

# Beneath the Crops

Population numbers rising, agricultural production falling, and an estimated 1/3 of all food wasted globally; currently importing 45% of its food supply, our nation has become increasingly aware of its lack of food security. 'Beneath the Crops' aims to readdress how our food is produced by creating a transferable modern farming scheme that can be adapted to various landscapes and disused buildings across the UK helping to increase our self-sufficiency.

This adaptation will unite farmers of Bridlington at Bempton Bunker with 'Farm Urban', who already have an existing portfolio of community-based modern farming projects. The collaboration will enable traditional, rural farms to increase their efficiency and output by incorporating agricultural waste recycling, which will then be used to fertilise hydroponically grown crops underground, thus forming a localised close loop system; such format is also translated spatially throughout the site.

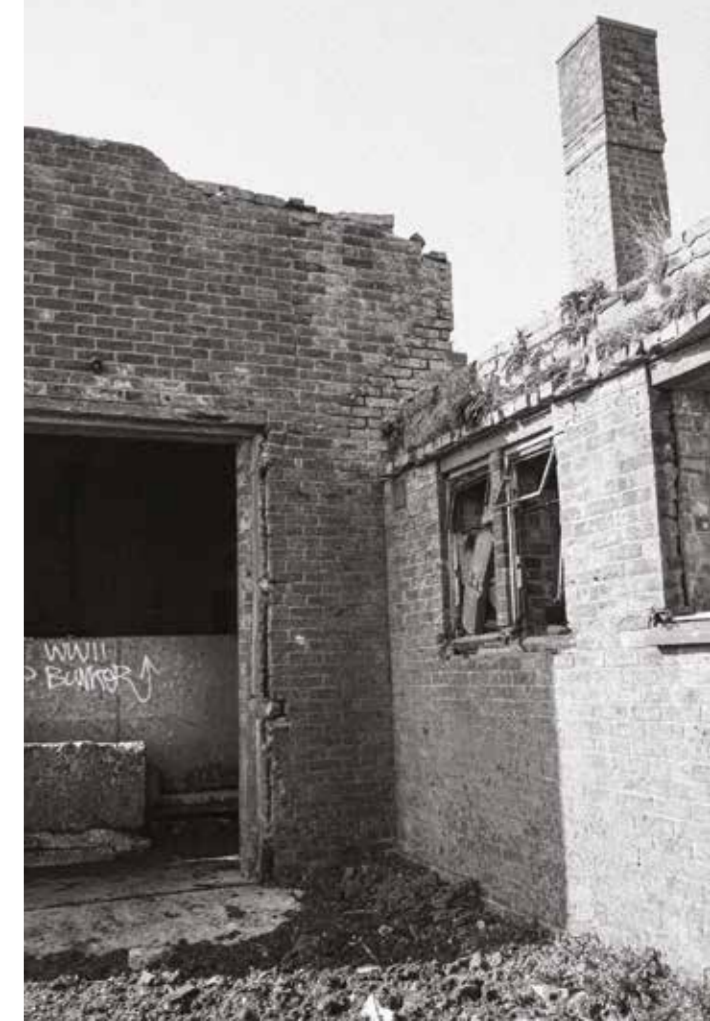
As an underground Second World War Radar Station, Bempton Bunker has a functional architecture that revisits a time when our country was urged to 'dig for victory'. Originally designed to grow in unconventional environments, hydroponics are able to grow without sunlight or soil, making the underground nature of the bunker ideal conditions for growing hydroponic crops all year round, whilst also decreasing reliance on external factors and farming's impact on the landscape, as well as its biodiversity.



When operational, the main lights in the track telling rooms were kept low for optimum screen visibility; the main lights in the hydroponic farm will be kept low for optimum plant growth.

