CRAFTING TABULA PLENA

A PLAY WITH SOCIAL AND MATERIAL ECOLOGIES

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INTRODUCTION

During the last year of my master I have explored both what craft means in the context of architecture, but also what it means for my own position as both architect and craftswoman. It has been really freeing to be able to experiment and look at architecture not only through plan and section, but also through sounds, virtual reality, illustrations, and narrative. This has lead to a broader understanding of what architecture is, and what my role as an architect might be in the future, and I look forward to experimenting more as I develop as a professional.

This booklet presents my research where I redefine craft to mean interventions in material flows, which leads to a focus on sensory impressions, sustainability, and play. It showcases the highlight of my site research and process, and also presents the design which resulted of this. Lastly there is a reflection which described the translation from concept to design.

I would like to thank my tutors, Alper Alkan and Freek Speksnijder for their input and guidance. I would also like to share some appreciation for my classmates who have made the semester really fun and stimulating, and of course my friends, family, and boyfriend who have supported and kept me sane during this past year, crazy as it has been.

Abstract

This essay describes a new definition of craft which bases itself on the works of Sennet, Huizinga, and Ingold. The craftsperson is defined as driven by an intrinsic motivation, and the potential of craft to contribute to community forming is demonstrated by material from the site study. Craft itself is seen as an intervention in existing material flows, where the craftsperson intervenes in a complex gathering of lines. Following this idea, craft is considered to imply circularity. The work in the essay combined with the design project proclaims the site as a tabula plena, and craft essential to a sustainable architecture.

Keywords: Craft, flows, material, sustainability.

01

A NEW CRAFT

Redefining craft to suit the contemporary city

Introduction

In Patrick Keiller's psycho-geographical documentary "London" (1994) the protagonist Robinson identifies the problem of London as being one of absences. The city is littered with voids, and its citizens have lost a feeling of identity and belonging.

What Keiller recognizes in London is true for most western metropolises. On a spatial level the voids of contemporary cities can in part be explained by zoning trends clustering industry in areas of the city, and the subsequent globalization causing the industry to move out and leaving these areas deserted. Simultaneous to this development, the working class has been pushed out of the city center by gentrification, and deskilled by automation. The monetization of labor and craft has caused a detachment from the material world and a feeling of non-belong which has become so characteristic for the non-stop city of today.

A new movement has emerged in the form of the maker-movement. The maker-movement seeks to give citizens across the globe access to tools and materials to make their own objects. These interventions create new communities, and act as catalysts for social regeneration. Furthermore, Sennet (2007) recognizes craft as having the potential to fill the emotional void of the citizen, thereby reattaching them to the material world. This demonstrates the potential of craft as a way to counter the absences of London.

This essay is a part of a research which investigates how a redefinition of craft can transform the voids of the city and act as a catalyst for regeneration. To answer this question, craft needs to be redefined to expand on the idea of a lone skilled individual, to also encompass social and material ecologies. This will be done through a literature study.

The research is split in two parts, a written essay and a design project. The essay

serves as an argument to describe a new craft and its implications for architecture. The essay will redefine craft in relation to the social ecology[1], meaning the act of craft and the craftsman, and the material ecology[2] focusing on the materials and objects. The design project then operationalizes this in both a site strategy and an architectural project which acts as a proof of concept as to how craft can be a catalyst to transform the voids of the city. The two parts inform each other, and help develop a thesis which proclaims the site as a tabula plena, and craft essential to a sustainable architecture.

1. The social ecology is defined as the relations between people which arise from craft (community forming) as well as the craftsperson themselves and their motivations.

The social ecology: Craftspeople and craft communities

To define craft one also has to define the craftsman. After man was defined as a homo sapiens, man the thinker, a series of redefinitions have followed. From the influential homo faber, the maker, countered with homo ludens, the player, to the more modern homo creativitus and homo aestheticus-informaticus. Humans, are thinkers, makers, and players. The notion of Homo Ludens was introduced in 1938 by Dutch historian Johan Huizinga. In his book, Huizinga describes how many facets of culture bears a characteristic of play, from war to the sacred rituals. Huizinga also looks for the play element in the plastic arts, in other words craft.

2. The material ecology encompasses the material side of craft, with focus on what is being crafted with. In some cases, this can also be immaterial flows such as sounds or heat. In the architectural context this also refers to the site and its existing flows and conditions.

Huizinga defines play as a primary category of life. It is outside reasonableness and practicality, and has nothing to do with necessity, utility, duty, or truth. This definition leads Huizinga to conclude that the plastic arts do not bear a strong element of play. He points to some aspects which might suggest a play element, such as competition between craftsmen for fame, but due to the often utilitarian nature of the crafted object, Huizinga deems craft to be lacking play.

This is in my opinion a critical error. By focusing on the object instead of the process, Huizinga makes the same mistake as countless before him. This mindset can be traced back to the hylomorphic model developed by Aristotle. He reasoned that to create an object one would have to bring together form (morphe) and matter (hyle). This lead according to Ingold (2008) to an increasingly unbalanced view on the process on

creation in western thought. Form is considered to be imposed on the matter, and the matter is rendered passive and inert. This also gives primacy to the finished seemingly passive object, instead of the dynamic process of creation, and the subsequent changes the object might go through.

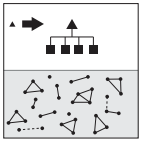
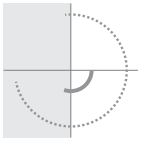
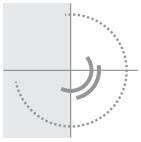
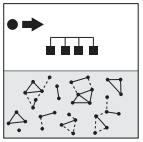
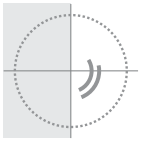
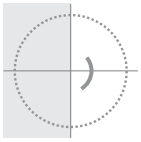
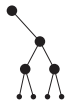
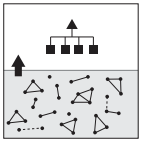
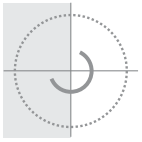
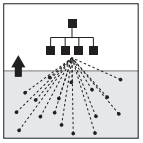
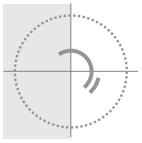
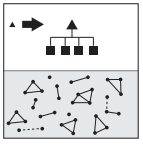
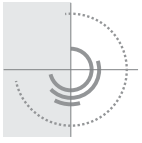
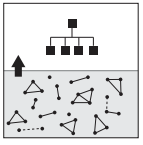
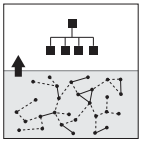
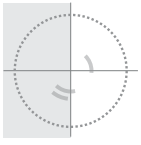
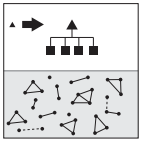
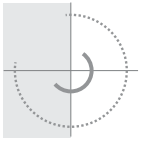
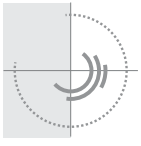
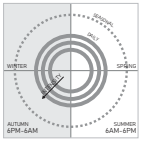
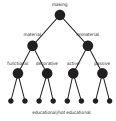
If one would examine the craft process instead of the crafted object, one would see that play is closely connected to craft. The craftsman is defined by Sennet as someone who does something well, simply because they want to do it well. There is thus an intrinsic motivation which drives all instances of craft. Where extrinsic motivation is driven by outside forces, like duty or utility, intrinsic motivation is driven by inner forces, like a sense of enjoyment and fulfillment. An intrinsic motivation stems from fun, and therefore when someone is crafting something, even if the object is utilitarian in nature, they are playing.

Based on these ideas one could make a distinction between the maker and the craftsman. The maker is concerned with the practical everyday life[3]. He or she makes based on extrinsic motivation. The craftsman however is playing. Therefore, one could say that the maker is a Homo Faber, while the craftsman is both a Homo Faber, and a Homo Ludens.

3. During the industrialization and globalization, the motivation of the worker also moved from partially intrinsic, to almost fully extrinsic. The current builder of today is to a lesser degree motivated by pride in their own craftsmanship, but instead motivated (often unsuccessfully) by competition or a sense of duty.

2.2 Matrix: Craft activities in two areas of Lea Valley

Following from a definition of craft as based on play, one can examine craft in the urban context. Using the new definition of craft, various activities of the study area, Lea Valley, were mapped in a matrix showing the community forming which craft contributes to. An excerpt of the matrix can be seen on the following page, and the complete matrix can be found in the site study section. The matrix catalogue craft activities in two sections of Lea Valley, one with a high concentration of makerspaces and one with a low concentration. The matrix shows first and foremost the large diversity in craft activities and communities in the valley. The communities range from focusing on the neighborhood amateur to spanning a city-wide range of professionals. They

	site	facade	entrance	governance/members	temporality	temporality: pandemic	program	making
01.02	 PONDERS END PARK							
02.02	 SONNY THE SNAIL SENSORY GARDEN							
03.02	 MOTTINGHAM HALL							
04.02	 FARMDROP HUB							
05.02	 RIVER LEE NAVIGATION							
06.02	 MORNINGTON HALL							
07.02	 CADOS							
08.02	 EPPING FOREST							
	 scale 1:10 000							

also vary in organizational structure from community run to governmental. Strikingly, some attributes seem to correlate. A charity-based activity for example often has a more visible architecture and signage than one aimed at professionals, probably as the former needs to attract passerby's, while the latter relies on other communication avenues. The set of activities are diverse and while some offer organized activities such as classes, almost all offer a chance to explore one's own fascinations. It therefore supports the idea of intrinsic motivation and the flamboyant worker being important to craft.

The matrix shows a tendency for craft activities to cluster together in the urban fabric. This could be because of the formation of craft communities where communities might also overlap and one individual take part in multiple craft activities. It could also be because certain urban conditions, like cheap rent and an abundance of space, lends itself to typologies such as workshops and community centers which form a craft infrastructure.

Either way the matrix demonstrates craft's potential as a tool for community forming and therefore social regeneration, as well as showcase the large diversity of craft present in the alley. It also indicates the importance of autonomy and therefore informs the program of the design project.

Material ecology: Matter in flux

"Form is the end, death. (…) Form-giving is movement, action. Form-giving is life" (Klee, 1973, 269).

Painter Paul Klee's idea of the importance of form-giving: the process of creation signals a shift in the philosophical discourse from the hylomorphic model of the past, to a new process-oriented model. Inspired by Klee, philosophers Deleuze, Guattari, and more recently Ingold redefined the essential relations of making as not between matter and form, but between materials and forces.

Instead of the hylomorphic model of the past, Ingold proposes a new model, which assigns primacy to the creation process instead of the products thereof, and to the transformation of materials instead of states of matter.

Material is not a static object, it is always 'matter in movement, in flux, in variation' (Deleuze and Guattari in Ingold 2008). Furthermore, this flow of material can only be followed. Ingold calls the flow of matter simply materials. To follow the flow of material means that instead of imposing a preconceived idea onto the material, the practitioner brings together an array of diverse materials, combines them, and anticipates what might emerge (Ingold, 2008). This description would in my opinion ring more true to a craftsperson than a hylomorphic mindset, and is also reminiscent of Ruskins rendition of craft as letting go of control, i.e. following where the material takes you. There is a sense of chaos to a material world and materials are always in the process of growth and decay.

When following the flow of materials, one does not partake in an abductive and iterative process according to Ingold, but rather an itinerate one. By stepping away from the term abduction[4], Ingold argues that the design process, or craft process, is not a result of a chain of casual connections from object to agent, but rather a result of a series of improvisations which follow lines of flight. These lines of flight are not connected by two points, but rather sweeps through materials, and when gathered together it becomes a thing. From here the notion of material as a flow becomes clear. Material is both ever changing, in process, and also a gathering of different lines. To intervene in these lines the practitioner improvises and experiments to reach or discover a desired result (Ingold, 2008). When Ruskin describes how the flamboyant worker is willing to risk losing control over his or her own work, which leads to discoveries and happy accidents, he describes how the practitioner let's go of the hylomorphic model, and instead follows the flows of the material, which might lead to an unexpected outcome (Sennet, 2008).

This definition of craft implies that the site is not a static found entity, but a process

4. It's important to note that when Ingold talks about abduction he means connecting points already traversed, thus reading creativity backwards and tracing an object to a novel idea in the mind of the practitioner. If one would instead consider abduction a flash of insight caused by a hypostatization of relations which triggers and drives a nonlinear chain of semiosis one could still consider the design process as both a forwards, creative process, and an abductive one.

constantly growing and decaying. The site has a series of flows already there which define the architectural project. These flows are not only material flows, but also the immaterial flows of the social and material ecologies. Therefore, the site must not be treated like a tabula rasa, where the designer can impose their will, but rather as an existing system of flows which the designer can work with: a tabula plena. The project can both fuse with, but also go against the flows and enable new interactions. The architects and builders craft the template for a new experience by the visitor, but like Alvaro Siza never made a real house as that is made by the inhabitant constantly adapting it because of decay or changed needs, the public program is also only realized by the users themselves.

3.2. Circular flows: craft implies circularity

The conception of craft as an intervention in material flows immediately calls forth the notion of circularity. If the object is conceived of not as a static object, but one where the material is growing and decaying, the craftsperson is encouraged to think of not only the current and near future state of the material, but also the material throughout its life cycle. Craft in architecture means that the material flow is considered as a whole. The origin of the material is part of the design process, as well as the end. Furthermore, not only the use and reuse of the material is important, but also the growth and decay caused by other flows on the site. The flux of the material therefore becomes part of the design.

In addition to the circularity of material, craft implies an approach to sustainability which does not seek the maximum conservation of energy by making super-efficient climatized boxes, but instead considers the different flows of the building and its context in terms of heat, air, light etc. Through intervening in these flows, the building can control its own growth and decay in terms of energy. Kiel Moe demonstrates this in his Stackhaus project (Moe, 2014). The project uses massive local timber which acts as façade material, structure, and insulation all in one. The project is by no means efficient in contemporary terms, but manages to sequester twice the carbon that was

used in its construction. Moe demonstrates that by intervening in the local tabula plena, and redirecting existing energy sources such as sunlight, an exceptionally sustainable building is created. He describes that the task and potential magnificence of metabolic design is “to dissipate available energy gradients in the most powerful and reinforcing way possible”, in other words intervene in material flows in the most powerful way possible.

A new craft

The goal of this essay has been to provide a definition of a new craft more suited to the contemporary context, and to facilitate the translation of this into an architectural project which will embody the characteristics of new craft identified.

Firstly, the craftsperson is defined as a homo ludens, and the craft process as a process which is fueled by intrinsic motivation. This definition leads to a broader concept of what craft is; also including play and experimentation. Furthermore, craft is recognized as contributing to community forming in the chosen transect. This means that the program of the design project should encompass the diversity of craft, as well as allow for a social exchange amongst its visitors.

Secondly, the new definition of craft steps away from the hylomorphic model and instead considers craft an intervention in existing material flows. This implies that architecture is also an intervention in an existing context, and that the site therefore should be treated as a tabula plena: an already diverse and complicated ecosystem of social and material flows. The material is not a static entity, but matter in flux, constantly growing and decaying.

Following from this, craft implies circularity. The craftsperson is encouraged to think about the matter throughout its lifecycle, and it implies for architecture that the material flows should be considered as a whole: from the sourcing of the material to the deconstruction of the building. Furthermore, craft means an approach to sustainability

where the different energy flows in and around the building are considered and utilized. Sustainability does not mean maximum conservation of energy, but rather redirecting the existing and new energy flows in powerful ways.

In conclusion a new definition of craft calls for an architecture which embraces the play and experimentation of the architectural process, and programs which enable the visitor as flamboyant workers. It treats the site as a tabula plena and intervenes in the existing context in a considerate way. It calls for an approach to sustainability where circularity is at the center, and where buildings no longer strive to conserve as much as possible, but instead find novel opportunities for redistribution. I now go on to design a project which strives to embody these qualities, and show that craft is essential to a sustainable architecture.

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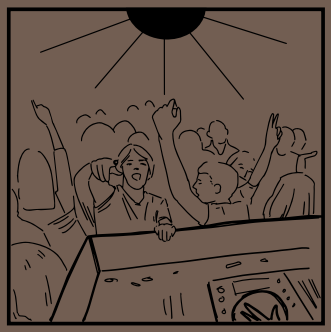
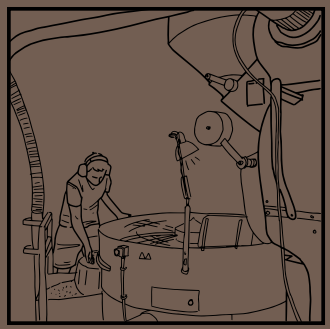
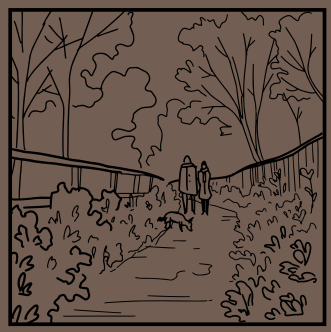
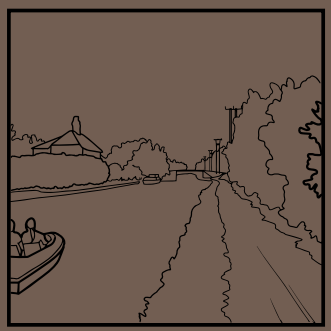
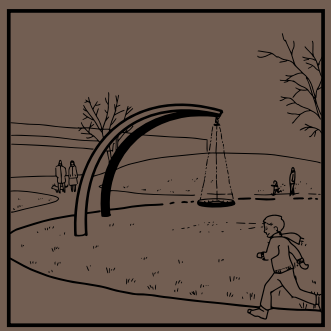
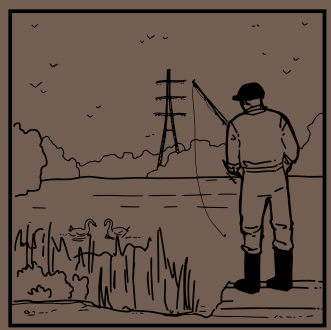






