THREADING WATERS

Sari Naito | 23 June 2025
Maritime Heritage Graduation Studio

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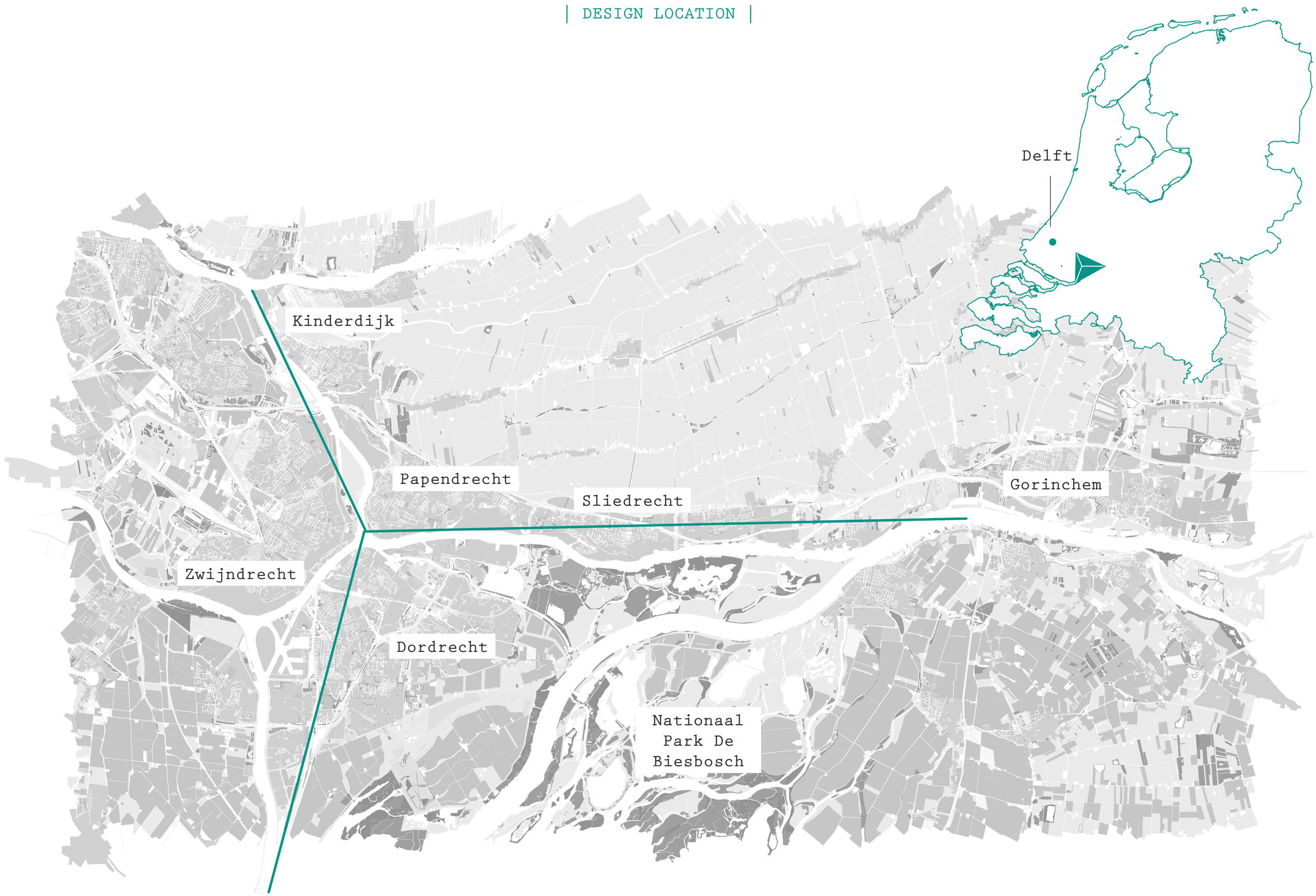
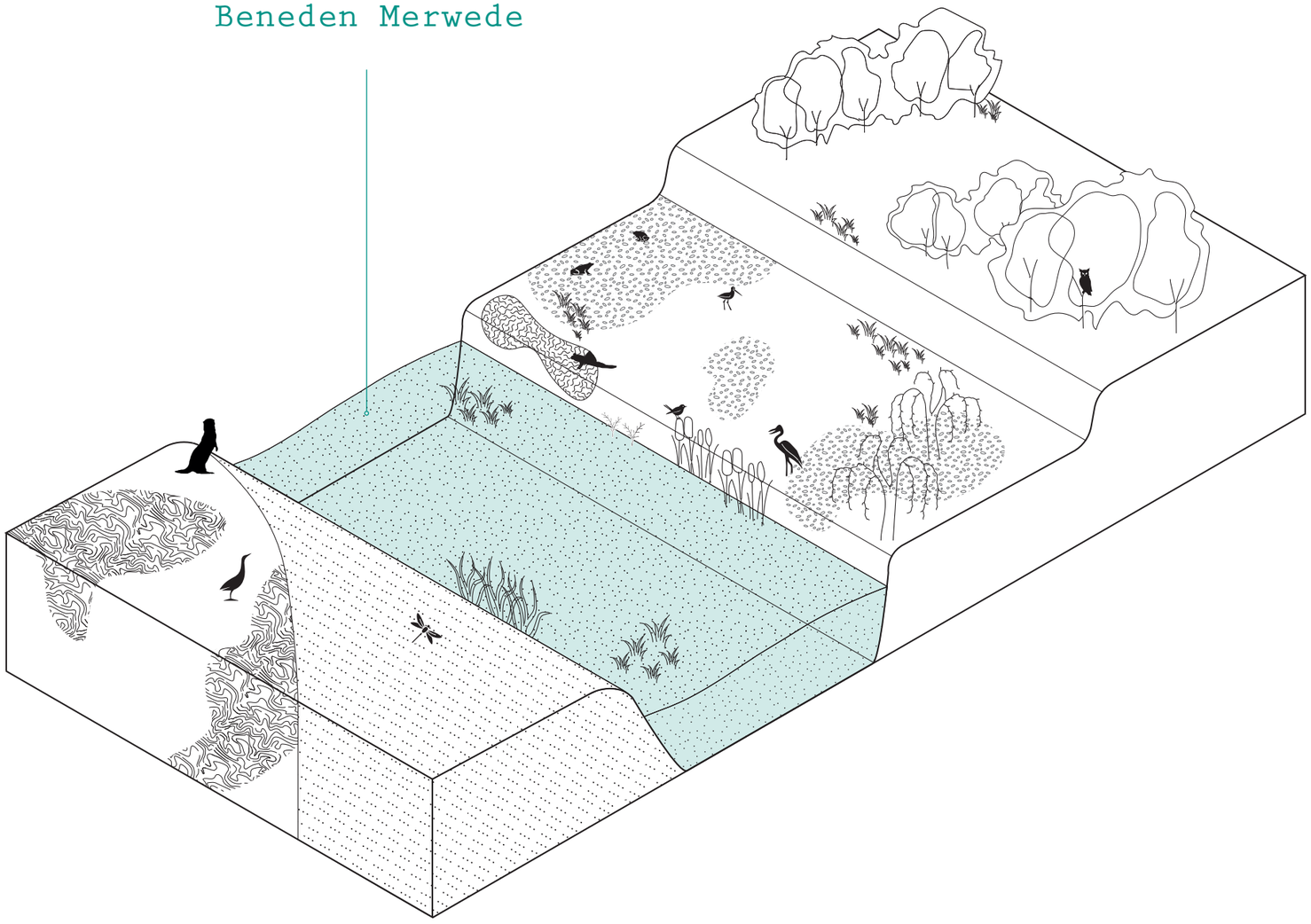
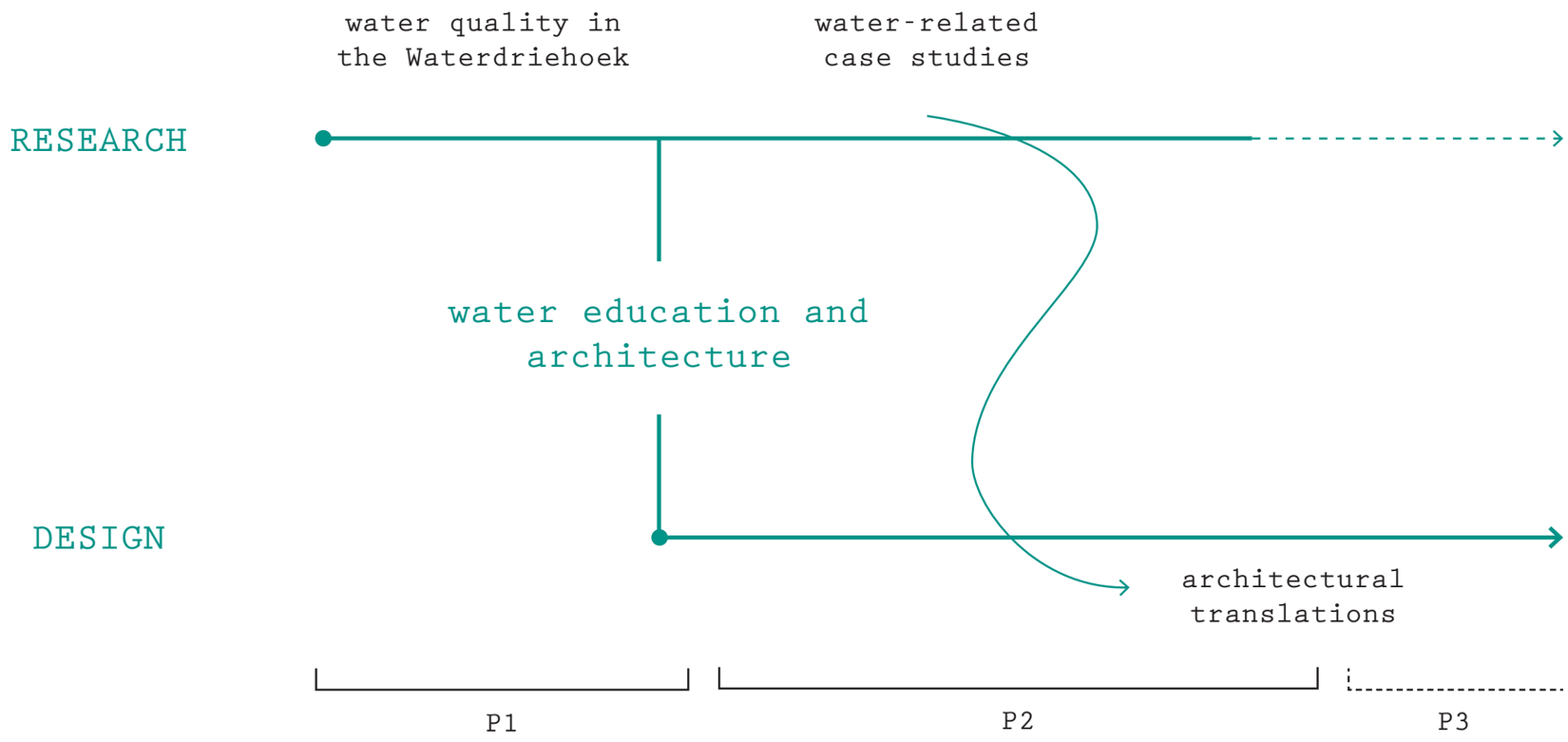
1. INTRODUCTION


Delft
Kinderdijk
Papendrecht
Sliedrecht
Gorinchem
Zwijndrecht
Dordrecht
Nationaal
Park De
Biesbosch

Beneden Merwede




water quality in
the Waterdriehoek
water-related
case studies
RESEARCH
water education and
architecture
DESIGN
architectural
translations
P1
P2
P3

the ‘Water-education nexus’

‘foster key and fresh approaches to reconnect us with ancient practices and values of farsighted water management’

(Eulisse, 2023)

WATER MUSEUMS GLOBAL NETWORK

re-establishing a connection between past values and forward-looking goals

unesco Intergovernmental Hydrological Programme

need for more educational activities in promoting sustainable water usage

Maritime Heritage

Willemsoord
Den Helder, the Netherlands

(NRIT Media, 2015)

(Willemsoord, n.d.)

New-build

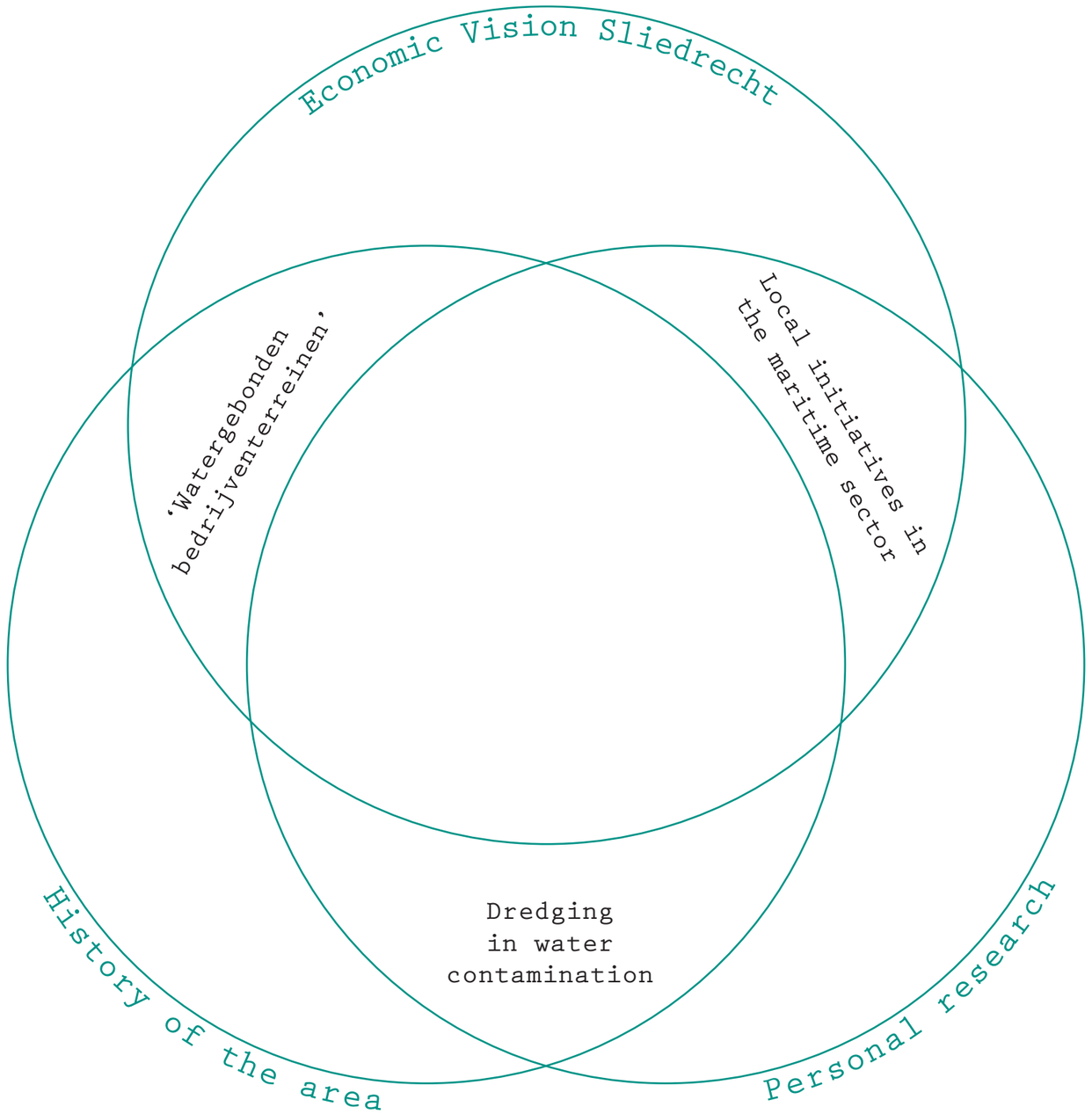
Solrødgård
Hillerød, Denmark

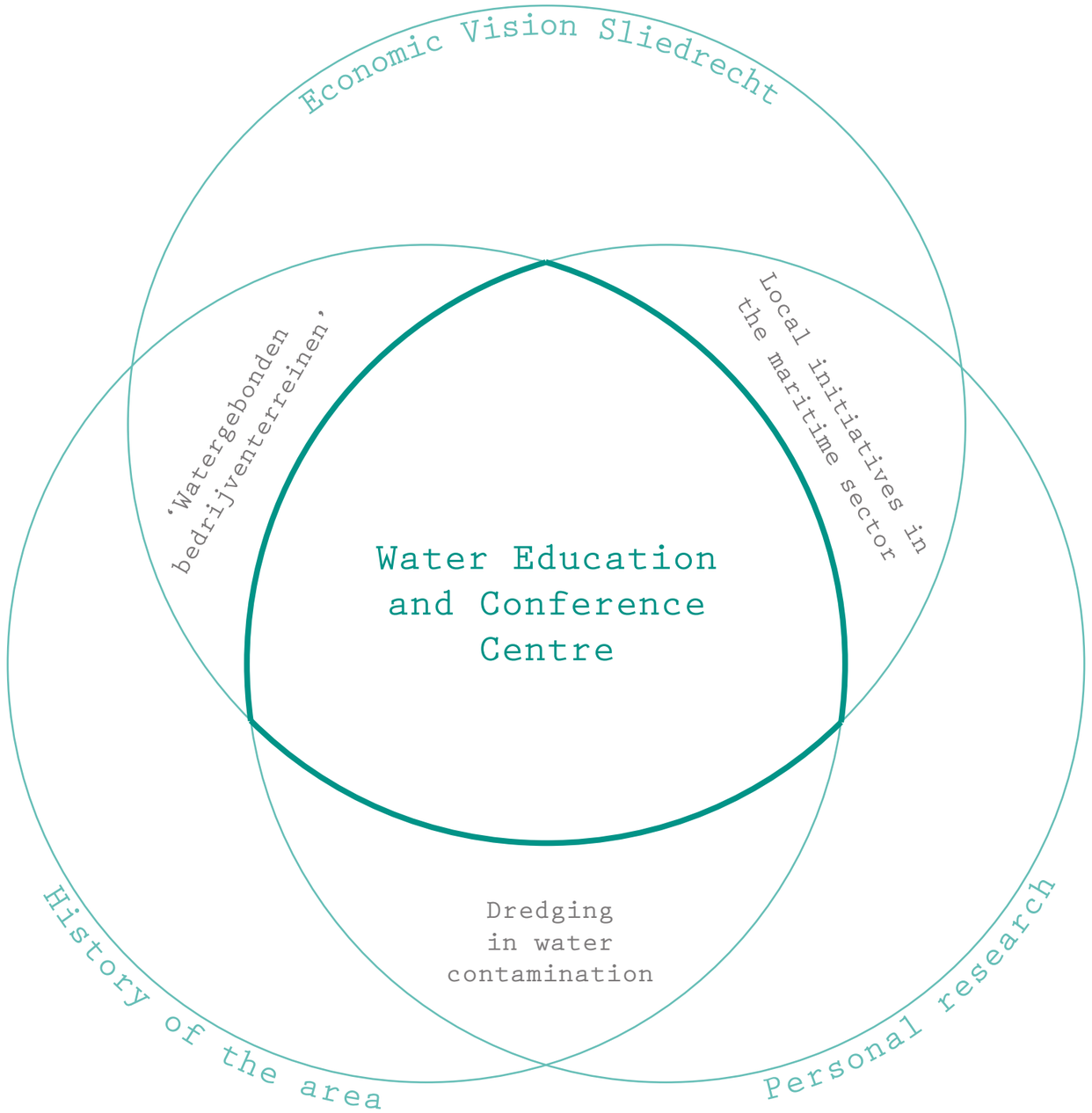
(Archello, 2017)

Economic Vision Sliedrecht (2021-2030)

‘Innovation, sustainability & digitalisation’ to remain relevant economically and socially

(Gemeente Sliedrecht, 2020)


Economic Vision Sliedrecht
'Watergebonden bedrijventerreinen'
Local initiatives in the maritime sector
Dredging in water contamination
History of the area
Personal research


Economic Vision Sliedrecht
'Watergebonden bedrijventerreinen'
Local initiatives in the maritime sector
Water Education and Conference Centre
Dredging in water contamination
History of the area
Personal research

INVOLVE THE PUBLIC

in the future of sustainable water management

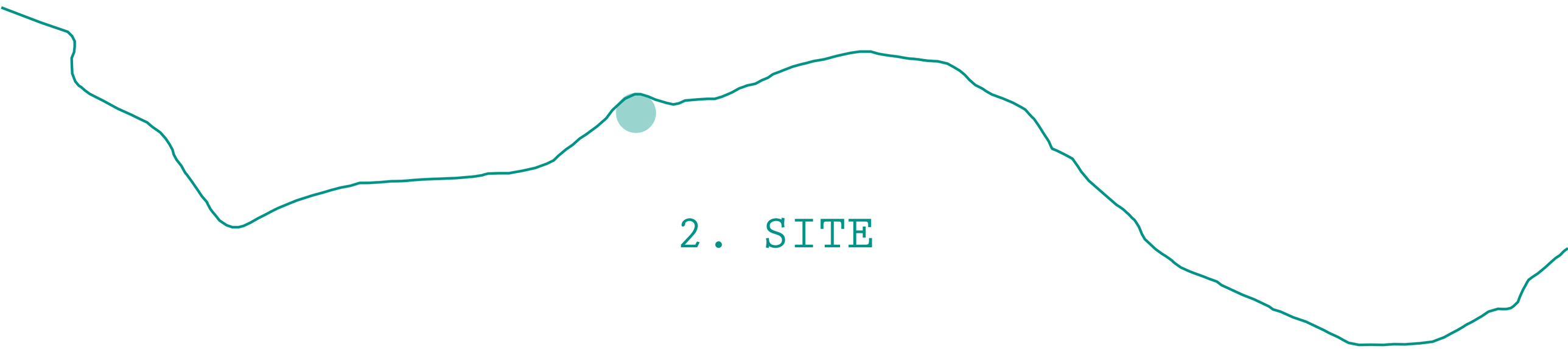
Water Education and Conference Centre

STIMULATE COOPERATION

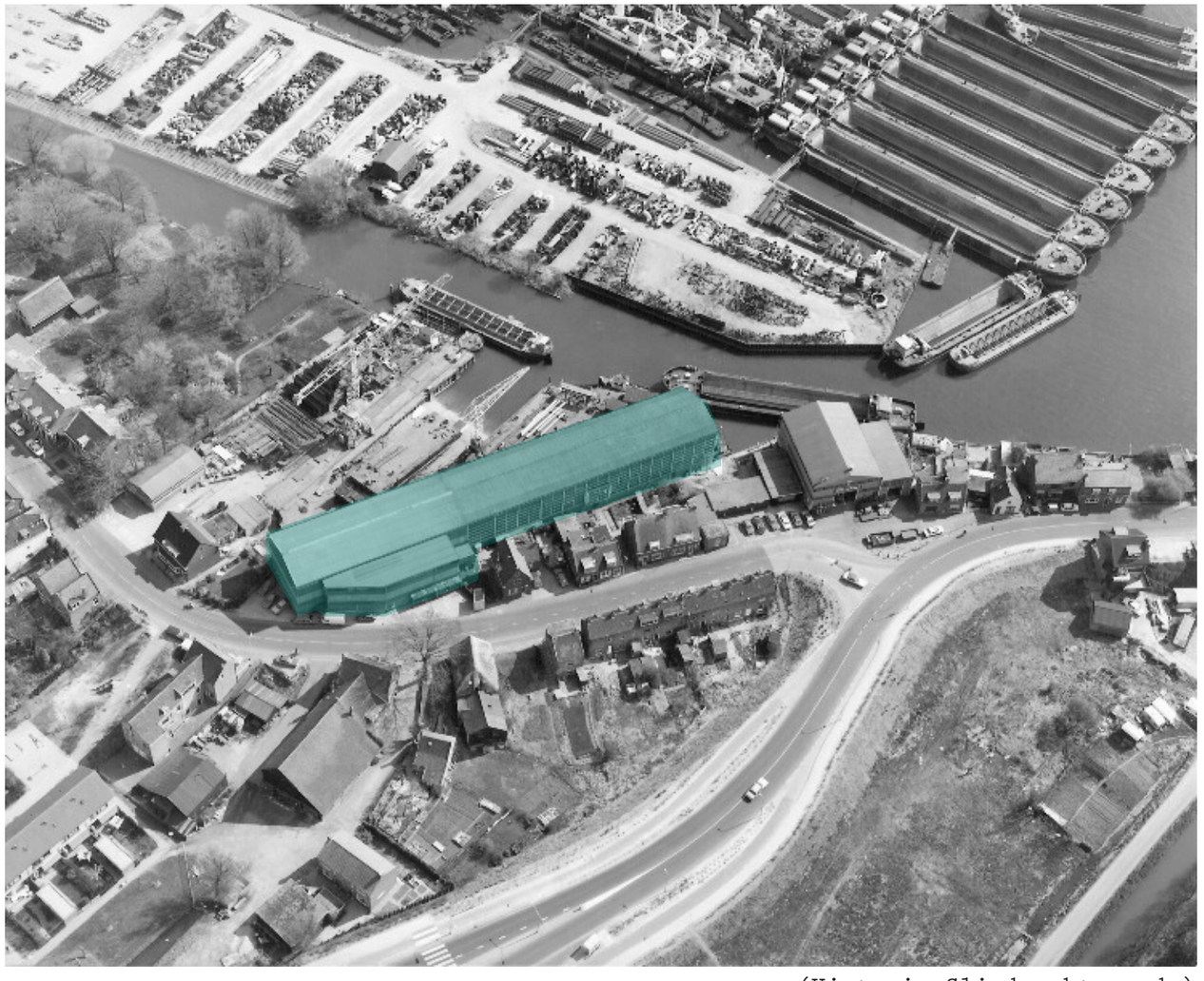
between businesses, educational institutes and researchers in the water sector

