

# Pond to Pool

New Waterscape

at the Friche Josaphat

Project Book  
Michalina Dębska

Urban Architecture  
*Last Green in Town*



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"Nature talks, but we just don't listen."

**Steven Vogel**

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## keywords

water pond, wetland, natural pool, swimming, climate change

# Introduction

The Josaphat Friche area is a topic of debate among urban activists, ecologists, developers and municipalities with varying visions of its future<sup>1</sup>. The area, in 2012, was prepared to become a ground for new housing estates that would solve the major housing crisis in Brussels. Meanwhile, the non-decisional discussion gave space and time for creating a unique, biodiverse environment in this remote area. The removed soil was supposed to clear it from post-industrial chemicals. However, this intervention helped unintentionally the life to happen and brought conditions for the enormous amount of species to accommodate. While humans can't access the land, it's highly attended by bees, birds, and foxes. It is a house of many we cannot ignore. This has raised concern: how to give those entities attention through the resources of the master architecture student?

The first step towards including non-human actors in the Friche area as active users of the land was the creation of a catalogue of stories and visual representation on maps prepared as part of group work for the P1 exhibition „The Last Green in Town”. Inspired by the history of the land, I recognized the water pond on the site as a crucial element incorporated with its soil. The terrain becomes mud land every winter, which once caused the activist to accumulate water more efficiently throughout the whole year by digging a hole in the ground<sup>2</sup>. This action helped to create a permanent water feature, rich in various kinds of dragonflies, bees, insects, and as a result, birds find peace in the quiet area. The water pond has become the most valuable part of the Friche area from an environmental

1. Friche Josaphat is one of ten zones earmarked for housing expansion in Brussels. Owned by an urban development corporation (Société d'Aménagement Urbain), the intention is to create a diverse urban space with amenities such as a train station, residences, retail outlets, and workplaces.

2. According to images found at the facebook group Sauvons la friche Josaphat / Red de friche Josaphat and the field trip lecture with Hananh- an urban activist.

perspective This started raising questions: How to value the worth of Friche soil? What is the perspective of the Friche on its own future? What will happen with the growth of its water body? What will happen if the land dehydrates? What are the nature forces and how to understand them? **Finally, how to include and respect those forces and use them in the architectural design language and what this architecture is going to do with nature?**

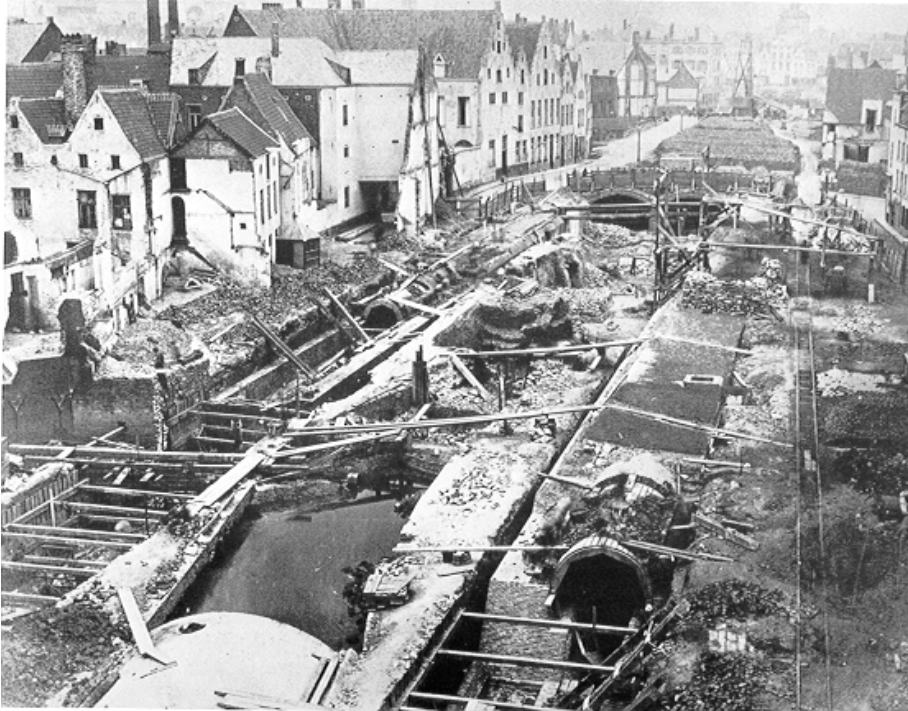
The research aims to discover the force of non-human protagonists of the water pond in Friche Josaphat in Brussels. This brings the main concern: how to understand the nature bahavoir and represent it to the public?

The „Parliament of Things” is a conceptual framework proposed by the French philosopher Bruno Latour. It suggests a hypothetical scenario where both human and non-human entities have a voice in shaping decisions regarding the environment and society.

# Studio theme - Last Green in Town

## The sienne now

### The sienne than

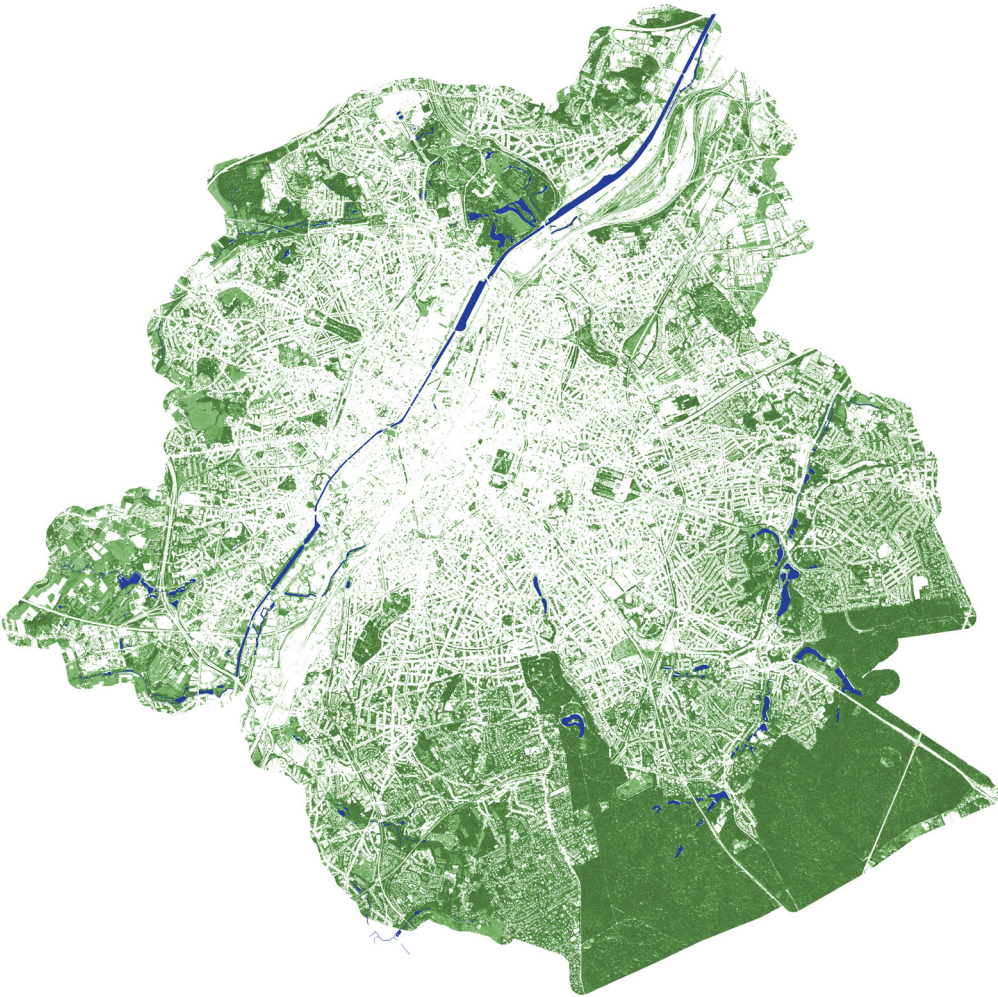


The covering of the Senne in Brussels, ca 1867 [https://www.facebook.com/843159335757753/photos/?tab=album&album\\_id=1234867143253635](https://www.facebook.com/843159335757753/photos/?tab=album&album_id=1234867143253635)



Taktyk, Alive Architecture, Karbon, Antea Group, 2022

# The friche in teh blue - green network



# The Park vs the Friche



# Public green?



## Waterscape as a response to urgent need of nature in the city



# The Pond

## My first entry to the Friche Josaphat

I see a bush,  
Bees working here,  
Crickets.  
The machine's breathing,  
Stirring the whole system.  
Obstruction.  
Dog barks.  
The space seems endless.  
But I must be careful.  
I squeeze through an opening in a fence,  
A little gymnastics.  
Who can see me?  
The ground has started to creak.  
As if I've changed position.  
piles of rubble.  
puddles of light.

Brussels, 13.09.2023





Collecting the Friche water foto by Stefan Sinnige



Friche water pond in sunny day. photo by author



The Friche water takeaway. foto by Stefan Sinnige.jpg



figure 6 Waterpond in january 2021, photo by Benoit De Boeck



figure 7 Frozen waterpond, photo by Philippe Massart

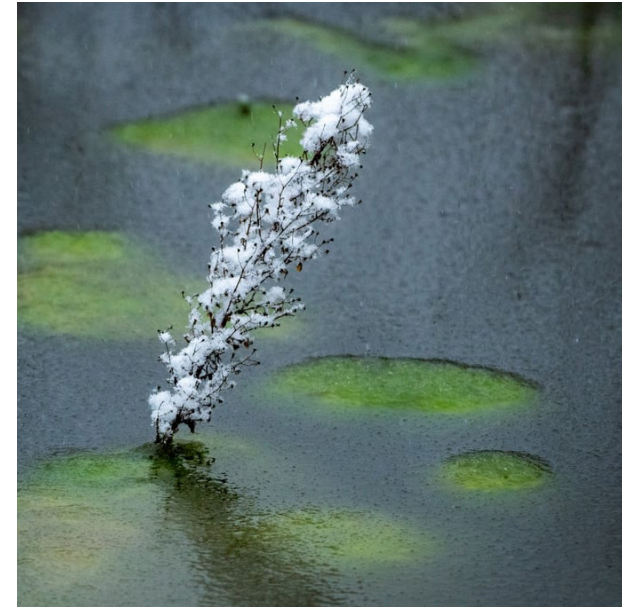
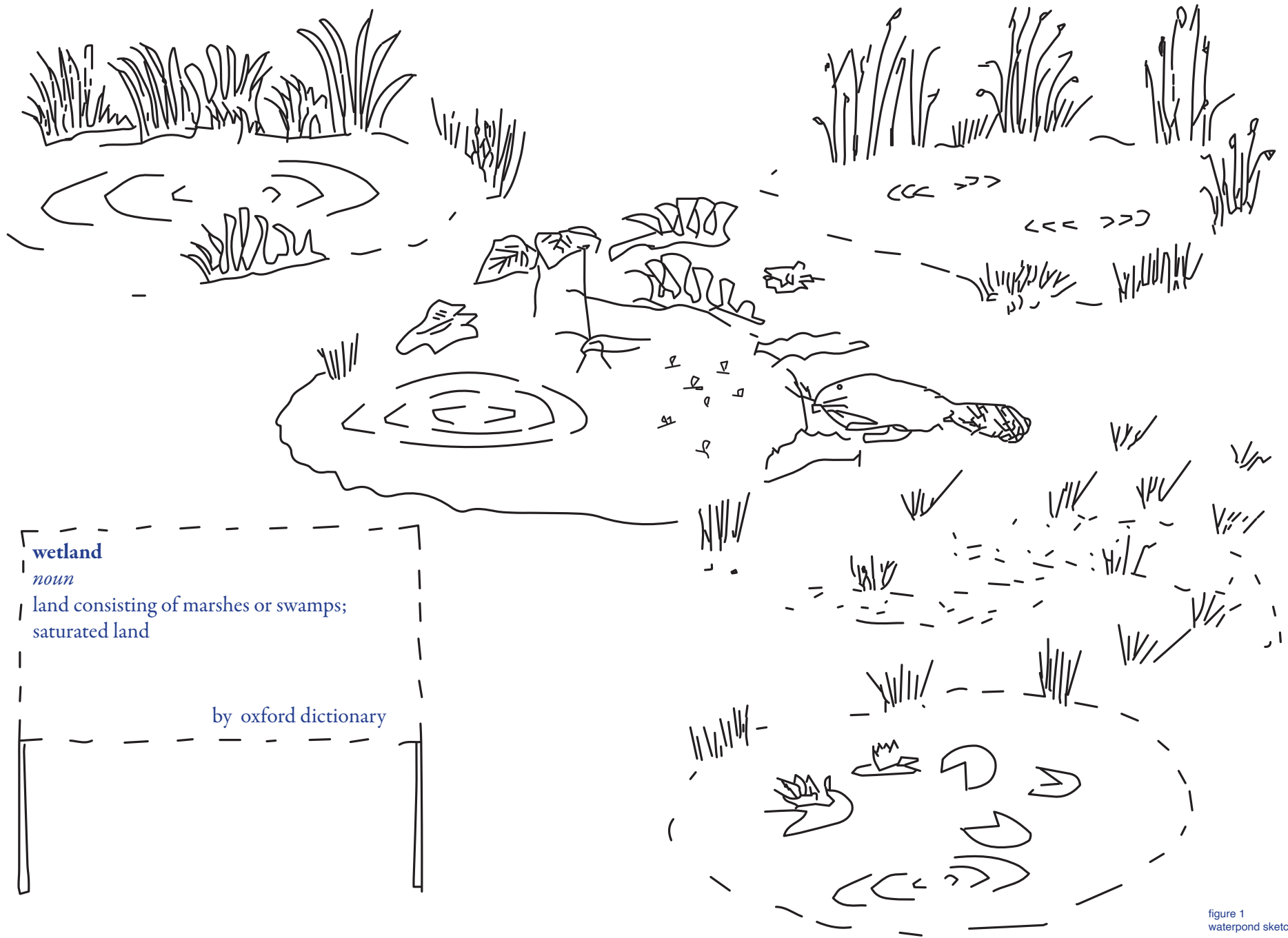


figure 8 Frozen water pond in closure, photo by Philippe Massart



**wetland**

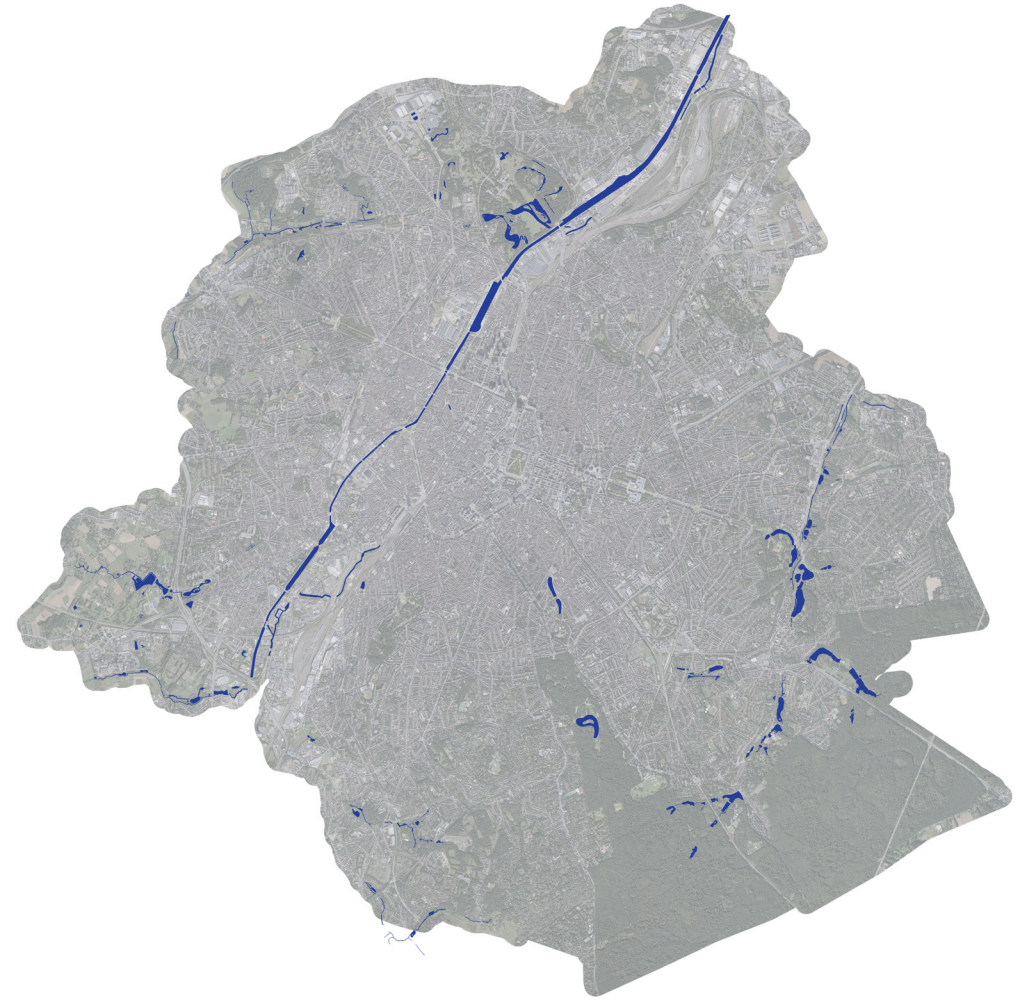
*noun*

land consisting of marshes or swamps;  
saturated land

by oxford dictionary

figure 1  
waterpond sketch by author

**World Wetlands Day is celebrated on 2 February, the anniversary of the adoption of the international ,Convention on Wetlands' established in 1971. It aims to raise awareness of the crucial role of wetlands for people and the planet.**

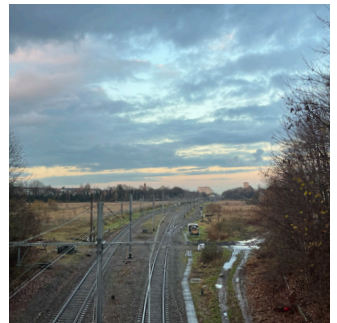


# Small Ponds of the Friche

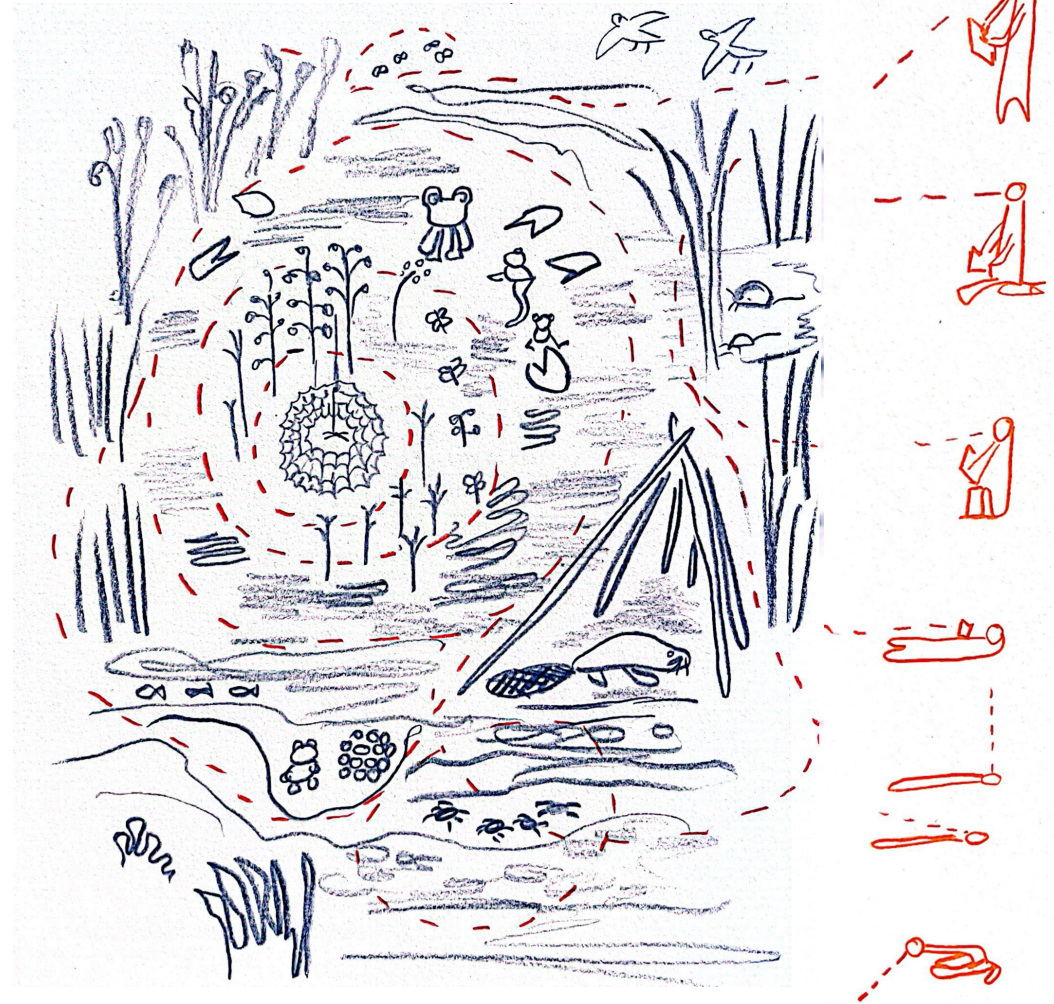
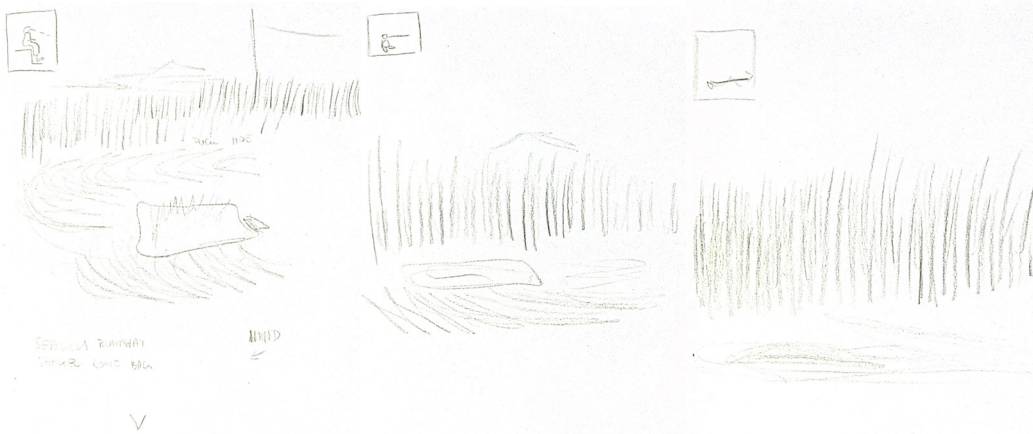
## west



