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## PMR, Psychosocial Multicultural Rehabilitation: A Place of Peace and Compassion for Child Soldiers of Post War Trauma

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pmr

[psychosocial multicultural rehabilitation]

a place of peace and compassion for child soldiers of post war trauma



Alyssa Keating





Roger Williams University  
School of Architecture, Art and Historic Preservation  
Bristol, Rhode Island

# psychosocial multicultural rehabilitation

a place of peace and compassion for child soldiers of post war trauma

Graduate Independent Thesis Project submitted to Roger Williams University, School of Architecture, Art and Historic Preservation in fulfillment of the requirements of the MArch Degree in Architecture

submitted by

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MArch Degree  
Class of 2009

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sequencing sketch rehabilitation to reintegration

abstract 7

introduction 8

problem statement 10

project statement 12

architectural intentions 14

program outline 16

site analysis and selection 20

future master plan [zoning and regulations] 40

final design 53

## Appendix

precedents 104

process 127

works cited 155



“I feel so bad about the things that I did. It disturbs me so much that I inflicted death on other people. When I go home I must do some traditional rites because I have killed. I must perform these rites and cleanse myself. I still dream about the boy from my village that I killed. I see him in my dreams, and he is talking to me, saying I killed him for nothing, and I am crying.”

A16-year- old after demobilization from an armed group

[Source: U.S. State Dept. TIP Report 2005]



There are an estimated 300,000 child soldiers around the world. Many children are recruited forcibly; their abduction is a pernicious form of displacement that dramatically affects those stolen and the communities from which they were taken.

The architectural design focuses on the rehabilitation of boy soldiers, integrating many different cultures and beliefs away from the terrors of war, to find peace within themselves and living with caring people. The main focus of the design is to reflect the stages of post conflict trauma to assist the boys to regain a sense of worth and normality. This is done through the design of the complex into three filters:

**[Filter 1] Trauma** – The boys are received by the staff and diagnosed, and attended to. They are housed in a separate enclosed housing pod adjoining the medical unit. The housing consists mainly of single unit rooms, with the majority of the staff housing within this filter for close supervision.

**[Filter 2] Communal** – This filter is oriented around the central courtyard and gathering space of the overall compound. The rooms are either doubles or quads, intermingled with staff housing, to encourage mediated interaction.

**[Filter 3] Reintegration** – The focus of this filter is to provide education and skill development, and to foster interest in the outside world. The boys have access to the river - using boats, fishing, and swimming – and to agricultural fields for harvesting their own crops, which are sold in the connected marketplace as a source of self-sufficiency.

The recreation field and pavilion across the river, linked by a pedestrian bridge, is a community space where the boys of the compound and the surrounding community can interact through sports and other activities.

At the end of their stay the boys will be ready to venture forth as productive members of society.



Child soldiers around the world hold varying positions: combatants, spies, sentries, porters, laying and clearing land mines, even sex slaves. Commanders see children as cheap, compliant and effective fighters. In many cases it is their immaturity that makes them less likely to contradict orders and more likely to be fearless. Many children will be recruited forcibly. The abduction of children is a pernicious form of displacement that affects those stolen and the communities where they were taken from. These losses have dramatic, radical impact on local social structures. There are other groups of children that will be driven into armed forces/groups by poverty, alienation and discrimination. It can be a way to organize the violent chaos taking place around them, while others may join simply because it will put food in their mouths, and give them a sense of place.

Many children are forcibly abducted, but others still join for ideological reasons or because viable alternatives do not exist. Becoming a child soldier is a survival strategy, and many of the children are being promised access to education.

‘The fighting groups look attractive relative to what there is’

Mr. Otunnu, UN secretary-general



Military recruitment is harmful not only for the children themselves, but for society as a whole. Years of schooling are lost and children grow up to become alienated adults, prone to violence.

The experience of being a child soldier is dehumanizing. Many children have lost their entire families and were encouraged by their commanders to simply take revenge. Often children fought under the influence of drugs supplied by the adults. Some were required to take part in the torture killings of captured rebels.

‘you didn’t really care what you were doing... I didn’t think there was any point in being alive anyway.’

Djibril Karim, 13, Sierra Leone army





There is a need for a curriculum which balances out the challenges and strengths that child soldiers bring, while drawing on local, culturally grounded supports. The World Bank has done this, in the direction of peaceful reintegration, but they feel it needs to be a long-term process, for successful reintegration to take place. They funded the Christian Children's Fund Angola land purchase and small business start up programs. The approach to social reintegration has been to define school, job, and vocational training placements. By guiding them through this path it becomes vital for building hope for their future and giving them the skills that they will need to enable them to support themselves.

## Rehabilitation and Reintegration

**Rehabilitation** in terms of dealing with child soldiers, concentrates on an organized process in which follows the children's demobilization, escape, or capture and then release by another armed force. It really is simply a process of re-orientation, rest, recuperation and reflection which needs to take place in a safe setting, in interaction with people who have received special training to facilitate the re-adjustment process. It can be understood as a metaphor 'crossing a bridge between the military life to life in one's home and community.' The journey is not easy and not straightforward. Many steps must be retraced several time, the process is slow and can be very hard on both child and assistant. Determination, good health, the comfort, love and encouragement of others, and hope are the most important companions on this journey.

Majority of the children who have been captured or escaped during on going conflict are often exhausted and may be confused. They do not know who to trust, are often ill and malnourished, some have serious untreated diseases and disabilities. They may also have drug and alcohol dependency. Most are fearful of re-recruitment that is being offered.



**Reintegration** is the process of re-uniting a child with his or her family and community. Reintegration's outcome is strongly dependent on the success of the rehabilitation process. It eventually becomes indistinguishable from the rehabilitation process as the child's progress is inextricably linked once they again become a member of their community. It is crucial that the child understands what is meant by the re-integration. They want to feel accepted, especially by parents and siblings. They need reassurance and concrete evidence that they are respected, with no reference of their past.

United Nations Children's Fund [UNICEF] encourages school attendance within a child's community. It has many benefits for the social structure of the community; it mobilizes former child soldiers in a healthy and constructive manner, new infrastructure, and a future towards education and the ability to locate a livelihood outside of the realm of soldiering.

The community from which they came becomes the key turning point to their return. Targeting a child without engaging their community is not unlike attempting to seed untilled land. The community needs to embrace those that they lost and not hold remorse towards them. The children who return will be very different from that same child that left.

Local communities have a vital role to play in post-conflict healing, reconciliation, and social reintegration of war-affected children. There are tribes and villages that have created cleaning rituals for those children returning, this can play critical role in helping the community to forgive the former child soldier for their atrocities.



This design is a facility that rehabilitates and reintegrates child soldiers, back, into their former cultures. The design deals with conflict of human rights, conflict of human beings, but most importantly it deals with the conflict found within ones self. The design will bridge and assist in healing the tortured souls of children. The main focus is on how each individual's brain develops and reacts differently to varying situations. It is crucial to integrate the multiple cultures within one roof. To define and redefine how many different types of people can be unified from war to find inner peace. It is dealing with architecture of healing.

## *therapeutic architecture*

*"Use of the diagnosis of post traumatic stress disorder as a starting point is problematic because it pathologises and stigmatizes children, imposes categories formulated by westerners and limits the conceptualization of the kinds of support that are needed. We doubt that the measurement of trauma by means of individualistic psychological tools is appropriate in the ... cultural context.... Trauma is a small part of a much larger set of psychosocial, economic, ethnic and political stresses which are continuous and challenge the rubric "post-traumatic".*" [Lancet, 2004, p.1646]



it is crucial to recognize the cultural dealings with post war reintegration. The following is an example of such.

First, he lives with the child for a month, feeding him a special diet designed to cleanse. During the month, he also advises the child on proper behavior and what the village expects from him. At the end of the month, the healer convenes the village for a ritual. As part of the ceremony, the healer buries frequently used weapons- a machete perhaps, or an AK-47- and announces that on this day the boy's life as a soldier has ended and his life as a civilian has begun.

*[Wessels, 1997, in Mendelson and Straker, 1998]*



This design will bring peace and well being to all child soldiers affected by warfare and hatred. It will give them hope for new beginnings and let them move forward with a life they originally planned to have. While it may not be possible to clear ones memory of such trauma, I will search to find a design, an architecture, that will create a sense of comfort and ability to move in a positive forward direction . Through art, movement, education, agriculture, and health they can create a new self, through positive and creative filtration.

Rehabilitation does not necessarily guarantee successful reintegrations, but I search to find a solution to an architectural design that can prove this wrong.

## 6 design points

- 1 restoring family relationships
- 2 relationships with the community
- 3 children's health
- 4 organized learning opportunities
- 5 vocational training/income generator
- 6 recreation and play







the need for a sense of peace and place

## General

Rooms [children]

Single 120 sf [10]- 10 children

Double 200 sf [15]- 30 children

Quad 300 sf [20]- 80 children

Rooms [staff]

One bedroom + kitchen 400 sf [10]

Two bedroom + kitchen 600 sf [14]

total: 22,600 sf



## Administration

Lobby and Reception 500 sf

Family meeting room 300 sf

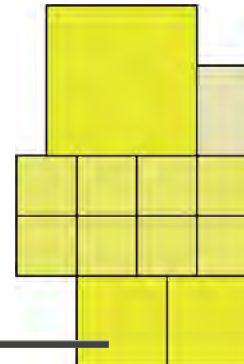
Conference Room 300 sf

Administration offices [4] 100 sf

General Offices [4] 100 sf

Director 150 sf

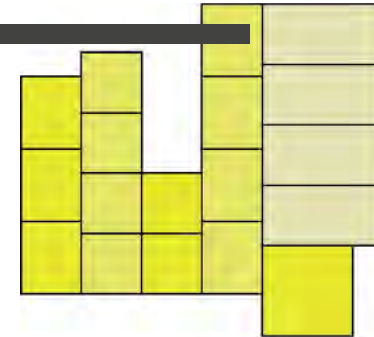
total: 2,050 sf



## Professional Offices

Physicians [3] 120 sf  
 Nursing Stations [4] 100 sf  
 Therapists [2] 100 sf  
 Counselors [4] 120 sf  
 Lounge 300 sf  
 Diagnosis/Treatment [4] 200 sf

total: 2,540

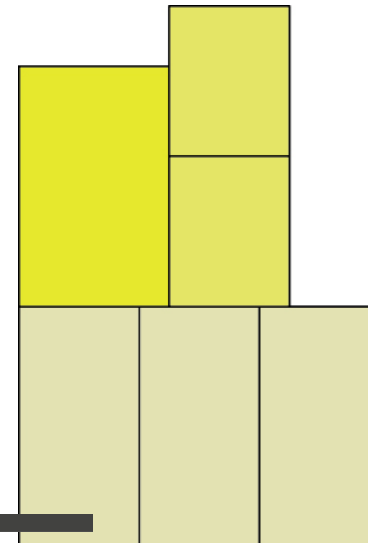


- \_How to deal with aggressiveness and arguing with others, helping them to reflect during stressful moments.
- \_Talking with them
- \_Helping them not to think about stressful things and to forget about their experiences.
- \_Encouraging them to express their own views and feelings
- \_Advising them so that they could mix freely with other community members.

## Learning and Recreation

Recreation room/ gym 1000 sf  
 Classrooms [2] 500 sf  
 Skill workshops [2] 800 sf  
 Gathering Hall 800 sf

total: 4,400



- \_Skill training such as carpentry, tailoring, etc.
- \_Animal rearing
- \_Provision of cows and goats
- \_Introducing them and bringing them to schools





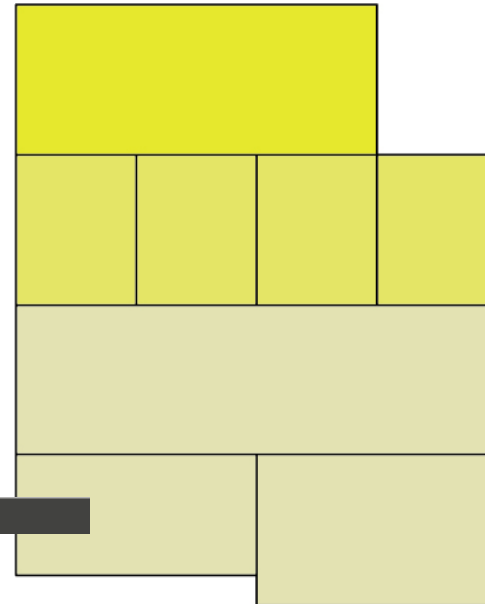
## Support Services

Kitchen 1500 sf  
 one main [cafeteria style]  
 four small intimate family style  
 [for family to come in and cook and spend time with children]  
 Eating areas [4] 500 sf  
 Storage [multi purpose] 2000 sf  
 Laundry 800 sf  
 Security/ Guards 1000 sf  
 Mechanical [10% net sf]  
 Circulation [5% net sf]  
 Parking [5 vans and 1 large bus]

total: 7,300 sf

Total Net: 38,890 sf

**Total Gross: 44, 723 sf**



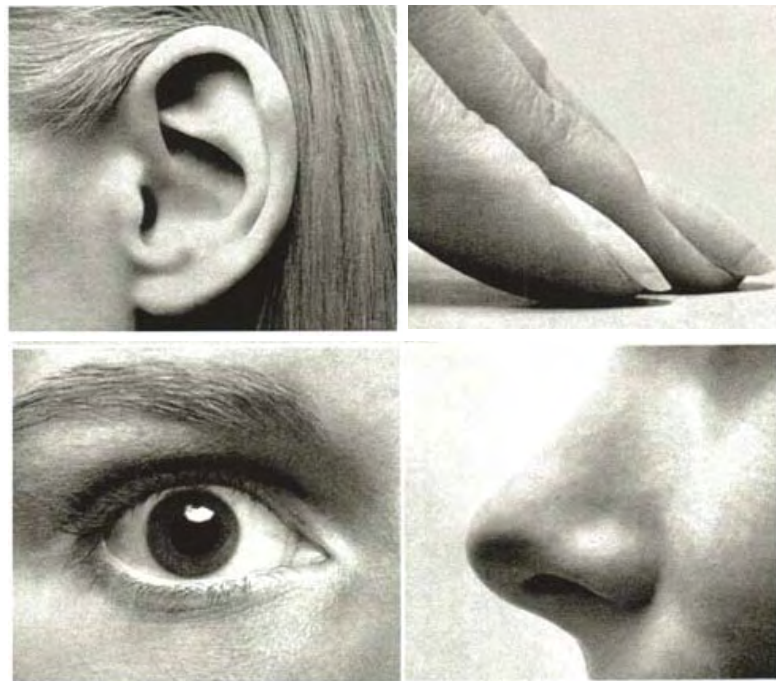
programatic emphasis on solid and void spaces through a whole



the design and spaces developed all interact with every sense of the body.

after the experiences many of these children have been through their senses only become more heightened to interact with every detail around them.

in this same sense healing can come from what was once fear.



art and movement must be integrated into these spaces to define something new, define self reverence and admiration

## Warfare Waged by the Young

Conflicts in these nations are notable for their brutality and the participation of child soldiers.

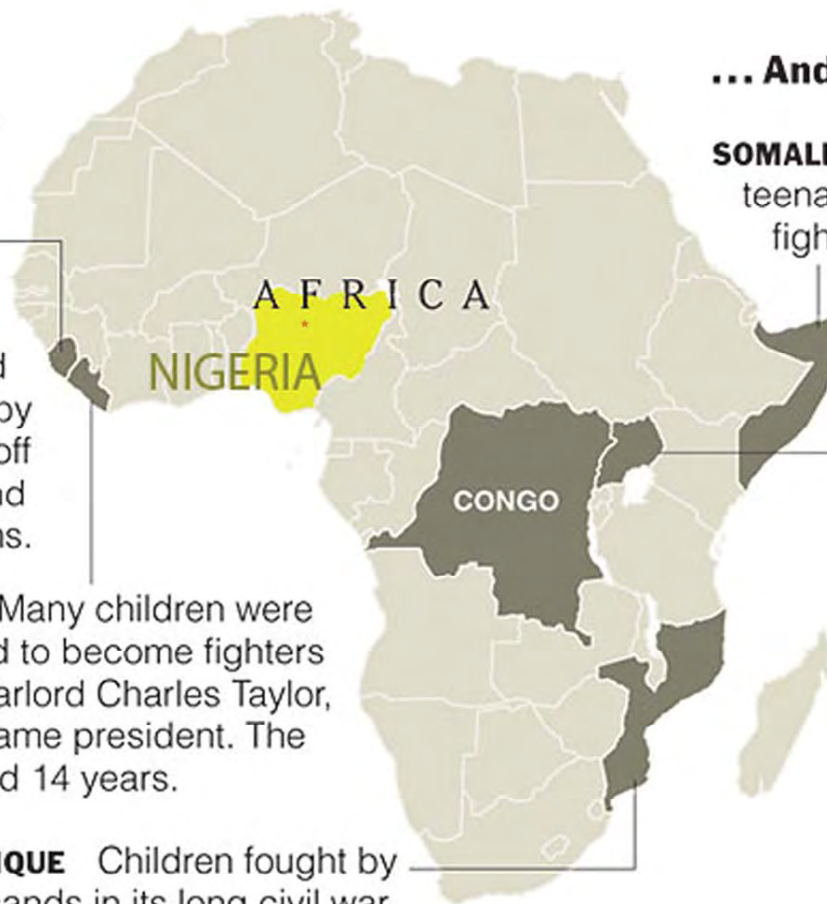
### Recent Wars ...

#### SIERRA LEONE

Young soldiers terrorized civilians by hacking off hands and even arms.

**LIBERIA** Many children were abducted to become fighters for the warlord Charles Taylor, who became president. The war lasted 14 years.

**MOZAMBIQUE** Children fought by the thousands in its long civil war.



### ... And Those Still Raging

**SOMALIA** War profiteers, including teenage gunmen for hire, are fighting to prevent the formation of a stable government, which could collect taxes and curb illegal businesses.

**UGANDA** An army of kidnapped children led by a messianic rebel leader have brutalized thousands.

**CONGO** Boy soldiers in the employ of warlords keep conflicts alive in regions far beyond government control.

# site analysis

## Kaduna Nigeria



map showing location of Kaduna, Nigeria, in reference to African continent and the surrounding villages and cities within the country



# site analysis

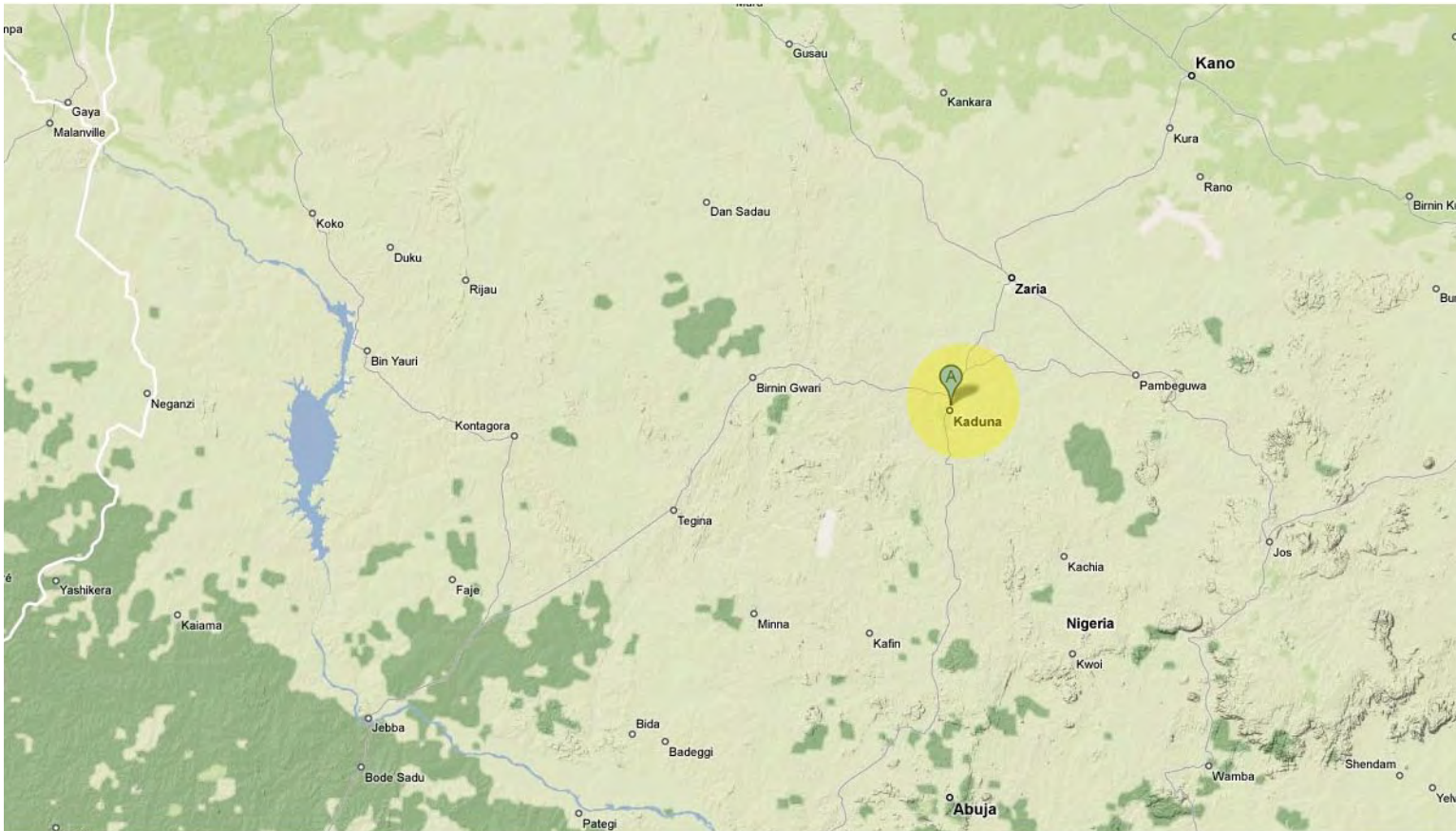
## Kaduna Nigeria



major roadways and rail  
throughout Nigeria- into  
Kaduna

# site analysis

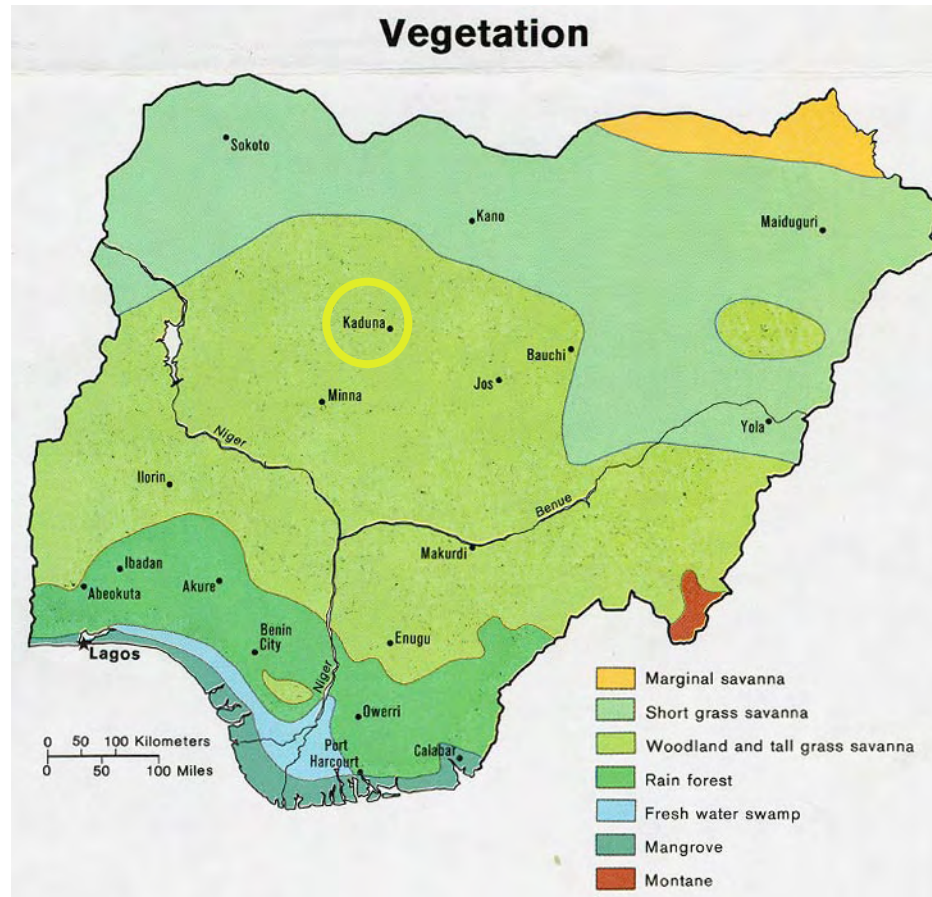
## Kaduna Nigeria



differentiation of terrain and elevation throughout the region and surrounding areas.

# site analysis

## Kaduna Nigeria



showing the variation and diversity of plant species and overall vegetation types throughout the whole country of Nigeria. Kaduna is highlighted at the center. You see from the map that Kaduna is within the *woodland and tall grass savanna*



## Kaduna Nigeria

### Facts noted:

- created in 1976
- occupies land area: 46,053 square kilometers
- 23 local government areas
- population of more than 6 million
  - roughly 80% of whom are smallholder farmers
- agricultural production includes:
  - maize
  - millet
  - sorghum
  - rice
  - cassava
  - beans
  - soya
  - ground nuts
  - cotton
  - tobacco
  - guinea corn
  - ginger
  - sugarcane
  - shea nuts
  - cow peas
  - mango
  - kenaf
  - cocoya
  - timber
  - palm kernel
  - bananas
  - onions
  - potatoes

### Economic Climate

Since Nigeria has returned to democratic rule, and embarked on a series of political and economic reforms, the previously uncertain business climate has improved.

all three tiers of government [local-state-federal] have aggressively pursued economic diversification aimed at ensuring a healthy environment for investment

### Potential Business Opportunity

It is one of northern Nigeria's industrial centers, manufacturing cotton textiles, machinery, steel, aluminum, petroleum products

it is a commercial hub for import and export.

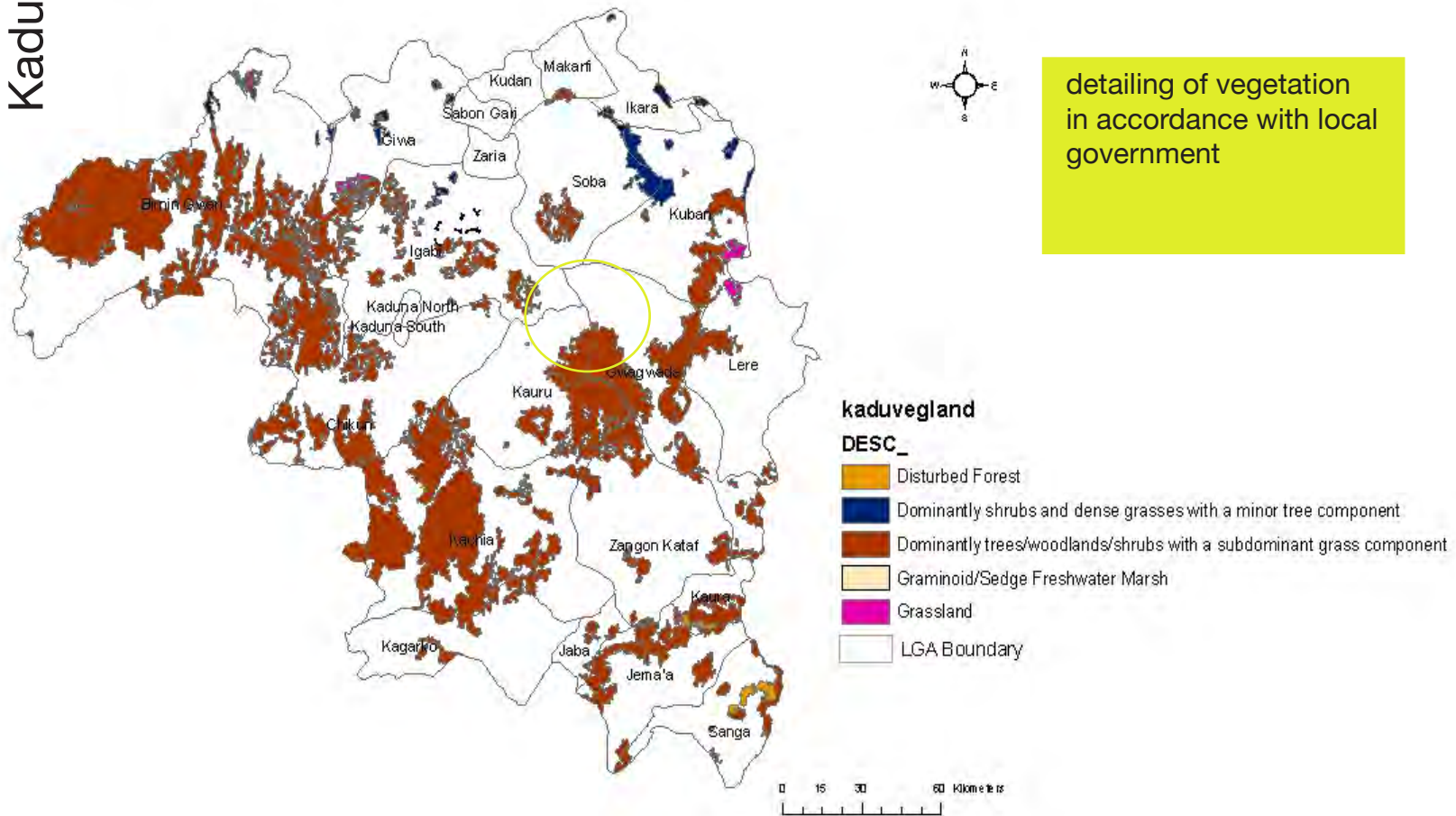
it is renowned for pottery and furniture of the craft.

boasts railway station and airfield

a pipeline connects the city's oil refinery and petrochemical plant to the oil field in the Niger River Delta.

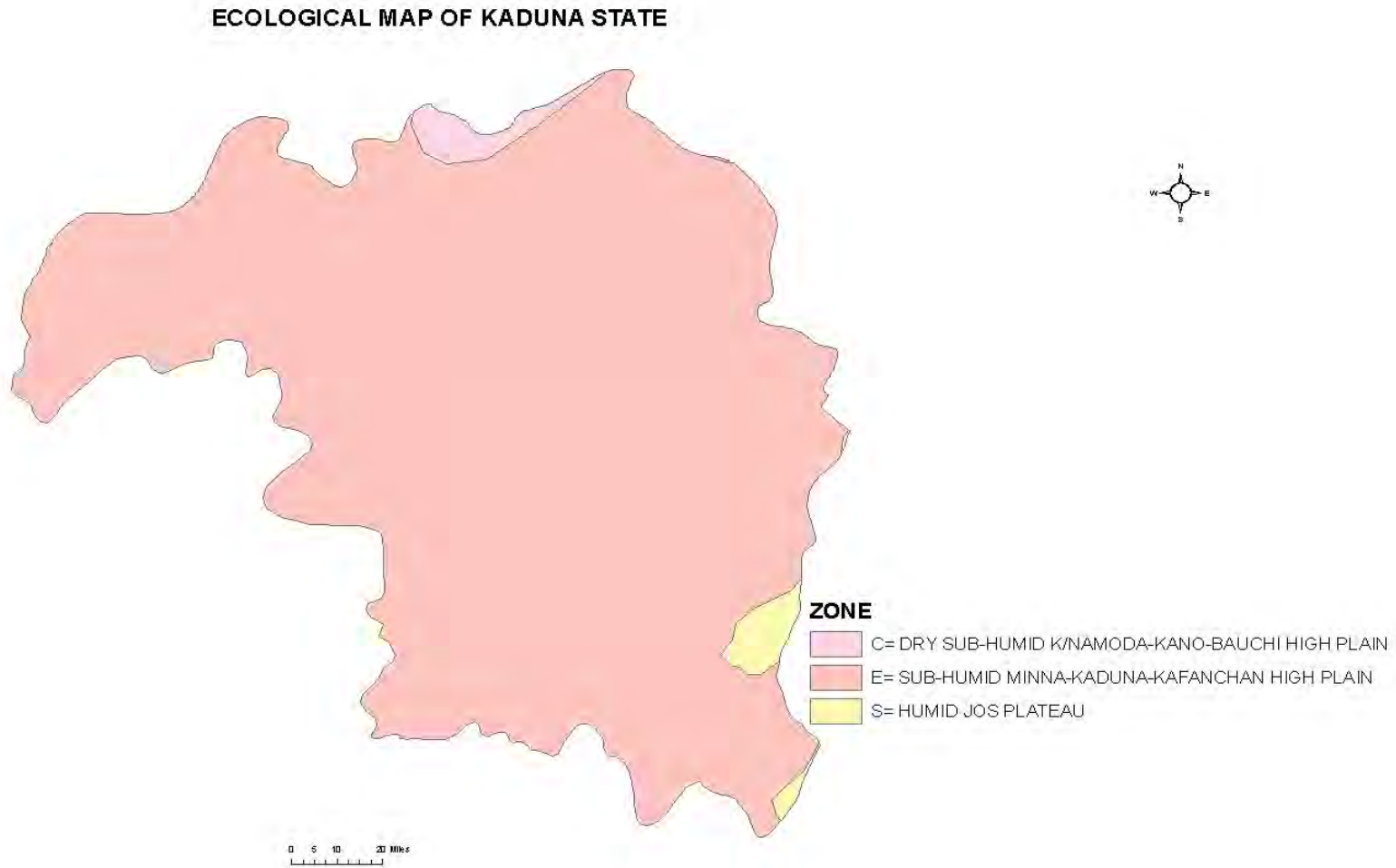


## VEGETATION MAP OF KADUNA STATE BY LOCAL GOVERNMENT AREA

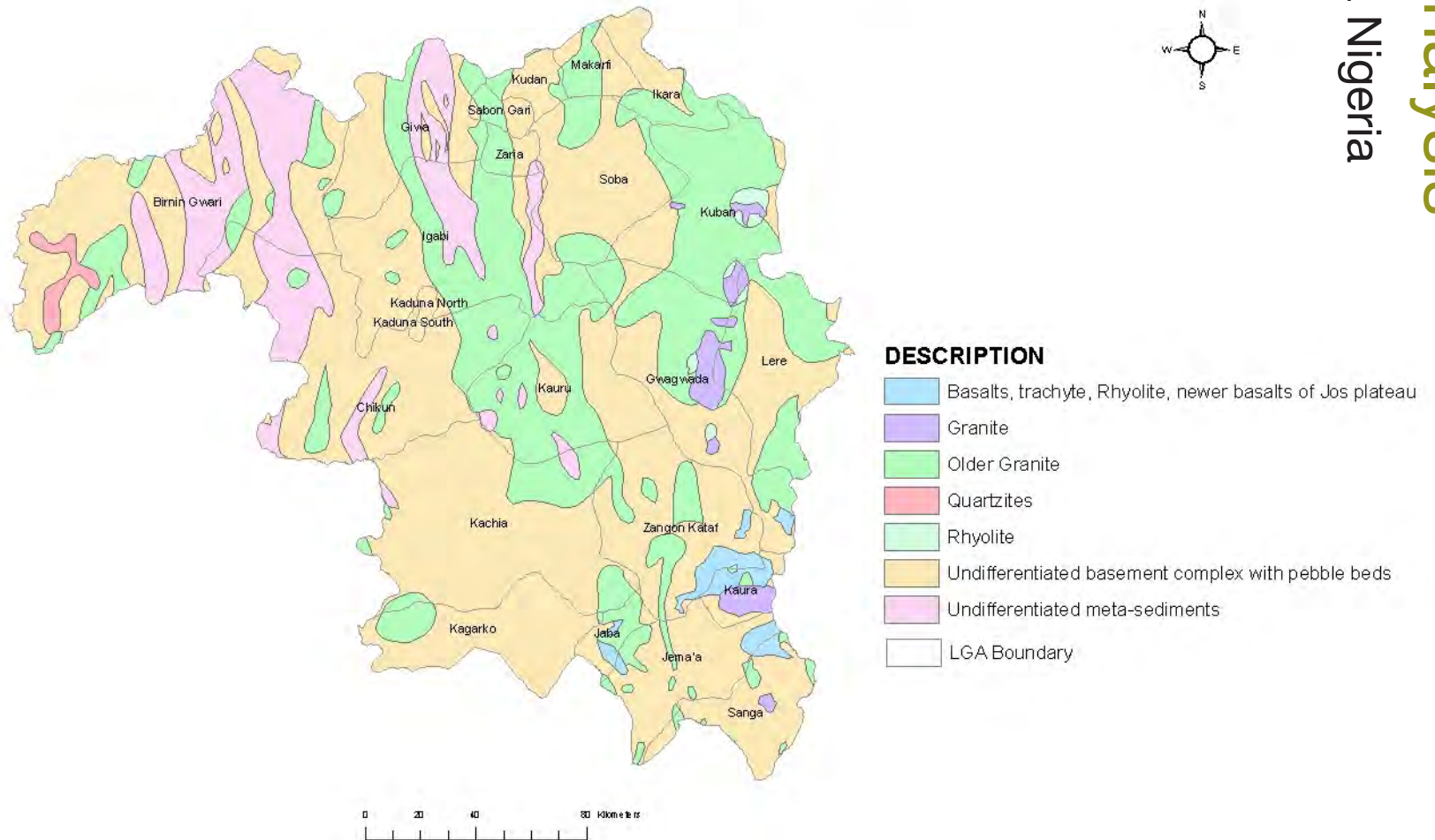


detailing of vegetation  
in accordance with local  
government

the following sequence of maps illustrate the cultural identities and influences throughout Kaduna State by the local government area.



