

An aerial photograph of a river system, likely the Rhine, with a red-shaded area in the bottom right corner indicating a specific project site. The river flows from the top left towards the bottom right, with several tributaries. The surrounding land is a mix of green fields and urban areas with buildings and roads. The red area is located near a bend in the river, adjacent to some industrial or commercial structures.

# Rooted in concrete

Showcasing a Graduation Project: Balancing River Expansion with Heritage Riverfront Preservation

Sterre Maessen - 4840550  
P5 Presentation  
16-01-2025



# Waterdriehoek



(Vereniging Delta Metropool, 2019)



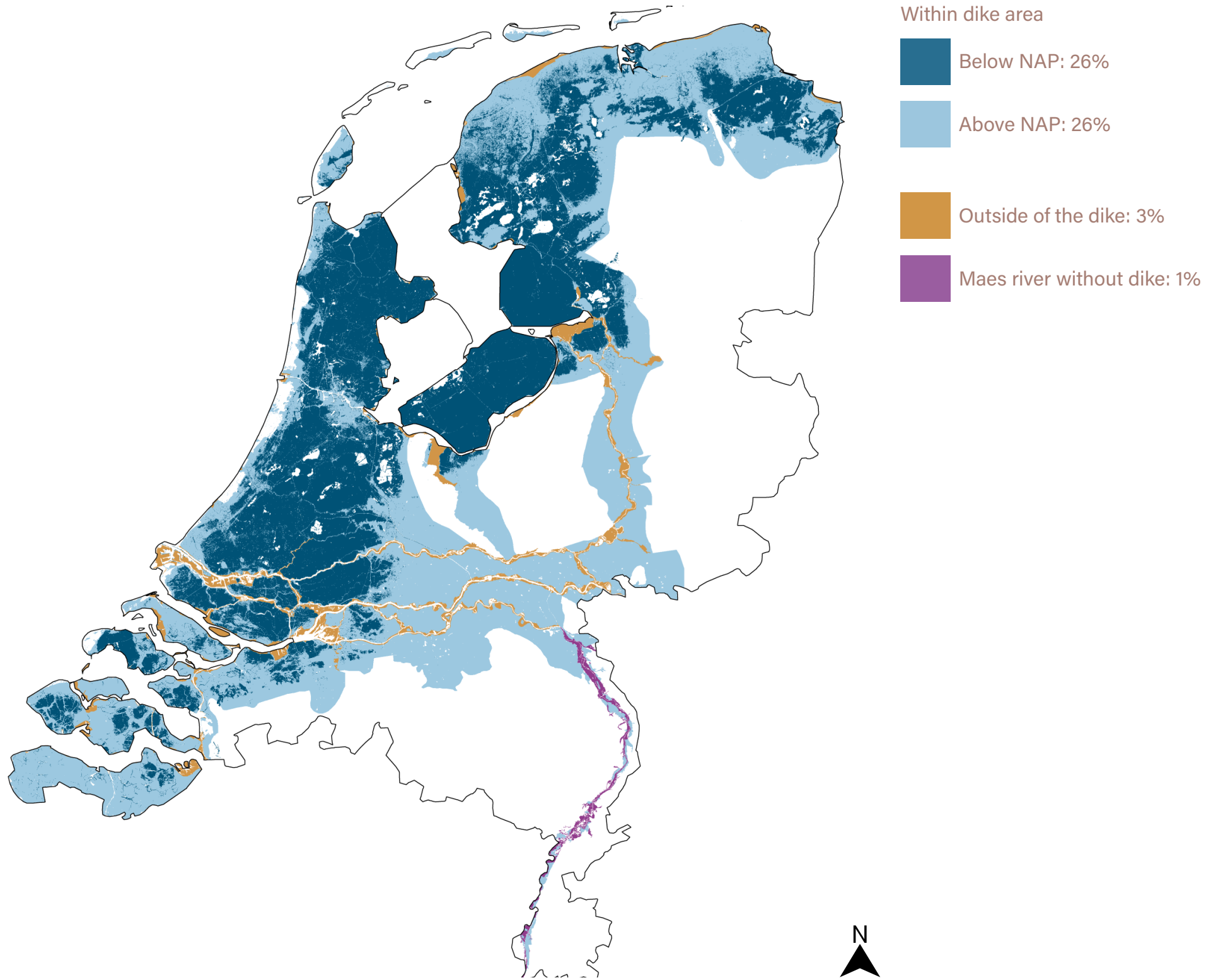
# Waterdriehoek



(Vereniging Delta Metropool, 2019)

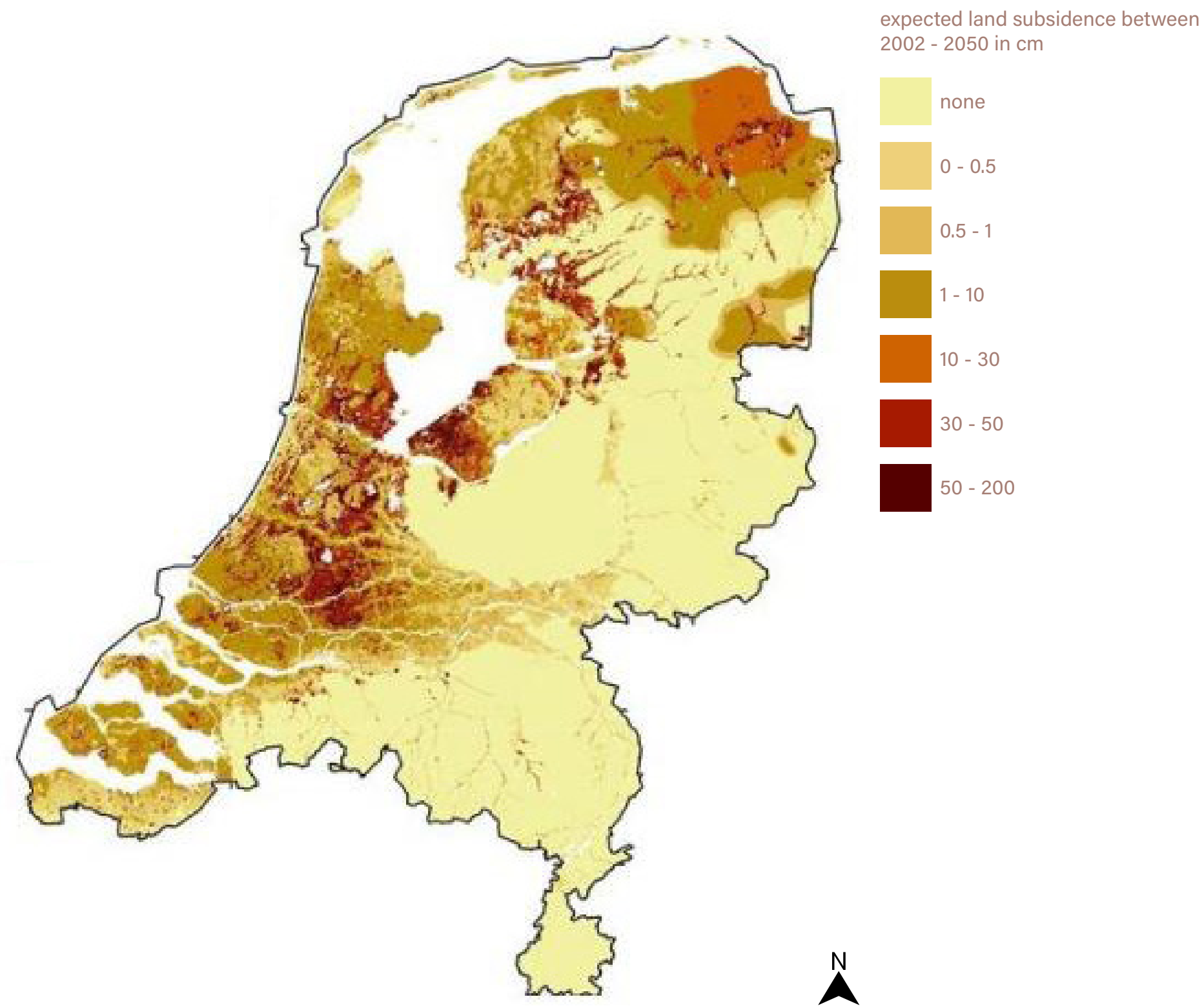


Flood prone area



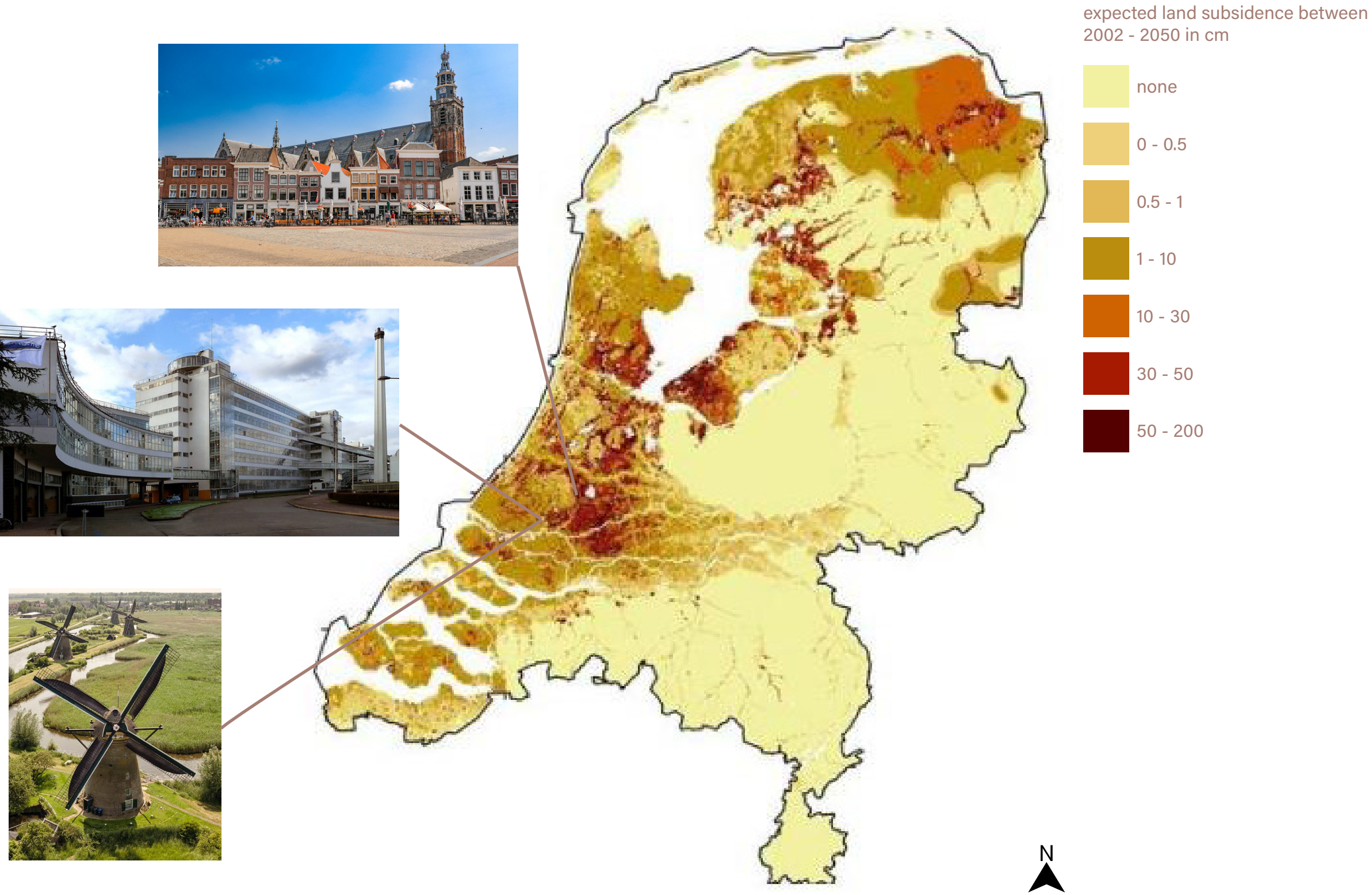


# Land subsidence





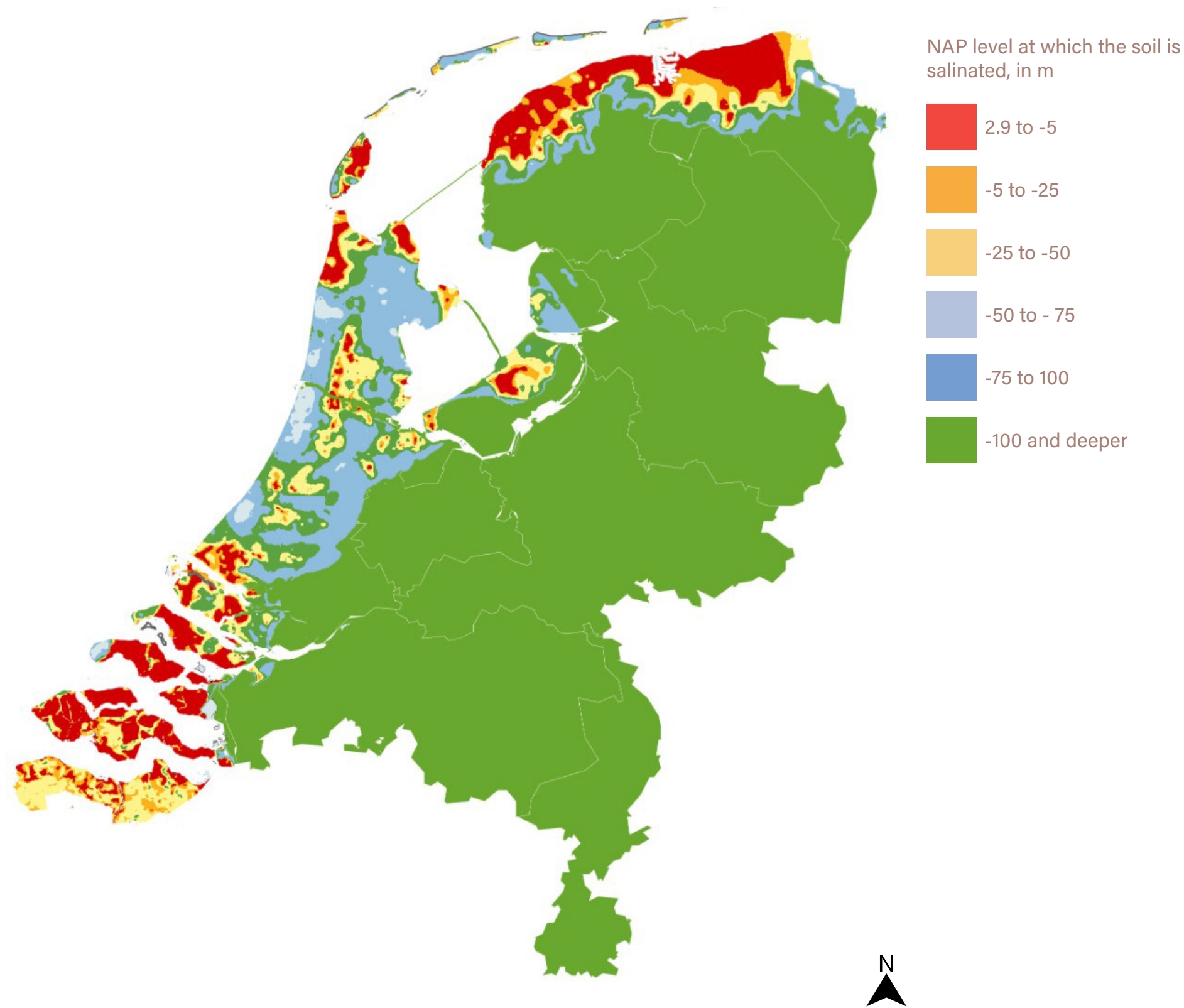
# Land subsidence



(Atlas Leefomgeving, 2018; In Dordrecht, n.d.; Top 10 bezienswaardigheden, n.d.; top010.nl, 2013))



# Salinisation

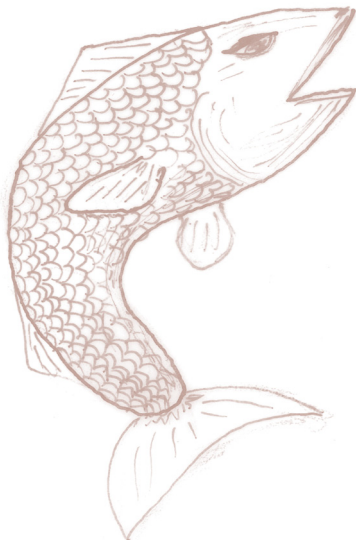




# Salinisation



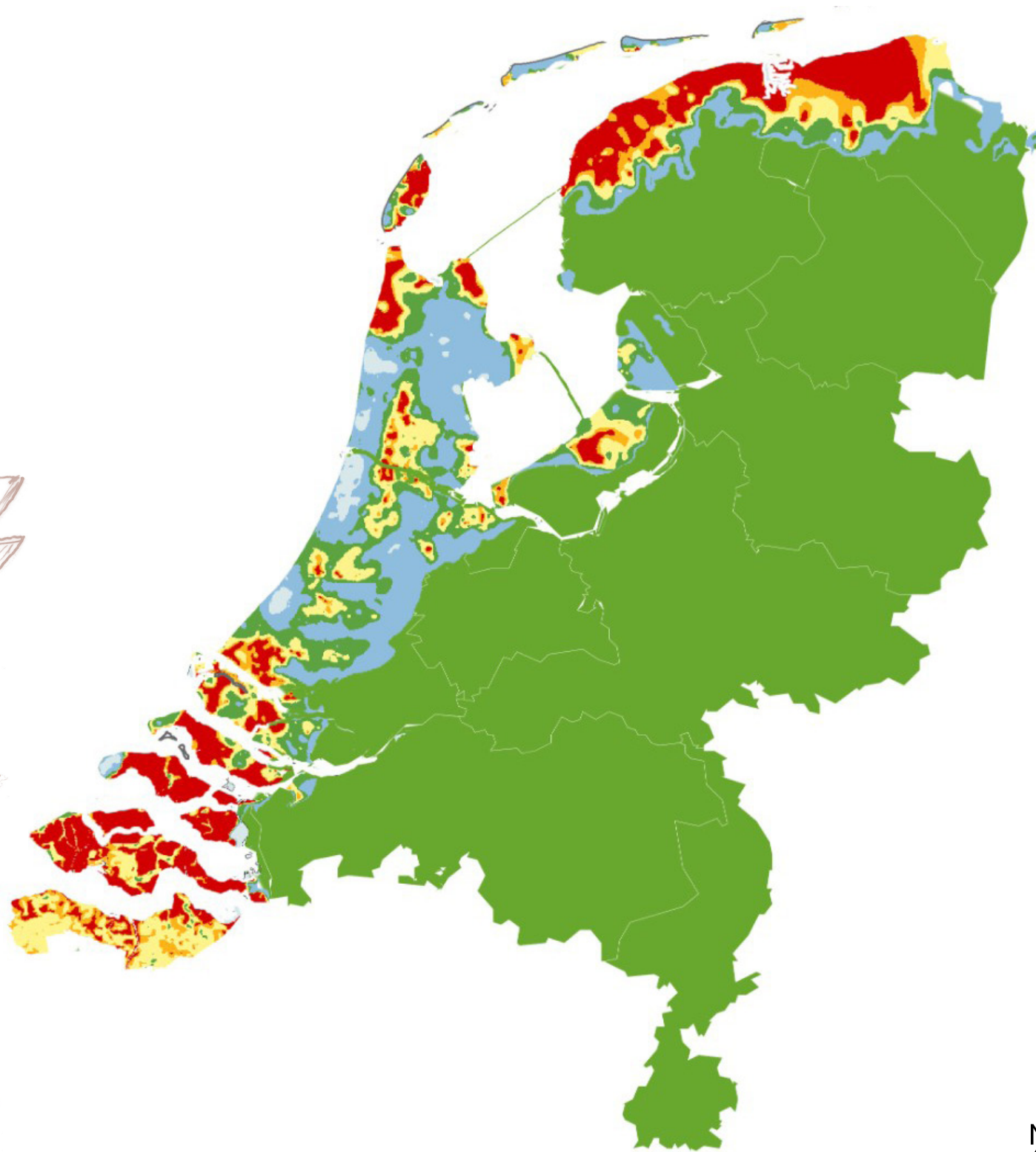
Drinking water



Biodiversity



Harvest



NAP level at which the soil is salinated, in m

- 2.9 to -5
- 5 to -25
- 25 to -50
- 50 to - 75
- 75 to 100
- 100 and deeper





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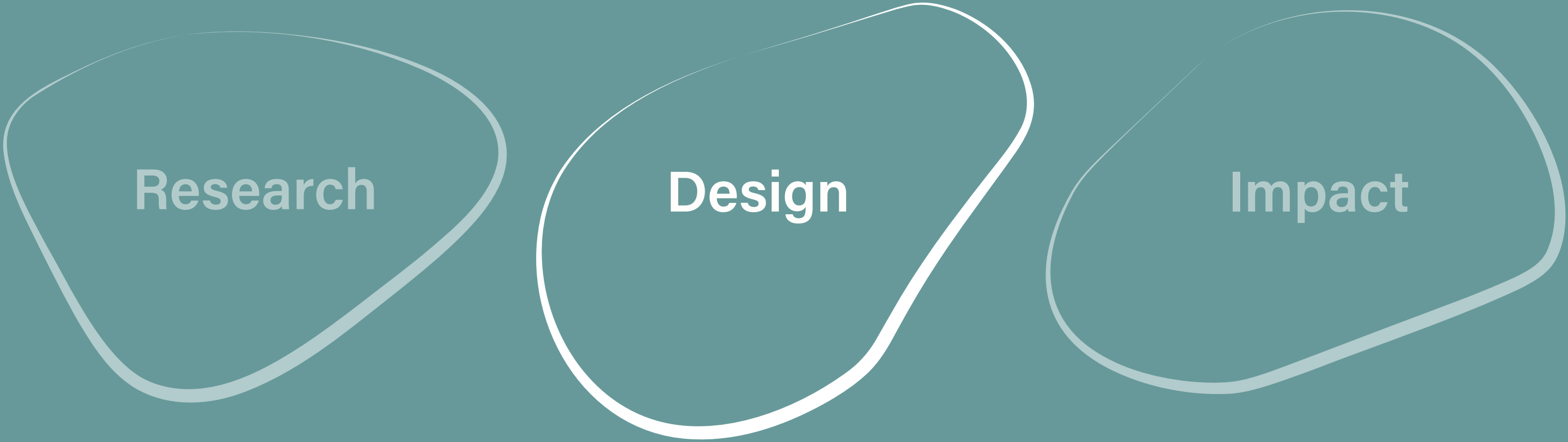




**Research**

**Design**

**Impact**



**Research**

**Design**

**Impact**





**Research**

**Design**

**Impact**







Dike



Deltawerken



Room for the  
river



# Waterdriehoek



(Vereniging Delta Metropool, 2019)



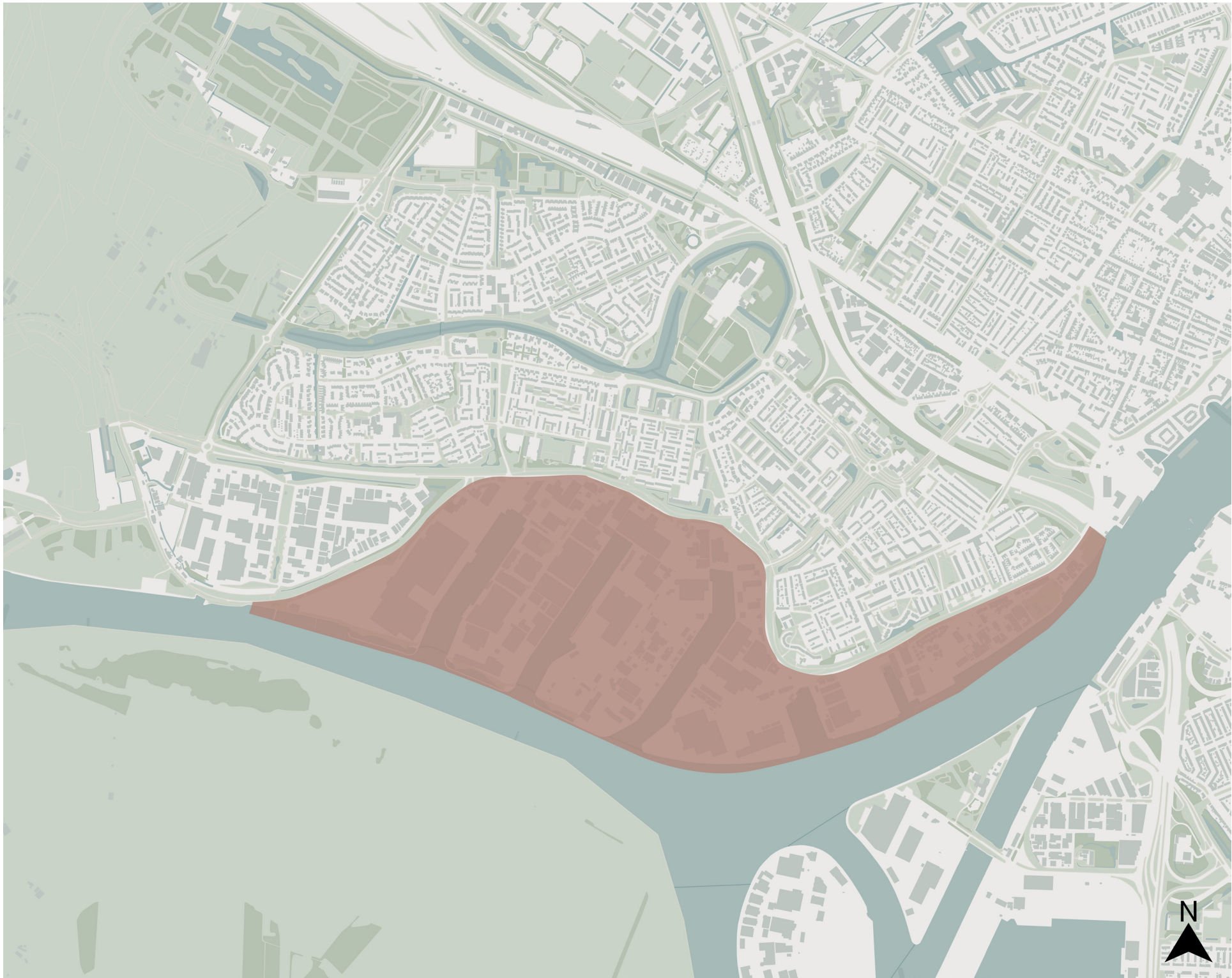
# Waterdriehoek



(Vereniging Delta Metropool, 2019)



# Zwijndrecht



(Made by author, 2024)





Schokbeton



Sime Darby Oils



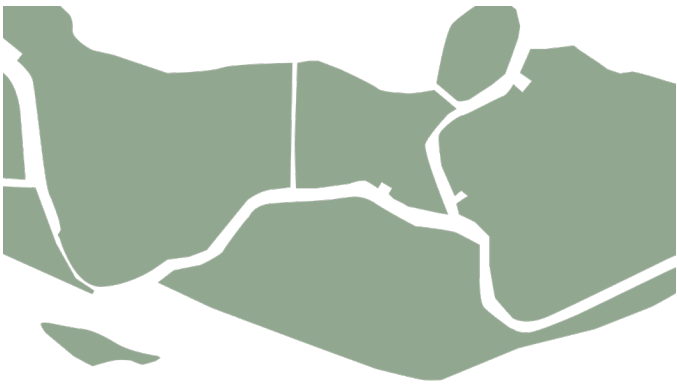
Univar Solutions

**How can the Oude Maes river  
in Zwijndrecht be expanded  
while preserving the  
region's industrial heritage  
sites?**

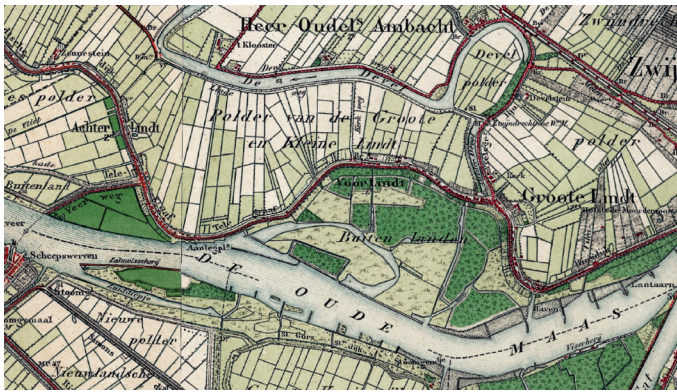


# Historic landscape analysis

1850



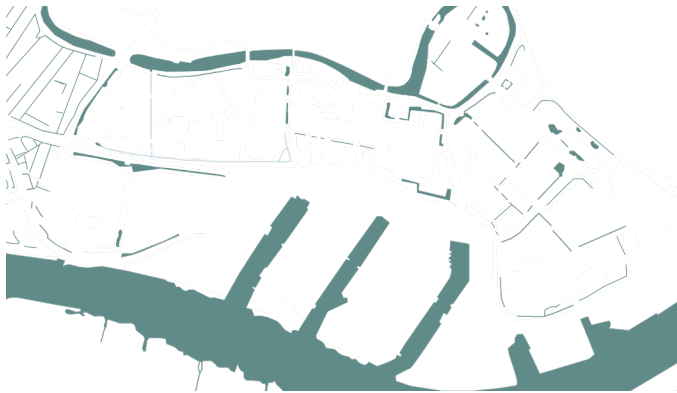
1900



1950



2000



(Topotijdreis, n.d.; Made by author, 2024)