## east



# Method of observation



# The site



improvised architecture



the site becomes a mudland



the soil hides the mystery

# Towards the pond



water collection by the commons



muddy soil



the field of greenery from a standing perspective

# Approaching the pond



reflection



reflection and contrast



pond and the city



tension on the water

# Closer to the pond



from the perspective of the fox



focus on the pond



focus on the grass



grain detection

# The wetland



I walked into pond

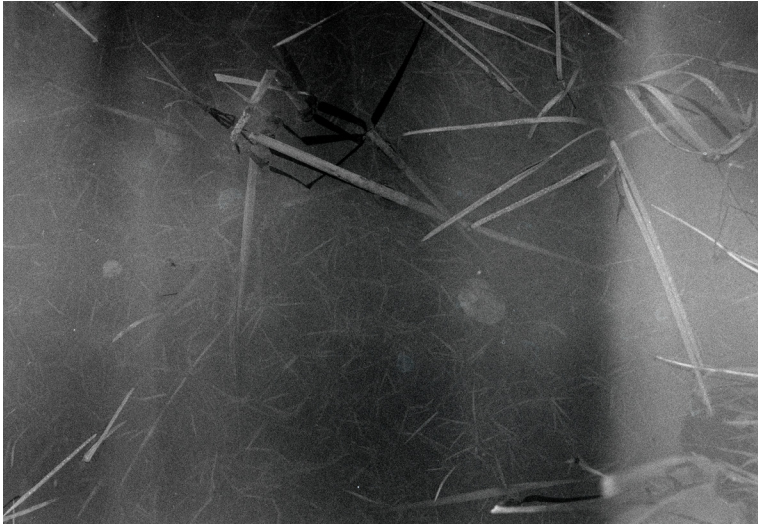


texture of the wetland

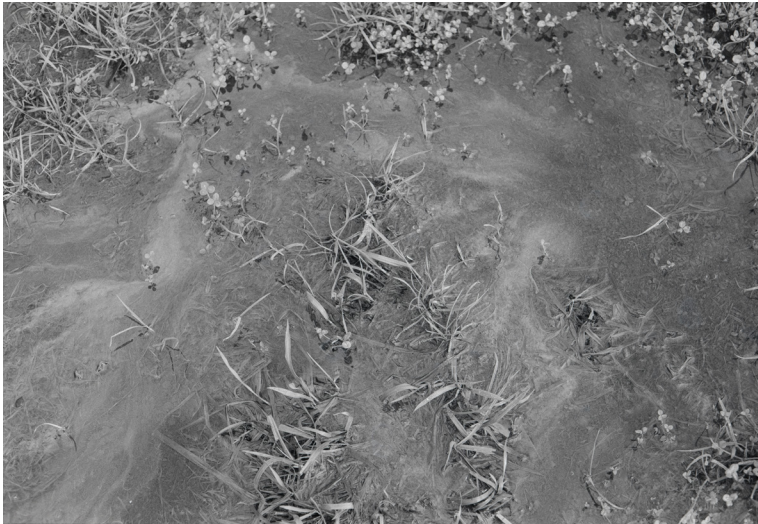


sinking in the mud

# The aura of the pond



dark water surface



pollution of the soil



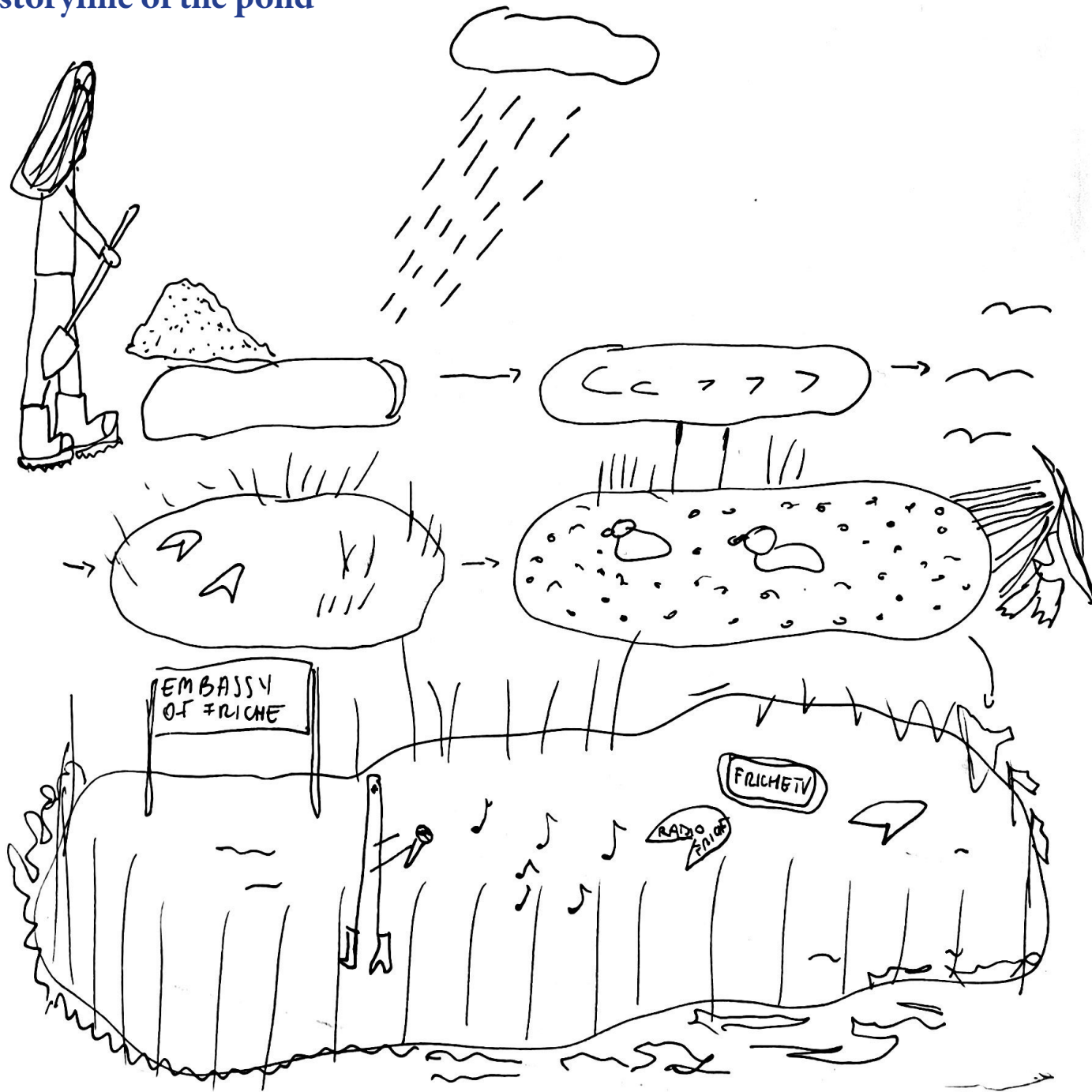
the foggy exposure







# The storyline of the pond



**time**  
*noun*

the indefinite continued progress of existence and events in the past, present, and future regarded as a whole.

by oxford dictionary

figure 5  
waterpond development sketch by author

# Development of the water pond

To understand better the morphology of the pond I made a collection of aerial photos presenting its development through time. The pond happened thanks to the engagement of the commons at the site. Digging out the hole in the soil creates a prominent water feature that attracts numerous species and creates the heart of the biodiversity at the Friche.

In 2013, the land was backfilled and cleaned up. It naturally rewilded due to the absence of human activity and became a prosperous area for biodiversity. The first soil disruption was noted in the summer of 2018. The interrupted terrain created a pattern on its surface, probably those cracks in the soil. This pattern inspired me later to further discover the possible changes in the morphology.

The new topography enabled water collection. The soil was interrupted again in April 2020 with a bulldozer roller trying to create the base for the new road related to ongoing works on the master plan. After reaching the pond it was stopped. This road footprint is the one we were all walking during the site visits. On its border, a wooden fence was created. On the maps the impressive boost of the greenery on the west part. The bushes and small trees grow significantly.



09.2017



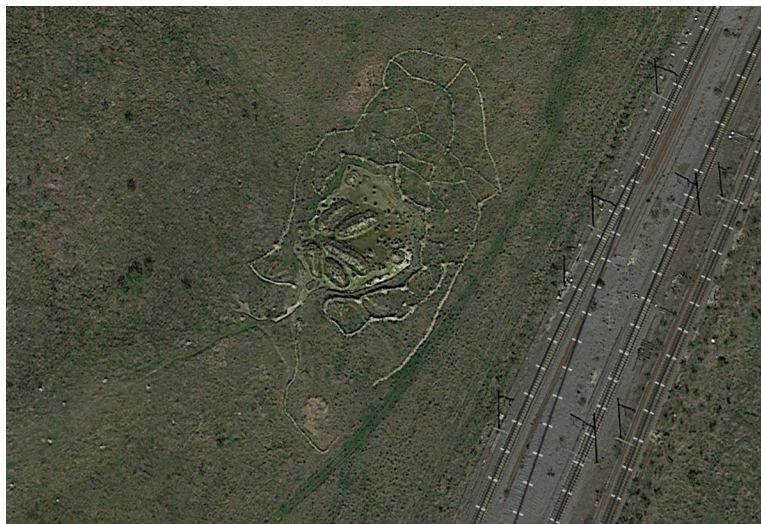
09.2018



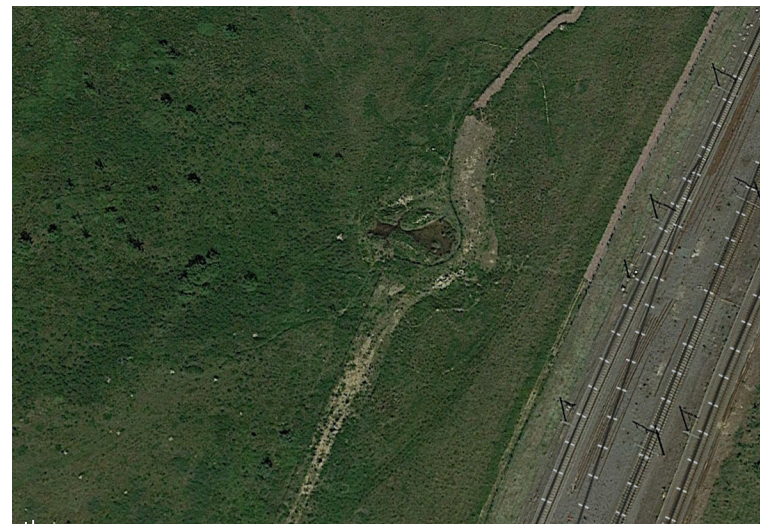
07.2019



04.2020



04.2020



01.2021



03.2021



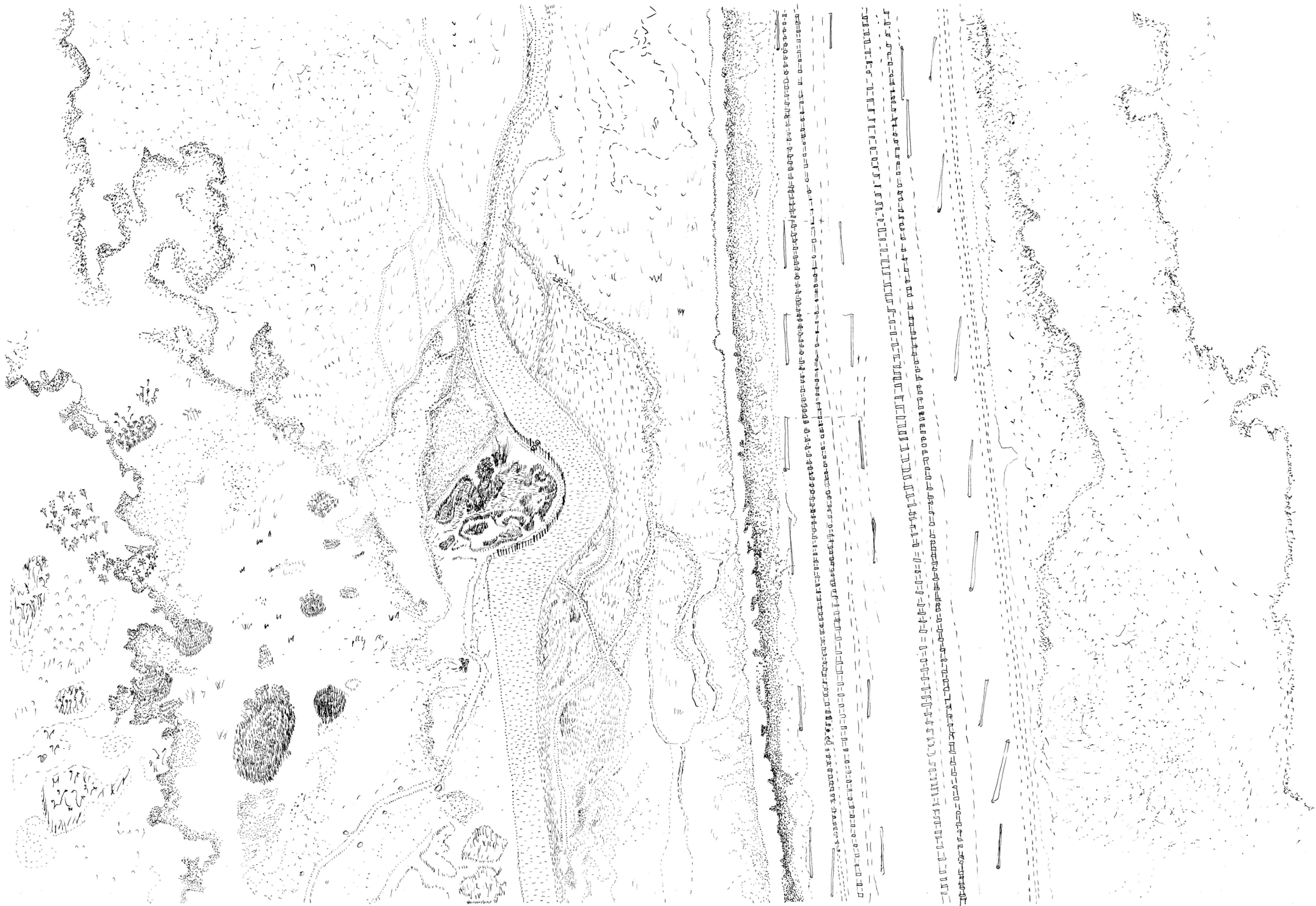
03.2023



06.2021



07.2023





**constitution**

*noun*

| a body of fundamental principles or established precedents according to which a state or other organization is acknowledged to be governed.

by oxford dictionary

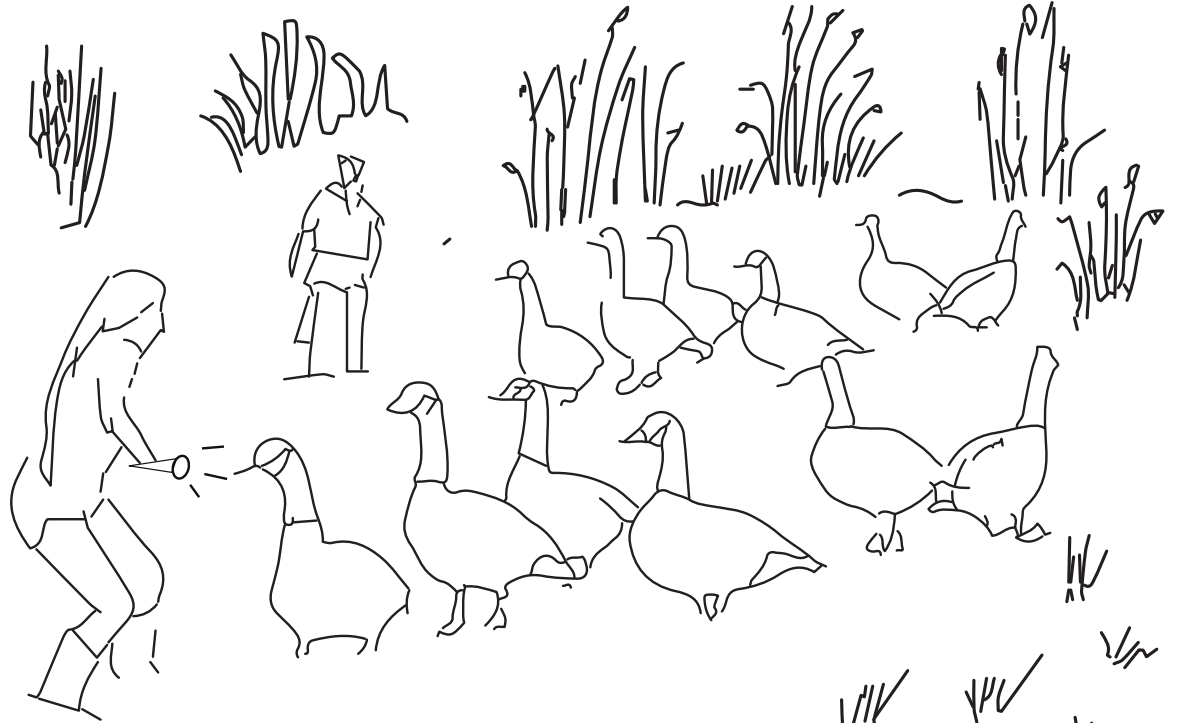


figure 9 Understanding the nature principles, sketch by author

# Masterplan

The masterplan is designed to converge the natural Friche and the dense city, placing a focus on the intersection of the two. The masterplan directs attention to the dark zone that the Friche currently is, creating a structured layout with north-south oriented layers. The Friche is envisioned as a wild urban green space, flanked by the train tracks and The Pocket Friche acting as a buffer zone. Transitioning further, the urban zone emerges, incorporating residential spaces, public functions, and a vibrant boulevard.

Within the Masterplan, all proposed projects strategically find their place on or next to the buffer zone, serving as connectors that bridge the natural Friche with the urban zone. The masterplan addresses the pressing need for housing, proposing approximately 1200 apartments. Crucially, it ensures minimal disruption to the natural Friche, maintaining the train tracks as a harsh border; allowing for the coexistence of the natural Friche and dense housing.

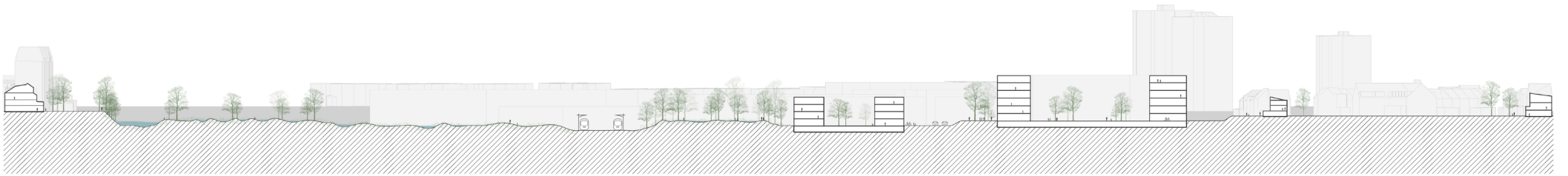
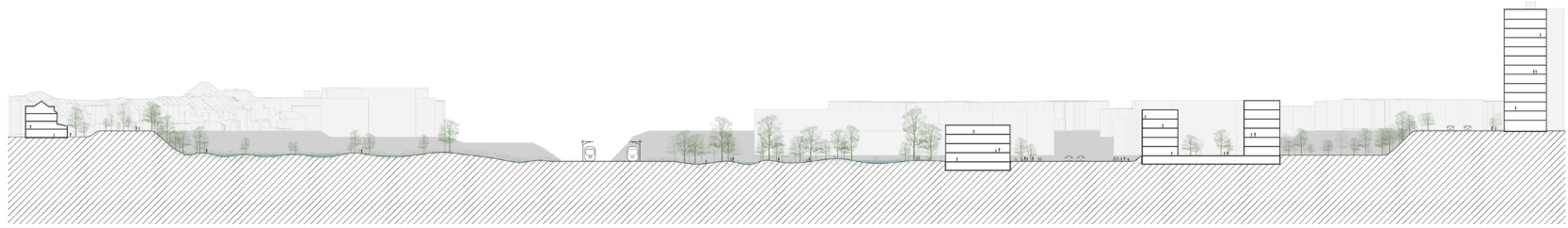
The unique intersection between dwellings and the natural Friche occurs exclusively in the southwest area. Here cooperative dwellings are proposed and space is left for the commons, who initially started creating awareness on the value of the Friche to biodiversity.