PROVIDE FACILITIES

for research and outreach activities to ensure future-oriented water innovations



2. SITE

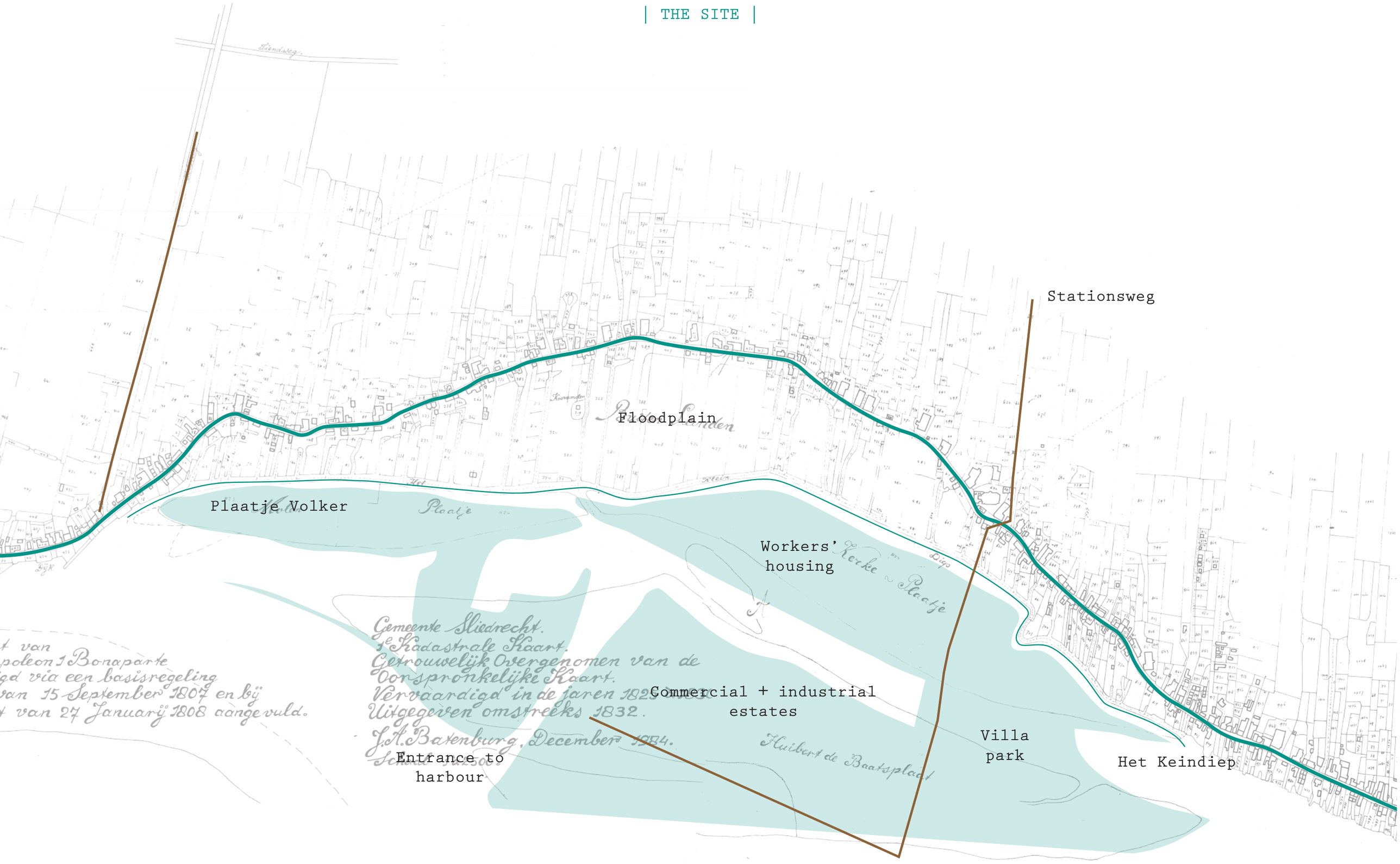


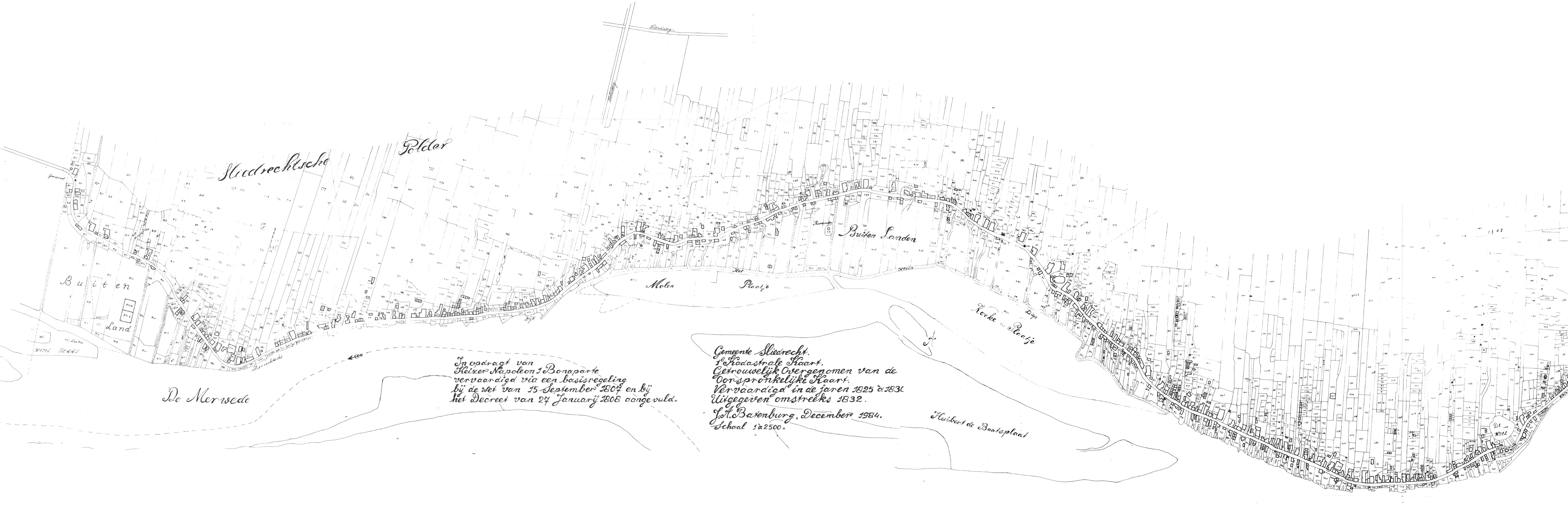
(Historie Sliedrecht, n.d.)

← Papendrecht

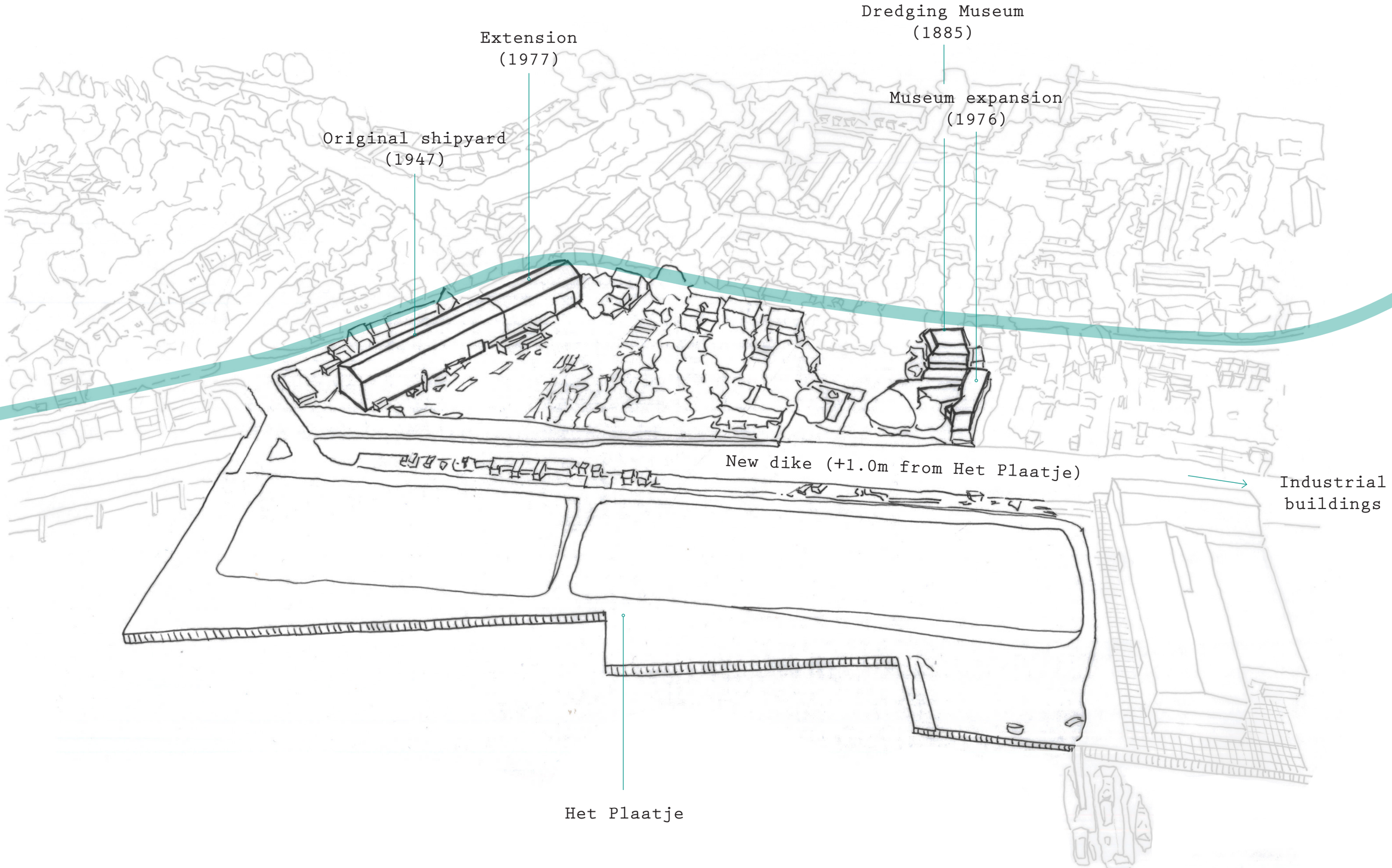
Hardinxveld-
Giessendam →

Map of Sliedrecht from ca. 1832
Municipality of Sliedrecht


Stationsweg
Floodplain
Plaatje Volker
Workers' housing
Commercial + industrial estates
Villa park
Het Keindiep
Entrance to harbour


Sliedrechtsche
Polder
Buiten
Land
Buiten Landen
Molen
Plaatje
Kerke Plaatje
De Merwede
In opdragt van
Keizer Napoleon 1 Bonaparte
vervaardigd via een basisregeling
bij de wet van 15 September 1807 en bij
het Decreet van 27 Januarij 1808 aangevuld.
Gemeente Sliedrecht.
1e Kadastrale Kaart.
Getrouwelijk Overgenomen van de
Oorspronkelijke Kaart.
Vervaardigd in de jaren 1825 à 183
Uitgegeven omstreeks 1832.
J.A. Batenburg, December 1984.
Schaal 1 à 2500.
Huibert de Boatsplaat

Map of Sliedrecht from ca. 1832
Municipality of Sliedrecht


Dredging Museum
(1885)
Extension
(1977)
Museum expansion
(1976)
Original shipyard
(1947)
New dike (+1.0m from Het Plaatje)
Industrial
buildings
Het Plaatje

(Historische Veriniging Sliedrecht, n.d.)

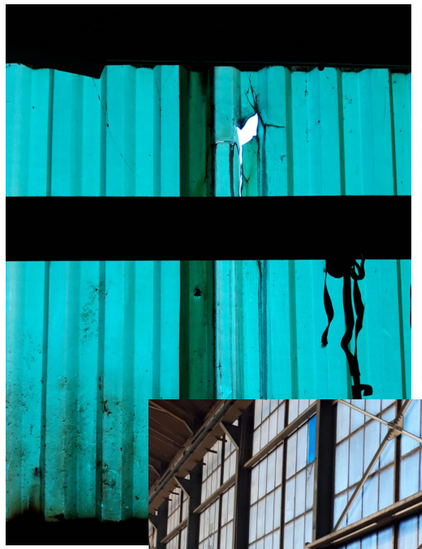
(by author)

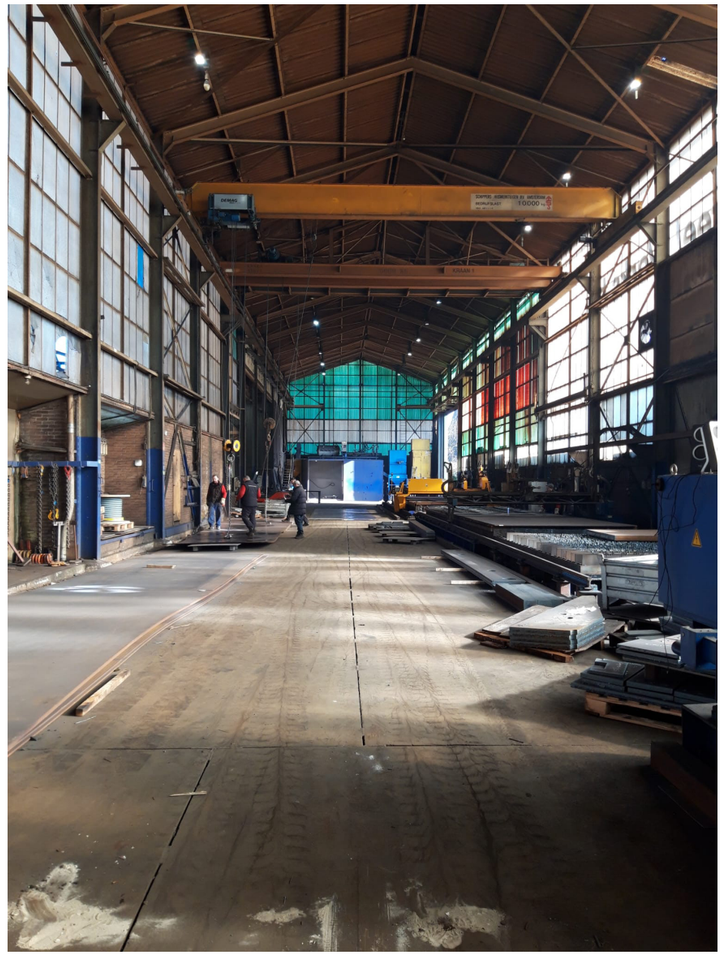
(all images by author)


SCHIFFERS HIJSWERKTUIGEN BV AMSTERDAM
GEBRUIKSLAST
10000 kg
CombiCut 16501.35PPrk

(by author)

| CURRENT CONDITIONS - INTERIOR |





(all images by author)

| VALUE ASSESSMENT |

● Values to keep ◌ Opportunities

	AGE	HISTORICAL	INTENTIONAL COMMEMORATIVE	NON-INTENTIONAL COMMEMORATIVE	USE	NEWNESS	ART	RARITY
SURROUNDINGS		●						
SITE			◌		◌			
SKIN	●							
STRUCTURE								
SURFACE PLAN								
SERVICES						◌		
STUFF								
SPIRIT		●						

Maritime history + connection to water

(Historische Veriniging Sliedrecht, n.d.)

Mismatched character of residential and industry

(Historie Fotoarchief Sliedrecht, 1960-70)

Existing maritime structures

(by author)

Public use of Het Plaatje

(by author)

Improve climate technology + efficiency

(by author)

Restore + enhance water connections

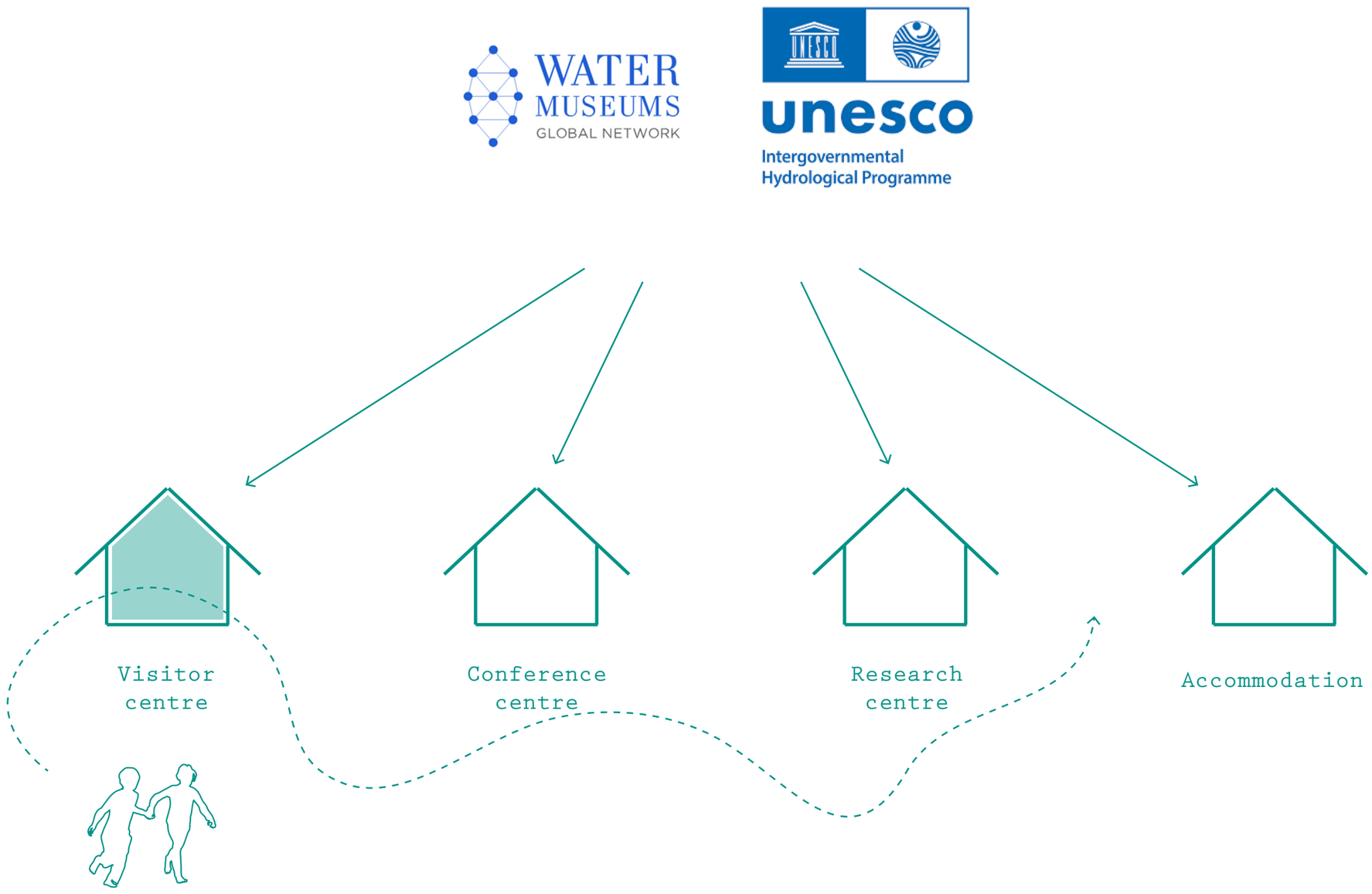
(Historie Fotoarchief Sliedrecht, 1971)

3. DESIGN

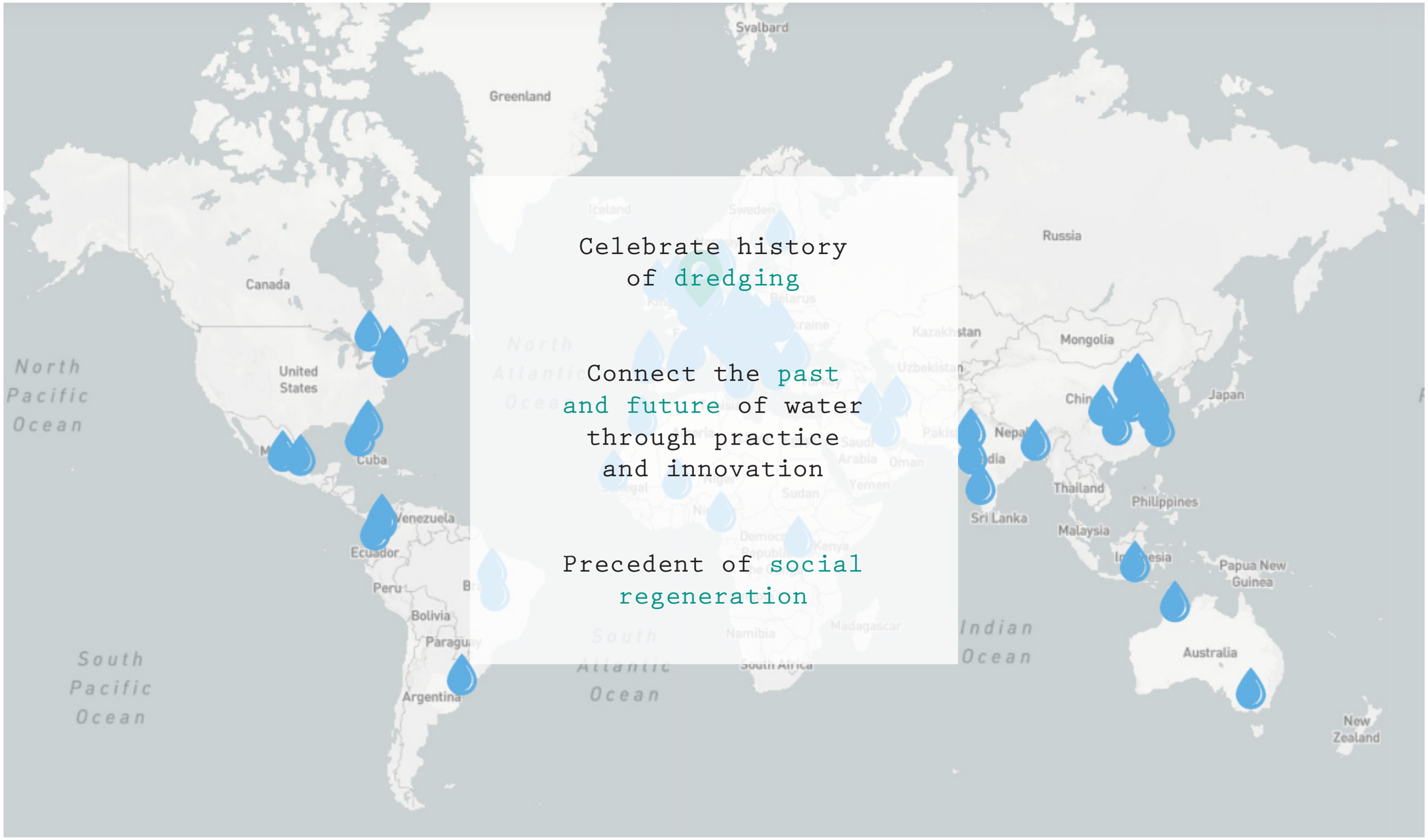
| PROJECT GOAL |

linking
HISTORICAL and FUTURE
narratives of water

Water conference organisation



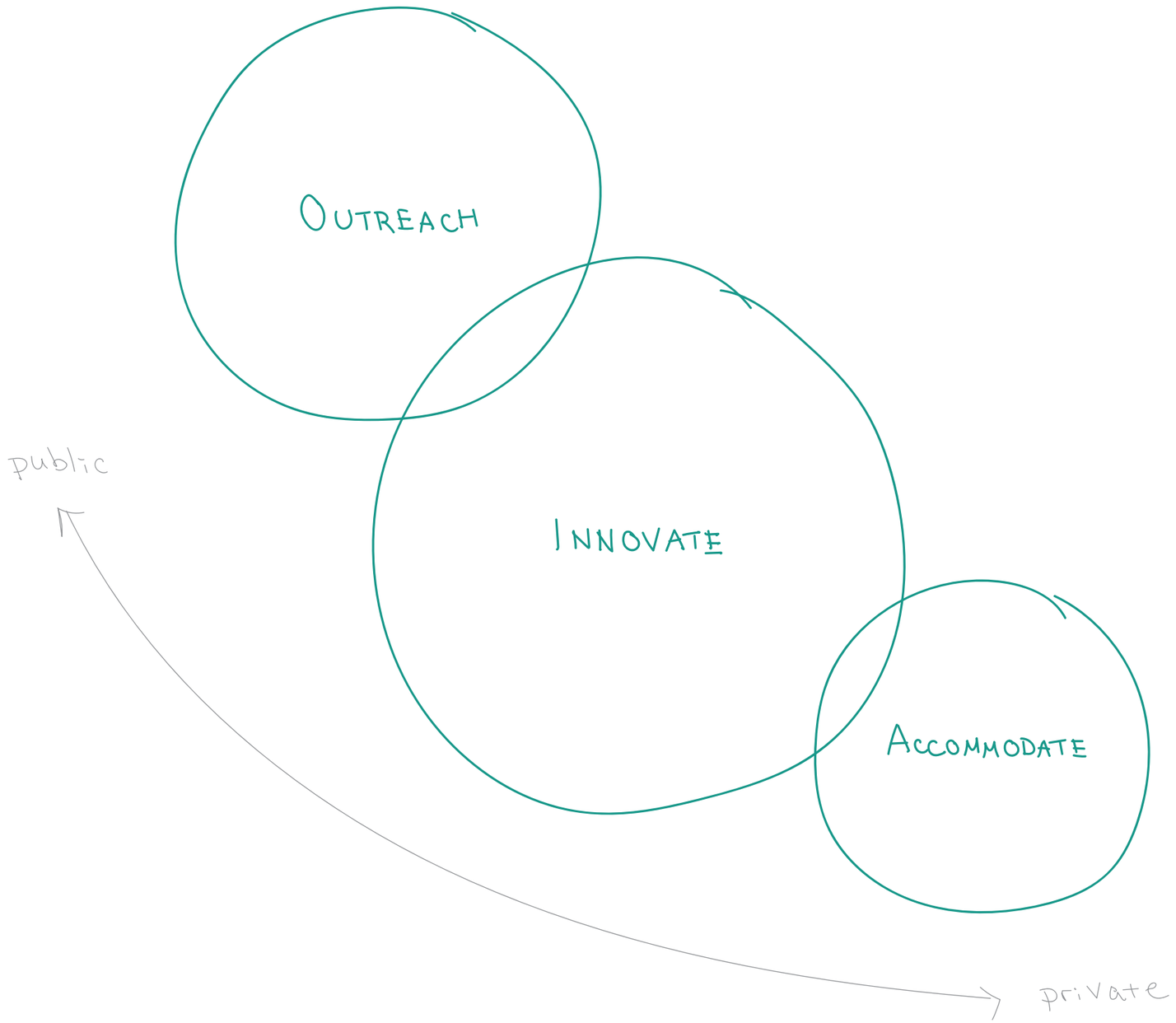
(Global Network of Water Museums, 2025)



