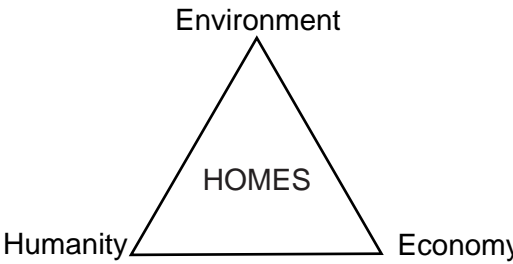


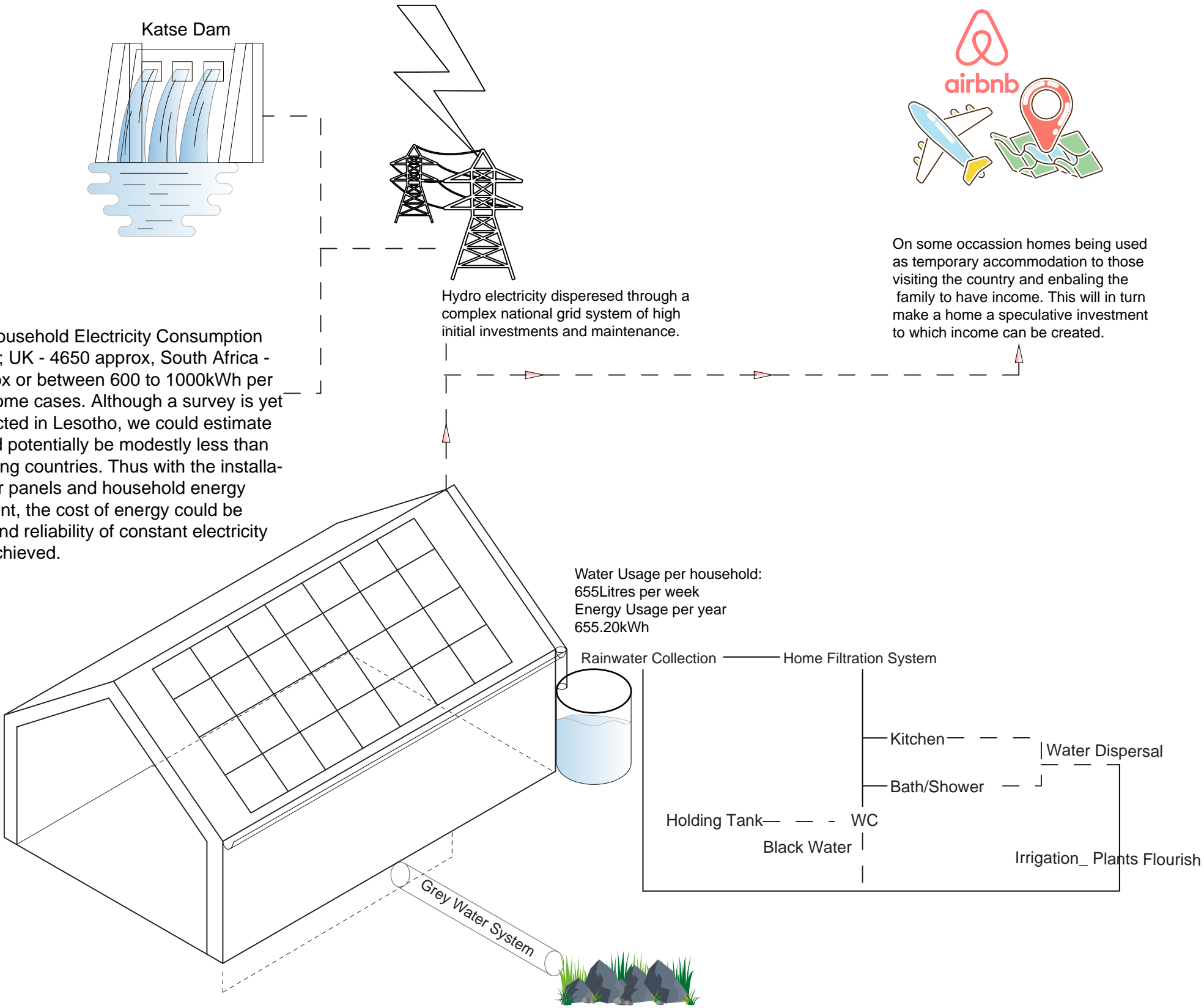
PROJECT DESCRIPTION



The proposed project explores how the design of affordable could enable the recovery of ecological condition(*land erosion*), eradication of poverty, access to energy and an untapped source of economic development through tourism to the country.

Inspired by current Sustainable Development Goals(SDG's), the design aims to apply the principles of the SDG's in developing a design that responds to the pertinent issues of the area.

**Energy**  
Average Household Electricity Consumption (kWh/year); UK - 4650 approx, South Africa - 4389 approx or between 600 to 1000kWh per month in some cases. Although a survey is yet to be conucted in Lesotho, we could estimate that it could potentially be modestly less than the preceding countries. Thus with the installation of solar panels and household energy management, the cost of energy could be mitigated and reliability of constant electricity could be achieved.

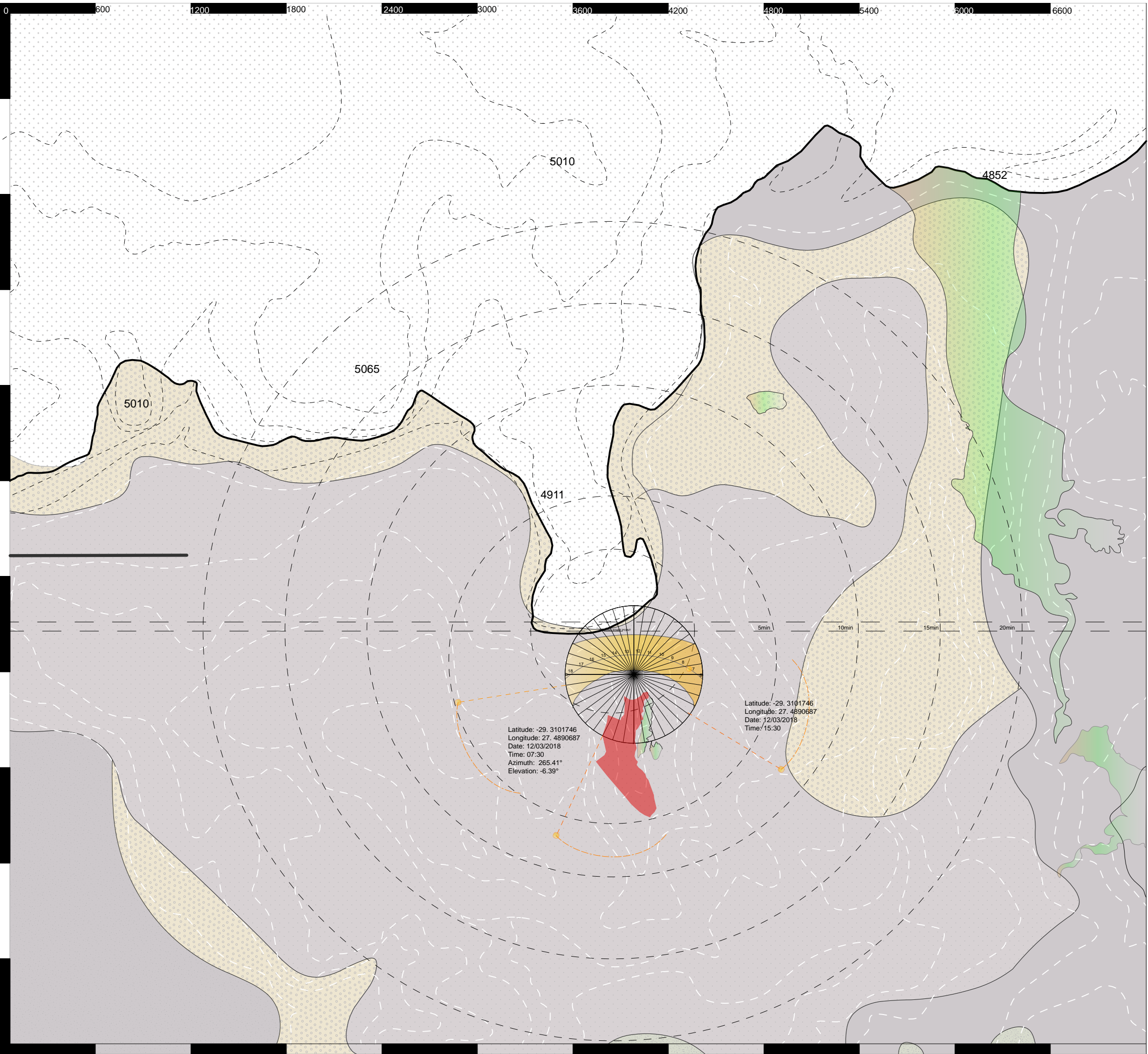


Home Products and Energy Consumption				
Product	Energy	kWh	W	Period
Washing Machine	500		✓	p/wash
Fridge	350	✓		Annual
Stove	1500		✓	Hour
TV	55		✓	Hour

Encouraging the development of homes and neighbourhoods that contributes to the national development of forest and becomes a catalyst of ecological rehabilitation.

