

# POP OUT MILAN

UNVEILING MILAN'S URBAN RENAISSANCE THROUGH THE REBIRTH OF THE NAVIGLI  
CANAL SYSTEM AS A LANDSCAPE CONNECTION AND SOCIAL LINK

INTRODUCTION

THE CLOSURE OF THE NAVIGLI

SITE ANALYSIS

PROJECT DESIGN

NAVIGLI AND URBAN RENAISSANCE

CONCLUSION

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**FASCINATION**



The transformist character of the city

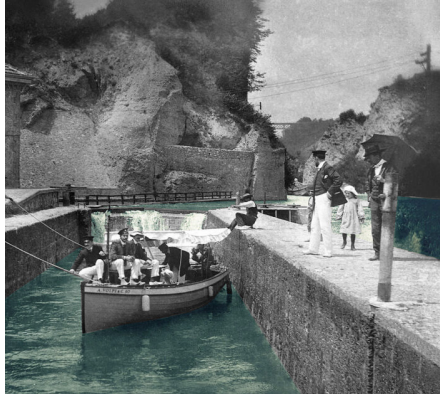
Introduction  
**FASCINATION**



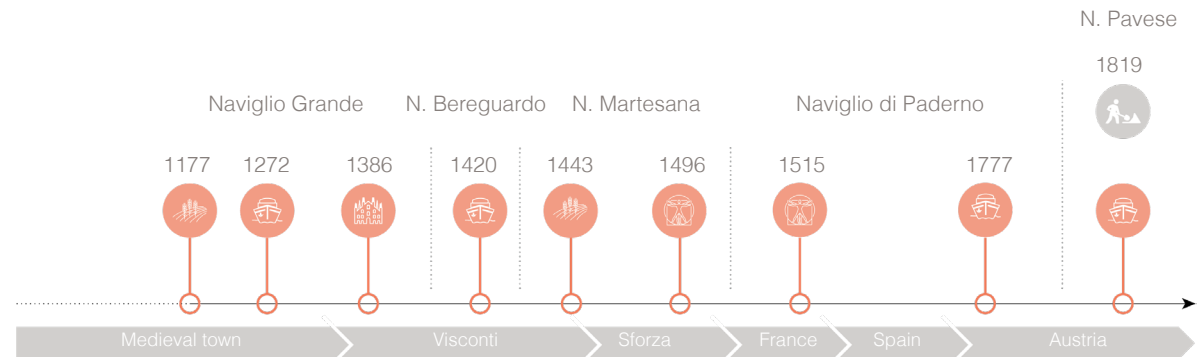
The genius loci of Milan

# Introduction

## WATER HERITAGE

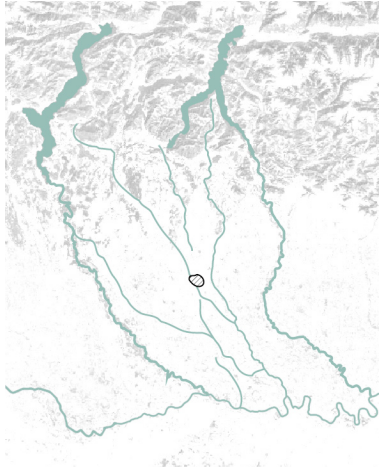


-  Irrigation
-  Navigation
-  Duomo construction
-  Leonardo da Vinci's contribution



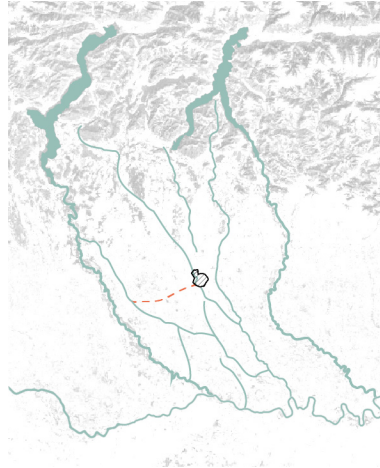
The Navigli system

## LANDSCAPE TRANSFORMATION



**XII century**

The initial water landscape



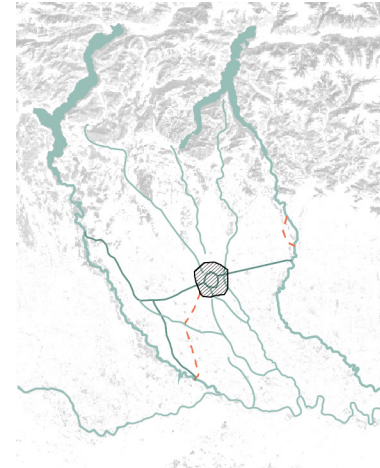
**XIII century**

● Naviglio Grande.



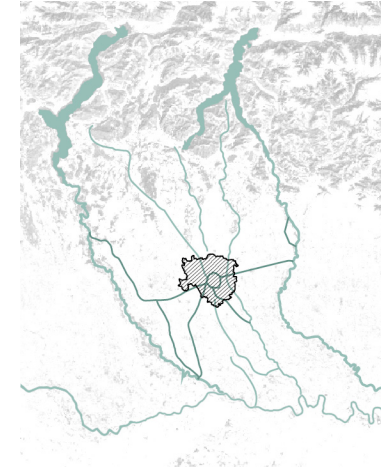
**XV century**

● Naviglio Grande  
● Naviglio della Martesana  
Cerchia Interna  
Naviglio di Bereguardo



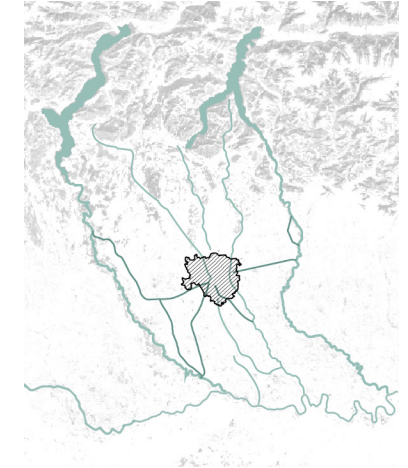
**XVIII century**

● Naviglio della Martesana  
Cerchia Interna  
Naviglio di Bereguardo  
● Naviglio di Paderno  
Naviglio Pavese.



**XIX century**

● Naviglio di Paderno  
Naviglio Pavese.

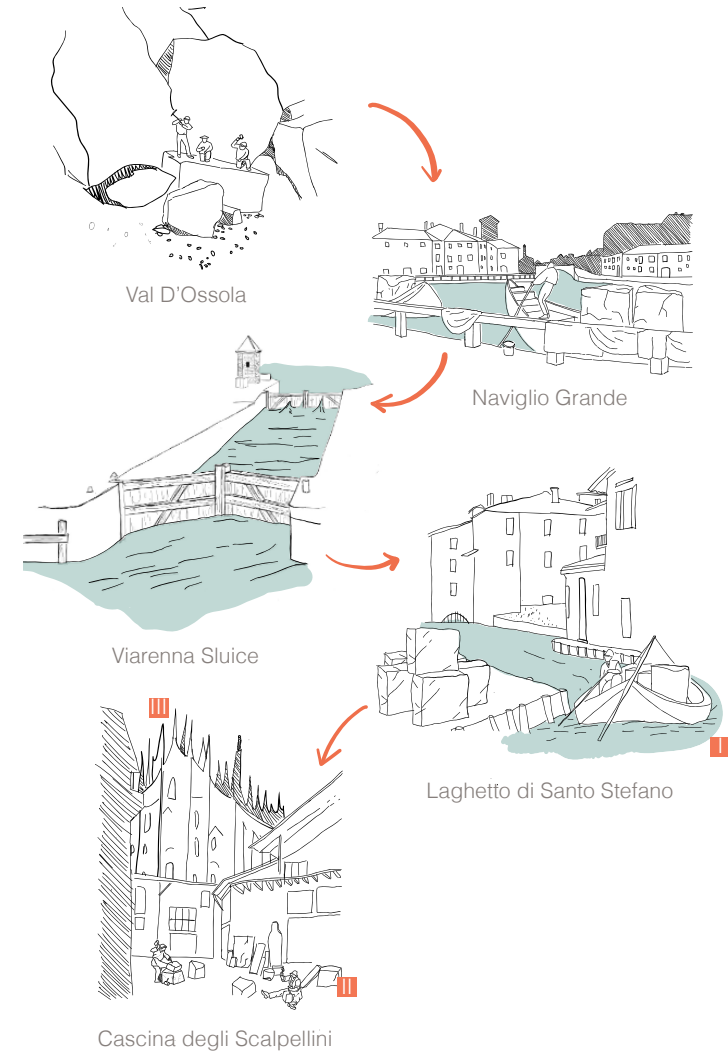
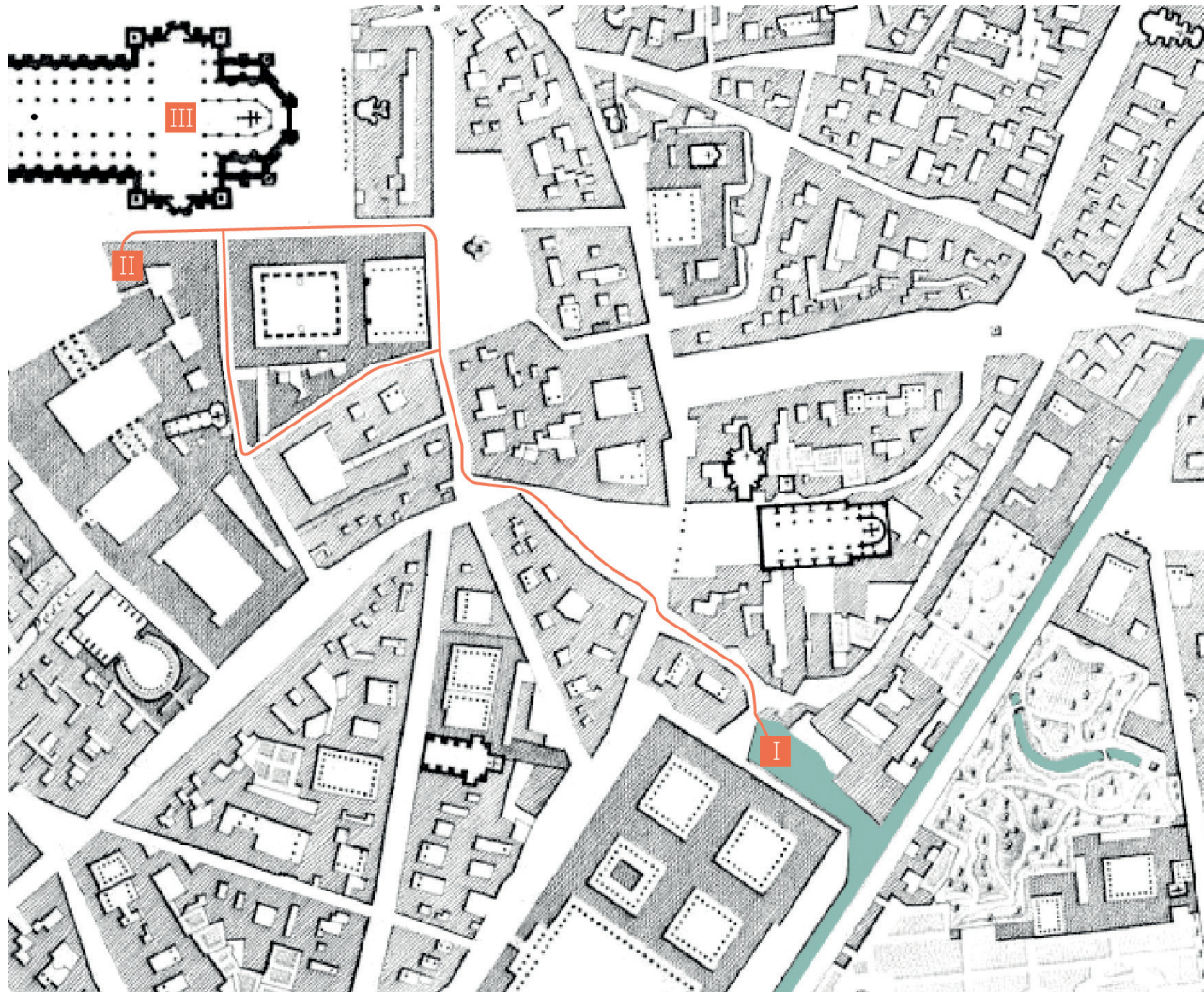


