

WASTE UPCYCLING CENTER

Towards a waste-free city



Complex Project	AMS MID-CITY
MSc4	P5 Presentation
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Student Number	4596854
Tutor	Olindo Caso & Gilbert Koskamp
Date	11-07-2018

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I. Theme

II. Site

III. Programme

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Content

I. Theme

Amsterdam in 2050?

housing

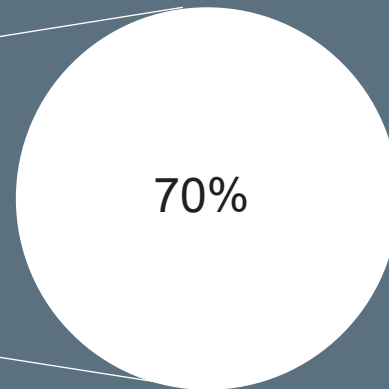
Energy

water

food

Amsterdam in 2050?

transportation



jobs



Amsterdam in 2050?

Limited Resources

Circular Economy in 2050

Ambition and goal



+



+



2020

2030

2040

2050

- **65%** separation rate of waste

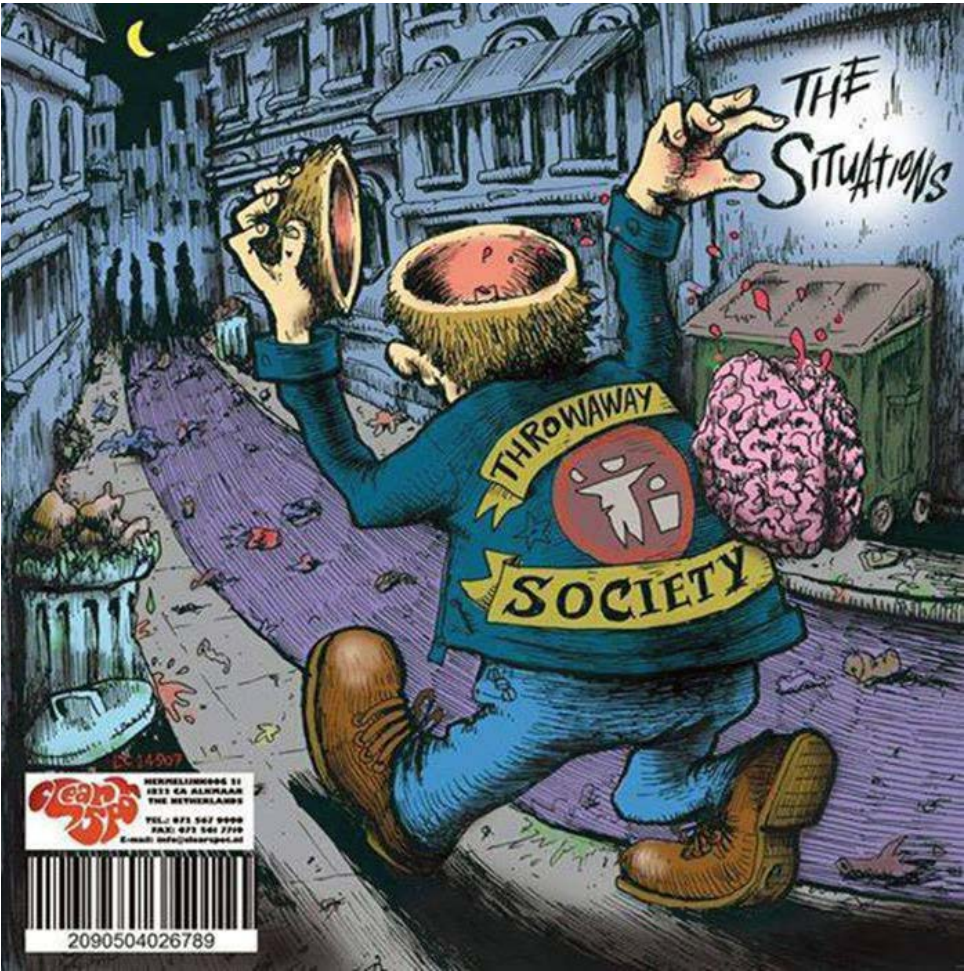
- **40%** less CO₂

- **50%** reduction in the use of primary raw materials (minerals, fossil and metals)

- **90%** separation rate of waste





- **75%** less CO₂


- nearly CO₂ emission free






2090504026789

THROW-AWAY SOCIETY

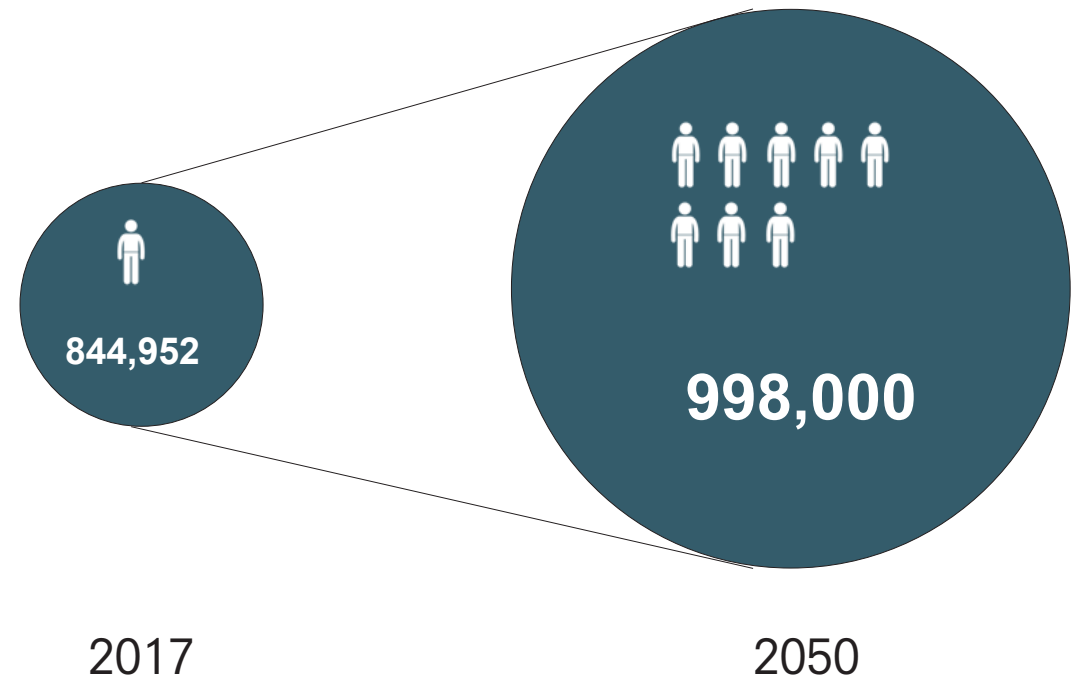
1 ×  = **497** kg of waste each year in Netherlands   

1 ×  = Dutch throw away more than **400,000** loaves of bread per day

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1 ×  = Dutch throw away more than 400,000 loaves of bread per day

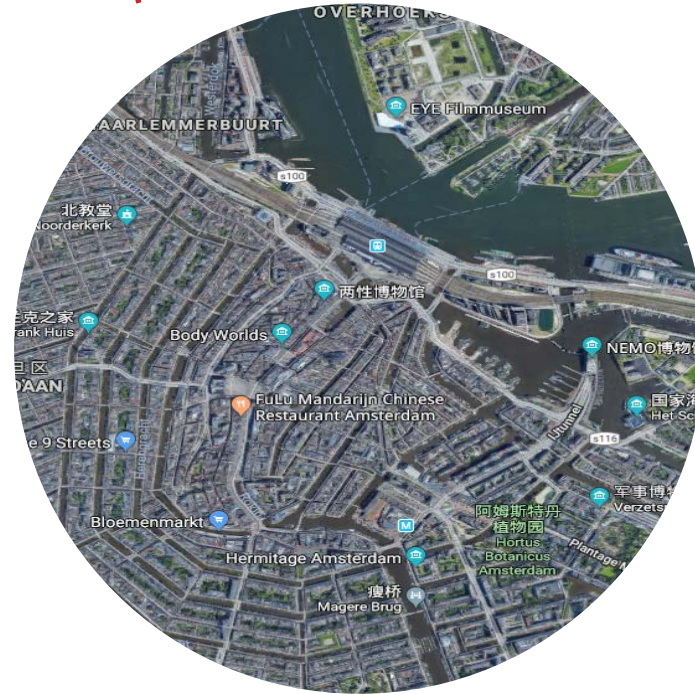
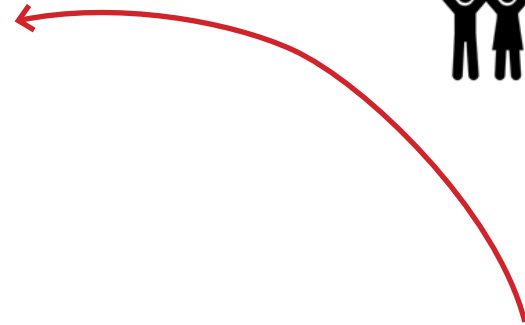
Amsterdam population



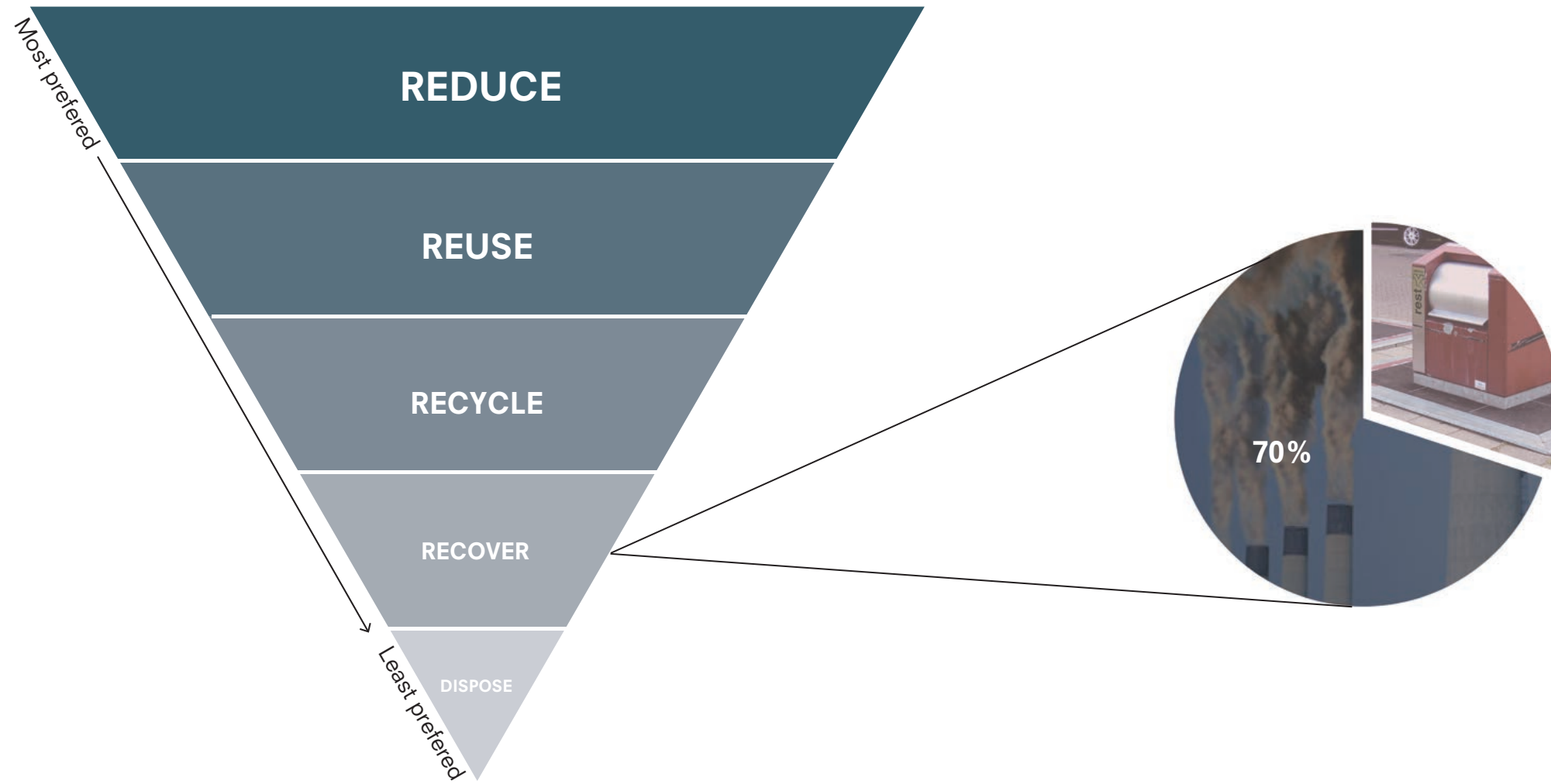
150,000 more !



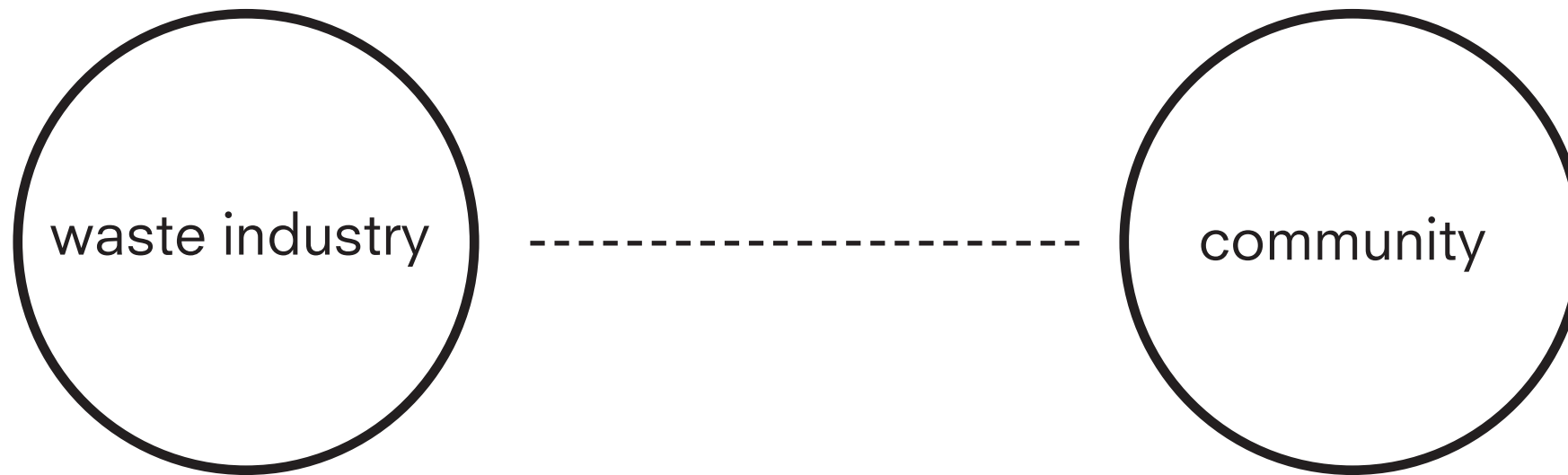
15,000 people will work and live in havenstad

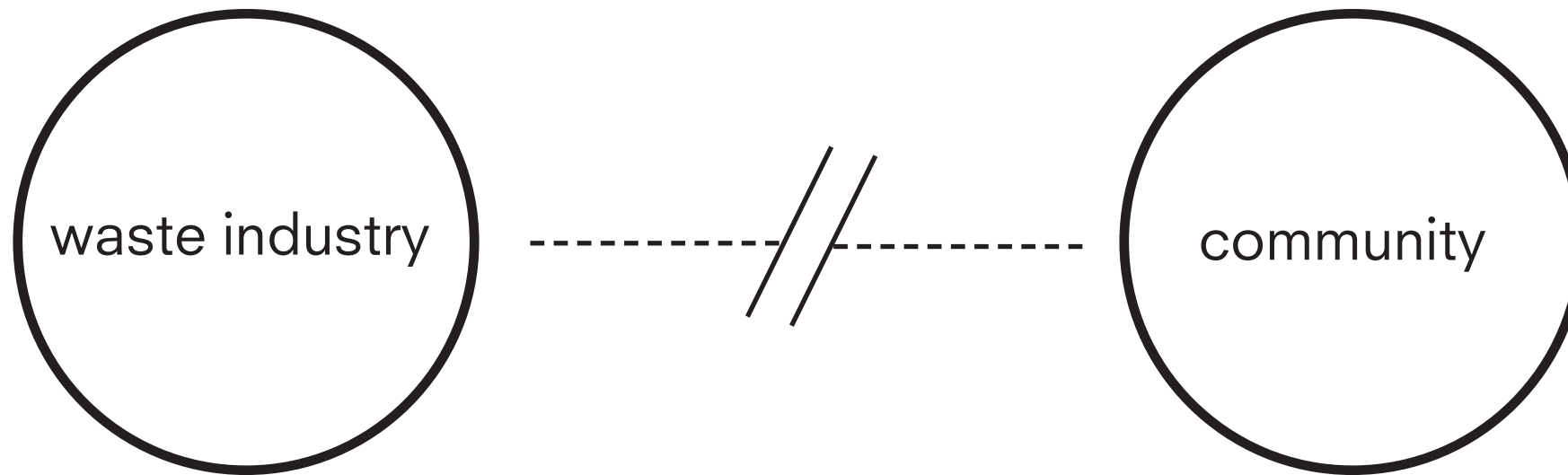


The hierarchy of waste management





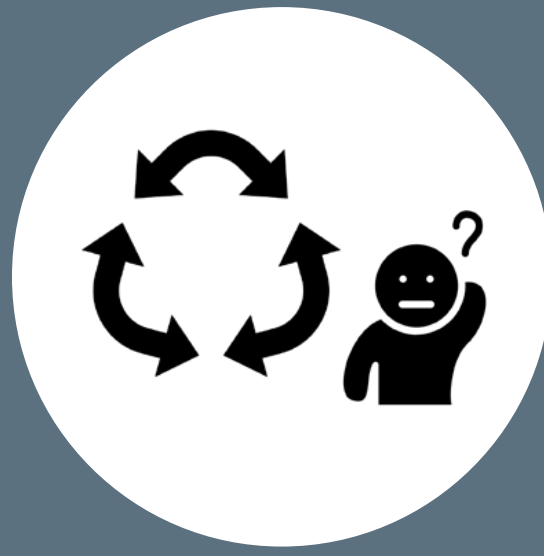




Waste as issue



Isolated



No public participation



Lower efficiency



High-density

RESEARCH QUESTION

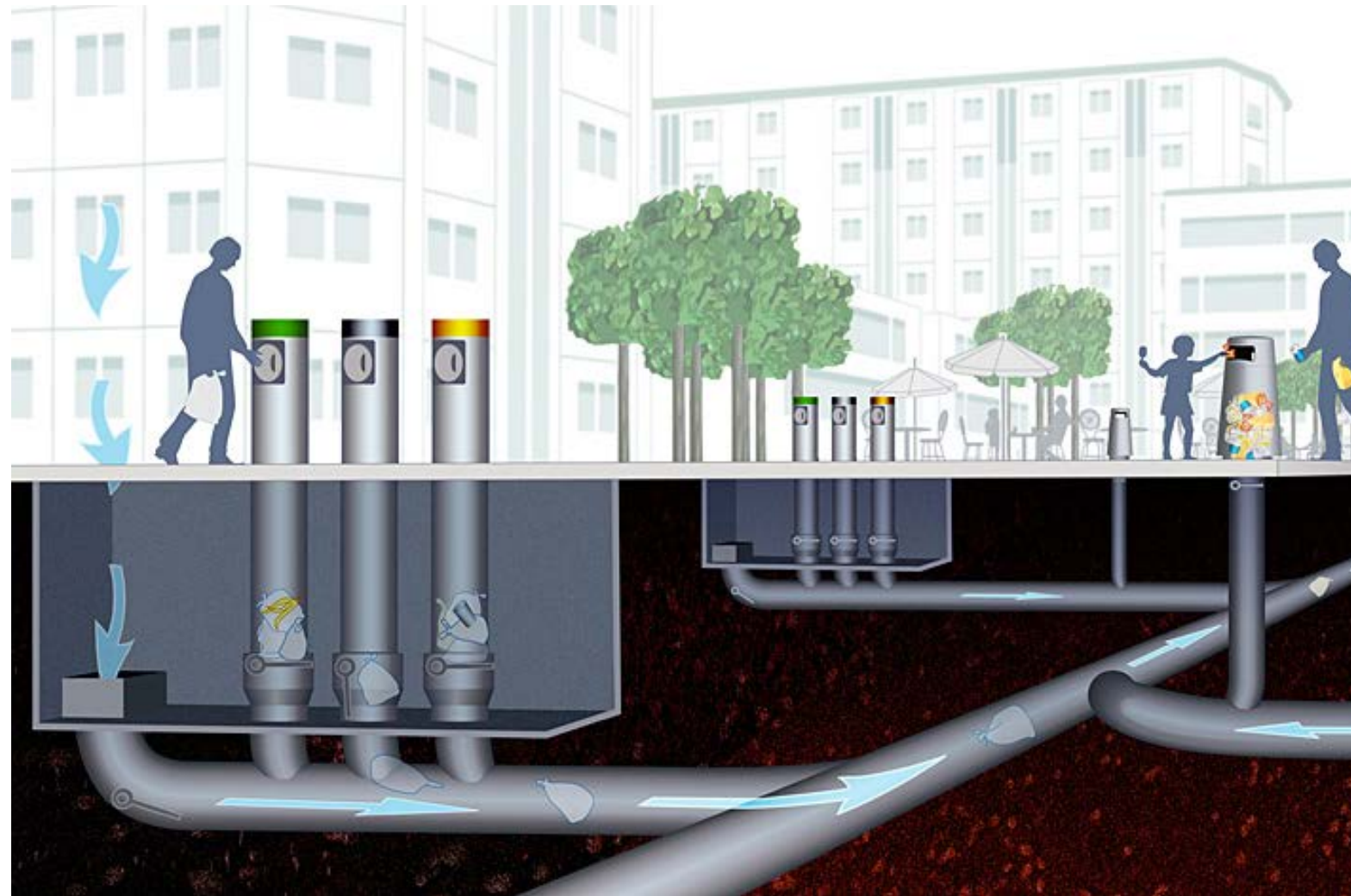
What is the new dimension for waste management in a high-density urban context and how to improve the value of waste in the framework of circular economy.



