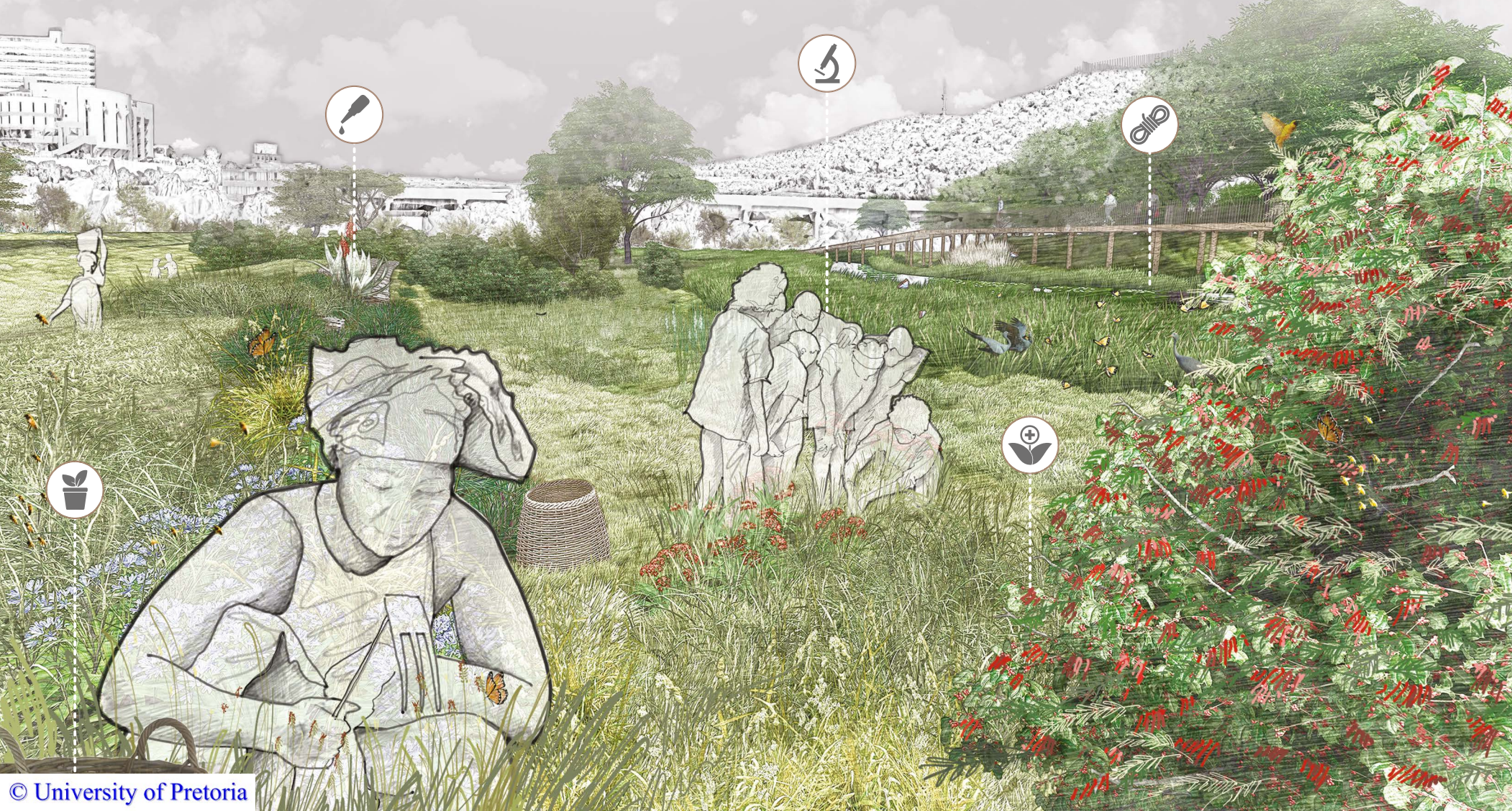
UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

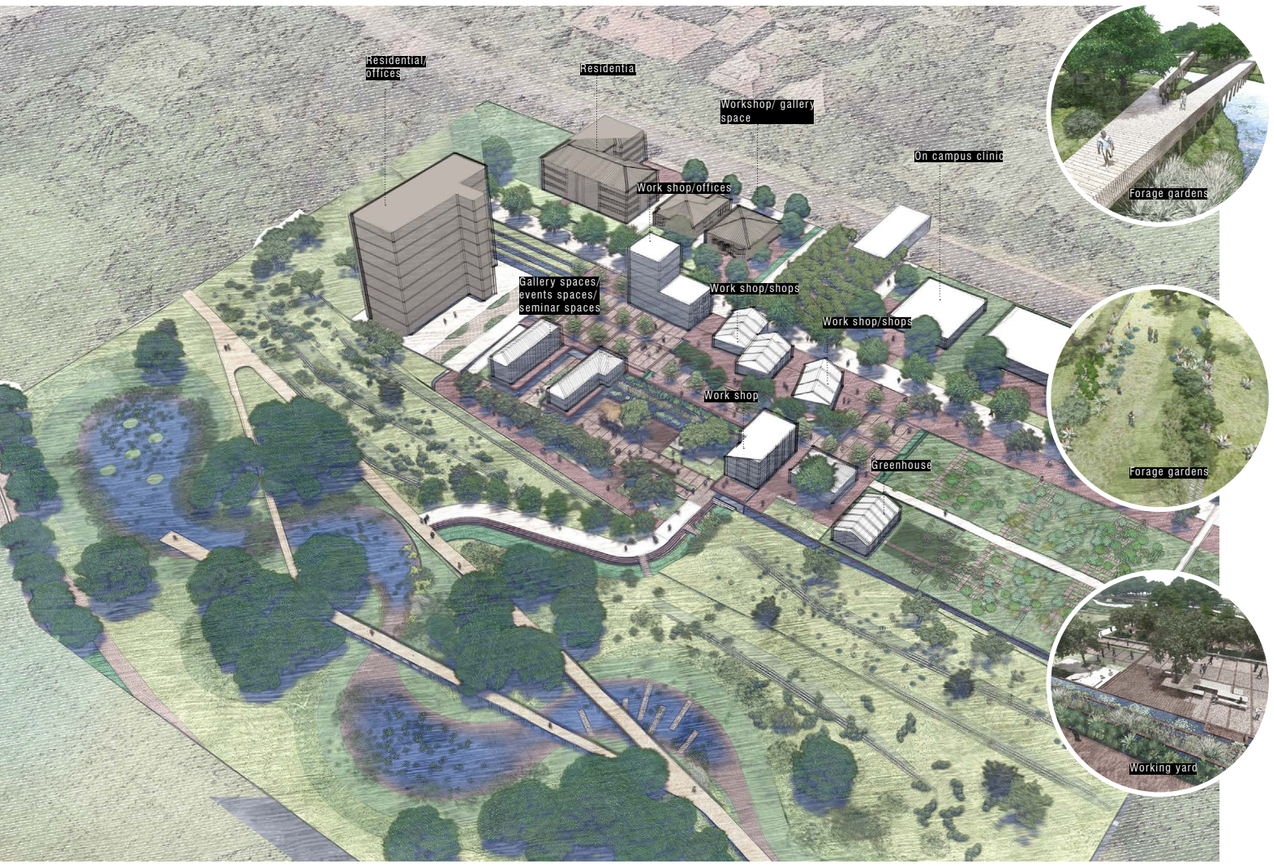
EVOLVING KNOWLEDGE LANDSCAPES:

Reviving from ghost town to ecological campus, fostering alternative knowledge production in the City of Tshwane

The UNISA Sunnyside Ghost Town, an abandoned teaching college near Pretoria Central, faces socio-economic challenges. The project aims to turn it into a landscape-based polytechnic institution, promoting knowledge decolonization and environmental stewardship in Tshwane. The design includes rituals and nature-based interfaces for active and passive learning. Active engagement involves hands-on experiences like gardening and ecological restoration, fostering practical knowledge. Passive awareness encourages understanding through observation, reflection, and connection to the natural world. The project addresses socio-economic issues, especially for women, offering vocational training and supporting small enterprises. Urban planning principles ensure an inclusive, safe, and accessible environment. Local communities actively contribute, making the landscape a canvas for expressing diversity. The initiative envisions landscape-based classrooms, workspaces, and ecological education. Traditional ecological and local knowledge drive socio-economic and ecological sustainability, fostering innovative land management. The goal is to benefit on-site residents and encourage active campus participation.

ECOLOGICAL KNOWLEDGE | NEW FORM OF HERITAGE | SKILLS DEVELOPMENT | CONTEXT FOR DEVELOPING | INTELLECTUAL KNOWLEDGE





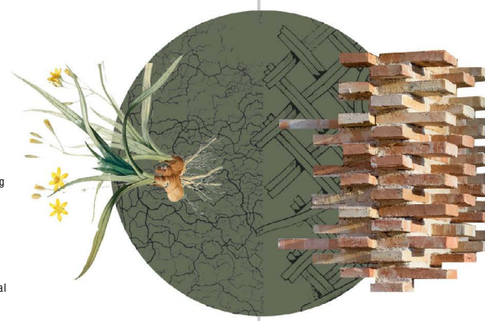
LIFE CYCLES

Prominent strategies for conveying ecological knowledge involve sensory engagement, hands-on plant cultivation, and direct exposure to natural ecosystems (Gilbertson 2022). Landscape architect Catherine Mosbach's work exemplifies using nature's entropic processes as educational tools to highlight gradual regeneration (Raxworthy 2013). The UNISA site's ruins symbolize nature's ability to regenerate, fostering ecological understanding (Pallasmaa 2000 78-84).

Craft-making, per Teerds (2018), deeply connects artisans with creation's lifecycle, endorsed by Hyland (2017). Thus, materials in the Vocational Education Program should be chosen considering their origins and lifecycles. Vernacular materials like clay and excavated rock, as noted by Mateus, Fernandes, and Teixeira (2019), offer lower embodied energy and sustainable lifecycles. Despite limited site resources, repurposing building rubble aligns with the existing vernacular

WILD VS CONTROL

The integration of ecological perspectives into craft, as described by Teerds (2018), views craft as a dynamic entity, akin to nature, constantly evolving and drawing strength from its diverse forms, extending beyond traditional production to include cultivation and material interaction. Michael Desvignes's work emphasizes the interplay between human intervention and natural progression, portraying nature as an ongoing transformative process (Olivetti 2022). Designers like Desvignes craft intentional interactions between foundational infrastructure and natural evolution (Lou & Havic 2020, 11-13). This dynamic interplay between nature and human intervention is ever-changing, with some areas cultivated for knowledge production and others left for natural regeneration (Lou & Havic 2020).



LAYERING OLD & NEW

The layering of spaces facilitates the interaction between uncontrolled natural elements and those requiring more management as landscapes evolve, enhancing the landscape's resilience to change (Olivetti 2022). This concept fundamentally shapes how spaces are understood. Visual transitions within a sequential experience guide movement and focus (Lou & Havic 2020, 19).

The small houses on the site carry historical connotations of inequality. However, by redefining the significance of materials through diverse applications, new spatial experiences become possible. For example, utilizing the site's brick heritage in contemporary functions can prompt a reevaluation of interpretations. The very essence of bricks or clay evokes their origin from earth and fire, as discussed by Pallasmaa (2000, 78-84). These foundational processes and elements, once integral to craftsmanship, now contribute to a fresh, abstract layer of the material.

1 2 3

THEORY

CONSTRUCTION

Welding:

This course centers on the ARC welding technique, which is a method employed for joining metal to metal by harnessing electricity to generate sufficient heat for melting the metals. When the melted metals cool down, they form a strong bond, creating a durable connection.

Brick making:

Brick production will form an integral part of the initial curriculum, contributing significantly to the early phases of on-site structure construction.

Growing and gardening:

This course covers plant selection, care, propagation techniques, and fundamental horticulture principles.

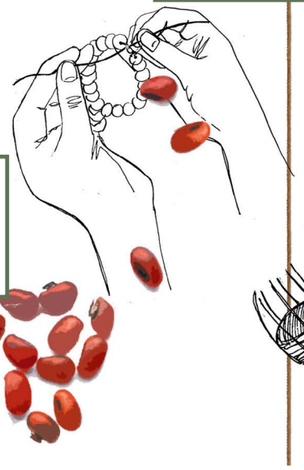
CRAFT

Dyes:

Learn the art of dyeing cloth and fibers using natural plant sources in this course. Explore traditional techniques and sustainable practices for vibrant and eco-friendly colors.

Weaving;

Master the art of weaving plant fibers to create beautiful baskets and bags. Craft functional and eco-friendly items with traditional techniques.



Jewelery;

Discover the craft of jewelry making using seeds, wood, and fibers. Create unique and eco-friendly accessories with natural materials.

GREEN ENTREPRENEURSHIP

Wellness products;

This course focuses on the manufacturing of cosmeceuticals, wellness products, and perfumes, providing insights into the production processes and techniques involved in creating these items.

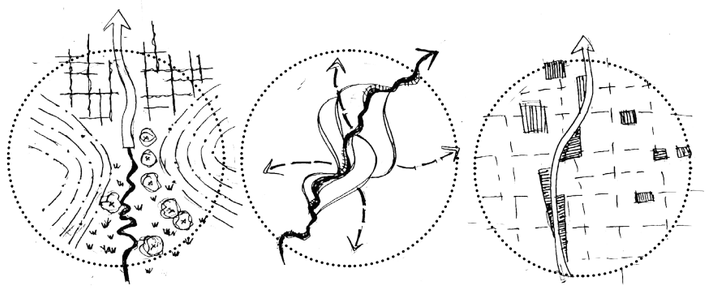
Green entrepreneurship:

This program empowers aspiring entrepreneurs to harness eco-friendly practices, innovative solutions, and ethical principles to create and grow environmentally-conscious businesses.

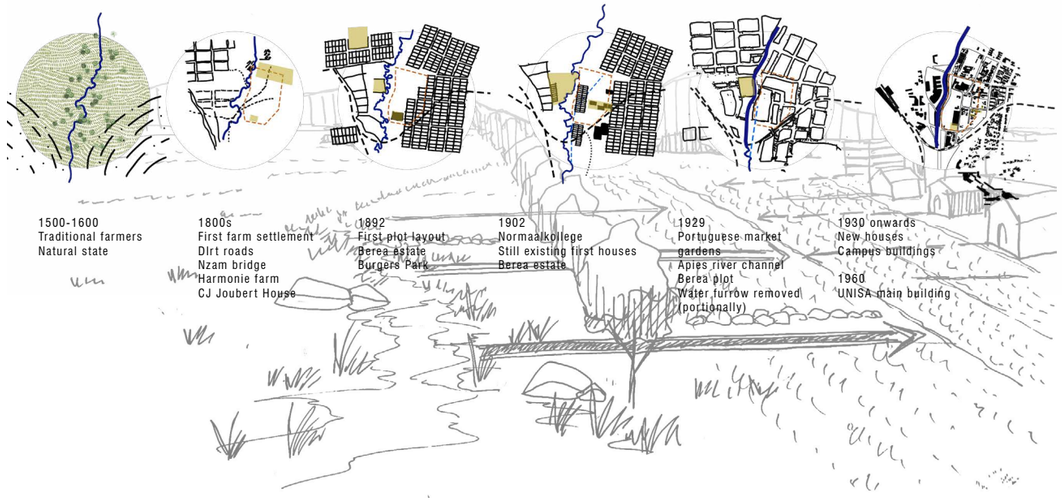
Research and university courses:

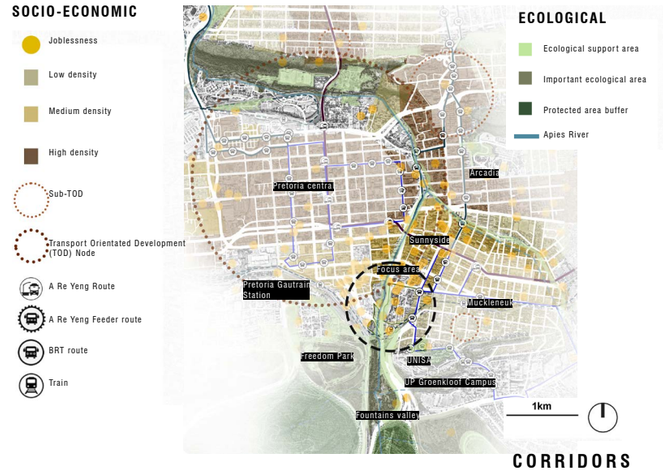
Traditional tertiary courses encompass research into prospective plants and innovative practices, with a focus on plant science, horticulture, and environmental management.