### GEOLOGICAL MAP OF KADUNA STATE BY LOCAL GOVERNMENT AREA



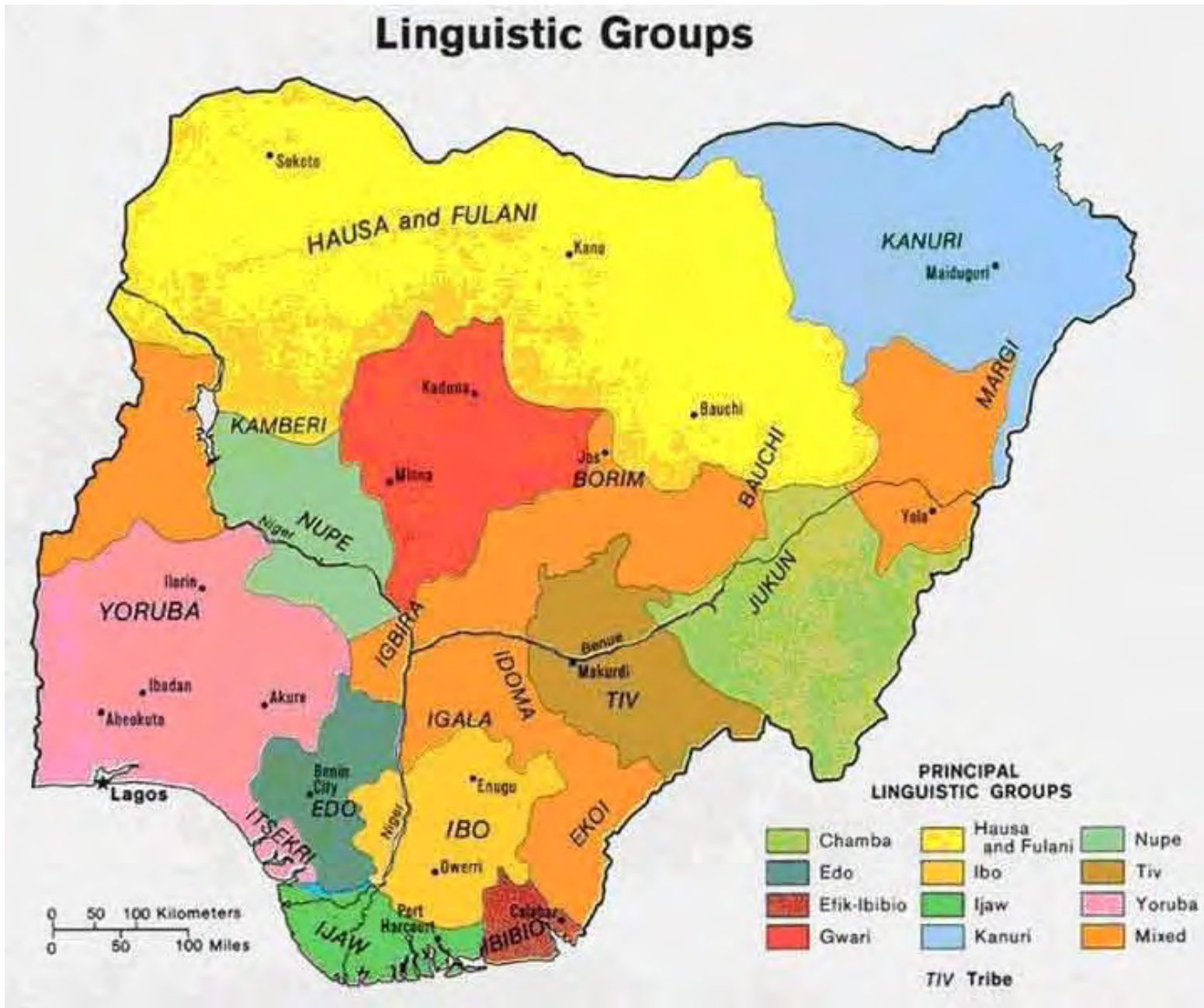
## ETHNIC GROUP MAP OF KADUNA STATE BY LOCAL GOVERNMENT AREA



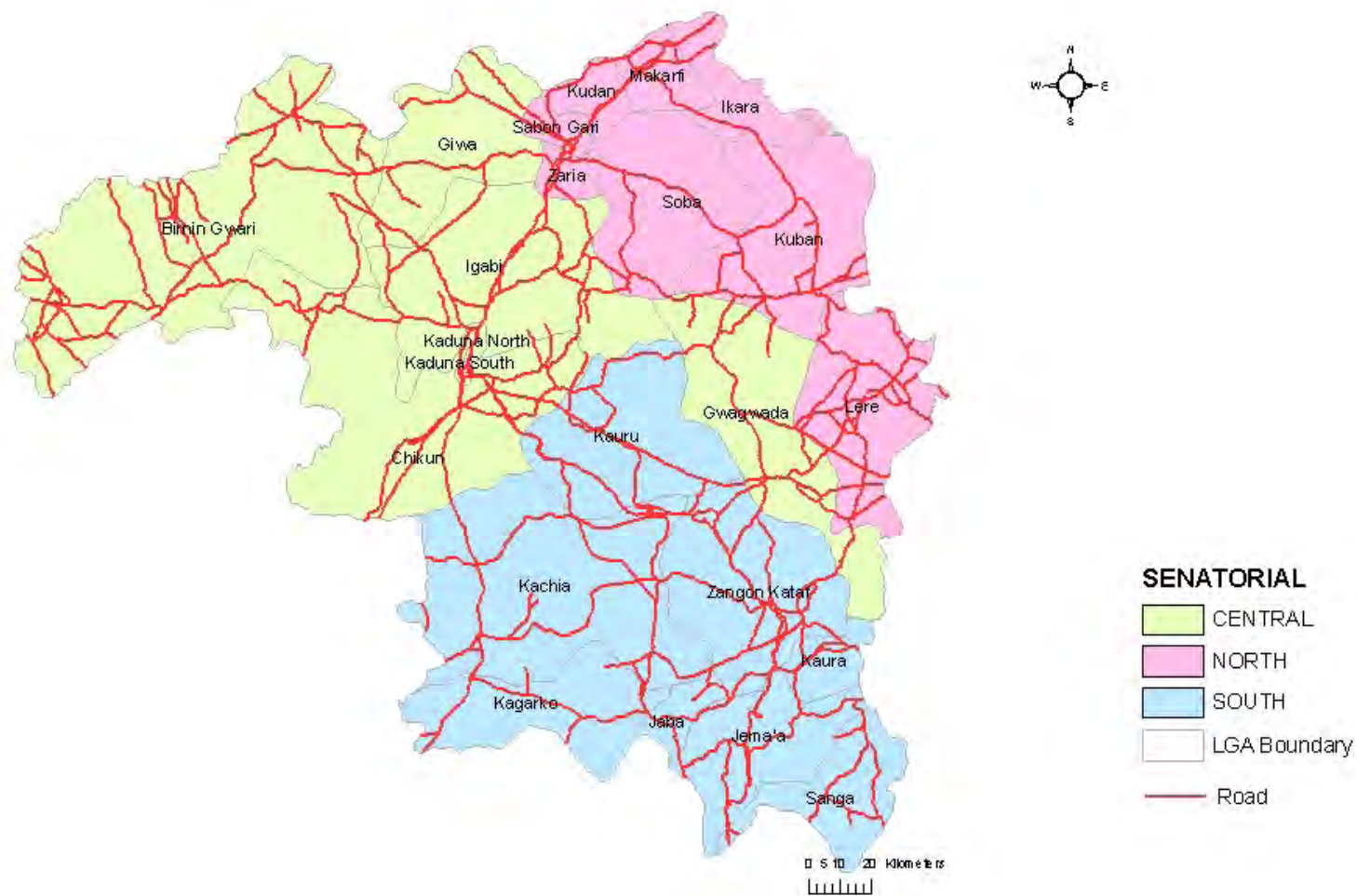


# site analysis

Kaduna Nigeria

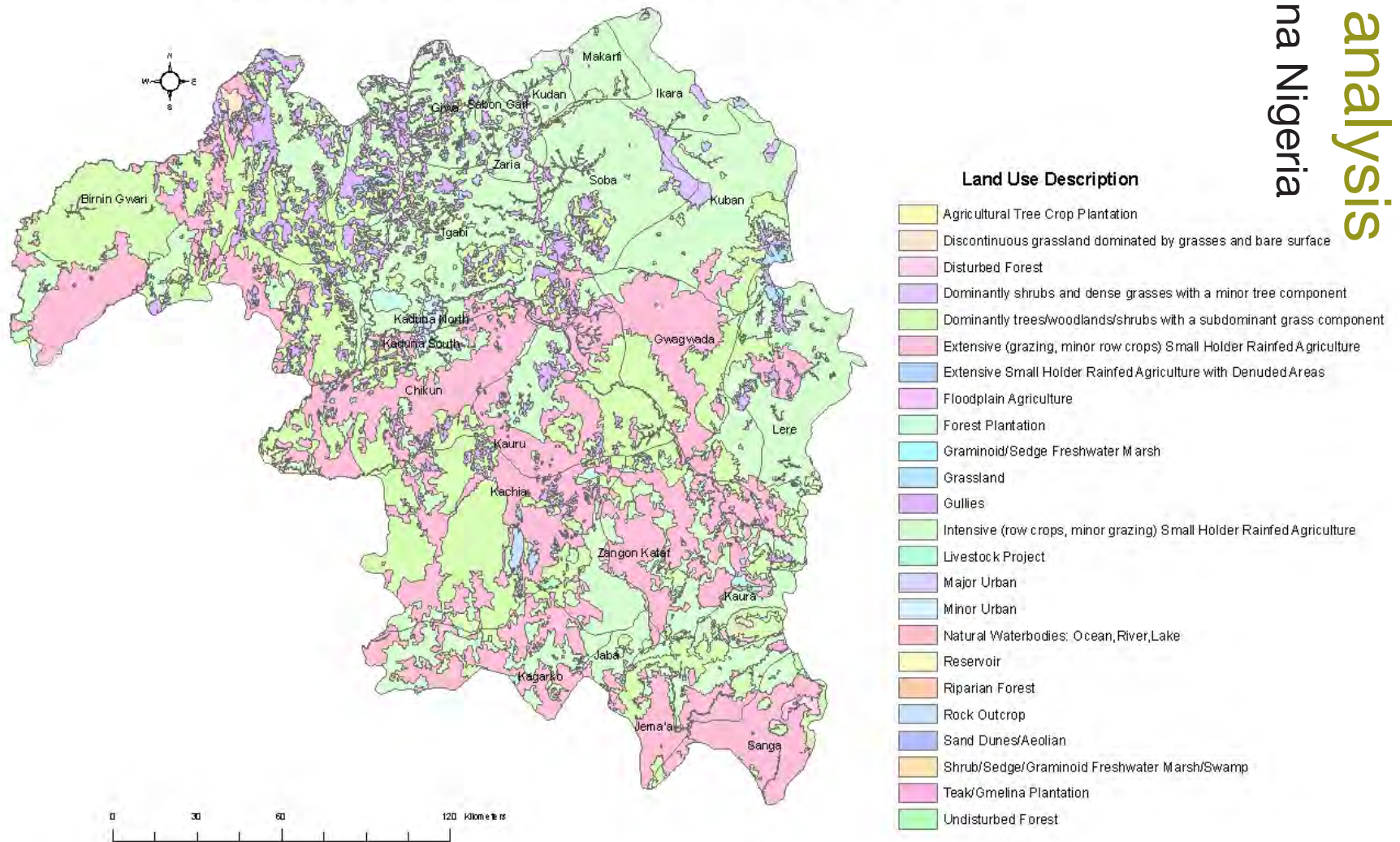


MAP SHOWING THE ROAD NETWORK IN KADUNA STATE





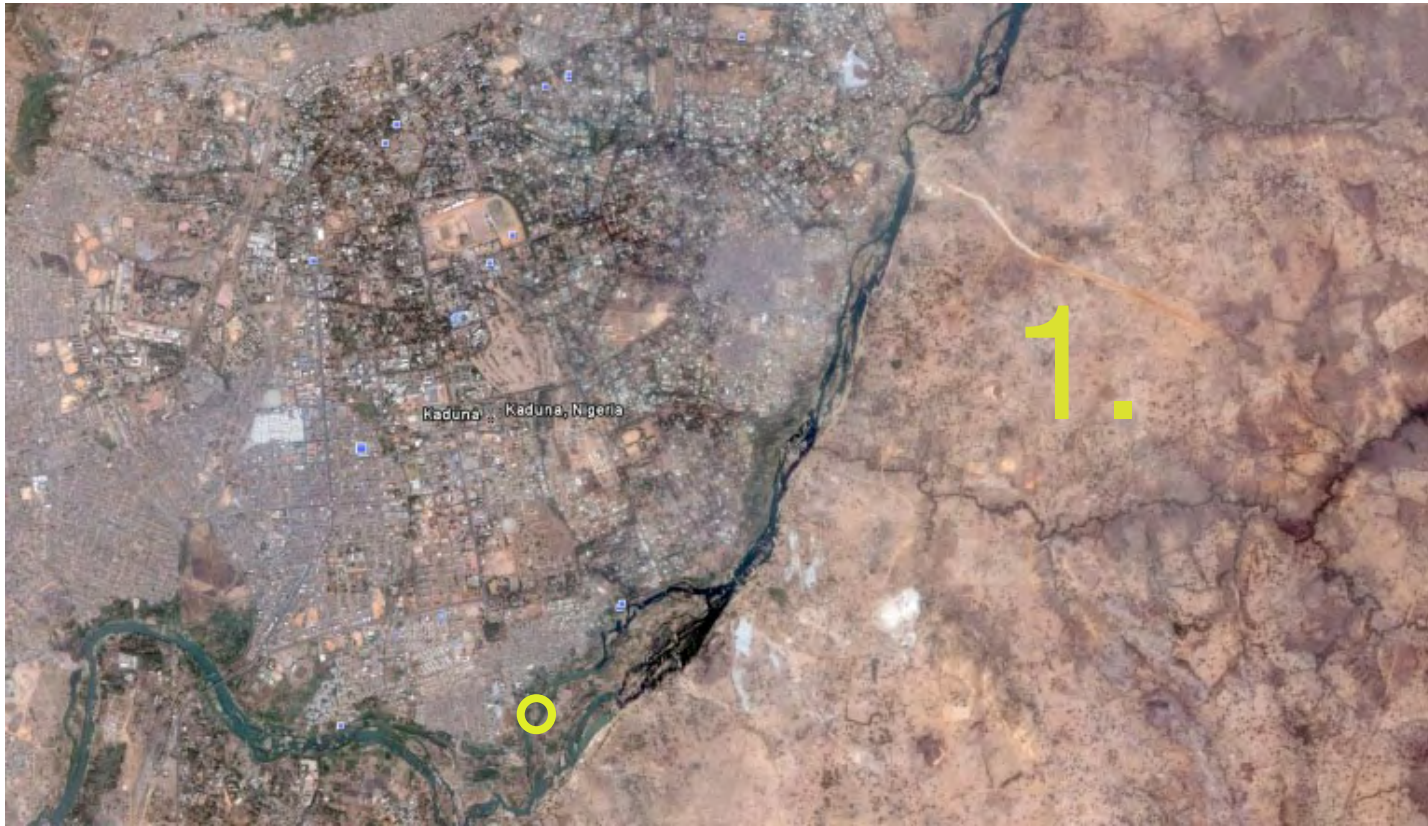
## LANDUSE MAP OF KADUNA STATE BY LOCAL GOVERNMENT AREA





# site analysis

## Kaduna Nigeria



site sequencing showing density and rurality at a broad to intimate scale in accordance to site



the image below shows the general circulation around Lugard Hall and then its central axis down to the river and Makarfi Bridge. Lugard Hall is the tip of the central Axis, leading also down to the site.

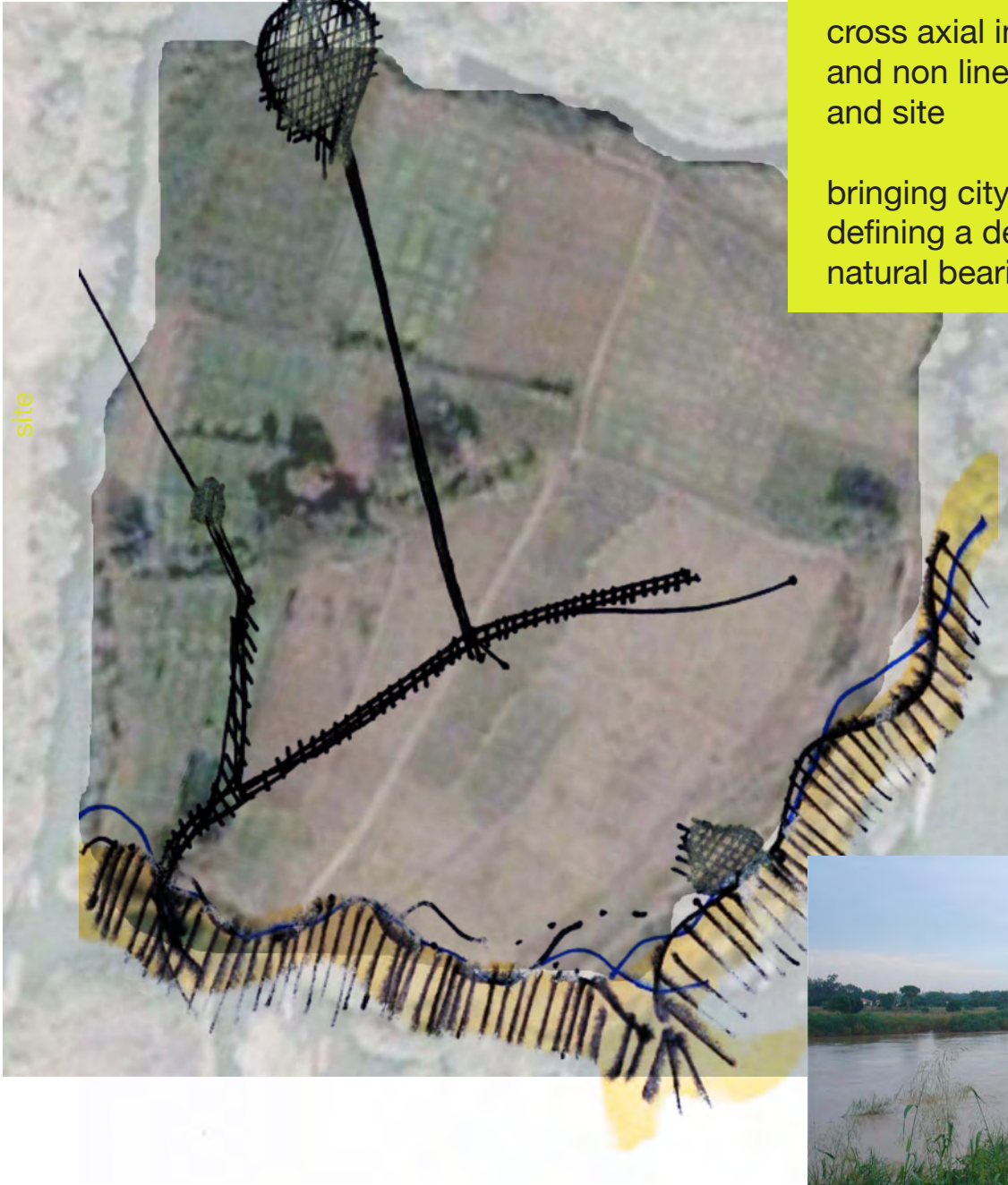




# site selection

Kaduna Nigeria

site



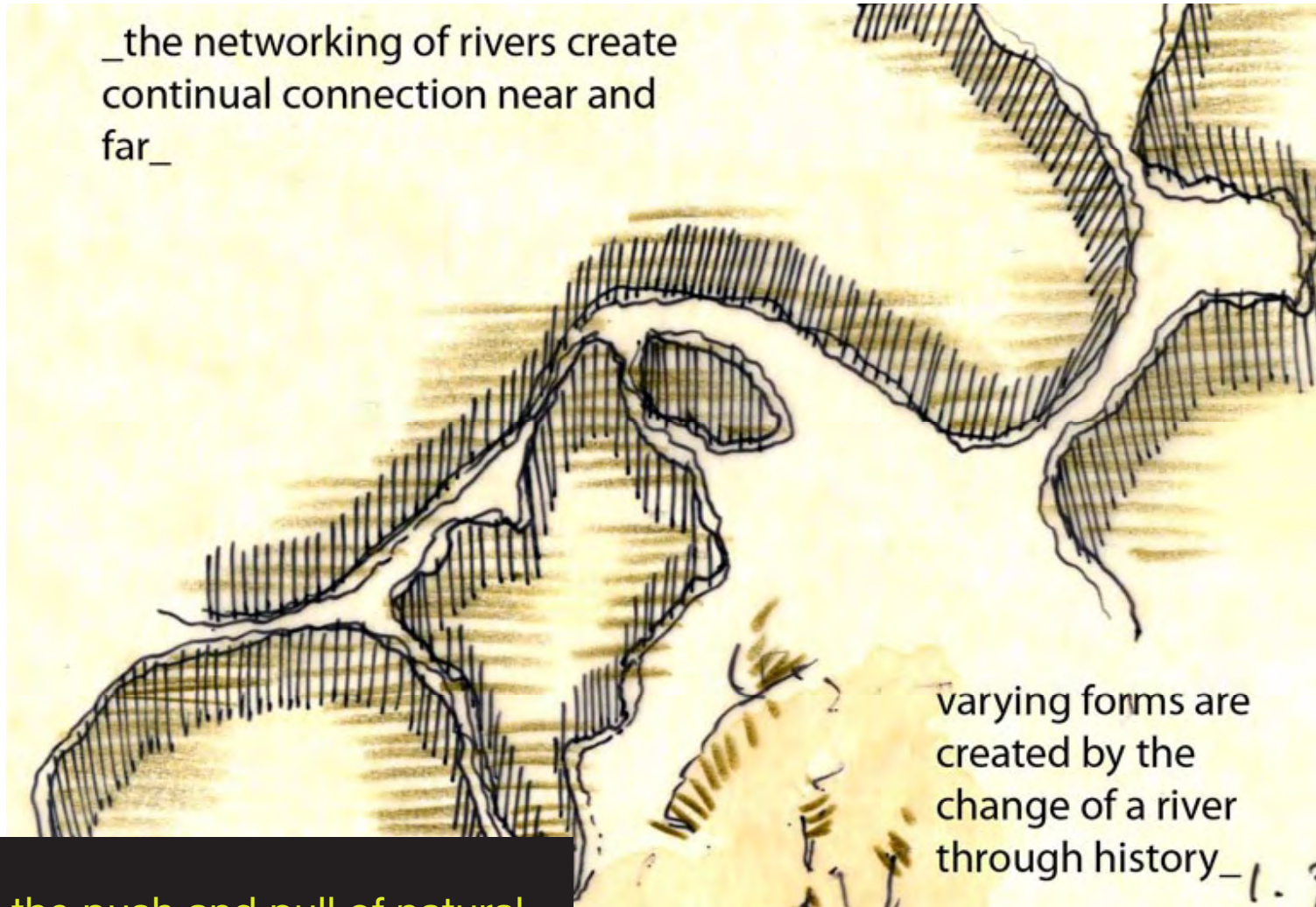
cross axial intersections of linear and non linear in relation to nature and site

bringing city axis through site while defining a definite edge through natural bearings.



# site selection

Kaduna Nigeria



the push and pull of natural elements through time creates designated spaces and forms for corresponding program







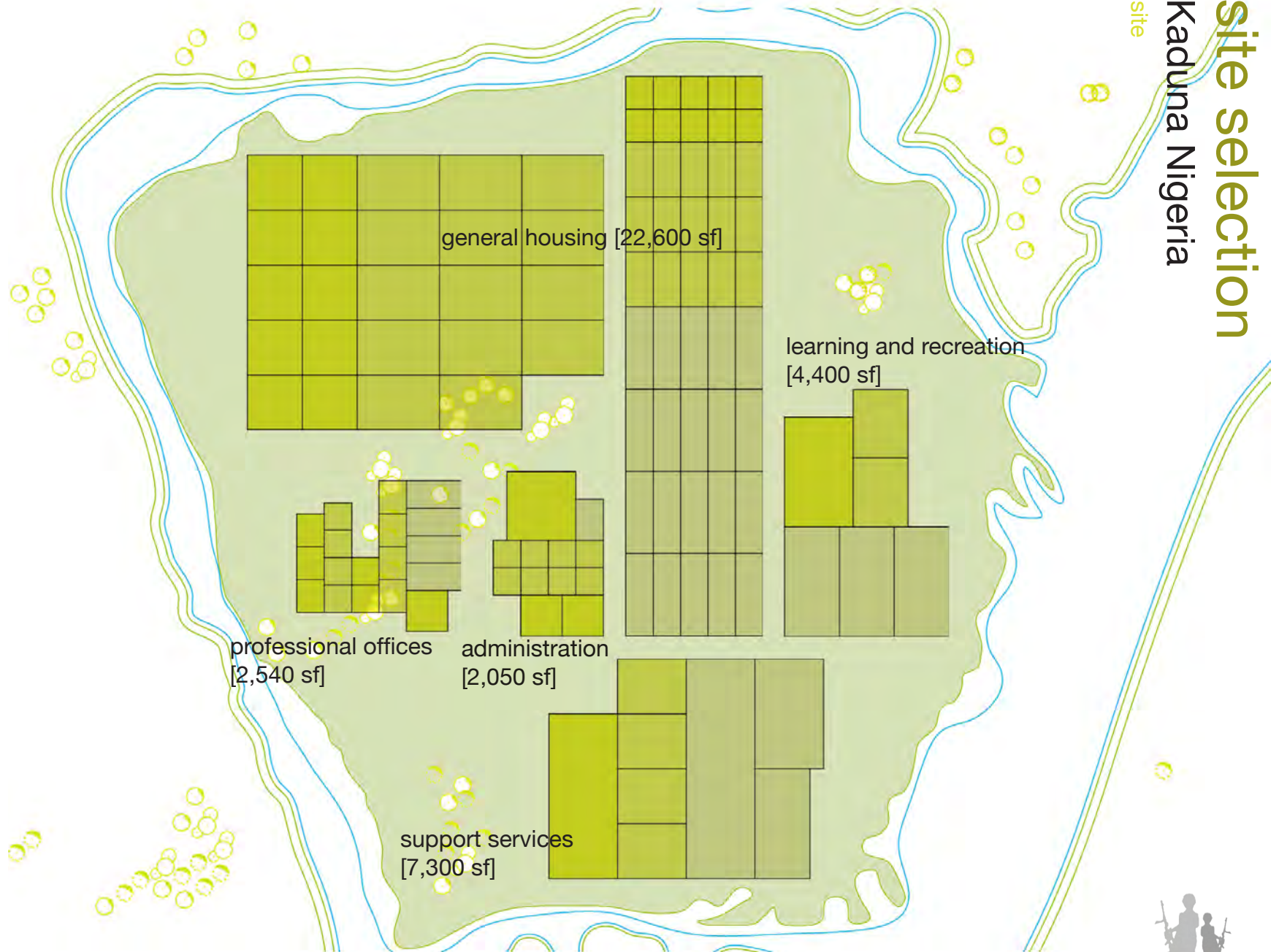
the city plan with overlaid sketches- site within context of cityscape. the grey blocks represent the actual city blocks. the roads woven between are mainly dirt, in poor condition in this area of the city. only the main roads are kept in fair condition. the sketched grid overlaid is representative of the overall city context formation.

the yellow is the proposed site [4 acres], surrounded by agricultural lands, and directly encompassed with water. the future housing development is located slightly to the south west.

# site selection

Kaduna Nigeria

site



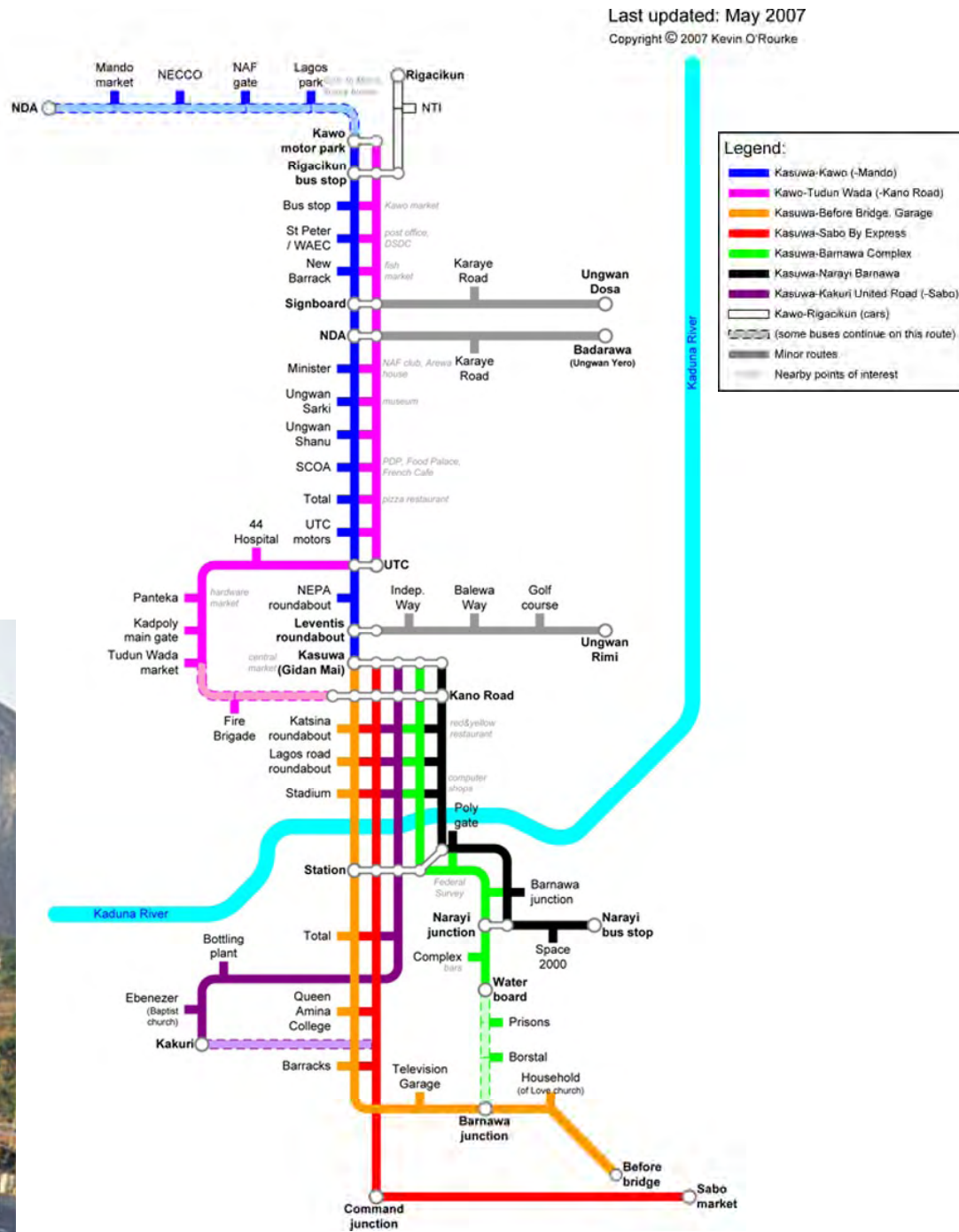
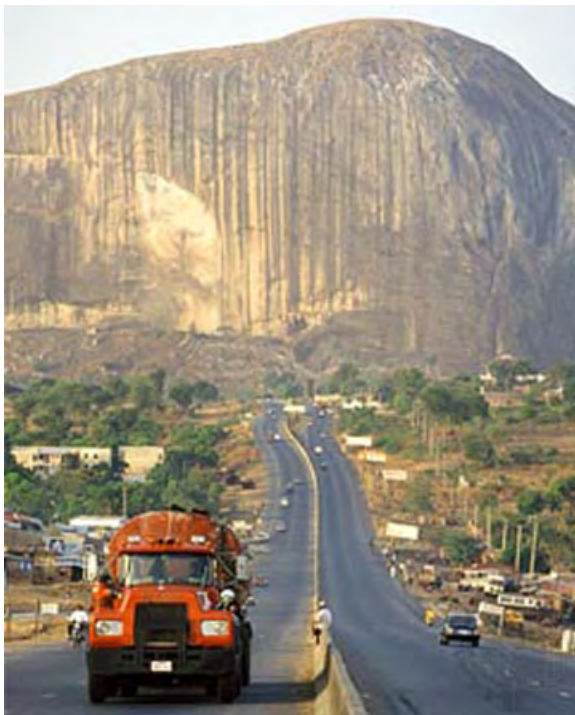
site with program overlay as denoted [total gross 44,723 sf]



# future master plan

## Kaduna Nigeria

public transportation



The Kaduna Master Plan Revision and Mapping (2008) is being carried out by a consortium of three companies: Max Lock Consultancy Nigeria Ltd (MLCN) of Kaduna, Benna Associates, Zaria and Triad Associates, Kaduna. It is led by MLCN under a directive from His Excellency Arc. Namadi Sambo Executive Governor of Kaduna State and involves substantial inputs by a range of other subcontractors and consultants. Our principal overseas partners are the Max Lock Centre at the University of Westminster, London, UK, Bradford Associates of Providence, Rhode Island, USA and Water Surveys (UK) Ltd.

### Master plan focuses on:

1. The social and economic development of Kaduna in its National, Regional, State and city-regional context.
2. Poverty reduction, social well-being and equity, security and health; meeting the UN's Millennium Development Goals and improving the general quality of life of the population.
3. The physical development and regeneration of Kaduna Urbanised Area and Infrastructure; improving physical and economic efficiency of its assets and making the city attractive for investment.
4. Governance: reform of the planning system, public participation in the planning process, creating conditions for social harmony in diversity, and strengthening social capital and networking.
5. Addressing the particular aspirations, concerns and priorities of the Kaduna community (and communities).
6. Environmental sustainability: reducing regional and global environmental impact, ensuring the sustainable use of natural resources, adapting to climate change and addressing the immediate pressing issues of environmental health and quality that affect the population.





# future master plan

## Kaduna Nigeria

main down city area



the master plan was used as a reference for zoning and understanding the context within the city and where the building and development of the city is going in the future. by referencing the maser plan I gained a more in depth knowledge of the zoned areas and cultural components that make of the city of Kaduna.

city axis from Lugard Hall down to the site

# future master plan

## Kaduna Nigeria

This plan indicates how the existing roads and those proposed would be integrated into a hierarchical network.

The primary network is shown in red and the District Distributors are shown in Black.

Four new river crossing points were identified in the master plan and chosen specifically for their topographical advantages giving narrow rock based locations for relatively inexpensive engineering solutions.

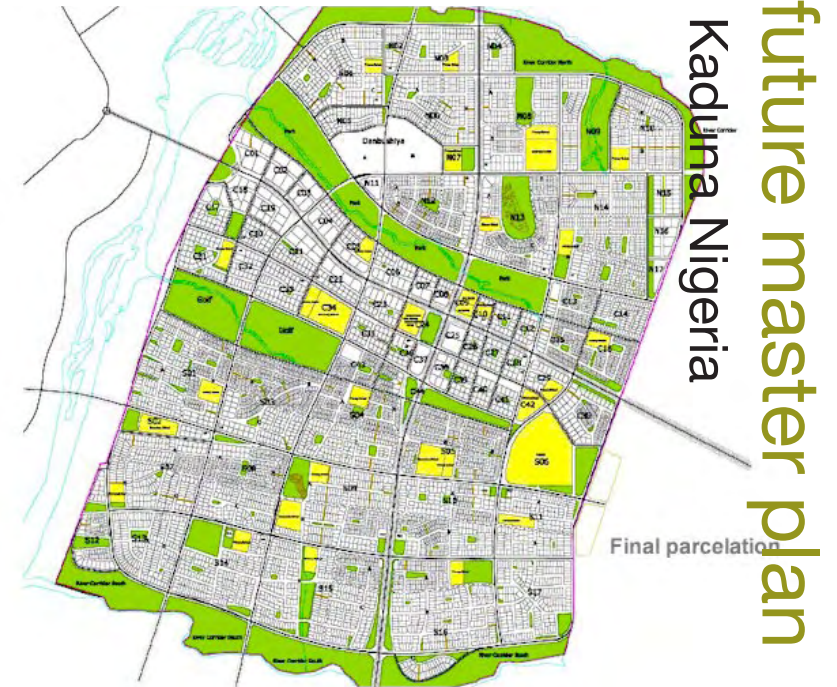




The governor is working hand in hand with the development of the master plan and the continued formulation of the city overall.



“ Our 11 - point Agenda will address all the development and social needs of Kaduna state and bring tools of empowerment to youth and women in the state. Operation Yaki is meant to address the issue of security and our e-government strategy will uplift the state economically. I wish to reaffirm my total commitment to the service, Welfare and interest of the people of Kaduna State. We shall spare no effort to make sure that our tenure brings succor and prosperity to our people” -Governor Arch Namadi Sambo



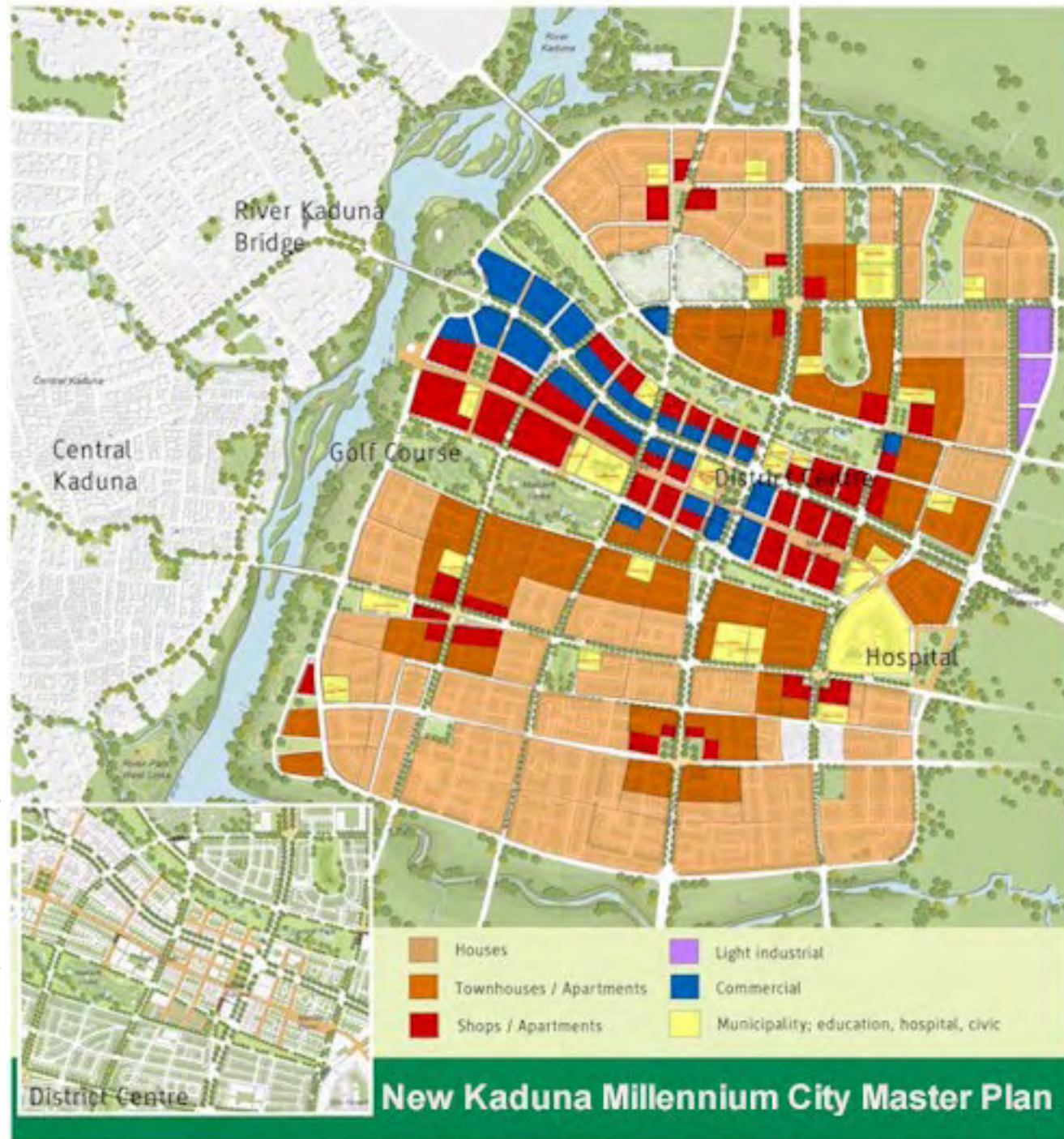
## Governor Arch Namadi Sambo's **11 Point** Agenda for future development

1. Security for Peace and Development
2. Free and Compulsory Primary Education and General Development of the Education Sector
3. Intensive Agricultural Development
4. Poverty Alleviation
5. Youths and Women Development
6. Infrastructural Development
7. Improved Health Care Delivery
8. Industrial Regeneration (Cottage and Urban Industries)
9. Provision of Housing for All, Particularly the Low Income Earners and the Civil Servants
10. Transformation of Our Rural Areas to Modern Standards
11. Improved Welfare Package for All Workers and Pensioners



# future master plan Kaduna Nigeria

this map shows the new Kaduna city, this area is being designated slightly north east of my chosen site, across the river.





