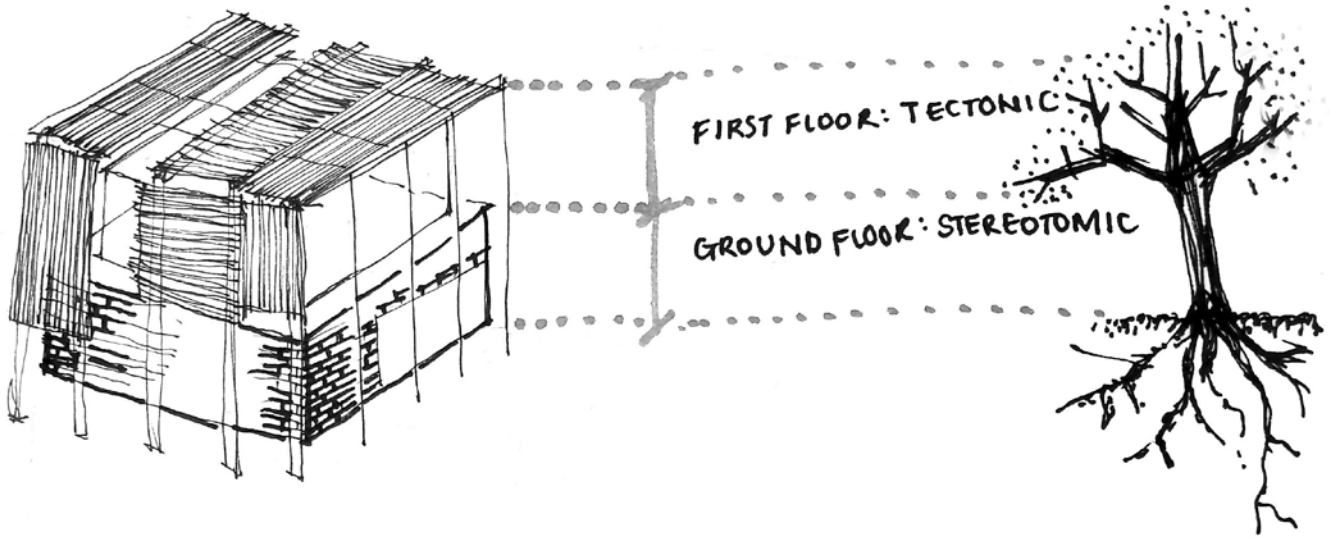


Thirteen

Realising Re-integration

Final Design & Technical Development

The year is 2017 and the project is 'breaking ground'. The first phase of the project involves restoring the Steenhovenspruit to its former natural river course, as well as manipulation of the landscape to provide terracing on the banks, creating public space for the enjoyment of and emotional connection to the riverine view. The community is invited to participate in the realisation of the project.

Janeke and her team are working hard to refine the design. Janeke feels that it is important to bring the biophilic principles through to the technical stage of the project. She is explaining the framework to Mr Pillay and Dr Radebe, in the presence of her colleagues, and she urges them to give their suggestions. In the meantime, work is moving ahead with the groundwork and landscaping. Janeke goes on to clarify the ideas:

The framework[1] is derived from biophilic elements that promote healing, these fall under the rubric of human 'connection to nature', which can be understood in terms of natural elements and natural systems. Natural elements are important in the project as they bring sensory experience to the environment; the life-cycle of the materials must also be taken into consideration. The things we are looking at here are water and sunlight. The presence of water is important, with the Steenhovenspruit which runs through the site. We are endeavouring to make the presence of the river a life force which is accessible to the community. We are conscious of the therapeutic quality of water in relation to the healing process. We need also to consider the water cycle, and how it is understood by the various users. Sunlight is considered as an active presence: natural light provides an important sensory experience, while the sun rays themselves are considered as a renewable energy resource for the project to reformulate as solar energy. On the built scale, heat gain associated with our climatic region, can be countered effectively by incorporating natural ventilation.

A biophilic approach is used when thinking about the architectural response to heritage, the general programmes of the project, with the healing and drug rehabilitation. The treatment of boundary conditions and the journey as an experiential trajectory, are considered here.

They take a moment to look at the framework. Janeke continues, explaining the various aspects of the project and showing how technical investigations were carried out by the team, discussing the information gathered thus far. She begins with a discussion of the natural elements.

As I am speaking, the Steenhovenspruit channel, which used to be an unsightly gash in the landscape, is being

Figure 85: Investigation of stereotomic & tectonic elements (Patrick: 2016)

1 See Figure 86

Biophilic System

Technology Framework

Biophilic Elements
that Promote Healing

Connection with Nature

Natural Elements

Sensory Experience
See, hear, smell, taste & touch

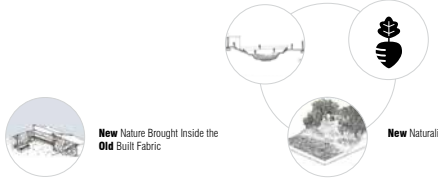
Materials
& Material Cycle

Presence of Water

Therapeutic
See & Hear Water

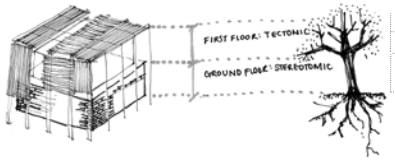
Water Cycle
Water Network on Site

Response to Heritage
New Relationship to Old Built Fabric



New Nature Brought Inside the **Old** Built Fabric

New Naturalised River



New Grid Established in **Old** Building to Support New First Floor Functions & Enhance Veranda / Shaded Spaces that result on the Ground Floor

Old Building & **New** Architecture

Old Building

Naturalised River Provides Connection to Water in the Public Realm

Naturalised River = Exposure to Water Network

Stormwater Management = Exposure to Water Network

General
Programmes

Stone & Landscape Seating Alongside the Naturalised River (**Boundary**)

New **Tectonic** Upgrade of Existing Trade Route

Natural Building Materials Ellicit a Biophilic Response(Kellert et. al. 2008: 330)

Local Fabrication

Stone used to Terrace the Naturalised River Edge Creating a Subtle **Boundary**

Rammed Earth used as Organic Directional Form (**Journey**) for the 'healing journey' Creating a Safe **Boundary** in which to Journey

Rammed Earth used to Define the **Journey**

Up-cycled Steel Members Create a Threshold on Ground Floor (**Boundary**)

Up-cycled Bricks Creates a (**Boundary**)

Naturalised River & **New** Water Rills Expose the Public to Water

Naturalised River & **New** Water Rills Connected to Water Harvesting = Exposure to Water Network

Healing
Programmes

Courtyards between the **Old** and **New** Built Fabric Creates Escape through Nature

Tactile Quality of **Stereotomic** Rammed Earth

Tectonic Timber Elements

Timber Softens the Structural Steel Members of the New i.t.o. **Boundary**

Variation & "Playfulness" = Healing Environment (Lundin, 2010: 38)

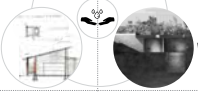
Natural Materials Used in Dwelling Spaces