**XXI century**

● Naviglio della Martesana  
Cerchia Interna

The Navigli system and its creation, evolution and decay

**THE CONNECTION WITH THE ART AND THE CITY**

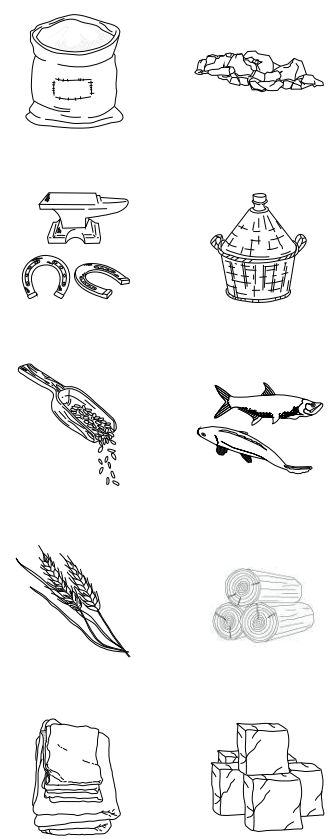
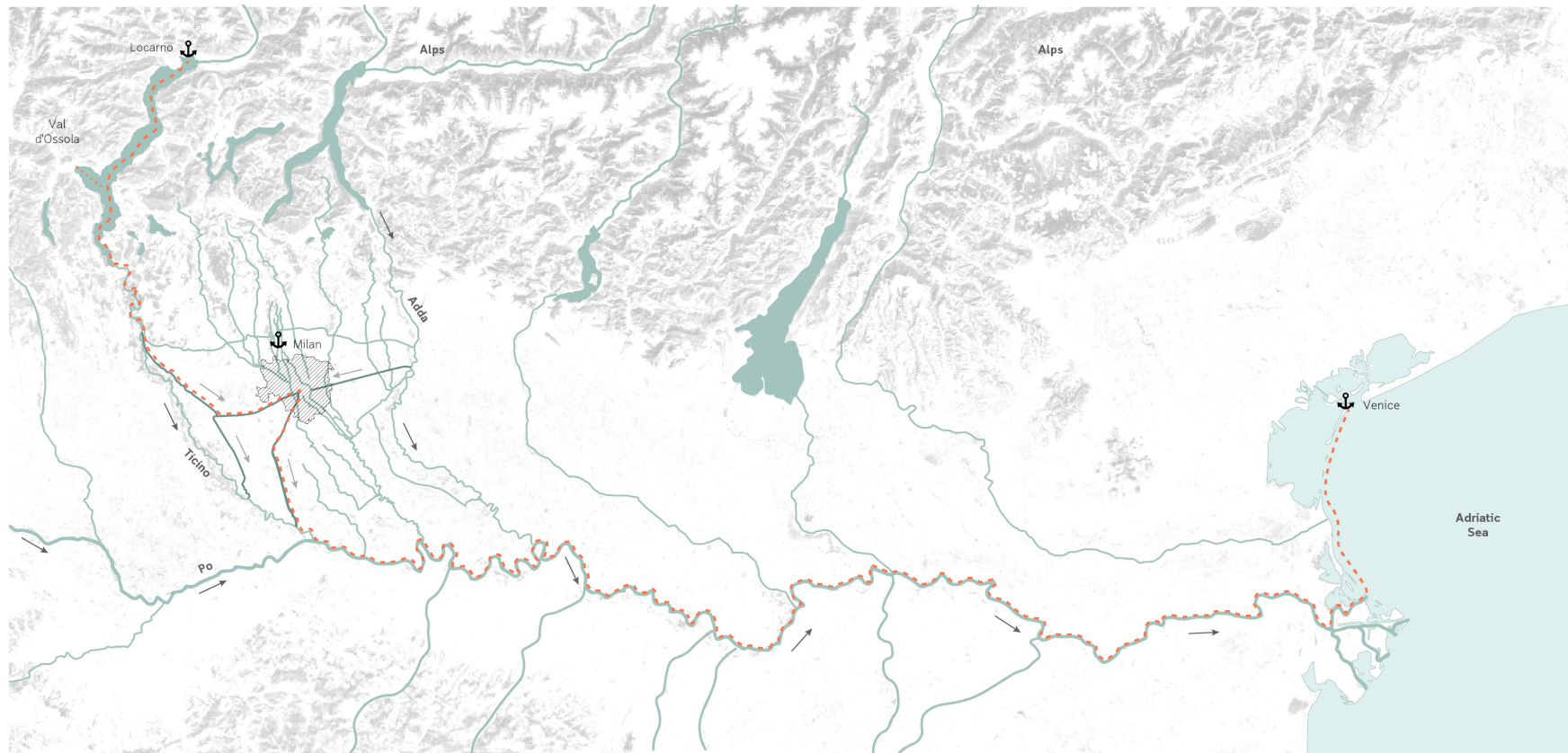


The process of marble for the Duomo construction



# Introduction

## THE LARGE TRADING SYSTEM



EXPORTED      IMPORTED

- Geography
- Lake
- Sea
- Milan
- Waterway
- Navigli
- Traditional trading system
- Main port



Milan's status at the Large scale due to the realisation of the Navigli

## Introduction

### THE REALITY OUT OF THE FRONT DOOR



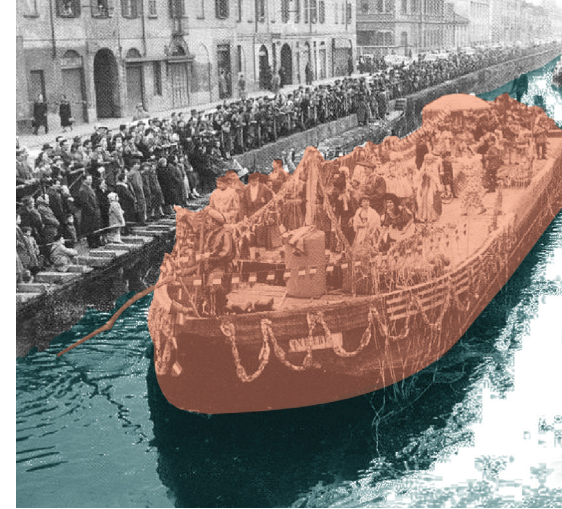
*«The sailing was as smooth as can be imagined, smooth, along the bank: it seemed like sailing in the middle of meadows.»*

Raffaele Calzini, 1939



*« [...] Milan became an important river port, which enabled it to receive at less expense grain, iron, and especially timber, and to ship to the Po and Ferrara the large pieces of artillery from its foundries: in short, to make up for the flaw of being a city in the midst of land. »*

Fernand Braudel, 16th century



*« [...] Friendships were born, markets, marriages, hunting trips, fishing trips, morra and tarot card challenges were sketched out. »*

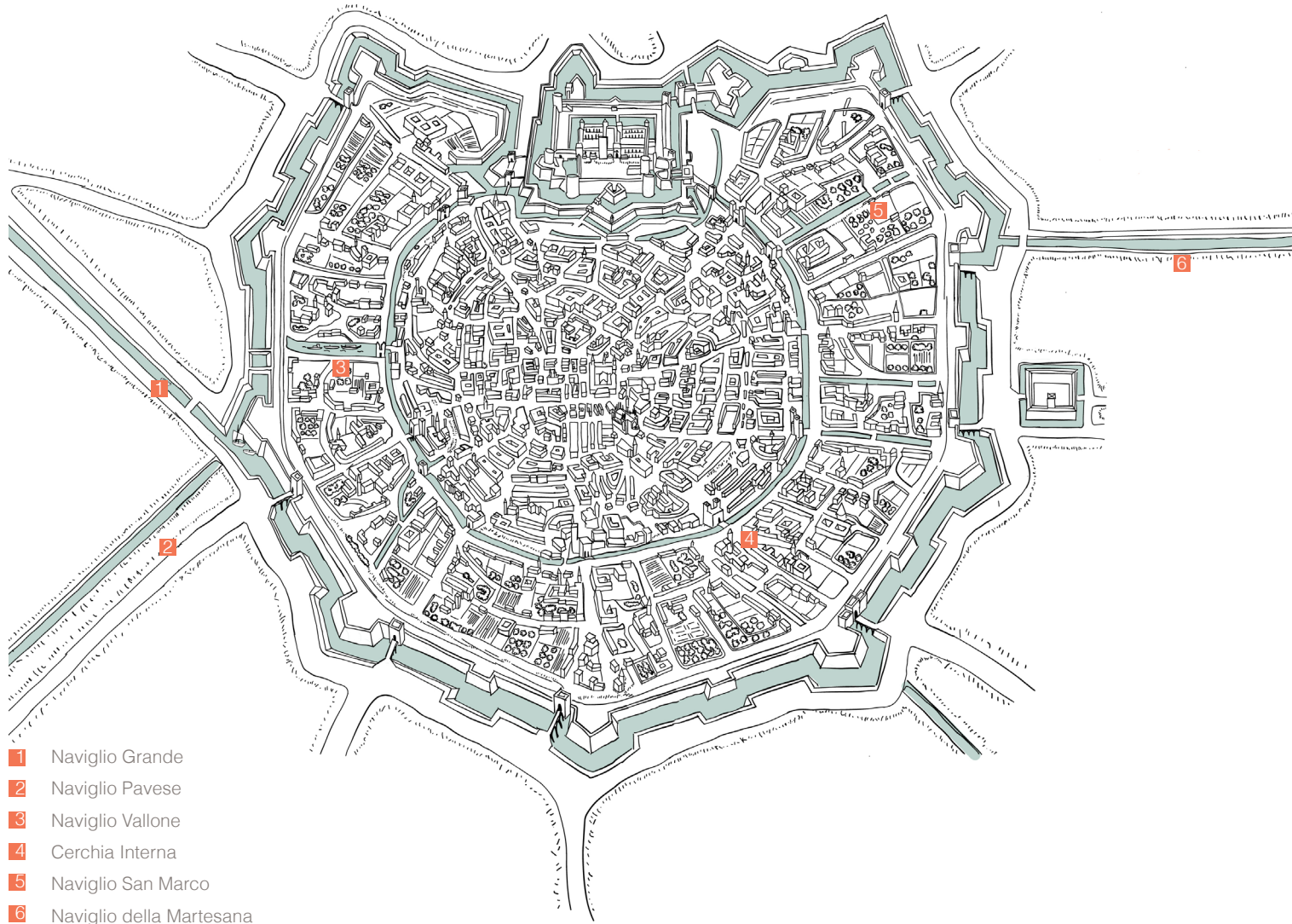
Raffaele Calzini, 1939



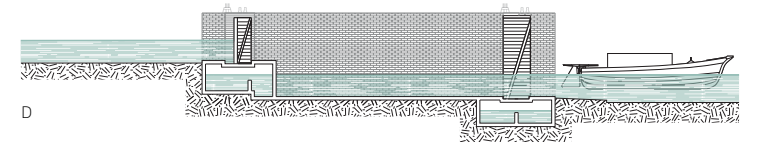
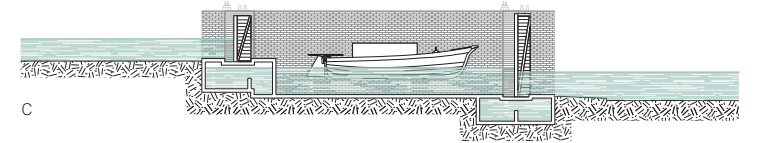
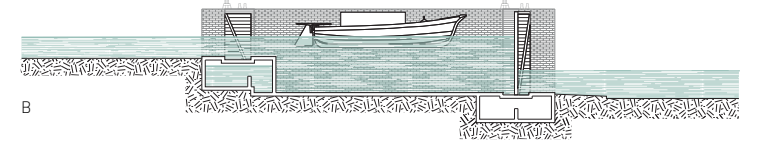
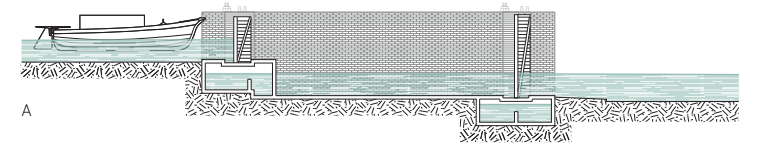
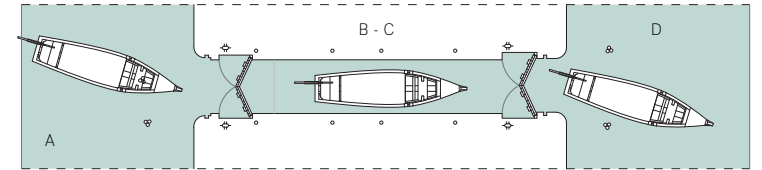
The Navigli system as a genuine and pragmatic element at the local scale