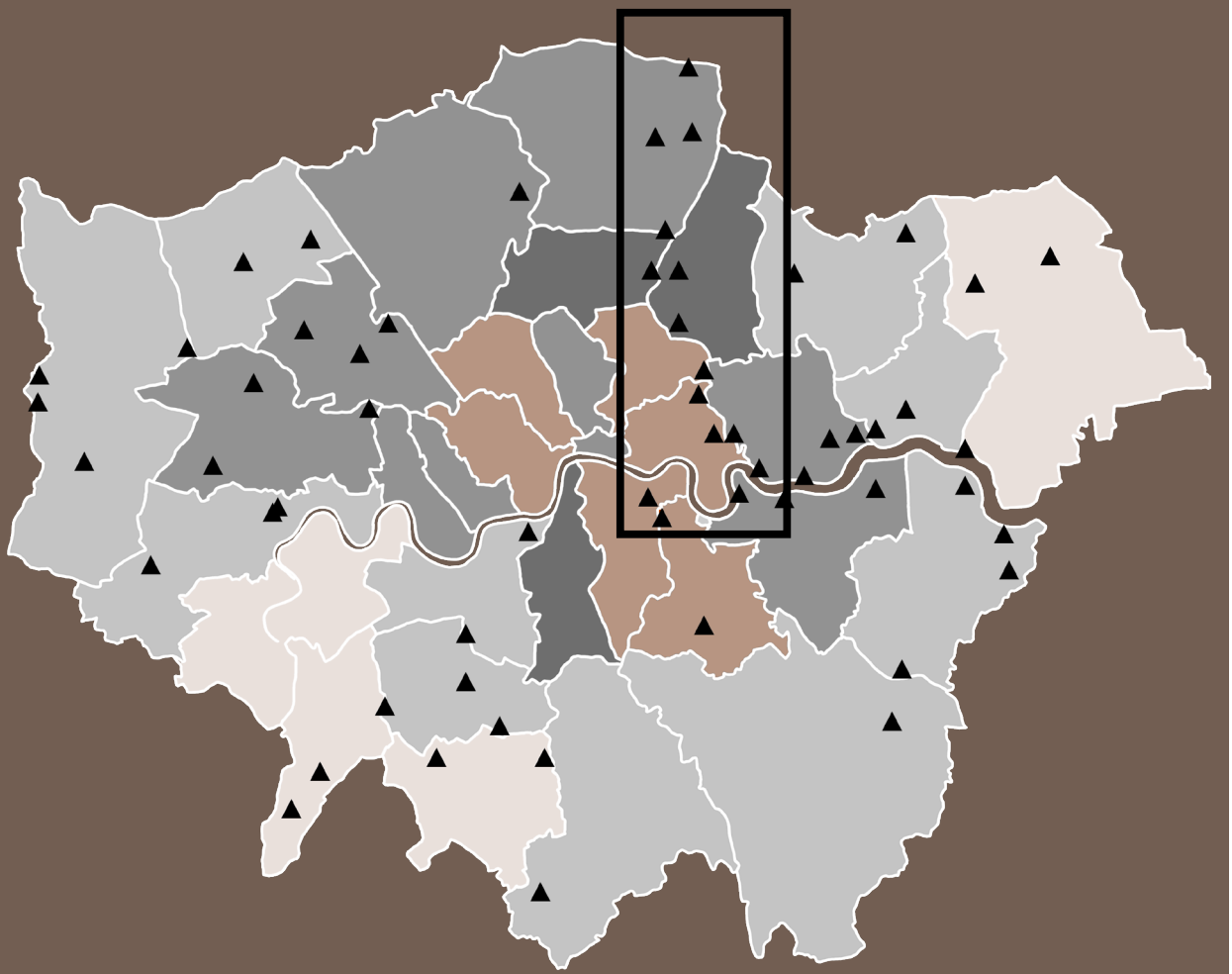


02

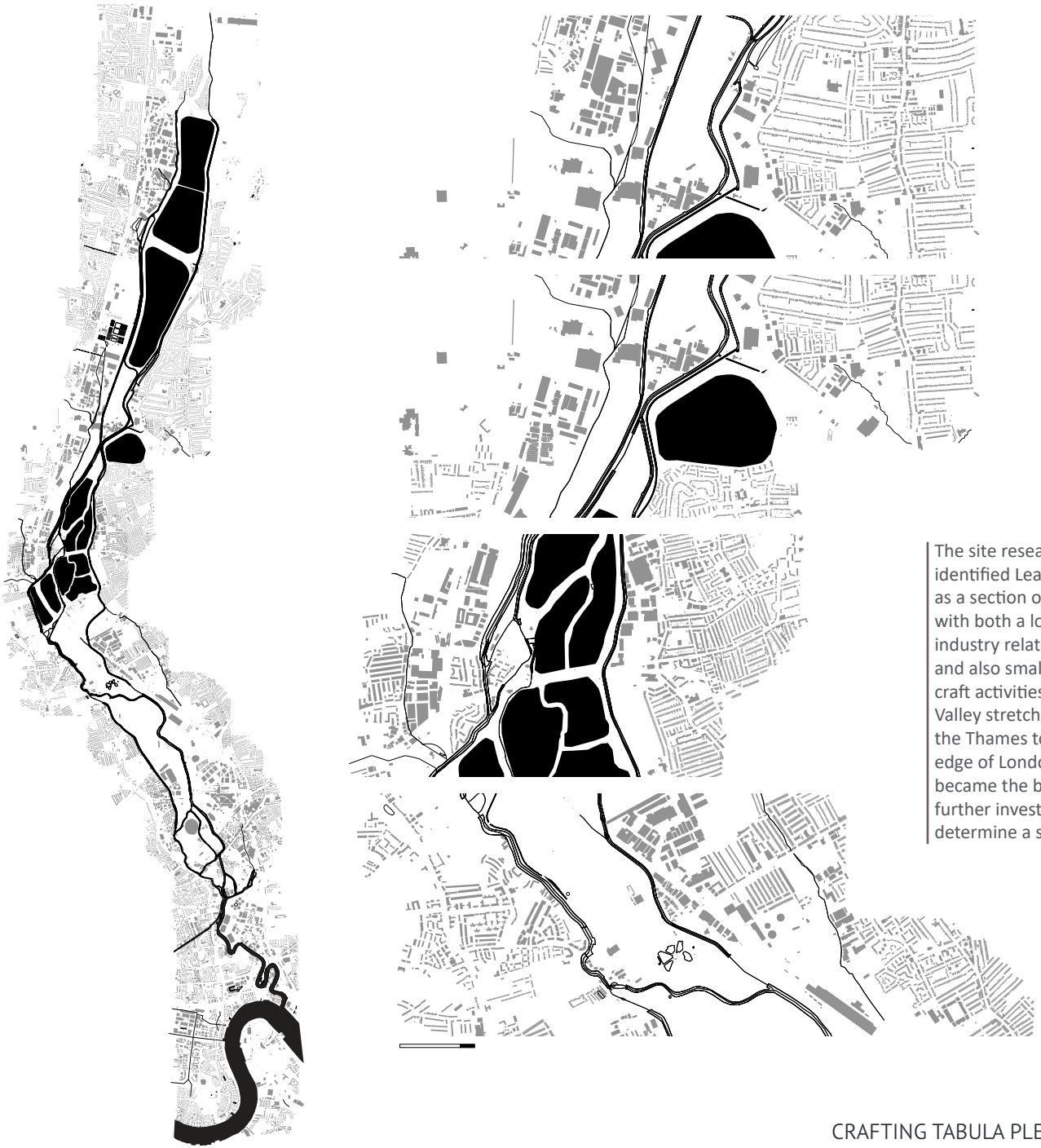
SITE STUDY



Type and amount of craft spaces in London

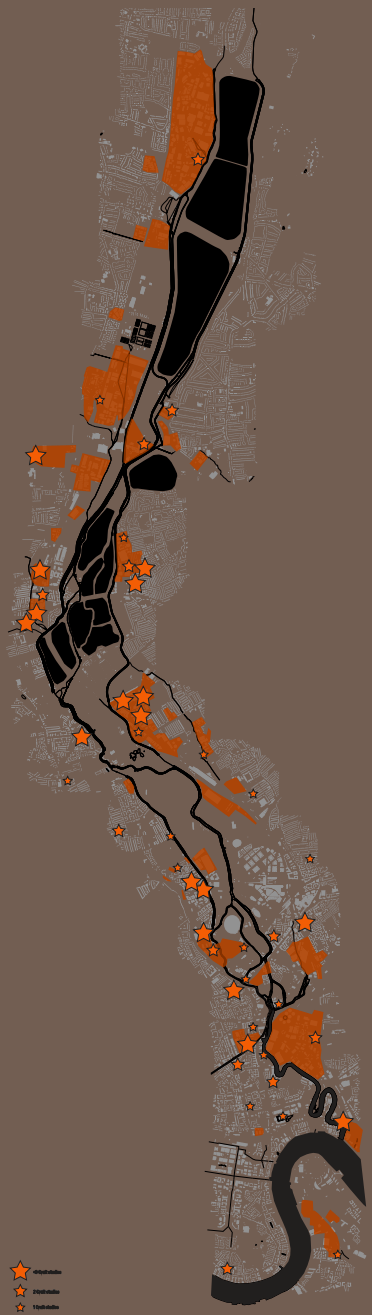
Artist Workspace	238
Creative co working desk space	50
Creative workspaces	83
Fashion design and manufacturing	158
Jewllery design and manufacturing	317
Live in artist's workspace	8
Makerspace	74
Manufacturing for creative industries	42
Prop and costume making	55
Set and exhibition design	45
Textile design	81
Total	1151

0-5
6-20
21-40
41-60
60+
Strategic industrial location (SIL)



The site research identified Lea Valley as a section of London with both a lot of industry related craft and also smaller craft activities. Lea Valley stretches from the Thames to the edge of London, and became the basis for further investigation to determine a site.

Demography: Deprivation



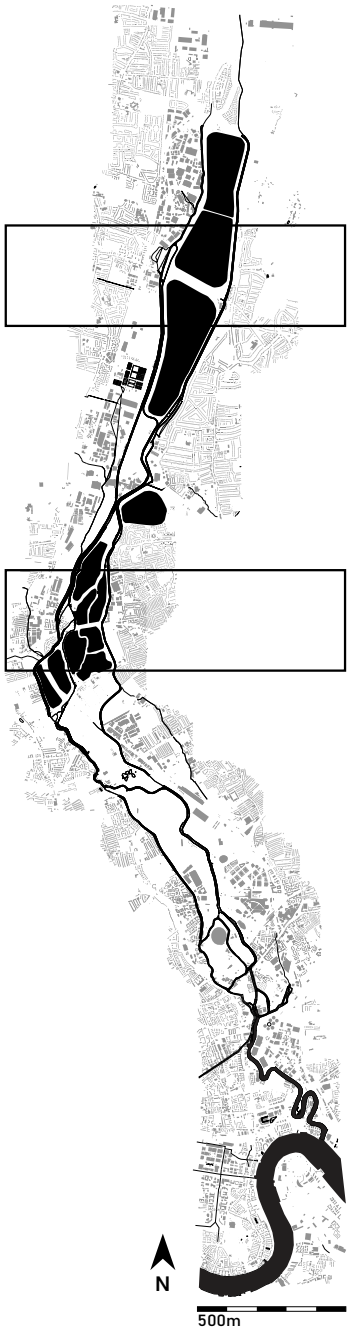
Making and industry areas

as

Infrastructure

Functions

Dwelling | Green | Industry | Making


N
500m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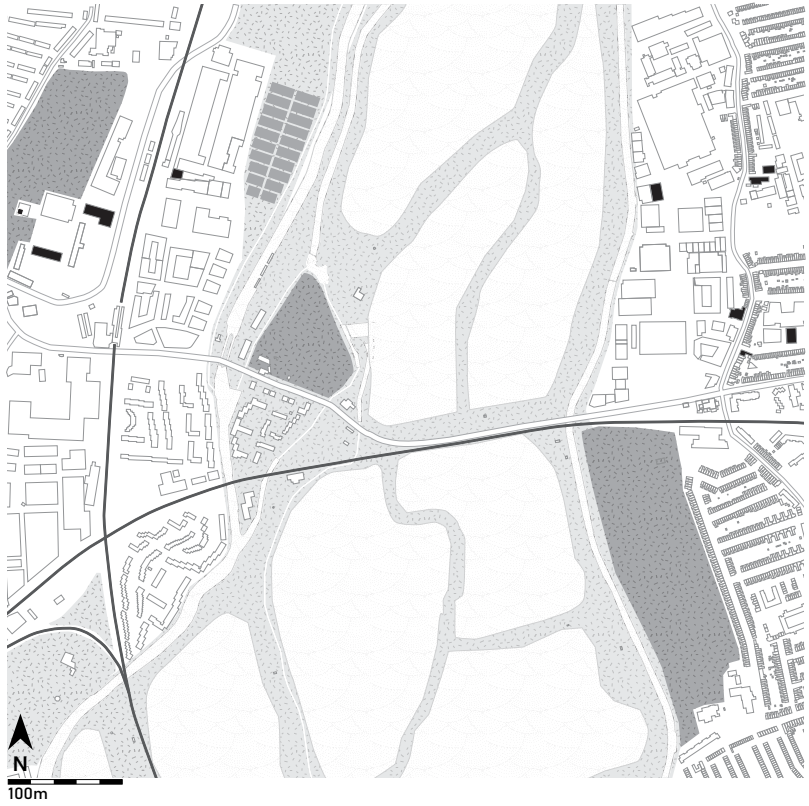
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100m

CATALOGING CRAFT ACTIVITIES

Using the new definition of craft, I studied the transect: Lea Valley, with the goal of identifying what craft activities take place in the valley. I chose a very lose definition of craft, namely as a social activity based on fun. This encompasses the crafting of experiences such as dancing, honed skills like fishing or coffee bean roasting, and also more traditional crafts like woodwork and metalwork.

Two areas were chosen for this study in the transect, one to the north which seemed to have few craft activities, and one to the south which seemed to have an abundance of craft.

The craft activities in each area where catalogued with 8 different parameters. Firstly the site is shown where one can see the activity in its context. A picture of the facade/street and the entrance was shown to give an impression of the area and its accessibility. Furthermore the organizational structure of the activity was brought into a diagram, to show for example the influence of the members, the funding, and the type of actor involved. Using social media and google maps data the temporality of the activity was mapped which shows opening times and peak intensities. This was done also for the situation as the time, where London was in a semi-lockdown state, thereby eneabling a comparison between current and ‘standard’ temporalities. The program of the activity is shown in the form of a sketch, which bases itself on images taken by visitors. Lastly the type of making is identified in broad terms, making a destinction between active or passive, if it is educational etc. More detailed info of the attribute can be seen in the legend at the bottom of the matrix.

THE CRAFT MATRIX

On the following pages the matrix can be studied. The matrix was used as a tool to get to know the area better, and specifically the type of communities and activities therein. Lea Valley houses multiple tight-knit communities in the form of maker-spaces, community gardens, theatre groups etc.

Strikingly, some attributes seem to correlate. A charity-based activity for example often has a more visible architecture and signage than one aimed at professionals, probably as the former needs to attract passerby's, while the latter relies on other communication avenues. The set of activities are diverse and while some offer organized activities such as classes, almost all offer a chance to explore one's own fascinations.

The matrix shows a tendency for craft activities to cluster together in the urban fabric. This could be because of the formation of craft communities where communities might also overlap and one individual take part in multiple craft activities. It could also be because certain urban conditions, like cheap rent and an abundance of space, lends itself to typologies such as workshops and community centers which form a craft infrastructure.

site | facade | entrance | governance/members | temporality | temporality: pandemic | program | making

01.02 PONDERS END PARK

02.02 SONNY THE SNAIL SENSORY GARDEN

03.02 MOTTINGHAM HALL

04.02 FARMDROP HUB

05.02 RIVER LEE NAVIGATION

06.02 MORNINGTON HALL

07.02 CADOS

08.02 EPPING FOREST

scale 1:10 000

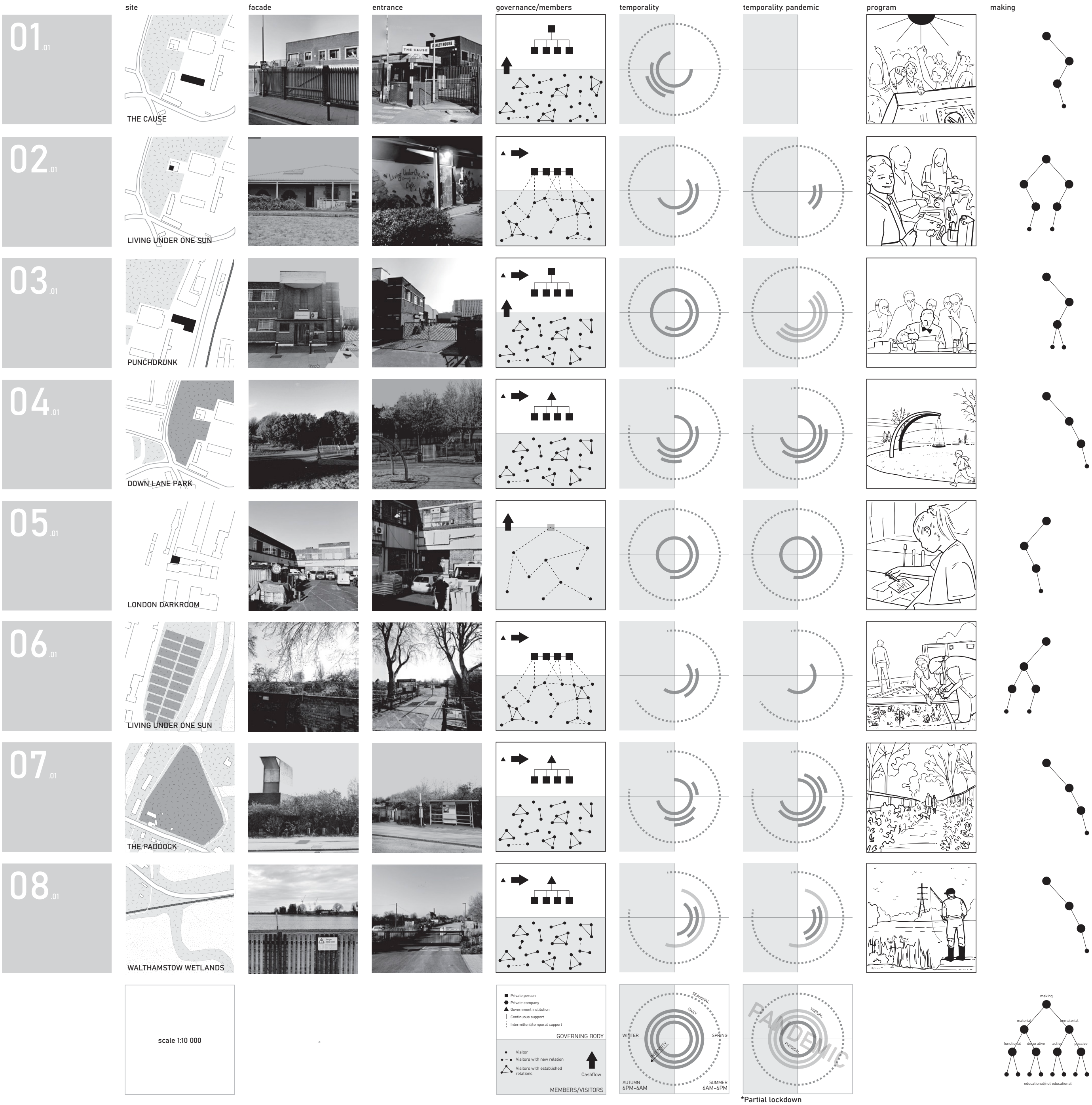
Private person
Private company
Governmant institution
Continuous support
Intermittent/temporal support
GOVERNING BODY
Visitor
Visitors with new relation
Visitors with established relations
Cashflow
MEMBERS/VISITORS

AUTUMN 6PM–6AM
WINTER
SPRING
SUMMER 6AM–6PM

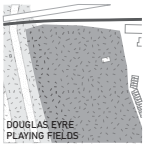
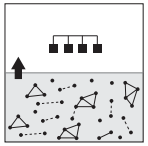
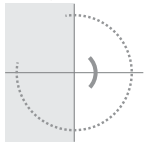
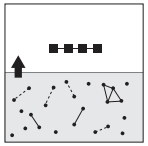
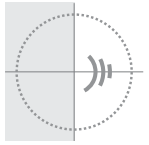
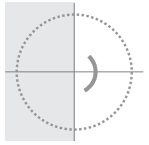
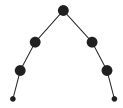
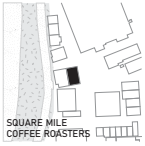
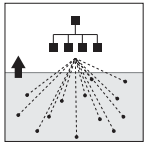
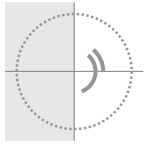
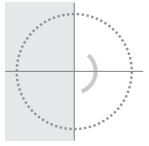
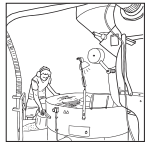
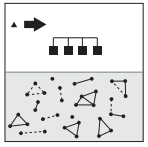
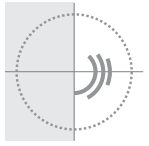
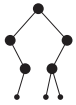
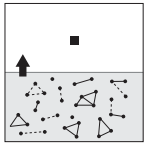
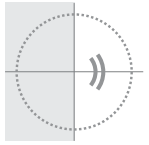
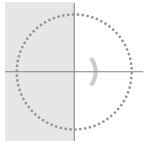
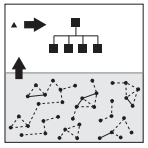
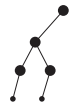
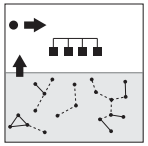
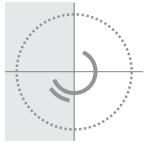
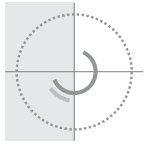
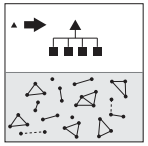
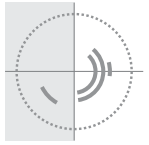
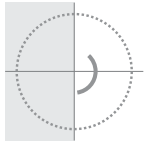
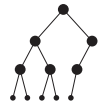
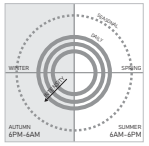
PANDEMIC

*Partial lockdown

making
material
immaterial
functional
interactive
social
leisure
educational/not educational



site
facade
entrance
governance/members
temporality
temporality: pandemic
program
making
01.01
THE CAUSE
02.01
LIVING UNDER ONE SUN
03.01
PUNCHDRUNK
04.01
DOWN LANE PARK
05.01
LONDON DARKROOM
06.01
LIVING UNDER ONE SUN
07.01
THE PADDOCK
08.01
WALTHAMSTOW WETLANDS
scale 1:10 000
Private person
Private company
Government institution
Continuous support
Intermittent/temporal support
GOVERNING BODY
Visitor
Visitors with new relation
Visitors with established relations
Cashflow
MEMBERS/VISITORS
SEASONAL
DAILY
WINTER
SPRING
INTENSITY
AUTUMN
6PM-6AM
SUMMER
6AM-6PM
PANDEMIC
VIRTUAL
PHYSICAL
*Partial lockdown
making
material
immaterial
functional
decorative
active
passive
educational/not educational

	site	facade	entrance	governance/members	temporality	temporality: pandemic	program	making
09.01	 DOUGLAS EYRE PLAYING FIELDS							 educational/not educational
10.01	 ARMSTRONG AUDIO							 educational/not educational
11.01	 SQUARE MILE COFFEE ROASTERS							
12.01	 GNOME HOUSE							
13.01	 INKY CUTTLEFISH							
14.01	 BIG CREATIVE EDUCATION							
15.01	 BLACKHORSE LANE ART STUDIOS							
16.01	 BLACKHORSE WORKSHOP							
	scale 1:10 000					 *Partial lockdown		

Urban industrial

Urban residential

Agricultural

Field

Meadow

Forest

Wet

Hard

Emissions

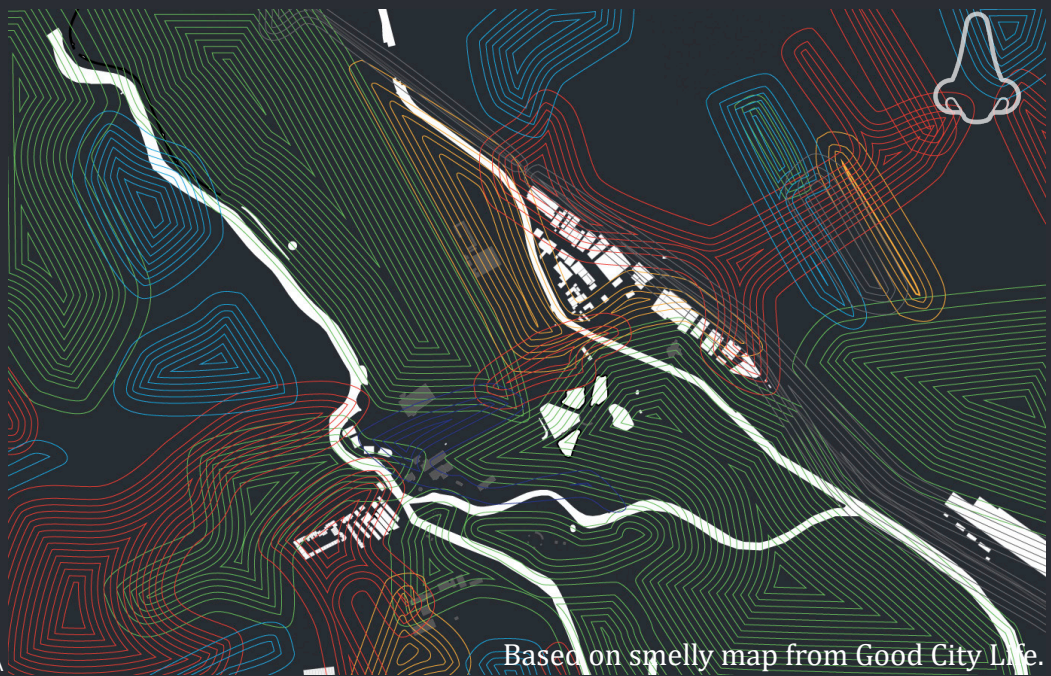
Waste

Food

Food - Disgust

Animals

Nature



Based on smelly map from Good City Life.

Traffic noise

Nature sounds

Textures

Smells

Sounds

Various sensory impressions were mapped of the site using existing datasets of images, sounds, and reported smells.


Google Earth VR


Google Earth VR


Google Earth VR


Google Earth VR

Virtual site visits

Due to the pandemic, physical site visits were not possible. However, this provided the opportunity to use other technology to still get an impression of the site. Using virtual reality and google earth VR it was possible to explore a 3D model of the site and London. This gave a surprisingly good impression of certain site characteristics like topography, spatiality and direction which is lacking when looking at maps and photographies.

VR was used both in a casual way by drifting up and down the transect of Lea Valley to examine potential site candidates, but also to explore the chosen site shown to the left.

The following chapter shows various small experiments done throughout the year to keep approaching the project from different angles. It was a way to embody the experimental and flamboyant spirit of the craftsman, and was also carried through in the design and presentation of the project.

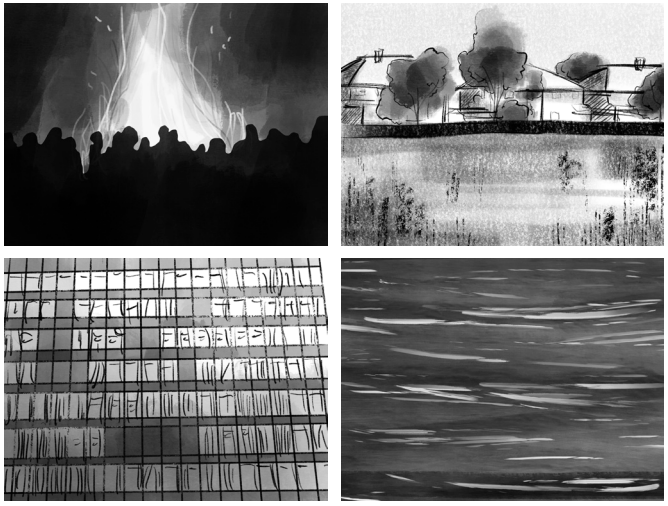
03

EXPERIMENTATION

1 LONDON
Technique: Film analysis

For this experiment I watched the documentary “London” by Patrick Keiller and performed a narrative analysis.

What struck me was that Robinson thought of London as a city of absences. It was clear that Robinson, like many other Londoners also felt the absence in his own heart.



2 VR DRIFT
Technique: Google Earth VR

I used Google Earth VR to simulate a drift (inspired by the situationists) over the area.

It gave a surprisingly good sense of scale and you can see topography that you don’t see from google maps. The level of detail was also surprising.

Since this was a great success, I organized a VR Workshop for the studio using the VR Lab at the faculty.