# future master plan Kaduna Nigeria



**New Kaduna Millennium City Master Plan**



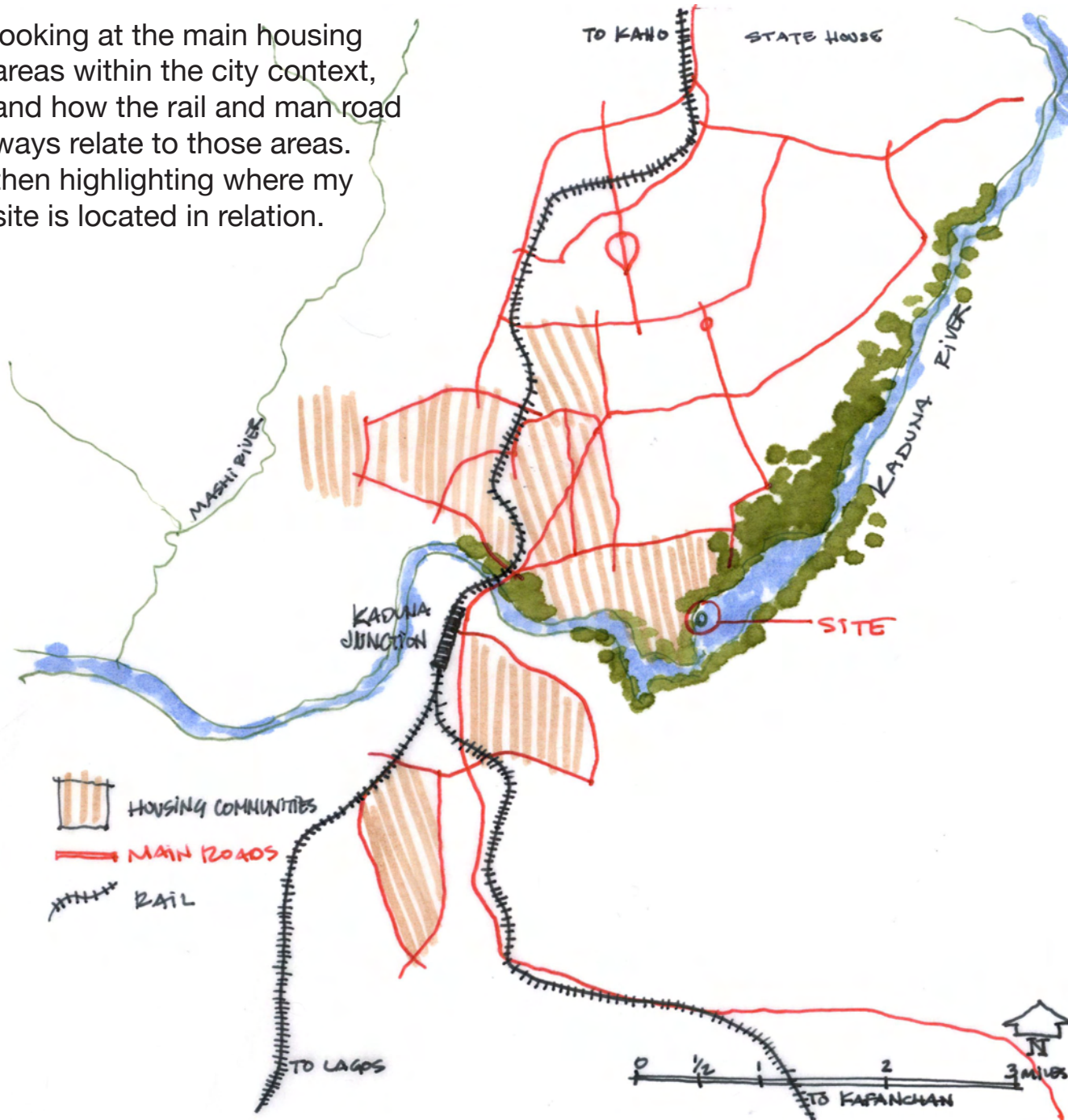
**New Kaduna Millennium City Downtown**



# future master plan

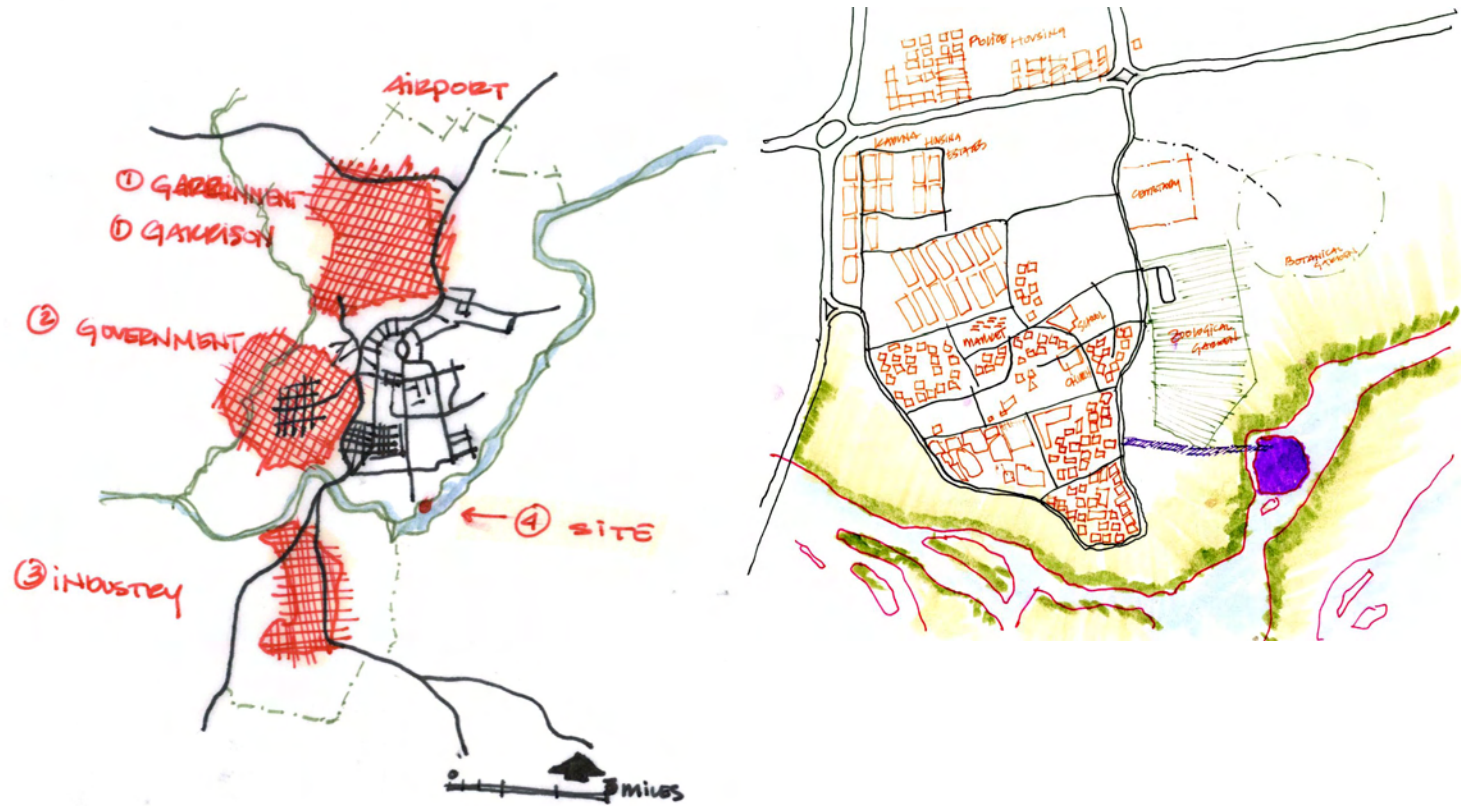
## Kaduna Nigeria

looking at the main housing areas within the city context, and how the rail and main road ways relate to those areas. then highlighting where my site is located in relation.



# future master plan

Kaduna Nigeria

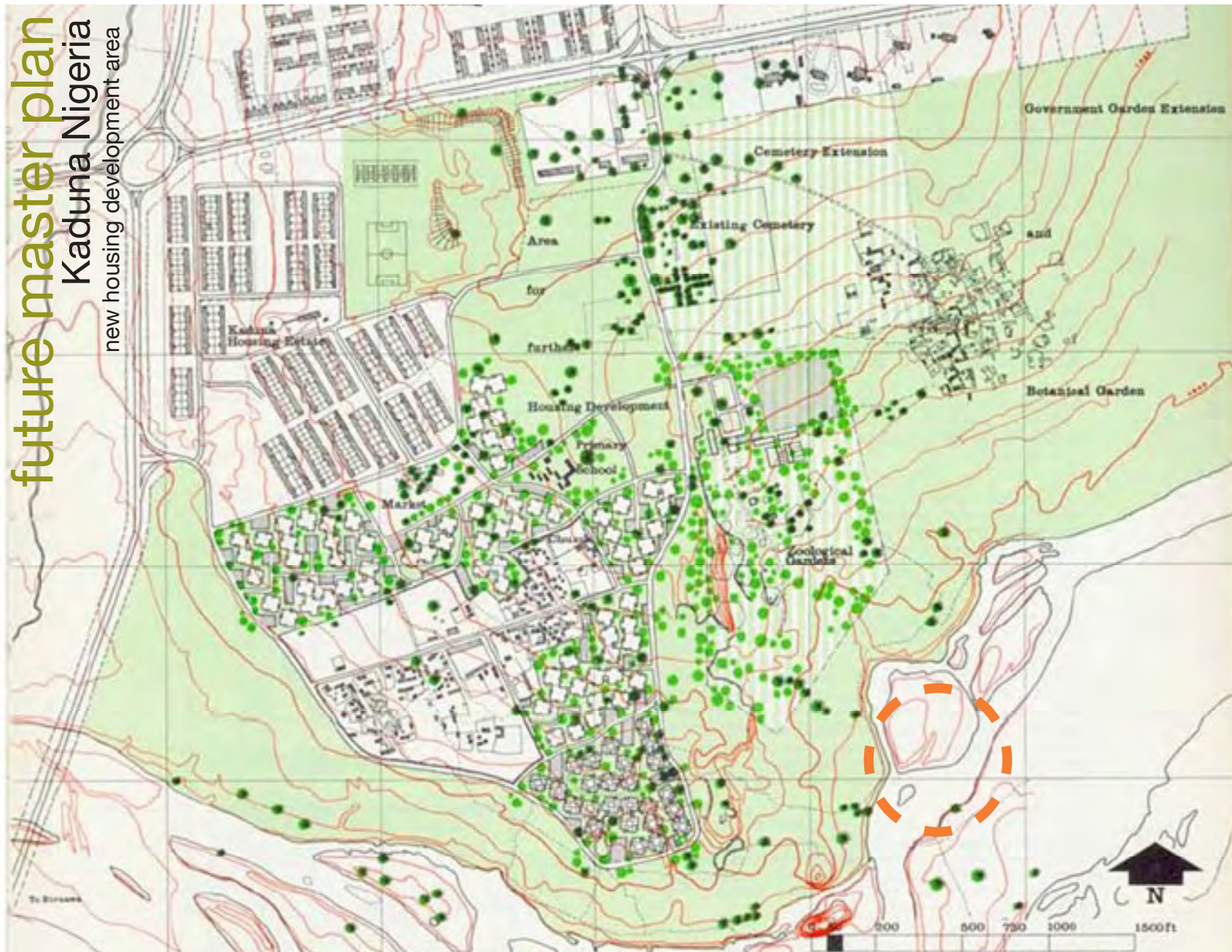


***“Kaduna, with its unique cultural heritage and creative potential, is well placed to exploit new paradigm shift for sustainable economic growth and becoming a key actor in the knowledge driven-economy. That is why our 11 Point Agenda has ICT as a tool to empower, reconstruct, restructure and re-engineer. We are creating new city, new shopping mall, new markets, new hospitals and new ways of doing business, and by the grace of God, new ways of providing Good Governance and dividends of Democracy to our people.”***

**-Governor Arch Namadi Sambo**



# future master plan Kaduna Nigeria new housing development area



the map illustrates the proposed housing area adjacent to my site. my site was chosen for its physical separation, but also for its congruency with the future development seen here. this housing typology has a strong focus on community and child development in a productive and safe learning manner.

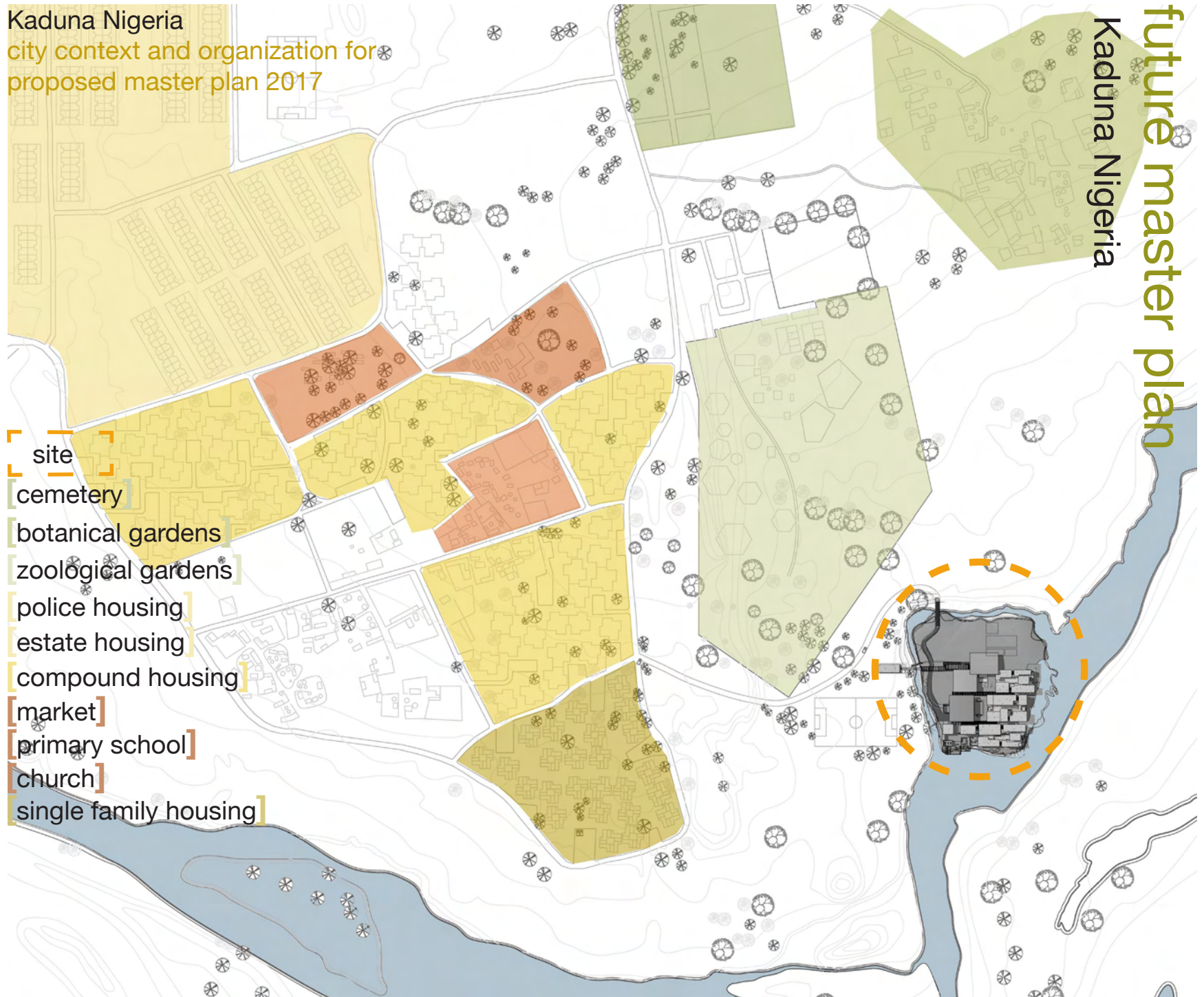


# future master plan

Kaduna Nigeria

Kaduna Nigeria  
city context and organization for  
proposed master plan 2017

- [site]
- [cemetery]
- [botanical gardens]
- [zoological gardens]
- [police housing]
- [estate housing]
- [compound housing]
- [market]
- [primary school]
- [church]
- [single family housing]



when dealing with design and building for Kaduna, Nigeria I was faced with no defined building regulations or zoning. however this made me realize that I could easily define what worked best for my design concepts. while designing I was conscious of many details, that in other countries would have been categorized as building regulations. the site was chosen for many of these reasons. the site is in fact an island, with only one single vehicular access point. this was done for security purposes. the secondary access, is strictly pedestrian, which is easily monitored. the coming and going onto the island then becomes very controlled, due to its access points.

The movement of motor vehicles- both on an everyday basis and in the case of fire or emergency is taken into full account within the design. the entrance louvers [into the facility], slide large enough to let access for ambulance or fire truck into the central courtyard. also the medical unit was placed near direct access to the outside of the facility, for similar reasons.

I took into consideration the accessibility of all the boys- how many of them coming in from war would be victims of bodily mutation, needing access via wheelchair or crutches. by making note of this I designed so that majority of the rooms were on a single level. the second level only embraced a few rooms, that could then be assigned to those more mobile.

the realization of safety and fear is handled by the puncture in the walls- the screening. not only was this done for climatic reasons, to assist in cooling and light, but also so that there is a constant sound flow throughout the facility. this way, if a boy is in his room, alone or with others, he is not entirely enclosed - it becomes a subconscious, non direct form of supervision.





# final design

1.

Initial Sketch [Paintings]

2.

Briefing of Design

3.

Axon

4.

Diagrams

5.

Plans + Sections

6.

Climate + Context

7.

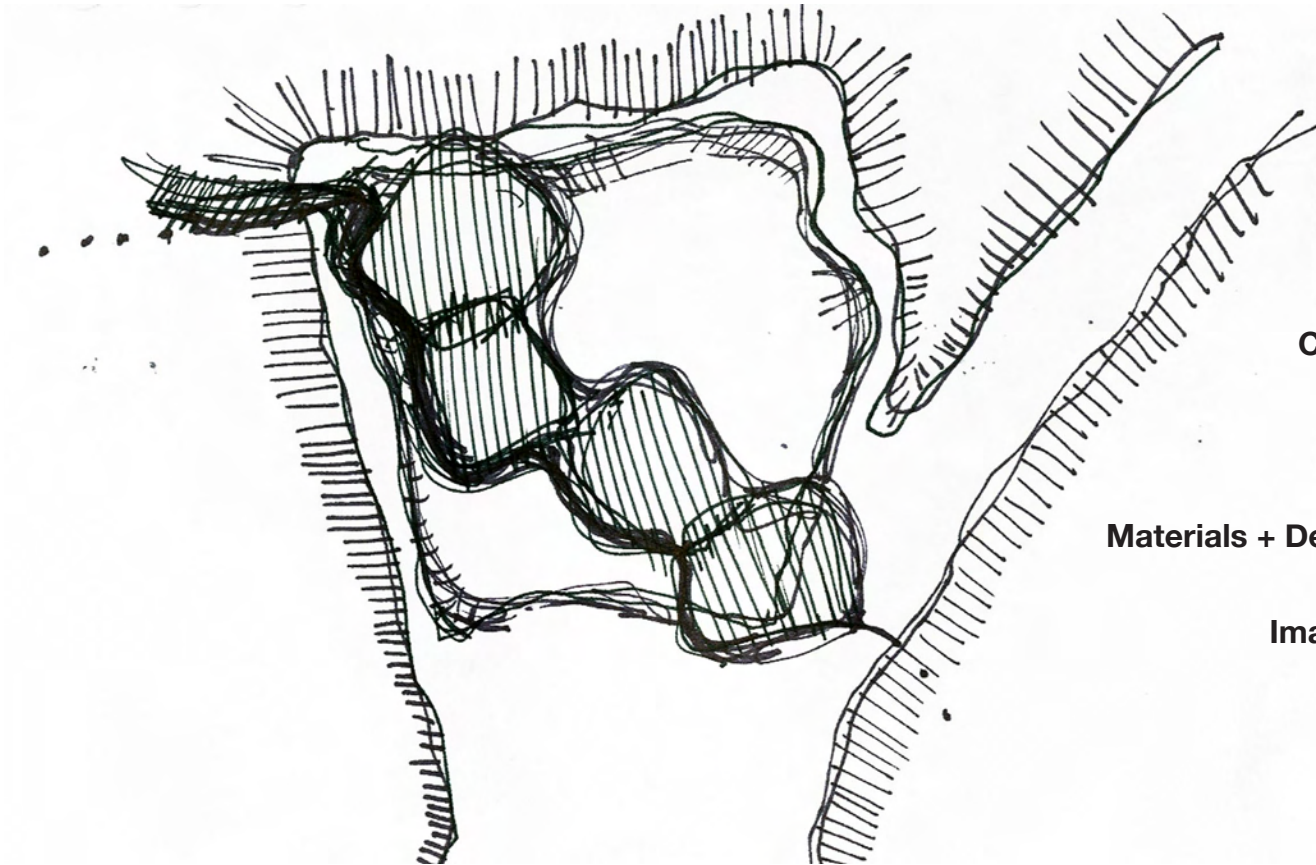
Elevations

8.

Materials + Designed Detailing

9.

Imaged Sequencing







The paintings were created as an exploration on the landscape and community through mediums and colors of the African culture in Kaduna Nigeria







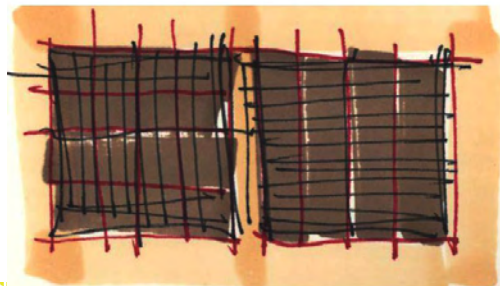








# final design



## 6 points of design

- 1 restoring family relationships
- 2 relationships with the community
- 3 children's health
- 4 organized learning opportunities
- 5 vocational training/income generator
- 6 recreation and play



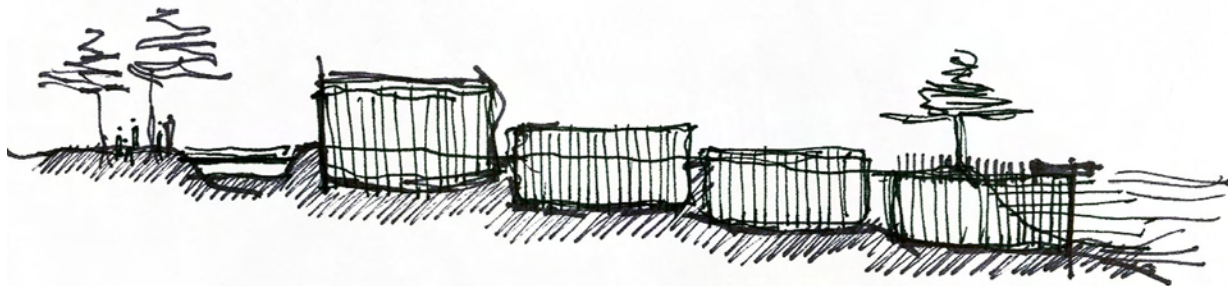
**Rehabilitation** in terms of dealing with child soldiers, concentrates on an organized process in which follows the children's demobilization, escape, or capture and then release by another armed force. It really is simply a process of re-orientation, rest, recuperation and reflection which needs to take place in a safe setting, in interaction with people who have received special training to facilitate the re-adjustment process. It can be understood as a metaphor 'crossing a bridge between the military life to life in one's home and community.'

**Reintegration** is the process of re-uniting a child with his or her family and community. Reintegration's outcome is strongly dependent on the success of the rehabilitation process. It eventually becomes indistinguishable from the rehabilitation process as the child's progress is inextricably linked once they again become a member of their community. It is crucial that the child understands what is meant by the re-integration. They want to feel accepted, especially by parents and siblings. They need reassurance and concrete evidence that they are respected, with no reference of their past.



# final design

landscaped site plan





## F1[Filter 1]-Rehabilitation

The boys are received by the staff and diagnosed, and attended to. They are housed in a separate enclosed housing pod adjoining the medical unit. The housing consists mainly of single unit rooms, with the majority of the staff housing within this filter for close supervision.





## F2 [Filter 2]-Communal

This filter is oriented around the central courtyard and gathering space of the overall compound. The rooms are either doubles or quads, intermingled with staff housing, to encourage mediated interaction.





## F3 [Filter 3]-Reintegration

The focus of this filter is to provide education and skill development, and to foster interest in the outside world. The boys have access to the river - using boats, fishing, and swimming – and to agricultural fields for harvesting their own crops, which are sold in the connected marketplace as a source of self-sufficiency.

final design  
first phase



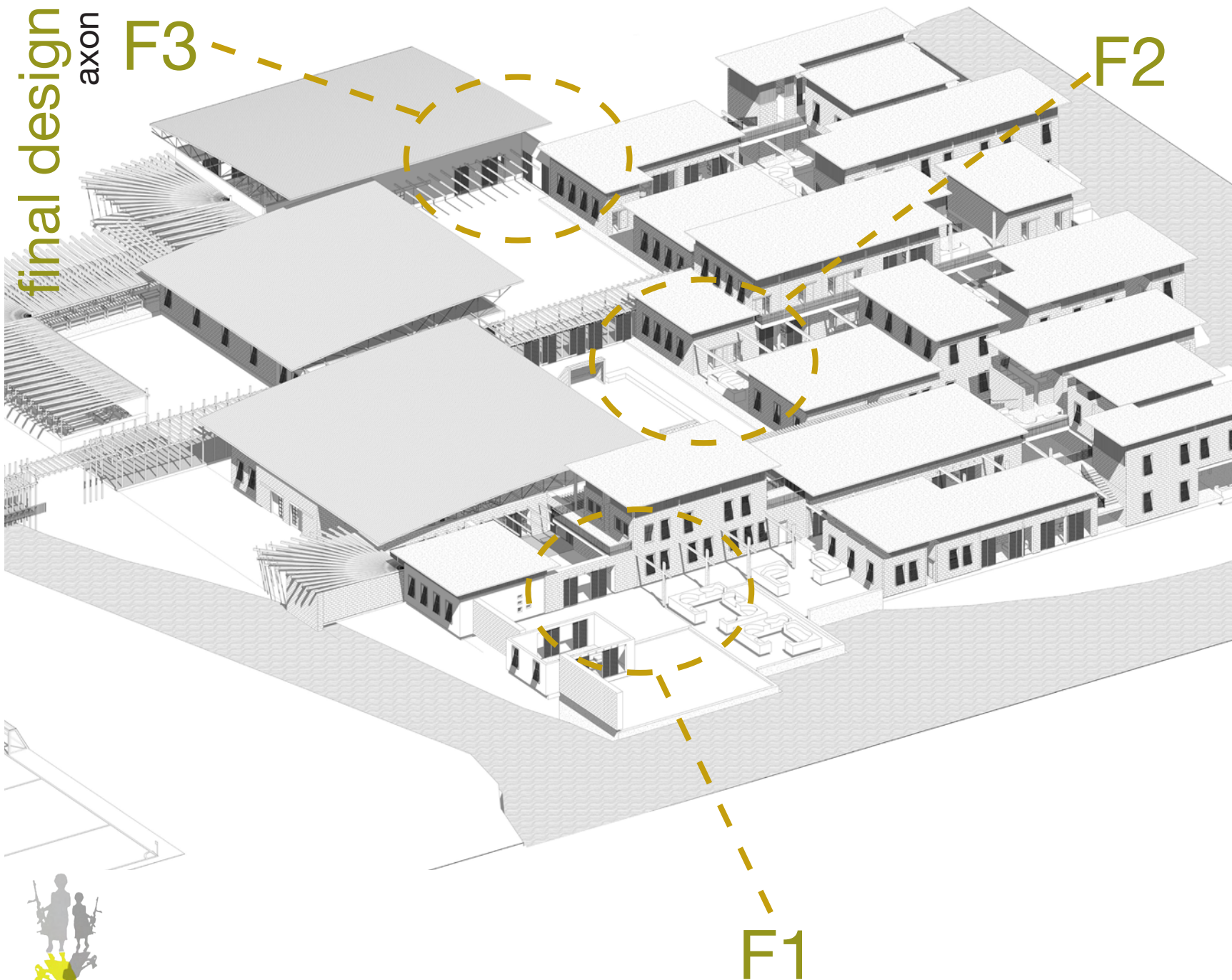


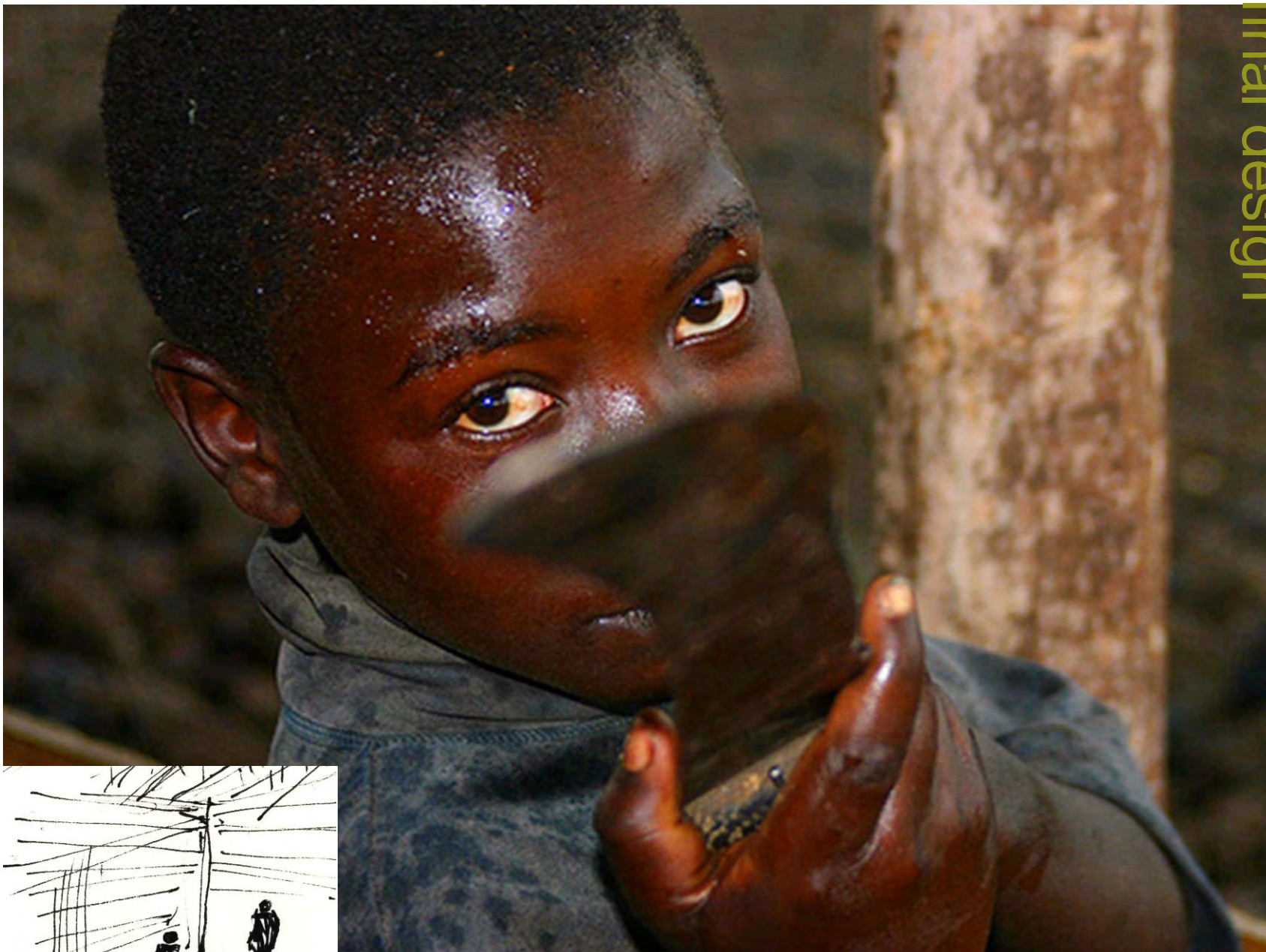
final design  
axon

F3

F2

F1



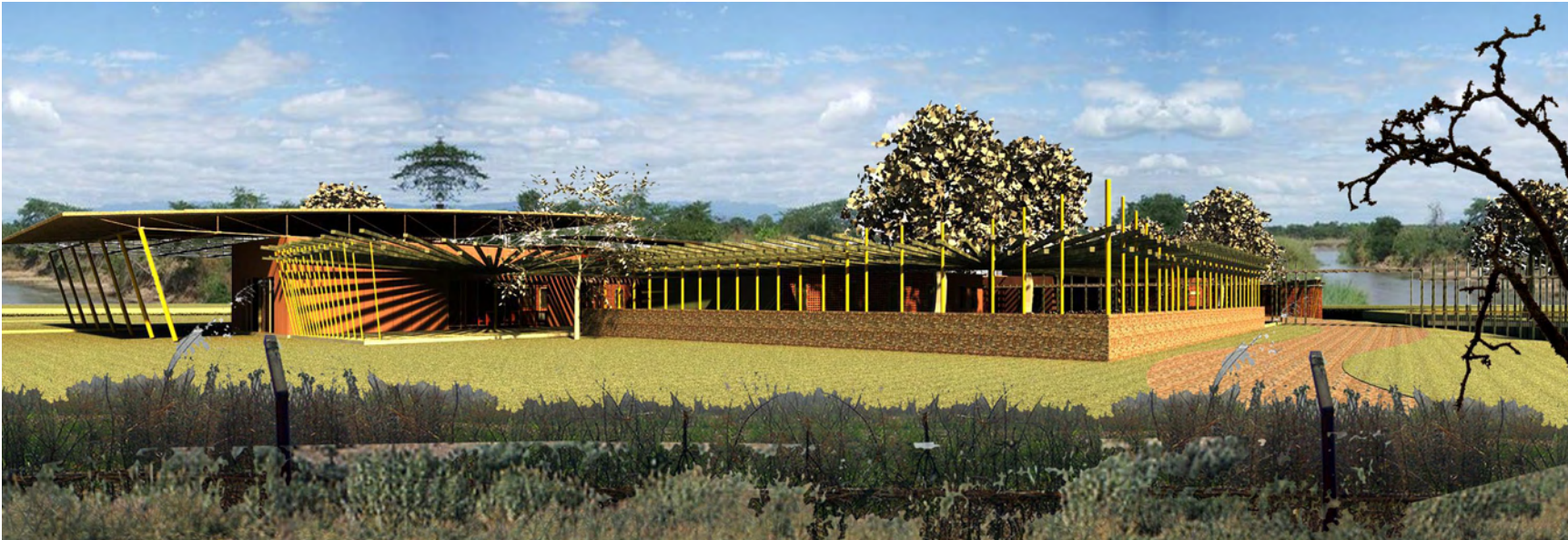




The following is a visual sequencing through the building, as emotional and physical cleanse and rebirth of inner peace and compassion. One can learn from these images how the building works, and feels, from entrance to exit.

From filter 1 [F1] through filter 3 [F3]- the boys embrace life and are able to be guided towards a newer and improved lifestyle and appreciation for life and the cultures around them.