# Historic industrial buildings analysis



1850



1900



1950



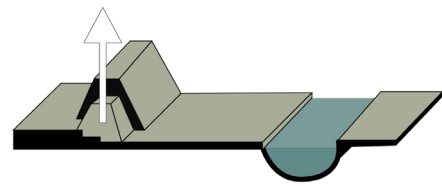
2000



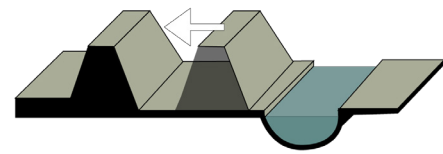
2024



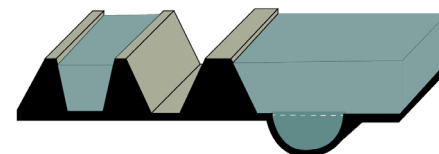
## Room for the river toolbox



Dike improvement



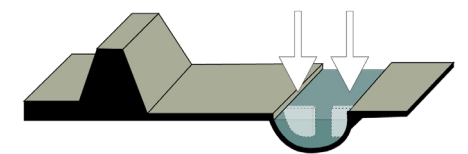
Dike relocation



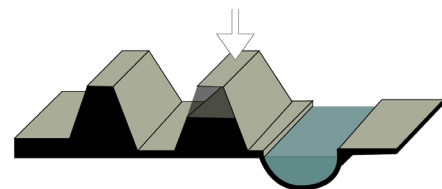
Flood channel



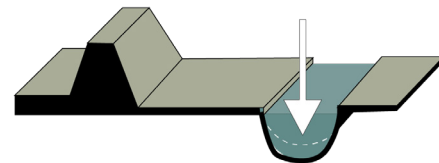
Water storage



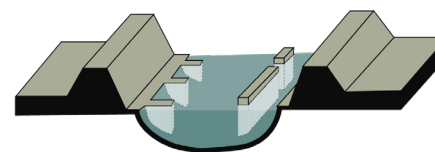
Groyne lowering



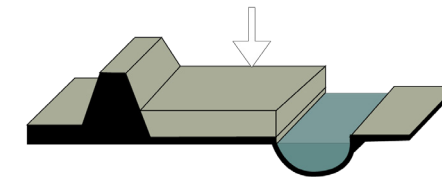
Depoldering



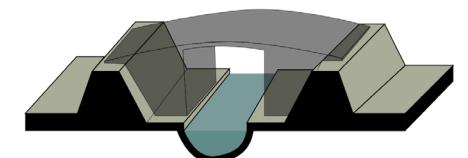
Summer bed  
excavation



Longitudinal dams  
excavation

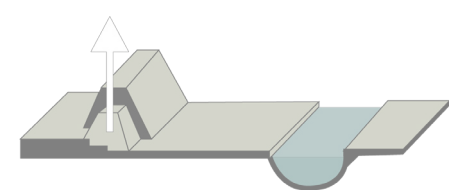


Floodplain  
excavation

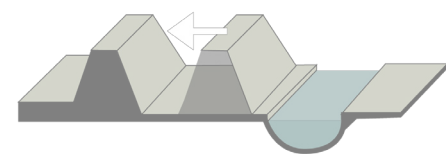


Removal of  
obstacles

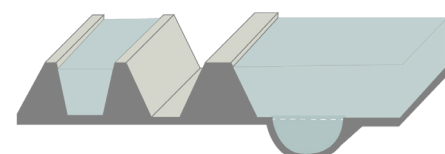
Room for the river toolbox



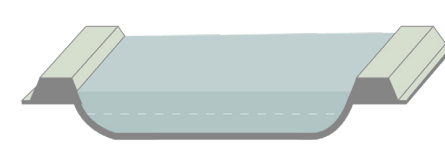
Dike improvement



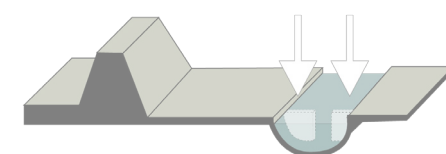
Dike relocation



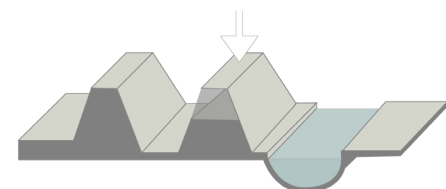
Flood channel



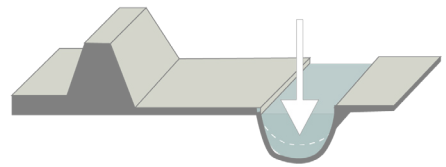
Water storage



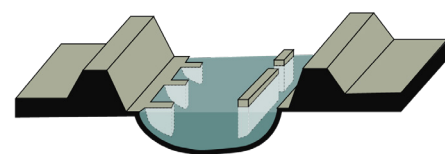
Groyne lowering



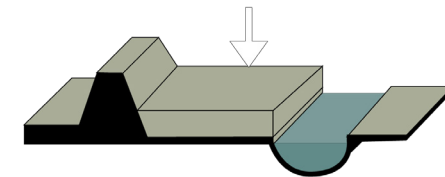
Depoldering



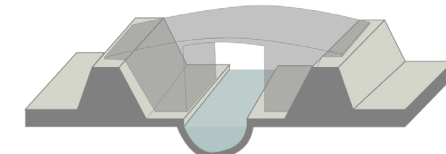
Summer bed excavation



Longitudinal dams excavation



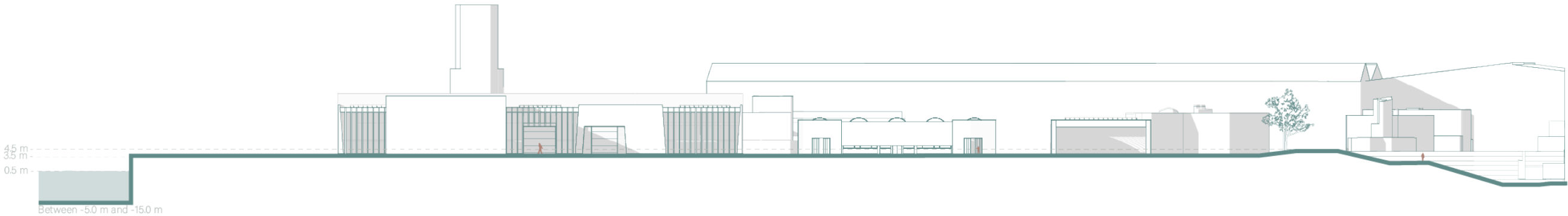
Floodplain excavation



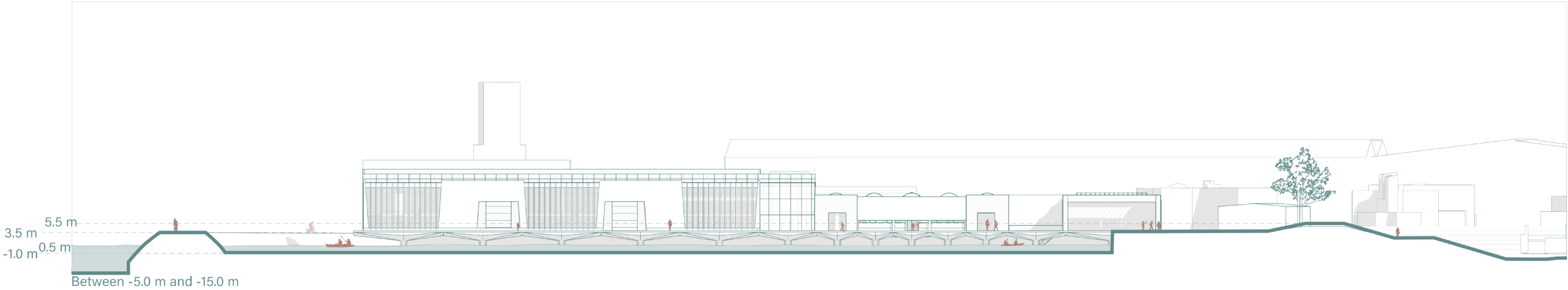
Removal of obstacles



# Urban section current situation



# Urban section proposed situation situation





## Urban plan current situation





## Urban plan proposed section

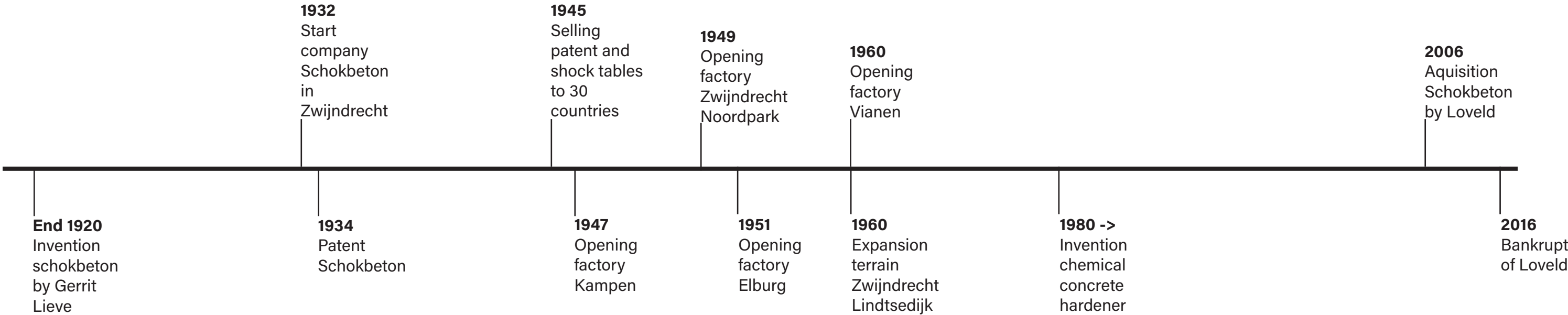




# Location Schokbeton

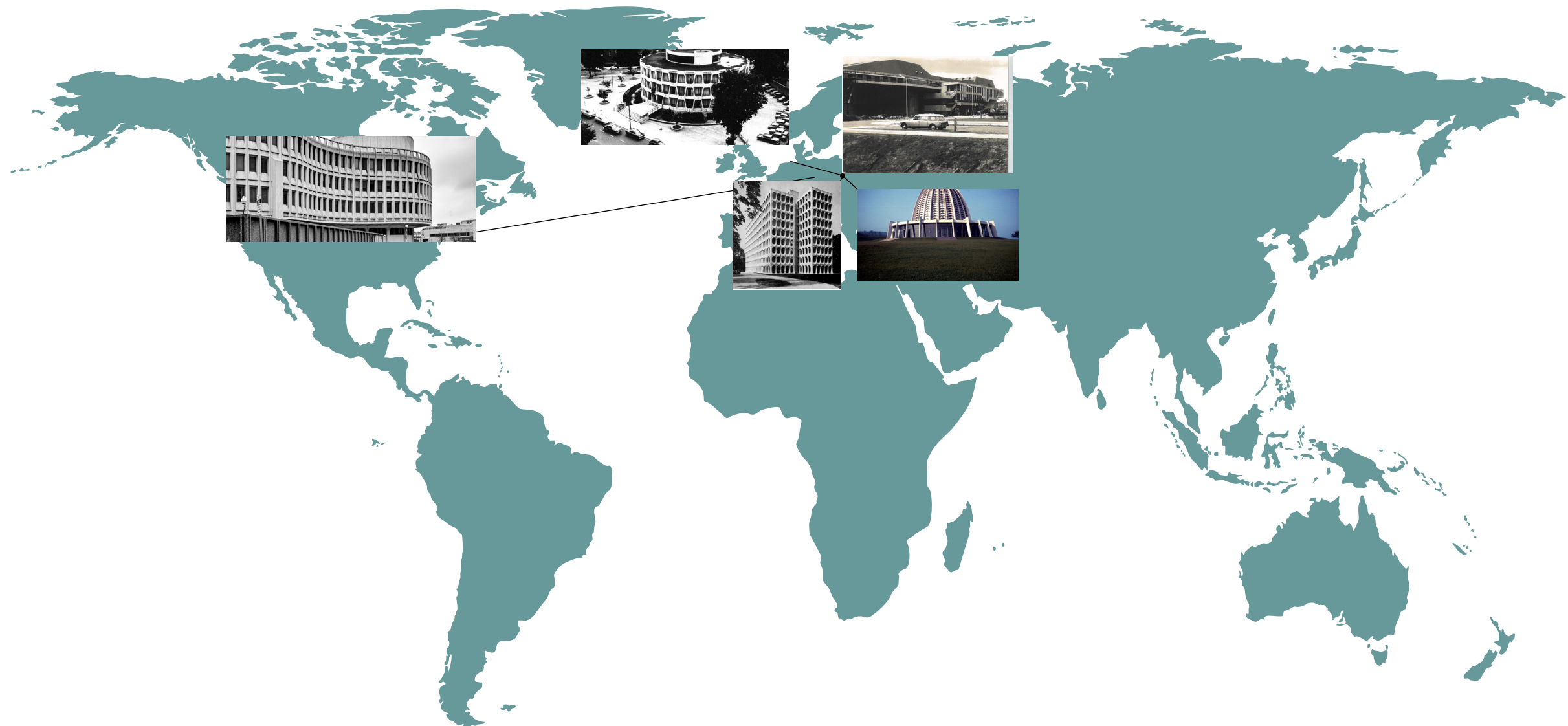


A brief history of Schokbeton





## Producing prefab concrete elements for the entire world



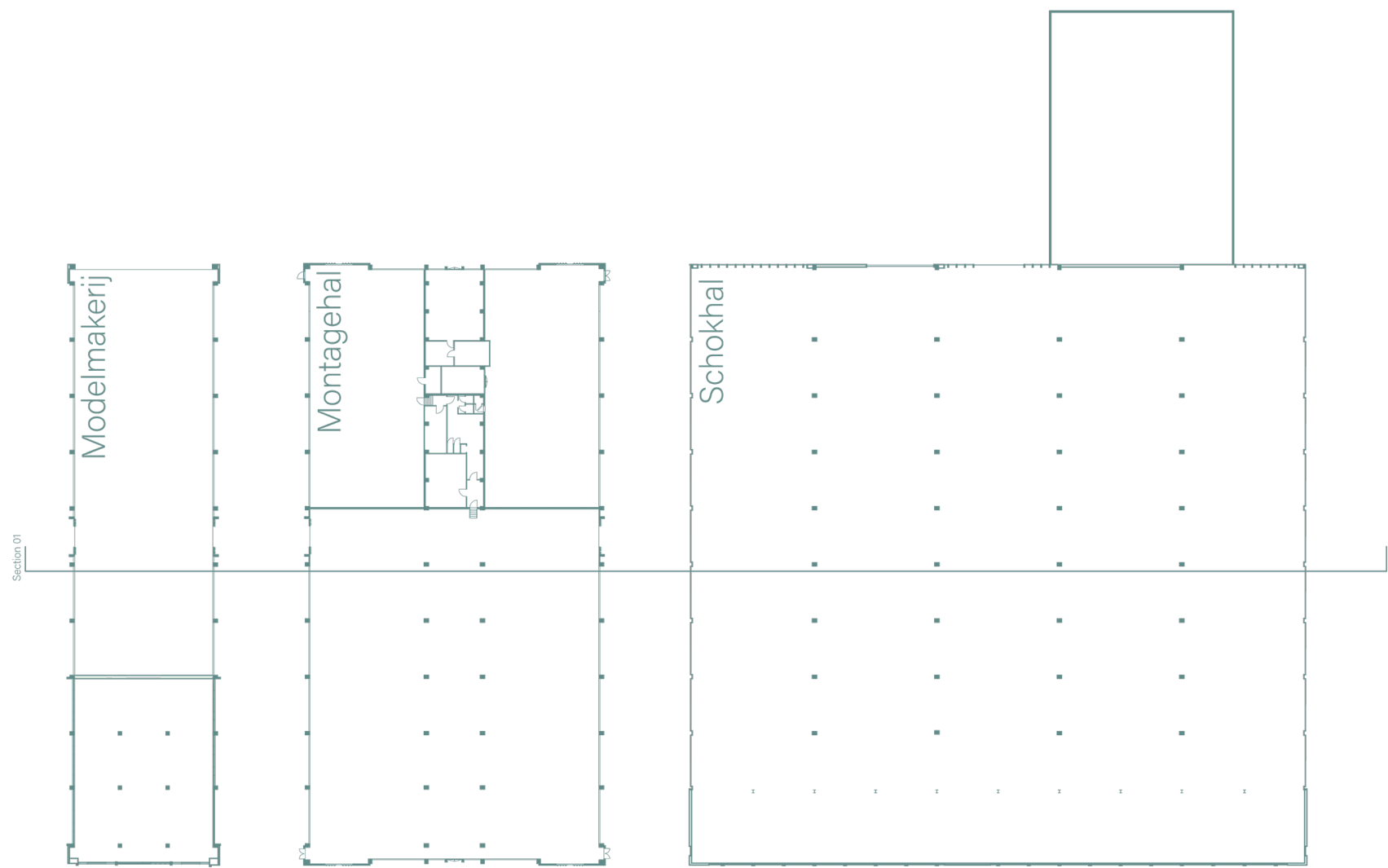
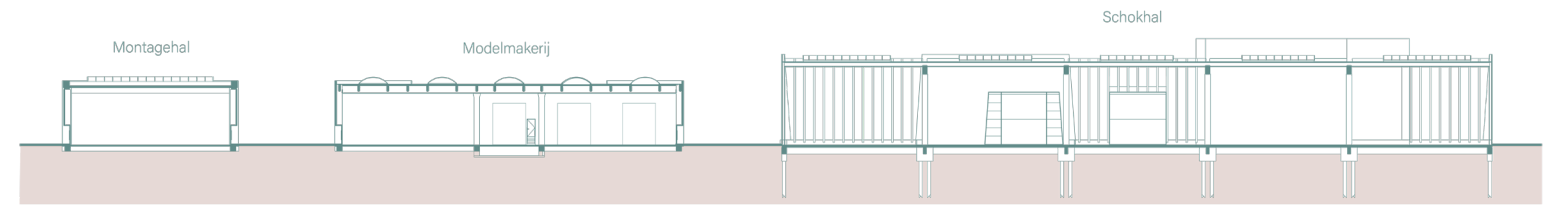


## Schokbeton

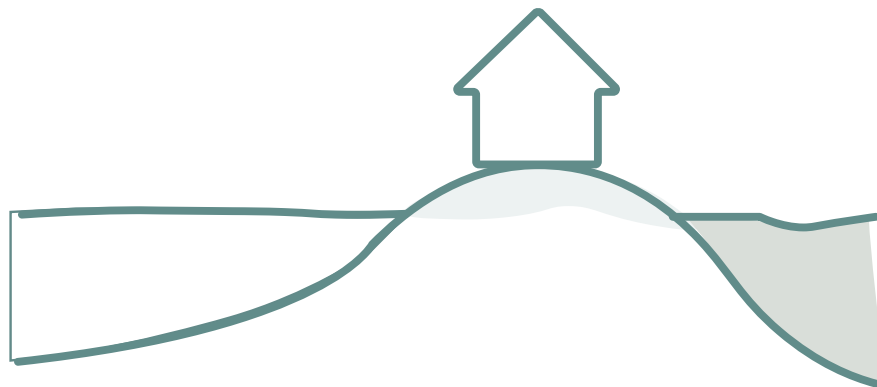




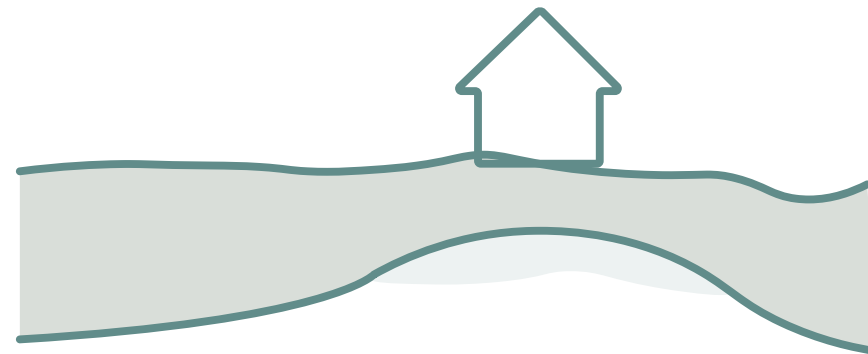
Current situation Schokbeton



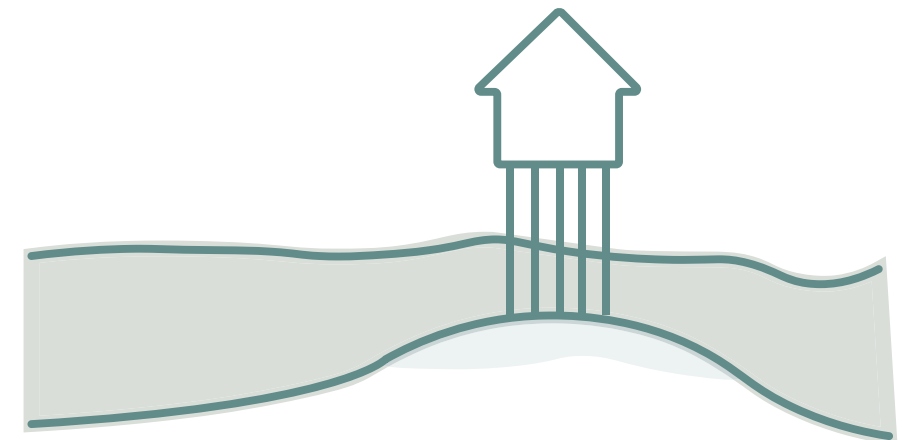
**Excavating around heritage**



**Floating heritage**



**New foundation below heritage**



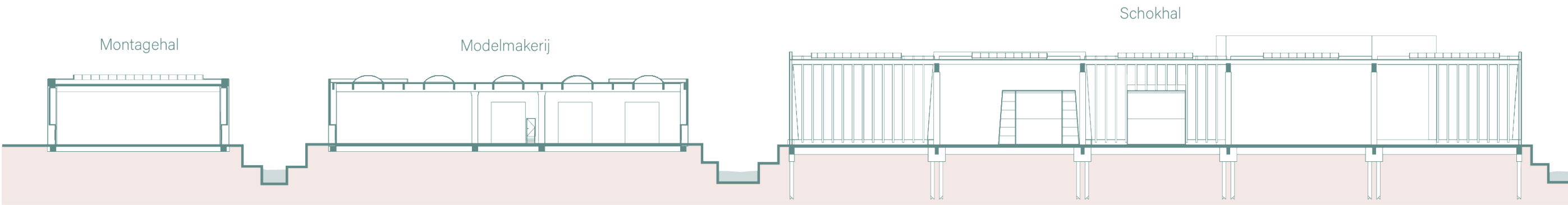


Evaluation summary of industrial heritage (IH) preservation options

|                    | Excavating around IH | Floating IH | New foundation underneath IH |
|--------------------|----------------------|-------------|------------------------------|
| Water level impact |                      |             |                              |
| Accessibility      |                      |             |                              |
| Functionality      |                      |             |                              |
| Risk               |                      |             |                              |
| Cost               |                      |             |                              |
| Sustainability     |                      |             |                              |

| Legend |                         |
|--------|-------------------------|
|        | Significant improvement |
|        | Positive impact         |
|        | Negative impact         |
|        | Problematic impact      |

Excavating around the industrial heritage



Pros

- Controlled Water Ingress
- Maintained Accessibility
- Infrastructure Compatibility
- Minimal Structural Risk
- Cost-Effectiveness

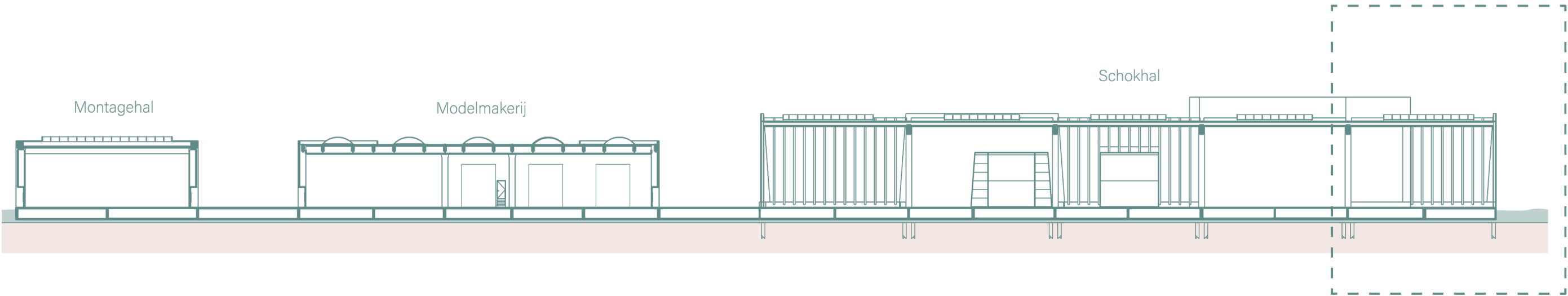
Cons

- Soil Subsidence Risk
- Minimal impact water level

|                    | Excavating around IH |
|--------------------|----------------------|
| Water level impact |                      |
| Accessibility      |                      |
| Functionality      |                      |
| Risk               |                      |
| Cost               |                      |
| Sustainability     |                      |

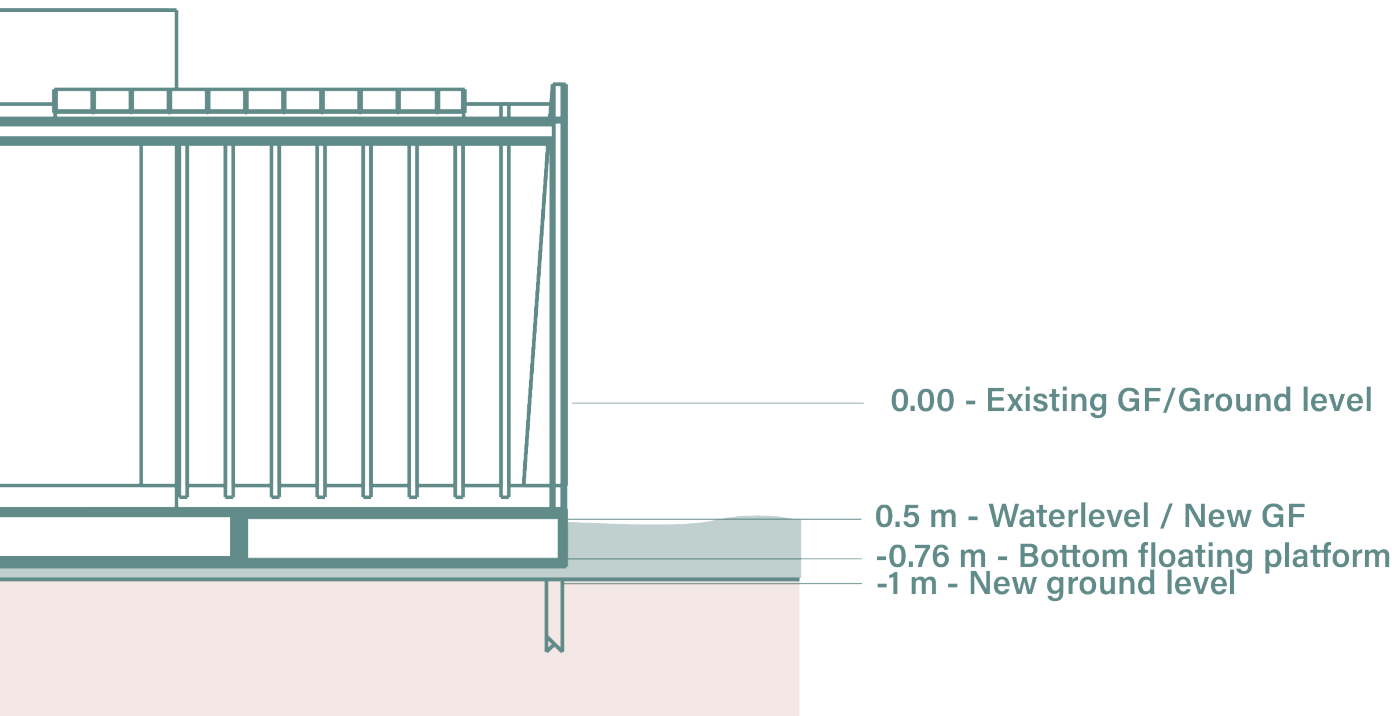


# Floating the industrial heritage



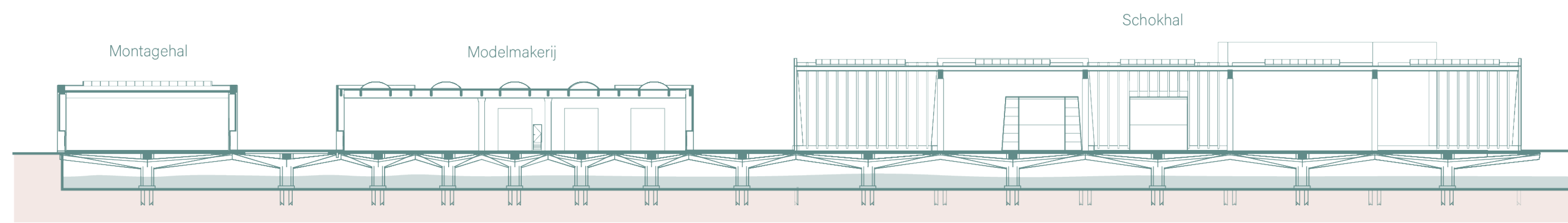
- Pros**
- Buoyancy as an Opportunity

- Cons**
- Limited Clearance for Water
  - Accessibility Challenges
  - Misalignment with Existing Site
  - Risk of Structural Damage



|                    | Floating IH |
|--------------------|-------------|
| Water level impact |             |
| Accessibility      |             |
| Functionality      |             |
| Risk               |             |
| Cost               |             |
| Sustainability     |             |

# New foundation below the industrial heritage



**Pros**

- Optimized impact water level
- Maintained Accessibility
- Infrastructure Compatibility

**Cons**

- Risk of Structural Damage
- Extended Construction Period
- High Implementation Cost

|                    | New foundation below IH |
|--------------------|-------------------------|
| Water impact level | Green                   |
| Accessibility      |                         |
| Functionality      |                         |
| Risk               | Red                     |
| Cost               |                         |
| Sustainability     | Yellow                  |

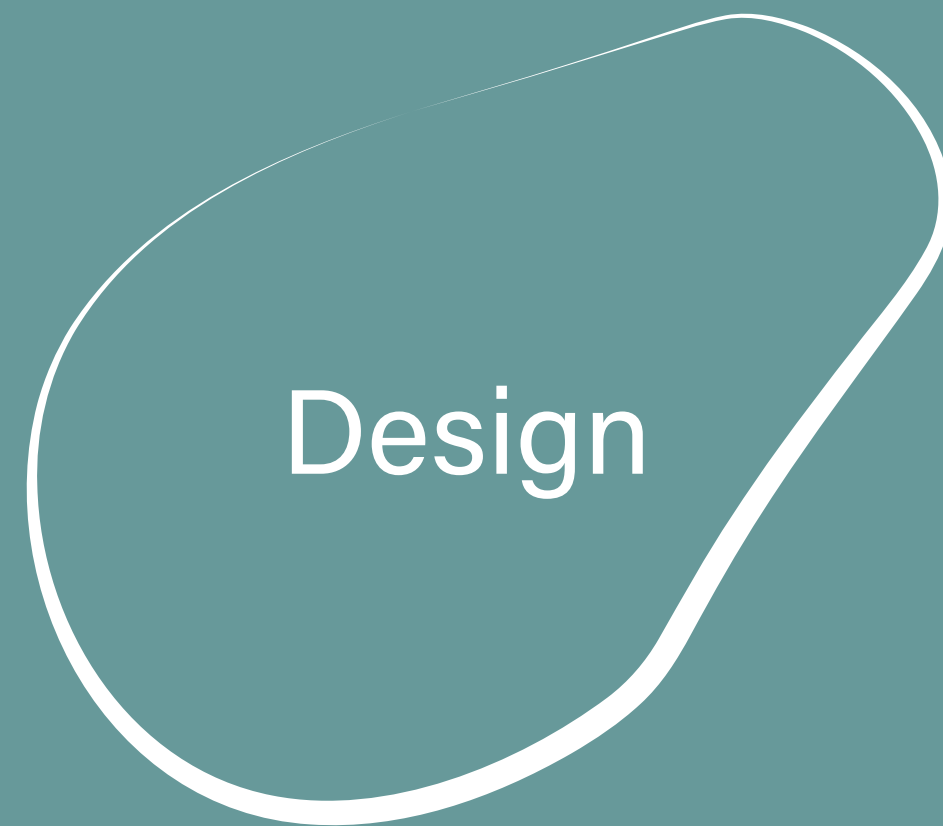


Results

Evaluation summary of industrial heritage (IH) preservation options

|                    | Excavating around IH | Floating IH | New foundation underneath IH |
|--------------------|----------------------|-------------|------------------------------|
| Water impact level |                      |             |                              |
| Accessibility      |                      |             |                              |
| Functionality      |                      |             |                              |
| Risk               |                      |             |                              |
| Cost               |                      |             |                              |
| Sustainability     |                      |             |                              |

| Legend |                         |
|--------|-------------------------|
|        | Significant improvement |
|        | Positive impact         |
|        | Negative impact         |
|        | Problematic impact      |





Schokbeton

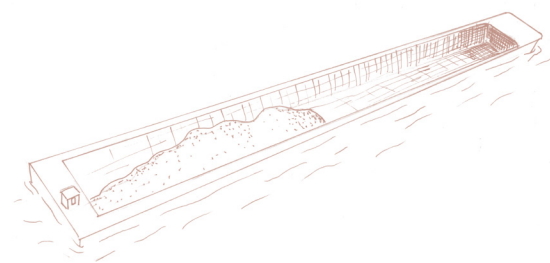


(PIER 14, n.d.; Made by author,2024)



Schokbeton

Schokhaven



(PIER 14, n.d.; Made by author,2024)



Schokbeton

Schokhaven

Raw material bunker





Schokbeton

Schokhaven

Raw material bunker



Schokhal

Montage hal

Modelmakerij

(PIER 14, n.d.; Made by author,2024)