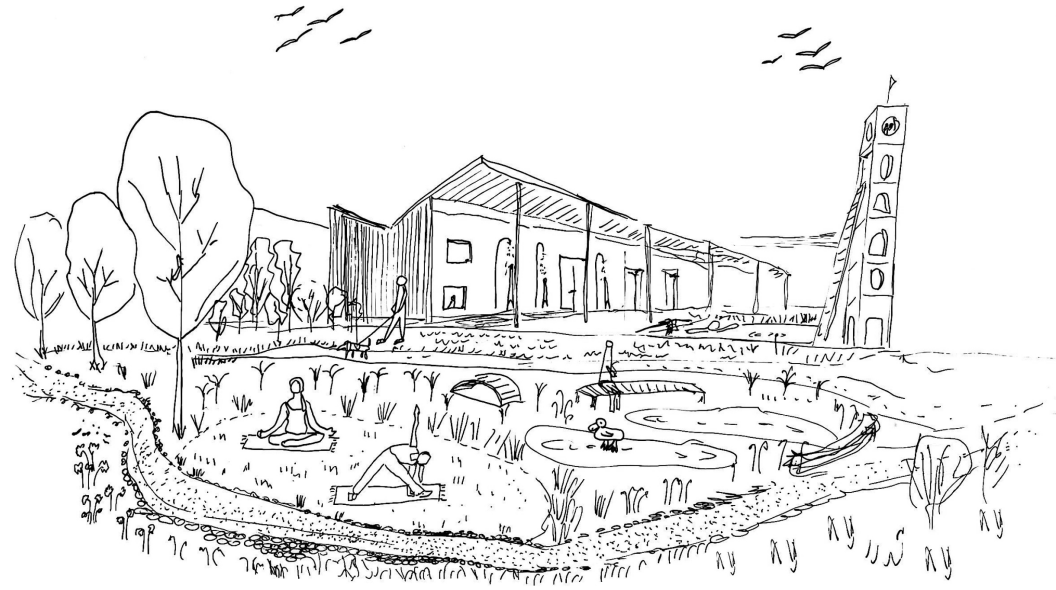
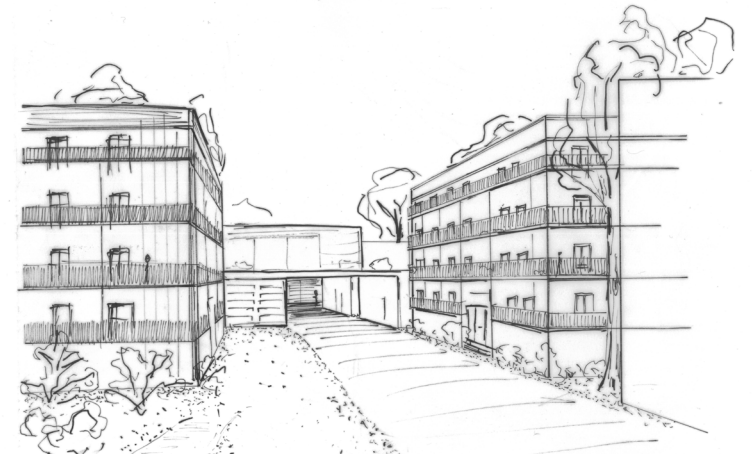
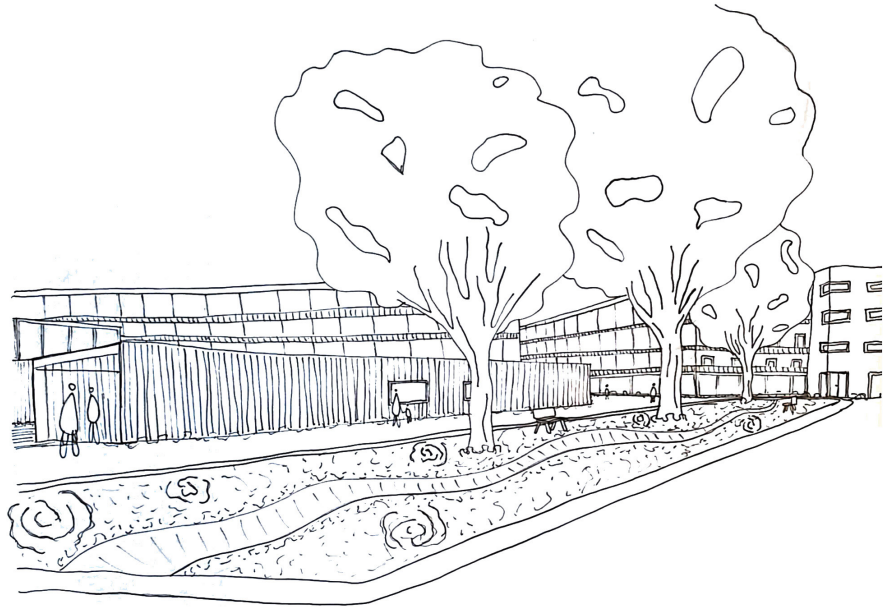
The masterplan harmonizes the demands of urban living with environmental preservation, creating a balanced vision for the meeting of Friche and city life.

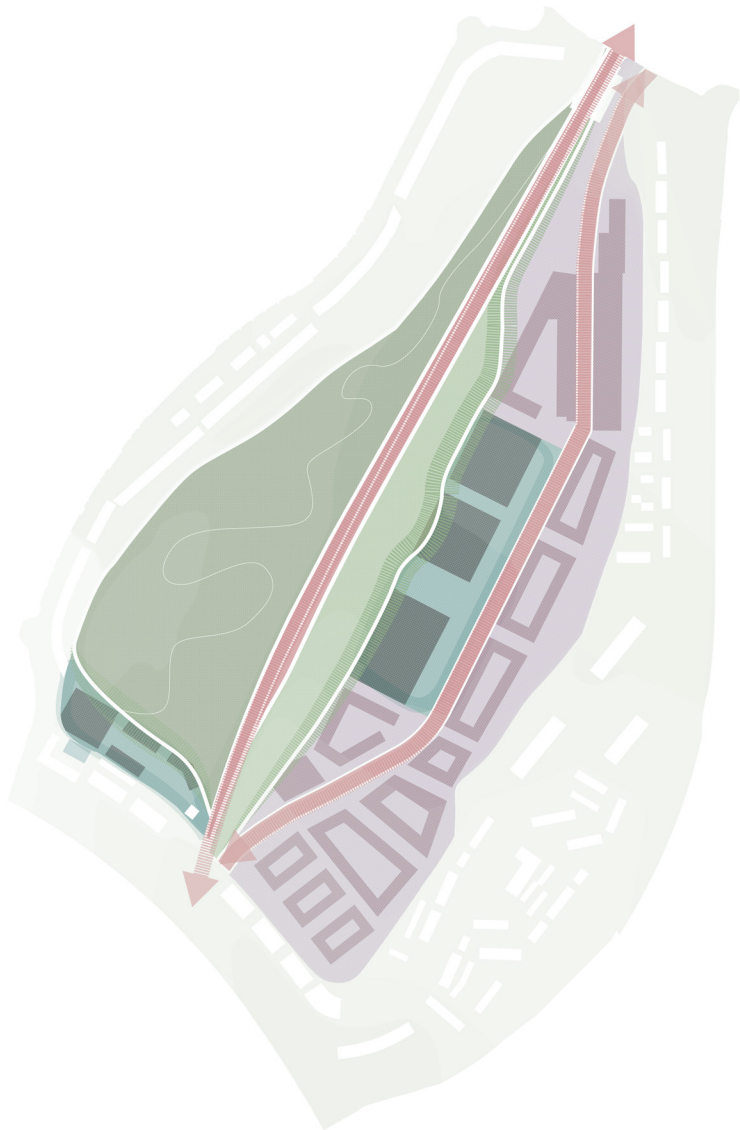


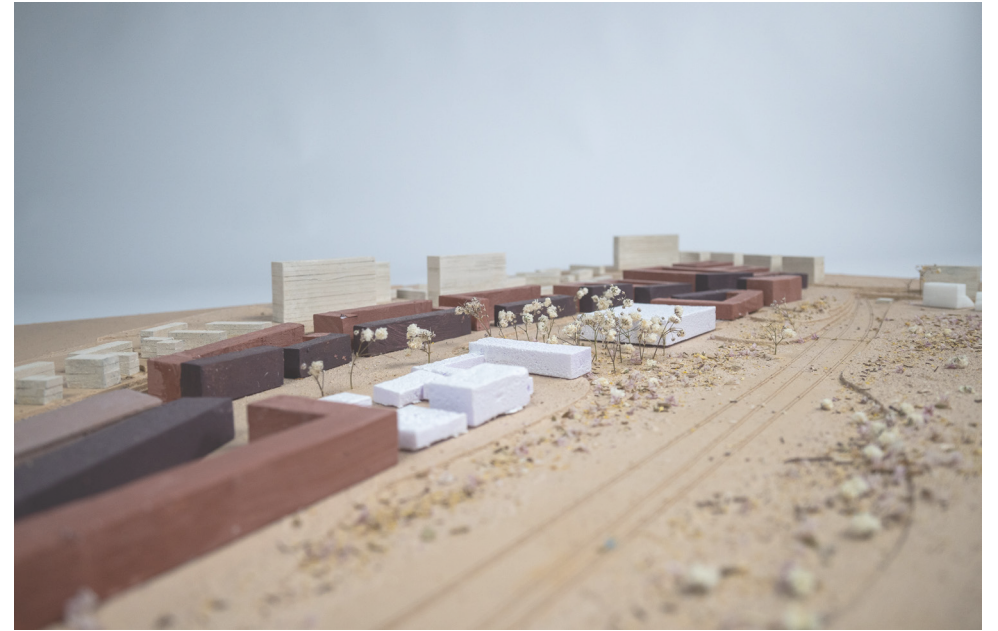




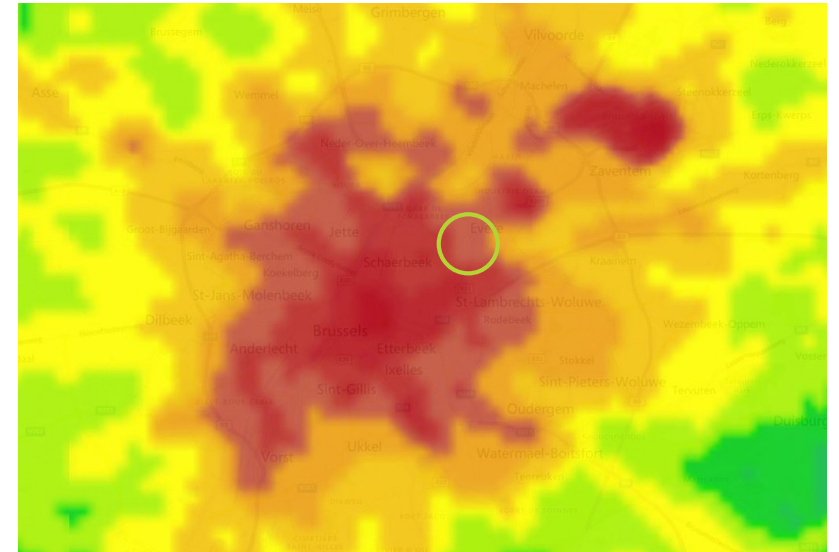
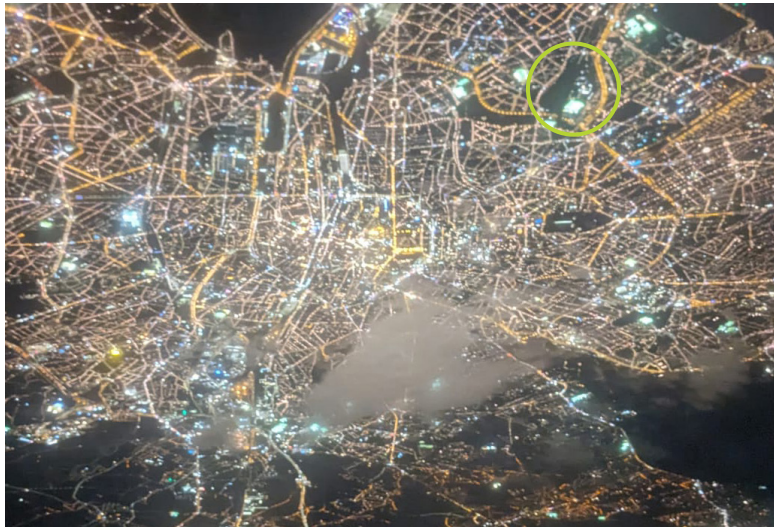






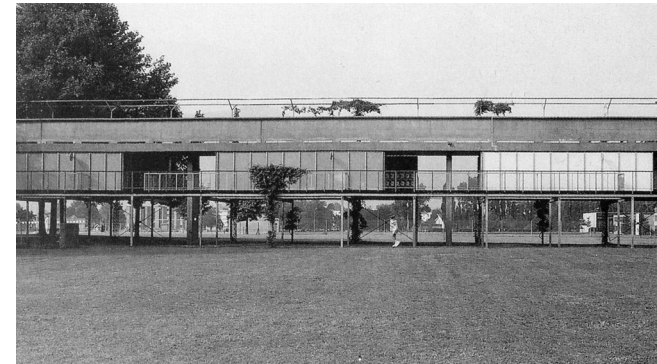
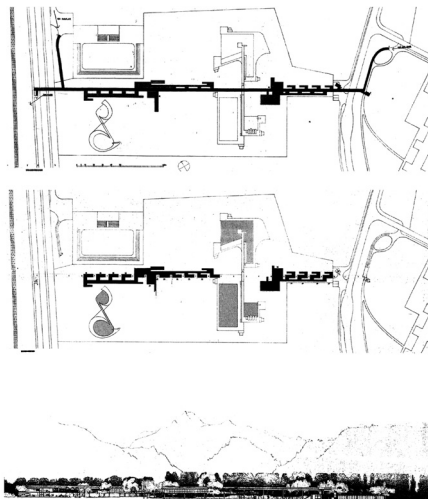


# Dark zone of the Friche



# References for the project

## Il Bagno di Bellinzona- Aurelio Galfetti in Bellinzona, Switzerland, 1967



# Szumin house by Oskar & Zofia Hansen



Photographic analysis of the changes of light in crepuscular hours in a non-electrified countryside house. Photo Anna Zagrodzka, 28/29 March 2018

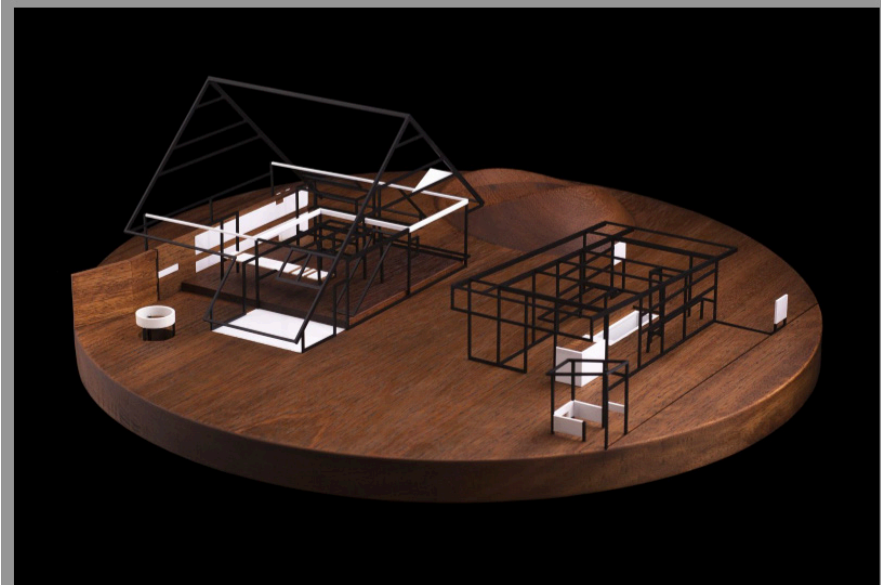
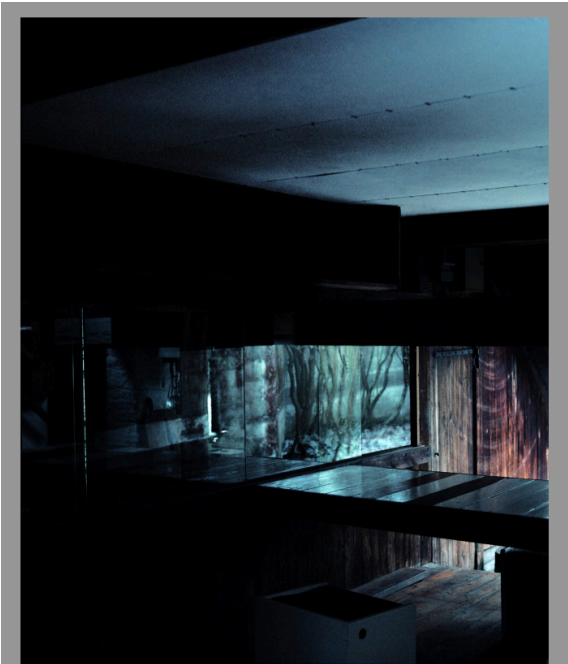
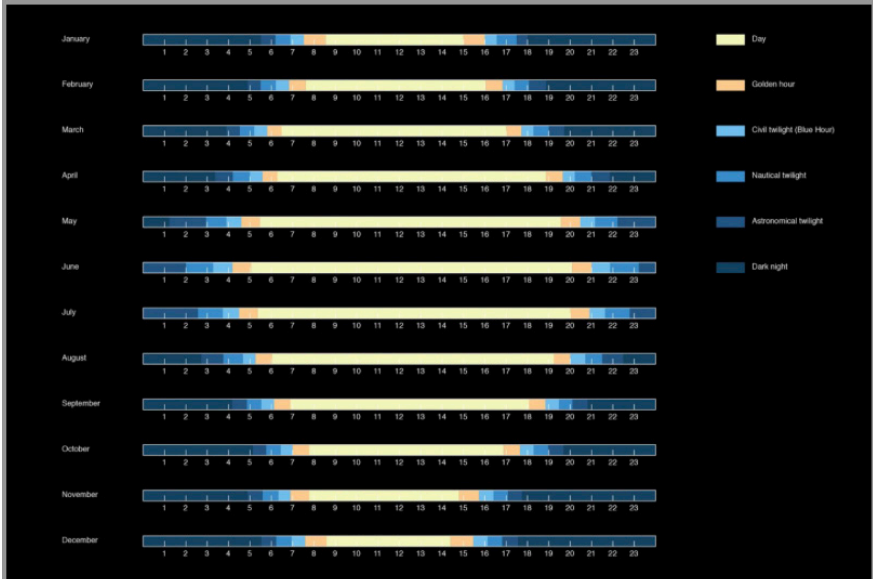


Photo Anna Zagrodzka, 2018

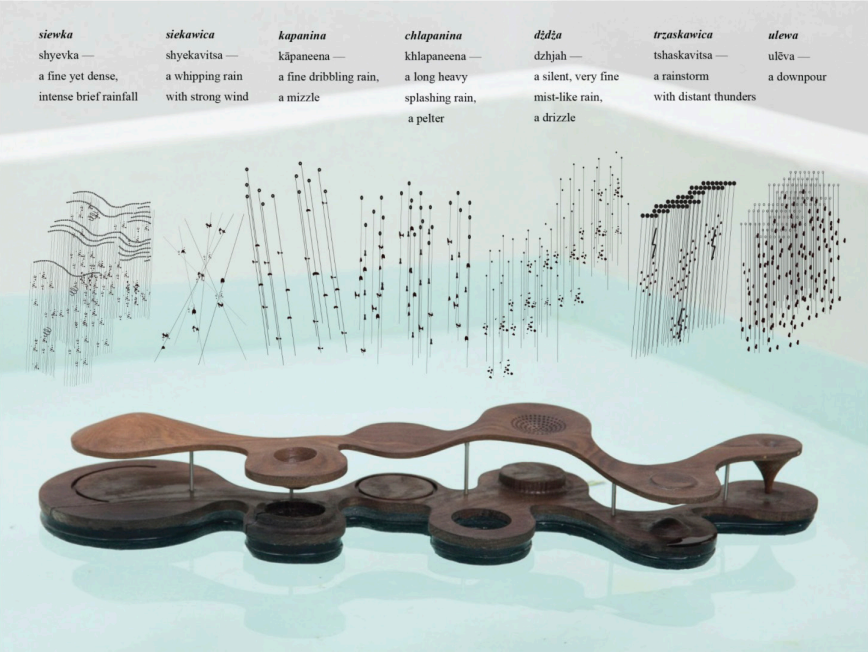


Photographic analysis of reflection of light in the Hansens' house in Szumin according to CENTRALA's conception of the "third time of day" – crepuscular. Photo Anna Zagrodzka, 28/29 March 2018



The third time of the day, a phenomenon of Central European geographical latitudes, in the annual cycle, compiled by CENTRALA, 2016

# Water as microclimate






From the Anthropocene exhibition, 2022, photo Tomasz Kubaczyk

*An appropriate architectural composition reduces the negative characteristics of weather and strengthens the positive ones. Microclimates in the city can be constructed once we embrace meteorological phenomena as a component of the design.*