# Introduction

## A DUAL SYSTEM



- 1 Naviglio Grande
- 2 Naviglio Pavese
- 3 Naviglio Vallone
- 4 Cerchia Interna
- 5 Naviglio San Marco
- 6 Naviglio della Martesana



Technological avant-garde and simplicity achieved through water

INTRODUCTION

**THE CLOSURE OF THE NAVIGLI**

SITE ANALYSIS

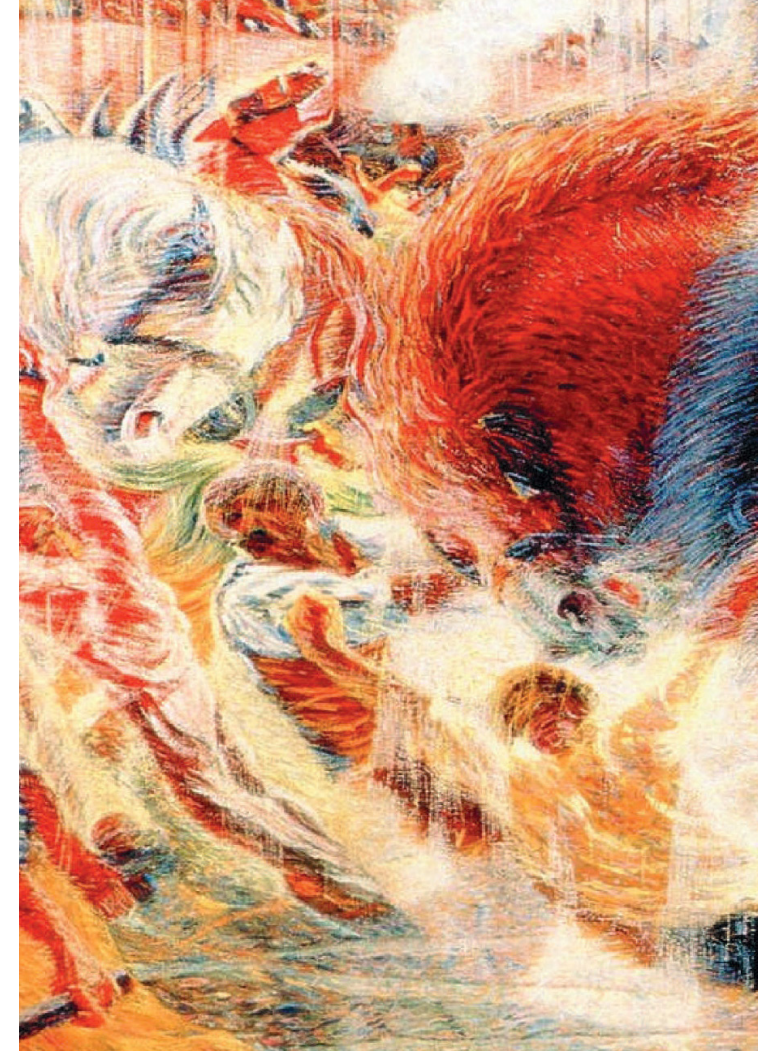
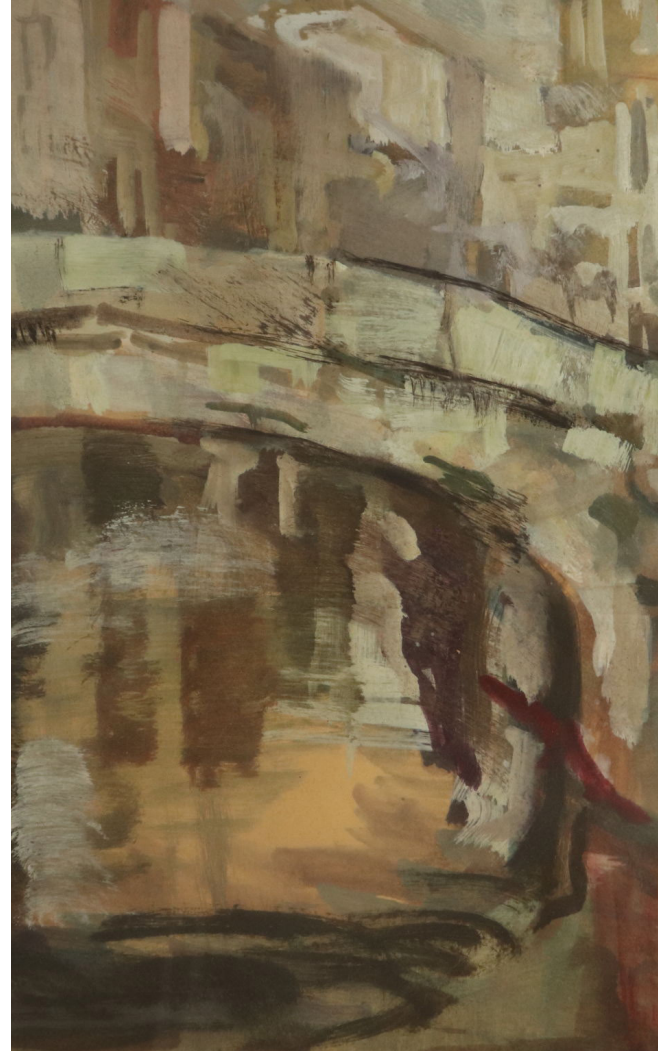
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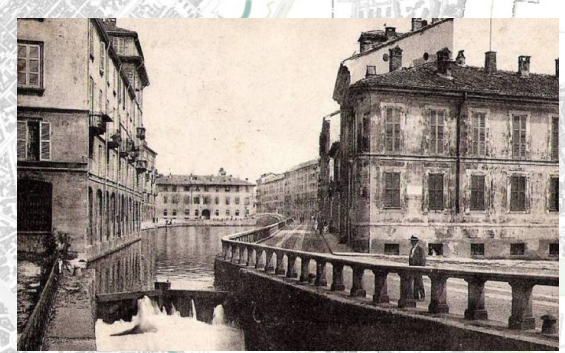
The closure of the Navigli  
**THE CLOSING TIME**



Motivations for the Navigli culvert

# The closure of the Navigli

## THE CULVERTED CANALS



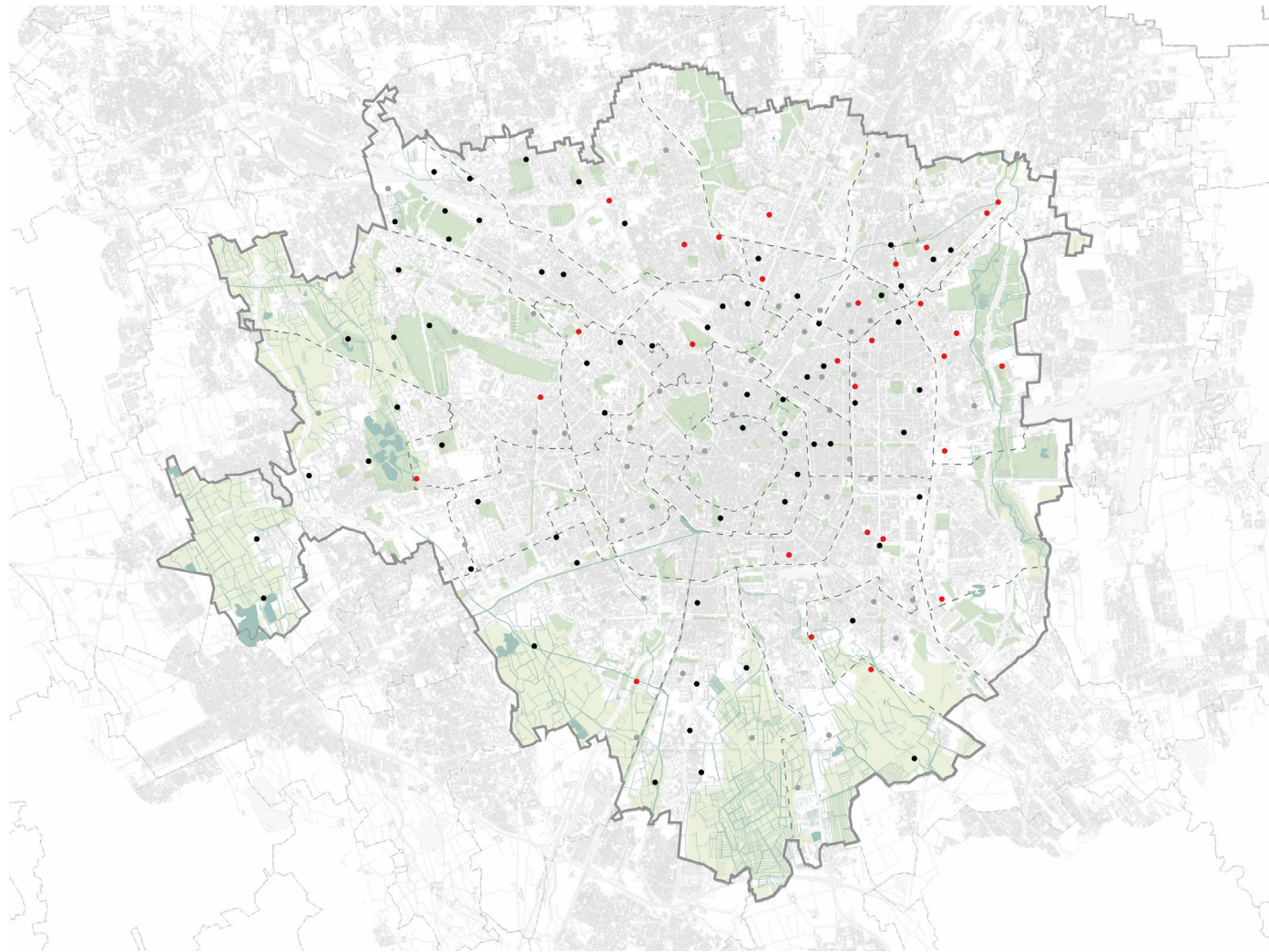
The closure of the Navigli  
**NEW URBAN URGENCIES**



Abusive parking, air and noise pollution and traffic caused by the emergent car-oriented system

The closure of the Navigli

### MARGINALISED GREEN SPACES

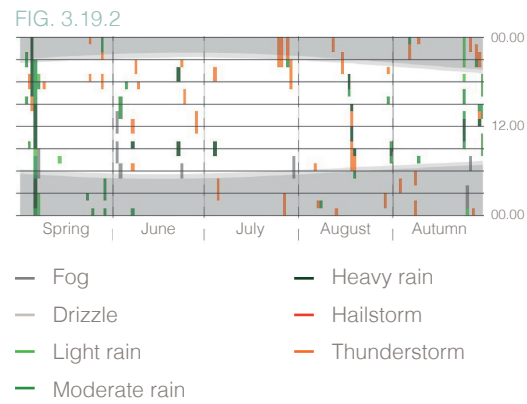


- Built environment
- Green areas
- Water
- Homicides
- Thefts
- Robberies

Criminality and decay enhanced defined by the driveways



# CLIMATE CHANGE AND GENIUS LOCI NEGLECTION



2,5 flooding cases in the northern area of Milan

Can the Navigli re-establishment contribute to enhance of the inhabitants' sense of community in the public space and be a strongwater link for the north of Italy?