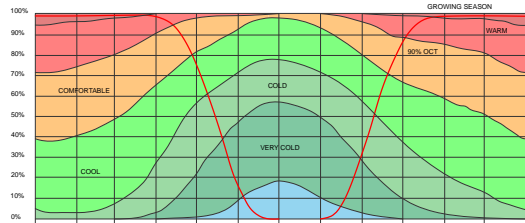
### **Design Summary**

A home is an adaptation of natural and locally sourced materials employed to contribute to the organic development of the environment. It's against this backdrop and current SDG's, that the design aims to make a contribution towards ecological rehabilitation and development of new economies that are responding to immediate realities. Such aspirations can only be achieved through individual initiatives, capacity building and institutional collaborations. It's in these small efforts of creating incremental homes that an identity of a landscape cultivated through capacity building of individuals to develop an environment that is in harmony with the natural ecological system is forged.

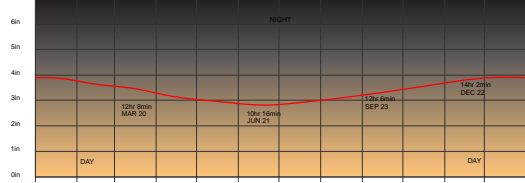


PROJECT SITE AND ENVIRONMENTAL CONDITIONS

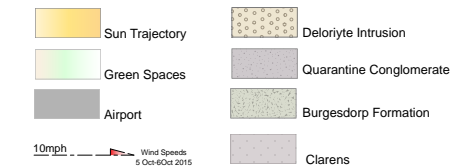
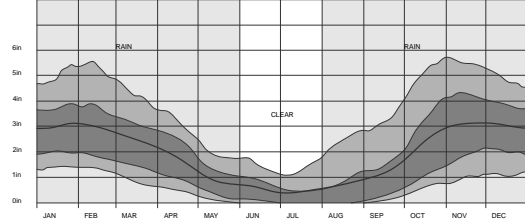
TIME SPENT IN VARIOUS TEMPERATURE BANDS AND THE GROWING SEASON



HOURS OF DAYLIGHT AND TWILIGHT



AVERAGE MONTHLY RAINFALL



HOUSING DEVELOPMENT AND LANDSCAPE



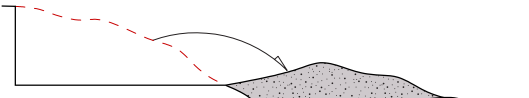
Encouraging the development of home and neighbourhood which in turn contributes to the national development of forest and becomes a catalyst of ecological rehabilitation.

PLOT SIZES: 15m X 30m

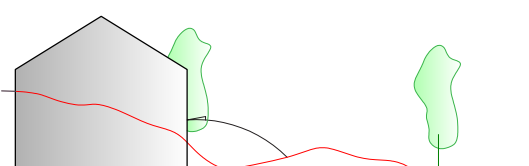
PLOT SIZES: 30m X 30m

Spatial Heirarchy: Typologies

(1) Material extraction and terraforming.



(2) Material Arrangement and setting out.



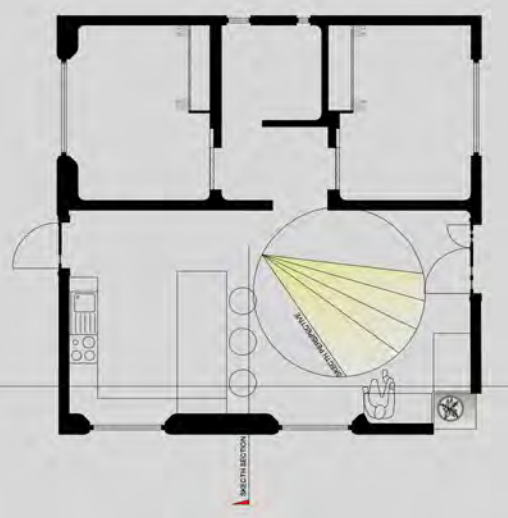
(3) Material Adaptation & repurposed

Houseplan Type 1  
Living Space centred.  
Privacy at each wing.

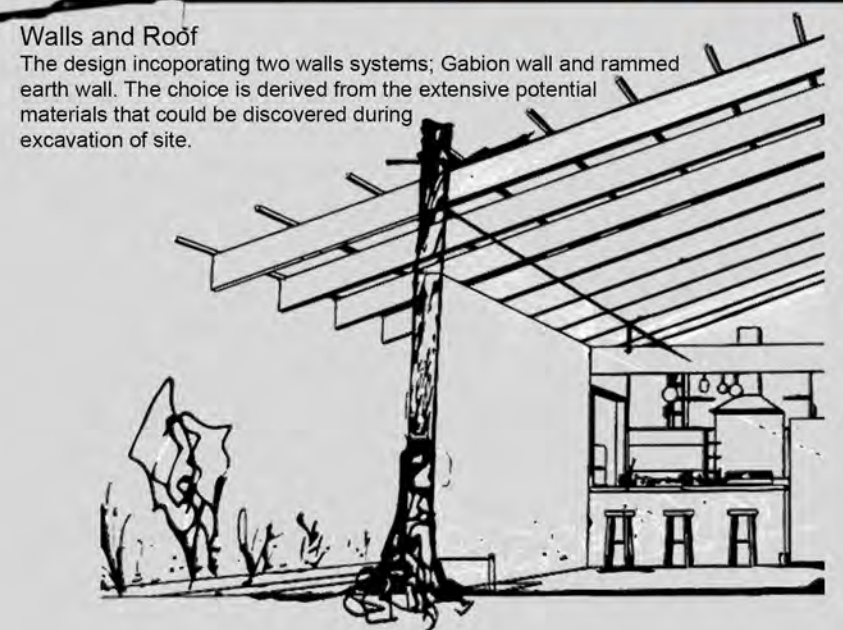
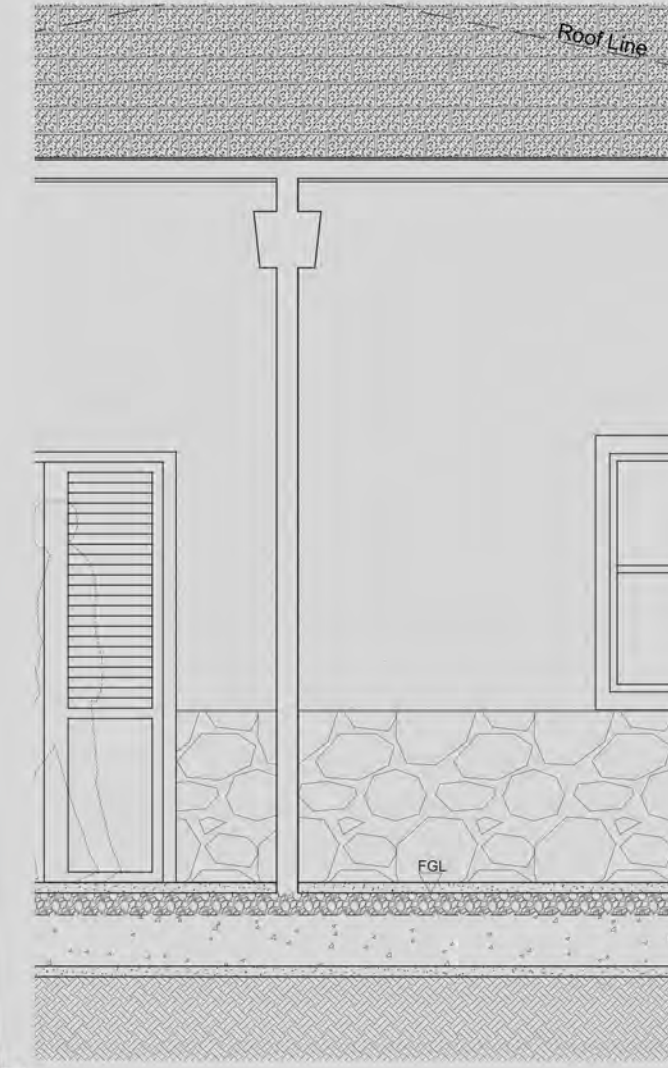
Houseplan Type 2  
Living Space centred.  
Private spaces orient  
towards sunset.