COURSES AND VOCATIONAL TRAINING

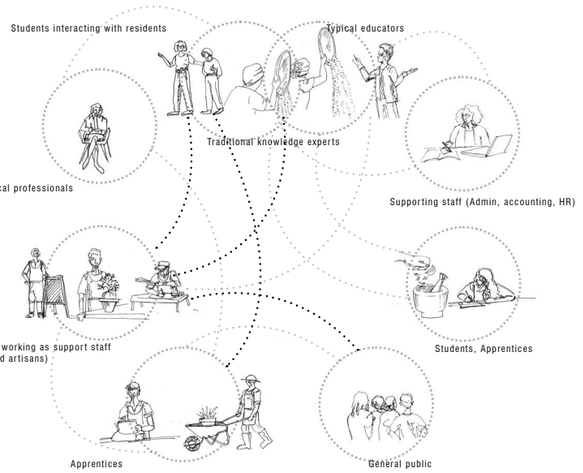


SPATIAL GRAIN

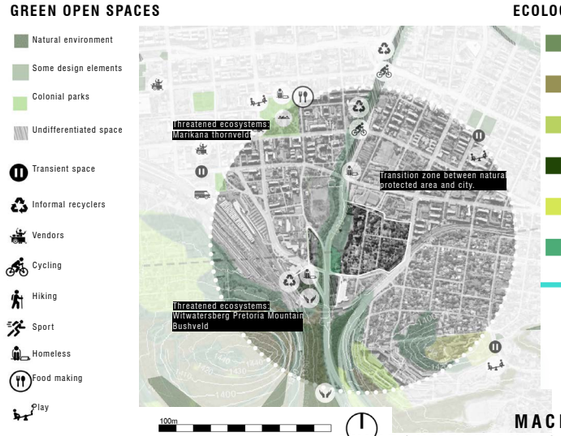




CORRIDORS

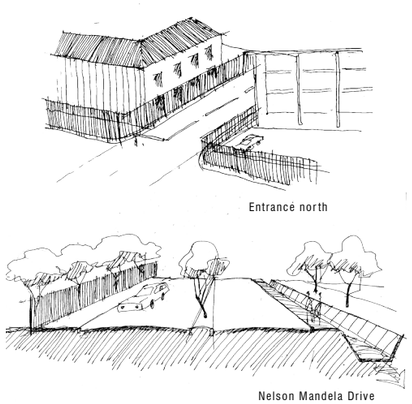


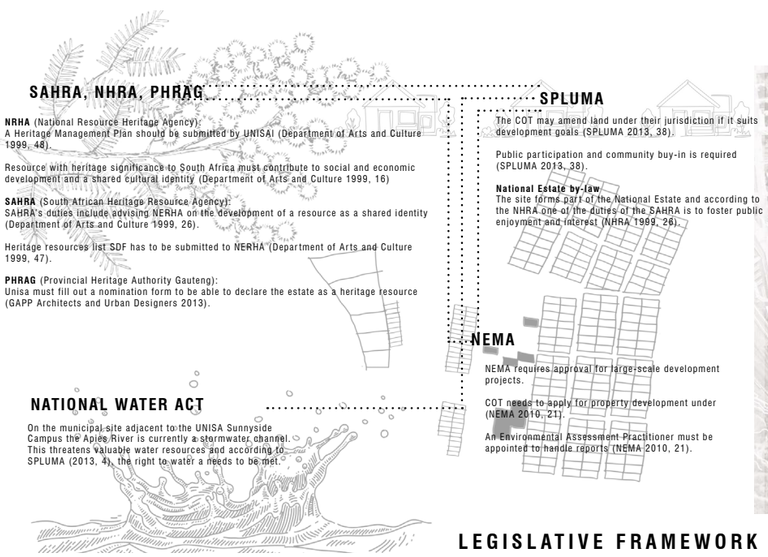
USER PROFILE RELATIONSHIP MODEL



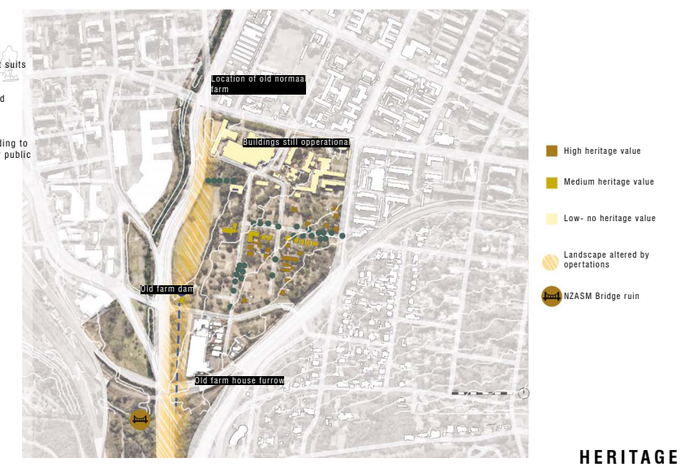
MACRO CONTEXT ENVIRONMENT AND GREEN SPACE

MACRO CONTEXT ZONING

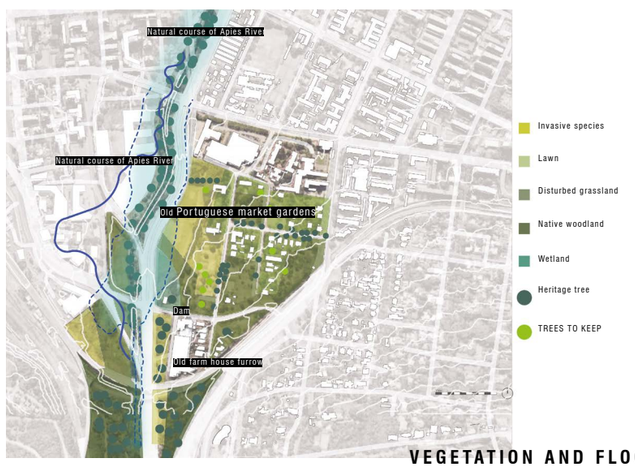




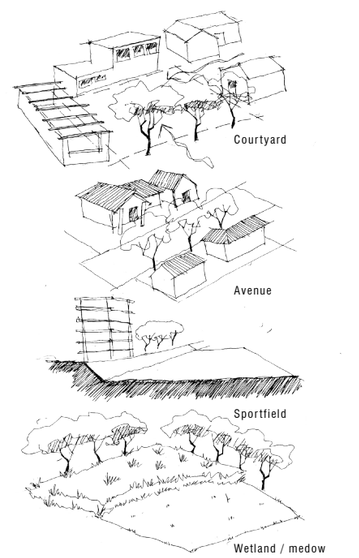
LEGISLATIVE FRAMEWORK



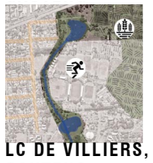
HERITAGE



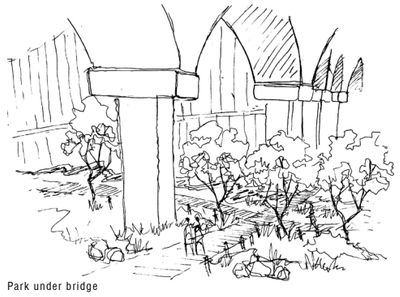
VEGETATION AND FLOODLINE



SITE ANALYSIS

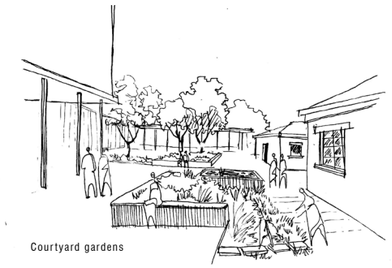
	WATER	VULNERABILITY	POETICS	SKILLS DEVELOPMENT
 GAMORA, GAUTENG	Dam Water provision	Lack of basic services	Overgrown nursery Self built houses and structures	Booysens Nursery
 HENNOPS RIVER, GAUTENG	Hennops river Riverine interface Flooding Smell	Marikana informal workers camp Informal vendors Taxi rank	Riverine interface	Integration with existing commercial zone
 LC DE VILLIERS, GAUTENG	Hartbeesspruit	Homelessness Informal vendors and recyclers	Wetlands and history	University led Urban agriculture

SITE SELECTION PROCESS



Park under bridge

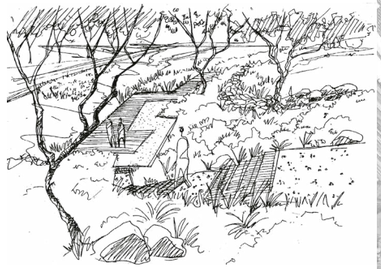
Interaction with wetland



Courtyard gardens

Activated pedestrian streets

Floodplains



Vegetated edges_ engagement platforms

Train platform
Research facility
Institutional
Commercial
Clinic
Residential
Main pedestrian movement
Secondary pedestrian movement
Pedestrian bridge
Water course option
Wetland
Vegetated verge for walkway
Productive landscape
Activated pedestrianised streets
Therapeutic gardens
Wetland

Vulnerable people:
At risk youth

EDUCATION AND JOBLESSNESS
The city faces the following dilemmas (Stats SA 2023):
20% of people have secondary education
6 % of the people higher education degrees

CoT has a 24,2% unemployment rate
Gauteng has the highest proportion of working age people(15-59).

WOMEN
SA Women have higher unemployment rates and higher levels of poverty

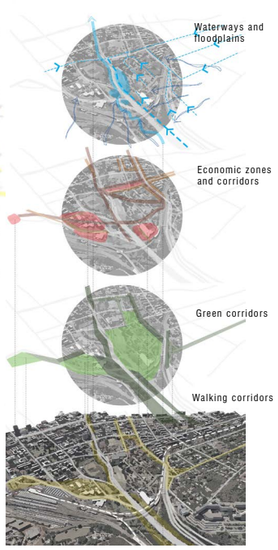
DEVELOPMENT GOALS
City of Tshwane development plan aims to achieve the following (City of Tshwane Metropolitan Municipality 2020, 43):

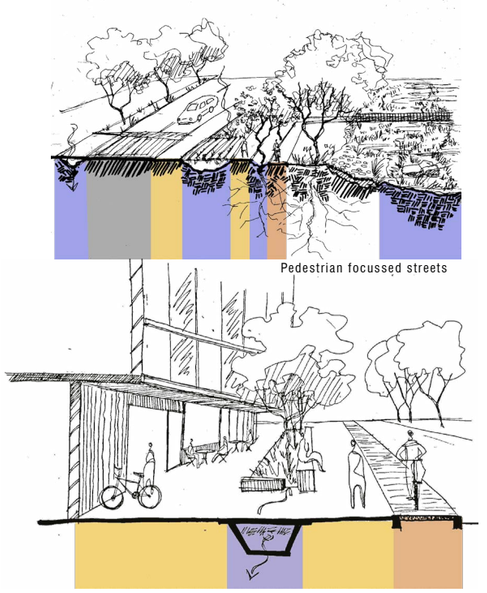
-Youth skills development programs
Job centres should be established throughout the City
-Development of green and brownfield (Pretoria inner city)

STAKEHOLDERS

STAKEHOLDERS	ROLE
Client o UNISA o City of Tshwane o Botanical Gardens	Landowners (UNISA), capital investment. Promoting and integrating IK into the tertiary education system.
Secondary o UNISA o City of Tshwane o LINKS o Cotton on Foundation	Public interfaces connecting to the larger green infrastructure network. Public participation with regards to National Estate.
Tertiary o Department of Water and Forestry o Department of Public Works o SAHRA (South African Heritage Resource Agency)	Community engagement facilitators