INTRODUCTION

THE CLOSURE OF THE NAVIGLI

**SITE ANALYSIS**

PROJECT DESIGN

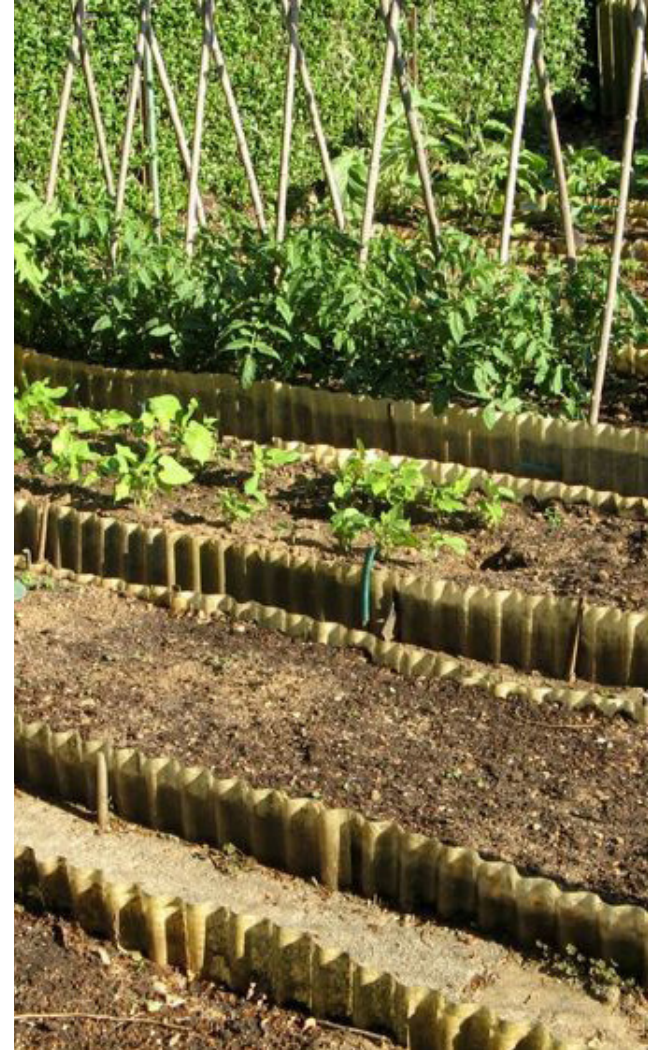
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Site analysis

**SENSE OF CARE NEXT TO WATER**



The Navigli as gathering space, artistic hotspot and pragmatic source for water supply

Site analysis

**INVESTIGATE THE COLLECTIVE IMAGERY**



Water as the coexistence of nature and recreation

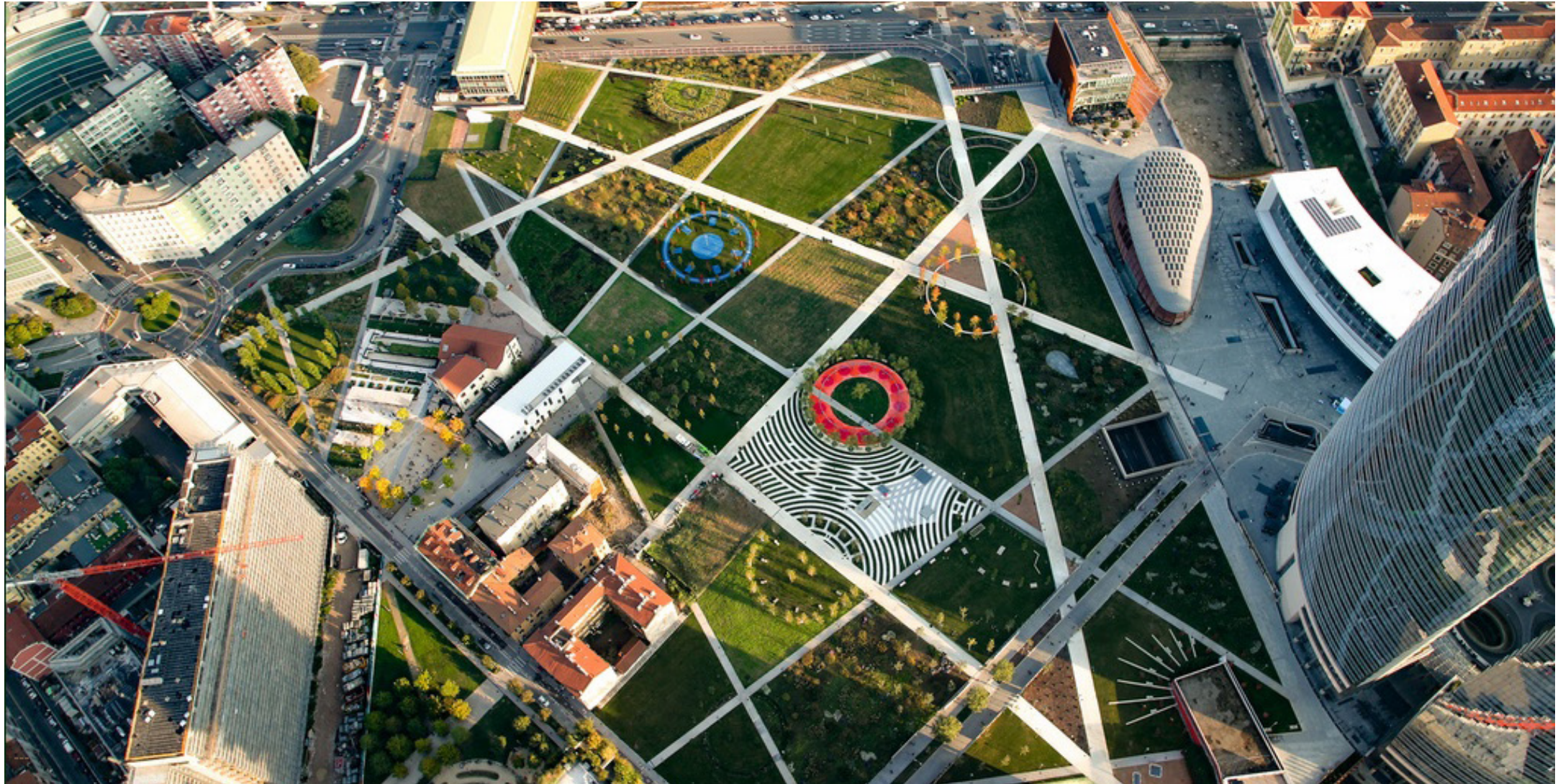
Site analysis

**INVESTIGATE THE COLLECTIVE IMAGERY**



Water as a complex multifunctional system

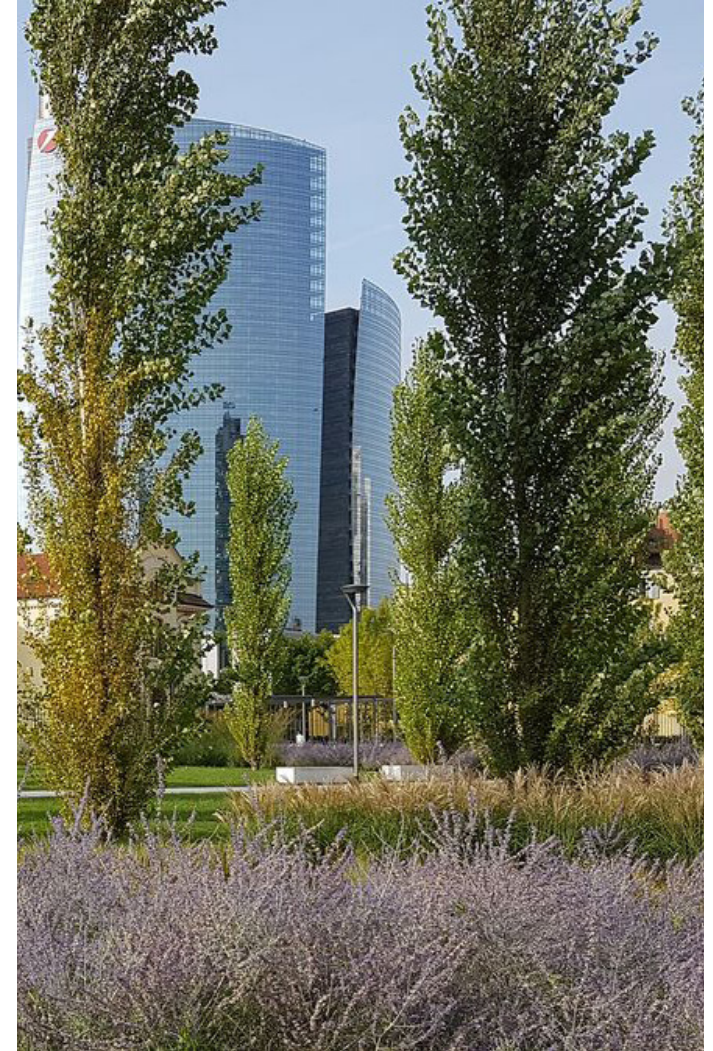
Site analysis  
**CASE STUDY**



Water as a complex multifunctional system

Site analysis

**SENSE OF CARE NEXT TO WATER**



The definition of new services for the neighbourhood, the site maintenance, the preservation of the environment