Schokbeton

Schokhaven

Raw material bunker

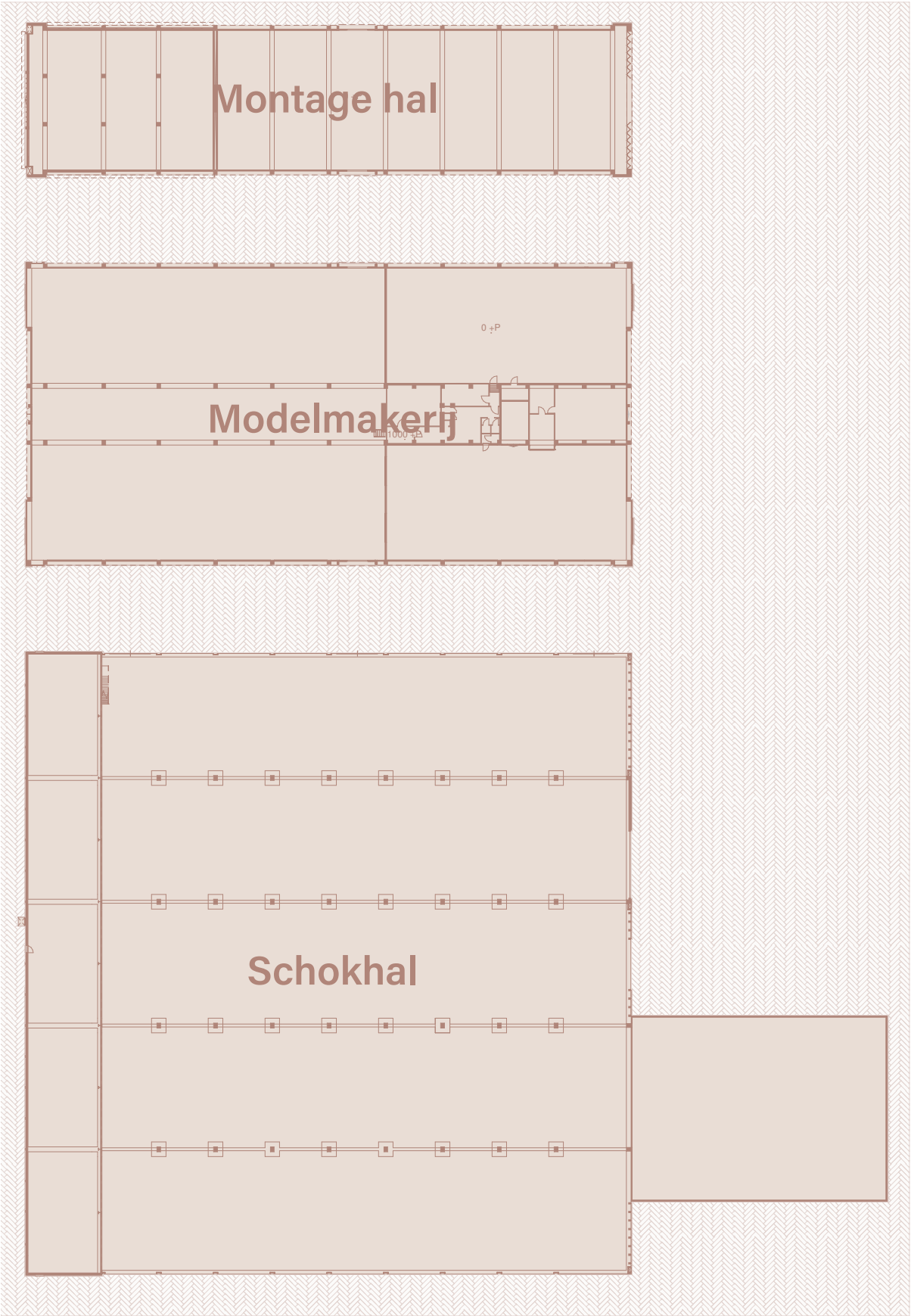
Prefab elements storage

Schokhal  
Modelmakerij  
Montage hal

(PIER 14, n.d.; Made by author,2024)

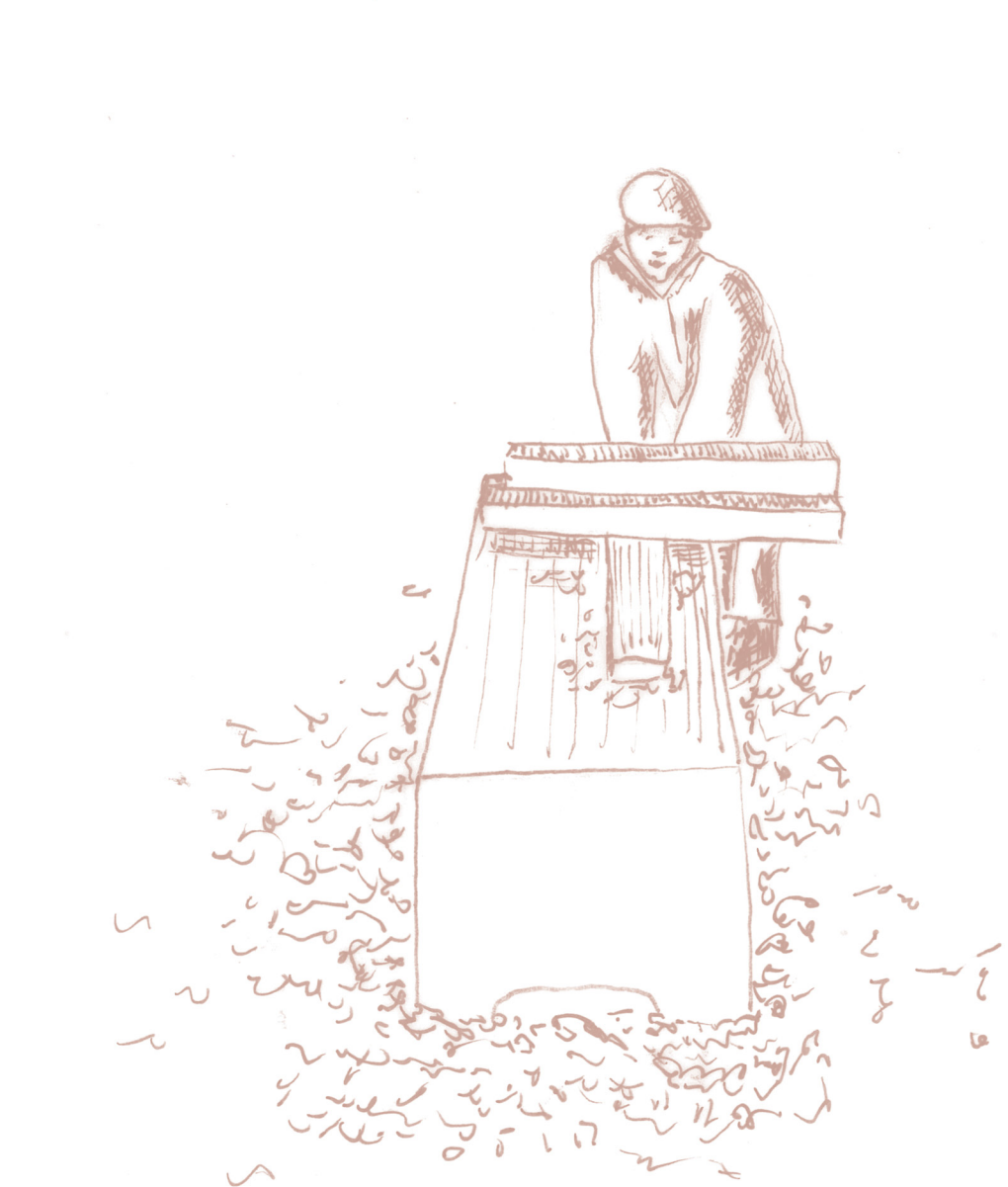


Schokbeton



(Made by author,2024)

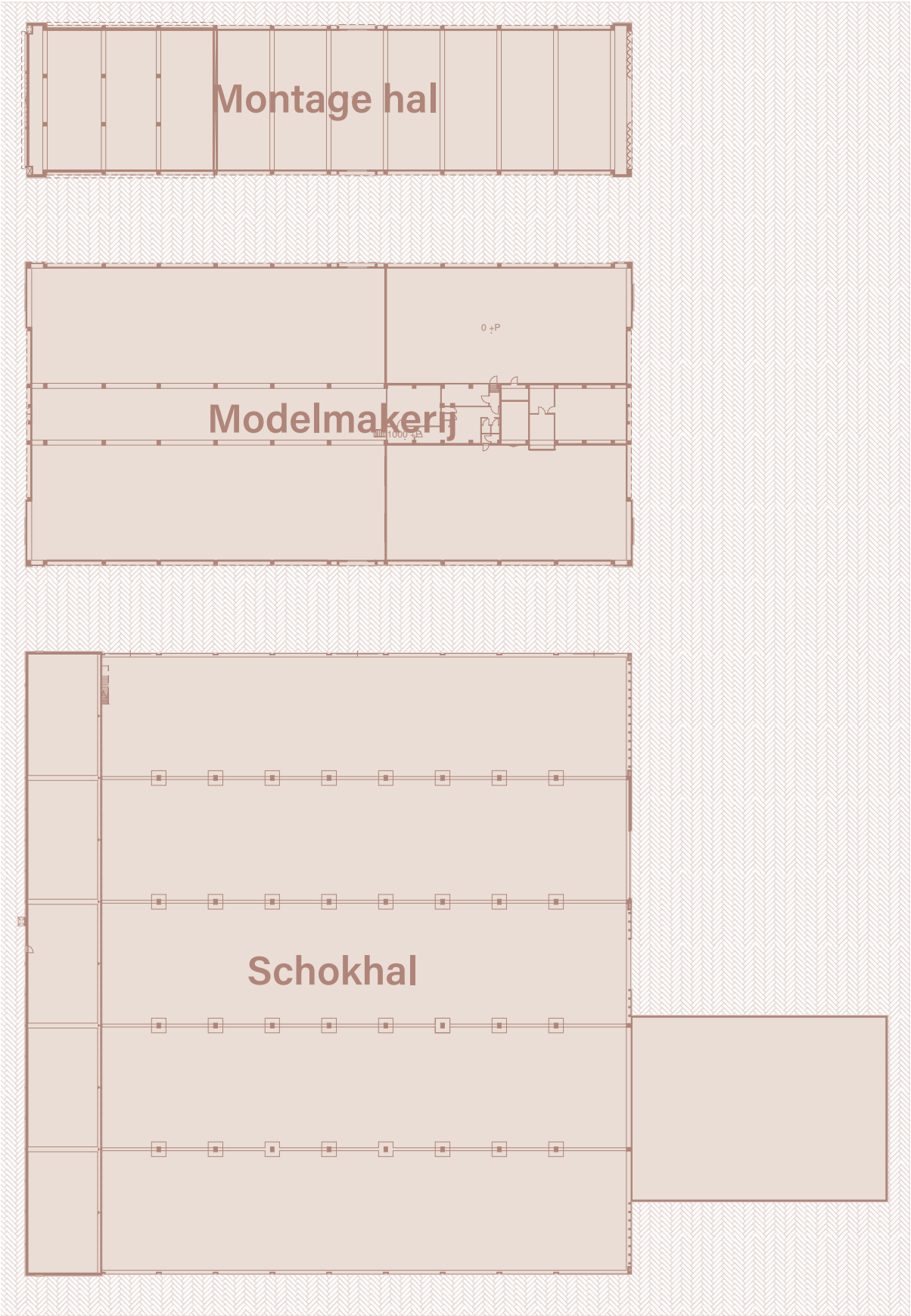
Modelmakerij



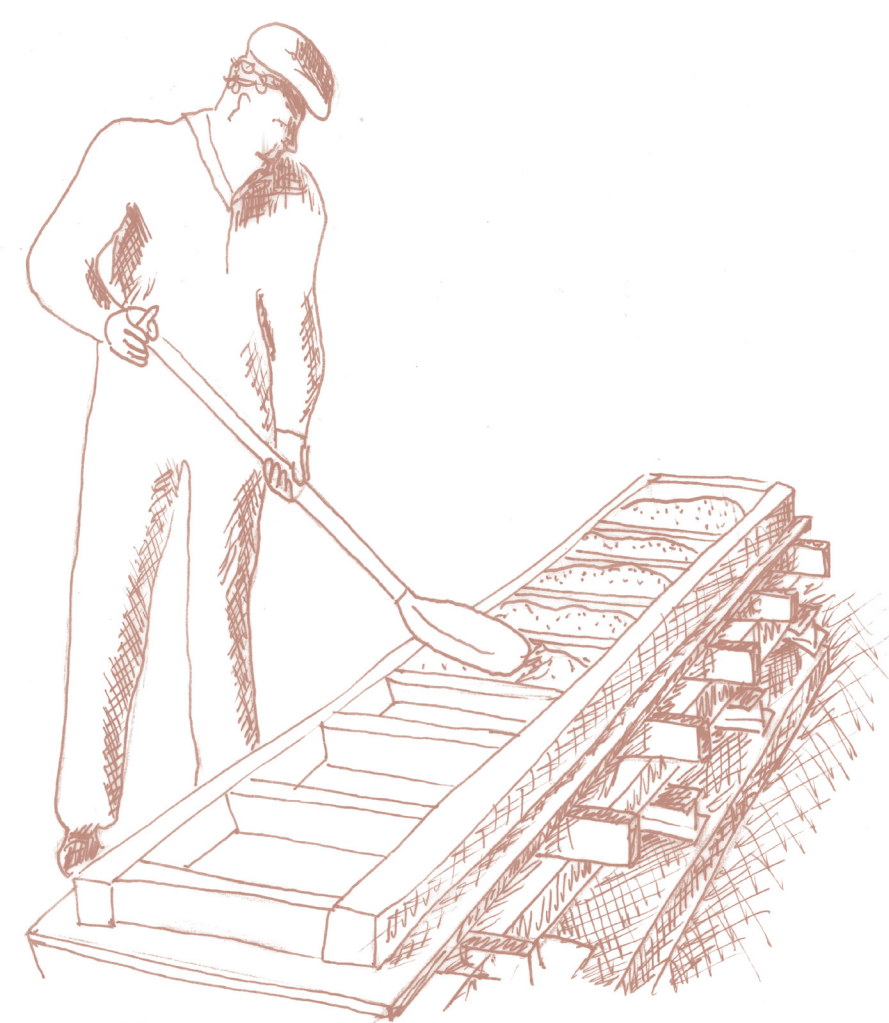
Wood workshop for making the formwork



Schokbeton

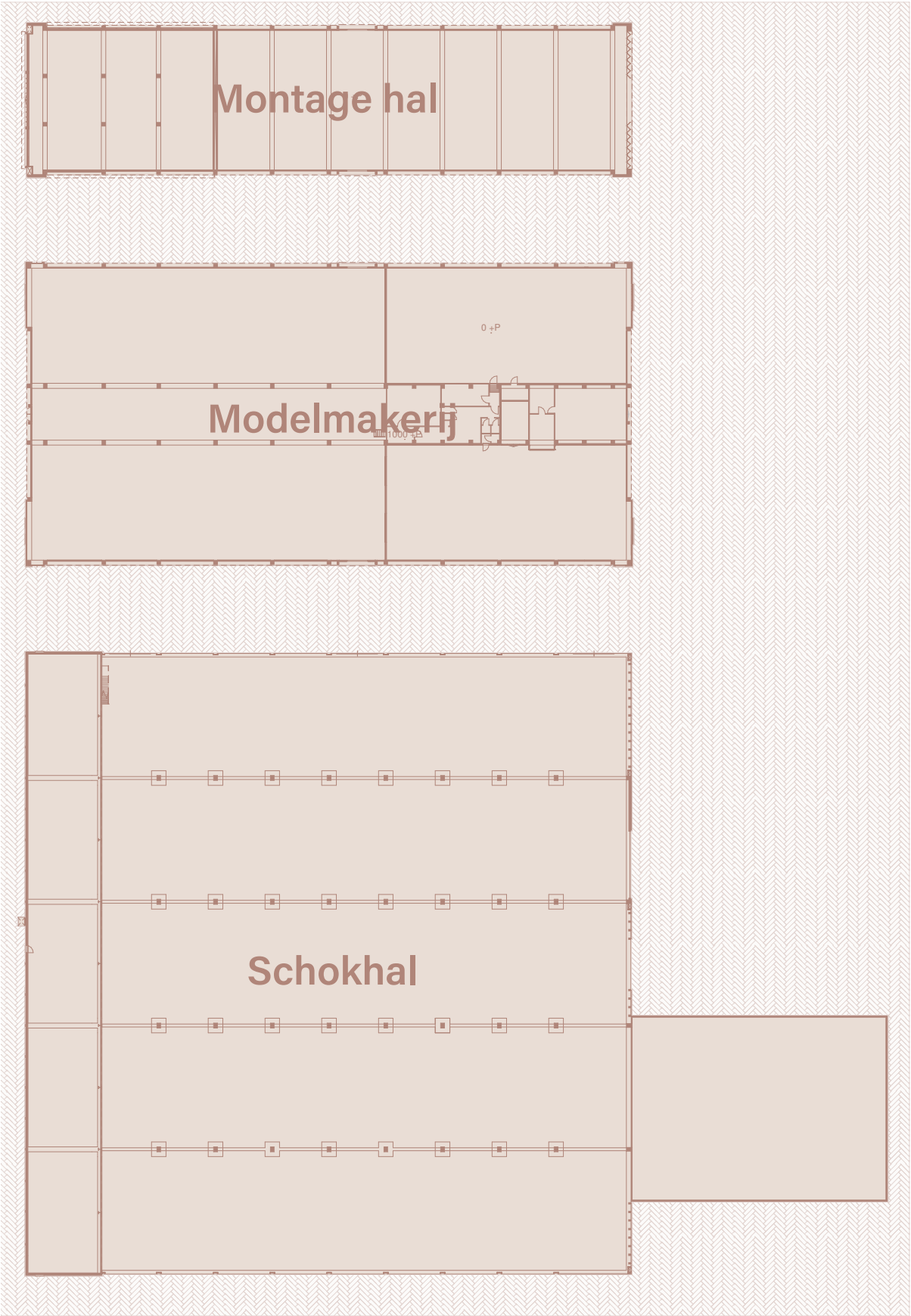


Schokhal

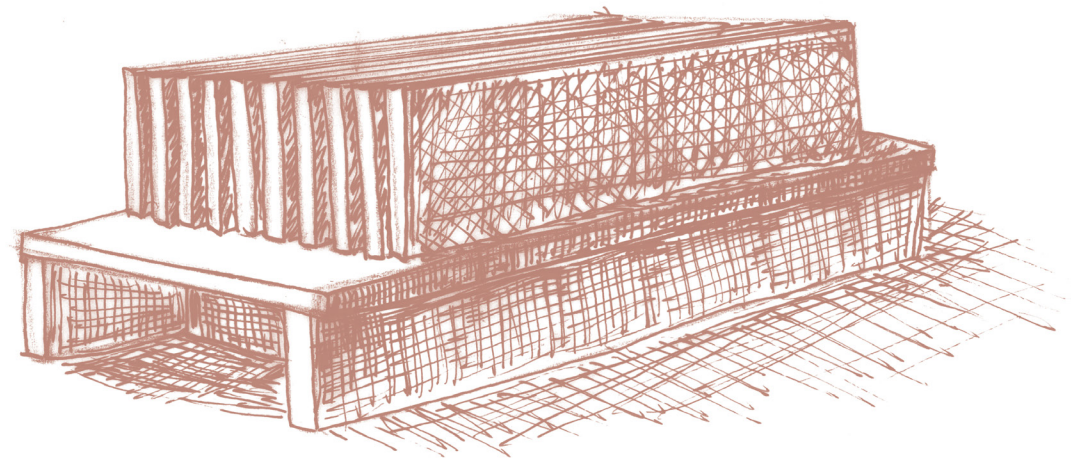


Workshop with the shock machinery

Schokbeton



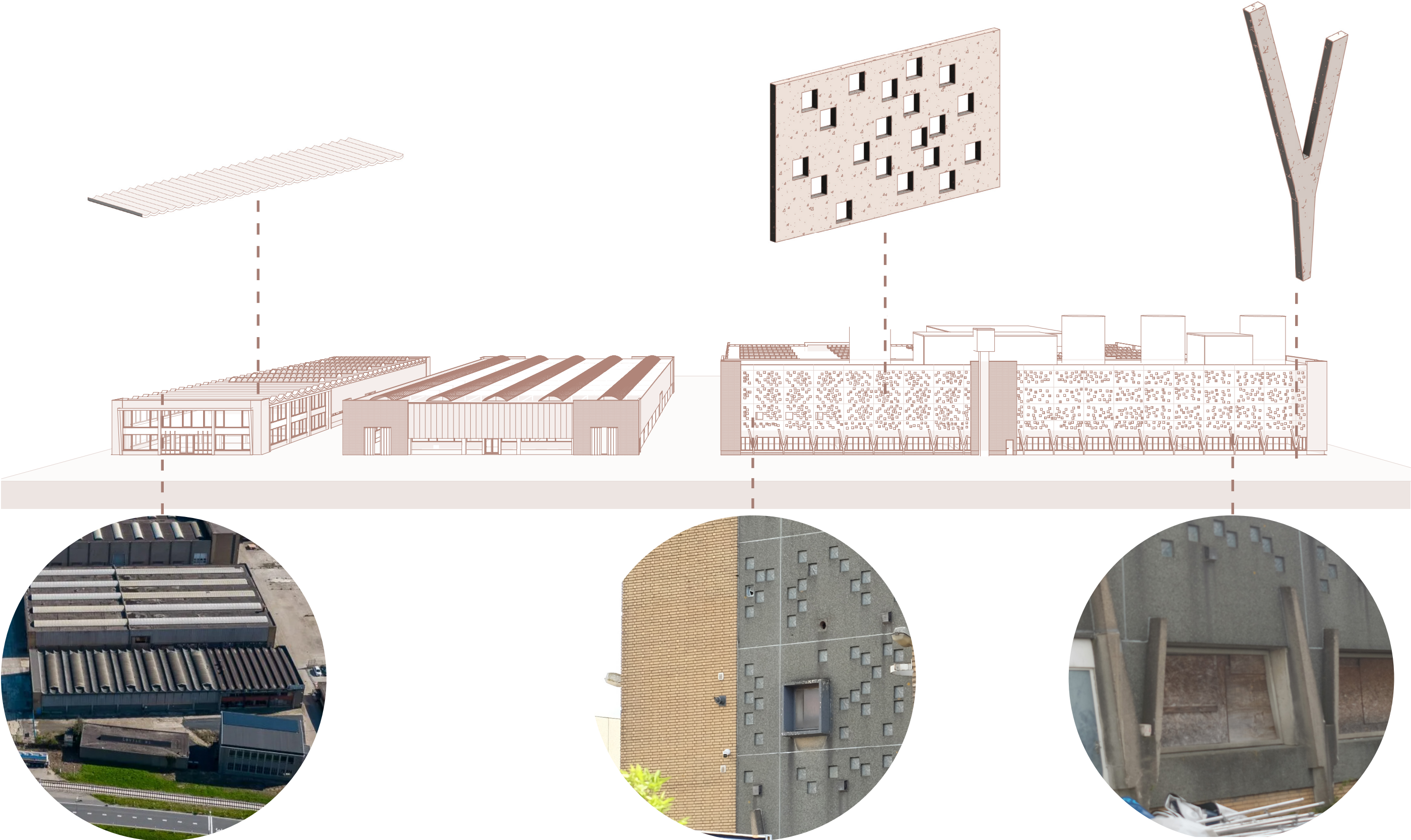
Montage hal



Warehouse with offices for the assembly and storage of precast concrete elements



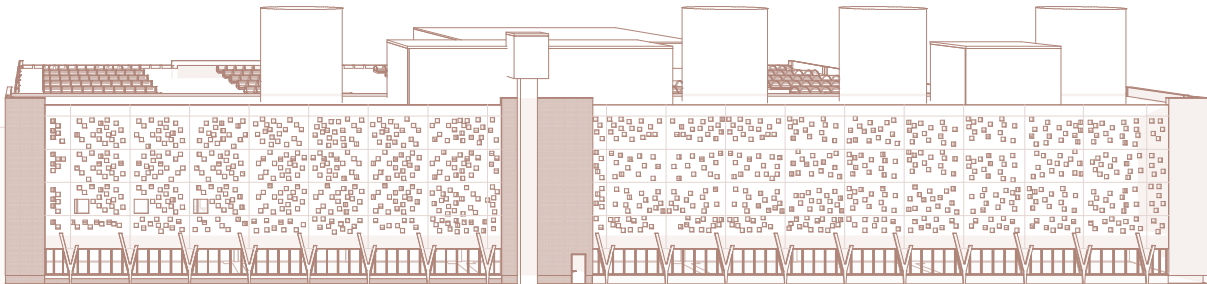
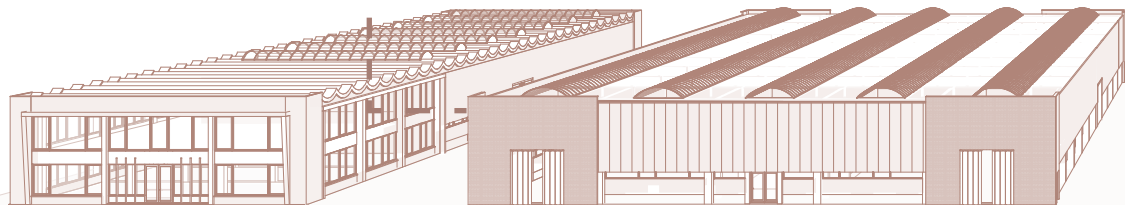
Schokbeton made of prefab concrete elements



(Pier 14, n.d.; TU Delft Schokbeton Archive, n.d.; Made by author,2024)



Prefab concrete - unlimited possibilities



(TU Delft Schokbeton Archive, n.d.; Made by author,2024)



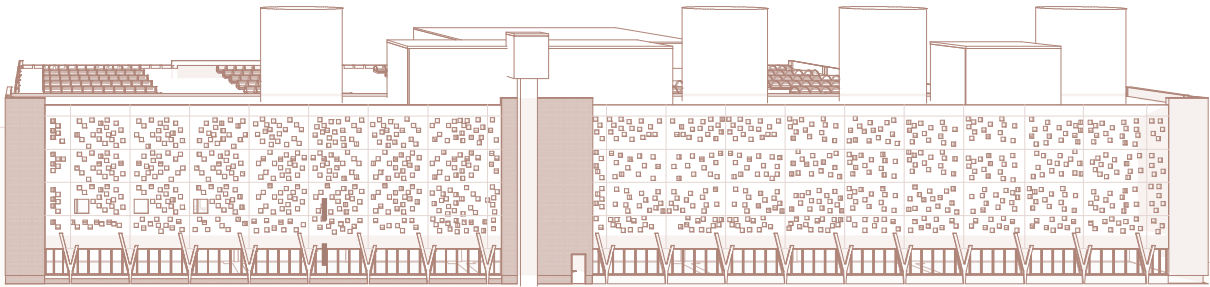
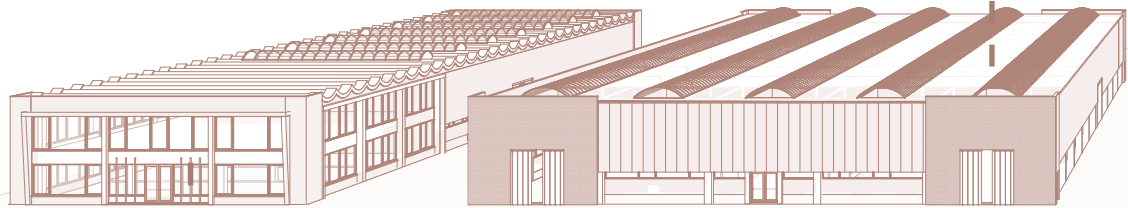
Schokbeton factory impression



(TU Delft Schokbeton Archive, n.d.; Regionaal archief Dordrecht, n.d.; Made by author, 2024)



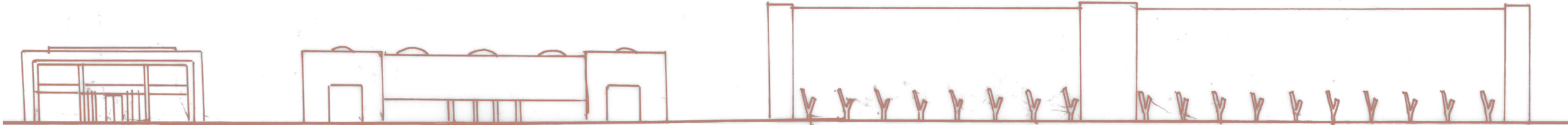
Schokbeton factory impression



(Netwerk Steunpunten, n.d.; Made by author, 2024)

