



### Eco Moyo Educational Centre

Eco Moyo Educational Center is situated in the outskirts of the coastal town Kilifi on the east coast of Africa. The town lies on the Kilifi Creek and has a population of 120 000. The climate here is hot and humid, without huge variation between season due to its placement 3 degrees south of equator. Rainy seasons appear twice, long rainy season in mid March to May and October to December. The wind direction is dominant from south and south-east. The study of climatic conditions has influenced the project hugely as oyster mushrooms require specific climatic conditions. Wind direction and sun path has effected the orientation and placement of the mushroom growing facilities.

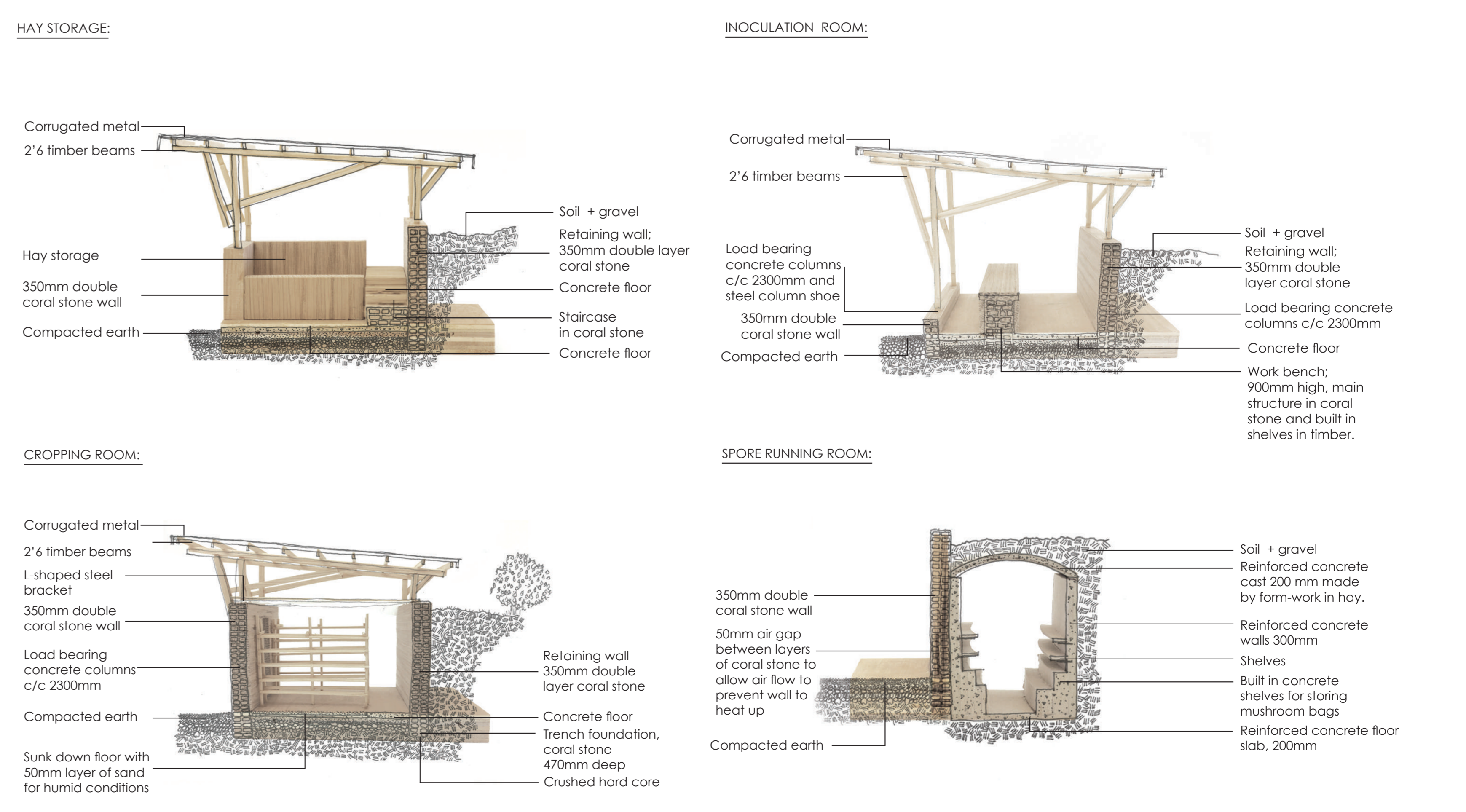
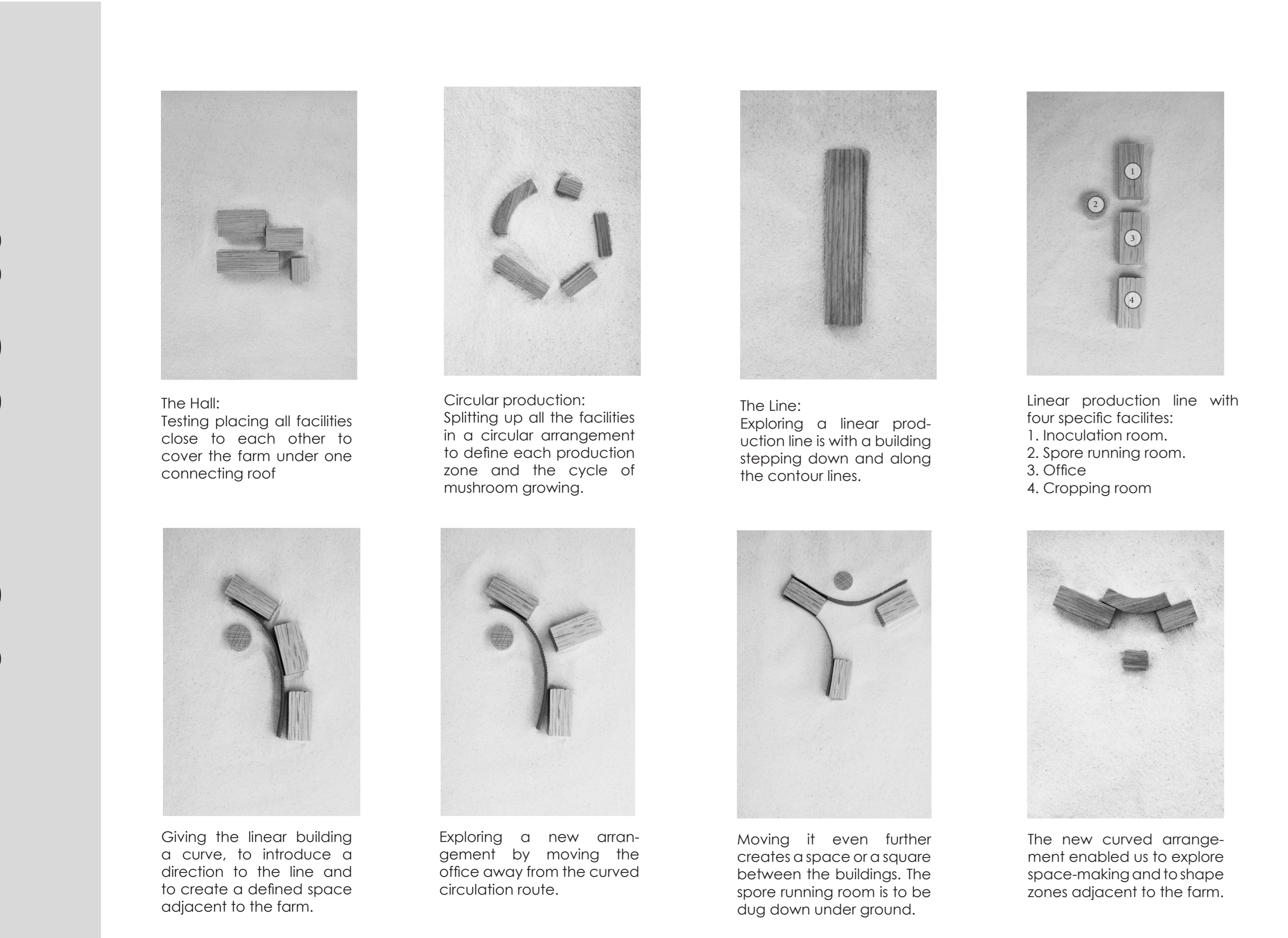
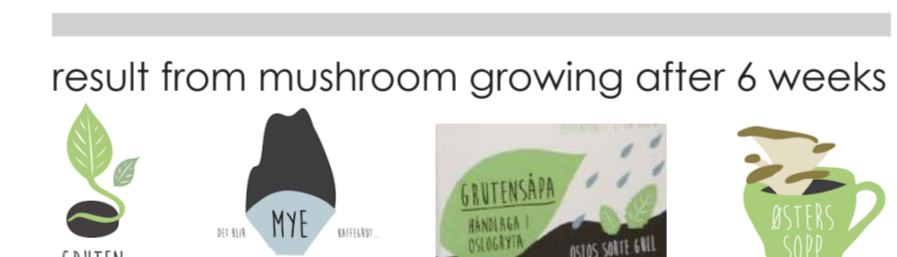
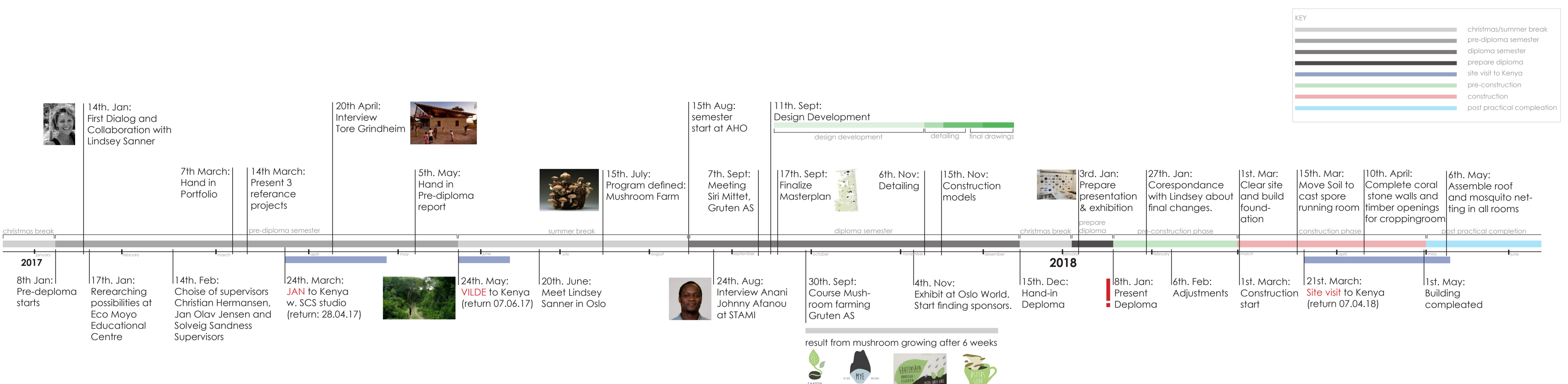
**The Education Centre** consists of two parts: The first is Eco Moyo Primary School which is modelled on Green School Principals with emphasis is on practical approaches to each subject together with ethics, ecology, training in individual thinking and communication skills. The second part is **Eco Moyo Farm** which will be based on Permaculture Principals for the cultivation of food crops, timber and animal husbandry. The goal is to meet the consumption needs of students and staff, while functioning as a demonstration site for locals and visitors.

### Collaboration and future plans

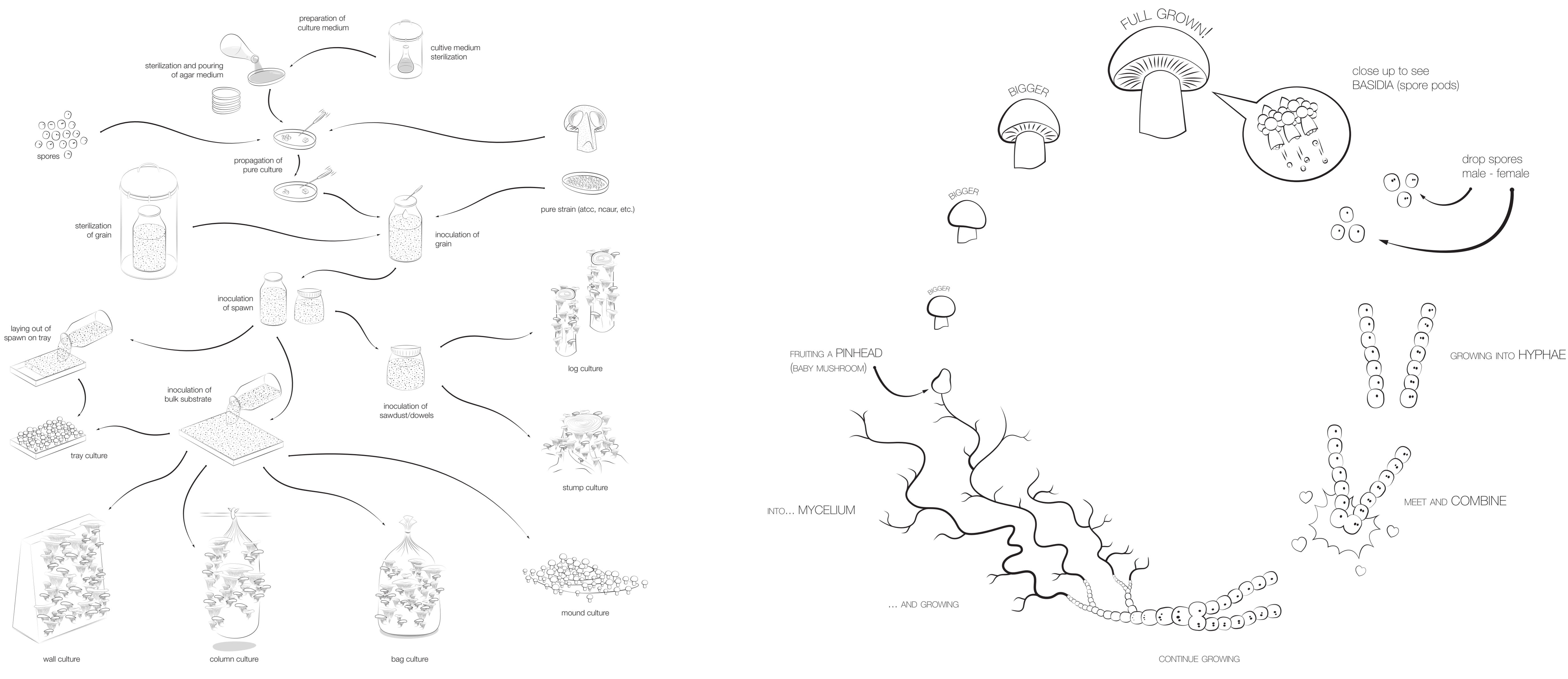
Our collaboration with Eco-Moyo started January 2017, and springs out from an initiative by Lindsey Sanner, founder of Eco-Moyo Education Center. In Autumn 2016 Sanner contacted the Oslo School of Architecture to seek a possible collaboration to expand the current facilities with classrooms designed and built by Scarcity and Creativity Studio. This generated further collaboration with Sanner and an aspiration to make a long-term strategy for the site and help to provide more facilities for the education center. Sanner addressed the need for making an income for the school and aspiration for having facilities for gardening such as aquaponics, greenhouse and a farm to grow, serve and sell local food. Agricultural facilities can contribute in the making the school self sustained. In addition the farming facilities can be integrated in the curriculum and help expand the vision of the green school principles.