**Insulative-radiative weather, cloudless during the day and windless at night:**




# Pool is cool

**POOL IS COOL** **NEWS EVENTS SHOP**   

January 31, 2021

## JOSAPHAT SWIM ?



A wasteland, transformed into an ecosystem

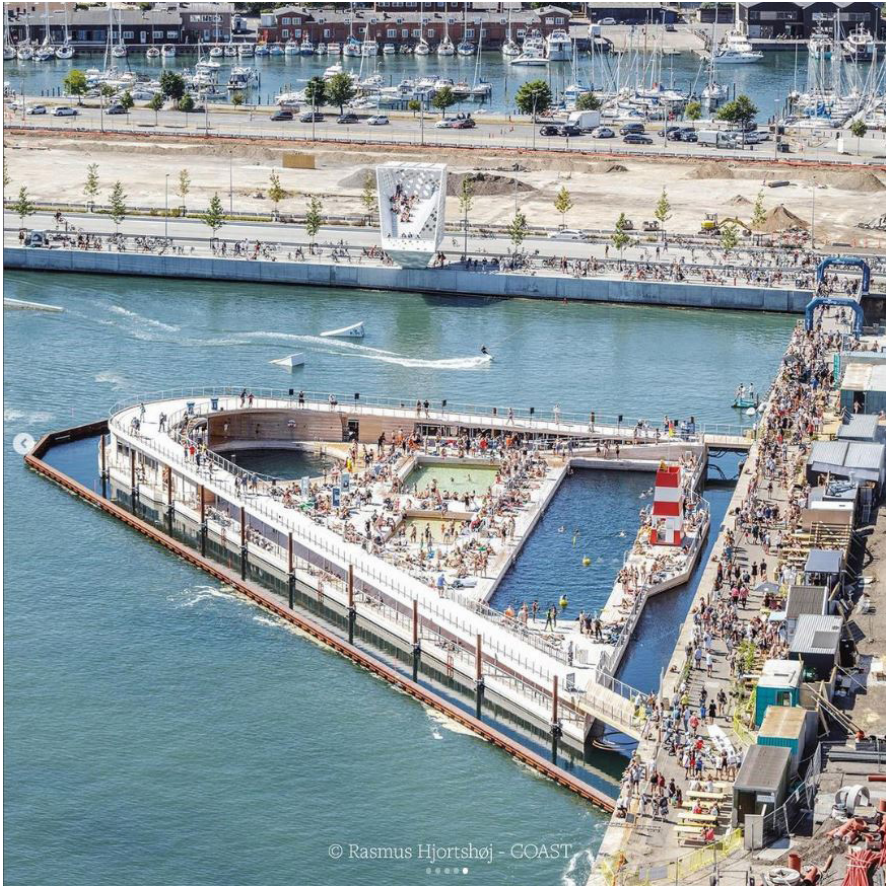
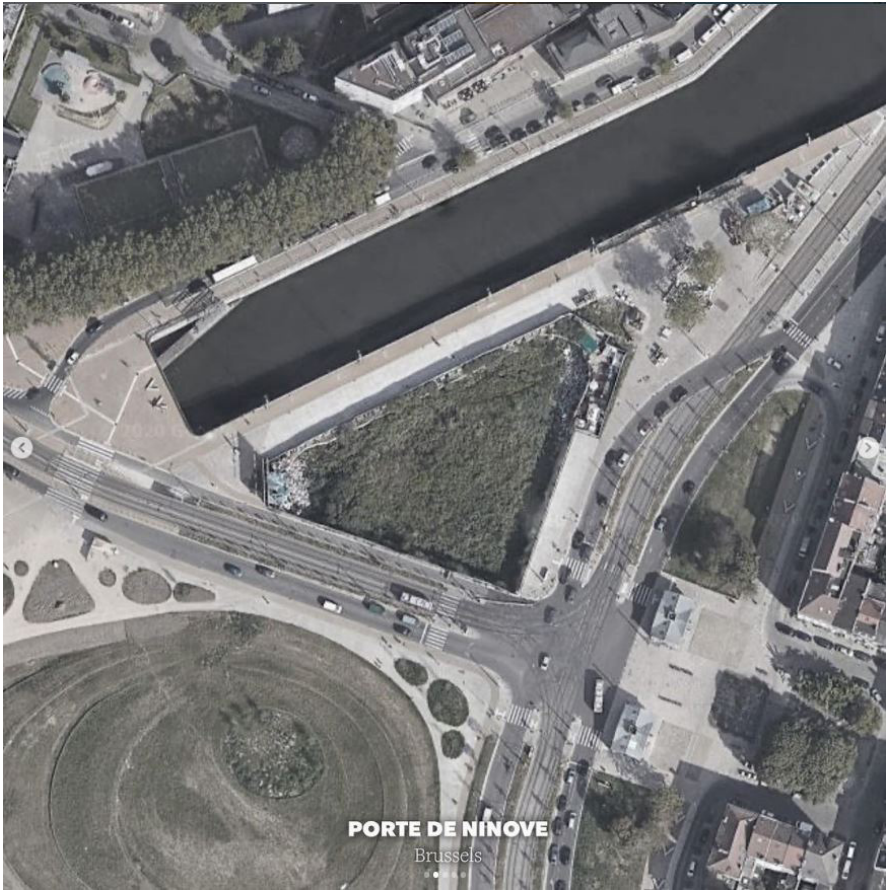
EN FR NL



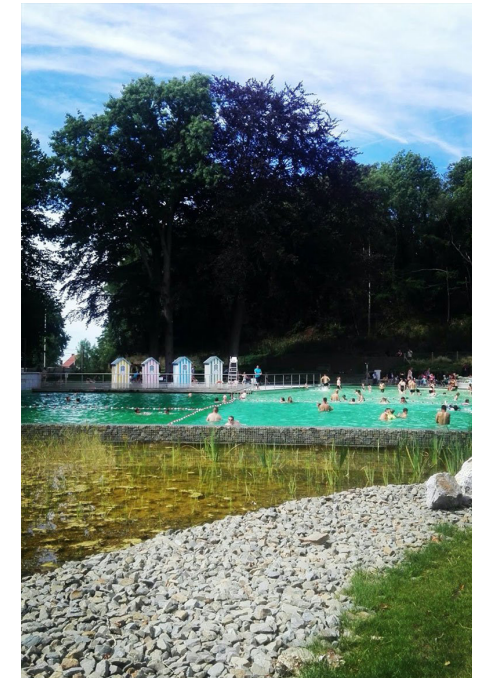
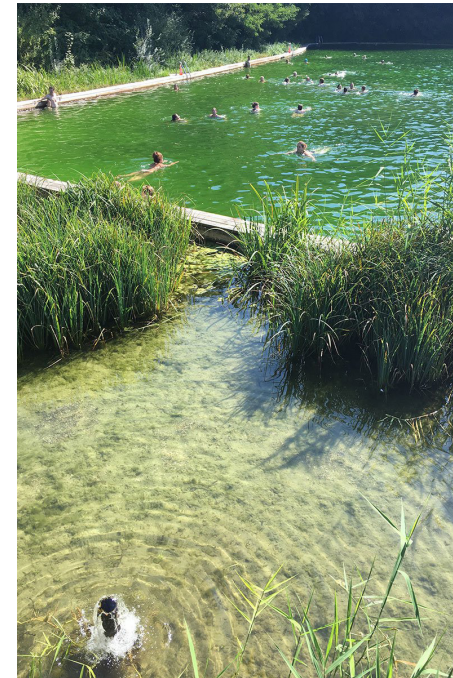
**ABOUT FOLLOW THE MASTERCLASS CONFERENCE CONTRIBUTORS CALL FOR PARTICIPANTS**



# The need of turning soil into pool



# Naturbad Riehen by Herzog & deMeuron



# Flow Brussels



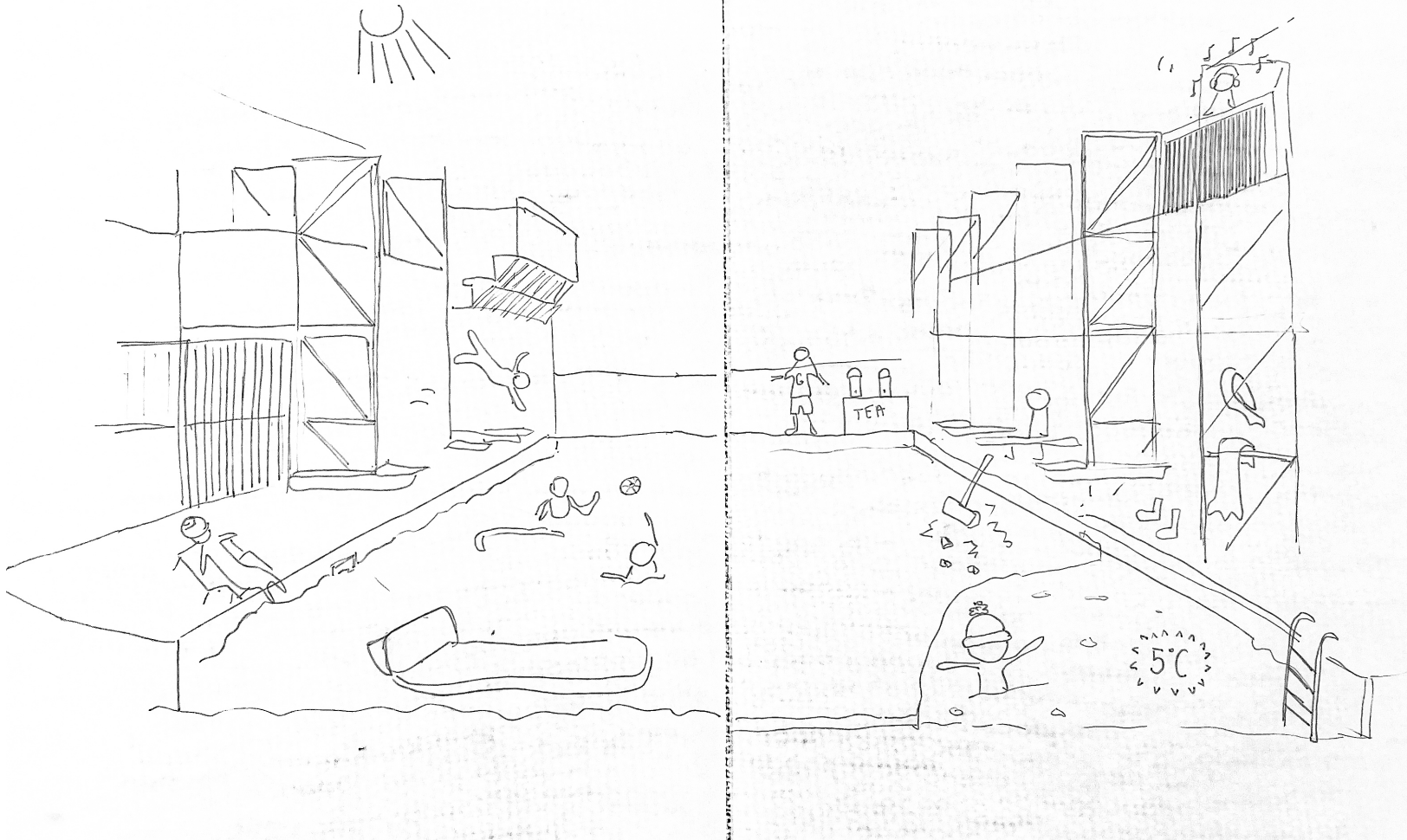
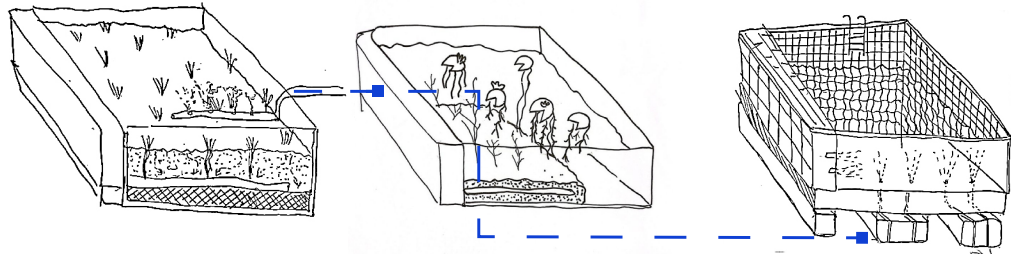
Natuurbad De IJzeren Man B.V., Eindhoven



Natuurbad zwembad De Put, Rijkswijk



# Natural filtration system at FLOW



## Batching culture by Raumlabor



## Naturbad Antwerp



# Broedplaats De Ceugel Amsterdam

a zoop where plants, animals and ecosystems have a ,voice' in an organization or company



De Ceugel, A playground for innovation, Space & Matter



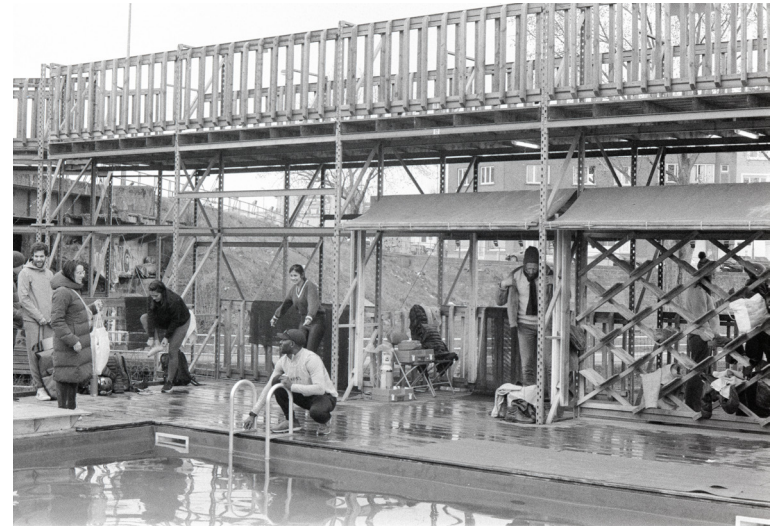
# Floating Berlin



Floating-Berlin raumlabor



## Visiting the pools - FLOW



## Visiting the pools - Rijkswijk



## Visiting the pools - Eindhoven



## Agency



## Hage Sweden

## Social engagement



Plac Nowego Sąsiedztwa, Plac DeFilad, 2022, fot. Sisi Cecylia



## Mezzana Agricultural Collage



## Rauch House



## Sihholzli Sports Complex Zurich



## Negenoord observation tower by De Gouden Liniaal Architecten

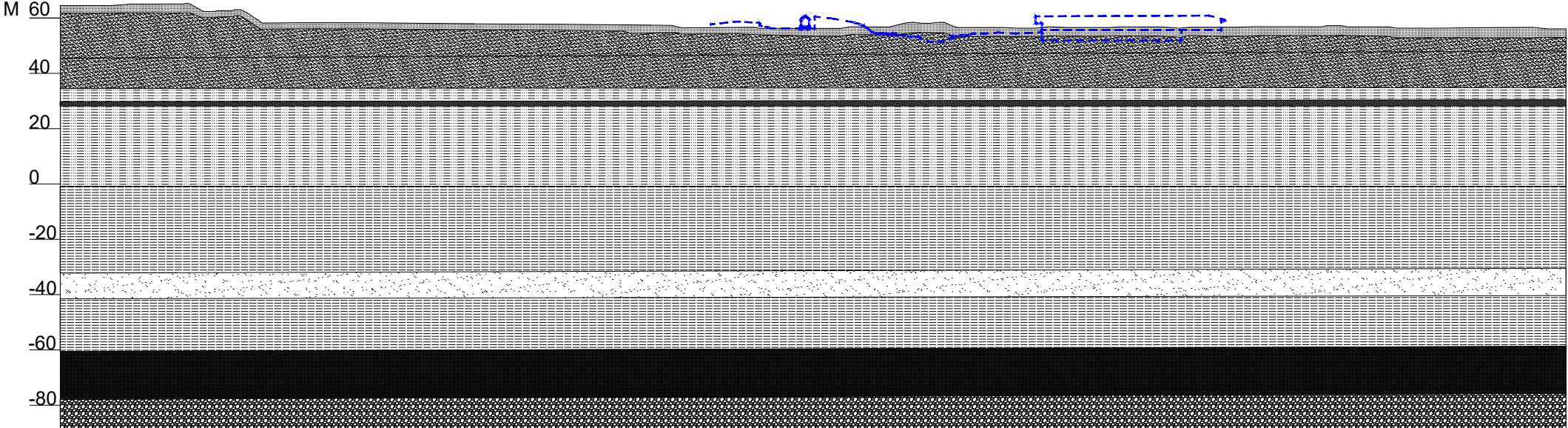


## The project



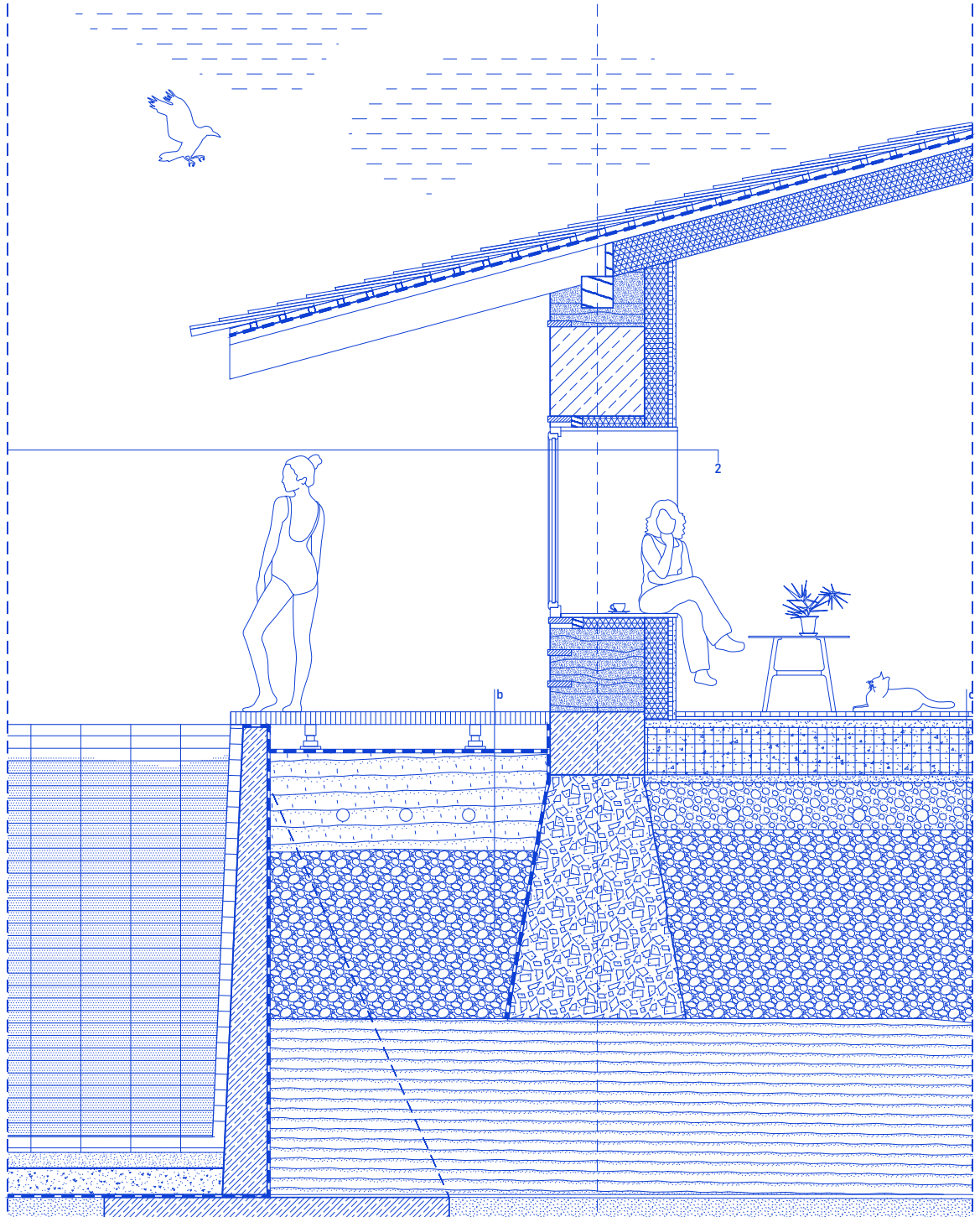
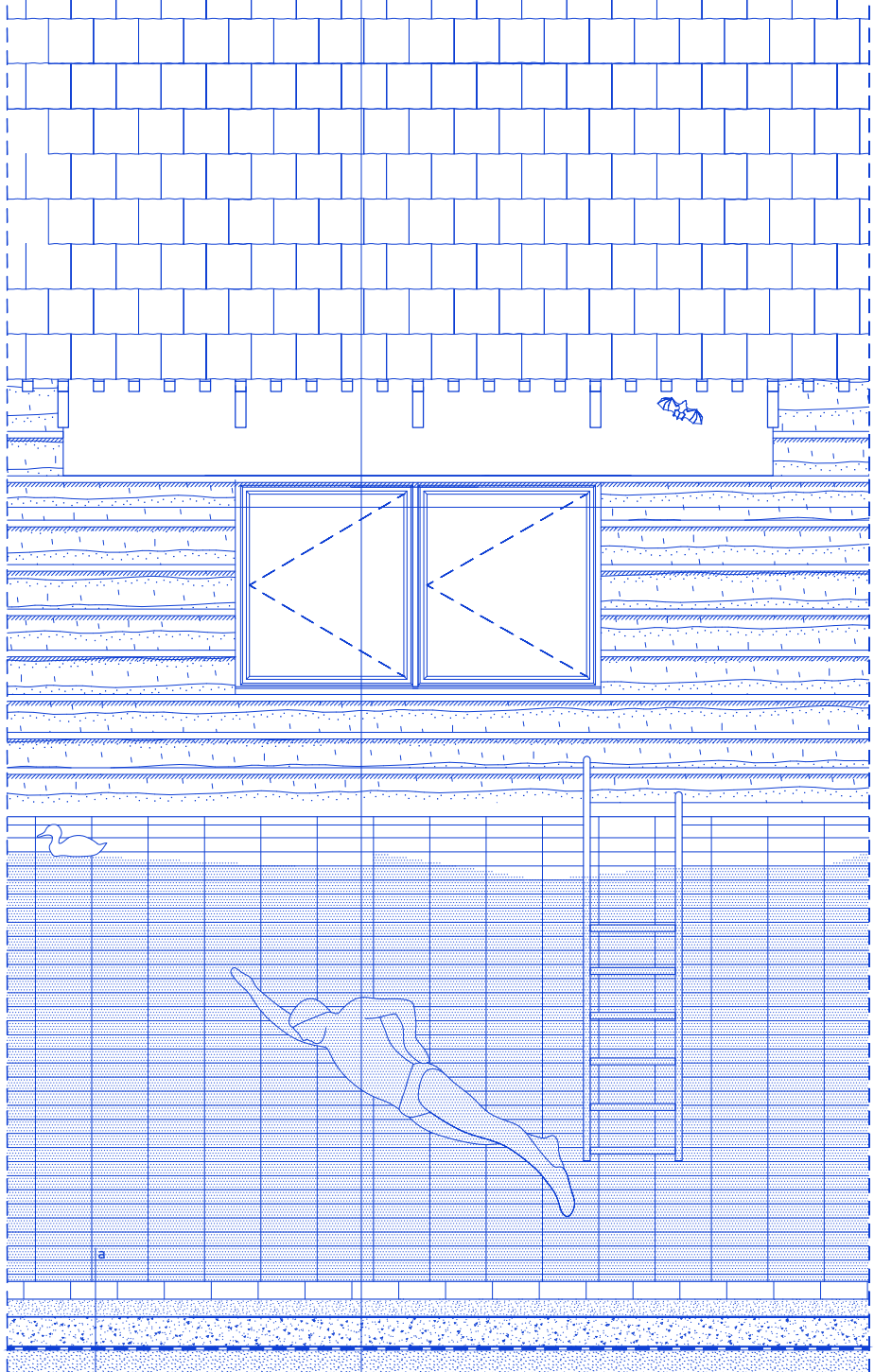
Programme		
Name	Area	Level
Pilates	106 m <sup>2</sup>	Level 0
contemplation room	49 m <sup>2</sup>	Level 0
equipment storage	51 m <sup>2</sup>	Level 0
changing room	51 m <sup>2</sup>	Level 0
Joga	106 m <sup>2</sup>	Level 0
Fitness	212 m <sup>2</sup>	Level 0
changing room	53 m <sup>2</sup>	Level 0
Entry, reception, foyer	100 m <sup>2</sup>	Level 0
Cafe	147 m <sup>2</sup>	Level 0
Semi outdoor/wet area	243 m <sup>2</sup>	Level 0
changing room	45 m <sup>2</sup>	Level 0
wc	16 m <sup>2</sup>	Level 0
showers	15 m <sup>2</sup>	Level 0
wc	17 m <sup>2</sup>	Level 0
showers	15 m <sup>2</sup>	Level 0
restaurant	137 m <sup>2</sup>	Level 0
meeting room/swimming school	131 m <sup>2</sup>	Level 0
first aid	31 m <sup>2</sup>	Level 0
office	32 m <sup>2</sup>	Level 0
exhibition space	106 m <sup>2</sup>	Level 0
technical room/water filtration	49 m <sup>2</sup>	Level 0
changing room	19 m <sup>2</sup>	Level 0
Fitness rooms	480 m <sup>2</sup>	Level 1
Toilet, showers	68 m <sup>2</sup>	Level 1
Changing rooms	99 m <sup>2</sup>	Level 1
Workshop space	226 m <sup>2</sup>	Level 1
Fooftop sport fields	901 m <sup>2</sup>	level 2 hall
Rooftop terrace, garden	283 m <sup>2</sup>	level 2 hall
Swimming pool	1360 m <sup>2</sup>	Level 0
sauna	69 m <sup>2</sup>	Level 0