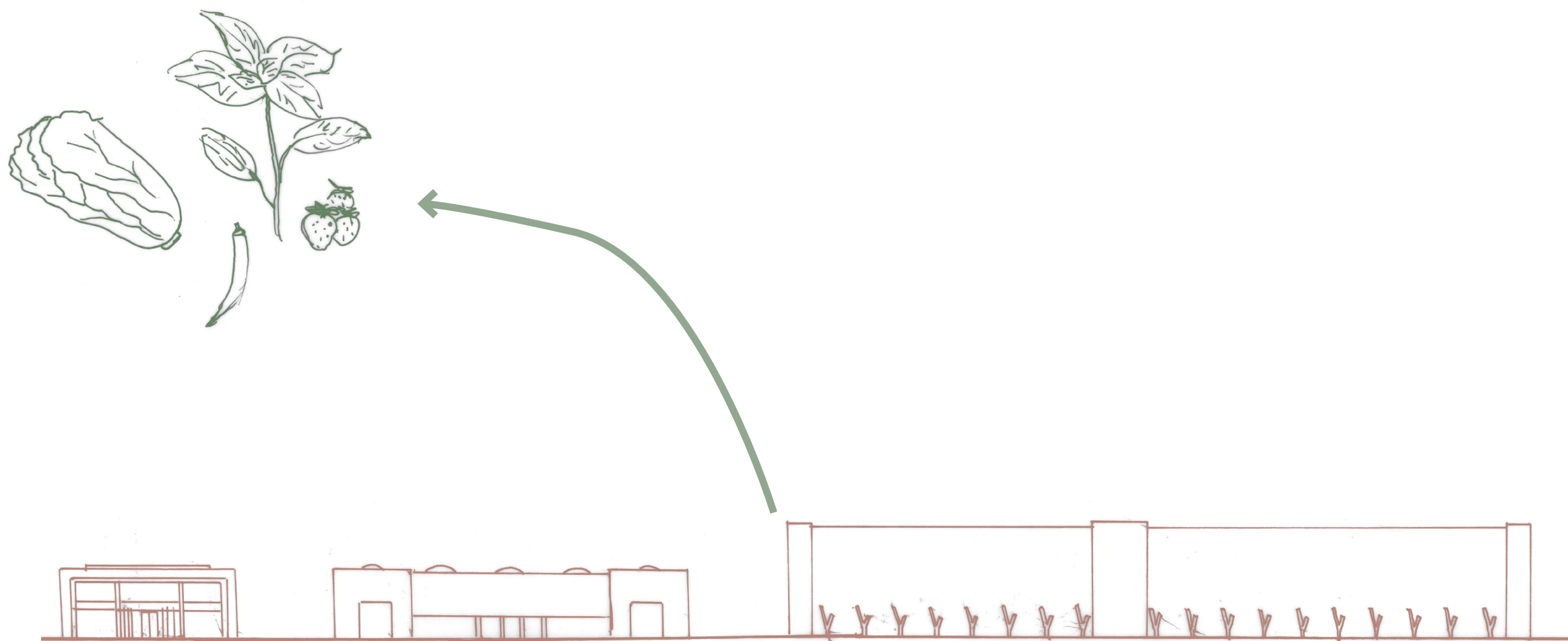


Program



Protect Industrial heritage of Schokbeton

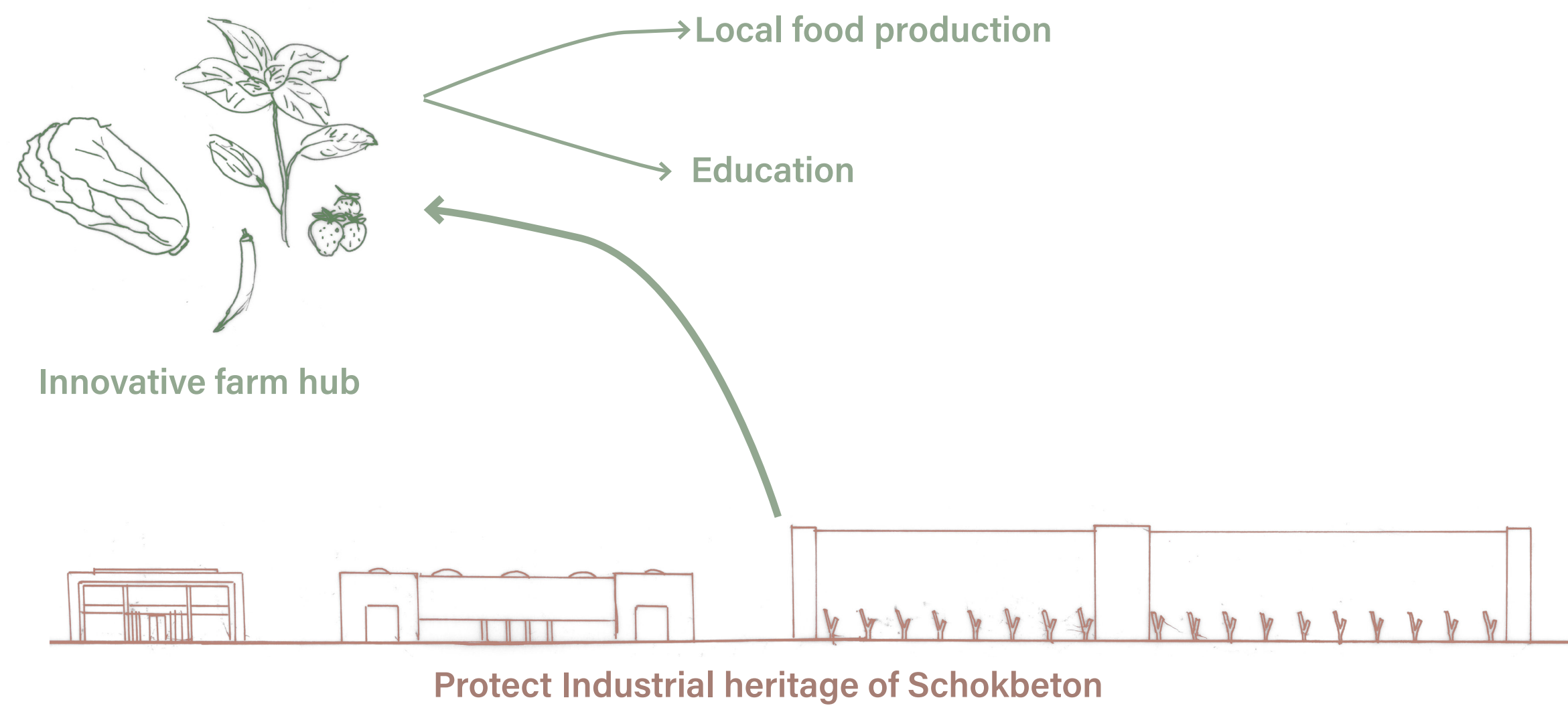
Program



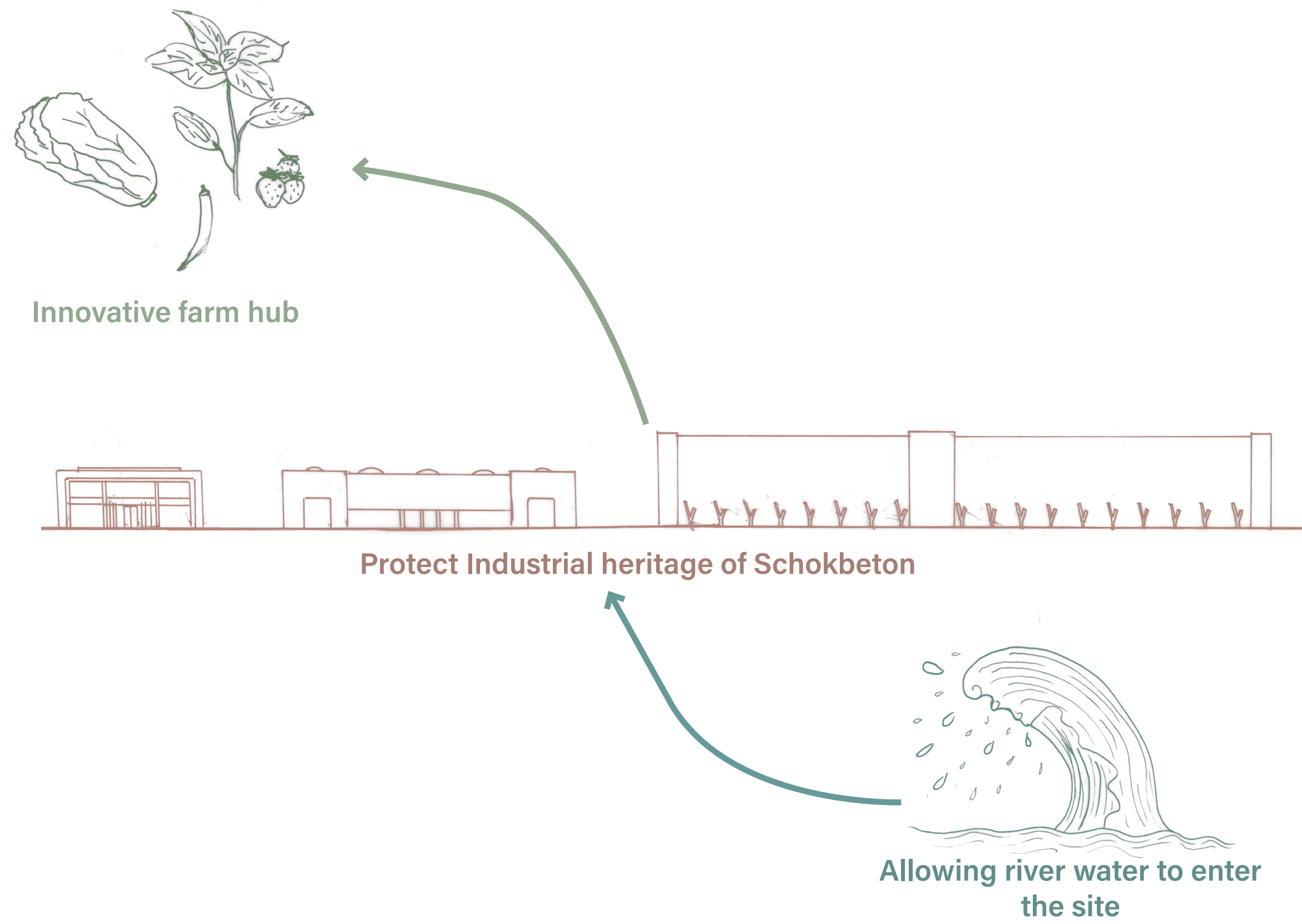
Protect Industrial heritage of Schokbeton



Program

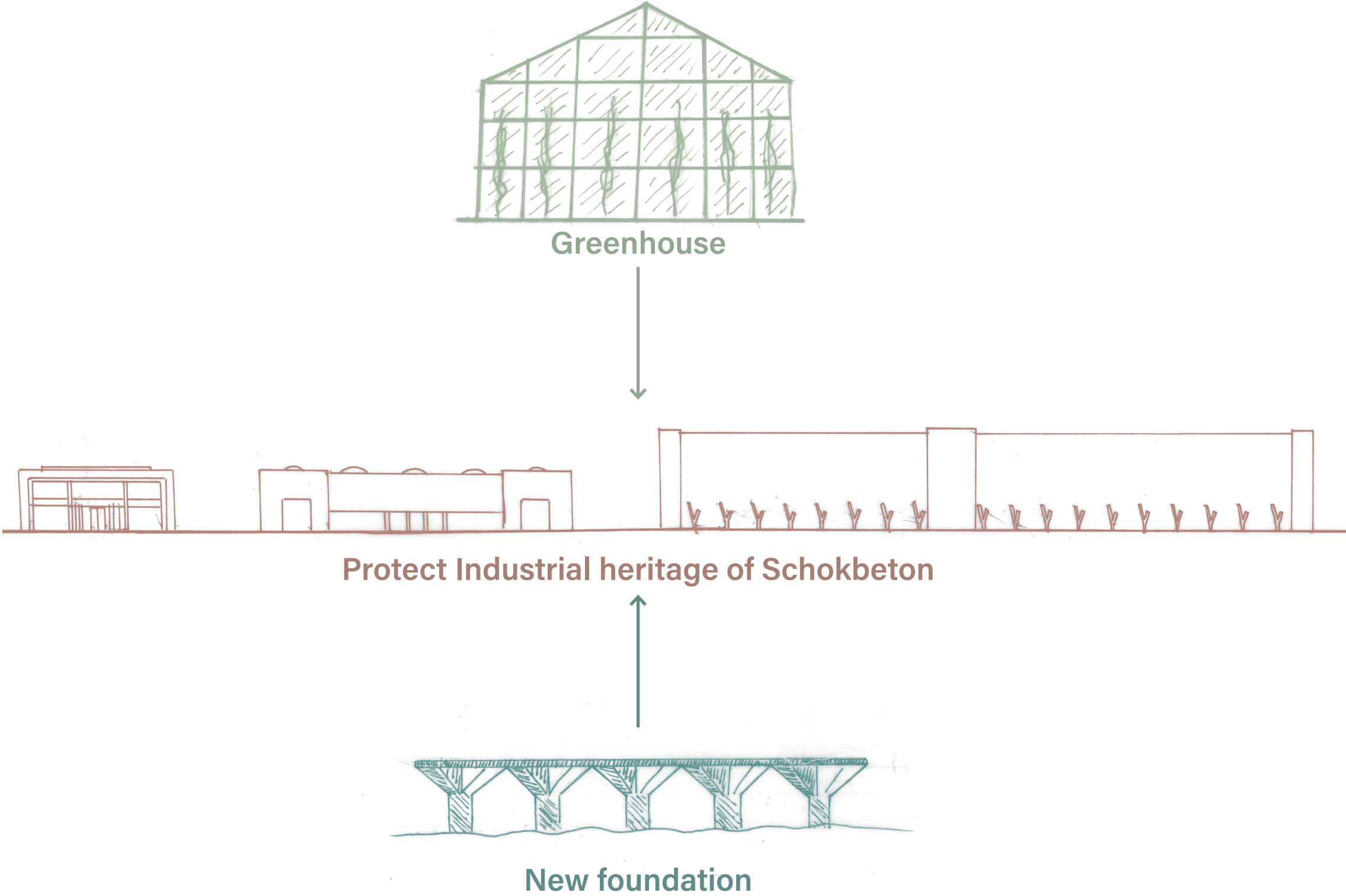


Program

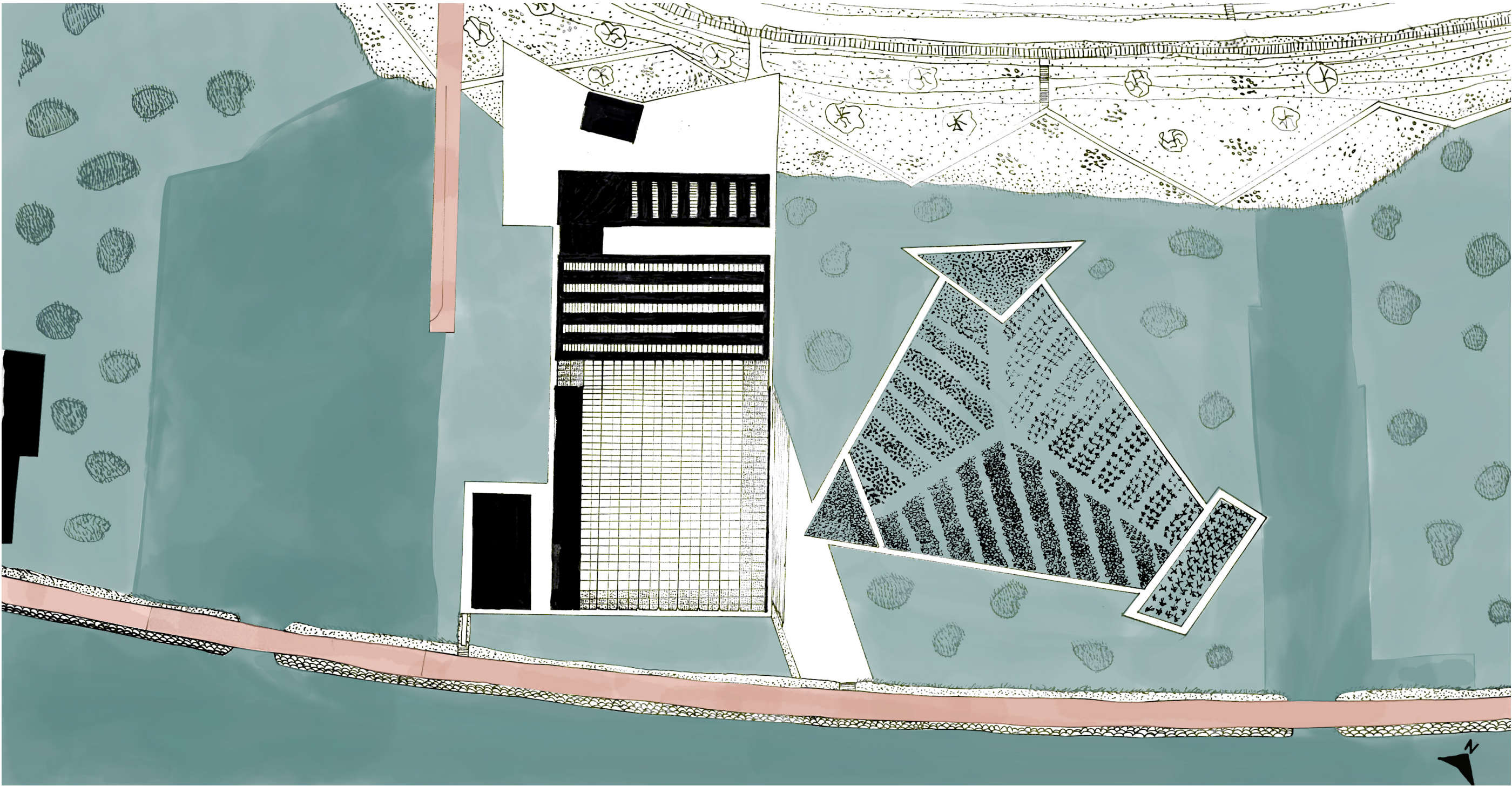




Concept

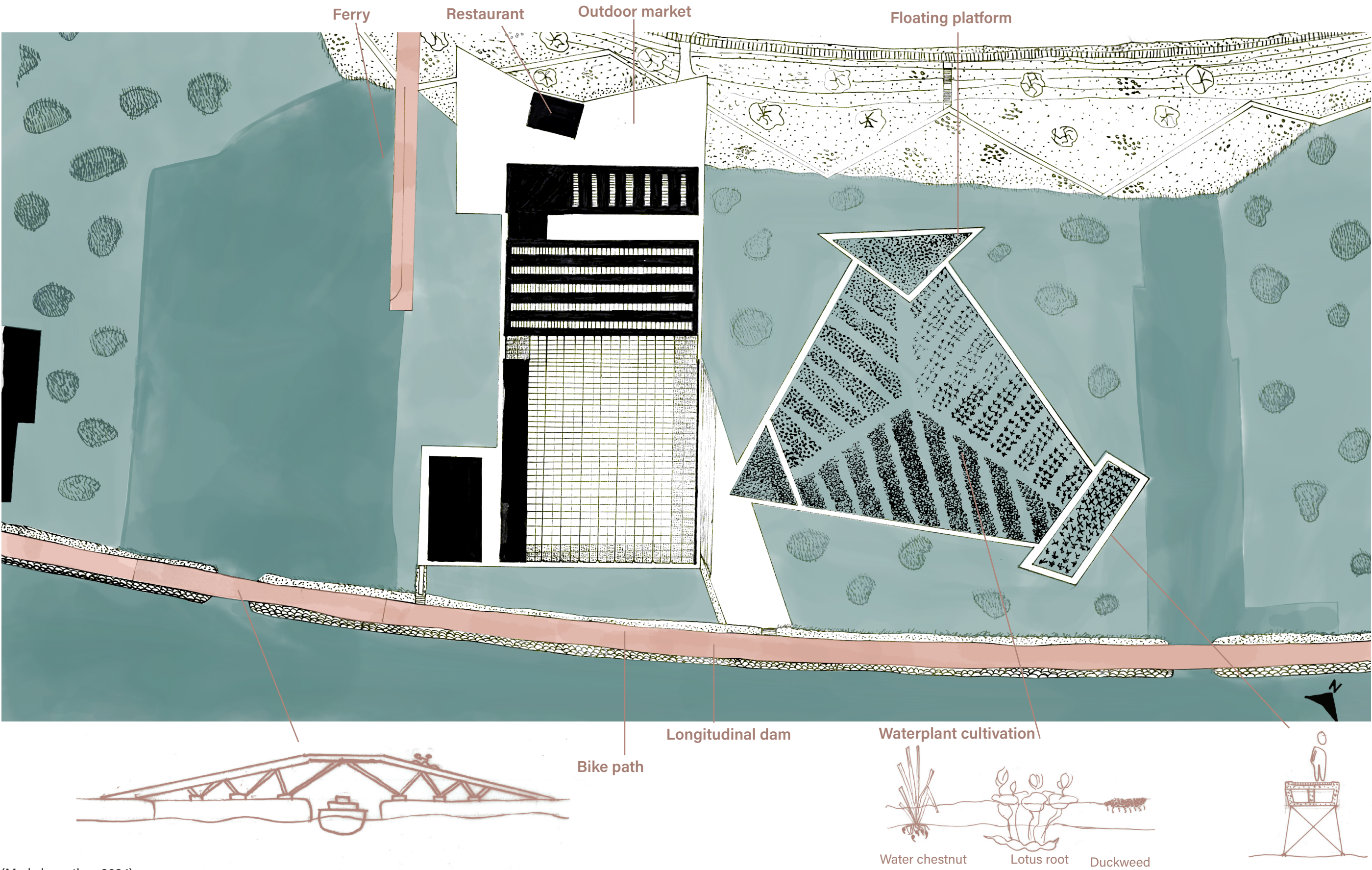


Siteplan





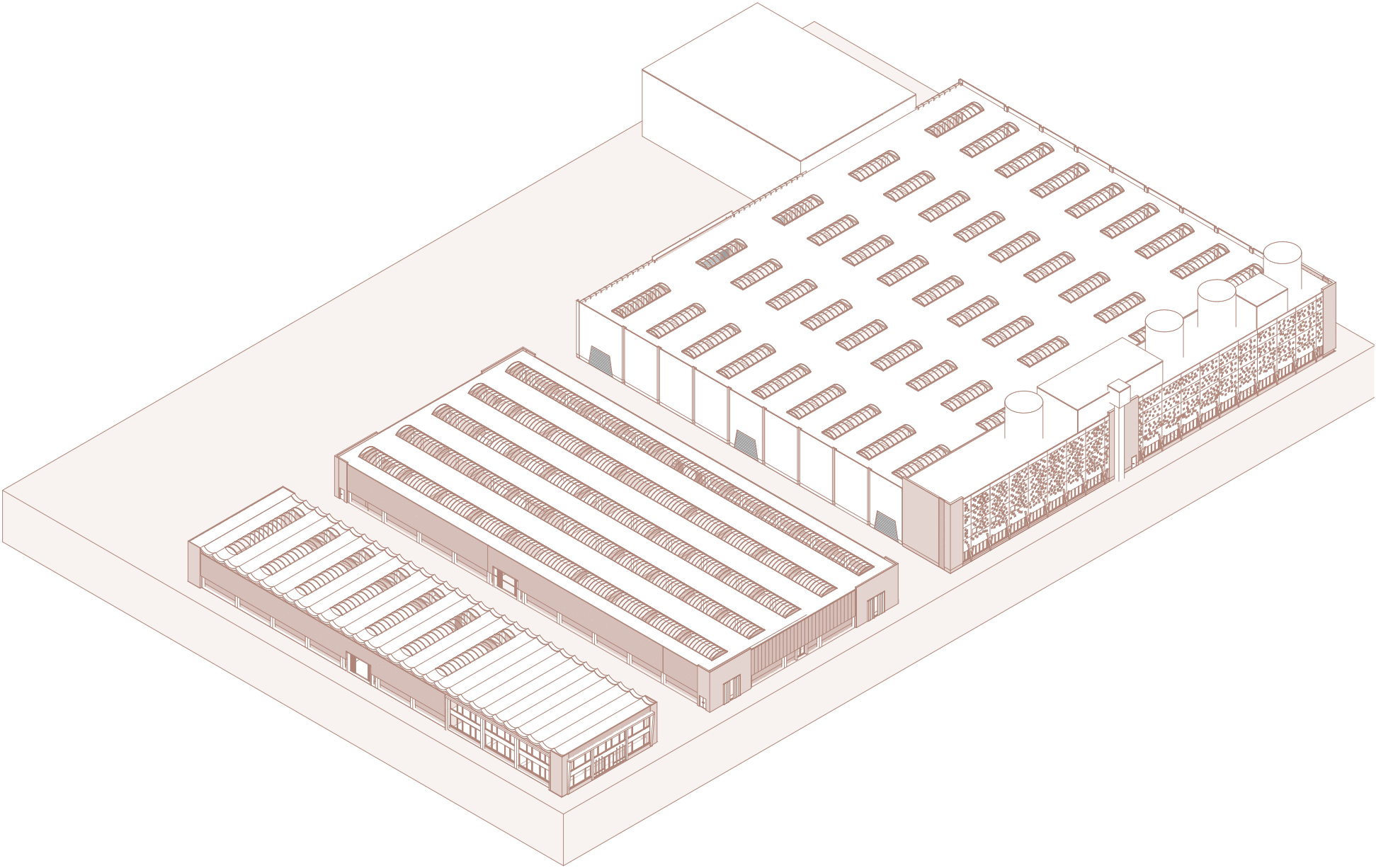
Siteplan



(Made by author, 2024)