**Studio MYKO** is our architectural diploma project that explores the process of designing and planning to build a mushroom farm at Eco Moyo. The name "studio MYKO" derived from the Norwegian term describing the general study of mushrooms "Mykologi" or mycology in English.

Throughout the diploma semester we have had frequent meetings and correspondence with our client and visited the site twice to see the school in use.



# ANALYSIS OF MUSHROOM PRODUCTION



HAY STORAGE      INOCULATION ROOM      SPORE RUNNING ROOM      CROPPING ROOM      WASTE MANAGEMENT

**Requirements:**  
 accessible from main road  
 dry shaded

**Requirements:**  
 clean water, w/o salt or chlorine  
 sufficient lighting  
 ventilated facilities  
 shaded

**Requirements:**  
 dark  
 ventilated  
 controlled light for inspection  
 sufficient floor area for inspection  
 clean lockable

**Requirements:**  
 light  
 well ventilated  
 high humidity  
 water basin  
 sufficient circulation  
 lockable

**Requirements:**  
 fresh air  
 sufficient circulation

# BAG CULTIVATION

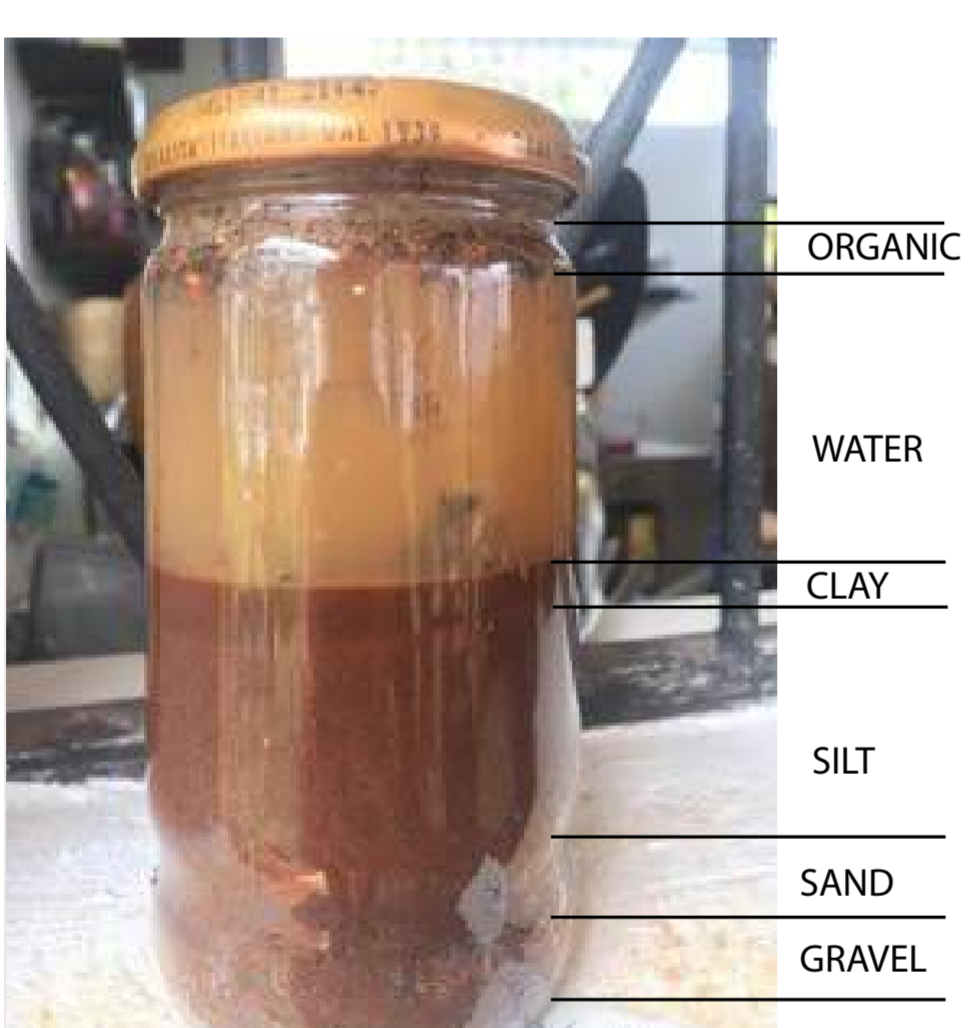
## Mushroom growing course

To get an understanding of the process of cultivation mushrooms and the facilities needed we have experimented in growing our own oyster mushroom on coffee ground. The bag was prepared 30th. September and the mushroom fruited in beginning of December.

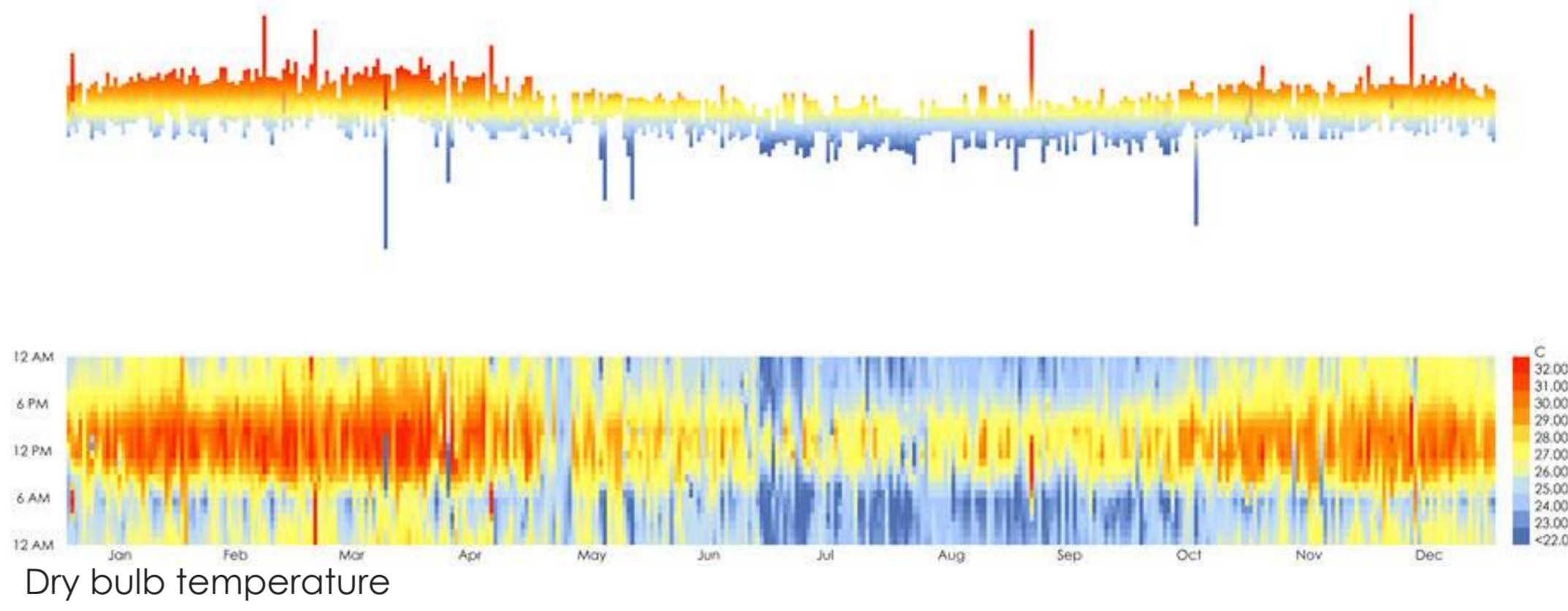
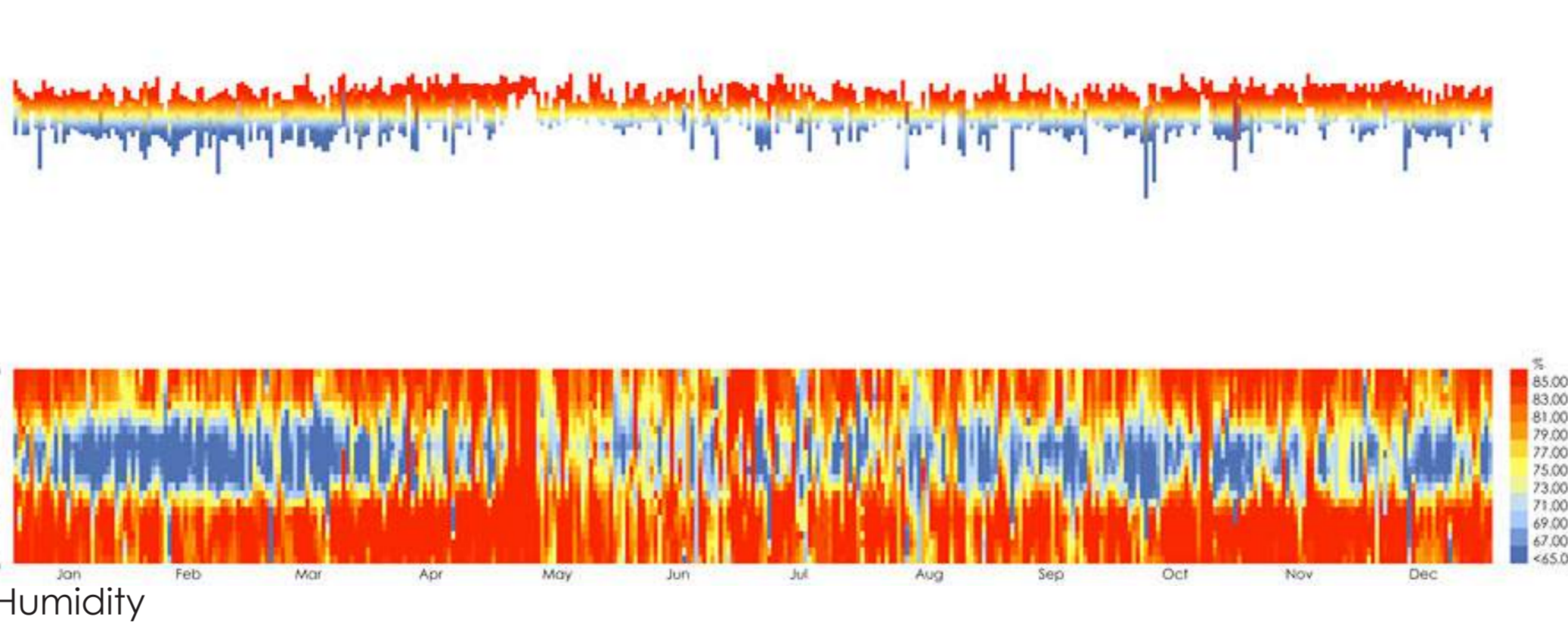
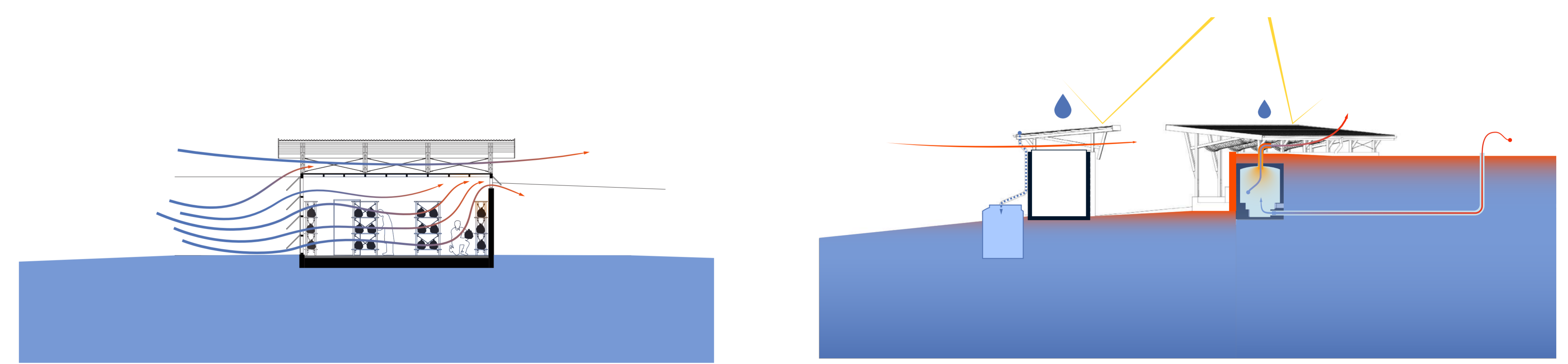
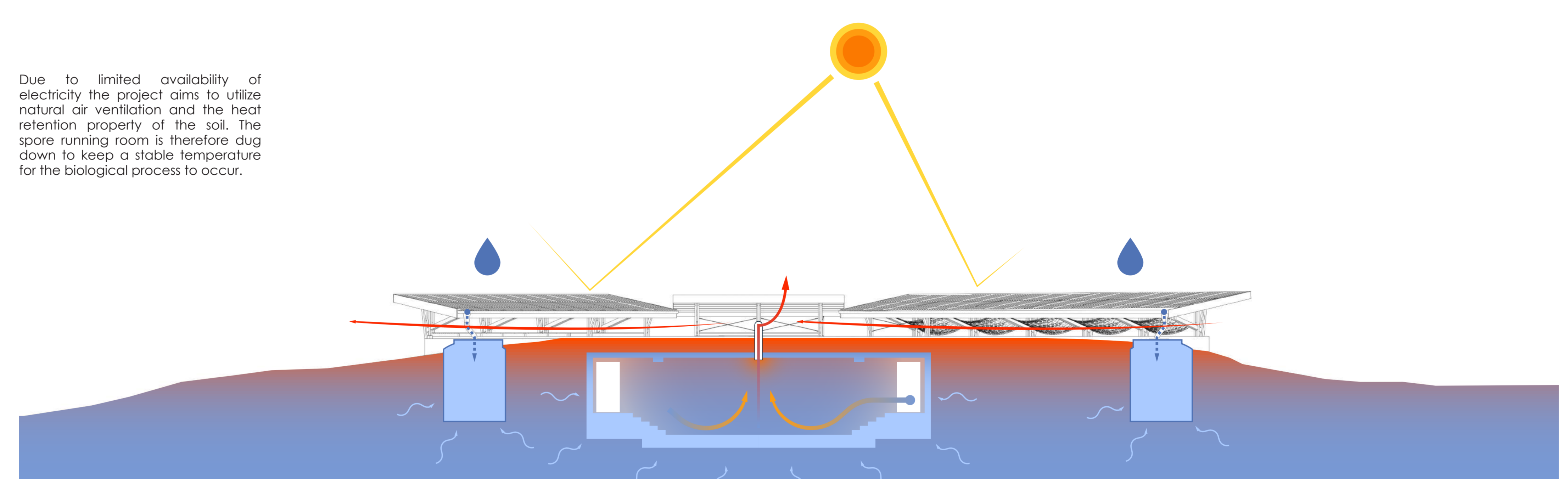
In Kenya the mushrooms will be cultivated on hay. The choice of using hay as substrate is based on research on similar growing project done in hot and humid climate. In addition is hay an easily accessible product in Kenya, low cost, easy to store and generate rich and fertile compost as waste product.