Houseplan Type 3  
Linea Spatial organisation.  
Dining and living in centre

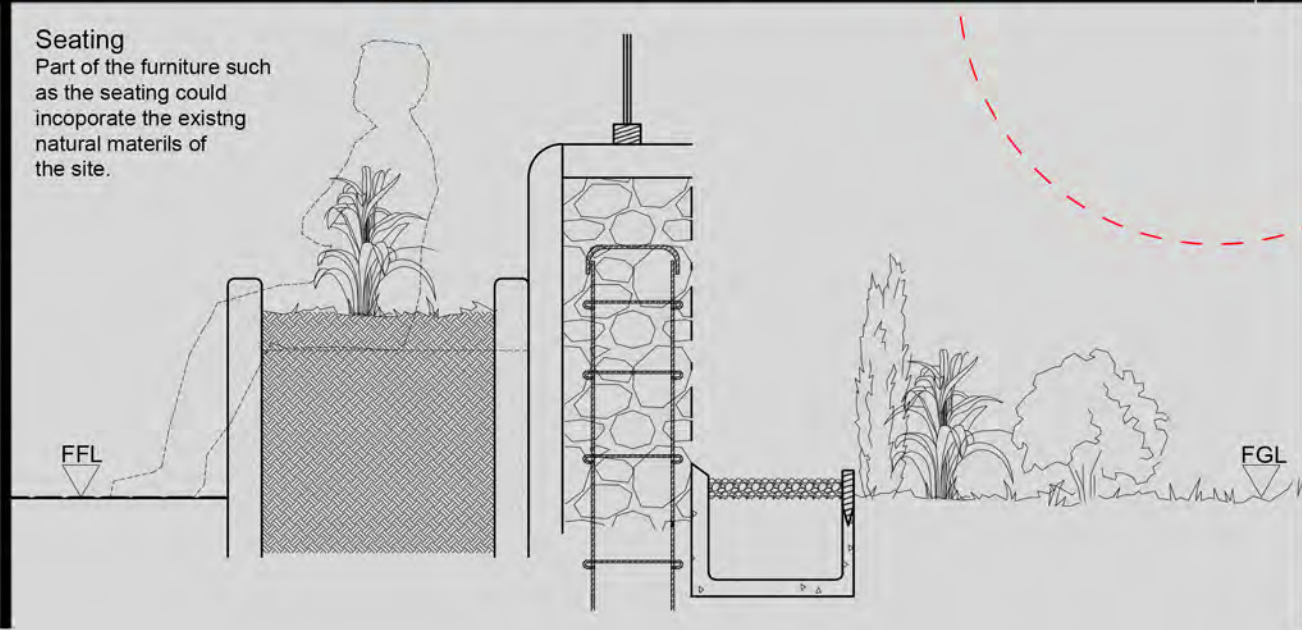




**Concealed Gutter**  
Water management and storage of the building will incorporate concealed or partially exposed gutters. The drainage and overflow will mitigation will run through the top and base of the building.



**Walls and Roof**  
The design incorporating two walls systems; Gabion wall and rammed earth wall. The choice is derived from the extensive potential materials that could be discovered during excavation of site.

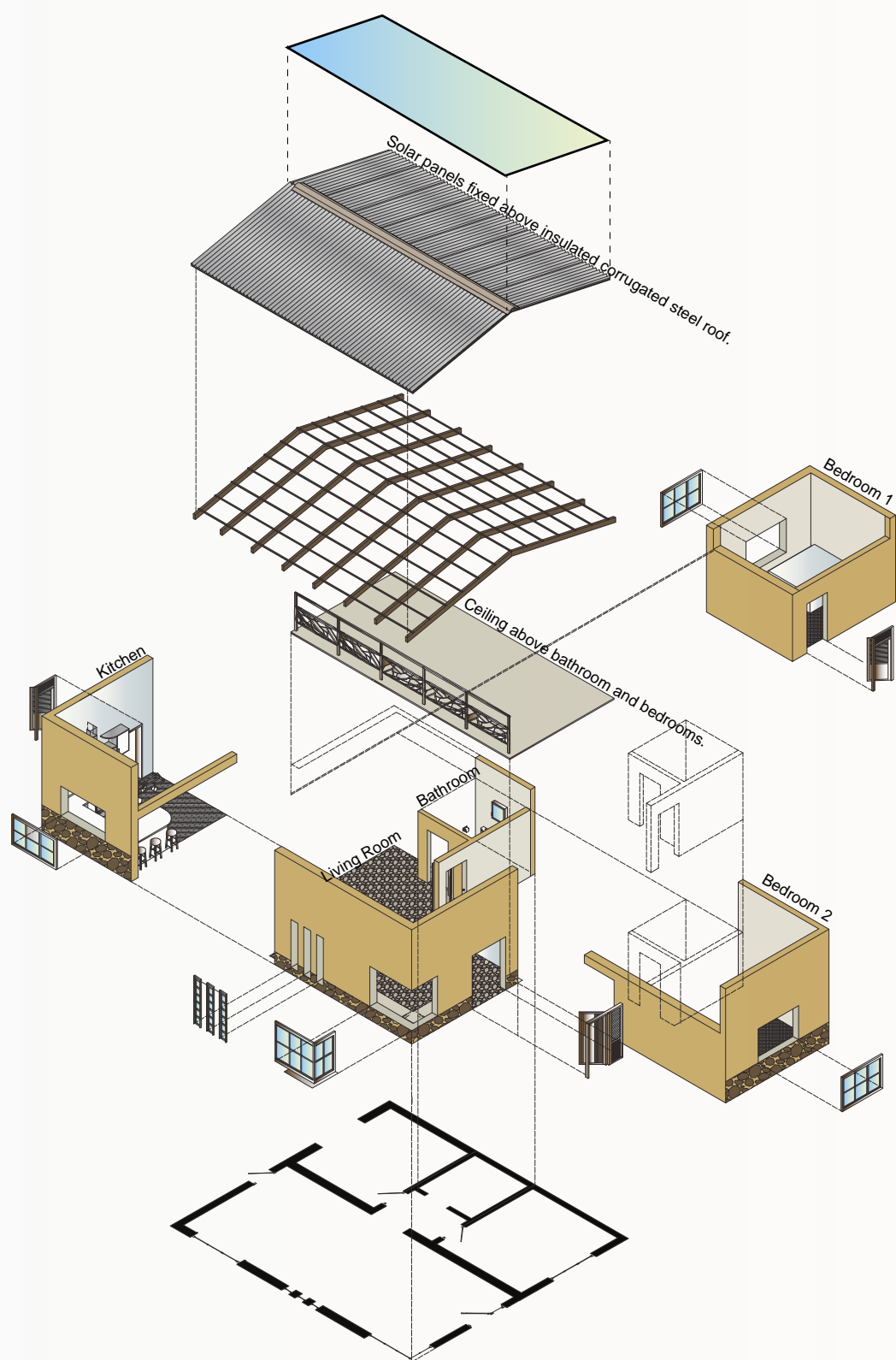


**Seating**  
Part of the furniture such as the seating could incorporate the existing natural materials of the site.

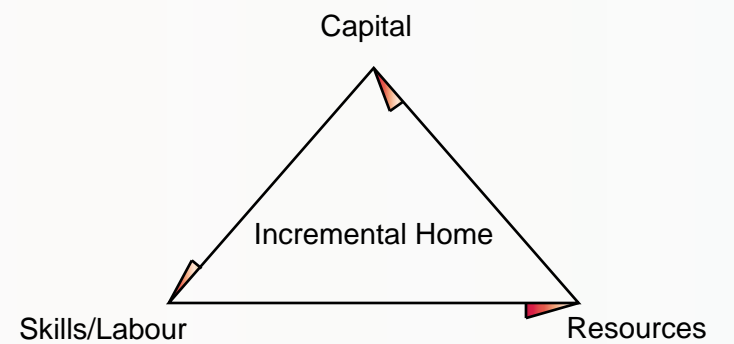


**Interior Living Room**  
Interior looking at the seating which is forming part of the structure and spatial organisation .





### Incremental Homes

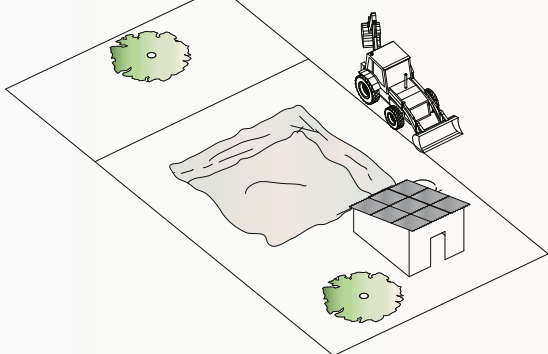


The preceding diagram outlines a process to which the development of an affordable home is a interrelation between the availability of capital, skill/labour and resources, to which all these will impact on the time and cost of the construction.