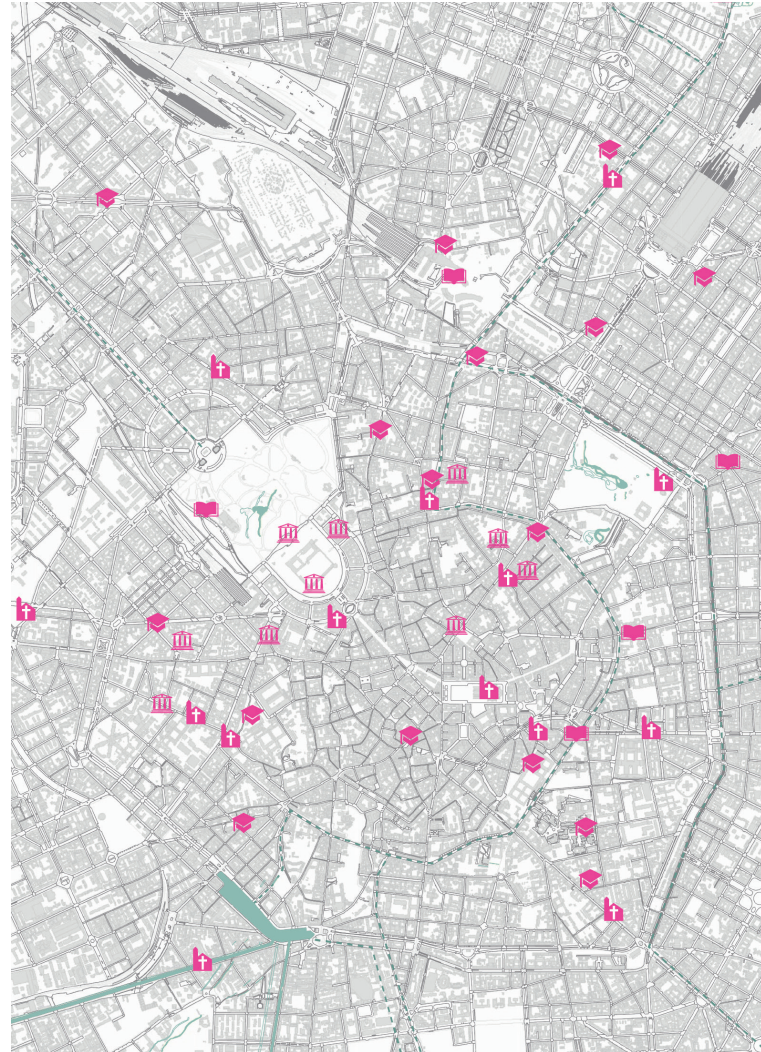
Site analysis  
**POSSIBLE ACTORS**



The educational system, the ecological companies, the oratories

# Site analysis

## DETECT A RAY OF ACTION



- Built environment
- Waterway
- - - Culverted Naviglio

### Social groups

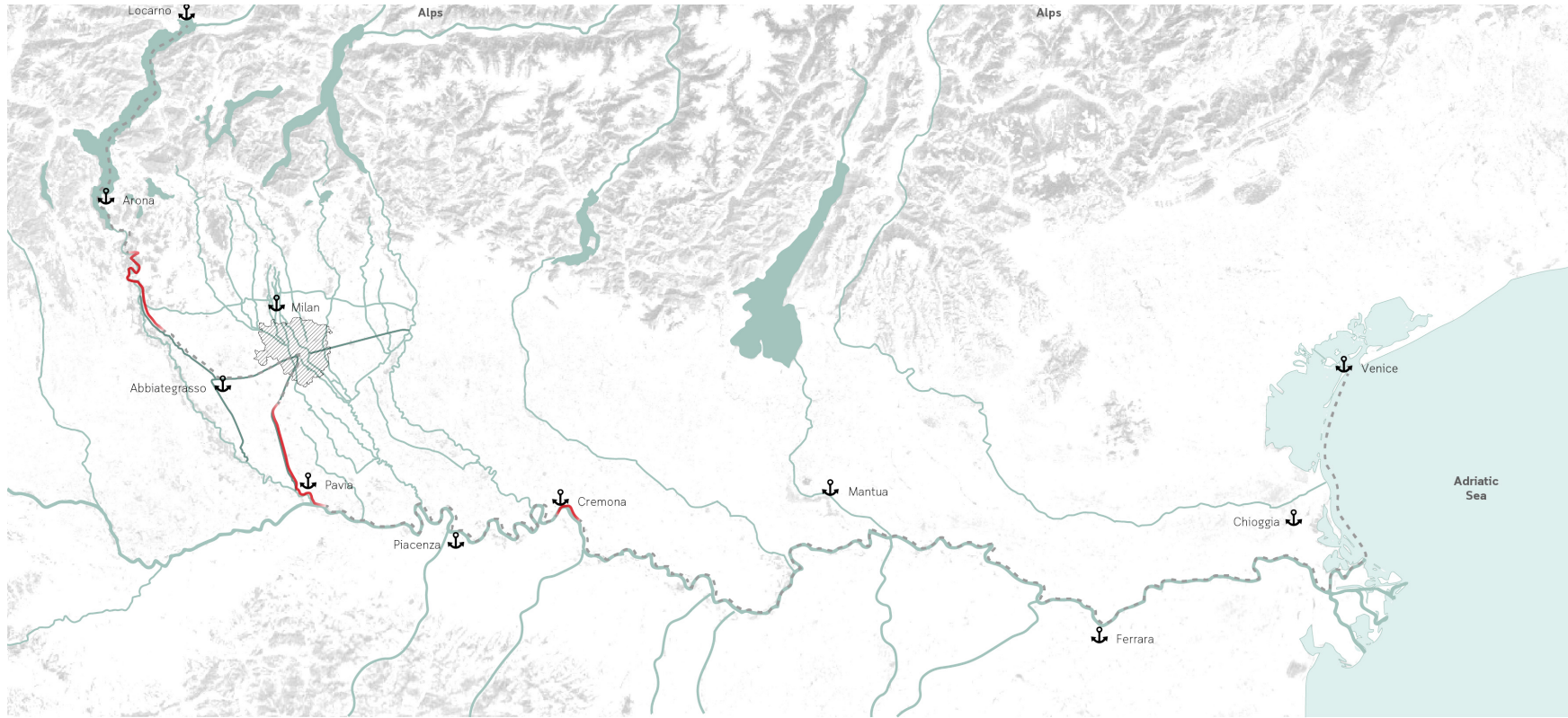
- 📖 School
- ⛪ Church
- 📖 Library
- 🏛️ Museum



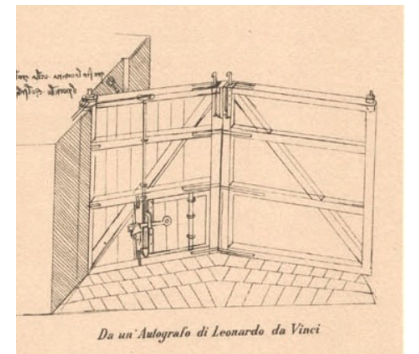
The educational system, the ecological companies, the oratories

# Site analysis

## THE MULTIREGIONAL SYSTEM



- Geography
- Lake
- Sea
- Milan
- Main port
- Waterway
- Navigli
- Non-navigable section
- Possible routing system



Active and non-navigable sections of the large scale

Site analysis  
**LANDSCAPE TRANSITION**



Locarno



Panperduto dam



Villoresi canal



Turbigo sluice



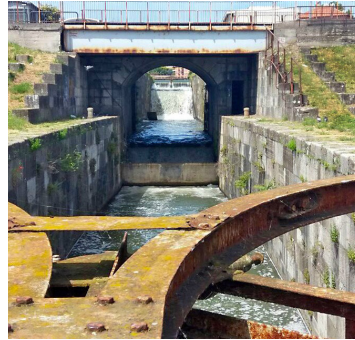
Bernate



Darsena of Milan



Certosa di Pavia



Pavia



Ticino river delta



Po in proximity of Piacenza



Po in proximity of Cremona



Po in proximity of Ferrara



Venetian lagoon



Chioggia

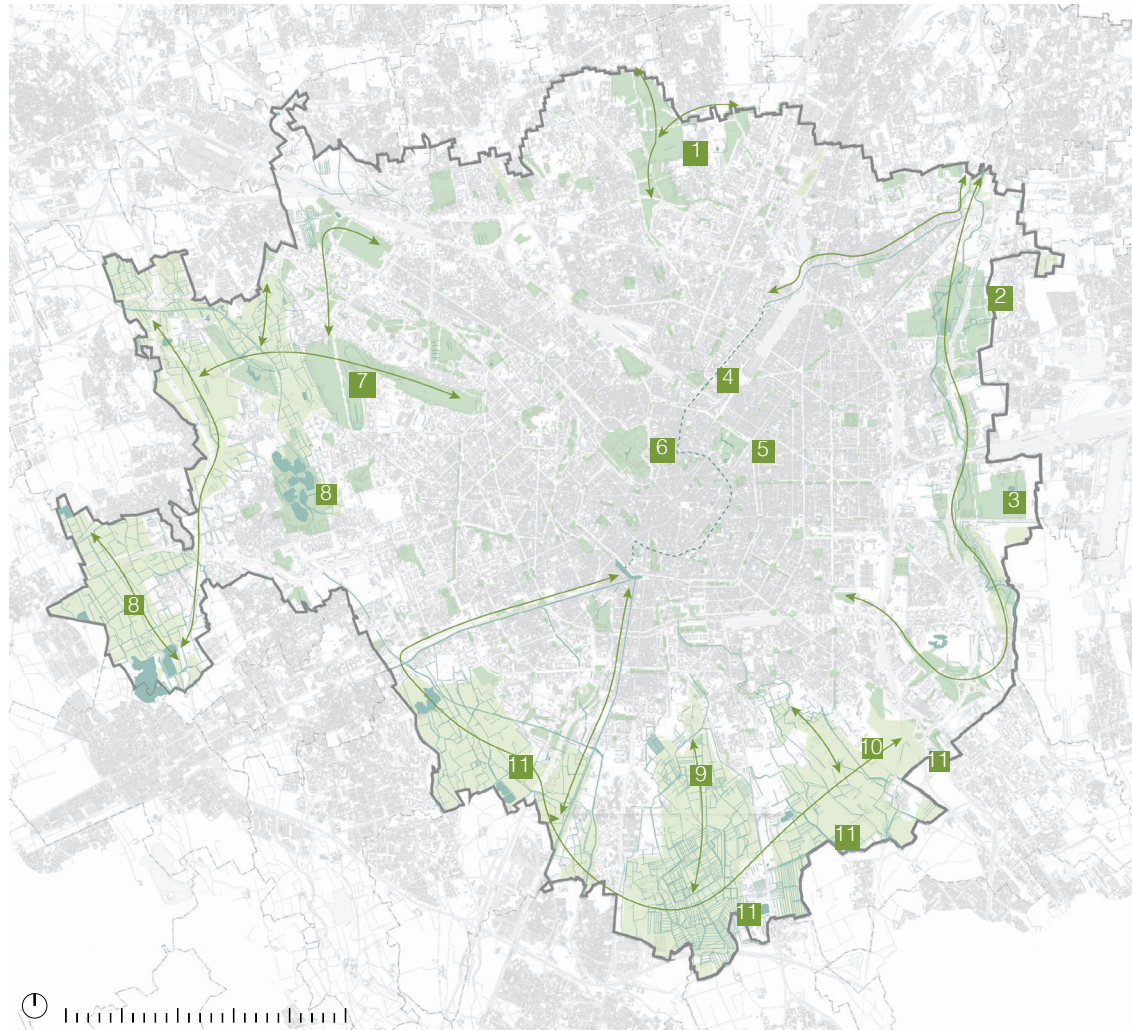


Venice

The routing system from Locarno to Venice

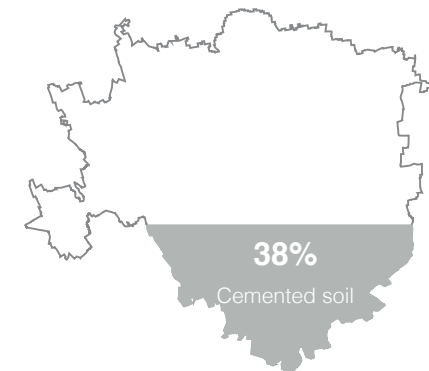
# Site analysis

## THE GREEN NETWORK

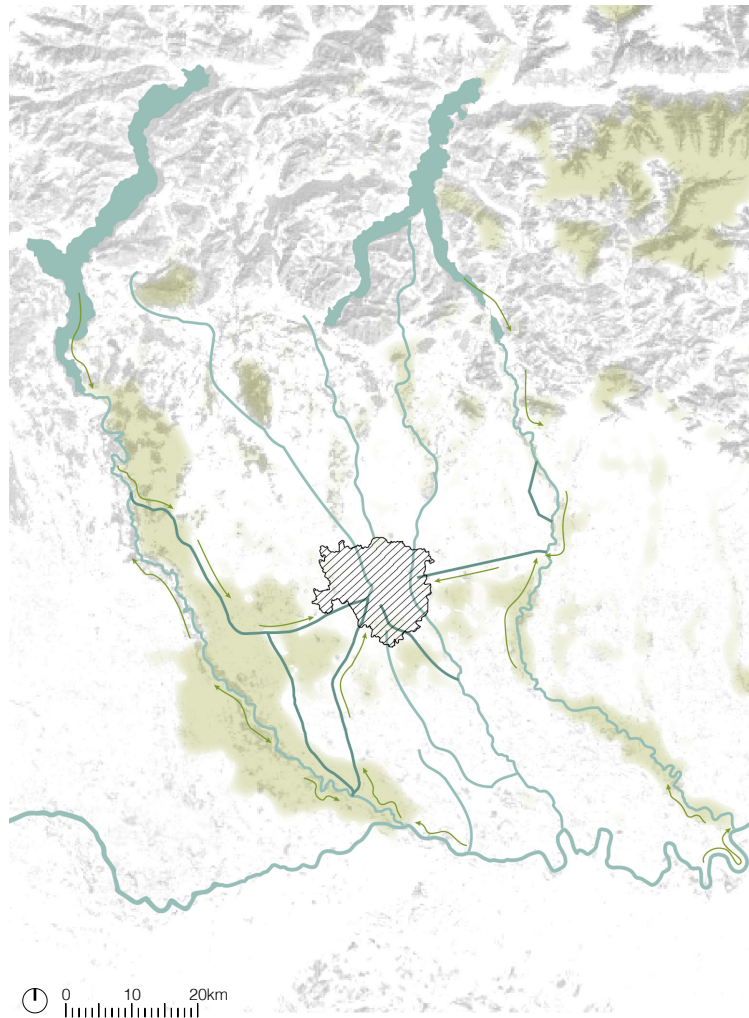


- Built environment
- Accessible green areas
- Non-accessible green areas
- Ecological corridors
- Waterway
- Culverted Naviglio
- Municipality of Milan

- 1 Parco Nord
- 2 Parco Lambro
- 3 Parco Forlanini
- 4
- 5 Biblioteca degli Alberi
- 6 Giardini di Indro Montanelli
- 7 Parco Sempione
- 8
- 9 Bosco in Città
- 10 Parco delle Cave
- 11 Parco Agricolo del Ticinello  
Parco della Vettabbia  
Parco Agricolo Sud Milano