# NATURAL AIR CIRCULATION

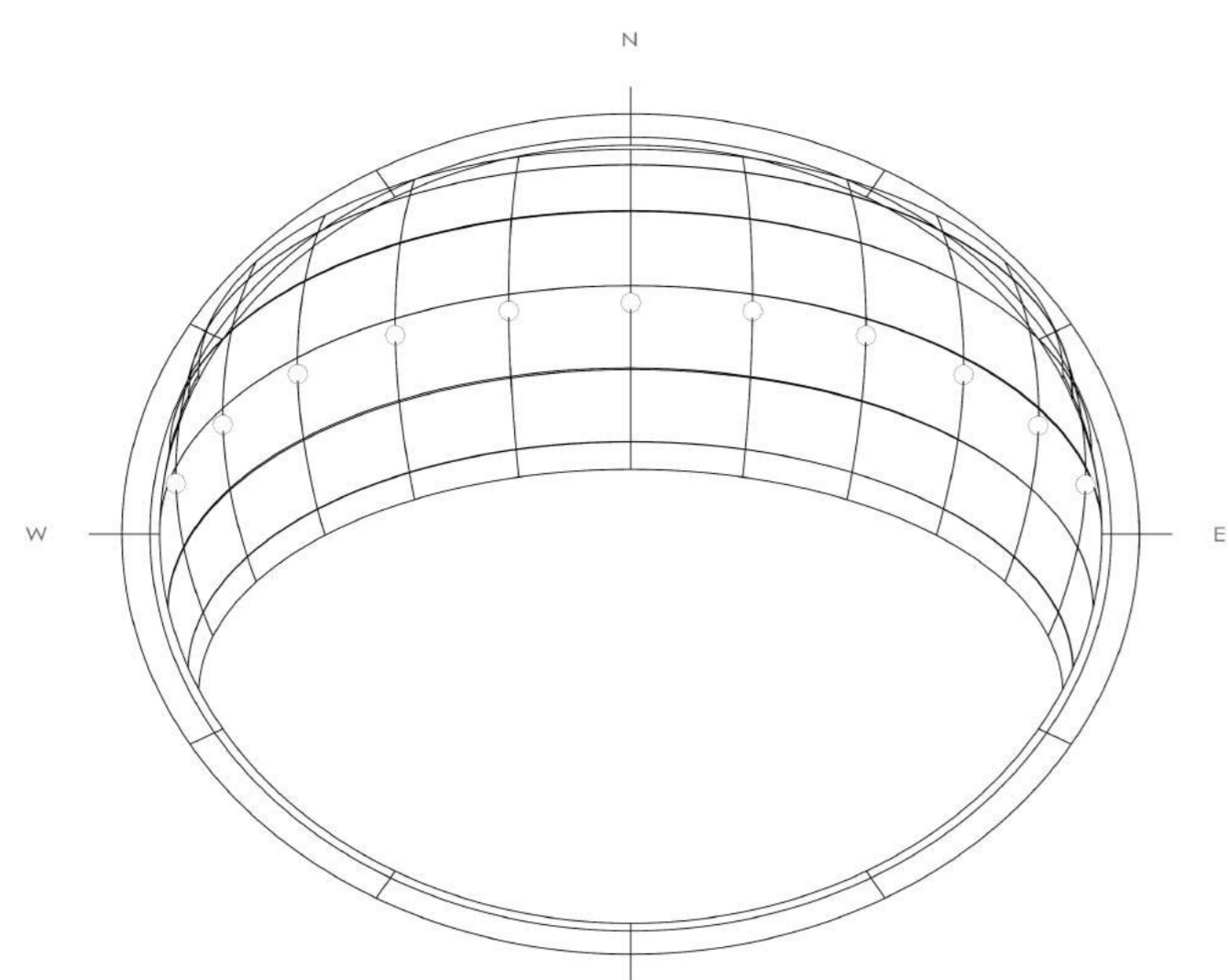


Due to limited availability of electricity the project aims to utilize natural air ventilation and the heat retention property of the soil. The spore running room is therefore dug down to keep a stable temperature for the biological process to occur.