**RAF Security**

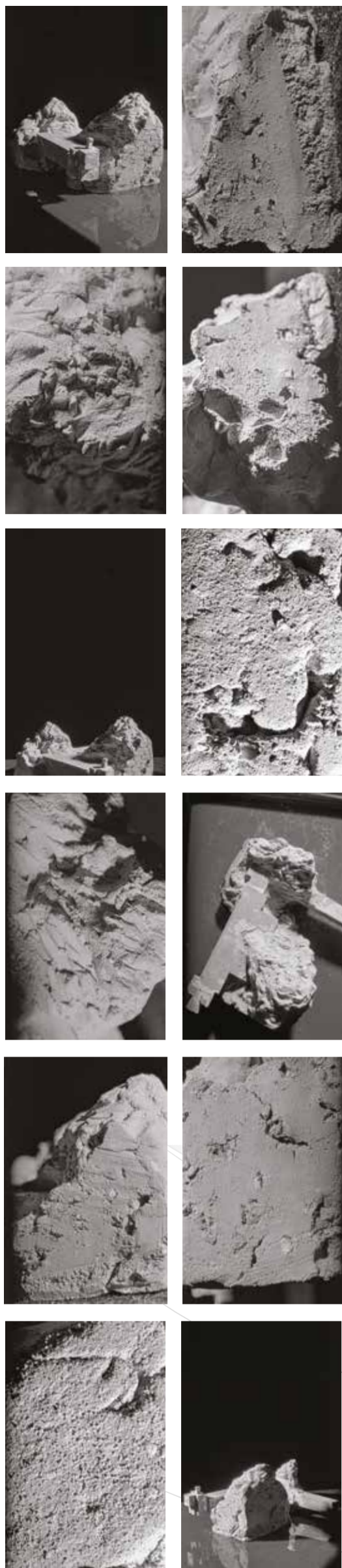
**Food Security**



With both radar station and hydroponic farm, security and technology are consistent themes of its past and proposed uses, with users operating the equipment whilst simultaneously being protected by its function.



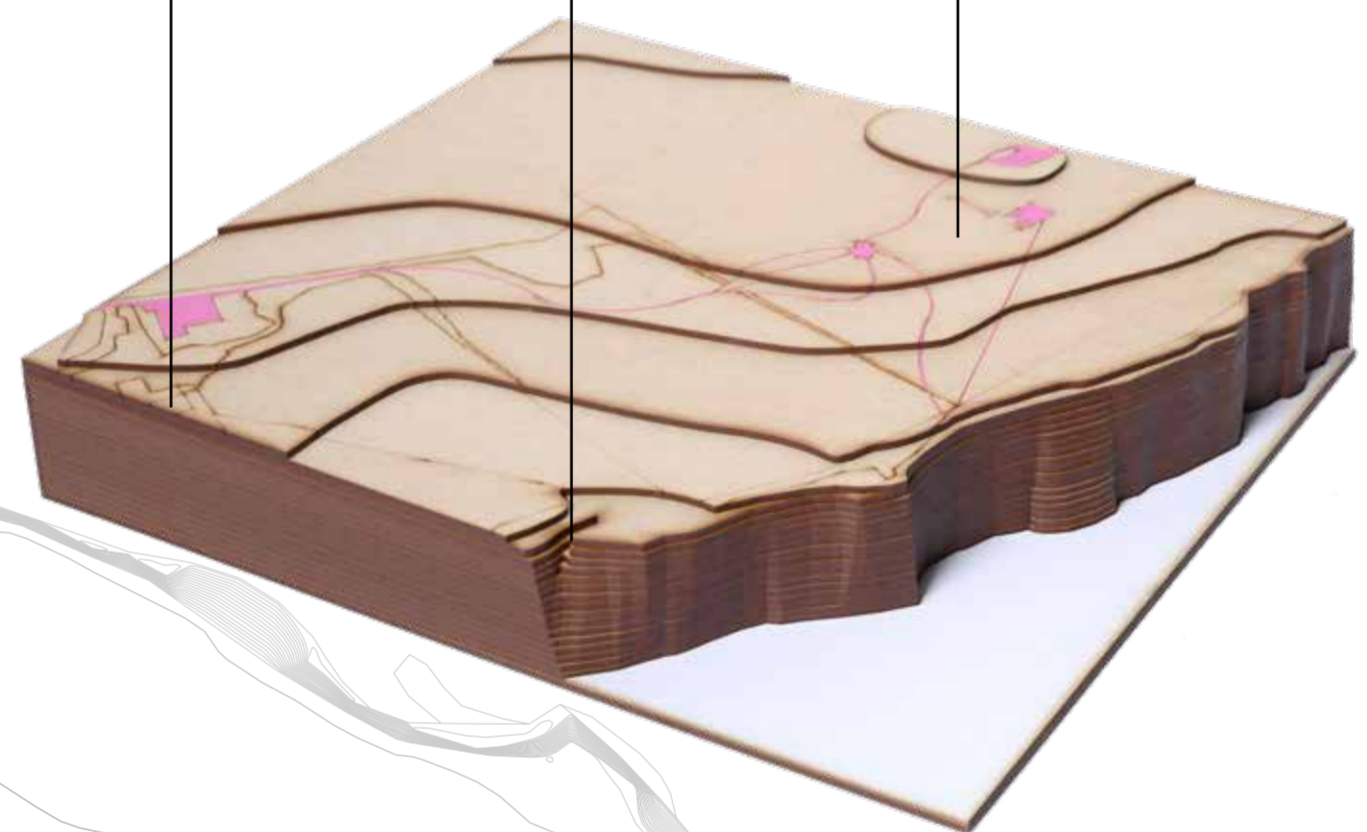
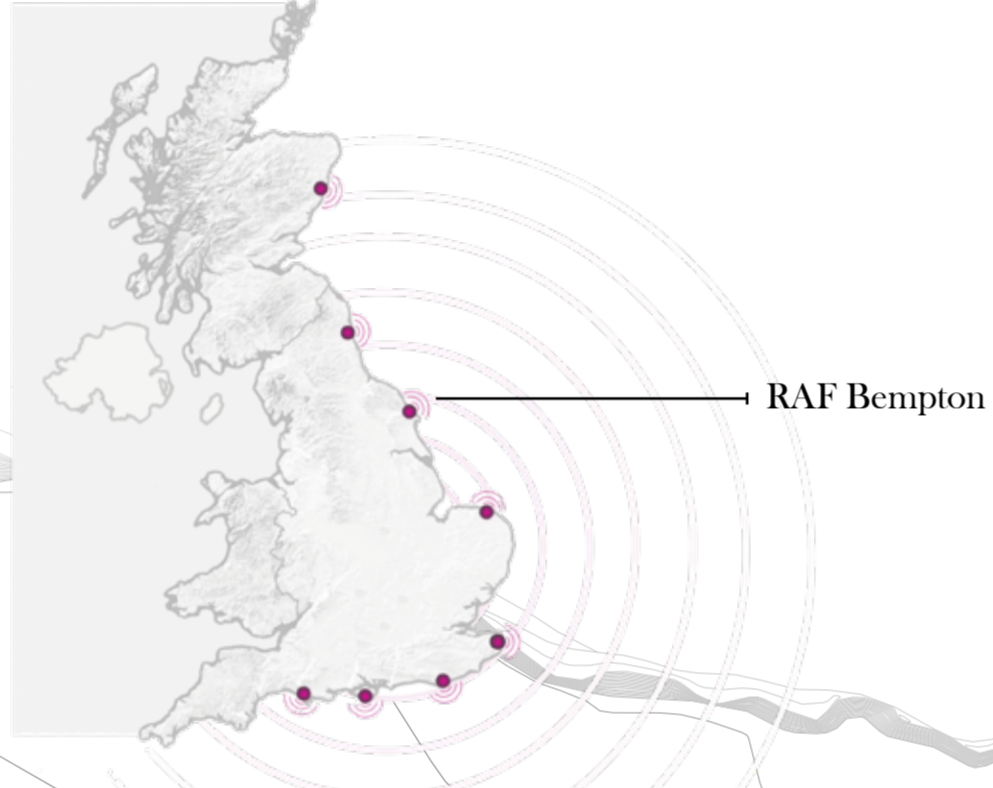
**Bunker Unearthed**