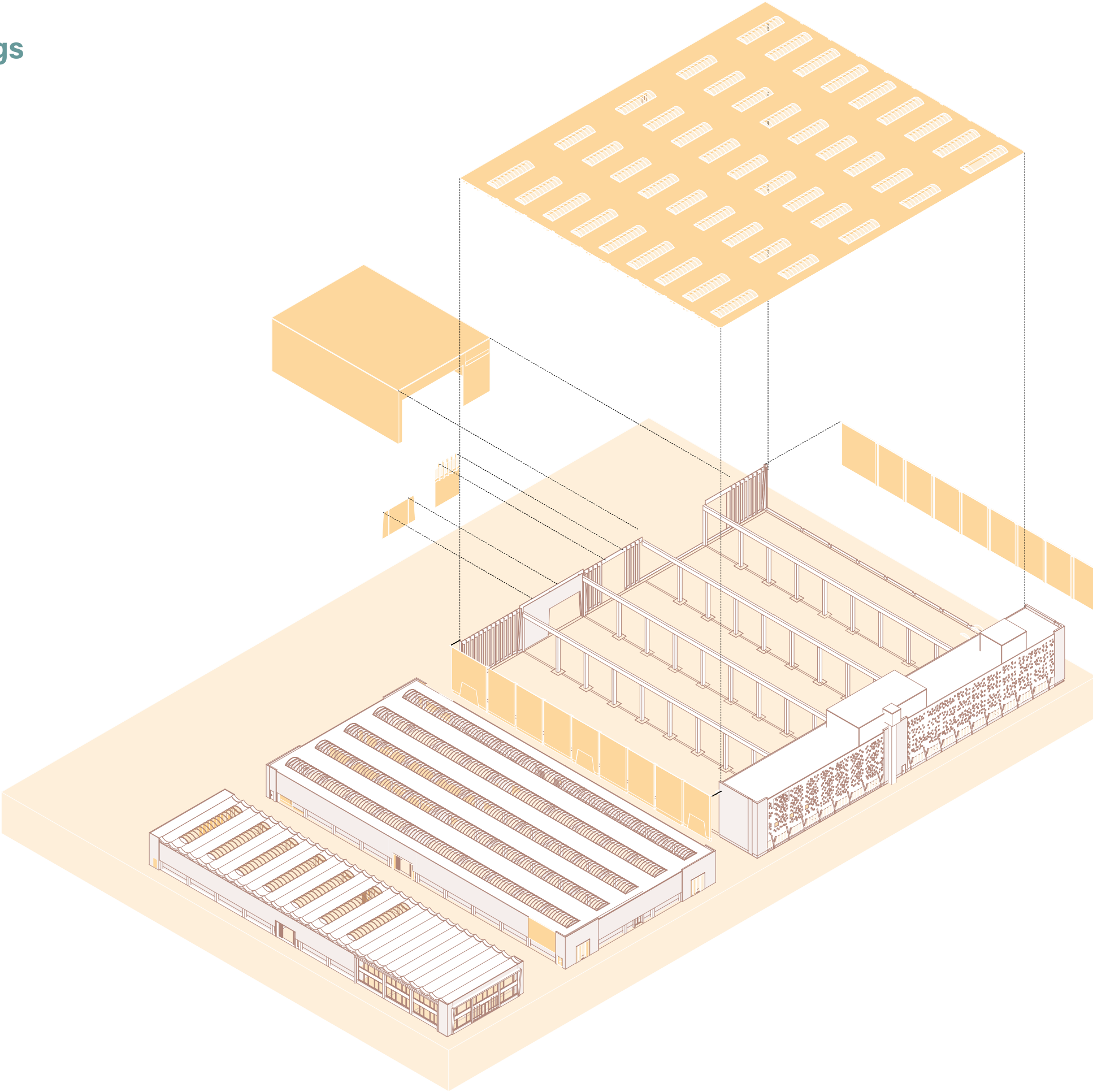


Existing buildings

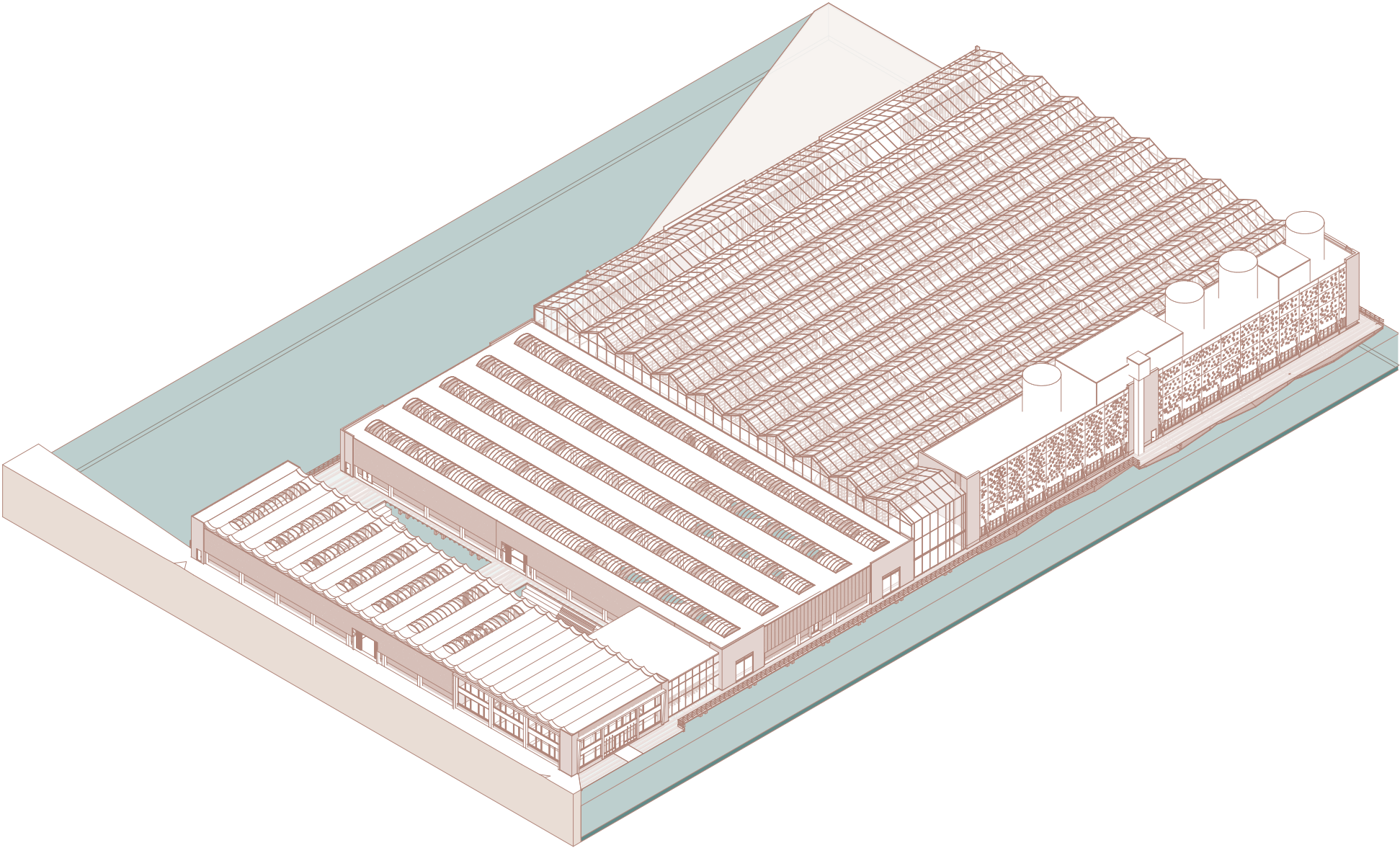




Demolished buildings

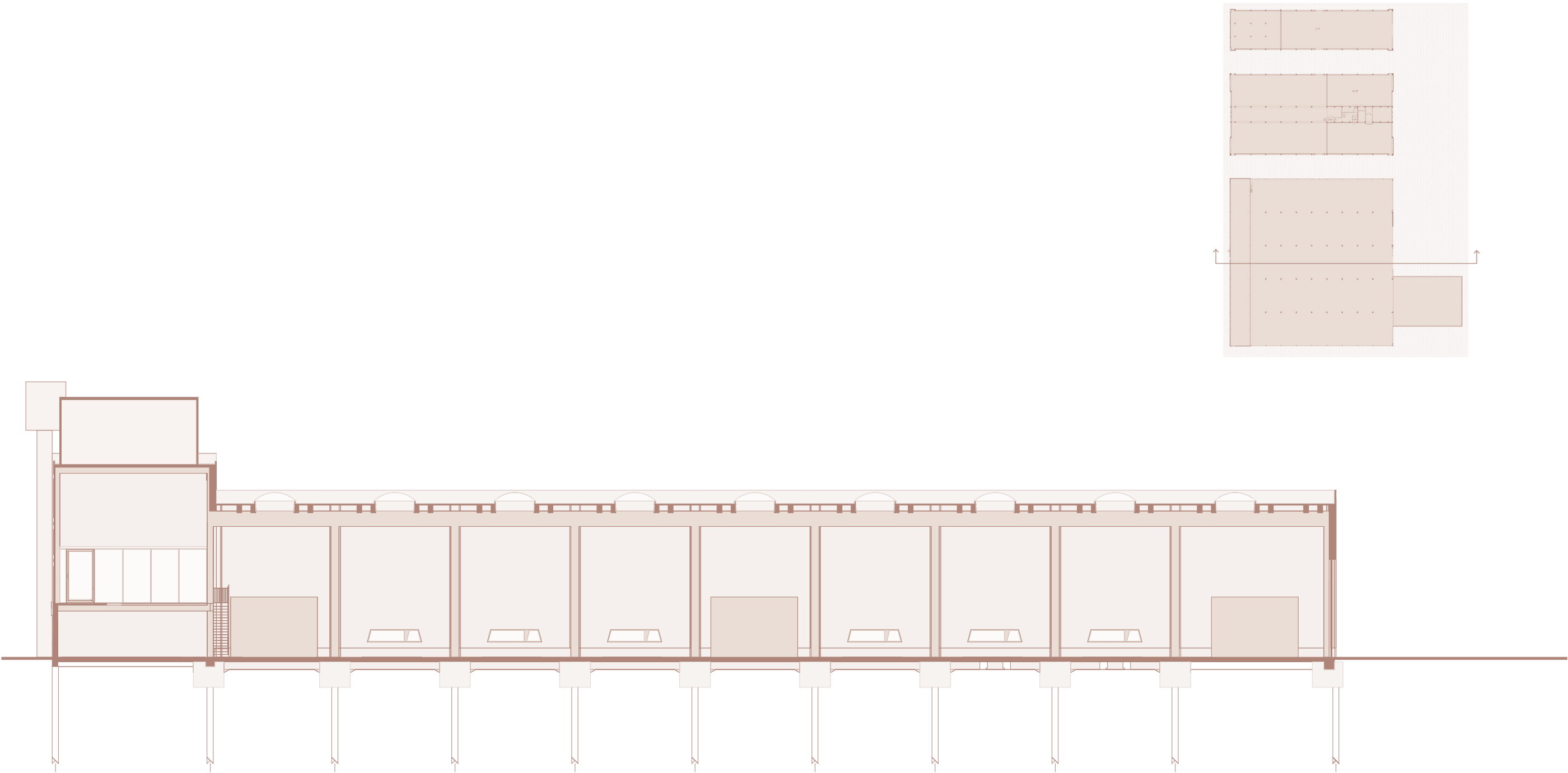


Design proposal

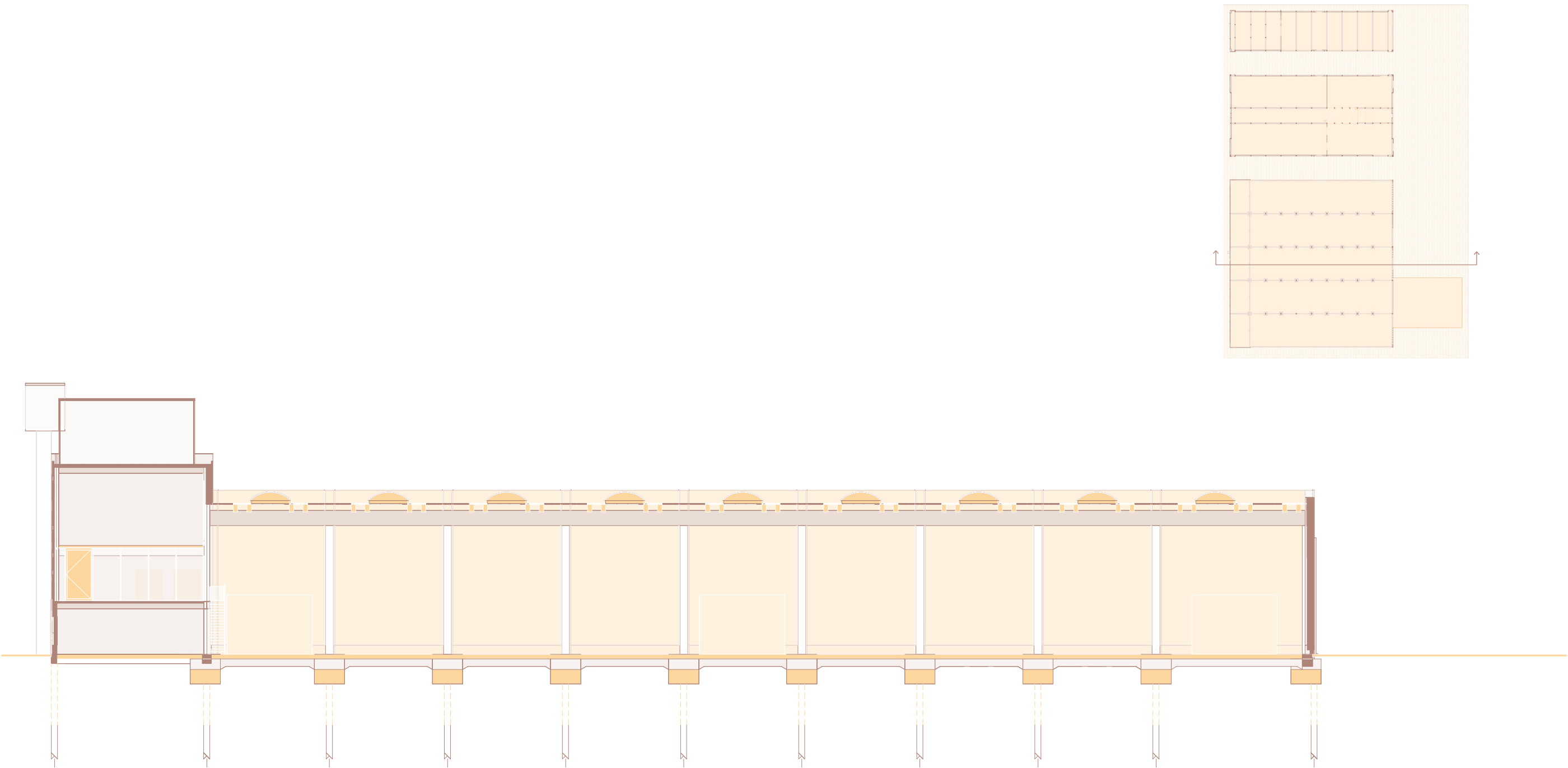




Existing section

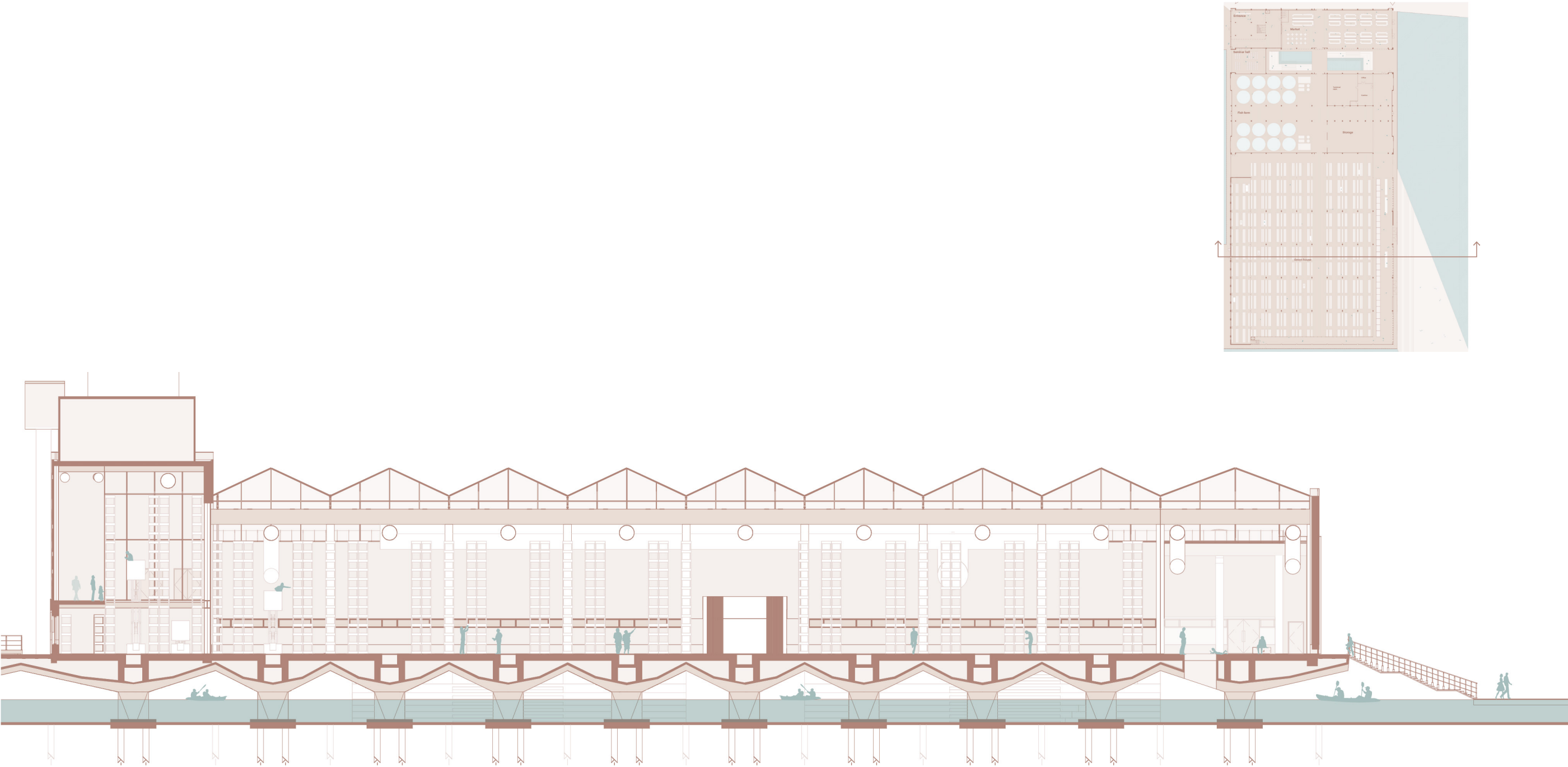


Demolition Section

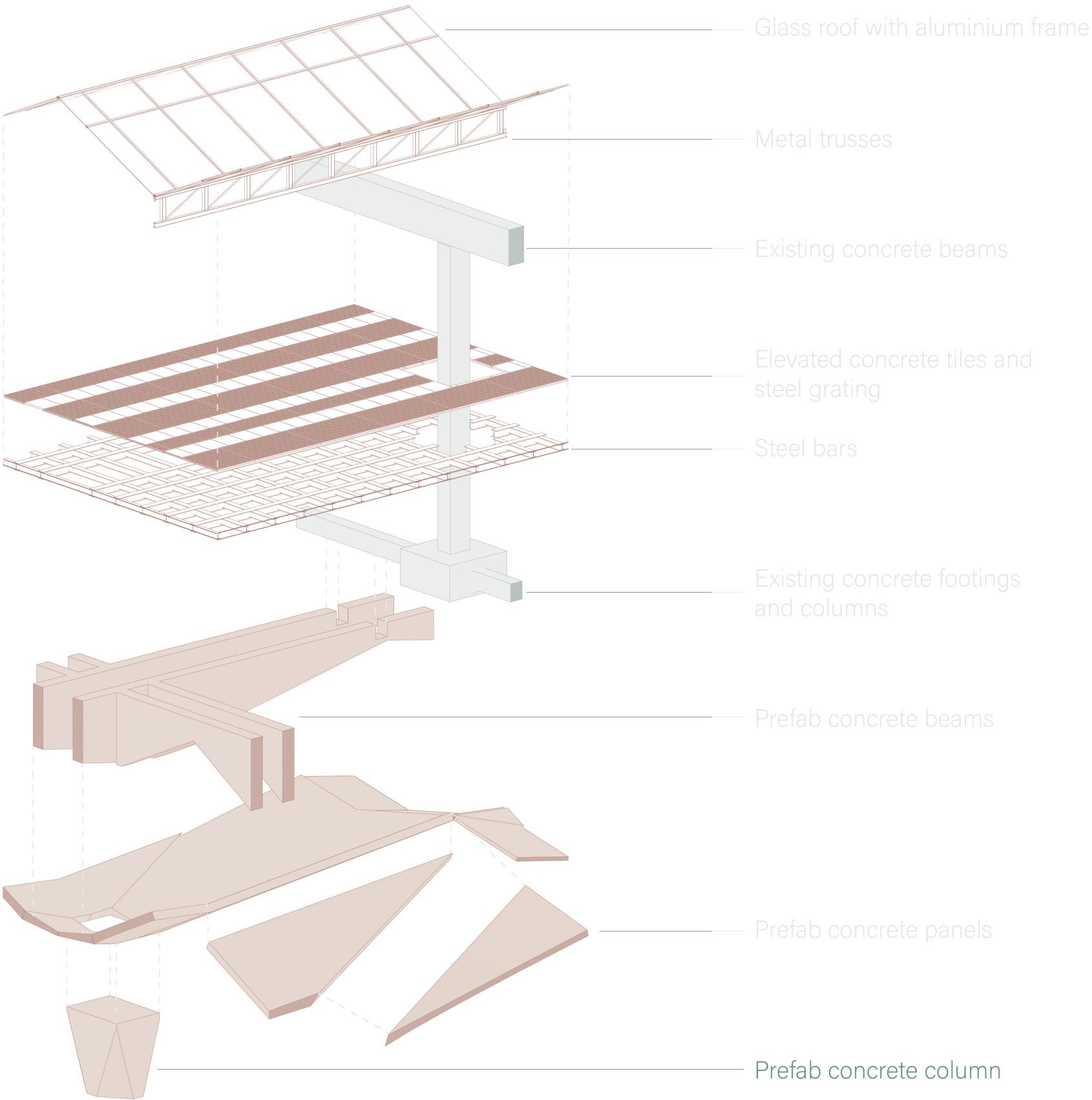




Proposed design section

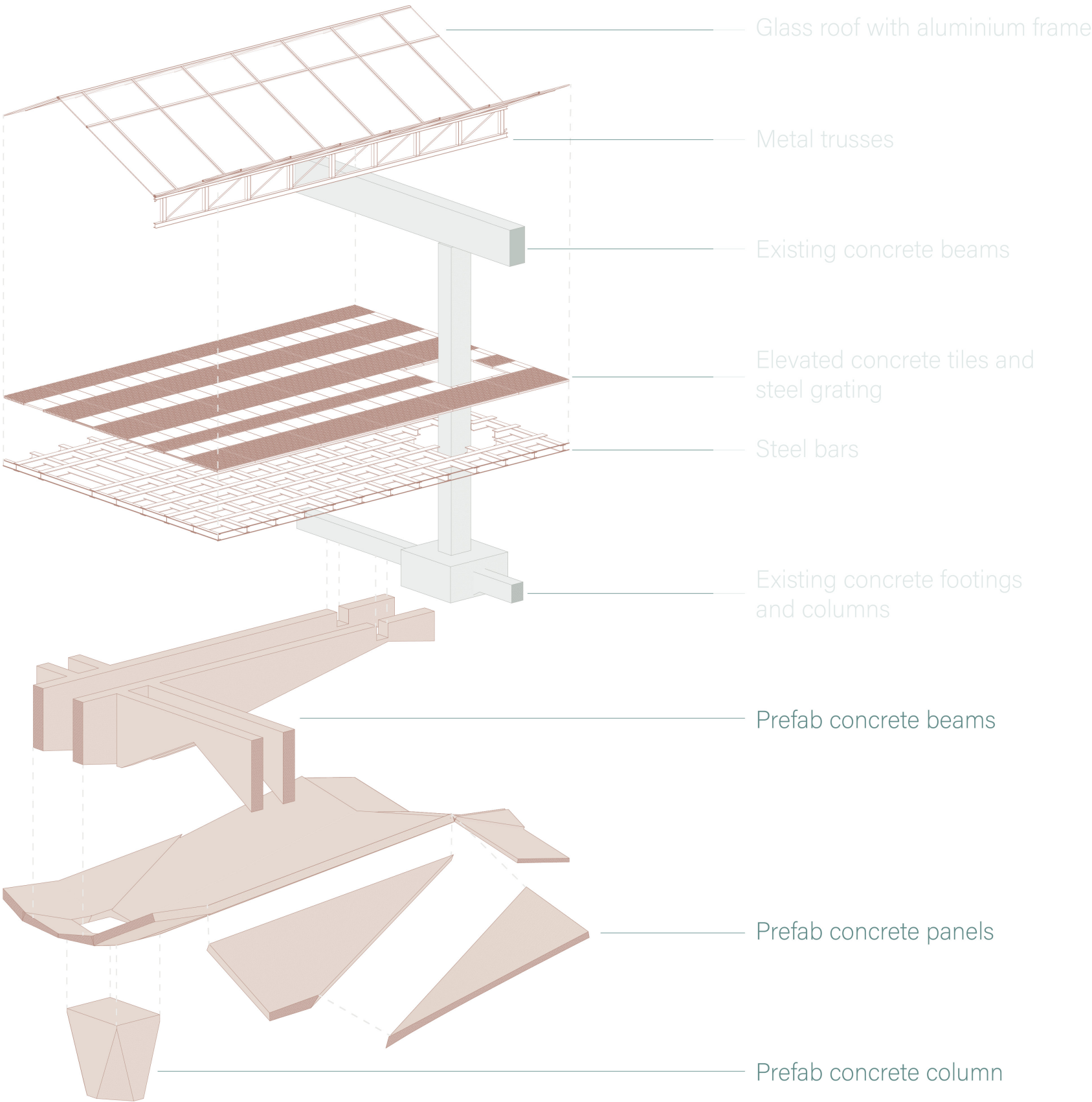


Structural concept

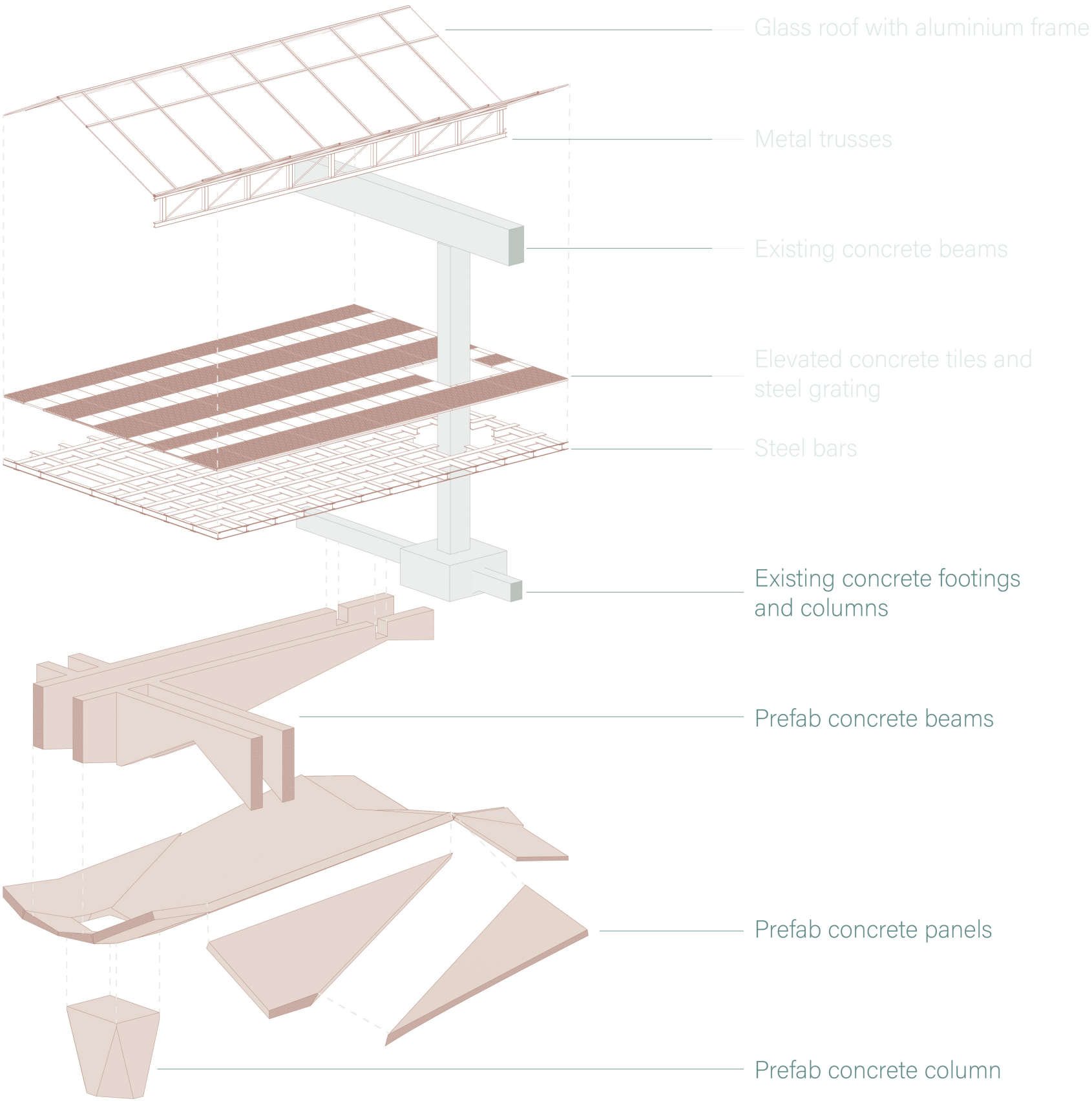




Structural concept

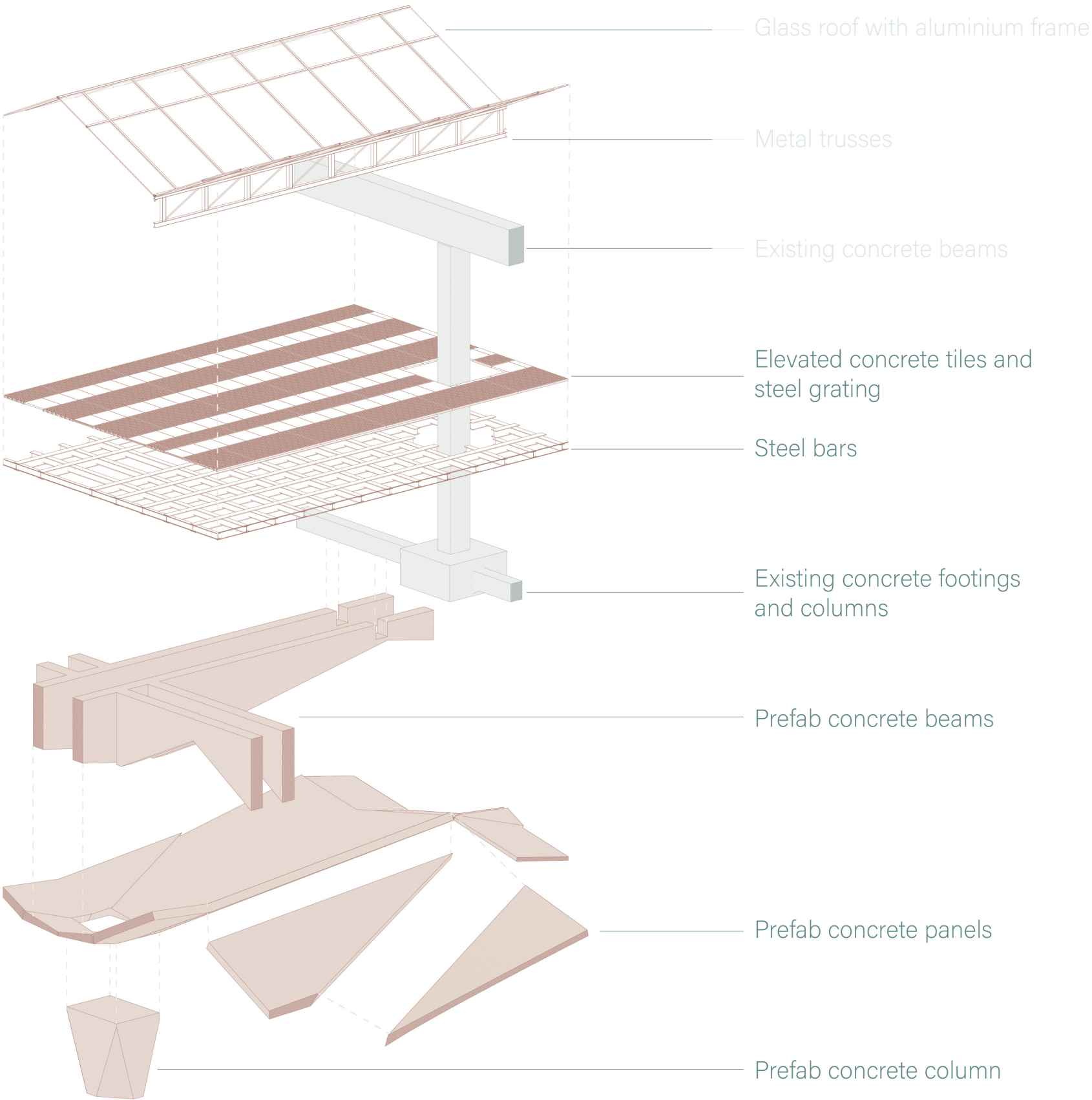


Structural concept

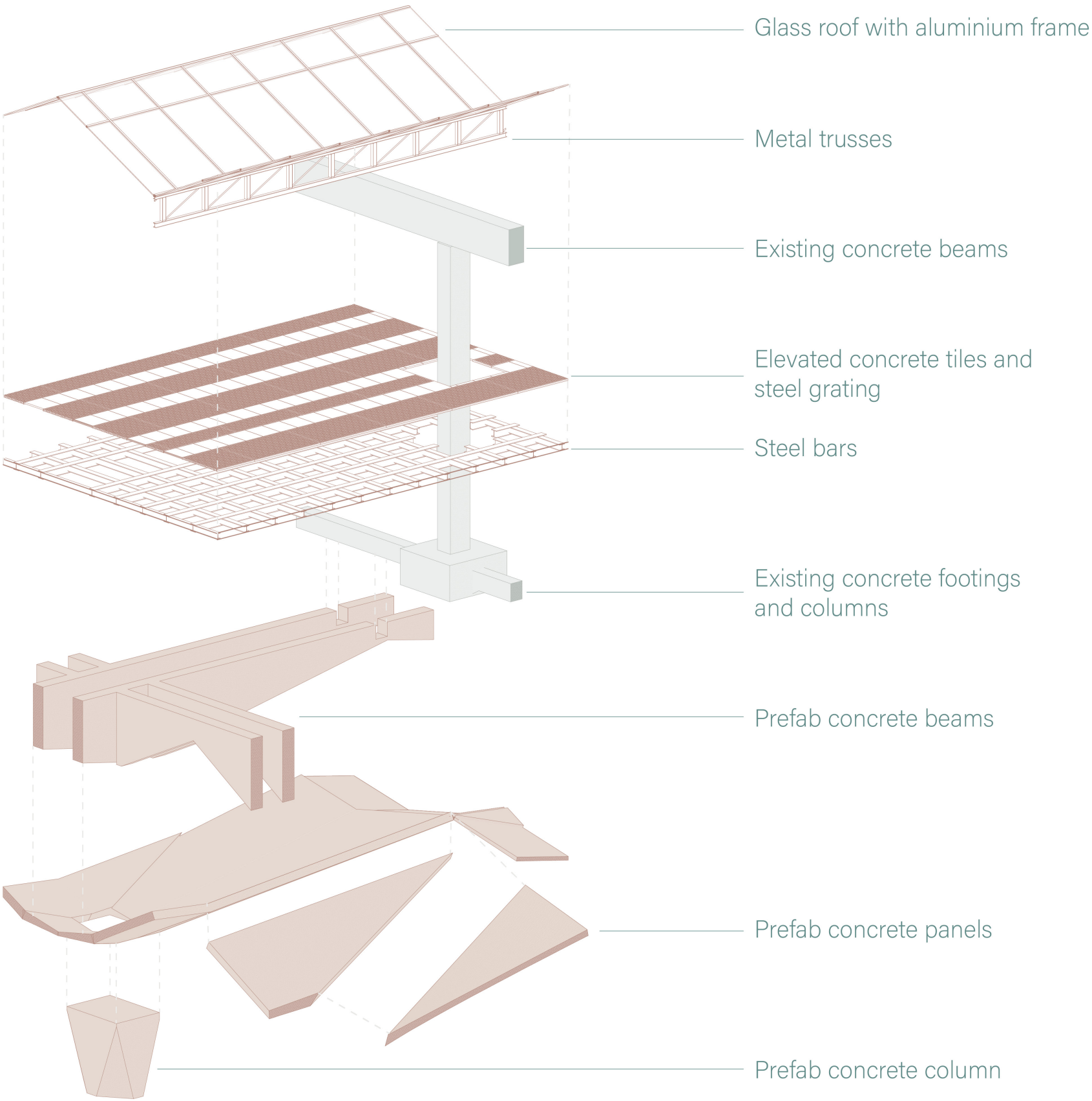




Structural concept

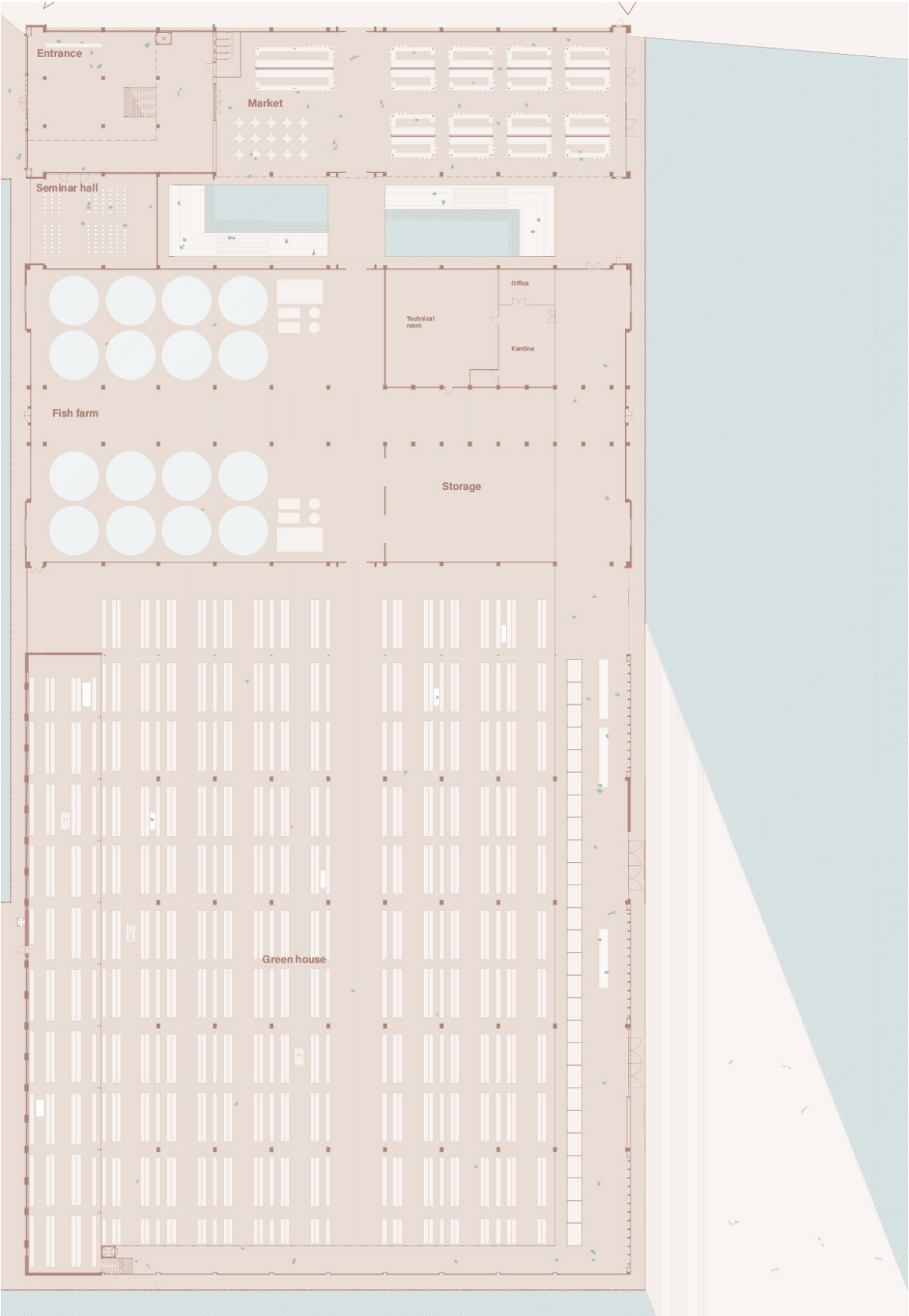


Structural concept