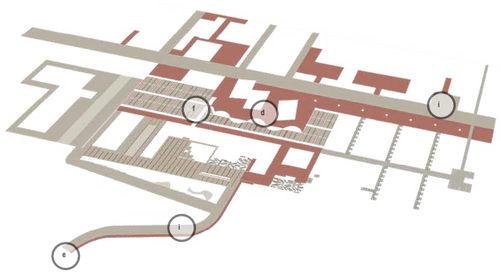
INTERPRETATION OF COT DEVELOPMENT FRAMEWORK

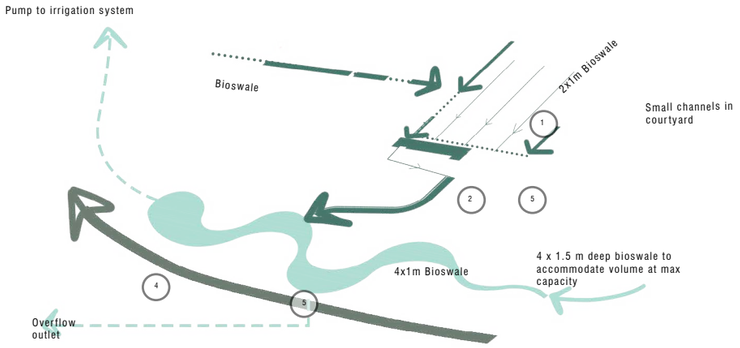


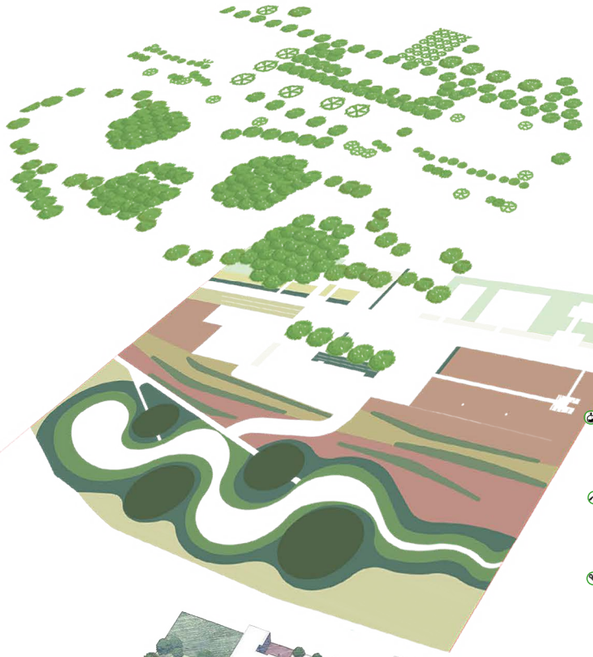


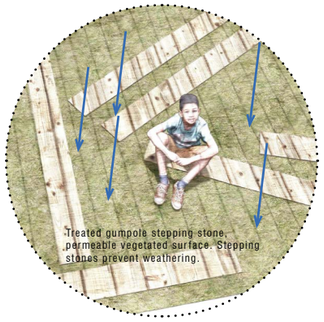
OPPORTUNITIES

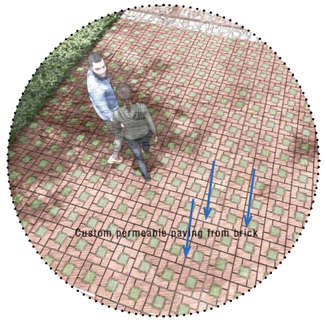
URBAN FRAMEWORK

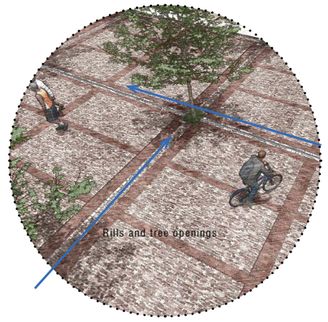




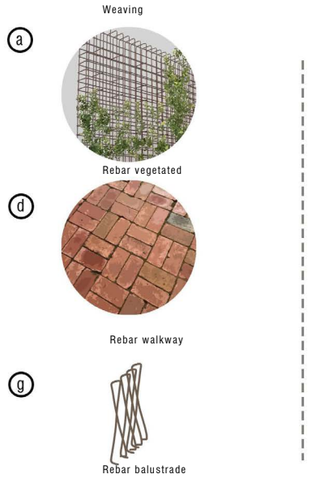




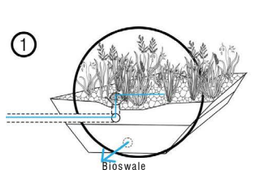


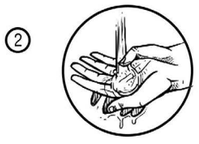


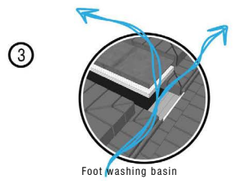
PAVING STRATEGY

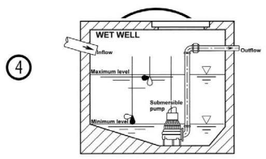


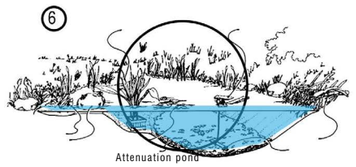
MATERIAL PALETTE









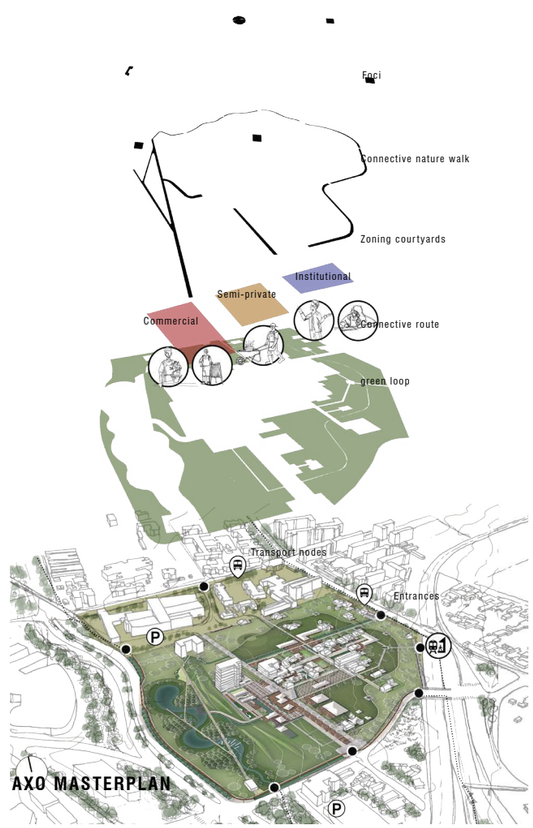



Forage gardens

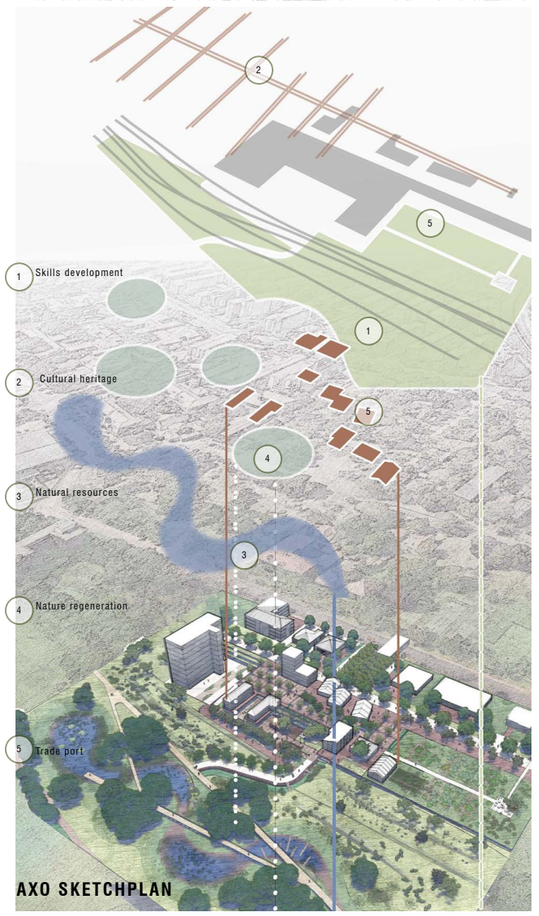

Wetland boardwalk


Work space

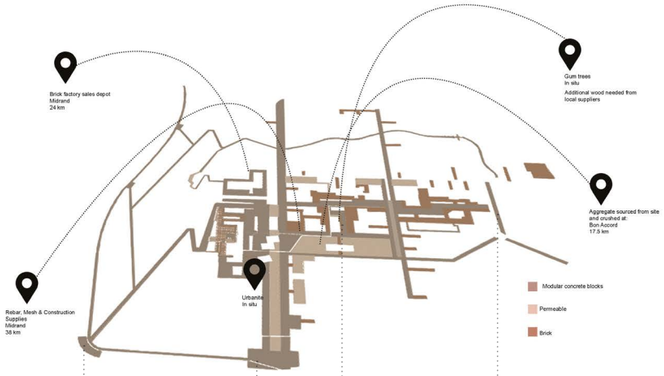
FOCUS AREA SYSTEMS

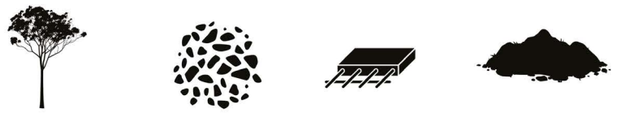


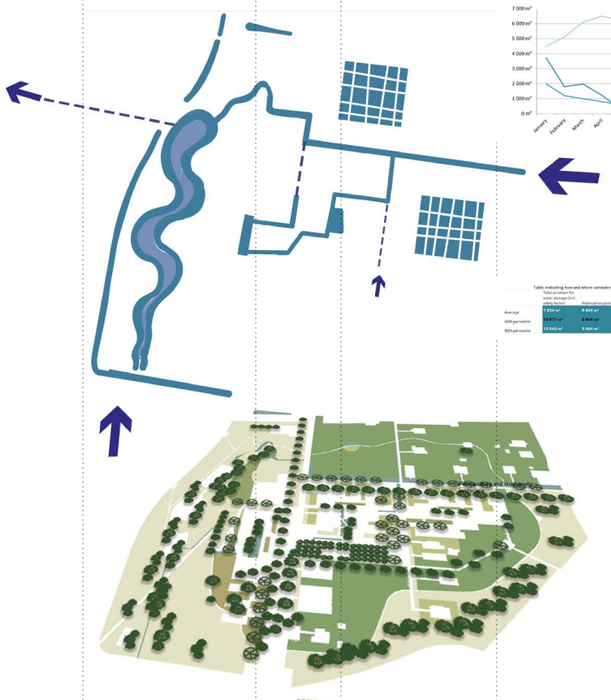
AXO MASTERPLAN

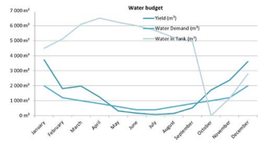


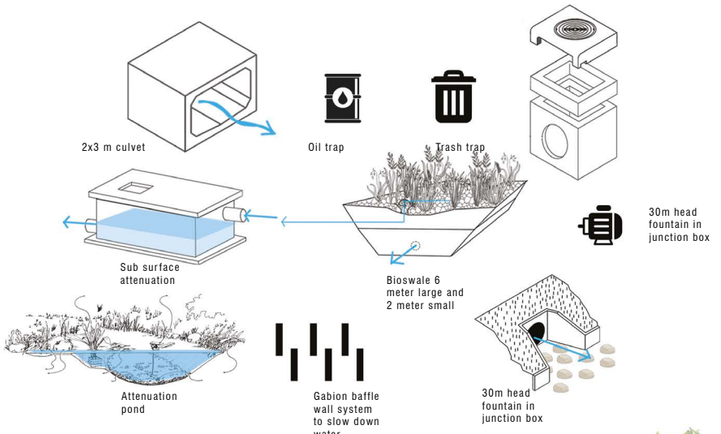
AXO SKETCHPLAN

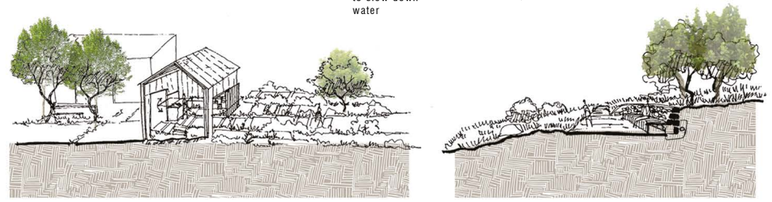


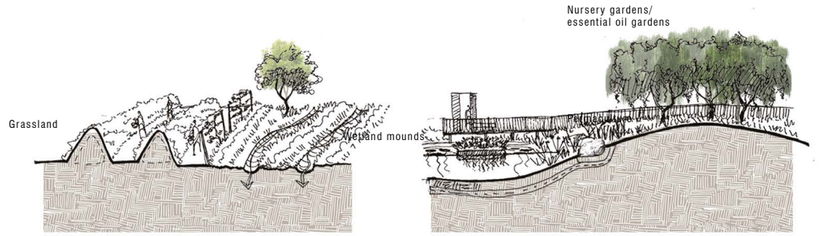


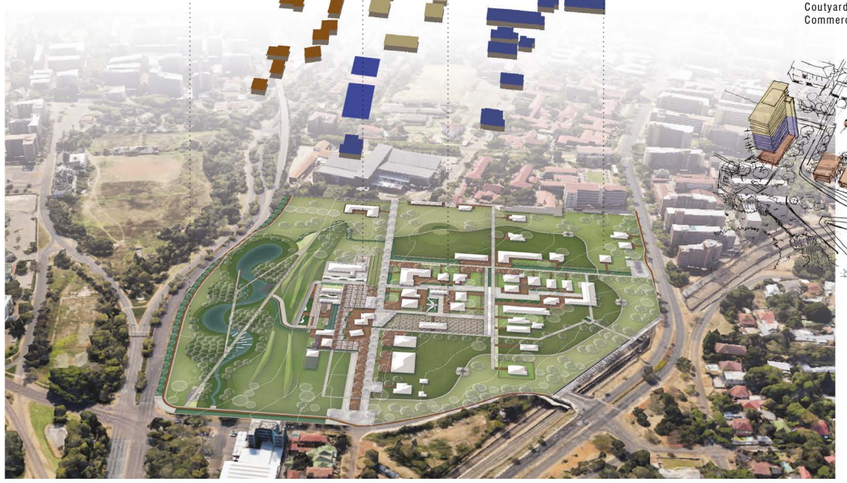


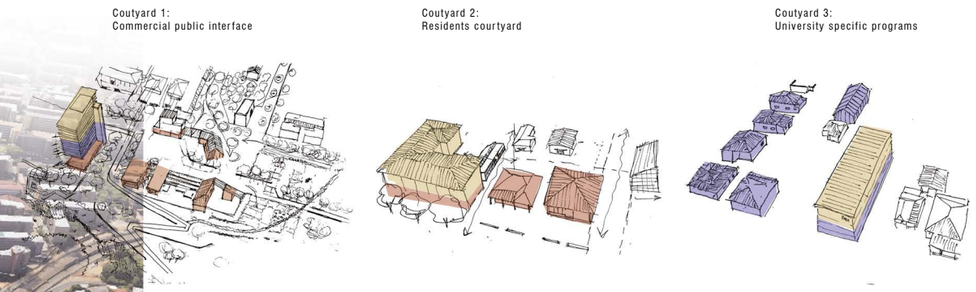




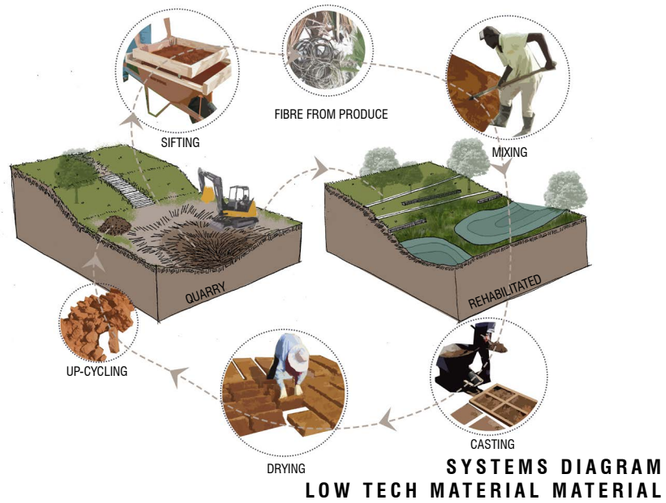




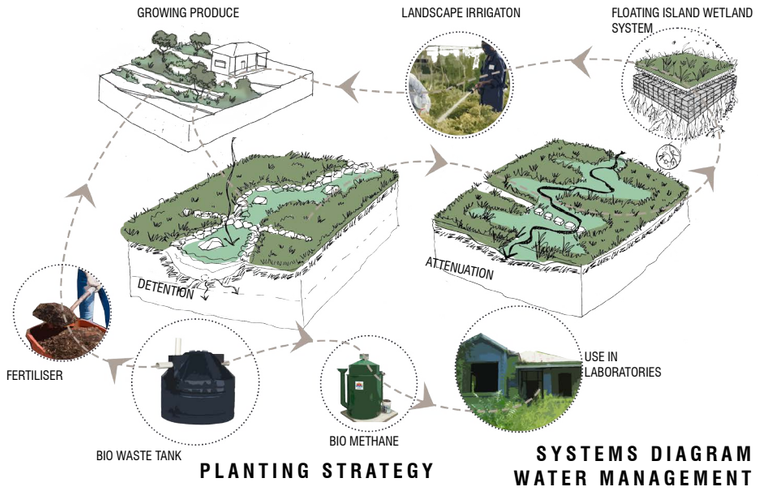




MASTER PLAN SYSTEMS

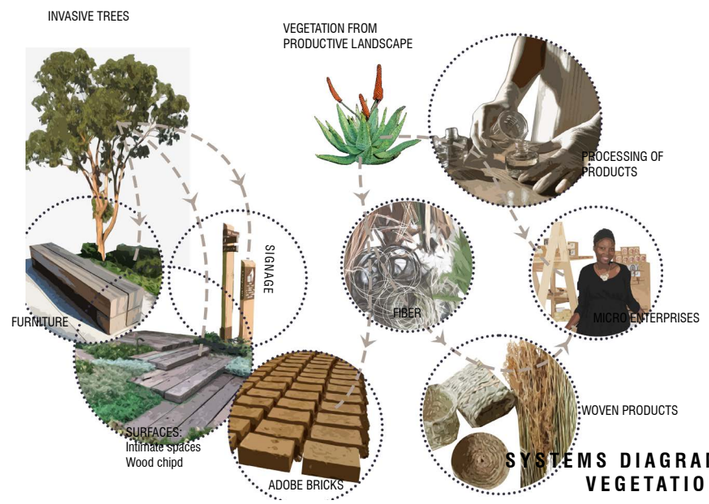


SYSTEMS DIAGRAM LOW TECH MATERIAL MATERIAL



PLANTING STRATEGY

SYSTEMS DIAGRAM WATER MANAGEMENT



SYSTEMS DIAGRAM VEGETATION

SYSTEMS DIAGRAMS

Materplan legend

Legend hardscape elements

- a — Course aggregate paving, Aggregate; 30-50mm crush recycled brick
- b — 200x 98x 75mm red clay brick in basket weave pattern, center filled with gravel on 300mm compacted soil layer to 95% MOD AASHTO
- c — Pennisetum clandestinum Kikuyu grass
- d — 2000x4000x70mm in-situ cast concrete block walkway, 50-100 mm brick pieces placed face down, sourced from building rubble
- e — 50mm gravel in gravel fix polymer pockets
- f — 220 x 108.5 x 50mm Red clay brick paving, basket weave pattern, Satin finish
- g — Saligna decking, CCA treated
- h — Orchid with 30-70mm wood chips from trees on site
- i — 300mm x 450mm Red/ brown clay brick seating wall
- j — Rest space with entrance and tree for shading