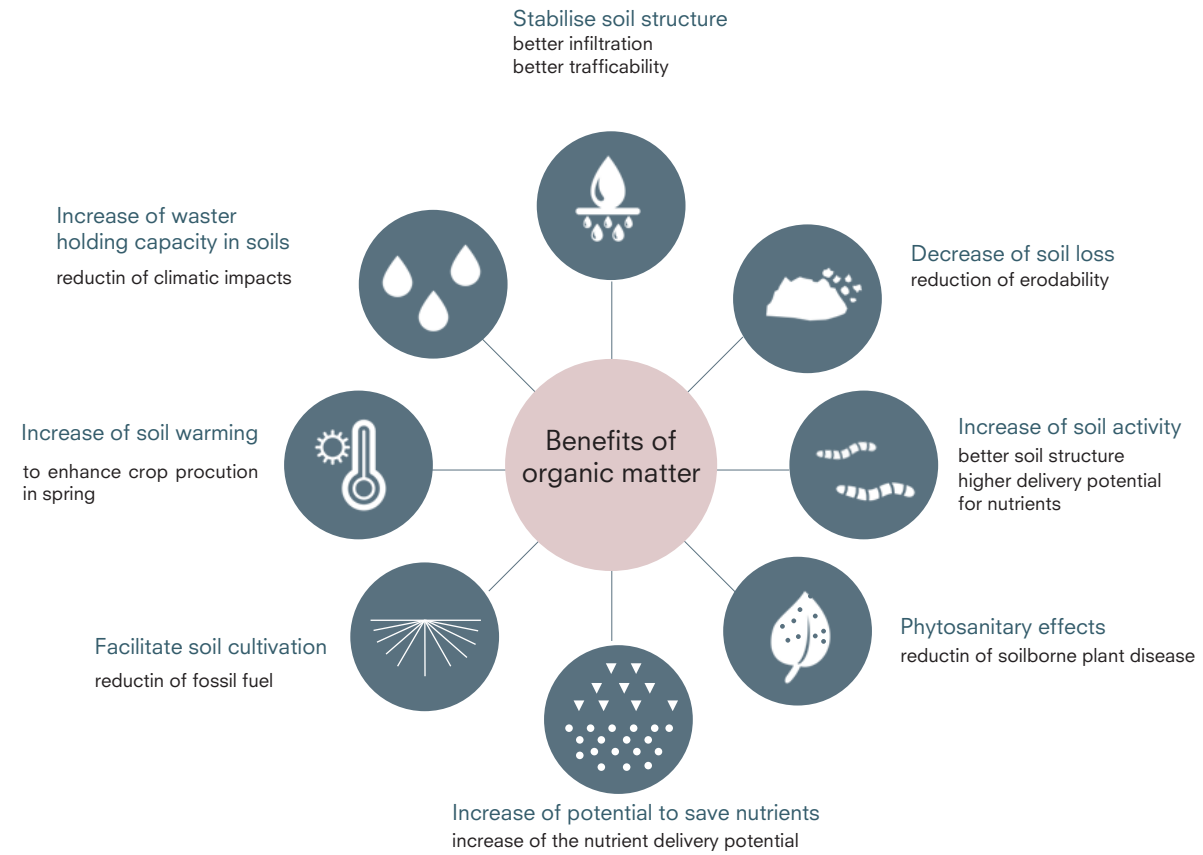


There are a lot of potentials of waste in the future

Automatic transport system underground



Composting products as soil improver



Upcycling



POTENTIAL OF WASTE



Clean



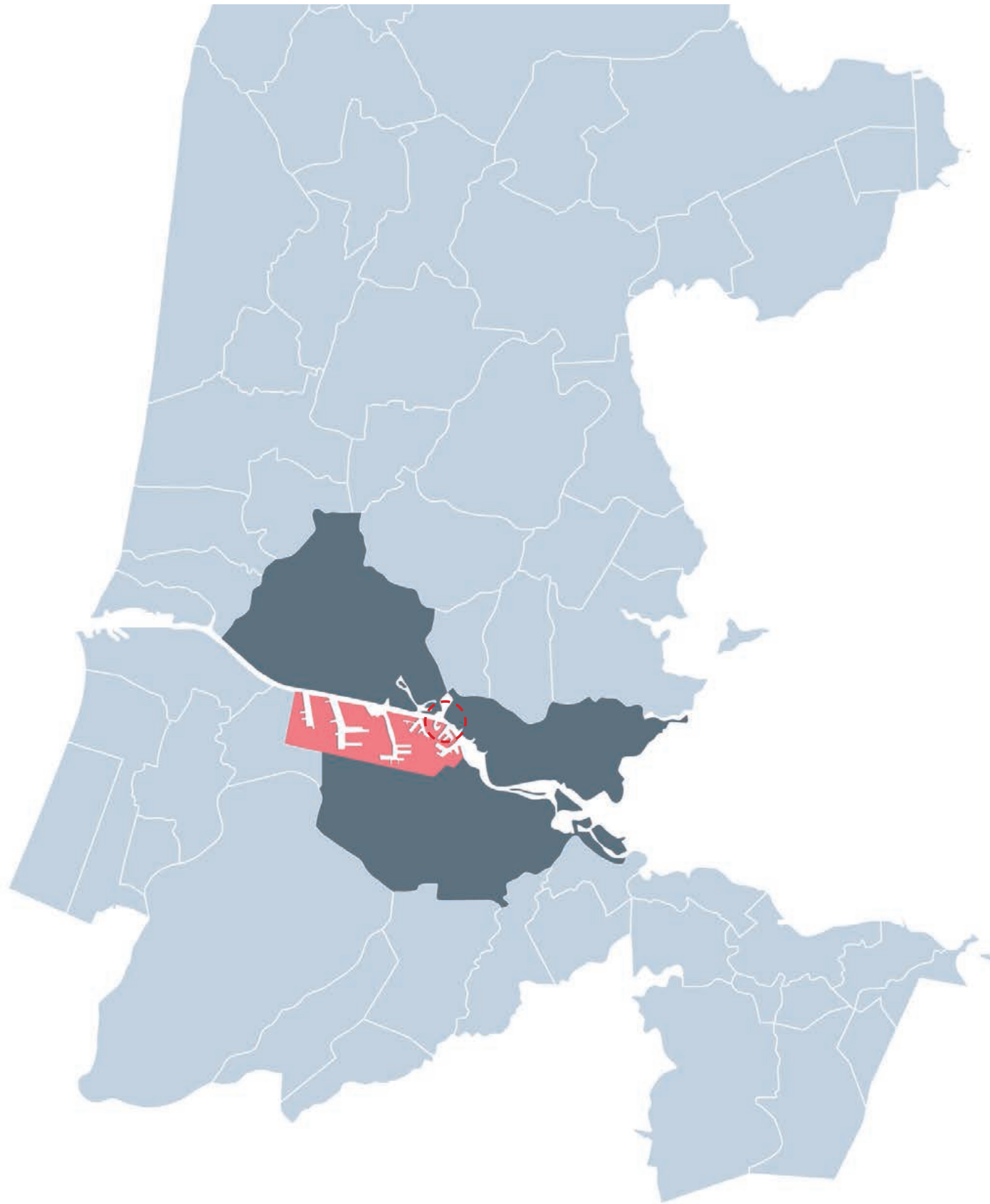
Soil quality improver



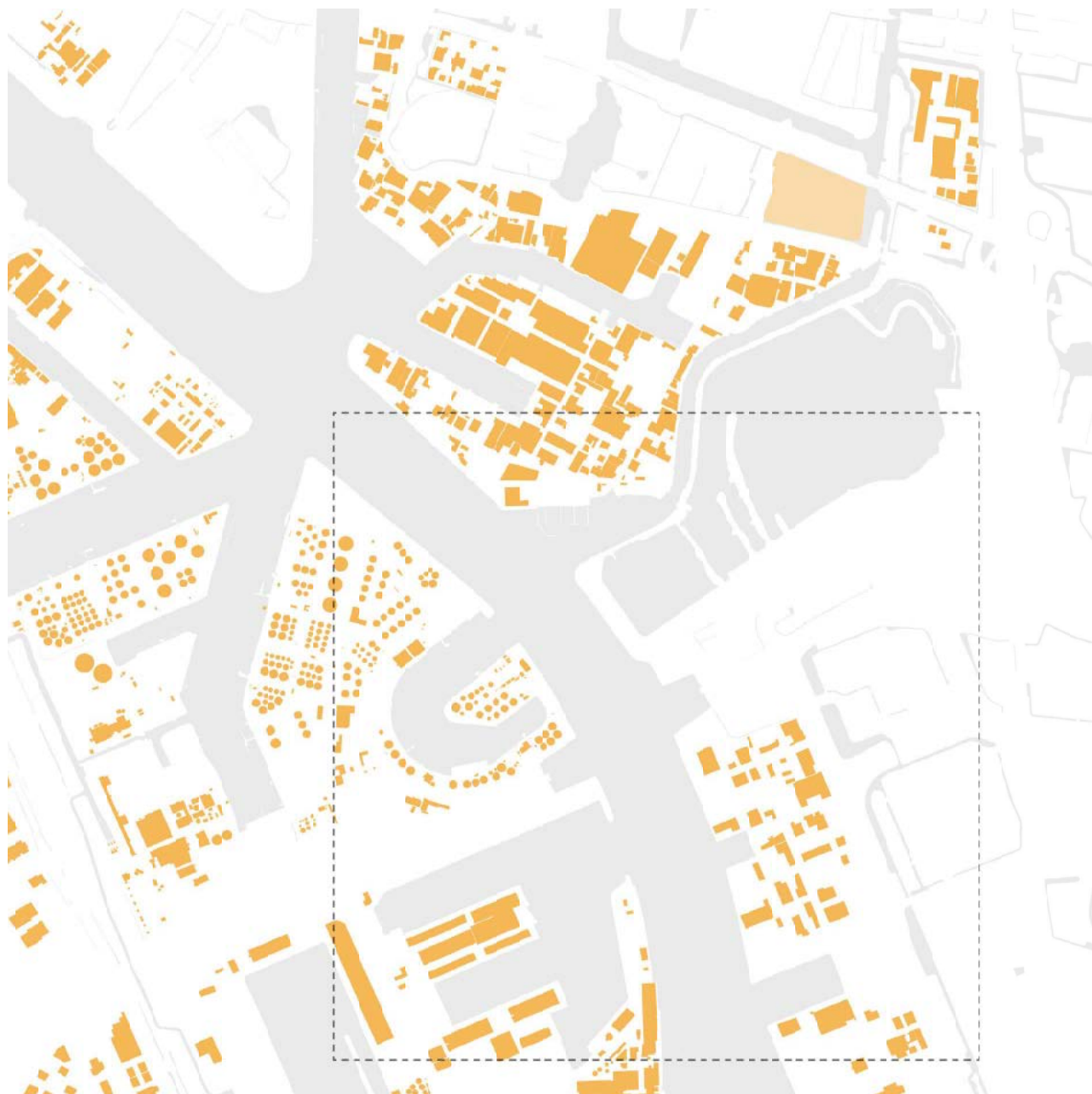
Upcycling products

Content

II. Site









Soil quality

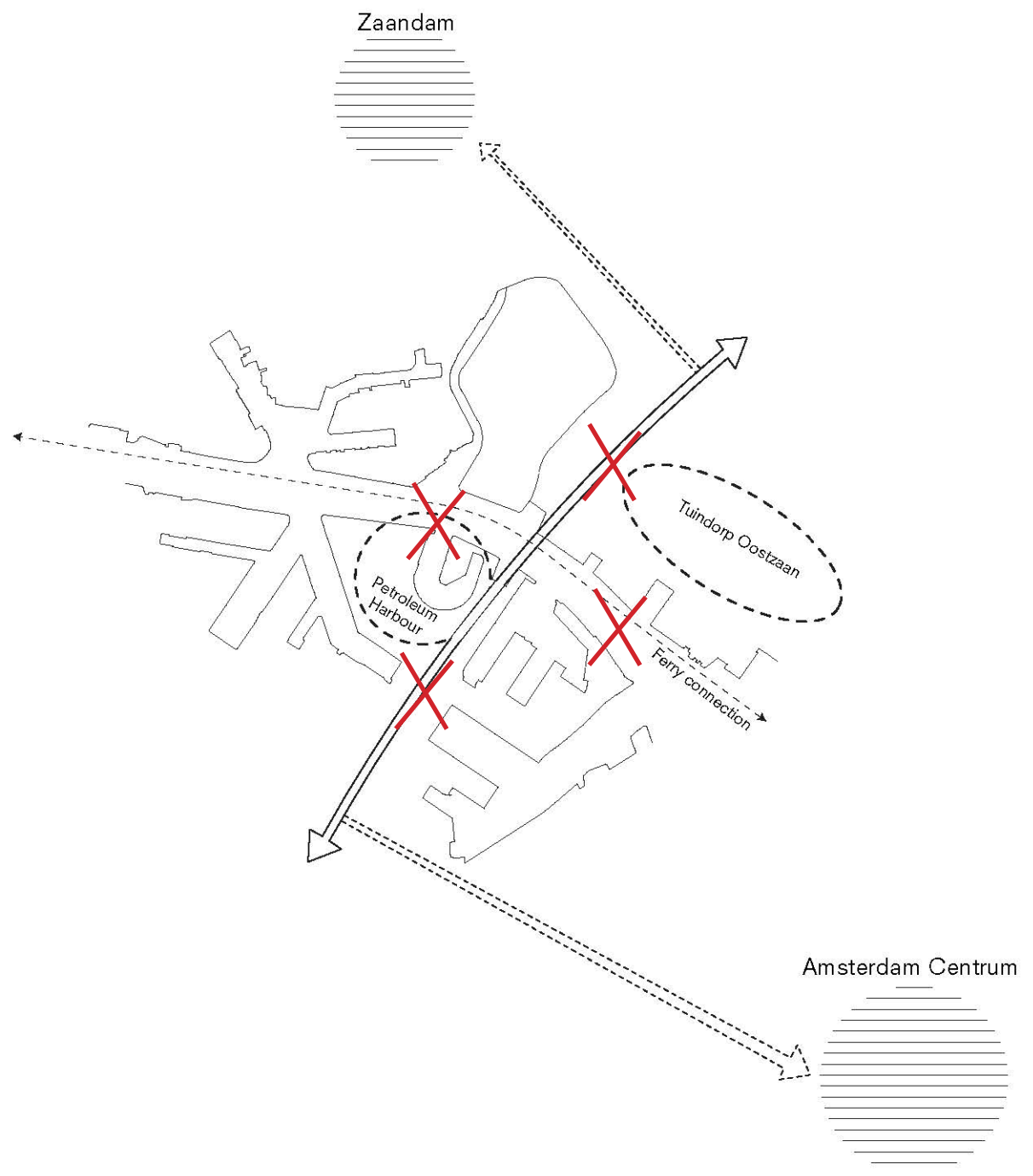


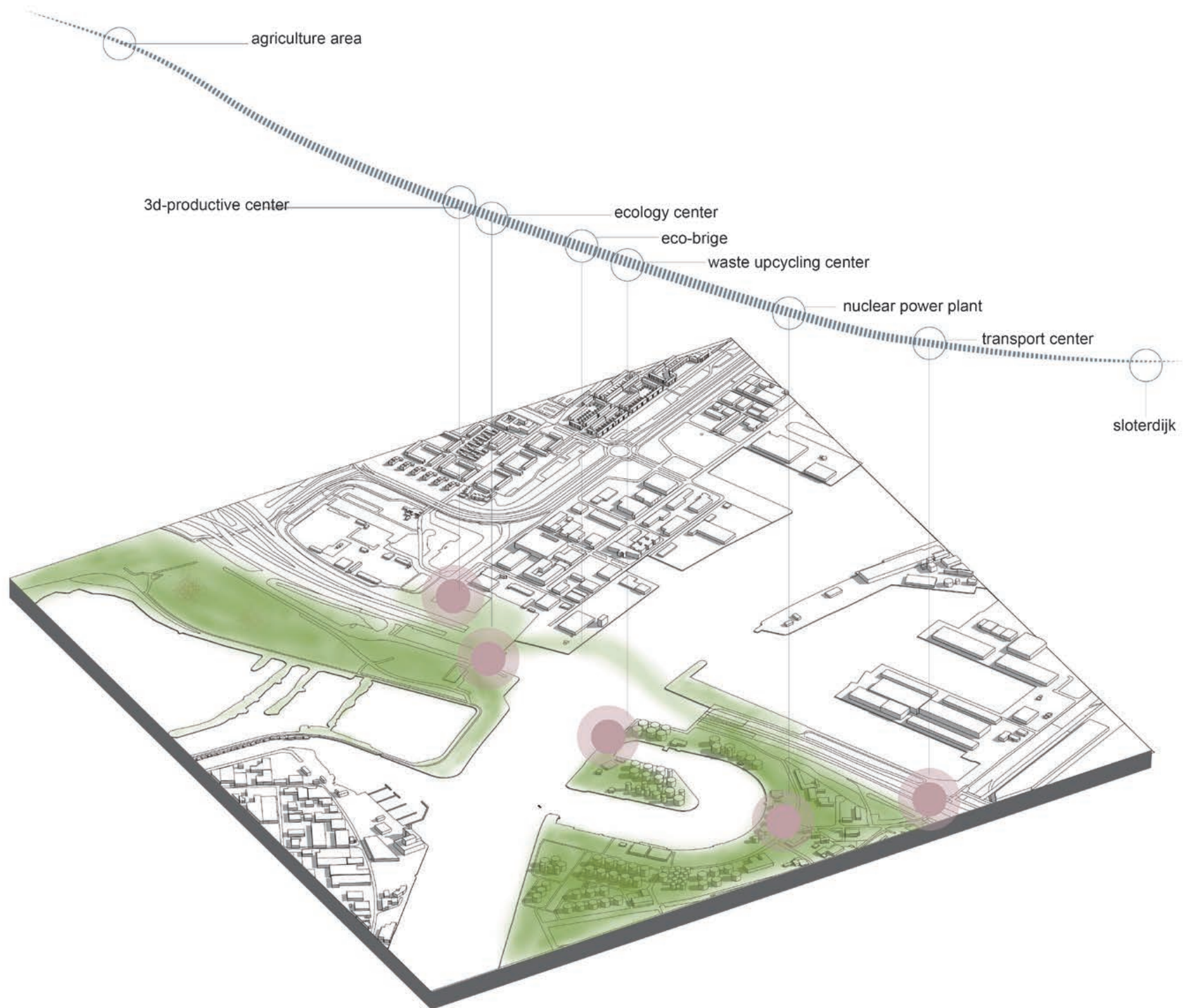
An aerial photograph of a large industrial port facility, likely a refinery or chemical plant, situated along a wide river or canal. The facility is dominated by hundreds of large, cylindrical storage tanks, many of which are white and others are grey. The tanks are arranged in organized rows and clusters across a green, landscaped area. In the background, the waterway is filled with various industrial structures, including large warehouses, cranes, and smaller buildings. The overall scene depicts a complex industrial operation in a waterfront setting.

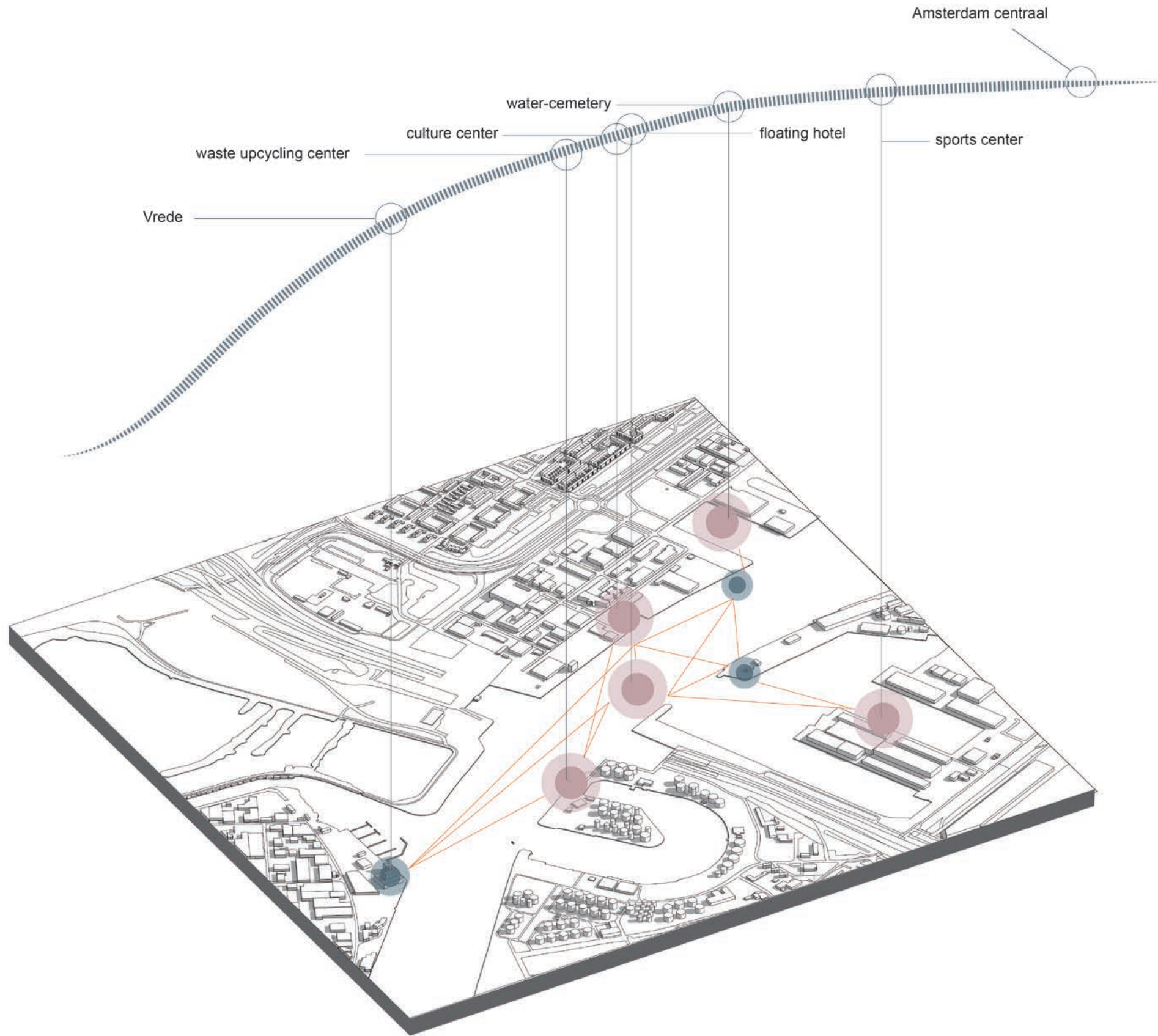
Waste is the base material in the Port of Amsterdam





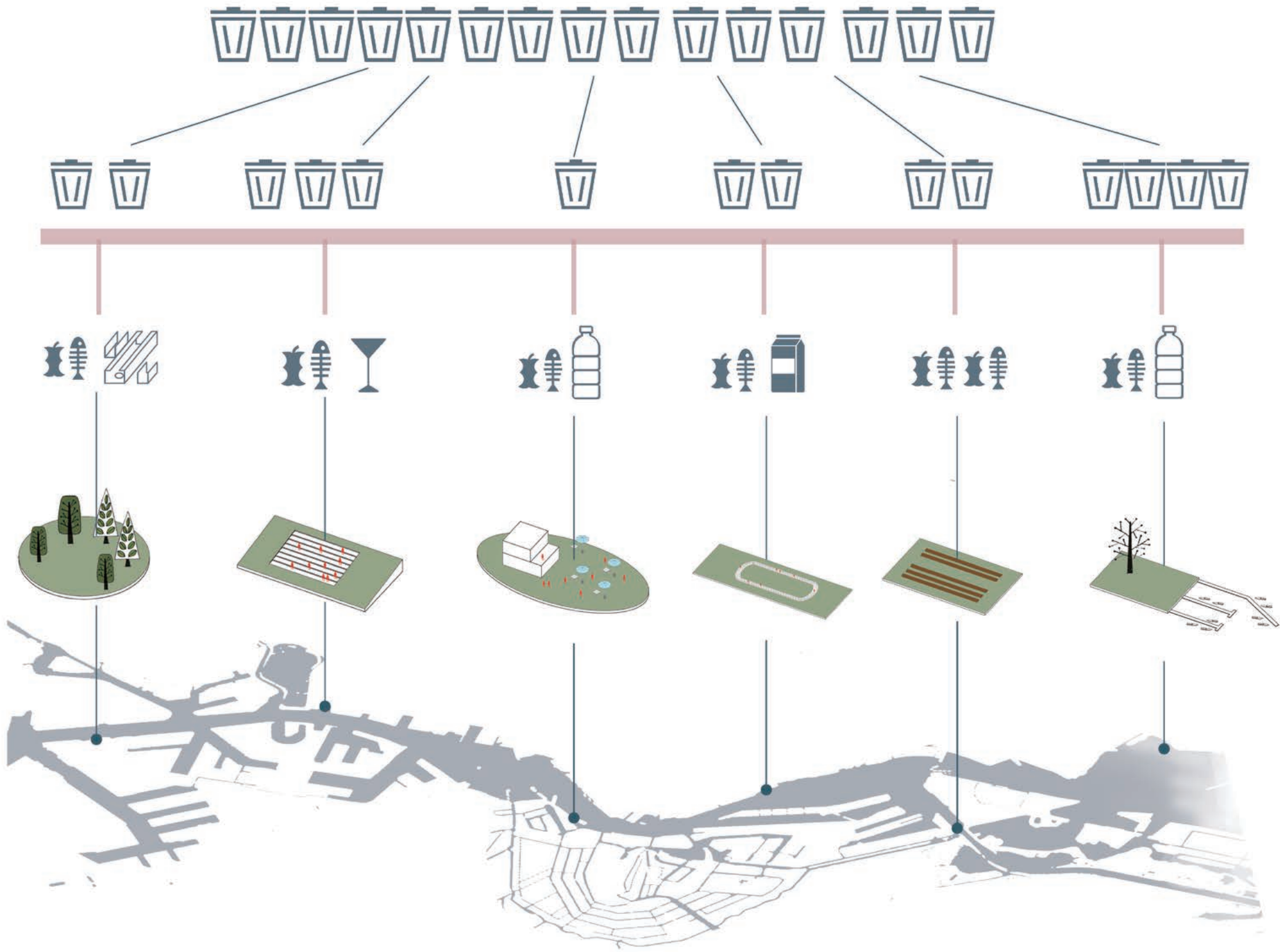






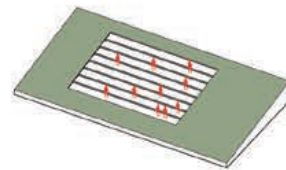
water is another building land in the future