## Approach





Entrance into F1- receiving for trauma victims









## Separate Courtyard for F1

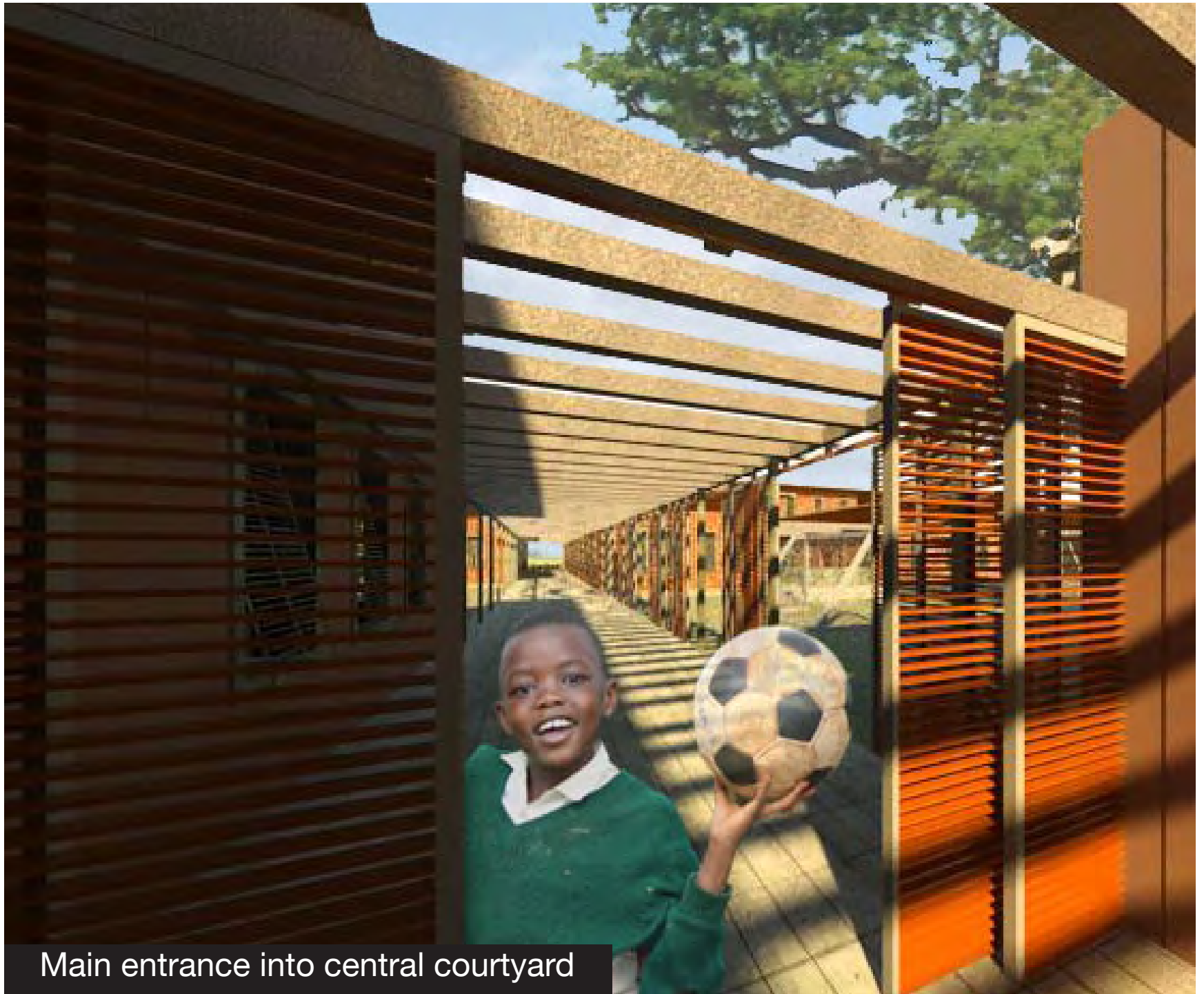






Housing Typology of F1





Main entrance into central courtyard





Eating rooms open to the courtyard





community kitchen spaces



Inlaid gathering circle



Library and classrooms





Housing typology- F3





Typical staff housing typology



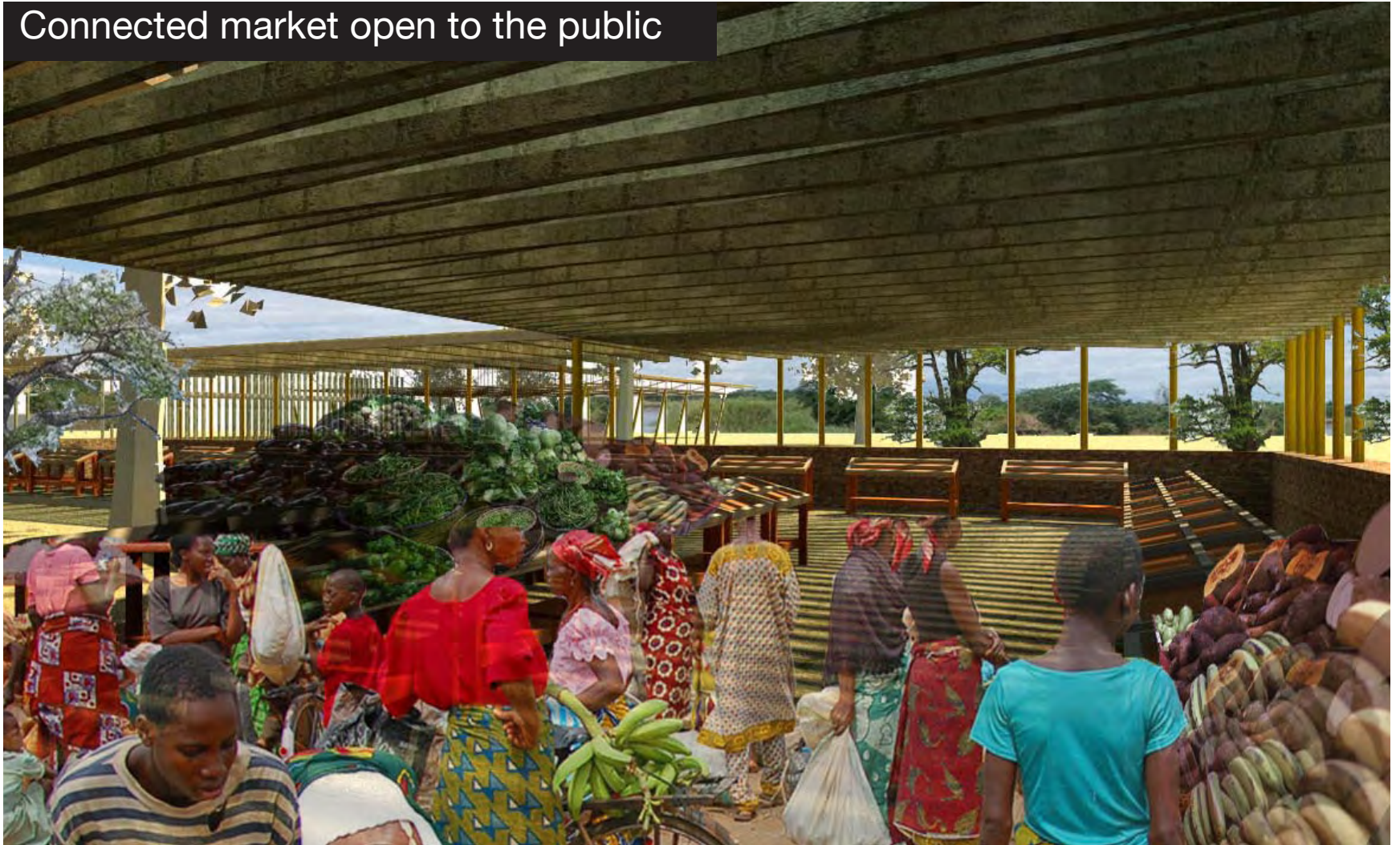


Entrance and circulation of F3 to the market





Connected market open to the public



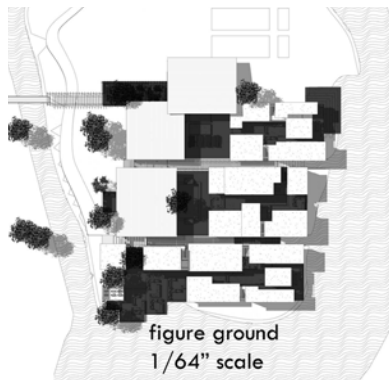
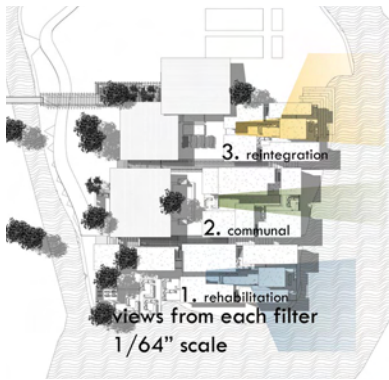
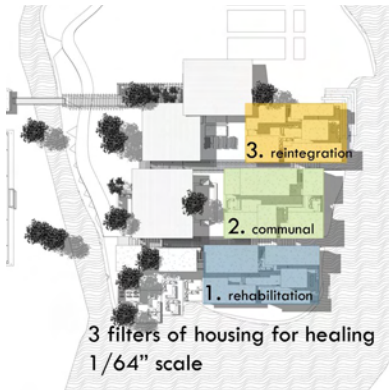
Aerial from north east





# final design

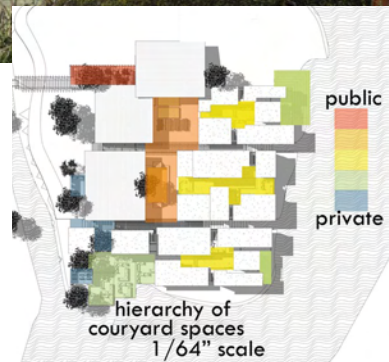
## diagrams and filter 2





# final design

filter 3 looking down the river

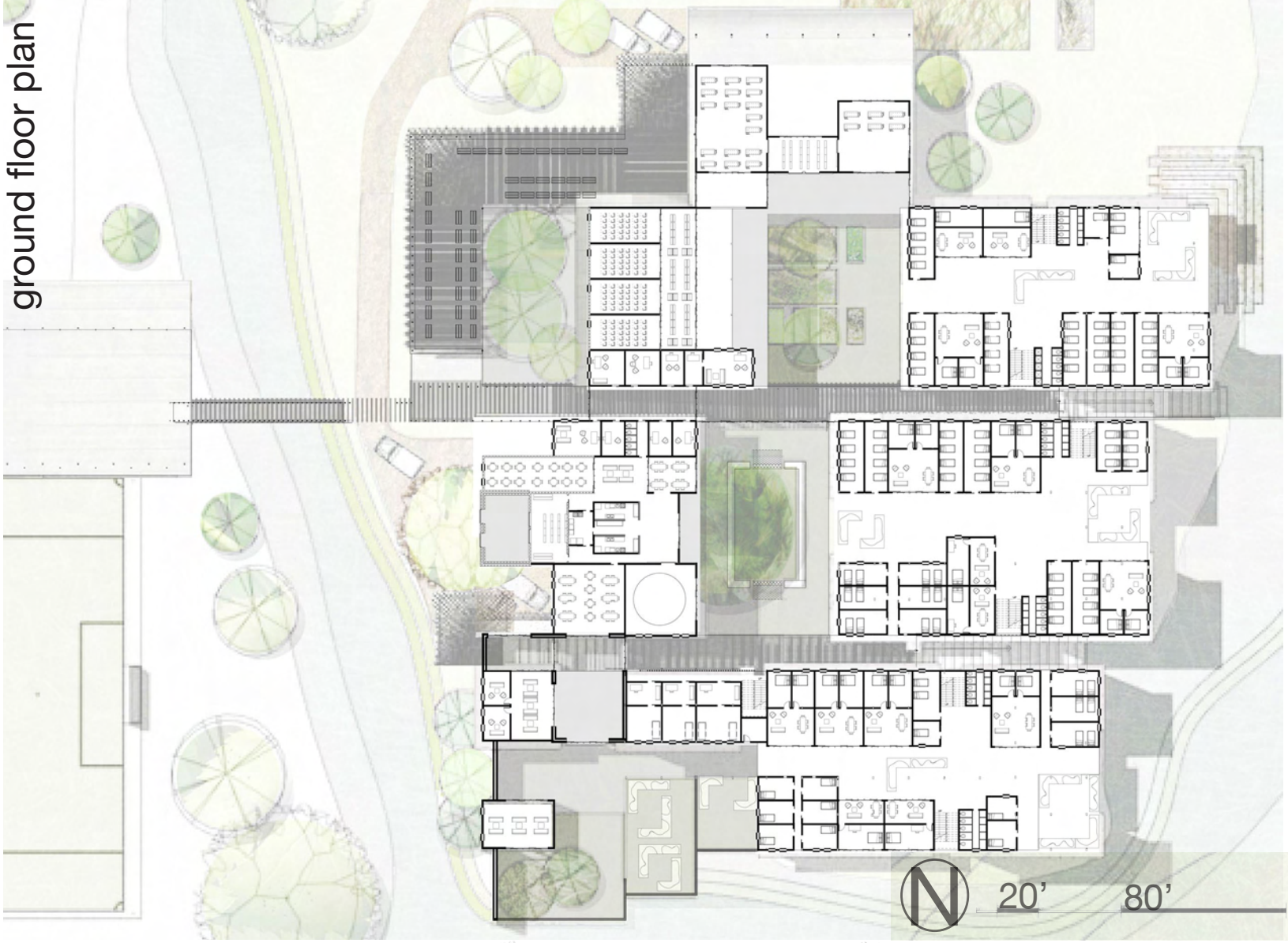






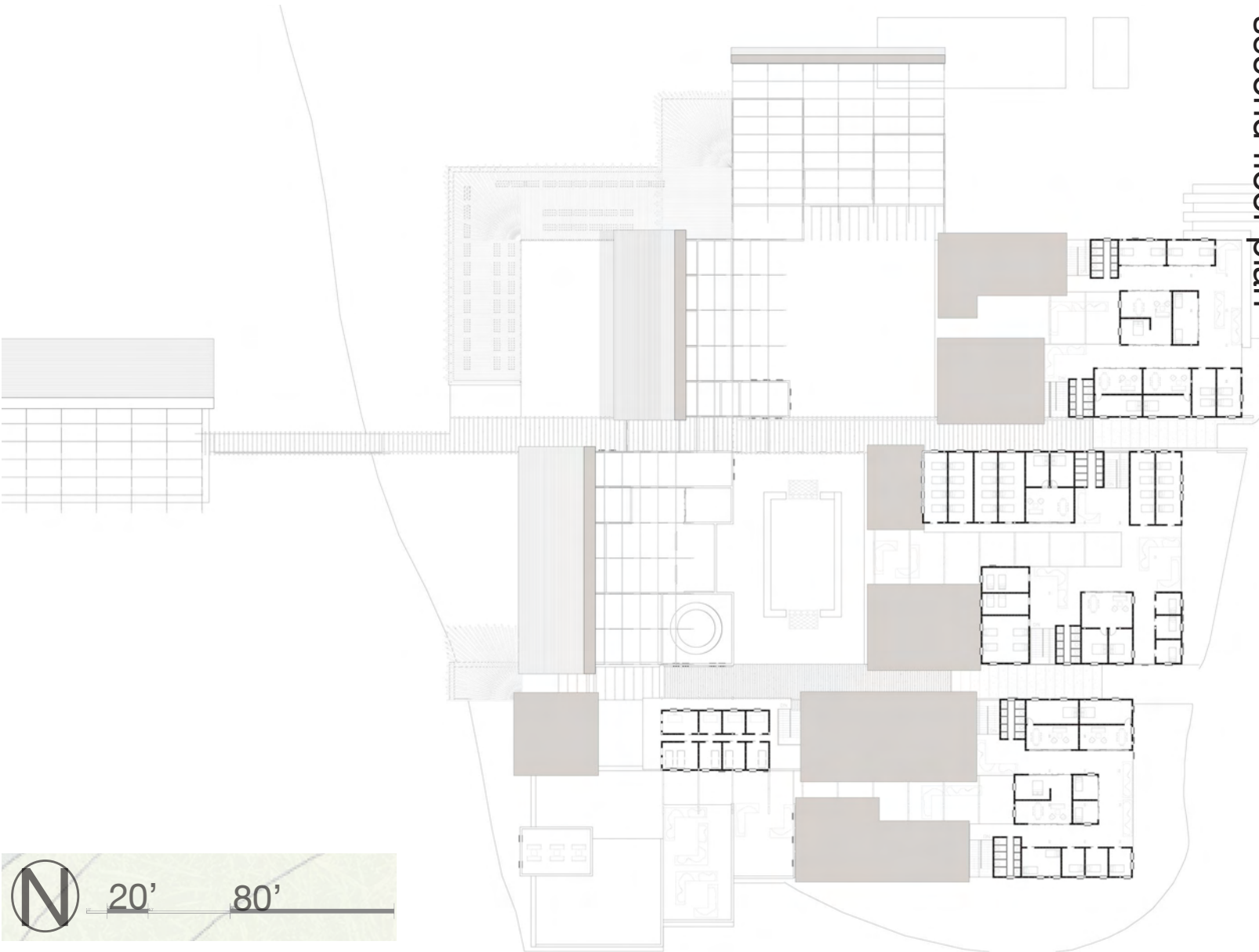
# final design

ground floor plan

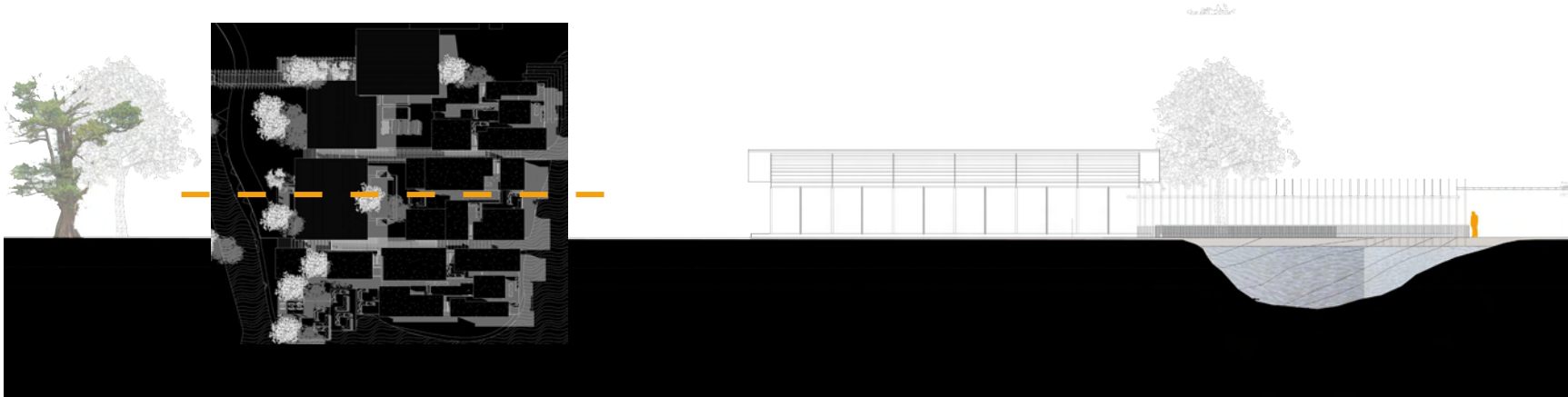
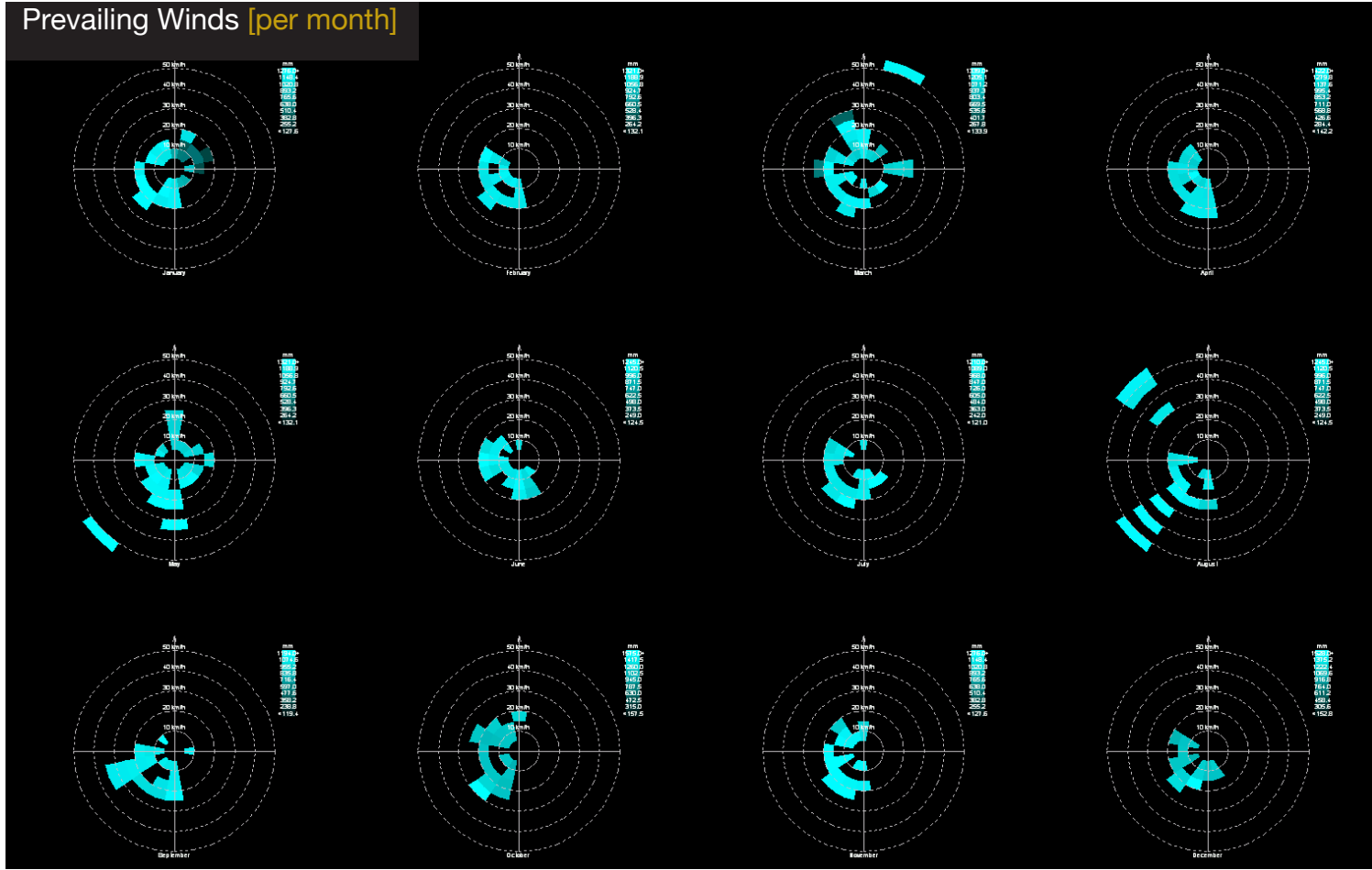


# final design

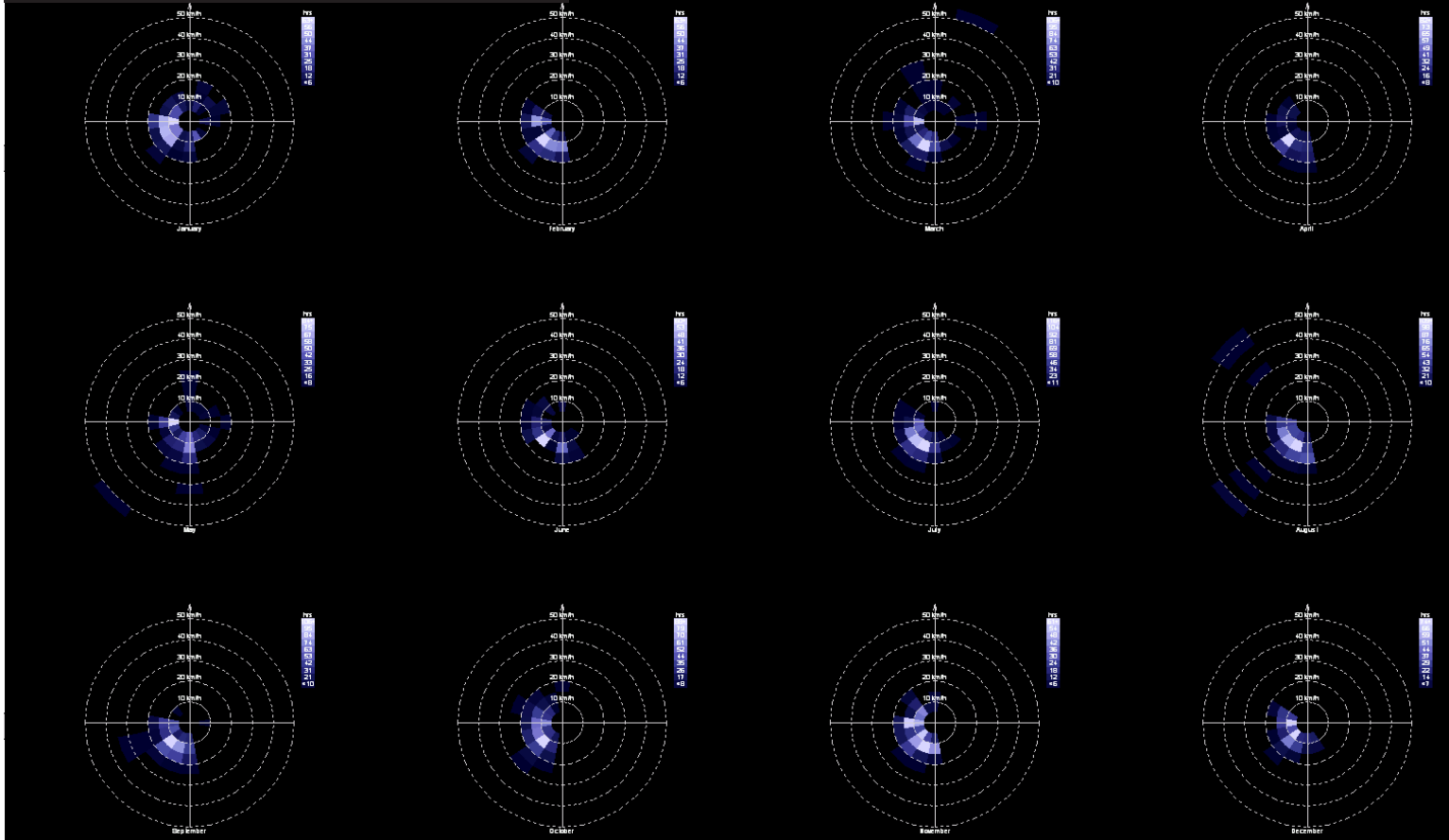
## second floor plan







## Average Yearly Rainfall [per month]

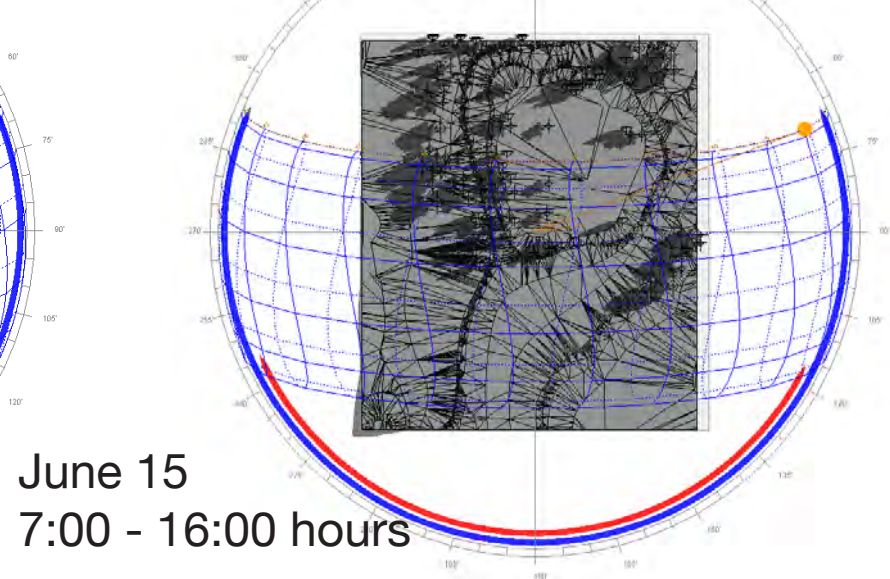
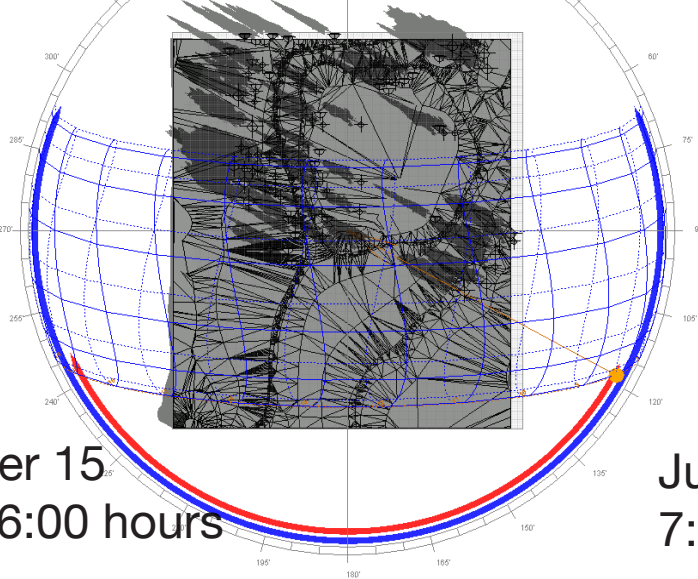




final design

shadow range

I created the four acre site virtually using Ecotect and was able to climatically analyze each day of the year and how sun, rain, wind, and temperatures would affect the ways in which I were to design.



December 15  
7:00 - 16:00 hours

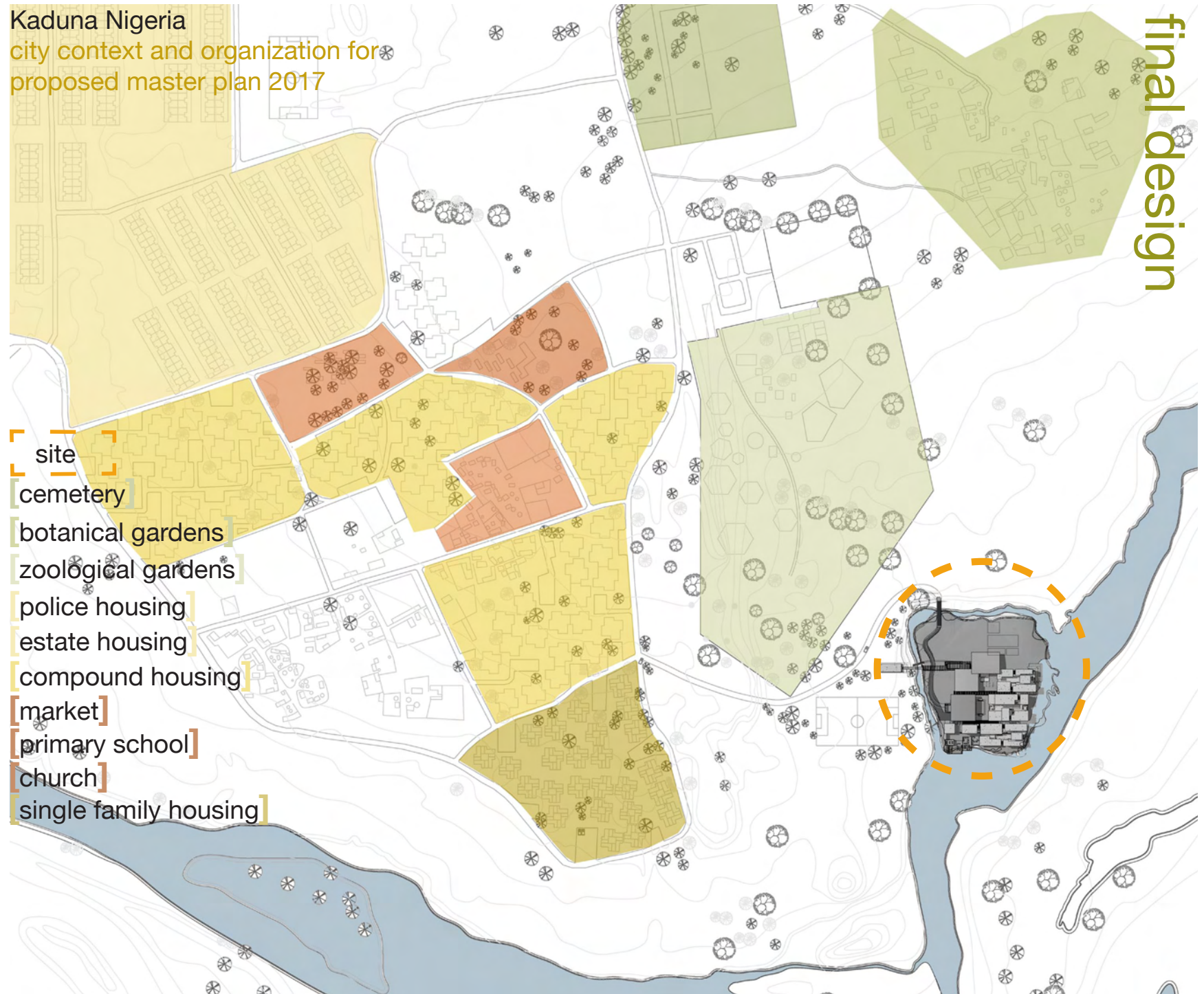
June 15  
7:00 - 16:00 hours



site model constructed at  
1/32" scale

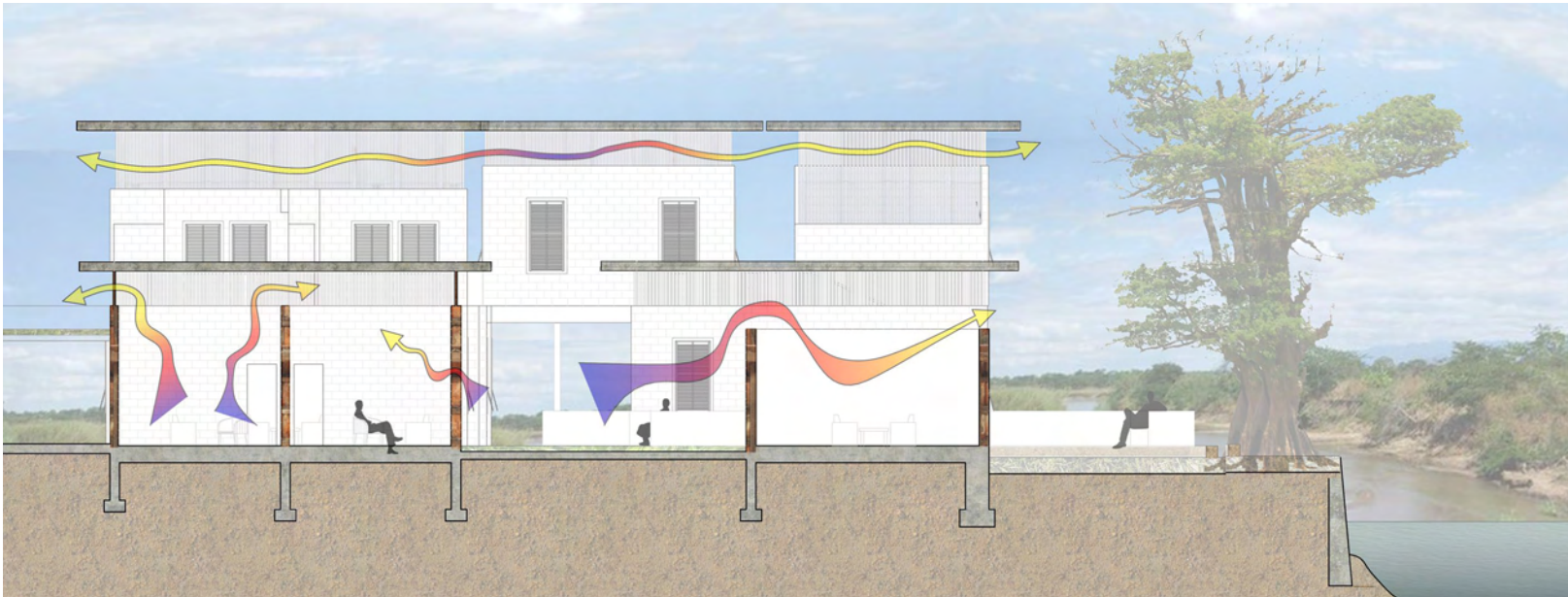


Kaduna Nigeria  
city context and organization for  
proposed master plan 2017

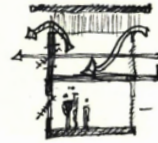




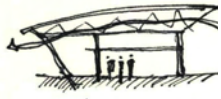
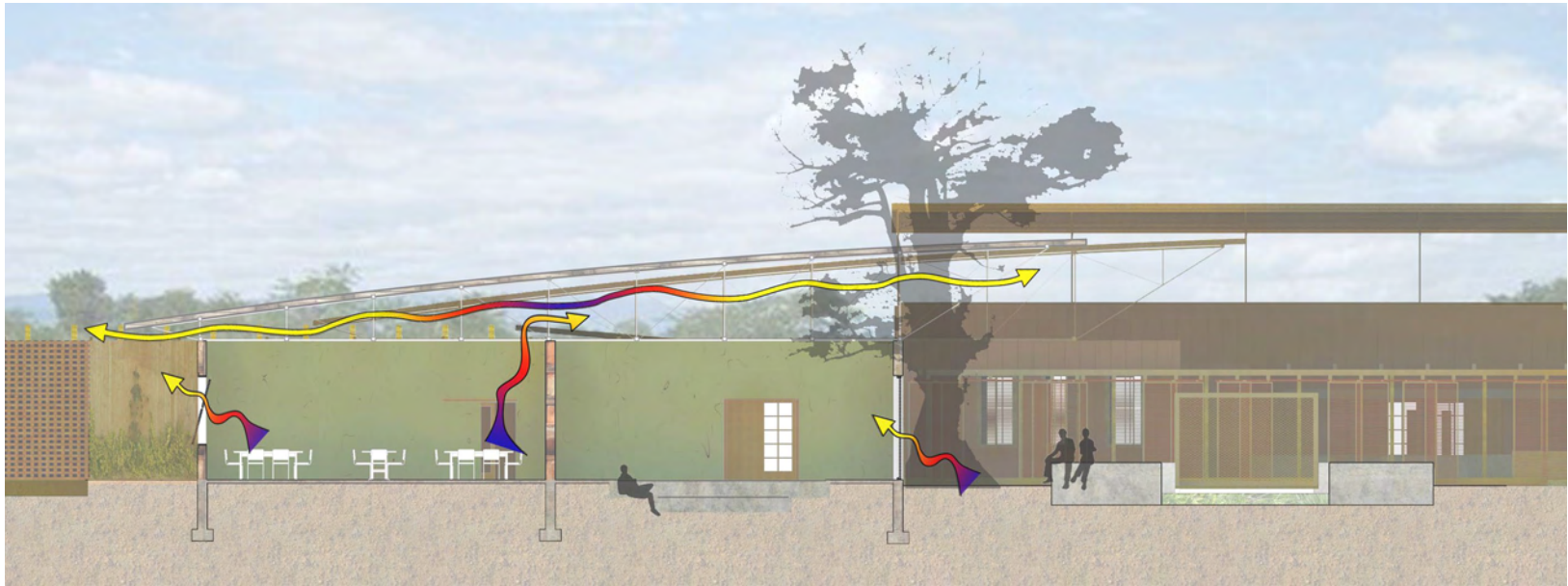
final design



typical housing pods- focus on natural ventilation  
[operable louver windows, sliding wooden louver doors, and continuous open vertical screening]