3 CONTRE-PLAQUE
Technique: Substance designer

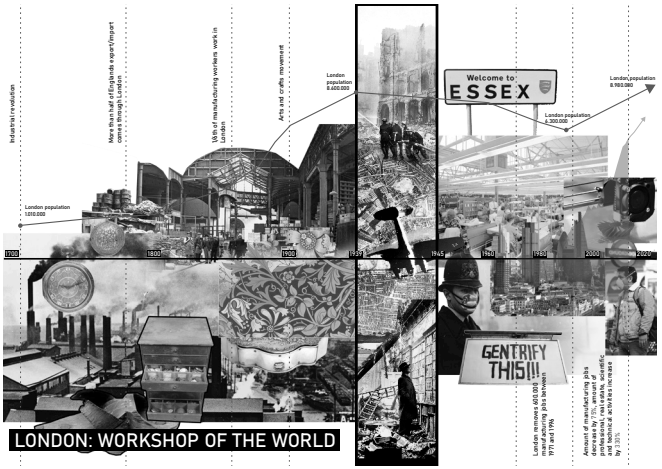
This was a reflection on what it means to craft and what virtual is.

The classical painting of the pipe comments that the painting itself is not the pipe, even if it looks like one. This takes it one step further. It is not a piece of plywood, because it is a (at first glance) photograph of a piece of plywood, but then if you look at the making process it is actually made in substance designer which uses only fractals and mathematical inputs to make a texture. This removes it in my opinion even further from the plywood as it is just a collection of bits and bytes.

4 TIMELINE
Technique: Digital Collage

To examine the evolution of the city of London I made a collage-timeline hybrid in digital media.

It visually shows the different phases the city went through. It clearly shows the pre/after blitz loss of craft as the city redeveloped focusing on the middle/upper class and globalization caused manufacturing to move out of the city.

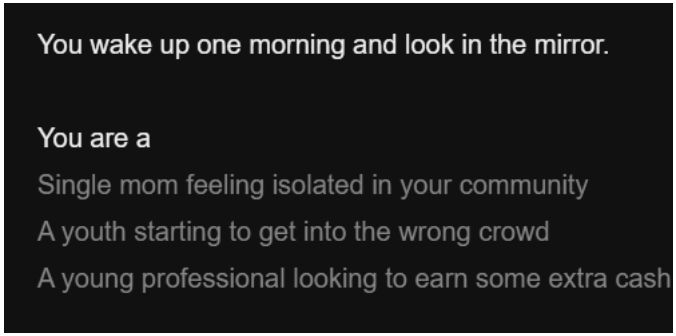


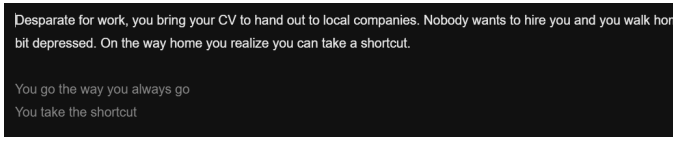
5 CHOOSE YOUR OWN

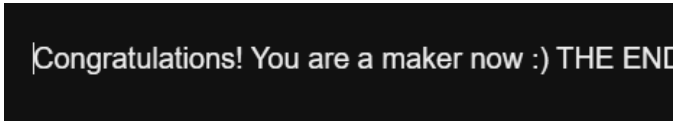
Technique: Twinery game

To showcase how invisible and inaccessible craft is in the valley, I made a narrative game which takes you through a small experience of someone living there. The game shows the emotional void of the citizen, as well as craft as a social action. The narrative game can be played using the link below, and is a choose your own adventure style of game.

https://mhlundheim.itch.io/lea-valley-actors-test







6 TWITTERING MACHINE

Technique: Oil transfer & watercolor

When doing my literature study I came across the painter Paul Klee who was the inspiration of Deleuze and Guttari, for example through his famous statement “Form giving is life, form is death”, and Klee was also interested in the theme of fun. To familiarize myself with Paul Klee I recreated one of his paintings: the twittering machine, using the same techniques he did.

7 TWITTERING MACHINE 2.0
Technique: Sound collage

The previous painting inspired me to consider my program from another sense: sound. I gathered various free to use soundclips and crafted a walk through my program. The walk goes from being outside in nature, to being next to some kids swimming. Then you go inside and you hear also the butterflies and bees, after that you enter the workshop and hear someone firing an oven. At the end you go home and more urban sounds dominate the soundscape, and at the very end you hear the characteristic “mind the gap” from the London metro.

8 AGREST’S CAFE
Technique: 2D animation

I am really interested in different media, and animation always seems really fun to me. To reflect on a text by Agrest I made an animation showing some examples she mentioned. The animation is stop motion and made by drawing each frame in photoshop.

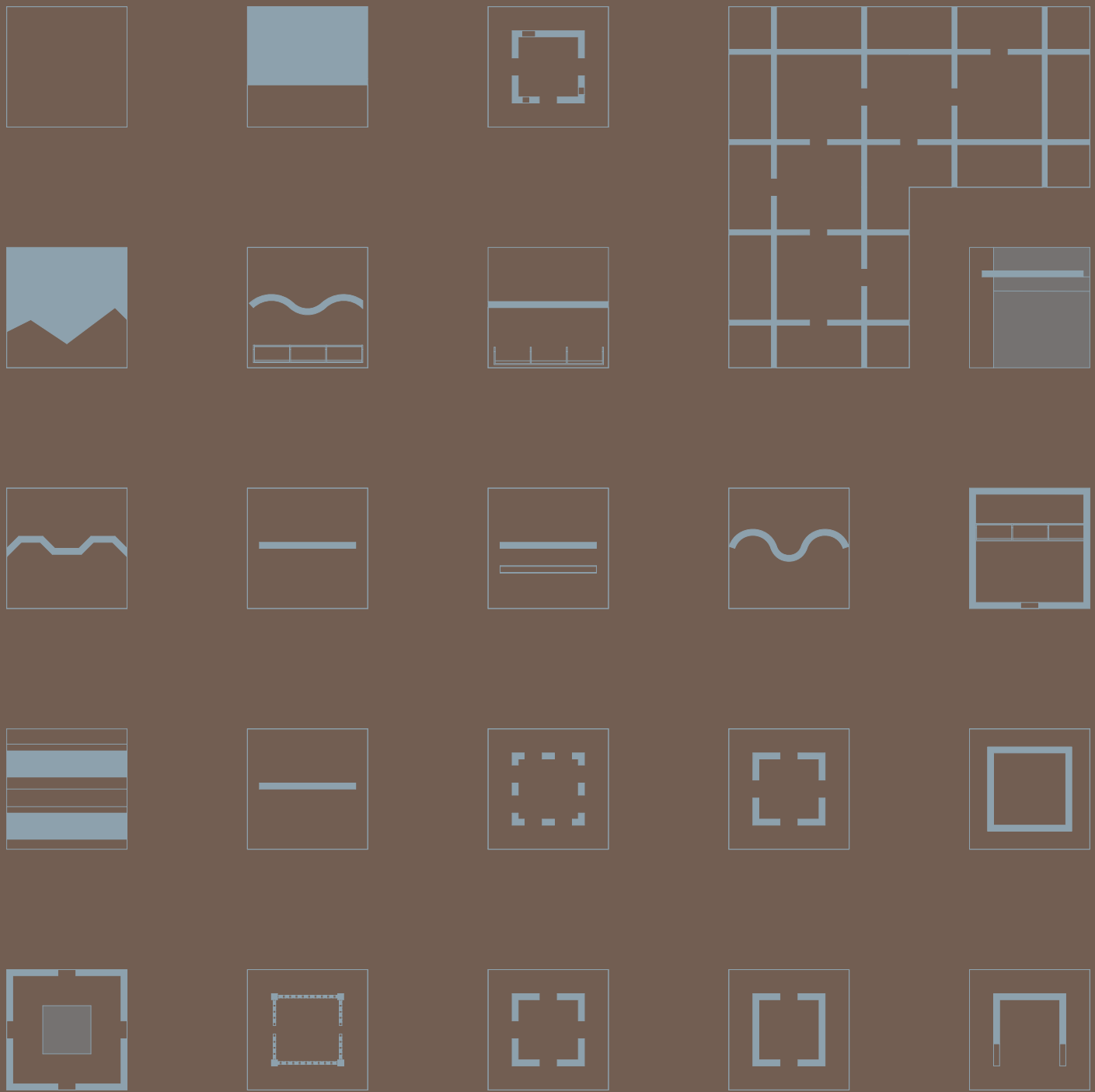
I think animation and short movie clips work really well for presentations, especially in this online format because it makes it a bit more dynamic.

9 MERRY CHRISTMAS
Technique: Gingerbread

Every year, my mom and I make a gingerbread house. We make a lot of different houses, for example when I was an intern we made a competition proposal I did for the firm. This time however, we wanted to make something inspired by my graduation theme, and also our shared love of plants, as my mom is a biologist and avid gardener.

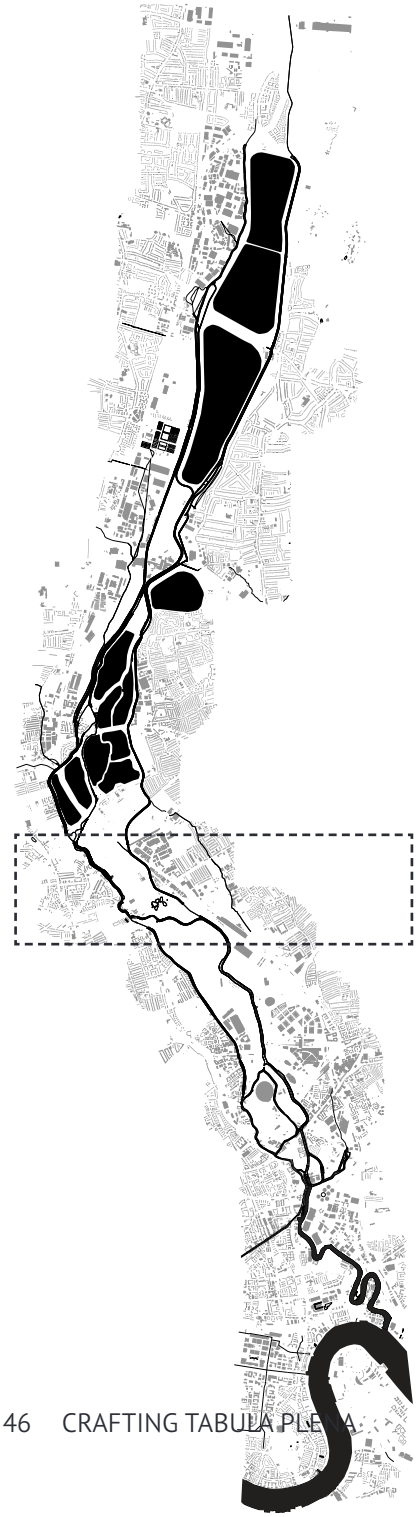
10 ATMOSPHERE
Technique: Digital sketch

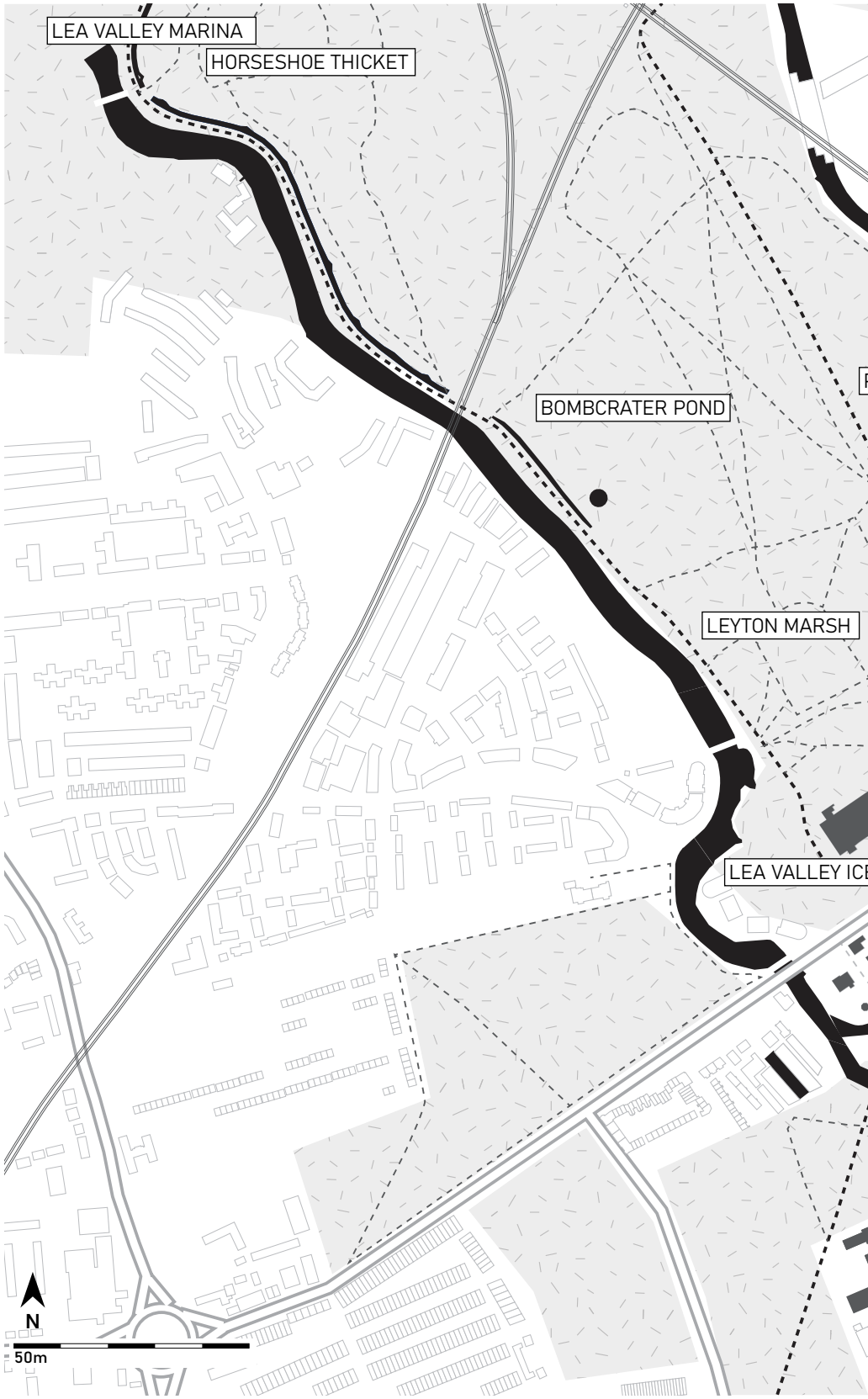
Experiment 3 was a failure but I have not given up on using Procreate and the Ipad to sketch about my project. Inspired by the current weather I wanted to imagine my site in autumn. In the end it turned out a bit less site specific than imagined, but it was fun to think about what kind of trees are on the site, how the fruitwalls could look, and how the watchtower can act as a wayfinding tool.