(Global Network of Water Museums, 2025)

3. DESIGN

3.1 site design


OUTREACH
INNOVATE
ACCOMMODATE
public
private


Library/
archives
Tech./
san.
Exhibition
Activity
rooms
Offices
Foyer
Cafe
Playground +
event space
Outdoor plaza
Convention
hall
Foyer
Small
hall
Small
hall
Labs
Classrooms
Meeting
rooms
Tech./san.
Offices
Boat dock
and repair
Accommodation
Tech./san.
Dining +
kitchen
Common
rooms


NS section
Outreach Centre
(Van Eijk shipyard)
Conference Centre
Dredging Museum
Research Centre
Accommodation
EW section
0 12.5 25 50 100 m


NS section
Gravel pathway
Stone paved square
Museum playground
Wetland
EW section
Ferry stop
Dockyard
Jetties
0 12.5 25 50 100 m

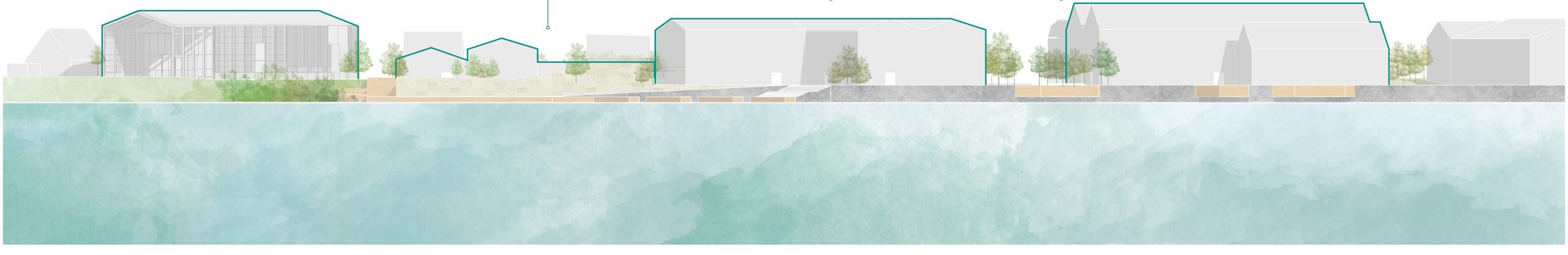
Outreach Centre
(Van Eijk shipyard)

Conference Centre

Research Centre

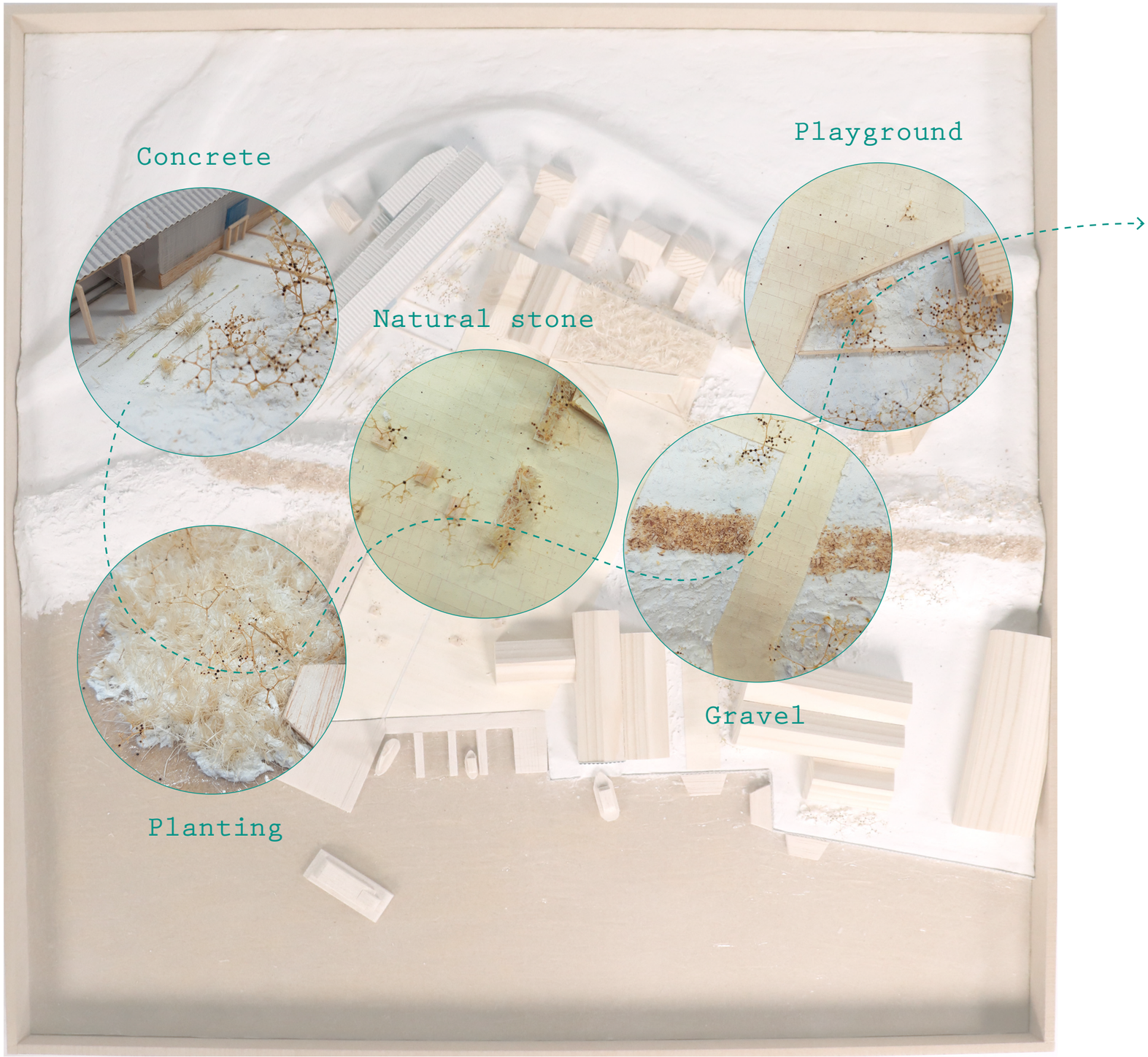
Dredging Museum

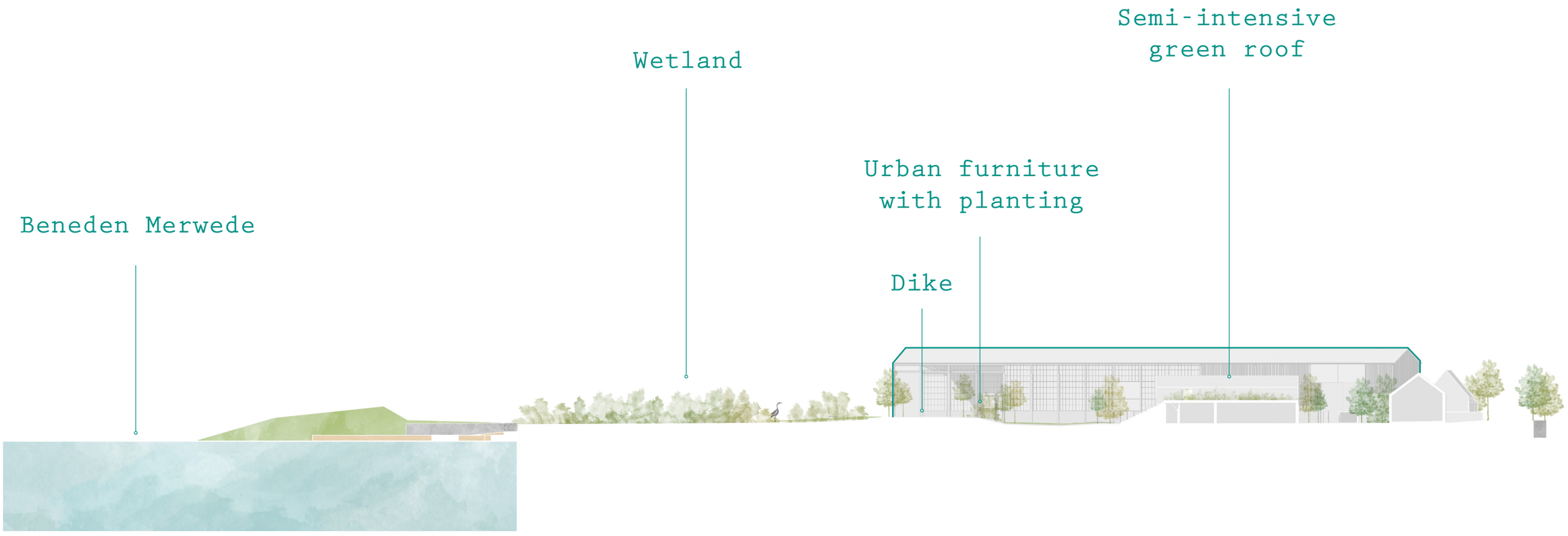
Accommodation



Solrødgård
Hillerød, Denmark

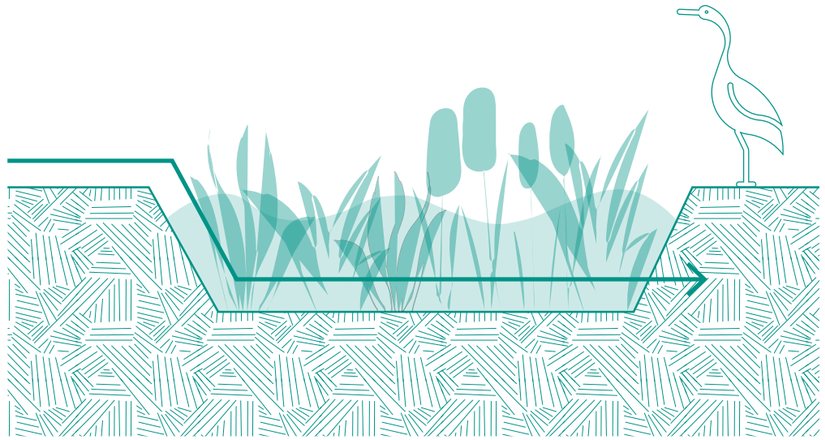
Willemsoord
Den Helder, the Netherlands


Concrete
Natural stone
Playground
Gravel
Planting


Beneden Merwede
Wetland
Urban furniture
with planting
Dike
Semi-intensive
green roof