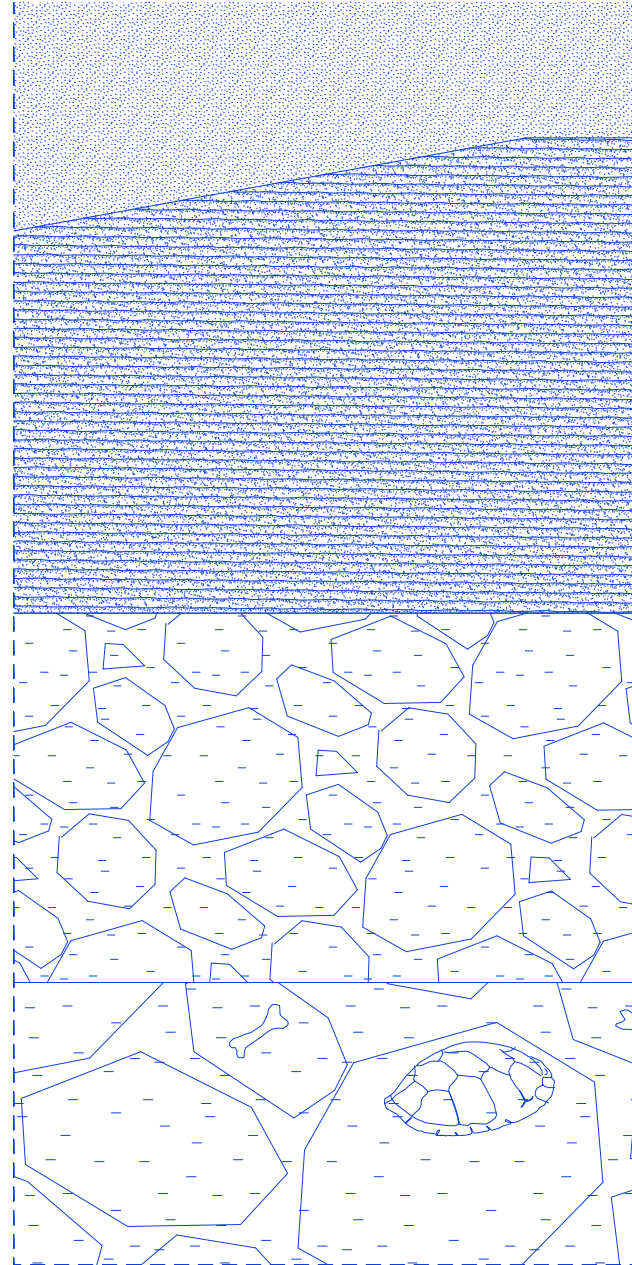
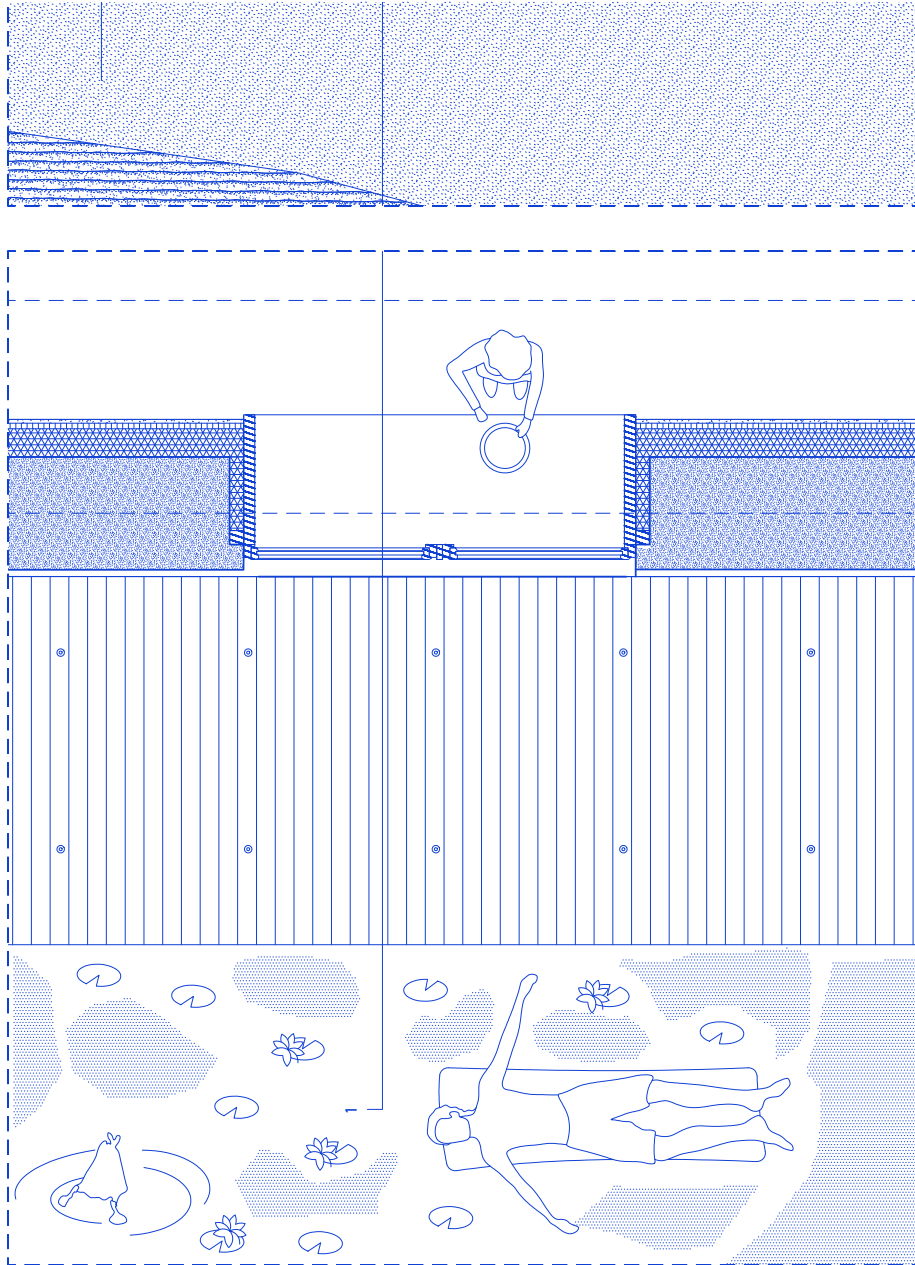
# Existing topography



- undifferentiated quarryary
- silt / sand and clay
- sand and gravel
- shaalie and sandstone, solid rock
- clay
- sand
- chalk
- 







## a floor of the pool

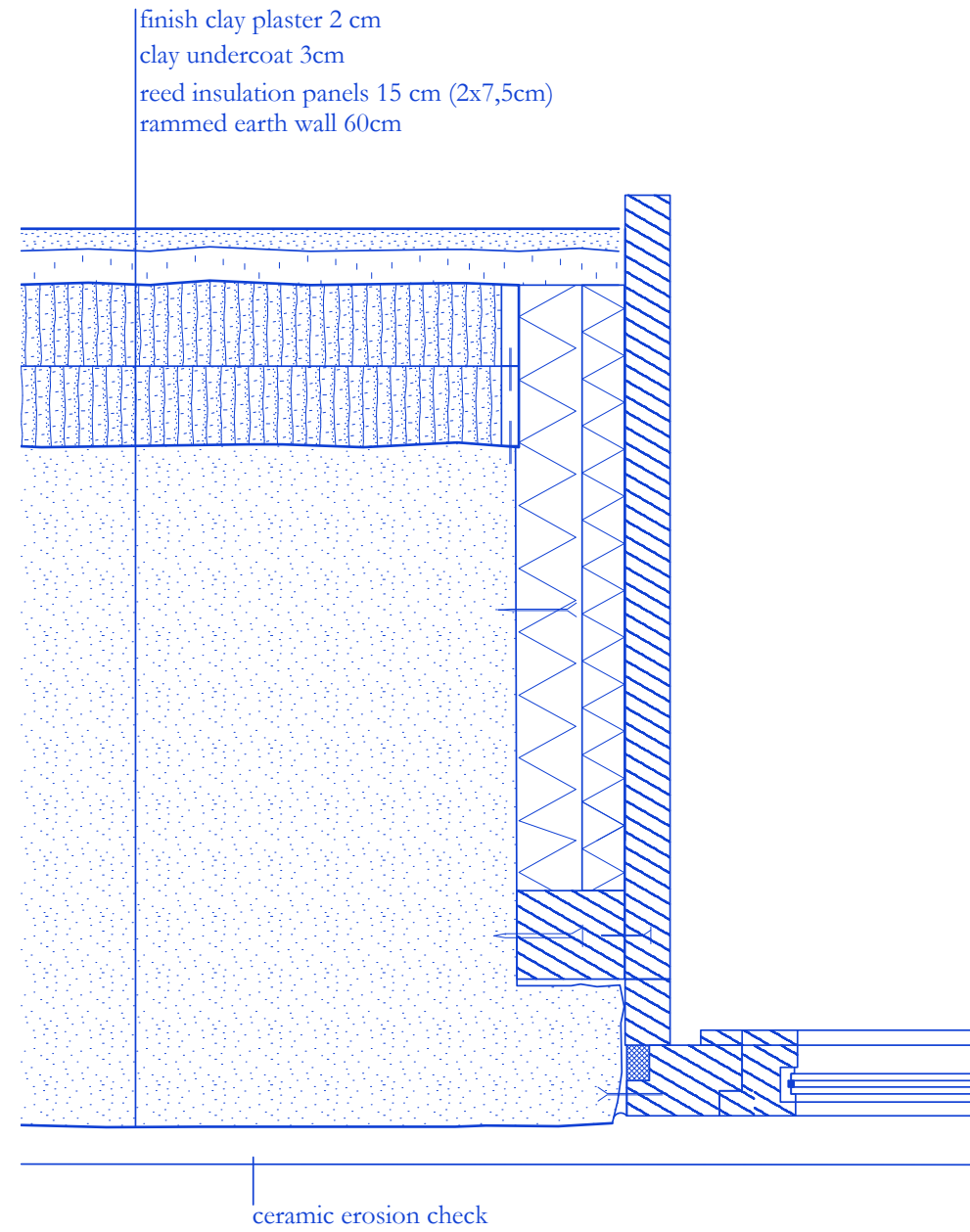
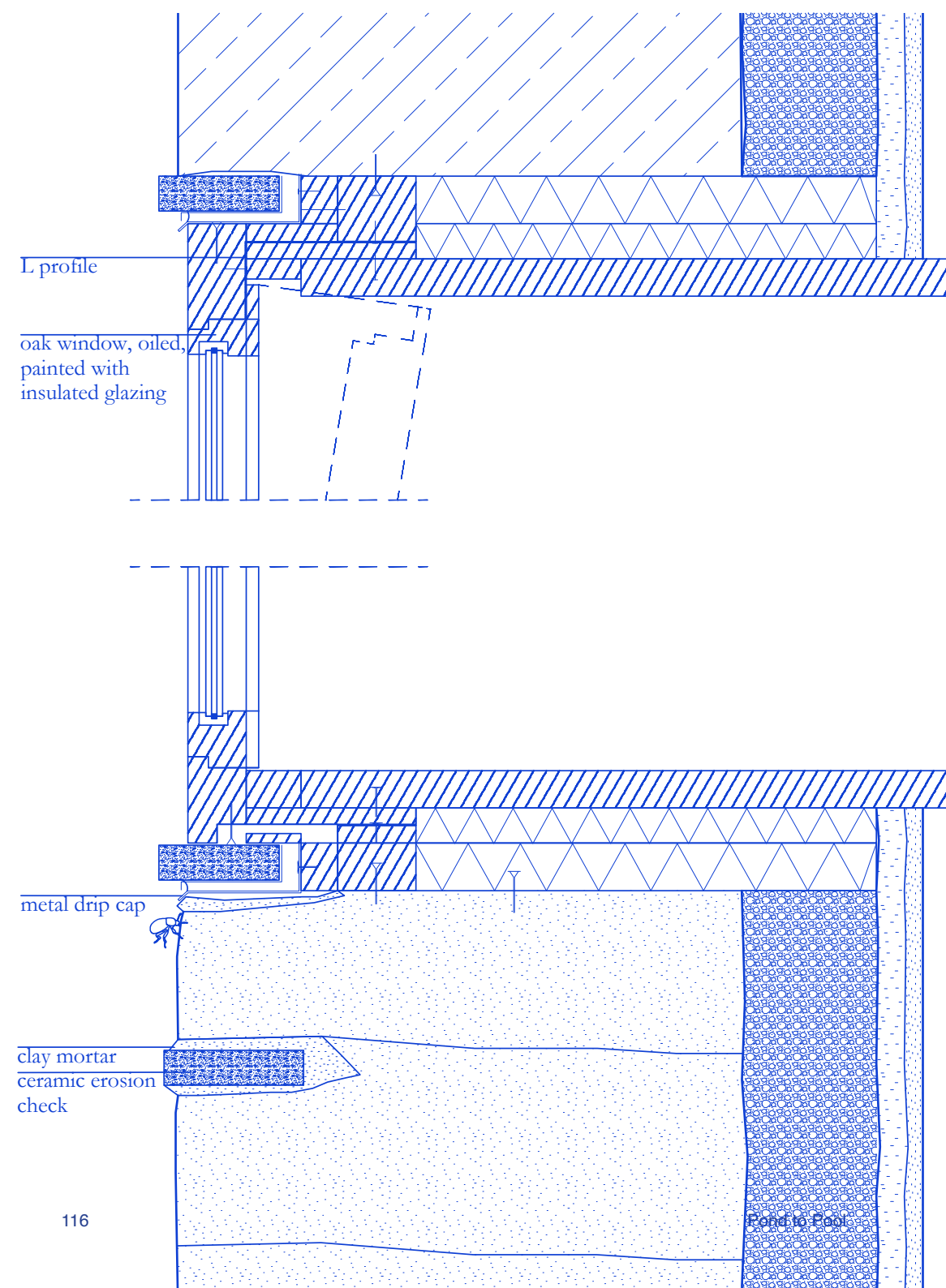
cladding ceramic 10cm  
geopad layer  
jutte  
soil (clay+sand)  
waterproofmembrane  
Existing soil (clay)

## b deck around the pool

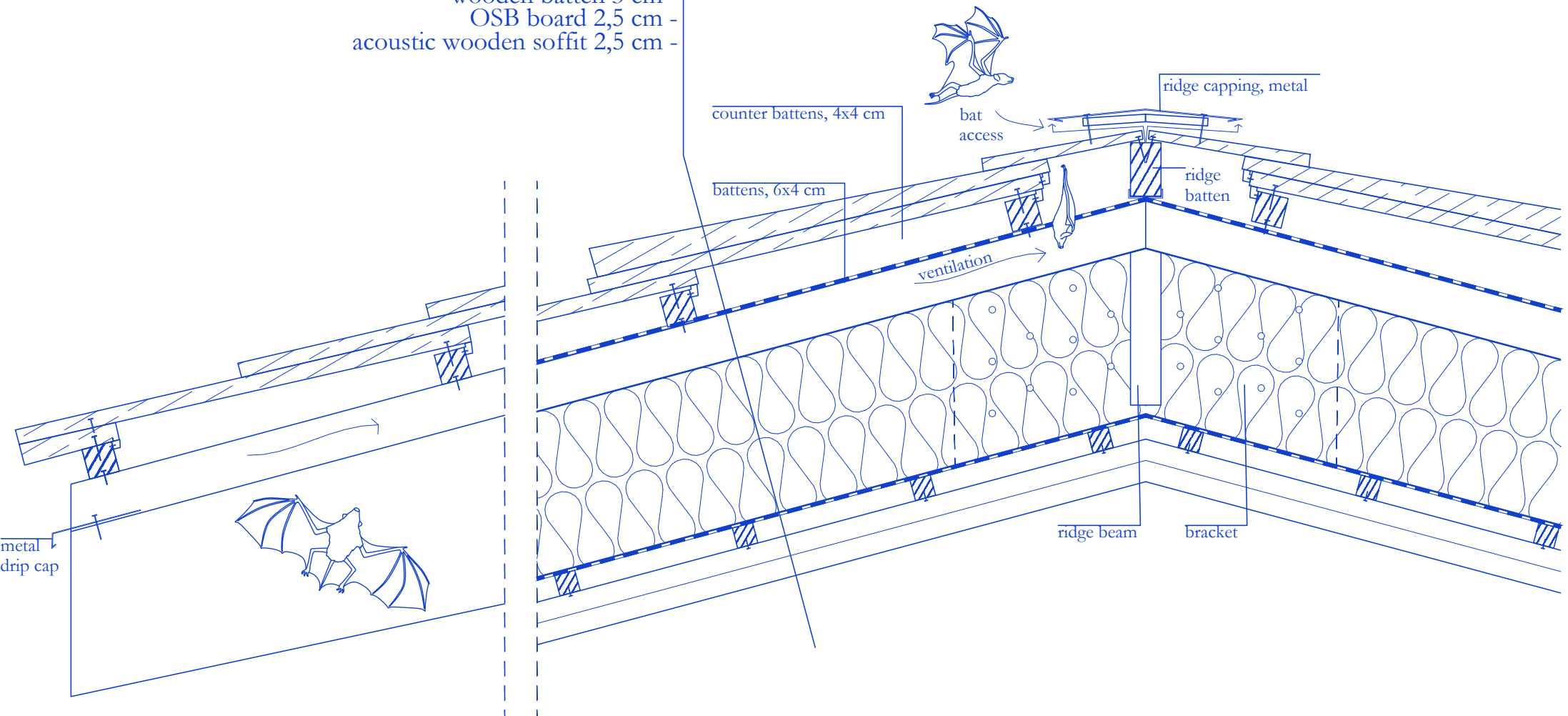
wooden planks 10cm  
wodden substructure  
waterproof membrane  
rammed earth  
gravel