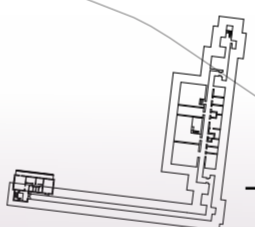
**Site Plan**



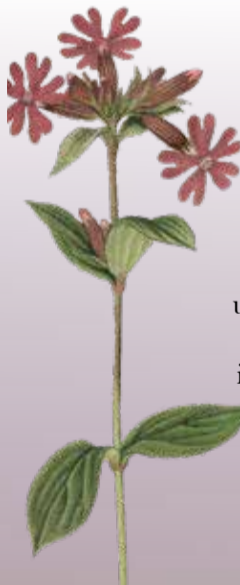
- 5. The Green Market**  
(Small farmer's market.)
- 4. The Fuchsia Garden**  
(Underground hydroponic farm.)
- 2. The Switching Station**  
(Waste recycling lab.)
- 3. The Security Study**  
(Educational exhibition.)
- 1. The Field Observatory**  
(Reception and observatory.)



**Bempton Cliffs 1:1500**



Location of the bunker in relation to the site's topography.



**Red Campion**  
 Flowering during the summer, their distinctive pink colour is reflective of the LED colours used in hydroponics. They're also indicators of ancient woodlands and hold importance to pollinating insects (Woodland Trust, u.d.)