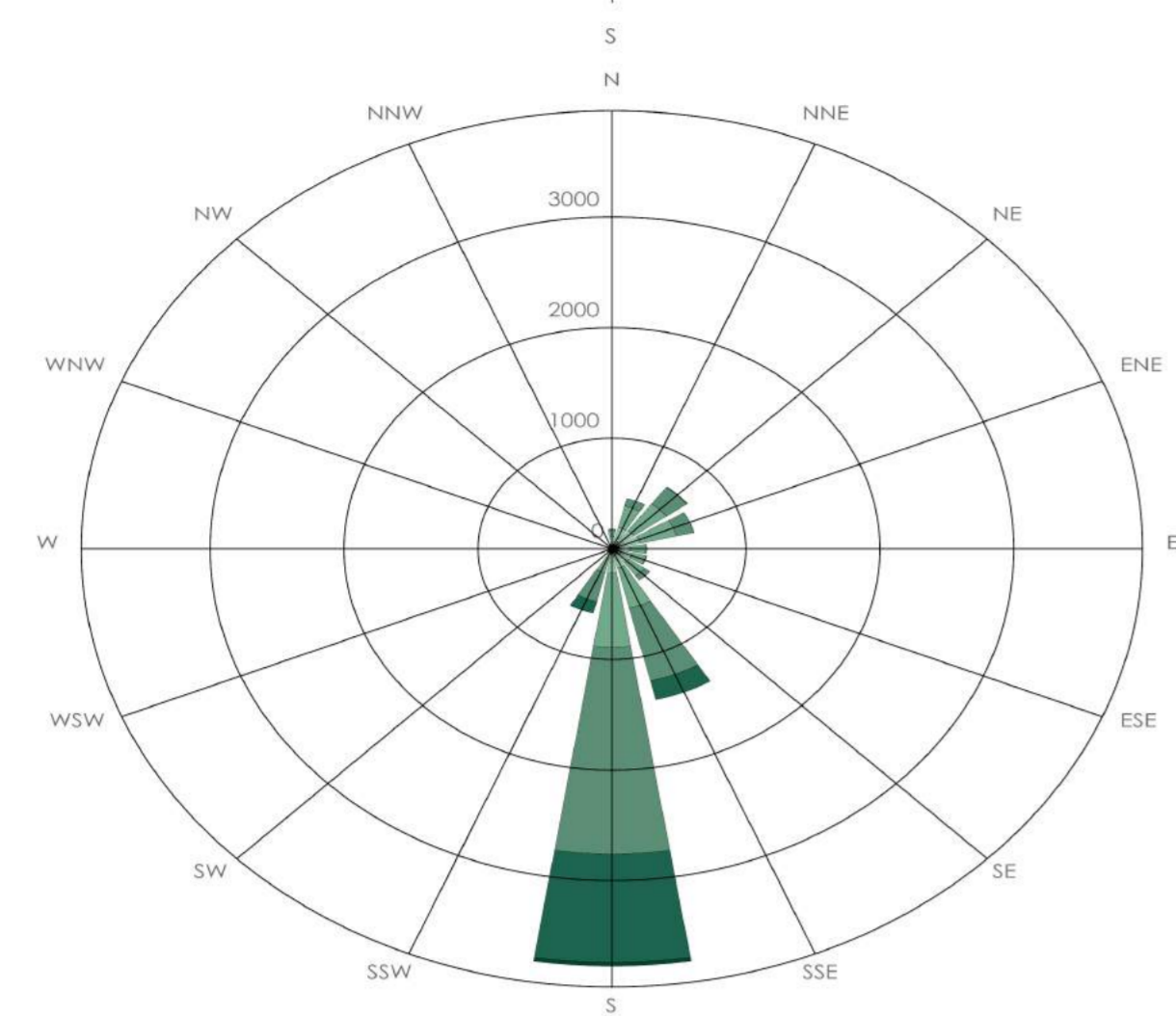


# MATERIAL: CORAL STONE





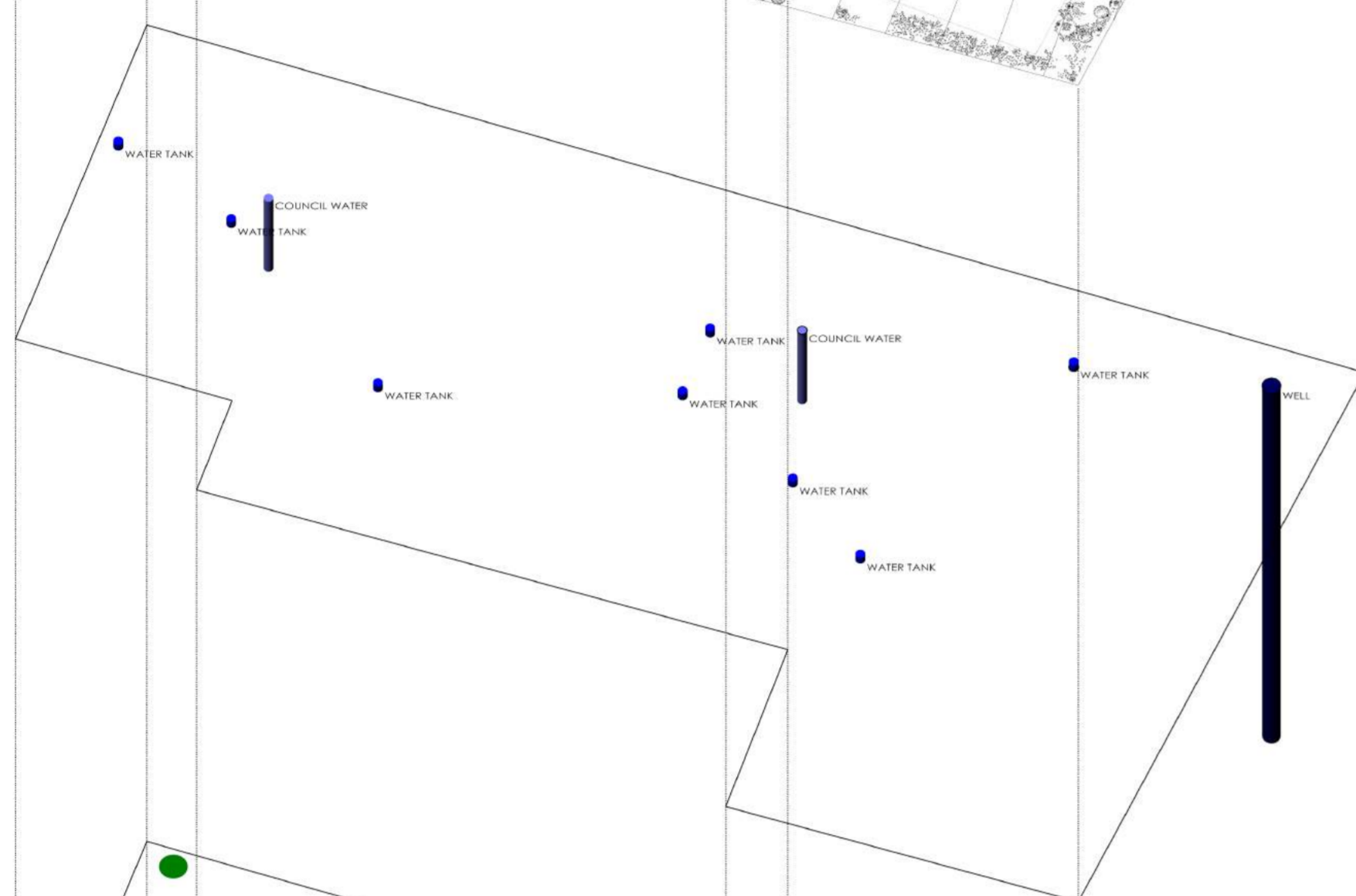
solar path  
3°38'33" S 151°51' E



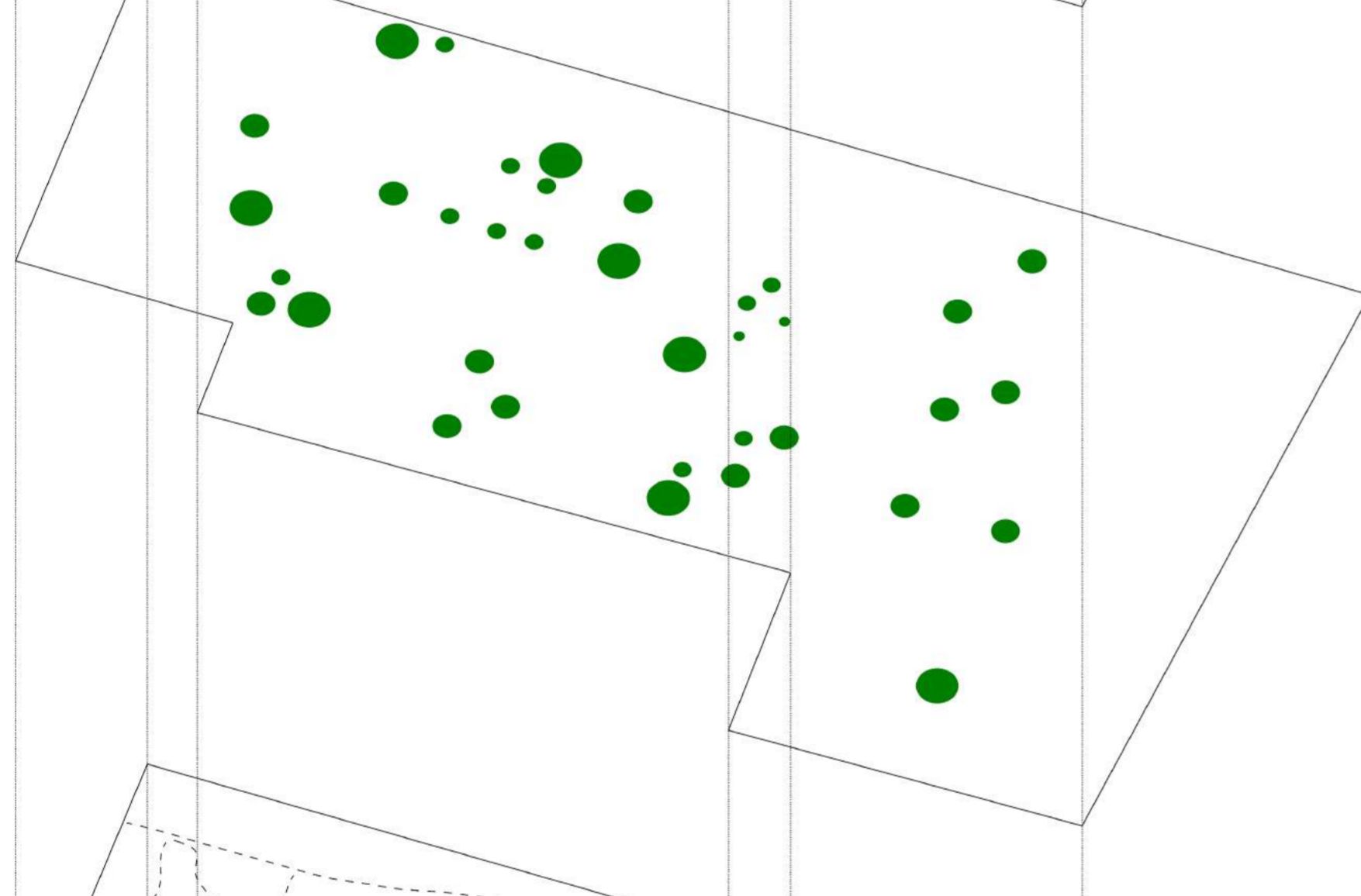
wind rose  
dominant wind direction from south



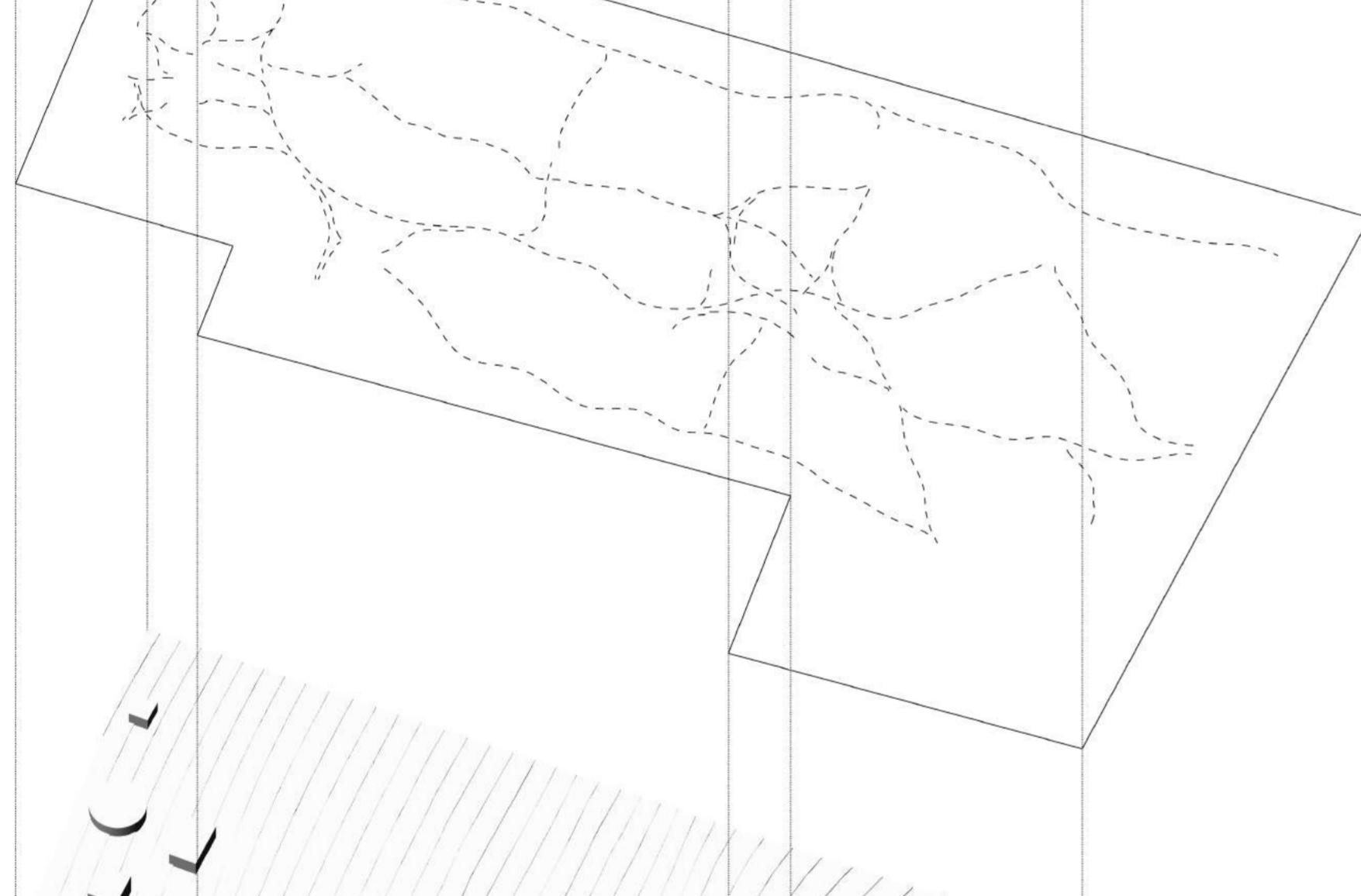
proposed expansion plan  
new buildings in close relation to existing paths, trees or vegetation



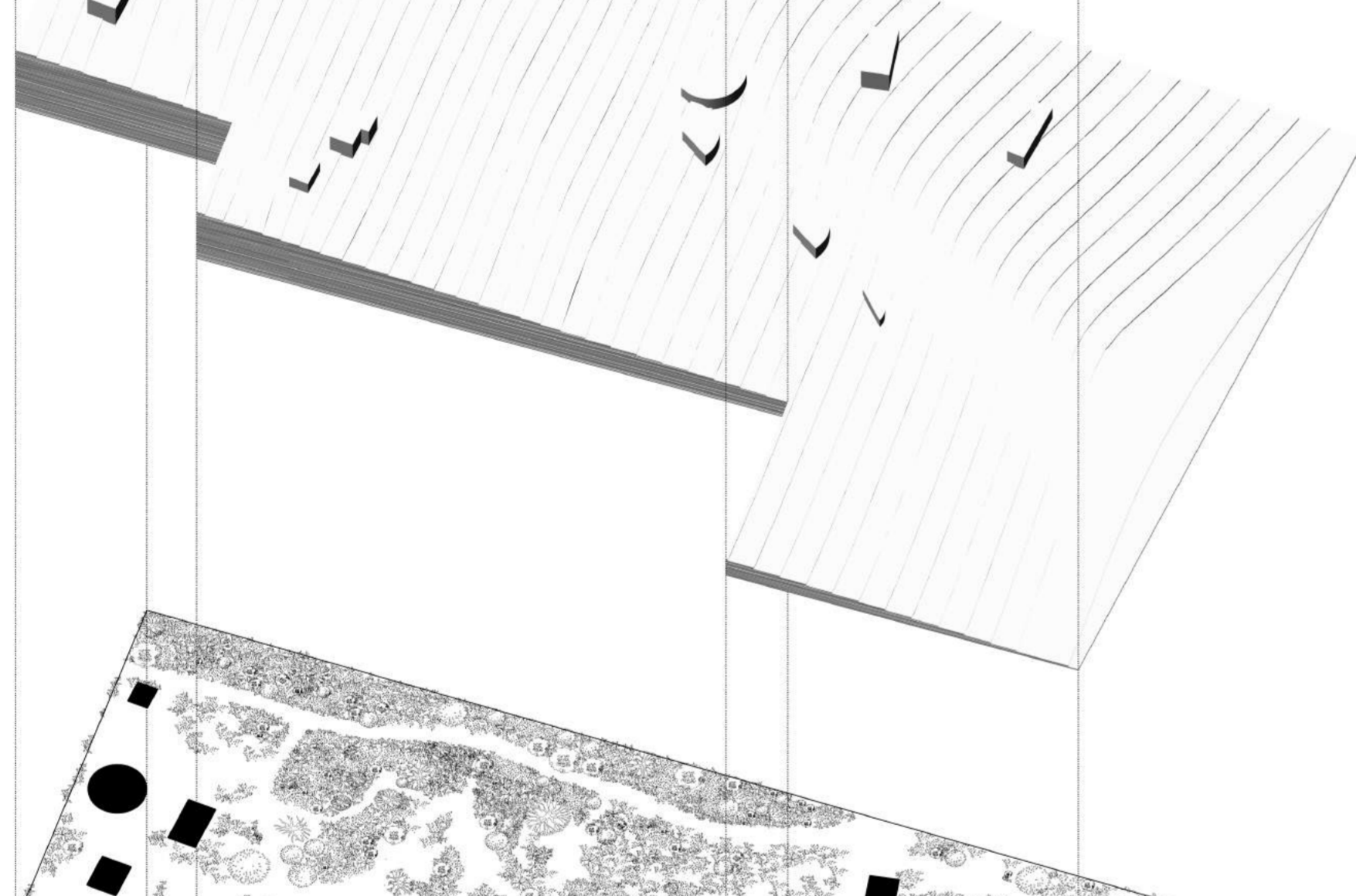
water management  
water tanks - harvested rainwater or stored council water during drought  
council water taps - used primarily for hydration and sanitation - high on chlorine  
well water - high level of salinity used mainly in construction