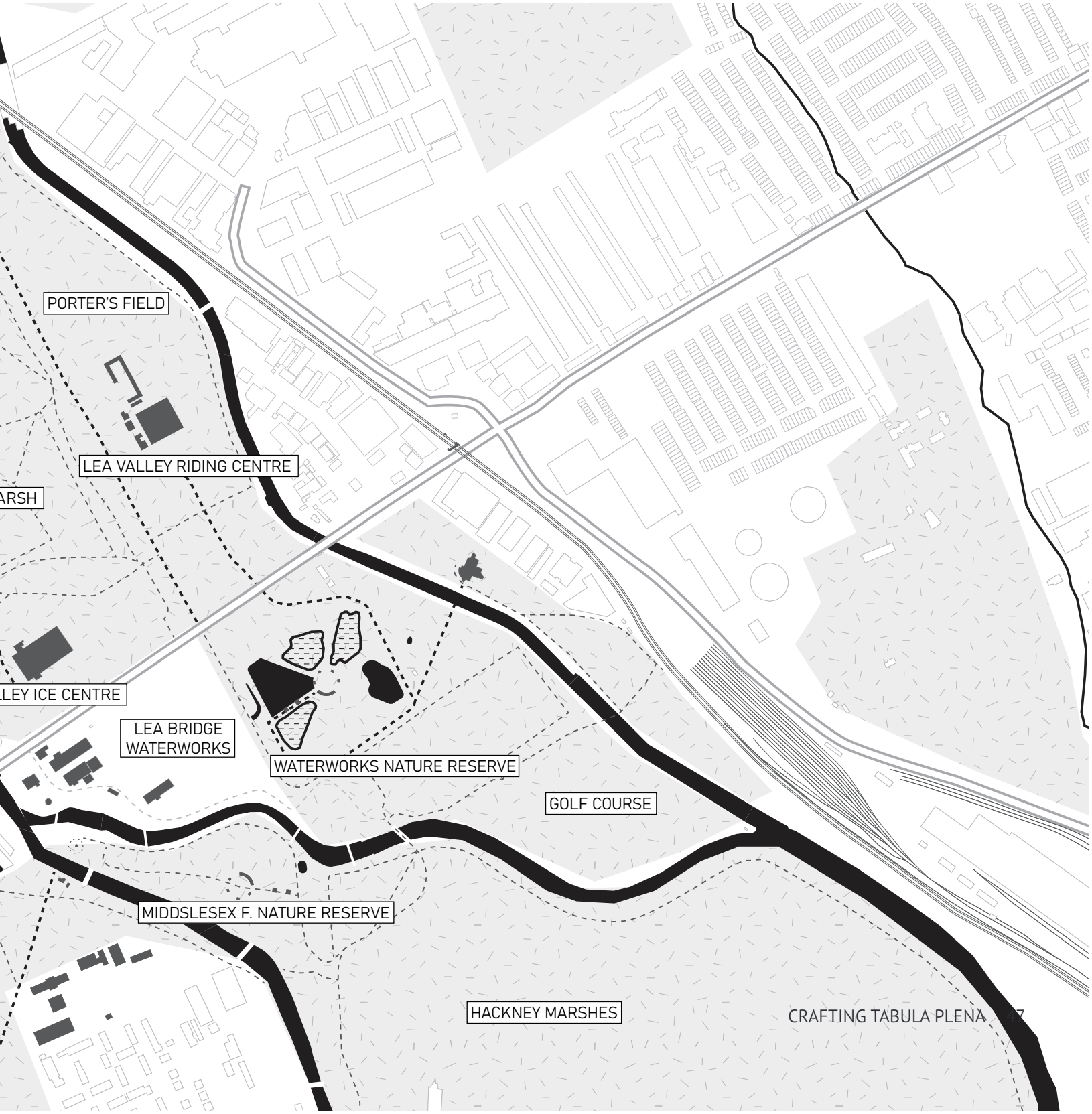


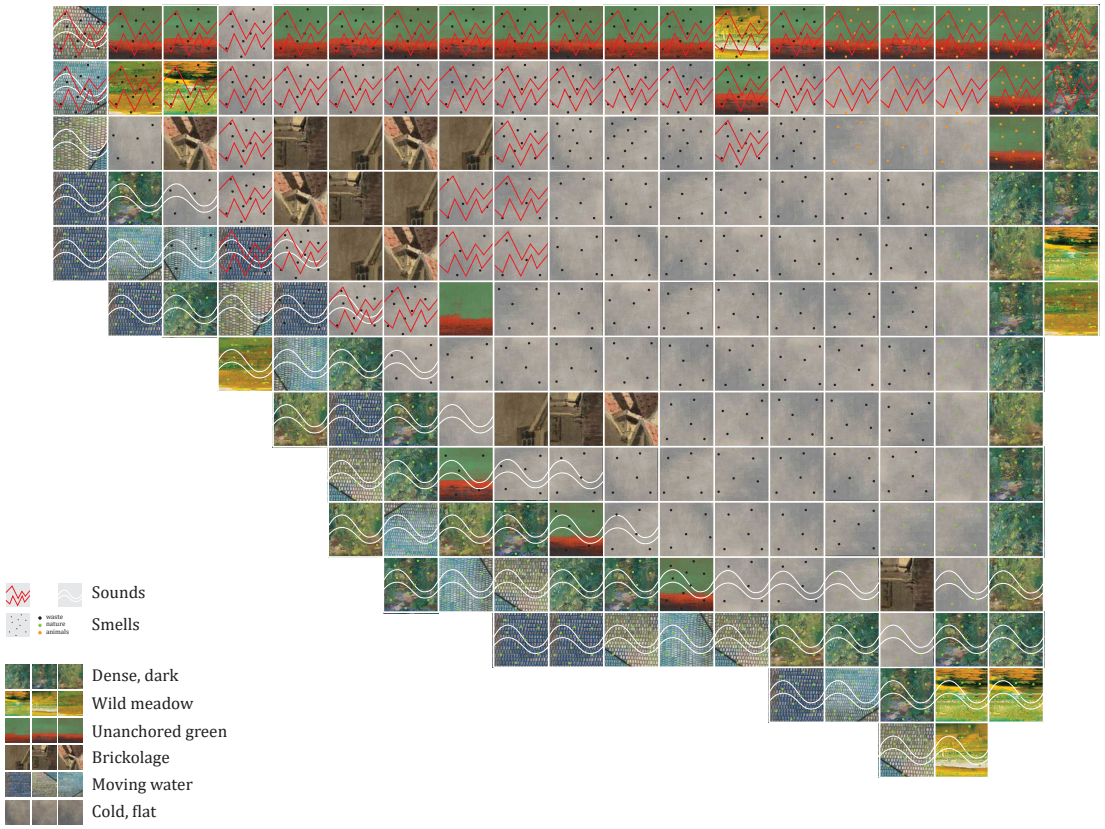
04

DESIGN PROPOSAL

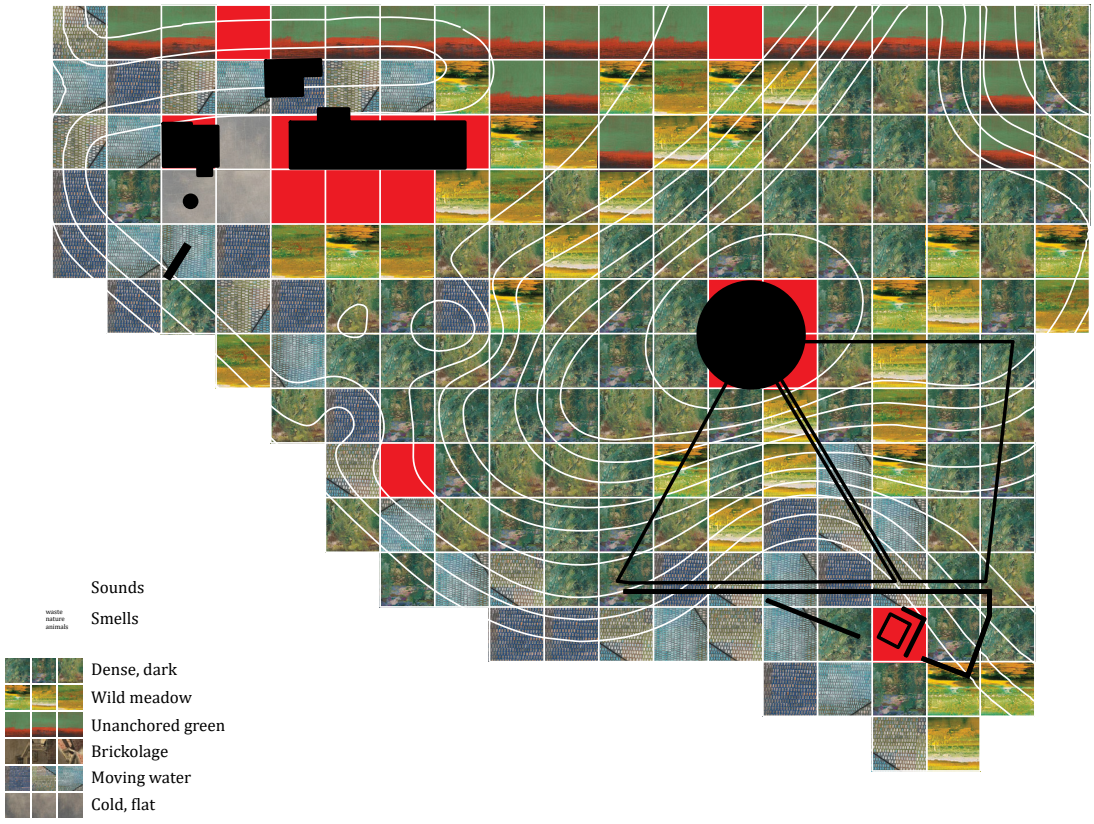



LEA VALLEY MARINA
HORSESHOE THICKET
BOMBCRATER POND
LEYTON MARSH
LEA VALLEY ICE
N
50m

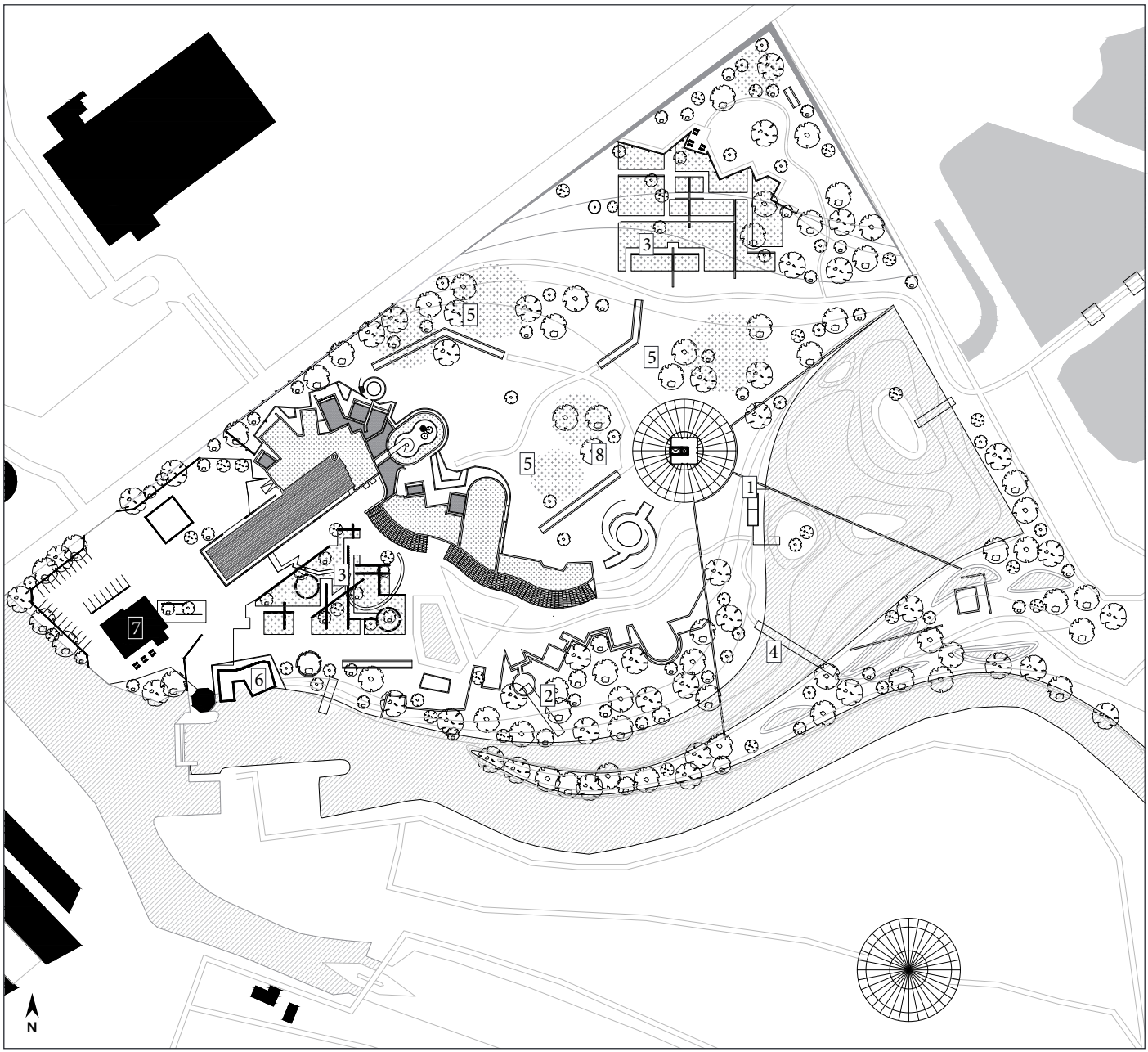

PORTER'S FIELD
LEA VALLEY RIDING CENTRE
ARSH
LLEY ICE CENTRE
LEA BRIDGE
WATERWORKS
WATERWORKS NATURE RESERVE
GOLF COURSE
MIDDSLESEX F. NATURE RESERVE
HACKNEY MARSHES



The site as tabula plena: a composition of existing materials, textures, and sensory impressions.



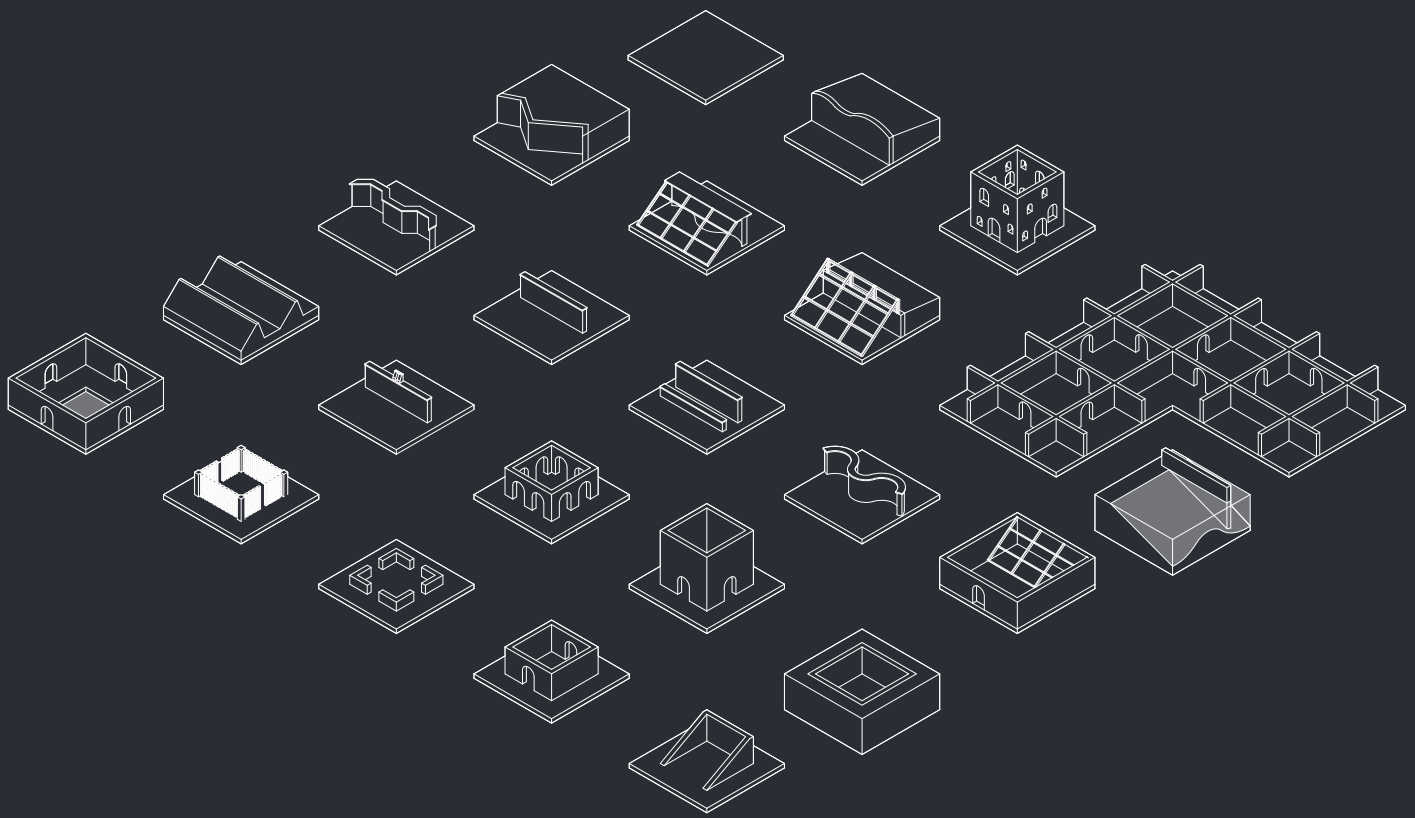
Site strategy based on multiplying existing textures and strengthening them with topography and heritage features.

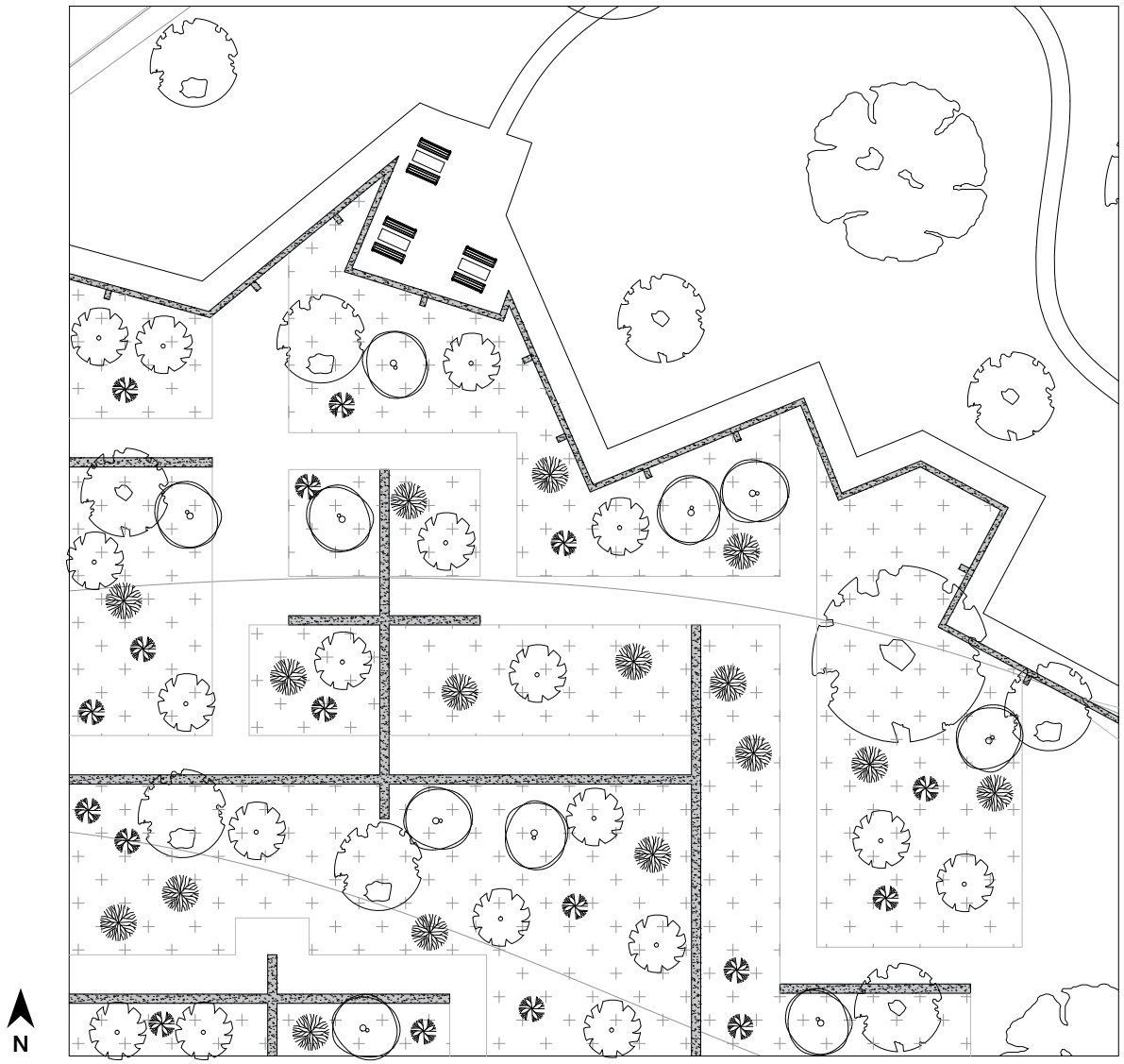


Site plan

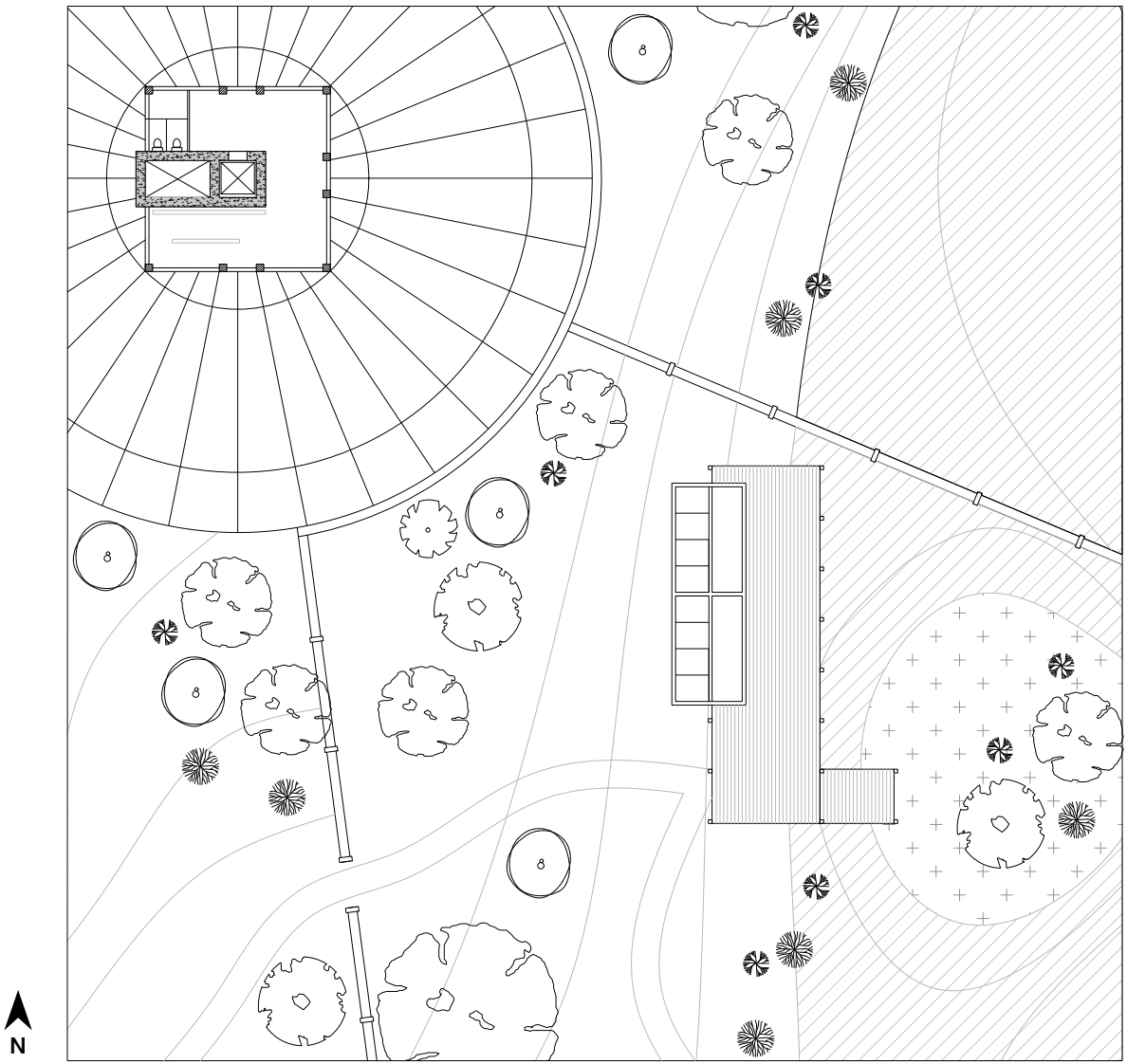
1. Wild swimming
2. Bird nesting area
3. Fruit gardens
4. Marshland
5. Flower meadow