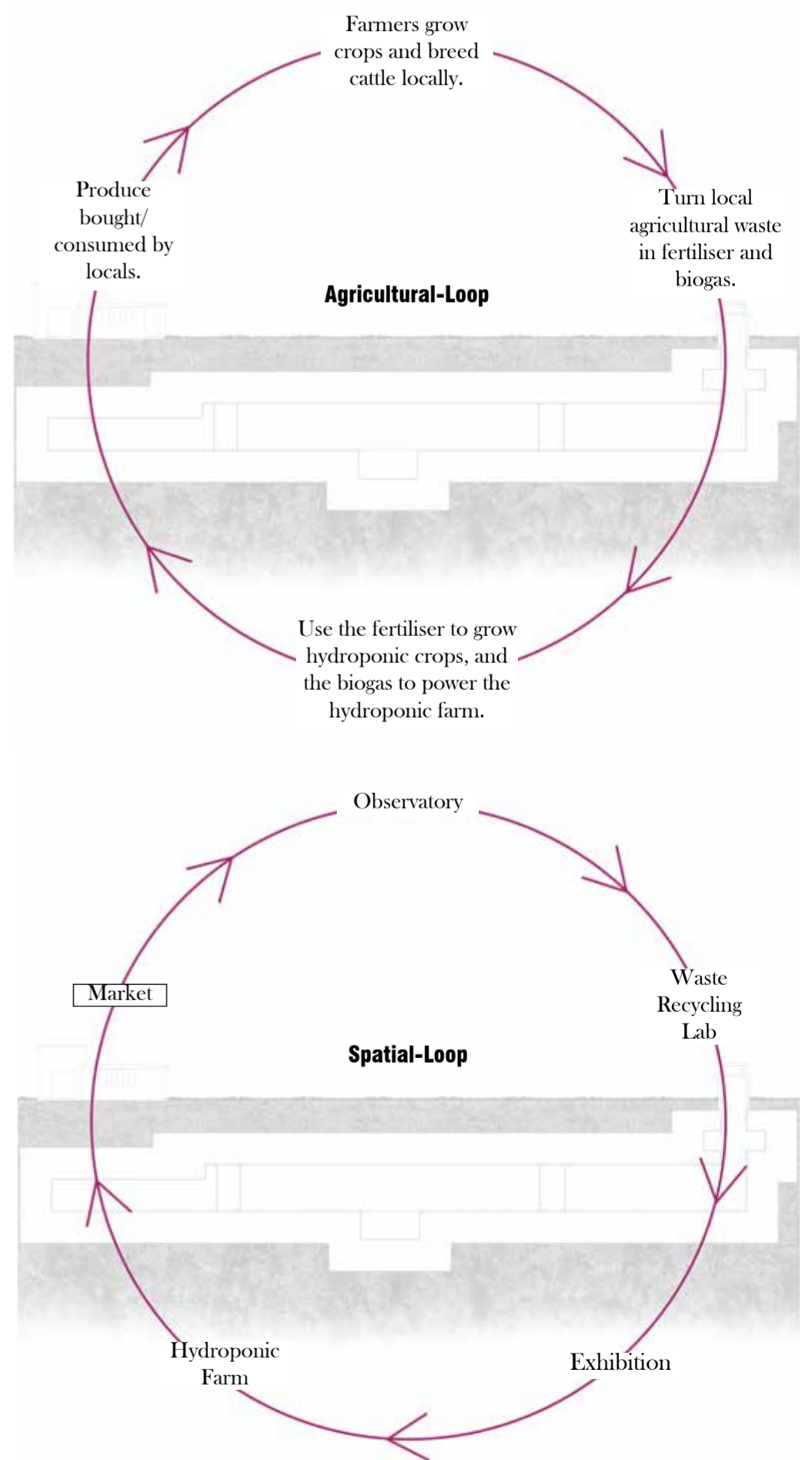


*“The conflict between science and the appeal of the ‘natural’ is centuries old... It’s possible, in fact, for science and nature to work together as two distinct forces.”*

(Kinsella, A., 2020.)