Soft landscape legend

- BE — Bioswale Emergent planting
- VG — Ornamental veld grass mix
- SM — Shade mix
- WL — Wetland mix
- FG — Forage gardens
- KL — Kikuyu lawn
- WE — Wetland Emergent

Trees legend

- Existing trees
- Feature trees — Large evergreen or ornamental
- Large trees — Canopy 6-12 m
- Medium trees — Canopy 3-5 m
- Small trees — Conppy size 2.5-4m

MASTERPLAN SCALE 1:500

Sketchplan legend

Legend trees

Dombeya rotundifolia
wild pear (Eng)
200L

Harpephyllum caffrum
Wild plum (Eng)
200L

Ilix mitis
African holly (Eng)
500L

Vachellia galpinii
Monkey thorn (Eng)
200L

Combretum kraussi
Forest bush willow (Eng)
200L

Combretum erythrophyllum
Forest bush willow (Eng)
200L

Budleja saligna
False olive (Eng)
50L\ 100L

Bolusanthus speciousus
False olive (Eng)
50L\ 100L

Olea europea subsp. africana
Wild olive (Eng)
200L

Cammiphora pyracanthoides
Corkwood (Eng)
100L

Acokanthera oppositifolia
Bushman's poison (Eng.)
50L

Diospyros whyteana
Bladder nut(Eng.)
100L

Vachellia karroo
Sweet thorn (Eng.)
100L

Calodendrum capense
Cape chestnut(Eng.)
100L

Erythrina lysistemon
Coral tree (Eng)
200L

Englerophytum magalismontanum
Transvaal milkplum (Eng.)
20L

Legend hardscape elements

a — 200 x 98.5 x 50mm clay paving bricks in basket weave patter, featuring a reddish-brown 'Terracotta' finish, onto a well-prepared sand base with spacers

b — 2000x 1500x 100mm in situ course aggregate paving slab, featuring a non-slip textured finish, and secure it using appropriate adhesive or mortar for stability, 9-13mm aggregates; crushed clay bricks without fine

c — 4000 x 2000x 100mm paving slab with 100x100mm terracotta recycled brick pieces spaced roughly 15-20mm from one another, featuring a non-slip textured finish

d — 200 x 98.5 x 65mm clay paving bricks in a basket weave variation pattern that allows planting at the center, reddish-brown 'Terracotta' finish

e — 600x600x70 MM Composite brick aggregate flooring slabs with brick aggregate sourced from site, unpolished

f — 50x 38mm mild steel rill inlay into stepped concrete channel, Steel to be treated with corrosion protection

g — 400mm wide channel filled with 50-80 mm red-brown gravel, Tap

h — 912 x 1100mm standing table and 912 x 750mm standard table, 38 x 228mm 38 x 228mm SA Pine, fastened with biscuit joints every 500mm and planks glued with standard wood glue at seams into place, edges sanded off to be flush with rebar, boards sanded until smooth surface, sealed with water-based oil sealant (UV resistant), clear finish

i — 912 x 1100mm rebar base for standing table and 912 x 750mm rebar base for standard table, 10 mm diameter rebar every 150 mm, bent into 90° angle, laid onto grooves on board to be flush with boards.

l — 100mm Thick concrete channel reinforced channel cover, 30-50mm crushed brick aggregate.

k — 12mm diameter Rebar walkway
As per specification

l — 10mm diameter Rebar welded balustrade
As per specification

m — 1500x 100mm urbanite rockery

n — 230x2400x38 mm stepping gumpole steppings stones sorced from site

o — concrete stepping stones varied in size according to plan, concrete paving slabs drilled cracked and lifted into modular units

p — 100mm Thick concrete channel reinforced channel cover, 30-50mm crushed brick aggregate.

q — 500x 500mm Gabion, recycled concrete battle wall

r — 1500-3000mm Wetland boardwalk CCA treated

Soft landscape legend

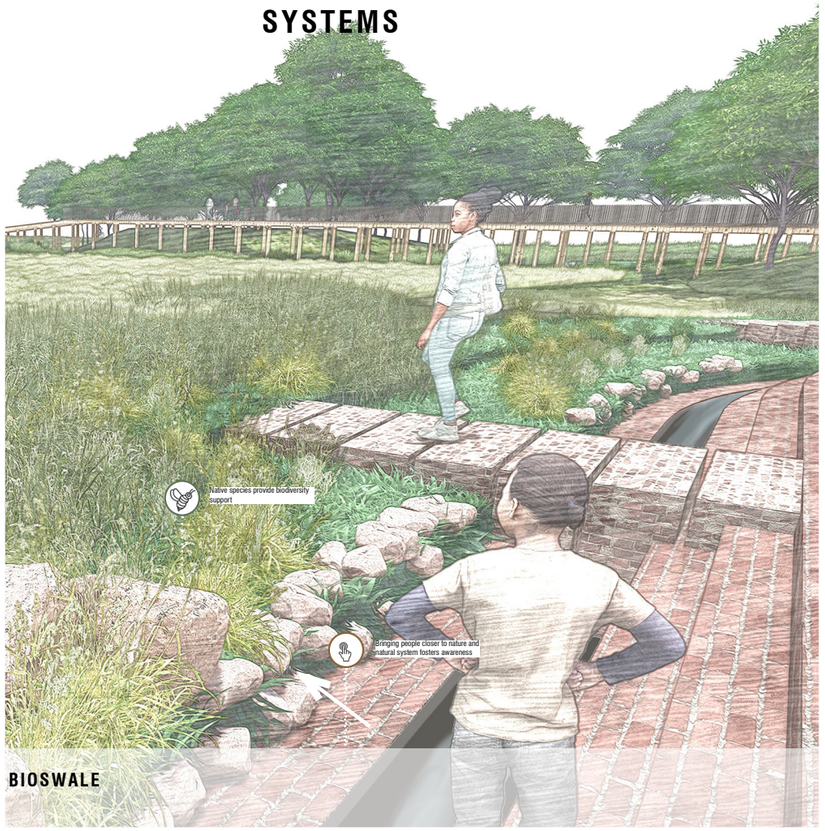
GT	Grassland tall growing
GL	Grassland low growing
FP	Feature plants
WM	Wet medow
ES	Emergent shallow
ED	Emergent deep
OW	Open water
SM	Shade mix

SKETCHPLAN SCALE 1:200

REGENERATIVE SPACE

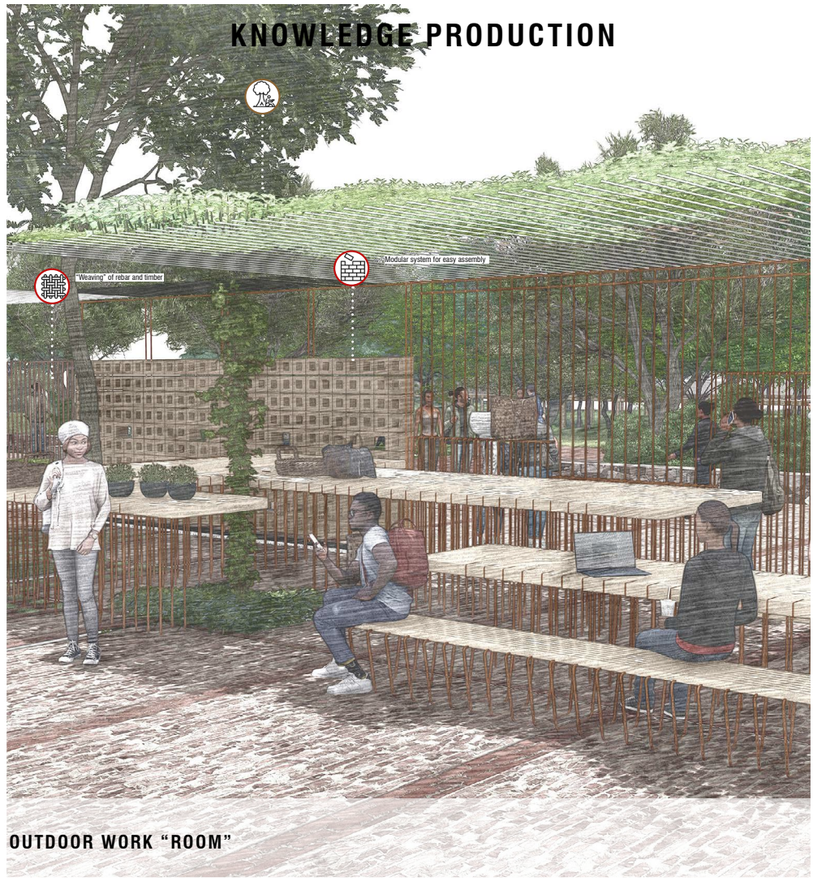
PODIUM FOR TEACHING

ENGAGEMENT WITH SYSTEMS



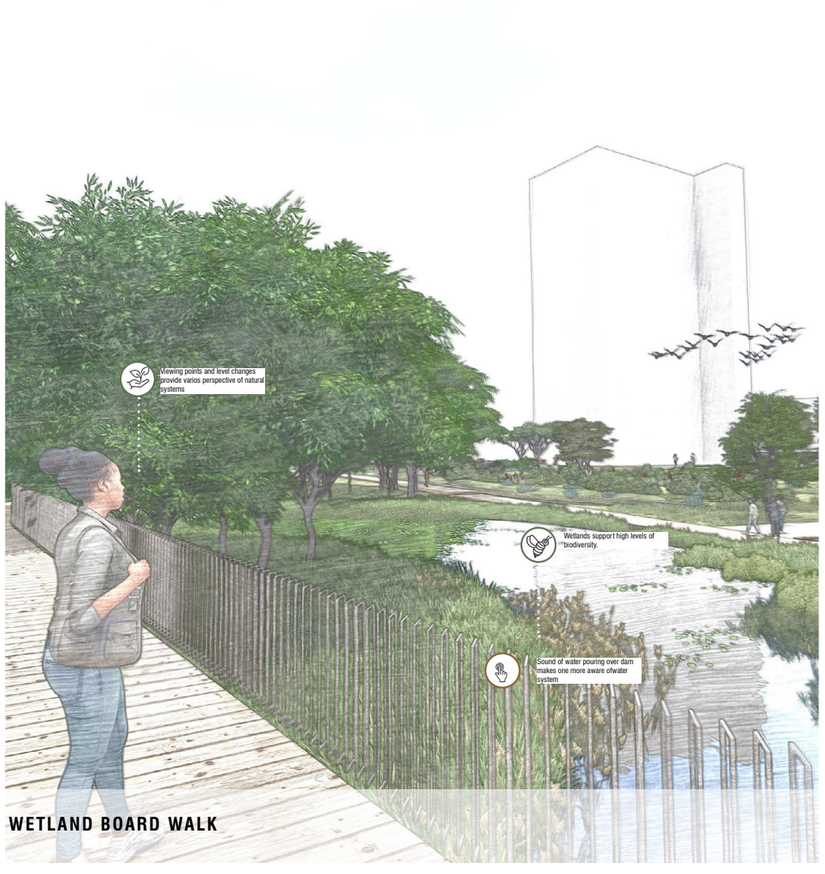
BIOSWALE

KNOWLEDGE PRODUCTION

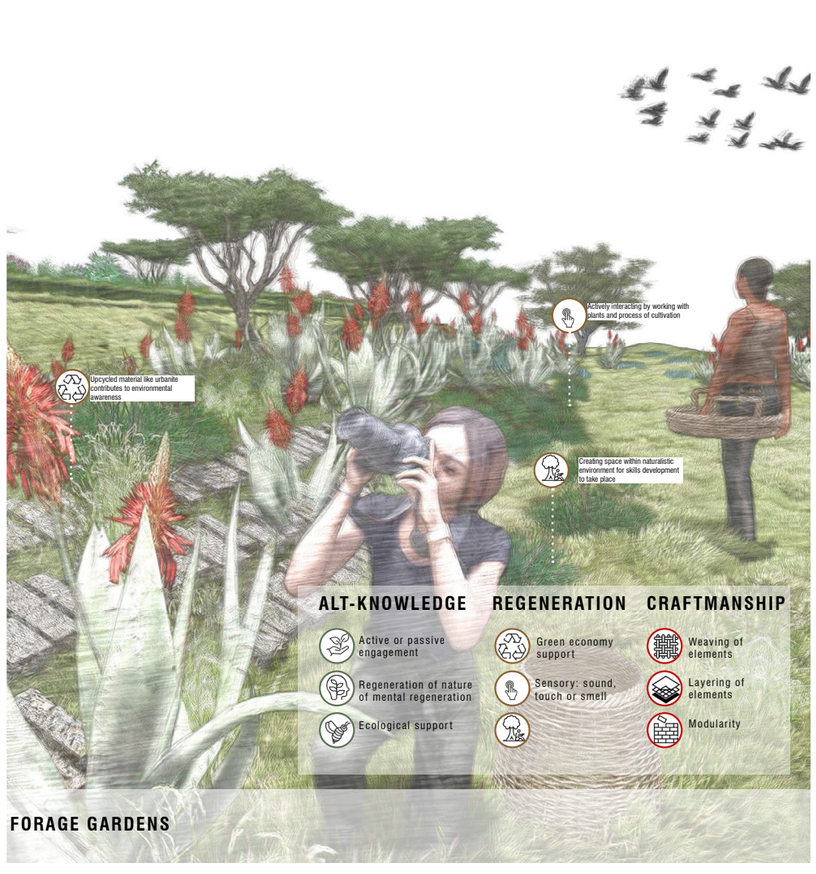


OUTDOOR WORK "ROOM"

BREAK AWAY SPACES



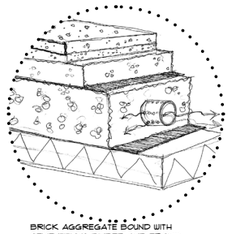
WETLAND BOARD WALK



FORAGE GARDENS

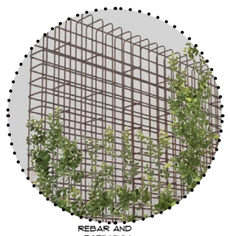
URBANTE

BRICK AGGREGATE CONCRETE



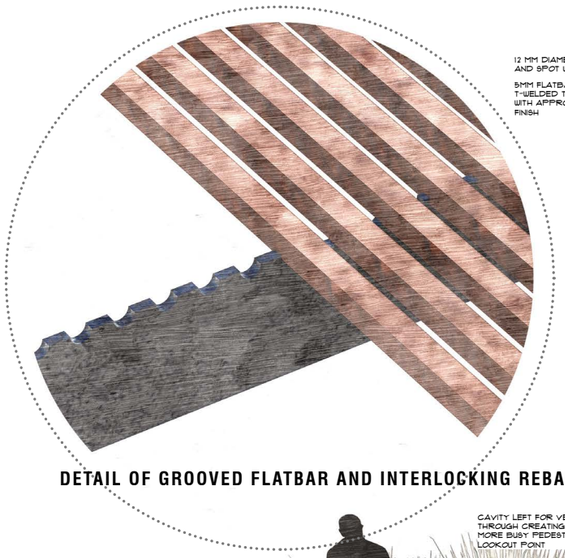
BRICK AGGREGATE BOUND WITH CEMENTITIOUS BINDER AND EPOXY MIXTURE ON PERMEABLE SUB BASE