Tectonic Prefab Materials

Acoustics Materials

Water Feature in Therapy Courtyard = Exposure to Water

Water Rills = Exposure to Water



Water Rills Connected = Exposure to Water Network

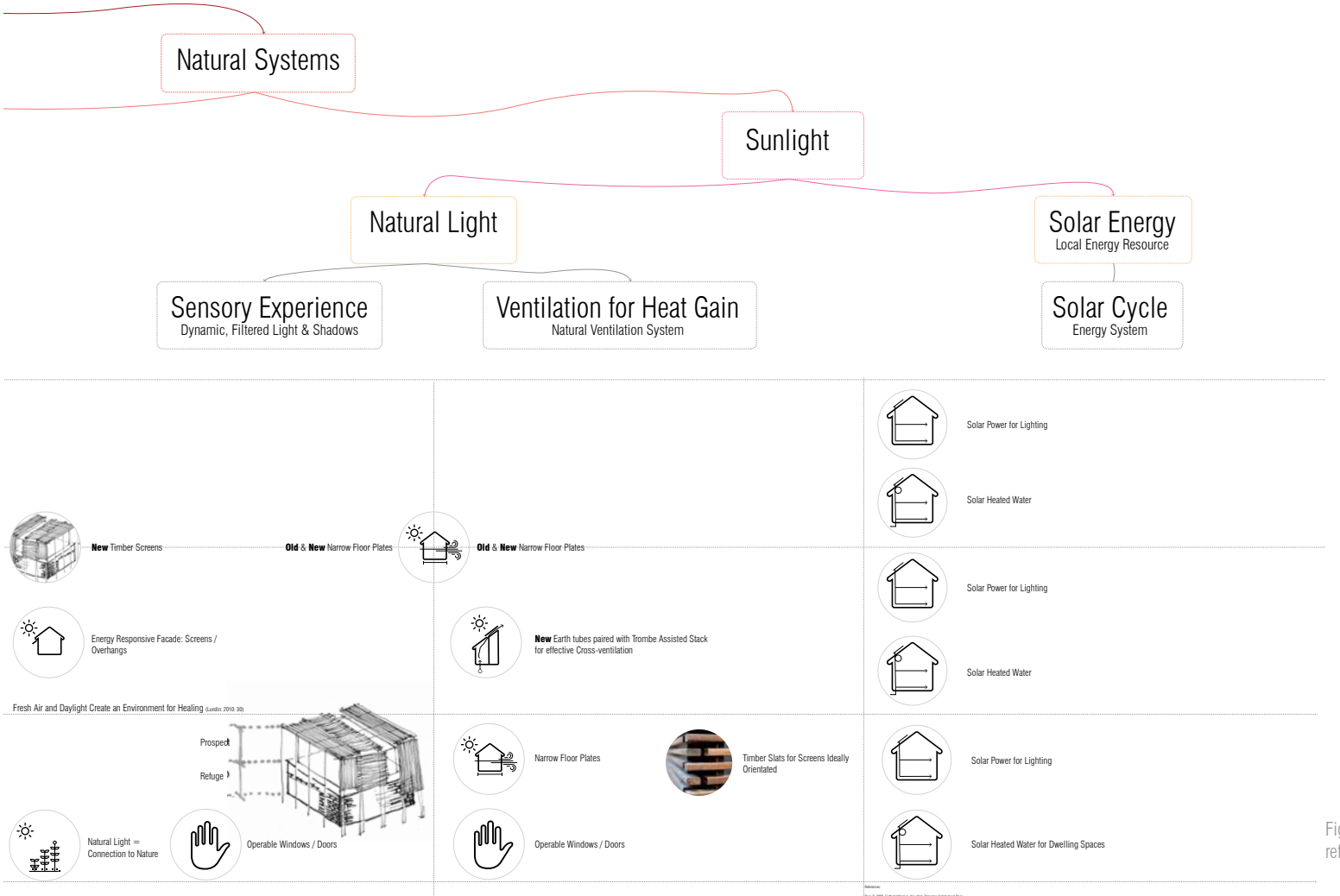


Figure 86: Biophilic elements that form a framework that guides the refinement in the technology of the project (Patrick: 2016)

Precedent - Heritage

Rocks Police Station turned Café

SYDNEY, AUSTRALIA
WELSH + MAJOR

GAP HIGHLIGHTED WITH STEEL
MEMBERS THAT DEFINE NEW FROM OLD

GAP HIGHLIGHTED ON THE FLOOR PLANE
(RECESS) & THE ROOF PLANE (GLASS)

NEW GLASS FACADE STEPS AWAY
SIGNIFICANTLY FROM THE OLD FACADE

transformed into a natural river. The landscaping will provide an outdoor urban environment which is tranquil and promotes contemplation, with stone-terraced seating along the riverbanks. The riverbed is lined with a rock-packed reno-mattress, reaching up to the calculated flood-level. This new stone-and-landscape edging provides a subtle layering, suggestive of the notion of 'building from place', using the landscape as a means to create a sense of rootedness and hence 'ground' the project. Pockets of greenery are grouped around the natural river course, this helps to regenerate the degraded landscape and bring to the public, a positive natural space. Productive landscapes are situated to the east and west of the river, below the soup kitchen and next to the rehabilitation centre. All of these spaces work together to provide an environment which brings people closer to nature and relieves the stresses of everyday life.

Now, still on the subject of natural elements, we need to look at the rest of the design, which needs to be refined.

The construction concept is to implement local fabrication[2]: hire locally (the community of Marabastad), source regionally (natural materials, up-cycled materials and materials with a low embodied energy), provide skills-training in the various trades required for the building work, and invest dignity in the community by re-integrating the people with the place of Marabastad through their impact on the regeneration of place.

Generally speaking, the language governing the architecture mediates between the stereotomic of the old, and the tectonic and stereotomic of the new built layer. The stereotomic represents rootedness to place and to earth, and the tectonic represents growth and re-integration.

The existing masonry buildings are regenerated through the use of up-cycled bricks, new corrugated roof-sheeting, and with openings onto the newly created courtyard spaces.

The joint between the old and new architecture will be emphasized by leaving a gap: a recess, either of glass or formed by a structural steel member.

Placing some sheets of paper on the table in front of them, Janeke begins to explain the two precedents that illustrate these principles clearly.

The former Rocks Police Station in Sydney[3], was adapted respectfully by Welsh + Major Architects. Their approach was to place the new within the old (insertion) - touching lightly, yet creating a duality that celebrates the imposing, austere qualities of the former Police Station while simultaneously enhancing the openness and street interface of the building[4].

The principal alteration is a delicate steel and glass structure that sits gently against the existing building fabric. The defining spatial qualities of existing spaces, such as the cells, have been preserved, but transformed through the use of warmer, lighter materials and finishes. The contrast between old and new, is further emphasized by

2 This information was attained during a TED Talk presented by Michael Murphy:
TED, *Architecture that's built to heal*(1 February 2016) Online Video: http://www.ted.com/talks/michael_murphy_architecture_that_s_built_to_heal. Accessed: 29/09/2016
3 See Figure 87
4 Welsh + Major, *Former Rocks Police Station* Internet: http://welshmajor.com/commercial/former-rocks-police-station/ Accessed: 08/06/2015

Figure 87: Rocks Police Station turned café - an adaptive reuse approach to architectural heritage. Image sources: (Welsh + Major: 2015)

Precedent - Heritage

Castelveccio

VERONA, ITALY
CARLO SCARPA

GAP HIGHLIGHTED WITH RECESS BETWEEN
OLD WALL AND NEW FLOOR

NEW WALL PLANE DISAPEARS INTO OLD GROUND
PLANE WITH A GAP TO HIGHLIGHT THIS

NEW STRUCTURAL STEEL MEMBER IS STEPPED
TO CREATE A RECESS THAT RESPECTS THE OLD WALL

the use of steel, brass and glass elements that are detailed to be both robust and refined[5].
She moves on to the second example.

In essence Carlo Scarpa's Castelveccio alteration[6]*, manages the careful balance and dialogue that is created between old and new. The new additions, as well as purposeful demolitions, reveal different layers of the building's history, supplying a narrative of built palimpsest.*

Scarpa used modern materials in such a way as to mediate between the various parts of the old castle, drawing attention to certain elements and providing a transition between others. Each detail has a function: the floor is never directly attached to the wall, the arches functioning as filters, draw one through from one room to the other, a central beam divides the roof into two, indicating the direction of movement. Even the museum artefacts are decontextualized, they are displayed on floating planes that signify their separation from the building itself[7]*.*

Janeke pushes the pages aside and continues her description of the essential relationship between the old and the new in terms of natural materials.

A new grid is established, that relates to the existing pattern of the built fabric as well as a newly rotated grid that relates to the natural element of the river. This is visible in both the new buildings and the old. Steel columns are placed within the grid to support the new first floor functions and to enhance the existing veranda spaces that result on the ground floor. Steel was chosen because it is a robust material suitable for use in a public space, and that easily allows for further expansion in the future.

The fundamental building materials in architectural history (stone, brick, wood and metal) are all derived from the earth and therefore connect buildings once more to the earth[8]*. The tactile sensations from each material convey different meanings*[9]*. Stone can bring to mind its geological origins, its durability and its permanence. Brick makes one think of earth, fire, gravity and the history of brick construction. Metals bring to mind extreme heat (in their manufacture) and casting. Wood brings to mind two lives: one of the growing tree, and the other of the artefact that has been carefully crafted by a carpenter.*

The materials used, include up-cycled brick (from demolished walls on site or from the upgrades carried out in the urban vision), rammed earth, stone, up-cycled timber members (or sustainably harvested wood), up-cycled steel members (standard 203 x 103 x 25 I-beams), new corrugated roof sheeting and new gypsum or dry-walling (for lightweight, efficiently constructed and adaptable spaces on the first floor).

The approach to heritage illustrates the integration of the new and the old, with a focus on the sensory

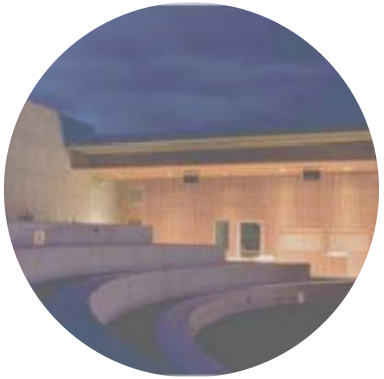
5 Welsh + Major, *Former Rocks Police Station* Internet: http://welshmajor.com/commercial/former-rocks-police-station/ Accessed: 08/06/2015
6 See Figure 88
7 Archiobjects, *Castelvecchio Museum – A masterpiece by Carlo Scarpa*. (2014) Internet: http://archiobjects.org/museo-castelvecchio-verona-italy-carlo-scarpa/ Accessed 11/06/2015
8 According to Gaston Bachelard, who dedicated a book to each element: earth, water, air and fire. This was sourced from Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 81
9 The haptic qualities that follow are according to Gaston Bachelard. This was sourced from Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 82

Figure 88: Carlo Scarpa's respectful approach to Castelveccio's heritage (Archiobjects: 2014)

Precedent - Technical

Nk'mip Desert Interpretation Centre

OSOYOOS, BRITISH COLUMBIA, CANADA
HOTSON, BAKKER, BONIFACE HADEN



A DIFFERENT KIND OF EARTH SHELTERING - THE WALL HOLDS THE INTERIOR / EXTERIOR SPACES TOGETHER

DIRECTIONAL ELEMENT i.t.o.
VIEW AND JOURNEY

LAYERING & VARIATION OF RAMMED EARTH CONTRASTED WITH MODERN MATERIALS (GLASS)

experience of natural elements in a variety of ways: courtyards between old buildings and new, courtyards as well as planters inside old buildings. These spaces create a "respite from the typical indoor environment"[10].