The following scenarios below speculates on the time it may take an average family to construct a home provides that conditions are favourable. It's to be noted that changes in owner's circumstances and dynamics of globe conditions could also affect the time and design tastes, thus the proposed design is a process that allows flexibility and adaptation to meet individual or family needs

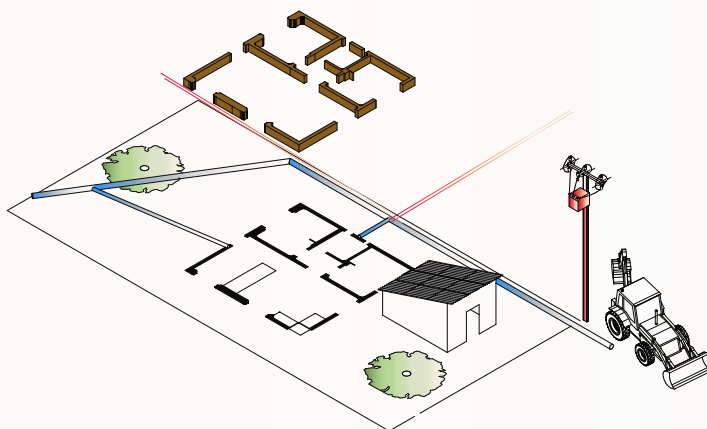
#### 1. Excavation

Erect hoardings around site.  
Outline the plot and excavate in preparation for foundations.  
Marking out structural grid.  
Construction of prototypes and temporary structure erection.  
Part of the excavated soil and stones to be repurposed for creating the structure.



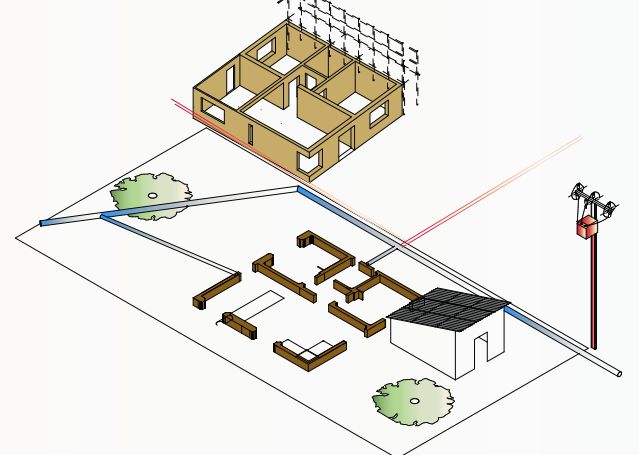
#### 2. Groundworks

Cast Foundations  
Utility connection from grid.  
Installation of temp services.  
Sorting of excavated materials.  
Materials secured on site.



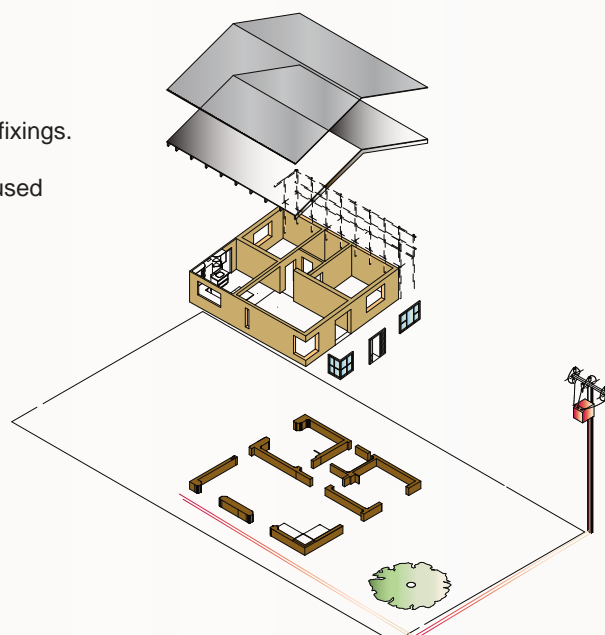
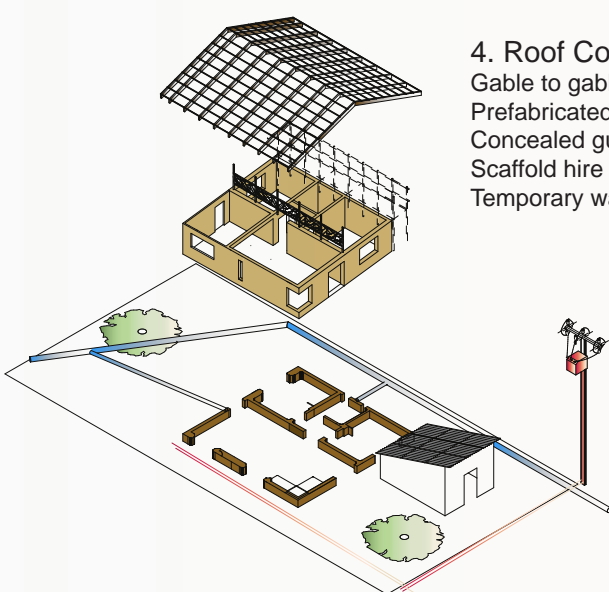
#### 3. Structure and Framing

Perimeter wall construction and column framing  
Structure column grid set up.  
Scaffold rental or use of appropriate platform.  
Usage of excavated materials with purchased additives and reinforcements.



