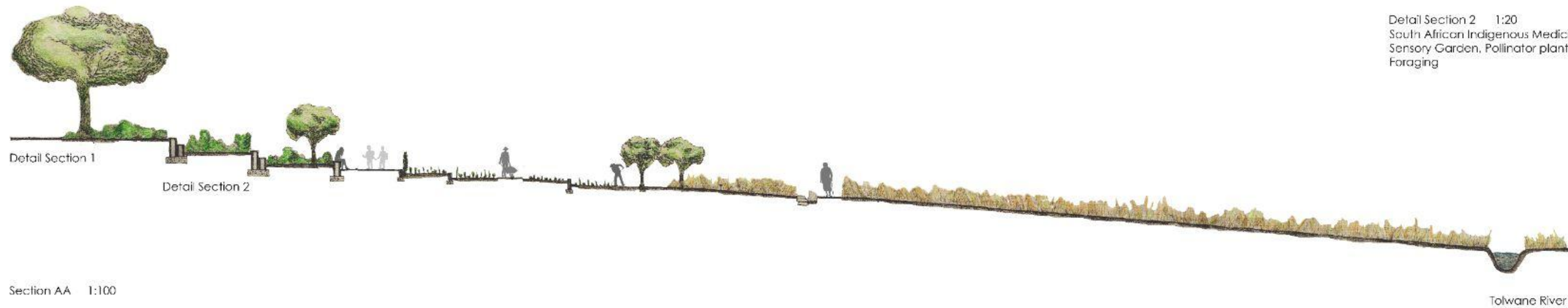
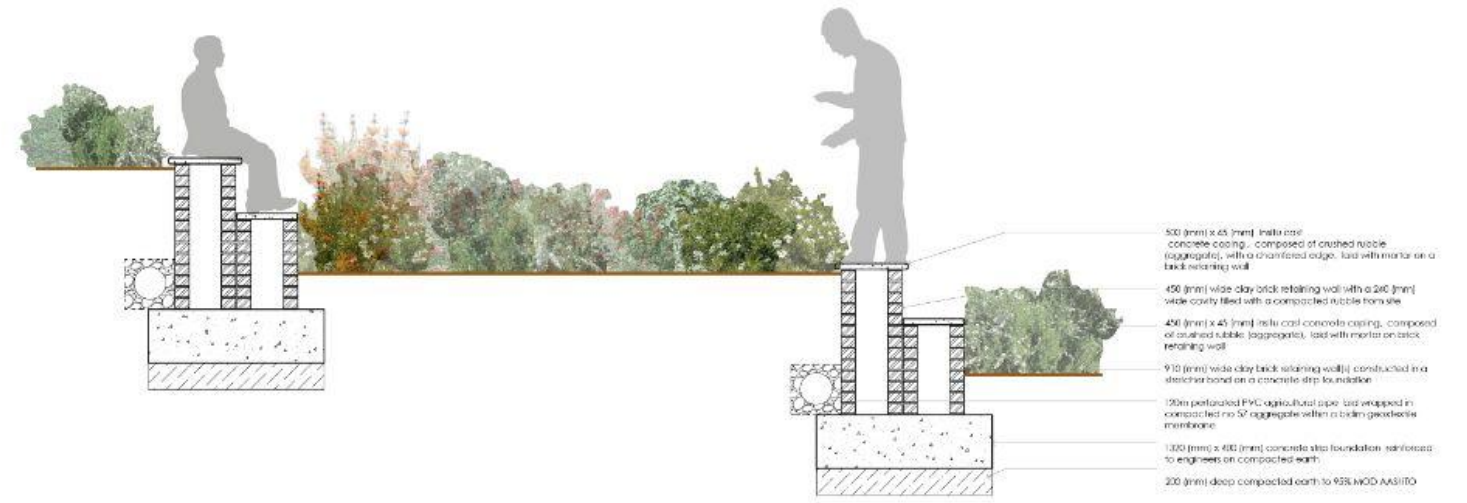
Sketchplan