Manifesto

LOCAL DIFFERENCES CAN HAVE GLOBAL IMPACTS  
BE QUIETLY CONFIDENT

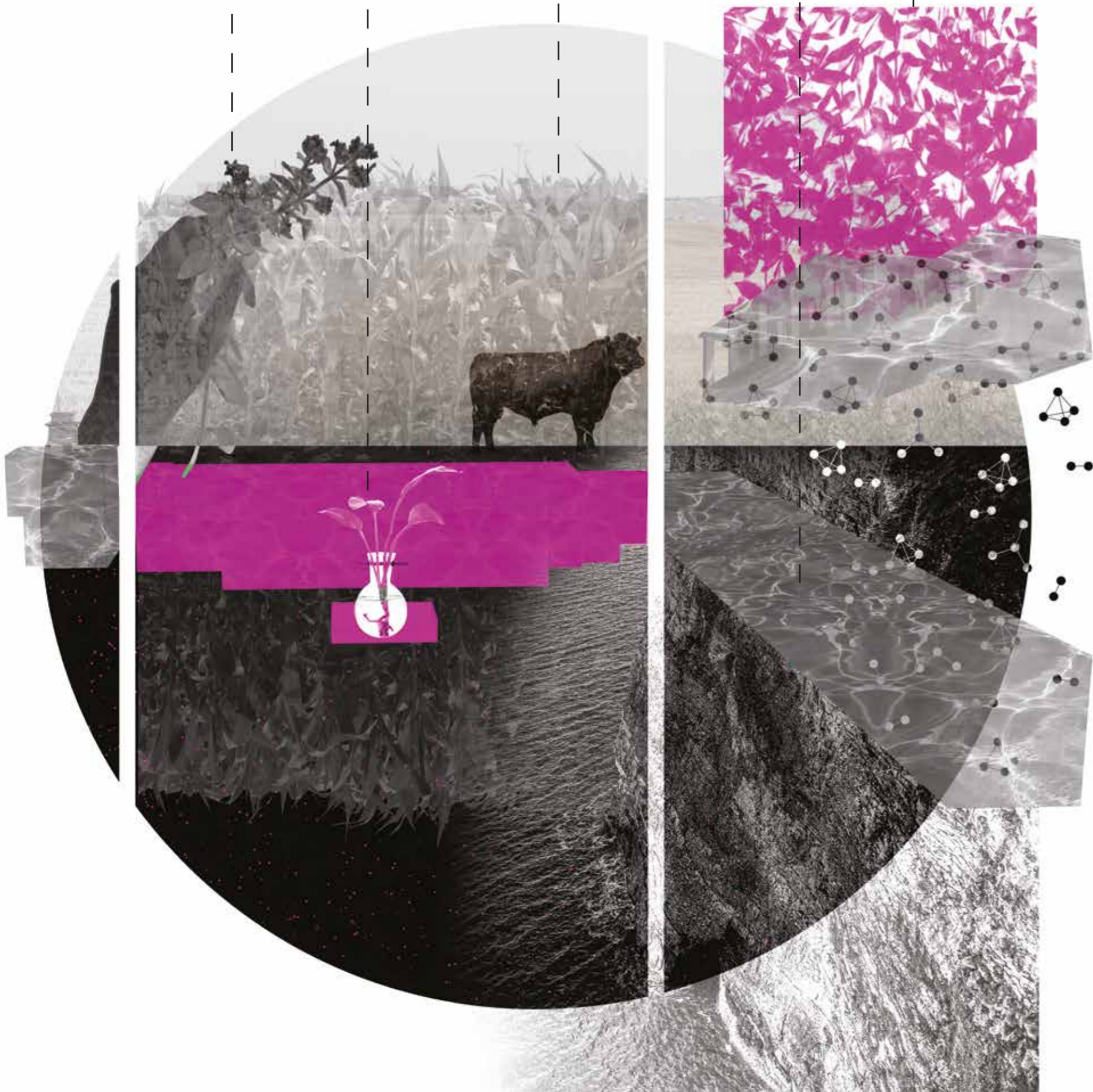


**Processes and Functions**

A collage exploring the placement of proposed functions above and below ground and how they could link in a circular fashion (close-loop system):

- **Observe** the traditional crops surrounding.
- **Recycle** agricultural waste into fertiliser.
- **Educate** about the importance of food security.
- **Grow** edible crops underground hydroponically.
- **Sell** the produce locally.