#### 4. Roof Construction

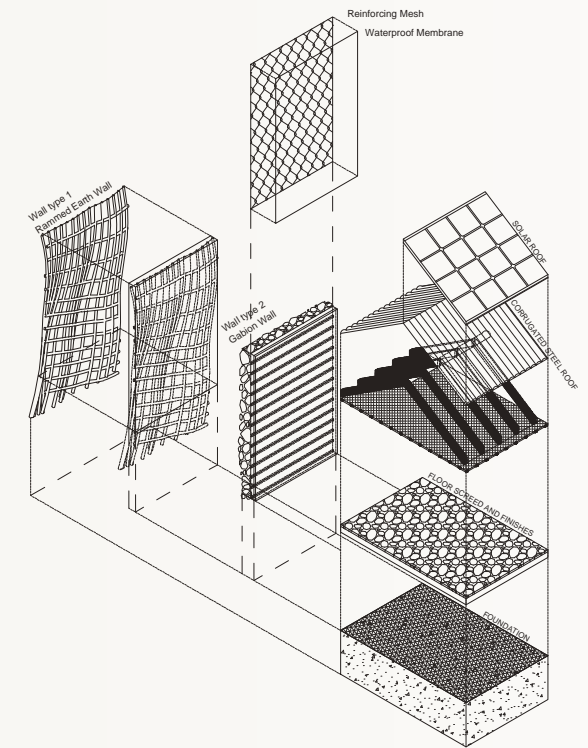
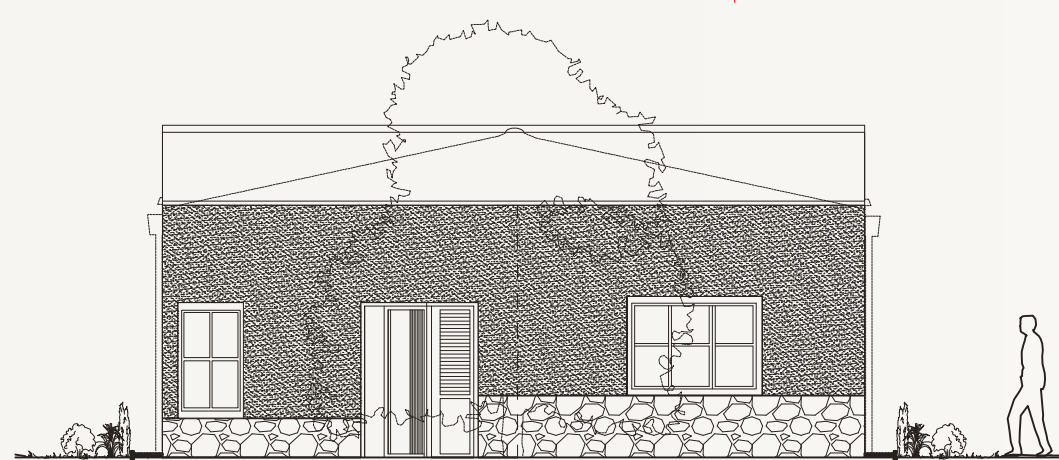
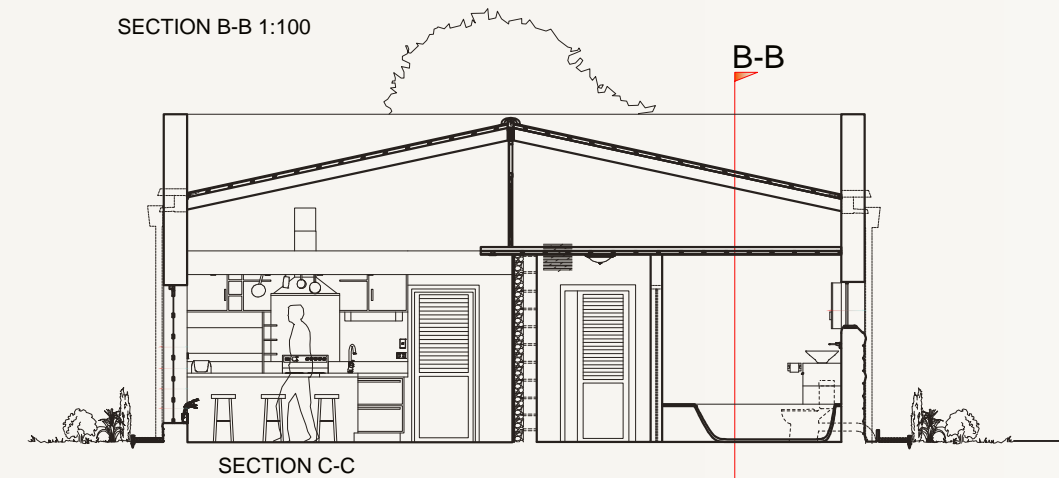
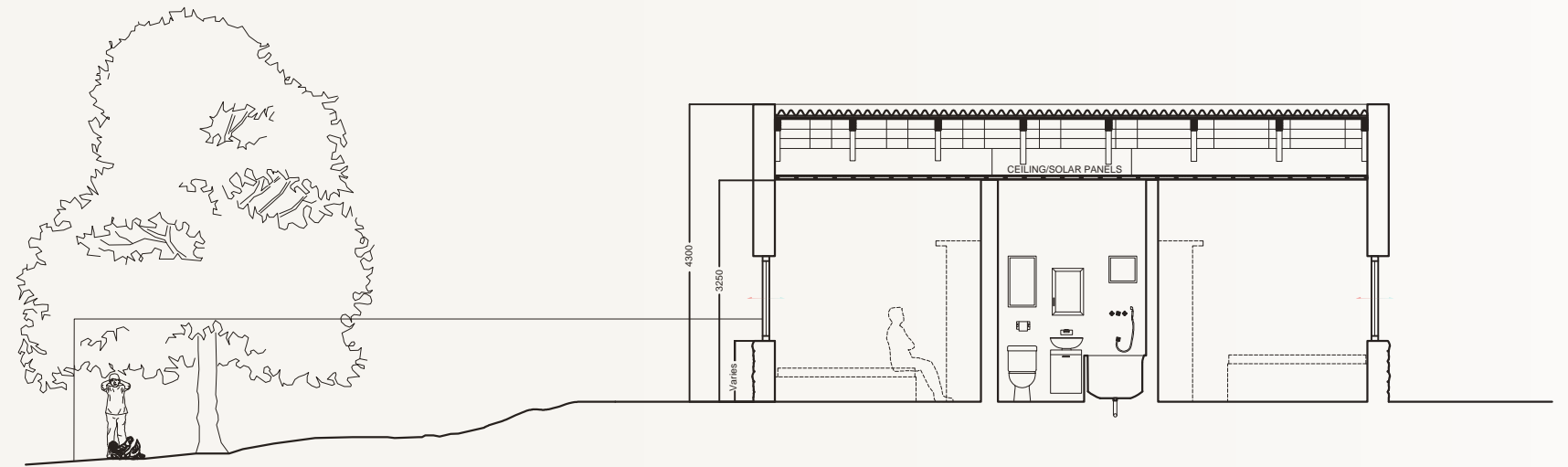
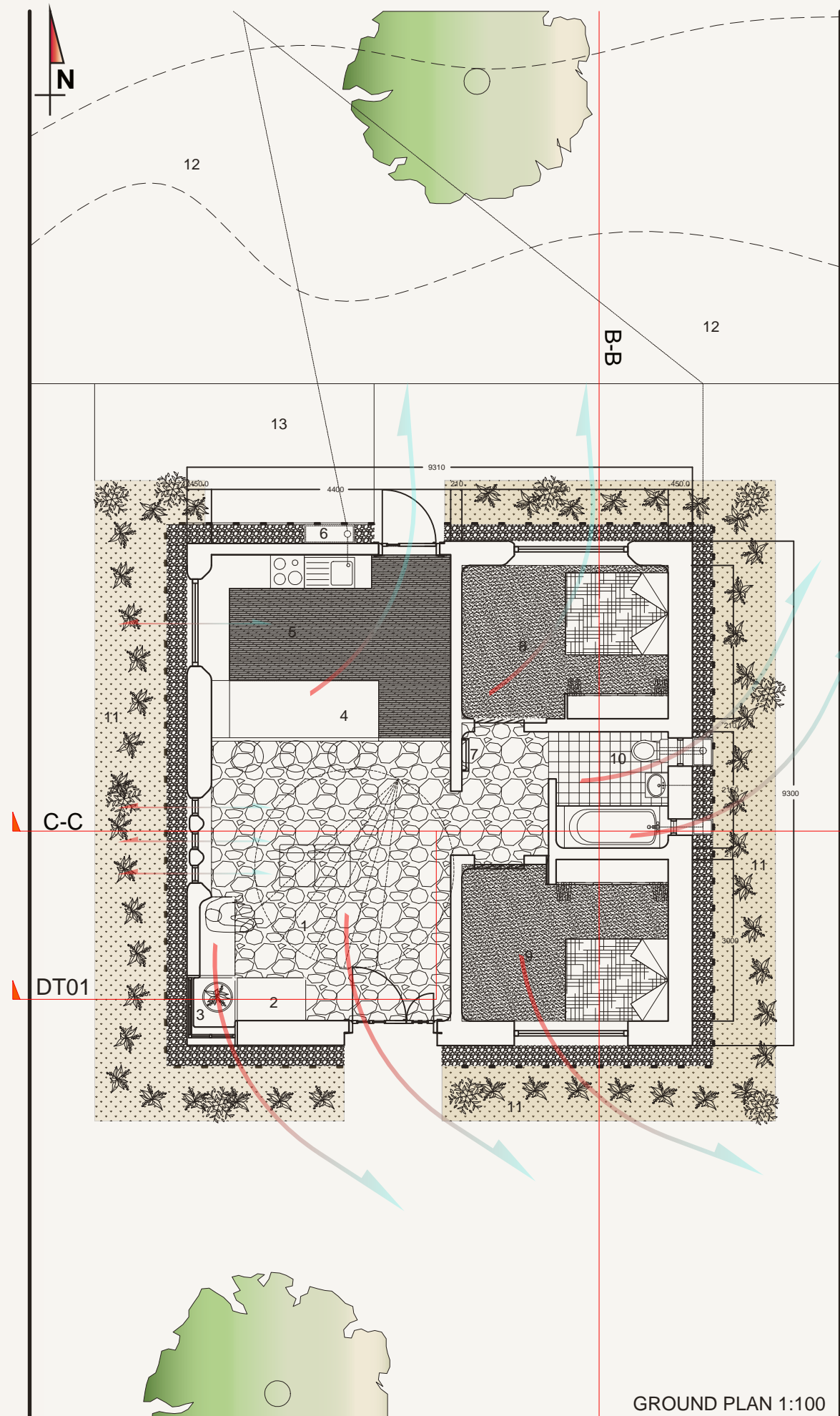
Gable to gable roof.  
Prefabricated timber beams and truss with fixings.  
Concealed gutters.  
Scaffold hire or appropriate platform to be used  
Temporary waterproofing for occupation