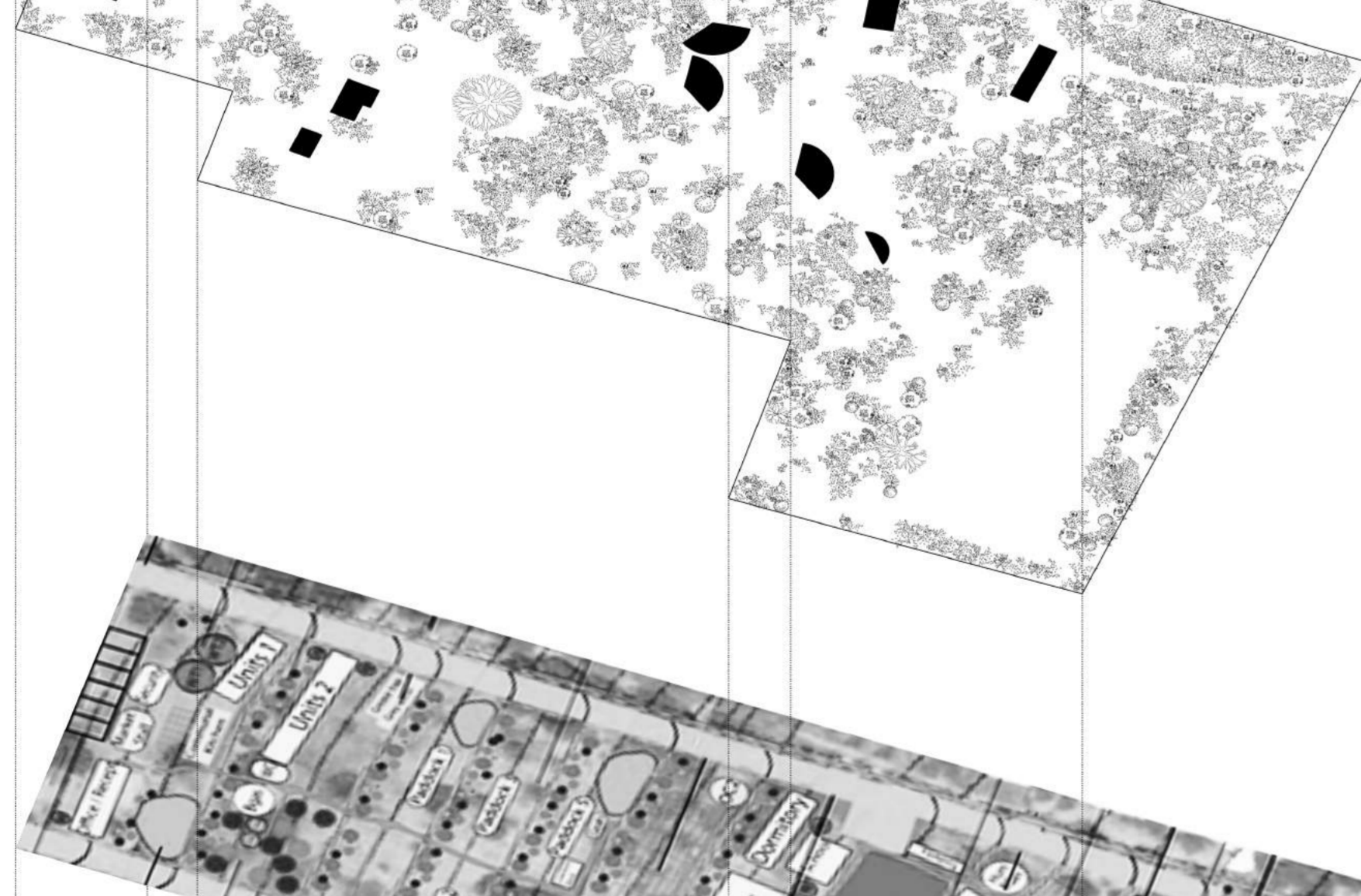
trees  
various trees located around site with the help from Lindsay and various studies. These were important for the further development of new classrooms and shaded places.



paths  
network between various locations of the site - main entrance route along north edge



topography  
the site is situated in a consistent 10 percent slope



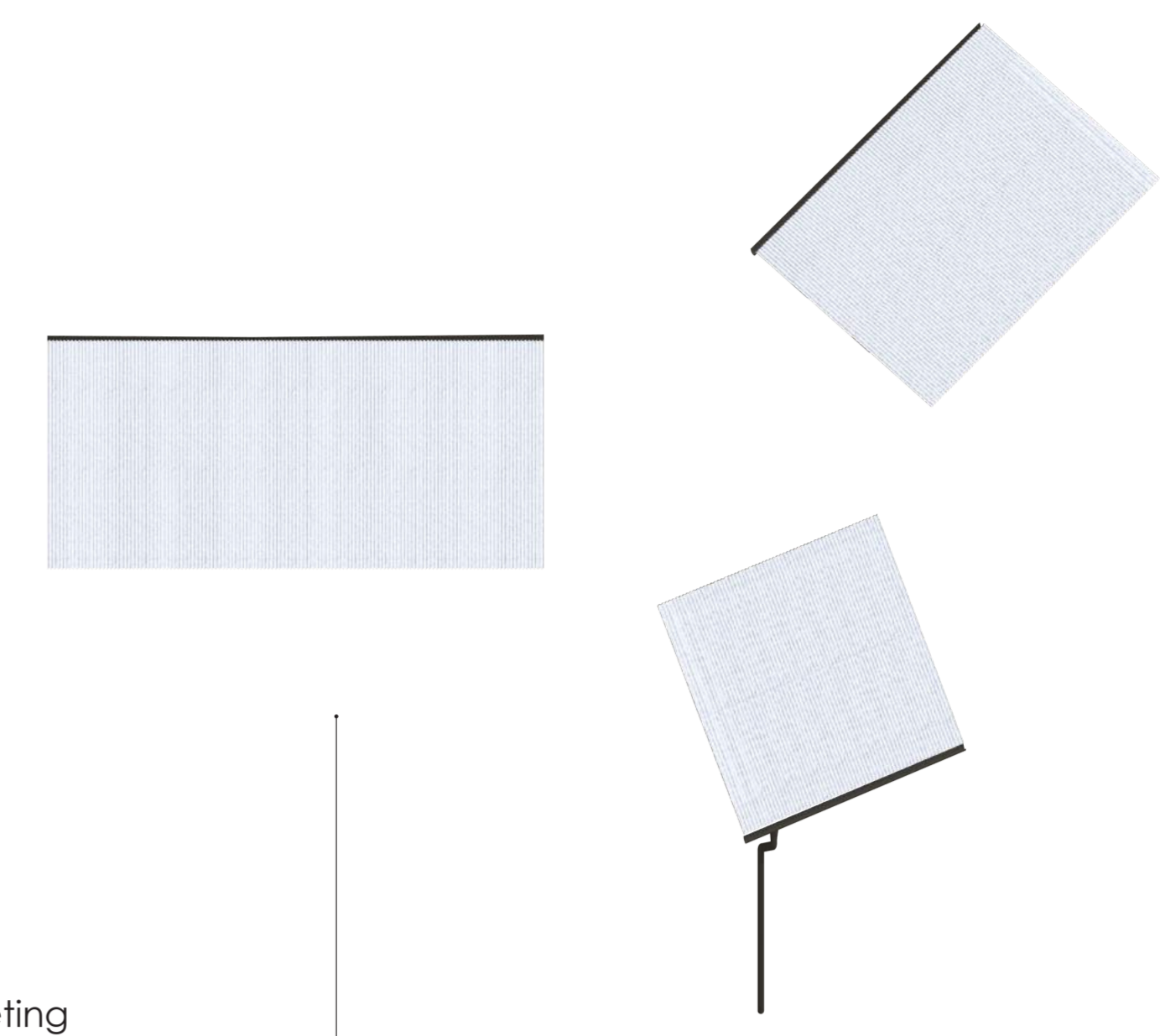
site may 2017  
visible are the two classrooms developed and built by the scarcity and creativity studio, Lindsay's private house, teachers and children dormitories and a kitchen.



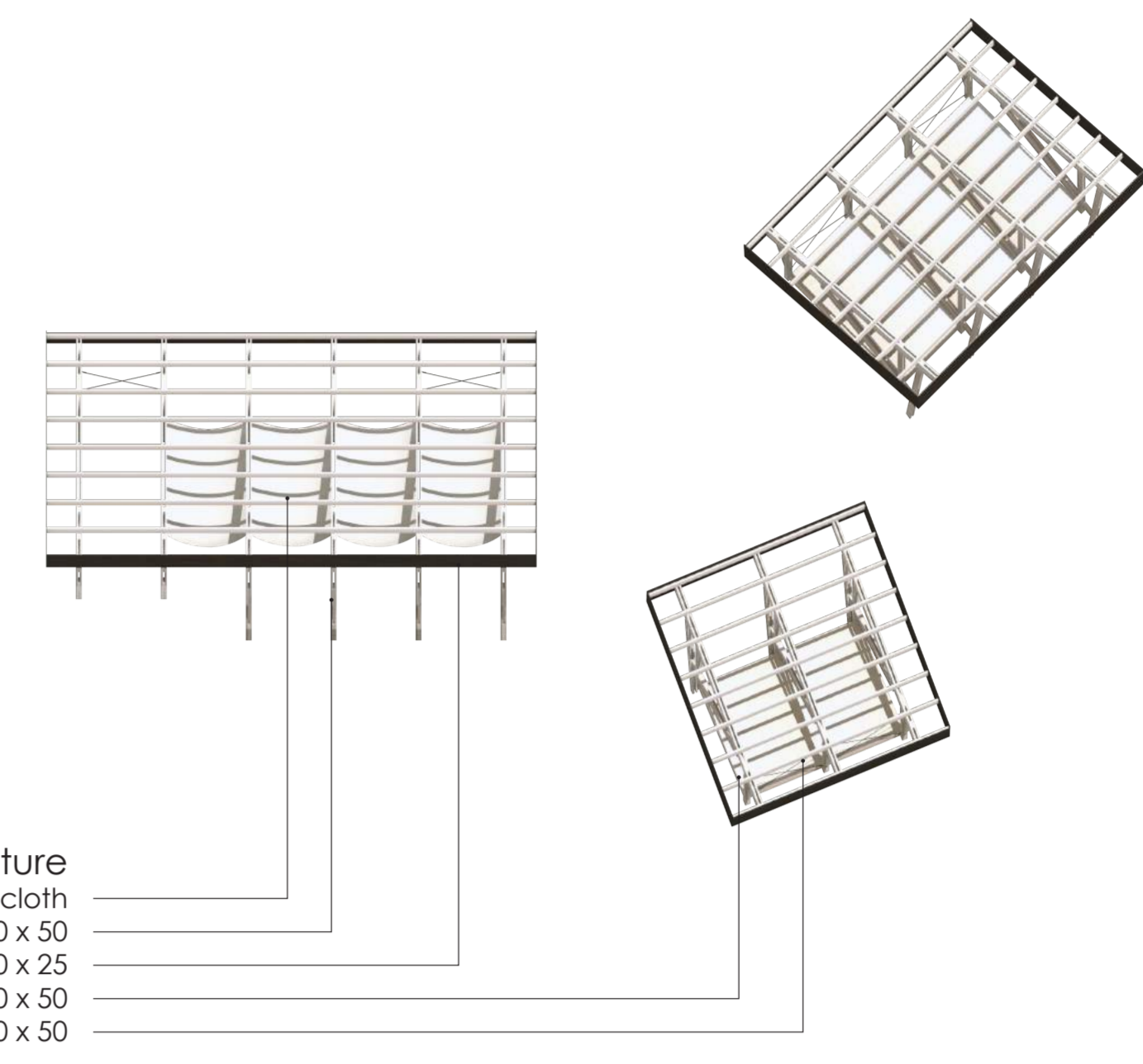
Lindsay's initial plan  
plan proposed by Lindsay Sanner pre-development stage



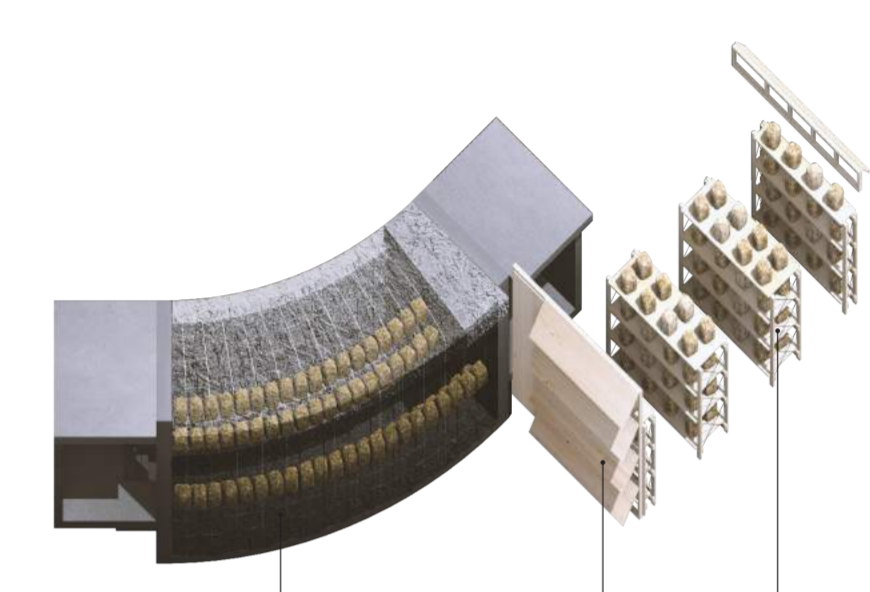
aerial photo  
visible is Lindsay's private house and a dense green vegetation