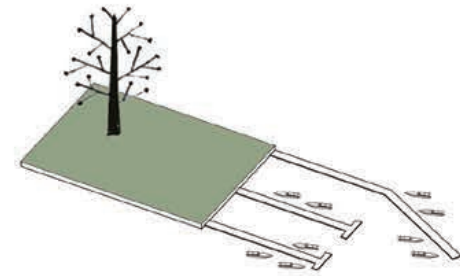




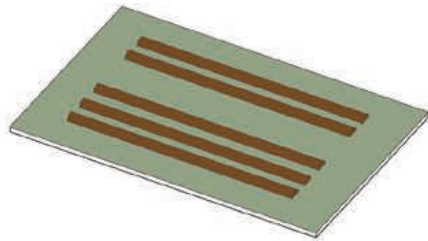
urban park



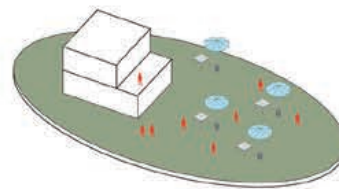
big stairs



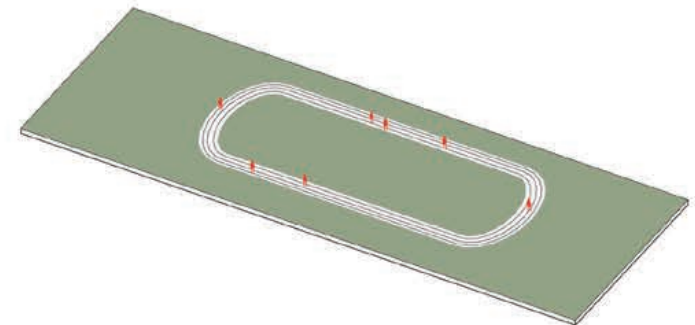
dock



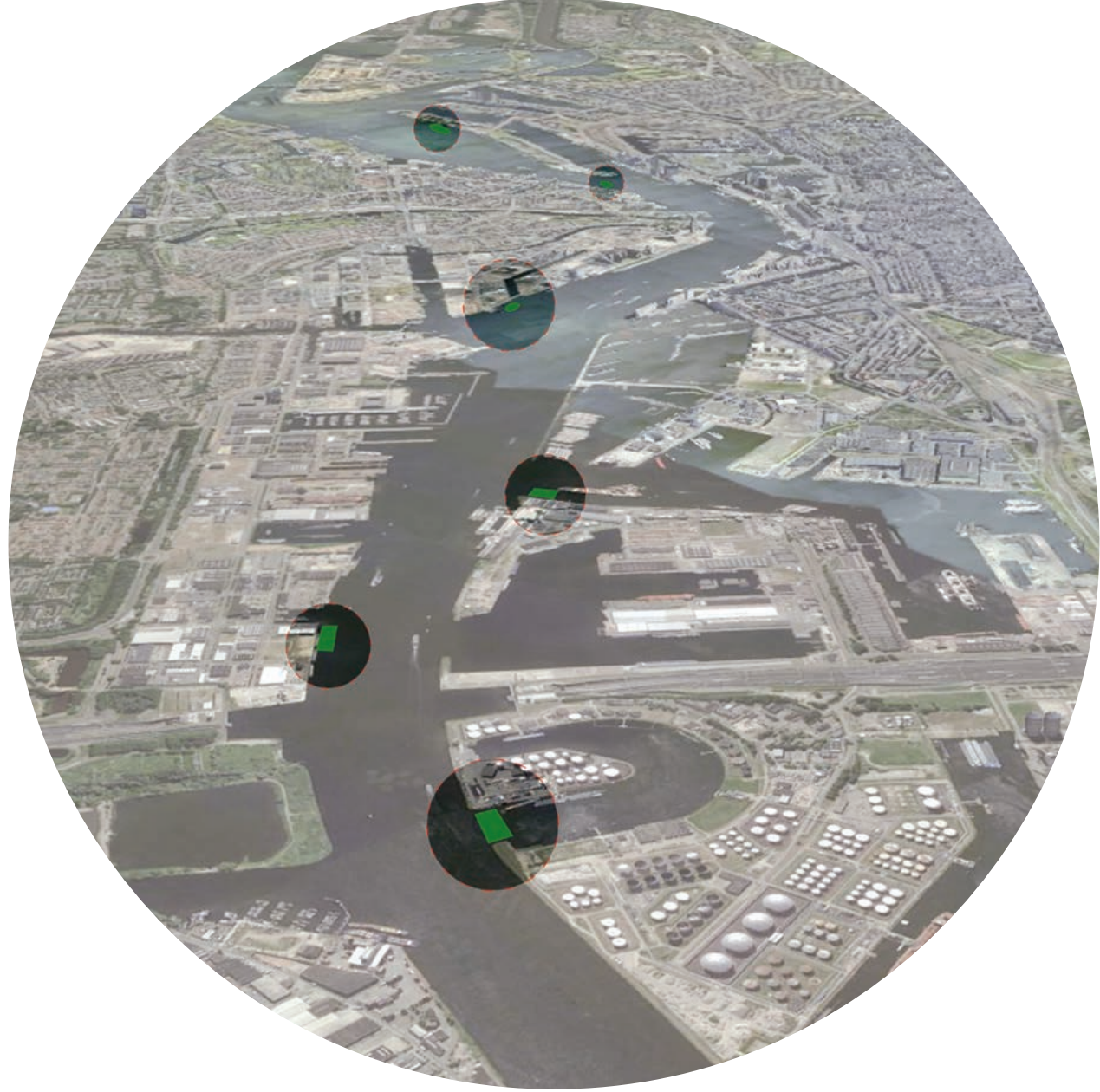
urban agriculture



cafe

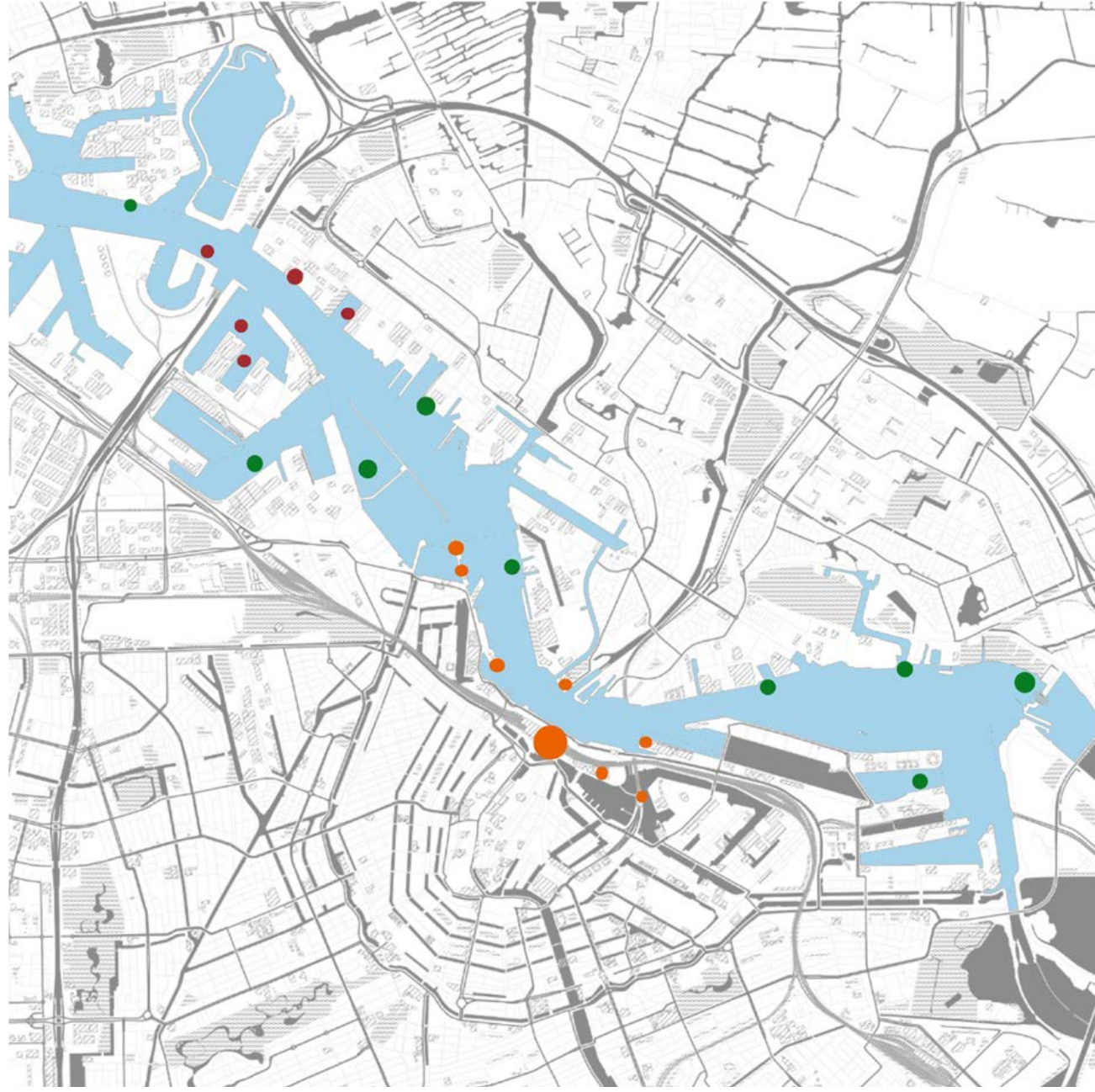


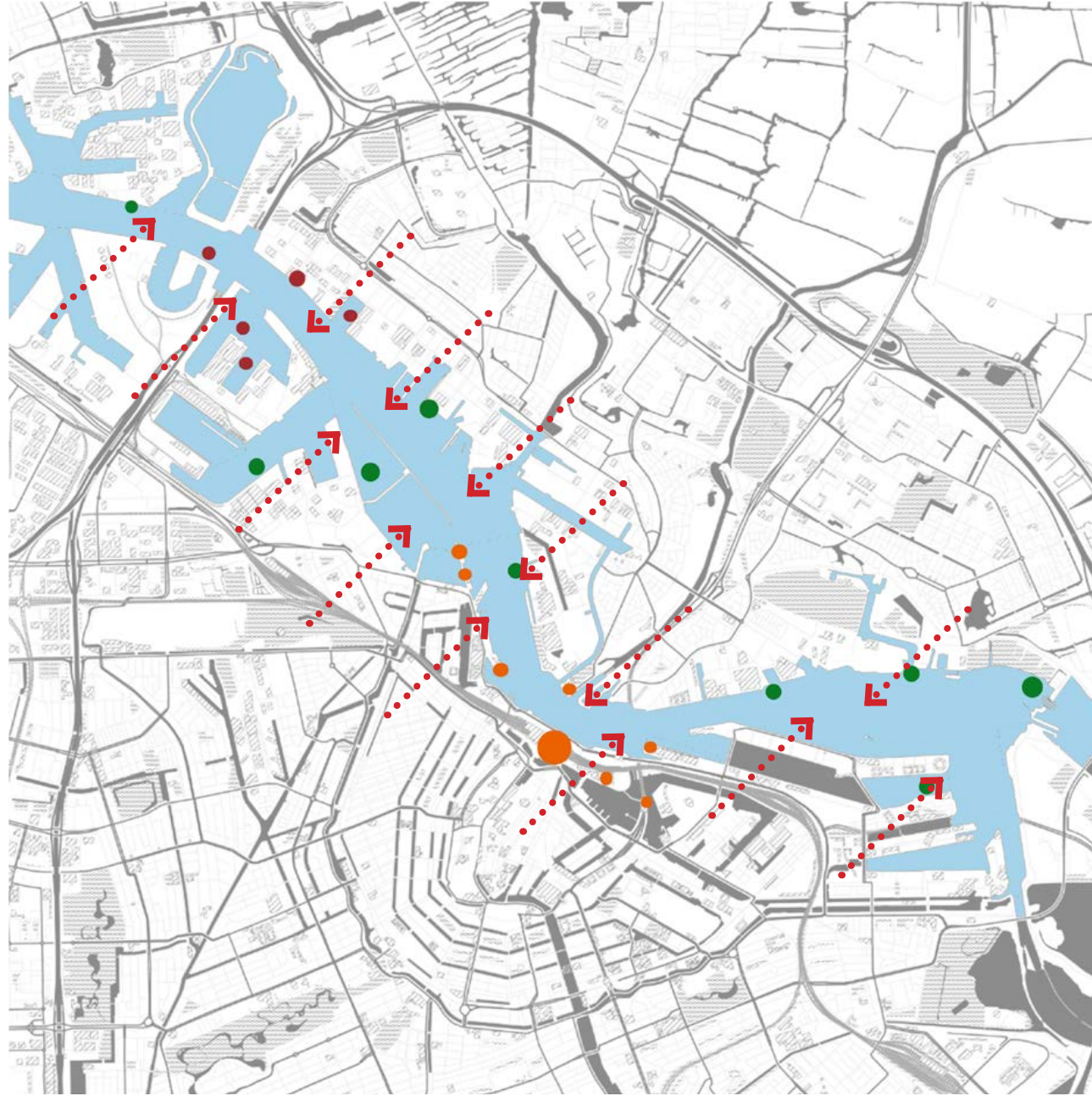
playground

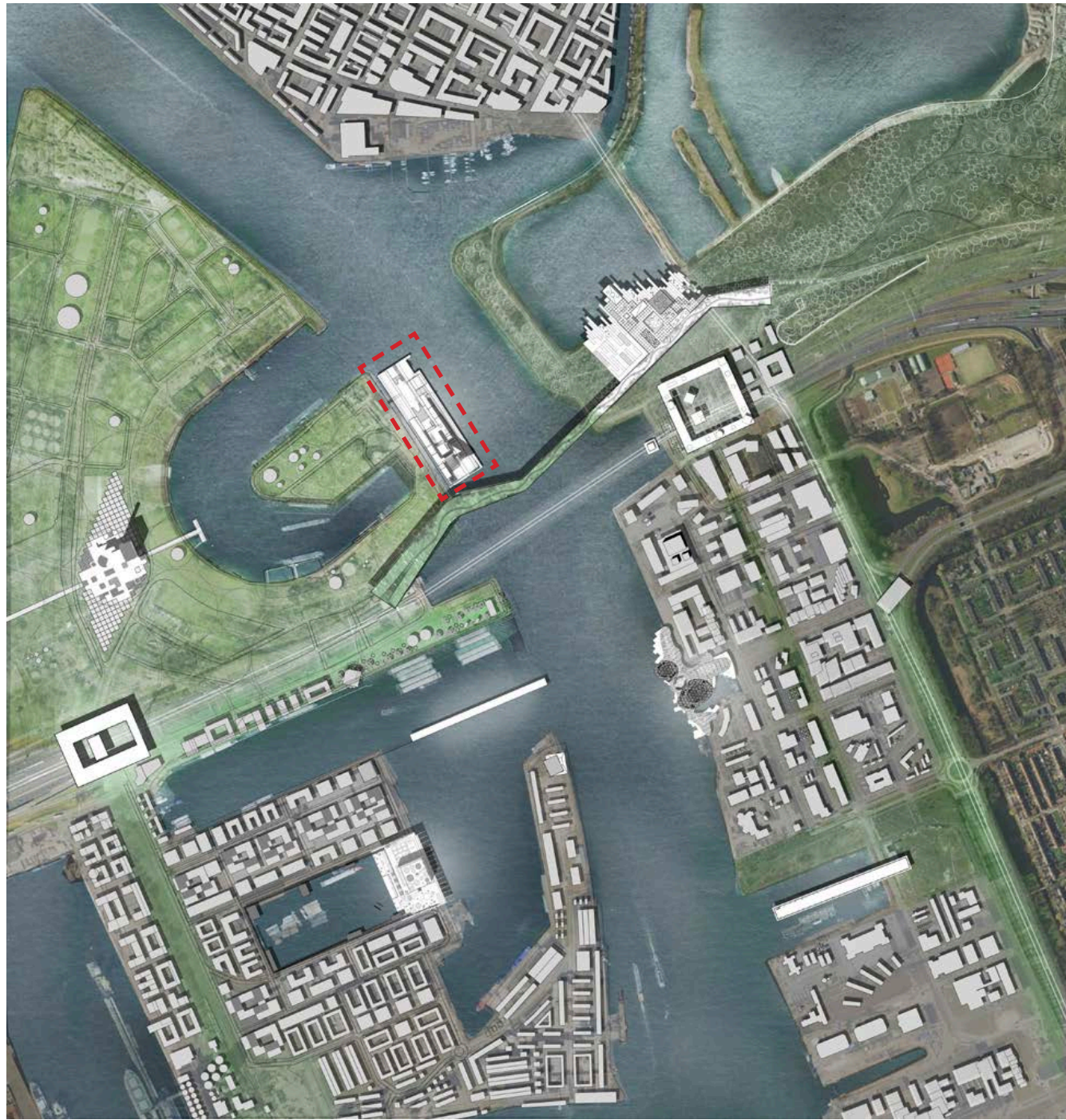














organic waste



plastic waste



soil improver



plastic waste



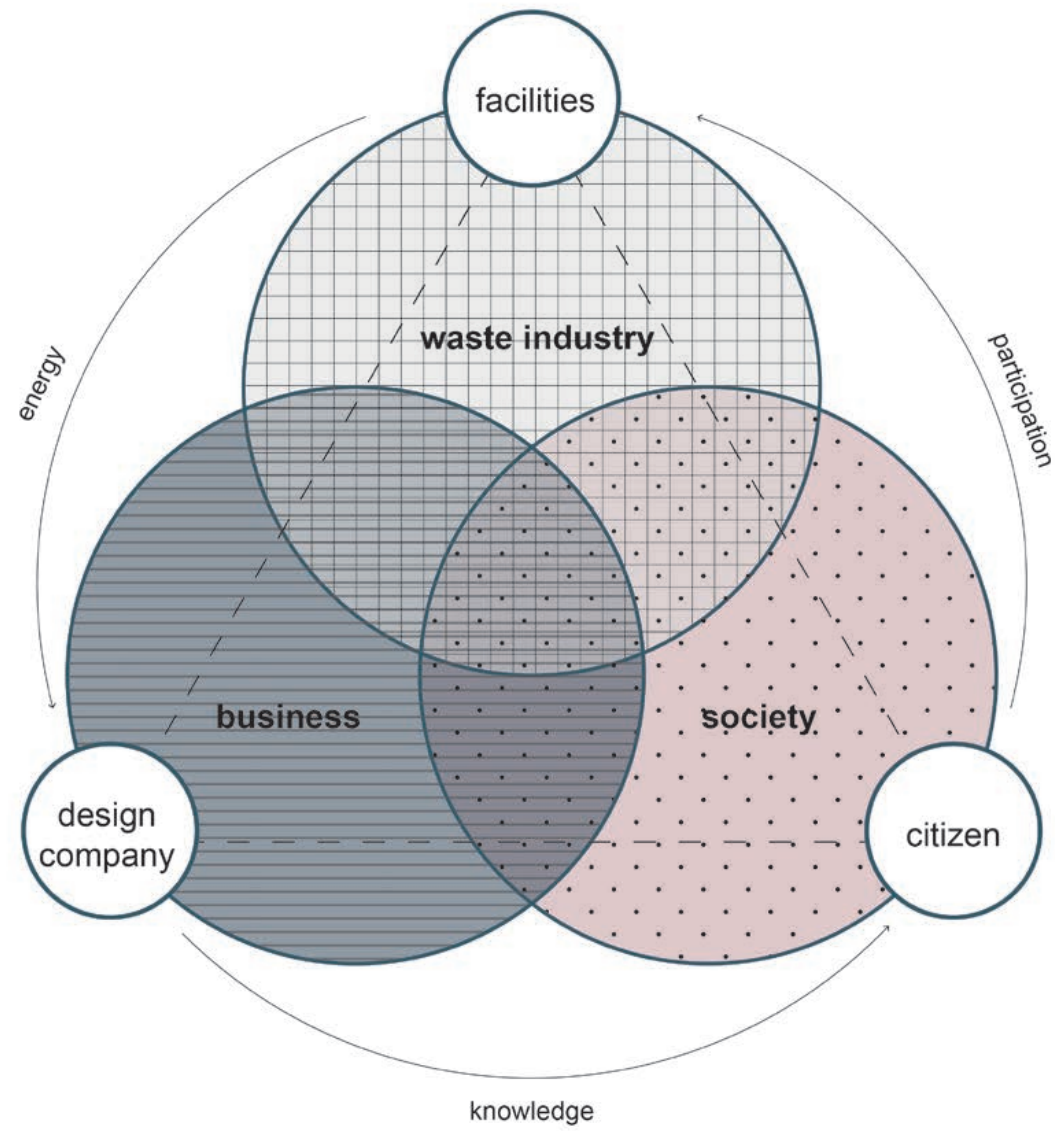
soil improver



3d-printing

Content

III. The programme



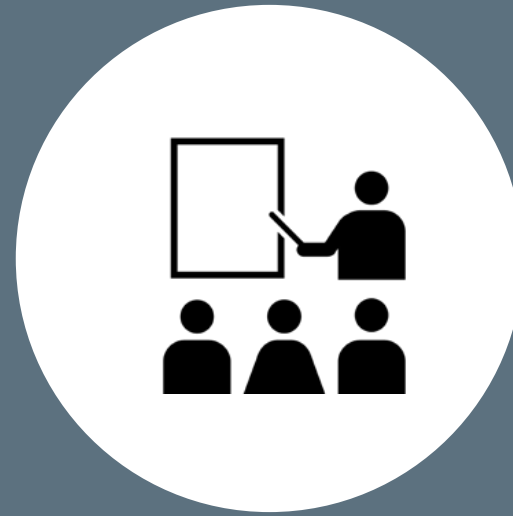
DESIGN AMBITION



In community



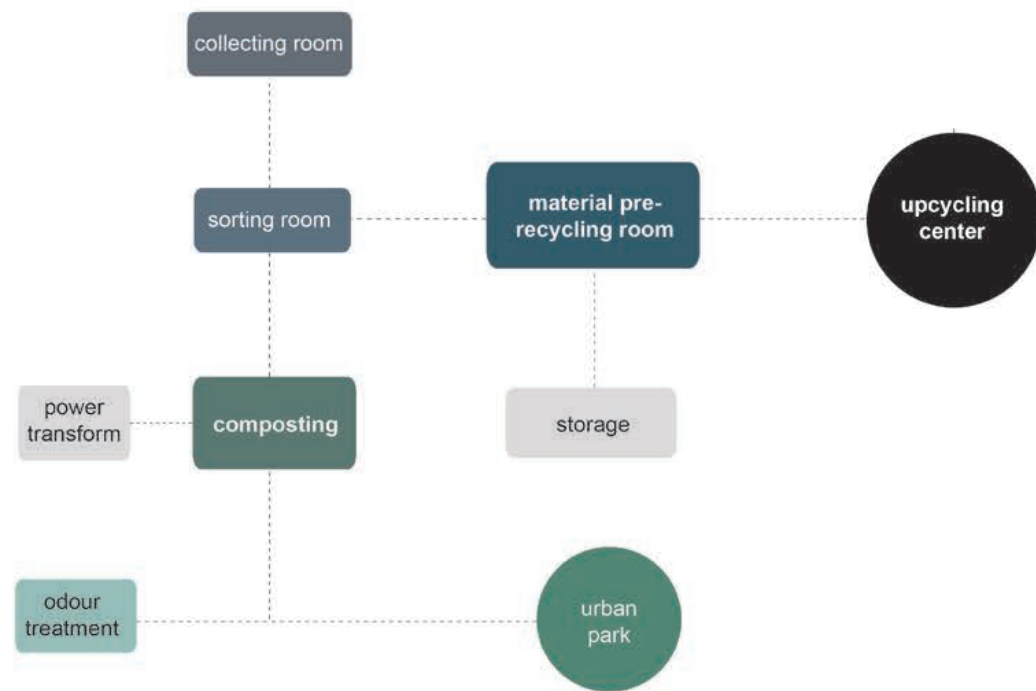
Market

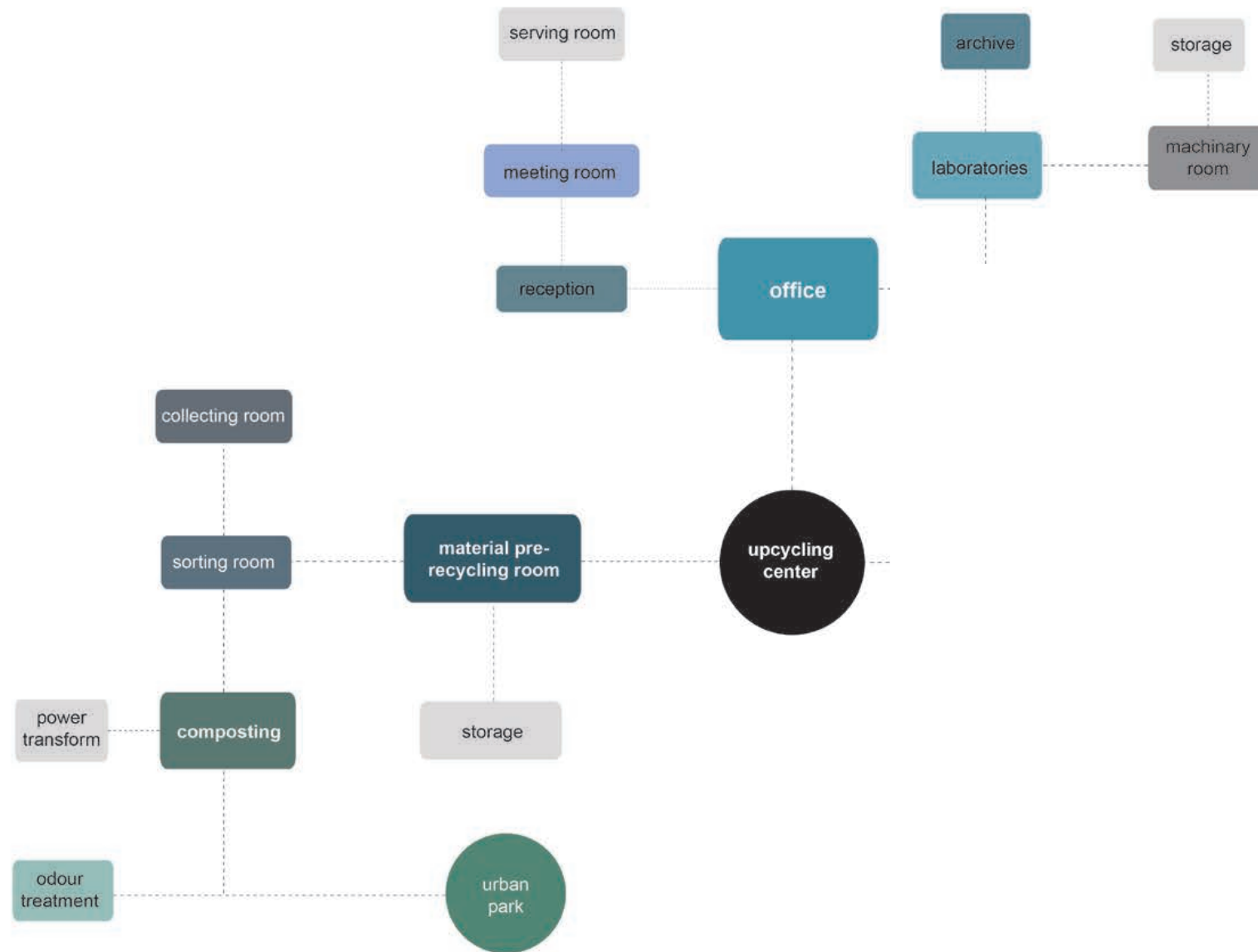


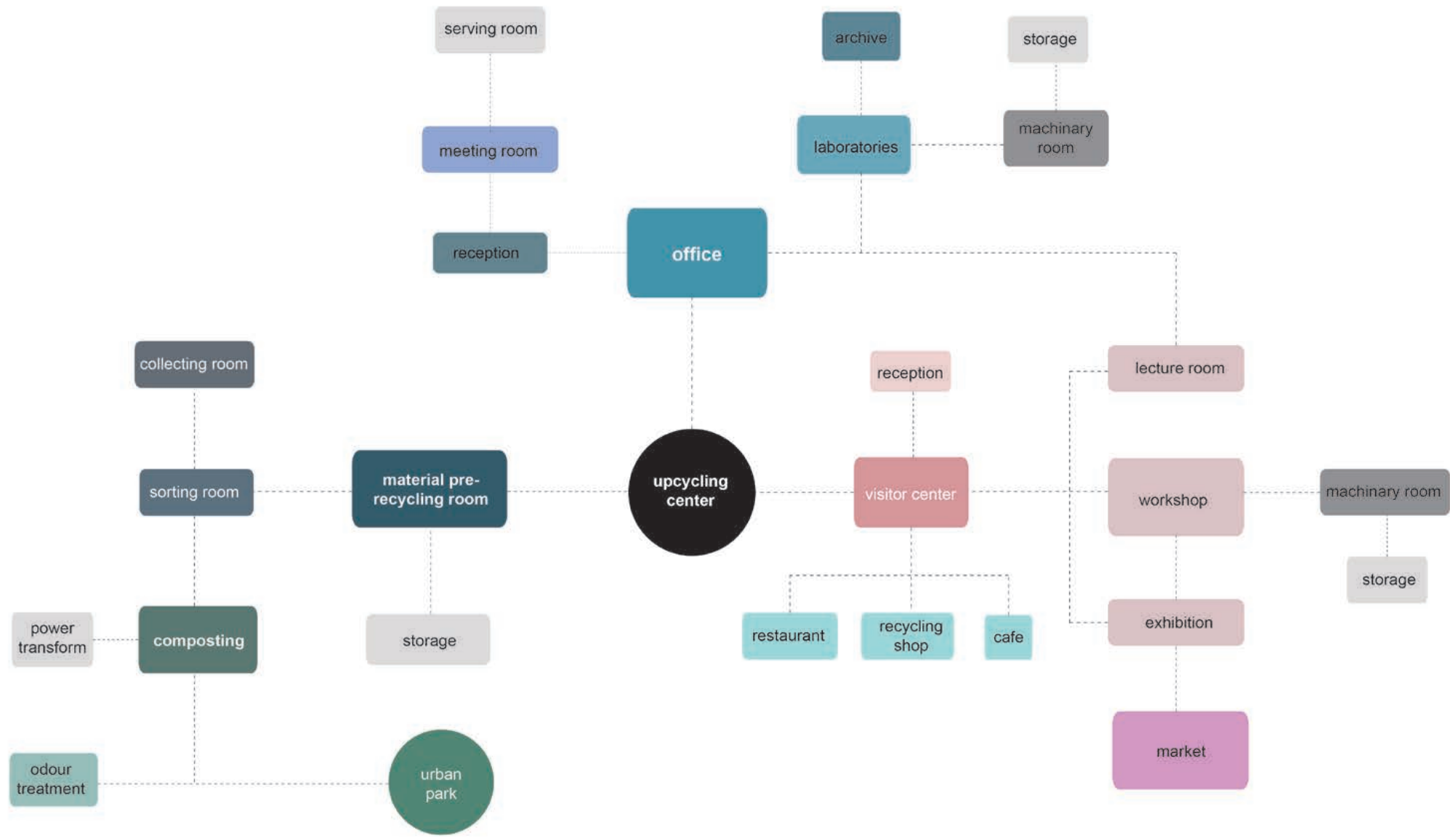
Education



Urban park