## c hempcrete floor

wooden floor 4cm  
wodden substructure 4cm  
sand 6cm  
floor heating  
ISO hemp block 30cm  
stabilised cement 6cm  
draining block 30cm  
sand & clay  
existing clay



- roof pine wood shingles -
- counter battens 4 cm -
- breathable roof membrane -
- roofing battens (ventilation gap for hemp) 6 cm -
- wood fibre board 2,5 cm -
- wodden rafter + blown hemp insulation 21 cm -
- airtight vapour barrier -
- wooden batten 3 cm -
- OSB board 2,5 cm -
- acoustic wooden soffit 2,5 cm -



# Products references

leëm®

Rammed Earth Mix Brown



**Description**  
Just-in-time humid mix for rammed earth made from unpolluted, undisturbed soil.

**Circularity**  
+63% secondary resources  
100% Closed Loop Recycling  
100% Reusable

**Manufacturer**  
BC materials, in Brussels, Belgium

**Product**

- Composition**
- Dordogne Clay
  - Less loam from excavated urban sites (mineral waste stream)
  - Brusseliansand from excavated urban sites (mineral waste stream)
  - Maas sand
  - Crushed washed concrete (mineral waste stream)



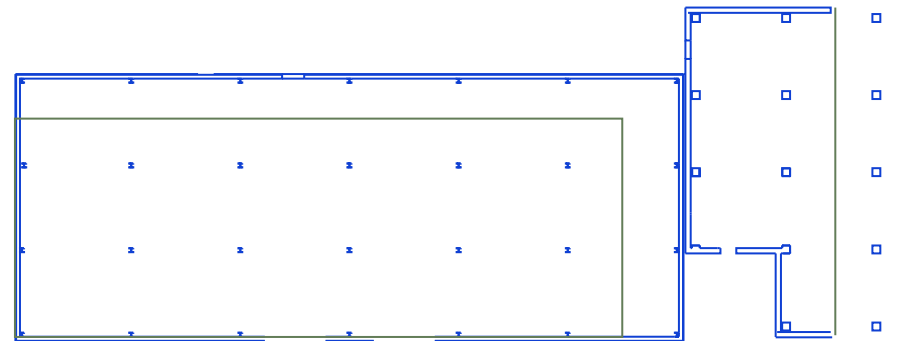
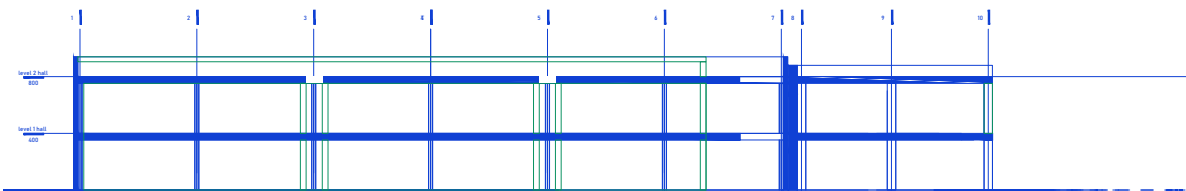
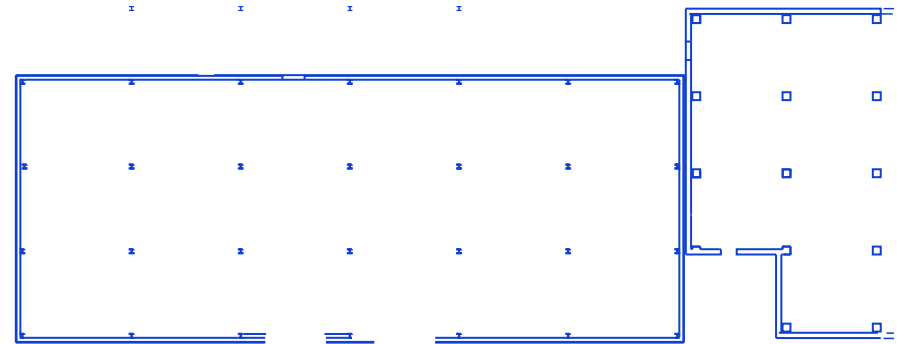
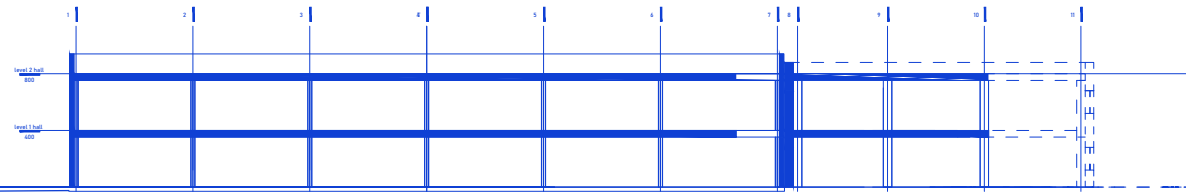
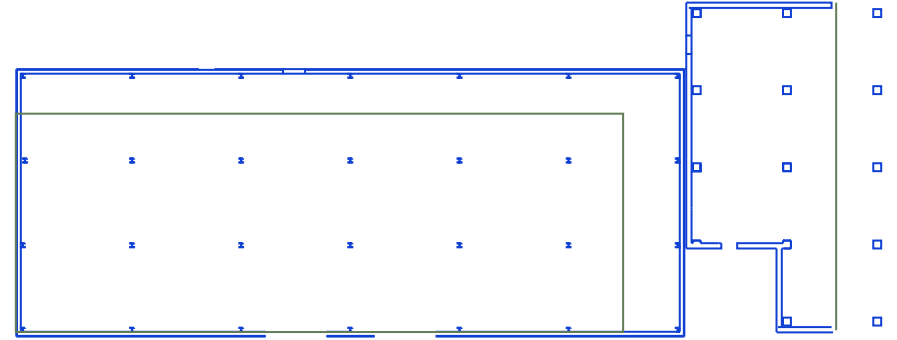
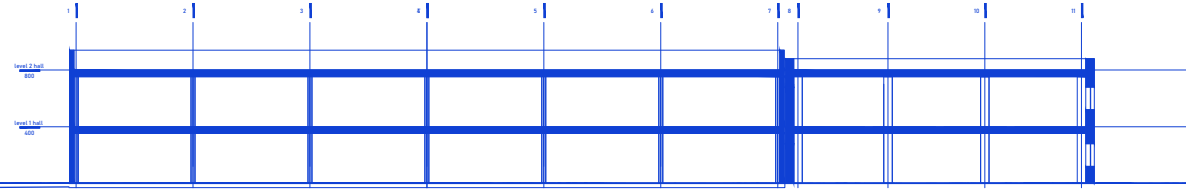
Dordogne Clay    Less loam    Brusseliansand    Maas sand    Crushed washed concrete

1 - dd. 19/09/23

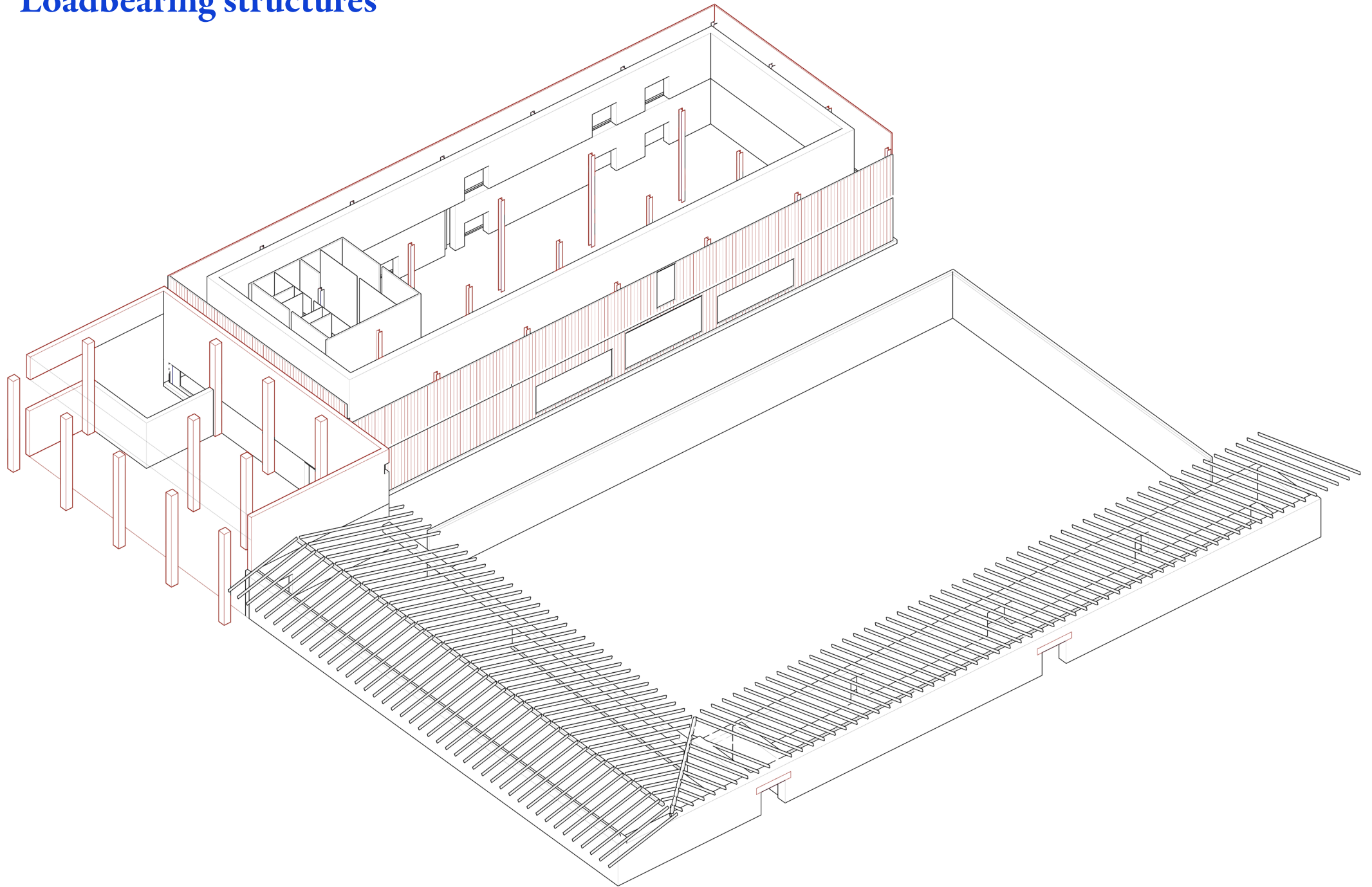


# Workshop with Studio ACTE

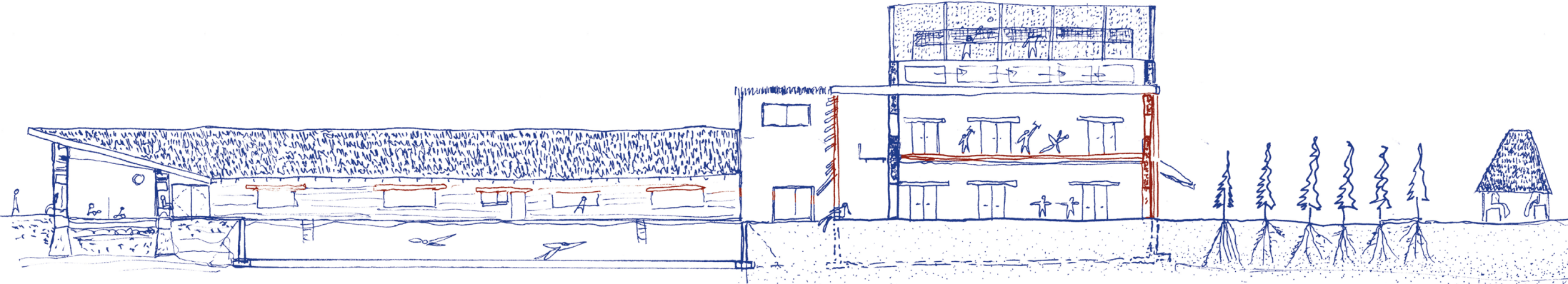
# Existing



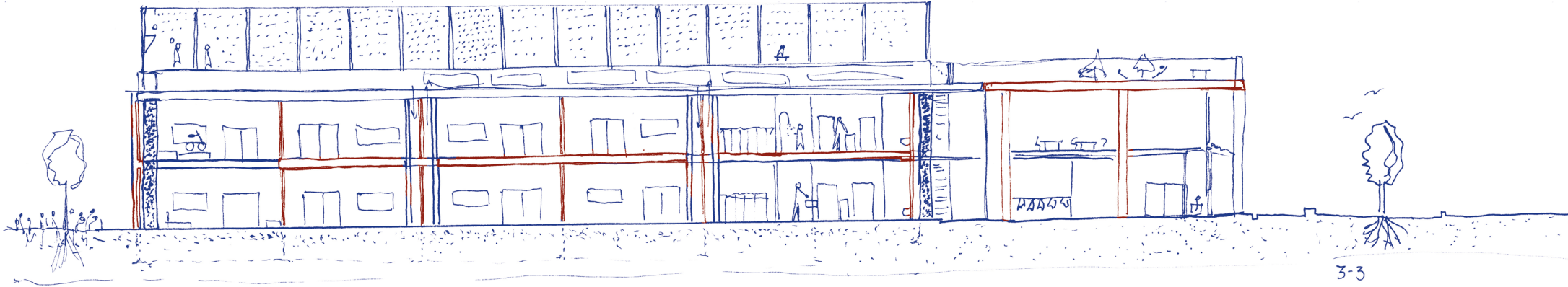
# Loadbearing structures



# Sections



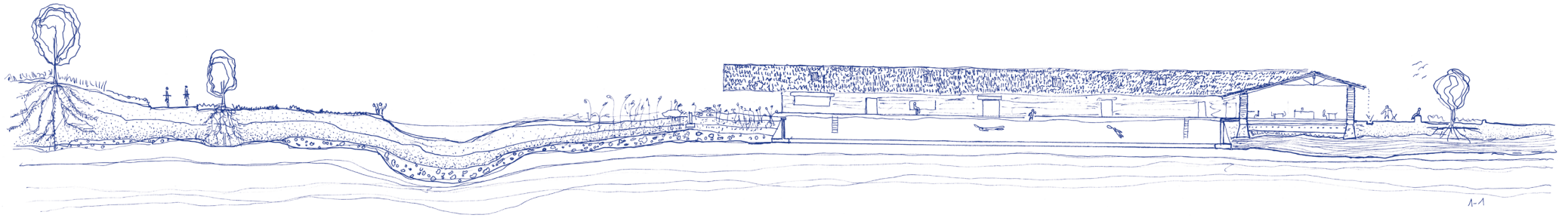
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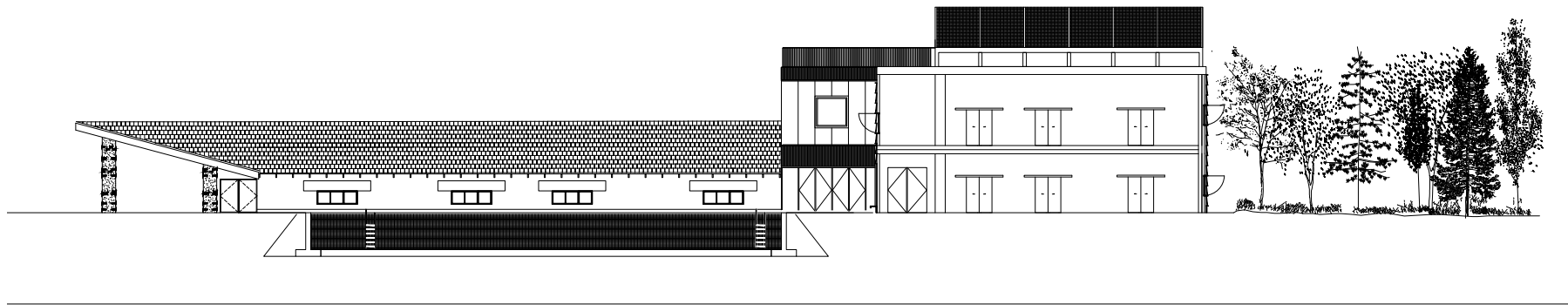
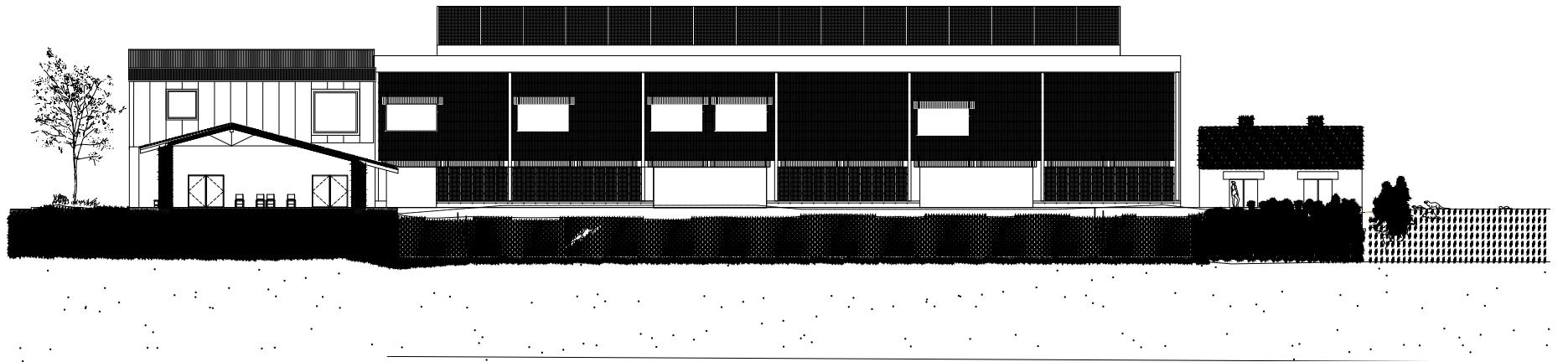