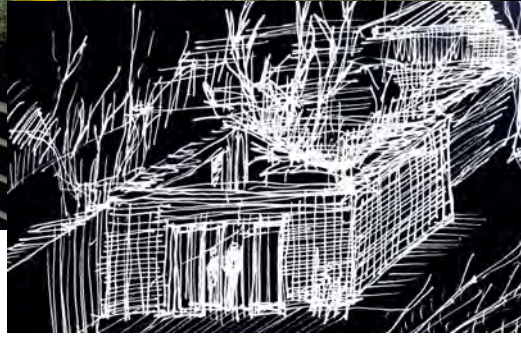


common gathering space- focus on natural ventilation  
[operable louver windows, sliding wooden louver doors,  
and open air arched truss roof system]





final design





final design

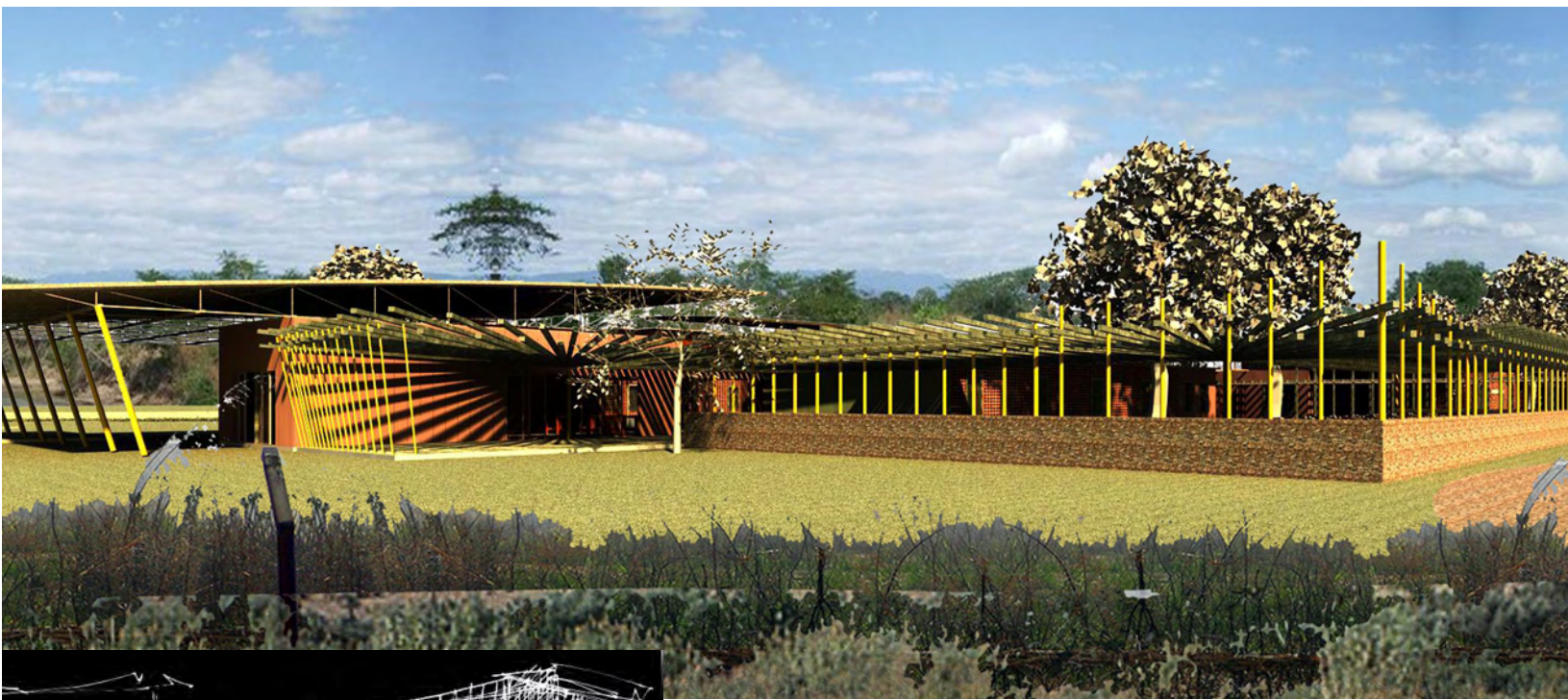
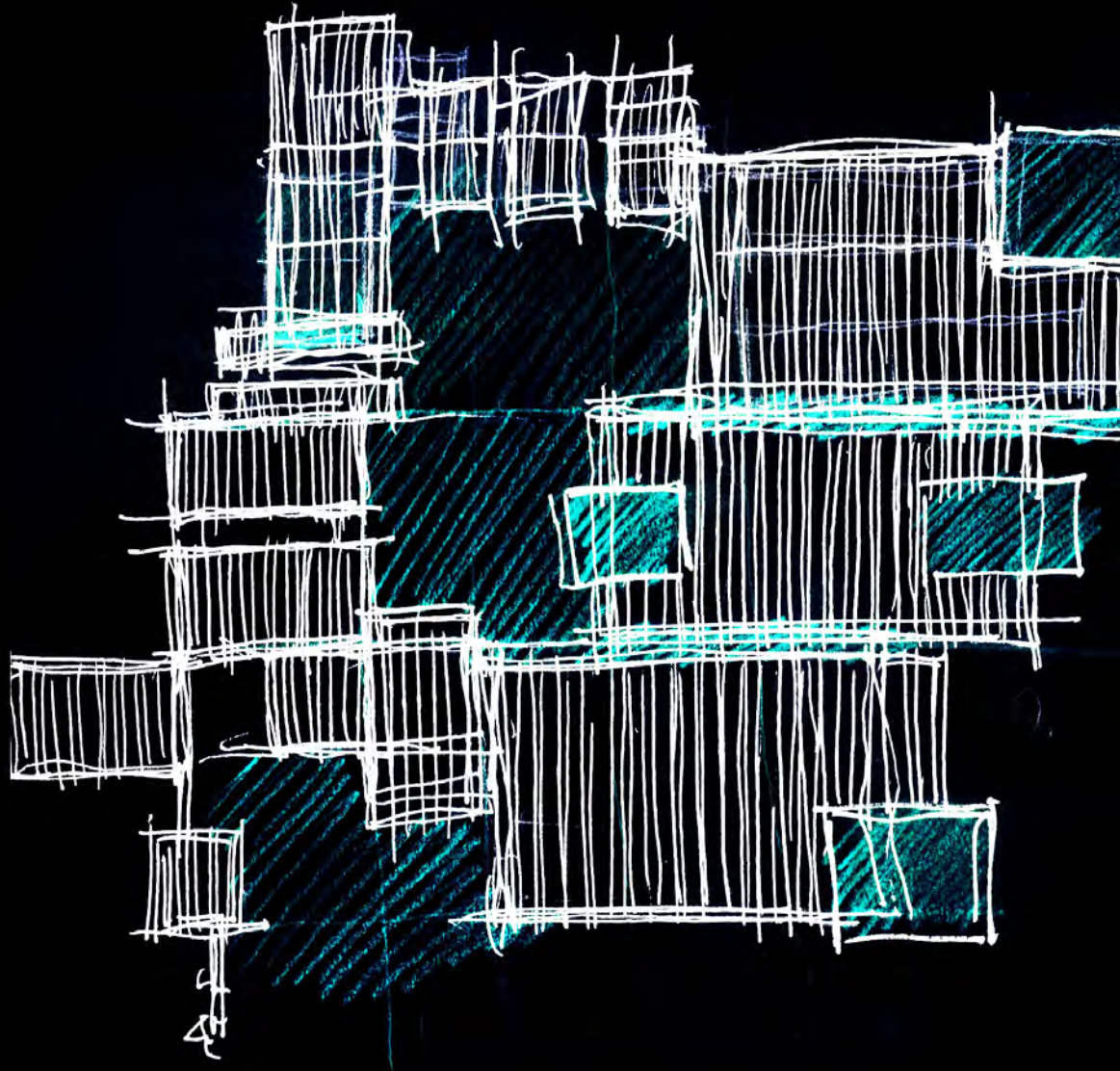
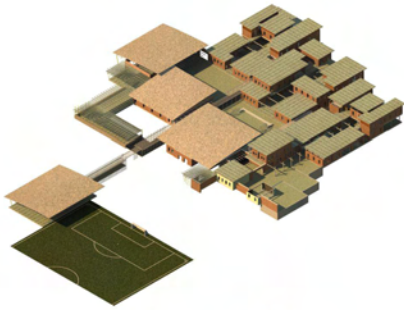


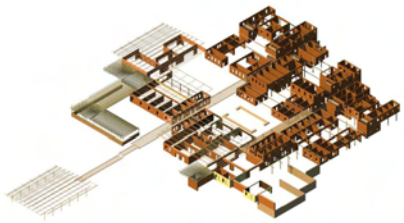


diagram of plan focusing on solid and voids. the open spaces reflect the interaction with the community, each other, and the individual human being.

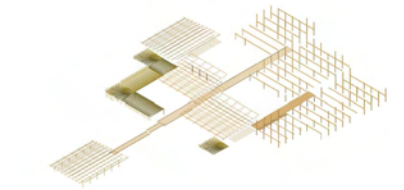




mud brick construction



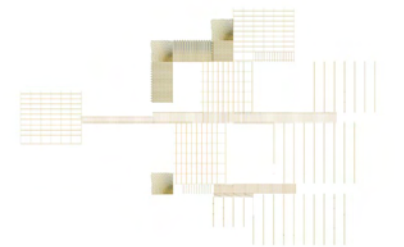
whole constructed compound



columns and beams with screening

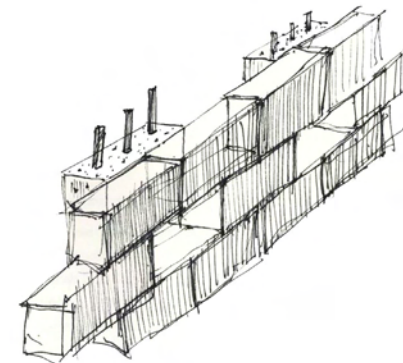


columns and beams



columns

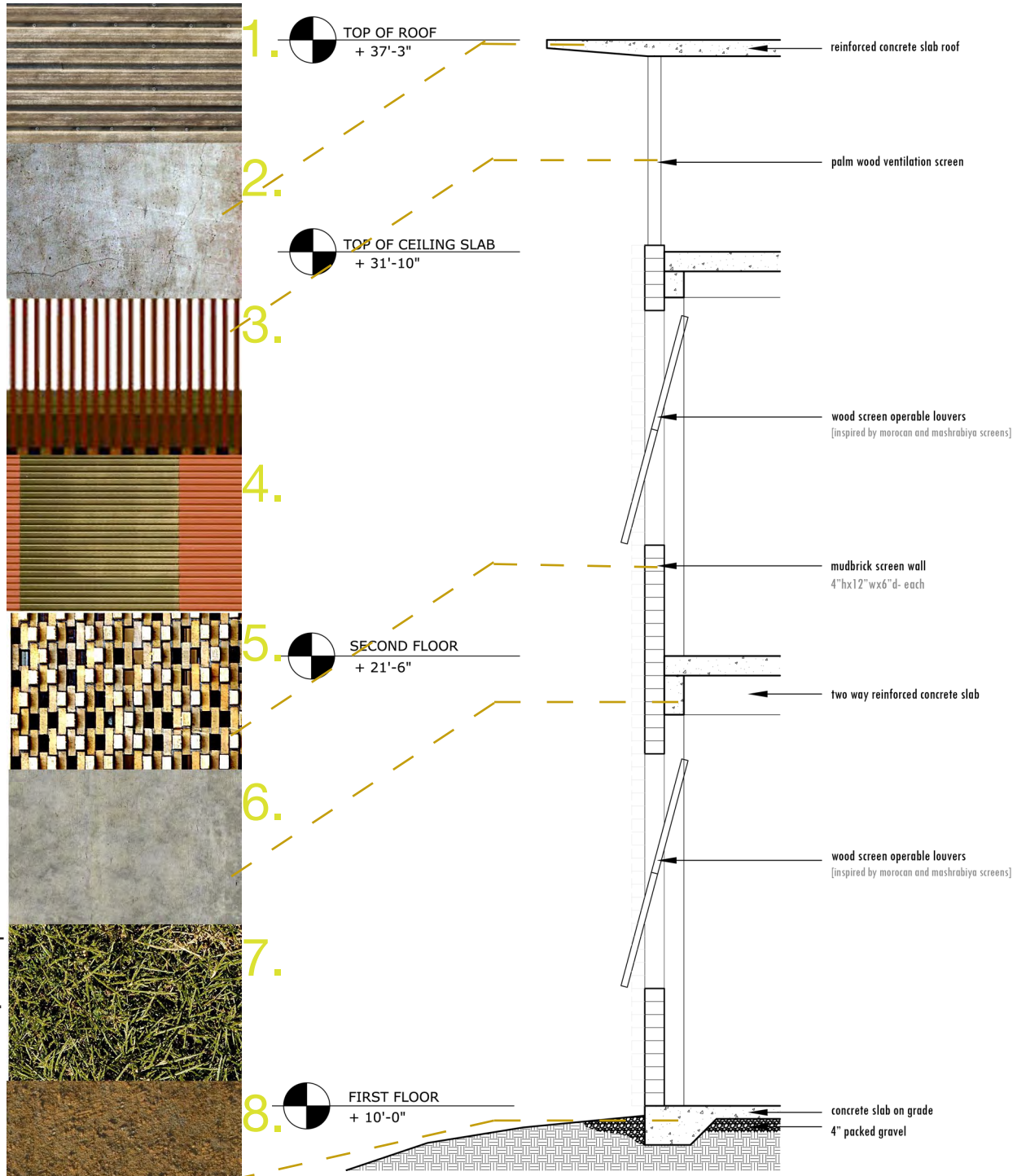
structural plan





**Construction Detailing**  
The primary structure is seen through 2-way concrete slab- done with solid reinforced concrete slabs, one on grade, the 2nd floor supported through reinforced 8"x12" concrete columns, and 12"x 24" beams. Column and beam structure is at 15' o.c.

**Material Palette**  
Focusing on the designed mud brick screen wall. The construction techniques are taken from traditional mud brick processes and in a contemporary way, by following programmatic organization-punctured to create a screen, penetrable by wind and light [ 5]. This rhythmic material is enhanced by the secondary wall type- recycled metal plated plastics composite [ 4].



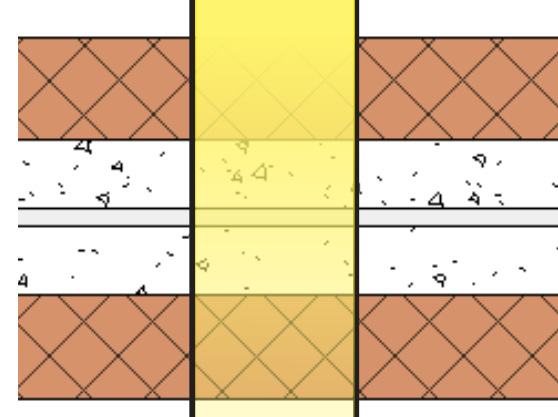
construction and building components to the design are modeled after typical vernacular architectural types. the overall layout is modified from an original african house compound. the focus then becomes evident through the brick formations- taking a traditional mud brick typology and modernizing it- creating a screen that is penetrable by light, noise, wind, and climate.



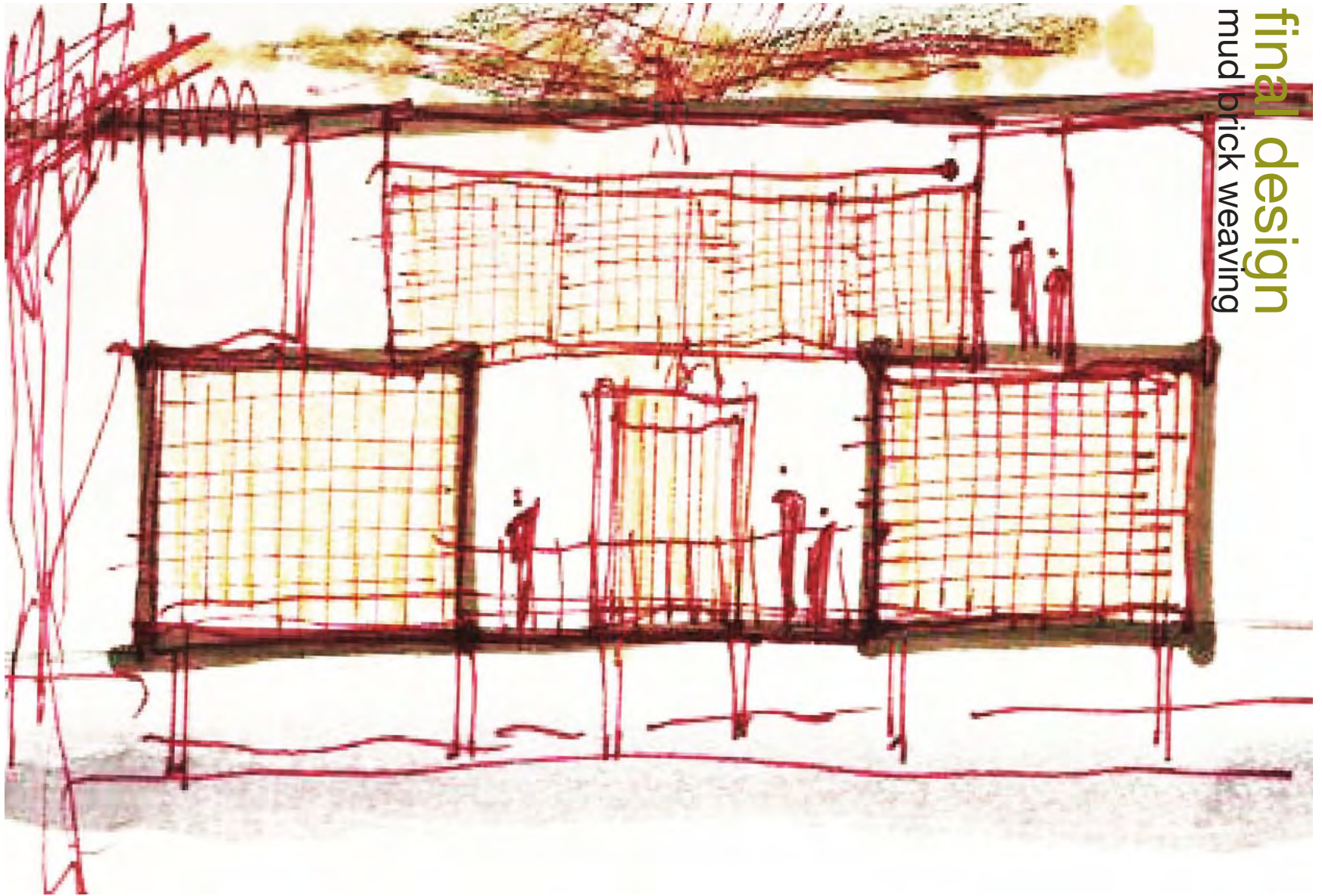
final design











the sketch shows the initial concepts of layering and weaving above ground in connection to the interaction of people and earth together- physically and psychologically.



model prototype- showing dynamic of mud brick construction as contemporary supported screening.



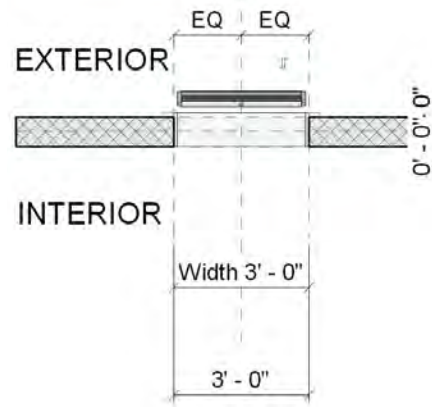
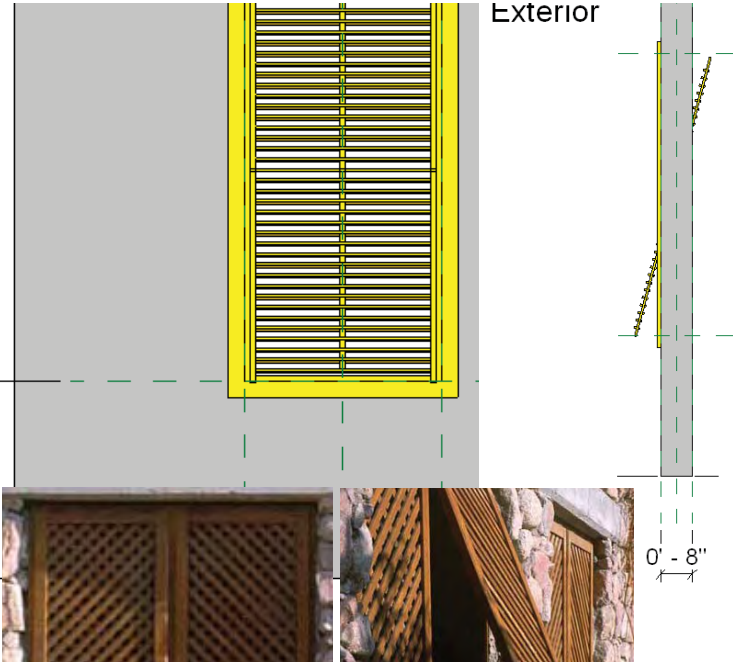
final design





# final design

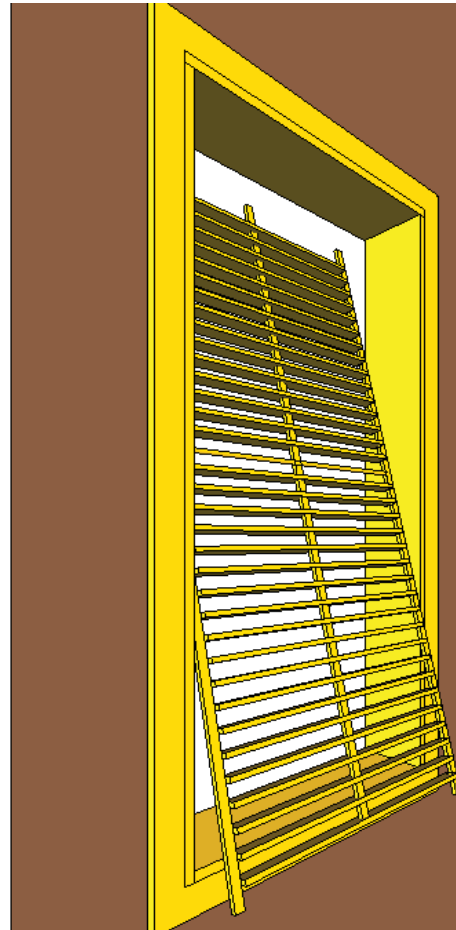
## Jouwer system



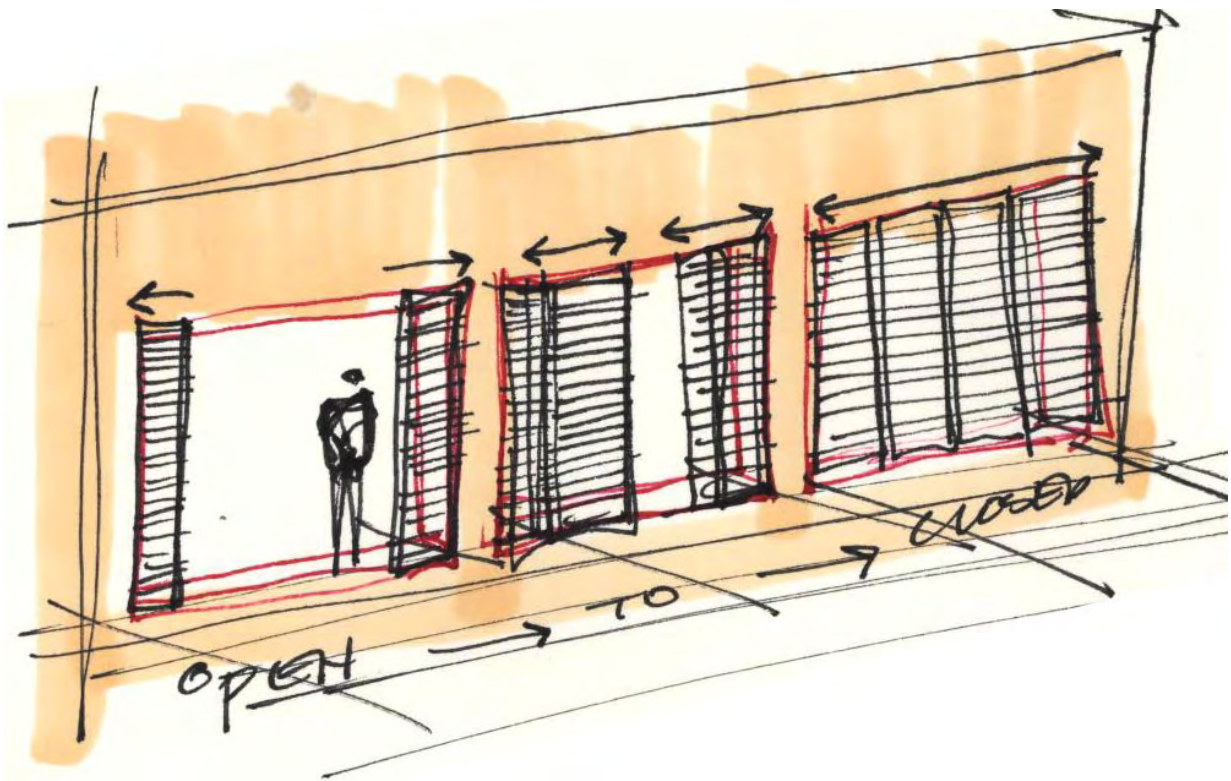
the louver system is designed so that no glass or complete enclosure must take place throughout the facility.

the louver system brings air and light into the building through a filtered control. they are operable so that the boys and staff alike can control the amount of climatic change that may occur within a space.

the material is a brightly painted recycled hard plastic bar system within a similarly painted frame.



# final design louver system





Nighttime view of the whole facility from the river







# appendix

## precedent analysis

1.

**Kaleidoscope, children and young peoples centre**  
Lewisham, South London, England  
by van Heyningen and Haward Architects

2.

**Hedwigshöhe Hospital, psychiatric units**  
Treptow, Berlin, Germany  
by Huber Straudt Architects

3.

**Psychiatrische Kliniken Park-Krankenhaus**  
Leipzig-Südöst, Germany  
by TMK Architekten Ingenieure  
Thiede Messthaler Keitel

4.

**Oaklawn Psychiatric Center**  
Goshen, Indiana, USA  
The Troyer Group Inc.

5.

**Kutamba AIDS Orphans School**  
Nyaka, Rukungiri District, Uganda  
by Mathew Miller and Architecture for Humanity

6.

**Kaduna Traditional Housing Type**  
Kaduna, Nigeria



# Kaleidoscope, Children and Young Peoples Centre

Lewisham, South London

van Heyningen and Haward Architects



Kaleidoscope is a new primary and social care centre that combines a variety of health, social and educational services for children and young people under one roof, as a vision of pioneering holistic solutions.

precedent analysis  
interior outdoor spaces





# precedent analysis

## interior outdoor spaces

the outdoor space is pivotal to the design in that it is a contemplative time-out space and because all internal circulation space is located looking out on to it, easing orientation and way-finding. This also removes all enclosed corridors from the design. All rooms are located directly off this day-lit circulation space.



# precedent analysis

## interior outdoor spaces

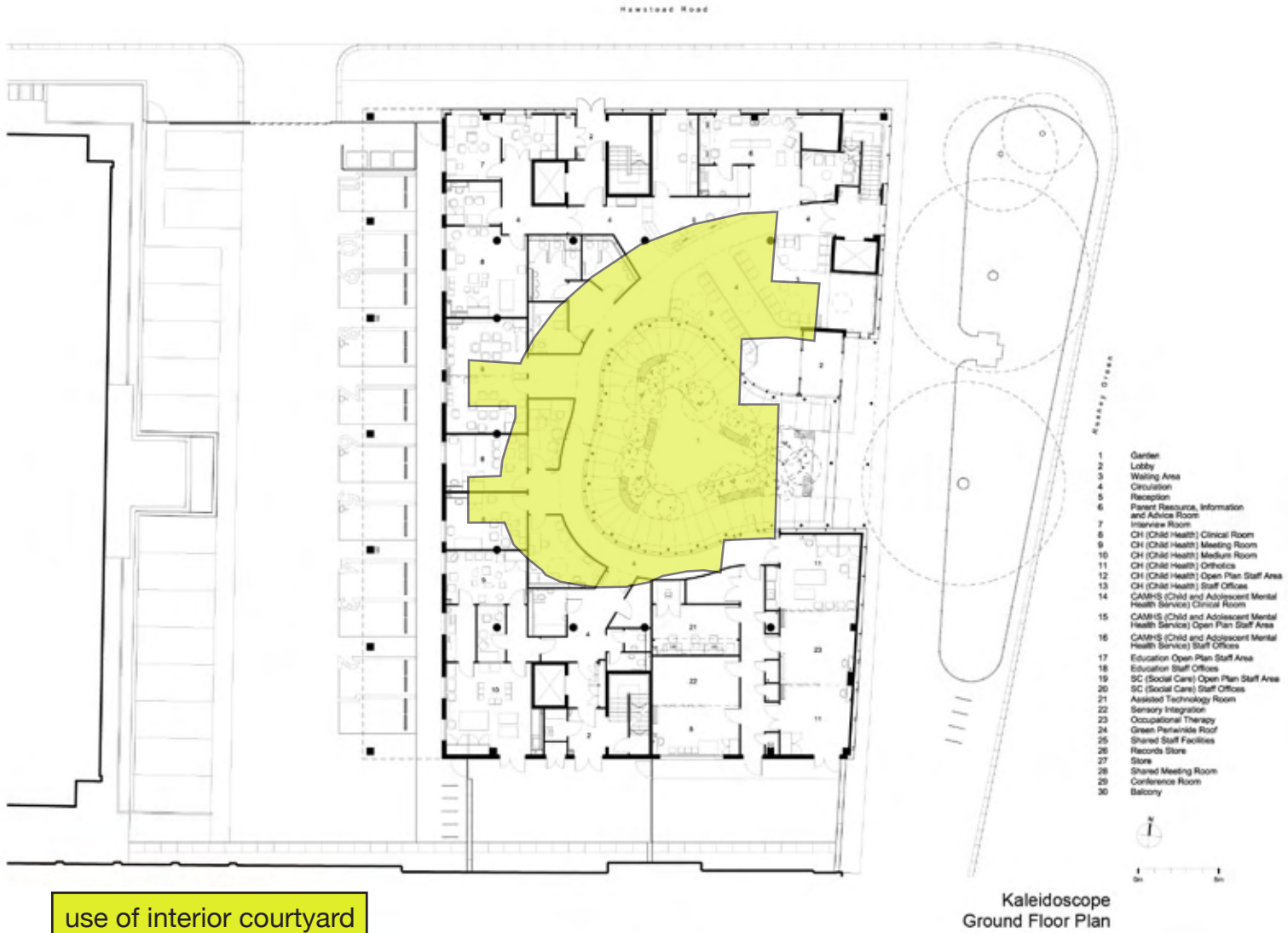


the project is within a very urban context, and still manages to create a peaceful setting.



# precedent analysis

## interior outdoor spaces



use of interior courtyard as form of contemplation becomes independent responsive area.

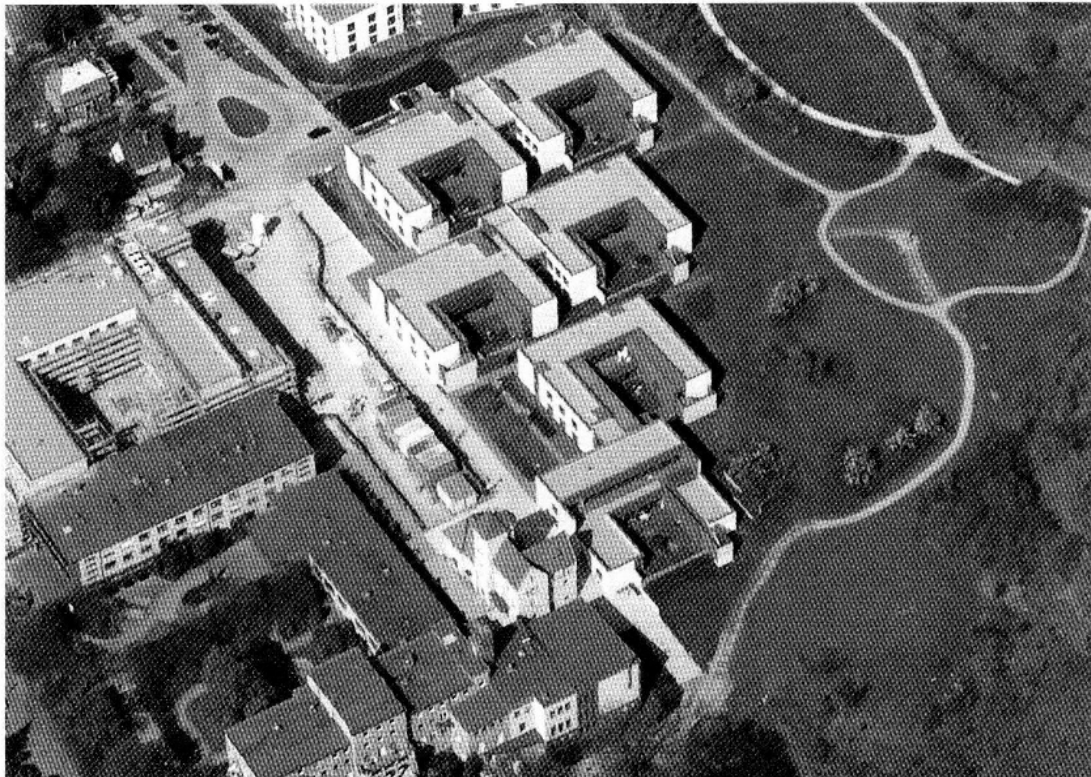
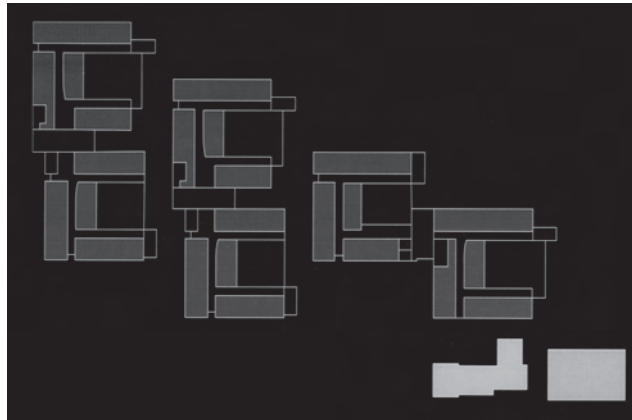
it also forms circulation that becomes a part of the program



## Hedwigshöhe Hospital, psychiatric units

Treptow, Berlin

Huber Straudt Architects



The units begin to form an interface between a densely developed urban environment and a rambling landscape. The abstract arrangement of the pavilions for the psychiatric departments for a line running to the open natural landscape while simultaneously providing a contrast to the low horizontal formation of the department for general medicine.