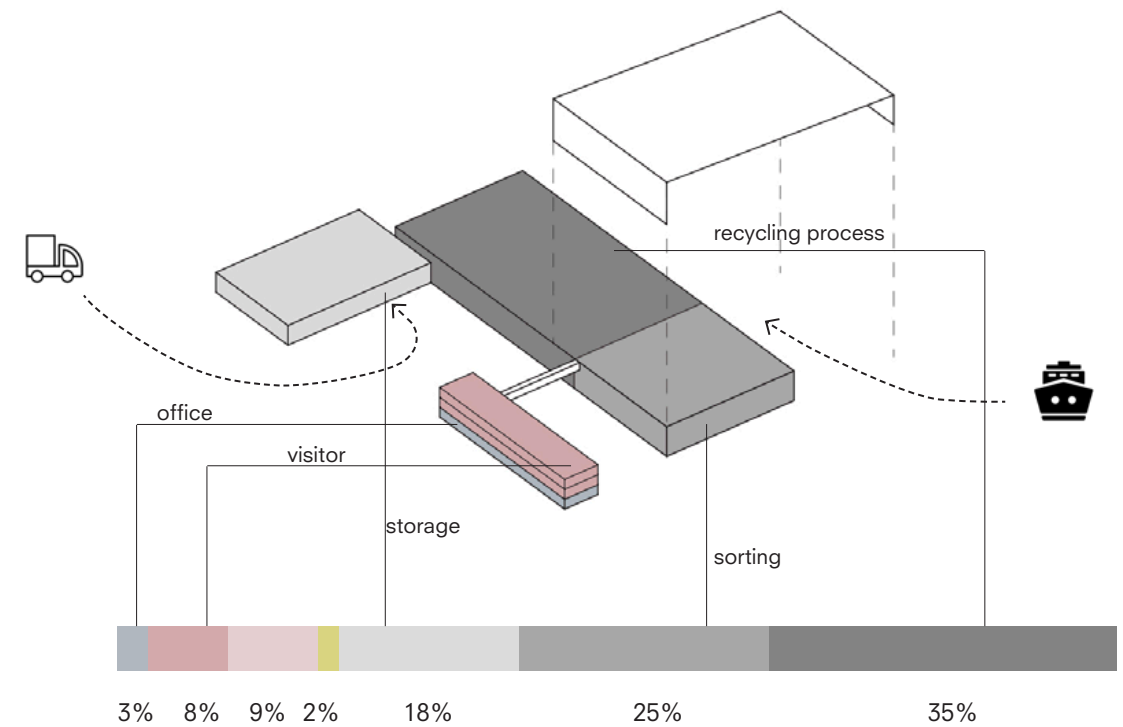




Sunset Park Material Recovery Facility



Sunset Park Material Recovery Facility



Tipping floor

Machine room

Storage

Buurman/ Material & Workshop



small size tools



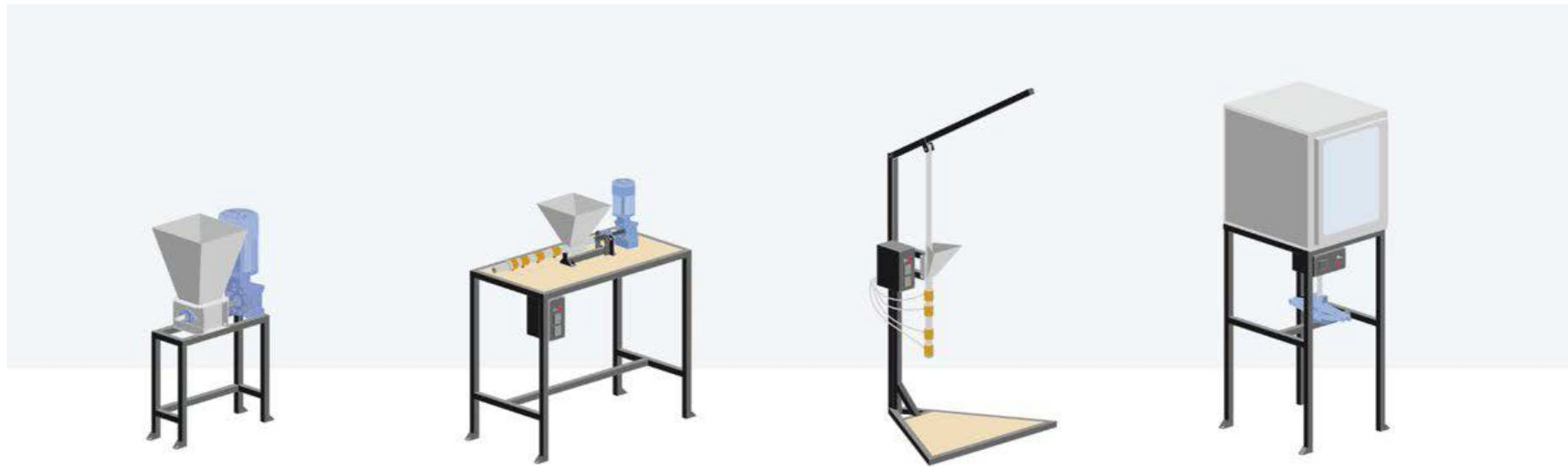
medium size tools



Precious plastic



Tools for plastic upcycling



Tools for plastic upcycling in project

S



M

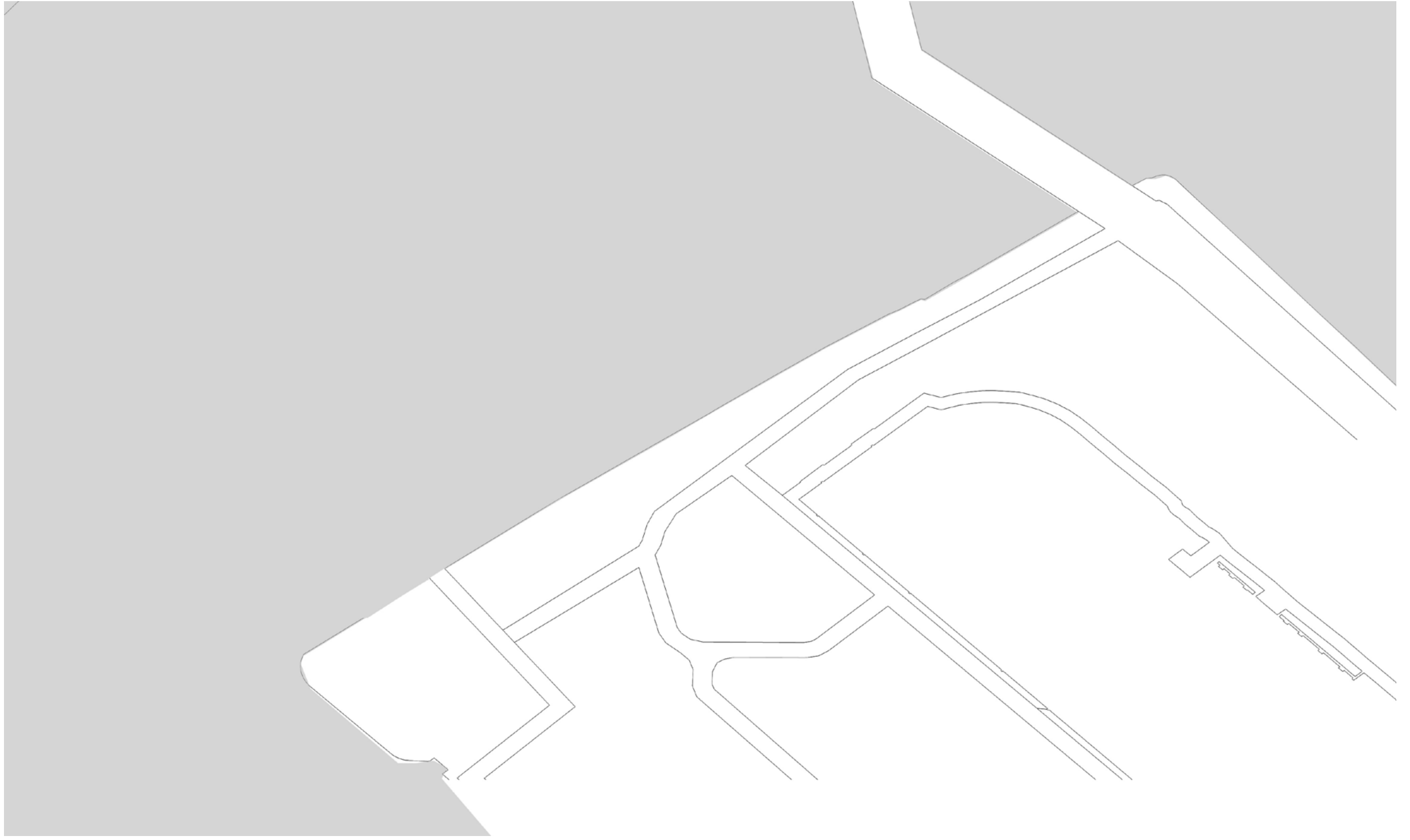


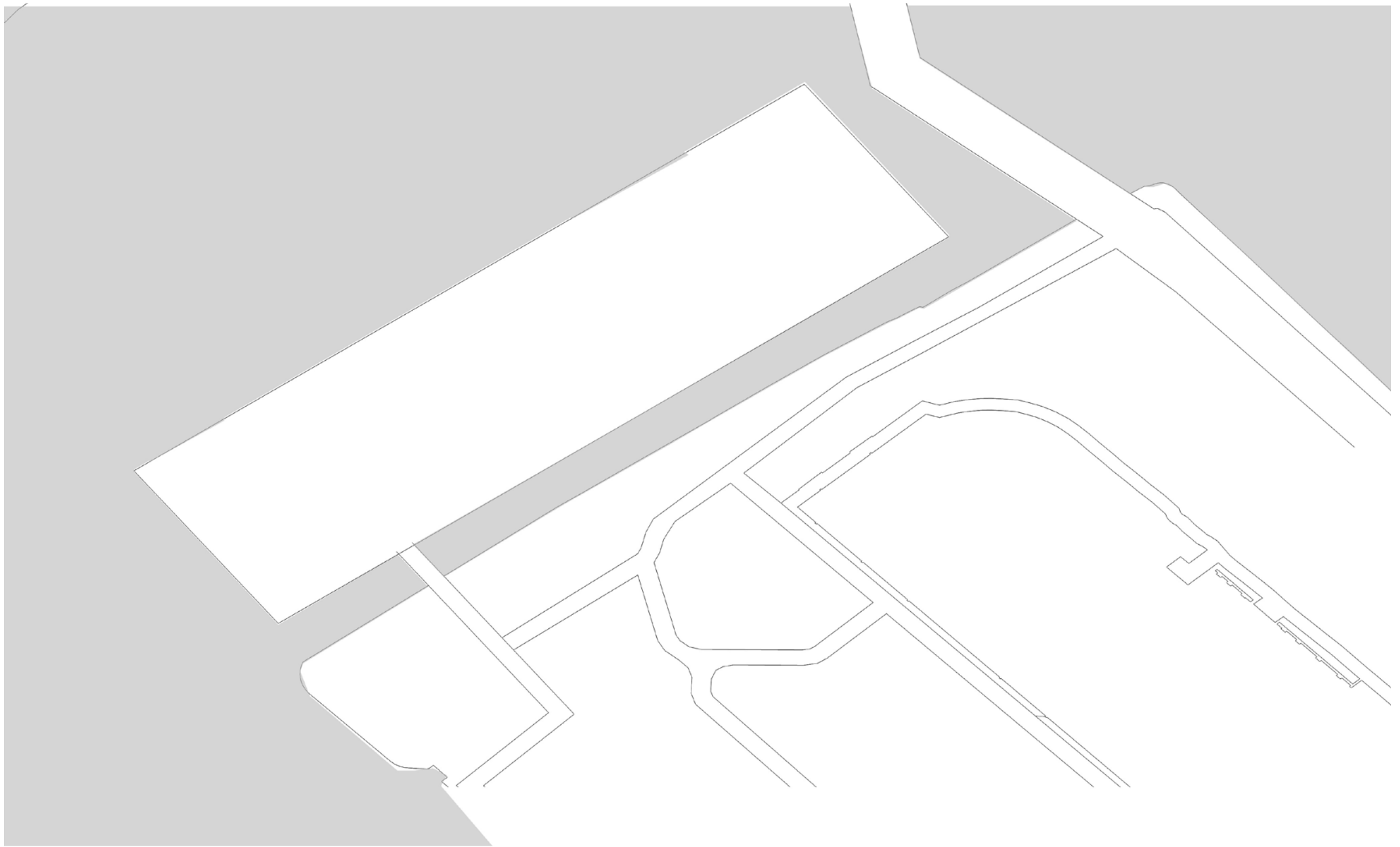
L

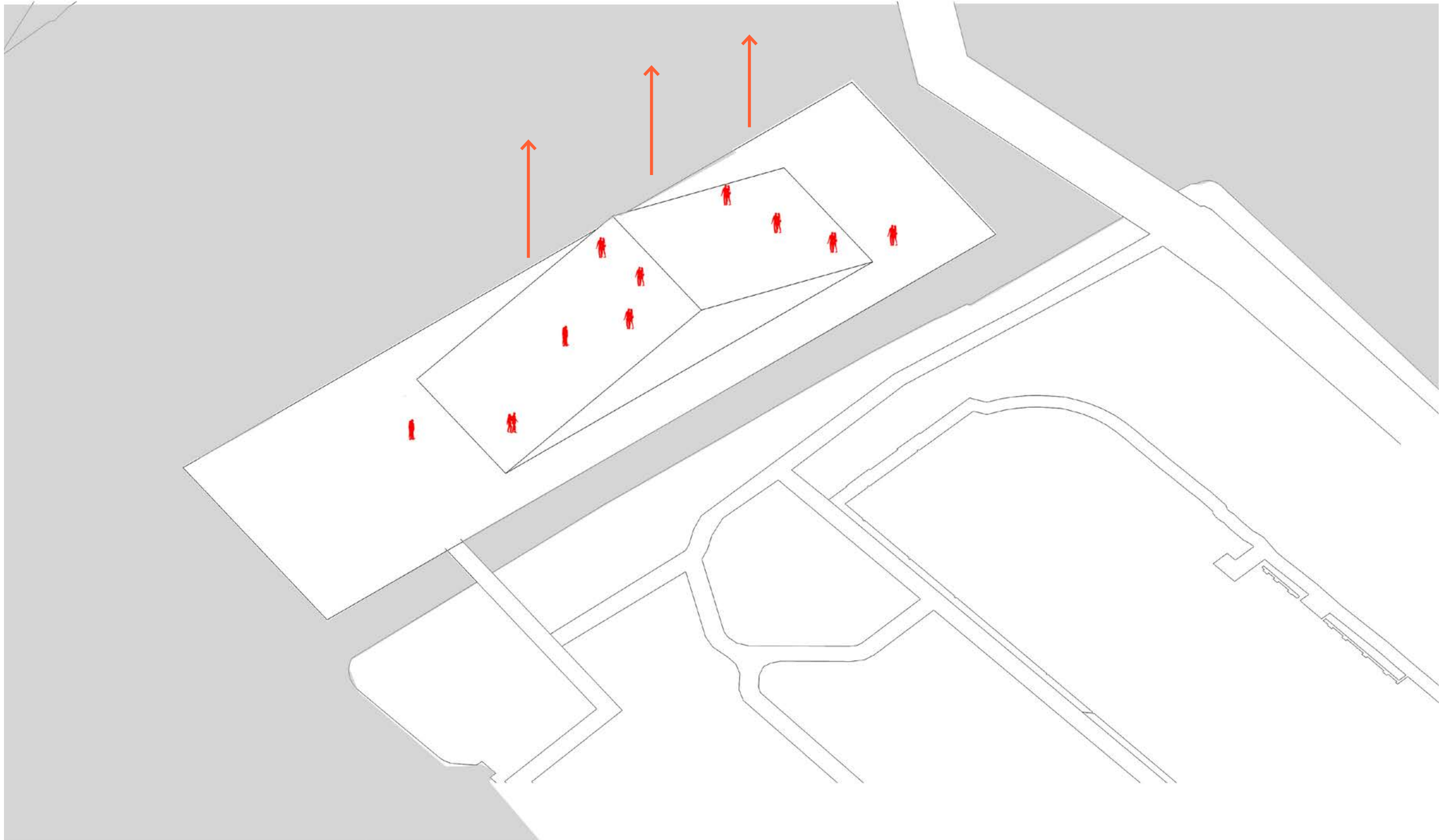


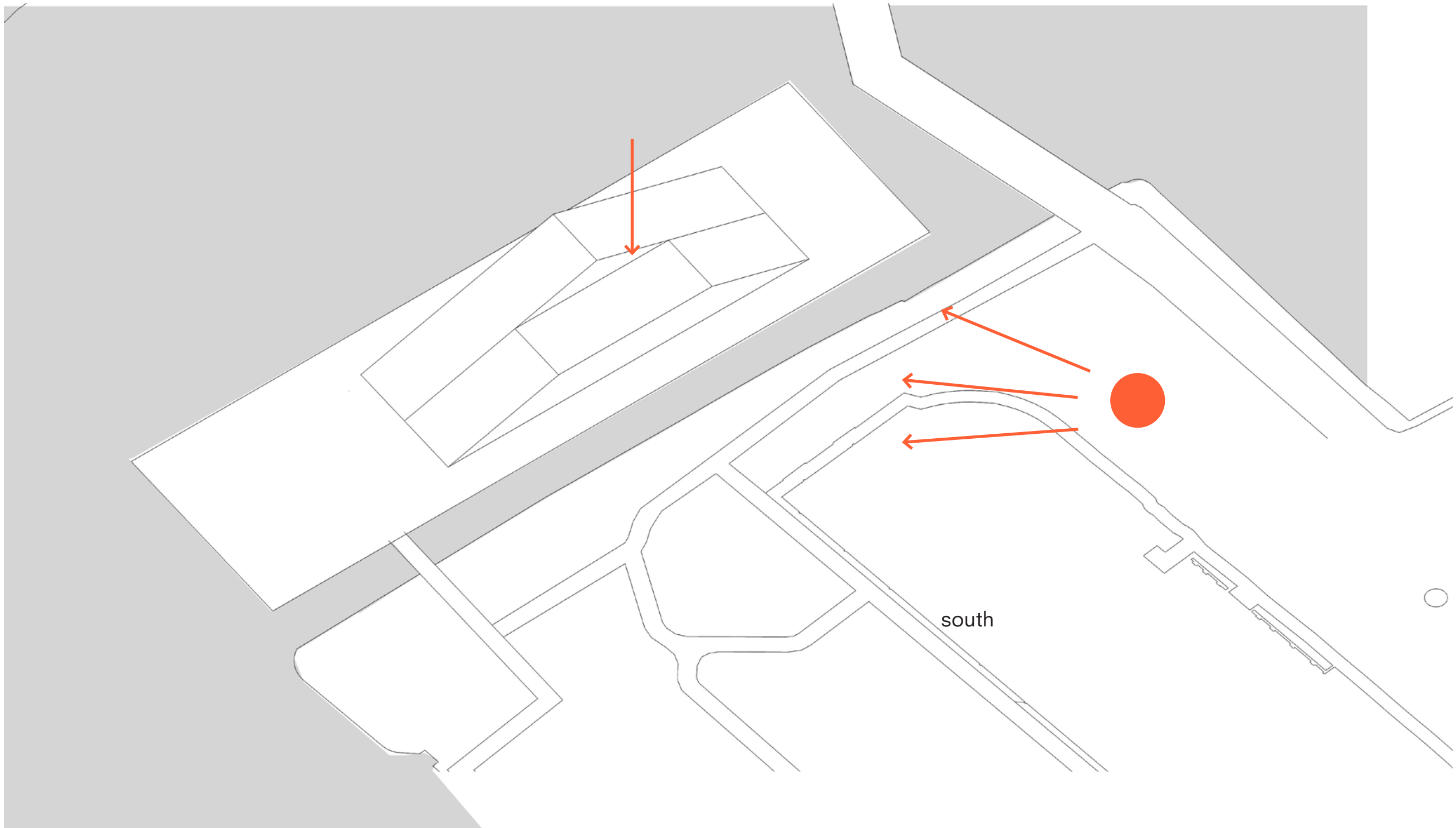
Content

IV. The building



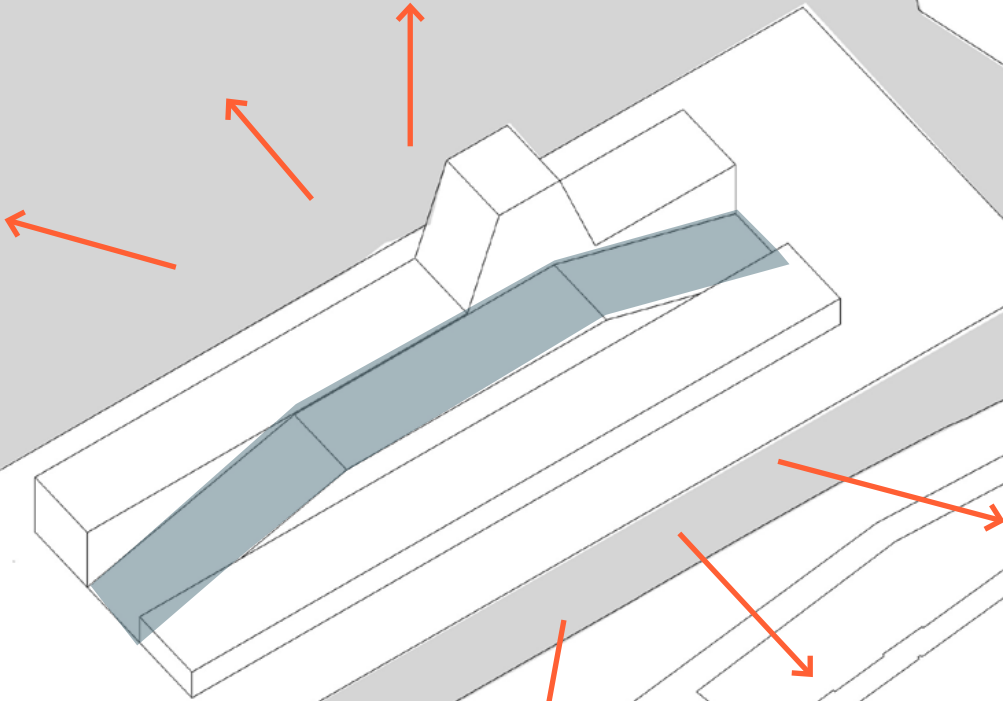




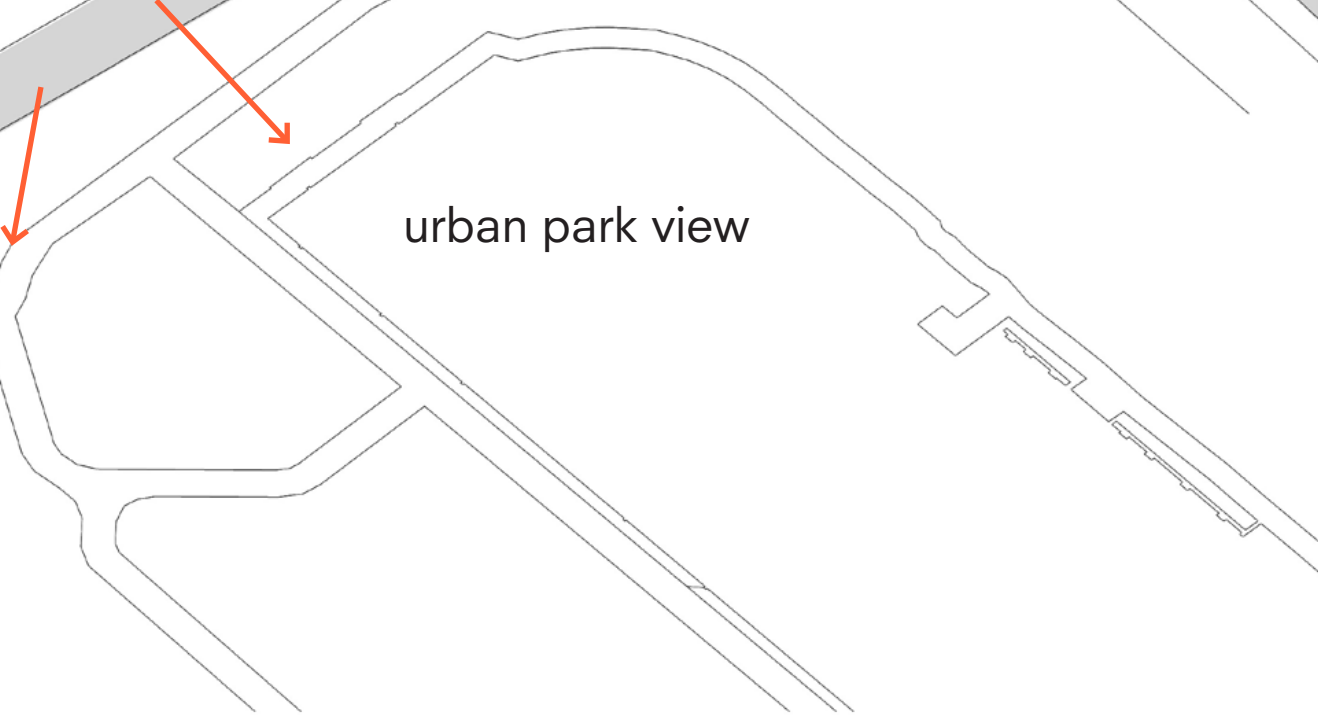


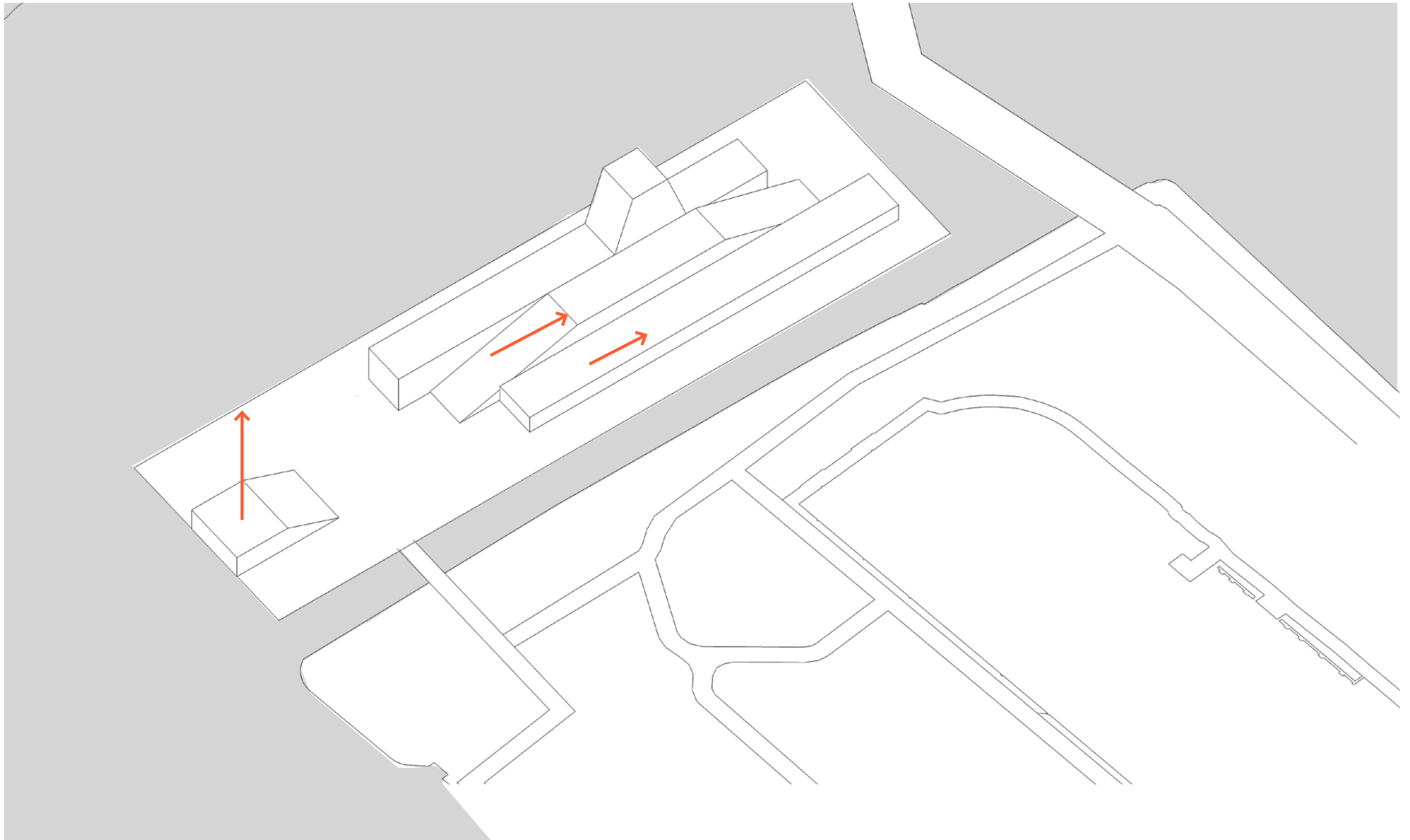
south

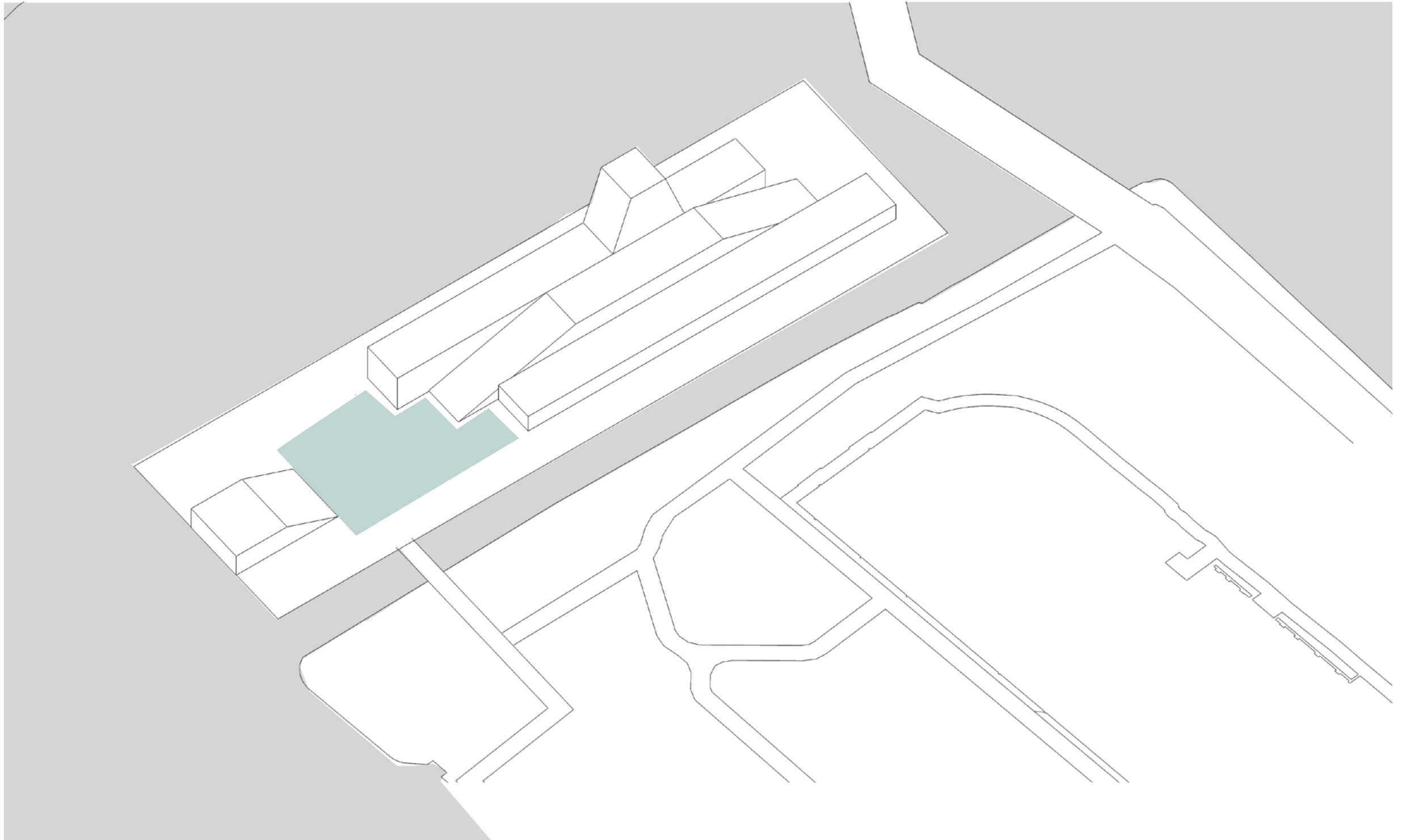
lj river view

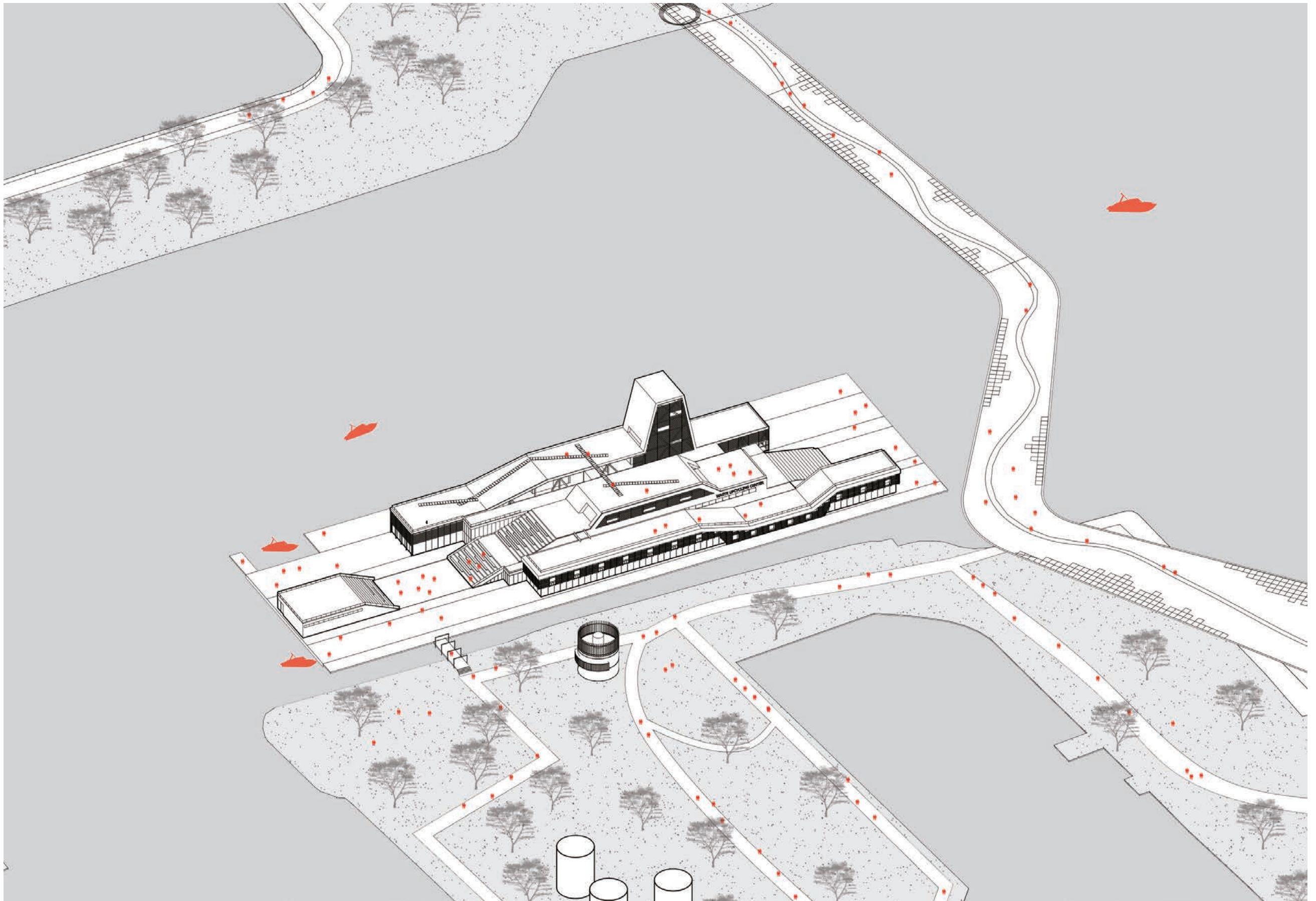


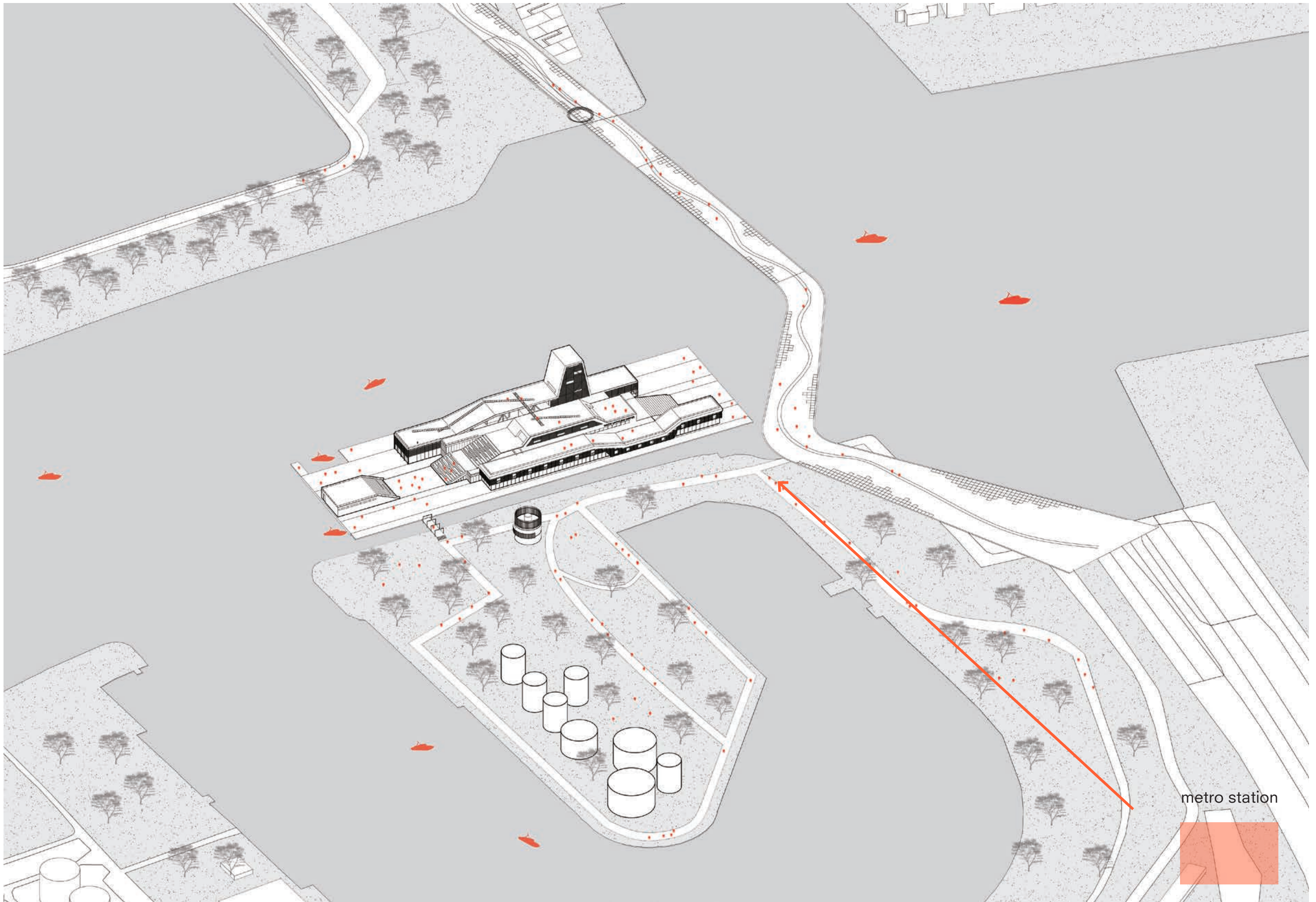