3-3

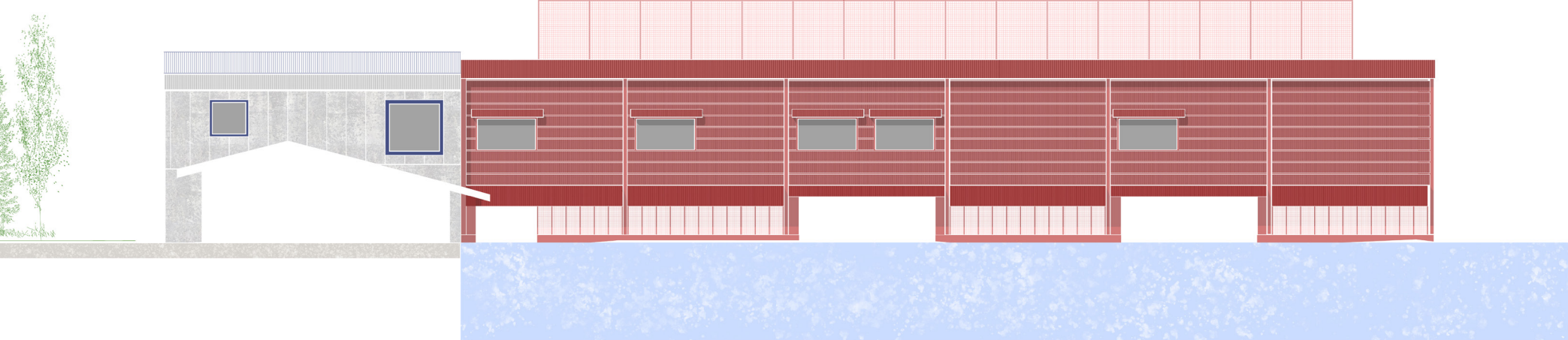


# Sections





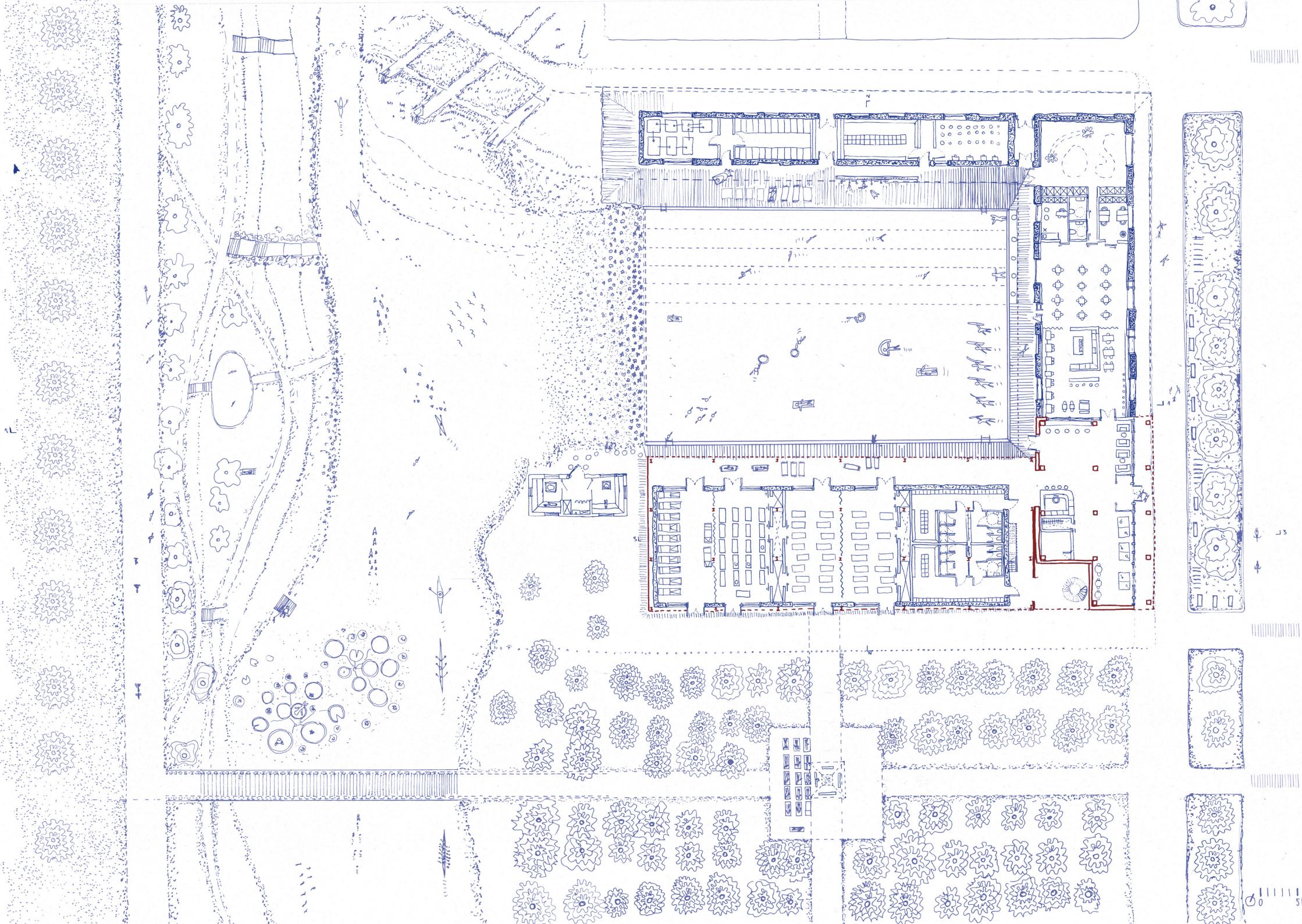
# Facades



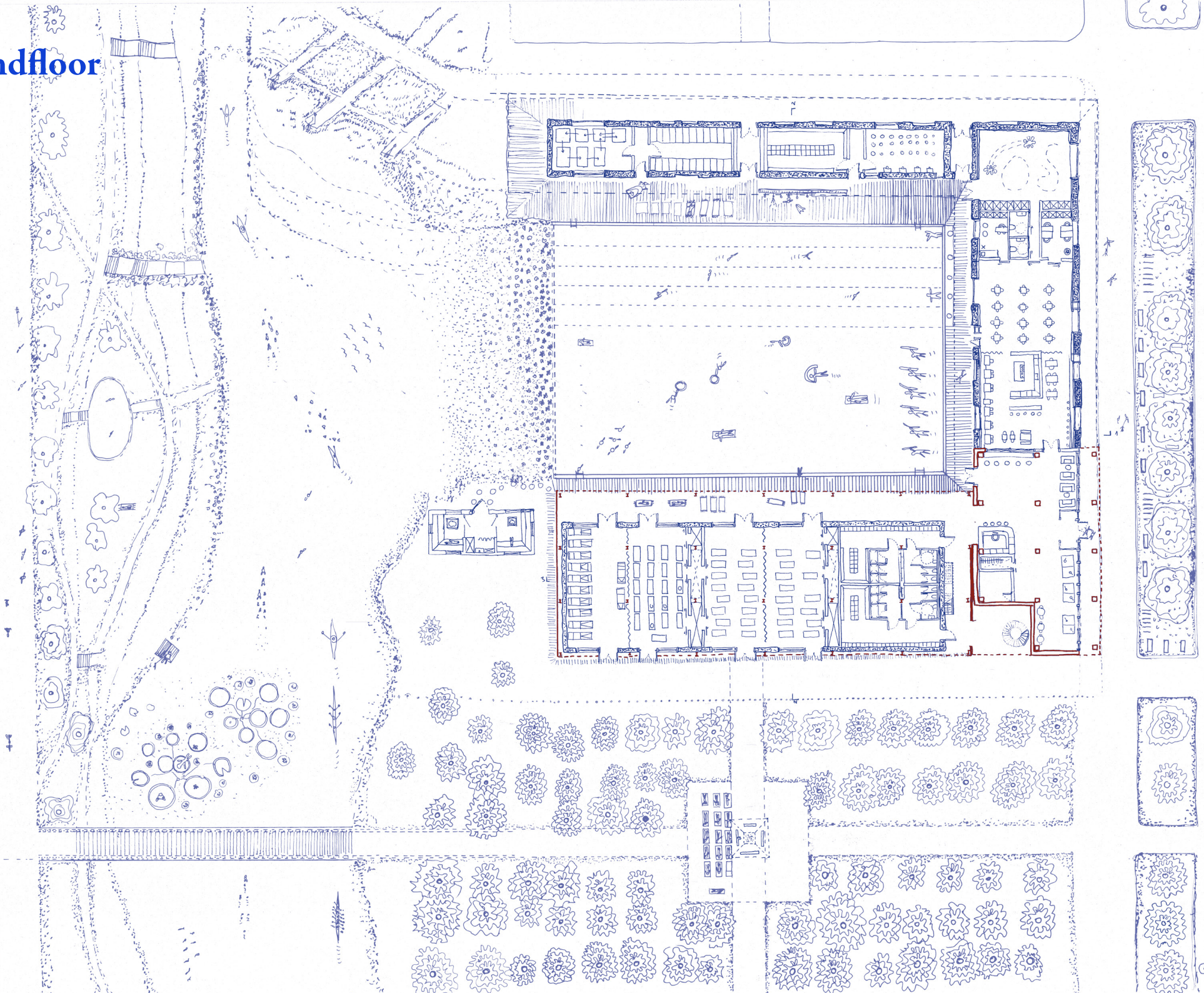
north



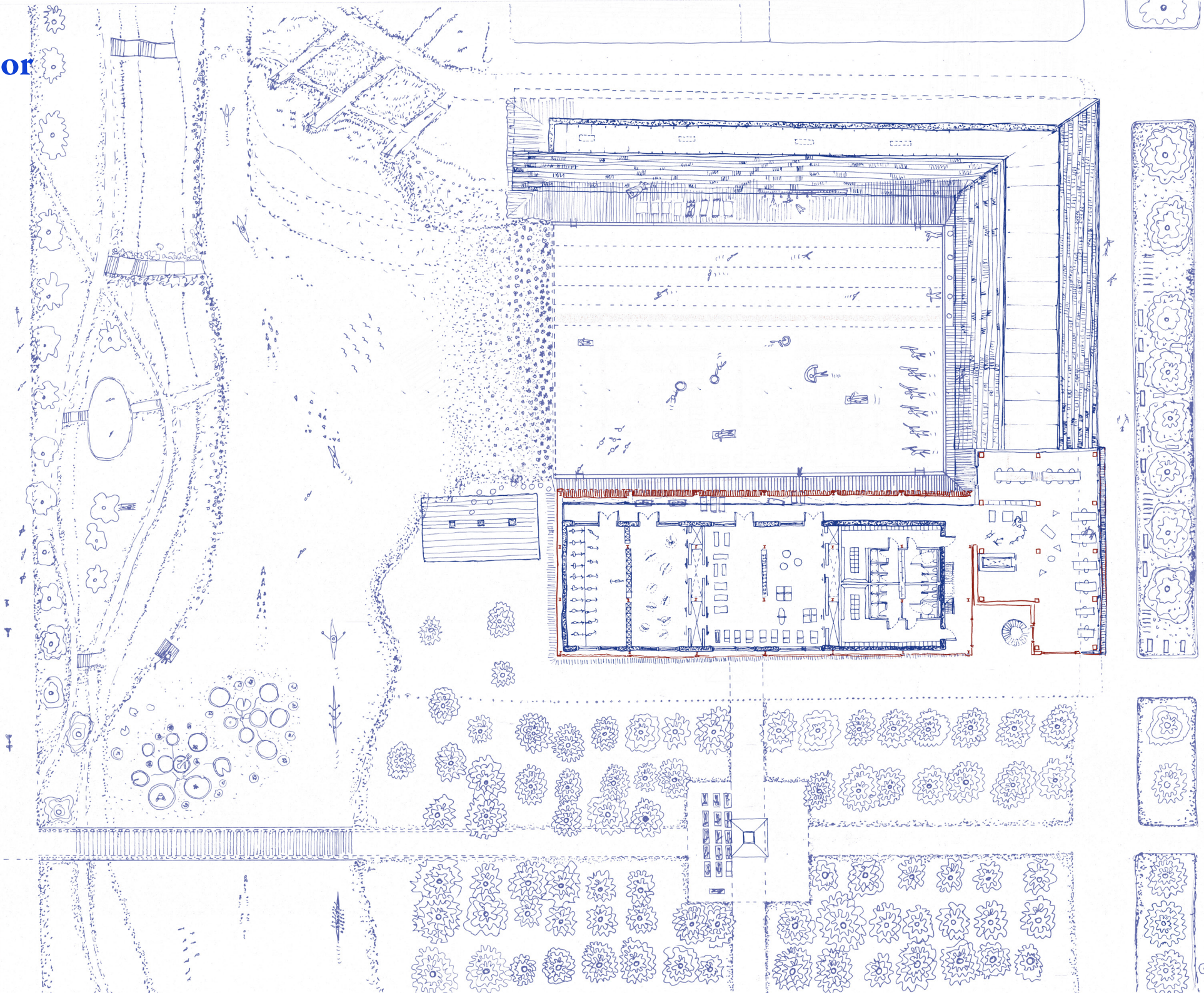
east



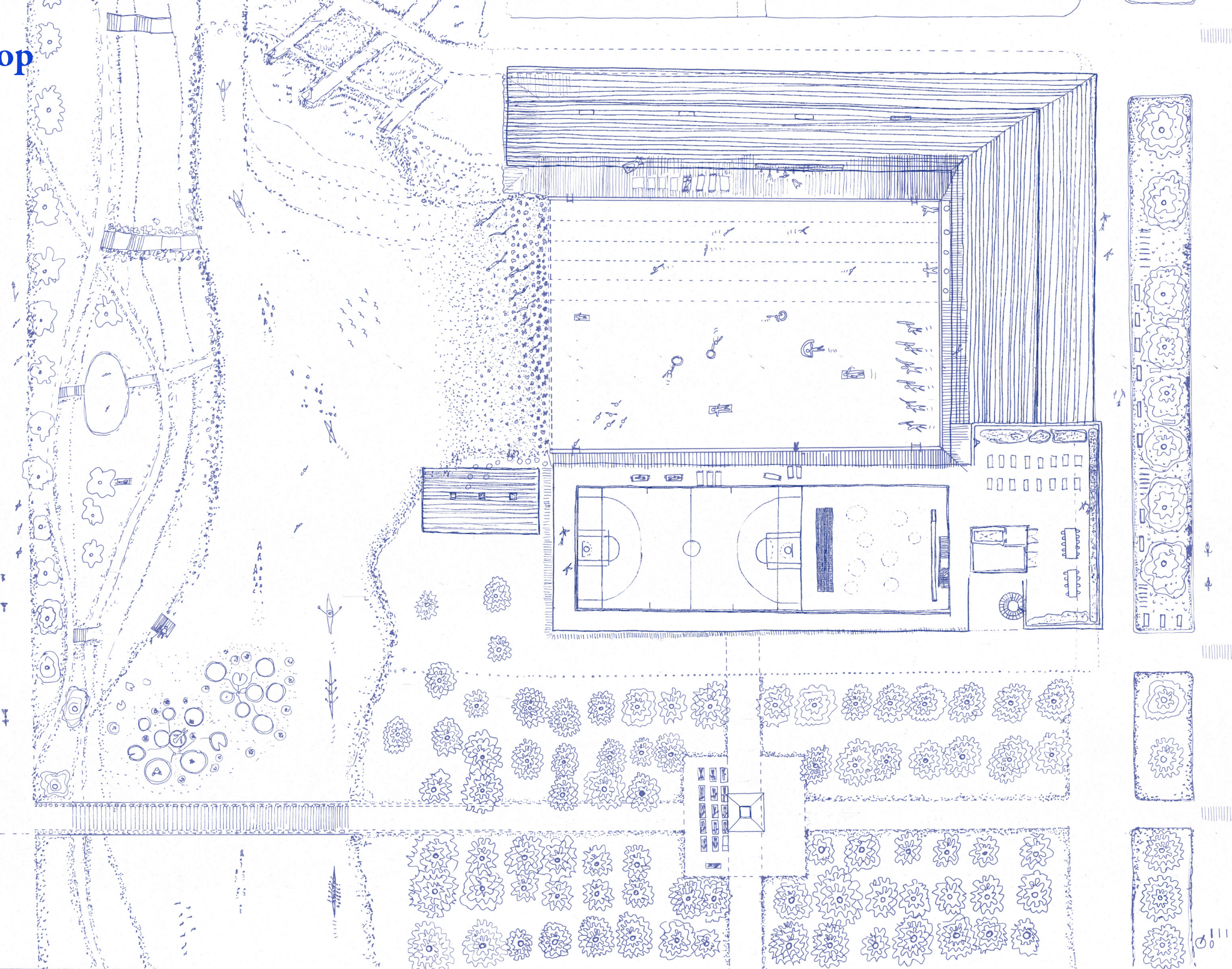
# Groundfloor

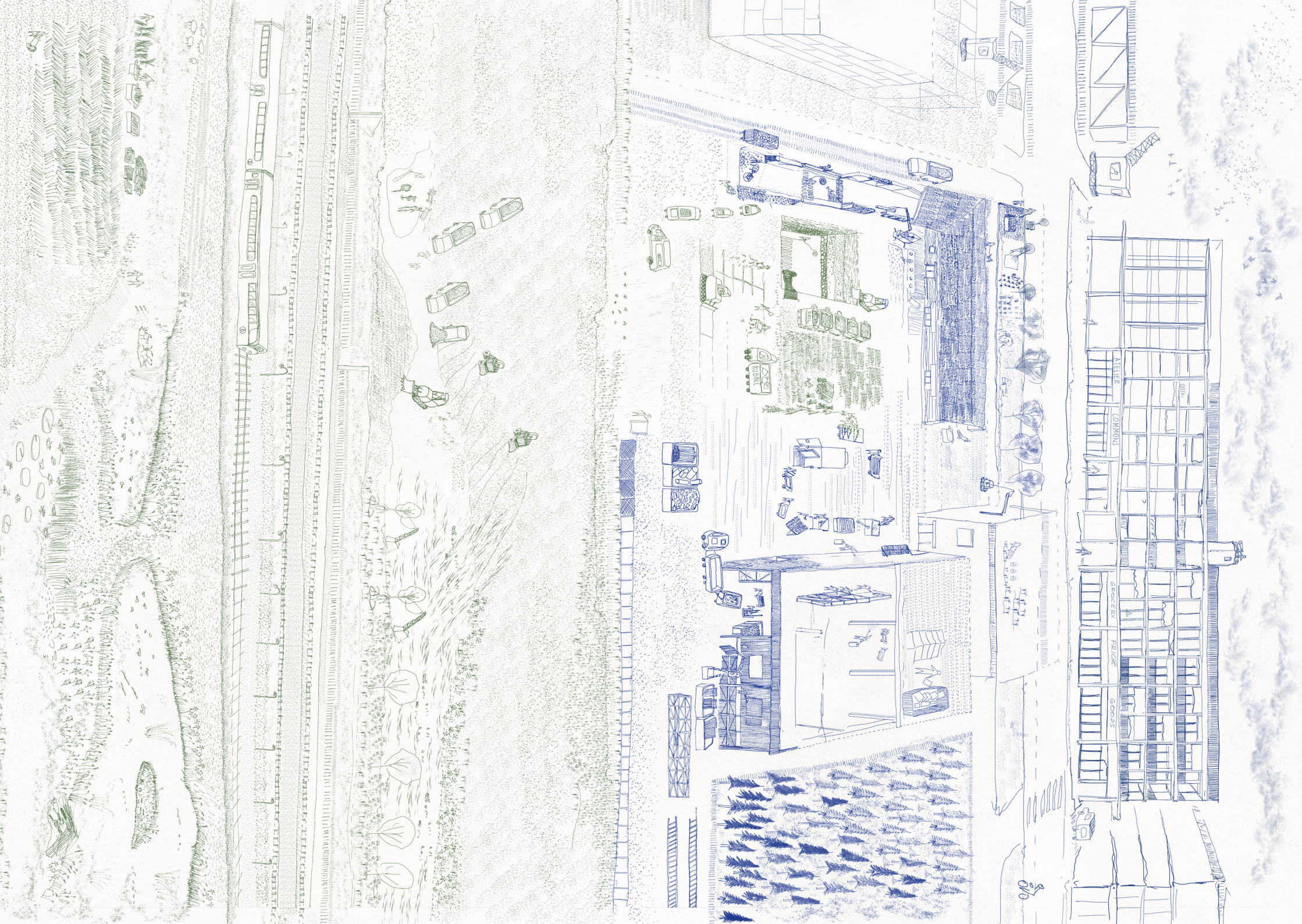


# 1st floor



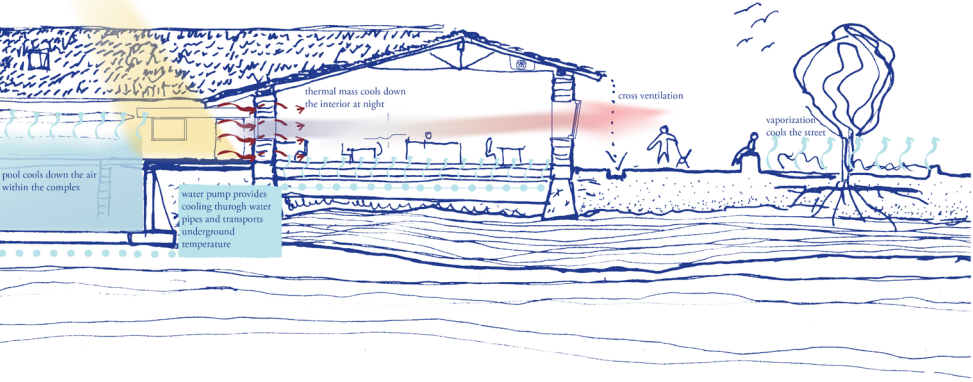
# Rooftop



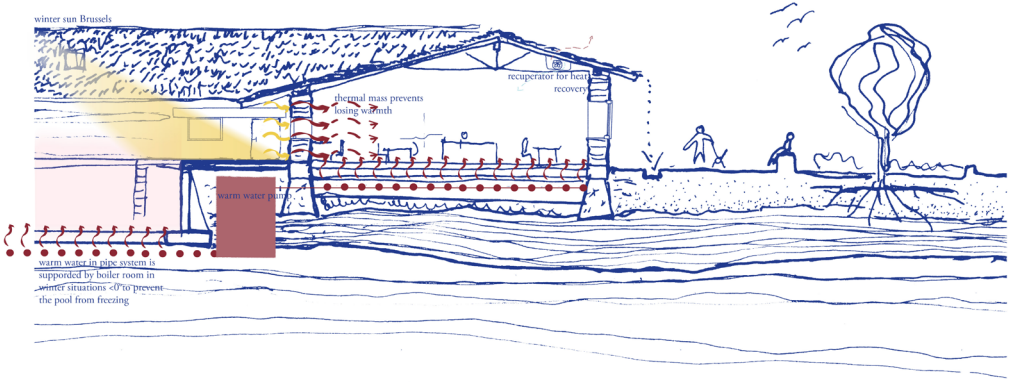


# Microclimate

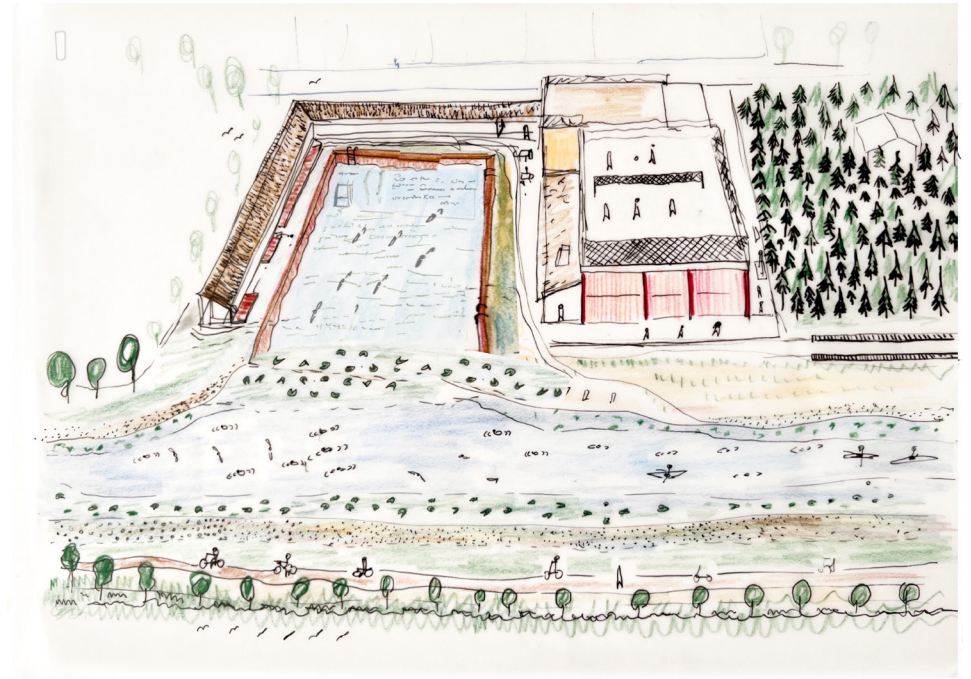
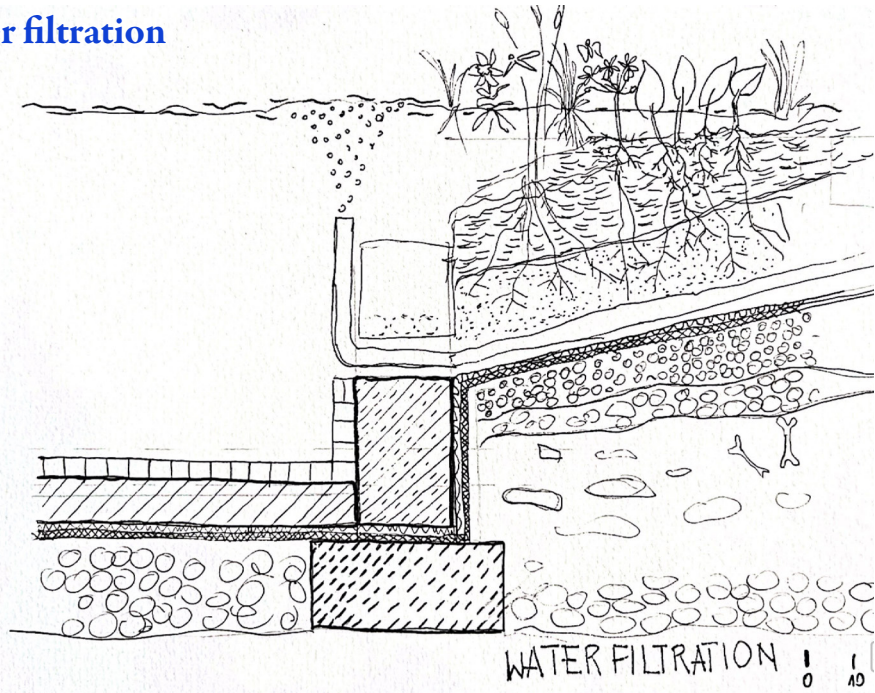
summer sun Brussels