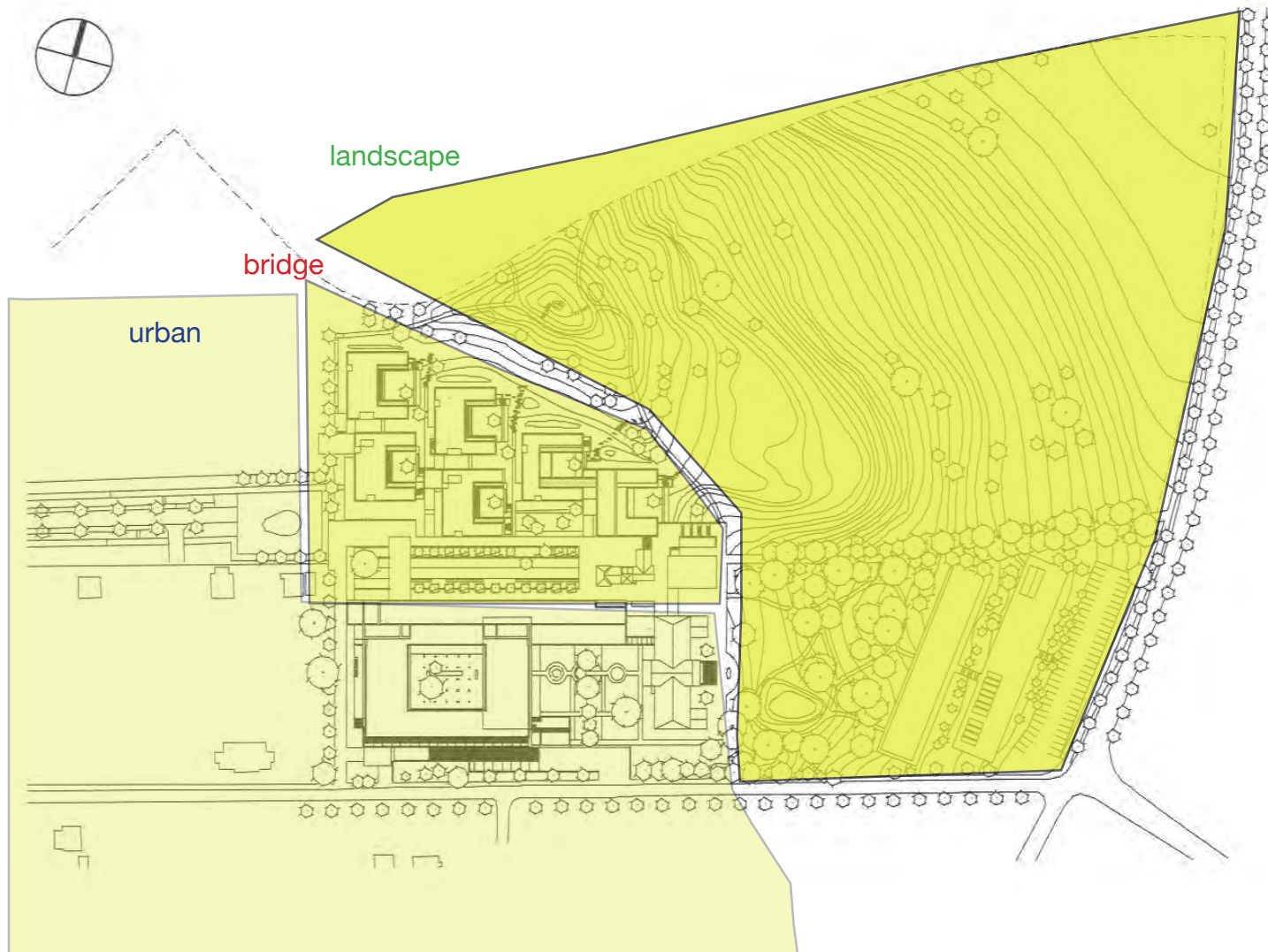
precedent analysis  
focus on interaction of urban versus  
landscape

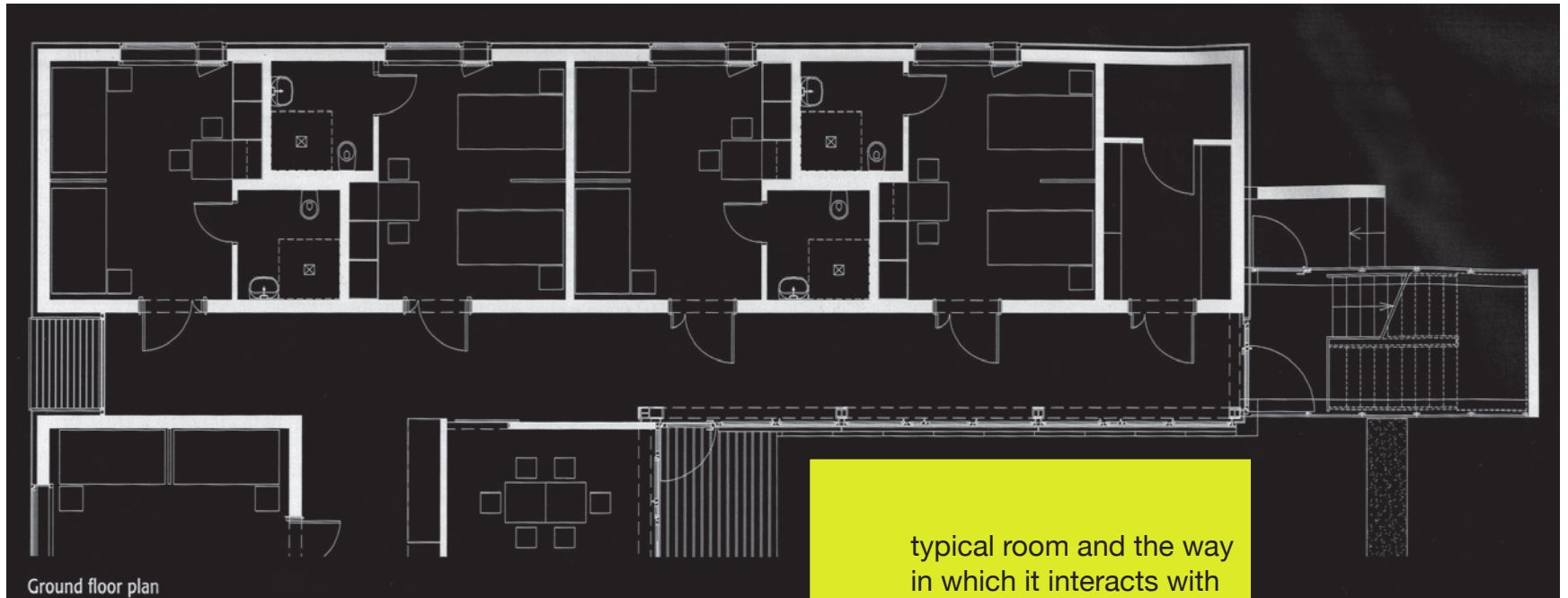


site plan\_ shows direct connection and contrast with landscape and urban context.

just as my site in kaduna responds to the river on one edge and the cityscape on the other. the architectural design can become a bridge between natural and urban.

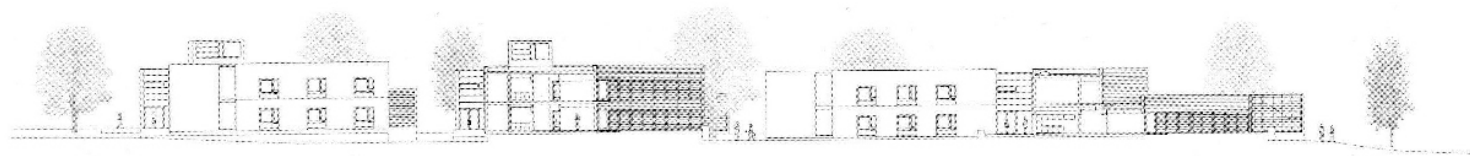
this design embraces the landscape with its “u” formations to frame views and moments within time. creating a sense of comfort and peace for the inhabitants to experience.







# precedent analysis



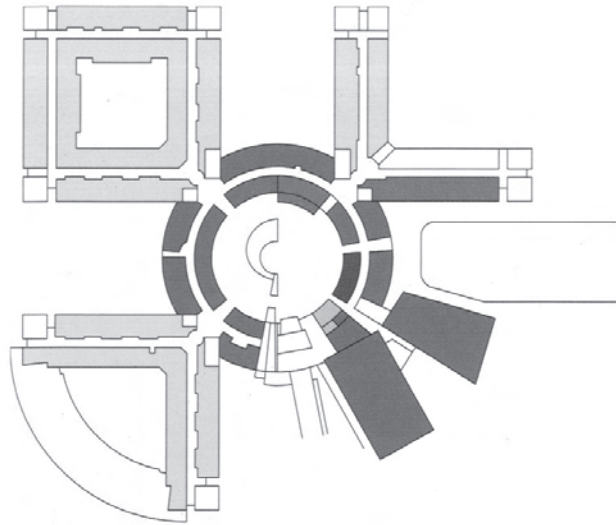
Section



## Psychiatric Kliniken Park- Krankenhaus

Leipzig- Südöst

TMK Architekten Ingenieure Thiede Messthaler Keitel



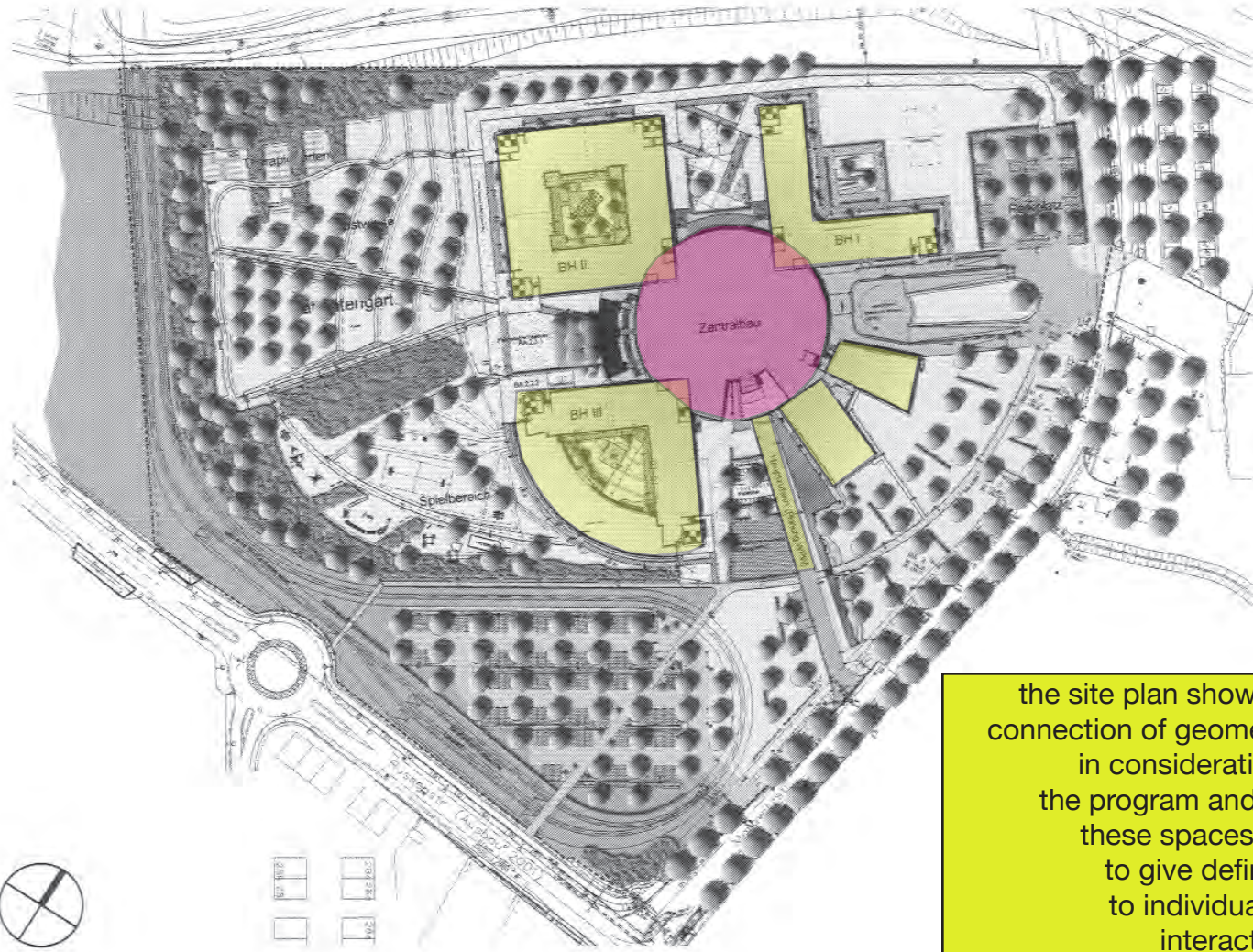
the design is done in segments to compose a whole. by separating out the program, people and events can remain individualized as appropriate and necessary. all is connected through a main central rotunda. this space forms a general atmosphere of gathering with direct orientation to the outside. this alleviates the threshold anxiety of visitors, patients, and relatives, but at the same time, clearly delineates the boundaries of permitted access. while visitors may freely move around in the entrance rotunda and the spaces allocated to the park, the inner courtyard of the ward blocks are reserved for patients and their care staff. the facility determines levels of intimacy in this manner making life in the clinic more pleasant by promoting success of the treatment provided.

precedent analysis  
emphasis on geometric segregation





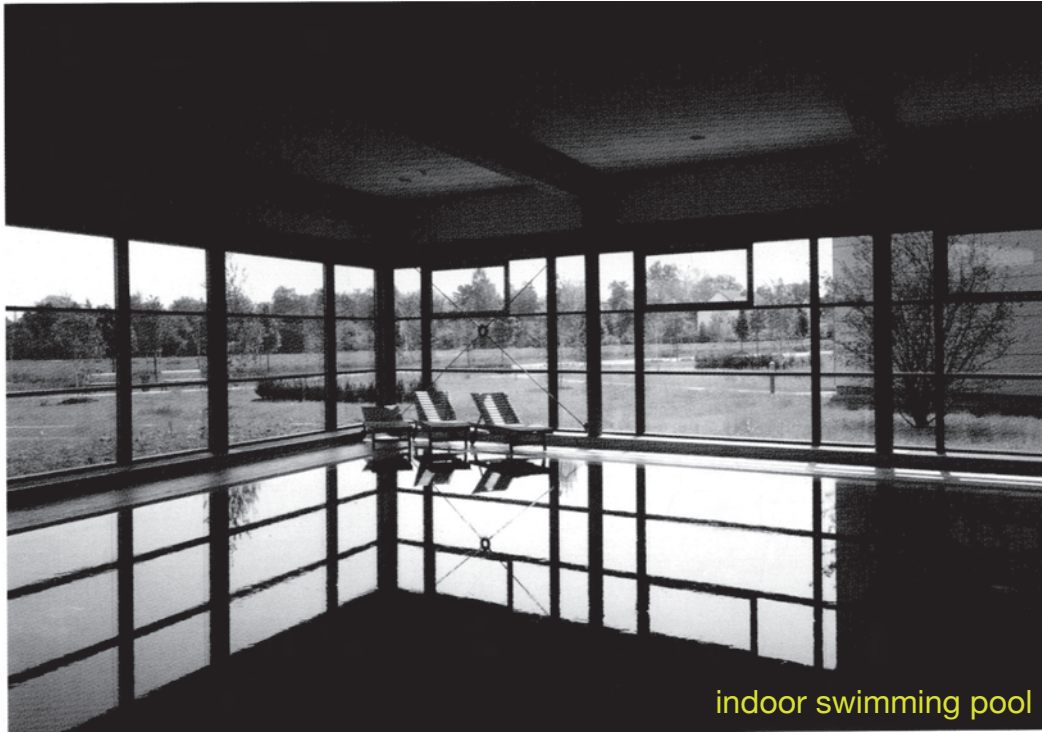
# precedent analysis



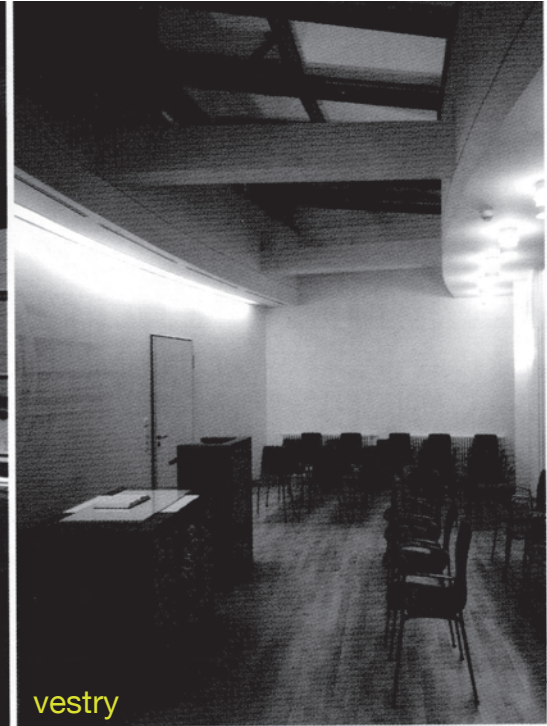
the site plan shows the connection of geometries in consideration to the program and how these spaces start to give definition to individualized interactions.



# precedent analysis



indoor swimming pool



vestry



Elevation bed-housing unit



# precedent analysis



entrance view  
focusing attention  
to geometric  
architectural  
intentions



## Oaklawn Psychiatric Center

Goshen, Indiana  
The Troyer Group Inc.

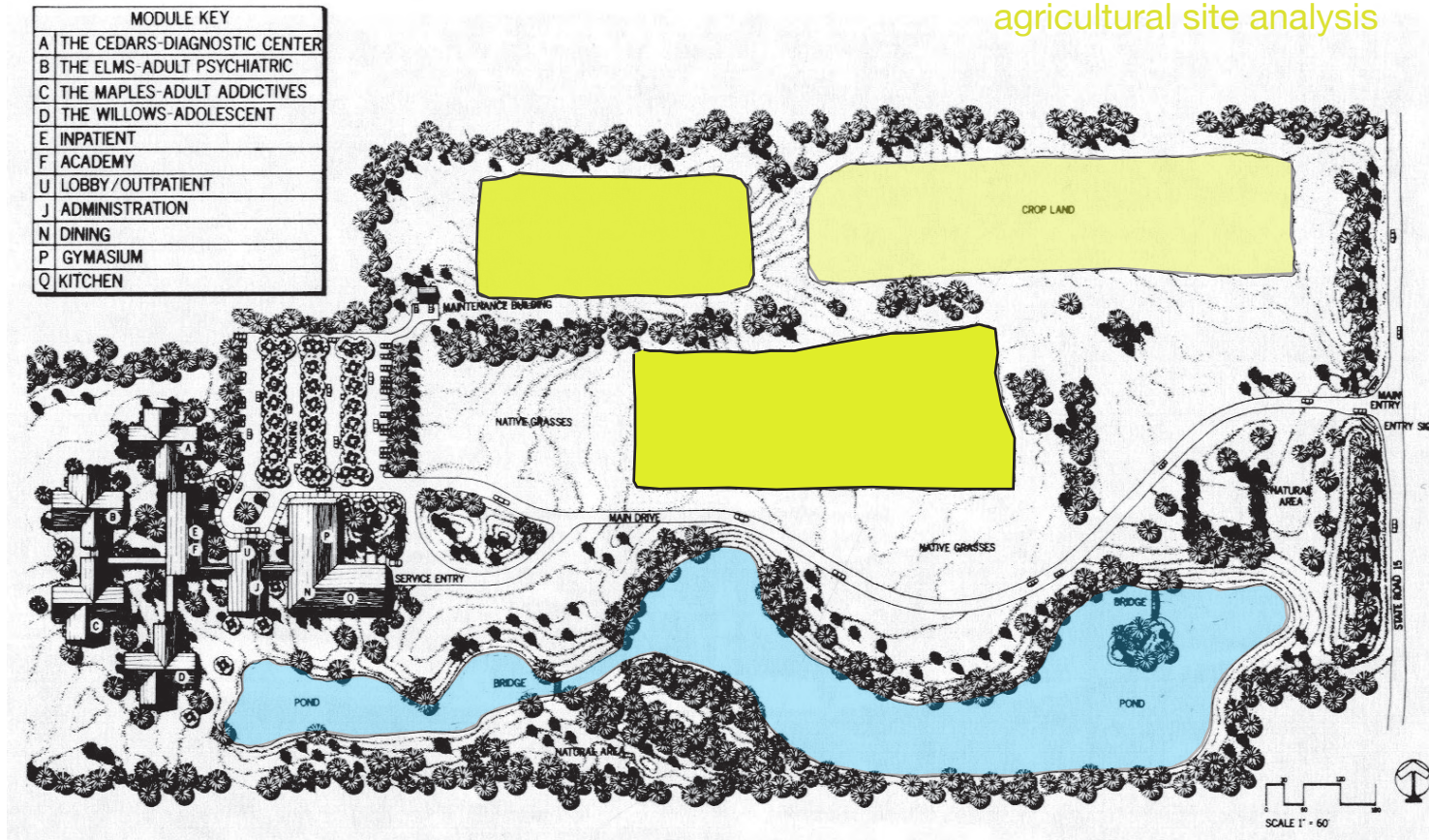


‘ to enhance the human capacity to live in harmony with self and others through healing and growth of the total person ’

this quote inspired the whole design for the facility, and was successfully received.



## agricultural site analysis



a residential character was created, merging wood, water, color, plants, and natural light.

residential communities were placed at a distance from recreation and dining to encourage interaction and to mirror real-world living patterns.





## Kutamba AIDS Orphans School

Nyaka, Rukungiri District

Mathew Miller and Architecture for Humanity



This rural area has some of the greatest poverty in the region, the closest developed town is over 2 hours away. the use of local materials and community labor was put into affect to create a school that all were honored and proud of. it gave these children, many who do not have a family, a sense of ownership and comfort.



# precedent analysis



the excavation of the site  
and surrounding landscape  
explains reality of construction



# precedent analysis



the earth that  
was excavated  
was reused  
to form bricks  
composing the  
construction of  
the school





# precedent analysis



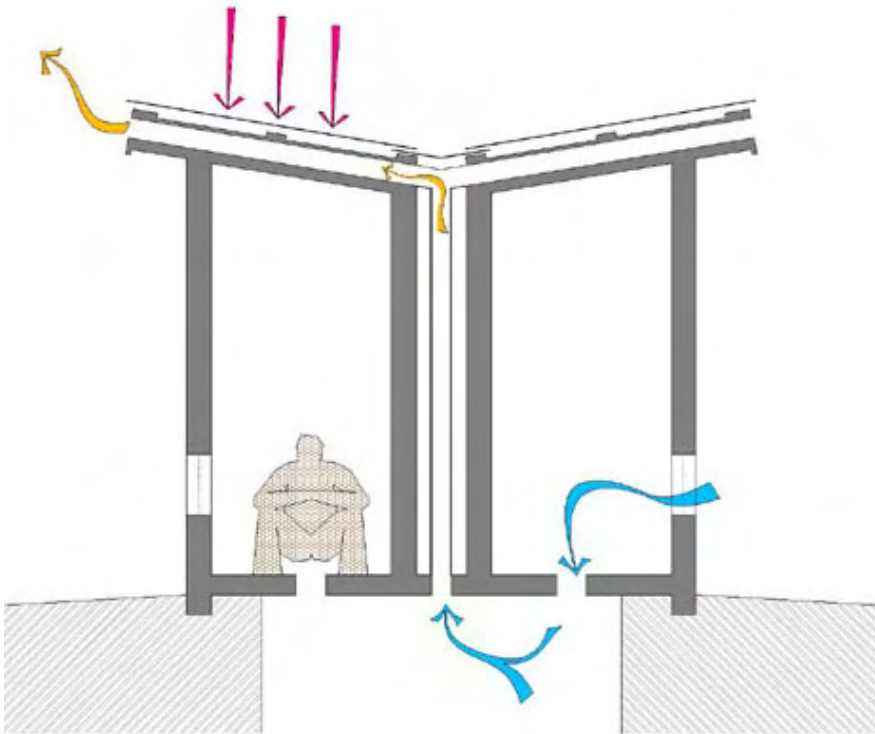
once the earth was churned the mud was taken and placed within crafted wooden brick molds, leveled flat and sat to dry.

these bricks were then laid with a mud mortar with the assistance of sapling reinforcements as temporary supports during construction





# precedent analysis



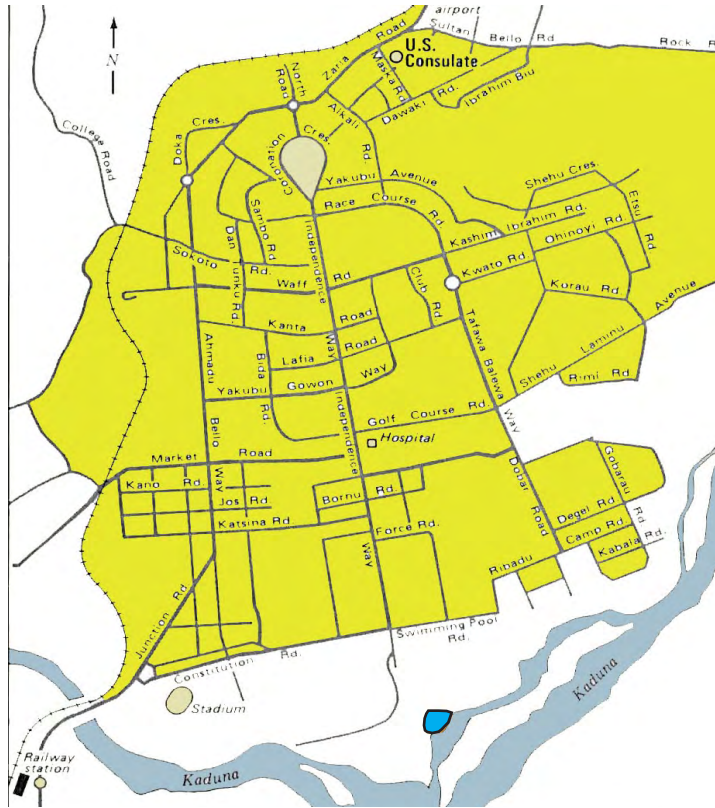
within the design  
traditional rural  
housing was  
created.

due to the lack  
of plumbing and  
electricity a study  
was done for an  
affective privy.

# precedent analysis

housing prototype and organization

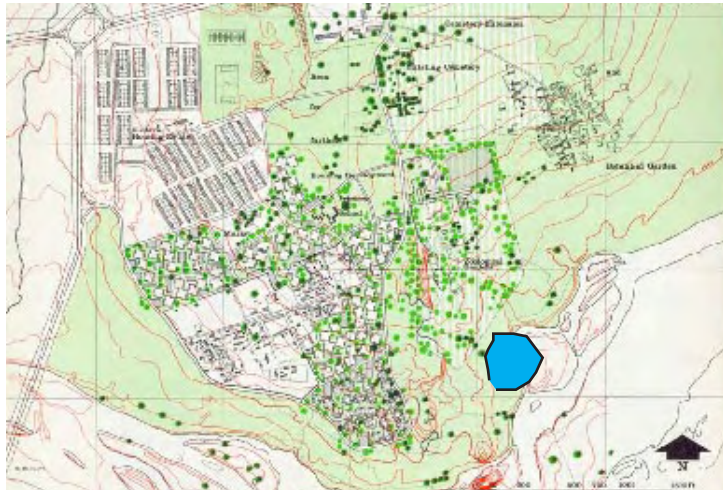
## Kaduna Traditional Housing Type Kaduna, Nigeria



the proposed housing area [Kabala] runs congruently with my chosen site.

the housing characteristics are modulated and tightly knit to form a strong communal feeling.

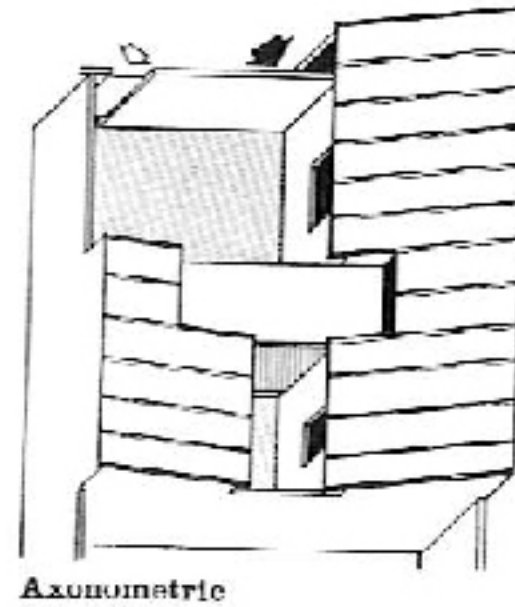
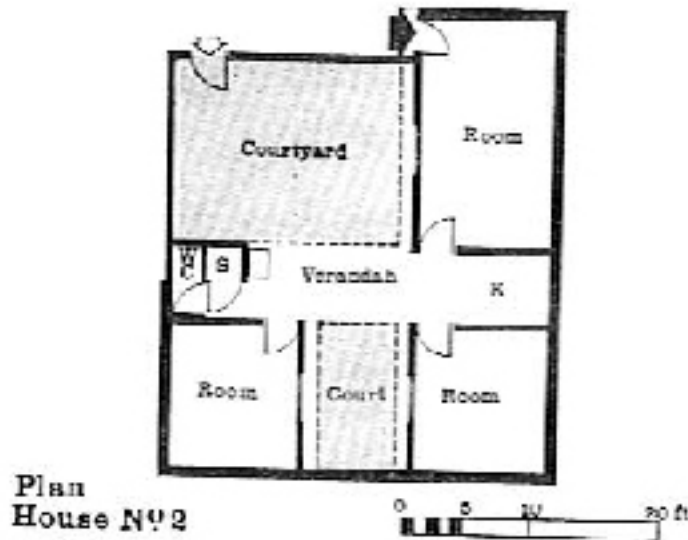
the blue area is representing my chosen site



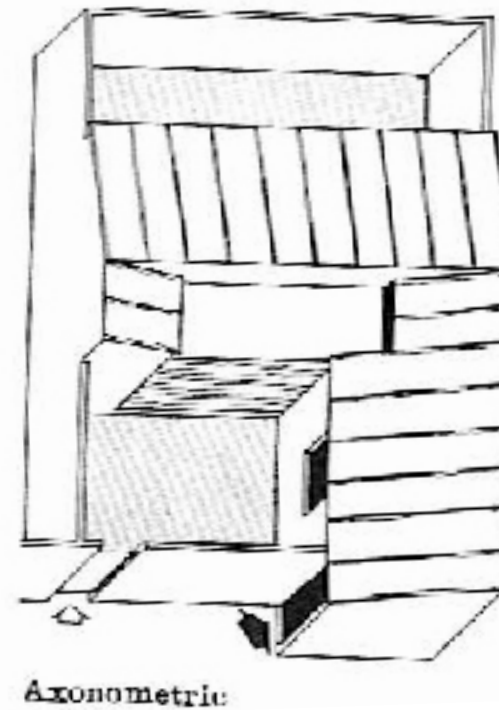
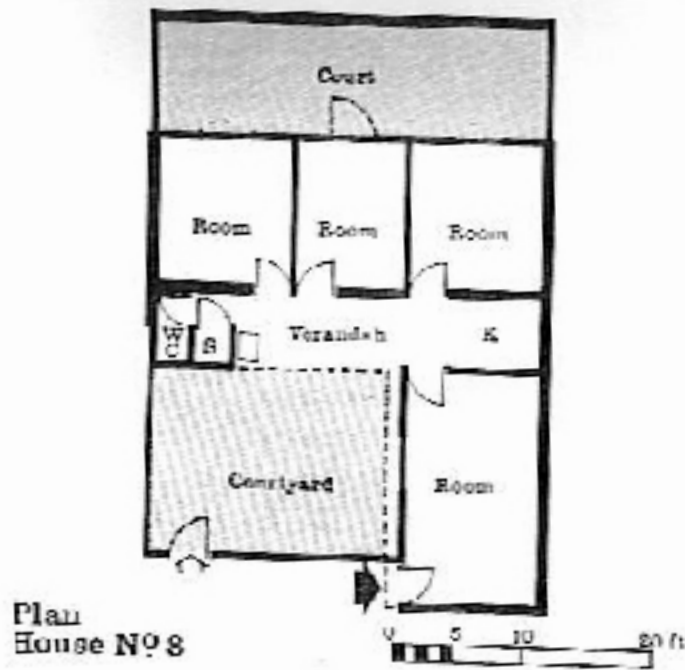
proposed plan for housing...

highlighted site area



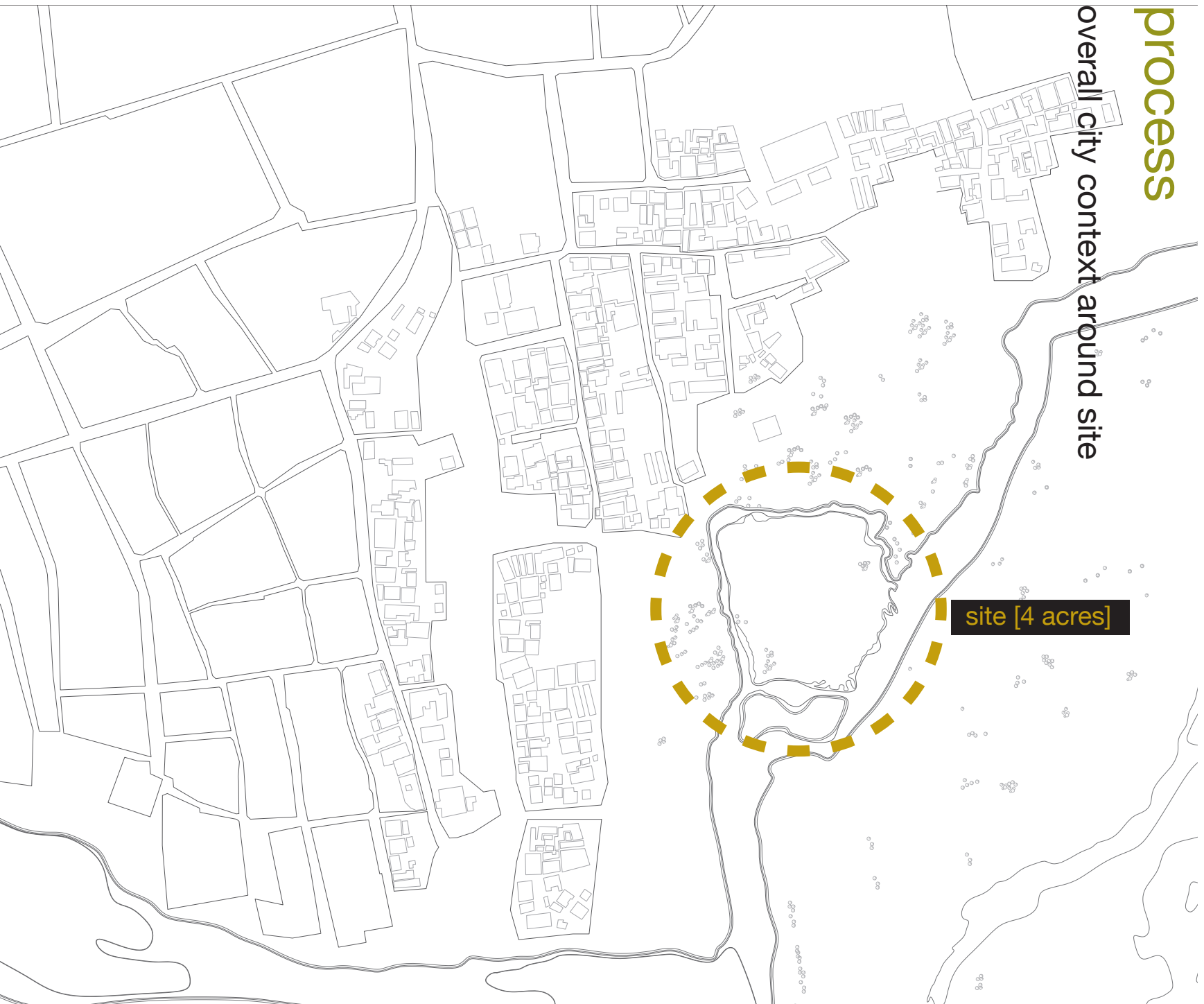


these two prototypes show examples on how private and public spaces are composed to form the modulation of a traditional lower income home of the Kaduna area



# process

overall city context around site





# process

the first phase of designing was inspired by the proximity with the river and how to interact remediation with the therapies of the movement of water. I decided that I wanted to have the architecture interact and define views in correlation with the river, and to define a place of peace and compassion for the soldiers of post war trauma..