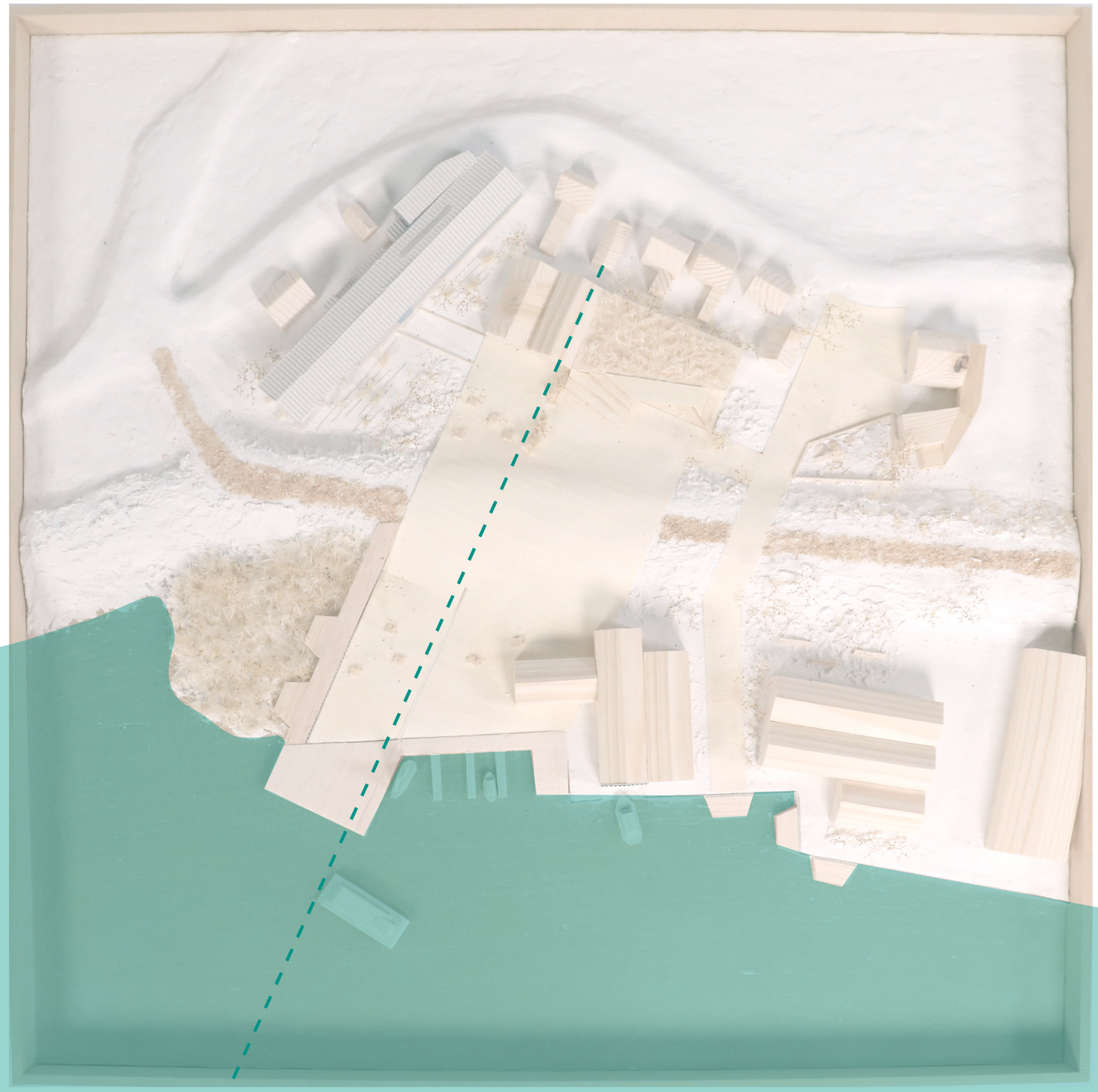
Surface flow

Treated
wastewater

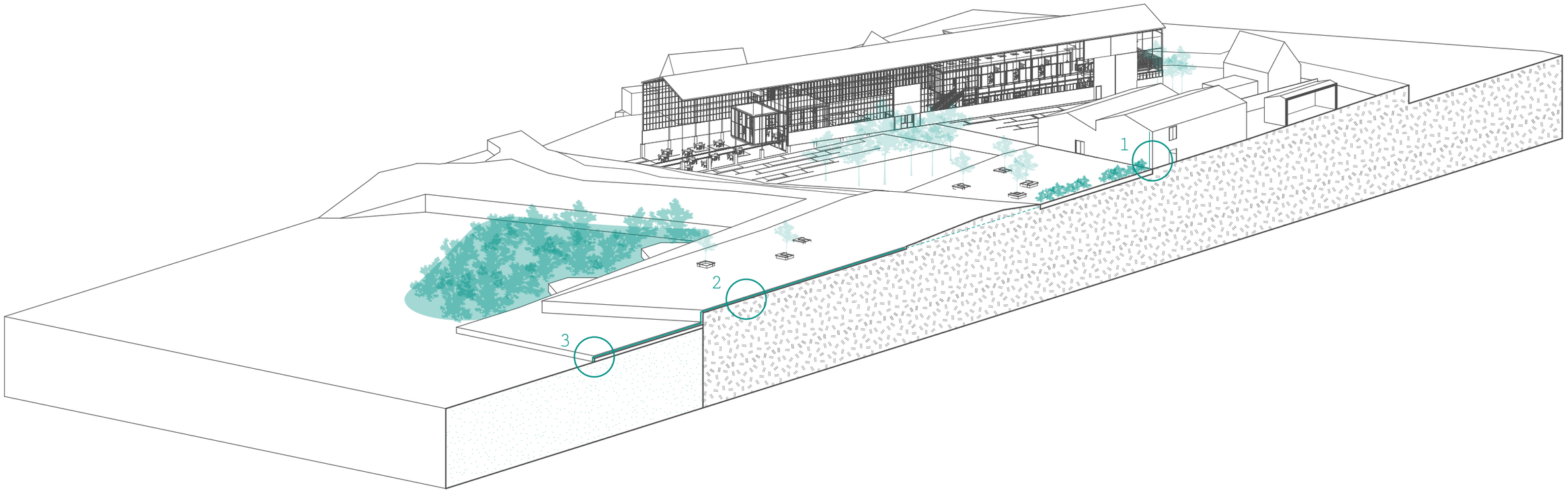


Outlet

| WATER CONNECTIONS |



| WATER CONNECTIONS |

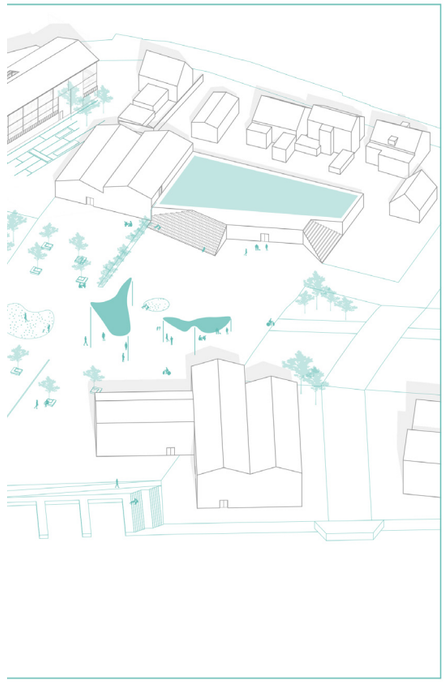

1
2
3

1. Bioswale

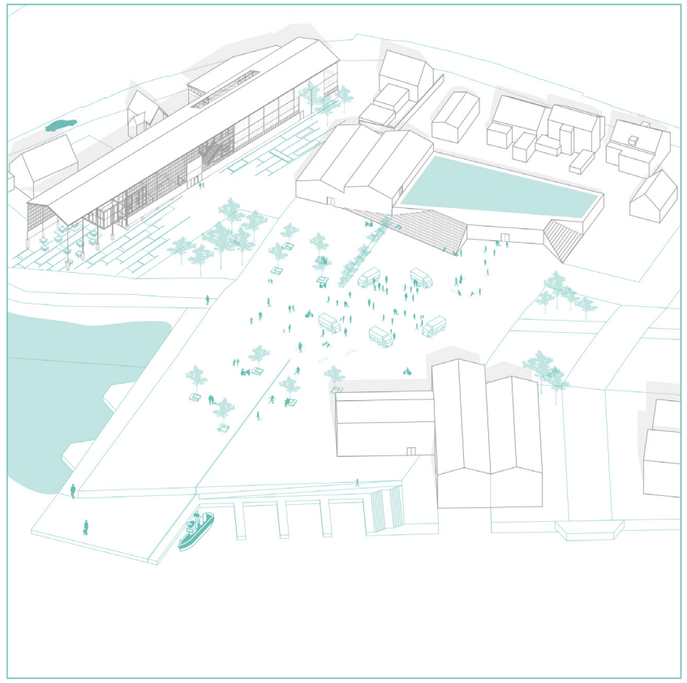
2. Water channel

3. Beneden Merwede

Normal



Installation

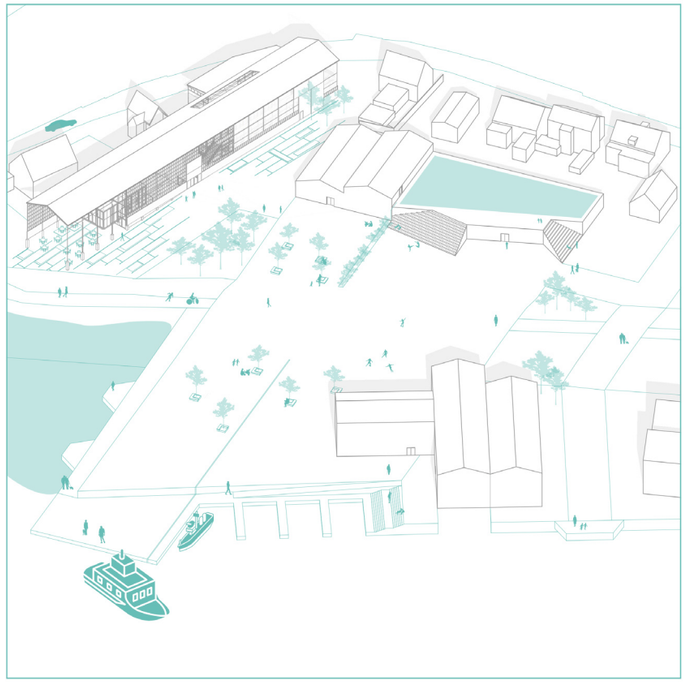


Conference

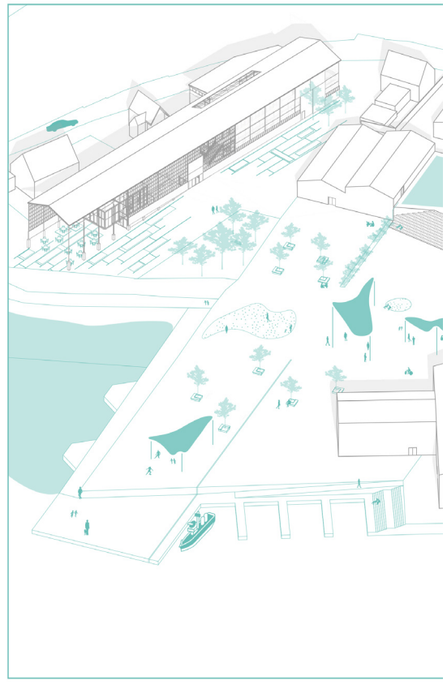
Normal

Installation

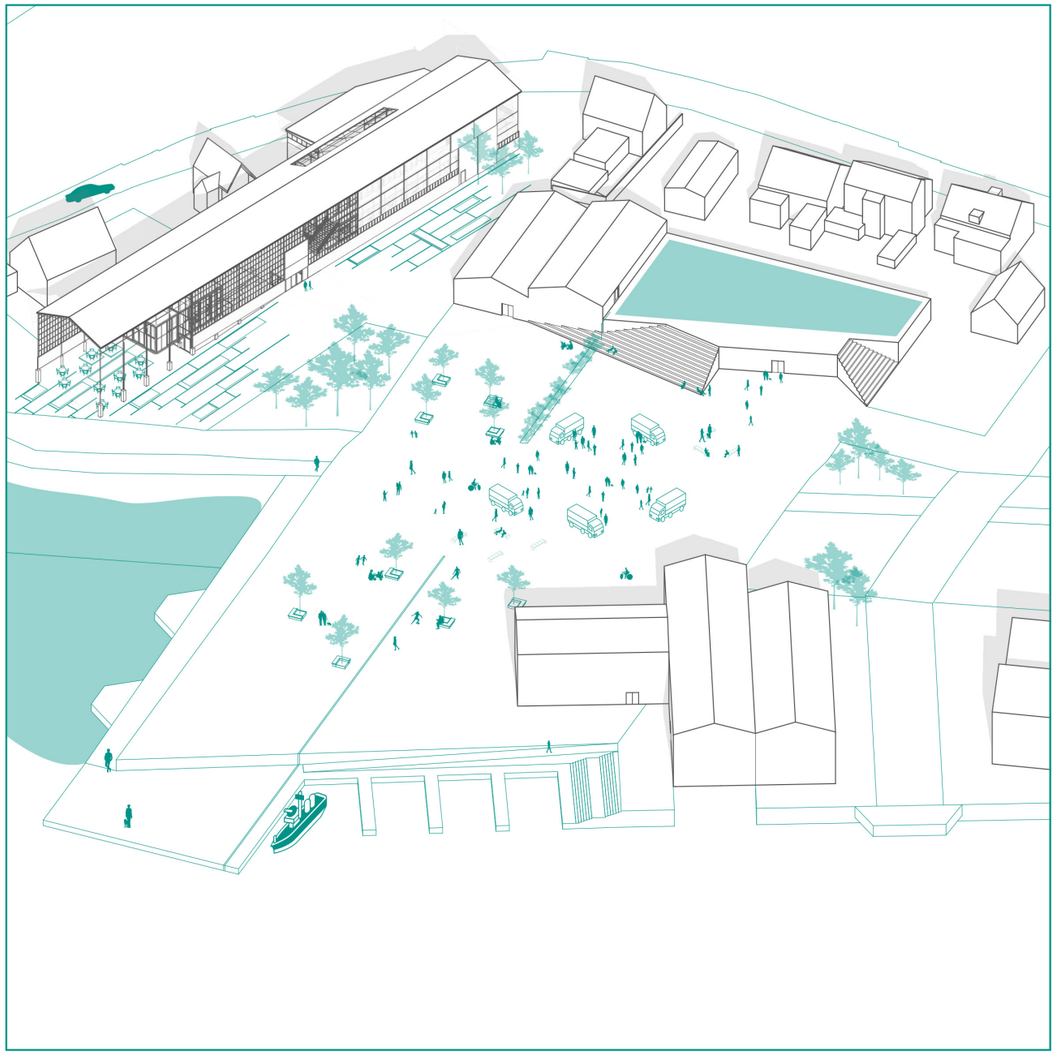
Conference



Normal



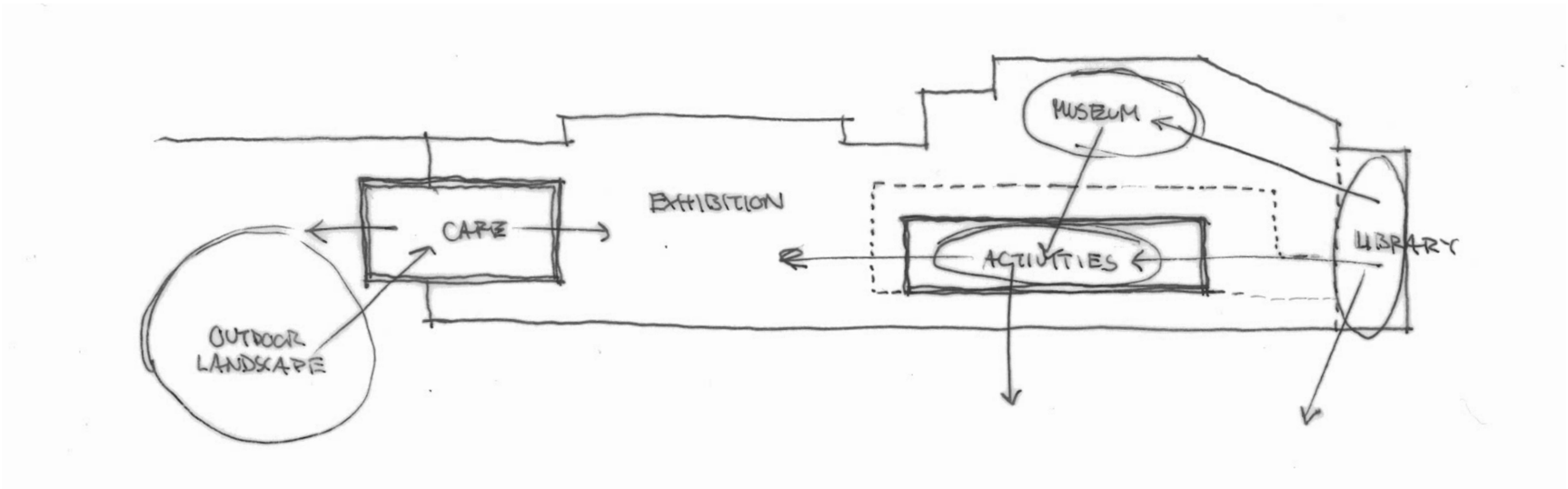
Installation



Conference

3. DESIGN

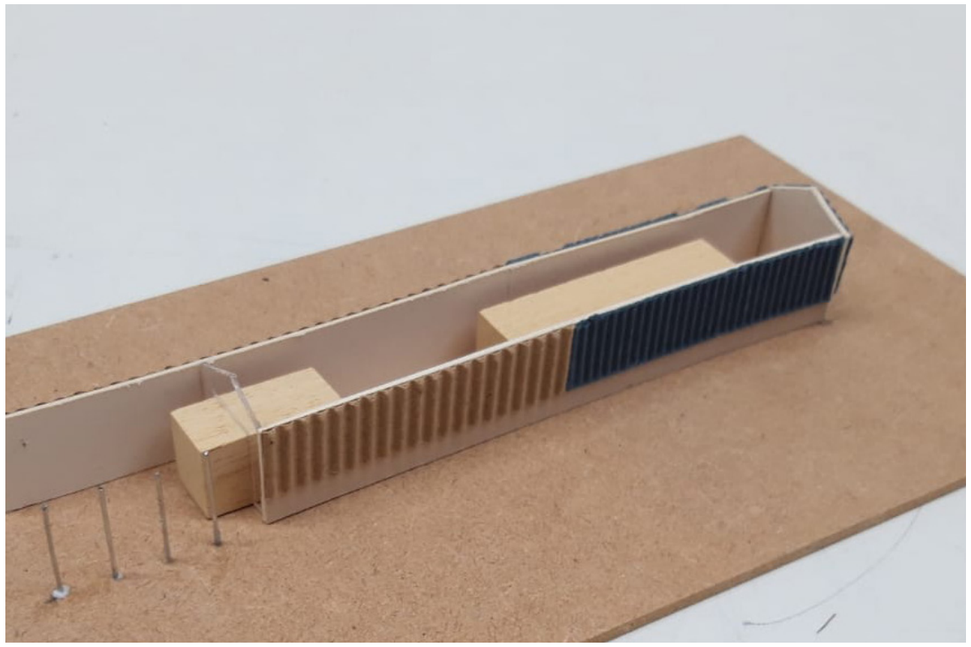
3.2 building design


MUSEUM
EXHIBITION
CAFE
ACTIVITIES
LIBRARY
OUTDOOR
LANDSCAPE

Past

(Historische Veriniging Sliedrecht, n.d.)

Future

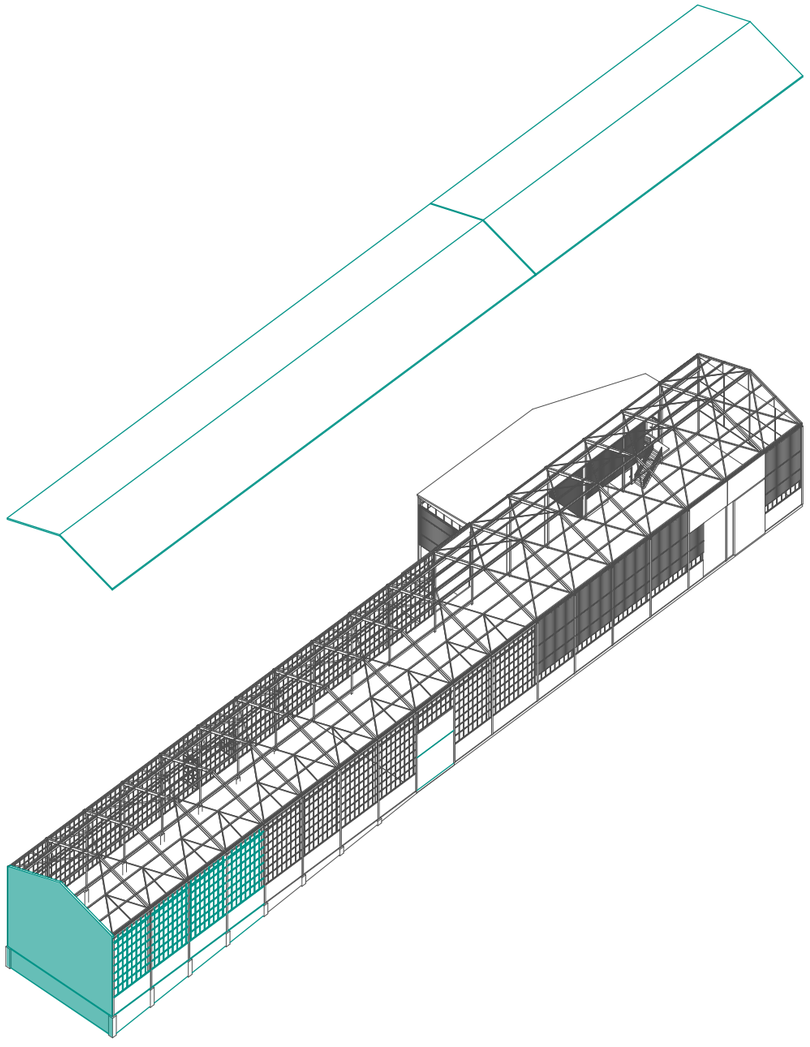


Week 3.3 | 1:250 model

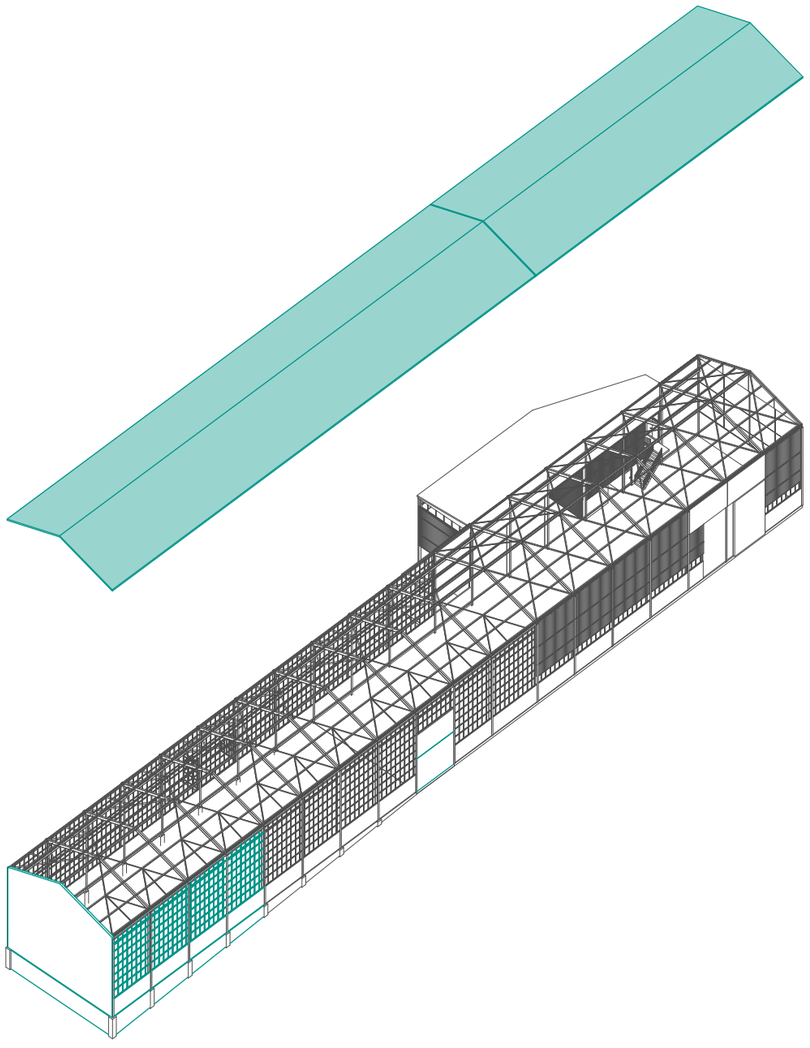
Past

Future

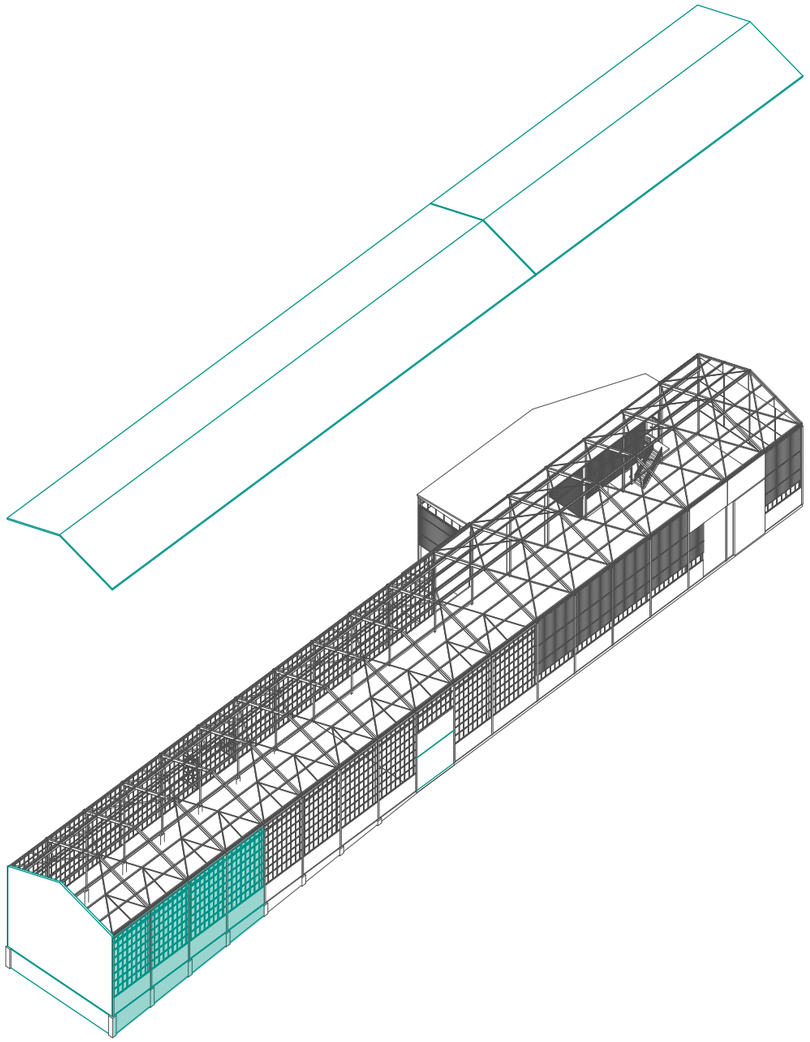
Week 3.7 | 1:100 model



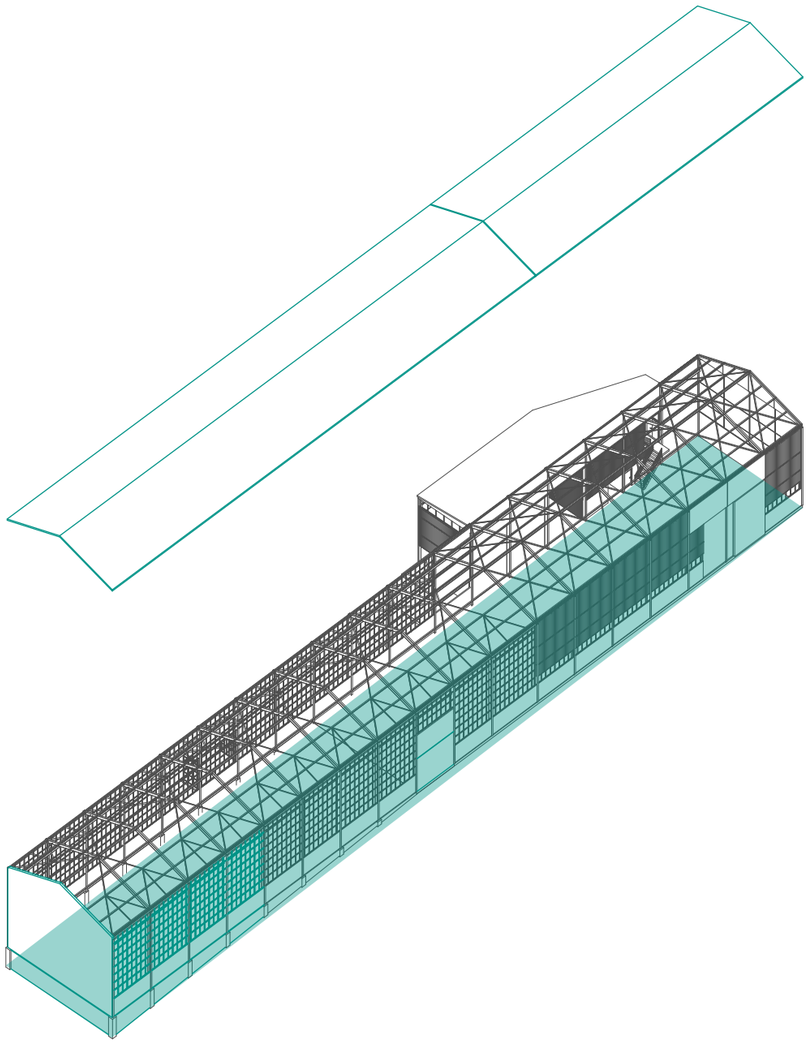
Openable door



Asbestos cement roof

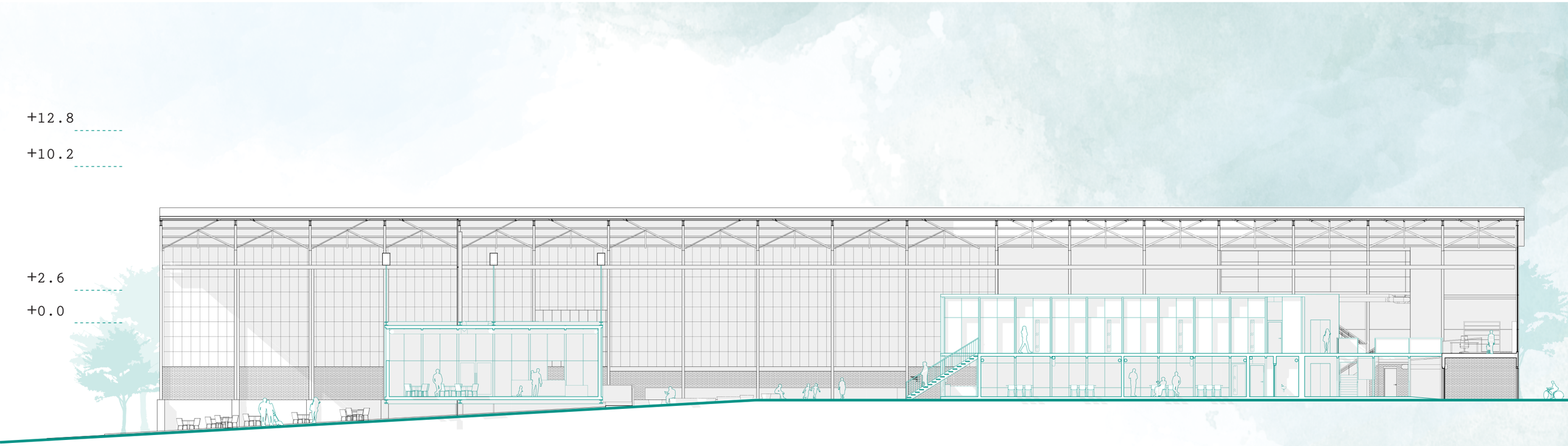


Part of facade



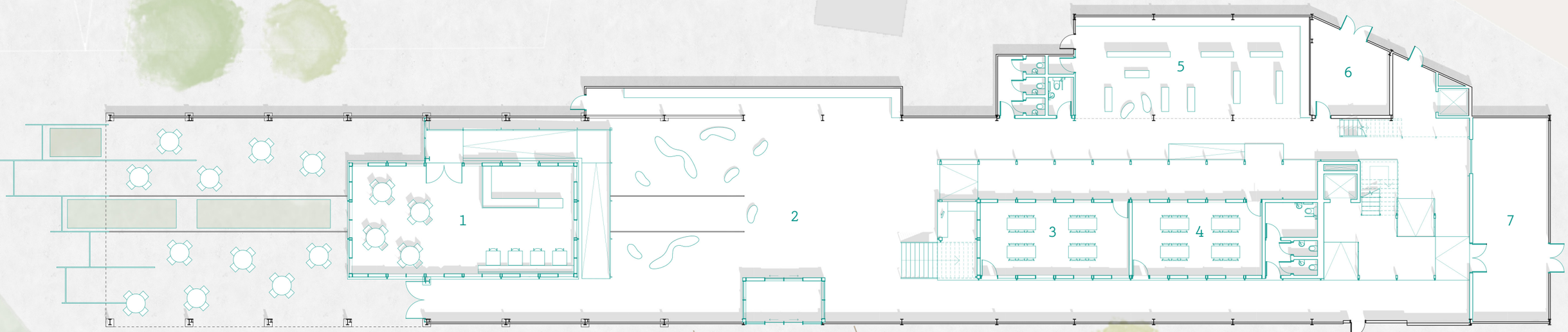
Metal floor

| NORTH-SOUTH SECTION |

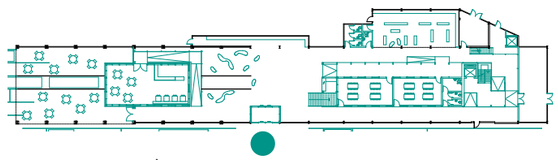


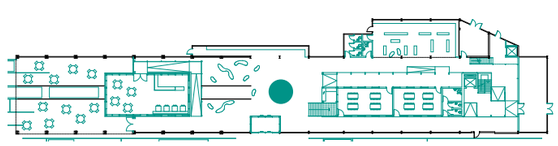
0 5 10 20m

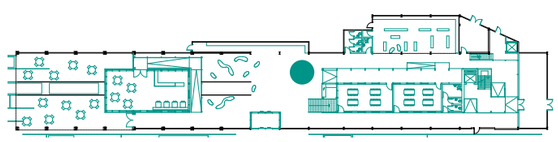
1. Cafe
2. Entrance foyer/exhibition
3. Activity room I
4. Activity room II
5. Dredging Museum exhibit
6. Storage
7. Tech room