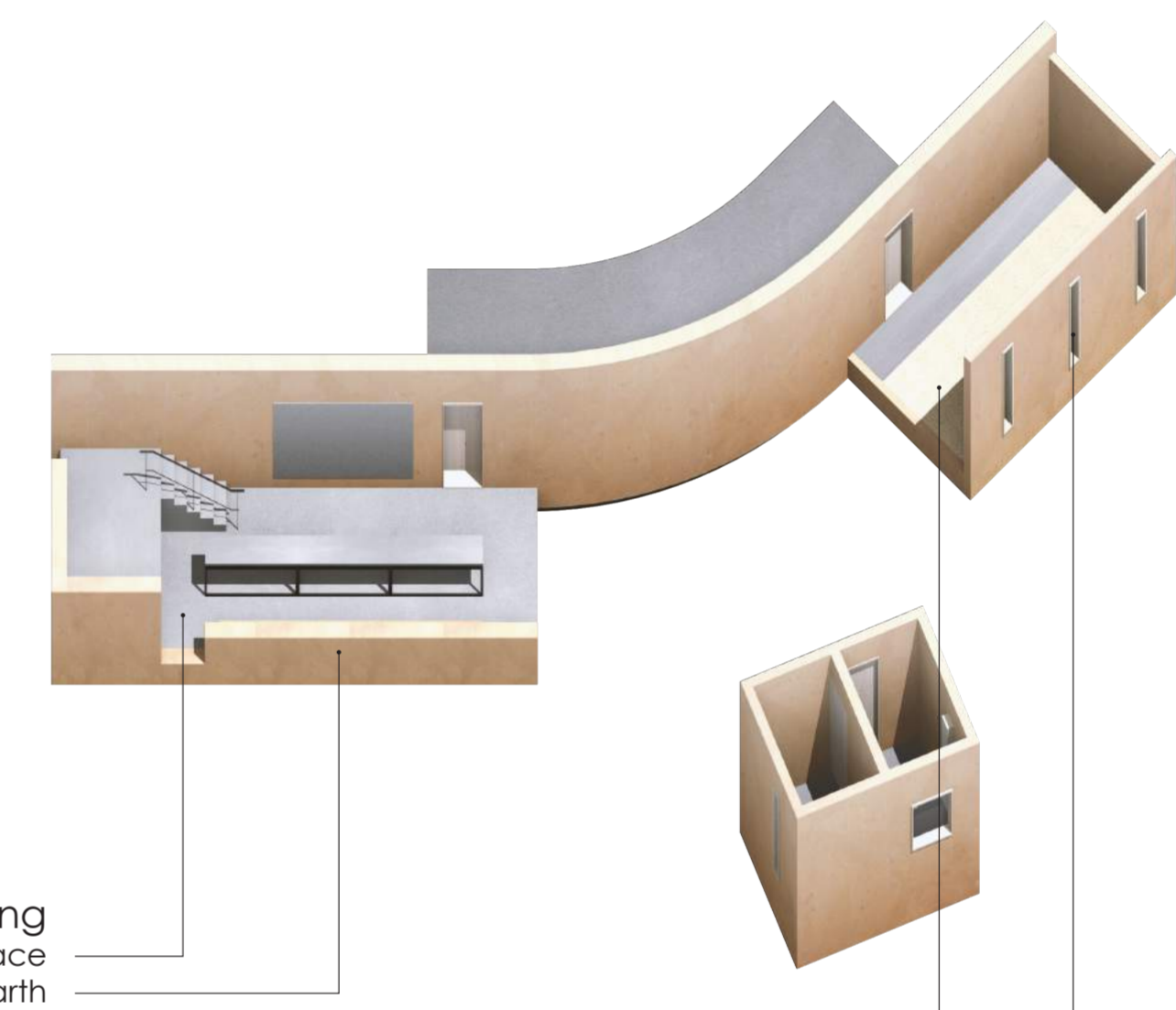
sheeting  
corrugated galvanized steel - 32 gauge - 5 degrees slope



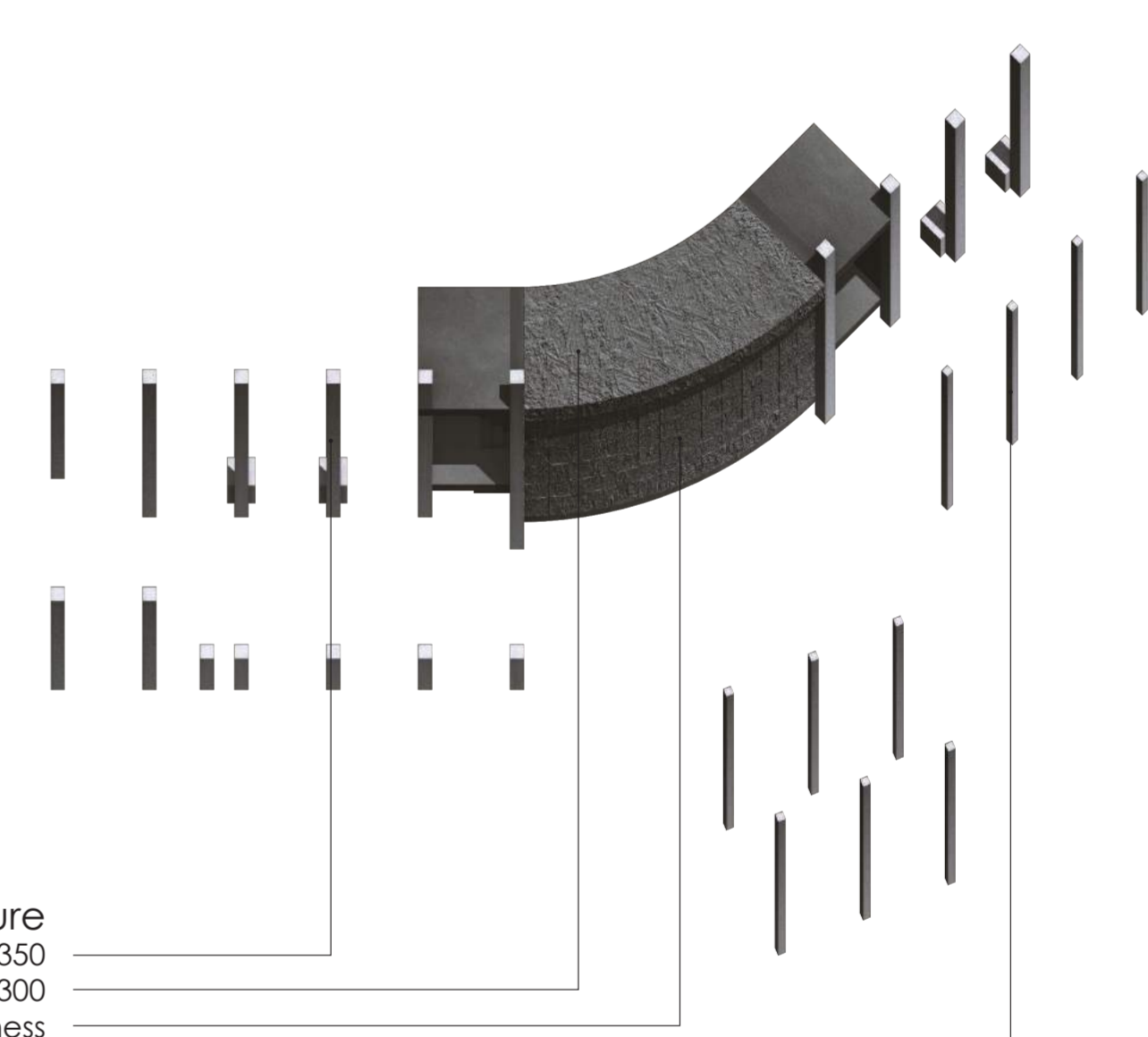
roof structure  
heat radiation barriers - heavy cloth  
columns - pine - three layers - 150 x 50  
black fascia - treated pine - 300 x 25  
rafters - pine - three layers - 150 x 50  
purlins - pine - 100 x 50



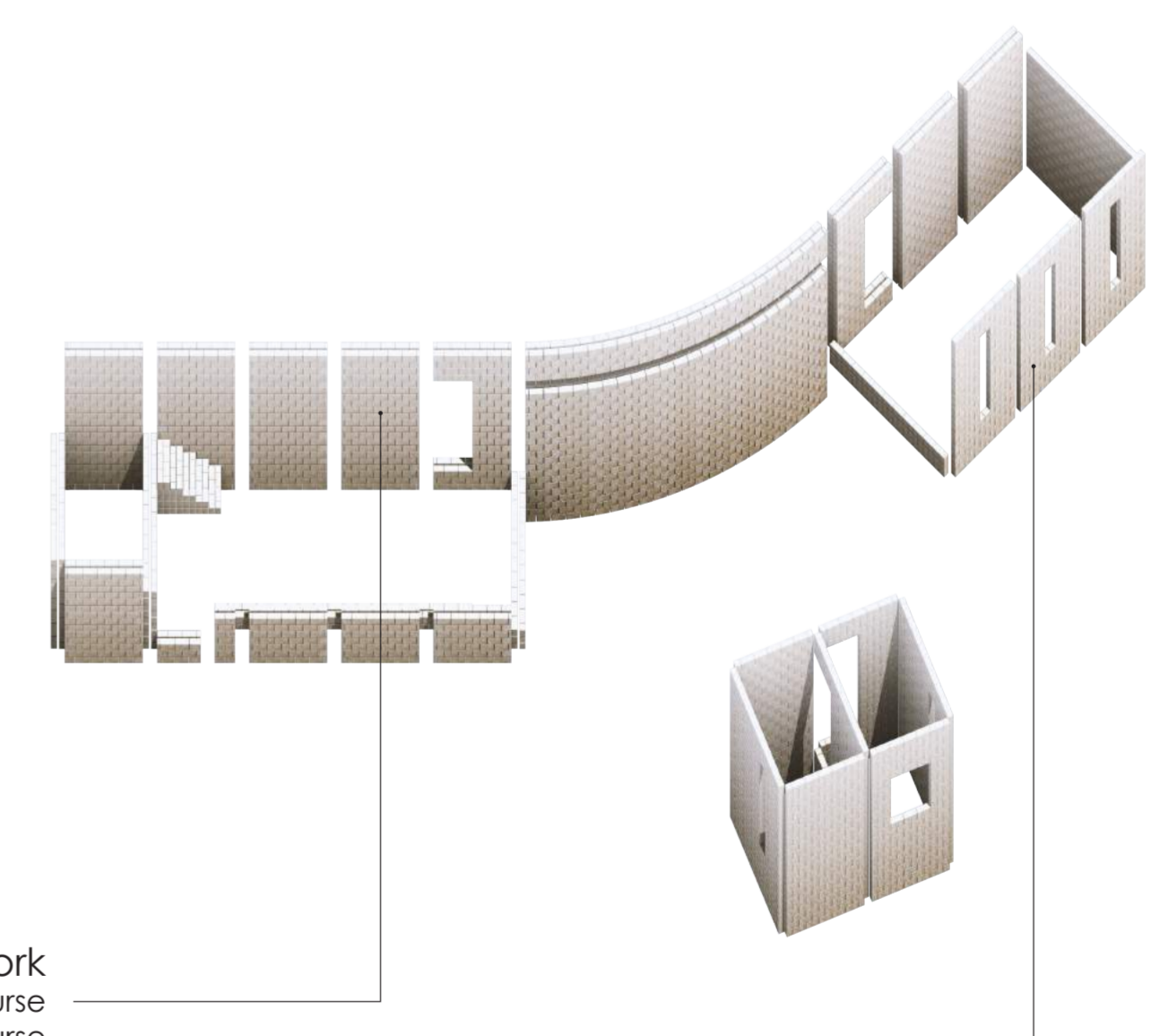
mushroom storage  
built in steps in structure for storage of inoculated mushroom bags  
shutter openings for controlled airflow - mango wood  
shells for propagation of mushrooms



surface finishing  
cement floor - hand floated surface  
earth render - 1 part cement 12 parts local earth  
humidity control - 100 mm sand  
openings - mango frames wedged into brickwork



concrete structure  
reinforced concrete (double layer) - 350 x 350  
sequential concrete pour - 300  
climbing form-work - variable thickness  
reinforced concrete (single layer) - 150 x 150



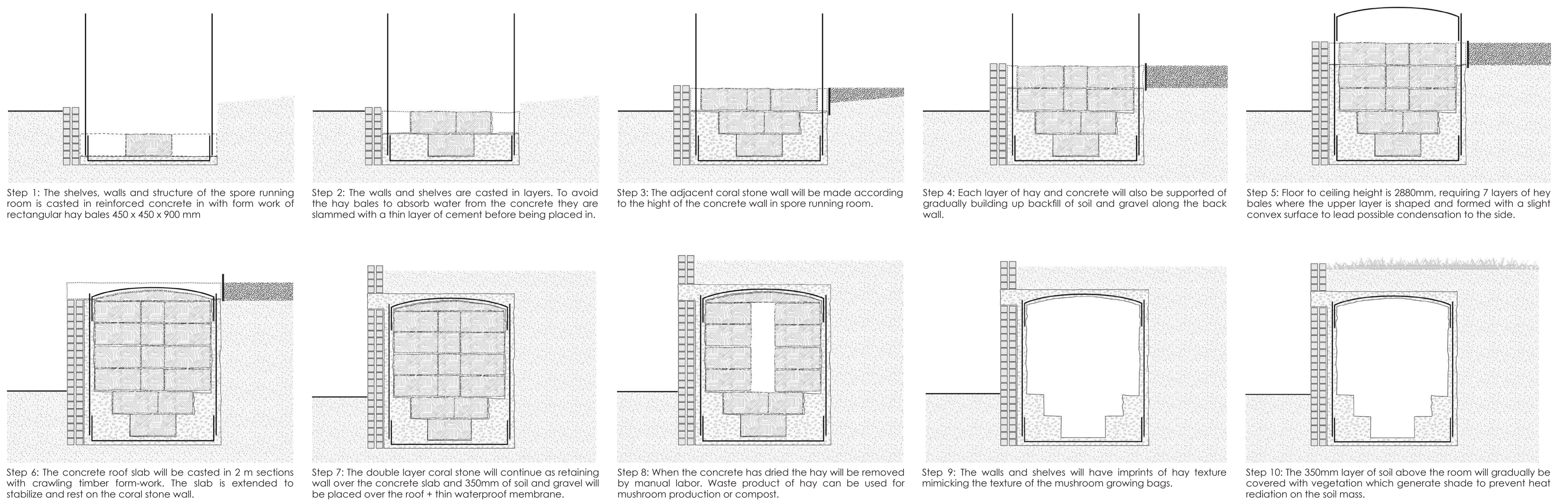
brickwork  
coral stones - double layer reinforced every 3rd course  
coral stones - single layer reinforced every 3rd course