6. Hydro power plant
7. Temporary lodging
8. Watch tower
9. Ruins

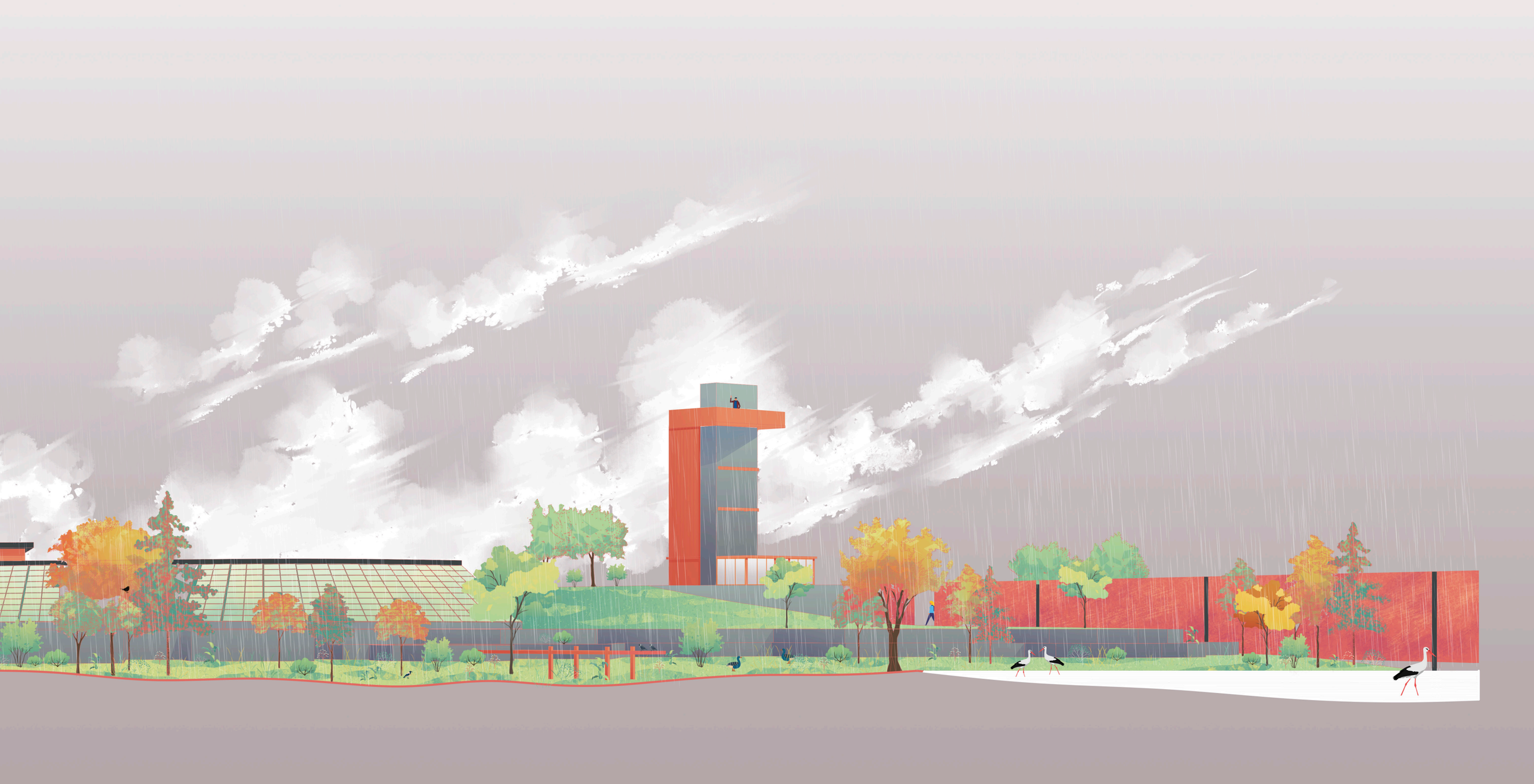




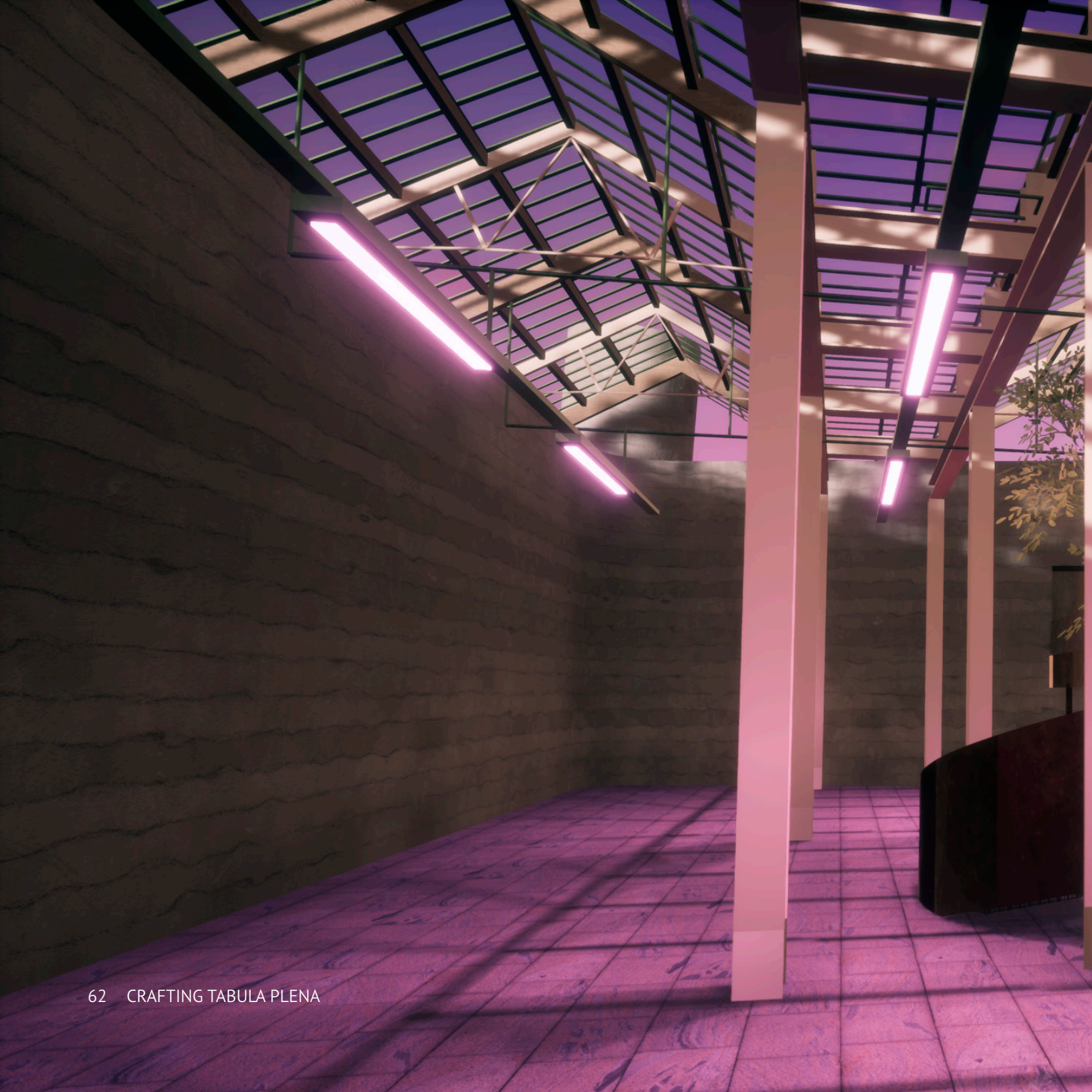
Zoom in: Fruit garden

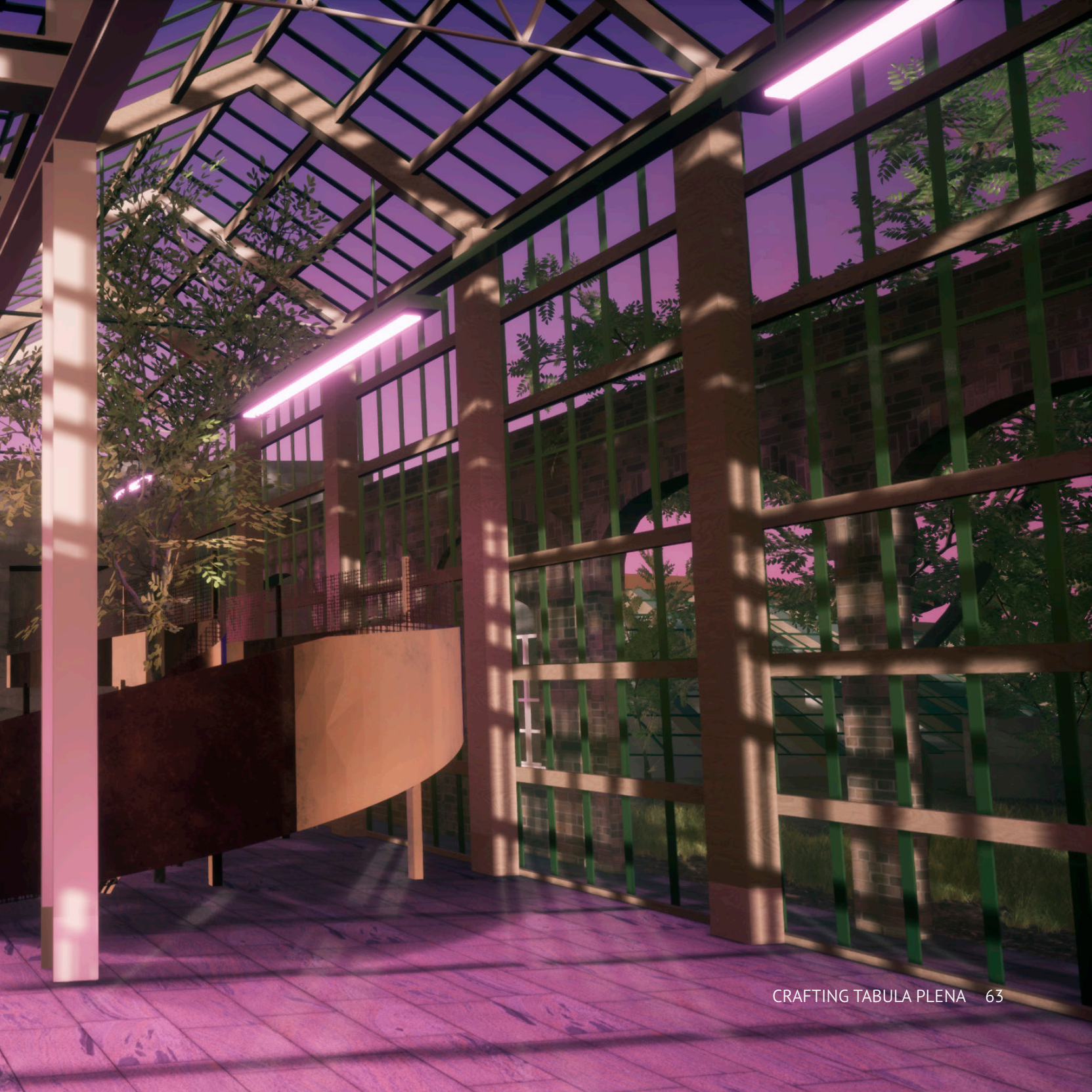


Zoom in: Filterbeds, wild swimming and mini expo

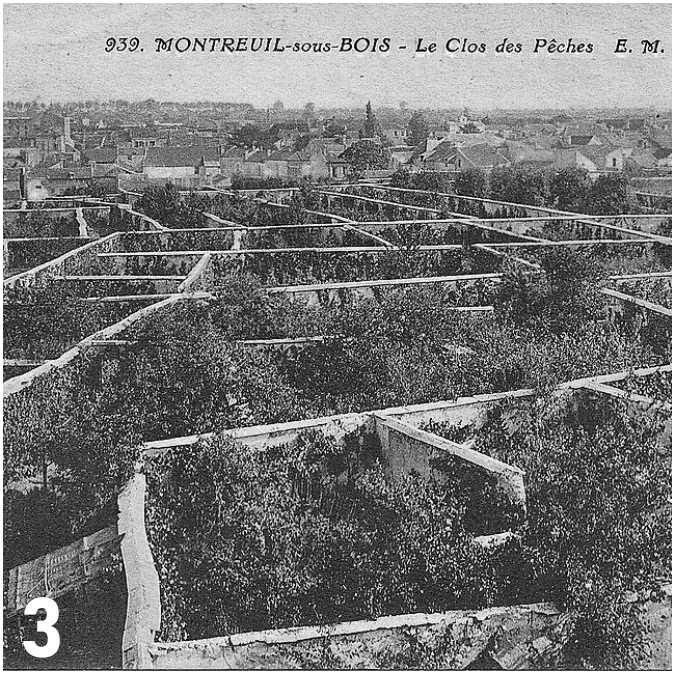


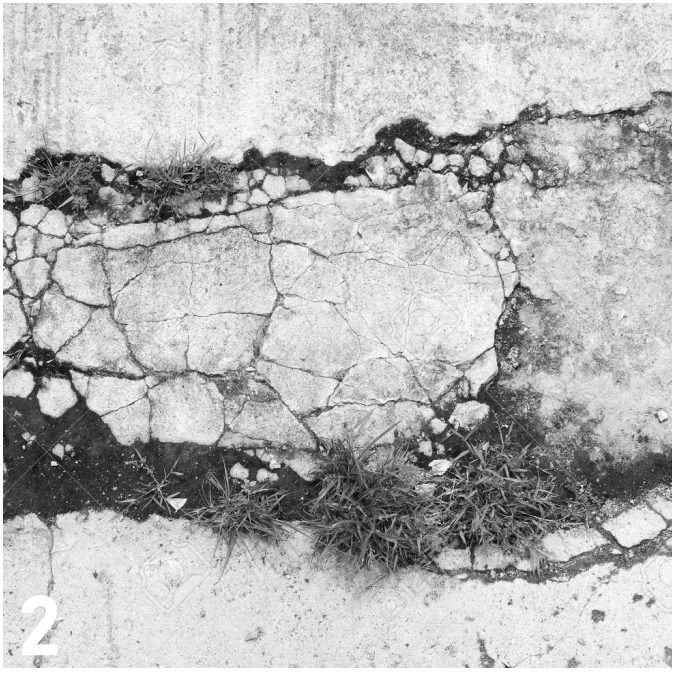
As sensory impressions were an important part of the design, virtual reality was used as both a design tool and presentation tool. As a VR project is too complex to upload to the repository, these keyframes serve to showcase a few of the areas in the VR model.






1


939. MONTREUIL-sous-BOIS - Le Clos des Pêches E. M.
3


2


4

1 Crushed to aggregate and used to make hills.

- Does not utilize the potential strength of the material
- Might pollute soil and water

2 Concrete left where it is, but broken up

- Requires little energy
- Improves existing condition in terms of rainwater perforation and biodiversity
- Long term effects of concrete unknown (pollution?)

3 Concrete aggregate mixed with limestone instead of cement, used for fruit walls

- Concrete is high thermal mass so appropriate for fruit walls
- Enough strength to be free standing
- Limestone offers a more sustainable alternative to cement.

4 Concrete aggregate used in rammed earth

- Perserves the esthetic and tectonic qualities of rammed earth but requires less soil to be used
- Uses the strength of the material

Project site: Lea Bridge Road

Greater London and surroundings

England

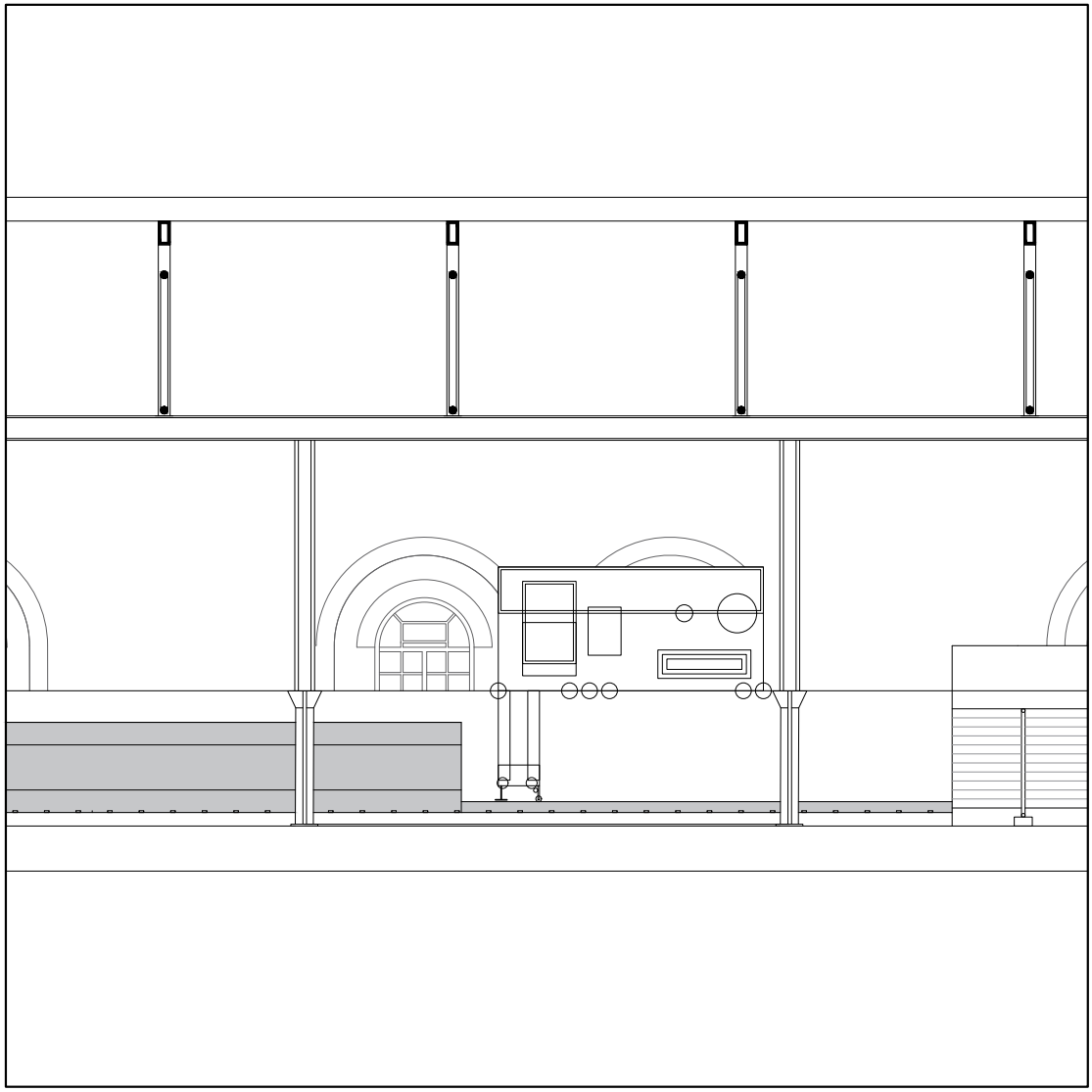
Concrete	***0 km***
Steel trusses	***0 km***
Glass	***0 km***

Sand	***0-70 km***
Fly Ash	***61 km***

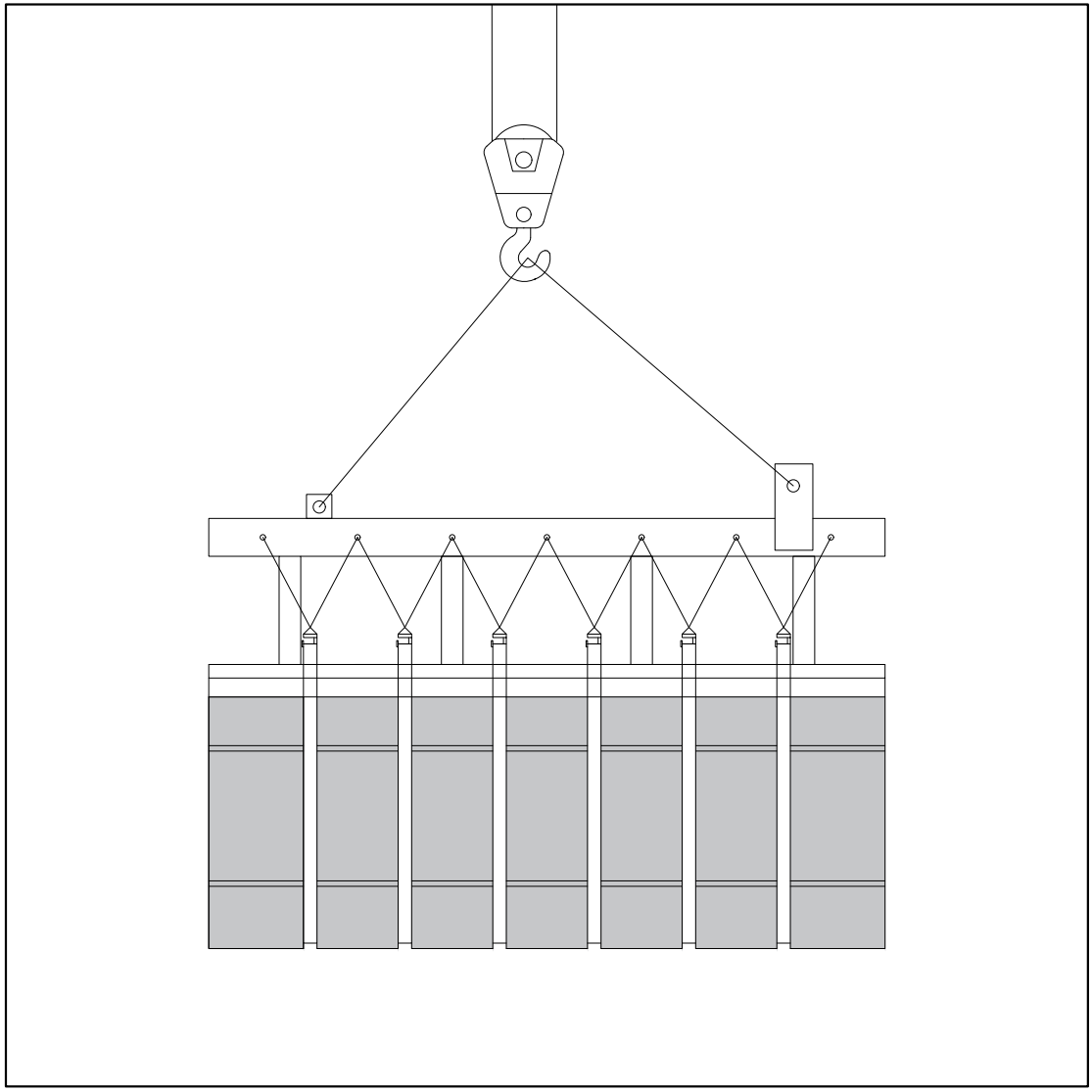
Wood	***265 km***
Steel connections	***217 km***


Filterbeds
excavaiton
Heritage
repurpose
Hot shop
recycle

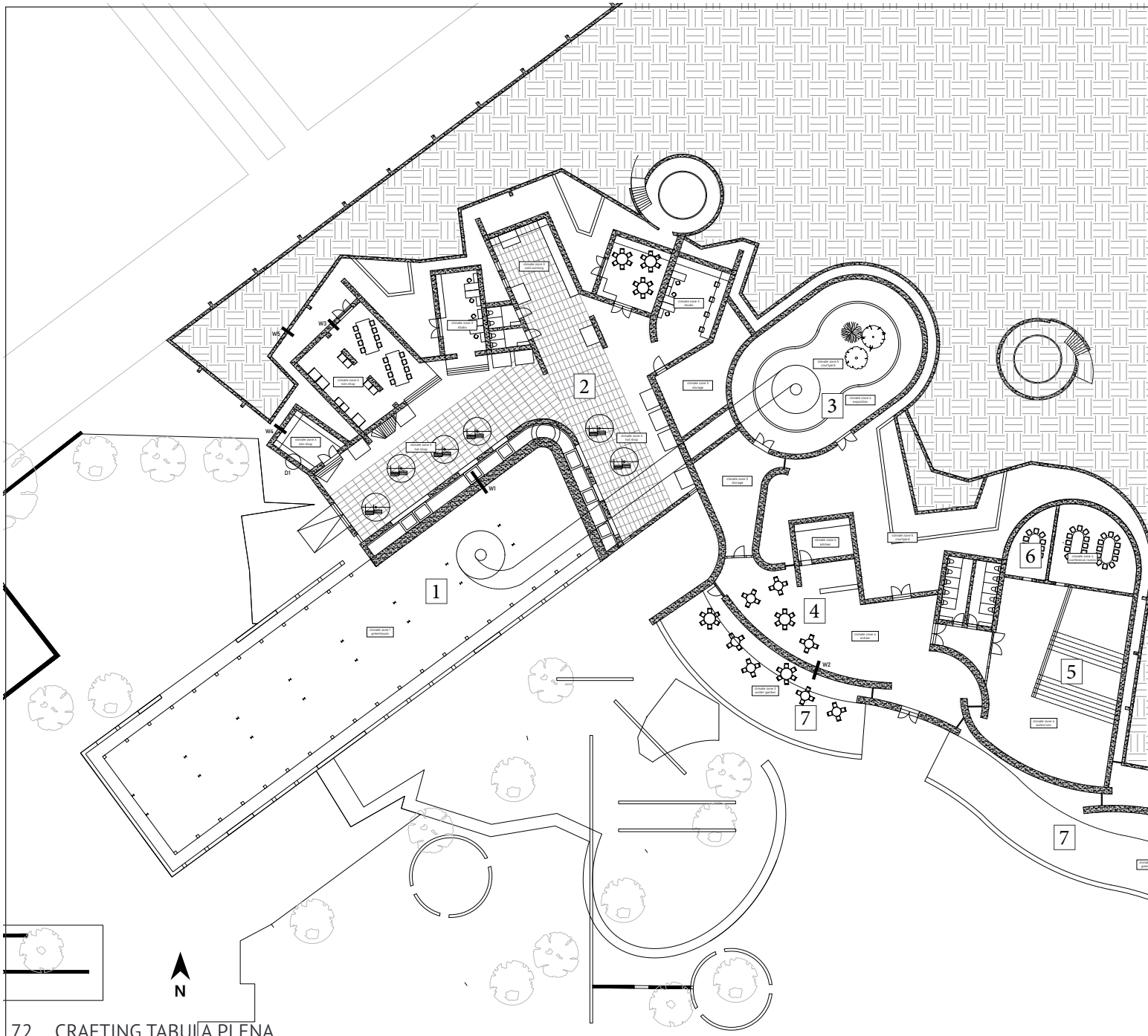

Greenhouse
reuse
Watchtower
survey
Grounds
enjoy :)