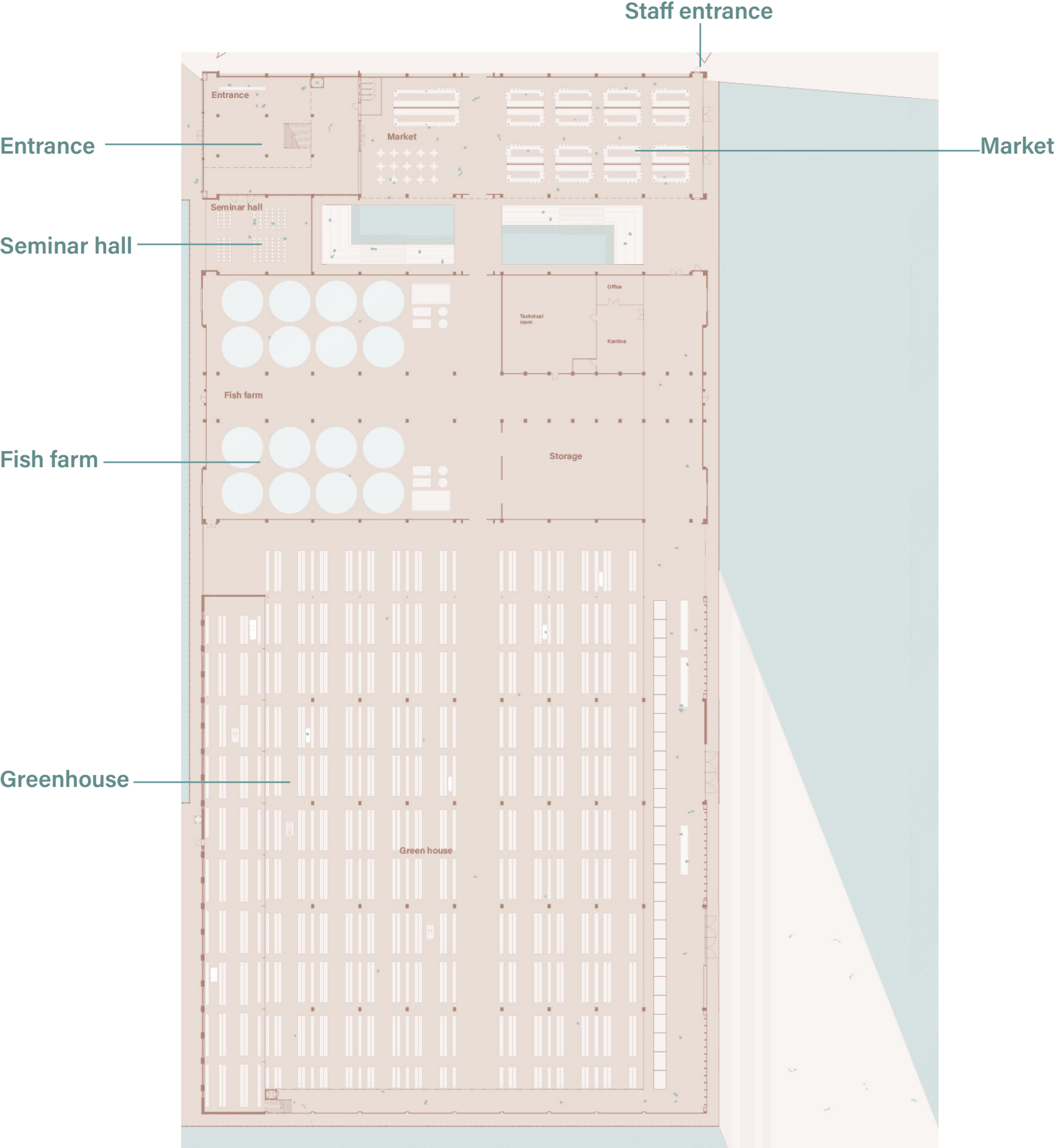




Groundfloor

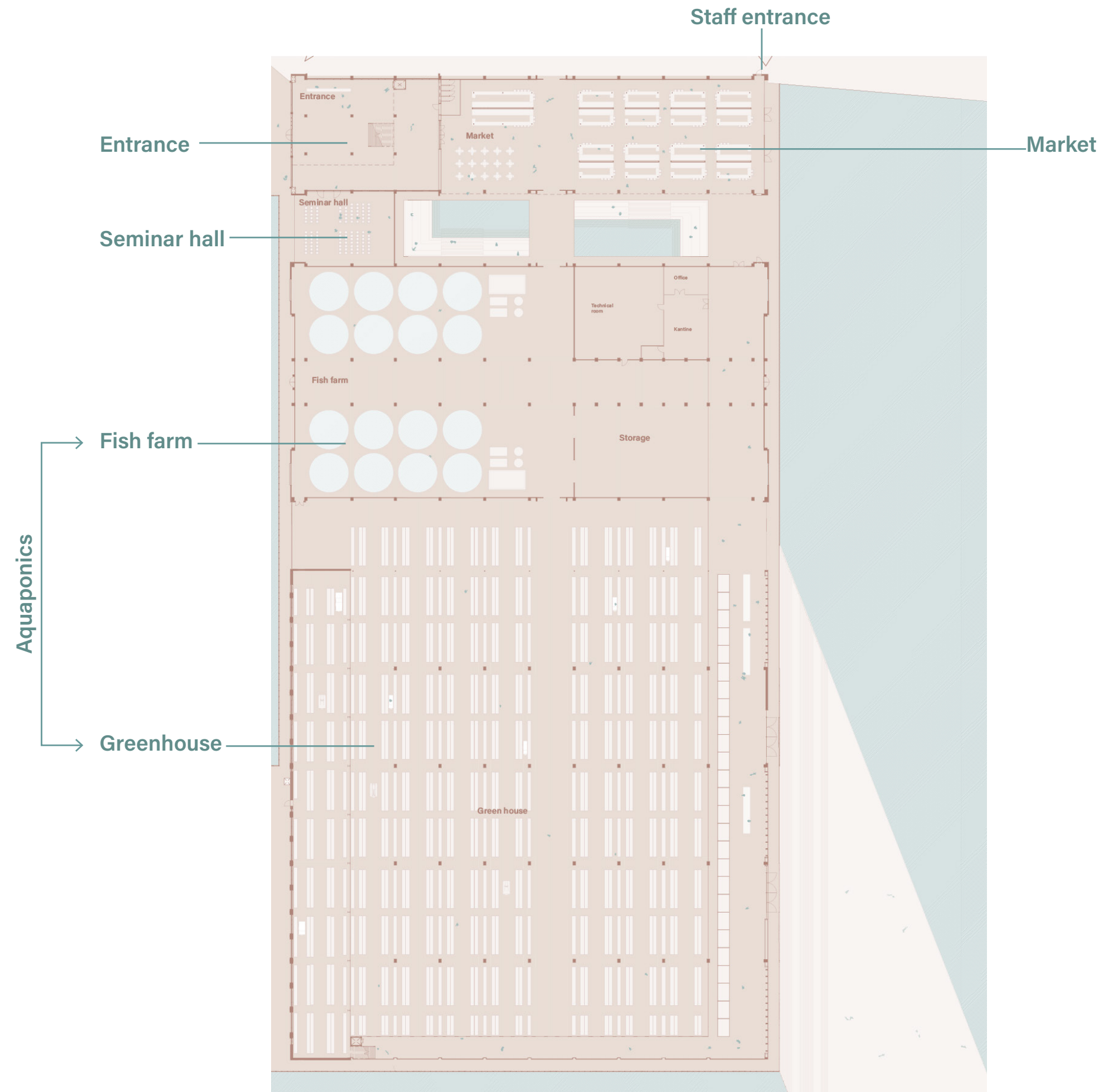


Groundfloor





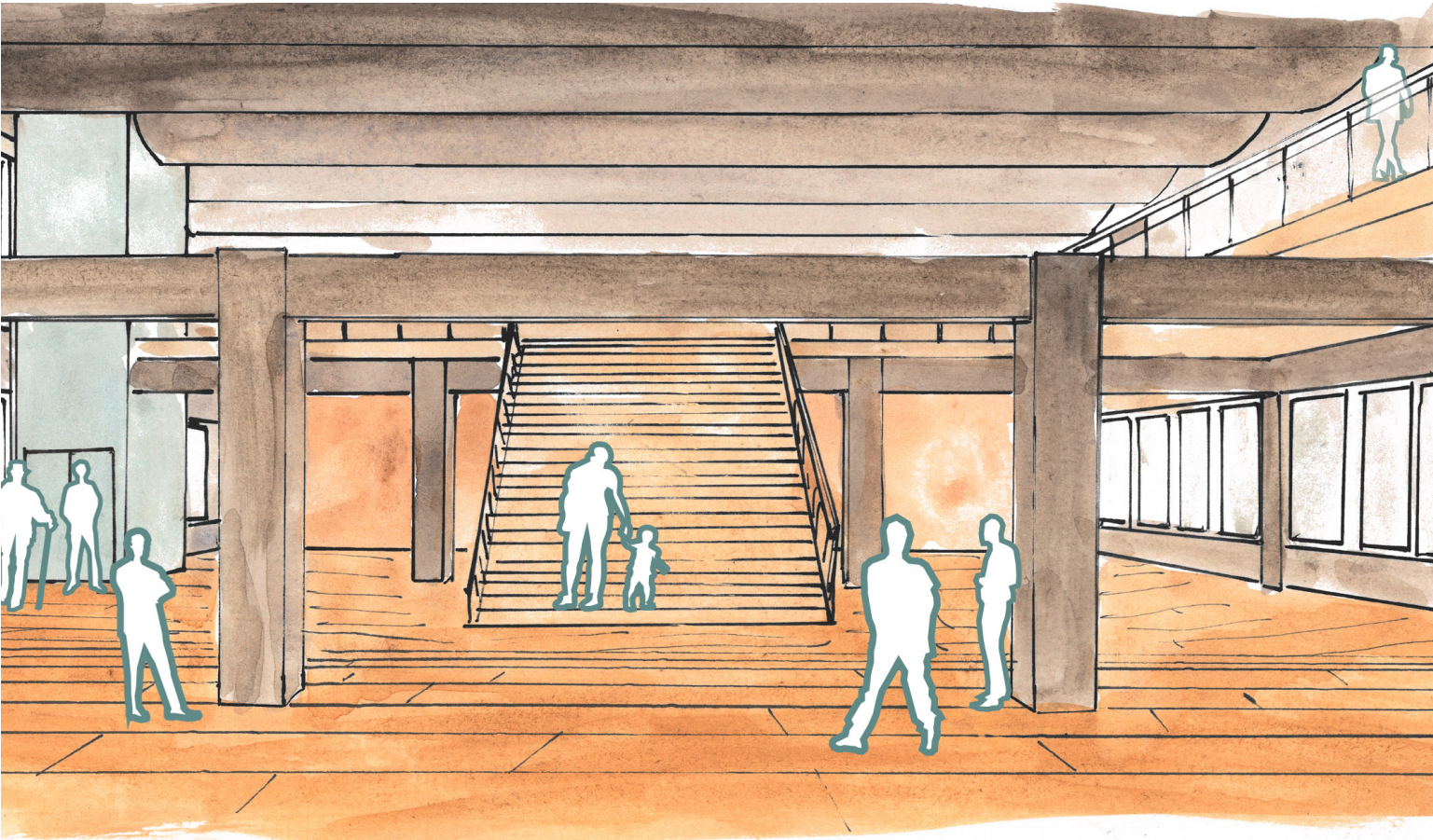
Groundfloor





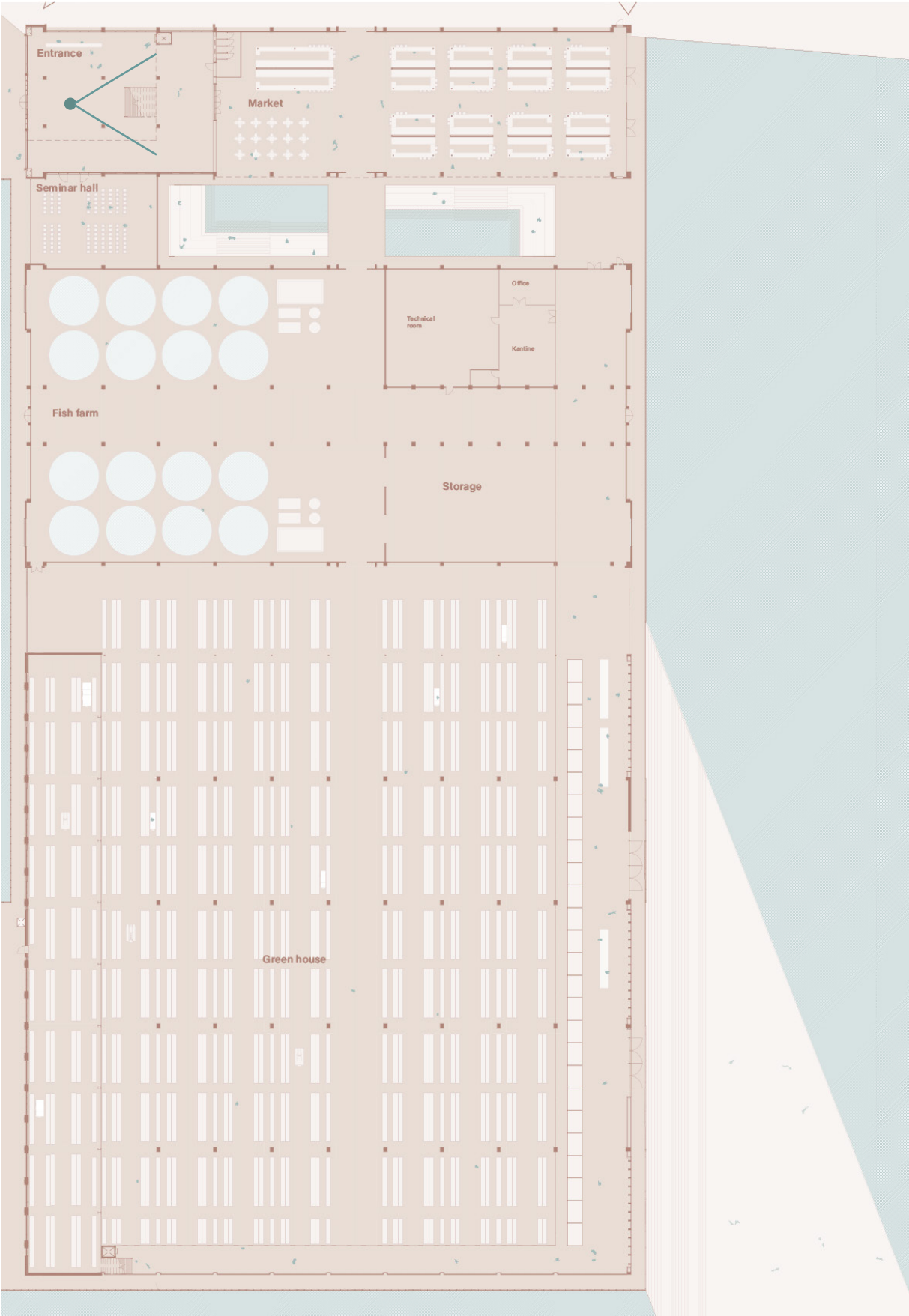
Visitors impression

Entrance



(Made by author, 2024)

Groundfloor





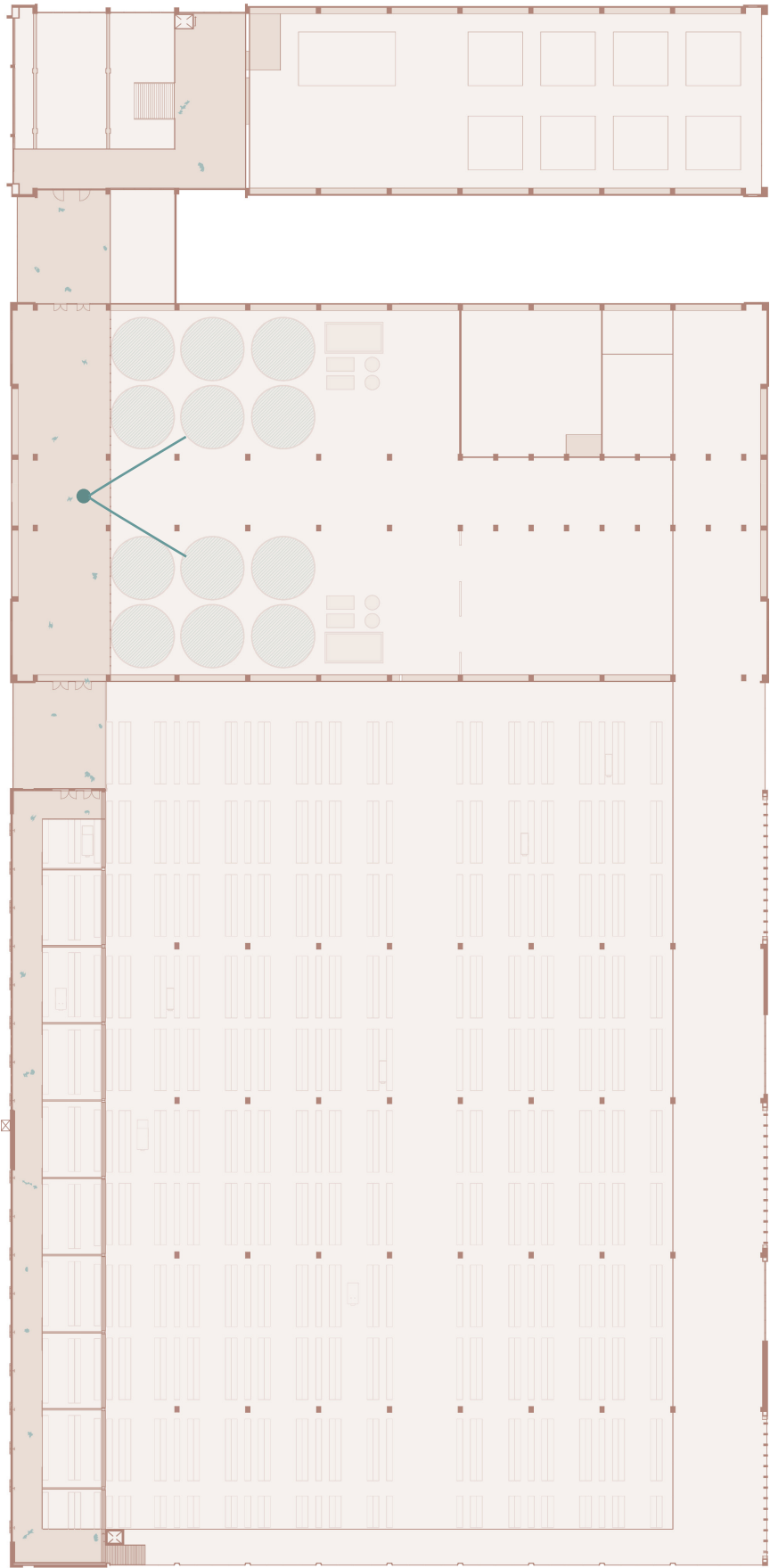
Visitors impression

Fish farm



(Made by author, 2024)

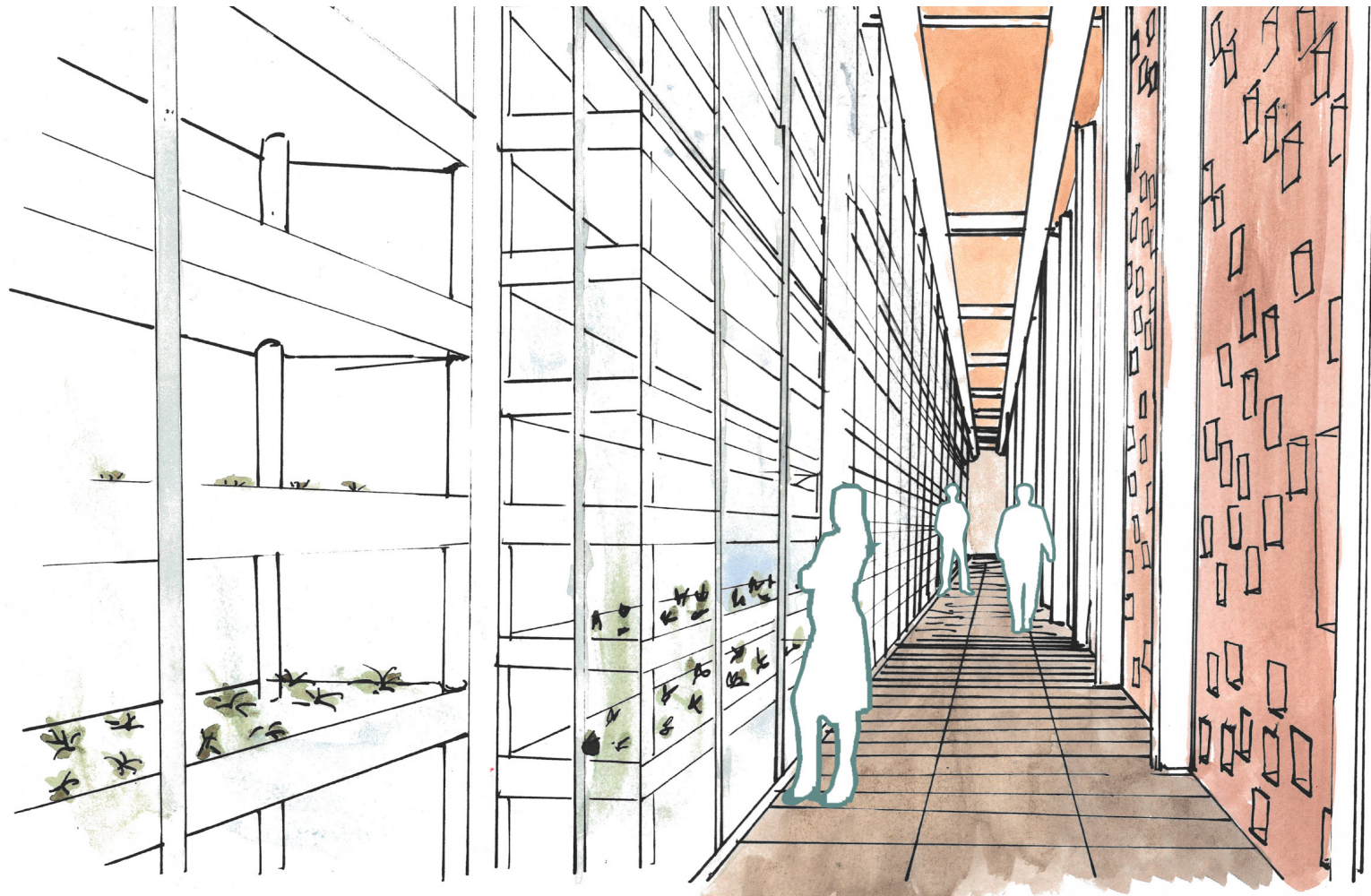
First floor



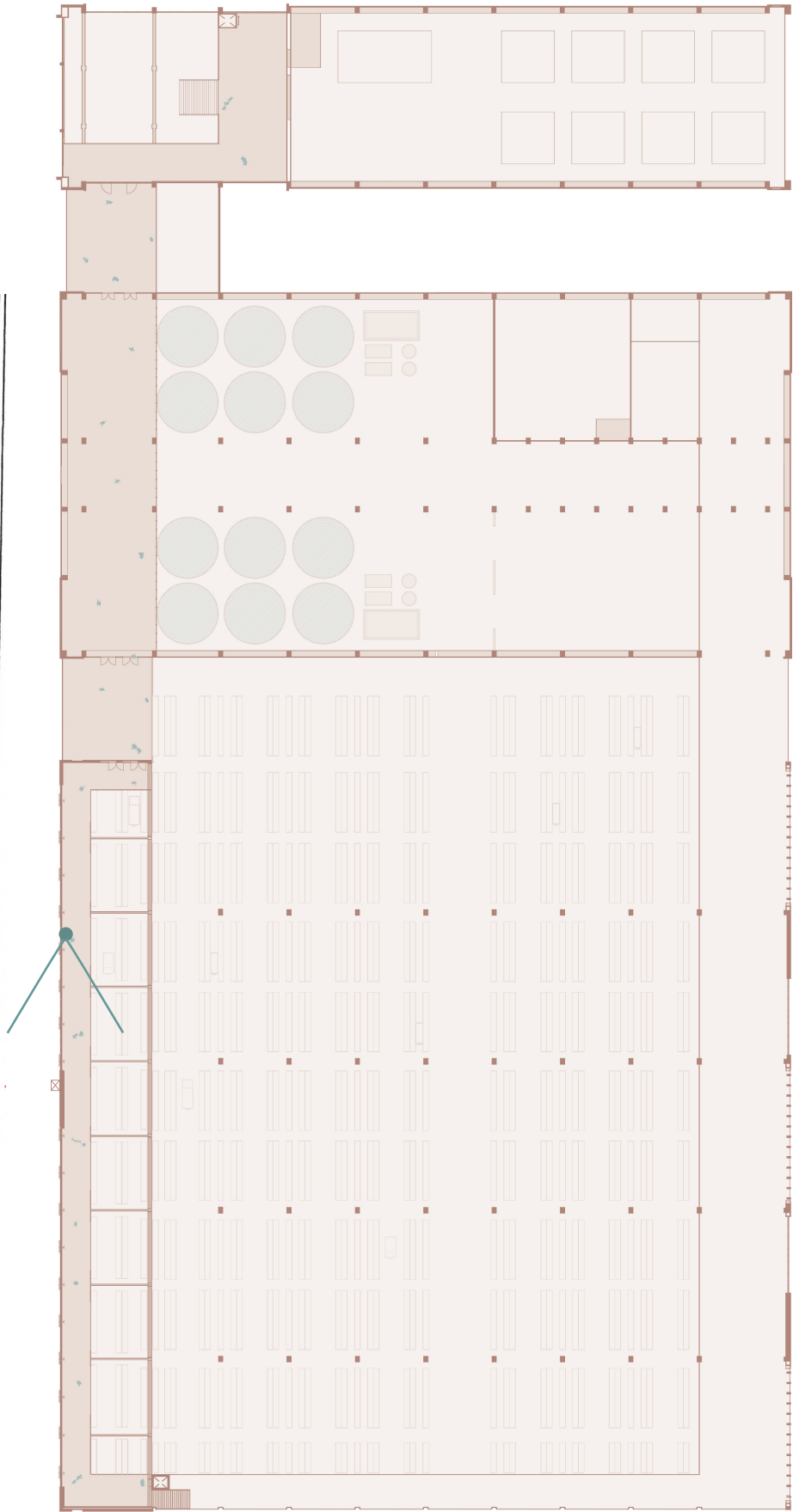


Visitors impression

Vertical farming



First floor





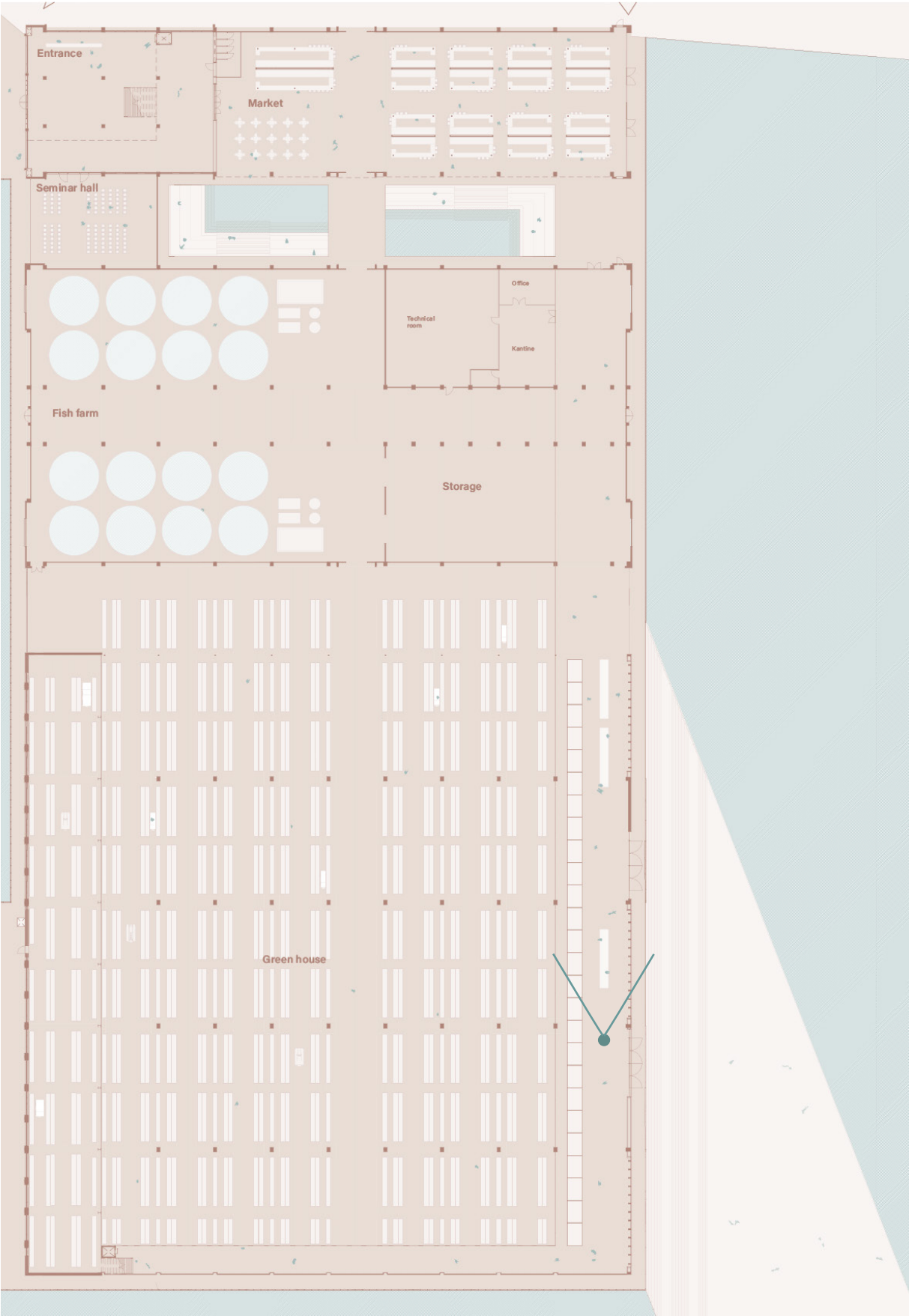
Visitors impression

Corridor



(Made by author, 2024)

Ground floor





Visitors impression

Vertical farming



(Made by author, 2024)