Stabilised rammed[11] earth is used for the creation of an organic directional form to direct the 'healing journey'. The rammed earth has a low embodied energy[12] because the soil excavated on site for the underground cisterns is used. These forms create a safe boundary in which to seek support. The rammed earth boundary also portrays an idea of the rootedness to place. These walls are the first experiences that the visitor has of the site and, if it is a sensually positive experience, the visitor is likely to feel welcome and 'worthy'[13].

Turning to a precedent that inspired her, Janeke begins to explain how the rammed earth can become a directional element.

The Nk'mip Desert Interpretation Centre[14] is partially constructed of rammed earth with other walls of concrete. The rammed earth wall is intentional, diverting one's view away from a development to the west - so as to focus on the expansive desert landscape. The rammed earth wall reminds one of geological stratification because of the various layers of local soils (and colour additives) that have been compacted during construction. It is also left unfinished on the inside and outside, to reveal the stratification of the soils and the marks left from the timber framework[15].

She pauses momentarily to gather her thoughts.

Back in Marabastad, up-cycled brick is used for all walls that do not form part of the 'journey' and any building rubble acquired from material not fit to be used as building material, is used as an aggregate for other materials (rammed earth and concrete).

The courtyards within the healing programmes, as in the rehabilitation centre, expose people to a variety of outdoor experiences: smells, temperature fluctuations and the feel of nature[16], which provides a healing environment[17]. They are given the opportunity to see nature without feeling exposed to the city[18].

10 Stephen R. Kellert, Judith H. Heerwagen & Martin L. Mador, *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life* (New Jersey: John Wiley & Sons, 2008), 330

11 Stabilised Ratio

width	:	height
1	:	12 min

12 Ronald Rael, *Earth Architecture. (*New York: Princeton Architectural Press, 2011), 15

13 Lena From & Steven Lundin, *Architecture as Medicine - the Importance of Architecture for Treatment Outcomes in Psychiatry*. 1st ed. (Gothenburg: The Architecture Research Foundation: 2010). Available online: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf, 25

14 See Figure 89

15 Ronald Rael, *Earth Architecture. (*New York: Princeton Architectural Press, 2011), 104

16 Stephen R. Kellert, Judith H. Heerwagen & Martin L. Mador, *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life* (New Jersey: John Wiley & Sons, 2008), 330

17 Lena From & Steven Lundin, *Architecture as Medicine - the Importance of Architecture for Treatment Outcomes in Psychiatry*. 1st ed. (Gothenburg: The Architecture Research Foundation: 2010). Available online: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf, 30

18 Lena From & Steven Lundin, *Architecture as Medicine - the Importance of Architecture for Treatment Outcomes in Psychiatry*. 1st ed. (Gothenburg: The Architecture Research Foundation: 2010). Available online: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf, 26

Figure 89: The Nk'mip Desert Interpretation Centre illustrates how a rammed earth wall can become a directional element (Rael: 2011: 104-107)

Precedent - Technical

Chapel of Reconciliation

BERLIN, GERMANY
REITERMANN EN SASSENROTH

SCREEN PROVIDES THRESHOLD
BETWEEN THE SANCTUARY & OUTSIDE

RECESSES WITHIN THE
RAMMED EARTH SANCTUARY

ILLUMINATED SCREEN ACTS
LIKE A BEACON AT NIGHT

Variations provide a 'playfulness' operating between the stereotomic (rammed earth and masonry) and the tectonic (steel and timber screens), enhancing the experience of a healing environment[19].

Janeke puts another sheet of paper on the table.

This 'playfulness' is a quality that can be found in the Chapel of Reconciliation[20], where architects Reitermann and Sassenroth enclose the rammed earth sanctuary with vertical louvres. The rammed earth structure was made up of locally-sourced clay and the remains of the 1894 Evangelical brick church. These remnants (bricks, tiles and nails) are embedded and are visible in the new walls[21]. The timber screen allows for ample light and a flow of air, which adds to the experience of religiosity, allowing for seasonal changes in the light. It also provides a threshold between the outside and the place of worship. The rammed earth provides a secondary acoustic threshold, blocking out the sounds of the busy streets of Berlin[22].

Returning to the Marabastad project, she places two precedents on the table: the Vineyard Residence[23] and the Ubuntu Centre[24] (which she had already mentioned before as a health precedent).

The tactile quality of rammed earth is used in the initial rehabilitation of the dwelling spaces, in order to portray a feeling of rootedness to place and the earth. John Wardle illustrates the prominence of the rammed earth walls in the Vineyard Residence. The earth was acquired from a nearby quarry and crushed granite was added along with off-white cement as a stabiliser[25].

The timber elements are used in the dwelling spaces for the remaining stages of rehabilitation (stages 02-03) to represent growth and re-integration. Timber is used to clad ceilings and as shelving-come-seating in the Vineyard Residence. Wardle also applies the same concept of folding in his handling of metal. He contours aluminium sheets to reflect light from the sun, but also to carry water away from the building[26].

In our project, the warm, tactile qualities (of timber) are highlighted in the detailing of the architecture in order to soften the structural steel elements[27]. One of these details, the screen, also provides a sense of privacy within the dwelling spaces - similar to that seen in the screened interior spaces of the Ubuntu Centre.

In establishing a privacy gradient, acoustic materials are also considered because it is important to make it more difficult for occupants to understand conversations (take away the clarity of the words spoken) in this kind of healing environment. The existing brick walls, will be unplastered and provide rough surfaces that break up sounds in this way. Recycled materials can be used in the construction of new acoustic panels (walls and ceilings) and carpets in the therapy rooms and the dwelling spaces of the rehabilitation centre.

19 Lena From & Steven Lundin, *Architecture as Medicine - the Importance of Architecture for Treatment Outcomes in Psychiatry*. 1st ed. (Gothenburg: The Architecture Research Foundation: 2010). Available online: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf, 30
20 Figure 90
21 Ronald Rael, *Earth Architecture. (*New York: Princeton Architectural Press, 2011), 44
22 Ronald Rael, *Earth Architecture. (*New York: Princeton Architectural Press, 2011), 46
23 See Figure 91
24 See Figure 92
25 Ronald Rael, *Earth Architecture. (*New York: Princeton Architectural Press, 2011), 80
26 Ronald Rael, *Earth Architecture. (*New York: Princeton Architectural Press, 2011), 80
27 See Figure 93

Figure 90: The "playfulness" between the timber screens and the rammed earth sanctuary is illustrated in the Chapel of Reconciliation (Rael: 2011: 44-46)

Precedent - Technical

Vineyard Residence

VICTORIA, AUSTRALIA
JOHN WARDLE ARCHITECTS

RECESSES BETWEEN RAMMED EARTH & OTHER MATERIALS
HIGHLIGHT THE PROMINENCE OF THE RAMMED EARTH

FOLDED METAL ELEMENTS REFLECT SUNLIGHT &
DIRECT WATER AWAY FROM THE BUILDING

A SCREEN AT THE ENTRANCE PROVIDES
PRIVACY & A FILTERED VIEW

They discuss natural elements a little further, as Janeke makes notes to add to the framework.

They take a break for coffee. Janeke then goes on to explain the natural systems, beginning with the importance of the presence of water.

The natural course of the river is a symbol of the channelling element, signifying the various energies of the site, both old and new. People are made aware of this as they can hear and see the flowing waters of the river. It is designed to dam up slowly, within the area of the public square and soup kitchen, so as to allow for this sensory, therapeutic experience of the water. The fluctuation in the flow of the river exposes the public to the water cycle - how the river is connected to, and affected by, a much larger water network.

When it rains, one can see the water as it flows from the new downpipes, into rills that lead to grids above the underground water cisterns within each courtyard. The water that does not flow in this direction is filtered through bio-swales before it re-enters the river.

The water-feature in the therapy courtyard provides visual exposure to water, even when it is not raining. The soothing sound of water is therapeutic, but also provides acoustic privacy, in the form of white noise, for the therapy rooms.

The harvested water provides water services to the buildings surrounding the respective courtyards.

She pauses to invite conversation around the topic of the presence of water in their project. They deliberate for a while and Janeke makes a few notes.

She goes on to express enthusiasm for the use of light in architecture.

It is said that "there is no architectural experience of space without light"[28]. Light is played off against shadow to reveal (shapes, weight, textures, moistness, smoothness and temperature of materials), to connect (built and natural or seasons and hours of the day)[29], to articulate (spaces into sub-spaces and places), to create rhythm, scale and intimacy. Light can also be used as a directional element for movement and hierarchy. It can have highly emotive effects where mediated through natural matter (mist, smoke, rain and snow) but also through the articulation of white curved surfaces[30].