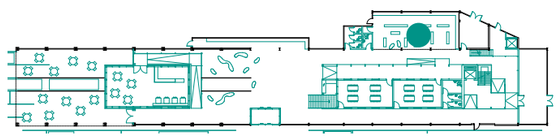


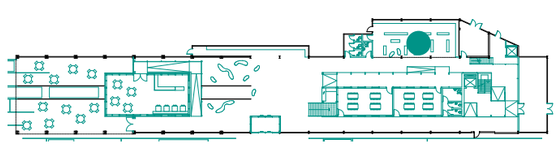
0 5 10 20m

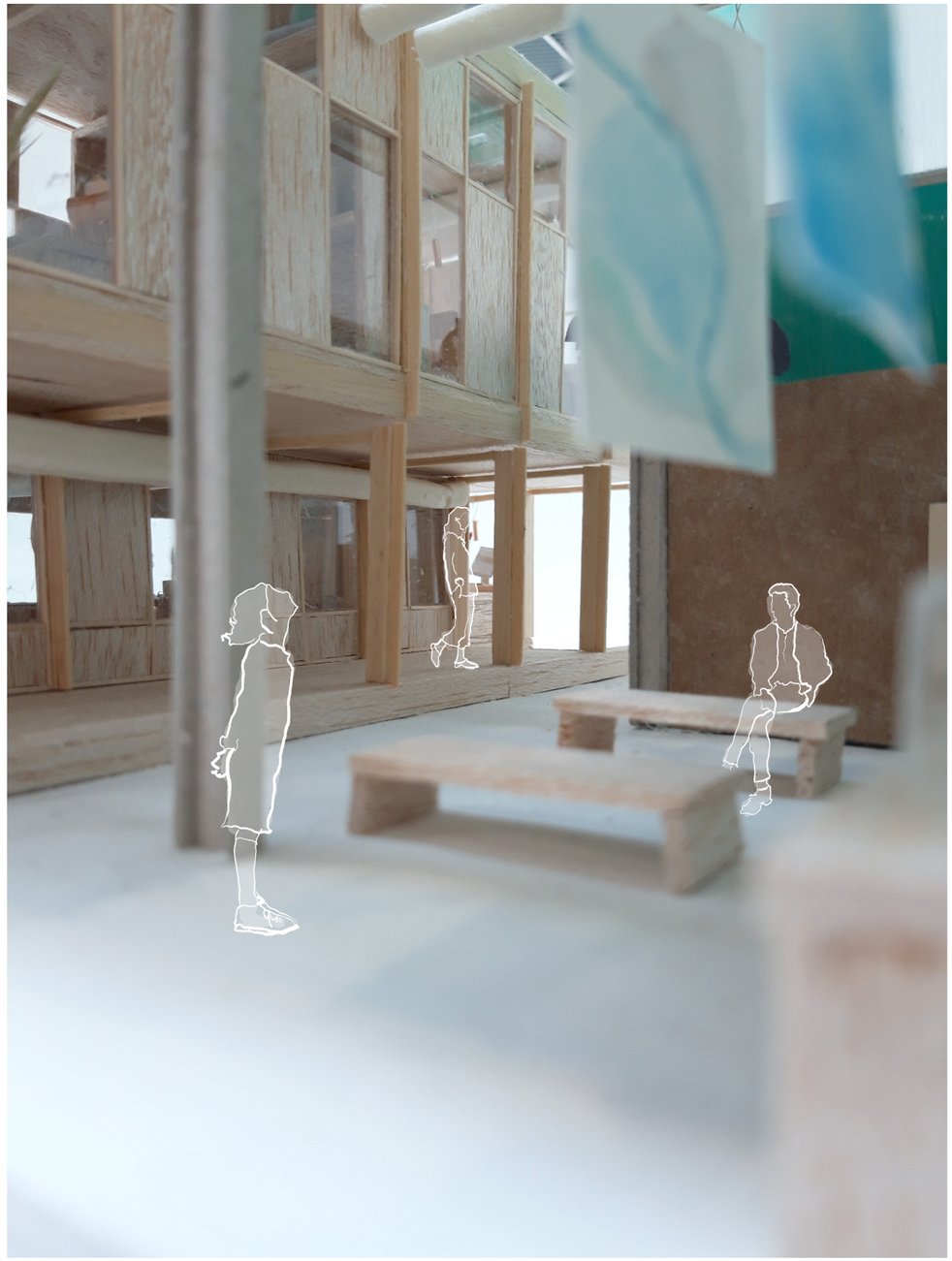


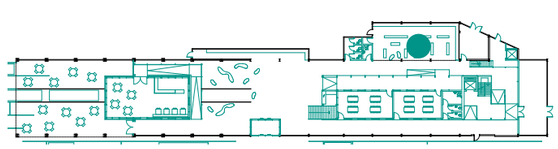


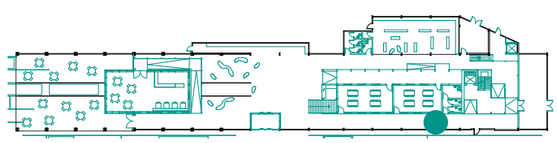


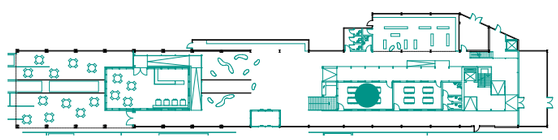


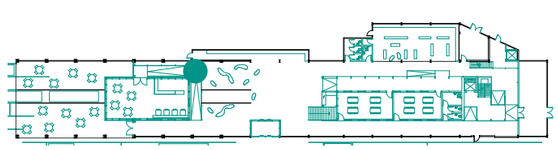


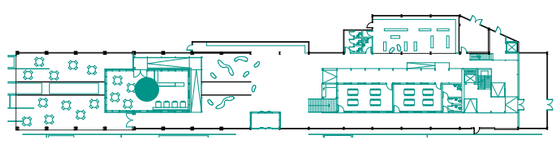


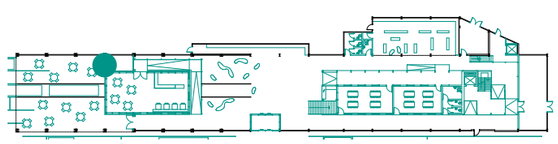




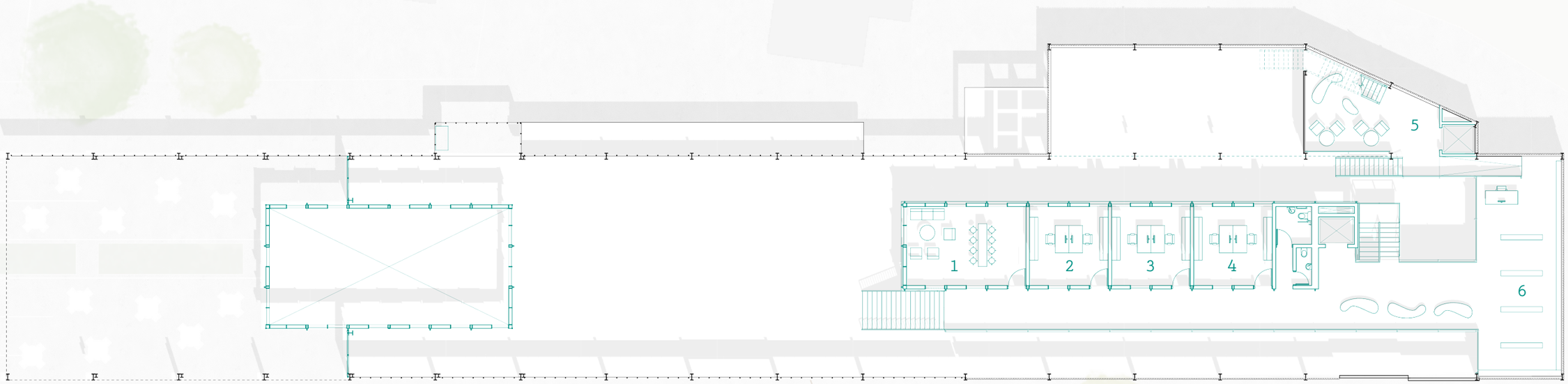




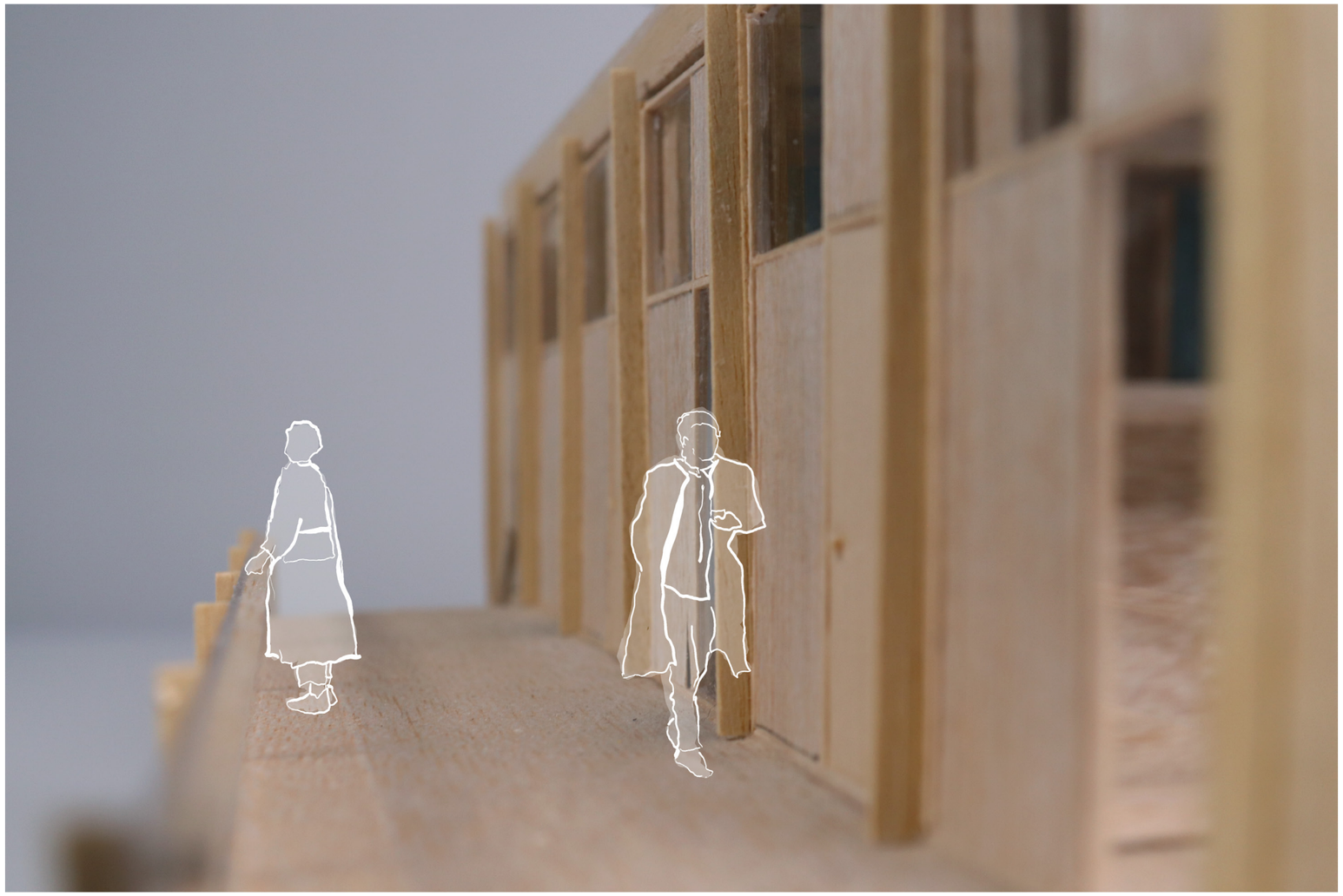


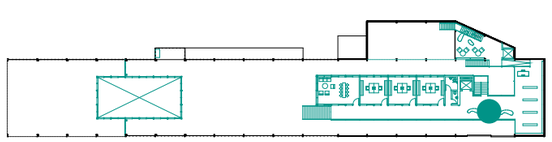


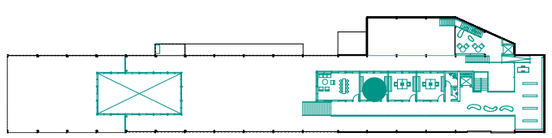
1. Office lounge
2-4. Offices
5. Library seating
6. Library and archives