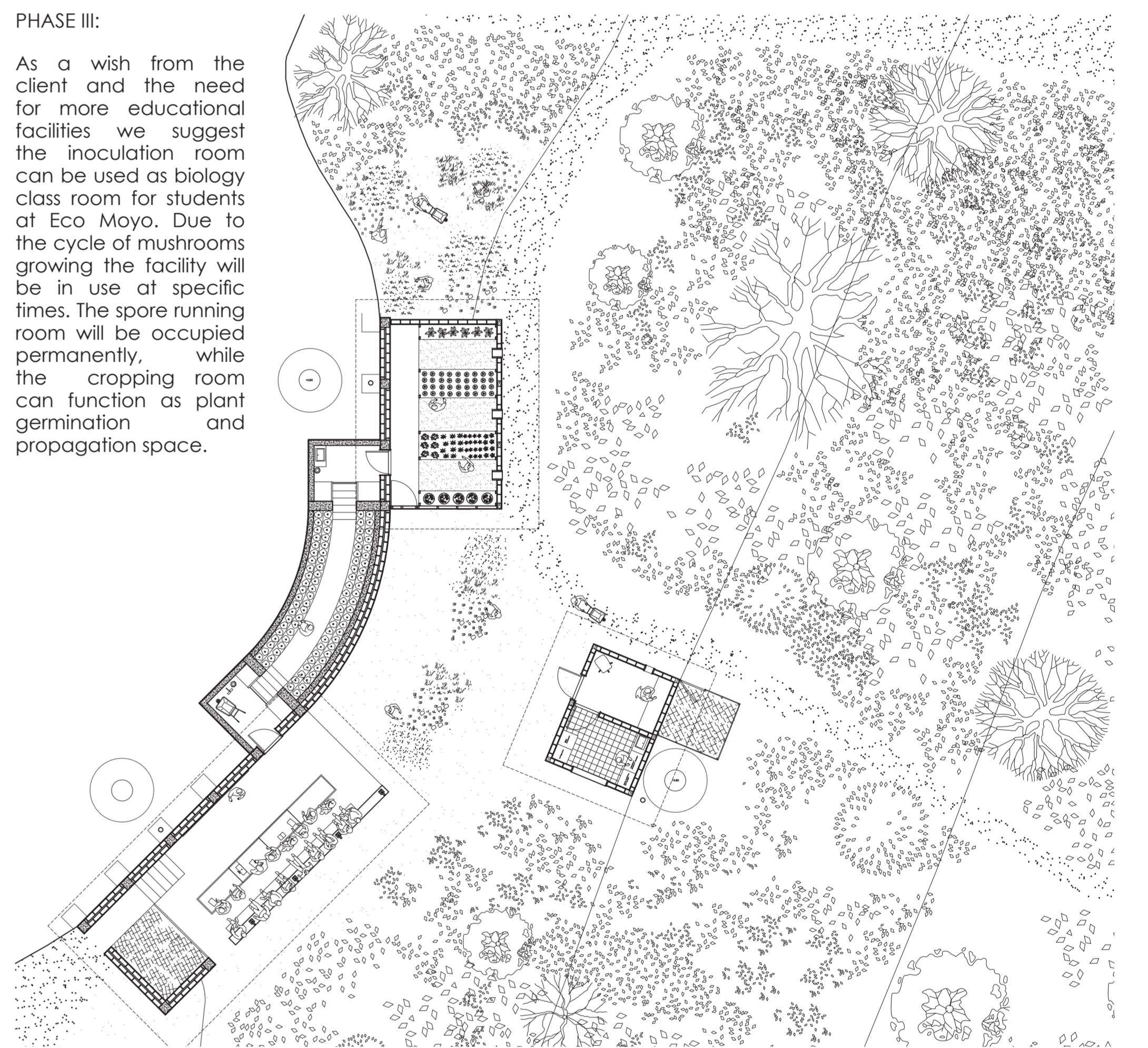
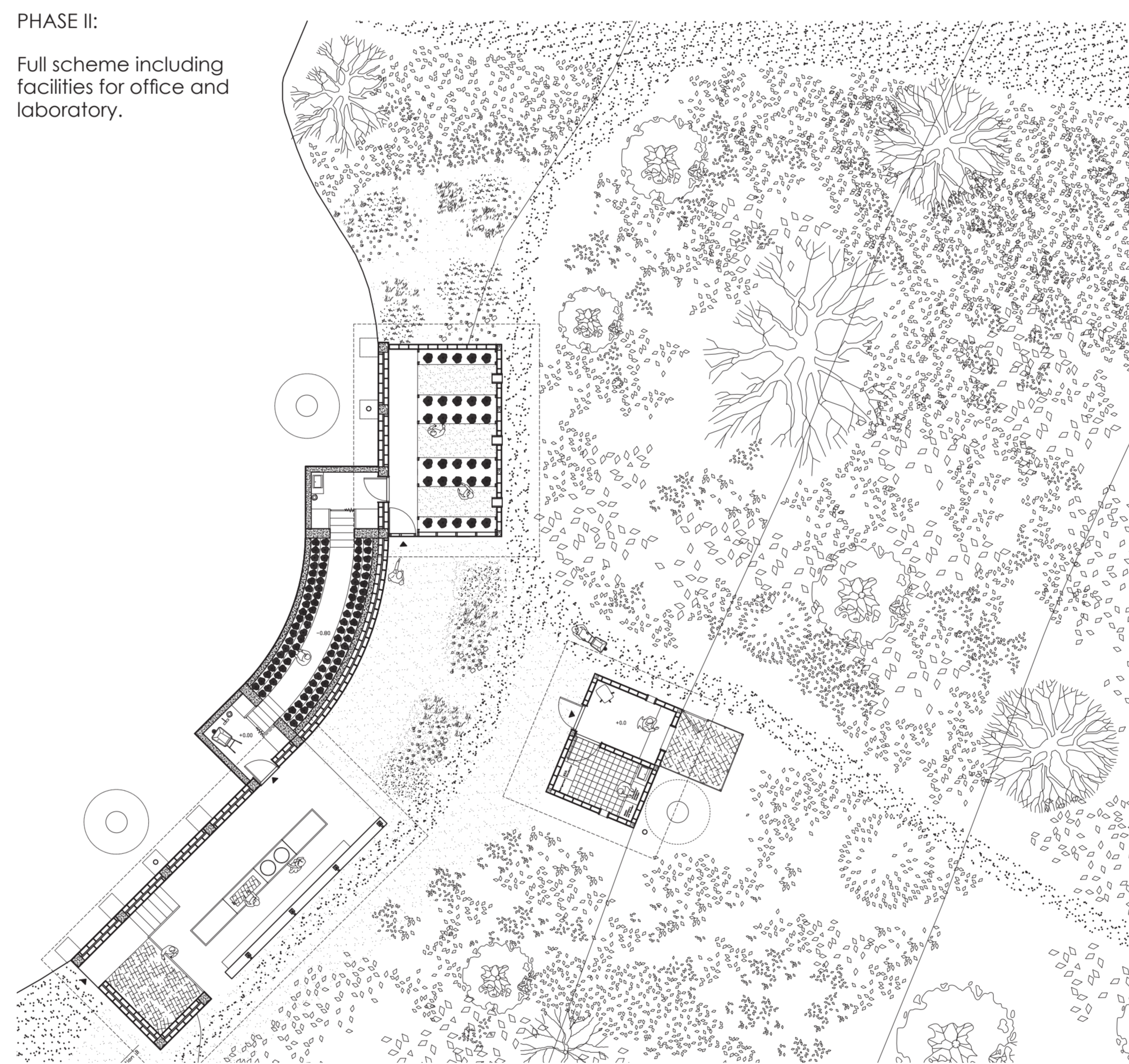
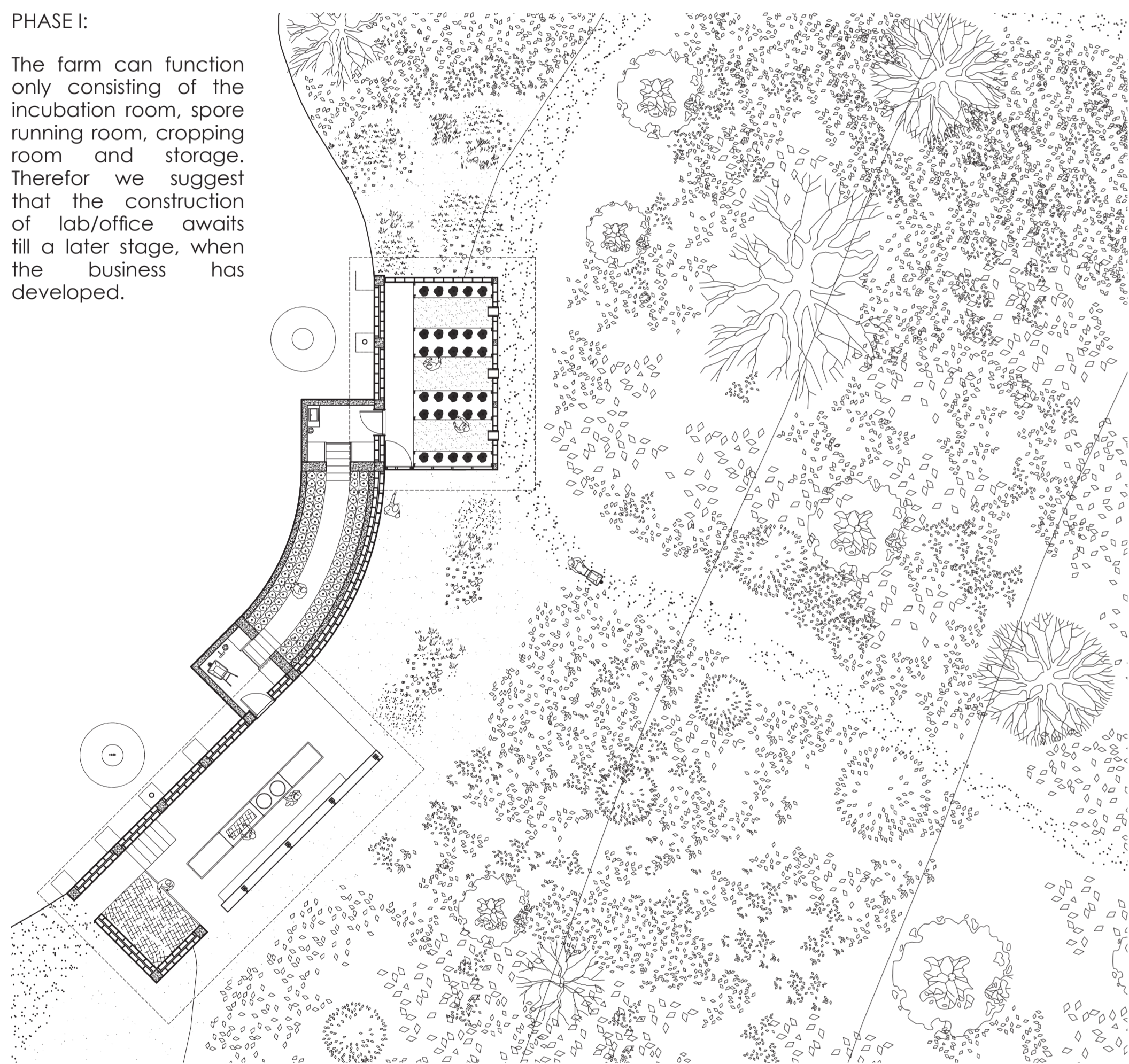
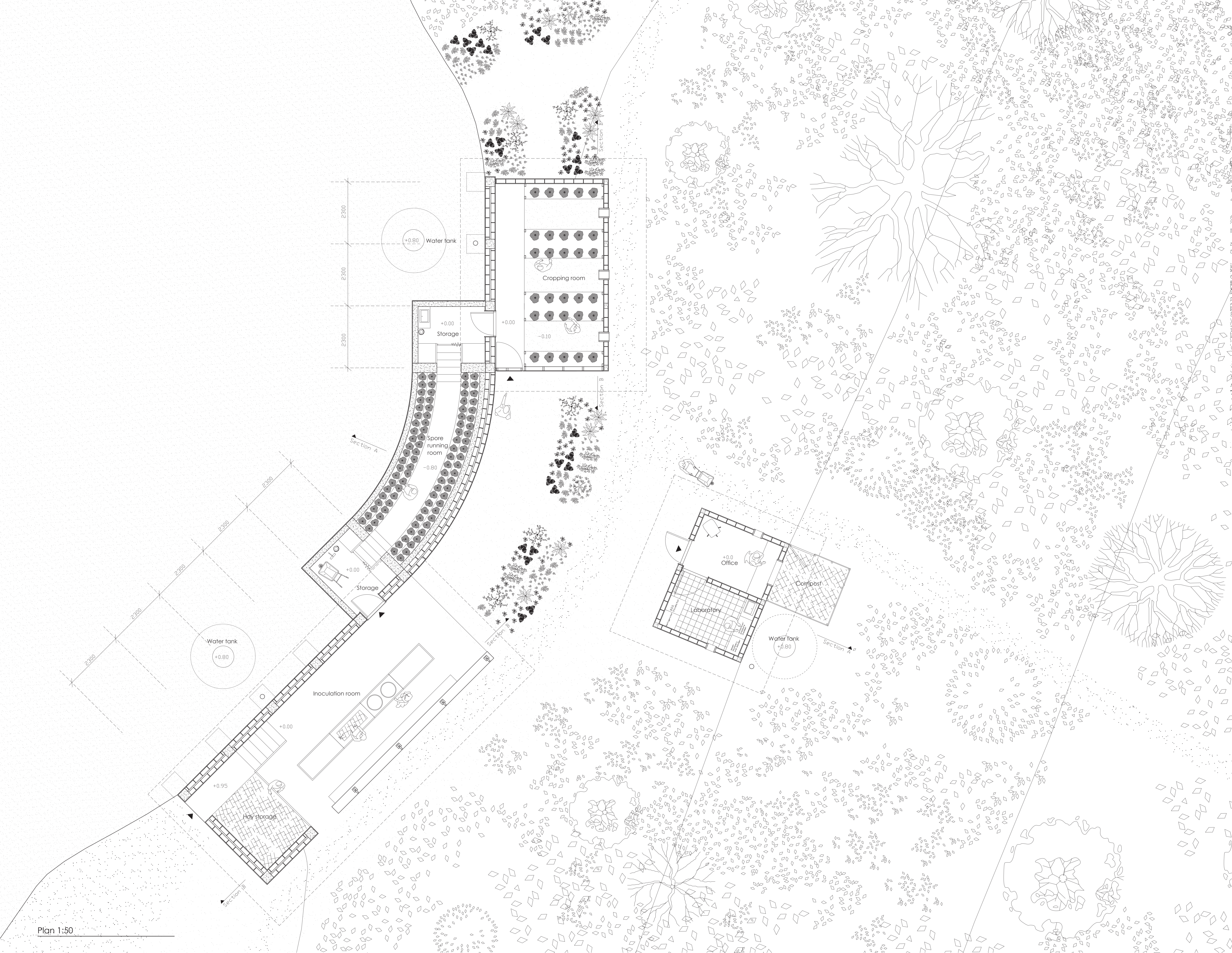