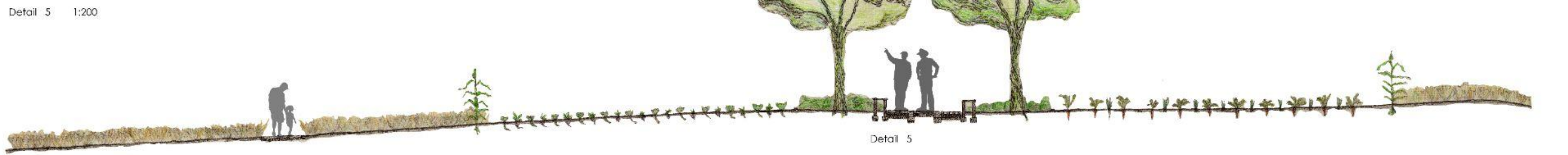
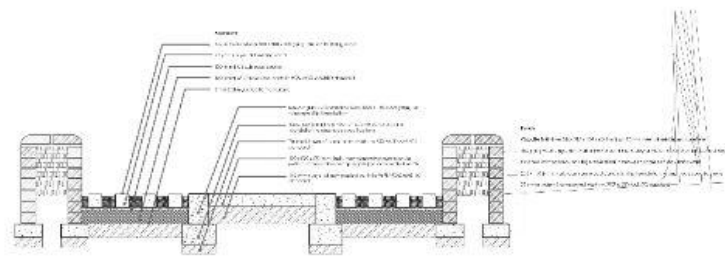
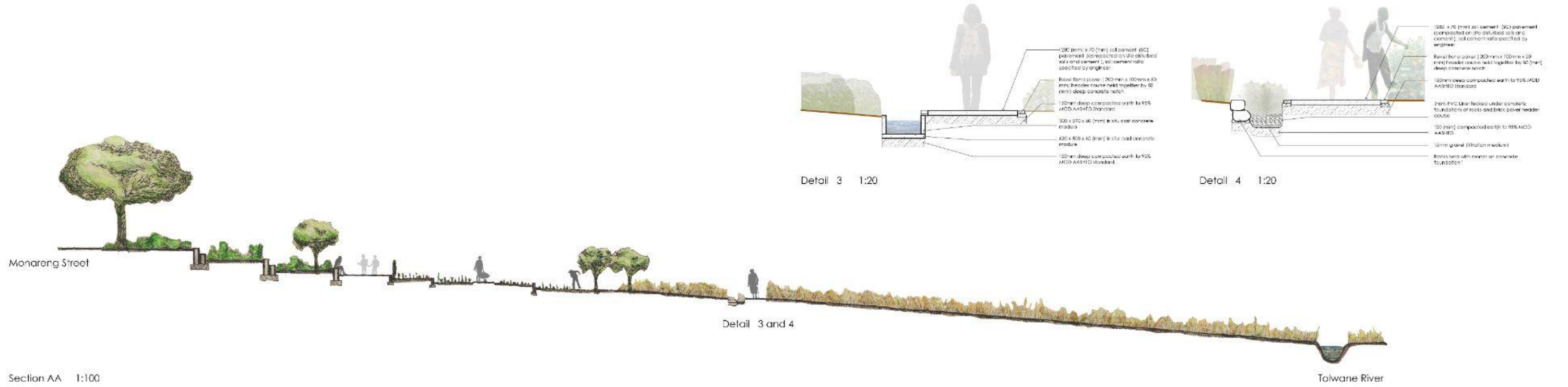
Legend:

- 1 Pedestrian Pathway
- 2 Main Access Route
- 3 Social Corridor
- 4 Ecological Corridor
- 5 Meandering Route
- 6 Water Channel
- 7 Agricultural Lot
- 8 Terraced Gardens
- 9 Compost
- 10 Lawn
- 11 Amphitheatre
- 12 Storage Room
- 13 Ablutions