The fragmentation of the ecological network due to overbuilding



## Site analysis GREEN NETWORK



*Quercus robur*



*Cornus sanguinea*



*Alnus glutinosa*



*Corylus avellana*



*Acer campestre*



*Euonymus europaeus*



*Salix alba*



*Convallaria majalis*



*Sambucus nigra*



*Scilla bifolia*



*Crataegus monogyna*



*Anemone nemorosa*



*Anax imperator*



*Rana sync. esculenta*



*Bufo viridis*



*Erinaceus europaeus*



*Myocastor coypus*



*Pipistrellus pipistrellus*



*Natrix natrix*



*Passer domesticus italiae*



*Anas platyrhynchos*



*Hirundo rustica*



*Ardea cinerea*



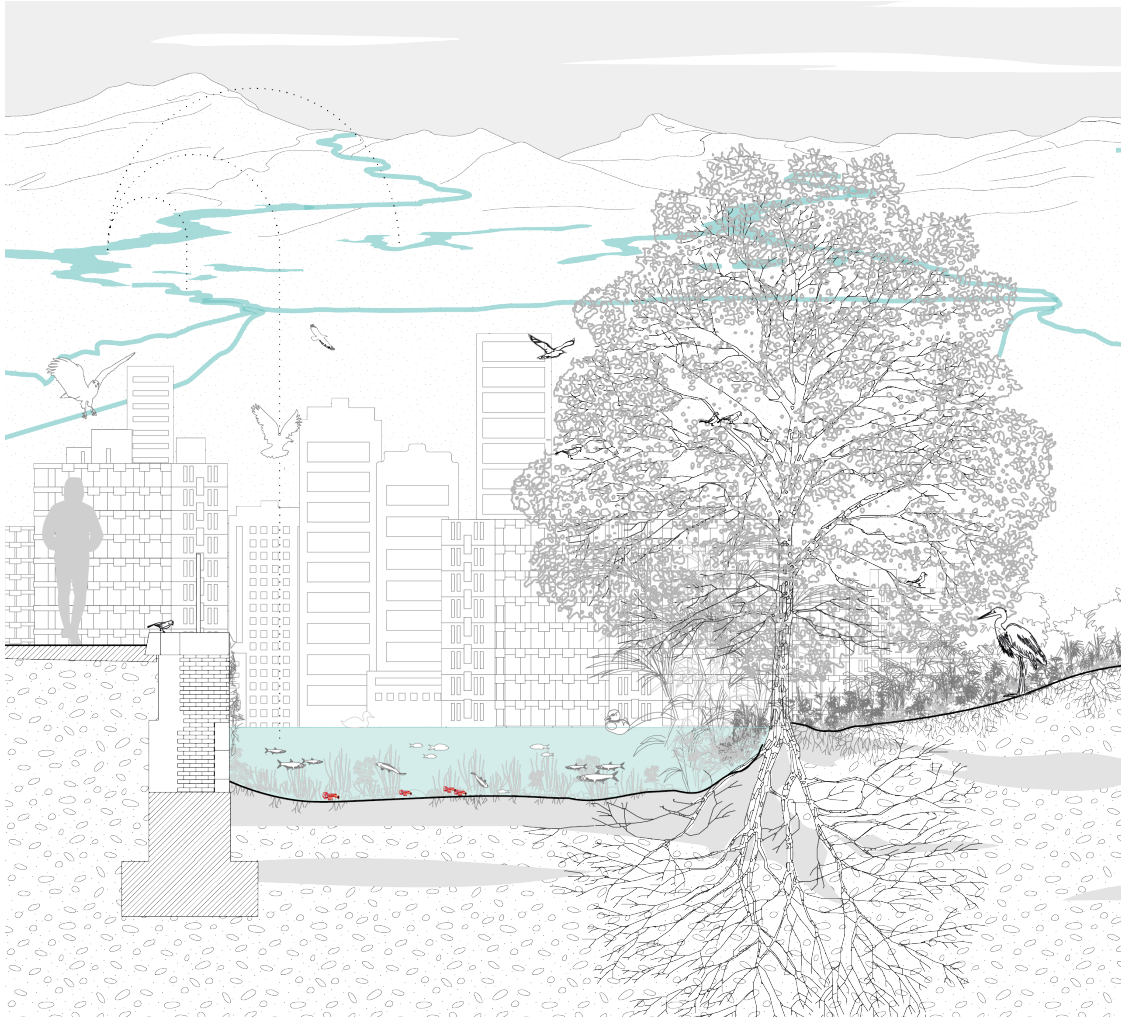
*Streptopelia decaocto*

### LOCAL FLORA

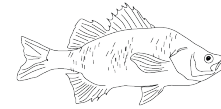
### LOCAL FAUNA

The fragmentation of the ecological network due to overbuilding

Site analysis  
**WATER CONTINUITY**



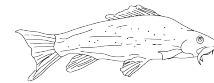
*Squalius squalus*



*Perca fluviatilis*



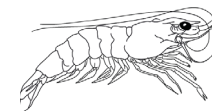
*Tinca tinca*



*Barbus barbatus*



*Esox lucius*



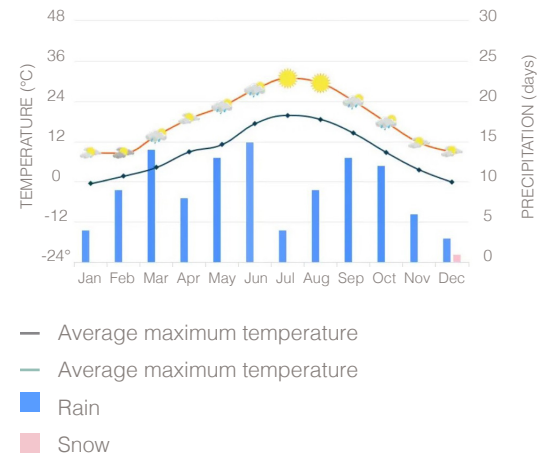
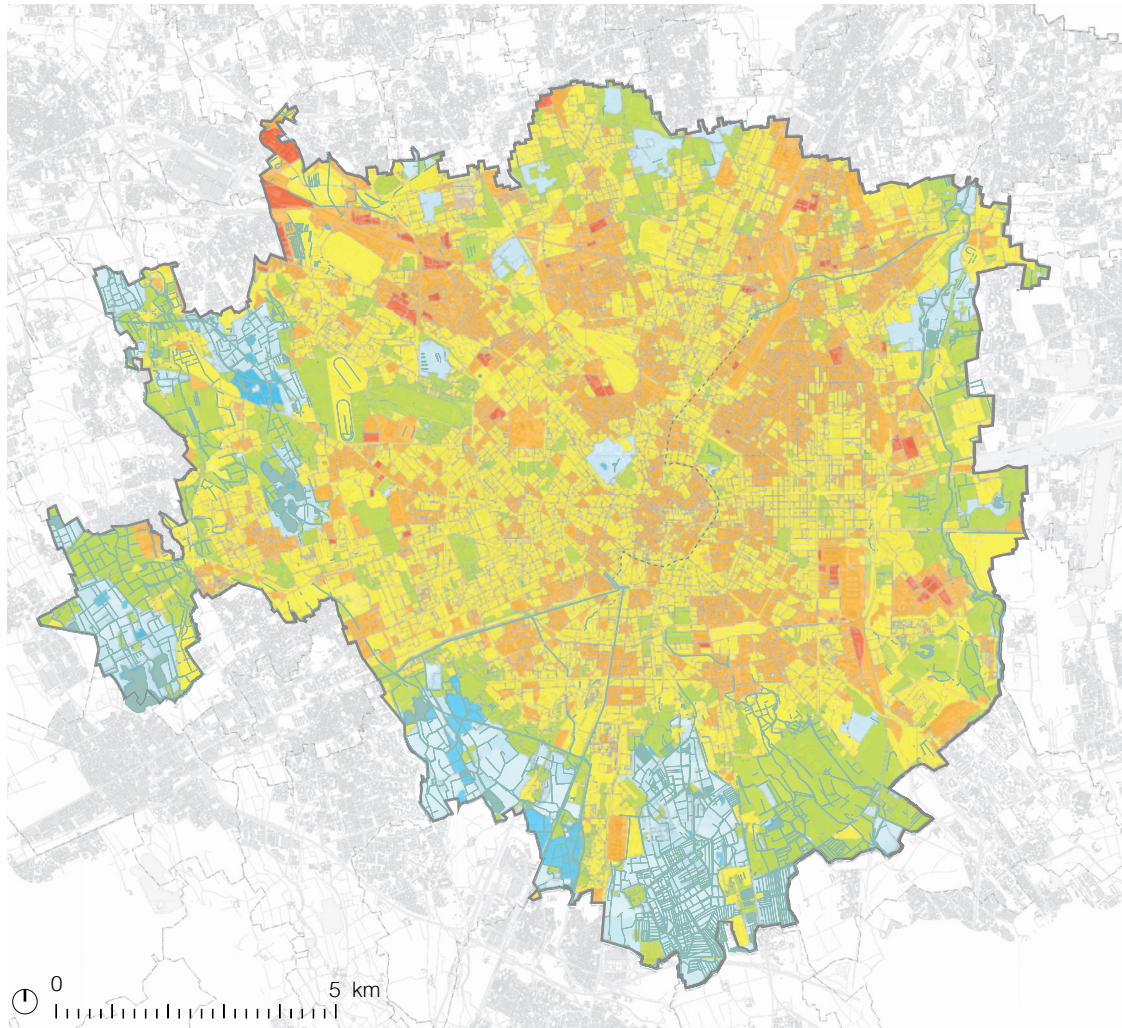
*Austropotamobius pallipes*



Spontaneous rinaturalisation of the canals

# Site analysis

## GLOBAL WARMING, HEATING ISLANDS & WATER SCARCITY



The fragmentation of the ecological network due to overbuilding

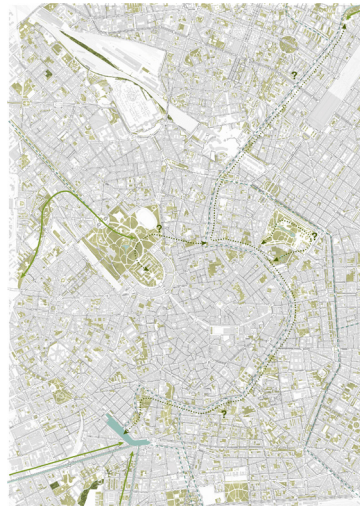


# Site analysis

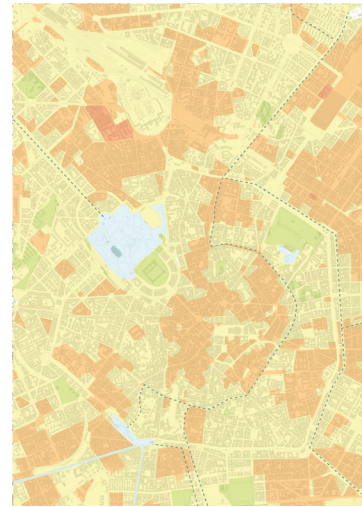
## ANALYSIS OVERALL



- Infrastructure
- Water basin
- Waterway
- Culverted waterway



- Built environment
  - Waterway
  - Culverted Naviglio
- Ecological network**
- Green area
  - Forest
  - Species migration
  - Possible ecological corridor



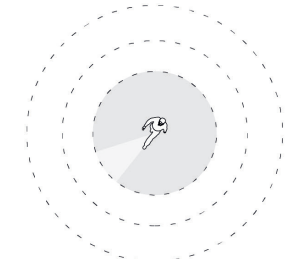
- Built environment
  - Culverted Naviglio
- Temperatures**
- High
  - Low



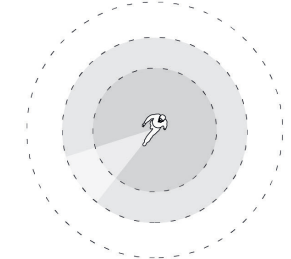
- Built environment
  - Waterway
  - Culverted Naviglio
- Water heritage**
- ↔ Bridge
  - ∨ Sluice
  - ▮ Sciostra
  - ⚓ Port
  - 🚰 Washhouse