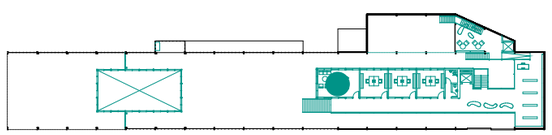


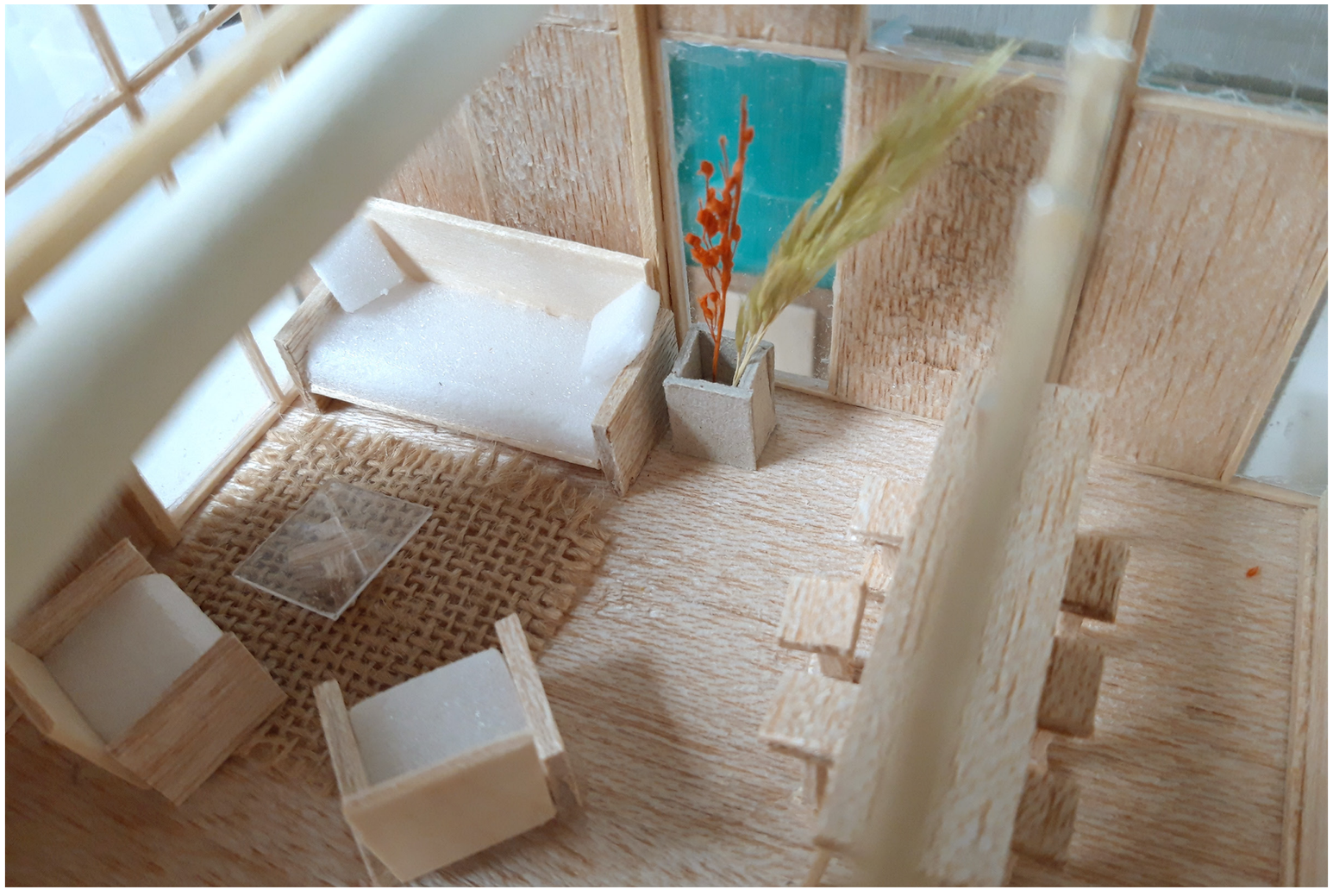
0 5 10 20m

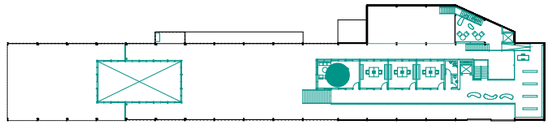




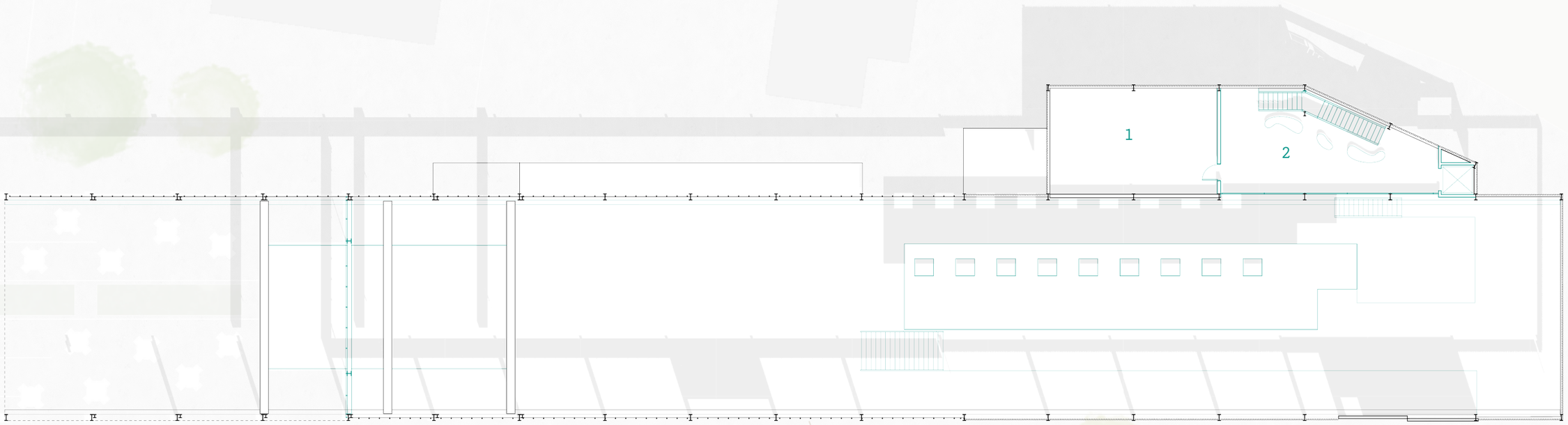




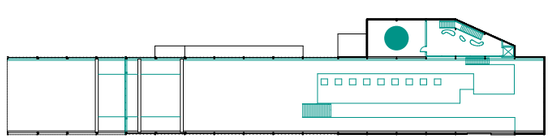




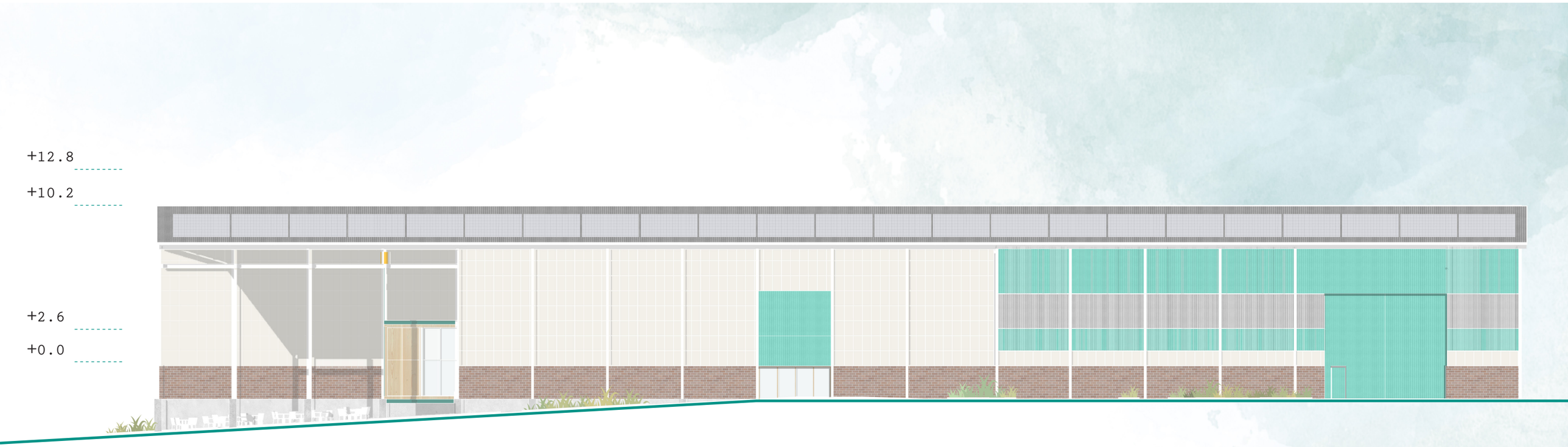
1. Activity room III
2. Break-out space



0 5 10 20m



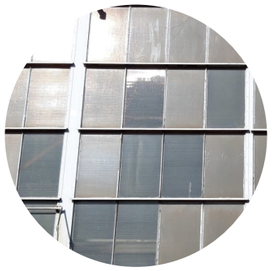
| SOUTH-EAST ELEVATION |



0 5 10 20m

Existing

Coloured corrugated steel facade



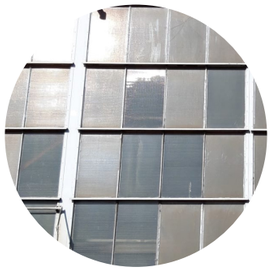
Windows

English bond brickwork

Concrete floor

Existing

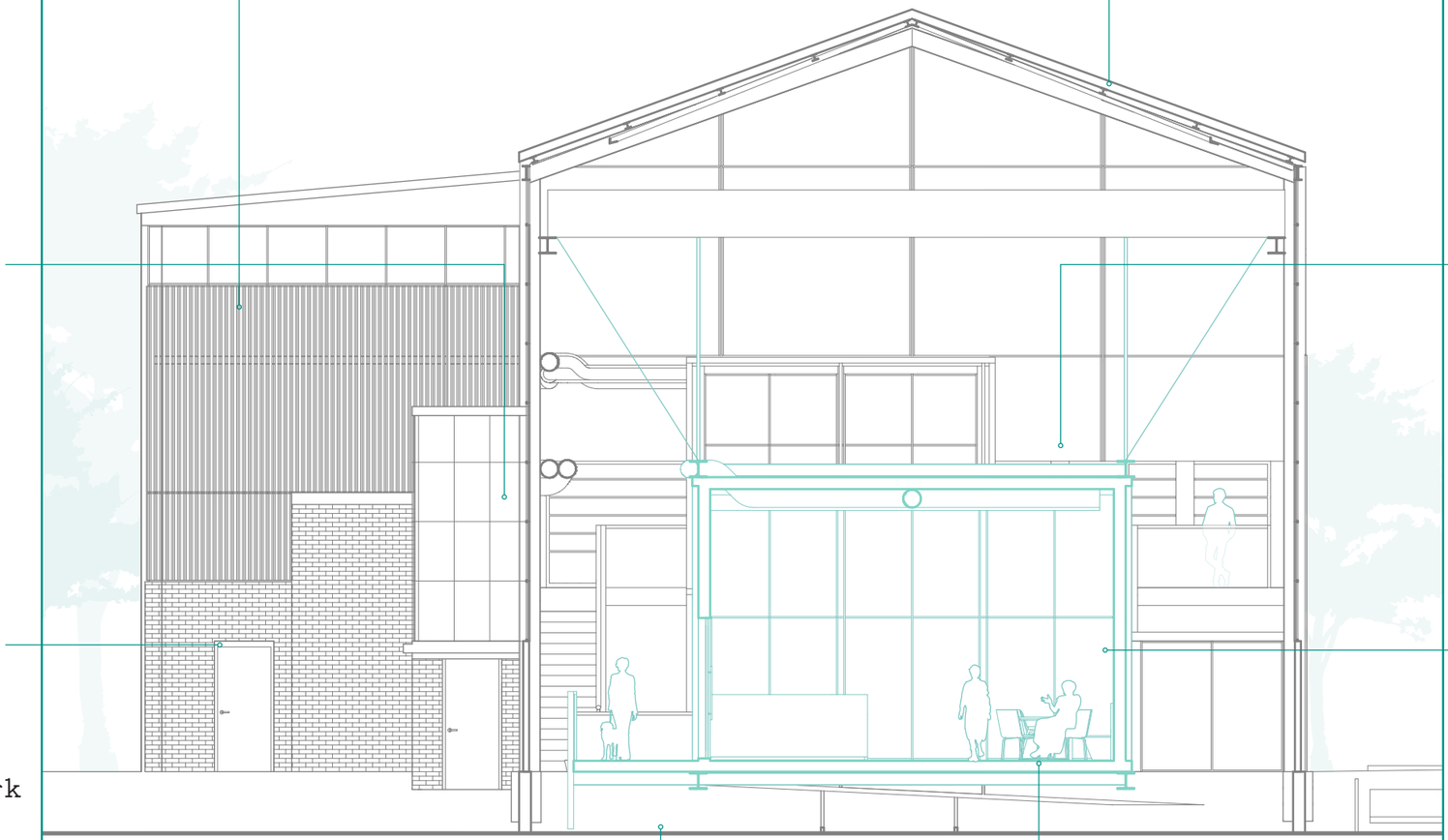
Coloured corrugated steel facade



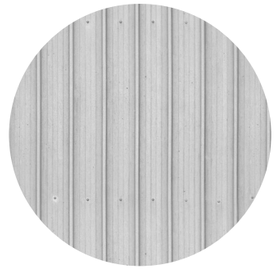
Windows

English bond brickwork

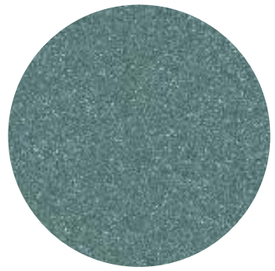
Concrete floor



New



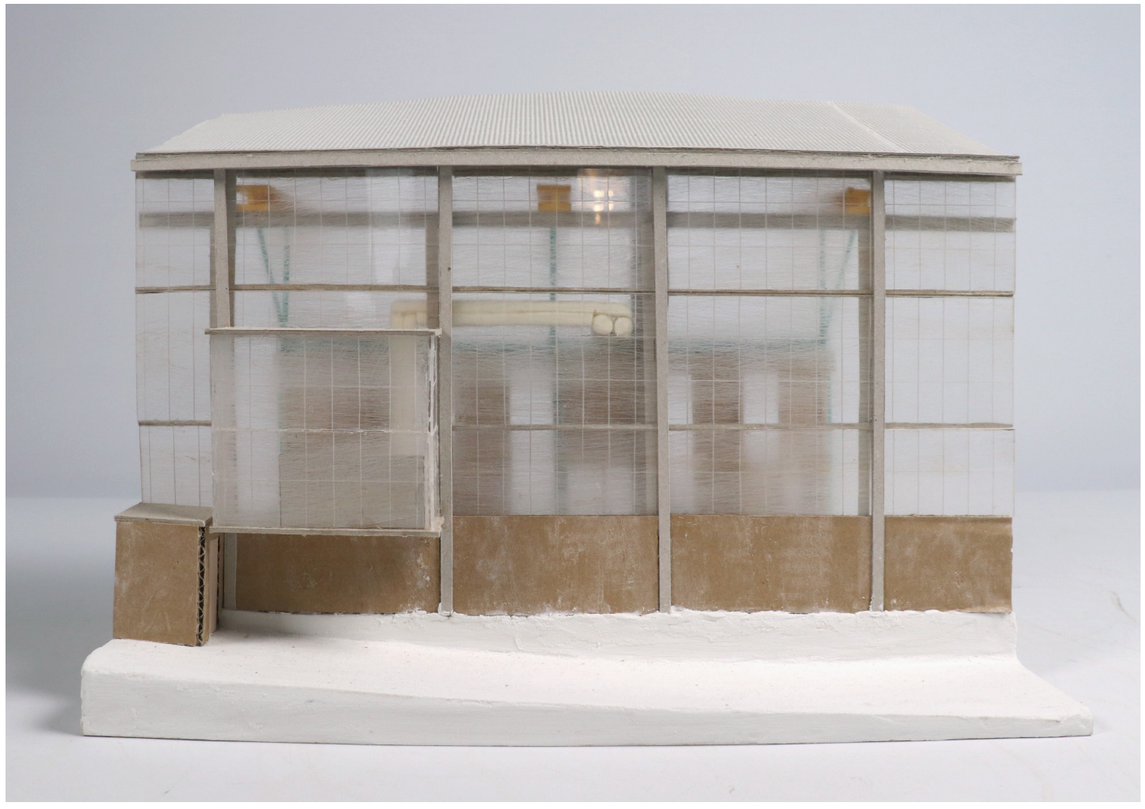
Corrugated galvanised steel roofing

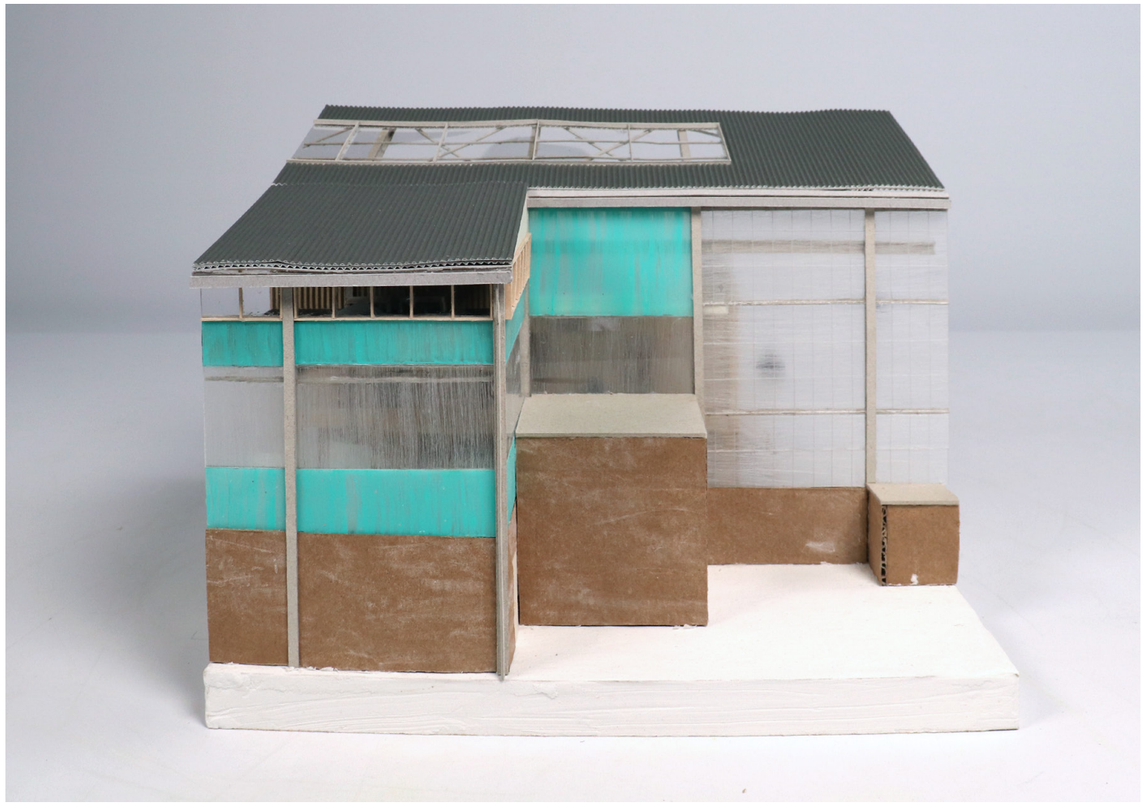


Micaceous iron oxide paint Neptune Blue 903

Douglas Fir timber

Engineered oak floor



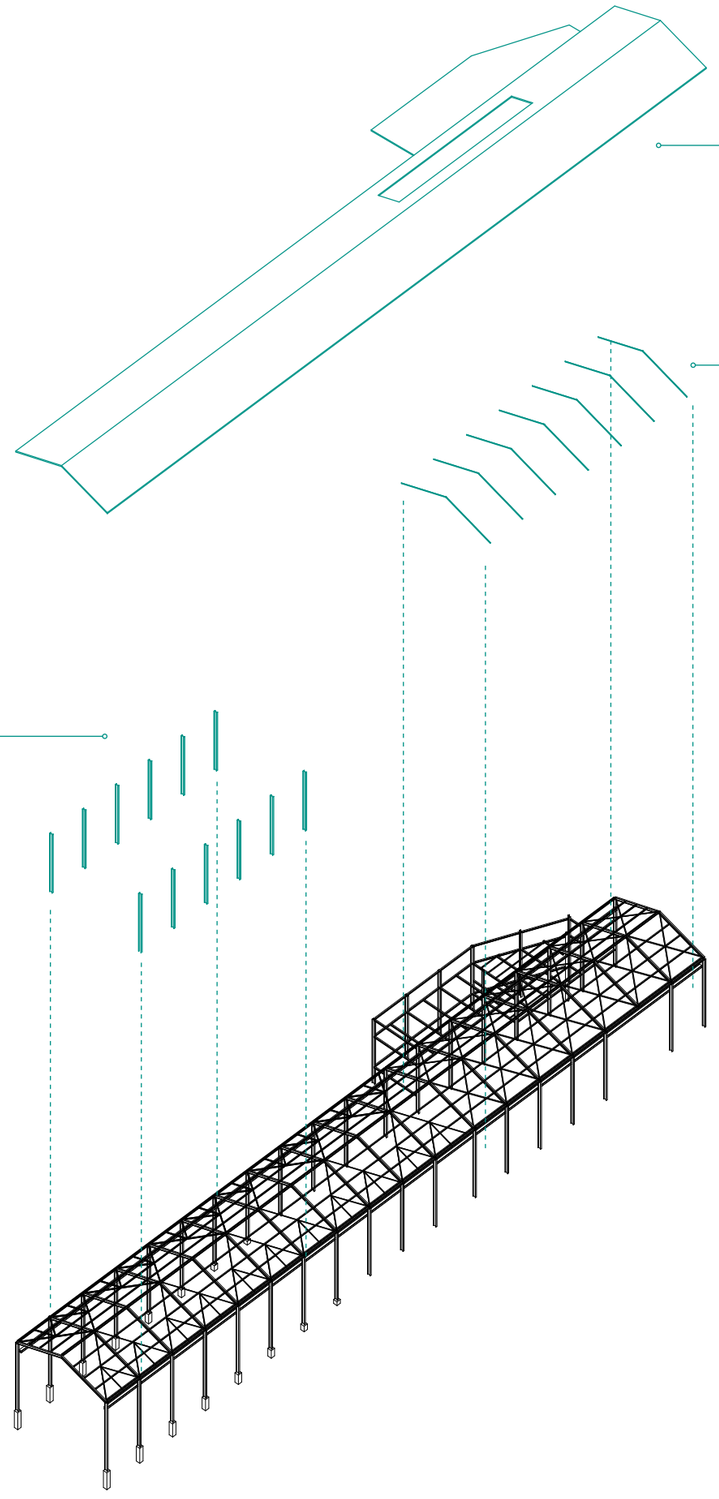


3. DESIGN

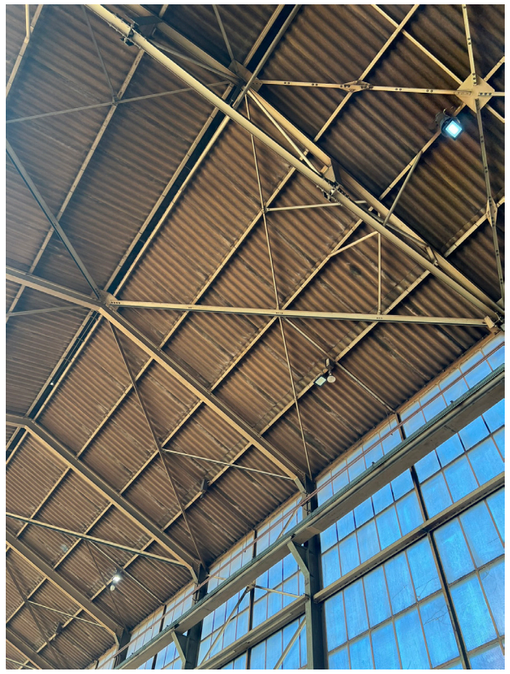
3.3 structural design

New corrugated steel roof

Reinforced columns



Added roof purlins

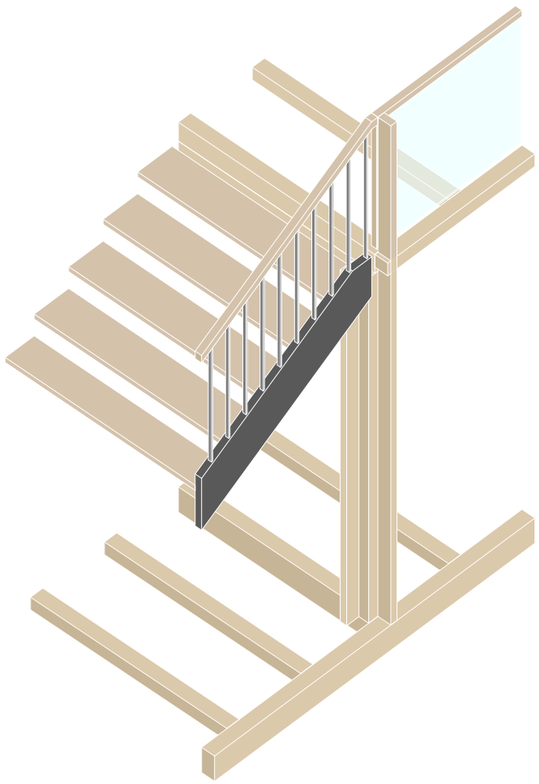


Suspended box

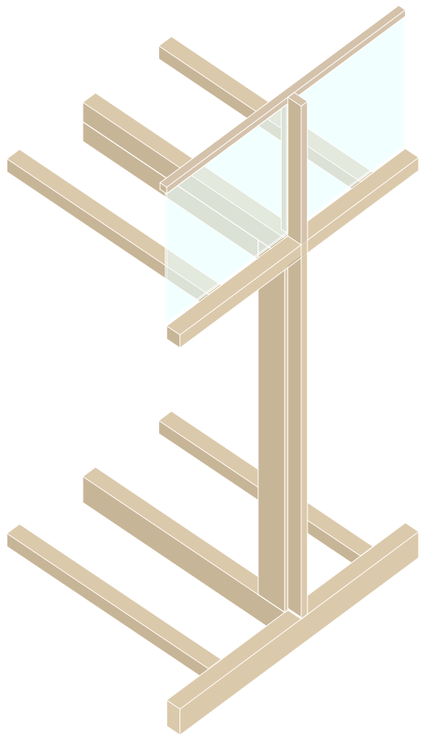
Grounded box

Suspended box

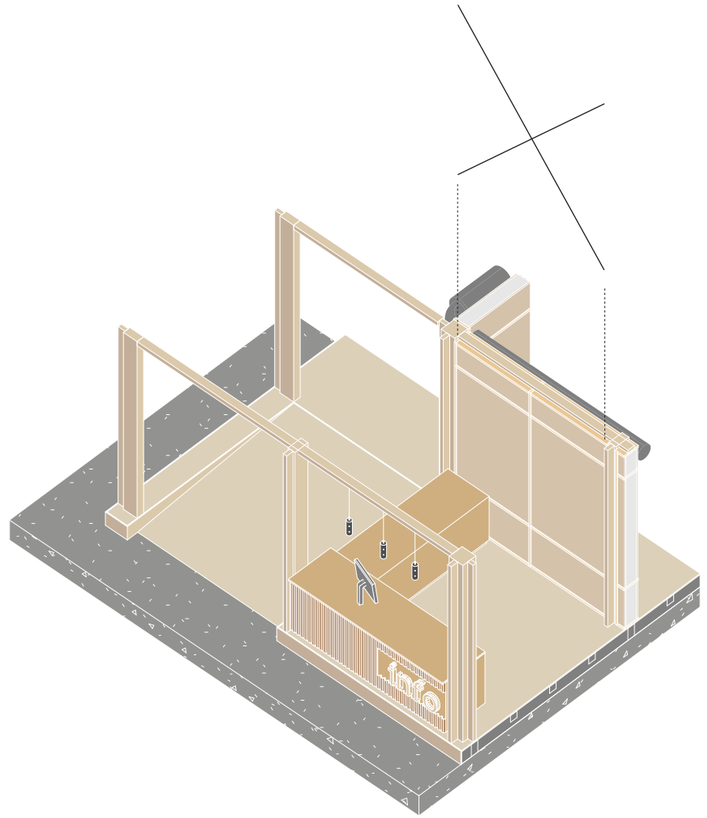
Grounded box



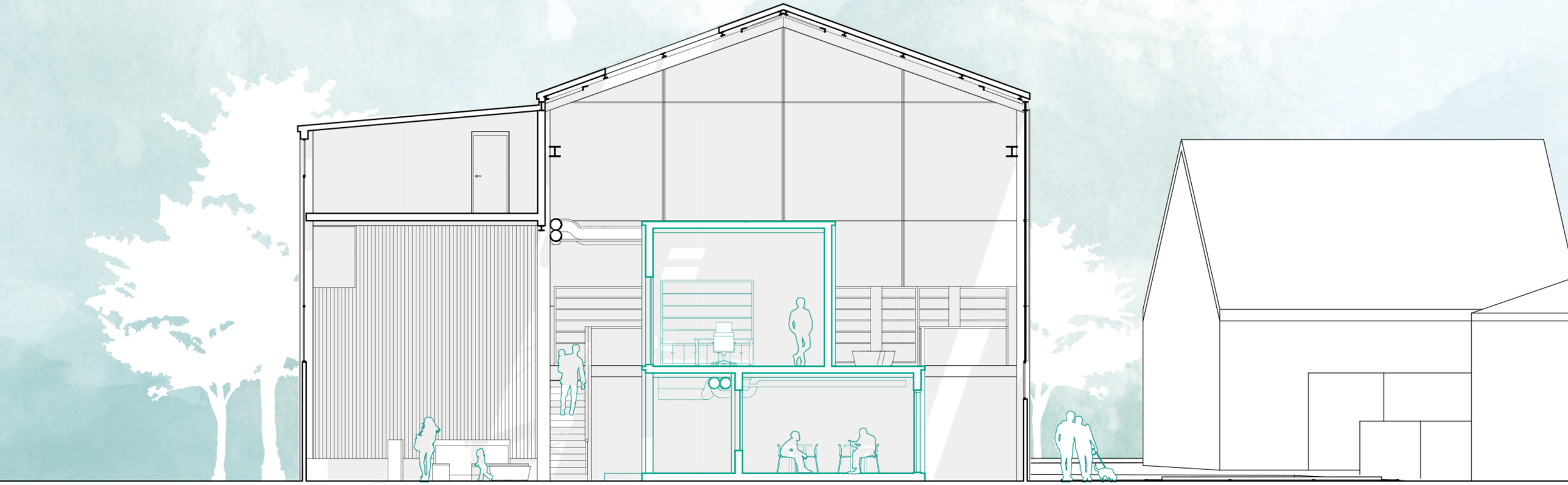
Timber and steel
hybrid stairs



Balustrade as extension
of structure



Embedded furniture

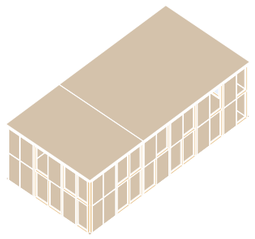


0 5 10 20m

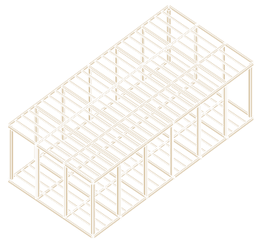
Suspended box

Grounded box

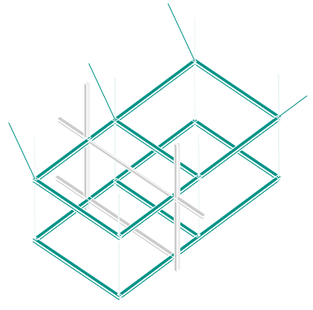
Curtain wall



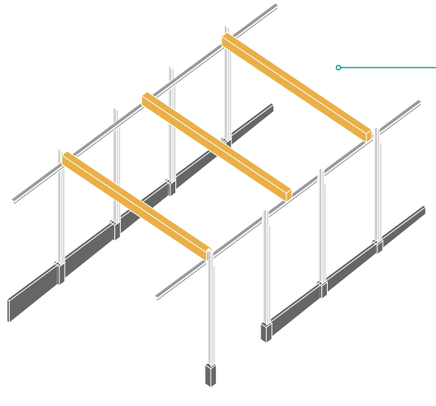
Pre-fabricated panels



Timber structure



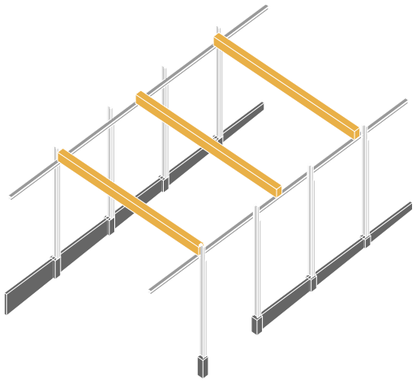
Steel frame



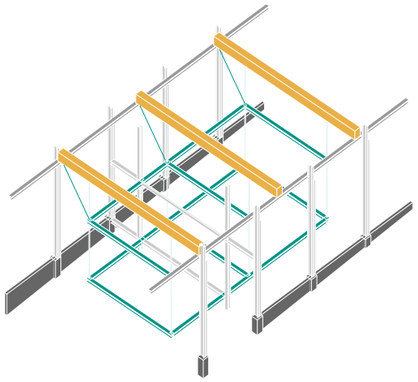
Existing crane

Existing steel construction (reinforced)

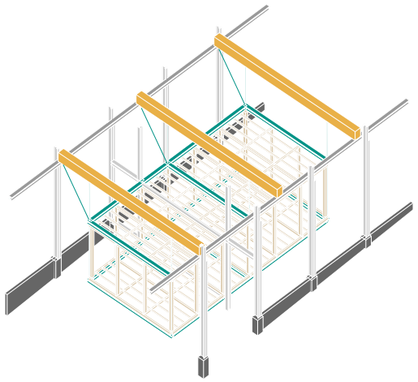
| CONSTRUCTION SEQUENCE |



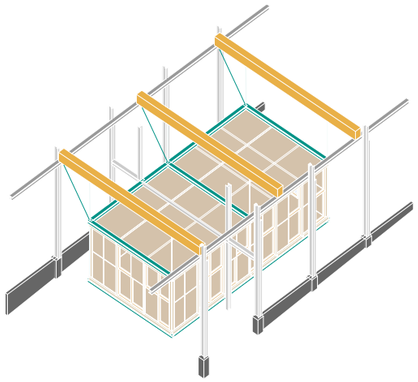
1. Reinforce existing steel frame



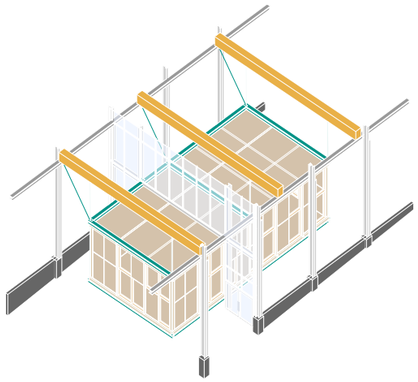
2. Construct new steel frame and foundations