Dark spaces appear heavy, while abundantly-lit spaces appear lightweight[31]. The contrast between these kinds of spaces can create an atmosphere[32] where a dark space becomes positive and soothing - a space for meditation and concentration. Light spaces can be positive in other ways - they can bring out certain colours to heighten our ordinarily suppressed sensory capabilities[33].

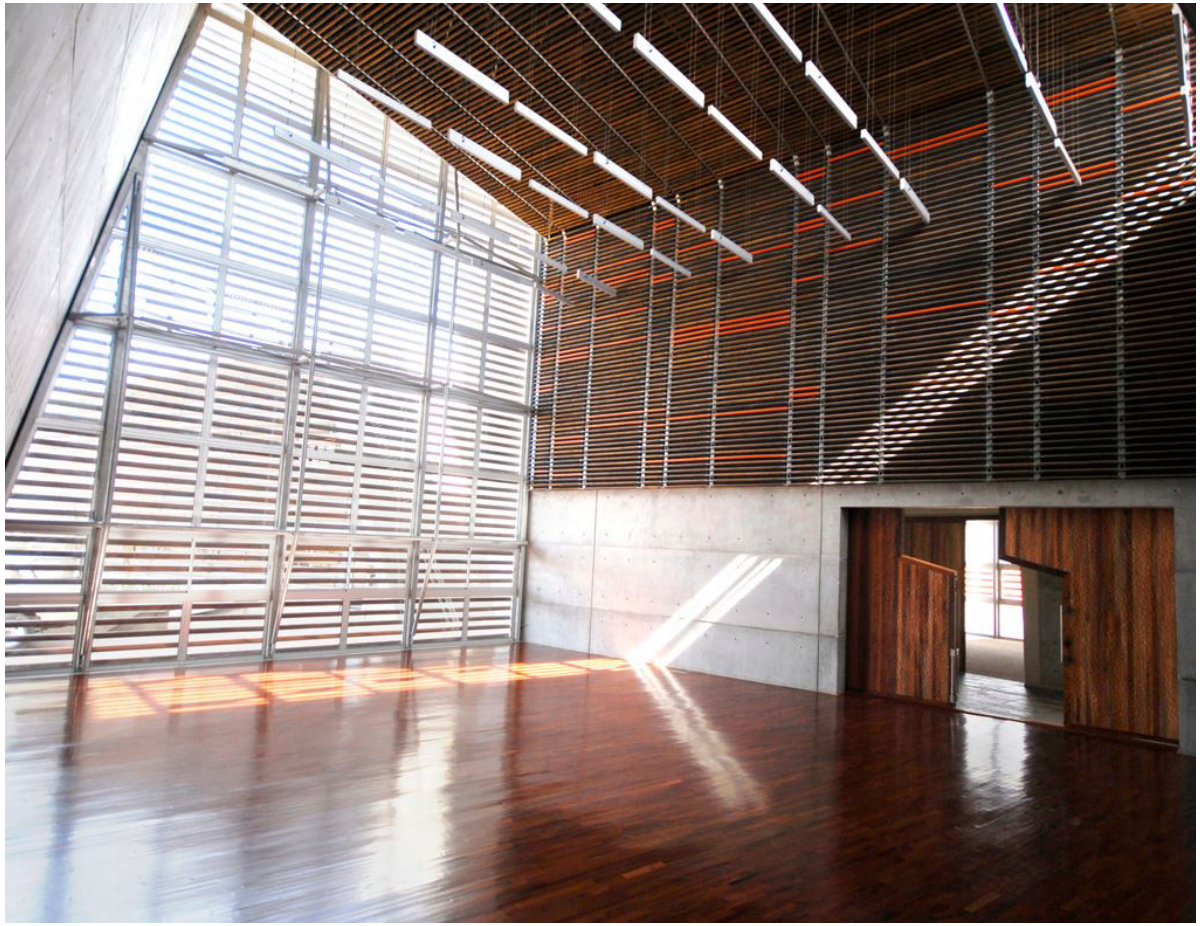
She hesitates, realising that she is going off on a tangent. She begins to speak specifically about natural light

28 Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 151
29 Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 151
30 Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 152
31 Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 152
32 Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 153
33 Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 154

Figure 91: The Vineyard Residence illustrates how to make the rammed earth walls prominent, but also have softer timber details (Rael: 2016: 80-83)

Precedent - Technical

Ubuntu HIV Clinic & Comunity Centre



PORT ELIZABETH, SOUTH AFRICA
FIELD ARCHITECTS

THE INTERFACE BETWEEN THE SLANTED CONCRETE FORMS &
THE GUMPOLES, FUNCTIONS AS AN ELEMENT OF THE SCREEN

DIFFERENT INTERPRETATION OF SCREEN IN THE
METAL GRID THAT OPENS UP AS THE ENTRANCE

TIMBER IS BROUGHT INTO THE BUILDING AS
DIFFERENT THRESHOLD ELEMENTS - A DOORWAY HERE

and ventilation in their project.

Fresh air and daylight create an environment for healing[34]. In general, the occupants are made aware of seasonal change through exposure to natural light and this provides a connection to the cycles in nature[35].

The old and new narrow floor plates provide for well-lit and ventilated interior spaces. The new workshop spaces are lit with natural light and provide a view of nature, which is most beneficial for the occupants. Earth tubes are paired with a trombe-assisted stack system for effective cross-ventilation in the soup kitchen and the workshop spaces. The staff room, within the existing fabric, is adapted to allow natural light into the space through a central courtyard. This provides a view of nature which creates a feeling of expanse in the interior, which helps to alleviate stress[36].

Timber screen elements function as thresholds, balcony spaces and shading elements. These screens add a layer onto the existing built fabric, echoing the already layered nature of the buildings in Marabastad. The timber slats are ideally orientated for solar shading: vertical slats on the west and horizontal slats on all other sides of the building. A variety of screens allows for different experiences of filtered natural light.

She moves on to speak specifically about the healing programmes of the dwelling spaces and therapy rooms, with regard to natural light and ventilation.

A balance between prospect and refuge needs to be provided in these environments, in order to provide the occupant with a measure of control over their environment. The dwelling spaces are designed in such a way that one can completely close oneself off (refuge), but also have access to more visually and spatially connected spaces (prospect).

Operable windows and doors provide a sense of control (independence) because the occupant can walk outside into the social or non-social spaces between the small dwelling units, without needing permission. These factors lead to less aggression and physical violence between clients[37]. They can also control the amount and quality of light and air in dwelling spaces, with openable sliding doors and screens.

The stereotomic concept of rootedness to place and earth, in the ground floor dwelling units, creates spaces of refuge. The concept of re-integration is considered here through a rootedness in place (sunken rehab 01 dwelling spaces). Control of light in small spaces, paired with lower ceiling heights, allows for a sense of refuge within these spaces[38].

34 Lena From & Steven Lundin, *Architecture as Medicine - the Importance of Architecture for Treatment Outcomes in Psychiatry*. 1st ed. (Gothenburg: The Architecture Research Foundation: 2010). Available online: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf, 30

35 Robert McCarter & Juhani Pallasmaa, *Understanding Architecture* (London: Phaidon Press Limited, 2012), 151

36 Lena From & Steven Lundin, *Architecture as Medicine - the Importance of Architecture for Treatment Outcomes in Psychiatry*. 1st ed. (Gothenburg: The Architecture Research Foundation: 2010). Available online: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf, 30

37 Lena From & Steven Lundin, *Architecture as Medicine - the Importance of Architecture for Treatment Outcomes in Psychiatry*. 1st ed. (Gothenburg: The Architecture Research Foundation: 2010). Available online: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf, 27

38 Stephen R. Kellert, Judith H. Heerwagen & Martin L. Mador, *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life* (New Jersey: John Wiley & Sons, 2008), 265

Figure 92: The Ubuntu Centre is considered in terms of the approach to screens and a privacy threshold (Arch Daily: 2011)

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SECTION
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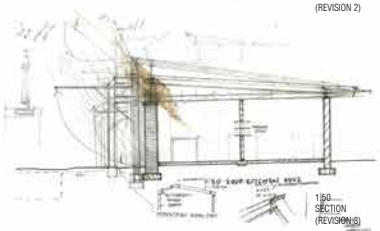

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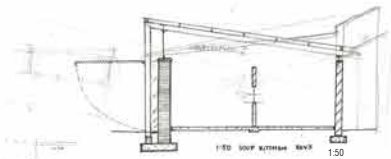

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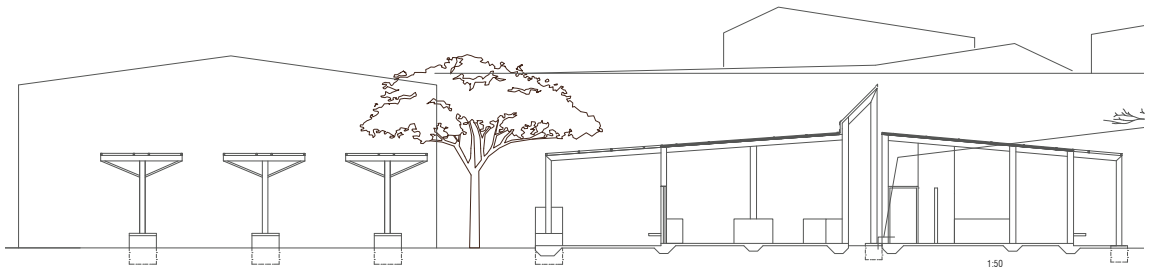