Sell      Grow      Observe      Educate      Recycle

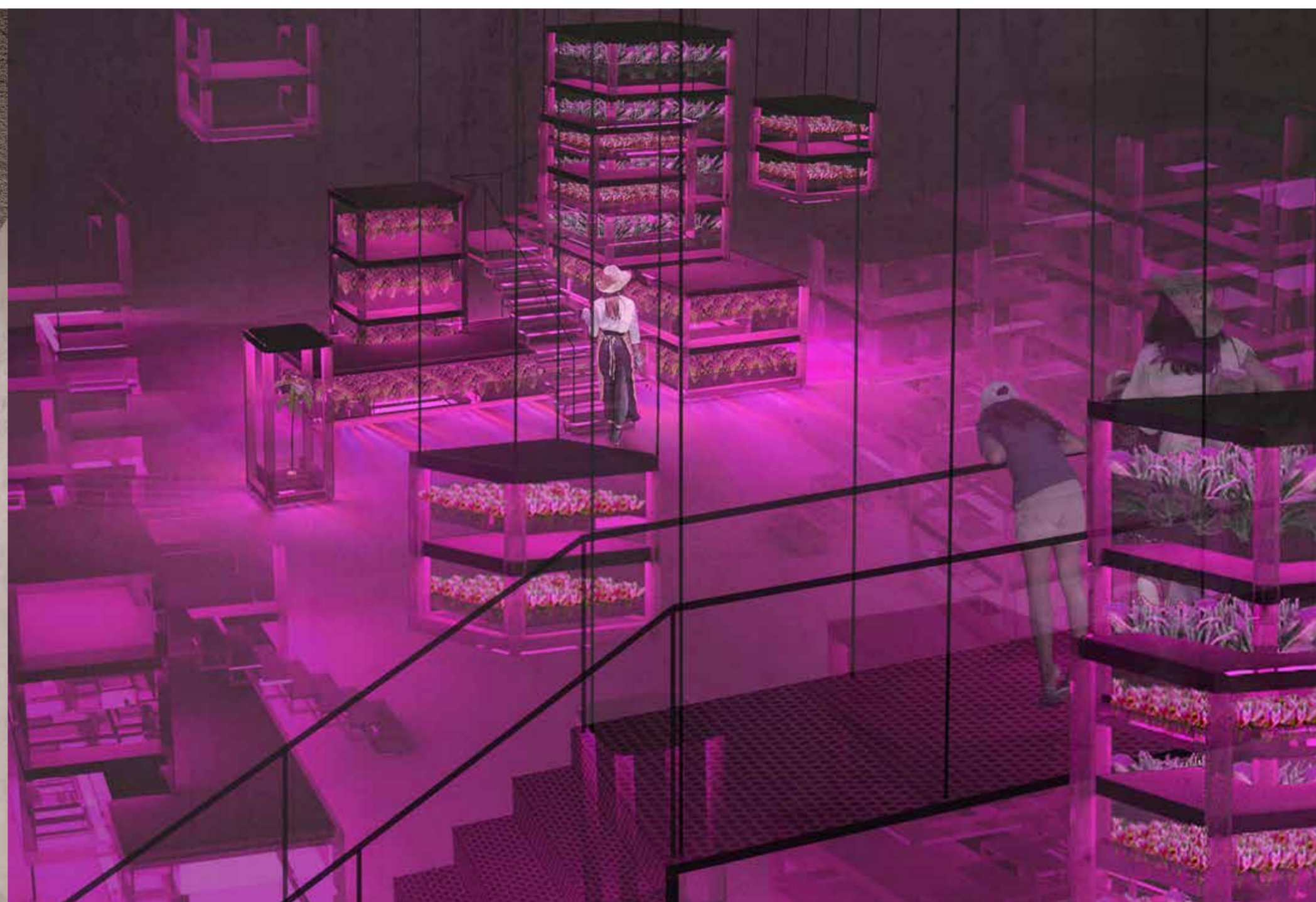




# Proposed Spaces



'The Field Observatory' will cover a 360° view as a subtle reference the evolutionary type-80 radar head that once took its place. The space is minimal purely acting as a tool to frame and draw attention to the existing, traditional farmland surrounding.



'The Fuchsia Garden' houses the hydroponic farm underground utilising the fertiliser created from recycled agricultural waste from the traditional farms above.