WOVEN REBAR BALUSTRADE



REBAR AND VEGETATION

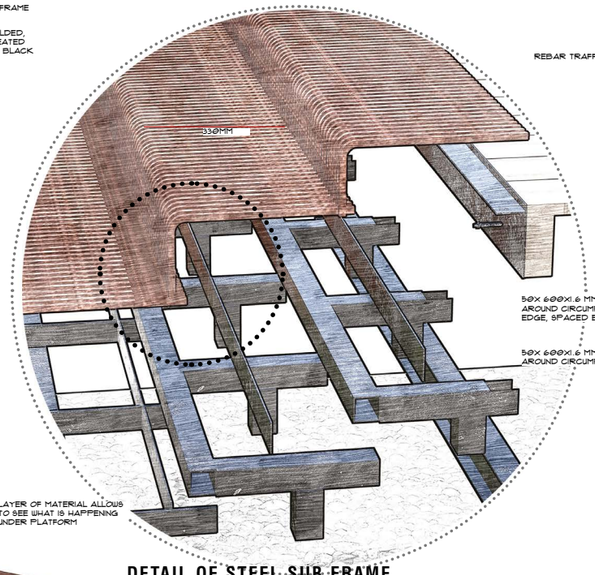
LONGITUDINAL SECTION WETLAND BOARDWALK



12 MM DIAMETER SPACED 12 MM APPART BY USING GROVES IN SUB-FRAME AND SPOT WELDED TO FLATBAR FRAME

5MM FLATBAR GROOVED SO REBAR CAN SLOT INTO THE FRAME, WELDED, T-WELDED TO THE SUB HOLLOW PROFILE FRAME. AFTER WELDING TREATED WITH APPROPRIATE PRIMER AND PAINTED WITH EPOXY PAINT, MATT BLACK FINISH

DETAIL OF GROOVED FLATBAR AND INTERLOCKING REBAR



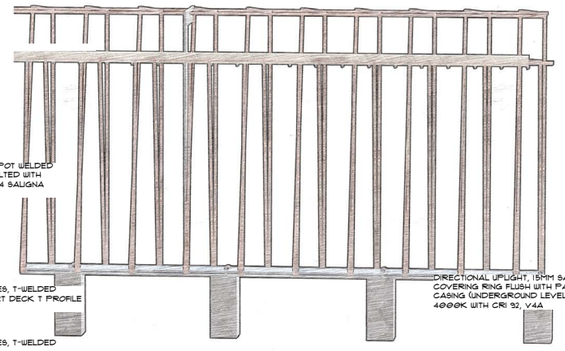
REBAR TRAFFICABLE SURFACE

T PROFILE STEEL CUT ONE SIDE AND SPOT WELDED TO REBAR SUPERSTRUCTURE AND BOLTED WITH SAME STEEL NUT AND BOLT TO 50 X 114 SALIGNA BEAM CCA TREATED

50X 600X1.6 MM SQUARE CHANNEL WELDED 90 DEGREES, T-WELDED AROUND CIRCUMFERENCE, CUT 50 MM BACK TO SUPPORT DECK T PROFILE EDGE, SPACED EVERY 500 MM

50X 600X1.6 MM SQUARE CHANNEL WELDED 90 DEGREES, T-WELDED AROUND CIRCUMFERENCE, SPACED EVERY 500 MM

DETAIL OF STEEL SUB FRAME



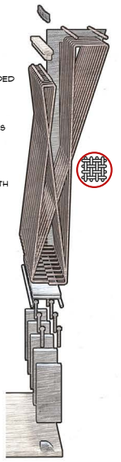
38 X 38 MM WOODEN BEAM COPING FOR HANDRAIL FASTENDED ONTO REBAR WITH COUNTERSUNK M4 SELF TAPPING/ THREADED TIMBER SCREWS

38X1200X114 MM SALIGNA DECKING, CCA TREATED, 5MM SPACING BETWEEN PLANKS

10MM DIAMETER REBAR BALUSTRADE, WELDED TO 12MM SUPPORTING REBAR AT BOTTOM AND TOP OF BALUSTRADE LENGTH

100X 100MM MILD STEEL SQUARE HOLLOW SECTION

DIRECTIONAL UPLIGHT, 15MM SAFETY GLASS IN 10MM STAINLESS STEEL COVERING RING FLUSH WITH PAVING LEVEL AND WATERTIGHT POLYMER CASING (UNDERGROUND LEVEL), LEDS: 3000K CRI 97 OR 2700K, 3500K, 4000K WITH CRI 92, V4A



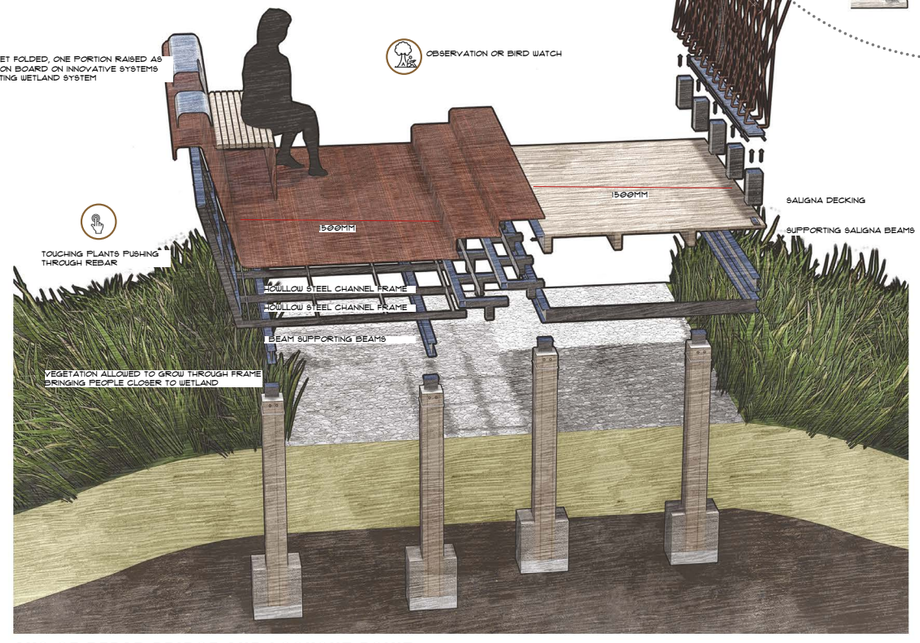
ELEVATION AND DETAIL OF "WOVEN" BALUSTRADE

CAVITY LEFT FOR VEGETATION TO GROW THROUGH CREATING SEPARATION BETWEEN MORE BUSY PEDESTRIAN WALKWAY AND QUITER LOOKOUT POINT