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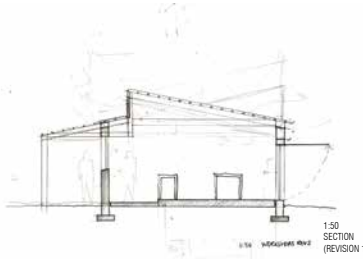
SECTION
(REVISION 5)



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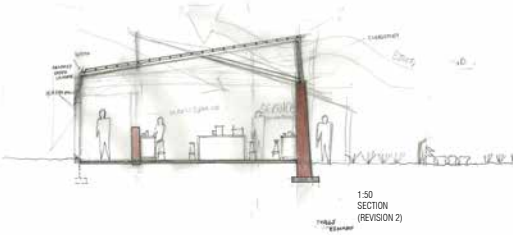
SECTION
(REVISION 1)



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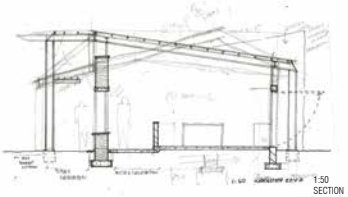

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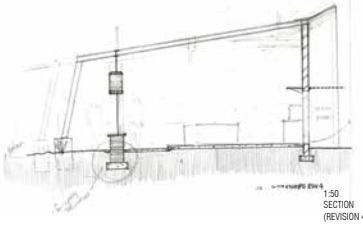
SECTION
(REVISION 3)



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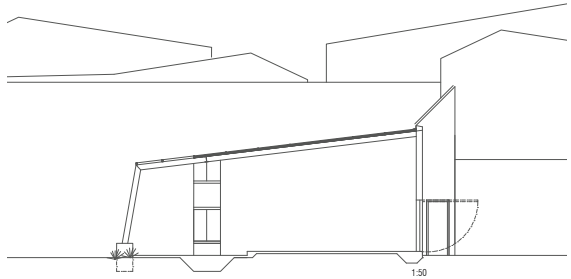
SECTION
(REVISION 4)



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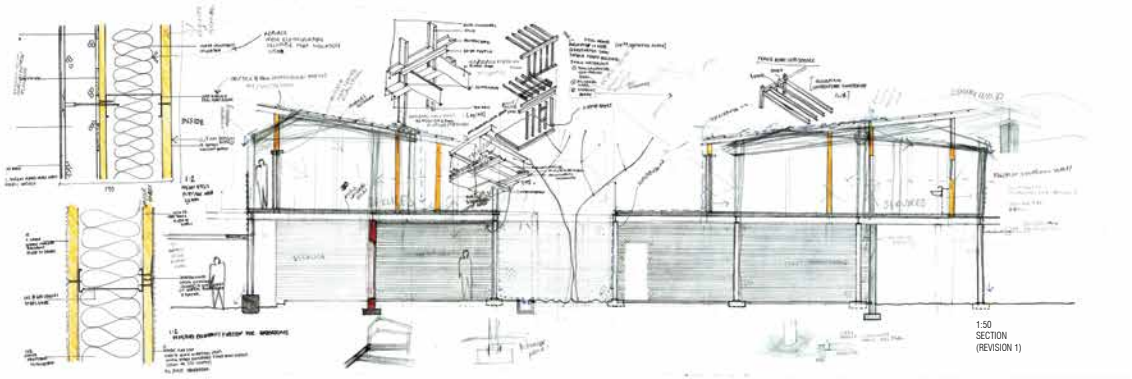
SECTION
(REVISION 5)



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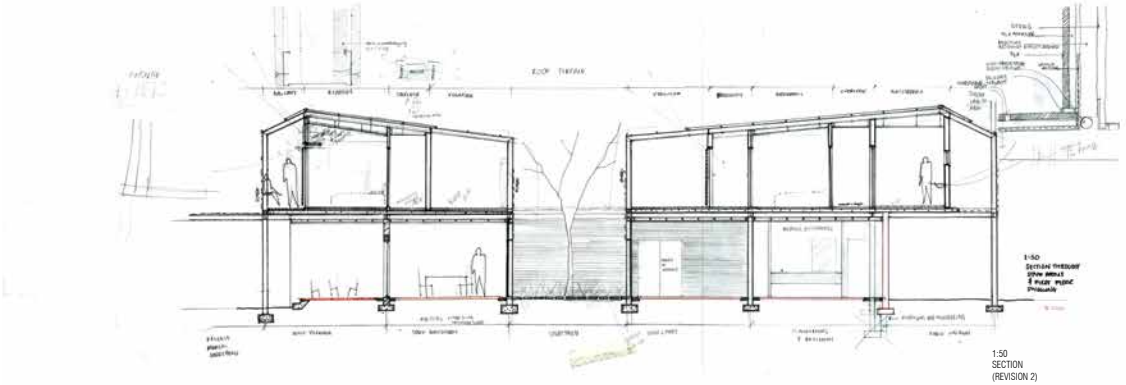
SECTION
(REVISION 1)



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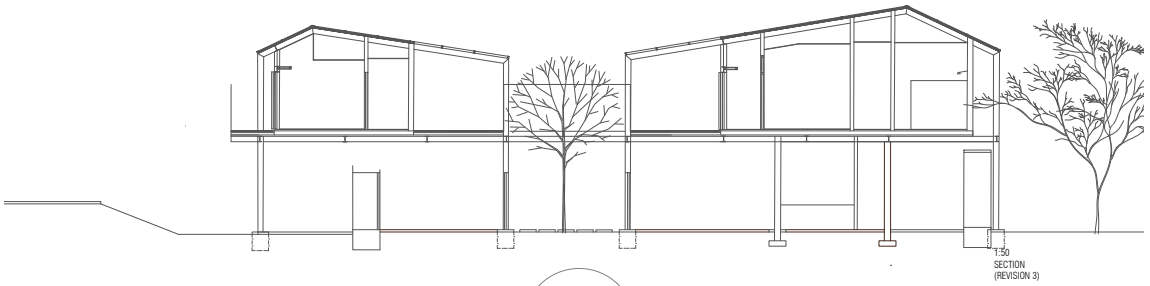
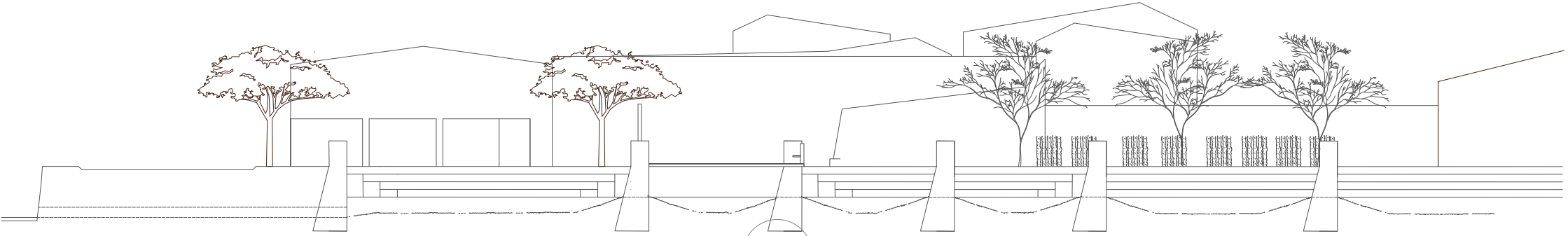
SECTION
(REVISION 2)



1:50
SECTION
(REVISION 3)

Rehab: Staff Room & Upstairs Dwelling
Iterations

Figure 93: (spread) Section iterations (Patrick: 2016)



1:50
SECTION THROUGH NATURALISED RIVER
(REVISION 2 - see Hydrology page)

River Crossing
Iterations

1:50
SECTION
(REVISION 1)

1:50
SECTION
(REVISION 2)