Ground floor





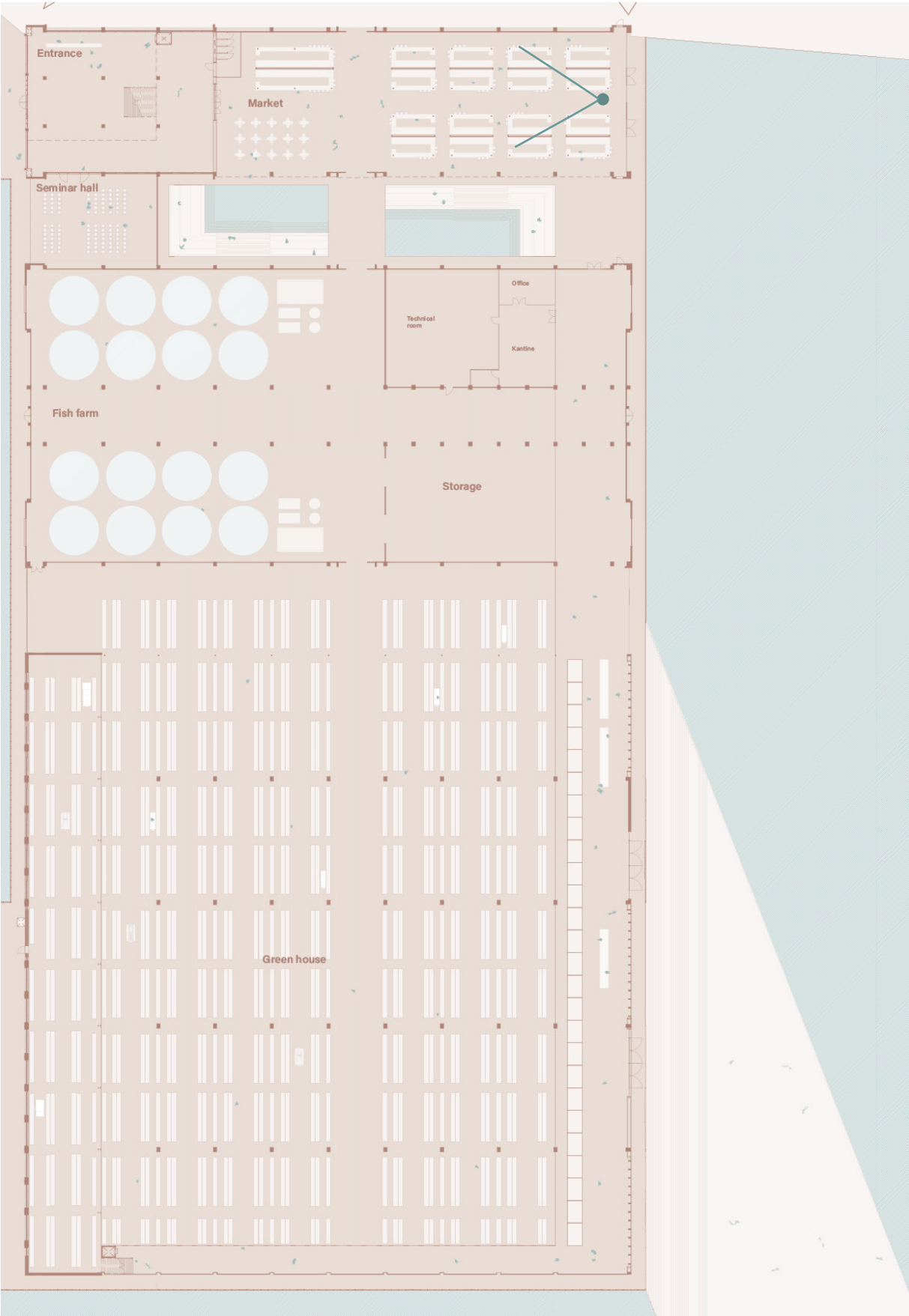
Visitors impression

Market



(Made by author, 2024)

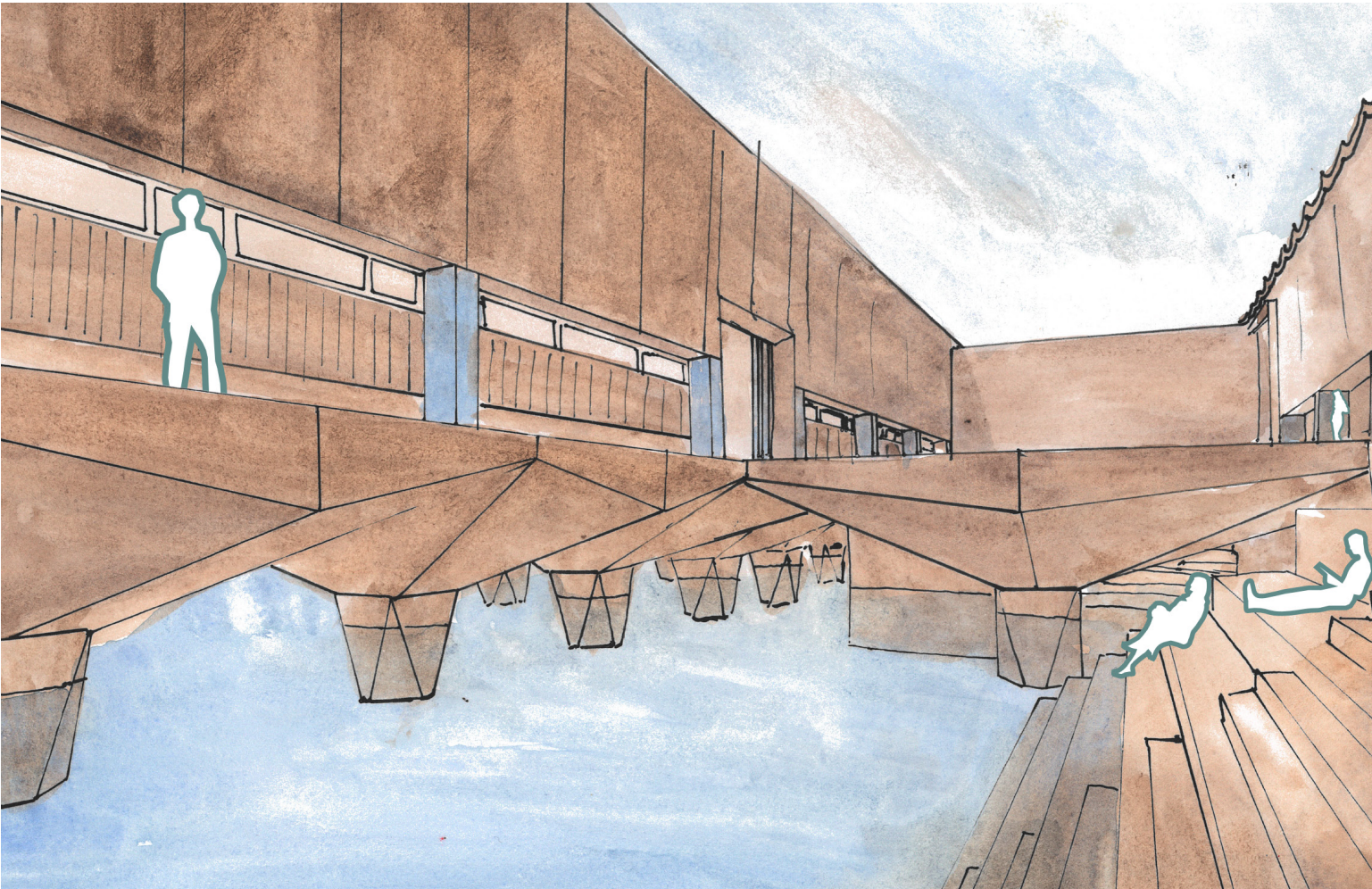
Ground floor





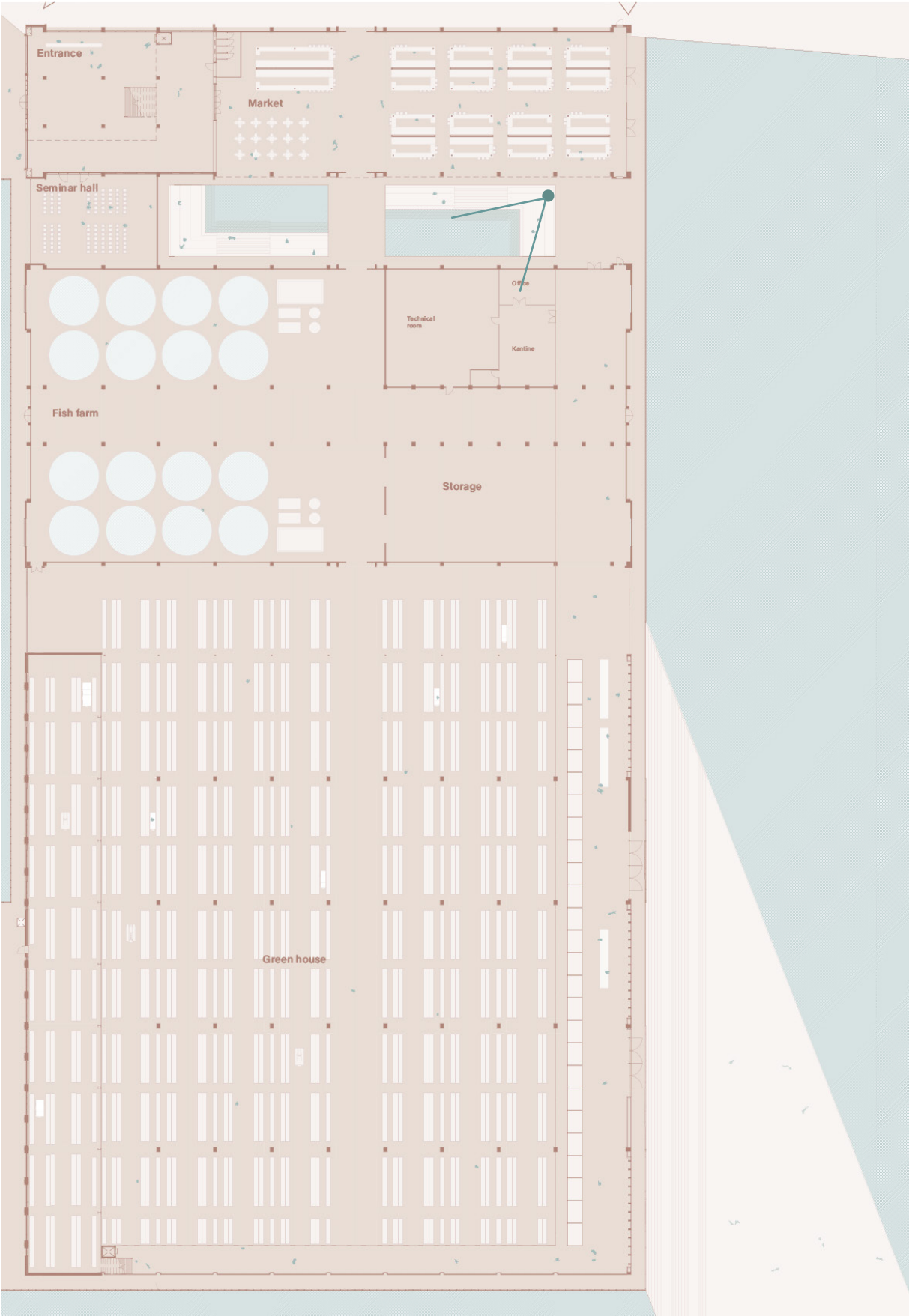
Visitors impression

Courtyard



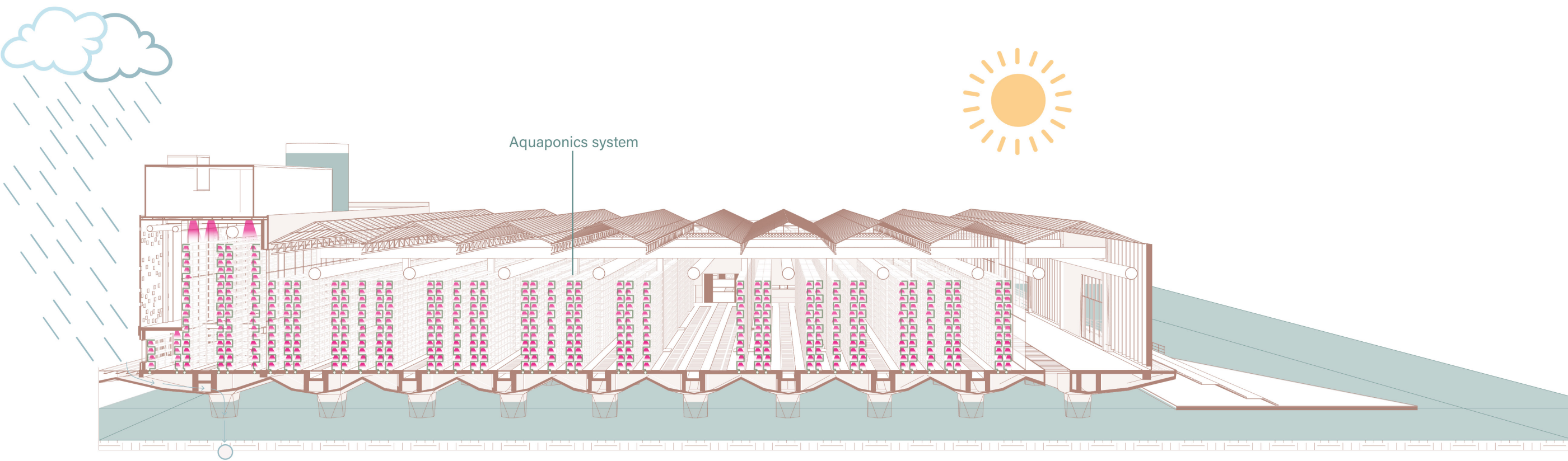
(Made by author, 2024)