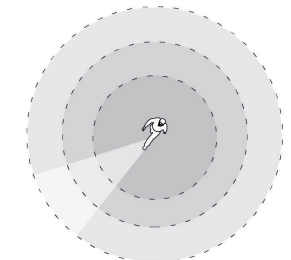
- Built environment
  - Waterway
  - Culverted Naviglio
- Social groups**
- 🎓 School
  - 🏛️ Church
  - 📖 Library
  - 🏛️ Museum



Schools  
1 Km



Religious groups  
Libraries, Museums  
Neighbourhood scale



Ecological companies  
Urban scale



The fragmentation of the ecological network due to overbuilding

INTRODUCTION

THE CLOSURE OF THE NAVIGLI

SITE ANALYSIS

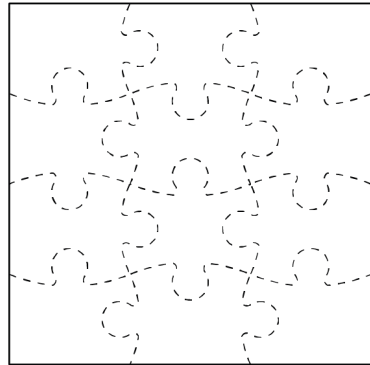
**PROJECT DESIGN**

NAVIGLI AND URBAN RENAISSANCE

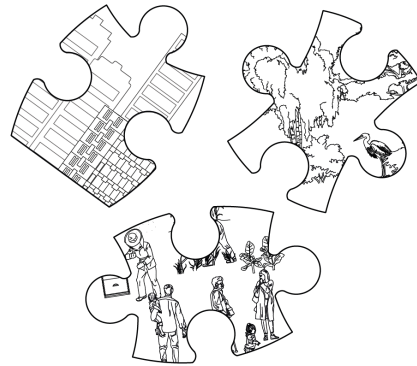
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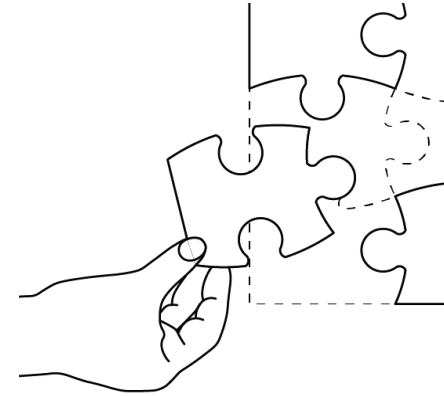
Project design  
**DESIGN APPROACH**



Break the problem down into less complex ones



Focus on the details

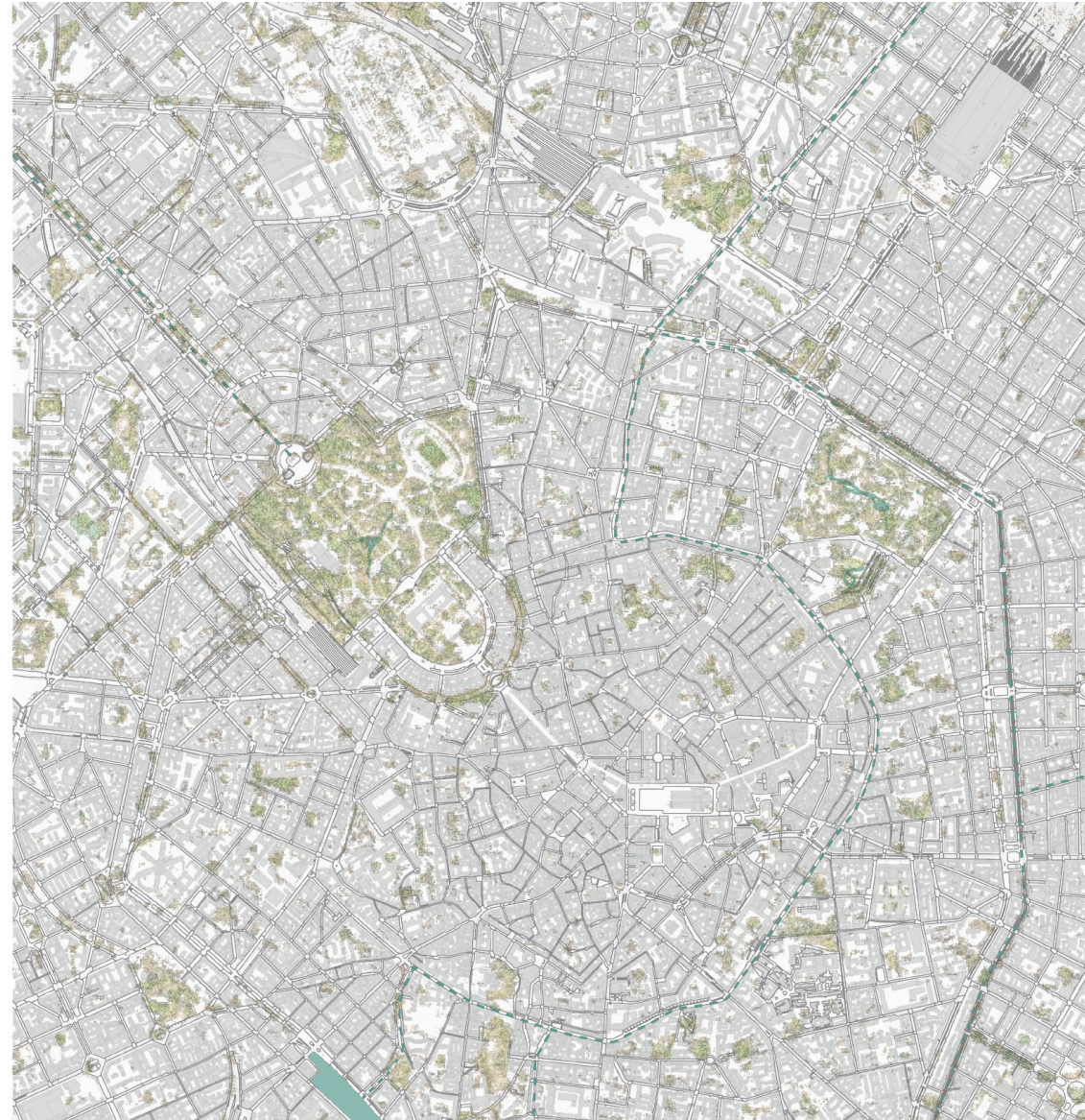


Design piece by piece

Including the bottom up approach to di site design

Project design

**DESIGN THROUGH PHASES**



- Built environment
- Green areas
- Daylighted Naviglio
- Culverted Naviglio
- Culverted system with polluted water
- Bridge
- Port
- Water supply
- Reconnection with the urban tissue



Current situation

Project design

**DESIGN THROUGH PHASES**



- Built environment
- Green areas
- Daylighted Naviglio
- - - Culverted Naviglio
- - - Culverted system with polluted water
- | Bridge
- ⚓ Port
- ⚓ Water supply
- ||| Reconnection with the urban tissue

Phase 1  
Daylight

Project design

## DESIGN THROUGH PHASES



Phase 1  
Seveso diversion

Project design

**DESIGN THROUGH PHASES**



- Built environment
- Green areas
- Daylighted Naviglio
- - - Culverted Naviglio
- - - Culverted system with polluted water
- | Bridge
- ⚓ Port
- ⊕ Water supply
- ||| Reconnection with the urban tissue

Phase 1  
New water supply

Project design

**DESIGN THROUGH PHASES**



- Built environment
- Green areas
- Daylighted Naviglio
- - - Culverted Naviglio
- - - Culverted system with polluted water
- | Bridge
- ⚓ Port
- ⚓ Water supply
- ▨ Reconnection with the urban tissue

Phase 1  
Connections



Project design

**DESIGN THROUGH PHASES**

- Built environment
- Green areas
- Daylighted Naviglio
- - - Culverted Naviglio
- · - · - Culverted system with polluted water
- | Bridge
- ⚓ Port
- ⚓ Water supply
- |||| Reconnection with the urban tissue



Phase 2  
Daylight

### DESIGN THROUGH PHASES



- Built environment
- Green areas
- Daylighted Naviglio
- - - Culverted Naviglio
- - - Culverted system with polluted water
- | Bridge
- ⚓ Port
- ⚓ Water supply
- ||| Reconnection with the urban tissue

Project design

**DESIGN THROUGH PHASES**

- Built environment
- Green areas
- Daylighted Naviglio
- - - Culverted Naviglio
- · - · - Culverted system with polluted water
- | Bridge
- ⚓ Port
- ⚓ Water supply
- ||||| Reconnection with the urban tissue

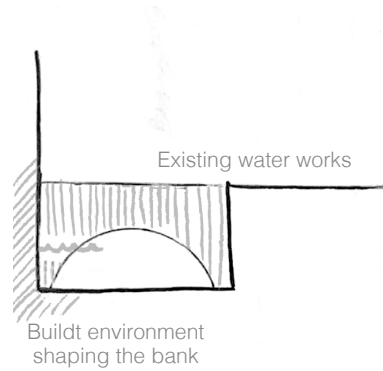


Phase 2  
New attractions

Project design  
**WATER AND URBAN FABRIC**



MILD  
APPROACH



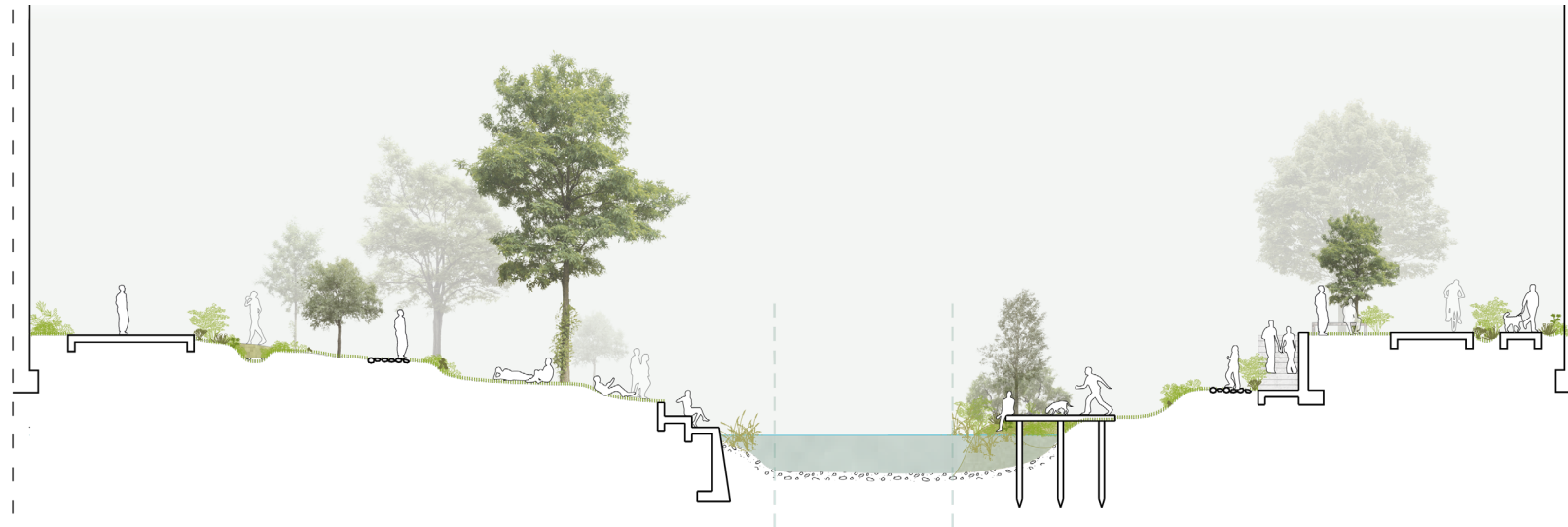
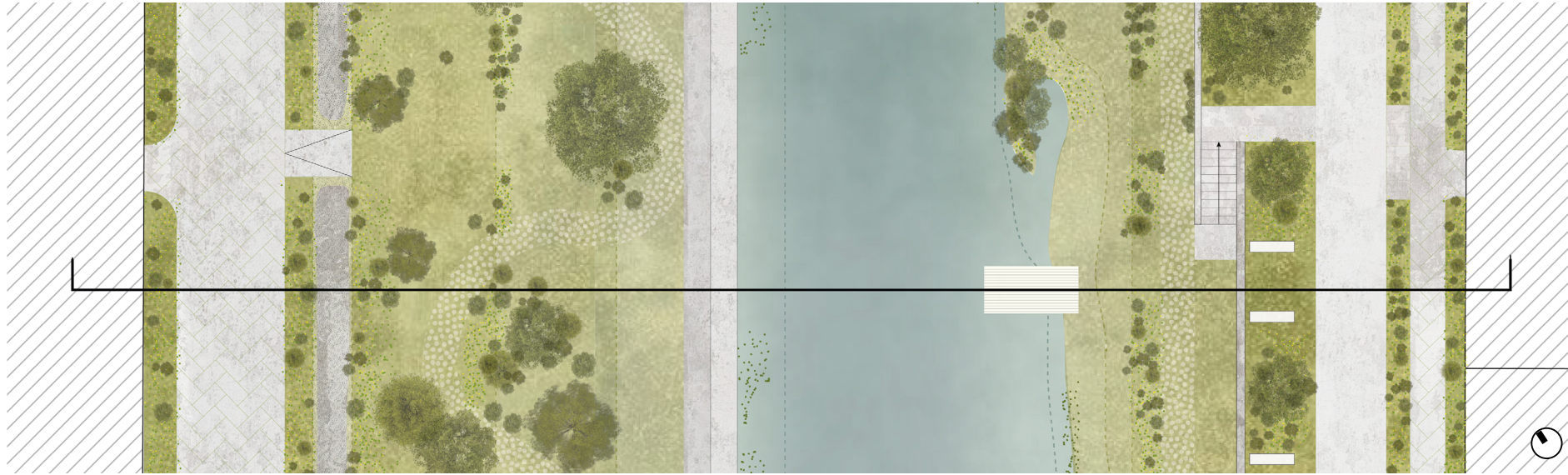
ARCHITECTONIC  
APPROACH