Ramming process



Transportation


1
2
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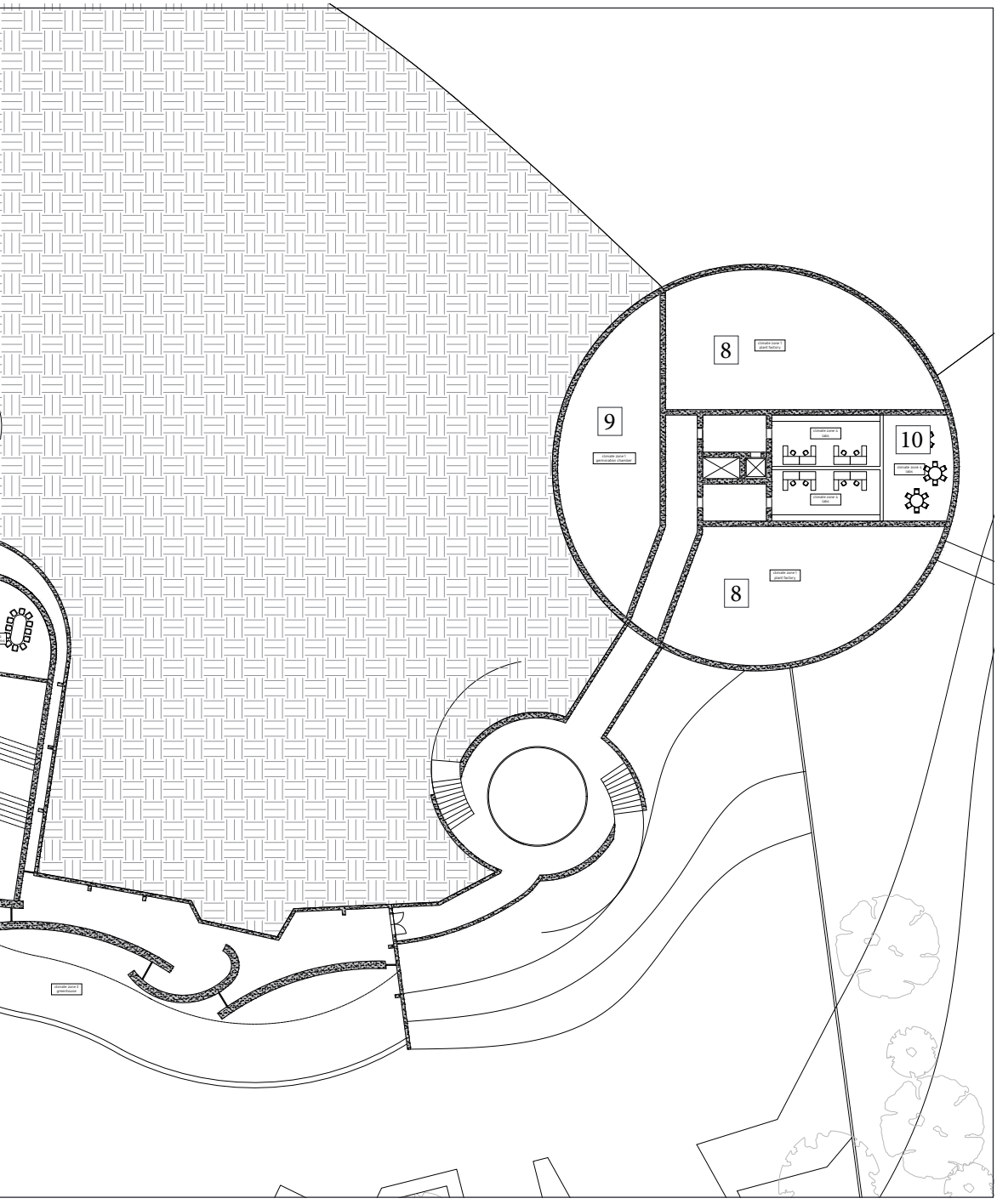
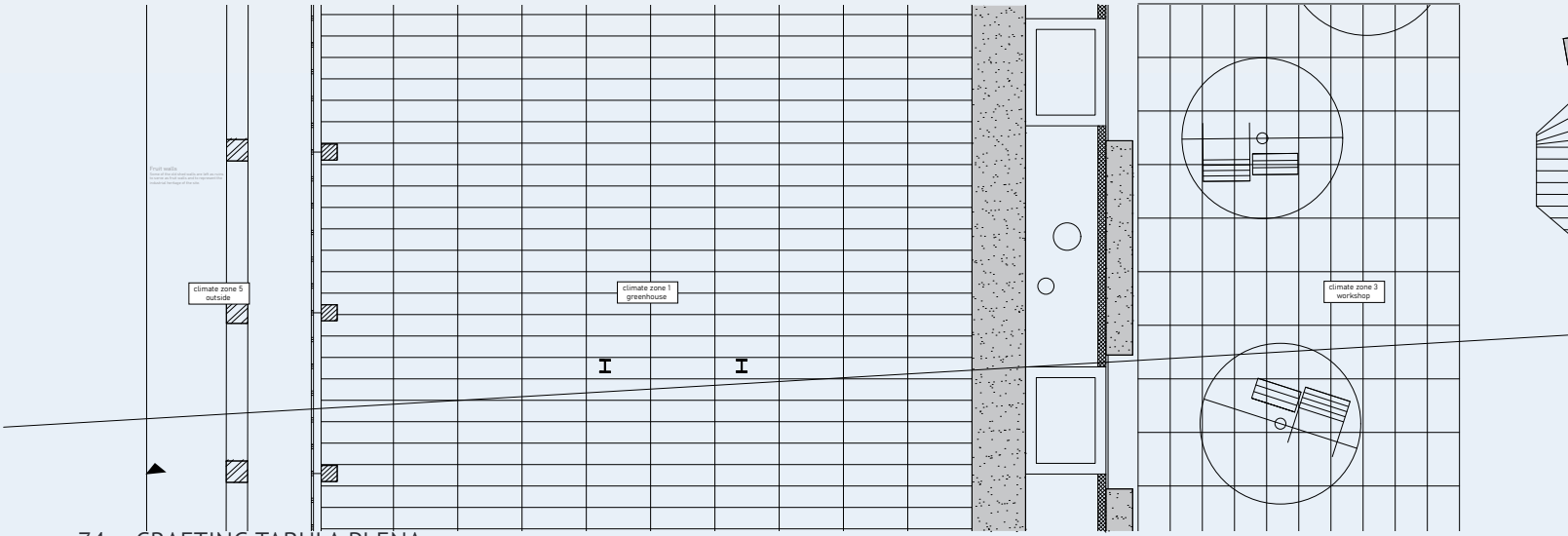
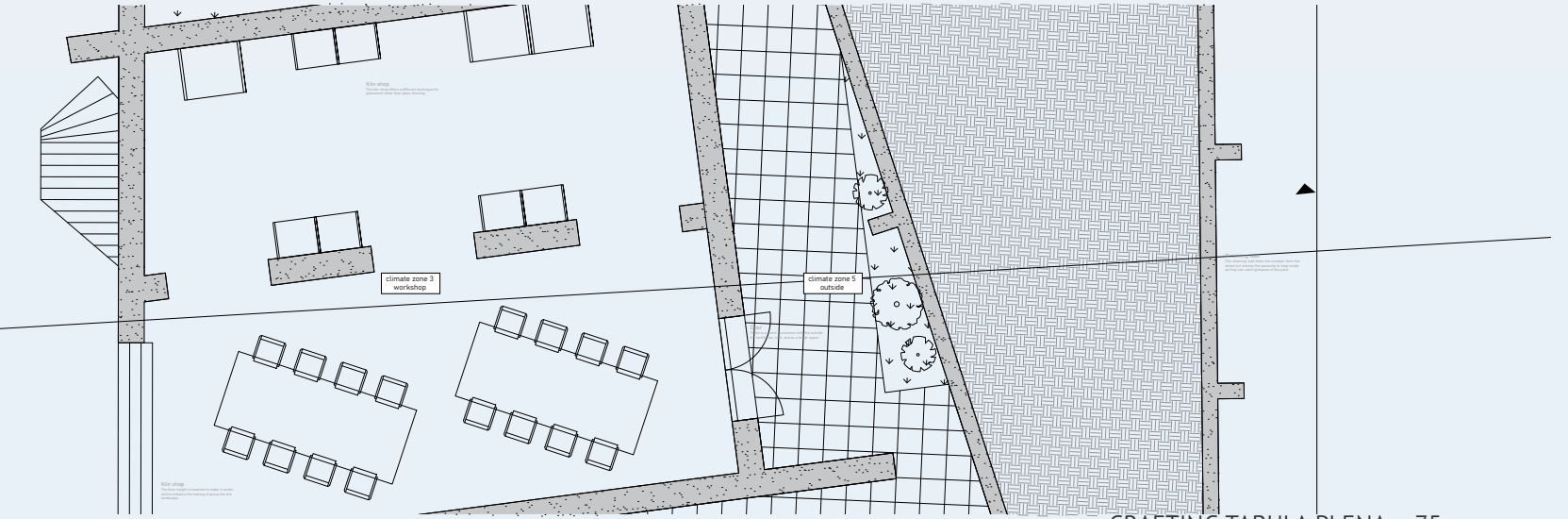
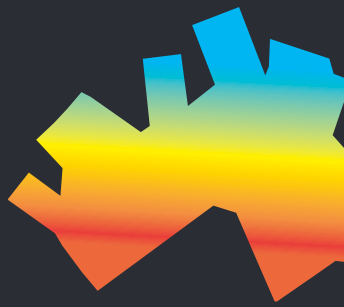
W1
W2
W3
W4
W5
D1
N



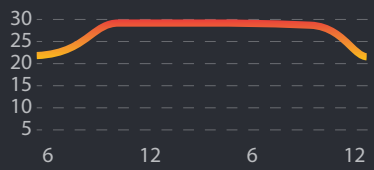
1. Hot greenhouse
2. Workshops
3. Expo
4. Restaurant
5. Auditorium
6. Conference rooms
7. Passive greenhouse
8. Plant factory
9. Germination chamber
10. Labs


climate zone 5
outside
climate zone 1
greenhouse
climate zone 3
workshop


climate zone 3
workshop
climate zone 5
outside



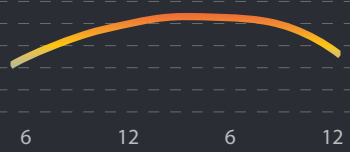
Climate zone 1
Hot greenhouse
Germination chambers



85-95%

Natural light
Growth light

Climate zone 2
Passive greenhouse



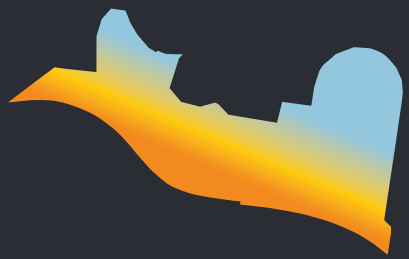
50-60%

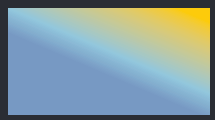
Natural light

Climate zon
Workshop

40-50

Natural l
LED

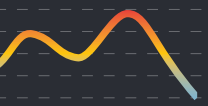




zone 3
op

Climate zone 4
Interiors

Climate zone 5
Outside



0-50%

40-50%

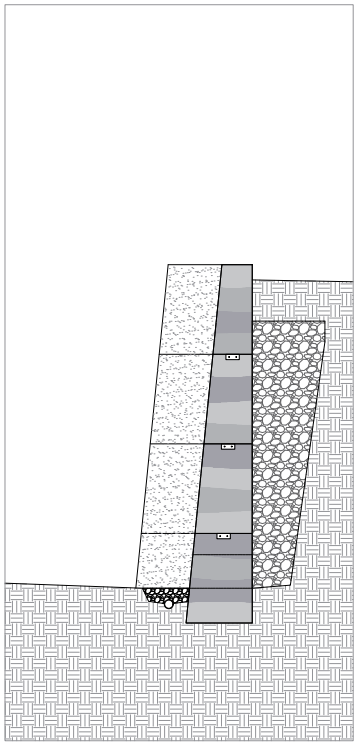
50-90%

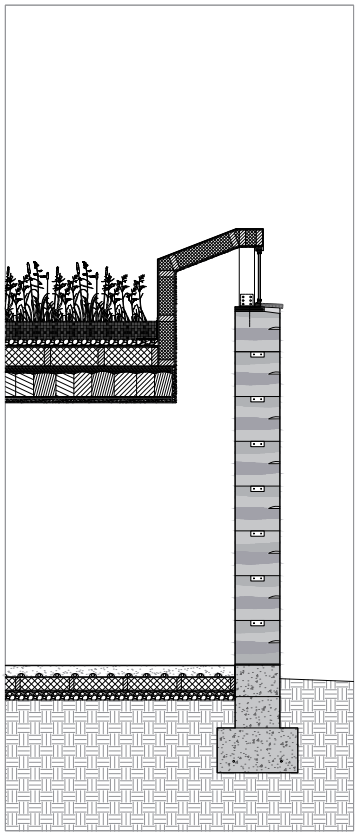
ural light

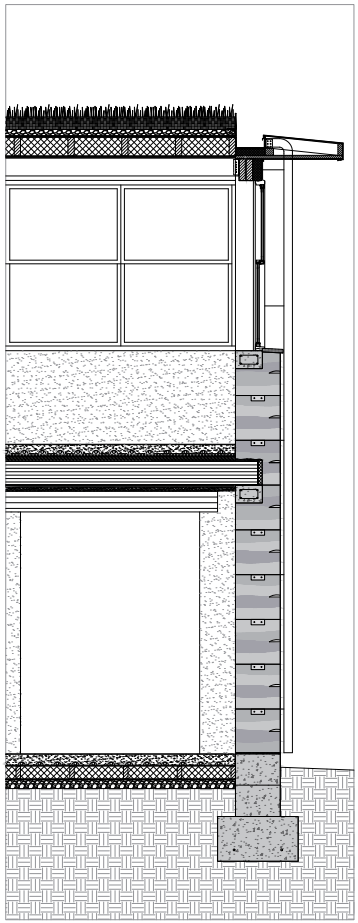
Natural light

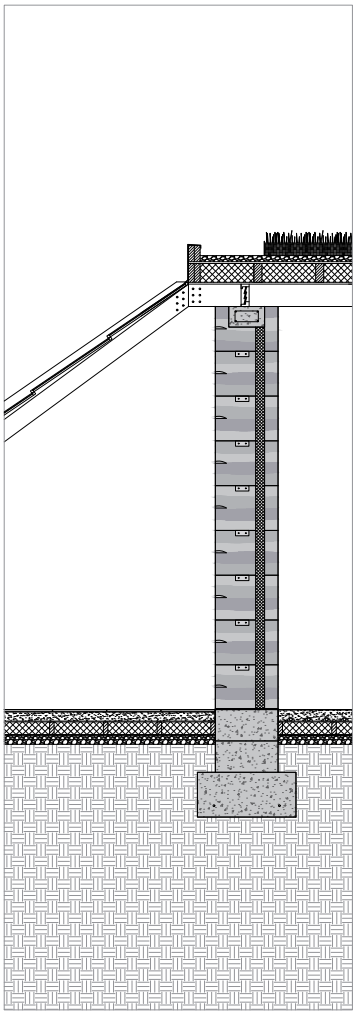
LED

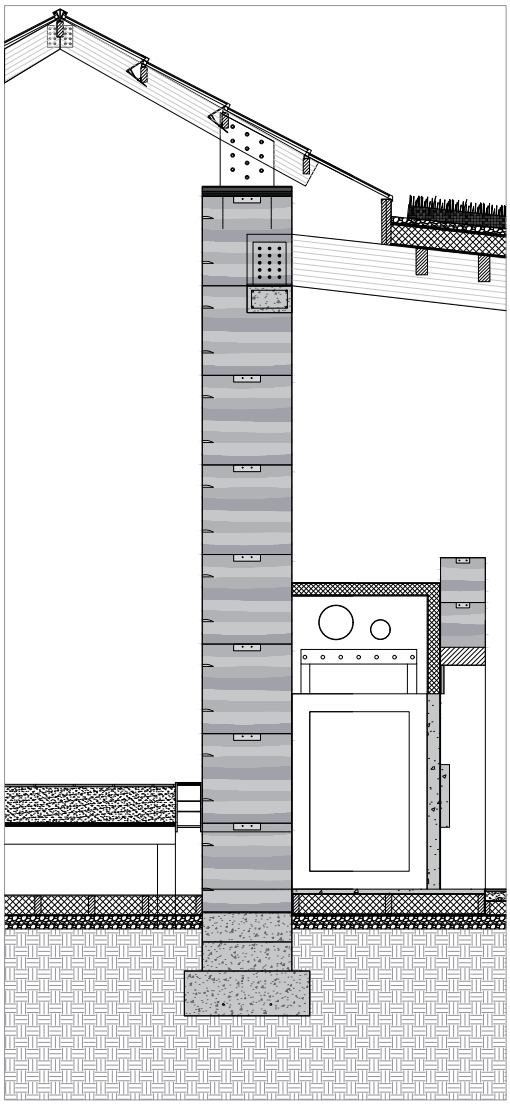
Natural light





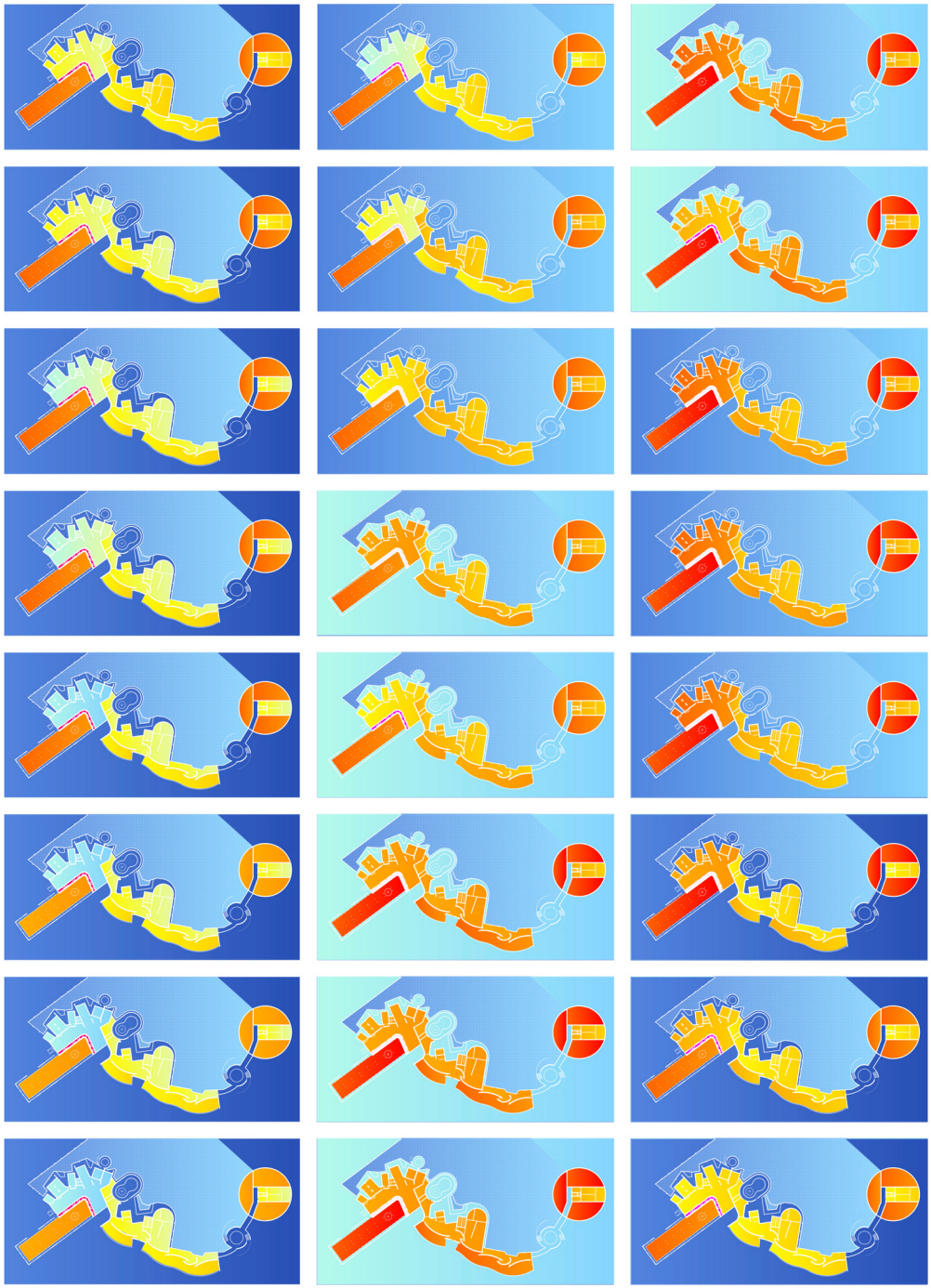




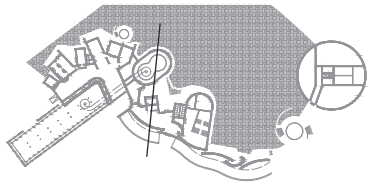


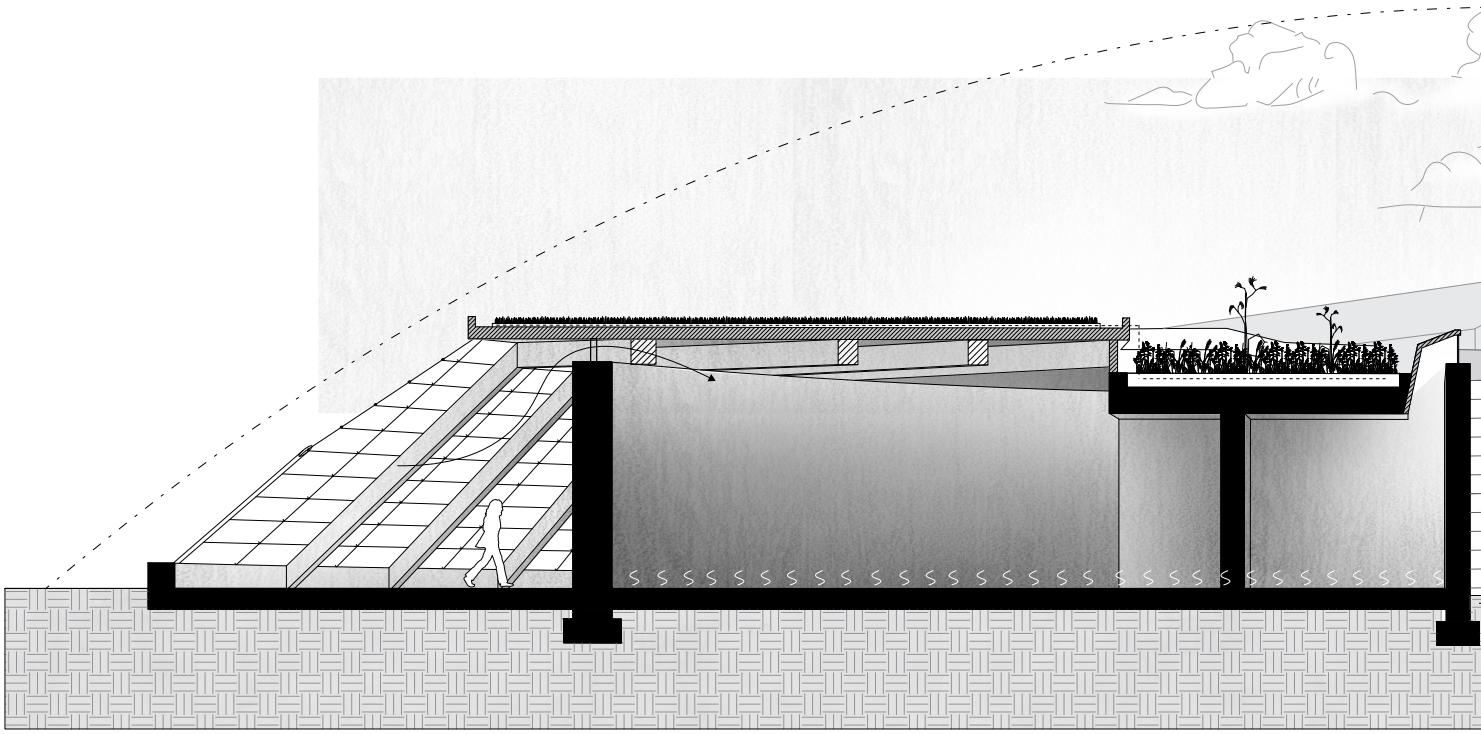
Walls are used as an architectural element to mediate between different climate zones and to create different sensory impressions.

The series show the temperature of the project on a normal spring day in March from 00:00 to 23:00. The workshop is cooled down at night to allow the thermal mass to soak up excess heat in the day.