Rehab: Foyer, Circulation, Group / Family Therapy & Dwelling
Iterations

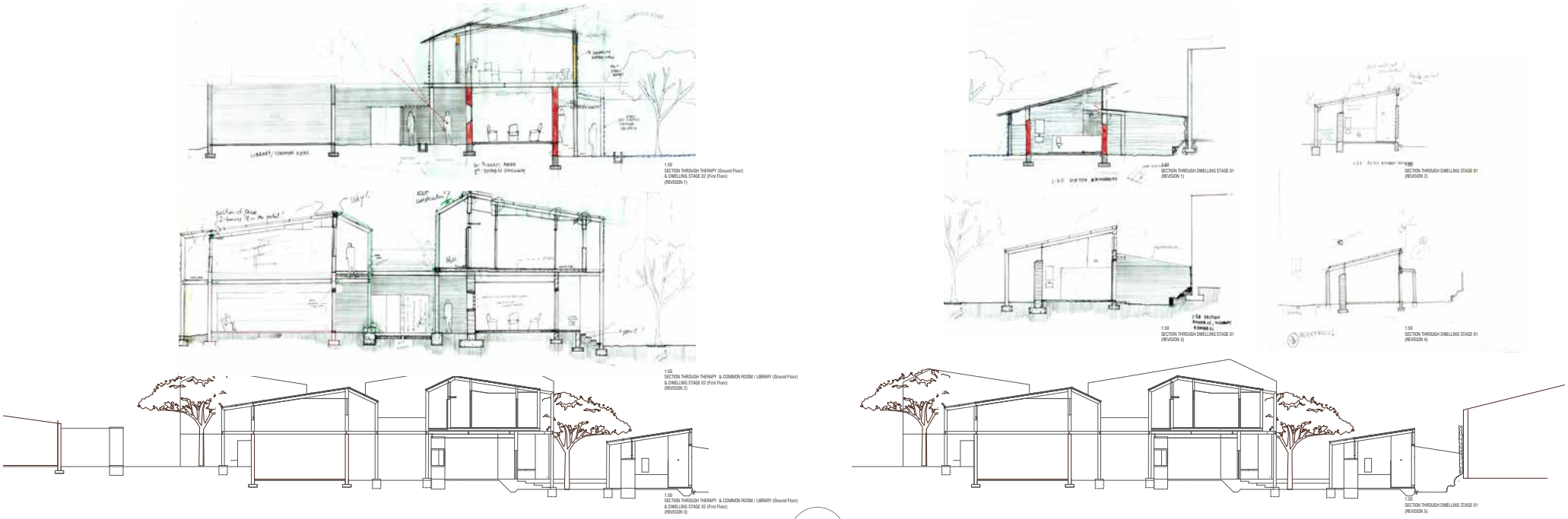
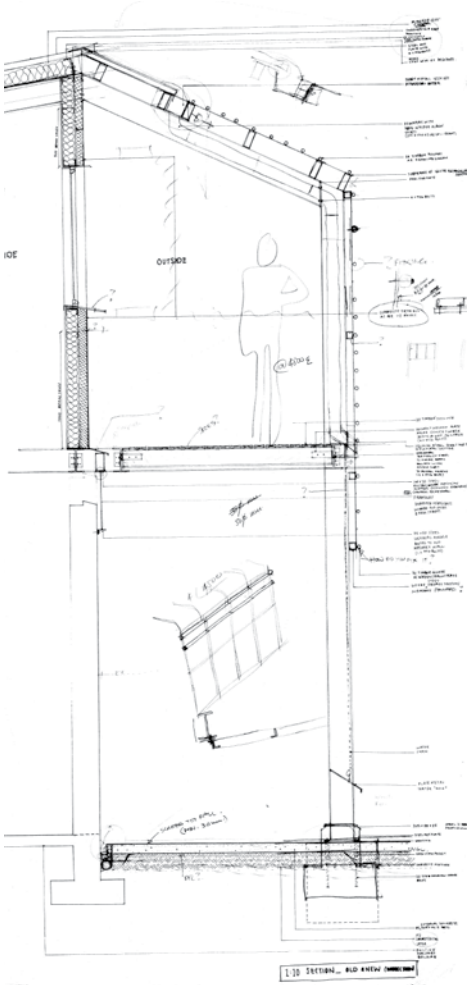
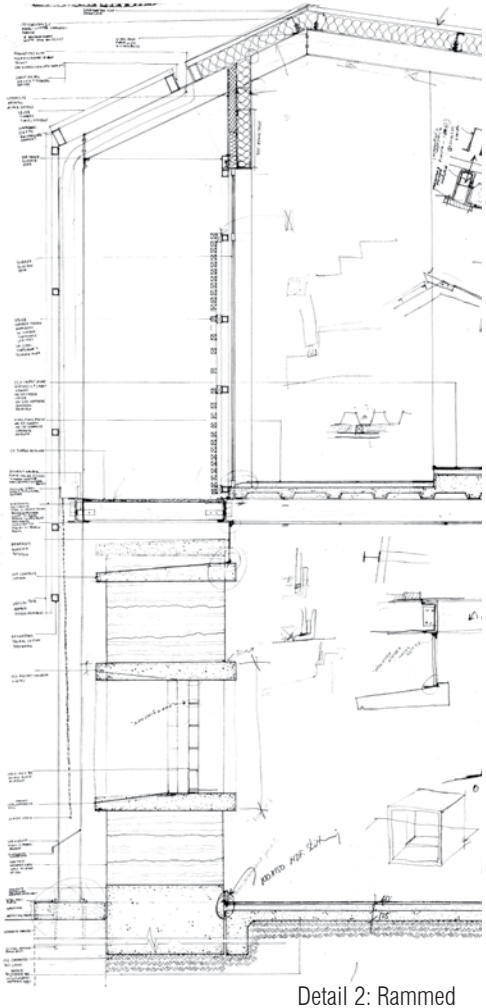


Figure 94: (spread) Section iterations (Patrick: 2016)



Detail 1: Old & New
1 : 10

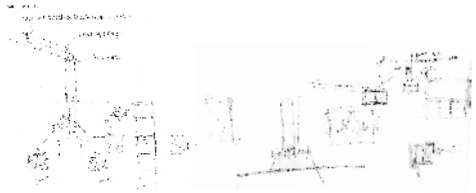


Detail 2: Rammed earth & drywall
1 : 10

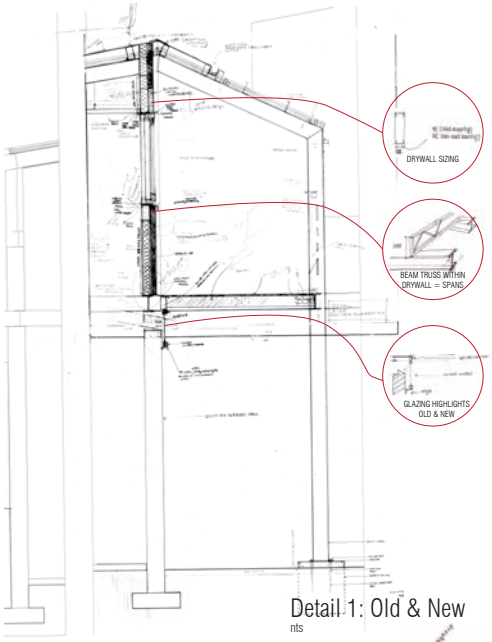
PORTAL FRAME STANDARDS

Detail Development
Iterations

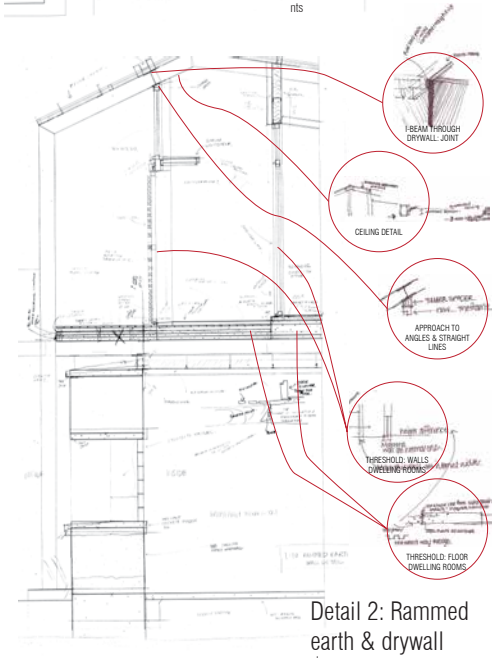
WATER: GUTTERS, DOWNPIPES AND FURROWS



Detail Development
Iterations



Detail 1: Old & New
nts



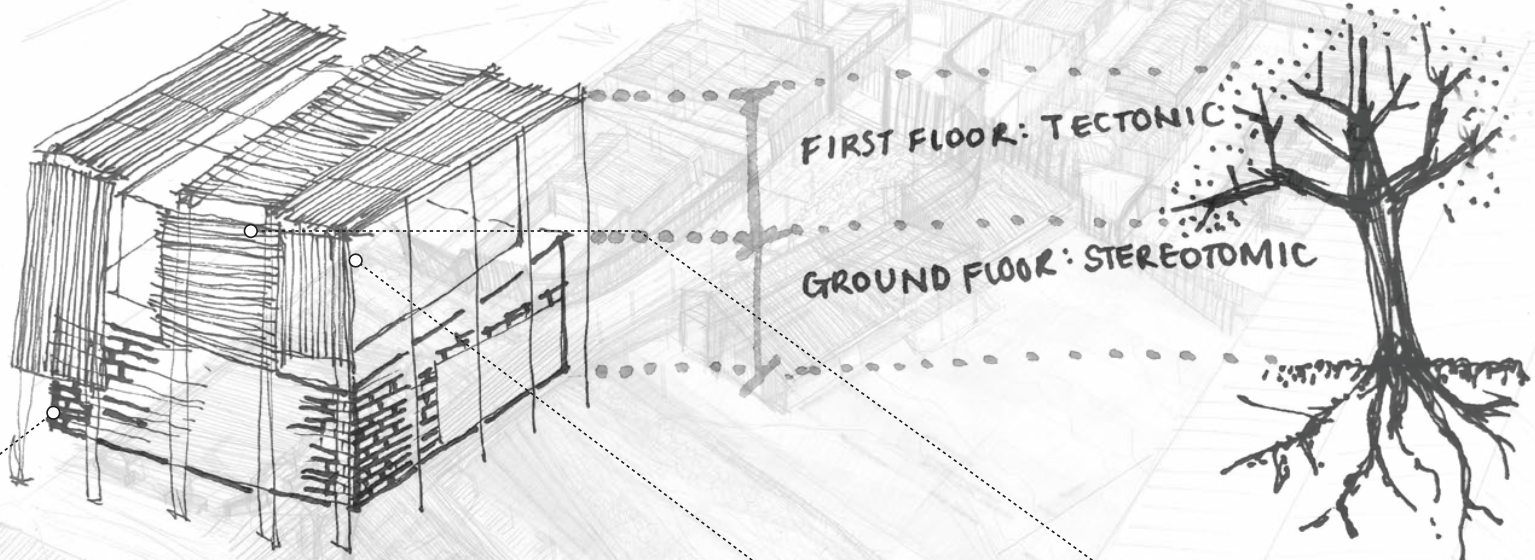
Detail 2: Rammed earth & drywall
nts

Detail Development
Technical Development

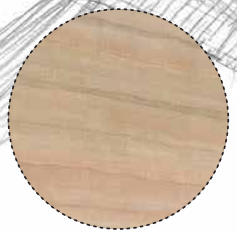
Figure 95: (spread) Section iterations (Patrick: 2016)