urban park view







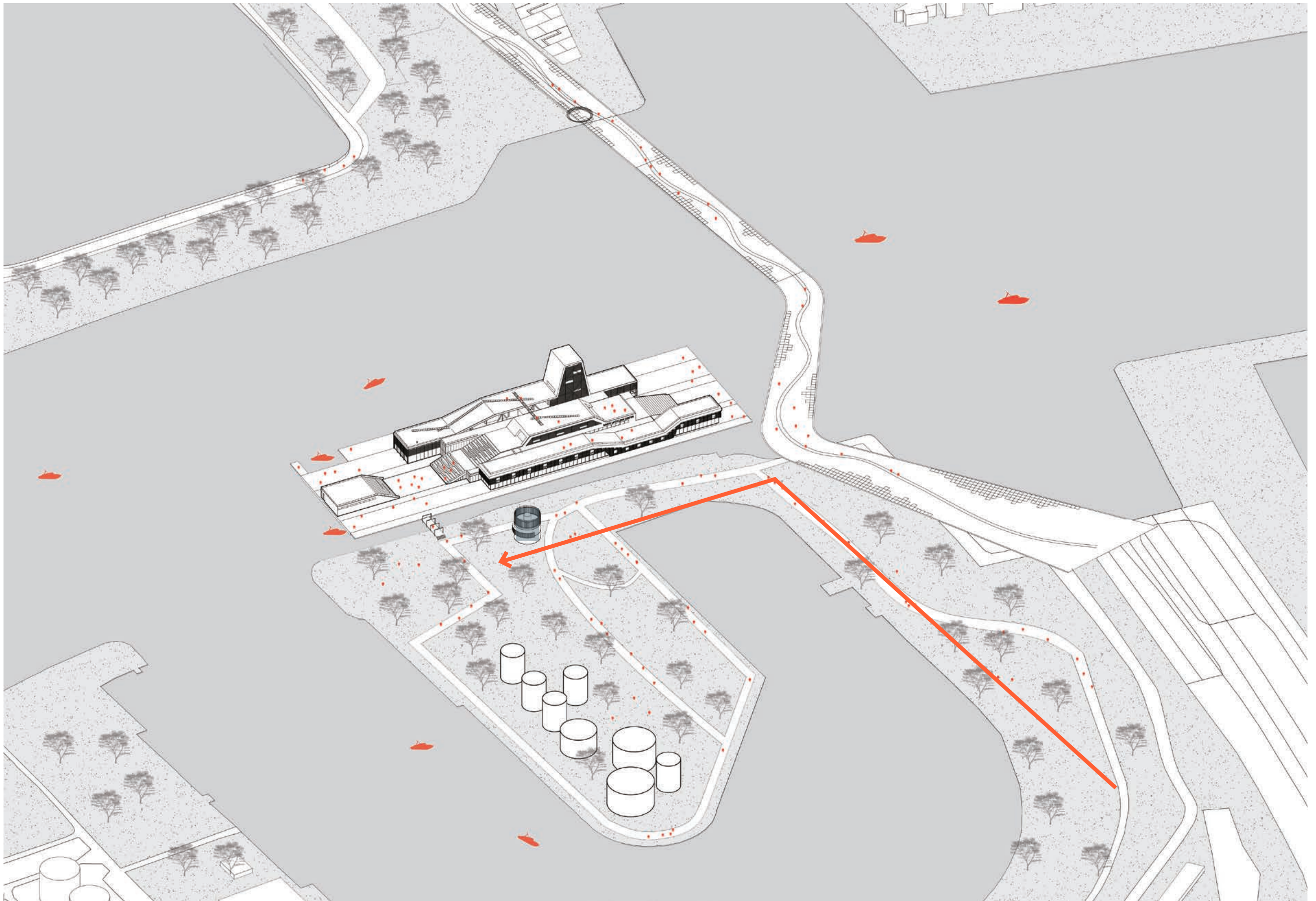




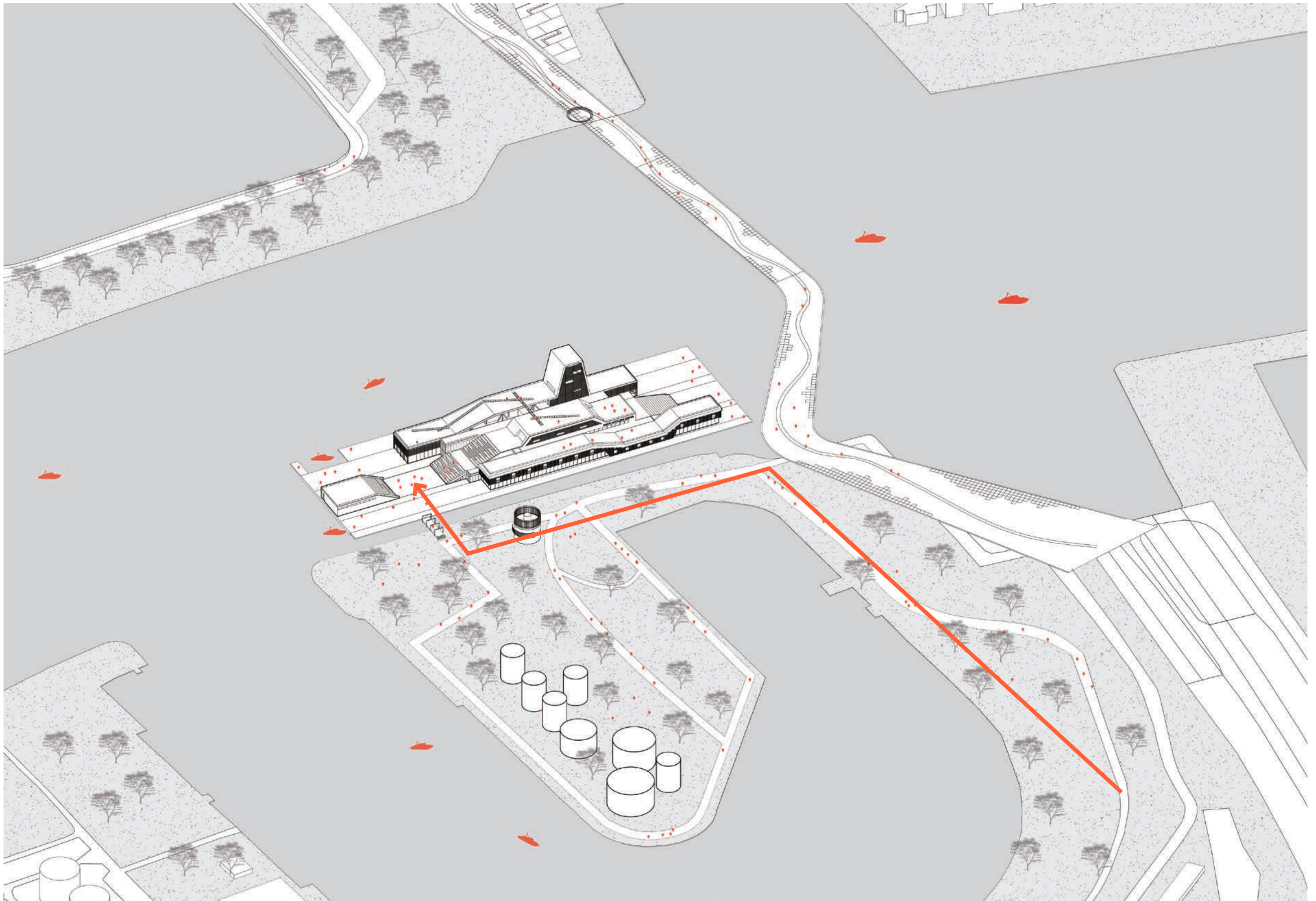
metro station



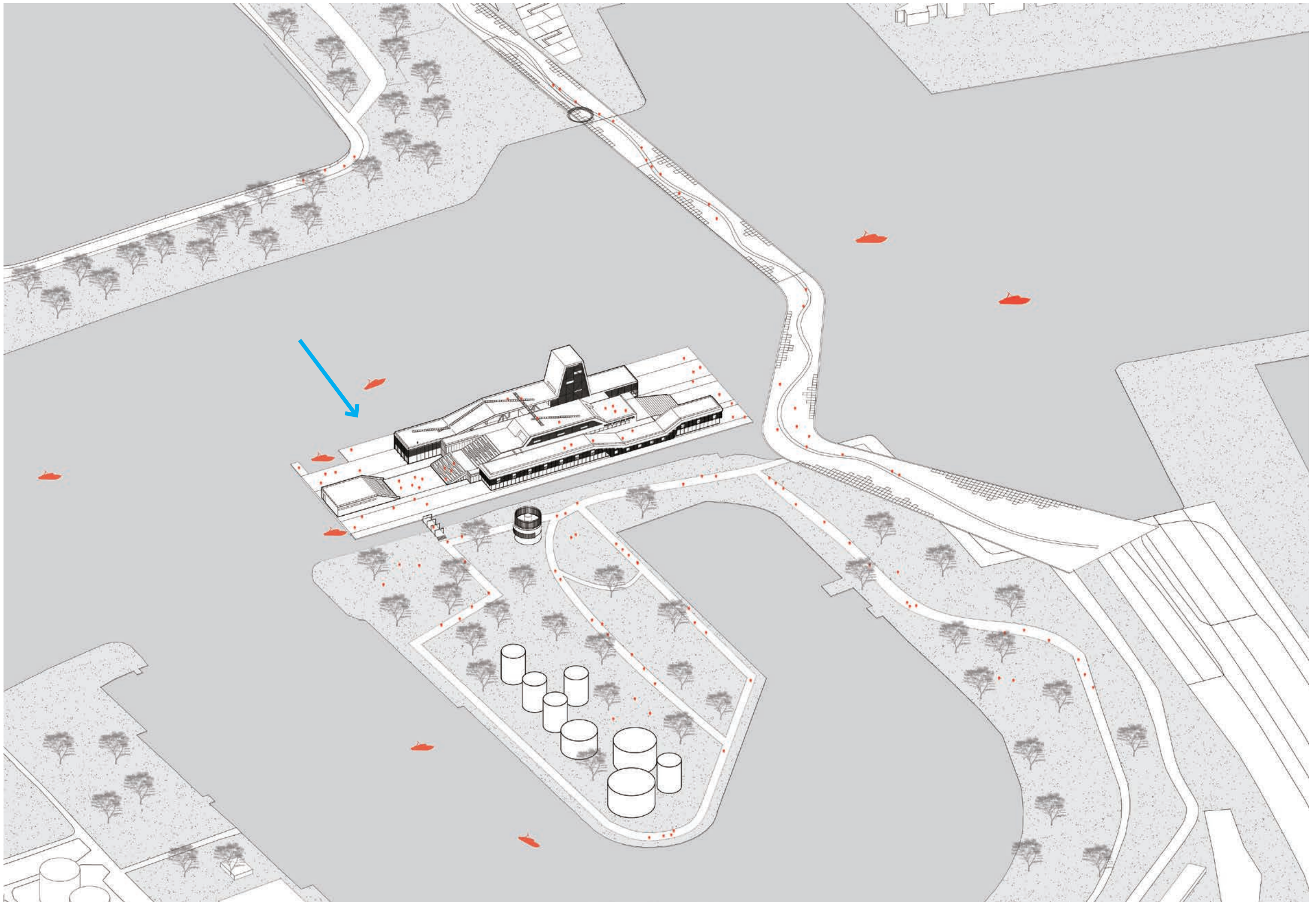














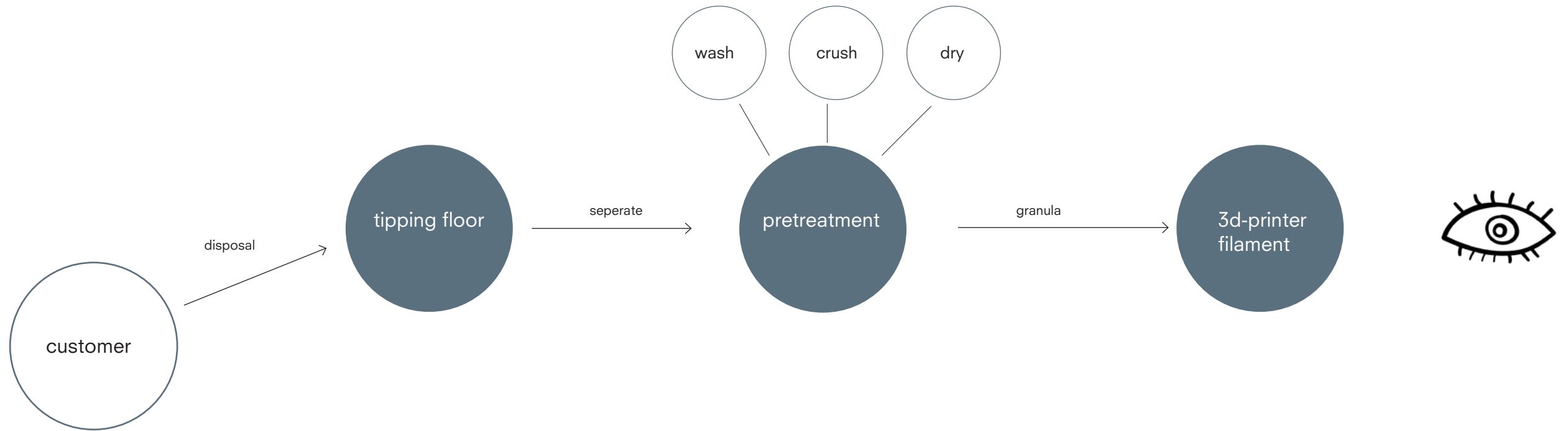


Space organization strategy

Follow the whole upcycling process of wasted plastic

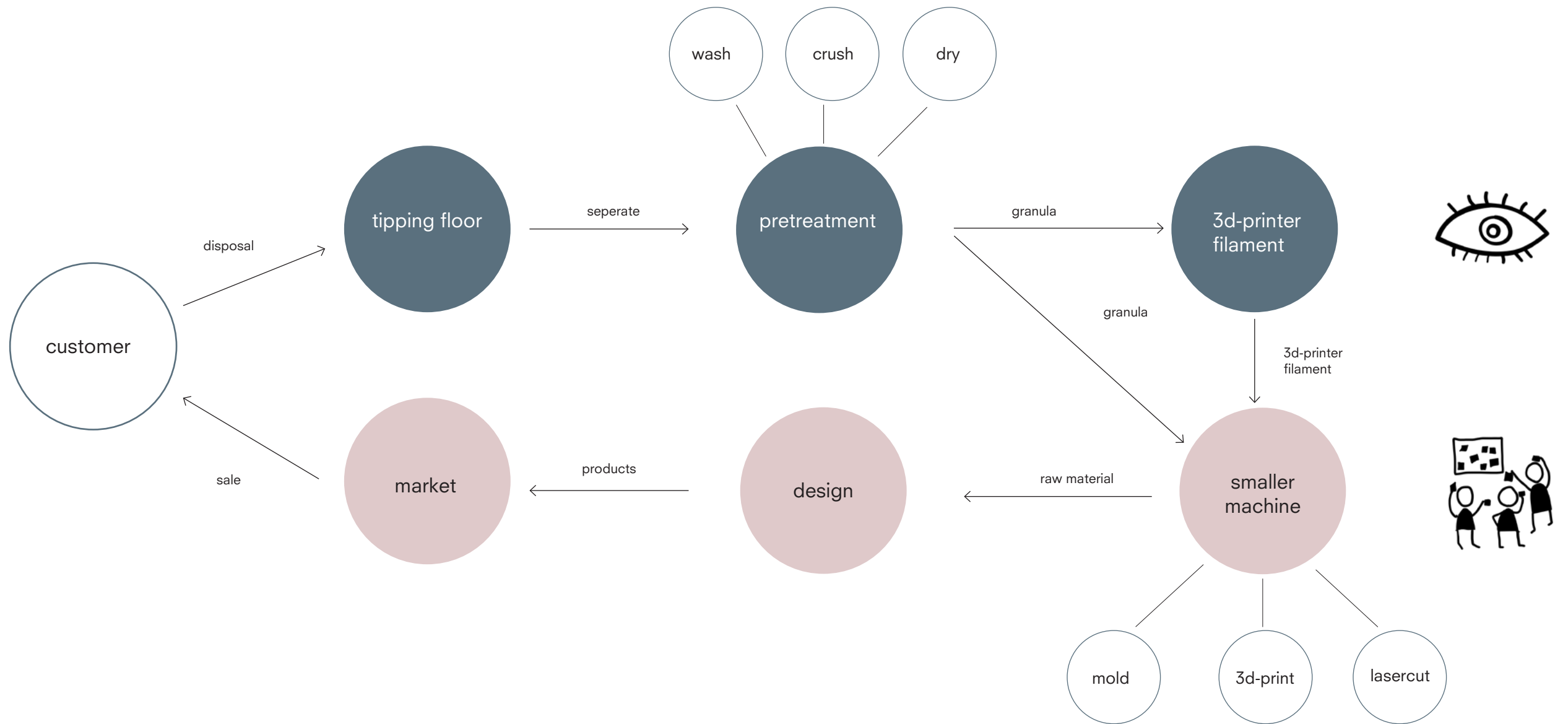
SPACIAL ARRANGEMENT

According to the upcycling process of wasted plastic



SPACIAL ARRANGEMENT

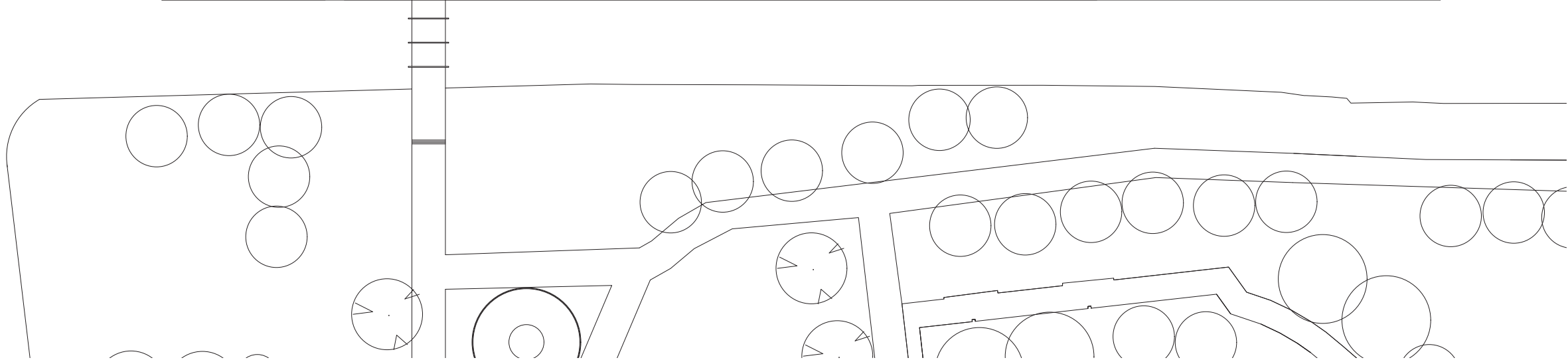
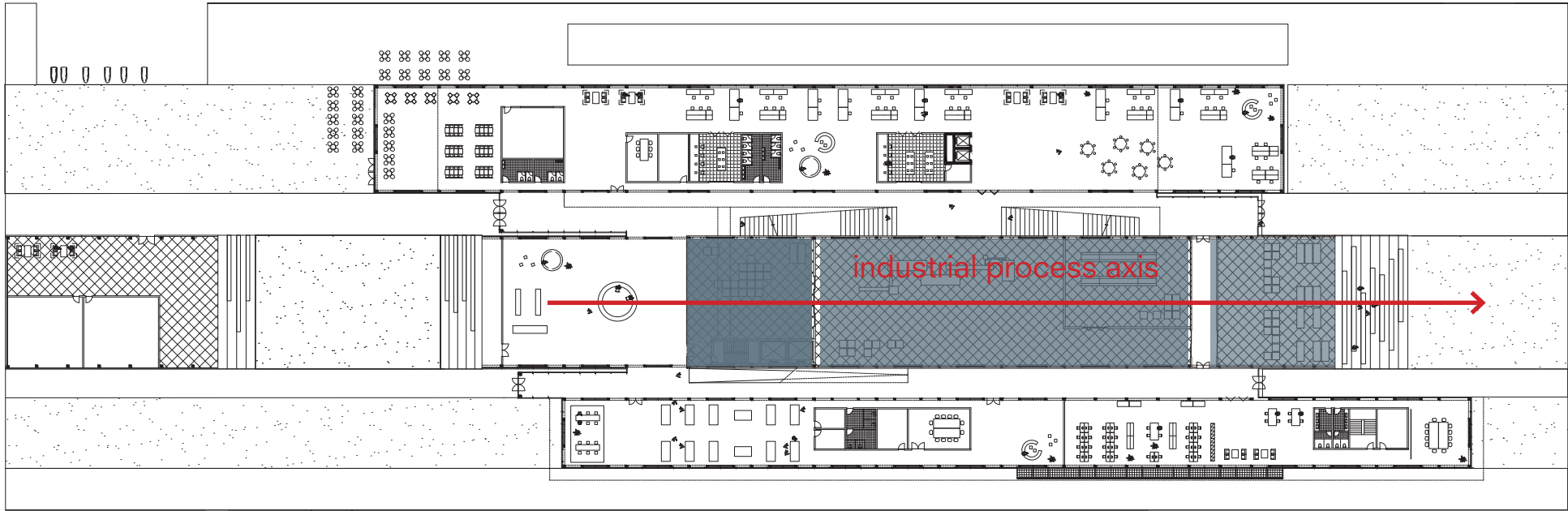
According to the upcycling process of wasted plastic



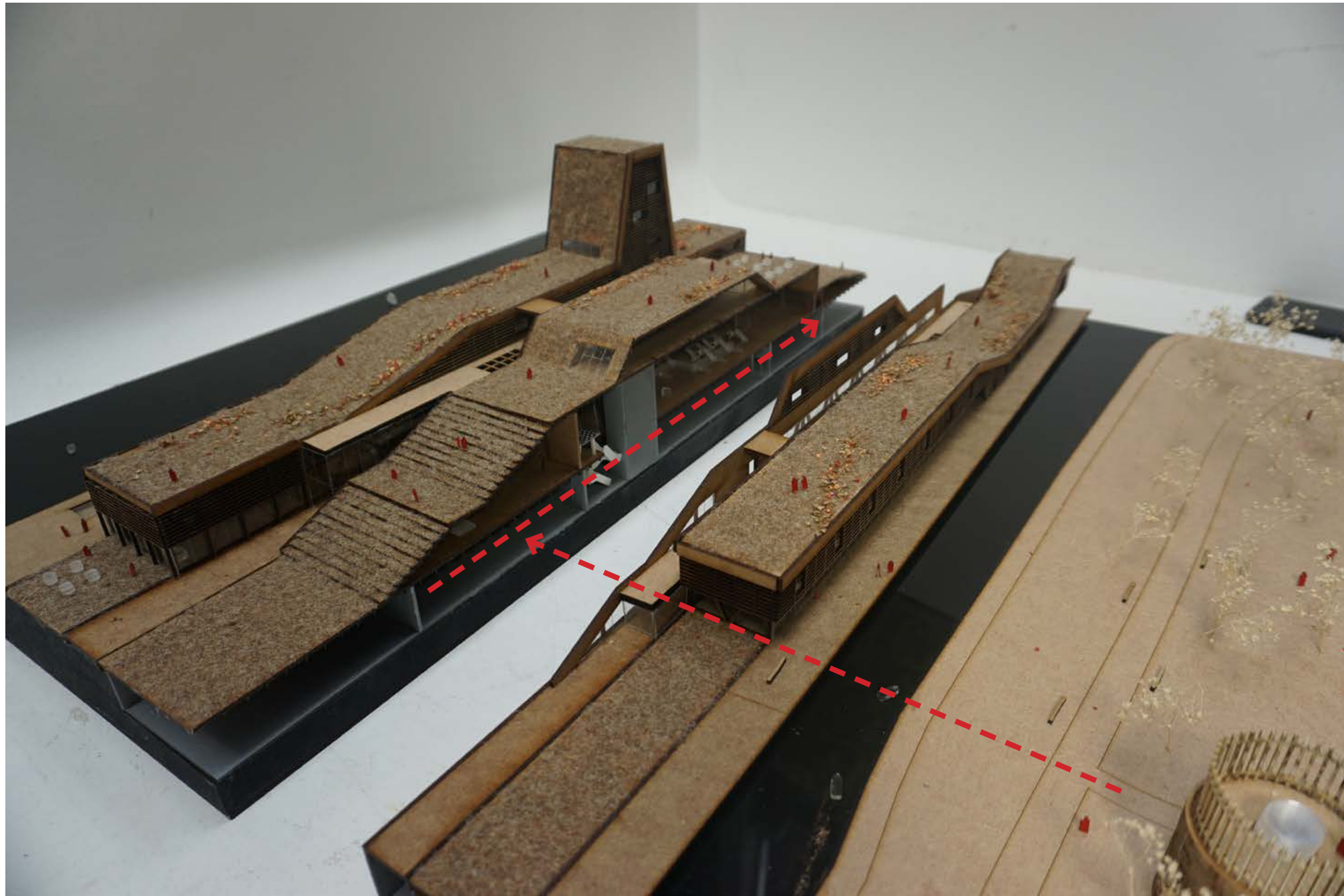
waste



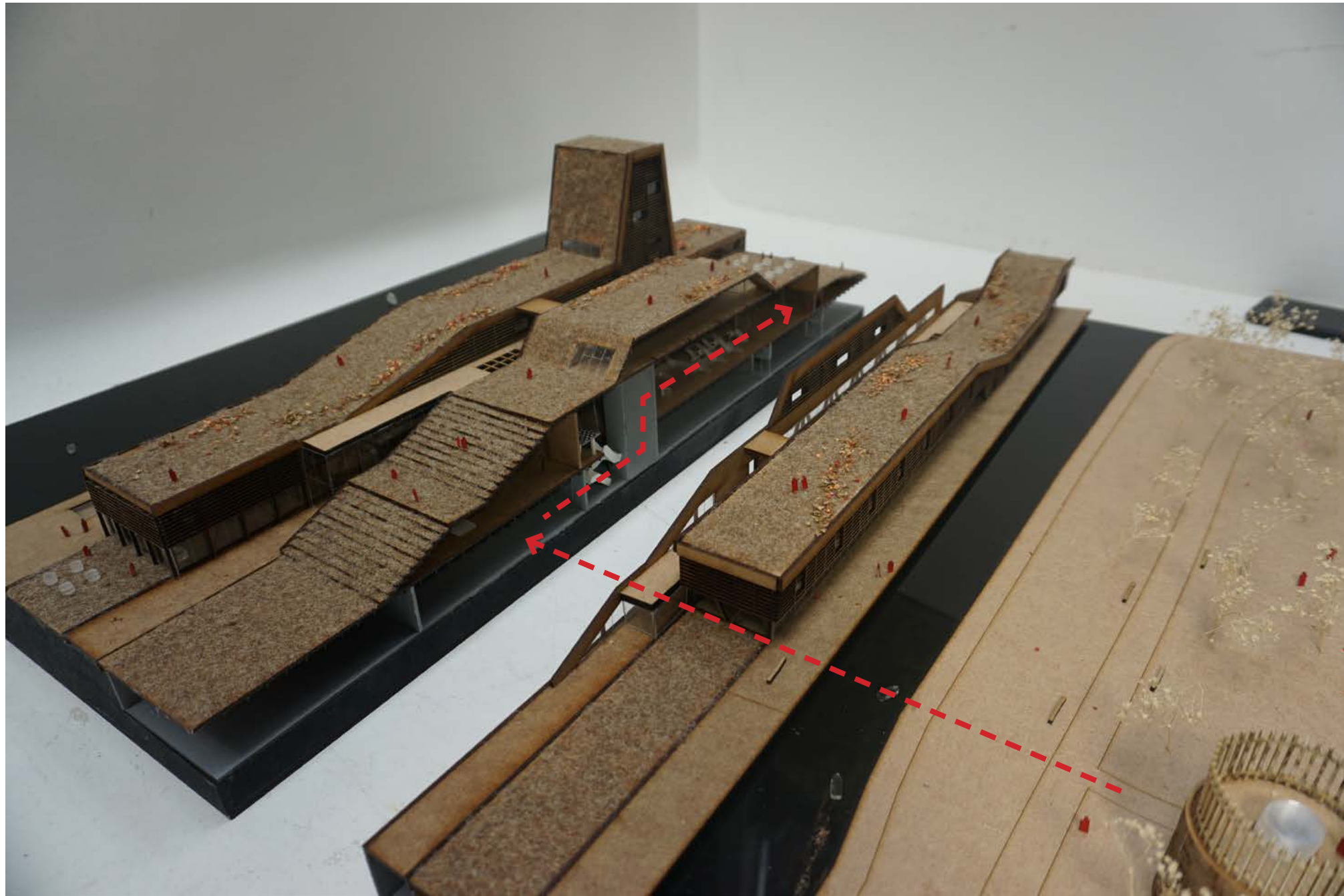
raw material



WASTE FLOW/ Organic waste



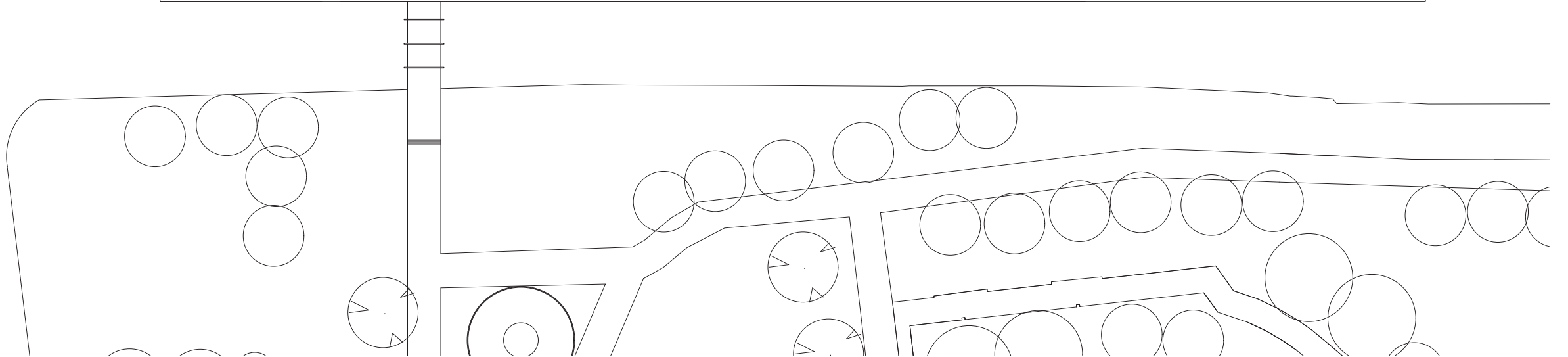
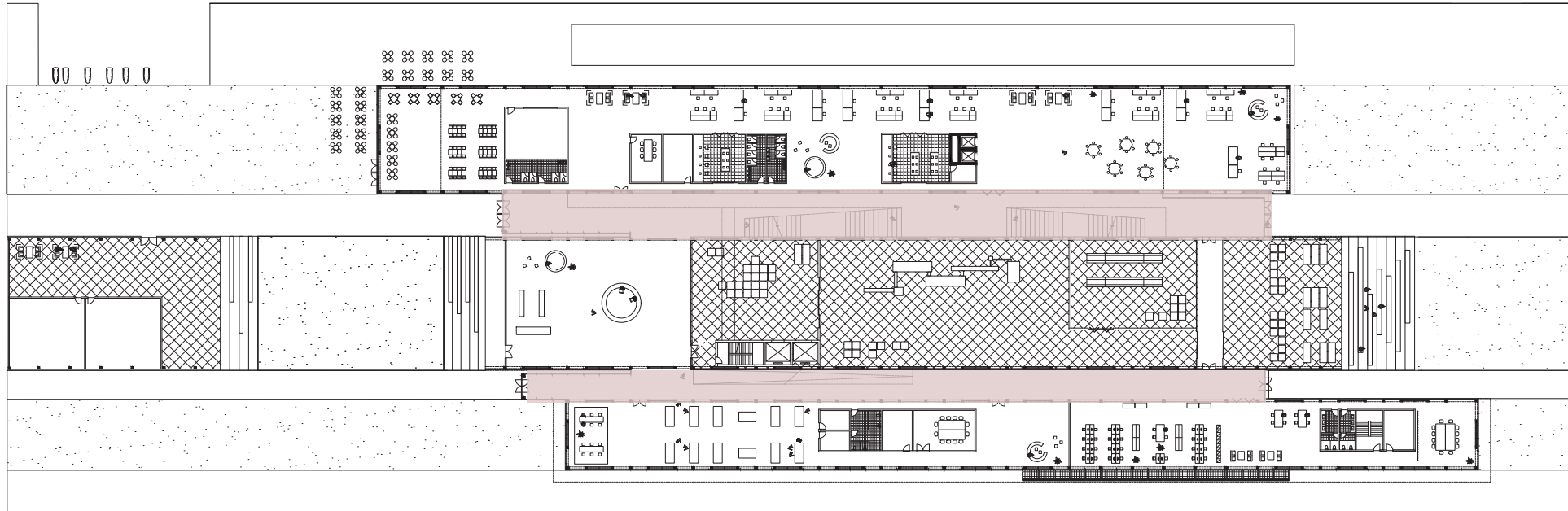
WASTE FLOW/ Plastic waste