Sections and Call-Out Details

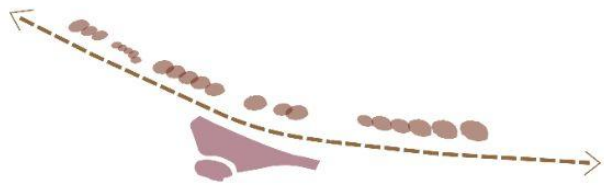


Sections and Call-Out Details



Section BB 1:50

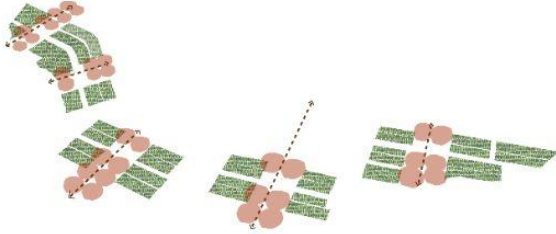
Planting Scheme



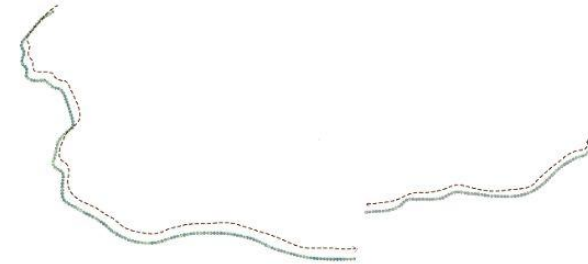
Primary access route and social nodes
along and in between Street Trees



Social corridors in between Orchards
and Agricultural Lots



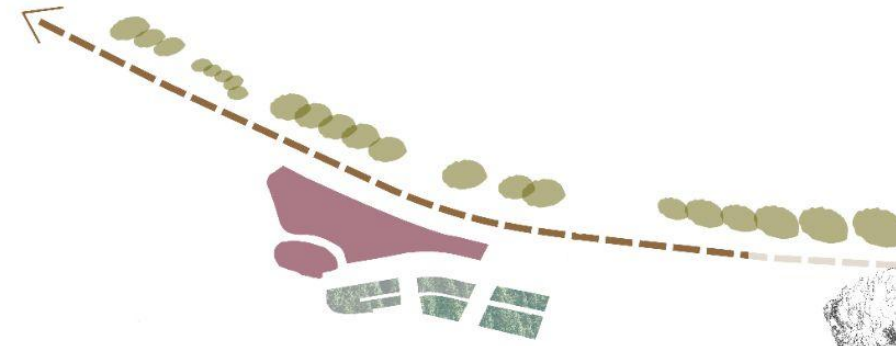
Meandering Route and Places of Pause
along South African medicinal plants