Scope of

Materials



Masonry
OLD STEREOTOMIC

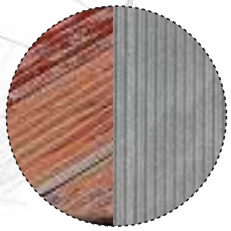


Rammed Earth + Thermal Mass
NEW STEREOTOMIC

Threshold + New vs. Old + Ground vs. First Floor
TECTONIC / STEREOTOMIC

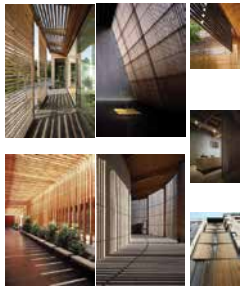
Steel columns + Beams
TECTONIC STRUCTURE

Threshold + Natural + Privacy
TECTONIC SCREEN



New + Old Corrugated Sheeting
TECTONIC ROOF

Operable screens: doors/louvres



Screens that filter light: journey

Detail Development
Technical Development

Figure 96: (spread) Material investigation (Patrick: 2016)

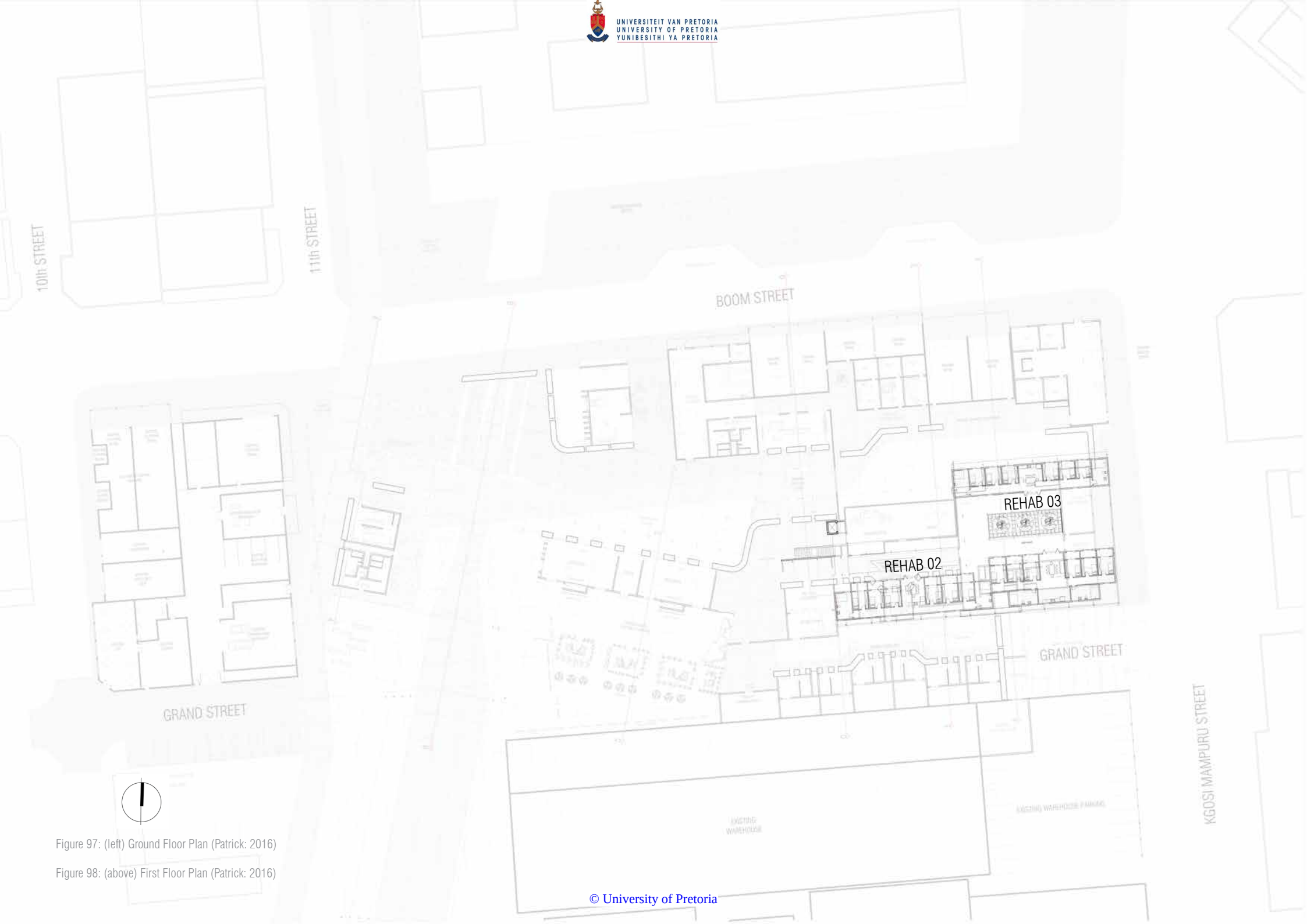
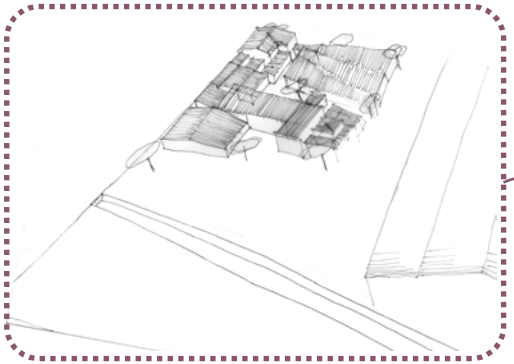


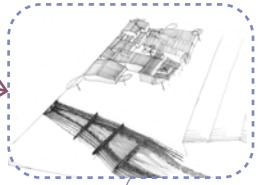
Figure 97: (left) Ground Floor Plan (Patrick: 2016)

Figure 98: (above) First Floor Plan (Patrick: 2016)

2016
Existing

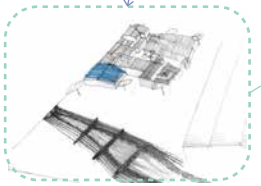


2017
Naturalised river &
manipulation of landscape

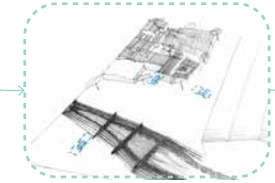


2018
This phase of construction
focuses on the public realm

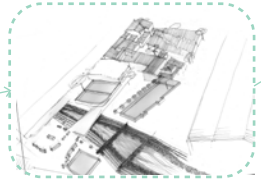
Demolish part of existing built fabric & harvest building rubble



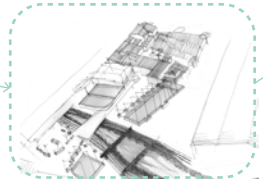
Excavate for underground water storage cisterns



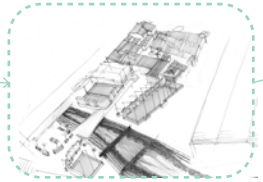
Raft foundations & column footings cast



Installation of portal frames

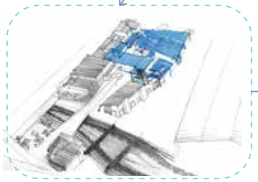


Construct rammed earth walls alongside the journey

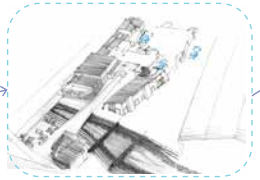


2018
This phase of construction
focuses on the new in
the old built fabric

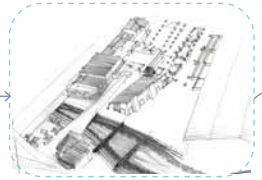
Demolish part of existing built fabric & harvest building rubble



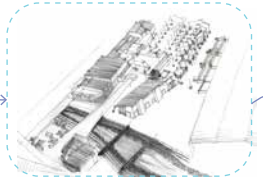
Excavate for underground water storage cisterns