waste

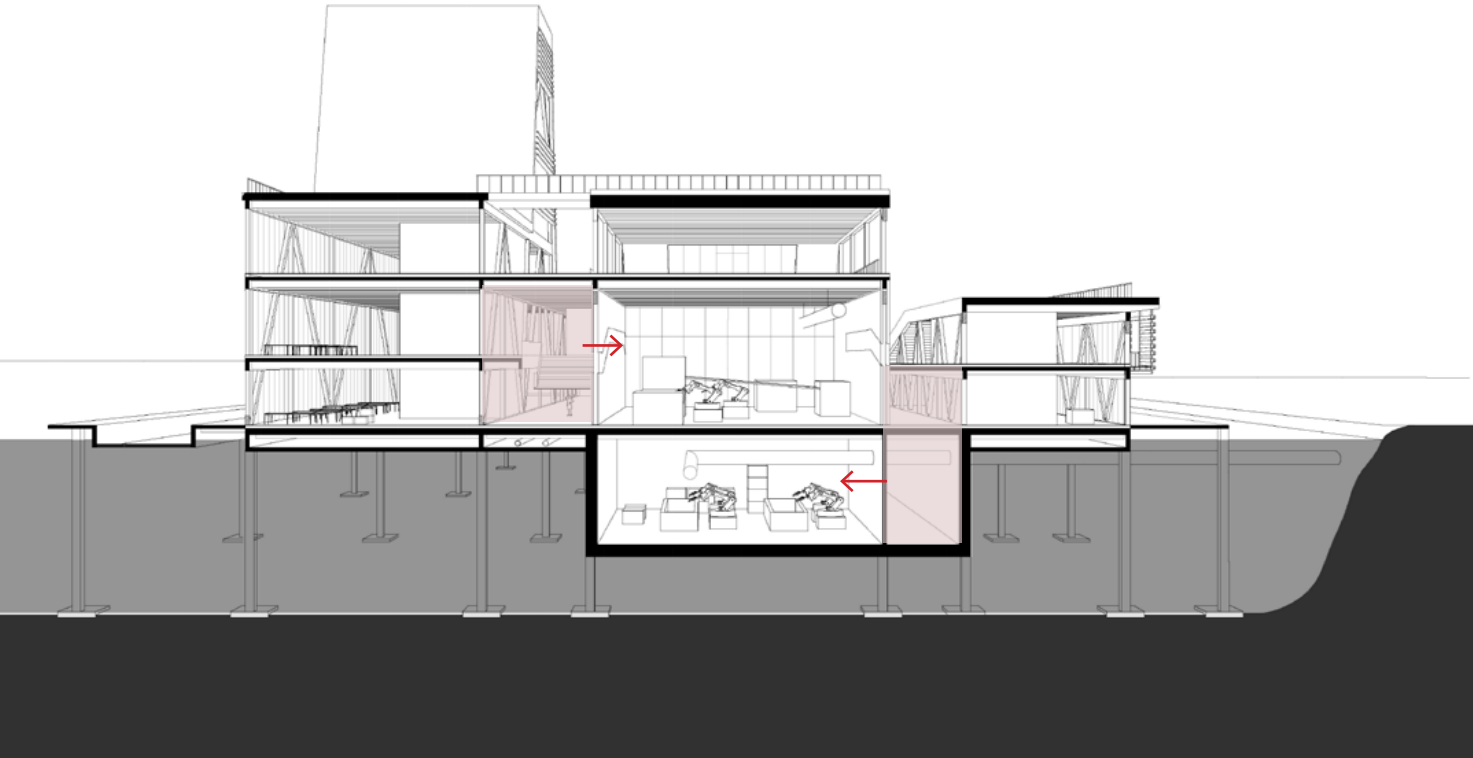
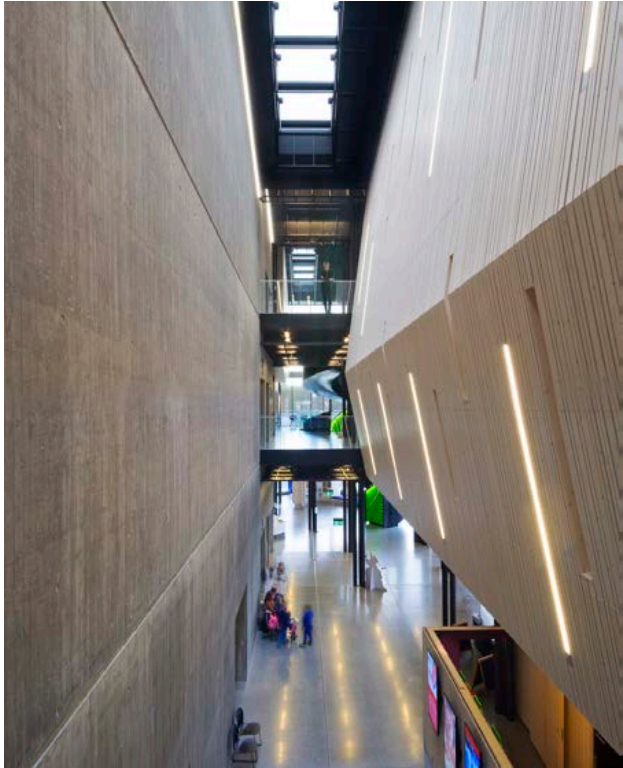


raw
material





In-between space as the most public space

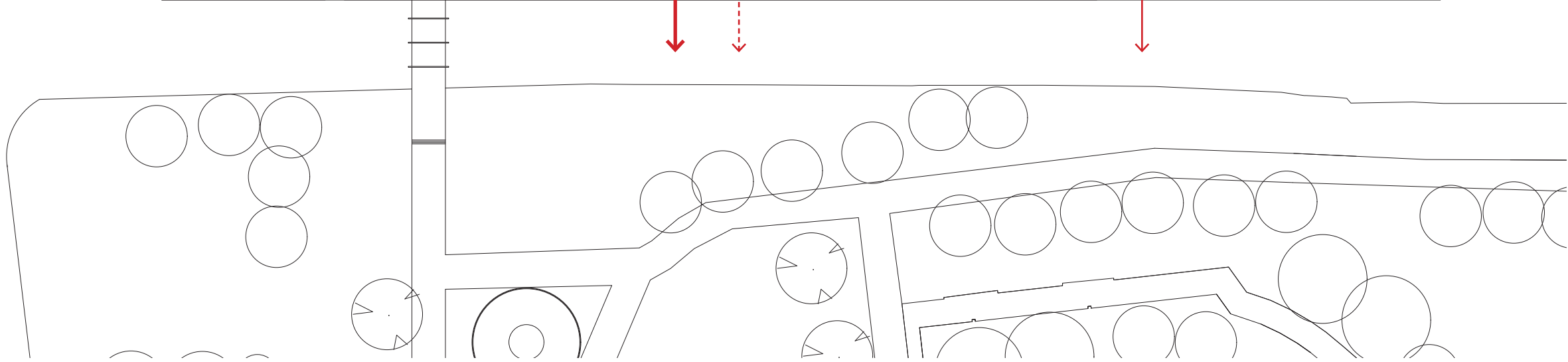
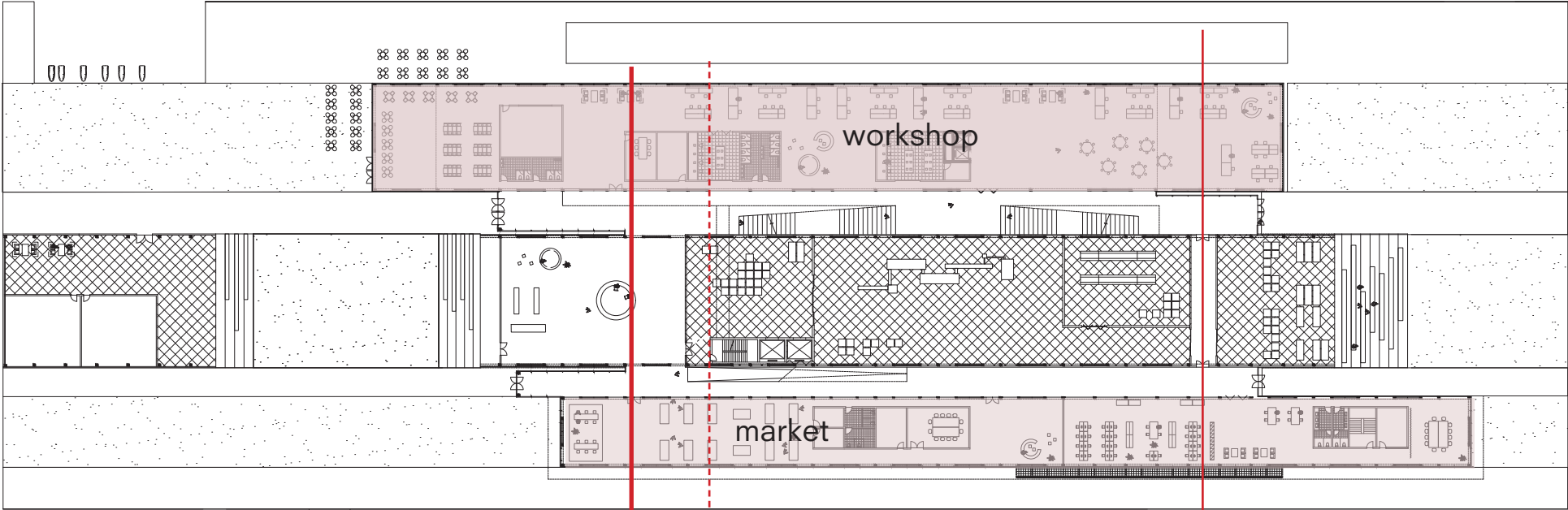


raw material



money

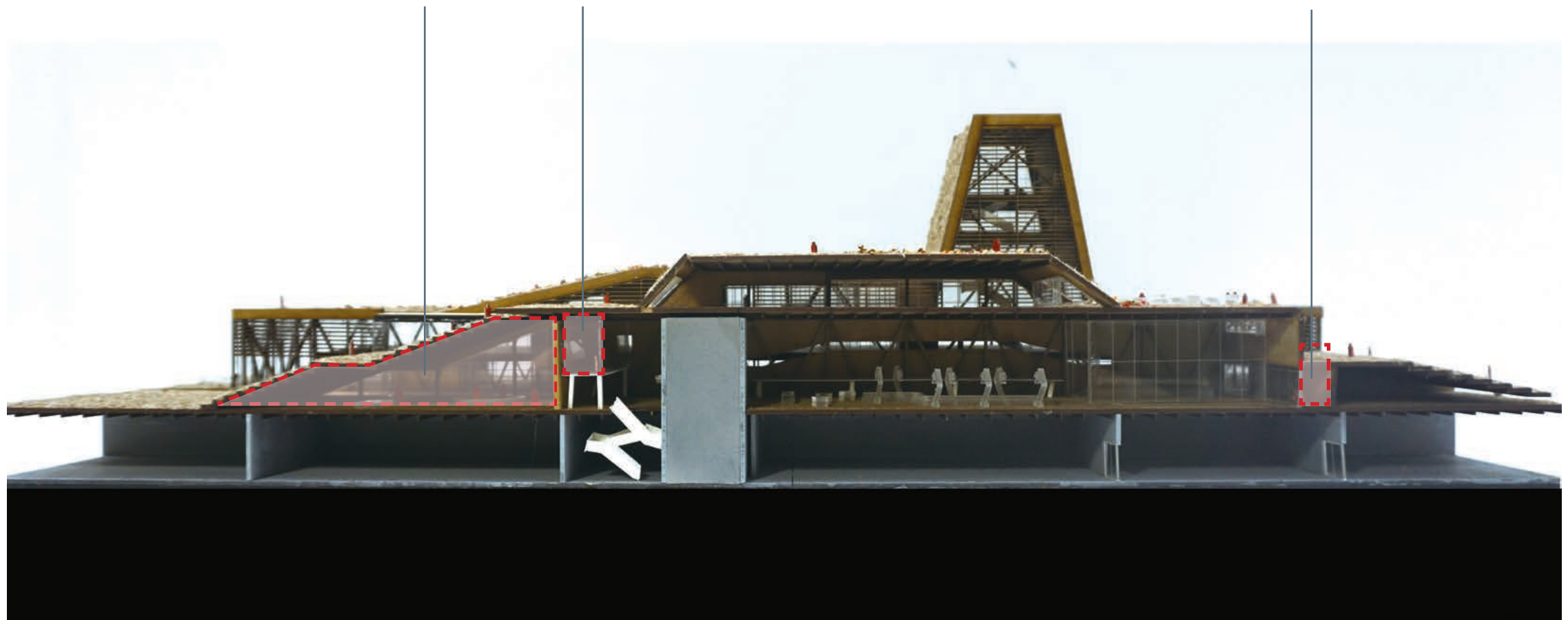
material value change axis



lobby

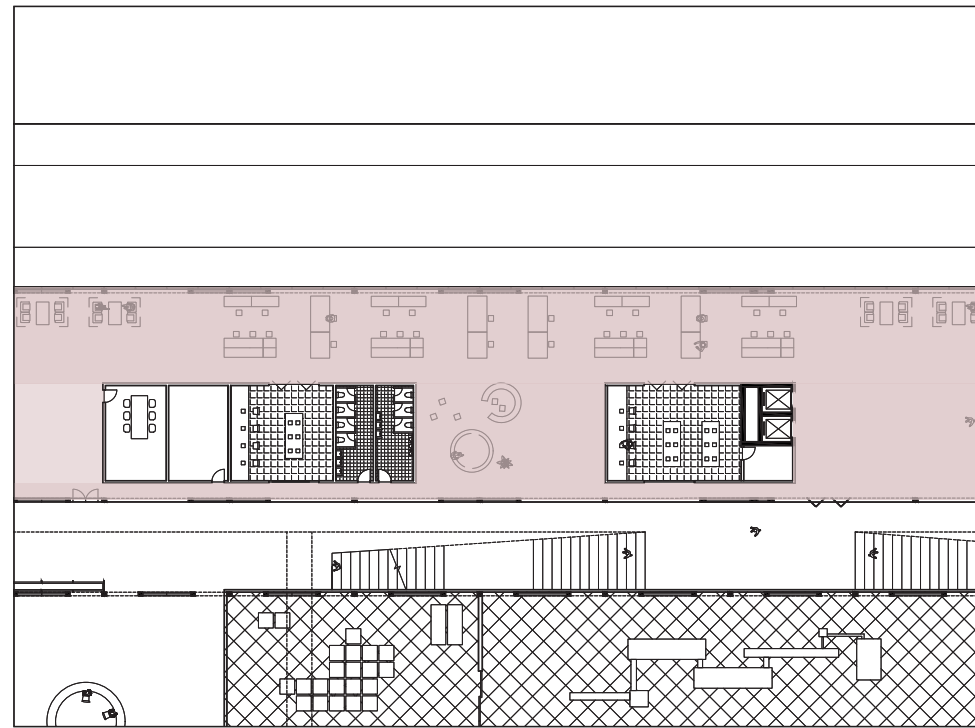
observation corridor

observation corridor

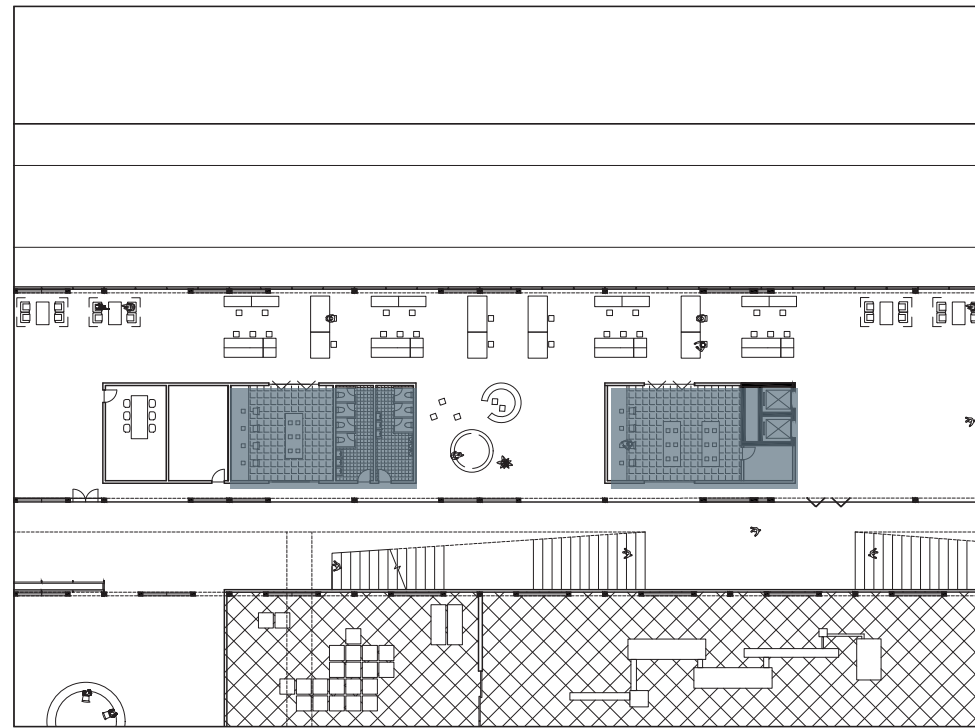




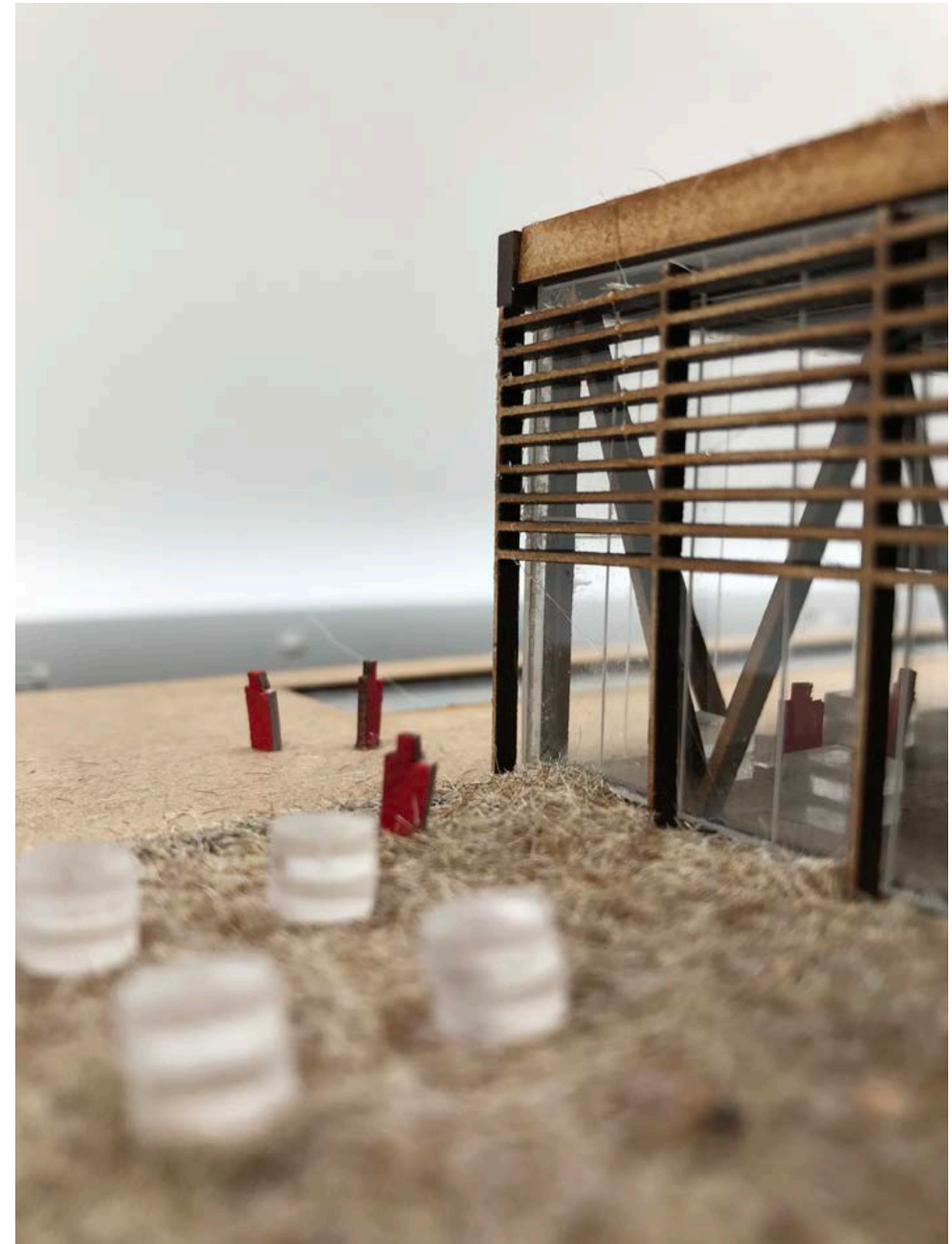
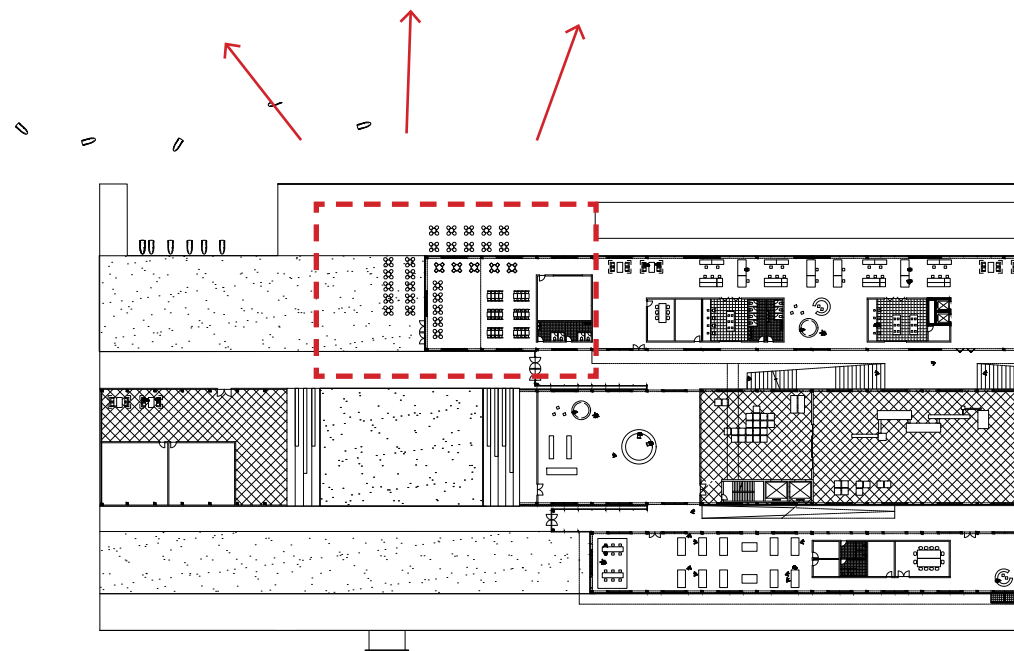
Workshop