#### 5. External and Internal Lining

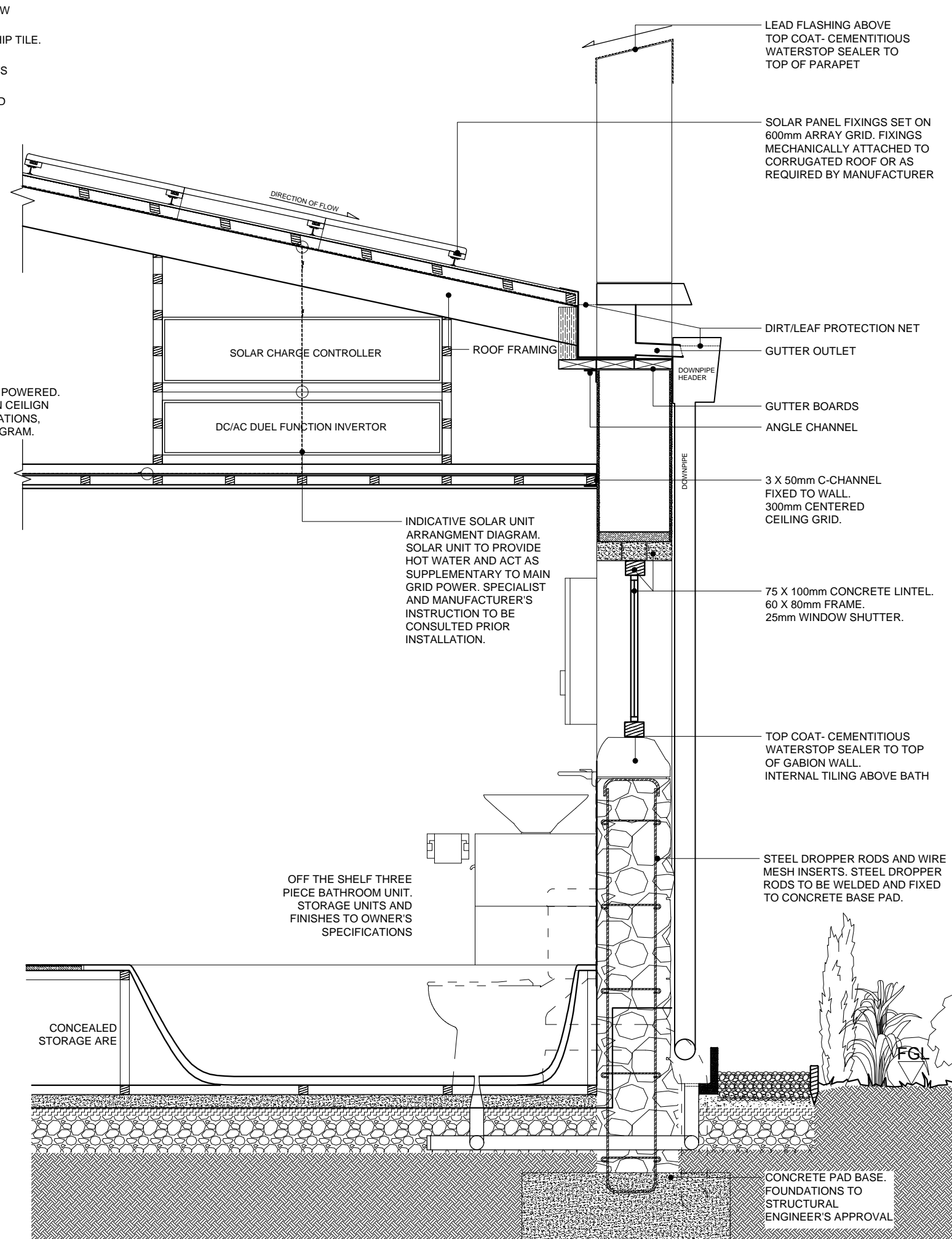
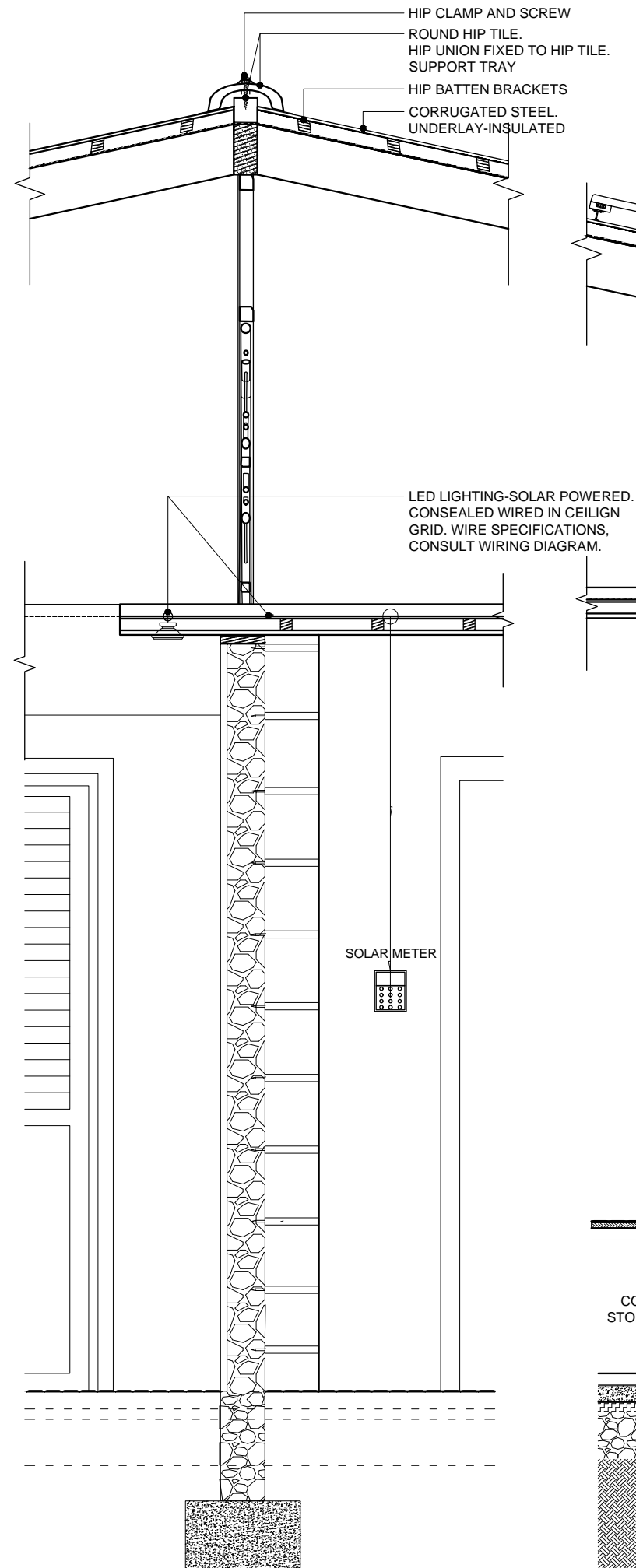
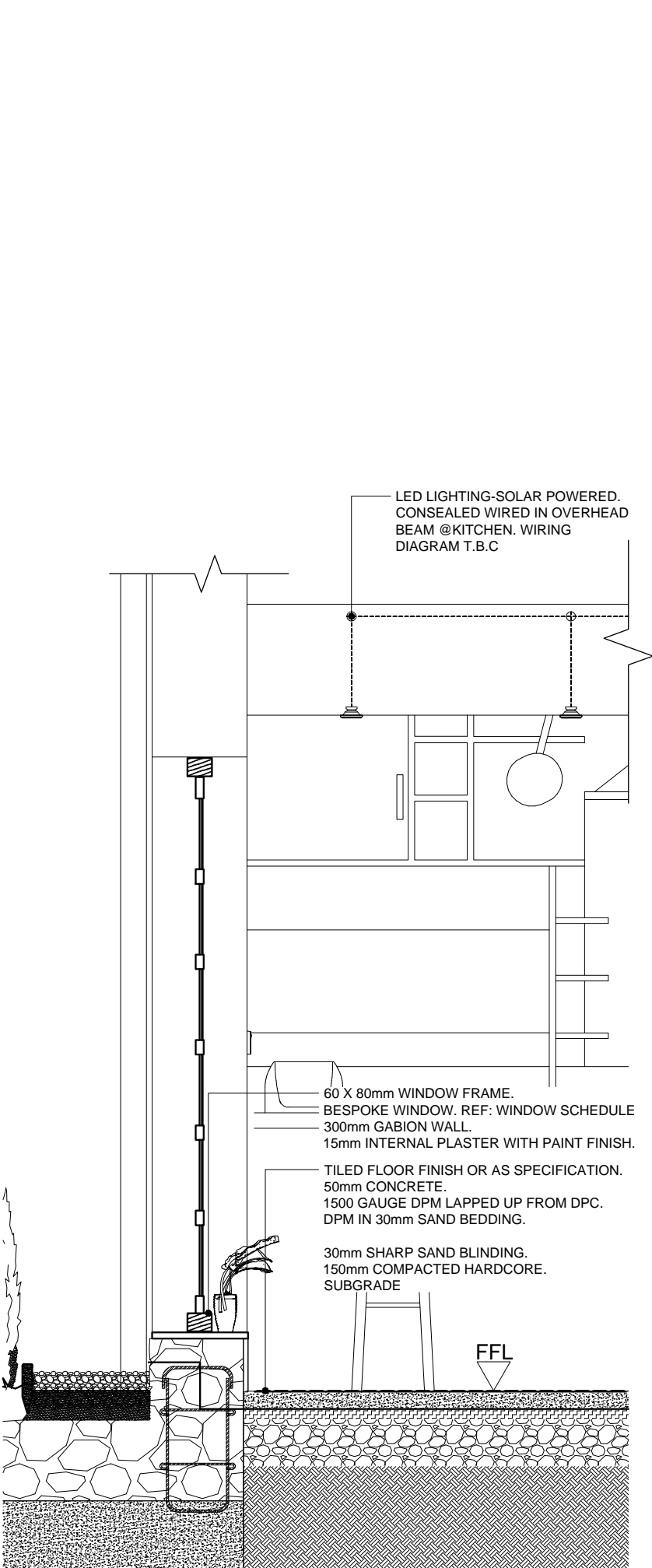
Construction of ceiling frame in bedrooms and bathroom.  
Installation of windows and door frames  
Weatherproofing  
Fixing of plumbing and electricals undertaken  
Repurpose of corrugated sheets from temporary structure  
Roof insulated and made water tight.  
Exterior and interior painting where necessary  
Floor finishes and decorations  
Photovoltaic installation  
Grey water system installation