LAYER OF MATERIAL ALLOWS TO SEE WHAT IS HAPPENING UNDER PLATFORM

REBAR WOVEN AND INTERLINKED TO ONE ANOTHER

AXO OF STEPPED LOOK OUT POINT



STEEL SHEET FOLDED, ONE PORTION RAISED AS INFORMATION BOARD ON INNOVATIVE SYSTEMS LIKE FLOATING WETLAND SYSTEM

OBSERVATION OR BIRD WATCH

SALIGNA DECKING

SUPPORTING SALIGNA BEAMS

TOUCHING PLANTS PUSHING THROUGH REBAR

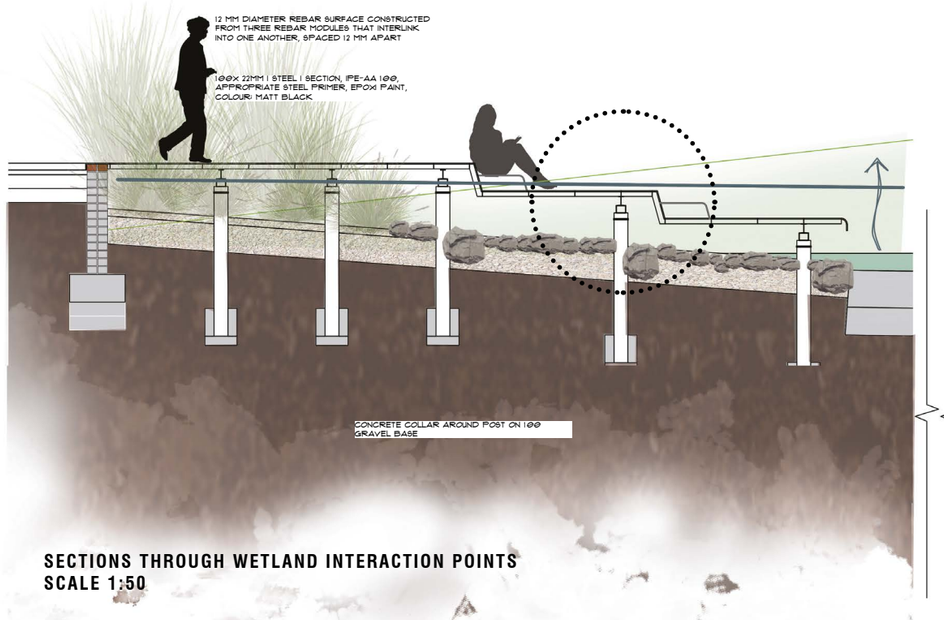
HOLLOW STEEL CHANNEL FRAME

HOLLOW STEEL CHANNEL FRAME

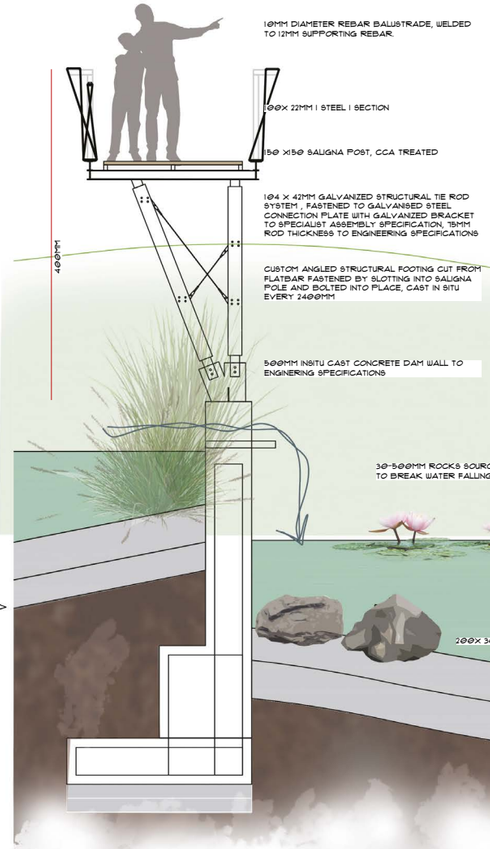
BEAM SUPPORTING BEAMS

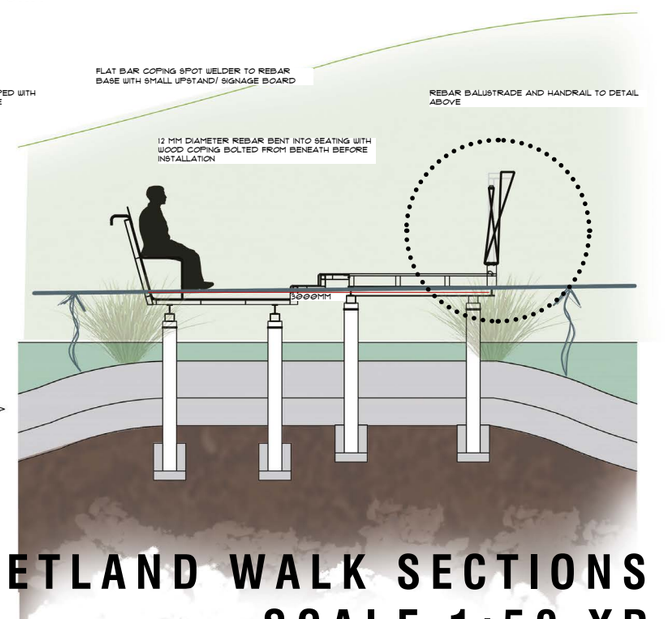
VEGETATION ALLOWED TO GROW THROUGH FRAME BRINGING PEOPLE CLOSER TO WETLAND

AXO OF REBAR BRIDGE AND LOOKOUT POINT

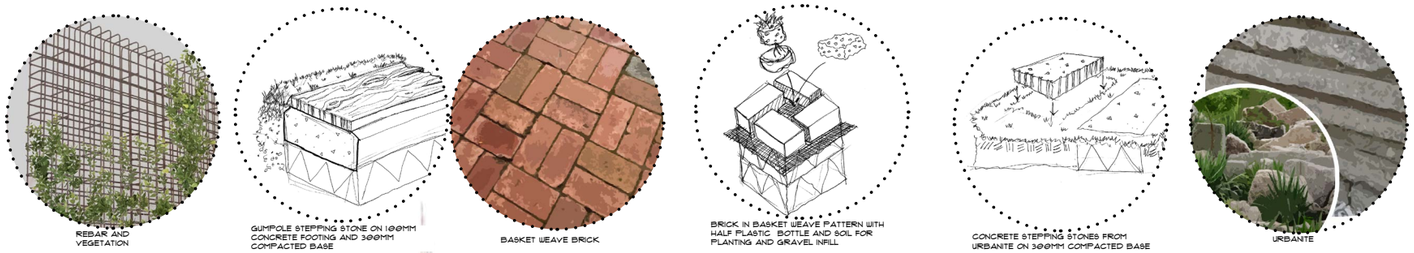


SECTIONS THROUGH WETLAND INTERACTION POINTS
SCALE 1:50





WETLAND WALK SECTIONS
SCALE 1:50 XP



REBAR AND VEGETATION

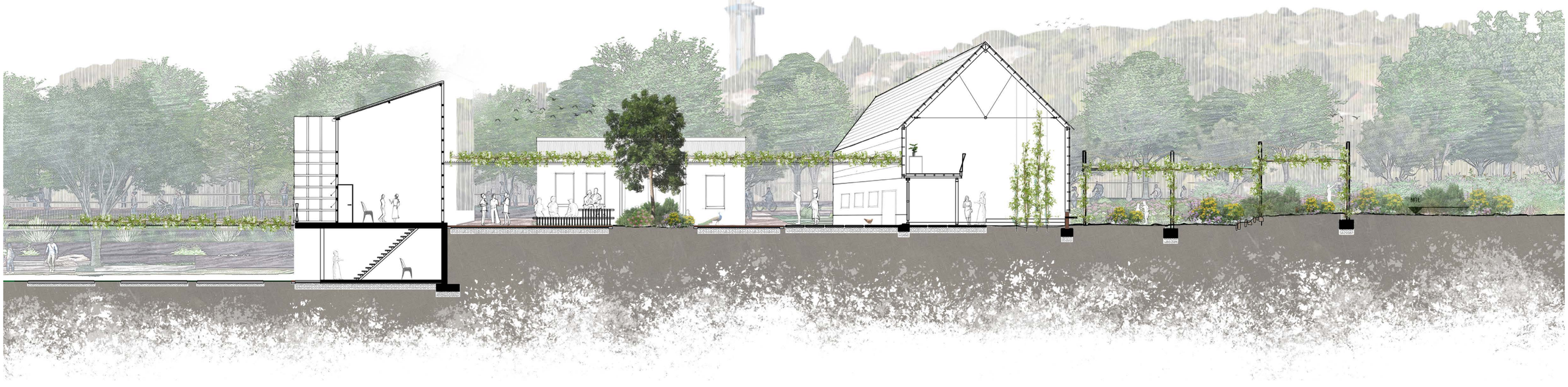
GUMPOLE STEPPING STONE ON 100MM CONCRETE FOOTING AND 300MM COMPACTED BASE

BASKET WEAVE BRICK

BRICK IN BASKET WEAVE PATTERN WITH HALF PLASTIC BOTTLE AND SOIL FOR PLANTING AND GRAVEL INFILL

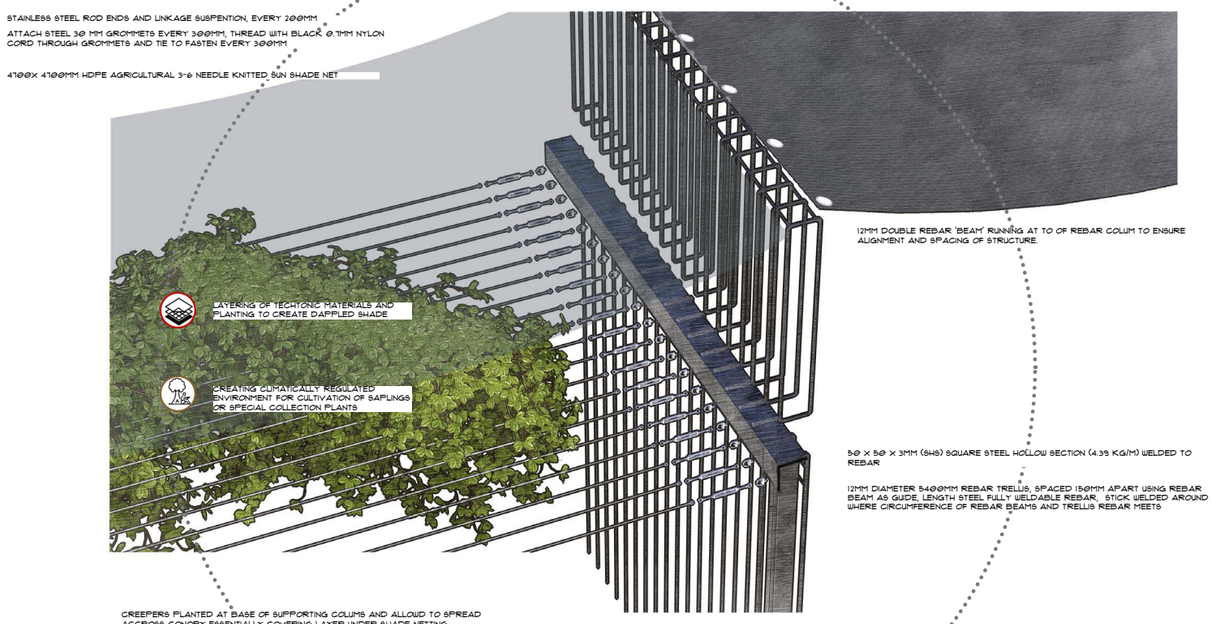
CONCRETE STEPPING STONES FROM URBANITE ON 300MM COMPACTED BASE

URBANITE

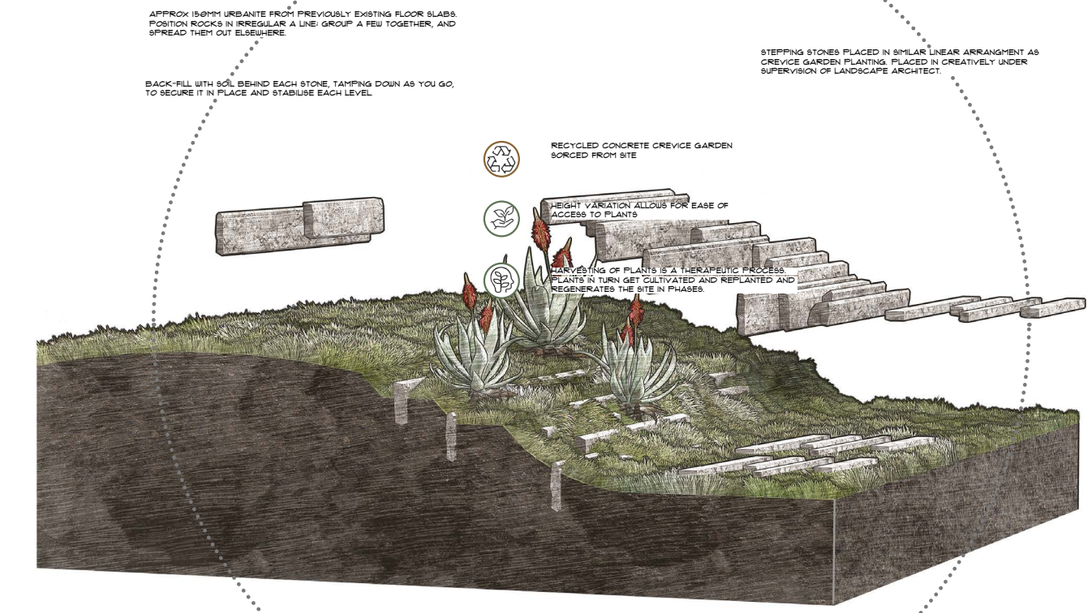


WORK YARD COURDYARD	WORKSHOP	SPILLOUT SPACE	VEGETATION FOR PASSIVE COOLING	SPILLOUT SPACE	GREENHOUSE	NURSURY GARDEN	ESSENTIAL OILS GARDEN
		9000MM	4600MM	11000MM	10000MM	15000MM	

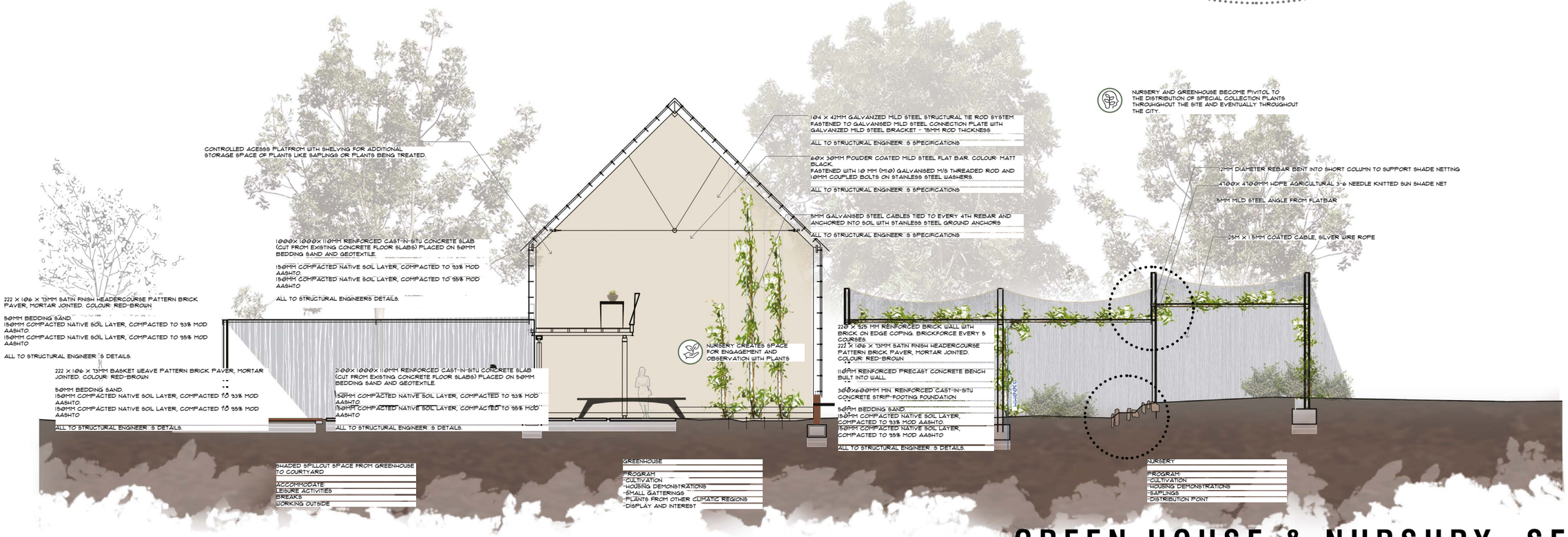
LONGITUDINAL SECTION GREENHOUSE AND NURSERY



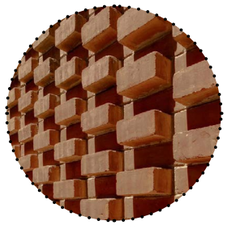
DETAIL OF CONNECTION BETWEEN REBAR TRELLIS AND SHORT COLUMN SUPPORTING SHADE NETTING



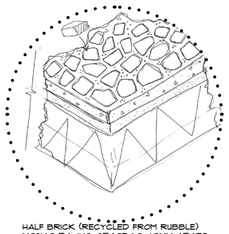
DETAIL OF CREVICE GARDEN WITH URBANITE



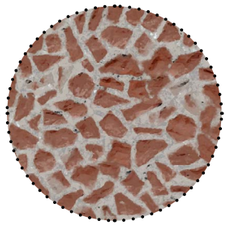
GREEN HOUSE & NURSURY SECTION
SCALE 1:75 XP



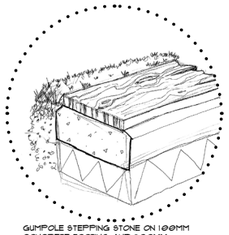
BRICK WALL



HALF BRICK (RECYCLED FROM RUBBLE)
MOSIAC PAVING, SPACE 30-40MM APART

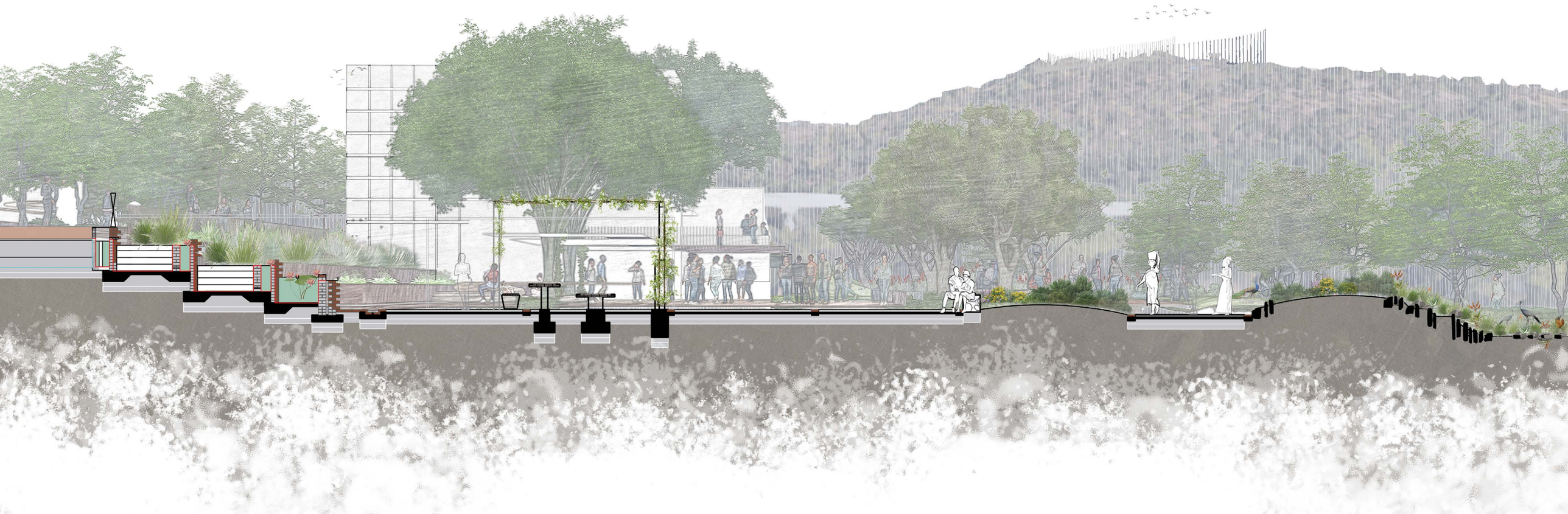


BRICK MOSIAC



GUMPOLE STEPPING STONE ON 100MM
CONCRETE FOOTING AND 300MM
COMPACTED BASE

URBANTE



LONGITUDINAL SECTIONOUTDOOR WORK ROOM

BRICKS "WOVEN" INTO STRETCHER BOND PATTERN

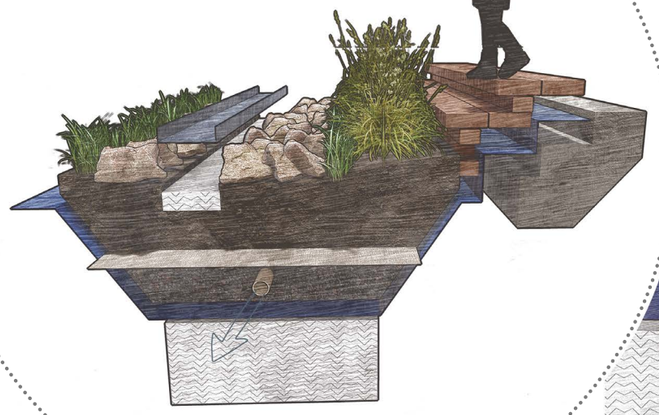
BIO-SWALE IS FUNCTIONAL AS WELL AS POSES OPPORTUNITY TO GO CLOSER TO NATURE FOR INTERACTION AND OBSERVATION

FUNCTIONAL STRUCTURES LIKE SWALE BECOME A SPACE FOR EDUCATION

NATIVE SPECIES SUPPORT NATIVE BIODIVERSITY MAKING SPACE FOR HUMANS AND NATURE TO CO-EXIST

40MM LAYER DECORATIVE MULCH, NUT SHELS OR WOOD CHIPS FROM RECYCLED WOOD

STEEL CHANNEL ON 100MM CONCRETE FOOTING FOR WATER TO FLOW DOWN TO RAIN GARDEN



BIORETENTION SOIL

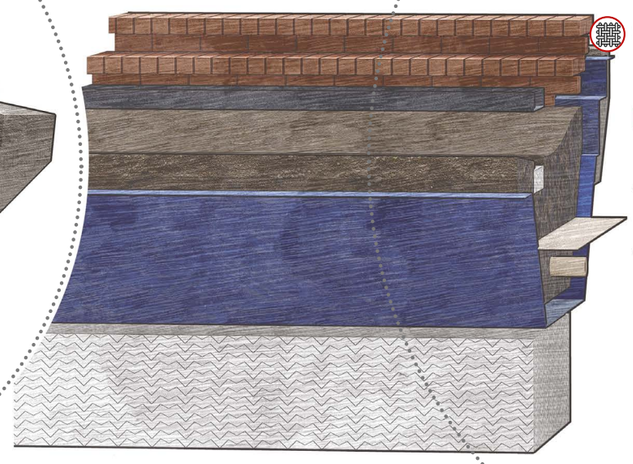
NON WOVEN GEOTEXTILE LAYER

80MM GEODRAIN

POLYETHYLENE WATERPROOFING MEMBRANE, OVERLAPPING AT 150 MM AT JOINTS

500MM DRAINAGE LAYER, GRADED GRAVEL TO ENGINERING SPECIFICATION

222 X 106 X 73MM RED BROUN SATIN FINISH PAVING BRICK HEADERCOURSE, 10MM FLUSH MORTAR JOINT STEPPED DOWN INTO BIOSWALE



REBAR GRID WOVEN INTO ATHER MATERIALS LIKE BRICK

12MM DIAMETER REBAR SPACED 12MM APART TO FORM GRID, FASTENED WITH TWO 113MM X 8MM COLD ROLLED FLATBAR SHEETS AND BOLTED INTO WALL. DRILL A PILOT HOLE WITH A HAMMER DRILL WITH THE CARBIDE BIT. INSERT THE MASONRY SCREW ANCHOR INTO THE HOLE IN THE BRICK AND TURNED CLOCKWISE. THIS WILL TAP THREADS INTO THE BRICK AND HOLD THE SCREW SECURELY.