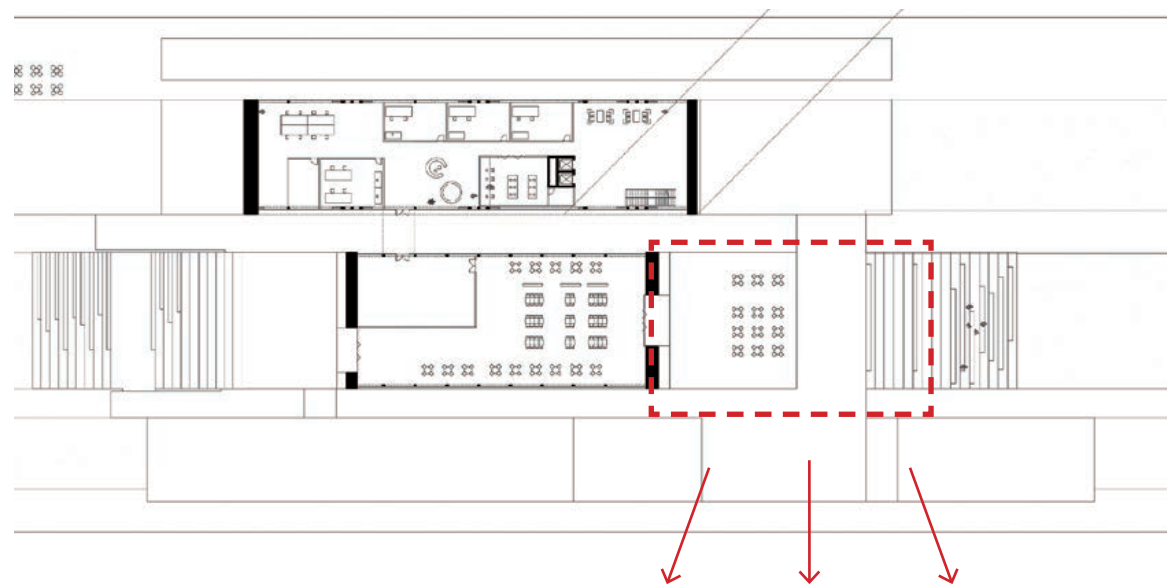
Workshop



Cafe



Restaurant



Swimming pool



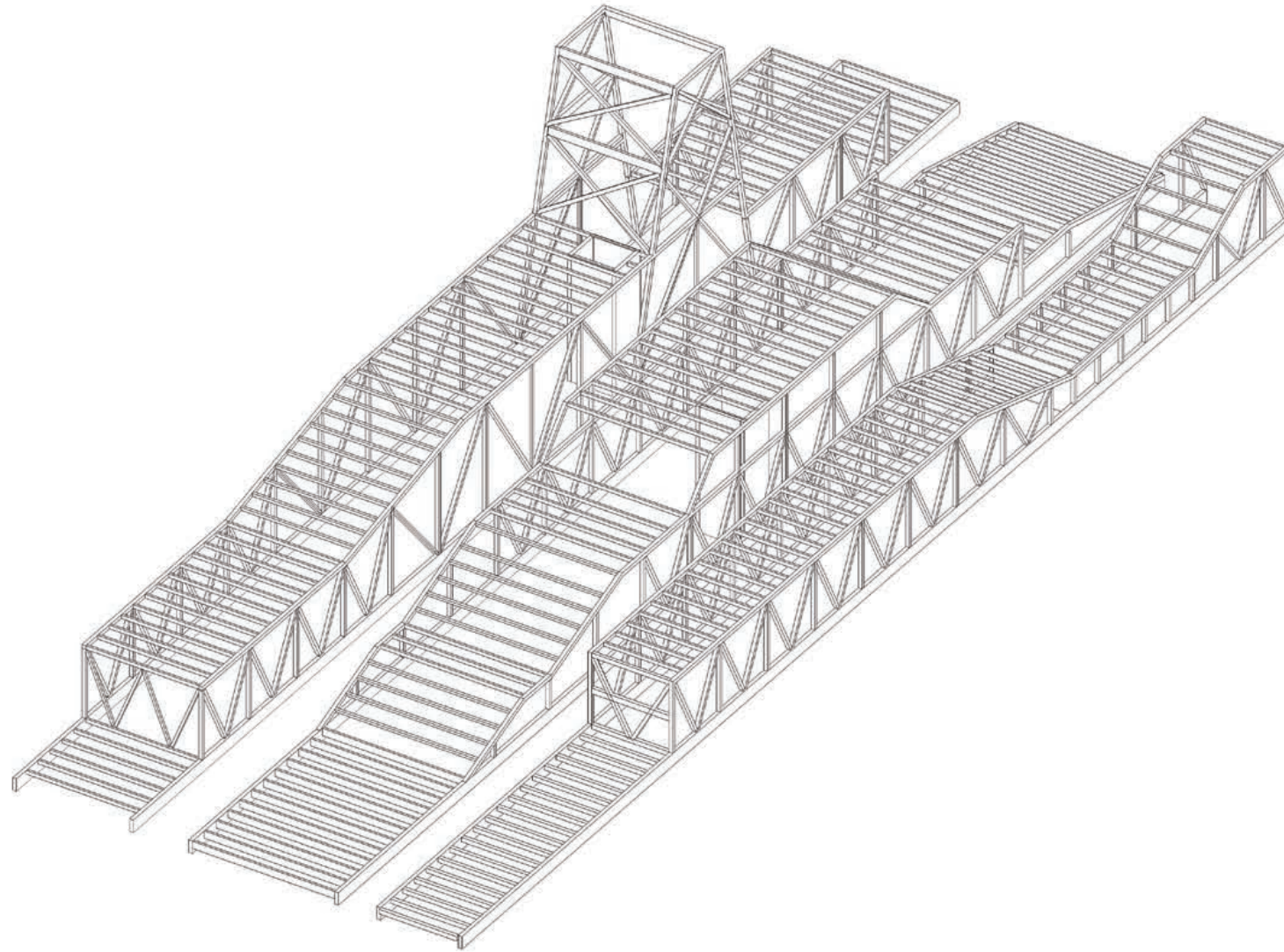
Swimming pool

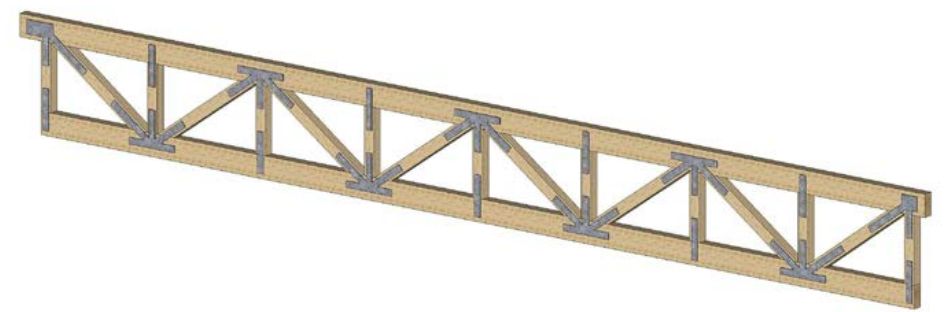
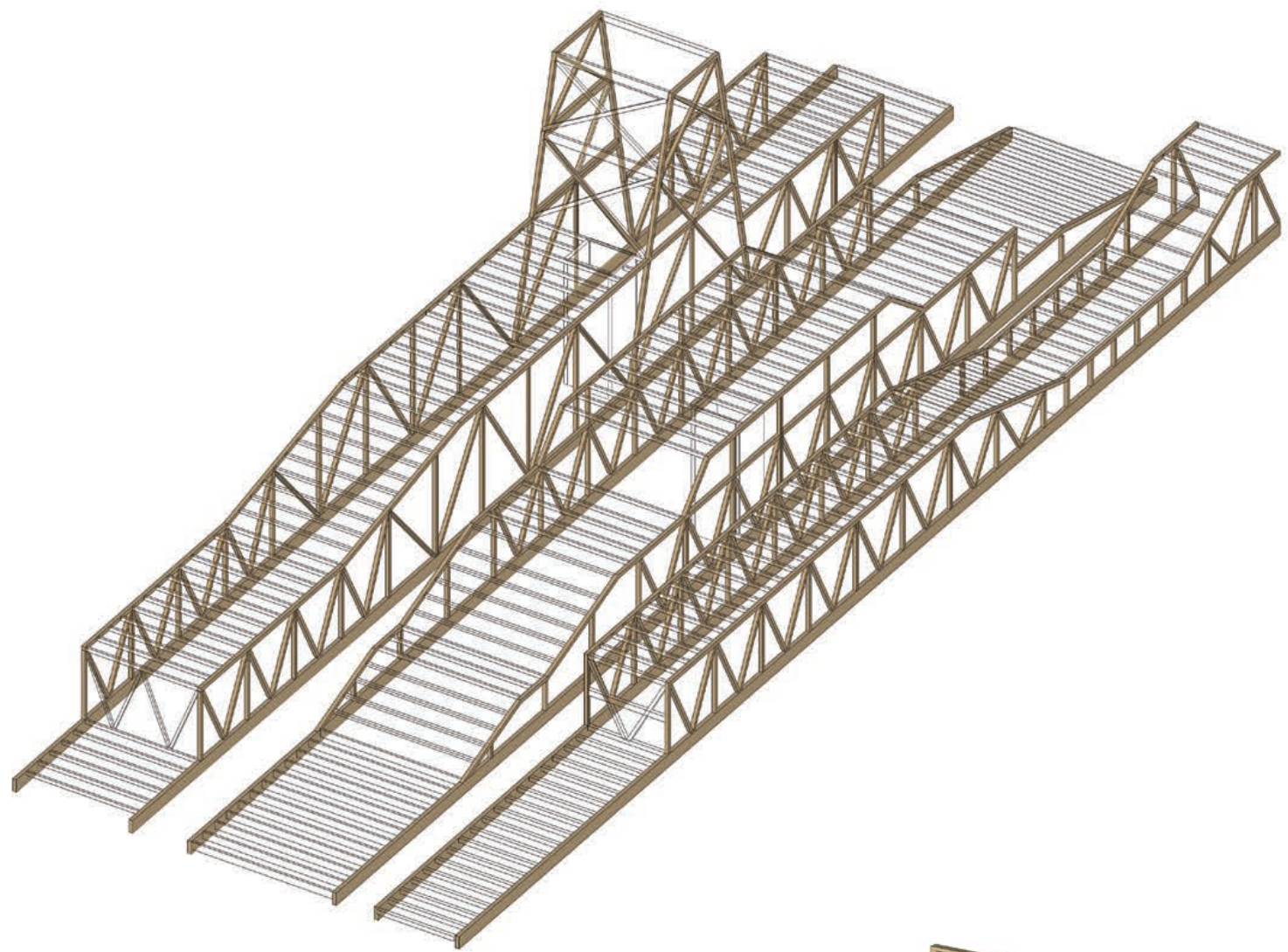


CONSTRUCTION AND SUSTAINABILITY

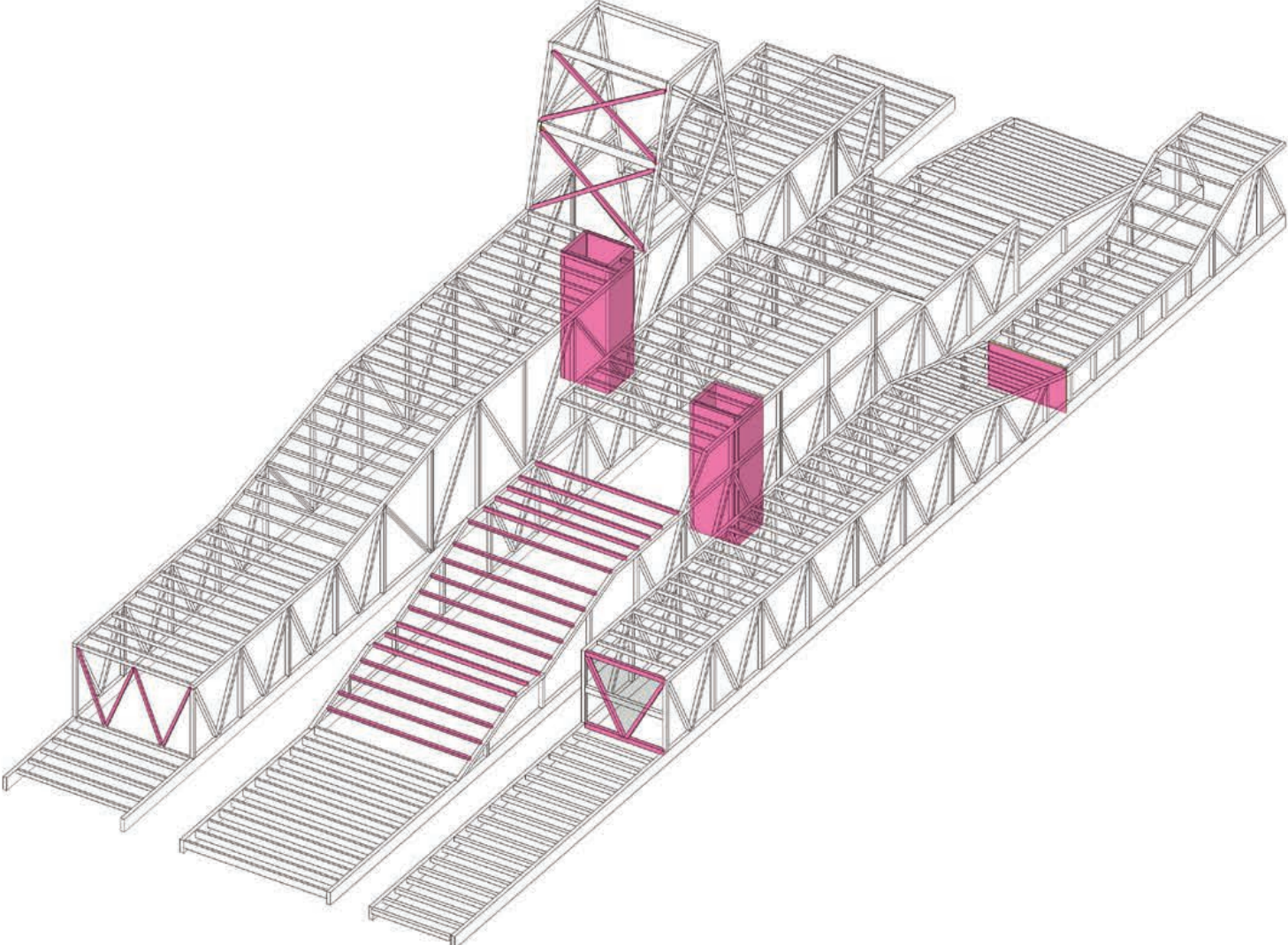
Timber



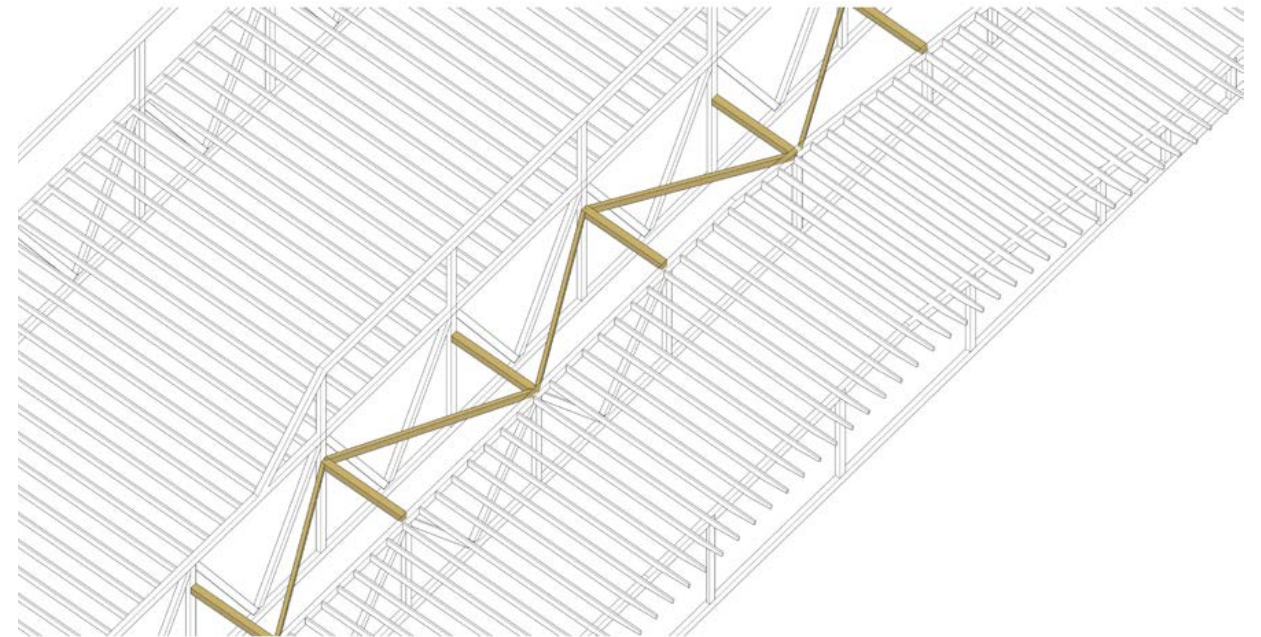
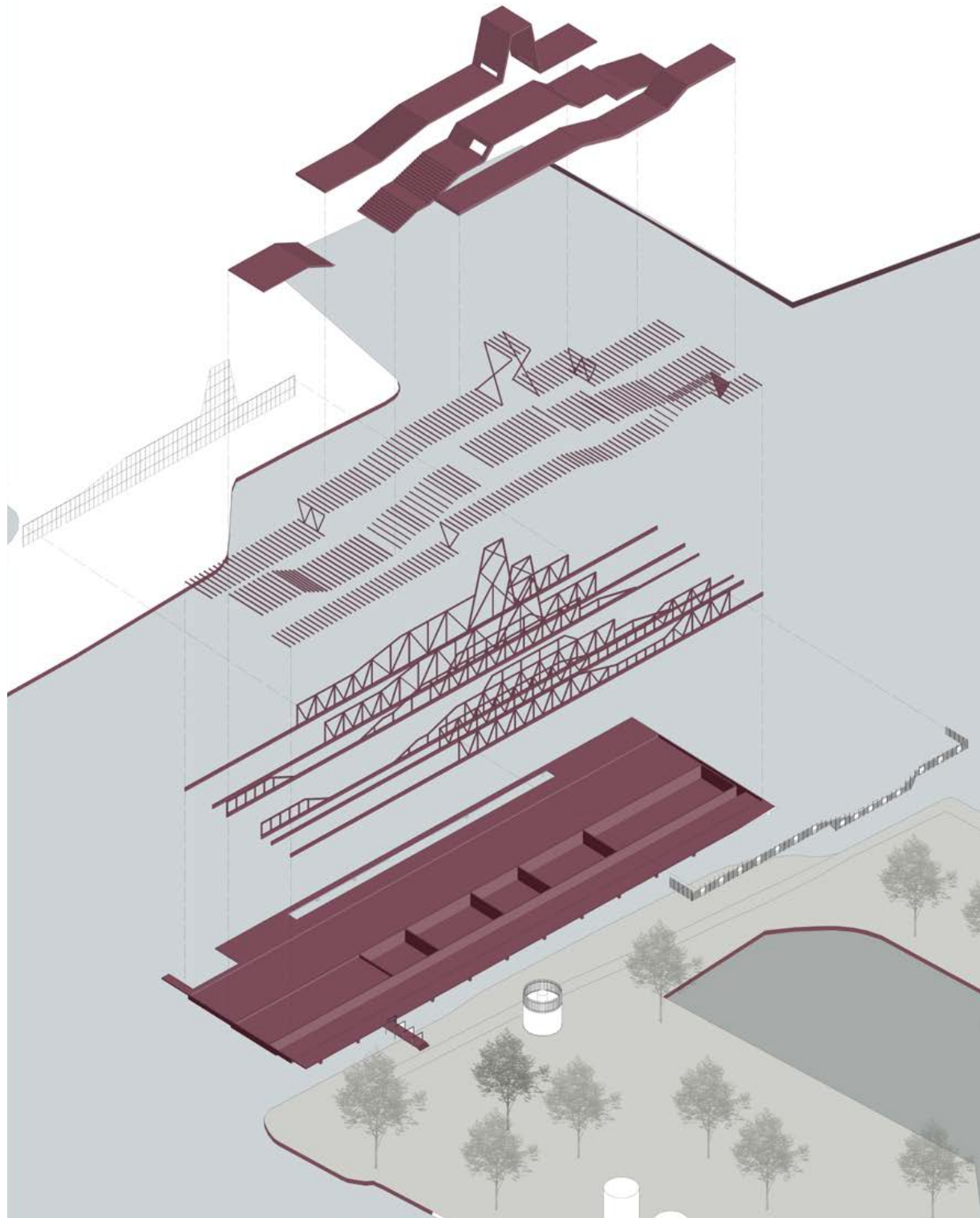