and Central Sandy Bushveld
Ecological corridors

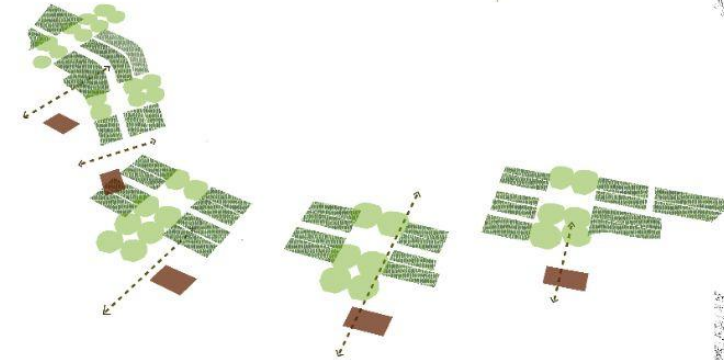


Systems Diagrams



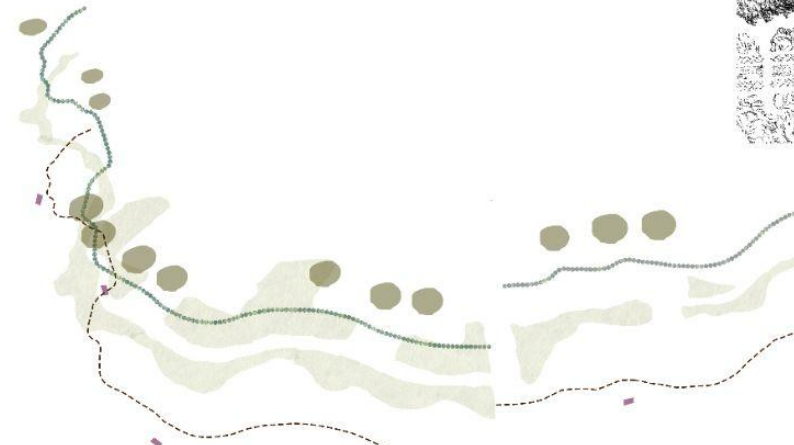
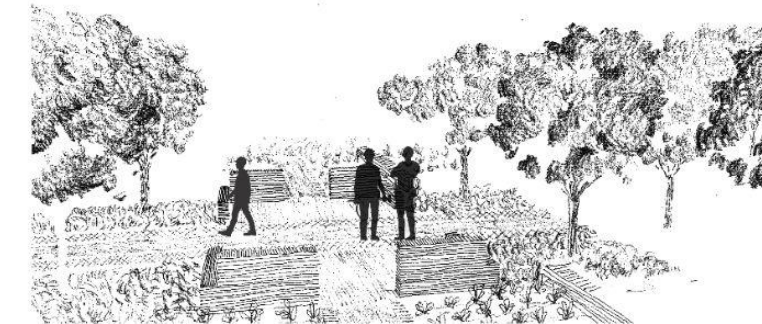
Urban Nature Public Realm (highly trafficked area)

Street Trees (urban resilient vegetation)
Primary Access Routes
South African Indigenous Medicinal Plants (for public foraging)
Public seating /social nodes



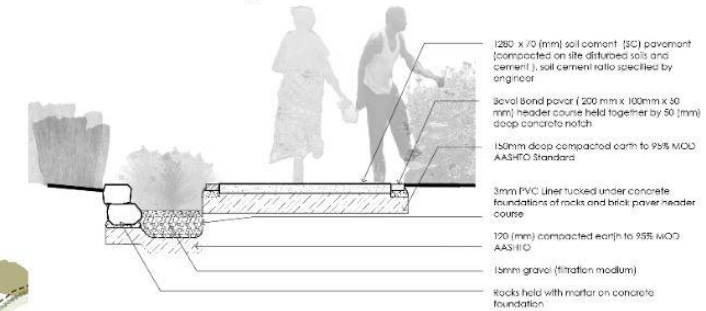
Cultivated Nature Semi Public/Private Realm (less trafficked)

Orchards
Private Agricultural Lots
Semi Public/Private Seating/Social Nodes
Social Corridors



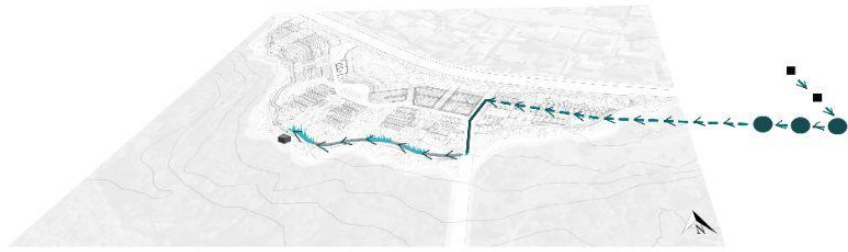
Naturalistic Nature More Private Realm

Central Sandy Bushveld (native vegetation)
South African Indigenous Medicinal Plants
Meandering Route
Intimate Seating Nodes



Water Strategy

Stormwater Harvest (Drip) Irrigation



Atlantis Titank Tank (modular system)



6) underground reservoir



5) water channel (on ground surface)

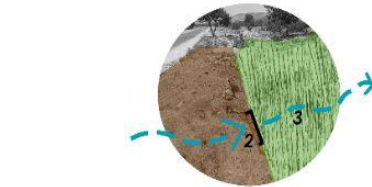
4) water channel (underground)