3. Insert timber structure



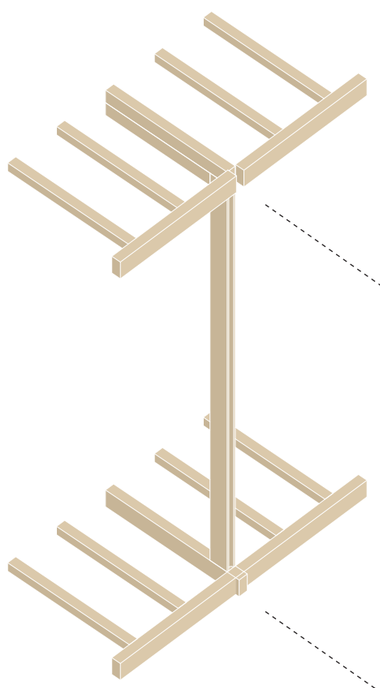
4. Slot in prefabricated panels

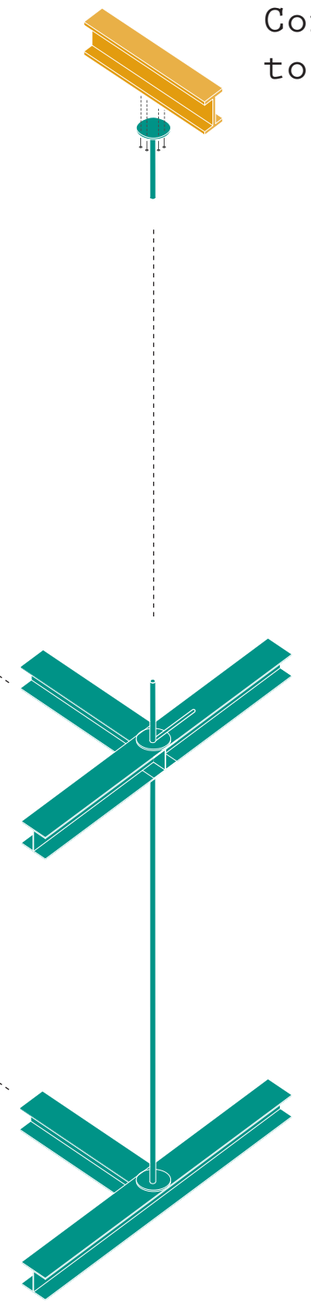


5. Hang curtain wall

Connection
to crane

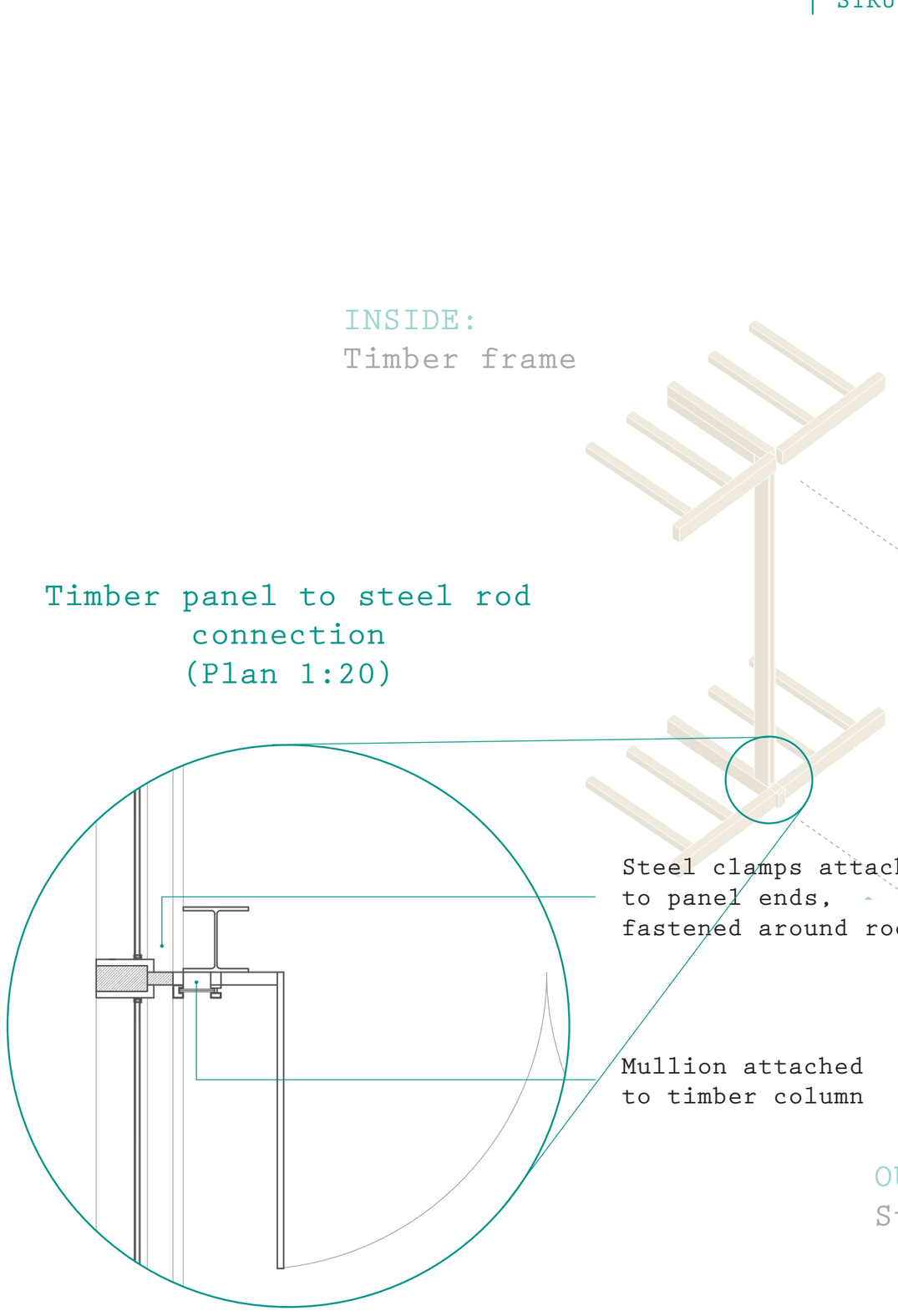
INSIDE:
Timber frame





OUTSIDE:
Steel frame

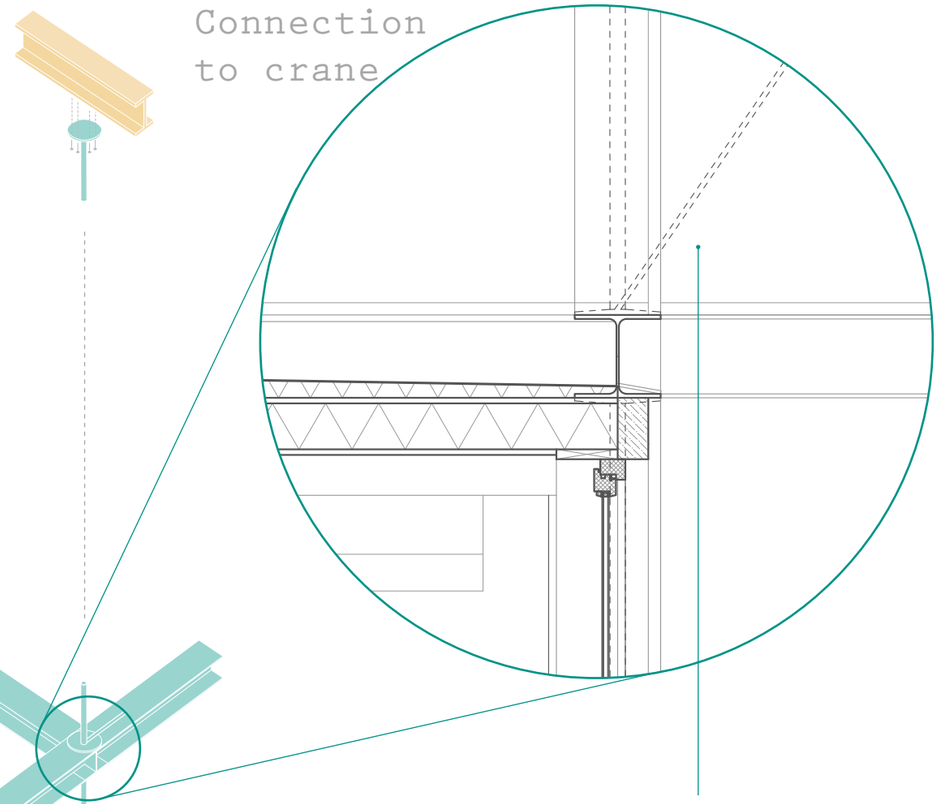
Timber panel to steel rod connection (Plan 1:20)

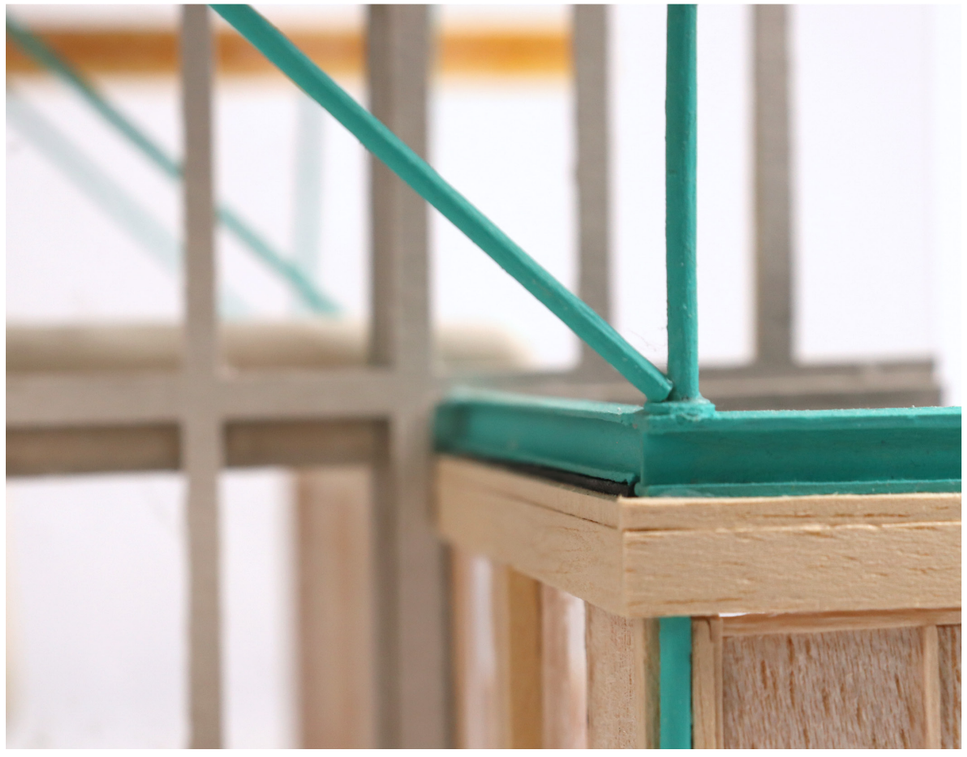


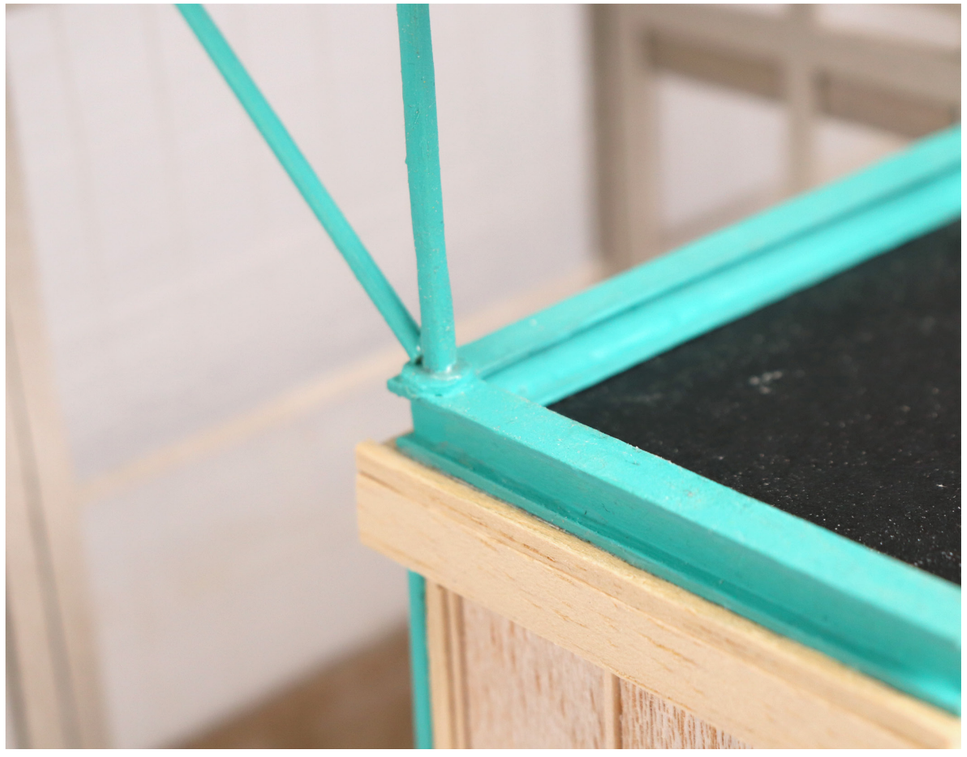
INSIDE:
Timber frame

OUTSIDE:
Steel frame

Rods and tension cables on footplate (Section 1:20)