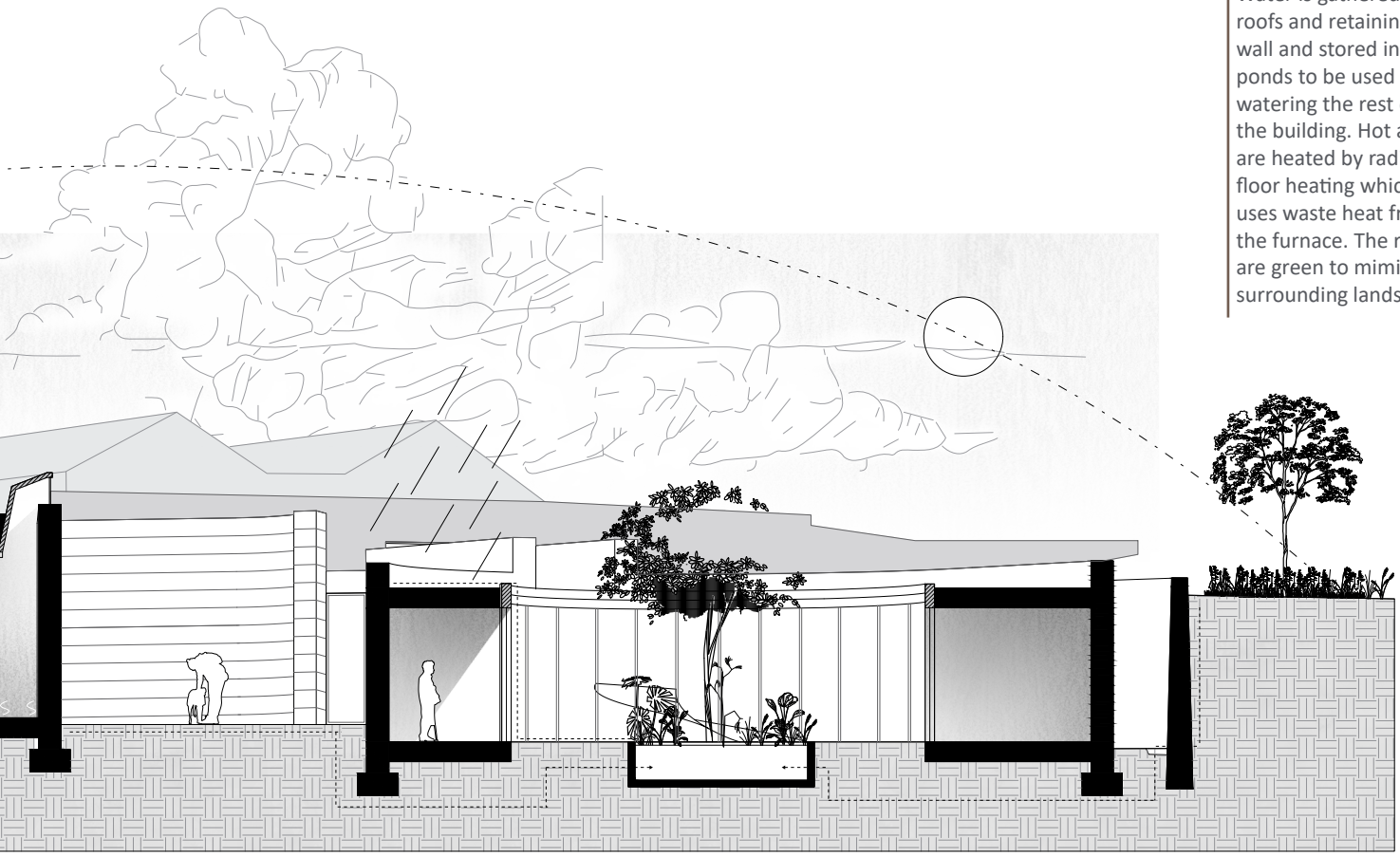


Here the temperature is shown during a particularly hot summer day. The hotshop is slightly warmer than the outside temperature which means that other uses can be explored like for example bikram yoga

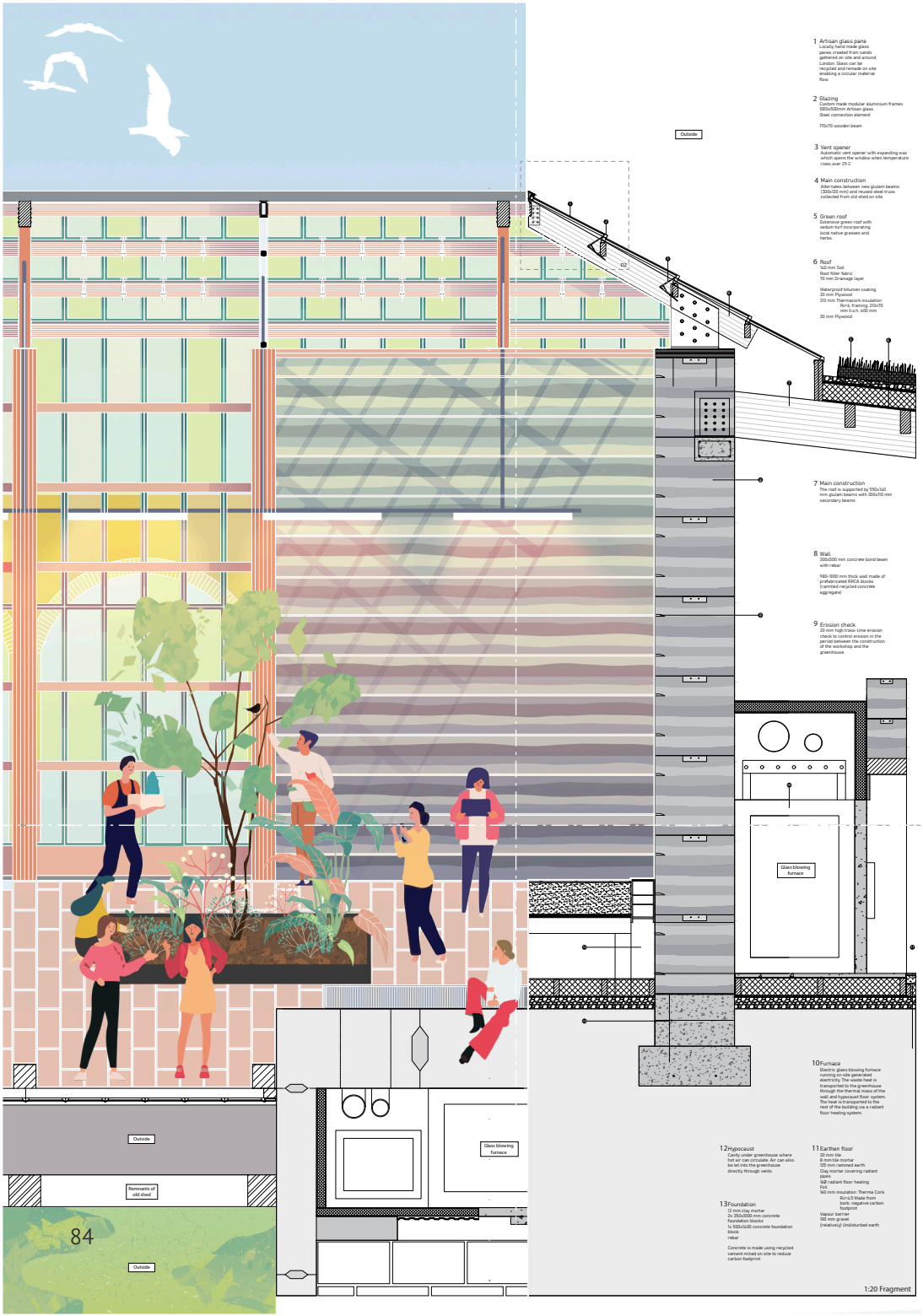




Section BB 1:200



The climate diagram shows everything working together. Water is gathered from roofs and retaining wall and stored in ponds to be used in watering the rest of the building. Hot areas are heated by radiant floor heating which uses waste heat from the furnace. The roofs are green to mimic the surrounding landscape.


1 Artisan glass pane
Locally hand made glass panes created from sands gathered on site and around London. Glass can be recycled and remade on site enabling a circular material flow.
2 Glazing
Custom made modular aluminium frames 1000x500mm Artisan glass
Steel connection element
170x70 wooden beam
3 Vent opener
Automatic vent opener with expanding wax which opens the window when temperature rises over 25 C
4 Main construction
Alternates between new glulam beams (300x320 mm) and reused steel truss collected from old shed on site
5 Green roof
Extensive green roof with sedum turf incorporating local native grasses and herbs.
6 Roof
140 mm Soil
Root filter fabric
70 mm Drainage layer
Waterproof bitumen coating
20 mm Plywood
210 mm Thermacork insulation
Rs=6, framing: 210x70 mm h.c.h. 600 mm
20 mm Plywood
7 Main construction
The roof is supported by 550x140 mm glulam beams with 300x410 mm secondary beams
8 Wall
300x600 mm concrete bond beam with rebar
980-1000 mm thick wall made of prefabricated RRCA blocks (rammed recycled concrete aggregate)
9 Erosion check
20 mm high-brass-lime erosion checks to control erosion in the period between the construction of the workshop and the greenhouse.
10 Furnace
Electric glass blowing furnace running on site generated electricity. The waste heat is transported to the greenhouse through the thermal mass of the concrete floor and wall system. The heat is transported to the rest of the building via a radiant floor heating system.
11 Earthen floor
20 mm tile
8 mm tile mortar
125 mm rammed earth
Clay mortar covering radiant pipes
140 radiant floor heating
Foil
160 mm insulation: Therma Cork
Rs=4.5 Made from recycled negative carbon footprint
Vapour barrier
100 mm gravel
(relatively) Undisturbed earth
12 Hypocaust
Cavity under greenhouse where hot air can circulate. Air can also be let into the greenhouse directly through vents.
13 Foundation
12 mm clay mortar
2x 200x1000 mm concrete foundation blocks
1x 550x1400 concrete foundation below
rebar
Concrete is made using recycled cement mined on site to reduce carbon footprint.
Outside
Glass blowing furnace
Remnants of old shed
1:20 Fragment
Outside
Remnants of old shed
Outside

300x500 mm concrete bond beam with rebar

980-1000 mm thick wall made of prefabricated RRCA blocks (rammed recycled concrete aggregate)

9 Erosion check
20 mm high trass-lime erosion check to control erosion in the period between the construction of the workshop and the greenhouse.

10 Furnace
Electric glass blowing furnace running on site generated electricity. The waste heat is transported to the greenhouse through the thermal mass of the wall and hypocaust floor system. The heat is transported to the rest of the building via a radiant floor heating system.

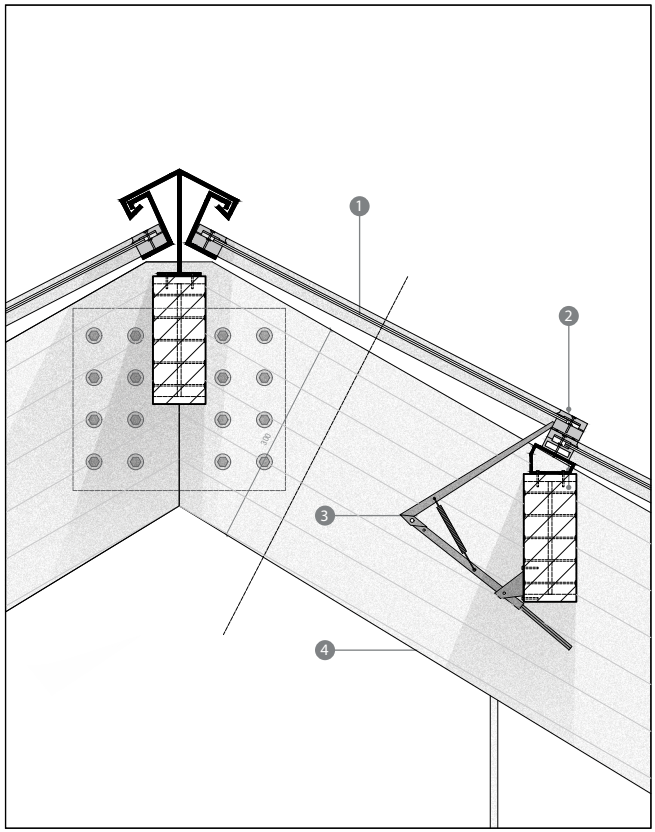
12 Hypocaust
Cavity under greenhouse where hot air can circulate. Air can also be let into the greenhouse directly through vents.

11 Earthen floor
20 mm tile
8 mm tile mortar
125 mm rammed earth
Clay mortar covering radiant pipes
16Ø radiant floor heating
Foil
160 mm insulation: Therma Cork Rc=4.5 Made from bark: negative carbon footprint
Vapour barrier
100 mm gravel
(relatively) Undisturbed earth

13 Foundation
12 mm clay mortar
2x 350x1000 mm concrete foundation blocks
1x 500x1400 concrete foundation block
rebar

Concrete is made using recycled cement mined on site to reduce carbon footprint.

1:20 Fragment



D2 1:10 Greenhouse roof detail

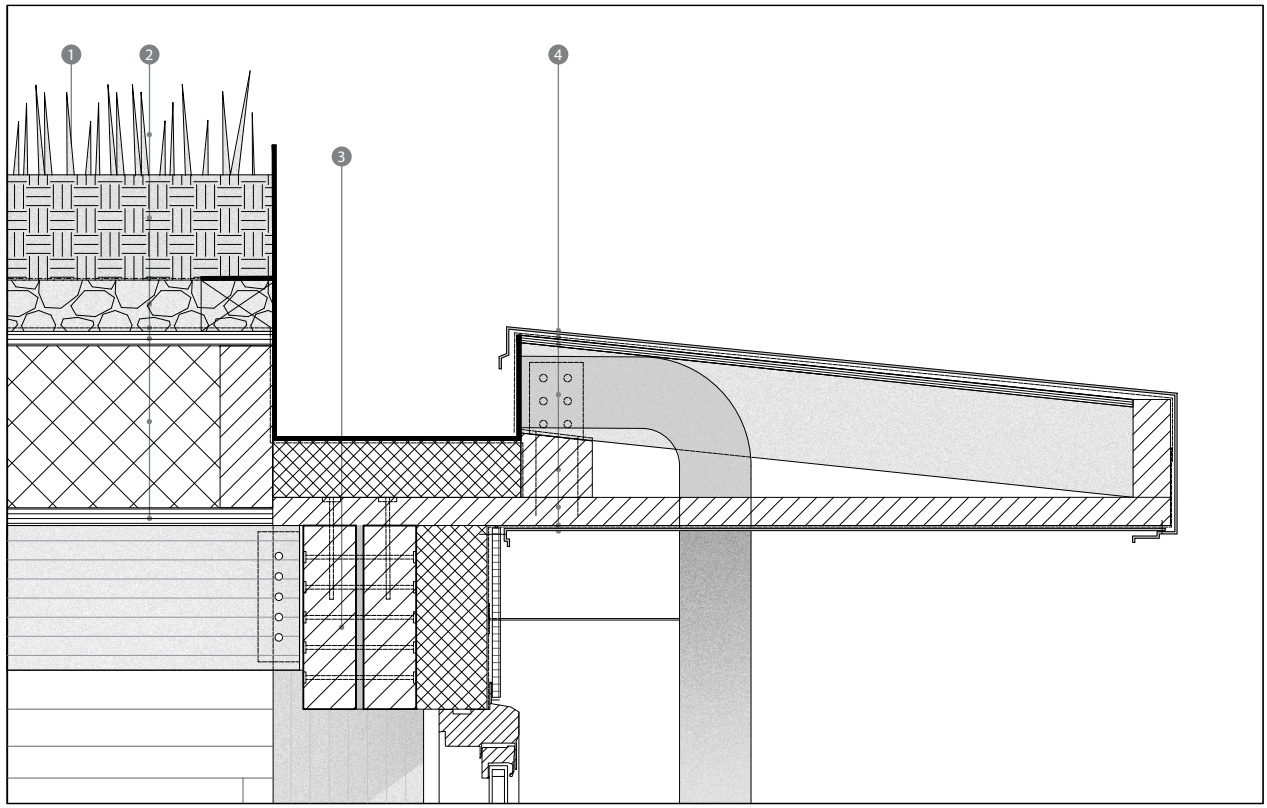
1 Artisan glass pane
Locally hand made glass panes created from sands gathered on site and around London. Glass can be recycled and remade on site enabling a circular material flow.

2 Glazing
Custom made modular aluminium frames
1000x500mm Artisan glass
Steel connection element

170x70 wooden beam

3 Vent opener
Automatic vent opener with expanding wax which opens the window when temperature rises over 25 C

4 Main construction
Alternates between new glulam beams (300x120 mm) and reused steel truss collected from old shed on site



D5 1:10 Workshop roof detail 2

1 Green roof
Extensive green roof with sedum turf incorporating local native grasses and herbs.

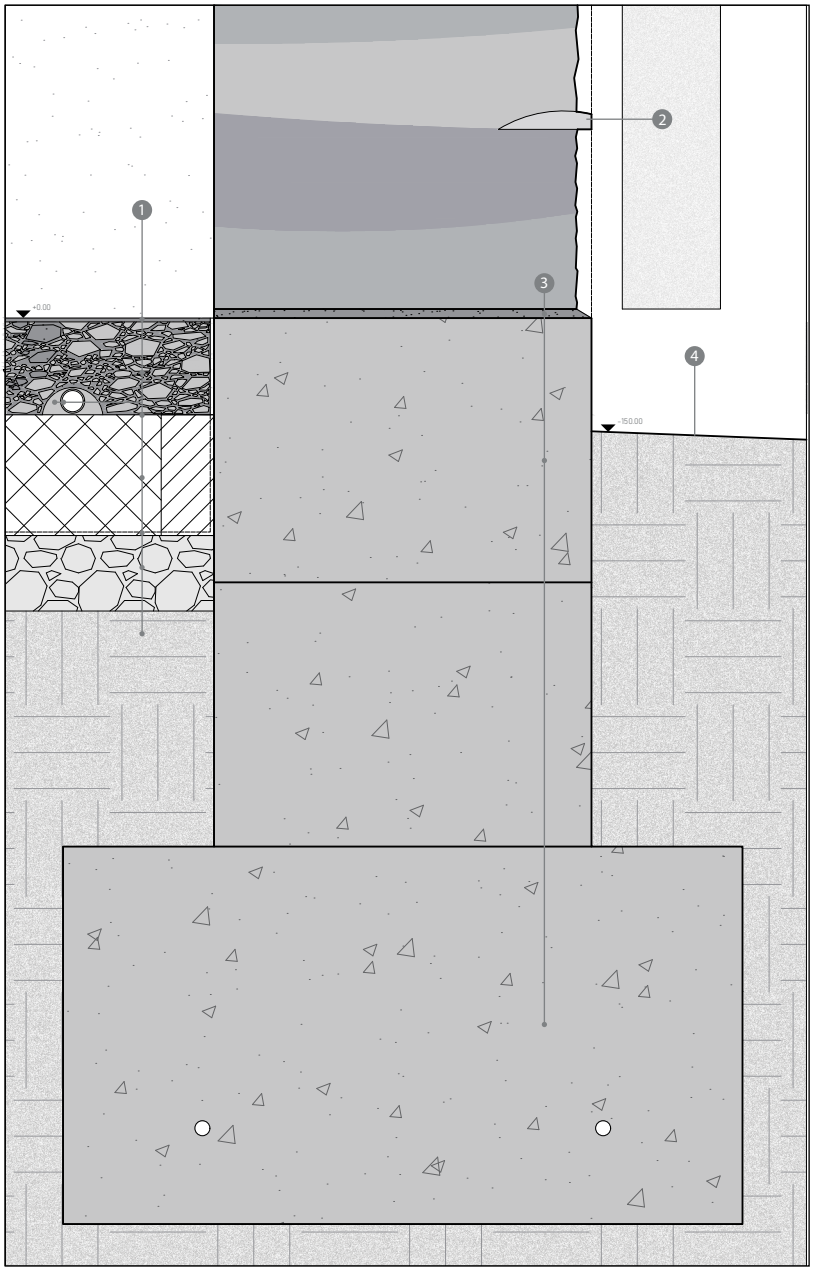
2 Roof
140 mm Soil
Root filter fabric
70 mm Drainage layer

Waterproof bitumen coating
20 mm Plywood
210 mm Insulation, framing: 210x70 mm h.o.h. 600 mm
20 mm Plywood

3 Beam connection
300x300mm Main laminated column
250x70 mm Main glulam beams
Steel knife edge connection element

200x70 mm Secondary wooden beams h.o.h. 500 mm
Invisible steel beam hanger, screws finished with wooden inlay.

4 Overhang
3mm Aluminium cap
Waterproof bitumen coating
10mm plywood
130x50mm wooden beam
Connection block
Gelclad eco-panel insulation material Rc 4.7
50mm laminated wood
Waterproof bitumen coating
3mm Aluminium cap



D3 1:10 Foundation detail

1 Earthen floor

5 mm finish layer (earth polished with linseed oil)
125 mm rammed earth
Clay mortar covering radiant pipes
16Ø radiant floor heating
Foil
160 mm insulation: Therma Cork Rc=4.5 Made from bark: negative carbon footprint
Vapour barrier
100 mm gravel
(relatively) Undisturbed earth

2 Erosion check

20 mm high trass-lime erosion check.

On completion the wall is 500mm thick but as part of the wall erodes it will shrink until it stabilizes at 480mm thick, leaving the erosion checks protuding by 20 mm.

3 Foundation

12 mm clay mortar
2x 350x500 mm concrete foundation blocks
1x 500x900 concrete foundation block
rebar

Concrete is made using recycled cement mined on site to reduce carbon footprint.

4 Ground

Ground slopes away from the wall and there is a 150 mm splash zone to protect rammed concrete wall.

1 Roof edge
40 mm Fired clay tile
metal sheet
Waterproof foil
Lime-trass reinforcement

60x150 mm trass lime mortar with rebar

Emergency overlow, outside in tinted stainless steel

2 Green roof
Intensive green roof with wildflower turf incorporating local native grasses. (Ex. Crested dogs-tail, yorkshire fog)

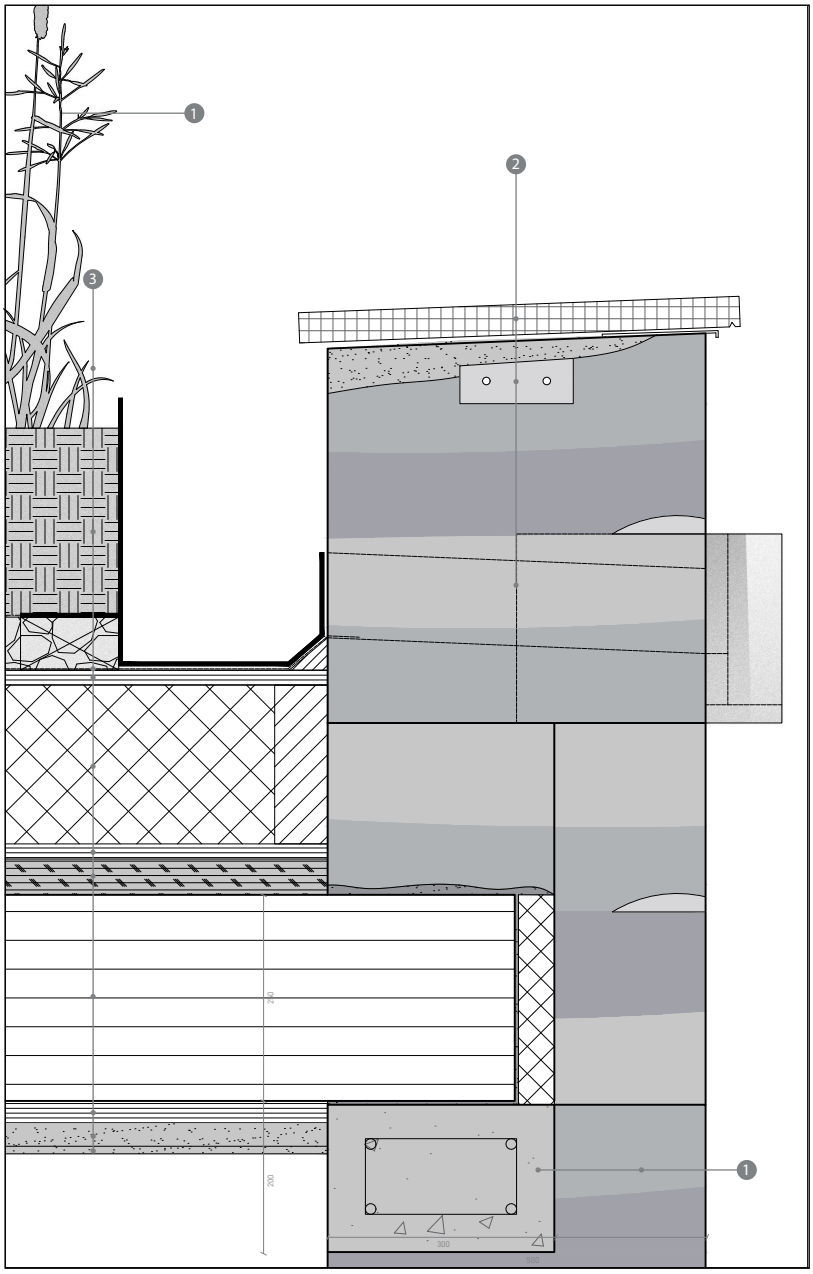
3 Roof
Intensive flora
250 mm Soil
Filter fabric
70 mm Drainage layer

Waterproof bitumen layer
20 mm Plywood
210 mm Insulation Therma Cork Rc=6 Made from bark: negative carbon footprint
20 mm Plywood

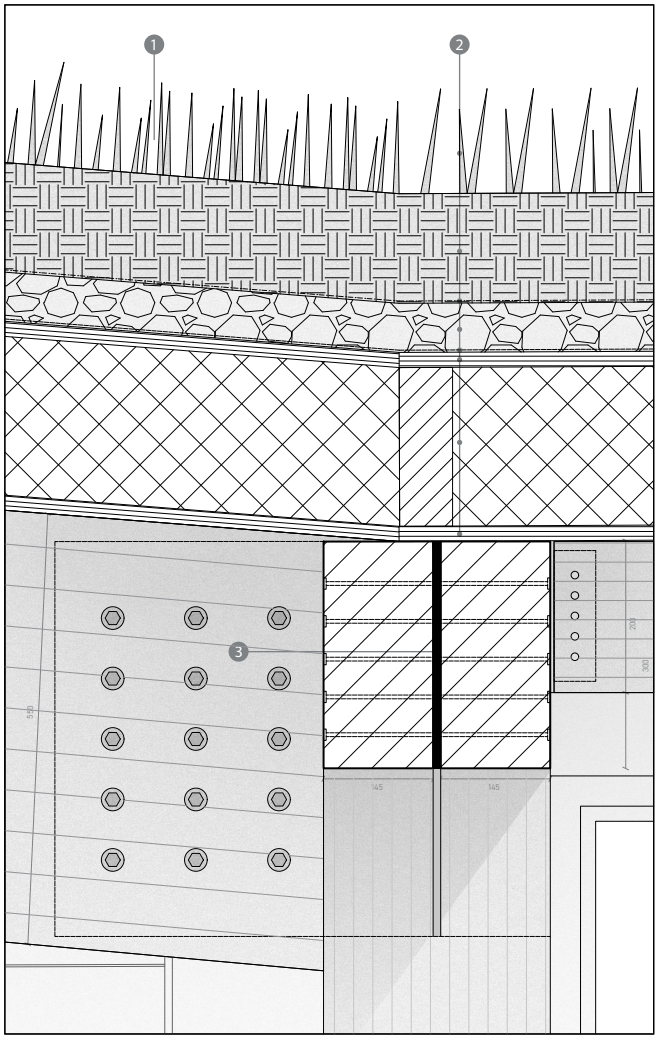
0-100 mm Granulated cork-loam-trass-lime slope
250 mm Solid wood slab (Dippelbaum)
30 mm Wooden frame
30 mm Clay board
10 mm Clay plaster

4 Wall
200x300 mm concrete bond beam with rebar

480-500mm thick wall made of RRCA blocks (rammed recycled concrete aggregate)



D4 1:10 Workshop roof detail 1



D1 1:10 Transition detail

1 Flora
Extensive green
roof with sedum
turf incorporating
local native grasses
and herbs.

2 Roof
Extensive flora
140 mm Soil
Root filter fabric
70 mm Drainage layer: gravel mix

Waterproof bitumen coating
20 mm Plywood
210 mm Insulation Therma Cork Rc=6
Made from bark: negative carbon
footprint
20 mm Plywood

3 Beam connection
300x300mm Main laminated column
550x100 mm Main glulam beam
300x145 mm secondary glulam beam
Steel knife edge connection element

200x70 mm tertiary beam
Invisible steel beam hanger, screws
finished with wooden inlay.