Ground floor

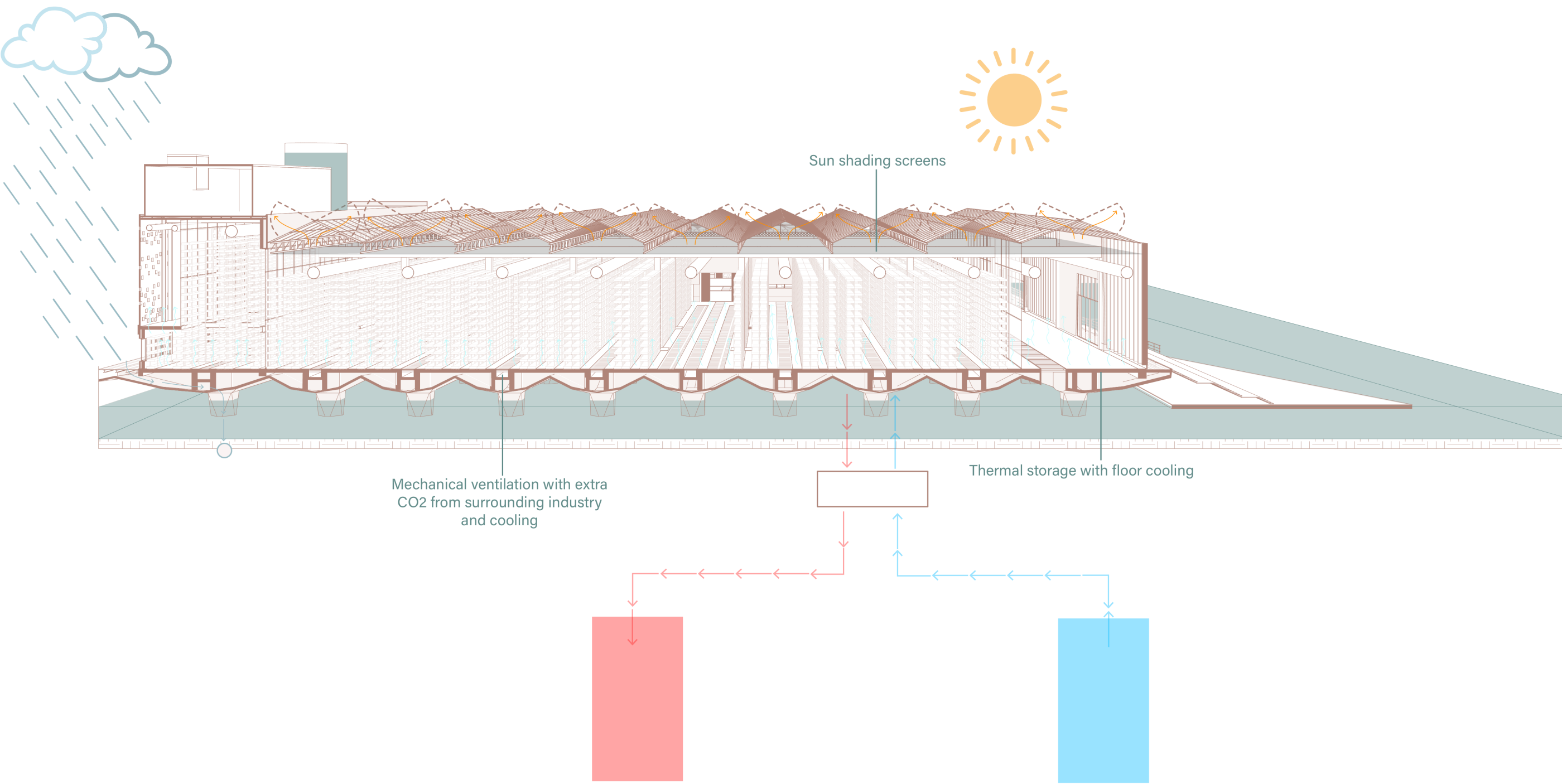




Aquaponics

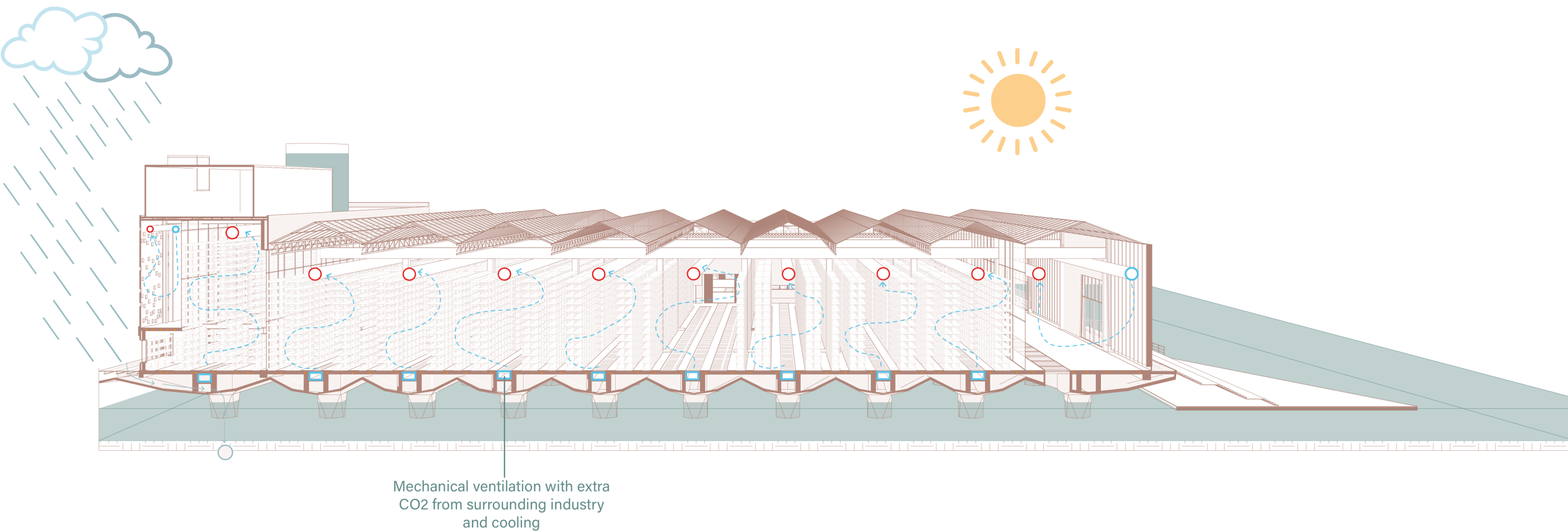


Cooling

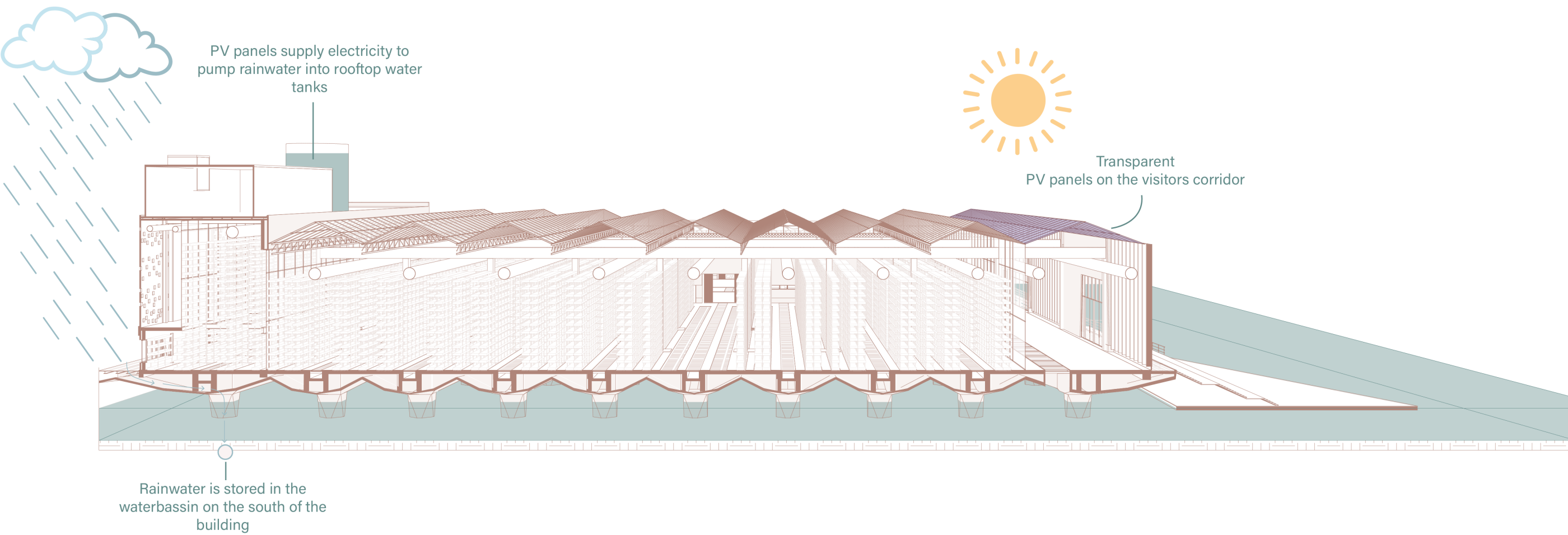




Ventilation

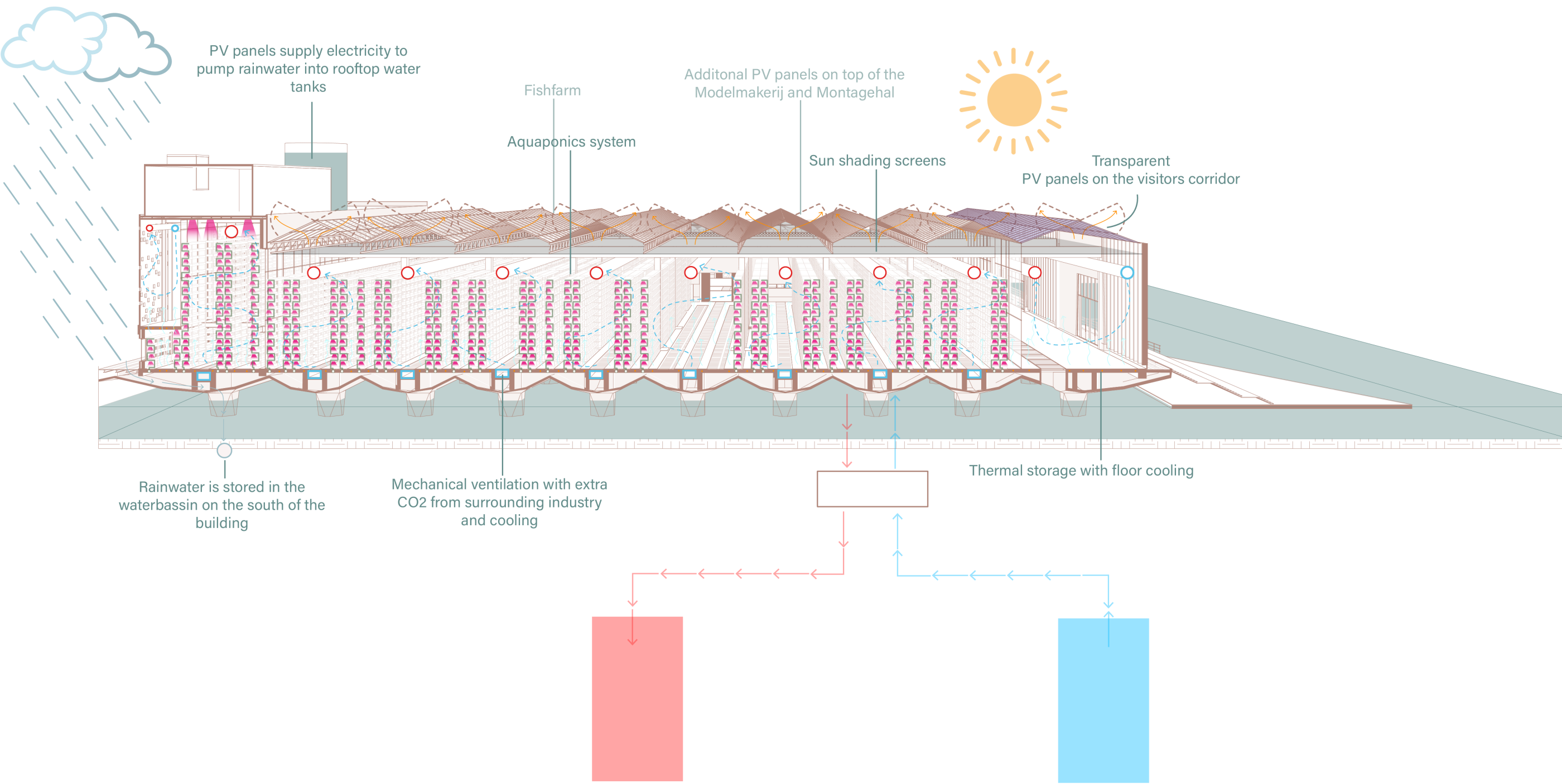


Water

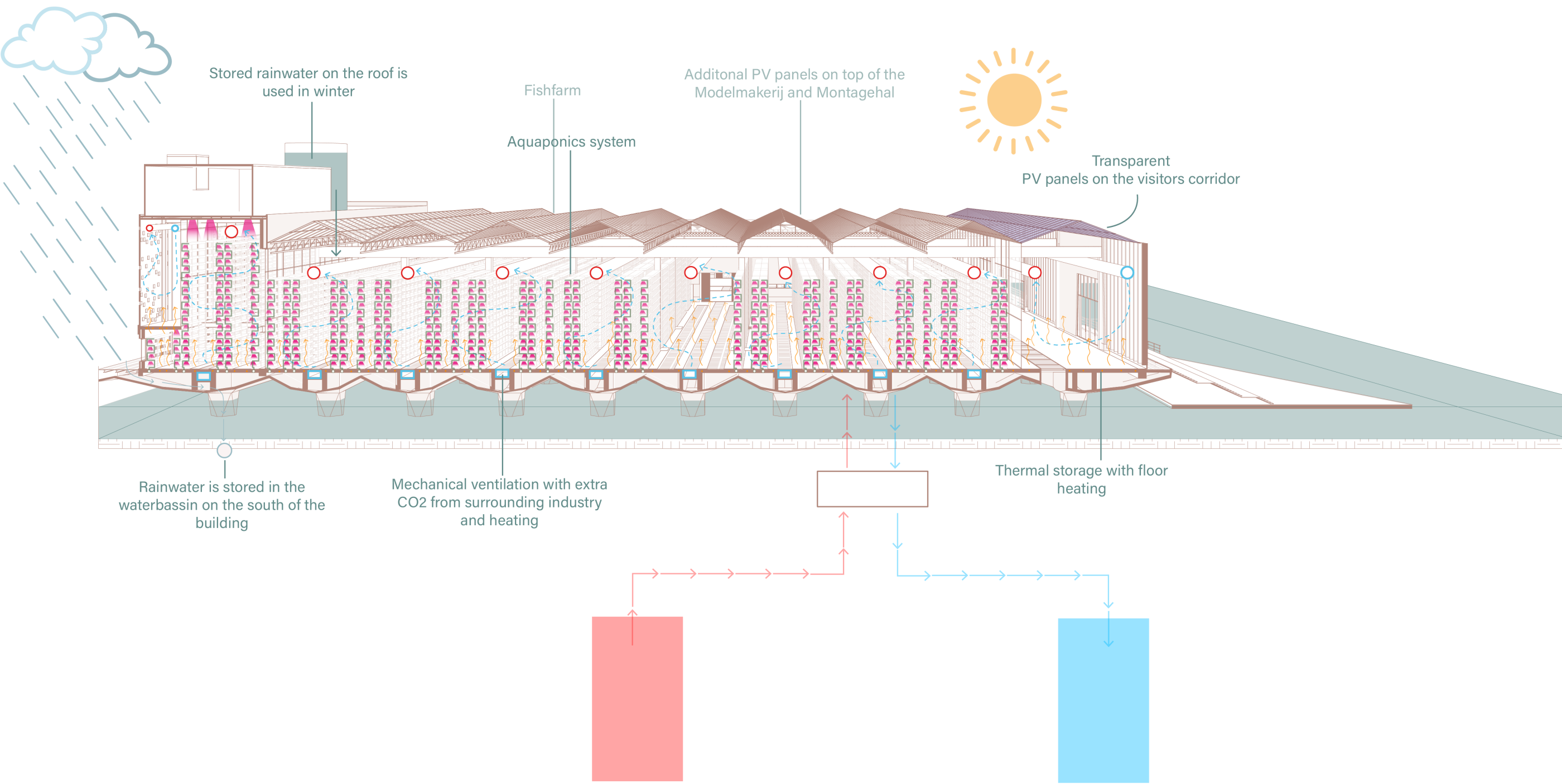




Climate scheme - Summer

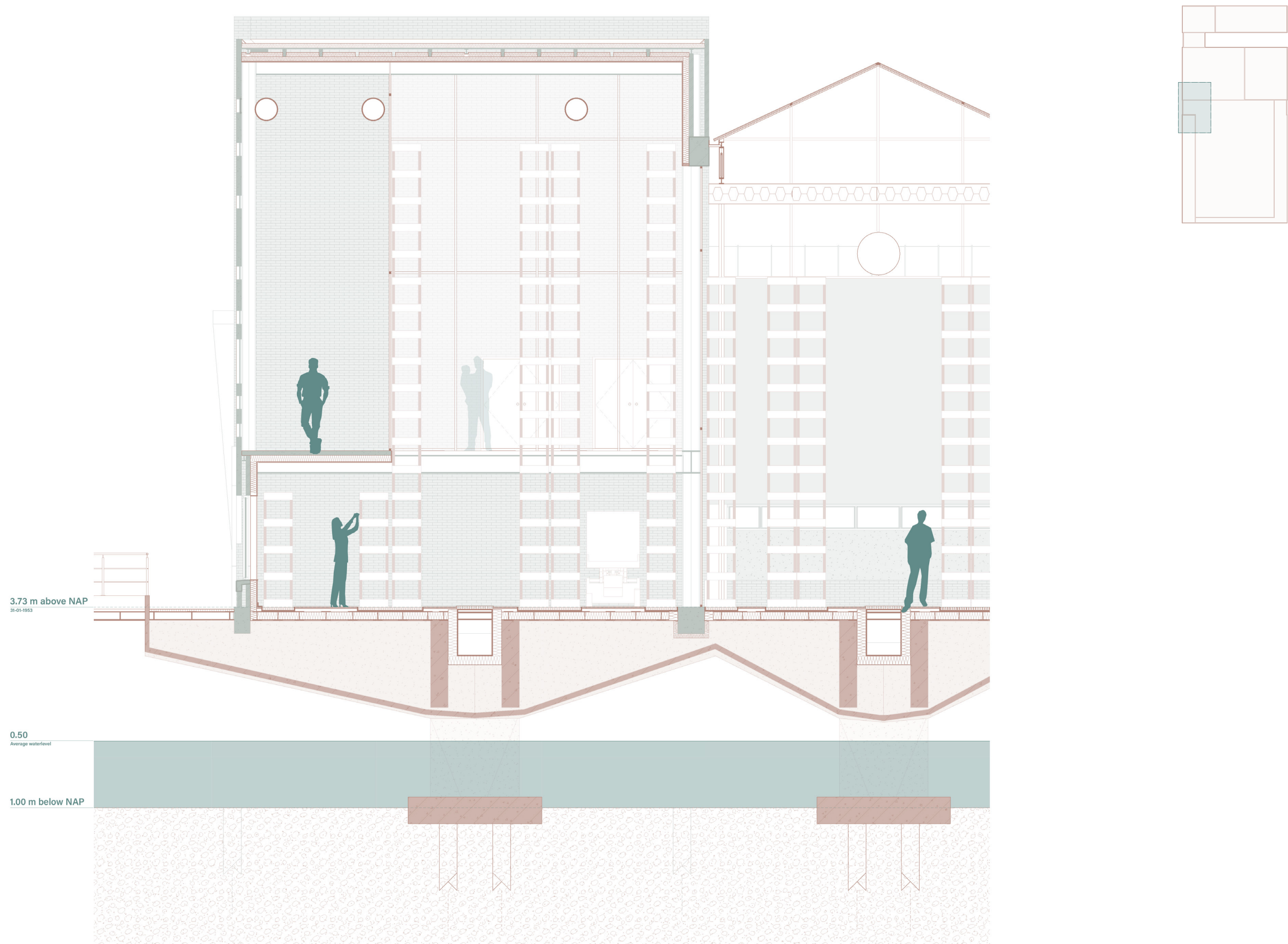


Climate scheme - Winter

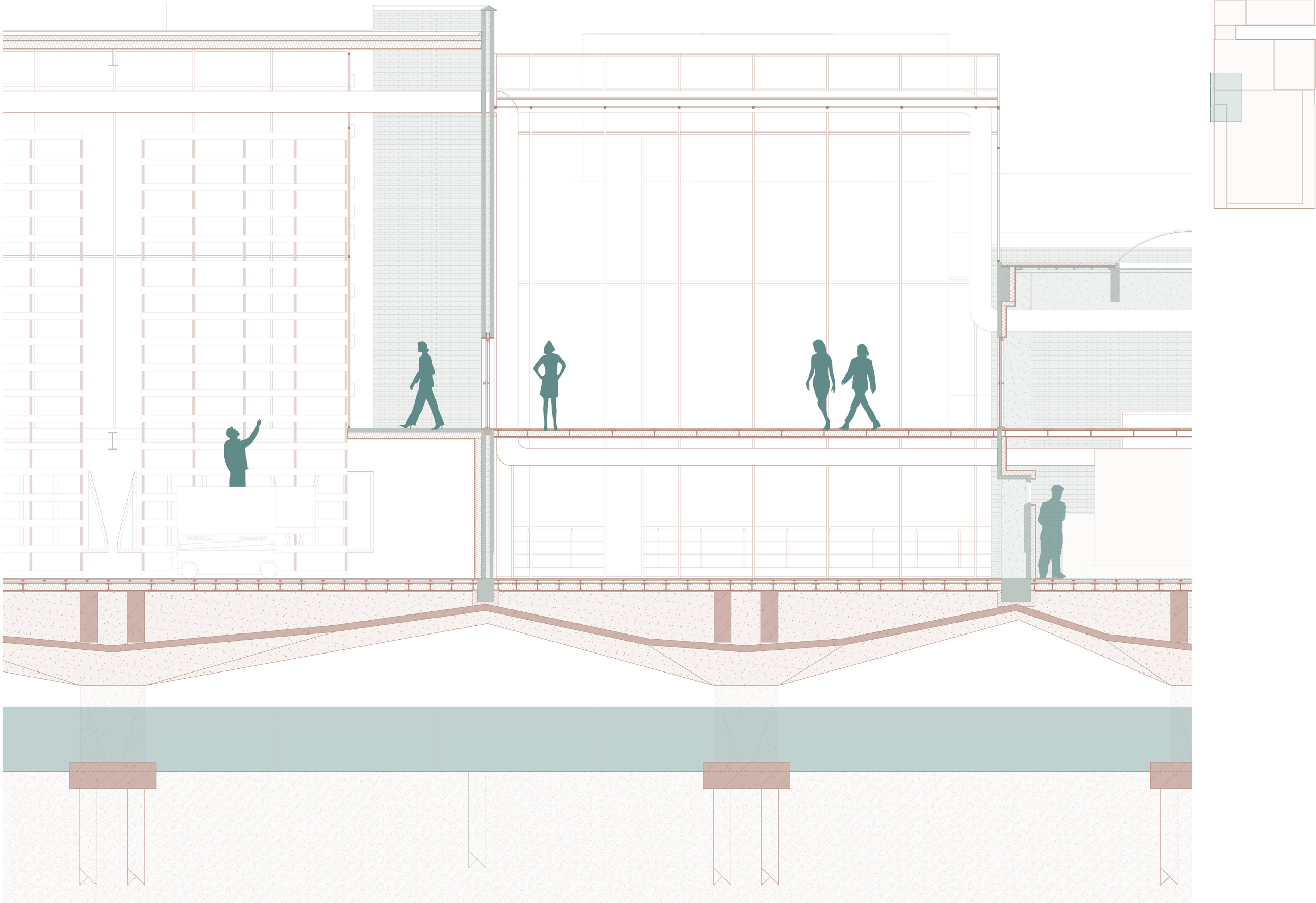




Sectional fragment

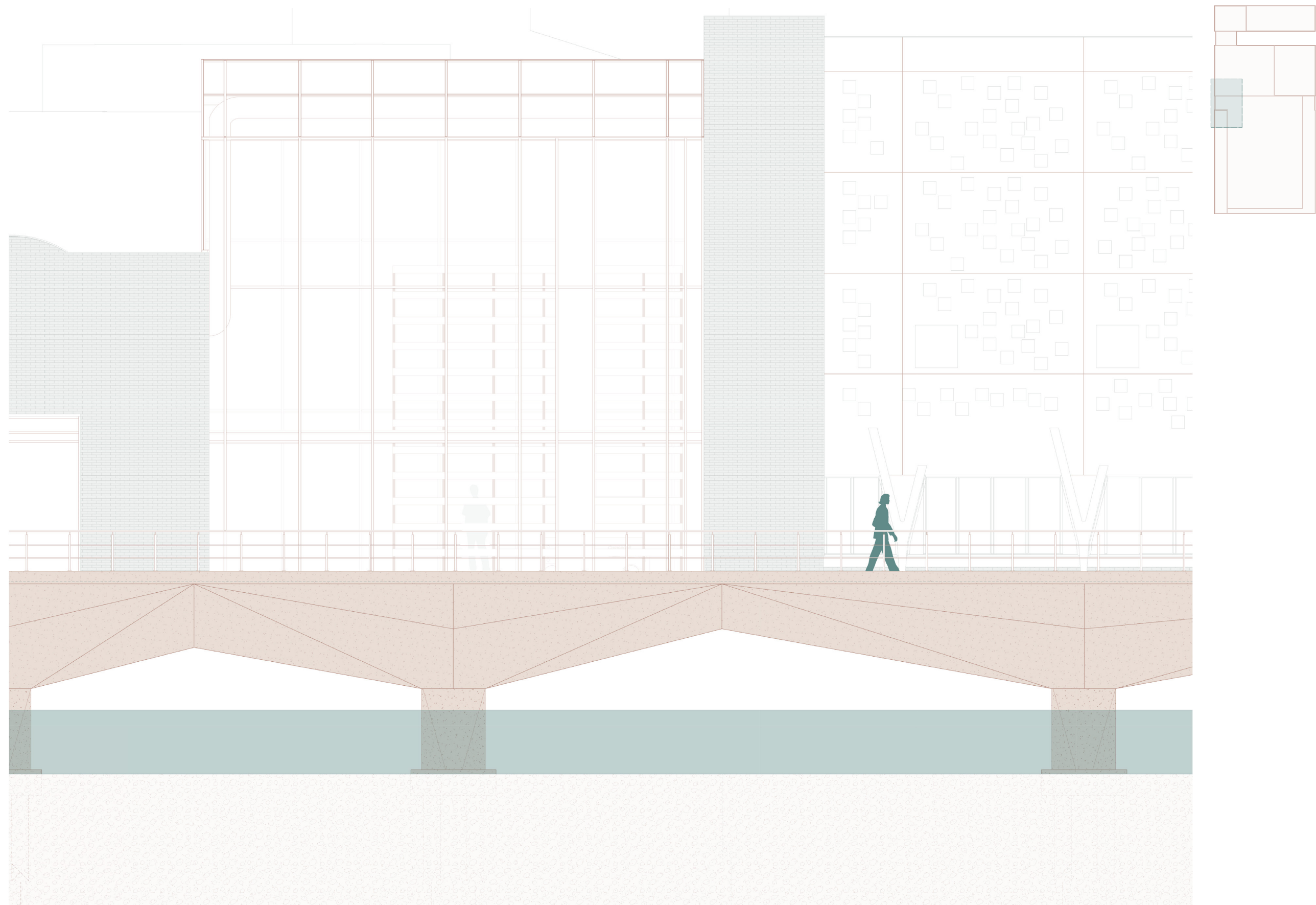


Fragment interior



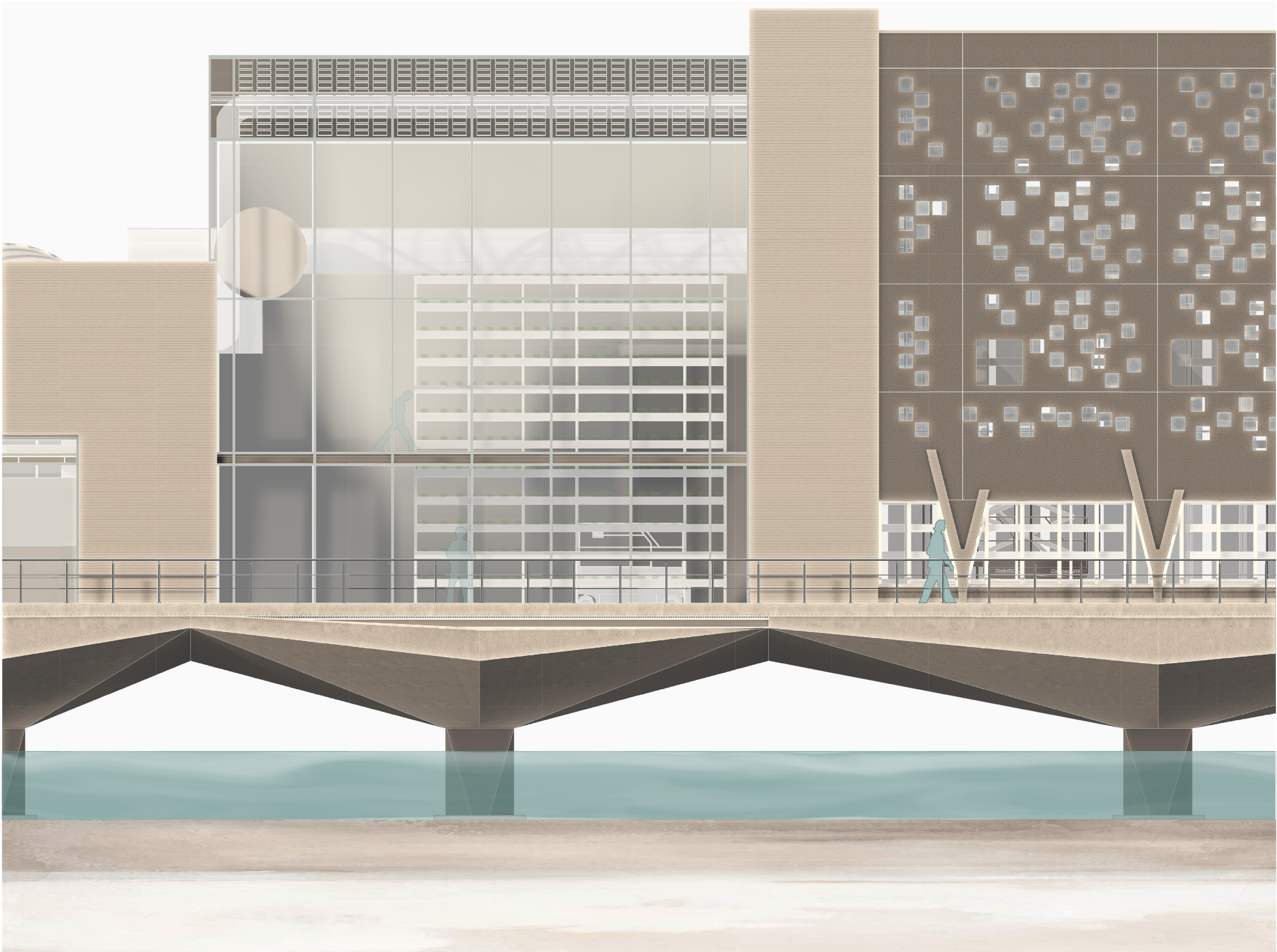


Fragment exterior





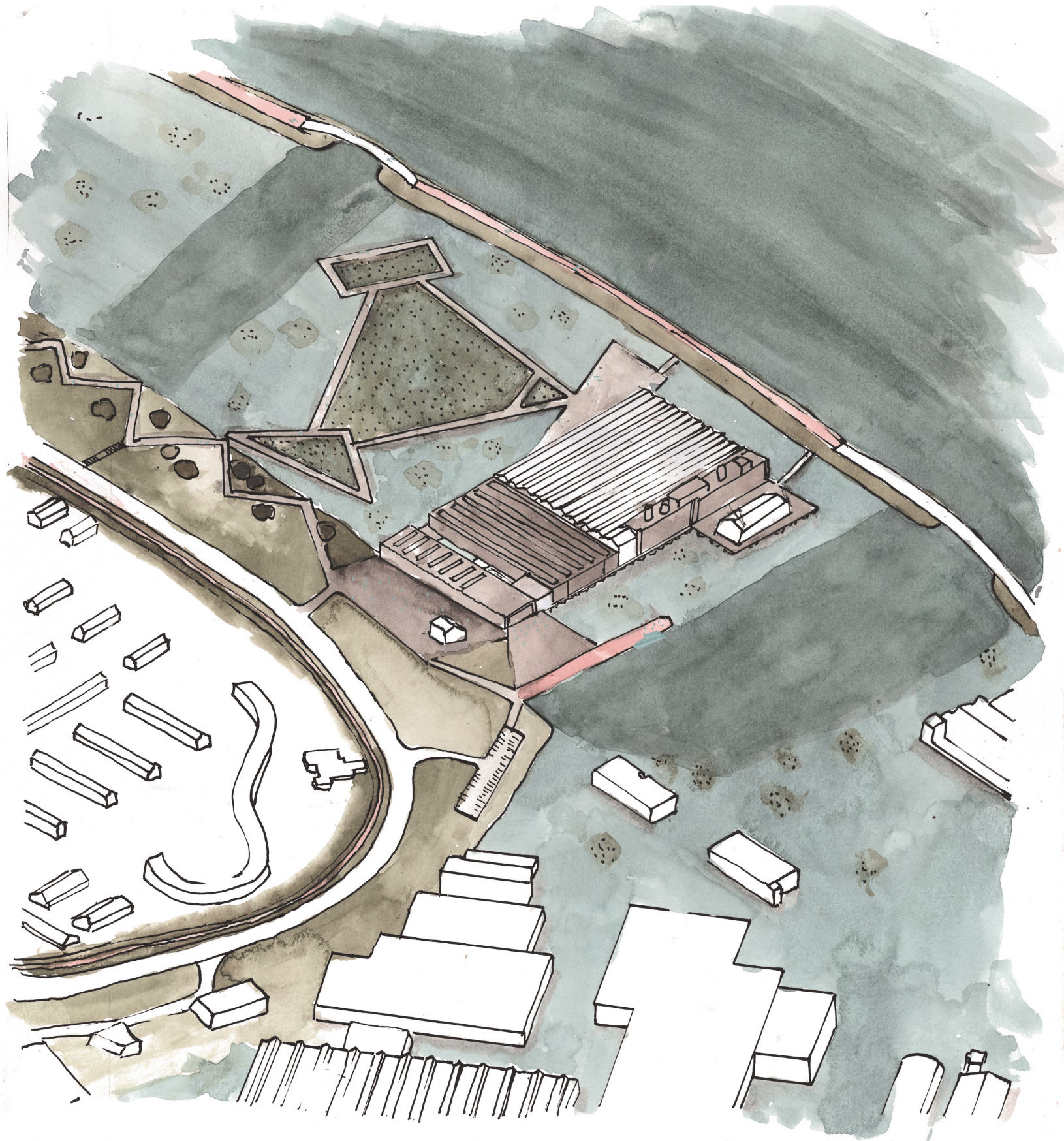
Fragment exterior



(Made by author, 2024)



Design proposal



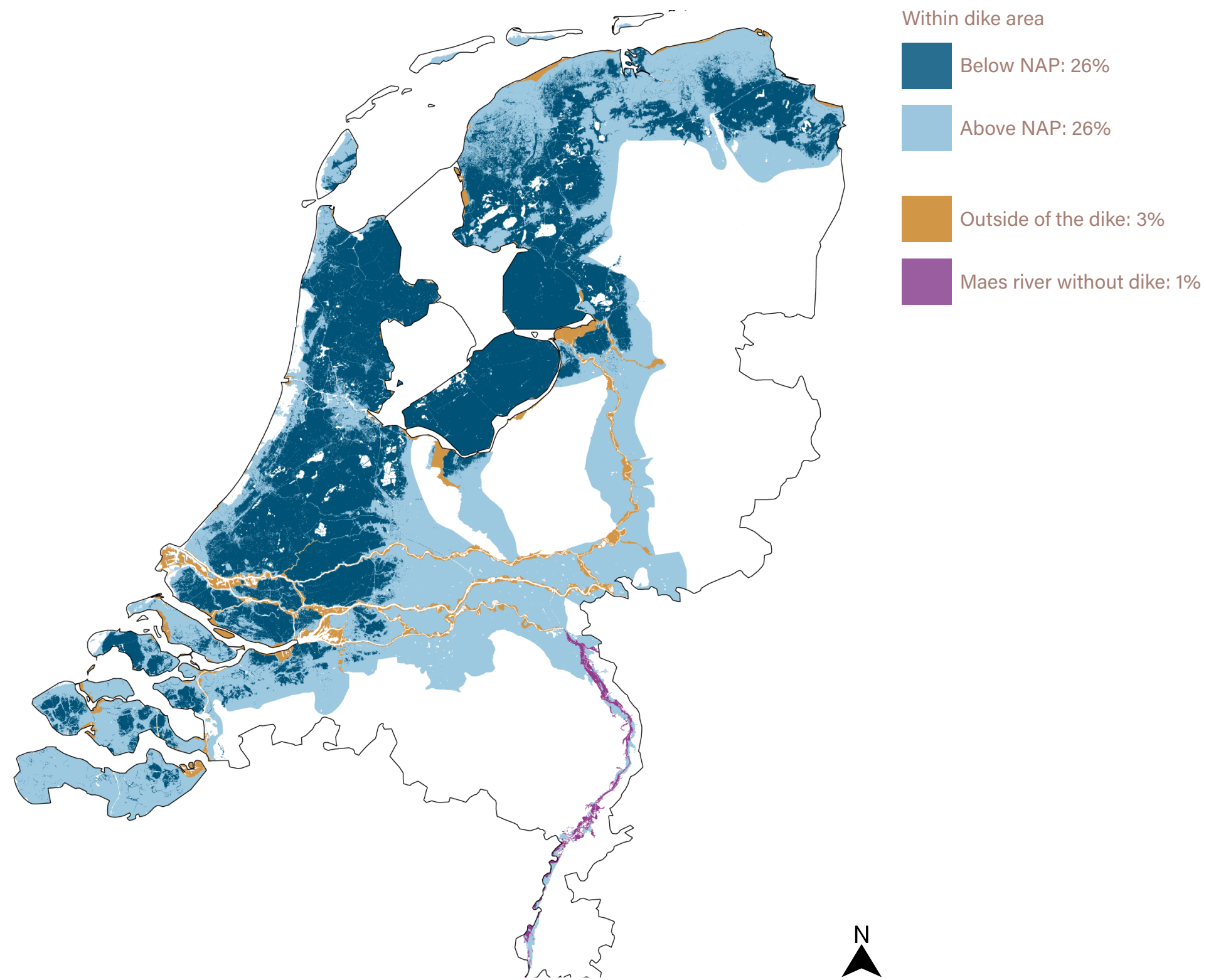




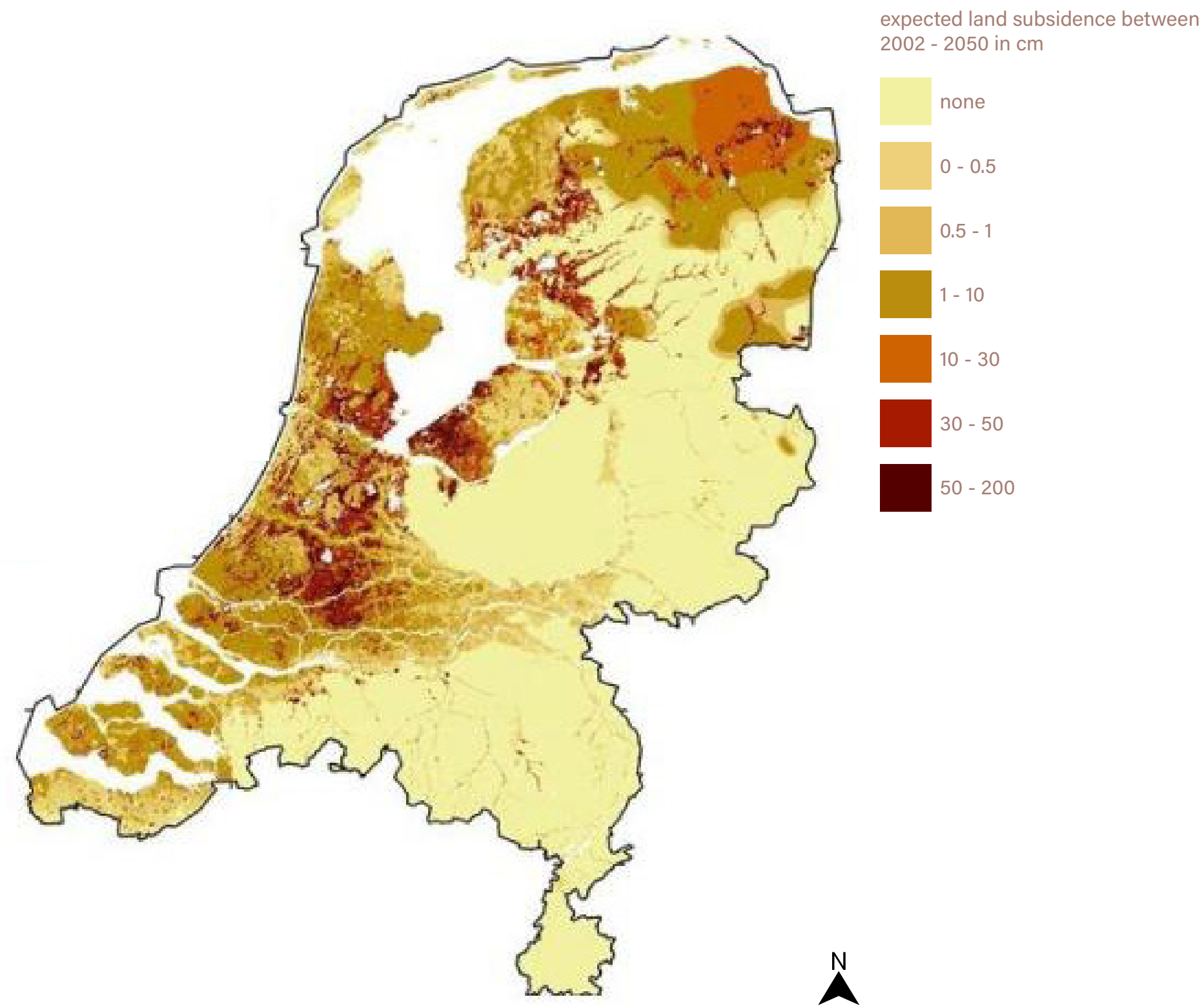
**Impact**



# Flood prone area

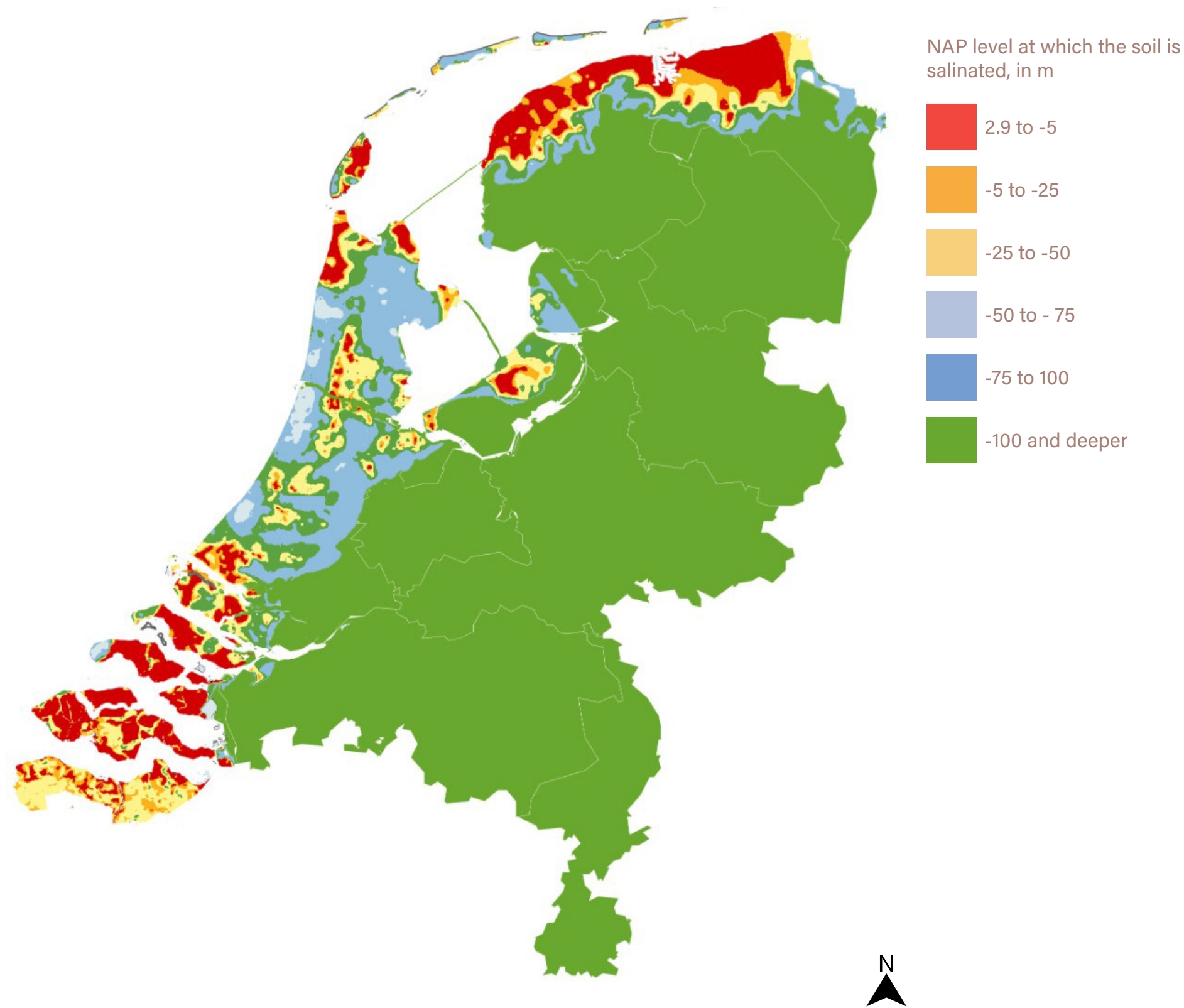


# Land subsidence





# Salinisation

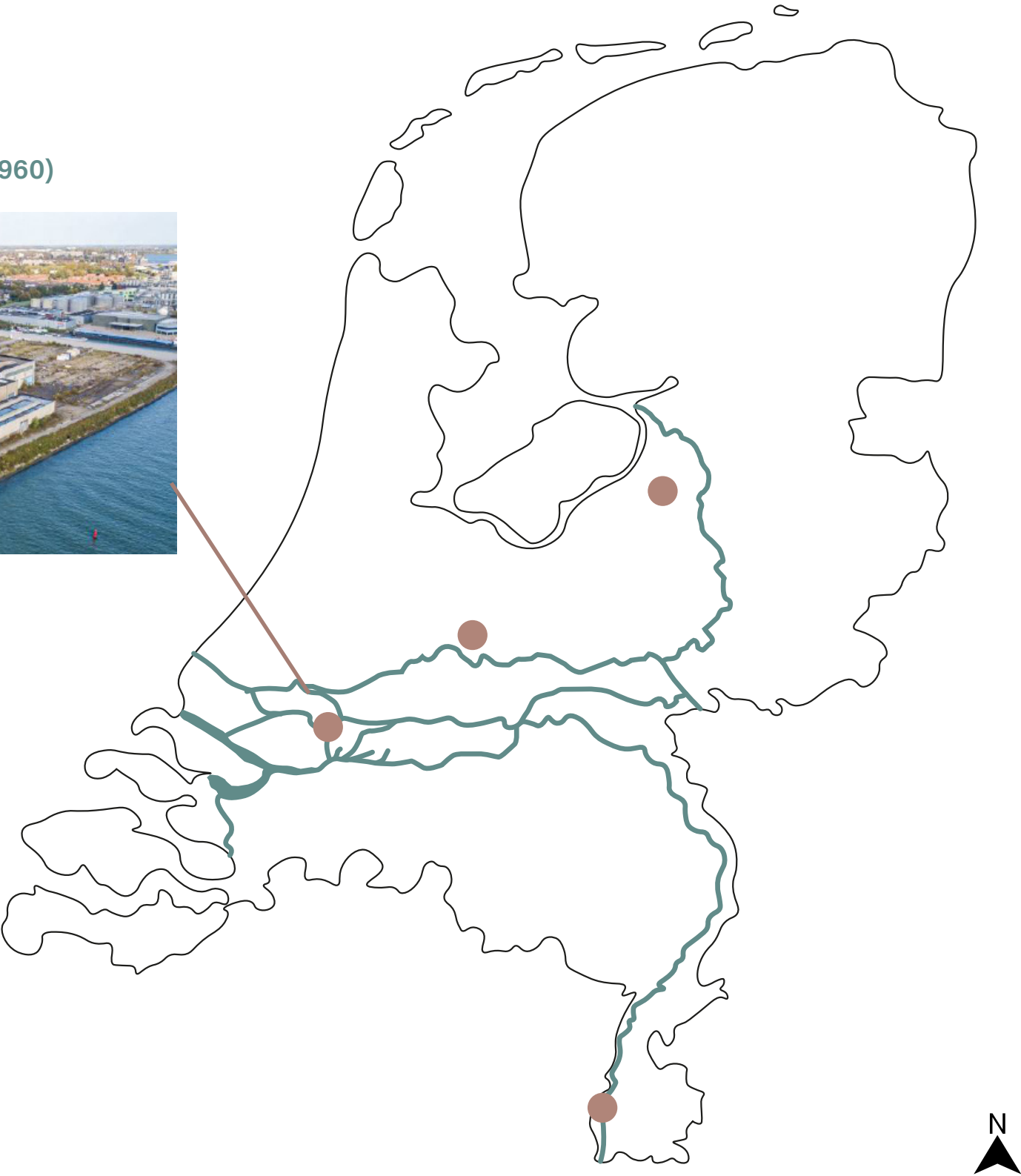


# Expanding Potential

Schokbeton, Zwijndrecht (1960)



Floodrisk of 2,0 m





# Expanding Potential



Erve ijzerman, Wapenveld (1898)



Floodrisk of 0,5 m

# Expanding Potential



Steenfabriek, Ossenwaard (1889)



Floodrisk of 0,5 m



Expanding Potential



AINSI, Maastricht (1927)



Floodrisk of 1.5 m

# Expanding Potential

Schokbeton, Zwijndrecht (1960)



Floodrisk of 2,0 m



Erve ijzerman, Wapenveld (1898)



Steenfabriek, Ossenwaard (1889)



AINSI, Maastricht (1927)





Rooted in concrete





An aerial photograph of a river system, likely the Rhine, with a red-shaded area in the bottom right corner indicating a specific project site. The river flows from the top left towards the bottom right, with several tributaries. The surrounding land is a mix of green fields and urban areas with buildings and roads. The red area is located on a bend in the river, near some industrial or commercial structures.

# Rooted in concrete

Showcasing a Graduation Project: Balancing River Expansion with Heritage Riverfront Preservation

Sterre Maessen - 4840550  
P5 Presentation  
16-01-2025



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