#### LEGEND

1. LIVING ROOM
2. SEATING
3. INDOOR PLANTS/GARDEN
4. DINING
5. KITCHEN
6. OUTDOOR SINK
7. ACCESS HATCH
8. BEDROOM 1
9. BEDROOM 2
10. BATHROOM
11. LANDSCAPING
12. PLAY AREA/GARDEN
13. OUTDOOR SEATING



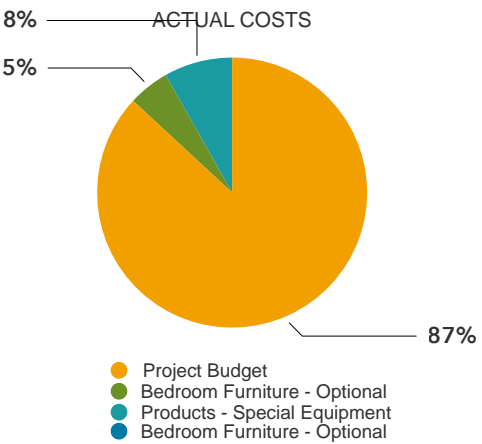
LESOTHO – AFFORDABLE HOUSING PROJECT BUDGET

PROJECT BREAKDOWN

Description	Comments	Budget	Actual	Difference
Project Budget		R53,000	R53,000	
Living/Dining Area Furniture - Optional	Items and equipment to owner's specification. Sink, work surface and electrical connections to be provided.	R3,000	R6,000	-R3,000
Bedroom Furniture - Optional	Furniture to owner's specification.	R6,000	R5,000	R1,000
Services - House and Landscaping	Products and time to constructs the house to determine the cost. In cases where construction relies upon household income only and/or part of construction labour relies on owner's assistance and/or family member, cost will vary.	R50,925	R50,925	R0
Products - Special Equipment	Solar panel essential. Kitchen equipment and other bathroom fittings to owner's requirement. Bathtub, sink and W.C o be included.	R18,609	R0	R18,609
Total		R95,144	R61,925	R16,609

SERVICE– COST WORKSHEET

SERVICES					
Description	Category	Qty	Unit	Rate or Cost	Subtotal
Category:					Subtotal:
▼ Services					R6768.00
Electrical/Solar Panel Installer	Services	16	Hrs.	R141	R2,256
Plumbing	Services	32	Hrs.	R141	R4,512
▼ Openings					R7200.00
Windows	Openings	7			R6,300
Doors	Openings	4			R900
▼ Services A					R23265.00
Roofing	Services A	122	m2	R141	R17,202
Flooring	Services A	42	m2	R141	R5,922
Walls	Services A			R141	R141
▼ Labor					R7050.00
Speciality Excavation/ Landscaping	Labor	50	Hrs.	R141	R7,050
▼ Owner Labor					R0.00
House/Land Owner (DIY)	Owner Labor				R0
Subtotal					R44,283
Overage	15%				R6,642
Total					R50,925



PRODUCT SELECTION WORKSHEET

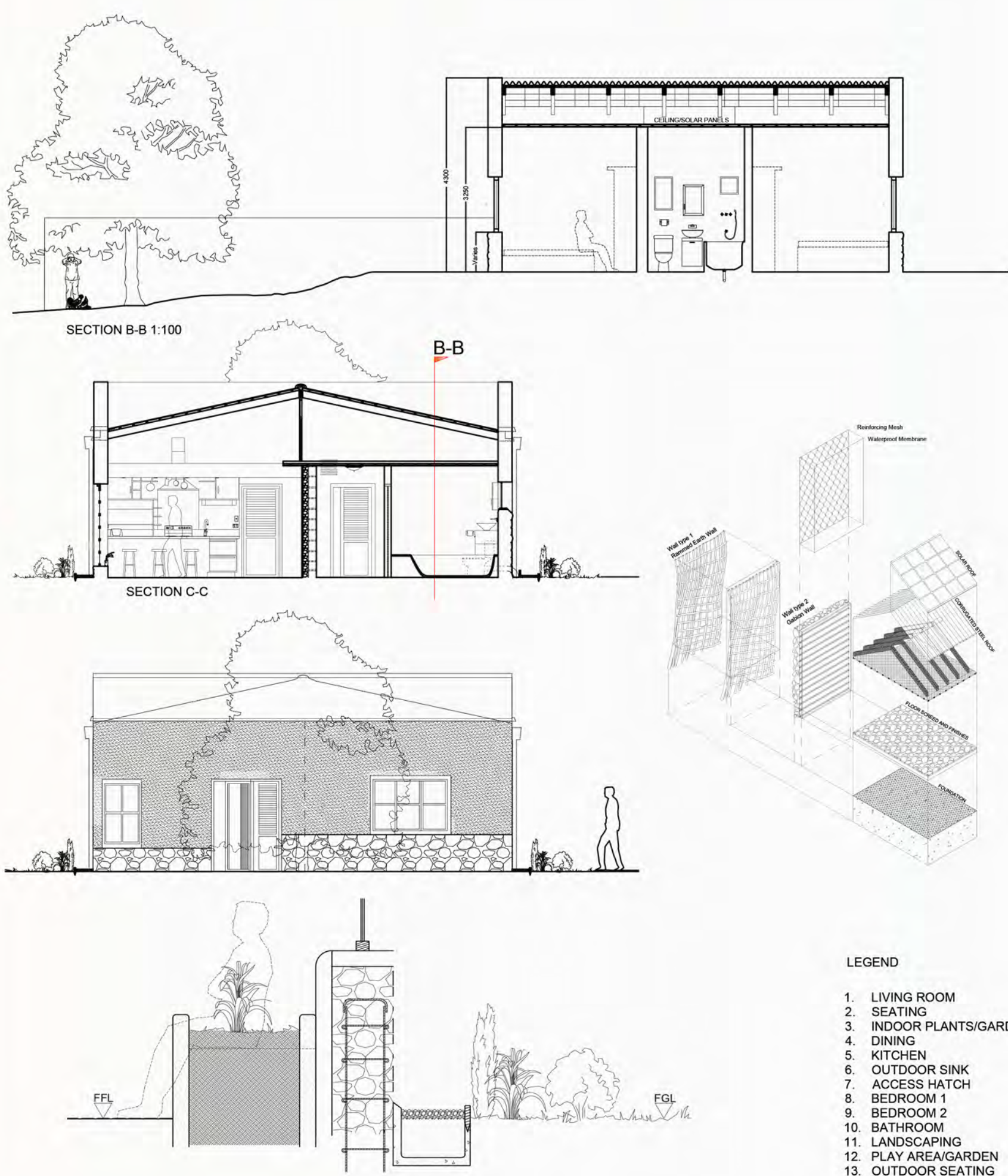
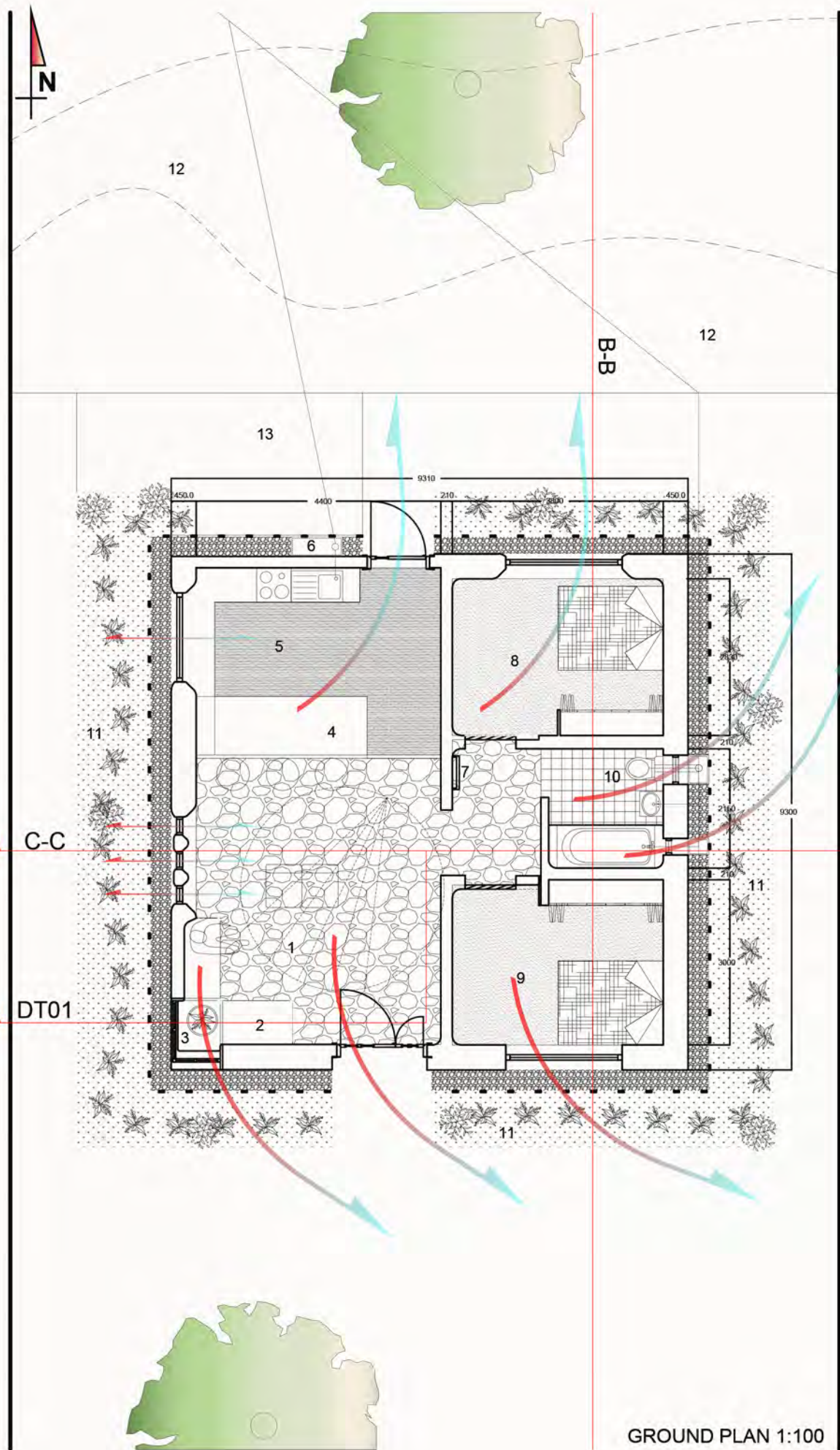
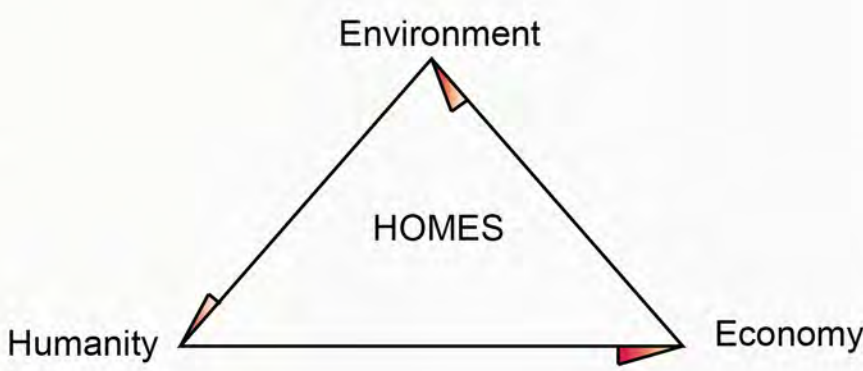
	Price		
Project Budget	R53,000		
Total for Selected Products	R18,609		
Difference	-R34,391		
Description	Links	Selection	Price
Refrigerator	<a href="https://www.game.co.za/game-za/en">https://www.game.co.za/game-za/en</a>	<input checked="" type="checkbox"/>	R2,500
Stove	<a href="https://www.game.co.za/game-za/en">https://www.game.co.za/game-za/en</a>	<input checked="" type="checkbox"/>	R5,000
Washing Machine	<a href="https://www.game.co.za/game-za/en">https://www.game.co.za/game-za/en</a>	<input checked="" type="checkbox"/>	R4,500
Solar Panels	<a href="https://artsolar.net/pv-modules/">https://artsolar.net/pv-modules/</a>	<input checked="" type="checkbox"/>	R2,109
Kitchen Sink and fittings	<a href="https://www.ctm.co.za/#">https://www.ctm.co.za/#</a>	<input checked="" type="checkbox"/>	R2,000
Bathroom Set	<a href="https://www.ctm.co.za/#">https://www.ctm.co.za/#</a>	<input checked="" type="checkbox"/>	R2,500
		<input type="checkbox"/>	
Selection Total			R18,609