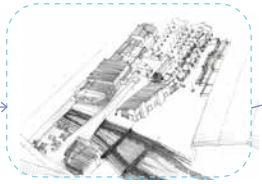
New raft foundations & column footings cast



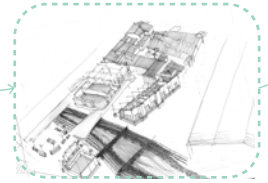
Installation of portal frames



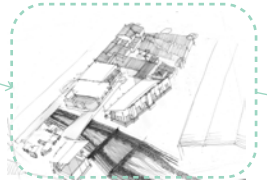
Construct rammed earth walls alongside the journey



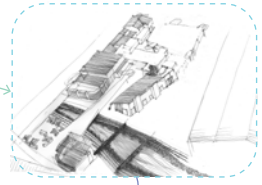
Construct masonry



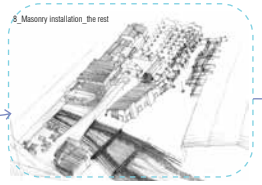
Installation of corrugated roofs, gutters, downpipes & connecting rills to cisterns



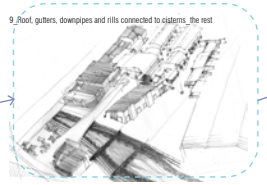
Completion of this phase: public realm available for community use



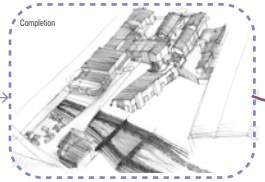
Construct new masonry & infill in the old built fabric



New corrugated roofs, gutters, downpipes & connecting rills to cisterns



Completion of this phase: healing support available to the community



2019
Completion

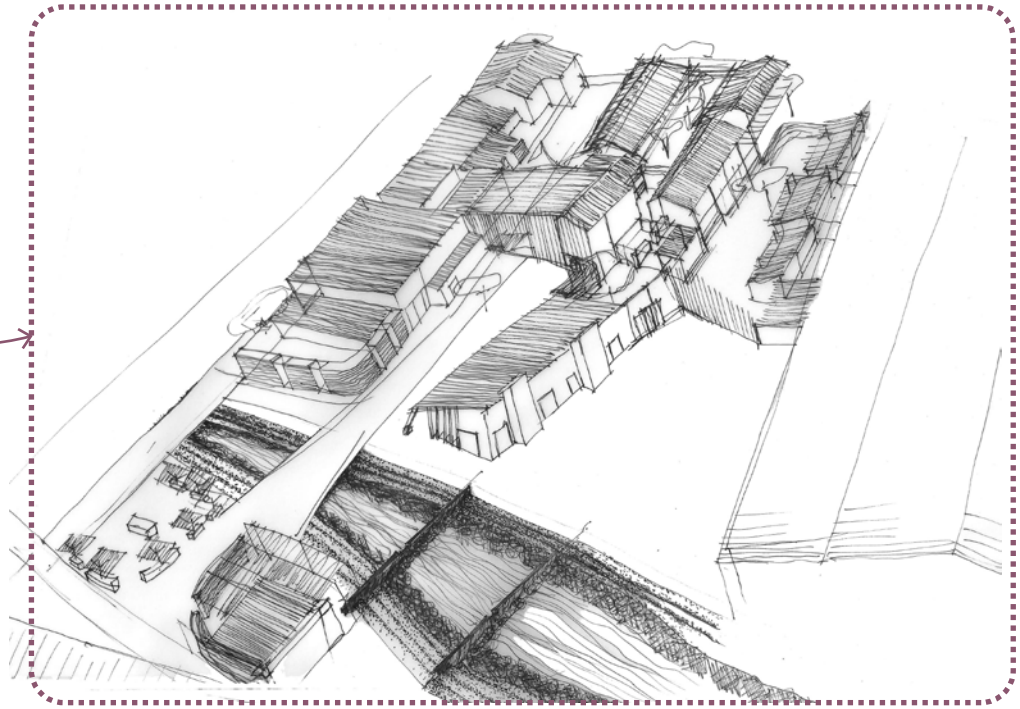
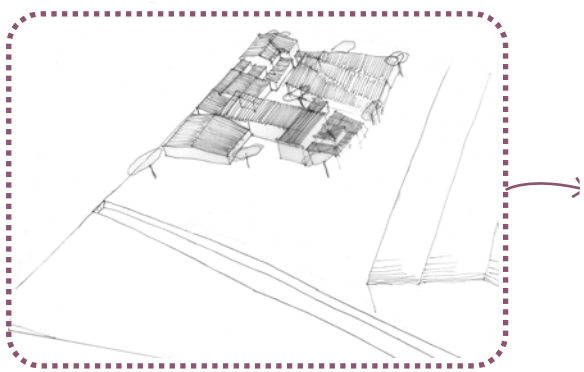


Figure 99: The phasing of the construction of the project (Patrick: 2016)

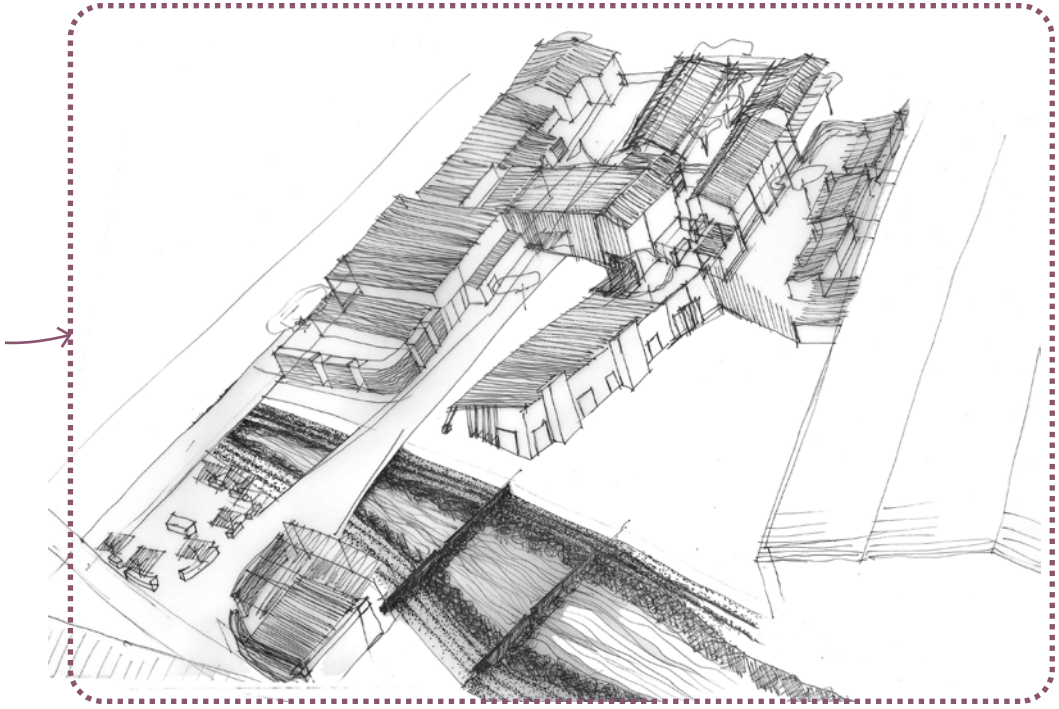
2016
Existing



2018
This phase of construction focuses on the public realm

2018
This phase of construction focuses on the new in the old built fabric

2019
Completion



Spaces of prospect are illustrated through the tectonic concept of growth and re-integration of the new built fabric on the first floor (rehab 02-03 dwelling spaces). It is related to the re-integration of the people through a visual connection to the city. These spaces are well-lit and expansive, paired with higher ceilings[39].

Janeke invites comment on this topic. Dr Radebe explains how difficult it is for her to visualise the concepts of prospect and refuge. Janeke tries to explain each concept through simple diagrams.

This brings her to the final part of the framework: the solar energy aspect.

Photovoltaic panels are installed on roofs to provide solar energy for lighting in the existing retail buildings, the new soup kitchen and the new workshop spaces, where necessary. They also power lighting for the public square and rehabilitation dwelling spaces at night. Solar energy is also available via solar tubes that are installed on roofs to heat water for use in the halfway house, the soup kitchen and the dwelling spaces.

Janeke asks for further comment and makes notes. She meets with her team, Mr Pillay and Dr Radebe countless times throughout the year as they continue to refine aspects of the design.

~

The year is now 2018[40] and construction has begun in the public realm. The public square, soup kitchen, halfway house and skills development workshop are in the process of being built by the community members, who are interested in developing standard construction skills as well as rammed earth construction and portal frame installation expertise.

~

The construction of the new architecture within the old fabric begins once work on the public realm is completed. The public realm has now been opened to the community of Marabastad. The construction of this next phase is also carried out by members of the community interested in developing construction skills, with the additional skills development available - lightweight drywall construction.

Figure 100: The main phases in the construction of the project (Patrick: 2016)

39 Stephen R. Kellert, Judith H. Heerwagen & Martin L. Mador, *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life* (New Jersey: John Wiley & Sons, 2008), 265

40 See Figure 100