STRUCTURE SYSTEM



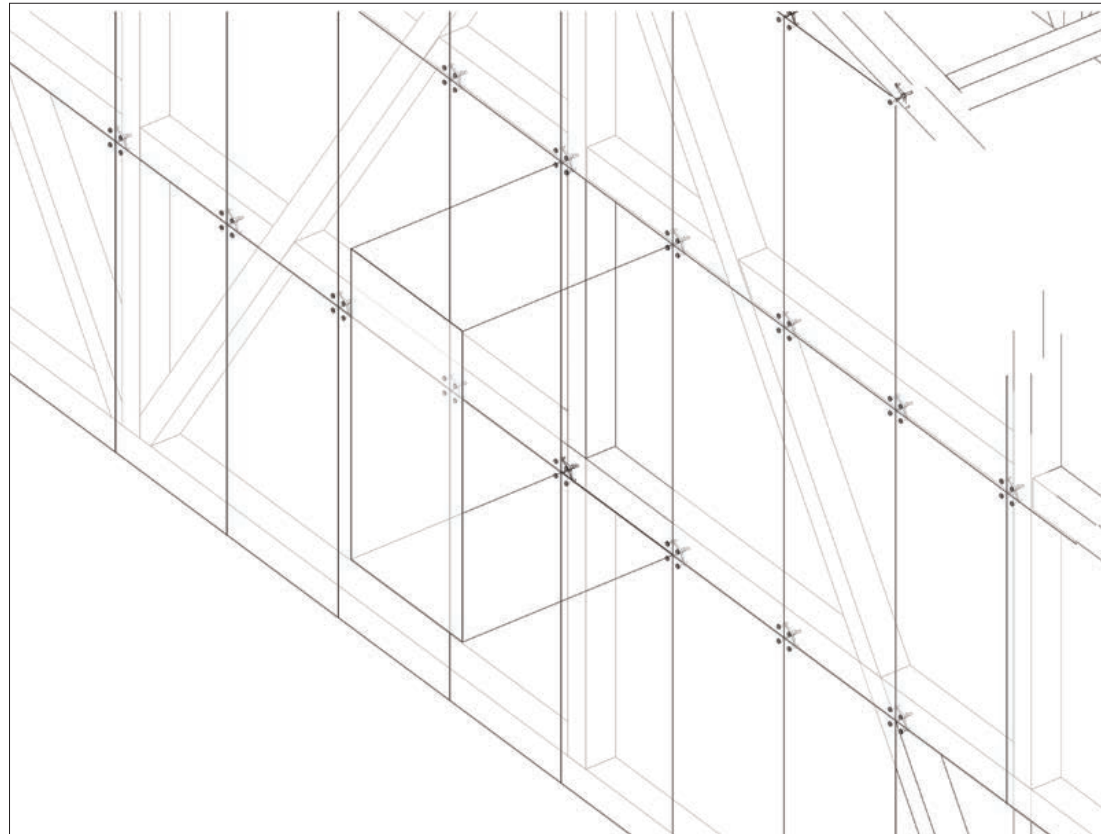
connection between two strips

STRUCTURE AND FACADE

North facade

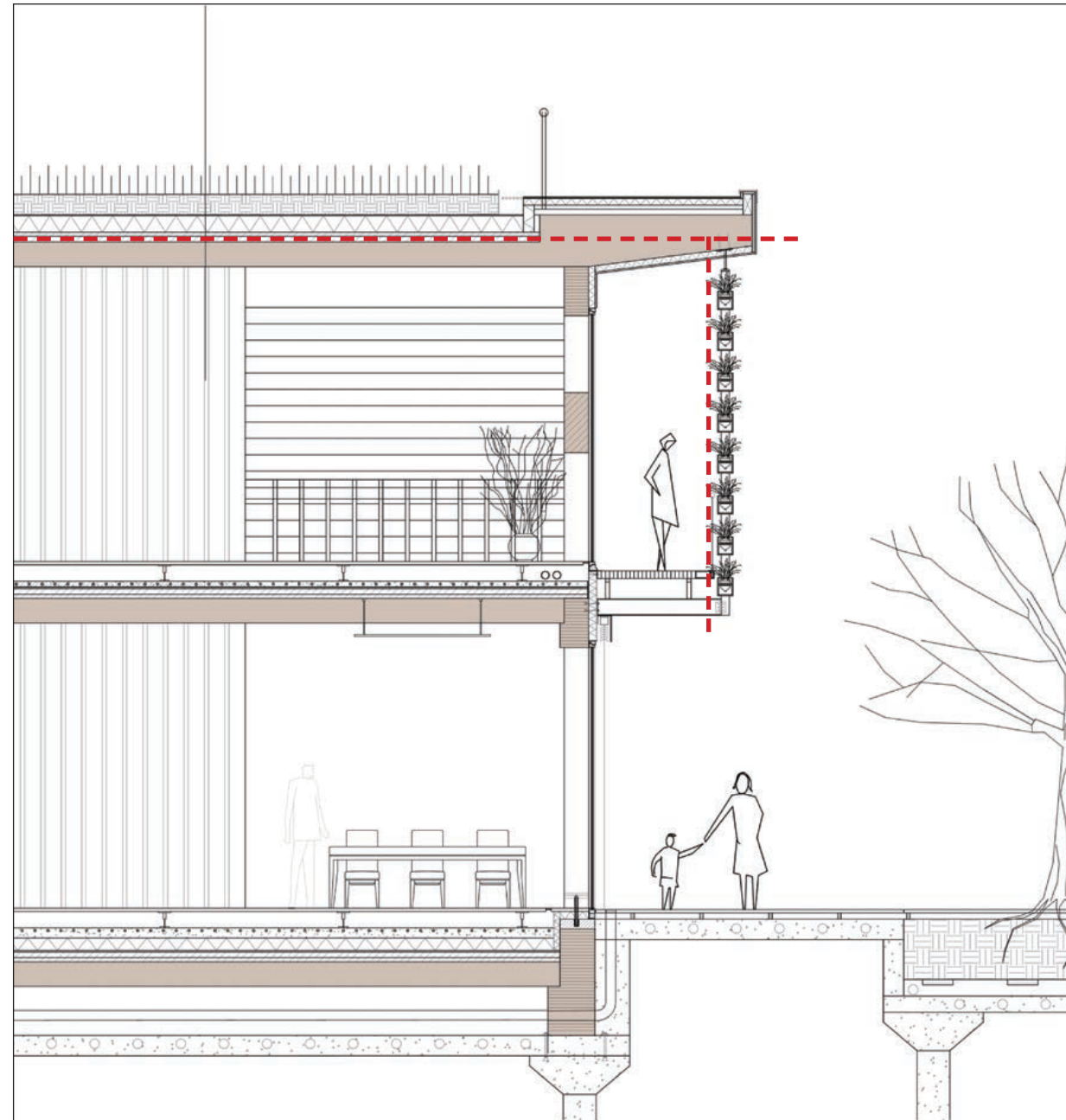


Glass spider fixed on structure

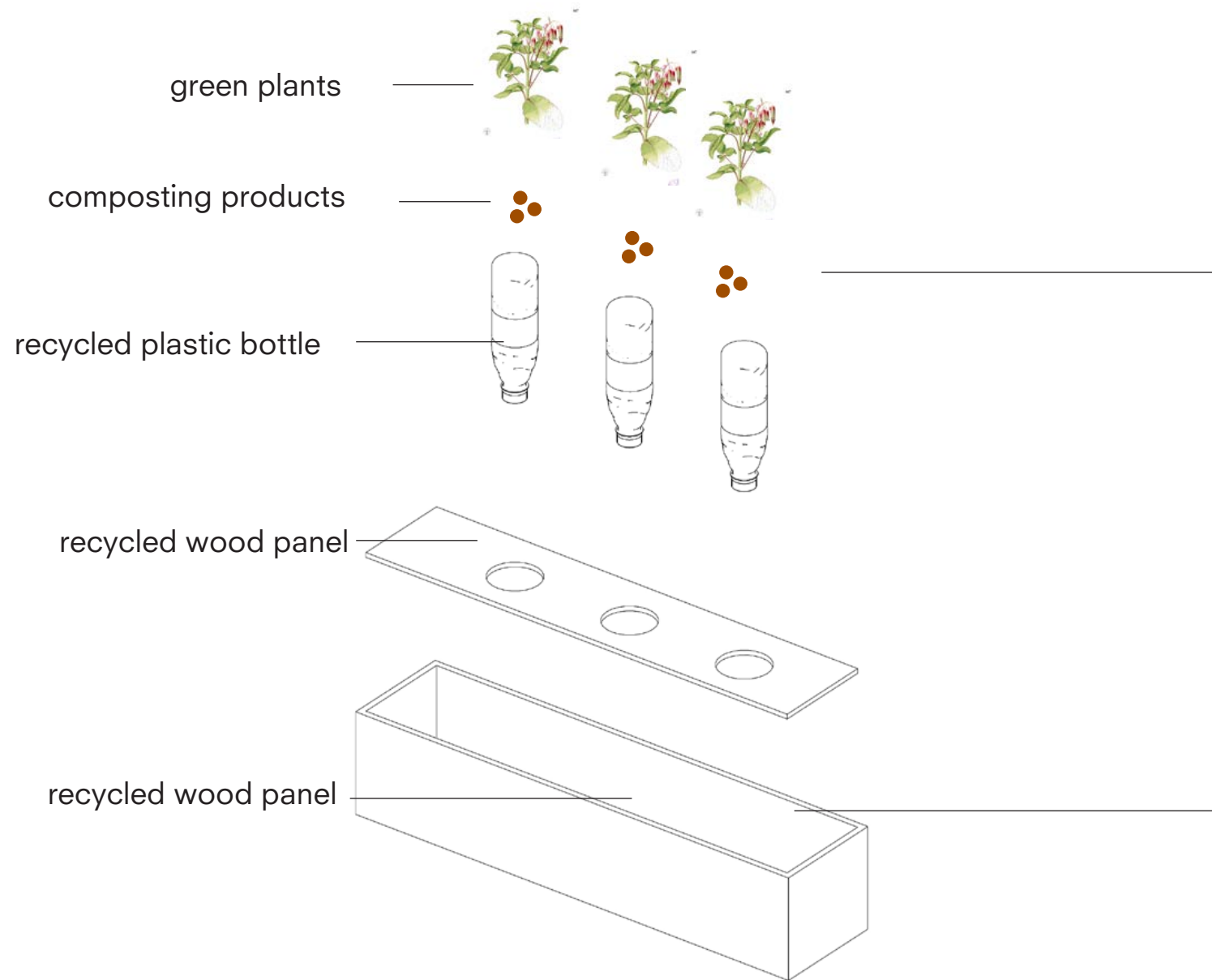


South facade



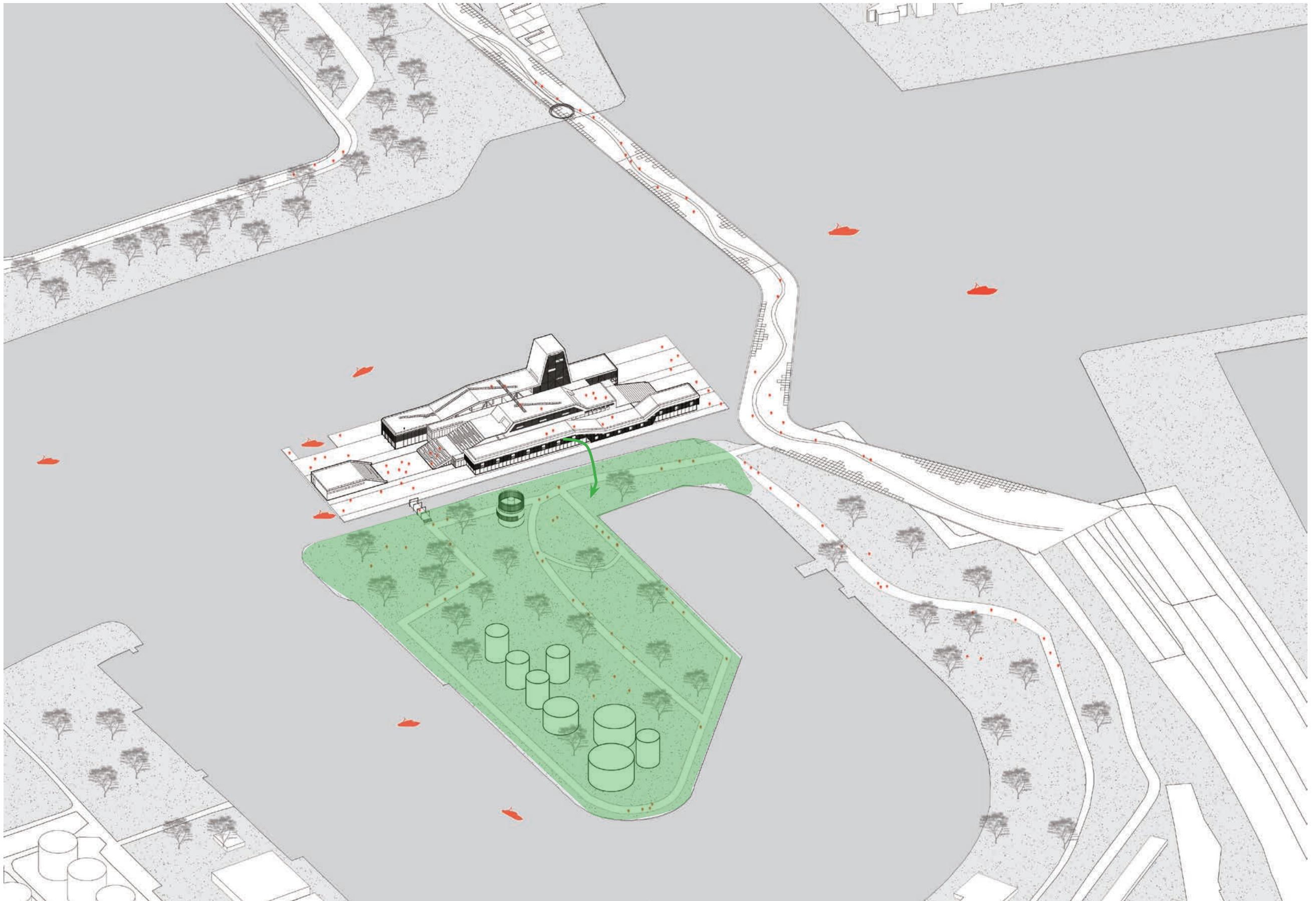


Composting wall on south side



Composting wall on south side





Composting wall in different seasons

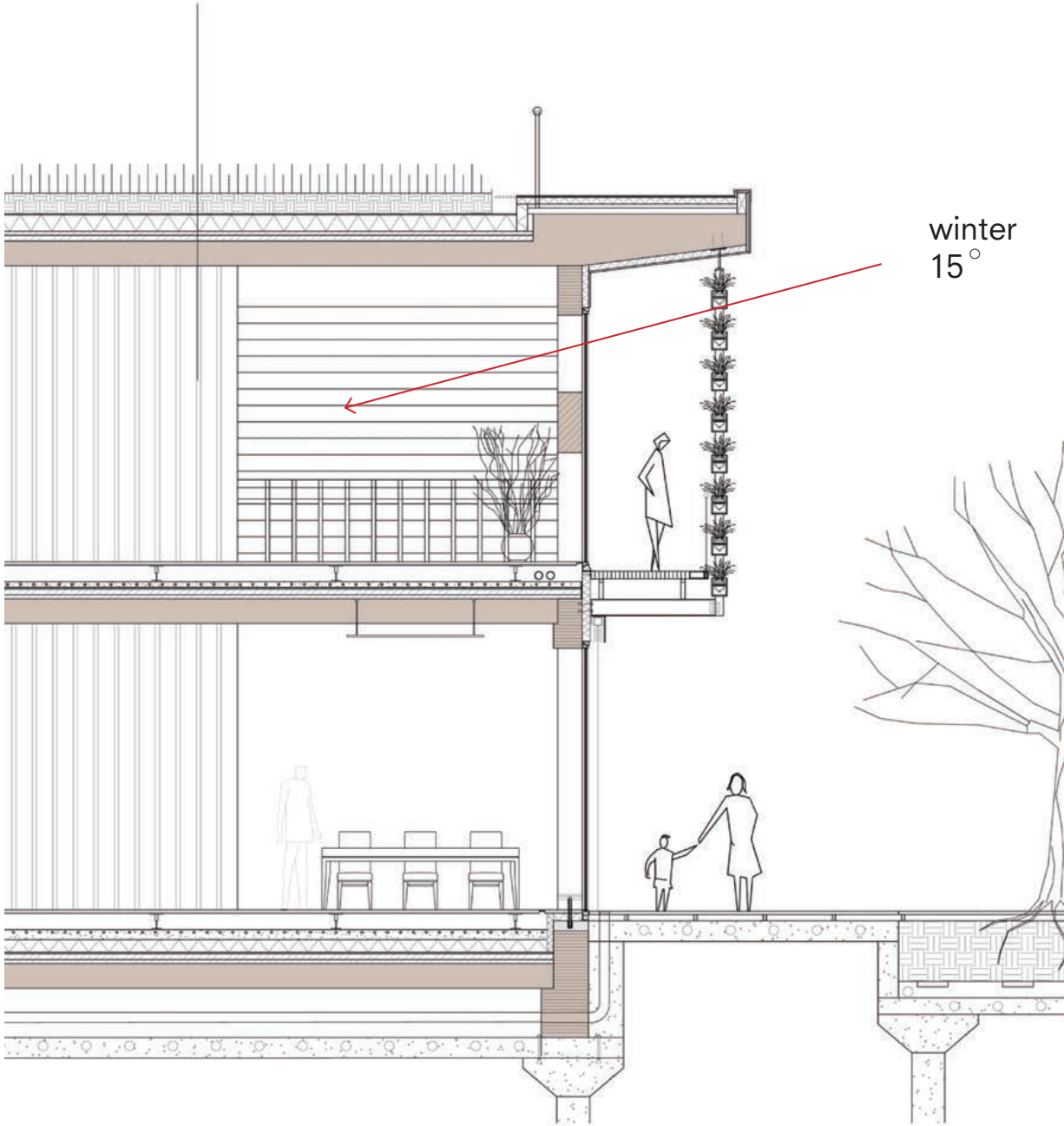
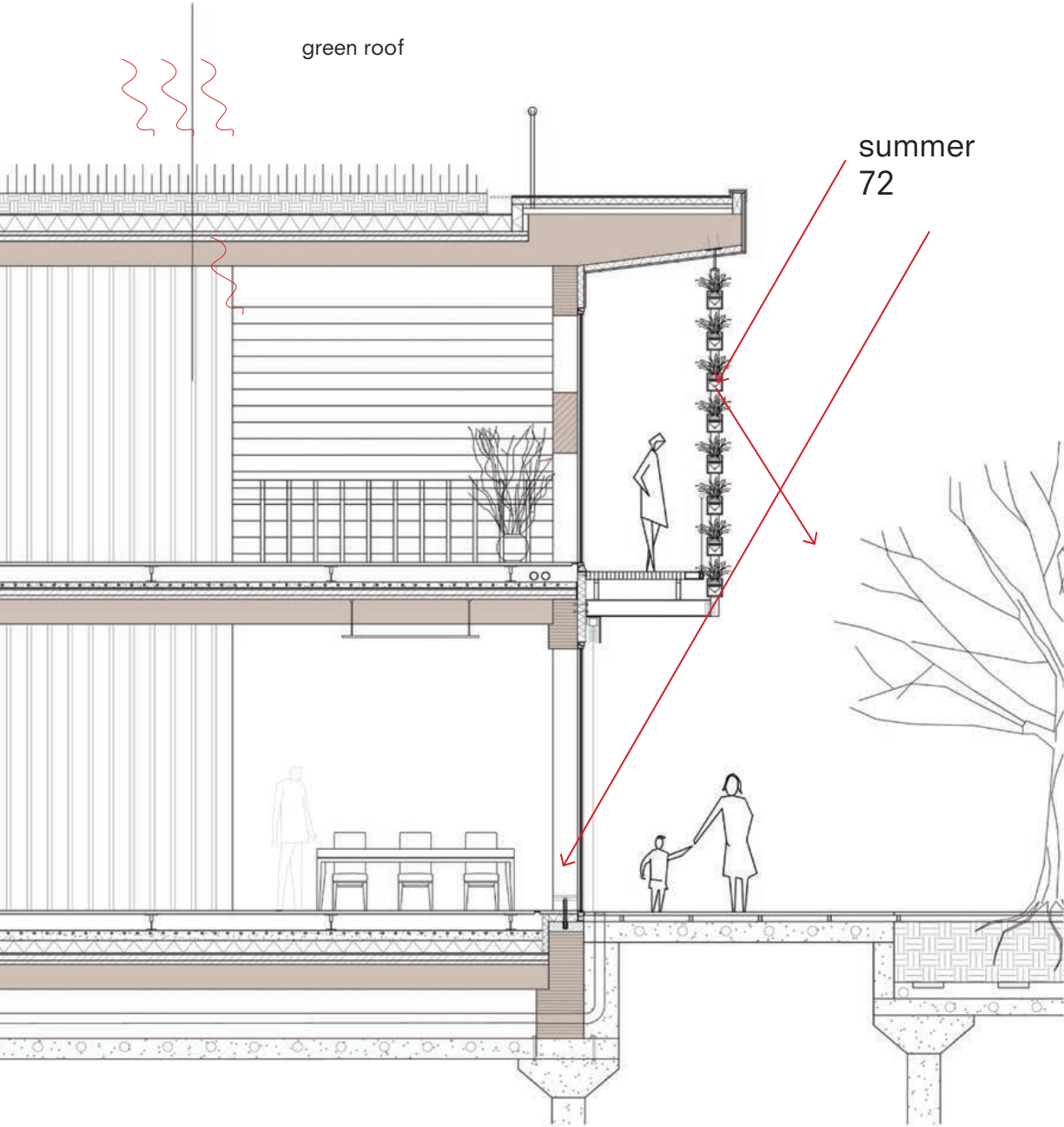


South facade in summer



South facade in winter

Shading in different seasons



Shading in different seasons



Spring



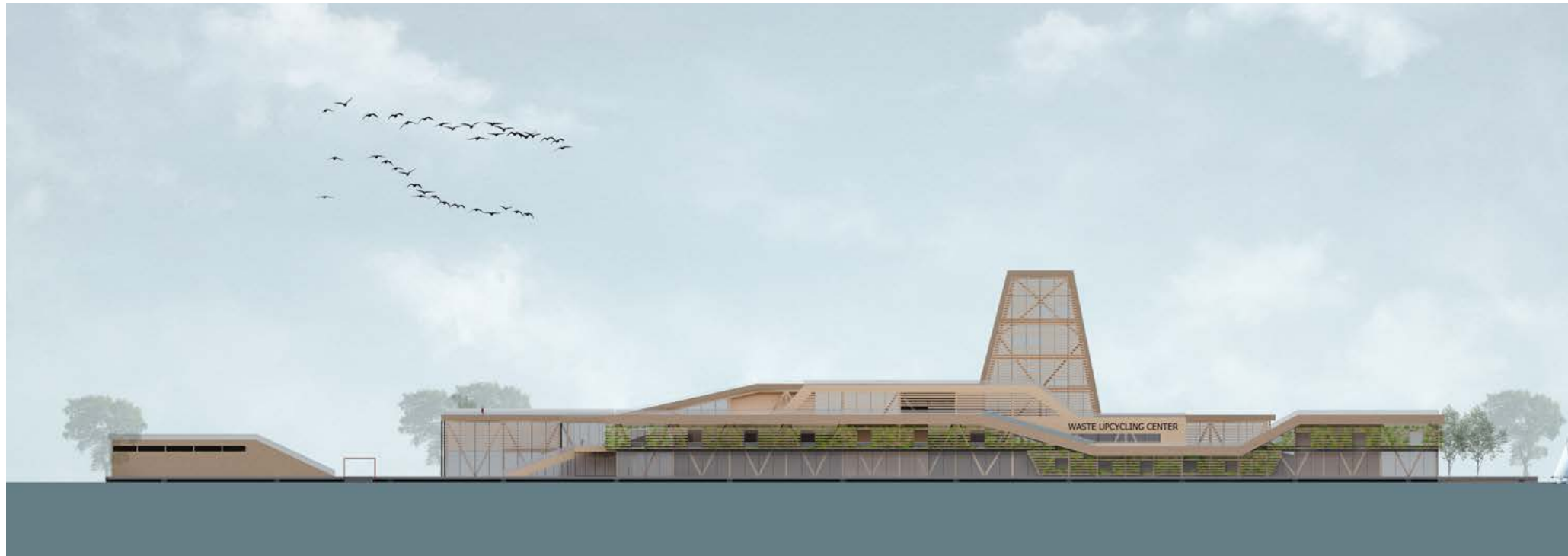
summer



fall

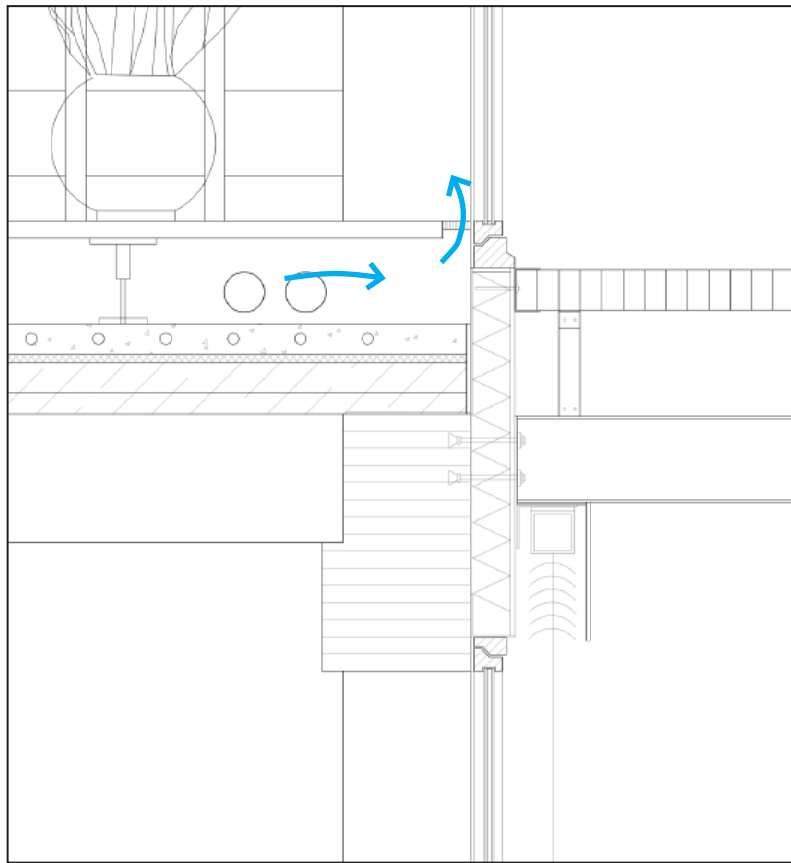


winter

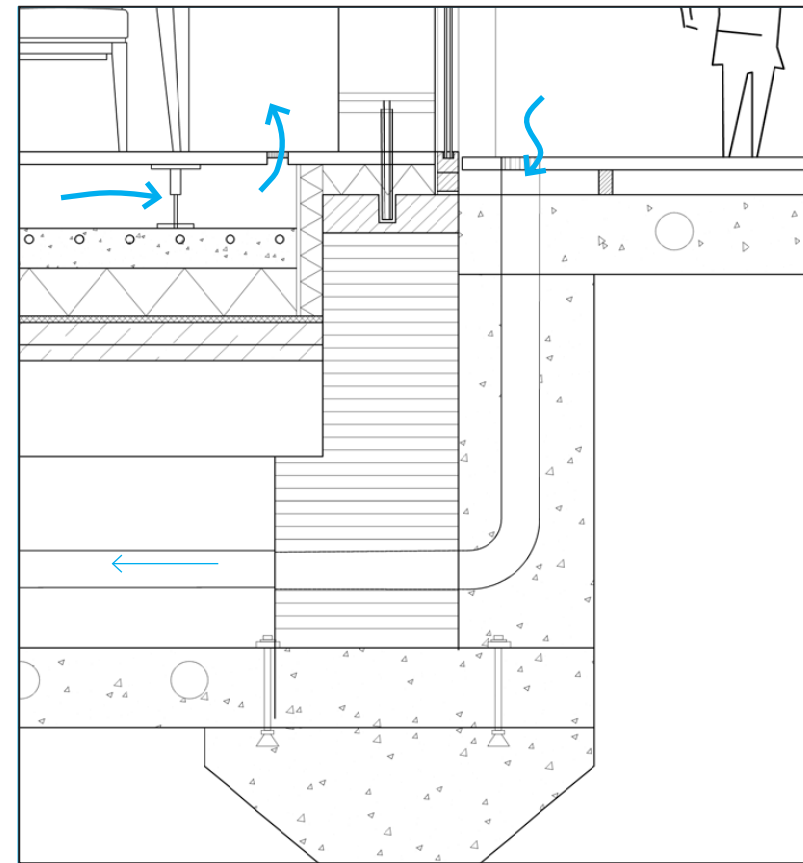


CLIMATE DESIGN

Ventilation



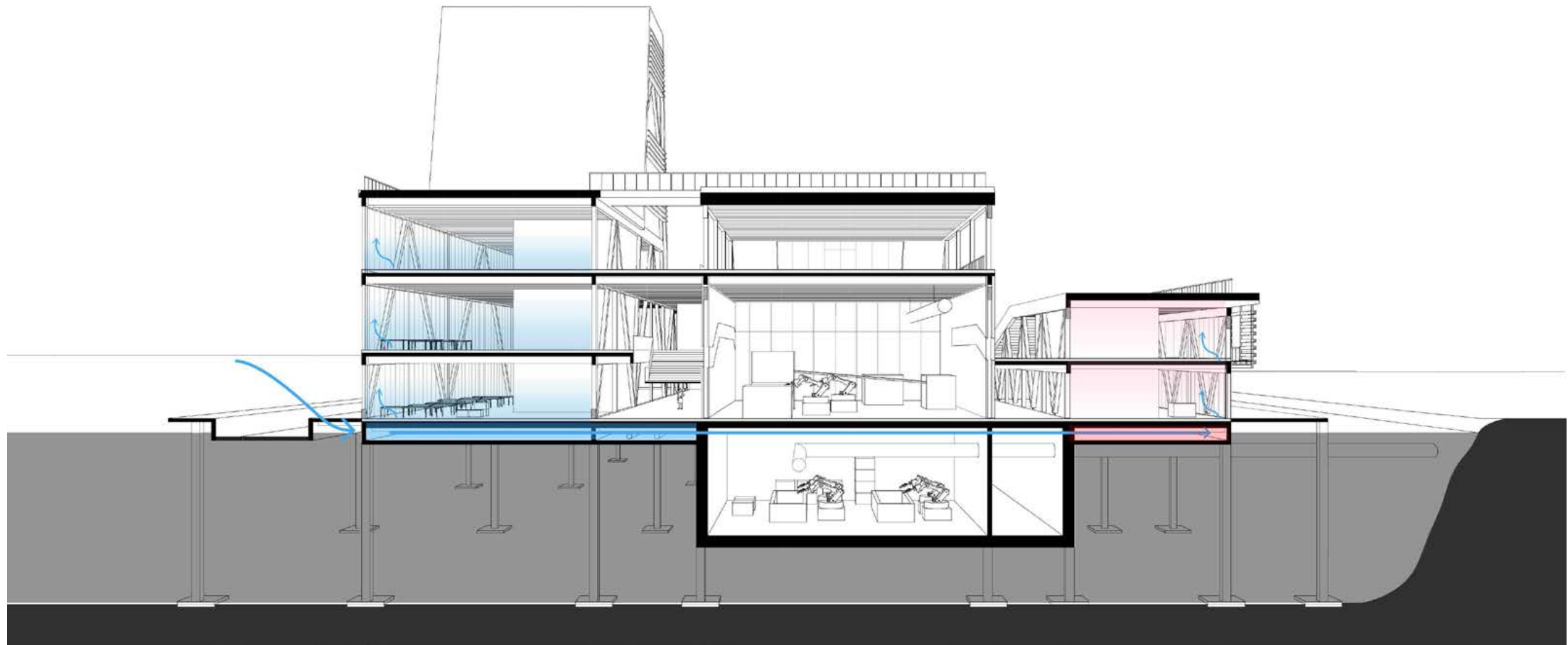
slab



platform

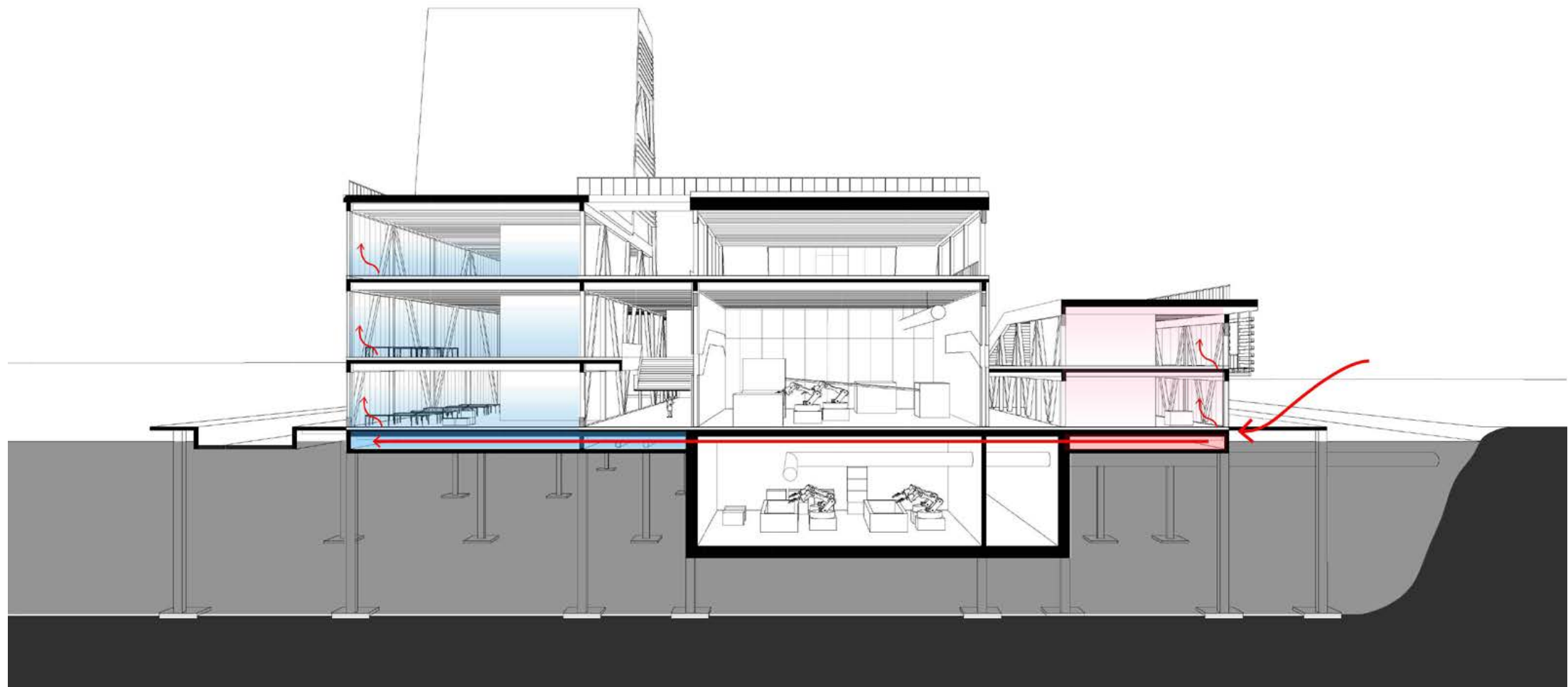
VENTILATION IN SUMMER

T: outside > inside

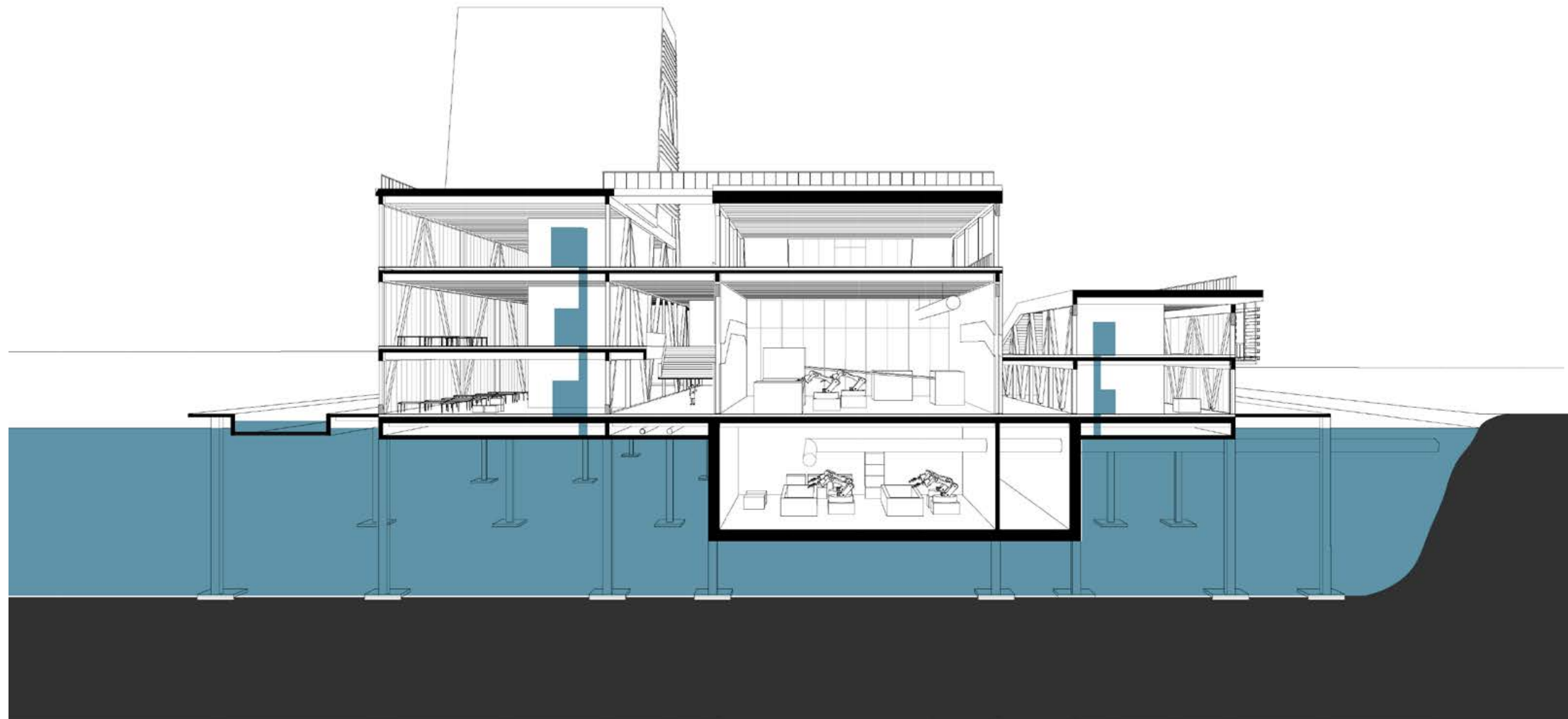


VENTILATION IN WINTER

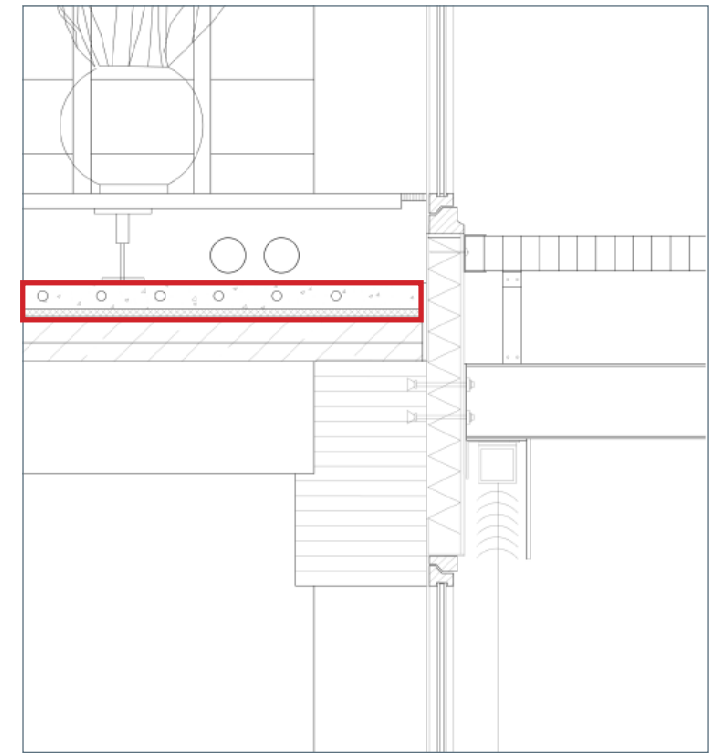
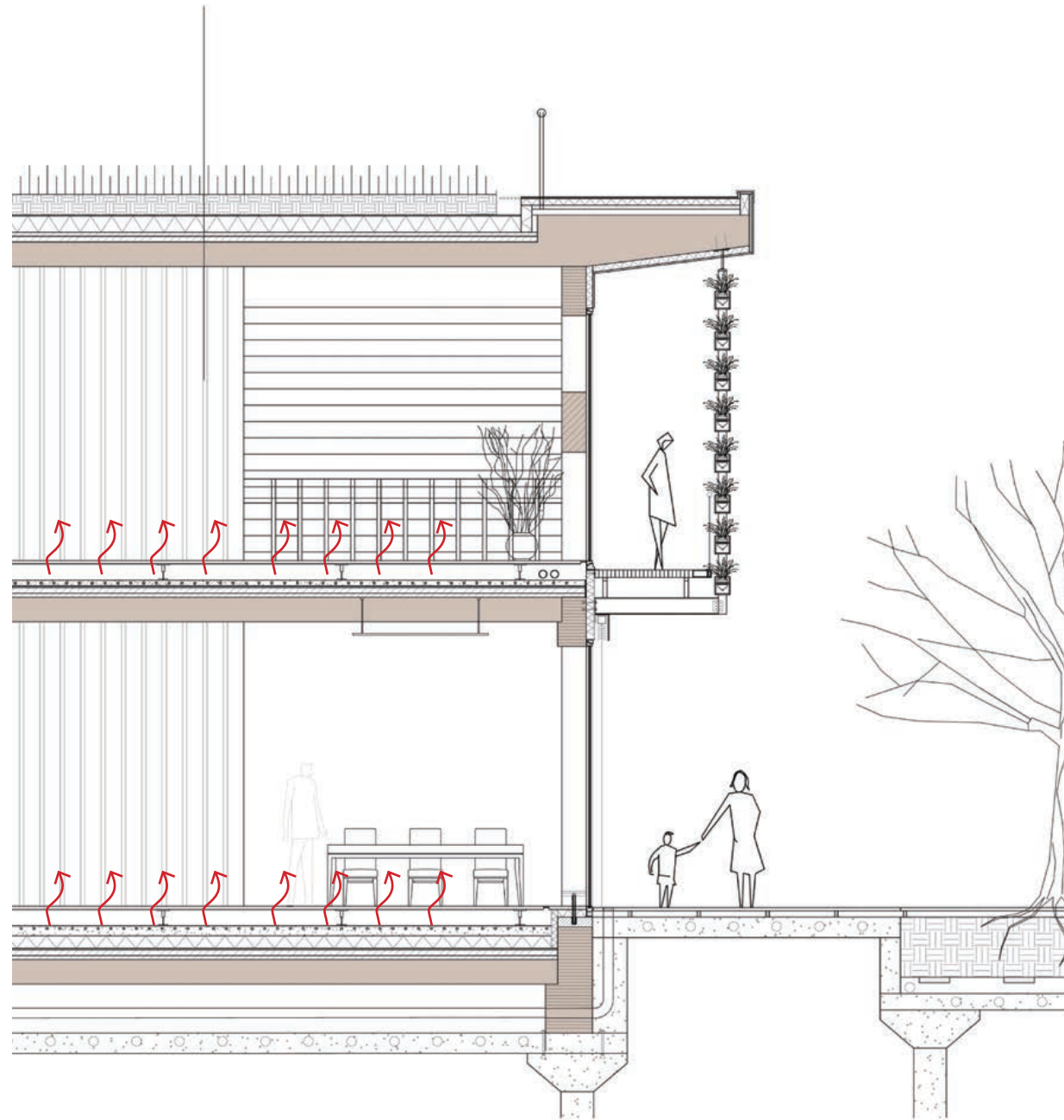
T: outside < inside



WATER PURIFY



HEATING SYSTEM



How to take the waste back to city



Thanks!