10MM DIAMETER REBAR BALUSTRADE, WELDED TO 12MM SUPPORTING REBAR

30MM DECORATIVE GRAVEL LAYER

150 MM RIVER SAND

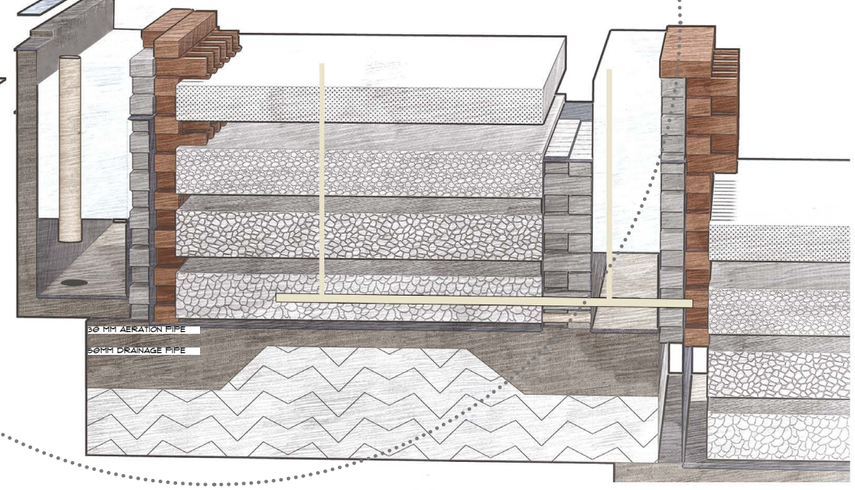
150 MM FINE GRAVEL, GI

150 MM MEDIUM GRAVEL, 30-50 MM

150 MM COBBLE ROCKS, APPROX 50 MM

30 MM AERATION PIPE

50MM DRAINAGE PIPE



30 MM AERATION PIPE

50MM DRAINAGE PIPE

DETAI OF BIOSWALE WITH CHANNEL AND STEPS

DETAIL OF CONNECTION BETWEEN BIOSWALE, OVERFLOW AND RAINGARDEN

222 X 106 X 73MM RED BROWN SMOOTH FACEBRICK, RAKED MORTAR JOINT

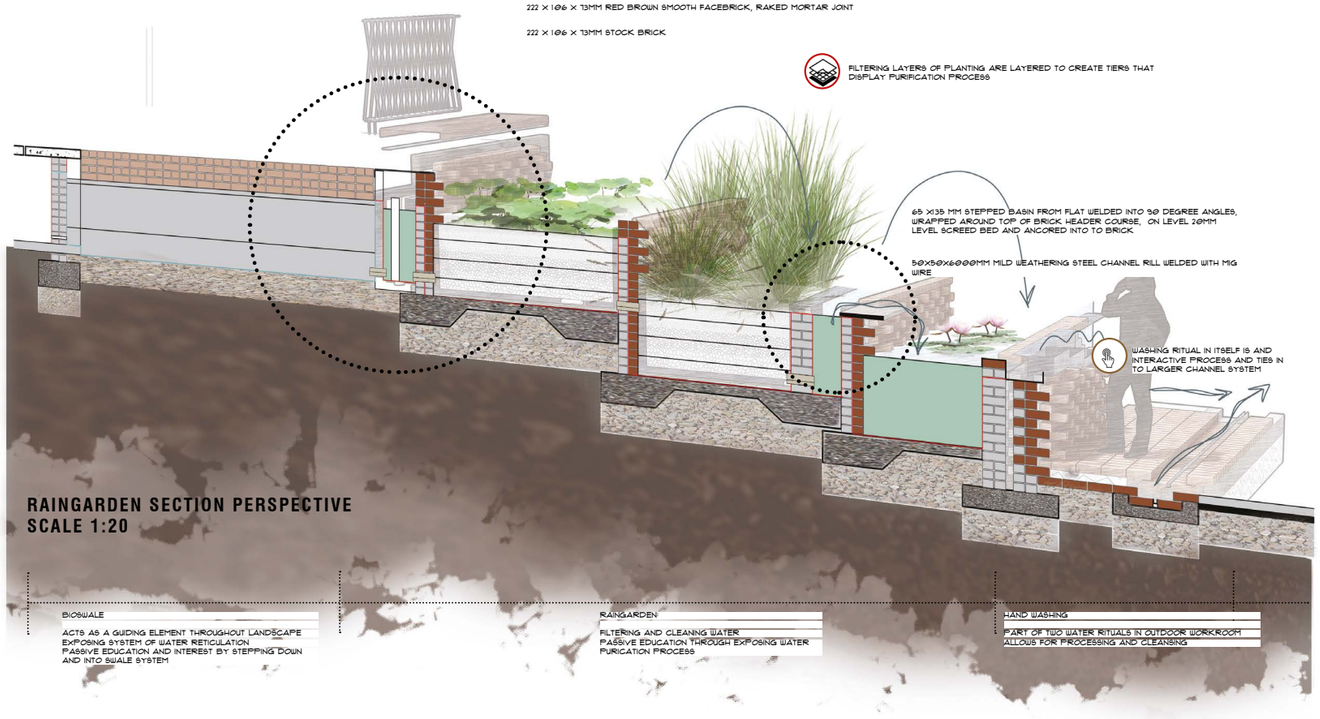
222 X 106 X 73MM STOCK BRICK

FILTERING LAYERS OF PLANTING ARE LAYERED TO CREATE TIERS THAT DISPLAY PURIFICATION PROCESS

65 X135 MM STEPPED BASIN FROM FLAT WELDED INTO 90 DEGREE ANGLES, WRAPPED AROUND TOP OF BRICK HEADER COURSE, ON LEVEL 20MM LEVEL SCREED BED AND ANCORED INTO TO BRICK

50X50X6000MM MILD WEATHERING STEEL CHANNEL RILL WELDED WITH MIG WIRE

WASHING RITUAL IN ITSELF IS AND INTERACTIVE PROCESS AND TIES IN TO LARGER CHANNEL SYSTEM



RAINGARDEN SECTION PERSPECTIVE
SCALE 1:20

BIOSWALE

ACTS AS A GUIDING ELEMENT THROUGHOUT LANDSCAPE
EXPOSING SYSTEM OF WATER RETICULATION
PASSIVE EDUCATION AND INTEREST BY STEPPING DOWN AND INTO SWALE SYSTEM

RAINGARDEN

FILTERING AND CLEANING WATER
PASSIVE EDUCATION THROUGH EXPOSING WATER PURICATION PROCESS

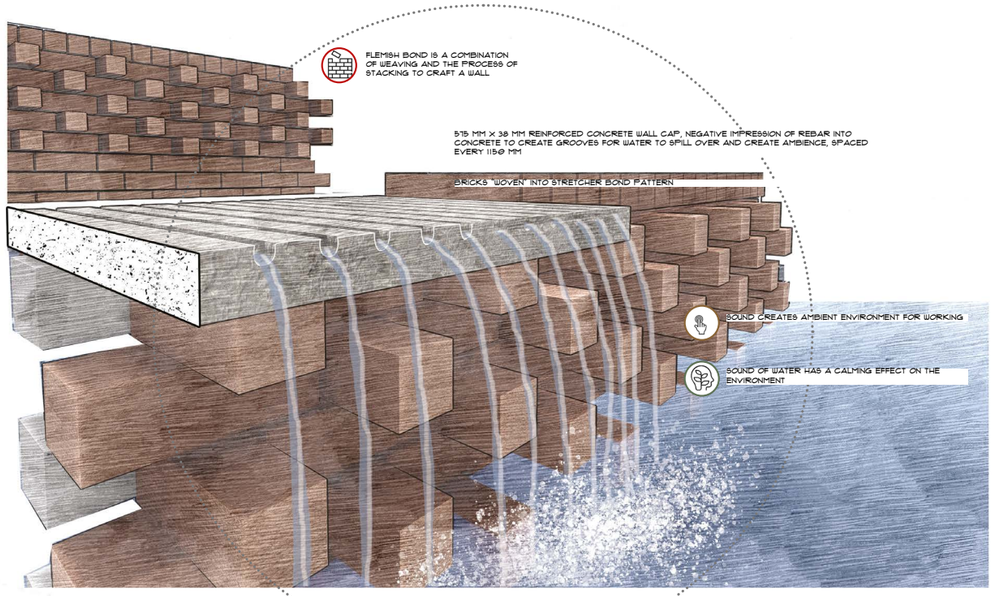
HAND WASHING

PART OF TWO WATER RITUALS IN OUTDOOR WORKROOM
ALLOWS FOR PROCESSING AND CLEANSING

FLEMISH BOND IS A COMBINATION OF WEAVING AND THE PROCESS OF STACKING TO CRAFT A WALL

515 MM X 38 MM REINFORCED CONCRETE WALL CAP, NEGATIVE IMPRESSION OF REBAR INTO CONCRETE TO CREATE GROOVES FOR WATER TO SPILL OVER AND CREATE AMBIENCE, SPACED EVERY 1150 MM

BRICKS "OVEN" INTO STRETCHER BOND PATTERN



SOUND CREATES AMBIENT ENVIRONMENT FOR WORKING

SOUND OF WATER HAS A CALMING EFFECT ON THE ENVIRONMENT

DETAIL OF WALL COPIMG TO ANIMATE WATER FEATURE

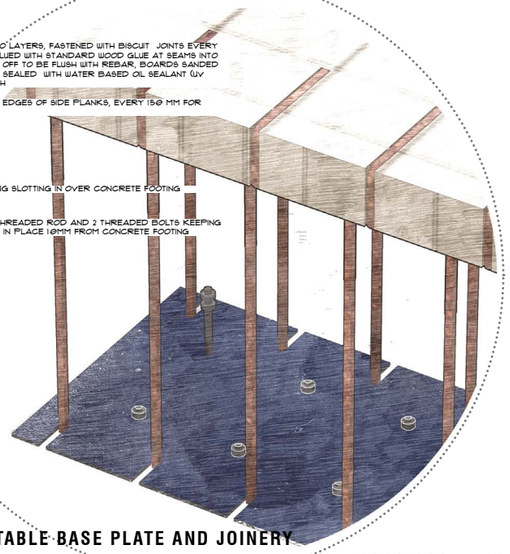
WATER GARDEN SECTION
SCALE 1:75 XP

38 X 228MM SA PINE, TWO LAYERS, FASTENED WITH BISCUIT JOINTS EVERY 500MM AND PLANKS GLUED WITH STANDARD WOOD GLUE AT SEAMS INTO PLACE, EDGES SANDED OFF TO BE FLUSH WITH REBAR, BOARDS SANDED UNTIL SMOOTH SURFACE, SEALED WITH WATER BASED OIL SEALANT (UV RESISTANT), CLEAR FINISH

12 X 114MM GROOVES ON EDGES OF SIDE PLANKS, EVERY 150 MM FOR REBAR TO SLOT INTO

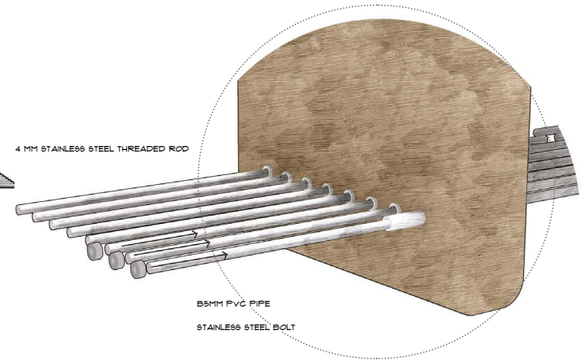
3MM STEEL PLATE COPING SLOTTING IN OVER CONCRETE FOOTING

8 MM STAINLESS STEEL THREADED ROD AND 2 THREADED BOLTS KEEPING BASE PLATE LEVEL AND IN PLACE 10MM FROM CONCRETE FOOTING

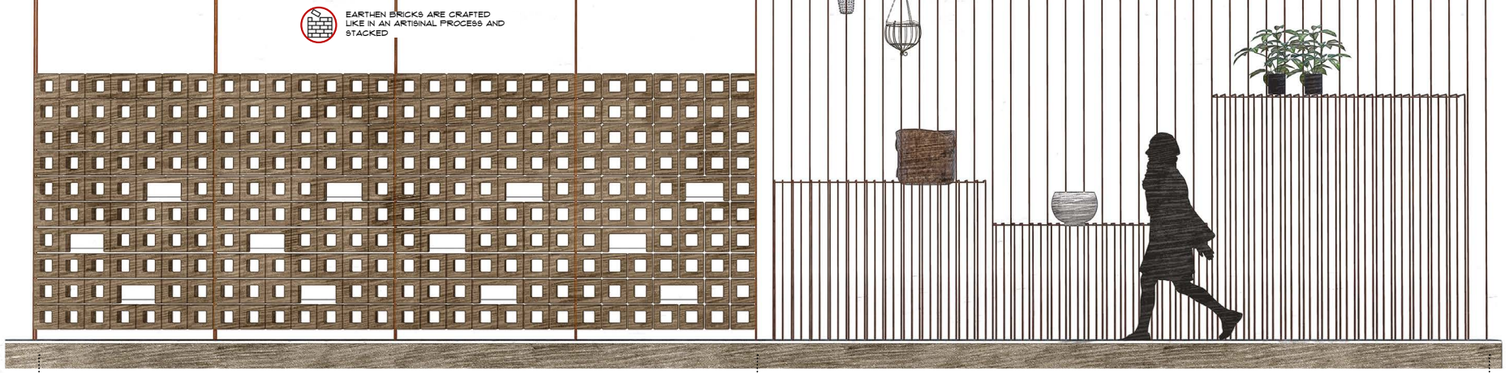


DETAIL OF TABLE BASE PLATE AND JOINERY

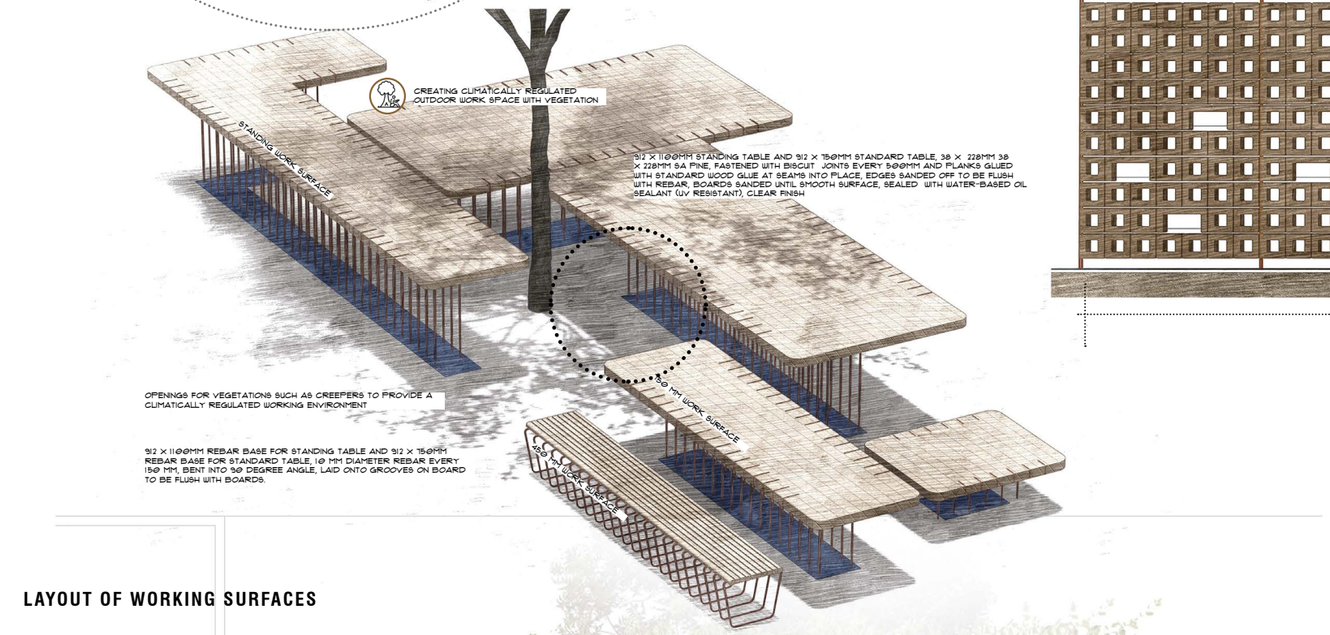
4 MM STAINLESS STEEL THREADED ROD, 'WEAVED' THROUGH ABOVE BLOCK AND INSERTED THROUGH 5MM PVC PIPE. FASTEND AT EACH END WITH STAINLESS STEEL BOLT