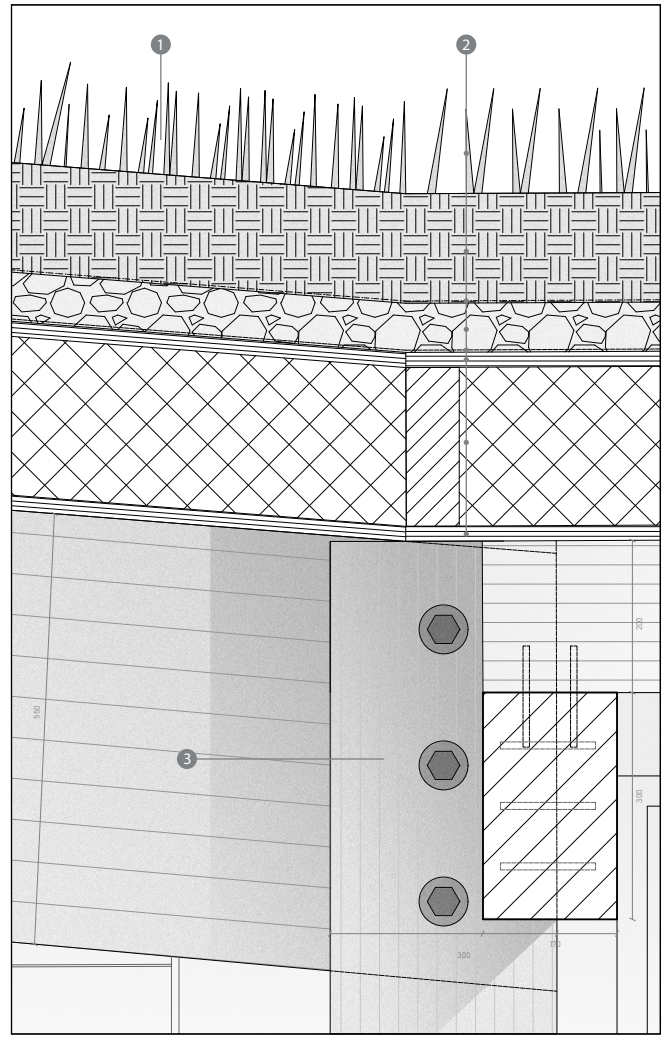
1 Flora
Extensive green
roof with sedum
turf incorporating
local native grasses
and herbs.

2 Roof
Extensive flora
140 mm Soil
Root filter fabric
70 mm Drainage layer: gravel mix

Waterproof bitumen coating
20 mm Plywood
210 mm Insulation Therma Cork Rc=6
Made from bark: negative carbon
footprint
20 mm Plywood

3 Beam connection
300x300mm Main laminated column
550x100 mm Main glulam beam
300x170 mm secondary glulam beam
Bolts and wooden dowels, traditional
joinery techniques

200x70 mm tertiary beam
Wooden dowels



D1 1:10 Transition detail: Alternative

05

REFLECTION

Absences of London

This design proposal acts as a proof of concept to demonstrate the revitalization of absences in London through the introduction of craft. A redefinition of craft acts as a catalyst to activate the site. This fuels a never-ending process, and as the project transform the site, the site will eventually transform the project and at the end of its life-cycle be taken apart to give way for further growth and decay. By redefining craft I have not only looked at craft as architecture, but also considered the position of craft in the design process. Through an inquiry into the theoretical and practical aspects of craft, the groundwork is laid to enable a translation from the new craft as a theoretical definition, to a design proposal meant to embody the same concepts. This was done through literature reviews and site mappings, which resulted in an understanding of the existing flows of the site.

"There is no town in the world which is more adapted for training one away from people and training one into solitude than London"- Alexander Herzen[1]

London, as most other cities, has gone through a process of alienating its citizens. As life and work has become monetized, people become detached from the material world contributing to the sense of absence described by Patrick Keiller[2] in his documentary "London". This topic of loneliness and absence relates to the heterogeneity of the city London, as it is a direct result of communities becoming further fragmented due to urban development strategies and industrialization. The development of our cities is therefore a moral issue as well as a material one, as it impacts the emotional wellbeing of the citizen. Architects and the team they exist in have a responsibility to develop in a sustainable and sensitive way, and this is not possible with a hylomorphic[3] architectural practice. This proposal therefore seeks to redefine craft and apply it to architecture so it no longer embodies the hylomorphic model of the past, as well as employ craft to reattach the Londoner to the material world, thereby bringing a sense of fulfillment.

1. From "Ends and Beginnings" (1985) Ed. & intr. Aileen Kelly, Oxford University Press. Herzen, a Russian socialist exile describes his meeting with London. This and the accounts of other foreigners inspired Keiller in his work with "London"

2. "London" by Patrick Keiller is a psycho-geographic documentary which shows London through the eyes of the fictional character Robinson who struggles with his own sense of non-belonging.

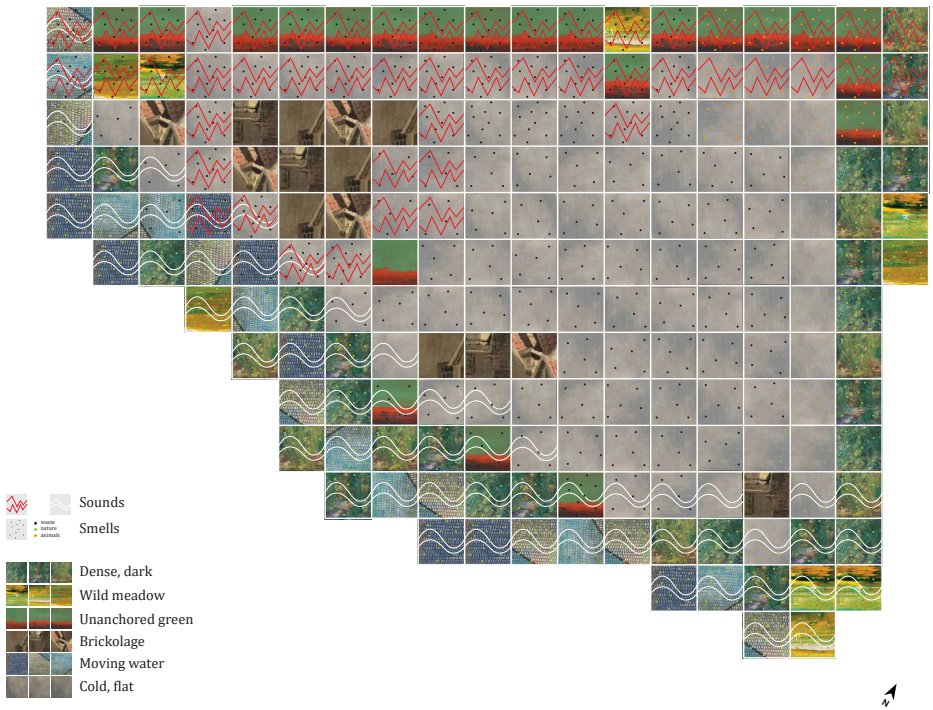
A Tabula Plena

There are many absences in London which could serve as a case study for this design proposal. This particular site was chosen based on an inquiry into craft dense areas in London. This revealed Lea Valley as an up and coming craft community, but with several absences in the form of brown-sites. One of these brown-sites stood out as the missing piece of the puzzle in an otherwise near continuous green structure. Due to the surrounding nature reserves, the program of a botanical garden was chosen as a starting point. This typology was then activated through hybridization with craft which has led to an evolved version of the botanical garden as a place of creation, education, leisure, and research. This is paired with a glass workshop to celebrate traditional British crafts, and enable the creation of a symbiotic program. Craft turns the previously passive experience of the botanical garden into an active one, similar to how libraries have been activated and democratized with the introduction of makerspaces. This is the first step towards reconnecting the visitor with the material world. Since the program considers the complete process of ecological revitalization, the botanical grounds becomes a site-wide laboratory for researching urban rewilding.

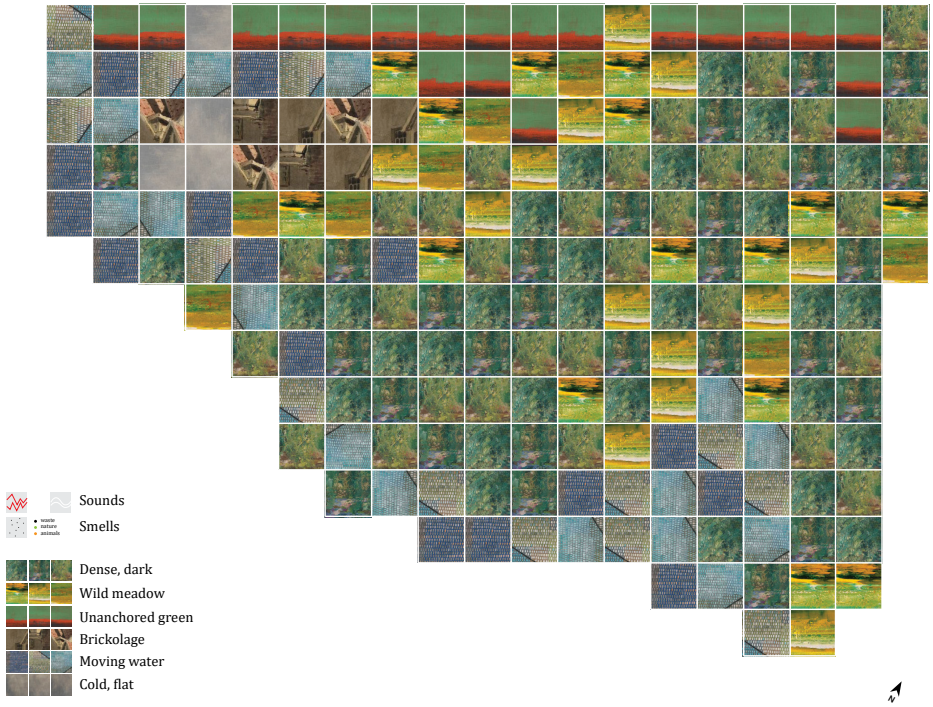
3. A hylomorphic model of design, developed by Aristotle, implies that the designer imposes their imagined form (morphe) onto the matter (hyle)

The chosen site is a concrete field situated in between multiple nature reserves and leisure facilities. Its current use as material depot for Thames Water showcases neither the prime location of the site, nor its industrial heritage as an old waterworks. Due to its materiality, it is easy to consider the site a tabula rasa[4] , as it appears flat and empty compared to the surrounding areas. However, a tabula rasa approach would go against the definition of craft as an intervention with existing (im)material flows. The project therefore heralds a different approach to urban development characterized by the site as tabula plena: an already diverse and complicated ecosystem of social and material flows. This approach was made possible by the method of mapping which identified the immaterial flows in terms of craft activities and sensory impressions, and the material flows in terms of craft infrastructure (workshops, community gardens, etc.) and textures (meadow, marshland, suburbia etc.).

4. The tabula rasa was described as “cleared site” by Carol Burns in “On Site: Architectural Preoccupations”. In Drawing Building Text, ed. A. Kahn, 146-167. New York: Princeton Architectural Press.



Textures and sensory impressions of current site conditions



Nature based edge condition multiplied to replace urban central condition

As seen on the previous page, the site is transformed from the current condition by identifying the textures on the edge and letting them propagate the site. This propagation is guided by markers identified in the palimpsest of the site. The site is the heart of the old East London waterworks, and while some structures remain, the filterbeds have been covered in concrete. In the neighboring reserves, the filterbeds remain exposed. By excavating the filterbed structure and incorporating it into the site strategy a visual and cognitive link is created between the three areas which communicates the story of its past as a waterworks to the visitor.

By treating the site as a tabula plena I seek to employ a more sensitive approach to urban development where instead of developing the city in the tradition of the hylomorphic model, the existing human and non-human actors are considered and involved in the process. This can strengthen the connection between the citizen and their neighborhood as it remains familiar, while also allowing the actors to reconnect with the materiality around them. Instead of large homogeneous development practices tied to the current trends, leading over time to the heterogeneous city you see today, the local quality is cultivated creating a heterogeneous city which continues its connection to the inhabitant.

Architectural tools and processes

The wall as an architectural tool arose inspired by the fruit wall[5]. This demonstrated the possibility of using walls as climate devices to alter the micro-climate in different areas of the site. The same strategy was then applied inside the building. An important part of immaterial flows is the sensory impression we experience as we encounter hot or cold, dry or humid, or silent or noisy spaces. As a result, several climate zones exist in the site and the building celebrating different senses. The walls also enable the different climate zones by acting as thermal sinks for the heat sources in the building, keeping it comfortable without erasing the differences between the spaces.

5. The fruit wall was the forerunner of the greenhouse and took advantage of brick walls with high thermal mass to grow plants which otherwise would not survive. Commonly found in England, the Netherlands, France, and Belgium.

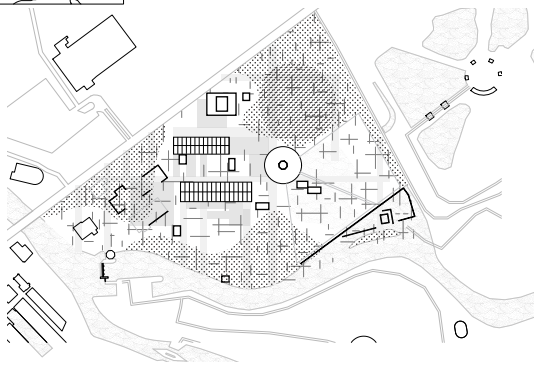
The walls of the building are treated in an organic almost landscape like manner. In some areas it is distinctly a wall, but in others the line between building and landscape becomes blurred. One example is how the double foundation becomes a retaining wall, sometimes expanding to become a sunken garden. It is both ravine and hallway. Throughout this process the idea of the architect for me has changed. The scope of the project has extended beyond the boundary of the building as a result of my goal to intervene in the existing context. The architect can no longer pretend to work in a bubble where the design stops at the doorstep, but must accept the fact that we intervene in increasingly complicated material (and immaterial) conditions.

The project intervenes with different ecologies on different scales. On the scale of London and Lea Valley it intervenes in the social ecology of makers and craftspeople by giving room to traditional crafts and making it more accessible for professionals and novices alike. It also offers the local community and visitors a platform for leisure and physical activity through the botanical grounds which develops around the project. The material ecology is also altered through the process of rewilding which will increase biodiversity and help create a more resilient ecosystem by connecting the lower and middle part of Lea Valley. This way craft seeks to spark regeneration on multiple scales and domains.

My own design process has been characterized by embodying craft in the form of play and experimentation. By working in different media I have been able to examine the site and program through different lenses which has given me a better understanding of the more immaterial aspects of architecture. The process has been highly iterative and embodying the flamboyant worker described by Ruskin[6], who sometimes loses control of their own work. However it has been through this process that new discoveries have been found. Take for example an early plan experiment where paintings of artists such as Banksy, Mondriaan, and Pushwagner was collaged on the site to generate different configurations. While the approach itself was mostly unsuccessful, the remains of Mondriaan can still be seen in the current configuration of the fruit gardens as shown in the drawings on the following page.

6. The flamboyant worker becomes human through the surrender of control and embrace of experimentation: “machines break down when they lose control, whereas people make discoveries, stumble upon happy accidents.” Ruskin in The Craftsman (2008) R. Sennet.

Excerpt of site plan: Fruit garden



Old plan option based on Mondriaan paintings

Material flows

As craft is an intervention in existing material flows, it follows that craft implies a circular project. To achieve this, the building focuses on local sustainable materials, modular details, and methods to be able to reuse existing and new materials.

As a result of the situated approach, the materiality of the project is inspired by what is already there. The building itself is largely constructed by Rammed Recycled Concrete Aggregate (RRCA), which is made using on-site concrete which would otherwise have been removed or mixed into the soil. This is crushed and rammed to form concrete wall panels which can be assembled, and eventually disassembled assuring the needed flexibility to deal with the never-ending growth and decay of material flows.

The project responds to the current climate crisis by employing a sustainable approach throughout. However, I have learned that sustainability does not mean maximum conservation of energy. In the spirit of Kiel Moe, the building takes advantage of the vast amount of concrete available at its feet, and uses this abundance to its advantage with oversized walls to deal with heat, erosion, and the compressive strength needed. By focusing on sustainable material flows and designing a new life cycle for glass by taking advantage of the program, the building shows an approach to sustainability which considers local resources and opportunities, instead of the current global approach where super-efficient materials are shipped from near and far, and increasingly complicated climatized boxes are created in the spirit of energy conservation. Instead of struggling to conserve as much energy as possible, the building instead considers the material and immaterial flows of water, heat, and electricity to redistribute and adapt to varying situations in response to its diverse program and climate zones.

The RRCA construction is supplemented by a wooden construction. These two methods represent different tectonics, but also different construction methods. While the wood is intended to be made by craftsmen, the RRCA walls can be a community project

7. Kiel Moe (2014) "The Nonmodern Struggle for Maximum Entropy" New Geographies 6: Grounding Metabolism. Describes how by removing many of the traditional facade layers and using structure as both insulation and finishing layer, Moe achieves a much lower carbon footprint than otherwise possible.

thereby educating the community in sustainable building methods, and involving them in the project from the beginning. This is done to involve not only craft but also the craftspeople in the process. The wood will in turn showcase craftsmanship by being left exposed. The details of the craft are therefore treated as the ornamentation of the building and symbolizes the importance of craft to this project and process.

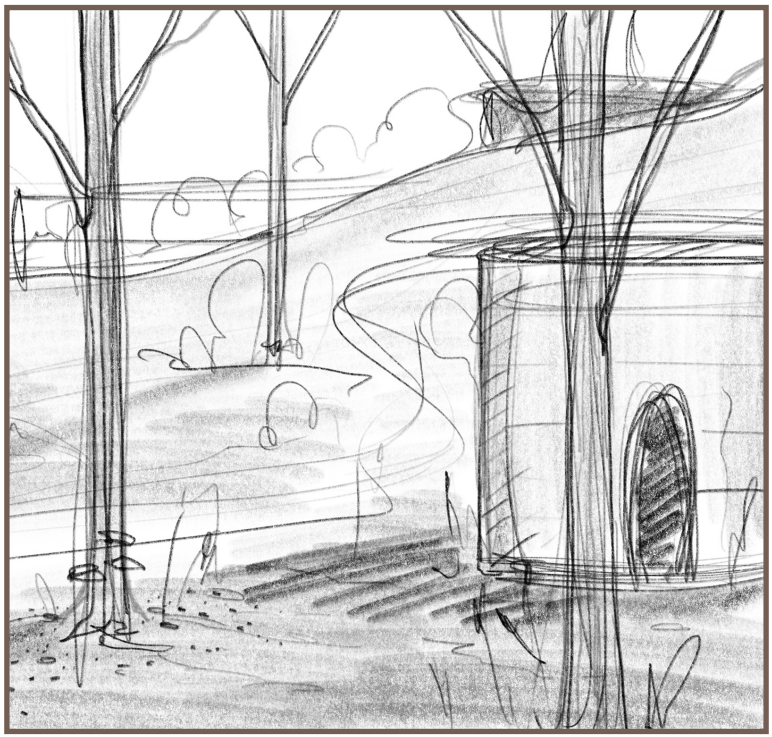
Ethical considerations

Having involved myself in the local community of Lea Valley in the past year, I can say with certainty that many locals would not approve of my project. In many ways, a sustainable building is impossible as building is an inherently unsustainable action, especially on this scale. Furthermore, the urban sprawl is steadily overtaking the few green areas left in and around our cities, and killing thriving eco systems which cannot coexist with our cities. It would be naïve to think that a tension between the nature reserves in and around the site and the building itself would not arise, as people would disturb wildlife, cause increased erosion of the river bed, and that the lengthy construction process itself would be of great disruption to the fauna and flora.

However, these processes are already happening on site. Once again one must consider the site not as a static entity, but an area with existing processes of growth and decay, such as the decay of the river bed due to unwanted (human) visitors, and the growth of pollution stemming from the material depot and upriver factories. My project seeks to take responsibility of the site and try to rebalance the tension between human and nature by zoning and educating the visitor. In addition to this it attempts to showcase a sustainable, local approach to materials where this too is considered as something growing and decaying. I do not know if the tension between human and nature would be resolved with my project, but the ambition is there.

And it's important, you see, that you honour the material you use.

Louis Kahn



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