Project Summary

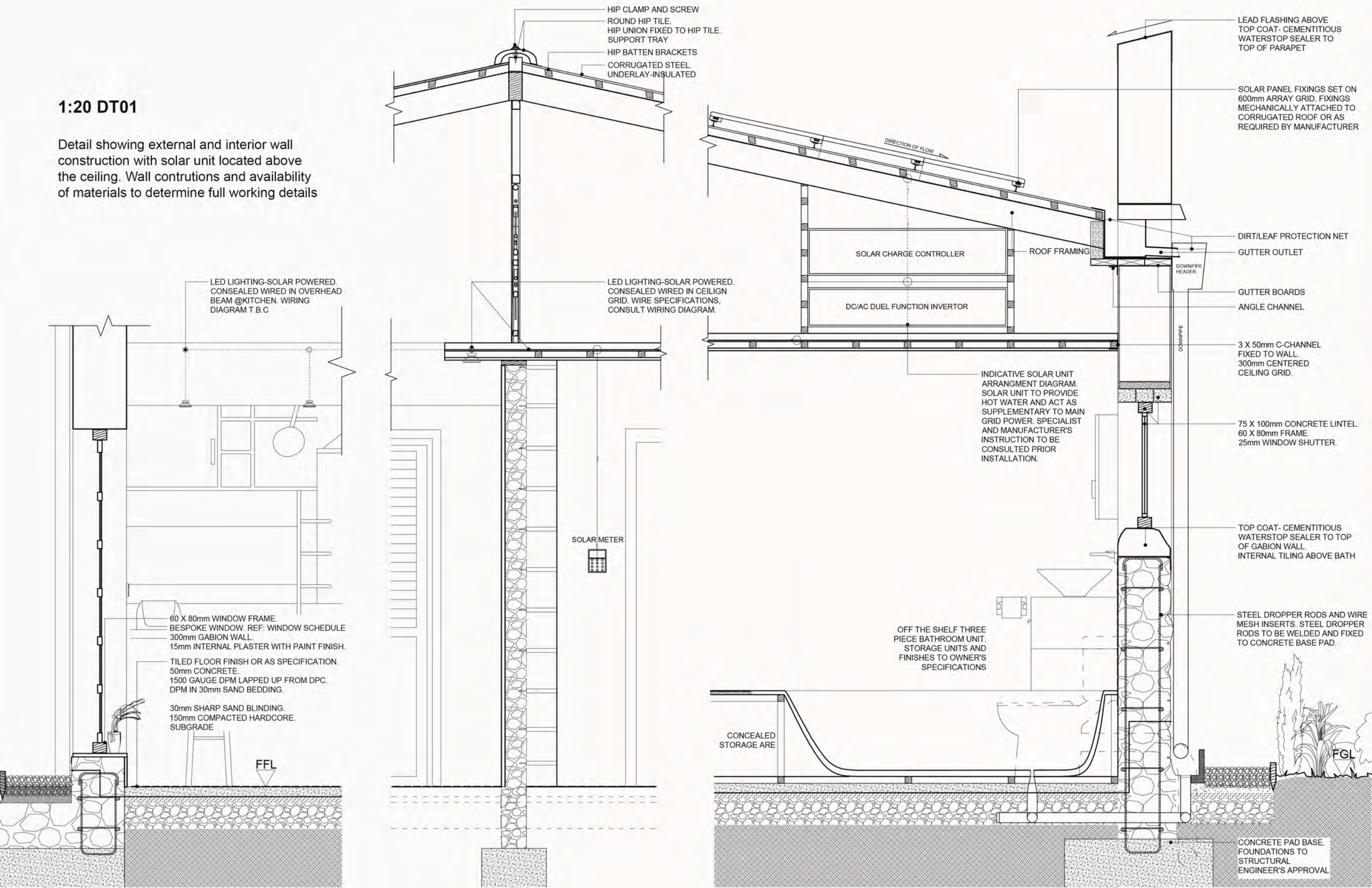
A home is an adaptation of natural and locally sourced materials employed to contribute to the organic development of the environment. It's against this backdrop and current SDG's, that the design aims to make a contribution towards ecological rehabilitation and development of new economies that are responding to immediate realities. Such aspirations can only be achieved through individual initiatives, capacity building and institutional collaborations. It's in these small efforts of creating incremental homes that an identity of a landscape cultivated through capacity building of individuals to develop an environment that is in harmony with the natural ecological system is forged.



- LEGEND
1. LIVING ROOM
  2. SEATING
  3. INDOOR PLANTS/GARDEN
  4. DINING
  5. KITCHEN
  6. OUTDOOR SINK
  7. ACCESS HATCH
  8. BEDROOM 1
  9. BEDROOM 2
  10. BATHROOM
  11. LANDSCAPING
  12. PLAY AREA/GARDEN
  13. OUTDOOR SEATING

1:20 DT01

Detail showing external and interior wall construction with solar unit located above the ceiling. Wall contrutions and availability of materials to determine full working details



Interior Perspective: Kitchen

Interior perspective looking into the kitchen and interior finish roof.



Interior Perspective: Living Room

Interior perspective looking into the living room and bespoke seating area also acting as reinforcement.