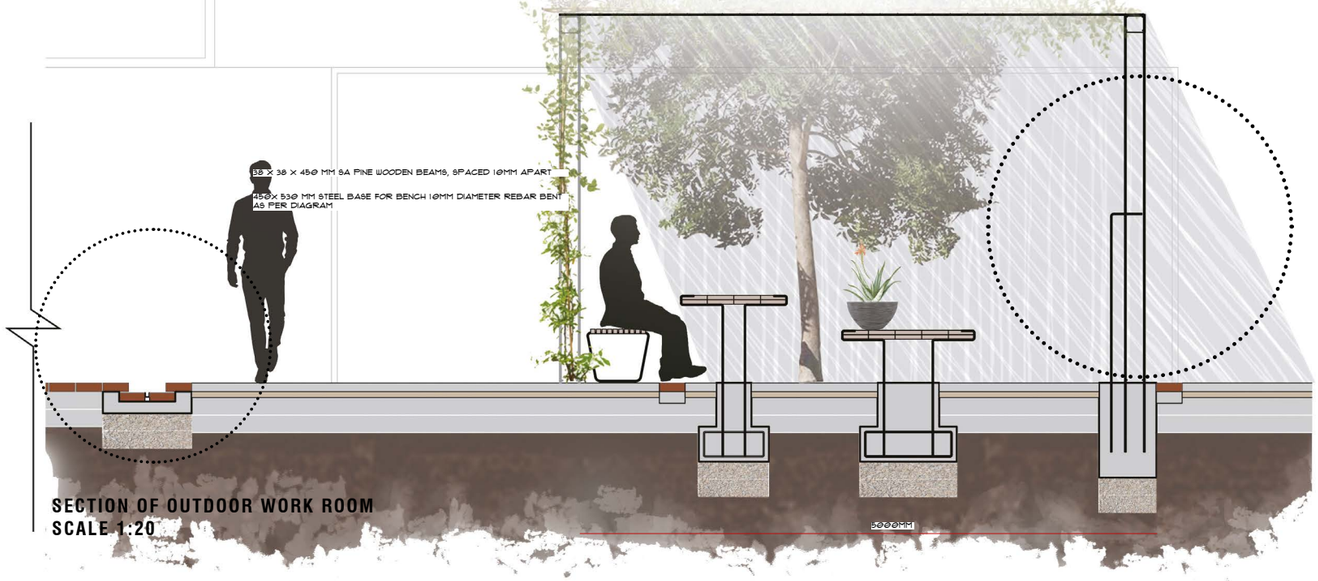
DETAIL EARTHEN BRICK AND DRYING RACK FIXING



ELEVATION OF ADOBE WALL DRYING WALL AND REBAR SHELVING



LAYOUT OF WORKING SURFACES



SECTION OF OUTDOOR WORK ROOM
SCALE 1:20

12MM DIAMETER 5400MM REBAR TRELLIS, SPACED 150MM APART USING REBAR BEAM AS GUIDE, LENGTH STEEL FULLY WELDABLE REBAR, STICK WELDED AROUND WHERE CIRCUMFERENCE OF REBAR BEAMS AND TRELLIS REBAR MEETS

400MMX 40MM STAINLESS STEEL CHANNEL FROM 3MM THICK SHEETING, CONER JOINT WELDED WITH APPROPRIATE MATERIALON 50MM MORTAR BED WITH 2% SLOPE, PRIMED WITH STAINLESS STEEL PRIMER AND PAINTED WITH EPOXY STEEL PAINT, MATT BLACK FINISH

50X 40MM STAINLESS STEEL CHANNEL FROM 3MM THICK SHEETING, CONER JOINT WELDED WITH APPROPRIATE MATERIALON 50MM MORTAR BED WITH 2% SLOPE, PRIMED WITH STAINLESS STEEL PRIMER AND PAINTED WITH EPOXY STEEL PAINT, MATT BLACK FINISH

222 X 106 X 73MM RED BROUN SATIN FINISH PAVING BRICK HEADERCOURSE, 10MM FLUSH MORTAR JOINT STEPPED DOWN

CHANNELS AND FOOT WASH CHANNEL

WETLAND WALK SECTIONS
SCALE 1:50 XP

High Grassland Mix
- Naturalistic edge

Melinis nerviglumis

bristle-leaved red-top grass

Aristida junciformis

Ngongoni three-awn

Monocymbium ceresiiforme

Boat grass

Aristida diffussa

Iron grass

Loudetia simplex

Russet grass

Aristida adscensionis

Annual Three-awn

Low Grassland Mix

Eragrostis capensis

Heart -seed love grass

Sporobolus africanus

rat's tail dropseed, rat's tail grass, rush grass, tough dropseed (Eng.); fynsaadgras, saadgras(Afr.); matshiki (isiZulu)

Elionurus muticus

Wire grass

Eragrostis curvula

Weeping love grass

Digitaria argyrograpta

Silver finger grass

Feature Plants

Hypoxis hemerocallidea

star flower, yellow star (Eng.); sterblom, geelsterretjie, gifbol (Afr.); moli kharatsa, lotsane (S Sotho); inkomfe, inkomfe enkulu (Zulu), inongwe, ilabatheka, ikhalanxa, ikhubalo lezithunzela (Xhosa)

Use:
Medicinal; bulb; anti-inflammatory and immune booster
Cosmetic; bulb; skincare

Hypoxis obtusa

african wild potato (Eng.)

Use:
Building: floor polish (local tribe in Kwazulu Natal)

Hypoxis colchicifolia

broad-leaved hypoxis (Eng.); iLabatheka (Zulu

Use:
Cosmetic; bulb; skincare

Aloe pretoriensis

Pretoria aloe (Eng.); Pretoria aalwyn (Afr.)

Use:
Medicinal; leaves;stomach ailments
Cosmetic; leaves; skin treatment

Cussonia transvaalensis
Pretoria aloe (Eng.); Pretoria aalwyn (Afr.)

Use:
Medicinal; leaves;stomach ailments
Cosmetic; leaves; skin treatment

Aloe zebrina

zebra leaf aloe, spotted aloe (Eng.)

Use:
Dye; roots; yellow for plant fibres(Harvesting roots does not kill aloe)
Medicinal and cosmetic; leaves; skin treatment and healing

Aloe speciosa

tilt-head aloe (Eng.); spaansaalwyn, staphoringsaalwyn (Afr.); ikhala (Xhosa)

Use:
Dye; roots; pink for wool and fibre

Aloe marlothii

mountain aloe, flat-flowered aloe (Eng.); bergaalwyn (Afr.); inhlaba, umhlaba (Zulu)

Use; Cosmetic: leaves; skin, hair
Medicinal: leaves; burns and anticancer

Citrullus lanatus

tsamma melon, wild watermelon (Eng.); bitterbeitel, bitterwaatlemoen, karkoer (Afr.); t'sama (Khoisan); makataan (Tswana)

Use: Cosmetic sunscreen

ASPECTS

- RESEARCH
- TRADITIONAL KNOWLEDGE
- NURSURY CULTIVATION
- EN ENDANGERED

USES

- WELLNESS
- COSMECEUTCALS
- JEWELERY
- DYES
- WEAVING
- SOAP/ WASHING
- PERFUME/ FRAGRANCE/ ESSENTIAL OILS

Ground cover Mix
GC Mix 1

Bulbine abyssinica

bushy bulbine (Eng.); geelkatstert, wildekopieva (Afr.); ibhucu (Zulu); intelezi (Xhosa); moetsa-mollo (Sotho)

Use:
Cosmetic; leaves; shampoos, creams and salves

Bulbine frutescens

stalked bulbine, snake flower, cat's tail, burn jelly plant (Eng.); balsem kopieva, geelkatstert (Afr.)

Use:
Cosmetic; leaves; shampoos, creams and salves

Callilepis laureola

Ox eye daisy (Eng.)

Use:
Medicinal and cosmetic; roots; antibacterial; creams and salves

GC Mix 2

Plectranthus verticillatus
Gossip spurflower (Eng.)

Use:
Hardy groundcover that attracts multiple insects.

Helichrysum setosum
Yellow everlasting (Eng.)

Use:
The leaves can be used for its very aromatic qualities.

Pelargonium luridum
Starburst pelargonium (Eng.)

Use:
Medicinal and edible qualities. Leaves can be eaten raw as a vegetable.

Creepers

Helinus integrifolius

Soap bush (Eng.)

Use: Leaves, soaps and shampoos

Asparagus asparagoides

Cape smilax, African asparagus smilax, baby smilax, bridal creeper, bridal veil creeper (Eng.); bre?blaarklimop, krulkransie, gnarrabba, narbass (Afr.); isicakathi (isiXhosa)

Use: Flower; perfume

Rhoicissus tomentosa

Wild Grape

Jasminum multipartitum
Starry wild Jasmine.

Use: Usually used to make pot-pourri, herbal tessd abd fragrant baths.

Shade mix

Asparagus plumosis

Asparagus Fern (Eng.)

Use:
Can be used as filler in gardens and flower arrangements.

Salvia africana

Blue African sage (Eng.)

Use:
Main uses consist of medicinal and flavouring food. Teas are made from dried leaves of the plant.

Sansevieria hycinthoides

Mother-in-law's tongue (Eng.)

Use:
Plant is mainly used for it's broad spectrum of medicinal uses. Fibres can be made from the leaves and can be used in crafts such as weaving.

Shrubs

Ximenia americana

small blue sourplum (Eng.); kleinblousuurpruim (Afr.); ukolotshane, umtunduluka-omncane, umkholotshwana (Zul.)

Use:
Cosmetic; seeds; skin and hair
Medicinal; seeds; wounds

Tarchonanthus camphoratus L.F

camphor bush (E), moologa (V), mofahlana (S.Sotho), igoeba emlimhlophe (Z), wildekanferbos (A), motahtha (T)

Use:
Medicinal; leaves; sinus
Cosmetic; leaves; skin ailments

Aloiampelos ciliaris

climbing aloe (Eng.); rank-aalwyn (Afr.)

Use: Medicinal and cosmetic; leaves; rashes, pimples and dry skin; balms, salves and haircare

Miliianthus cosmosus

crown honeyflower (Eng); kruidje-roer-my -nie (Afr.)

Use:
Medicinal and cosmetic; roots; antibacterial; creams and salves

Gardenia thunbergia

white gardenia, forest gardenia, wild gardenia (Eng.), witkatjiepiering, buffelsbal, kanneltjieboom (Afr.), umKhanguzi (Xhosa), umValasangweni, umKhwakhwane (Zulu)

Use:
Fragrance: flowers

Pelargonium sidoides

black pelargonium (Eng.) kalwerbossie, rabassam (Afr.), ikubalo, iyeza lesikhali (Xhosa)

Uses: essential oils
Medicinal: leaves

Trees

Artemisia afra

wild wormwood, African wormwood (Eng.); wilde-als (Afr.); umhlonyane (isiXhosa); mhlonyane (isiZulu)

Uses: essential oils
Leaves medicinal

Croton gratissimus

bergboegoe, ilabele, inkubathi, isikhumampuphu, korannaboegoe, lavender croton

Uses: essential oils
Leaves medicinal

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Uses: essential oils
Leaves medicinal

Artemisia afra

wild wormwood, African wormwood (Eng.); wilde-als (Afr.); umhlonyane (isiXhosa); mhlonyane (isiZulu)

Uses: essential oils
Leaves medicinal

Vachellia karroo

sweet thorn (English); soetdoring (Afrikaans); mookana (North Sotho); mooka (Tswana); umuNga (Zulu) (Xhosa)

Use:
bark, leaves and gum; colds and wound treatment
Crafting: inner bark; making rope

Englerophytum magalismontanum (Sond.) T.D.Penn.

Transvaal milkplum (Eng.); stamvrug (Afr.), mothatswa (Tswana); mothatswa (Northern Sotho); munombelo (Venda); amanumbela (Zulu)

Uses:
Medicinal; roots; stomach pain and rheumatism
Food; fruit

Ilex mitis (L.) Radlk.

African holly, Cape holly, wild holly, water tree (Eng.); waterboom, waterhout, witthout (Afr.); monamane (Northern Sotho); iPhuphuma *('milk-pail washer'), (Zulu), umDuma (Xhosa)

Uses:
Cosmetic; fruit; washing

Buddleja saligna

false olive (English); witolien (Afrikaans); umBatacwepe (Siswati); lelothwane (South Sotho); motlhware (Tswana); umGqeba (Xhosa); iGqeba-elimhlope (Zulu)

Use: Cosmetic sunscreen

Calodendrum capense

Cape chestnut, wild chestnut (Eng.); wildekastaing, Kaapsekastaing (Afr.); umbaba, umsitshana (Xhosa); umbhaba, umemezi omhlophe (Zulu), molalakgwedi, mookéélla (N.Sotho); muvhaha (Venda)

Use: Cosmetic sunscreen

Acokanthera oppositifolia (Lam.) Codd

Bushman's Poison (Eng); Boesmansgif (Afrikaans); inHlungunyembe (Zulu); iNtlungunyembe (Xhosa)

Use: Medicinal, insect bites, worms and colds

Commiphora pyracanthoides

corkwood (Eng); kanniedood (Afr);

Use: Gum, washing

Combretum erythrophyllum

river bushwillow (Eng.), riviervaderlandswilg, rooiblaar, rooiblad (Afr.), umbondwe, umdubu-wehlandze, umhlalavane (Zulu),

Uses; Seeds; Jewelery and flower arrangements

Dombeya rotundifolia

wild pear (English); drolpeer (Afrikaans); iNhlolyonkhulu (Zulu)

Uses; Bark; rope

Bolusanthus speciosus

tree wisteria; Vanwykshout (Afr.); mogaba (Northern Sotho); umHolo (Zulu)

Uses; roots; medicinal; stomach

Diospyros whyteana

Bladder nut

Uses;
Medicinal; bark; menstral pain
Cosmetic and medicinal; leaves; antiinflamtory properties
Woodwork

Erythrina lysistemon

common coral tree, lucky bean tree (E), gewone koraalboom, kanniedood (A), umsintsi (X),

Uses; Seed; beads

Olea europaea L. subsp. africana

wild olive, olienhout (Afr.), motlhware (NSotho, SSotho), umnquma (Zulu, Xhosa, Swati), mutlhwari (Venda), motlhware (Tswana)

Uses;
Medicinal; leaves tea
Ink; fruit

Saturated Meadow Mix
SM Mix 1

Crocosmia paniculata

Zigzag crocosmia

Uses; Medicinal; stomach ailments

Crocosmia aurea

Falling stars

Uses; Medicinal; stomach ailments

SM Mix 2

Kniphofia porphyrantha

Red Hot Poker

Uses; Weaving

Kniphofia praecox

Red Hot Poker

Uses; Weaving

Shallow emergent plant Mix
SE Mix 1

Crinum macowanii

river crinum, river lily, common viei-lily, Sabie crinum, Cape coast lily (Eng.); rivierlelie, boslelie, Sabielelie (Afr.); intelezi (isiXhosa); umduze (isiZulu)

Use; Medicinal; Leaves; Bandages

Gomphostigma virgatum

river star, otter bush, besembossie

Uses; leaves; Broom
Medicinal; Leaves; energy

SE Mix 2

Gunnera perpensa

river pumpkin, wild rhubarb (Eng.); riviarpampoen, wilde ramenas (Afr.); qobo (Sotho); iphuzi lomlambo, igbobo (Xhosa); ugobhe, ugobho (Zulu)

Uses; Roots; Medicinal; menstral pains

Eucomis pallidiflora

Giant pineapple lily
Uses; medicinal; anti-inflamatory, Ornamental; cut flower

SE Mix 3

Aloe cooperi

Cooper's Aloe (Eng.); isiPutumane, isiPhukutwane (isiZulu)

Uses;
Edible; Flowers
Ornamental; Cut flowers

Cyperus sexangularis

bushveld sedge (Eng)

Hemarthria altissima

limpo grass, limpograss, halt grass, Batavian quick grass, swamp couch grass,

Shallow emergent plant Mix

Cyperus prolifer

miniature papyrus

Berula erecta

Giant Water Parsnip

Marsilea schelpiana

Water clover

Zanthedescia aethiopica

Comon Arium Lily

Uses Edible qualities and can be used as for its water filtration qualities in filtration beds of bioswales and wetlands.

Macrophyte plant Mix

Nymphaea nouchali

blue water lilly

Vallisneria aethiopica

Eel grass

Nymphoides brevipedicellata

Small white water lily

PLANTING PALETTE