3) constructed wellands

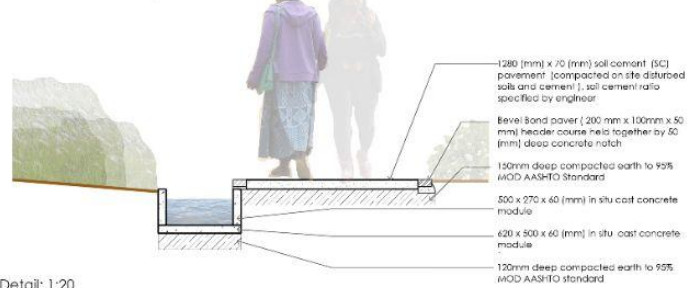
1) stormwater inlet, oil trap

2) stormwater outlet

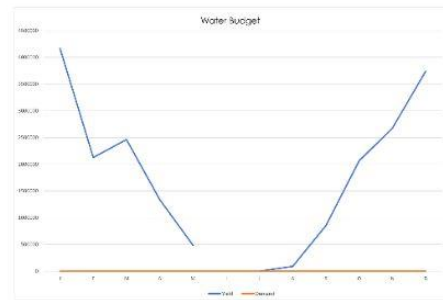
3) constructed wellands



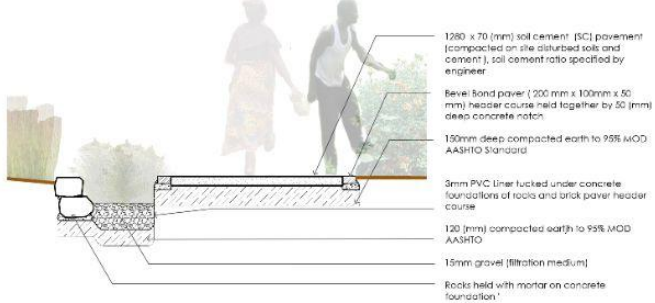
5) Water Channel (along meandering route)
(Concrete Channel)



Detail: 1:20



5) Water Channel (along meandering route)
(Bioswale)



Detail: 1:20

	Monthly Yield	Monthly Demand	Monthly Balance
Jan	4 164 800m ³	424,7 m ³	4 164 375,3 m ³
Feb	2 128 000m ³	424,7 m ³	2 127 575,3 m ³
March	2 462 400m ³	424,7 m ³	2 461 975,3 m ³
April	1 337 600m ³	339,76 m ³	1 337 260,24 m ³
May	486 400m ³	254,82 m ³	486 145,18 m ³
Jun	364 800m ³	254,82 m ³	364 545,18 m ³
Jul	0m ³	254,82 m ³	-254 820,18 m ³
Aug	91 200m ³	254,82 m ³	90 945,18 m ³
Sept	851 200m ³	254,82 m ³	850 945,18 m ³
Oct	2 067 200m ³	424,7 m ³	2 066 775,3 m ³
Nov	2 675 200m ³	424,7 m ³	2 674 775,3 m ³
Dec	3 739 200m ³	424,7 m ³	3 738 775,3 m ³

Material Strategy

Restoration of Landscape

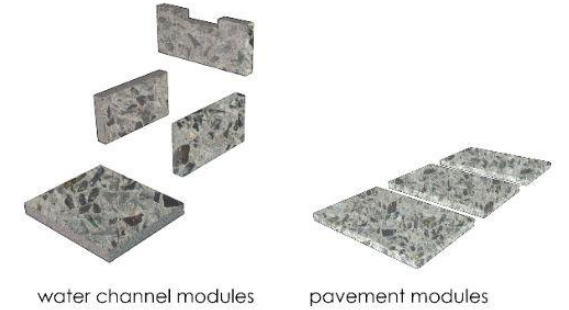
Hardscaping Construction: **Rubble sourced from site**



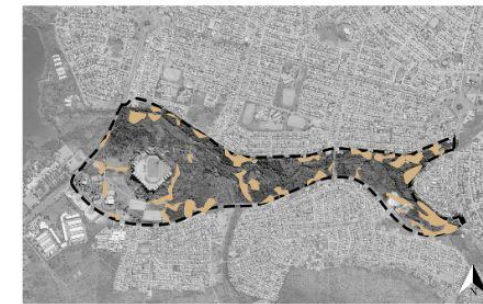
concrete bricks concrete pieces granite glass bottles

Constructed Components

In situ cast units with **crushed rubble as aggregate**



water channel modules pavement modules



Dumping Sites where rubble can be sourced



Mostly found along street edge

Hardscaping Construction: **Soil Cement Pavement**
Soil (**Disturbed soil and sediment**) sourced from site



soil cement compacted
in between brick paver
header course