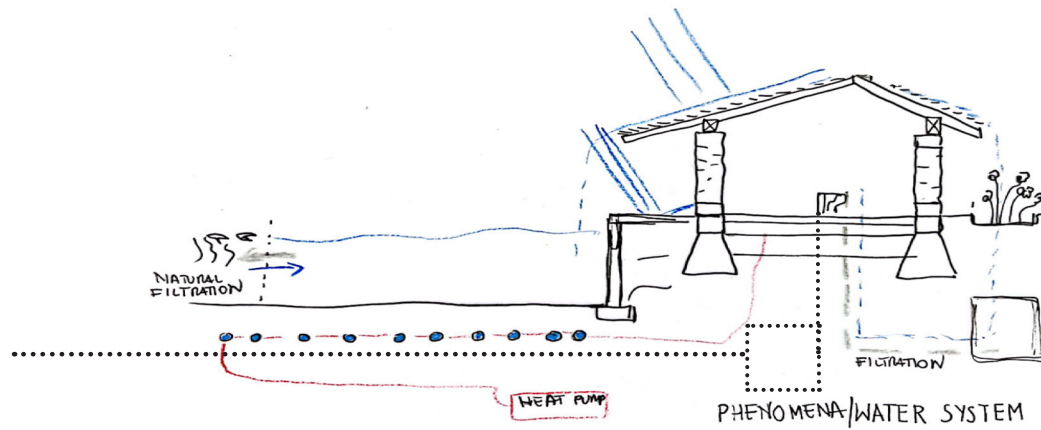
winter sun Brussels



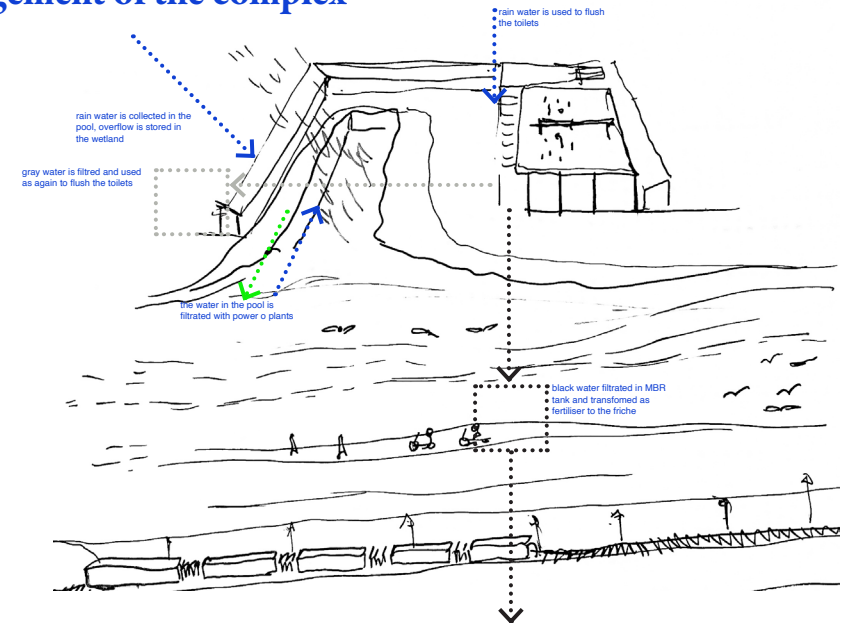
## Water filtration

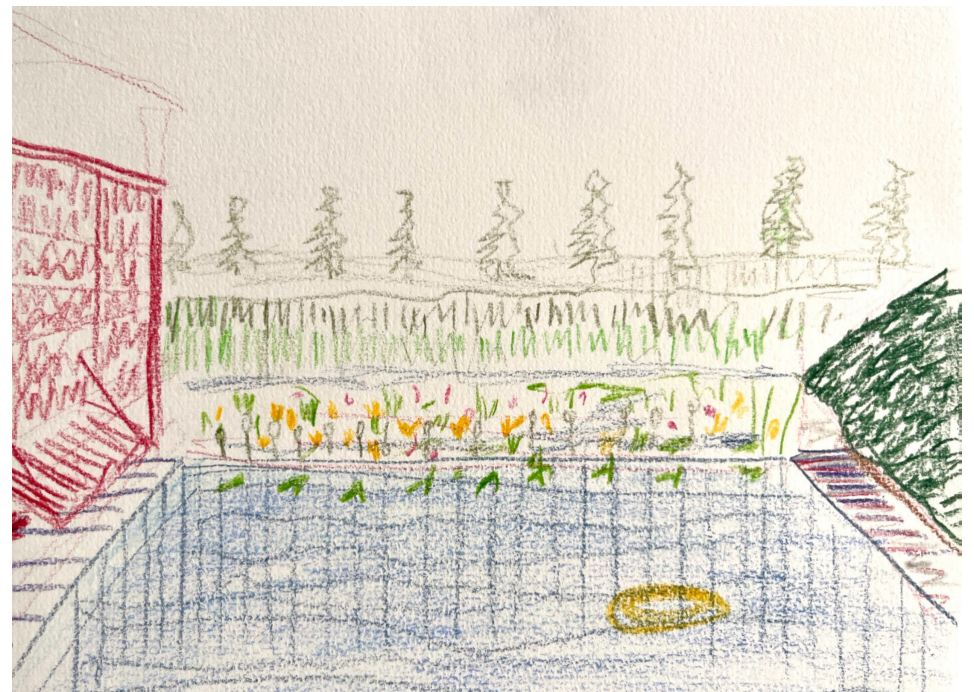
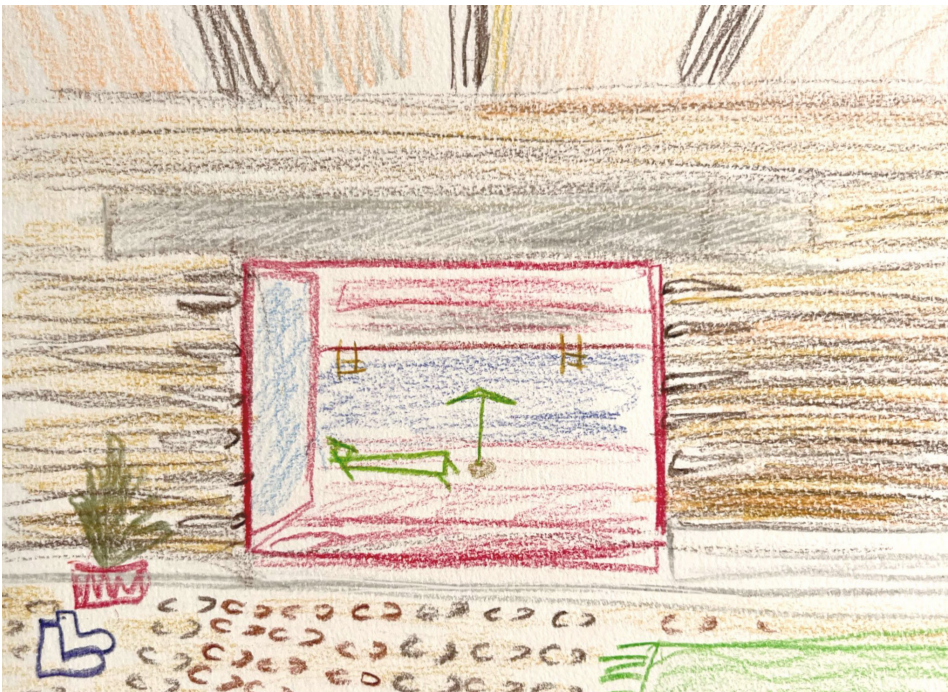
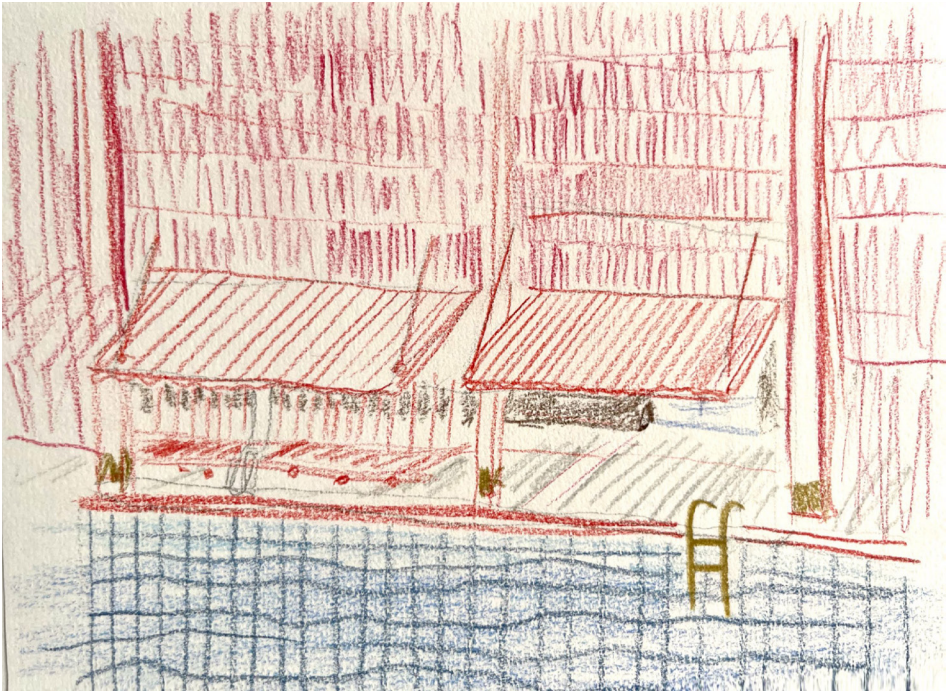


## Water management



## Water management of the complex



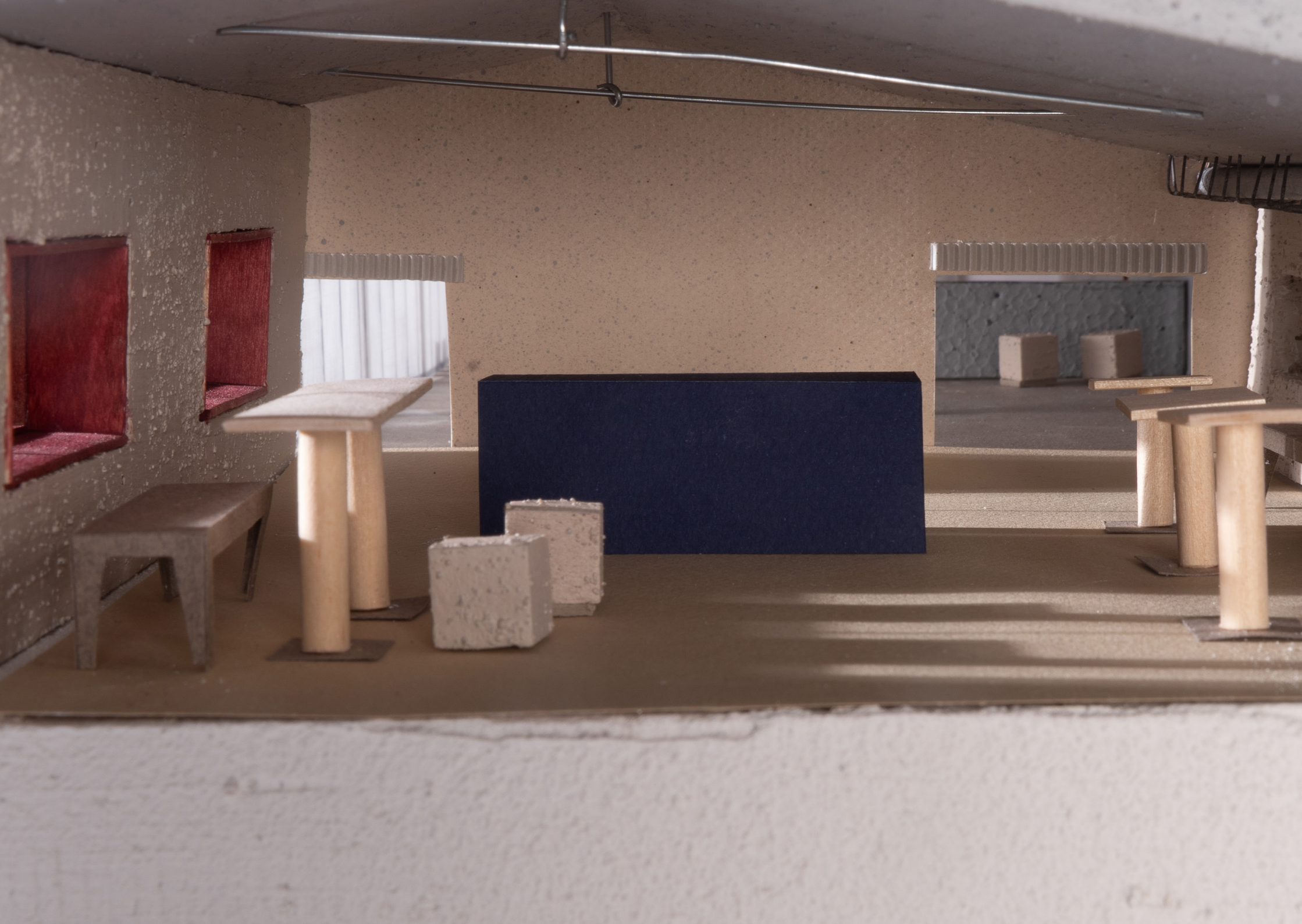




















# Reflection

## “This Must Be The Place”

Before starting the graduation studio Urban Architecture Last Green in Town, the studio’s methodology was a big unknown. However, I felt and followed the need for an ambitious engagement to develop new concepts, methods, and practices of thinking and doing architecture.

The studio challenges the traditional model of the architect as a singular leader. Instead, it promotes a collective approach, which aligns with my belief that pooling diverse insights leads to more innovative and sustainable outcomes.

The research and the design were created in an interdisciplinary collaboration with my mentors, Eireen Schreurs, Anèt Meijer, and Sam Stalker, for which I am strongly grateful.

## On the Friche

Reflecting on my work within the Josaphat Friche area for my graduation project, I am struck by the complexity and significance of this site. Amidst debates among urban activists, ecologists, developers, and municipalities regarding its future, the area emerged as a unique and biodiverse environment. Originally earmarked for new housing estates in 2012 to address Brussels’ housing crisis, the site’s prolonged indecision inadvertently fostered the creation of a thriving ecosystem.

The initial intervention, aimed at clearing the land of post-industrial chemicals, inadvertently provided conditions for a diverse array of species to flourish. While inaccessible to

humans, the area became a sanctuary for bees, birds, and foxes, highlighting the importance of recognising non-human actors as active users of the land.

## On the Pond

Central to my intervention was the recognition of the water pond as a crucial element intertwined with the site’s history and ecosystem. Through careful observation and research, I identified the pond’s role in sustaining biodiversity, particularly during winter when the terrain transforms into mud land. Inspired by the activist’s efforts to accumulate water, I sought to enhance the pond’s functionality, creating a permanent water feature that became a haven for dragonflies, bees, insects, and birds.

Once overlooked, the pond emerged as a cornerstone of the Friche area, preserving its ecological integrity and serving as a testament to nature’s resilience. Through my work, I aimed to celebrate the site’s biodiversity and raise awareness of the interconnectedness between human actions and the environment.

## On the Masterplan

This was a very shocking and intriguing moment in the studio. After two months of bonding with the Friche, overlooking the birds and butterflies photos published by local bird spotters, and refreshing the I love Josaphat Facebook page, I wanted to

see who had visited the Friche the other day. I would say that even after becoming part of this community and romanticising the Friche, we faced the challenge of adapting its surroundings and providing 1200 housing units for the neighbourhood. We were shocked, we were negotiating, we were protesting. Nevertheless, the research journey has led us to understand that leaving the Friche untouched will lead to forestation, and the forest will decrease biodiversity. It was crucial; the soil needed to be interrupted to create an even more resilient future for the Site.

Our Masterplan group decided to place the architectural interventions on the east part of the Friche and create layers of accessibility between the heart of the Friche and the heart of urban life. The concept was prepared in phasing, which I tried to adapt through my research to the final architectural proposal that grows and changes over time.

### **On research**

Many ideas, forms of representation, and the diversity of the products were tested through different research methods. With the majority of hand drawing but also through photography making, I tried to continue capturing different moments and passing the time on the water ponds and reference pools. This let me understand that in my architectural proposal, not only again of the pool and the building matter but also the building process and material harvesting can lead to a complete circle of research, design and building technology.

### **On the Pool**

The main programmatic decision that happened around P2 was a groundbreaking moment, literally, of shifting from Pond to Pool. My initial fascination with the water pond brought me a new hobby of discovering the cold swimming culture and the functioning of natural pools in general. At this moment, I would like to thank Eireen, who suggested swimming at FLOW as homework. Thanks to that, I could continue my embodied research on the referral level and discover the benefits of this activity on my own.

### **On Design**

For a very long time, the pool mainly was the pool. It took me some weeks after P2 to understand the concept of sports activity—different sports as a general idea of local well-being and contact with nature. Therefore, the pool becomes not only a swimming pond but also the central point of the new masterplan and the public activism core of the Friche community.

### **On the Studio**

When I picked up the studio, I was excited to work as a team with peer students during the group phase and beyond that. I can genuinely say that the studio allows for deeper connections, engagement, team spirit, and self-organisation when it comes to exhibition-making or other casual forms of expression.

The Urban Architecture Studio takes a relatively loose approach to chosen methods, programs, and forms of representation. I strongly appreciate the freedom given by the tutors, which I believe results in very individual results. Projects were allowed to be personal, but they were never personified, allowing the place to enjoy studying, visiting buildings, being in the city, observing, and getting inspired through our study excursions.

The studio's atmosphere is worth mentioning. Although I used to work from home a lot in the previous semesters, the studio's cooperative mindset made me come to the faculty nearly every day. I am sure this year was only a starting point for the future as a contributor to the ongoing shift in the architectural paradigm.

### **On Myself**

The graduation process has become a journey, the essence of which I am beginning to understand now as I prepare for the next presentation. Through the ongoing challenges, I have learned to trust the process. I also realised that back in 2022, when applying to the study, I had already set a base for what I wanted my graduation to become. Pond to Pool clearly embraces those ambitions. In the future, I hope the invented awareness will serve as a foundation for addressing contemporary climate urgency through professional activity.

### **\*chapter from my TU Delft application letter\***

"Architecture is the relation between built and unbuilt. I believe that untouched places in the city landscape are as important as perseverance in phonemic architecture. As the discussion of climate change increasingly takes on the narrative of a catastrophe, contemporary design should follow nature. We need to adapt our metropolises to inhabit animals and other smaller creatures. That is why the basis of my work lies in extensive research on biodiversity, traditional building methods and reuse. [...]

In my Master's Diploma, I would continue researching the correlation between architecture and nature. Strongly influenced by the theory of the third landscape by Gilles Clément and the biological processes in the environment, I wish to create a biodiversity strategy where all living organisms are treated equally. Initially used by humans, it will be taken over by fauna and flora. It begins with the conviction that all naturalism is humanism. In light of the environmental crisis, the idea of a city as an ecosystem inhabited by human and non-human species seems to be the only right way.

My graduation project would adapt the wasted space into a greener space. Architectural, land, water, and vegetation forms would create a strong composition responsible for air movement and the reach of the shadow. These natural phenomena will seriously impact minimalising climate change effects in the chosen area. I want to base the work on biotope knowledge and the methodology of land rehabilitation. I aspire to establish a new interpretation of city land forming that would protect processes of meaningfulness, appropriation and integration between human, non-human and their built and non-built environment.[...]"\*

Warsaw, Poland, March 2022