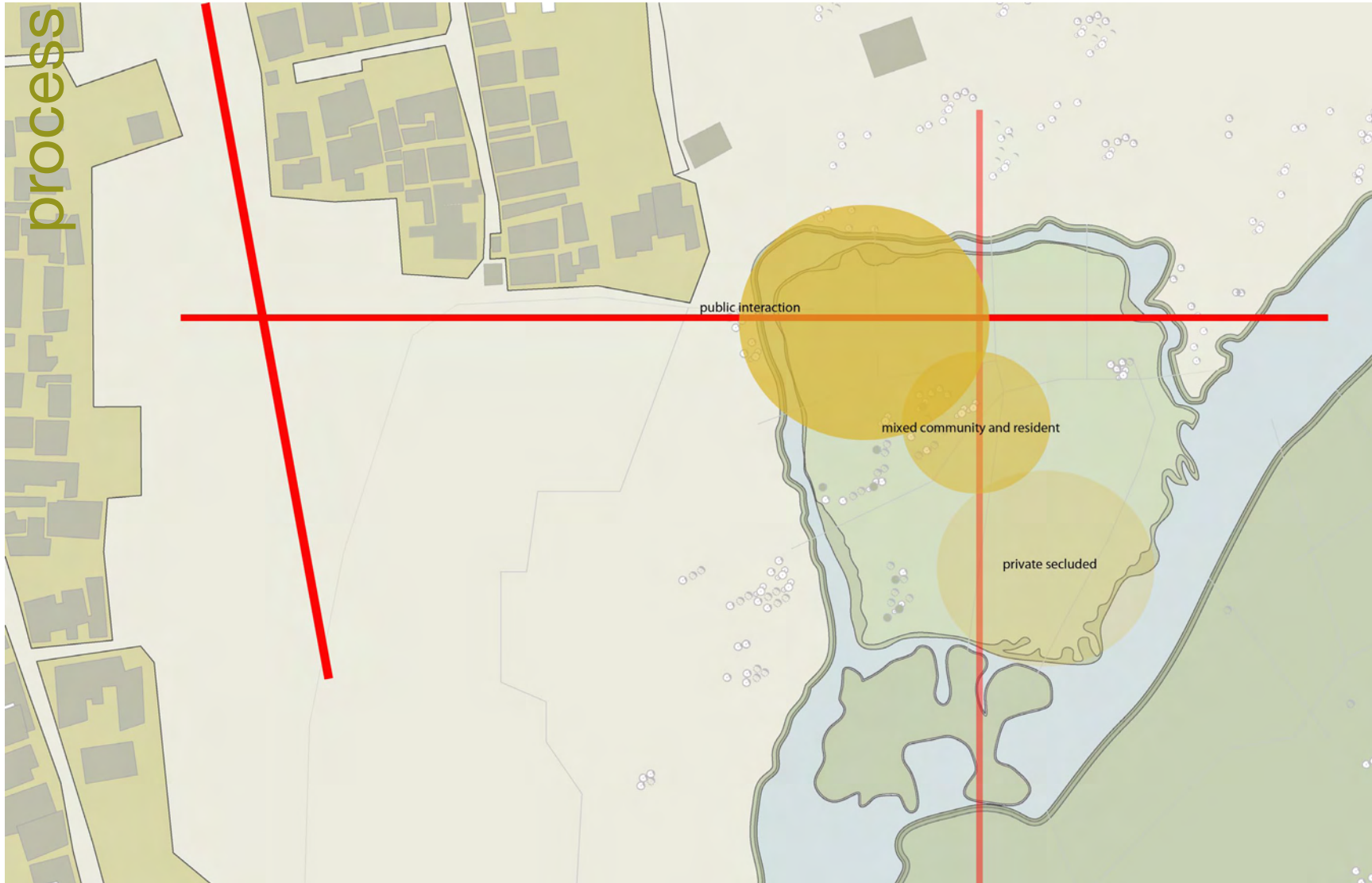




the characteristics of the landscape and river edge are seen in these two photos.  
stepping and filtering with the continual connection of the landscape became  
crucial after the realization of the riverscape

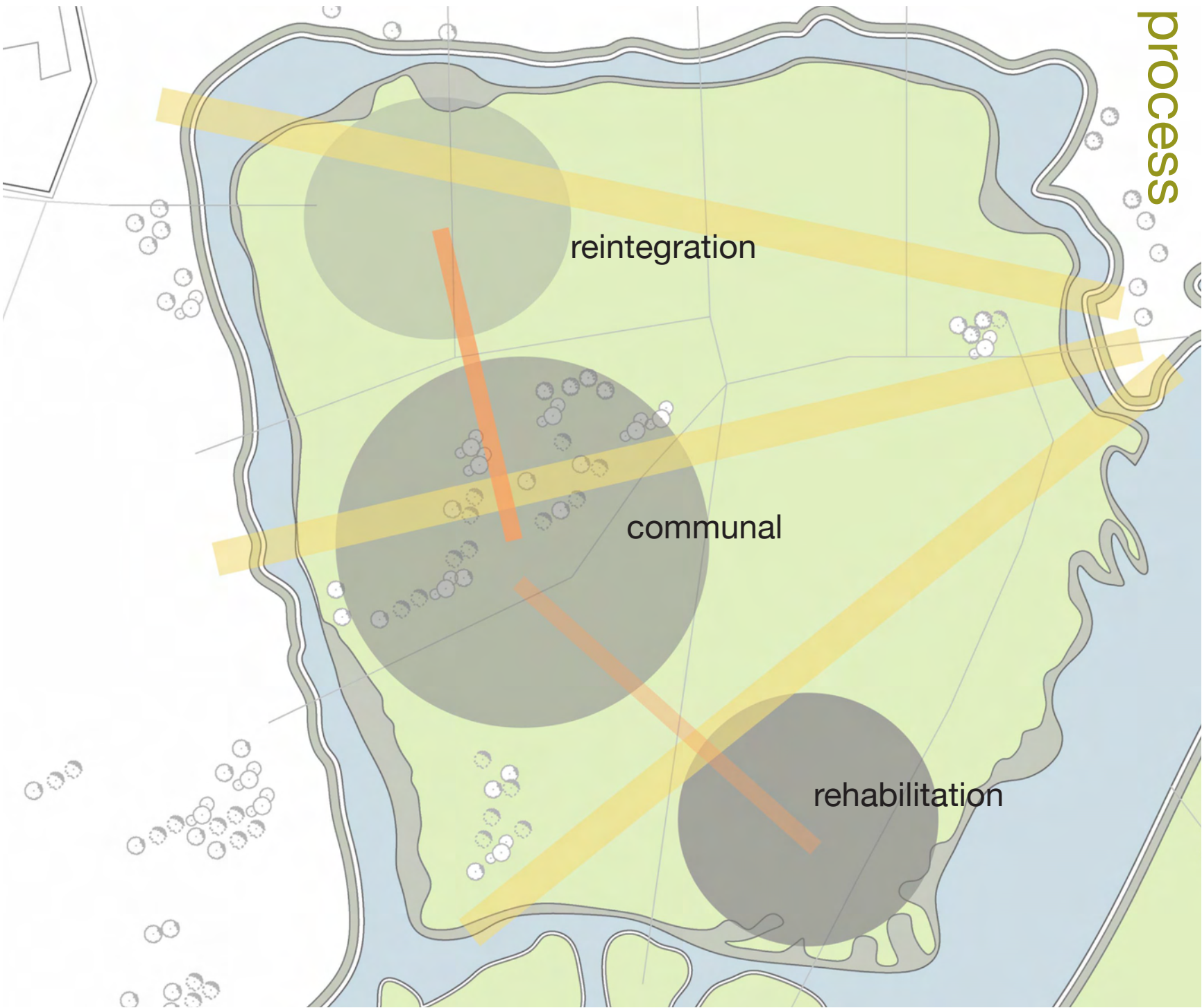




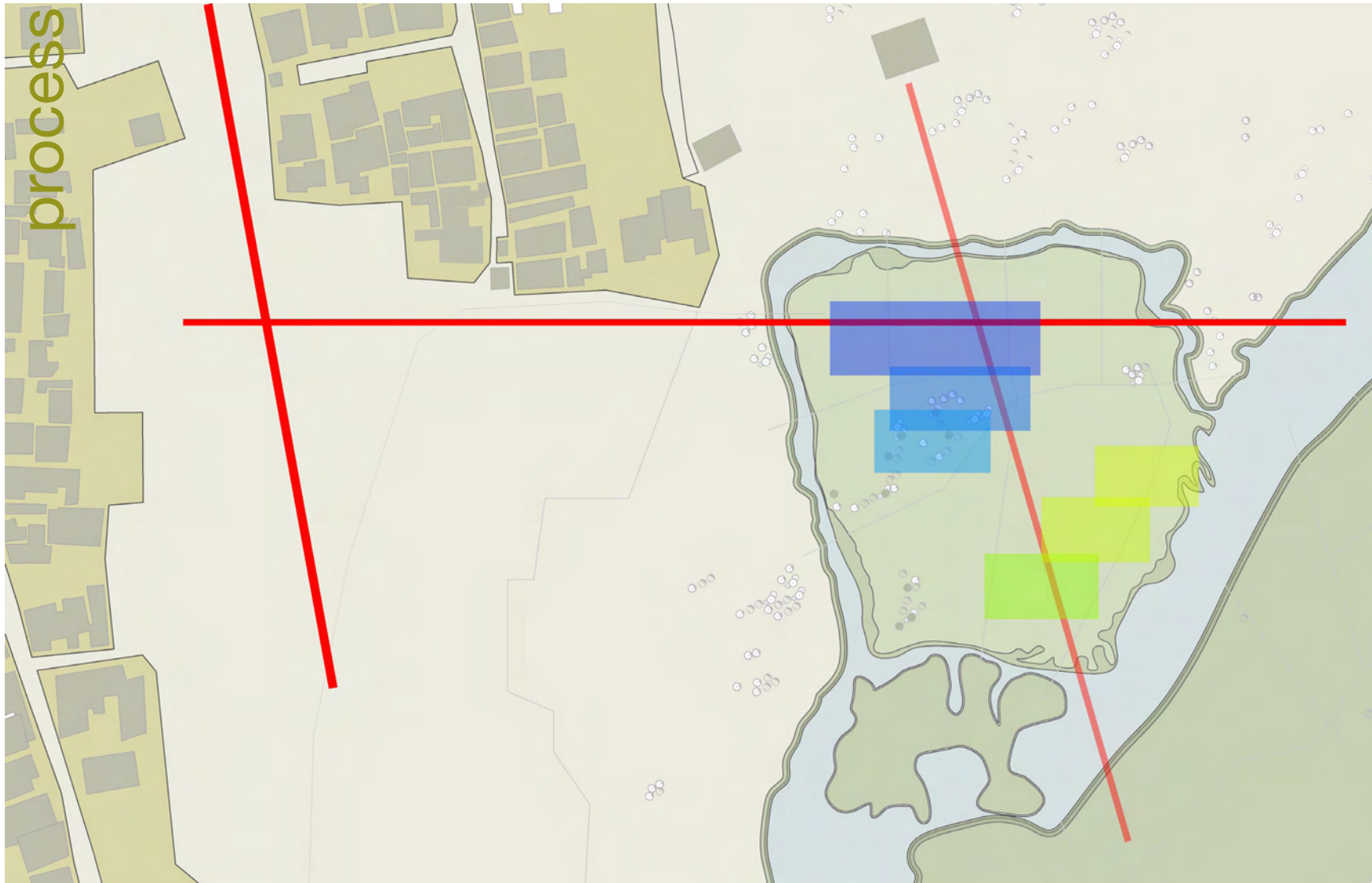


from the very beginning I realized that I wanted there to be three stages of healing. each one dependent on the progress of rehabilitation and the future of their reintegration. that is represented in the diagram above and to the right. the red lines defined an axis of circulation in connection with the city. the rough axis seen here is redefined later in the design to be more congruent with the architectural responses.

# process





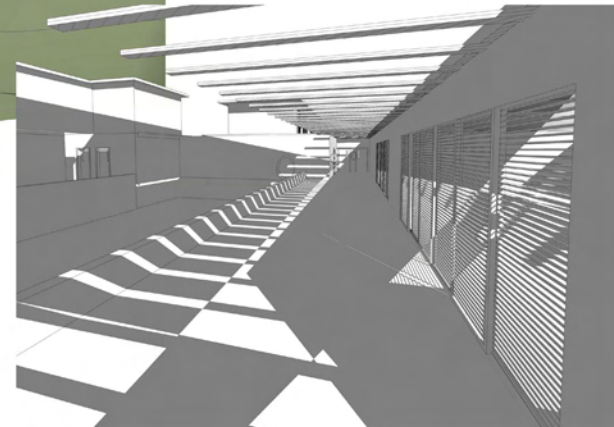
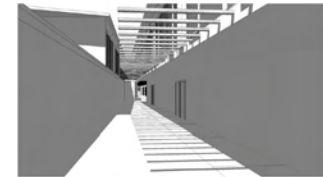
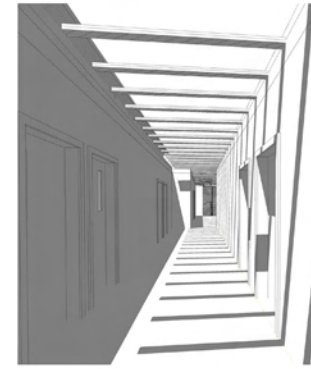
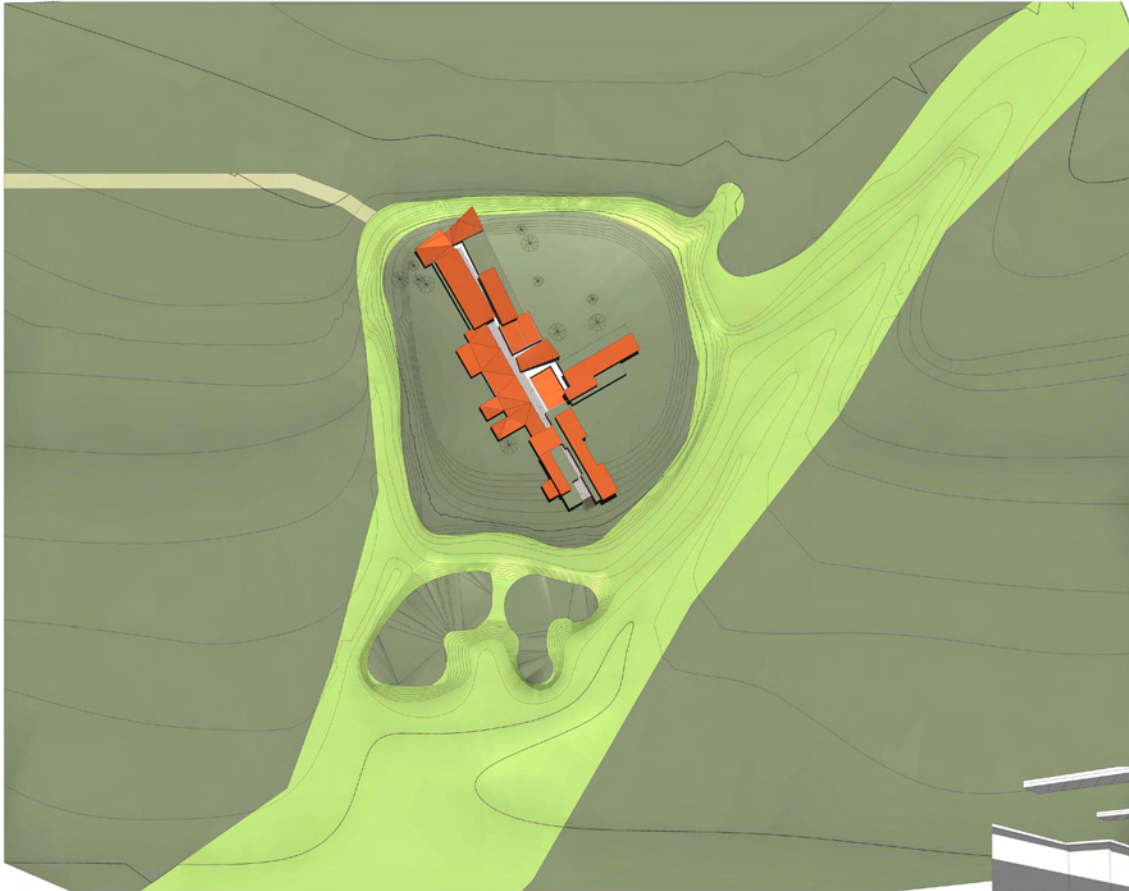


there was a definite understanding of the island as a whole and how the individualized, more private, to group, more public, spaces took form.



above depicts the exact break down of spaces dependent on the programmatic square footage set up in the proposal.



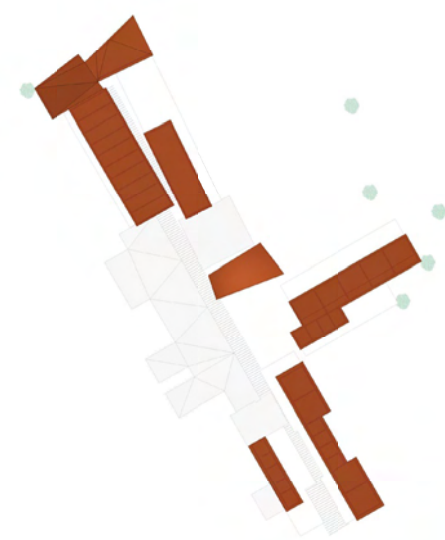


in total opposition to individualized segmentation I placed all the square footage into one building and angled it with the axis I had predetermined.

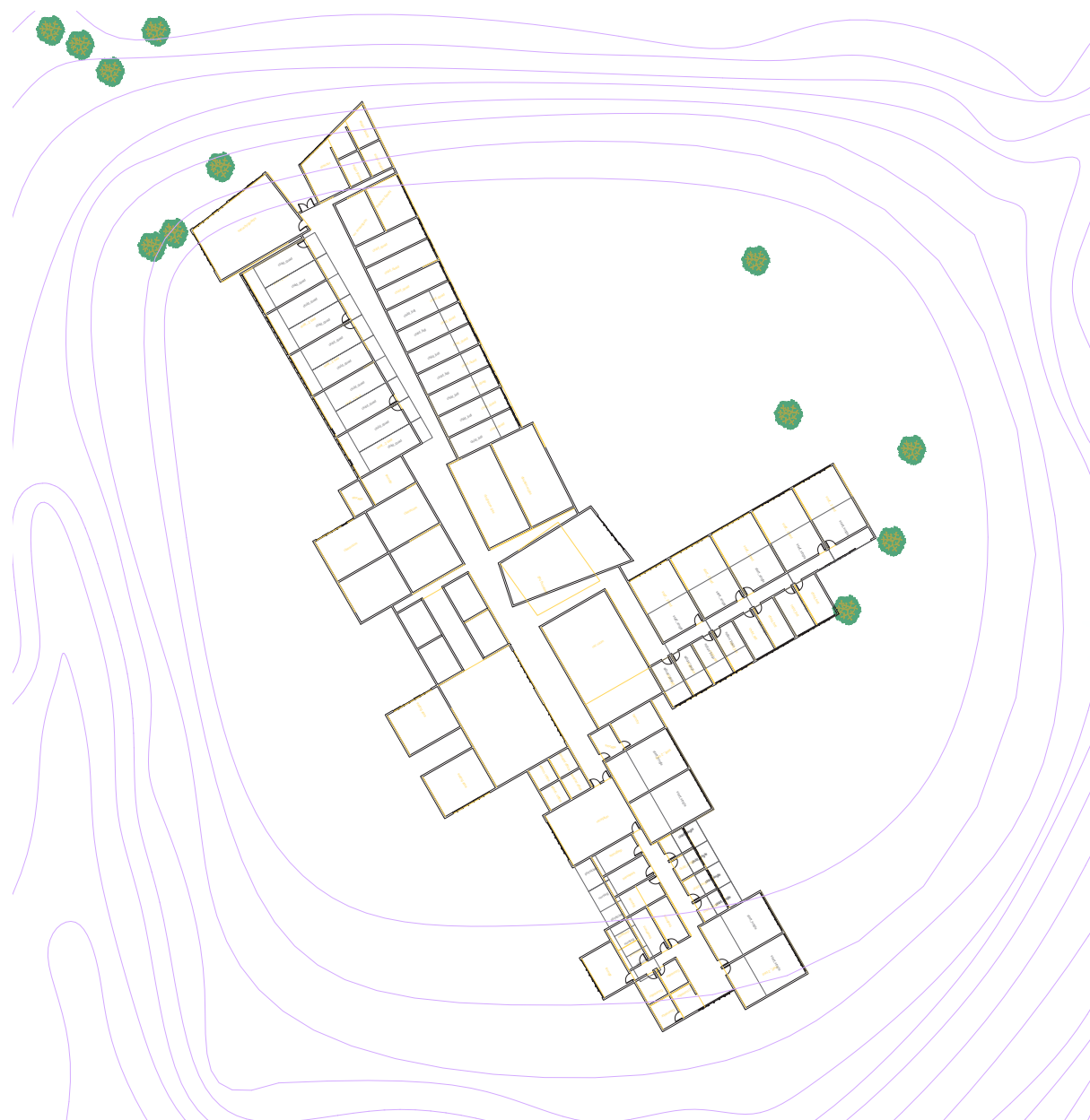
# process



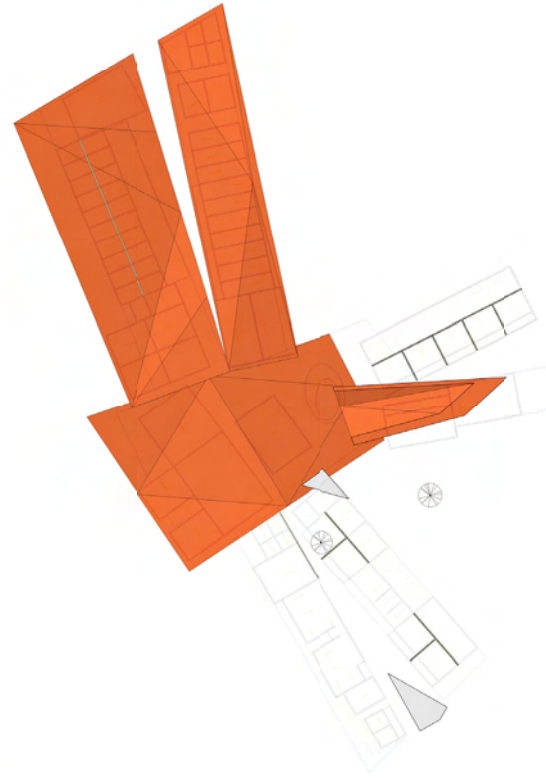
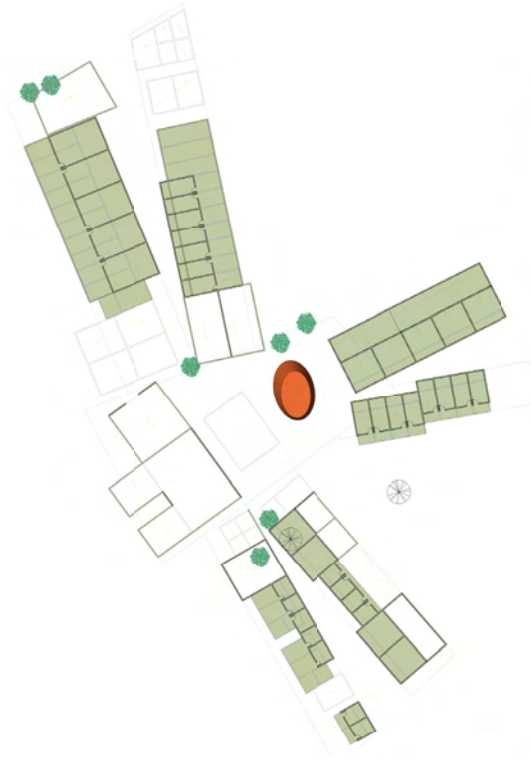
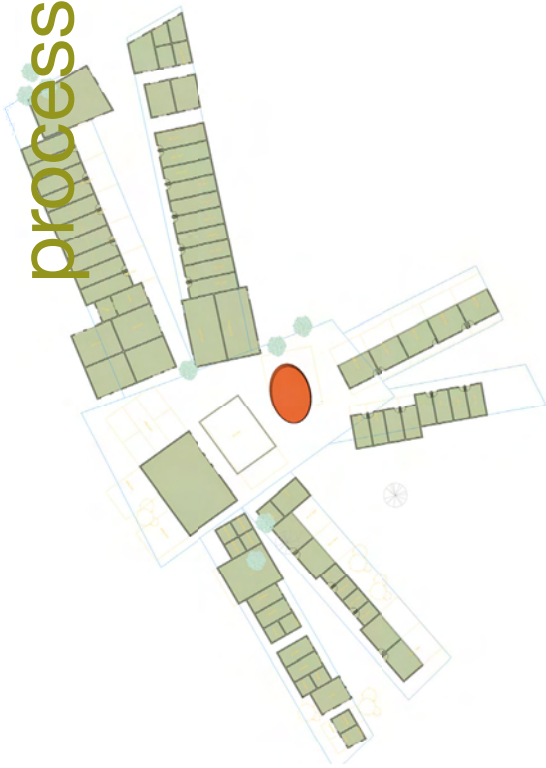
002\_2nd floor  
1/32" = 1'-0"



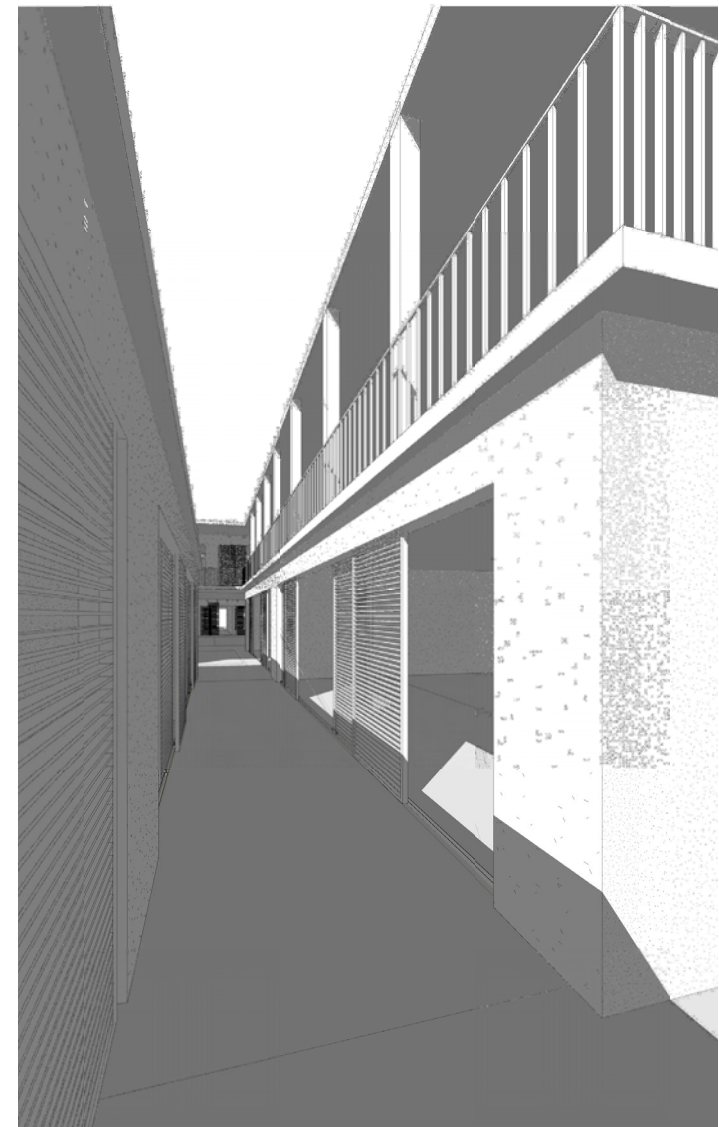
003\_top of building  
1/32" = 1'-0"







the next step was defining the three stages of healing into wings of architecture. this was done in a fanning typology to give reference and appreciation to the river that flows around the island. the segmented rooms were varied dependent on their programmatic necessities.

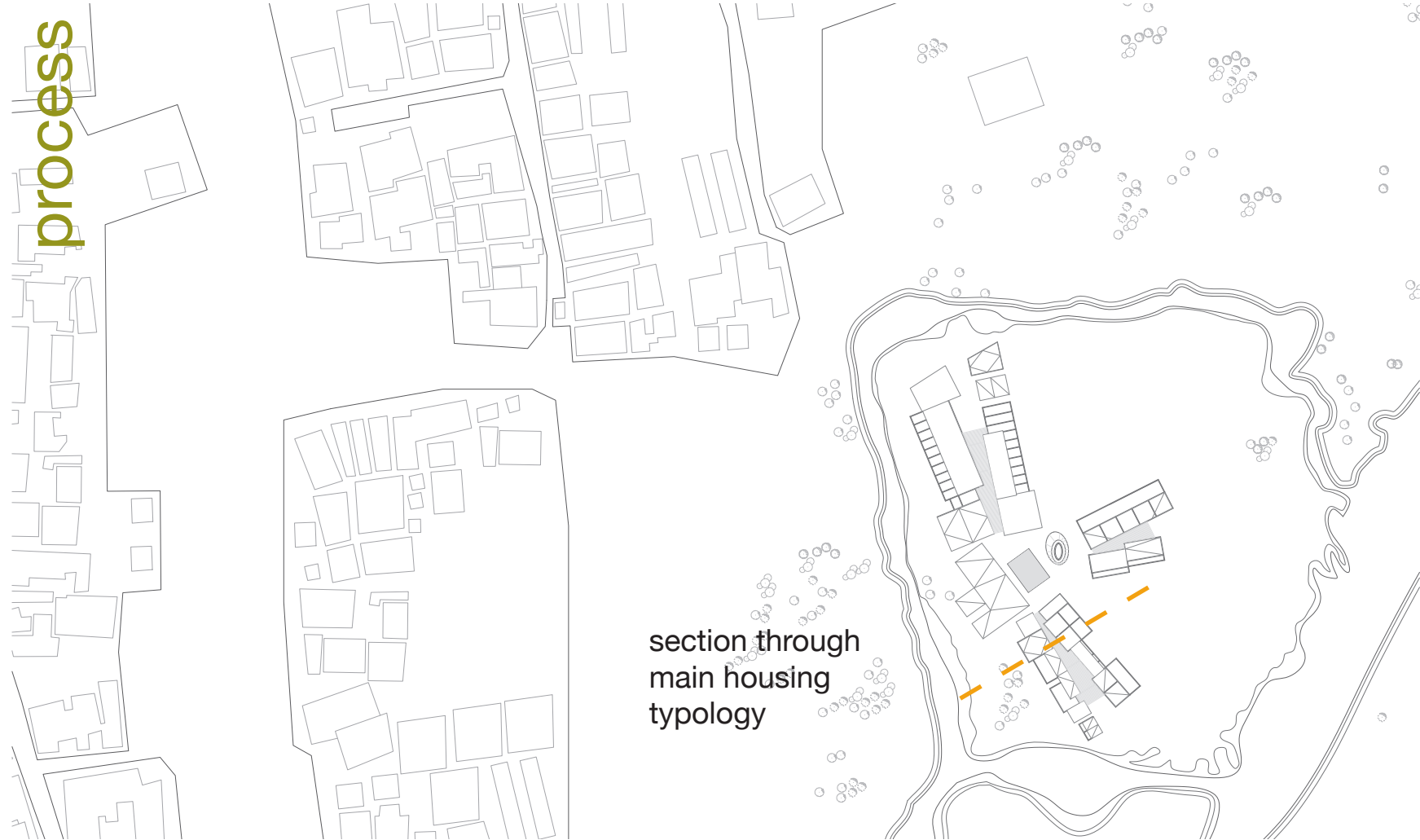


process

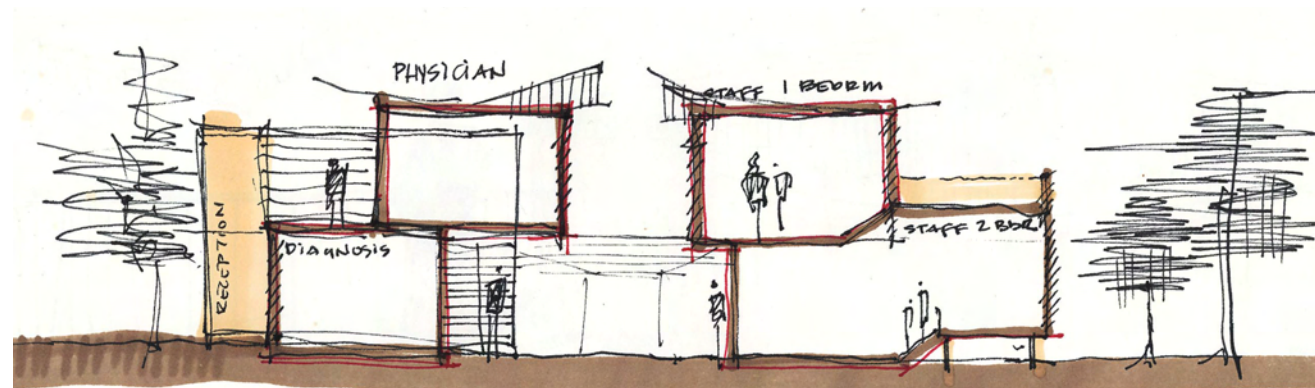
originally concrete was the main construction type. this was quickly changed when the renders showed how prison like the building began to feel.

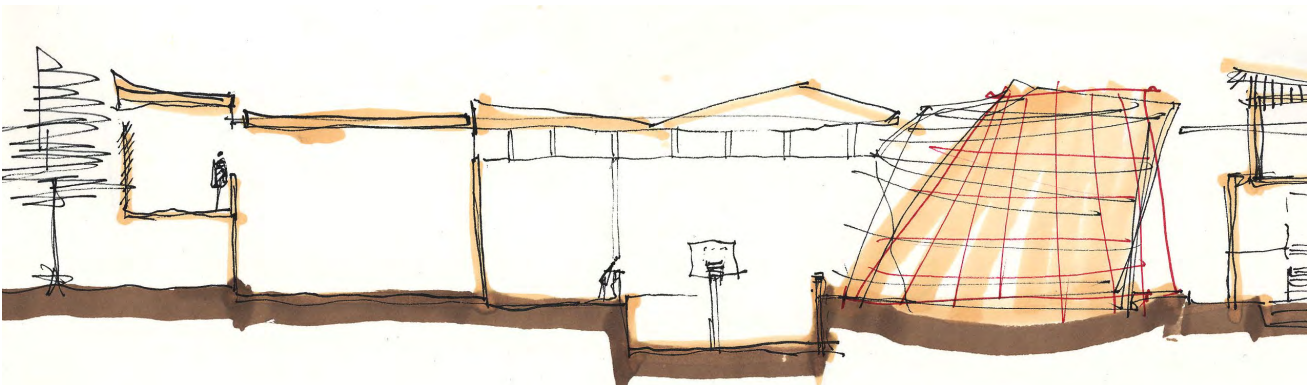






section through  
main housing  
typology

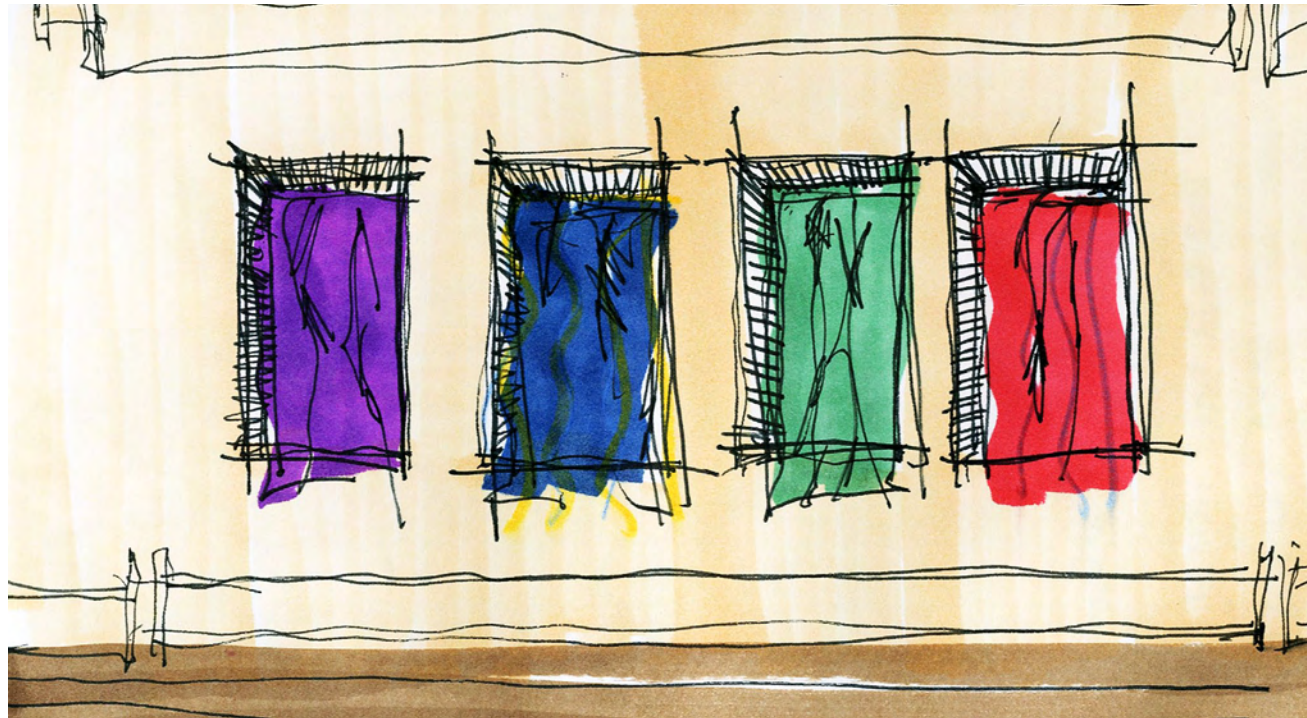


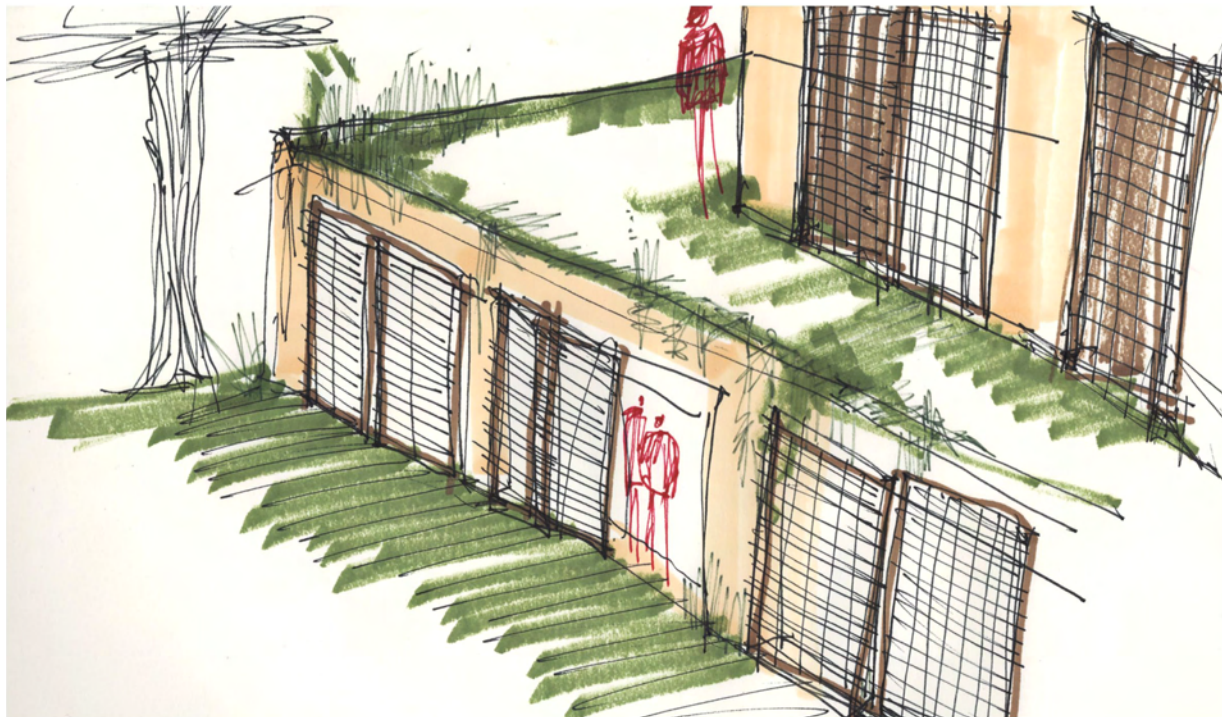
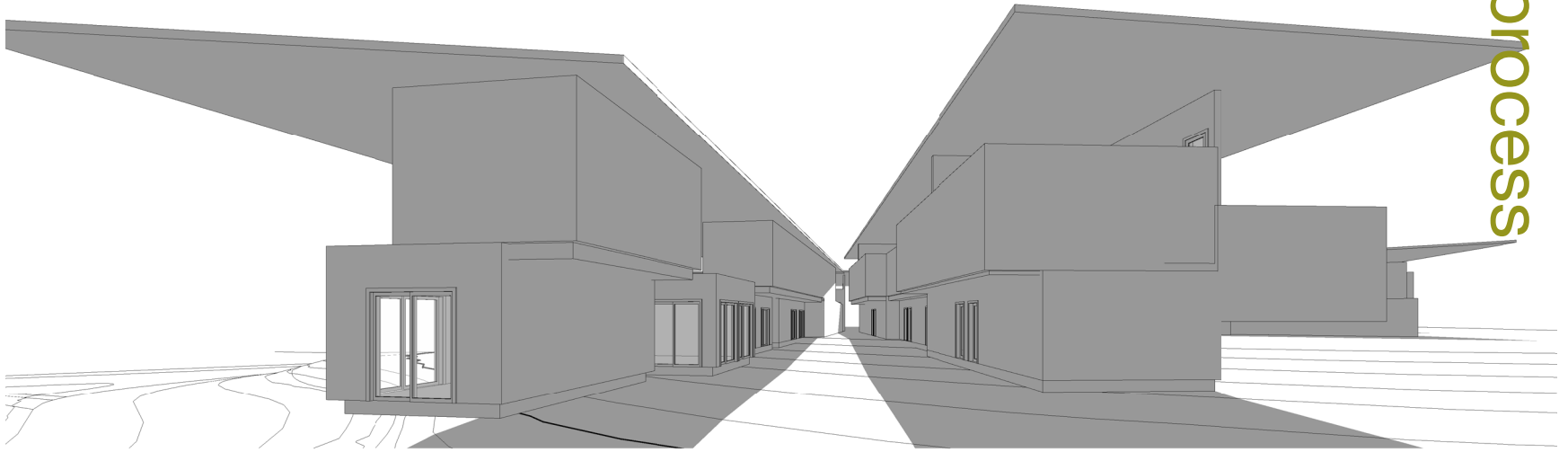






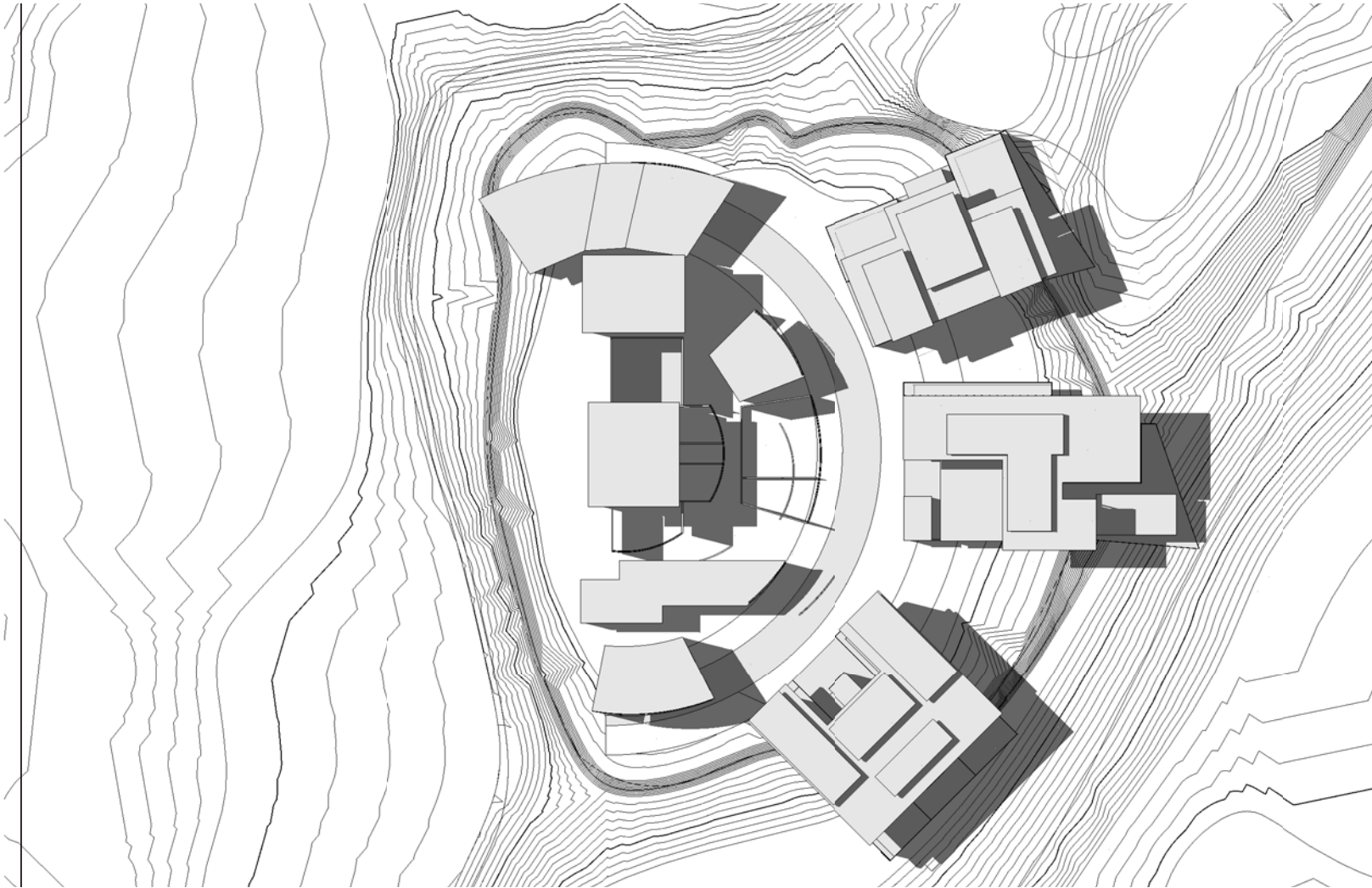
at first the use  
of curtains in  
bright textiles  
and colors  
was desired  
to keep the  
movement  
of the wind  
throughout  
the building





I looked at the ideas of incorporating green roofs as an extended area for self thought and healing. however in this climate with the realities of cost it proved to not be beneficial to the architecture.