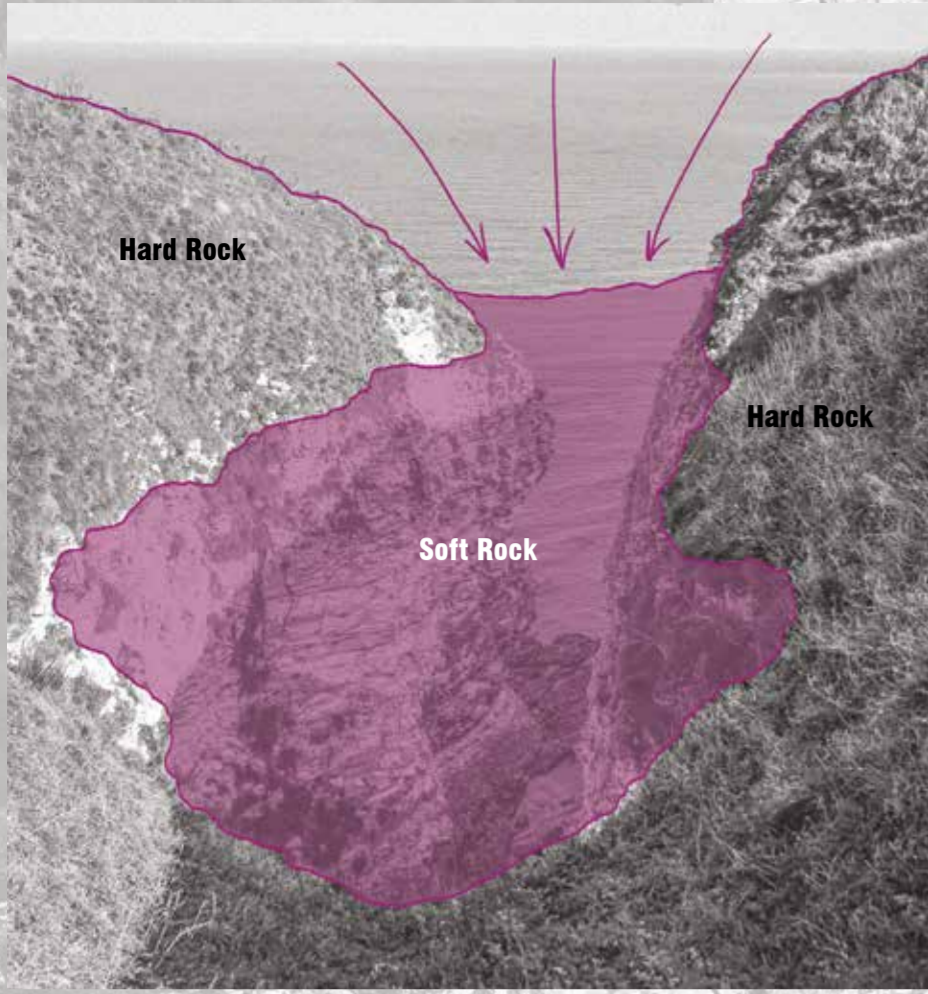
## Bempton Bunker 1:100

- 'The Switching Station' - Waste recycling laboratory.
- 'The Security Study' - Educational exhibition on food security.
- 'The Green Market' - Small farmer's market and salad bar.

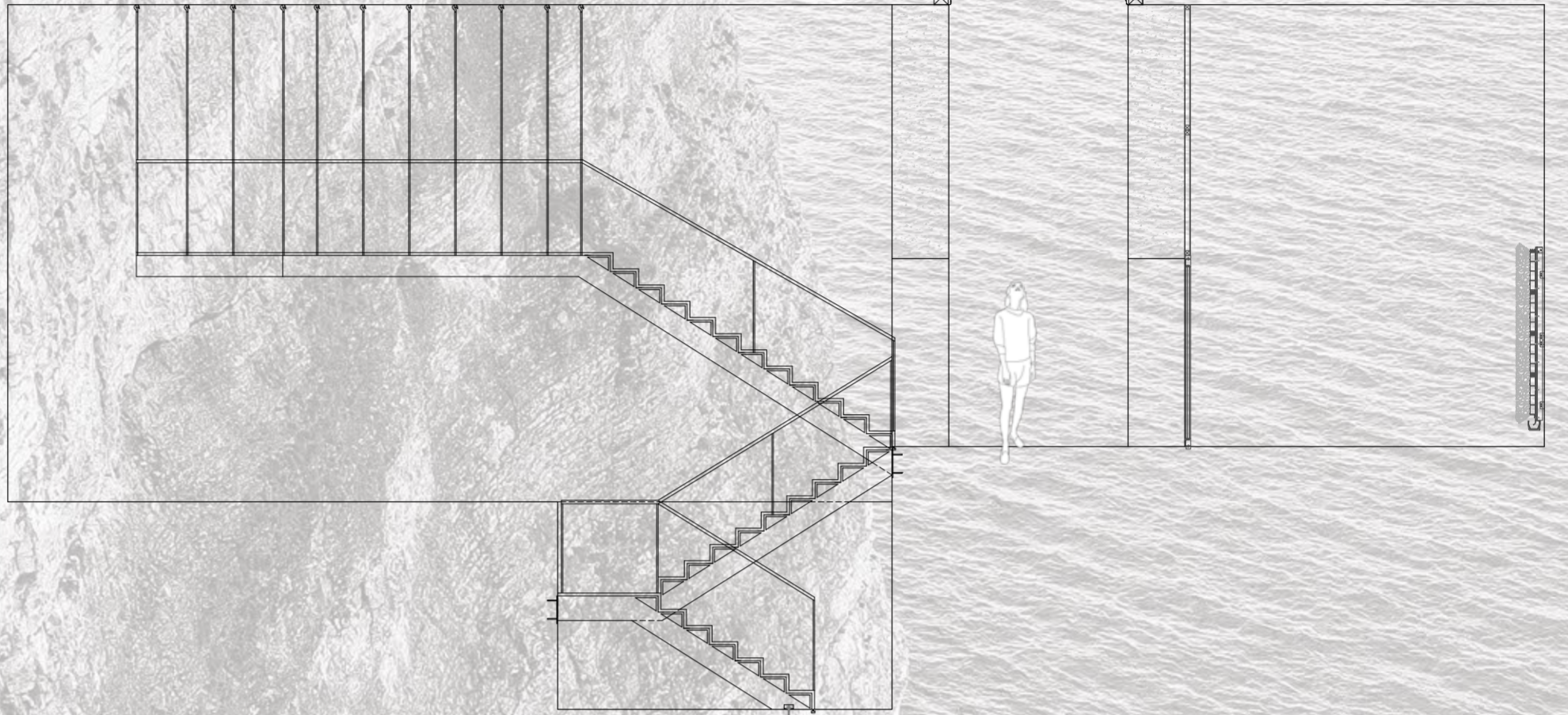
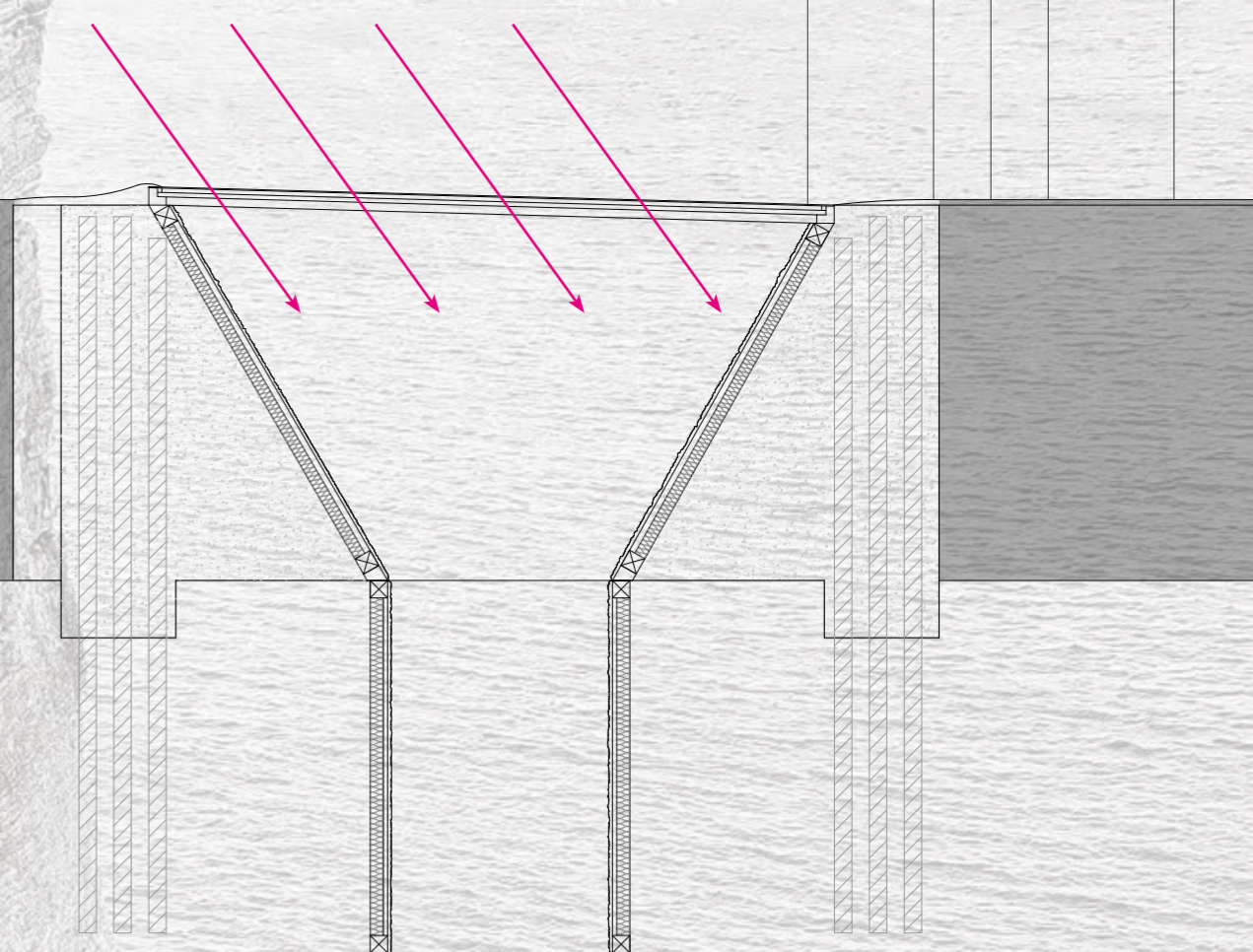




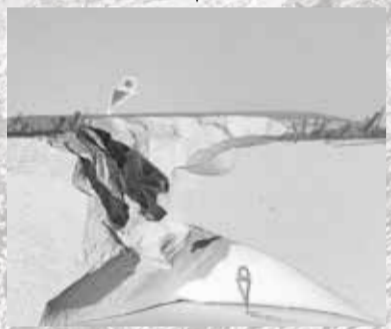
# Natural vs Artificial Light



The main distinction between traditionally grown crops and modern farming is between the use of sunlight and LEDs, which has therefore also been explored throughout the spaces.



Underground atrium skylight developed from research into the erosional process of Mosey Down-Gate.



Exploring how the red and blue LEDs of the hydroponic farm can be manipulated to create different atmospheres as well as define thresholds.



## Materiality

1. Concrete (existing)
2. Coursed Limestone (locally sourced)
3. Steel (restored)
4. Reclaimed Barn Wood
5. Textured Concrete
6. Hot Pink Stained Glass
7. Silver Metal Veneer
8. Red Campions (locally sourced)