building aspects  
set into landscape  
1:10 slope



Using rectangular hay bales as form work





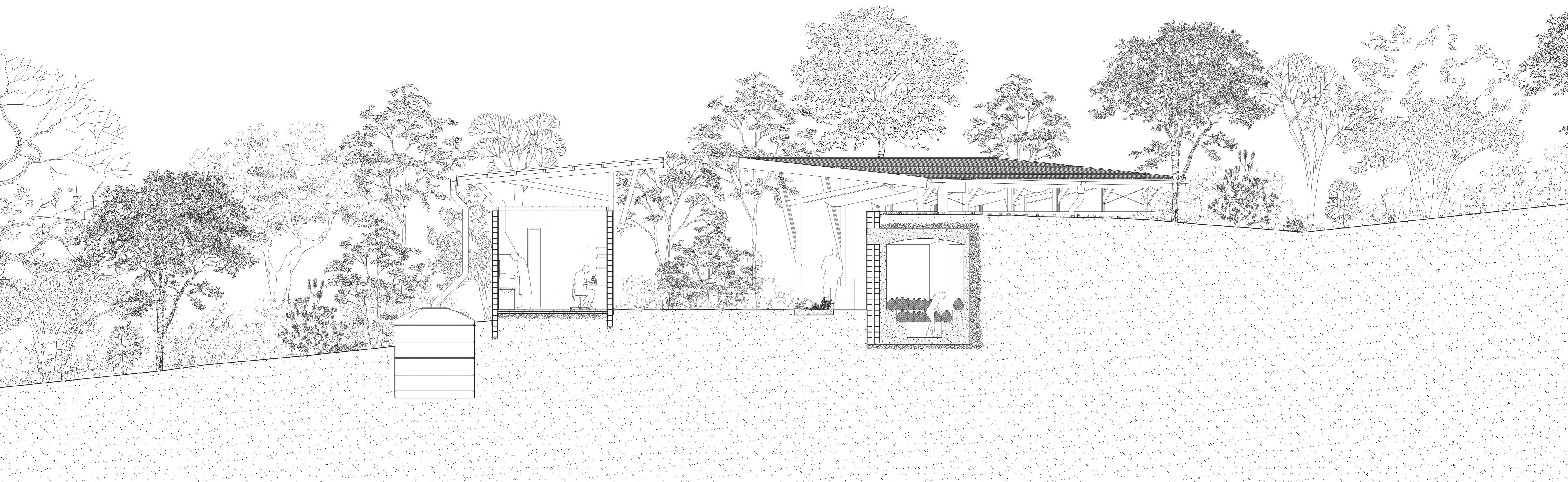
Elevation



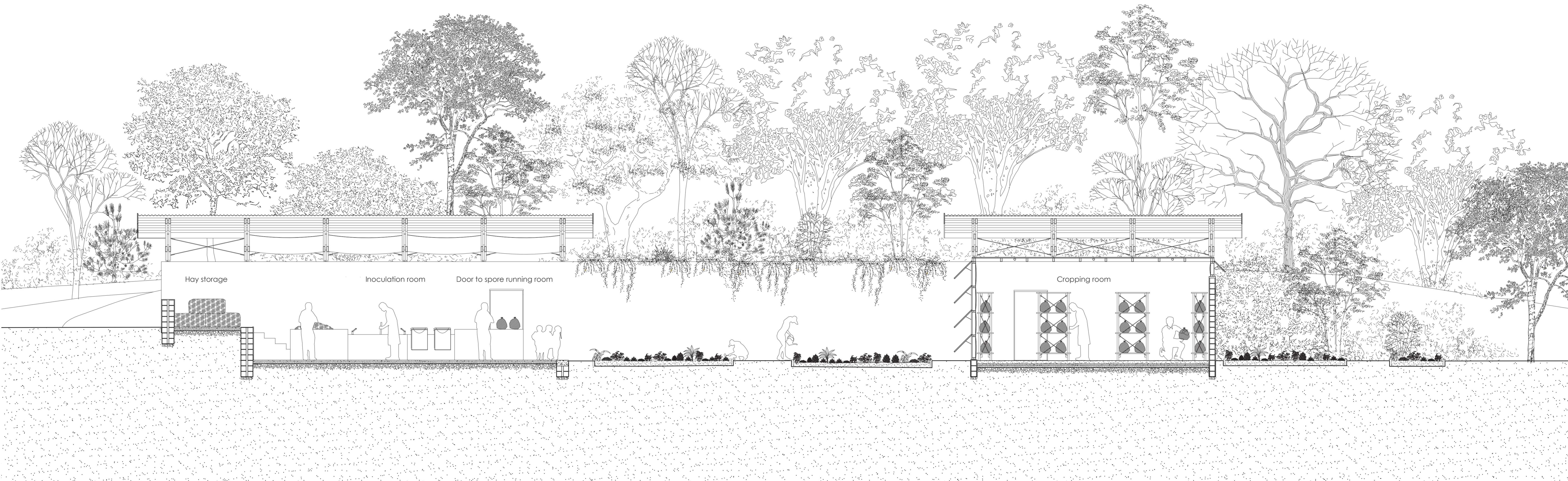
Section 1:50



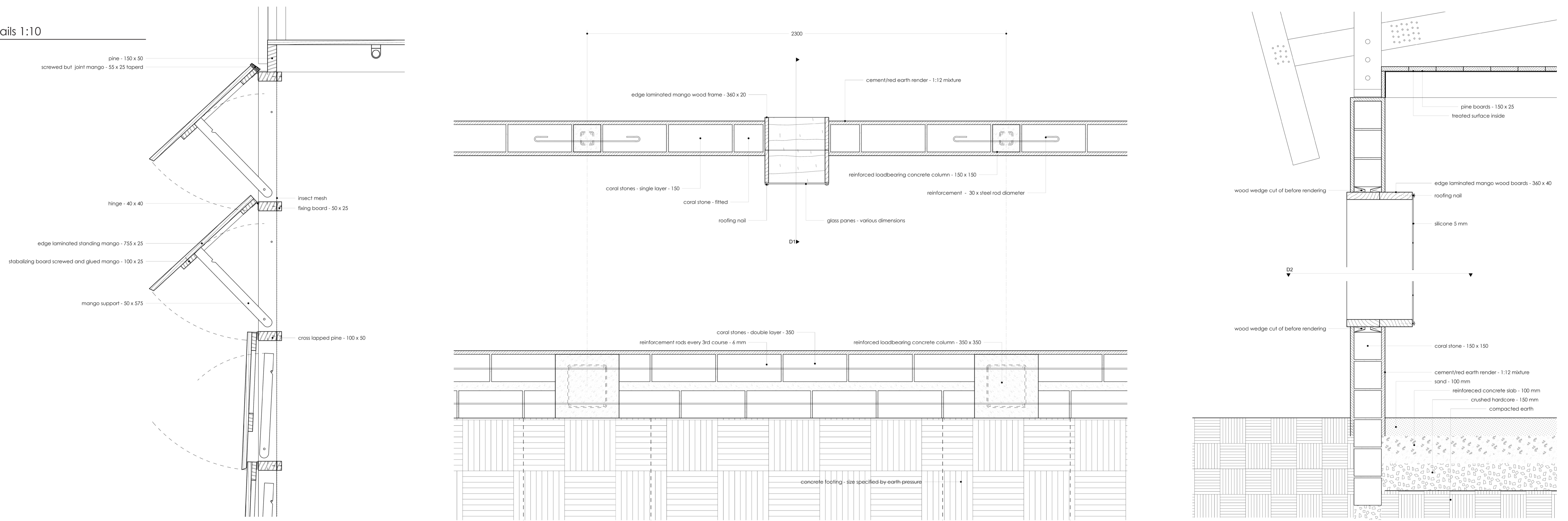
Section A, 1:50  
Towards south, through spore running room and laboratory



Section B, 1:50  
Through inoculation room and cropping room



Details 1:10



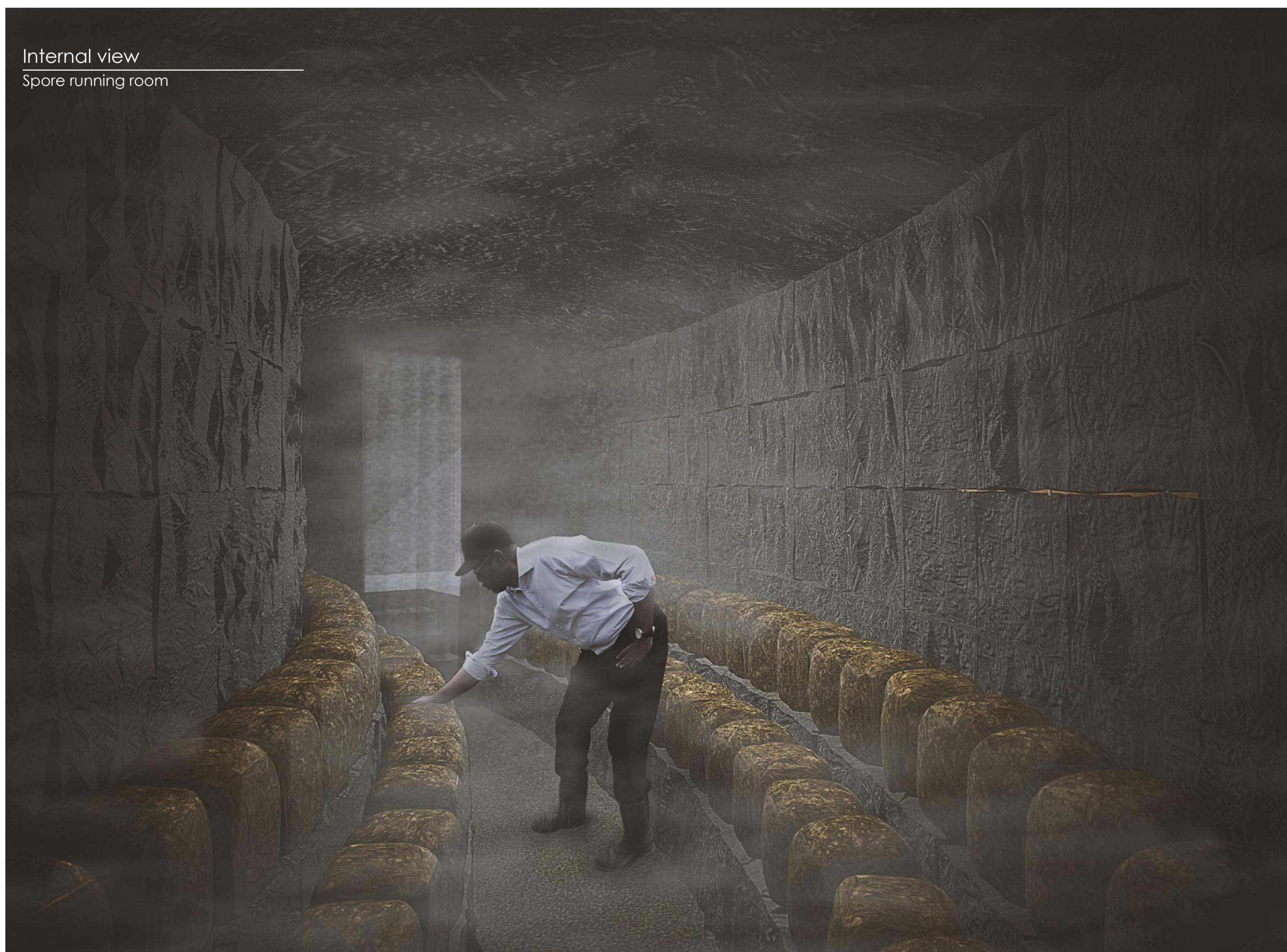
External view  
View from east



External view  
View from south



Internal view  
Spore running room



Internal view  
Cropping room