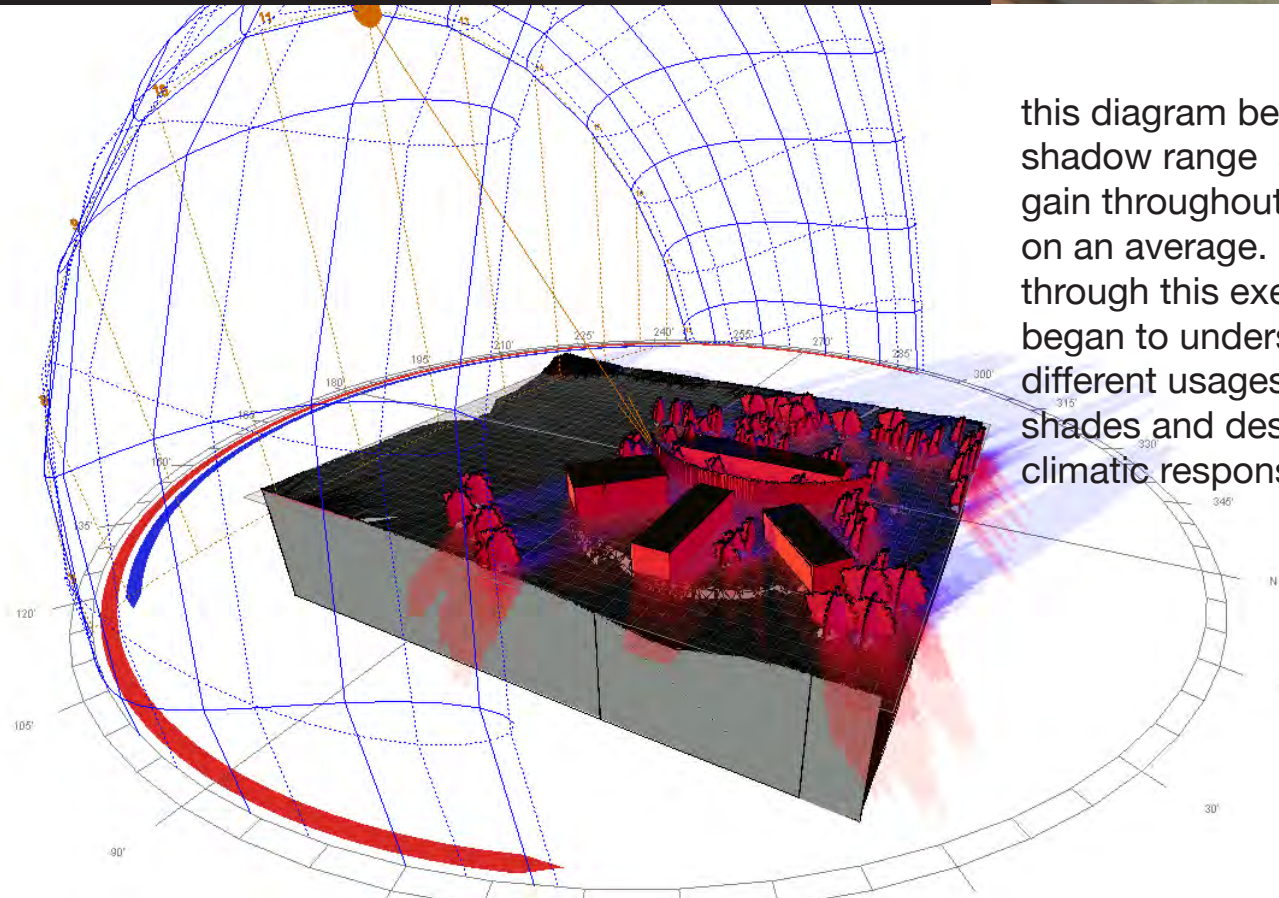




A design was done on a curved axis to give the building a radial feel. so that when a boy filters through the building from his first stages of trauma to his last, reintegration, he can physically and emotionally notice the change in the way that the sun and climate flow through the building. this radial design was one that was more involved with levels and incorporation of water and land together to define many different landscaped gardens and spaces for healing.



render of the radial design through a communal walkway

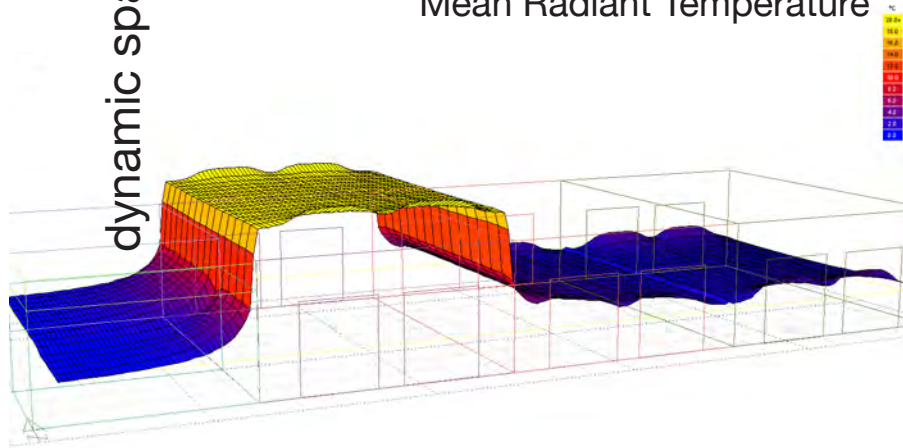


this diagram below show shadow range and solar gain throughout the year on an average. through this exercise I began to understand the different usages of sun shades and designed climatic responses

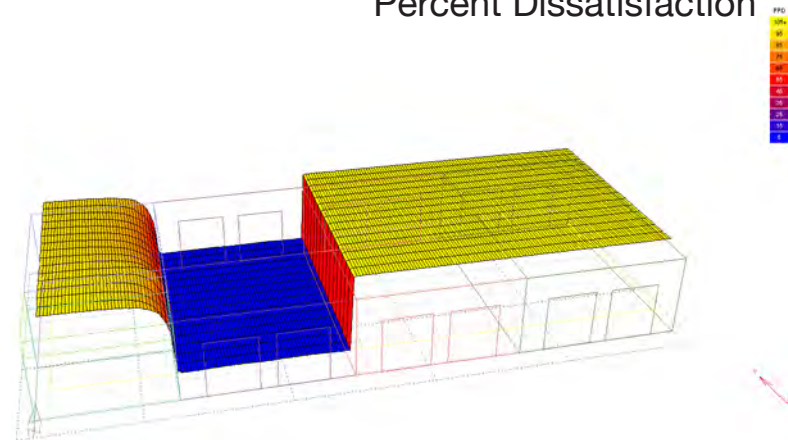


process  
dynamic spatial comfort zones

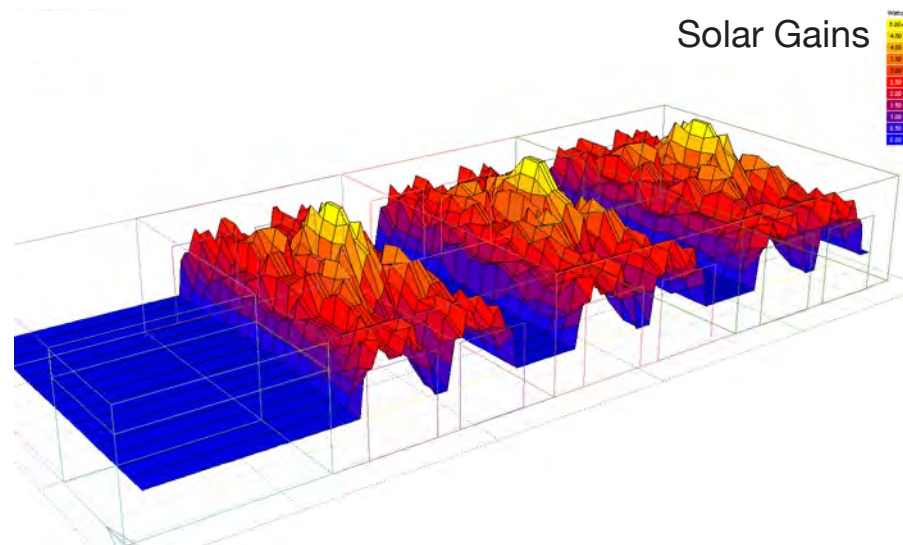
Mean Radiant Temperature



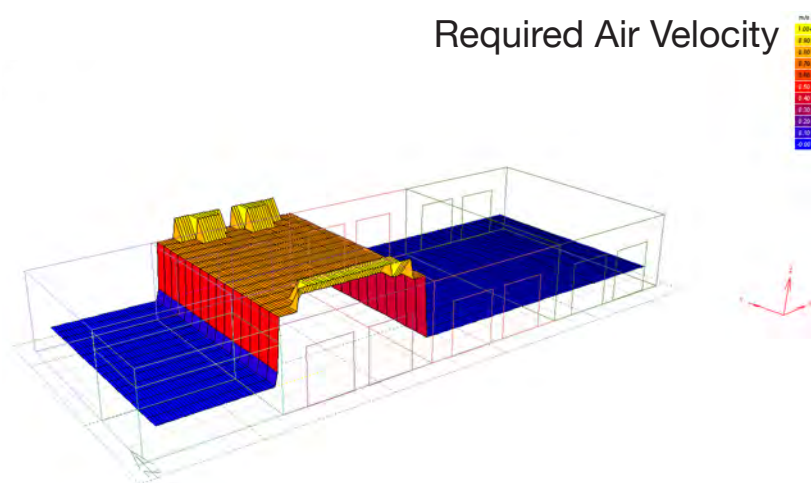
Percent Dissatisfaction



Solar Gains

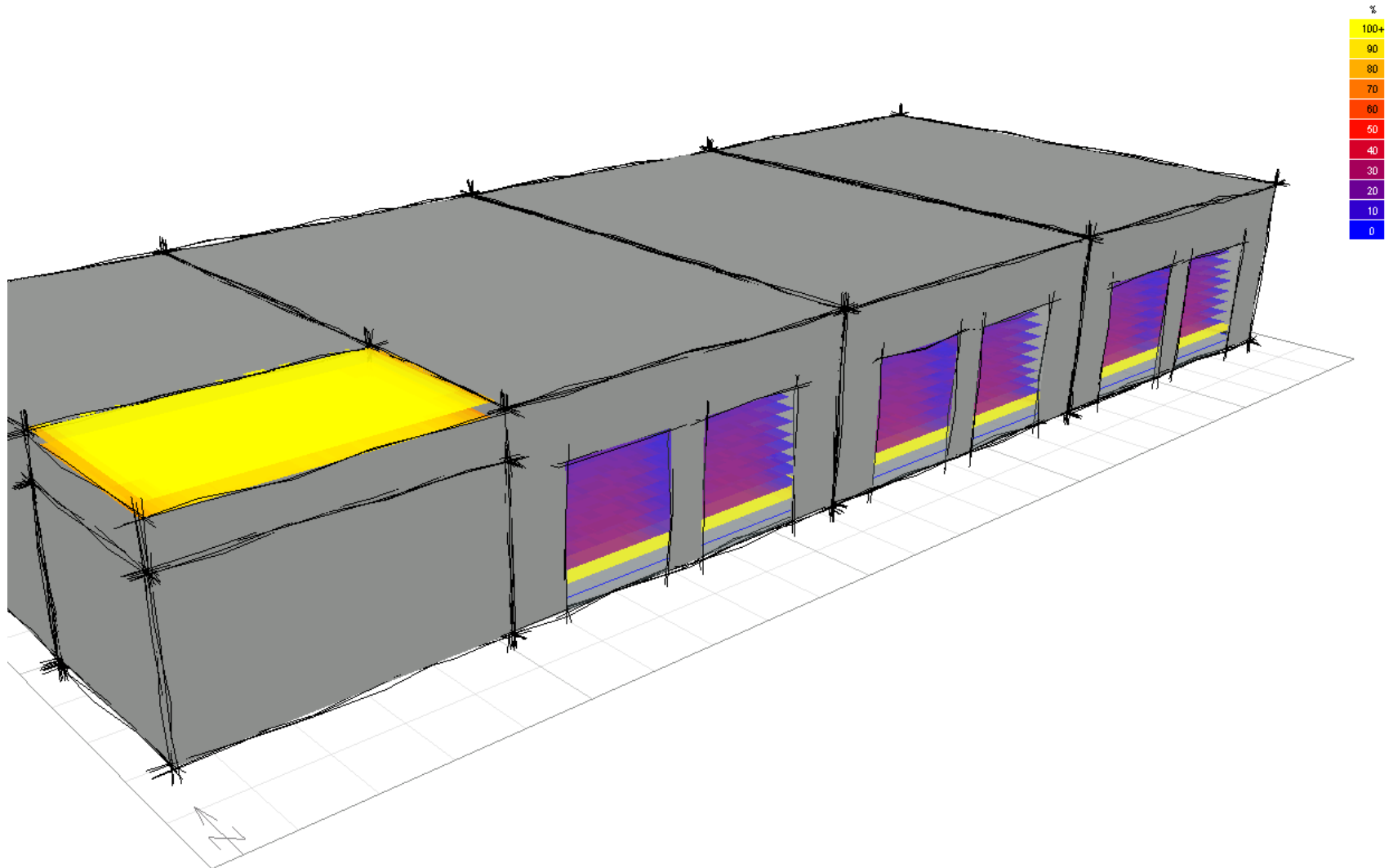


Required Air Velocity



# process daylight analysis daylight reactors

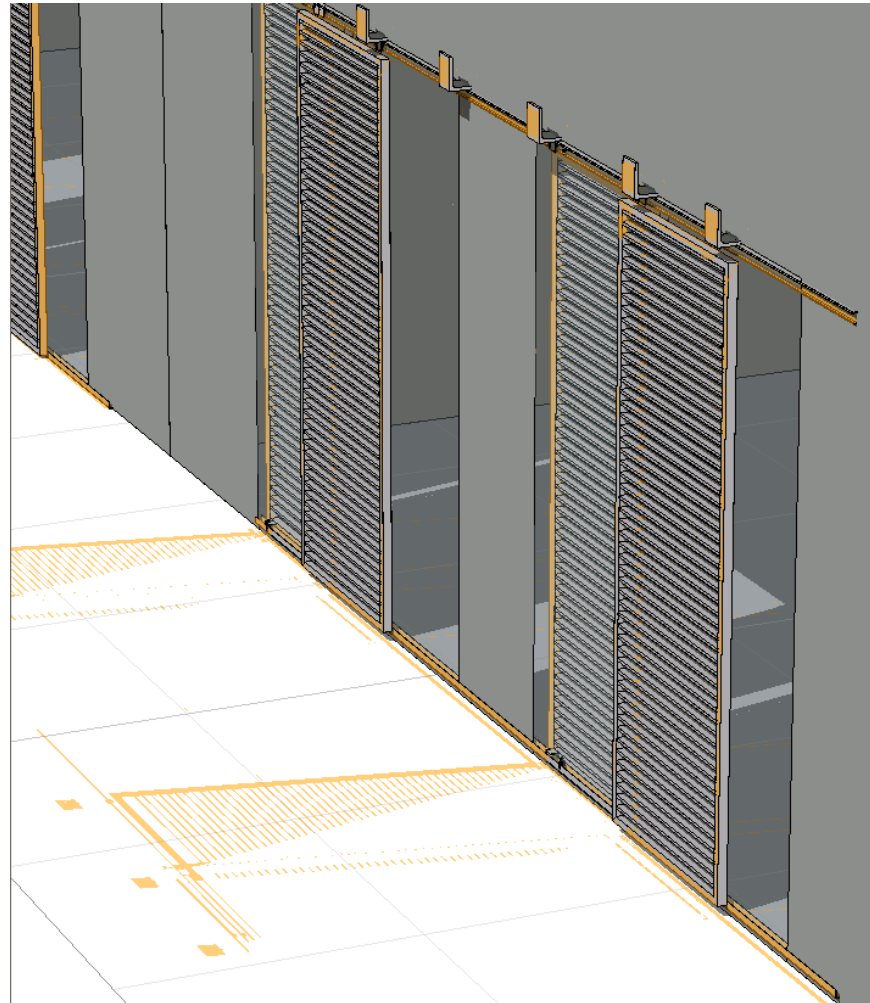
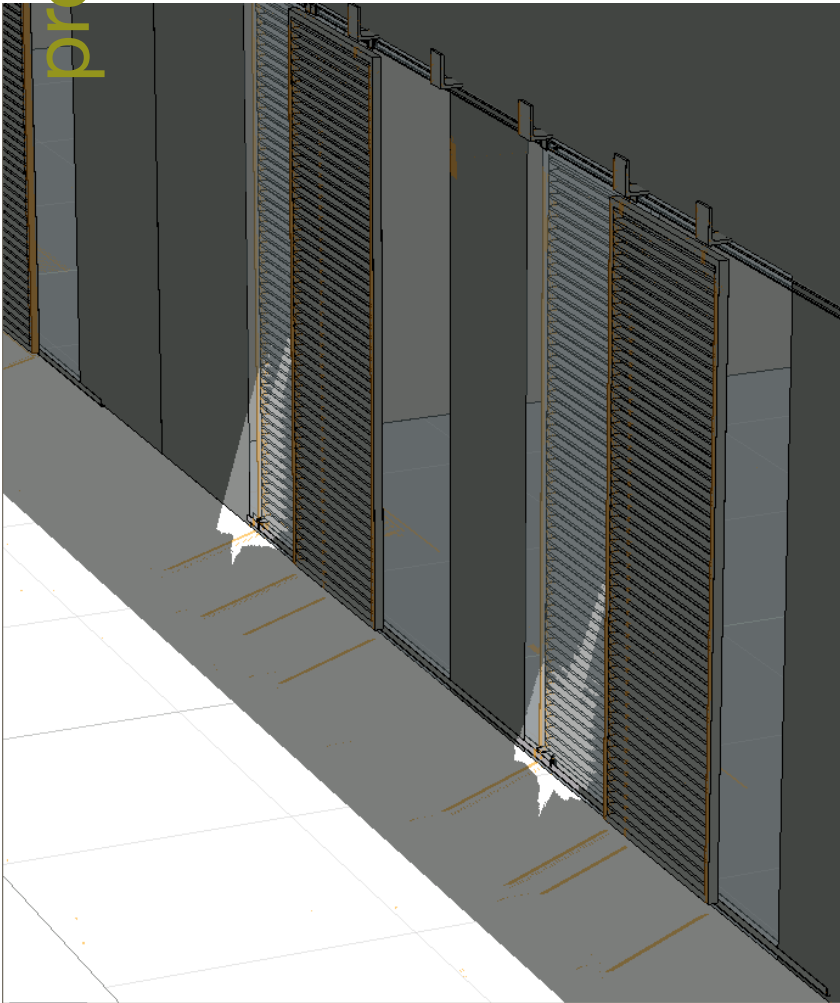
The application of material, concrete, with simple natural ventilation remains within the ability to light and vent these rooms comfortably. the colors represent the varied direct and indirect affects that the natural light has on the design.





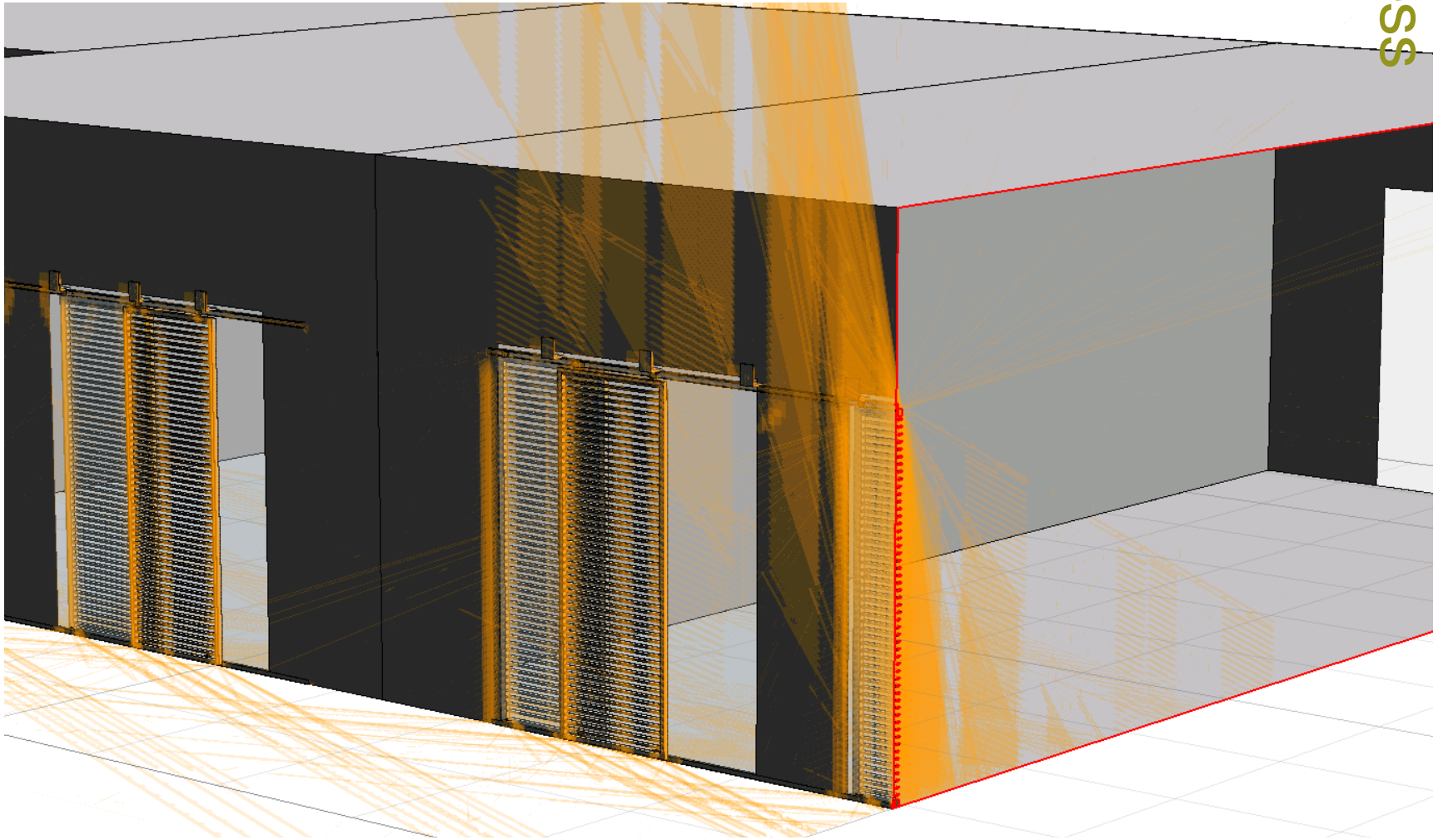
june 15 12:00 noon

december 15 12:00 noon



shows the contrast of direct lighting angle from the summer month to the winter month

concluded design response

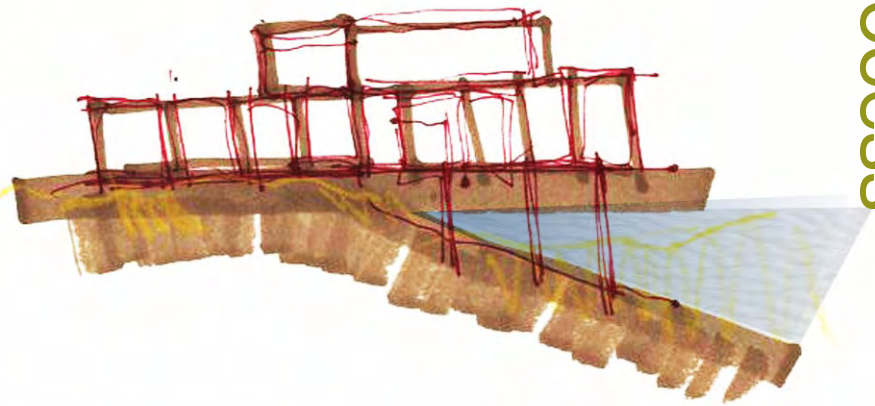


due to the results found from the data I was able to fully understand how the louver system that I designed works within the design of the building overall, and contextually on the chosen site.



process





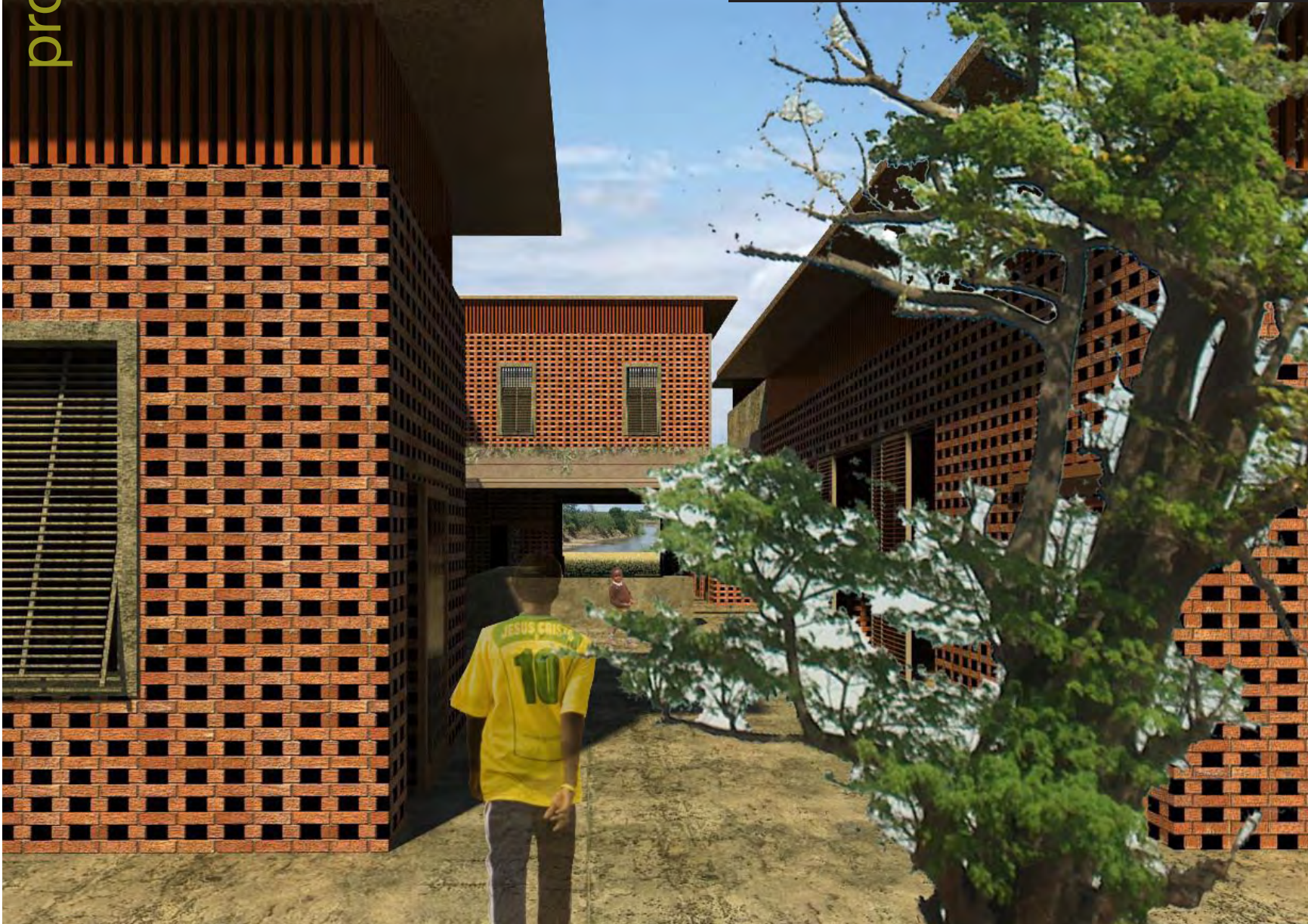
interaction of water with architectural elements. the water penetrates inward to the courtyard spaces.





process

into filter 2- process of design dealing with pods and layering to create more open and enclosed areas



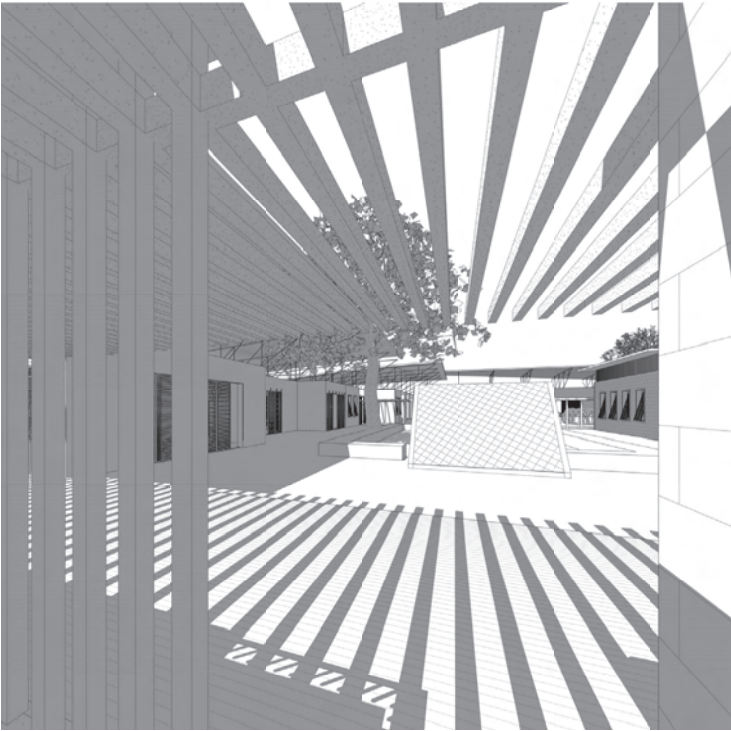


night view of the glowing housing typology  
showing perforations of material dealing  
with light and climate.



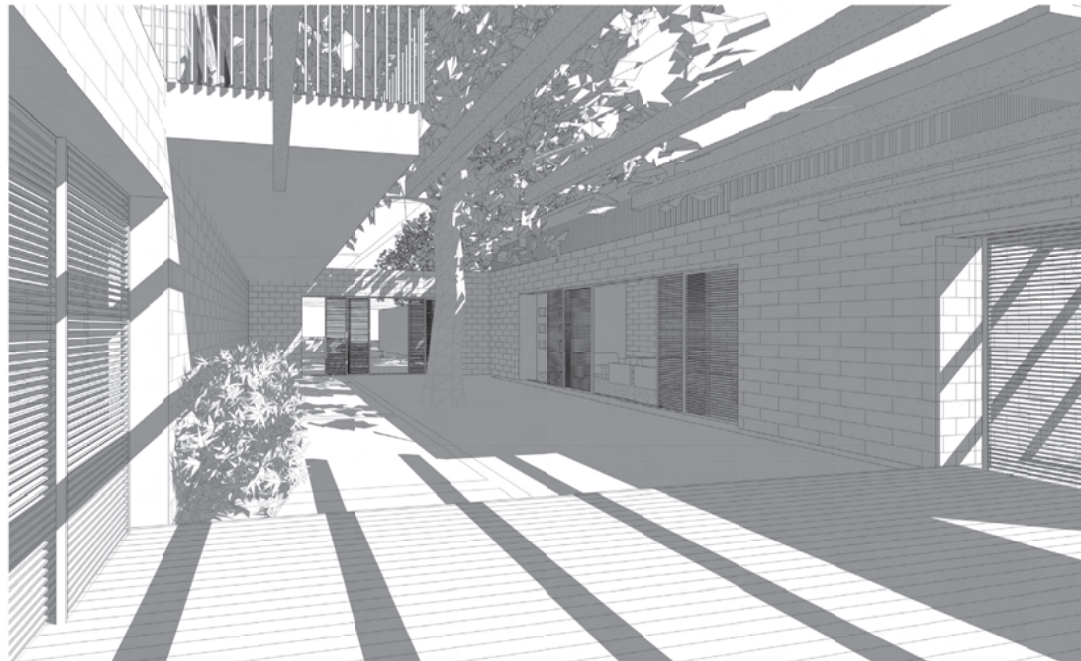
process





the weaving of the columns and beams creates dynamic shadows on public circulation. image to the left shows main courtyard space and filter 1 circulation outside the medical area.

filter 1 courtyard space showing shadows cast by designed louver system.



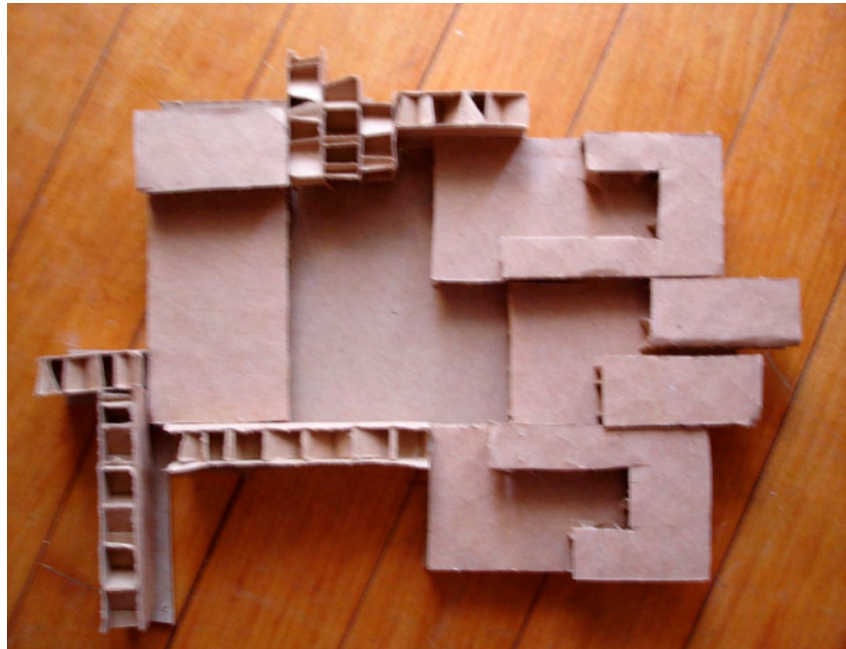


market space connected to filter 3 where the boys can sell their crops





study models showing massing of filters and common areas overall



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Chrobok, Vera, and Andrew S. Akutu. "Returning Home: Children's Perspective on Reintegration, a case study of children abducted by the Lord's Resistance Army in Teso, Eastern Uganda." (2006)

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Jereg, Elizabeth. "Crossing Bridges and Negotiating Rivers-Rehabilitation and Reintegration of Children Associated with Armed Forces." Coalition to Stop the Use of Child Soldier. 1-9 (2005)

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Architecture for Humanity, <http://architectureforhumanity.org>

Kaduna State, <http://www.kadunastate.gov>