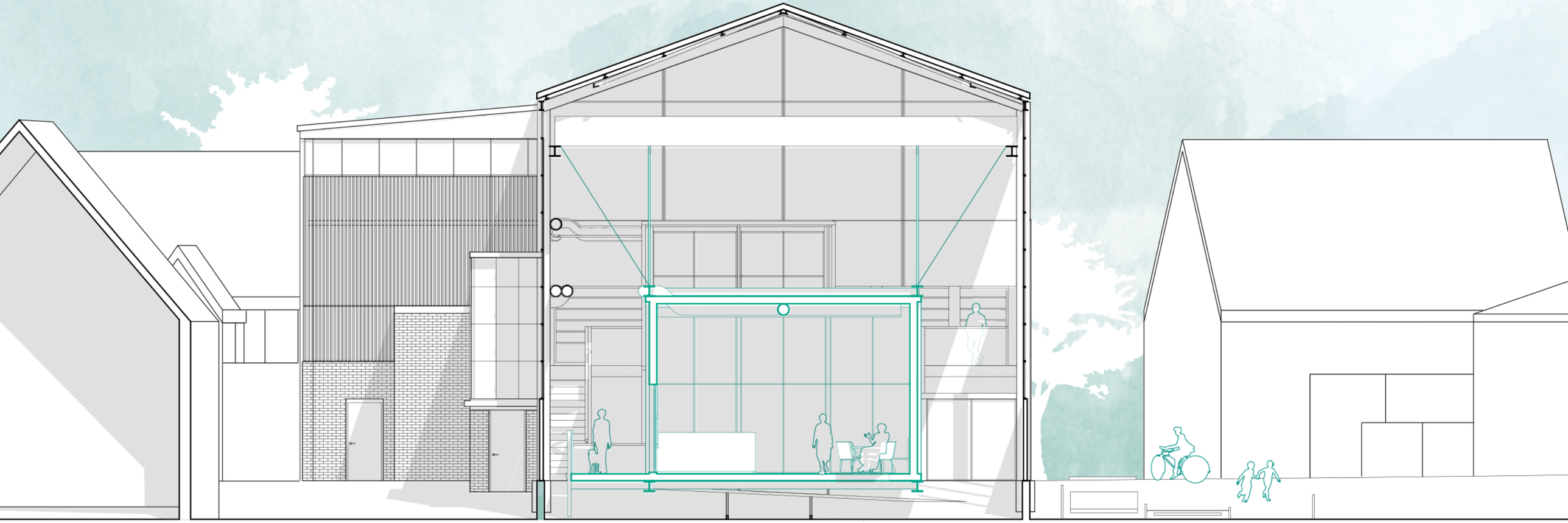




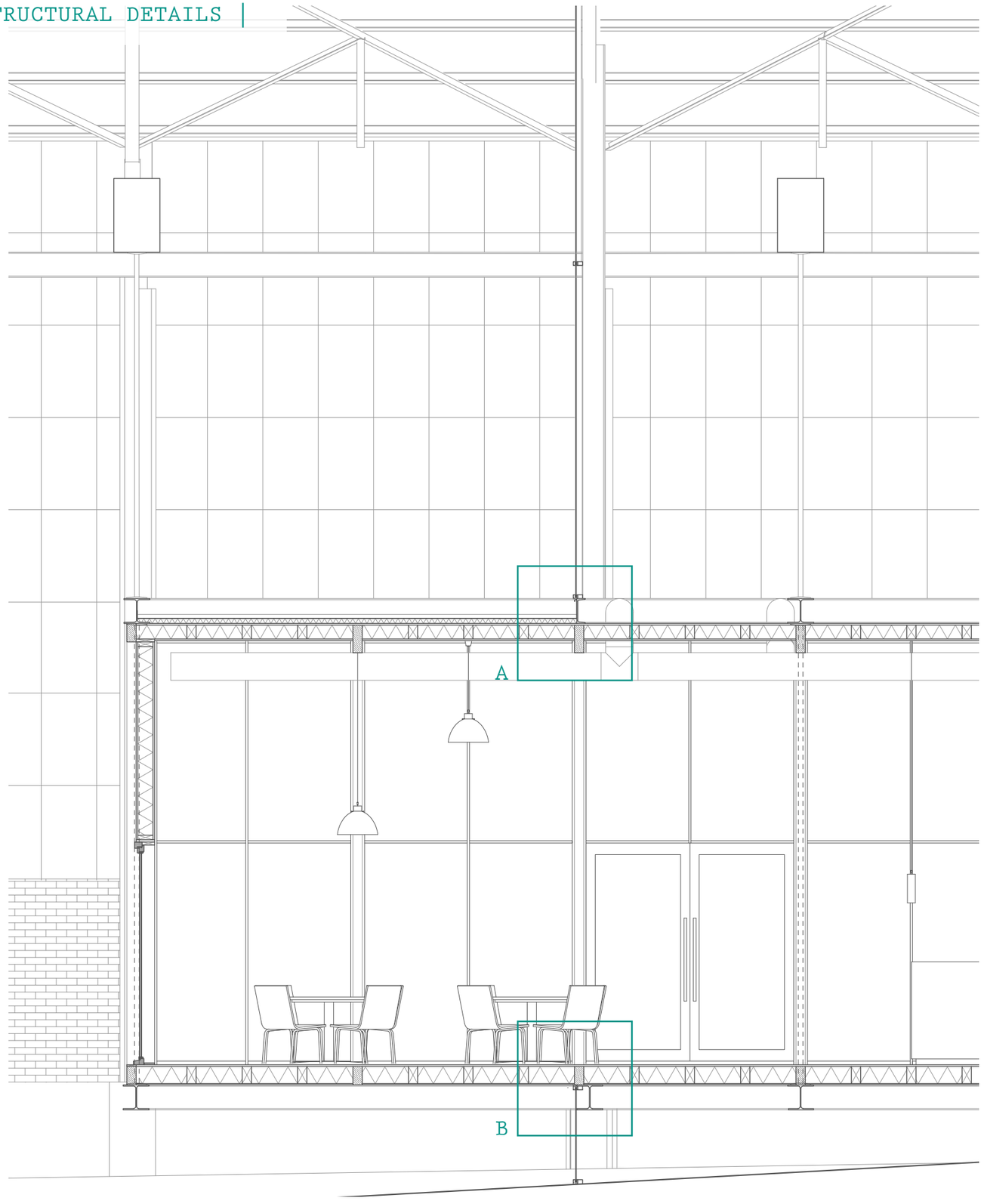
Standard column

Column and steel rod

| SECTION CAFE |

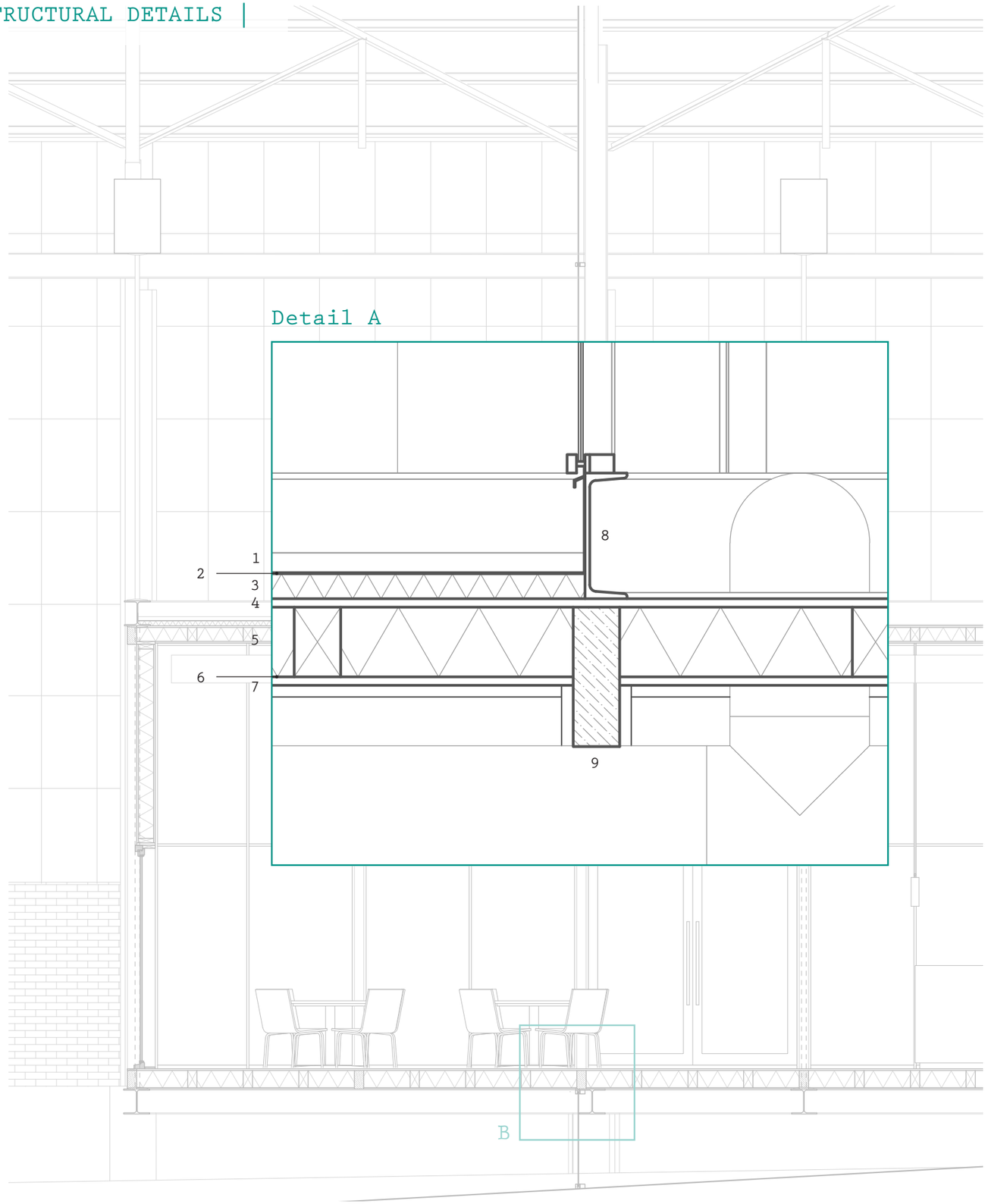


0 5 10 20m

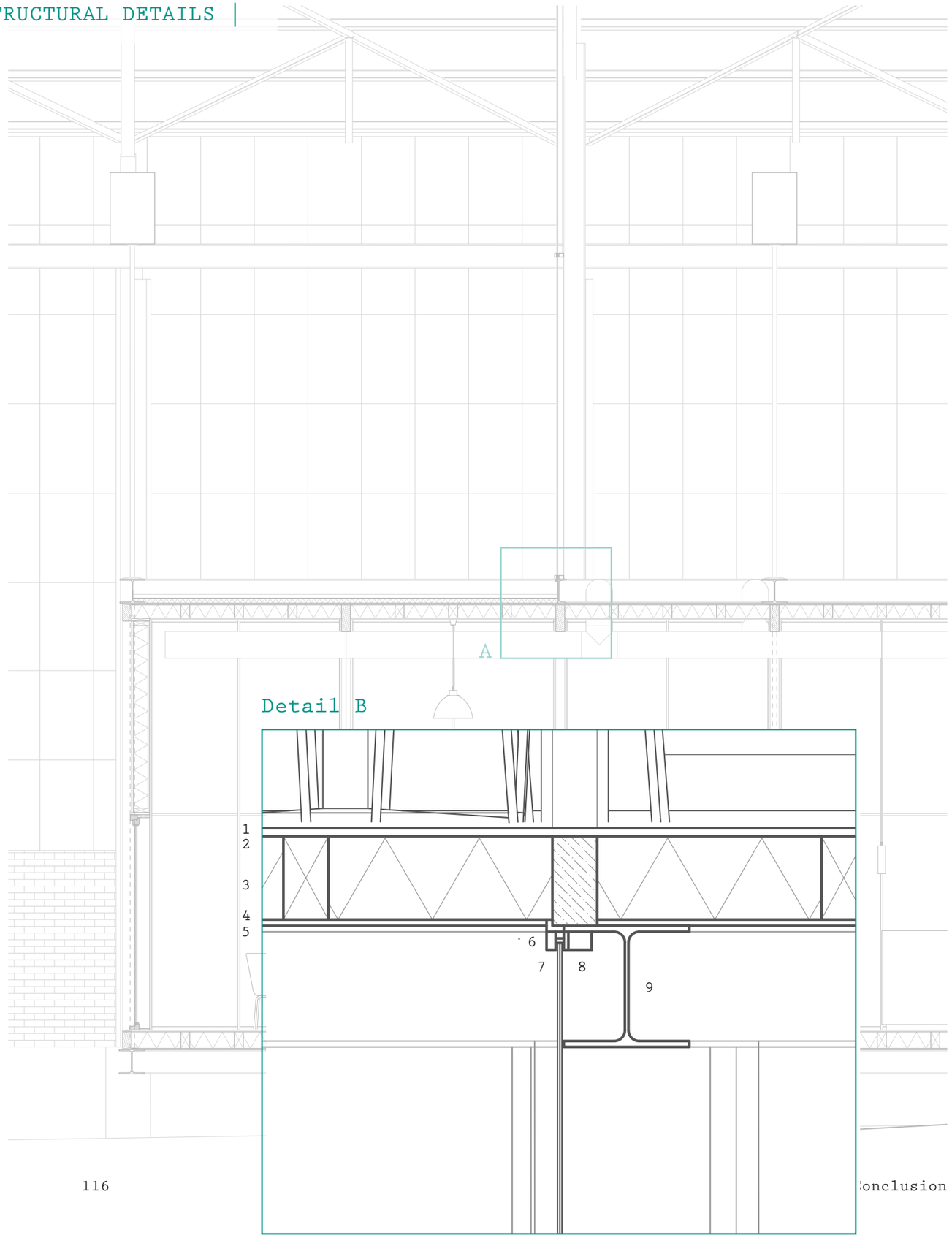


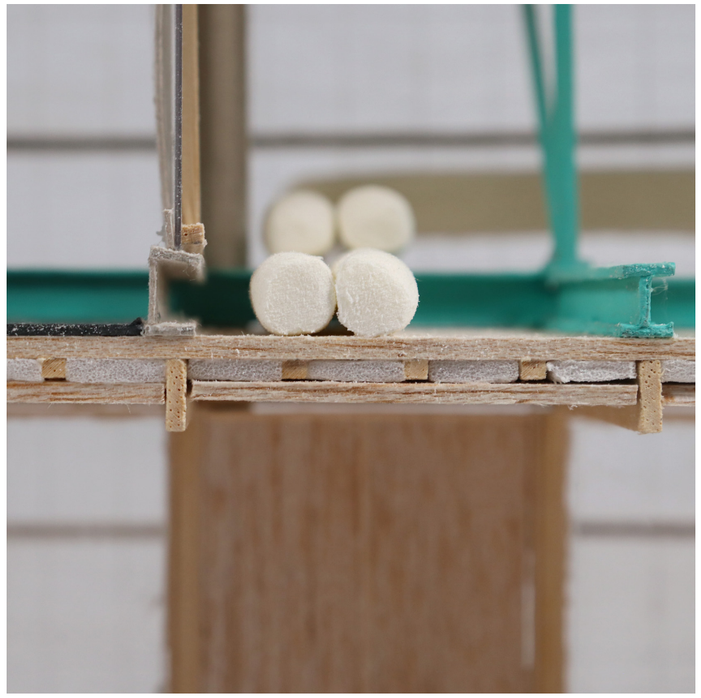
0 2.5 5 10m

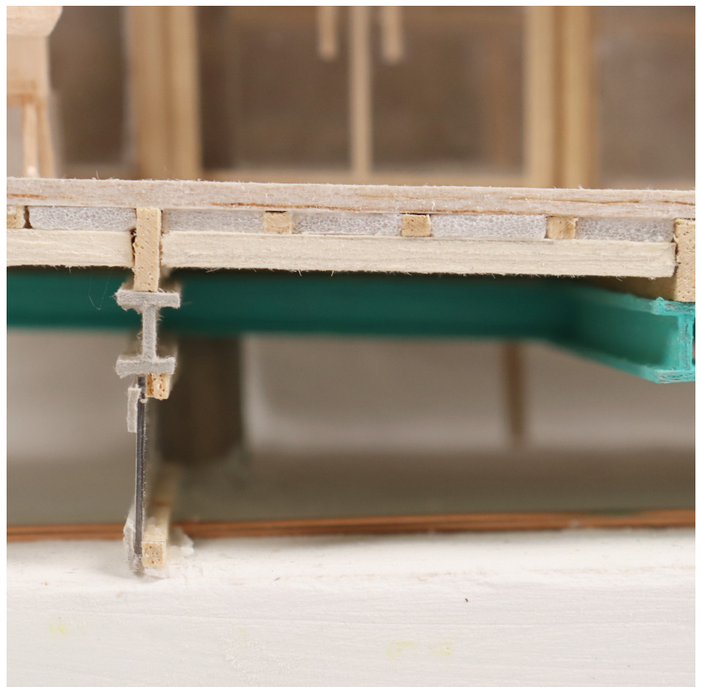
1. EPDM roofing lapped over channel
2. Damp proof membrane
3. Insulation sloped to gutters
4. 18mm ply roof deck
5. 150mm Rockwool insulation between timber rafters at 600mm centres
6. Vapour control layer
7. 22mm timber board
8. 280mm steel C-channel
9. 300 x 100mm timber primary beam



1. Engineered oak timber floor
2. Vapour control layer
3. 180mm Rockwool insulation between timber joists
4. 22mm timber board
5. Damp proof membrane
6. Aluminium curtain wall mullion (out)
7. Double glazed curtain wall
8. Timber curtain wall mullion (in)
9. HEA 280 beam







3. DESIGN

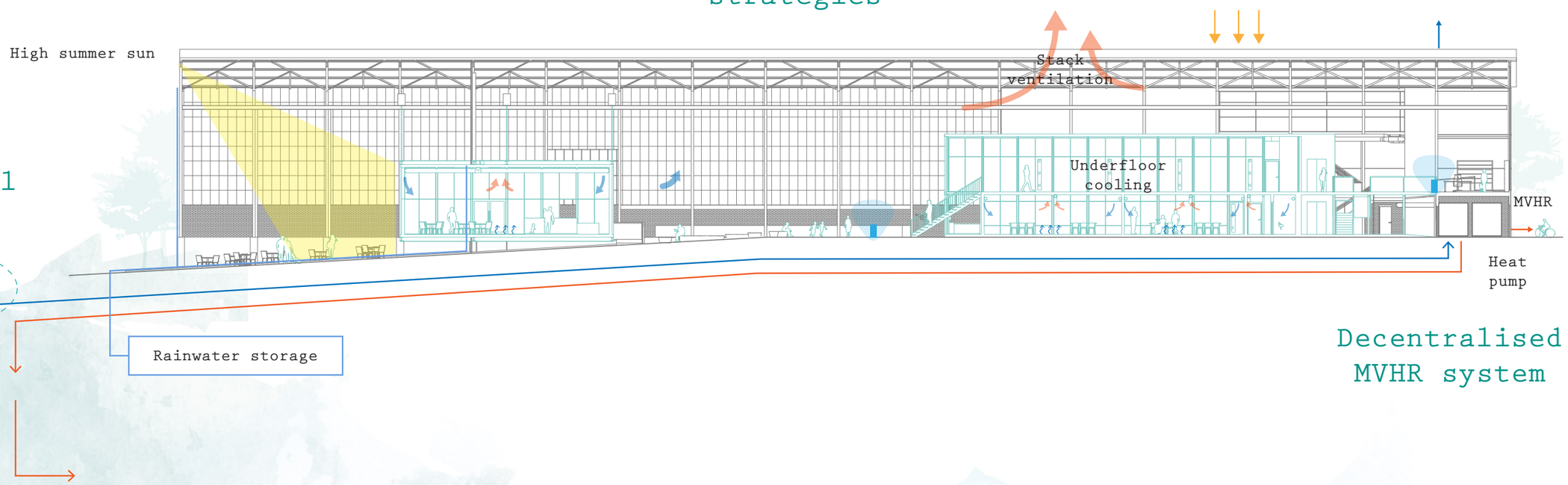
3.4 climate design

PV panels (south)

Mono-crystalline silicon solar panels
(385 x 1.65m2/module)

up to 99.95 MWh/year produced
(peak in May/June)

Localised cooling strategies



Decentralised MVHR system

Localised heating strategies

Stack ventilation

PV panels (south)

Low winter sun

Underfloor heating

MVHR

Heat pump

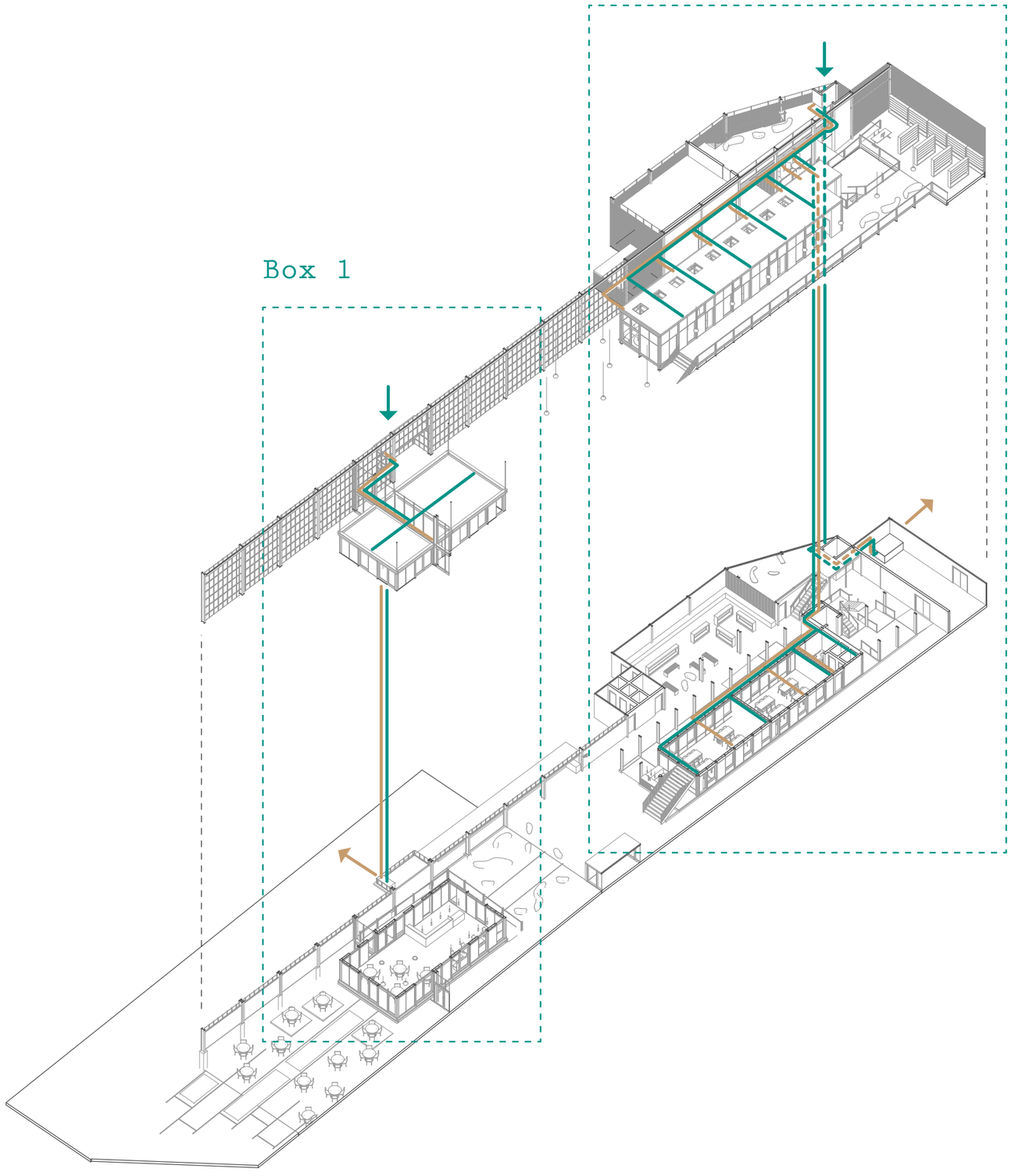
Aquathermal heating

Wetland as filter

Heat exchanger

Rainwater storage

Decentralised MVHR system



Fresh air intake
through roof

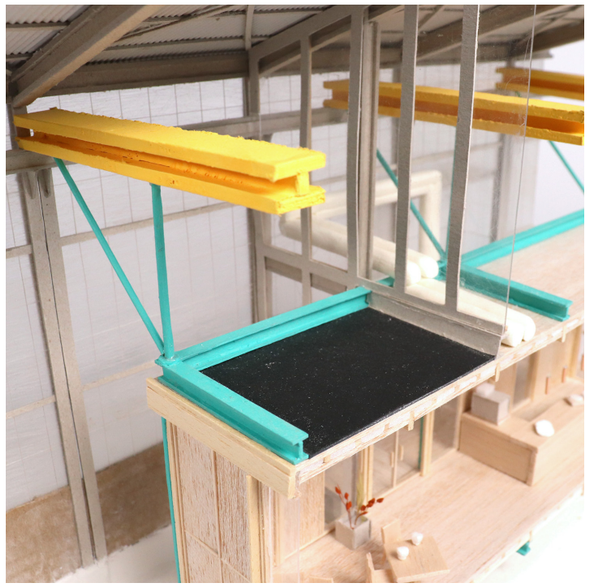
Stale air output
though grill

4. CONCLUSION

Maritime history + connection to water

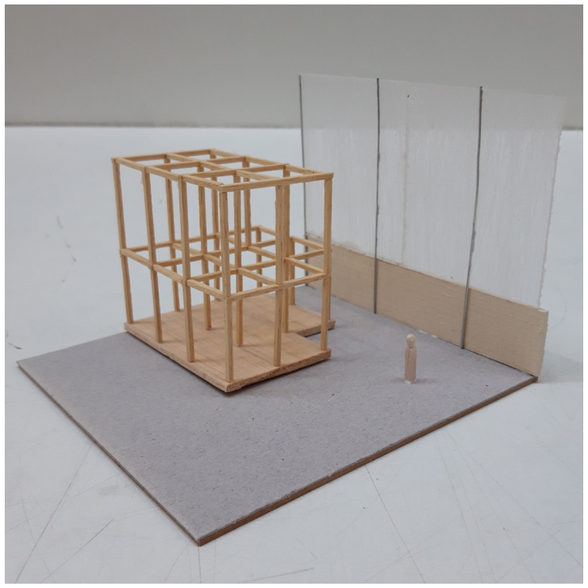
Mismatched character of residential and industry

Existing maritime structures

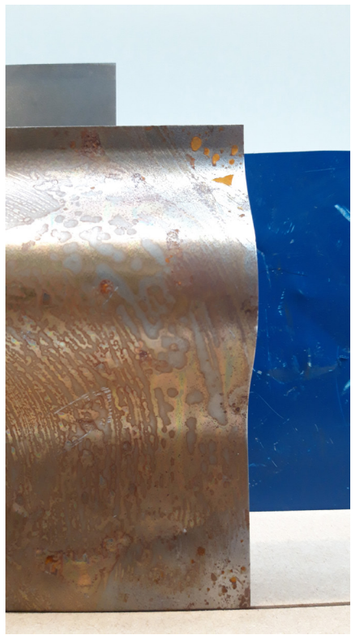


Heritage building vs new-build in water education?

Solrødgård
new-build



Willemsoord
heritage



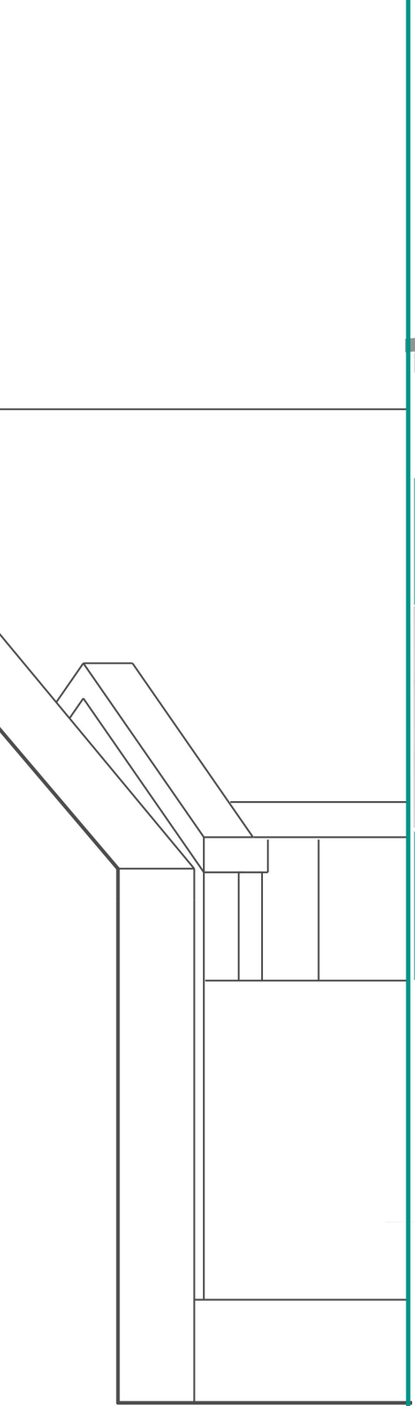
interpreting
values

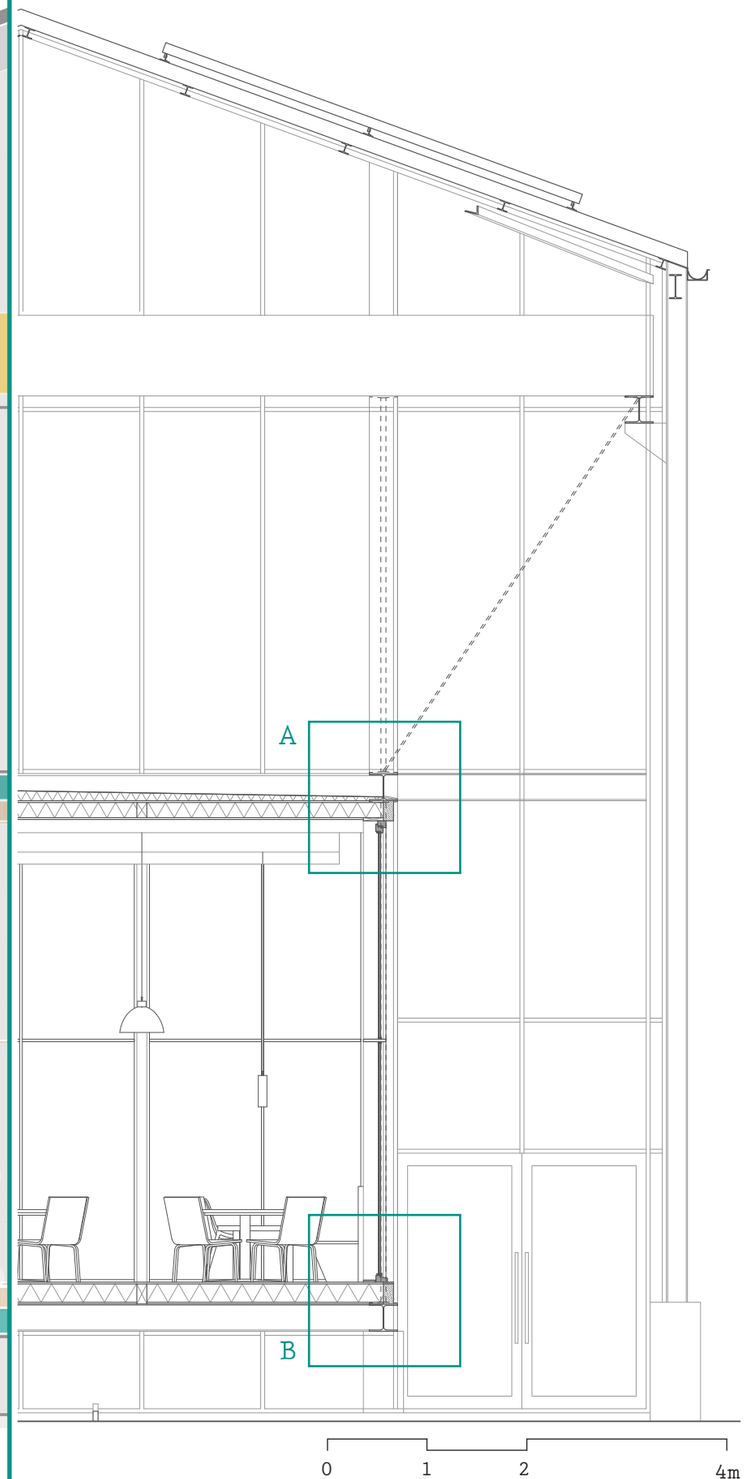
the beauty of
simplicity

learning
through making

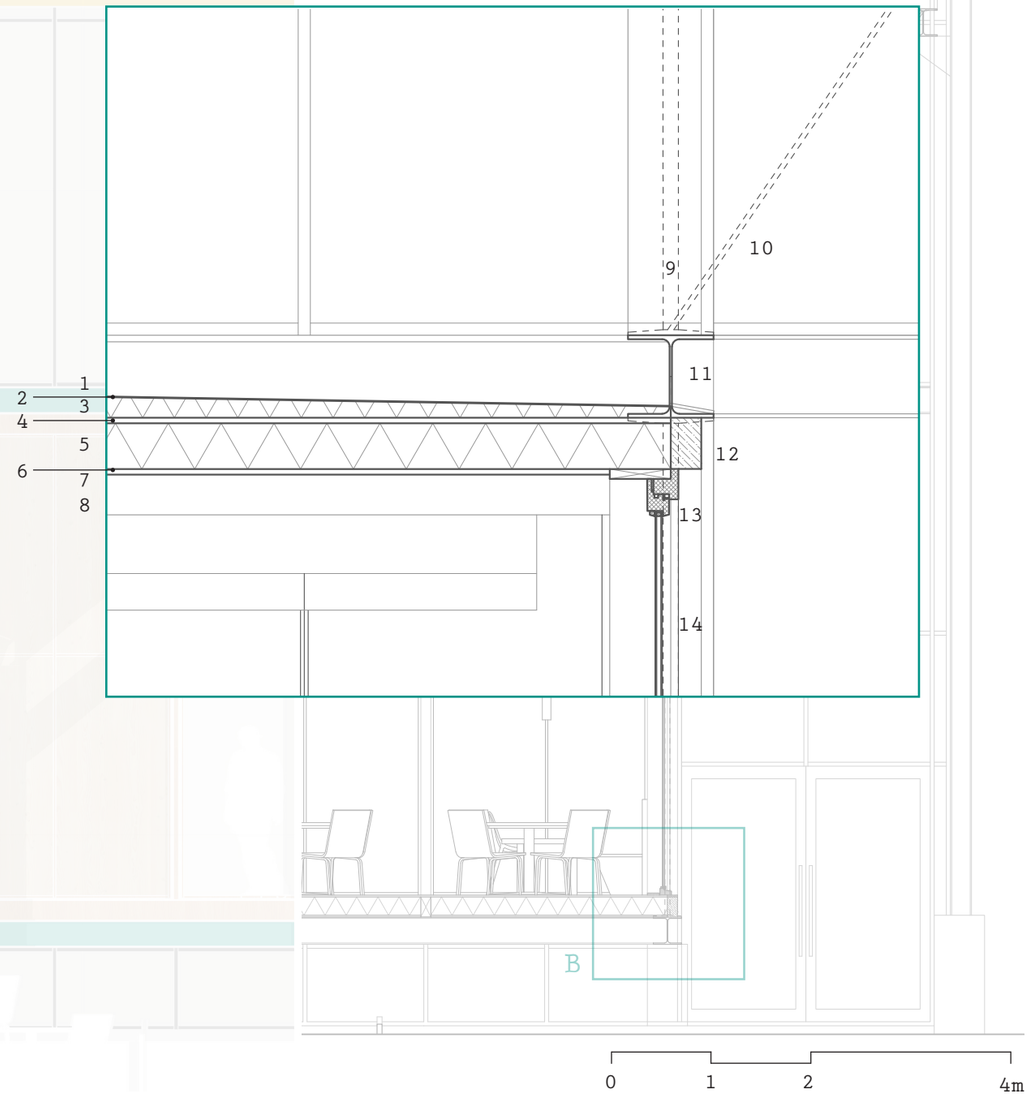

THANK YOU!

| FACADE DETAILS |





Detail A



1. EPDM roofing
2. Damp proof membrane
3. Insulation sloped to gutters at 10mm per 1m
4. 18mm ply roof deck
5. 150mm Rockwool insulation between timber rafters at 600mm centres
6. Vapour control layer
7. 22mm timber board
8. 300mm timber primary beam
9. Steel rod fixed to footplate
10. Steel tension cable fixed to footplate
11. HEA 280 beam
12. 100 x 200mm timber end beam
13. Timber window frame
14. Double glazing

1. Engineered oak timber floor
2. Vapour control layer
3. 180mm Rockwool insulation between timber joists
4. 22mm timber board
5. Damp proof membrane
6. HEA 280 beam
7. Double glazed window
8. Timber window frame
9. 100 x 200mm timber end beam
10. HEA 280 beam