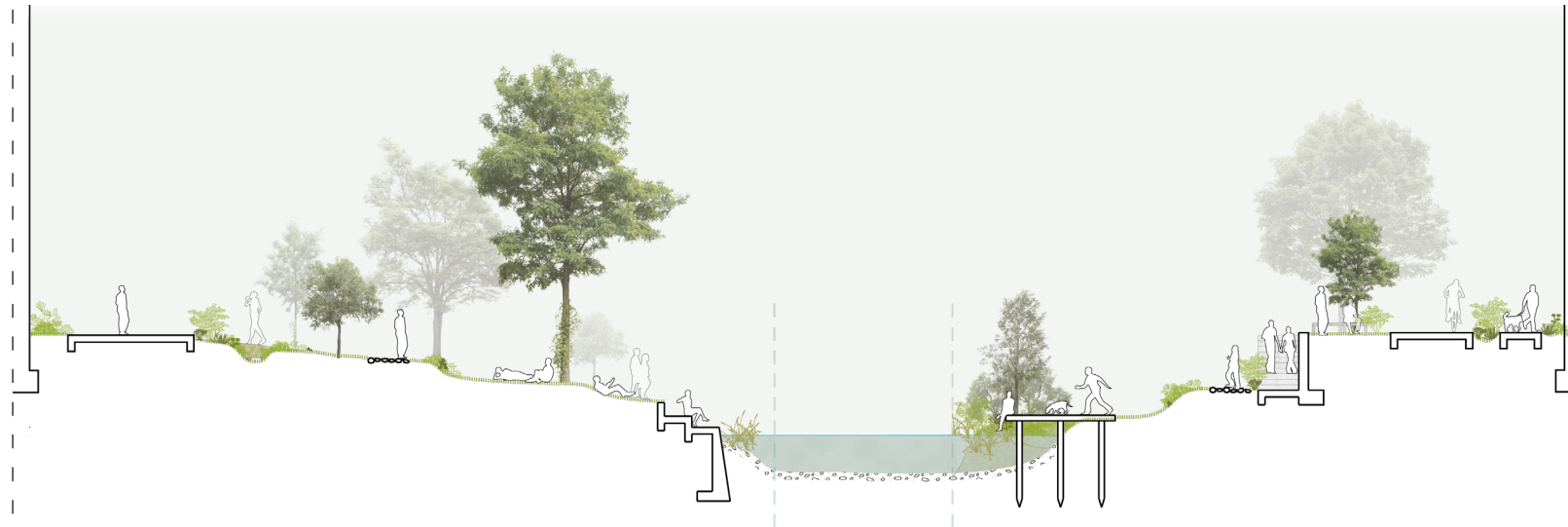
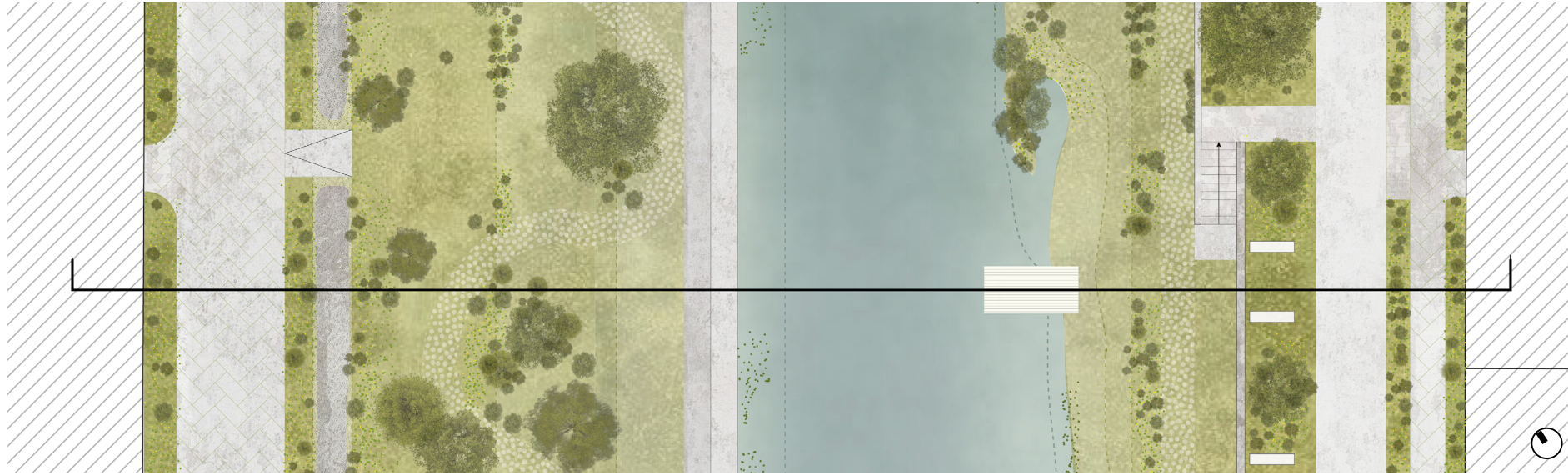
HYBRID  
APPROACH

The fragmentation of the ecological network due to overbuilding

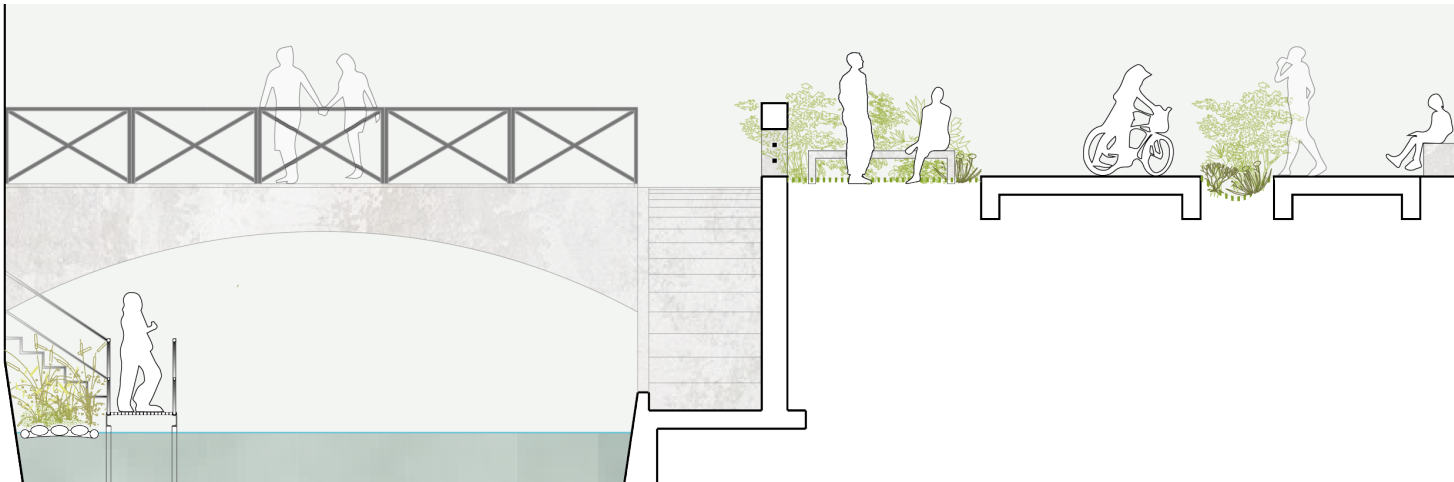
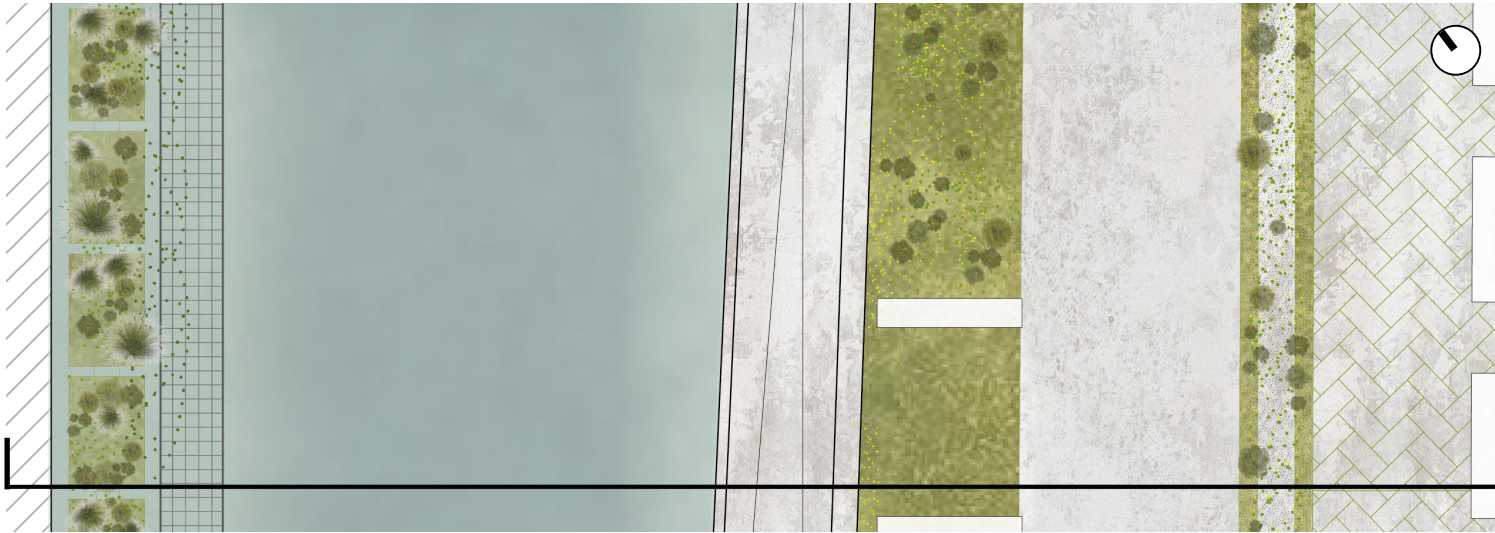
Project design  
**THE MILD APPROACH**



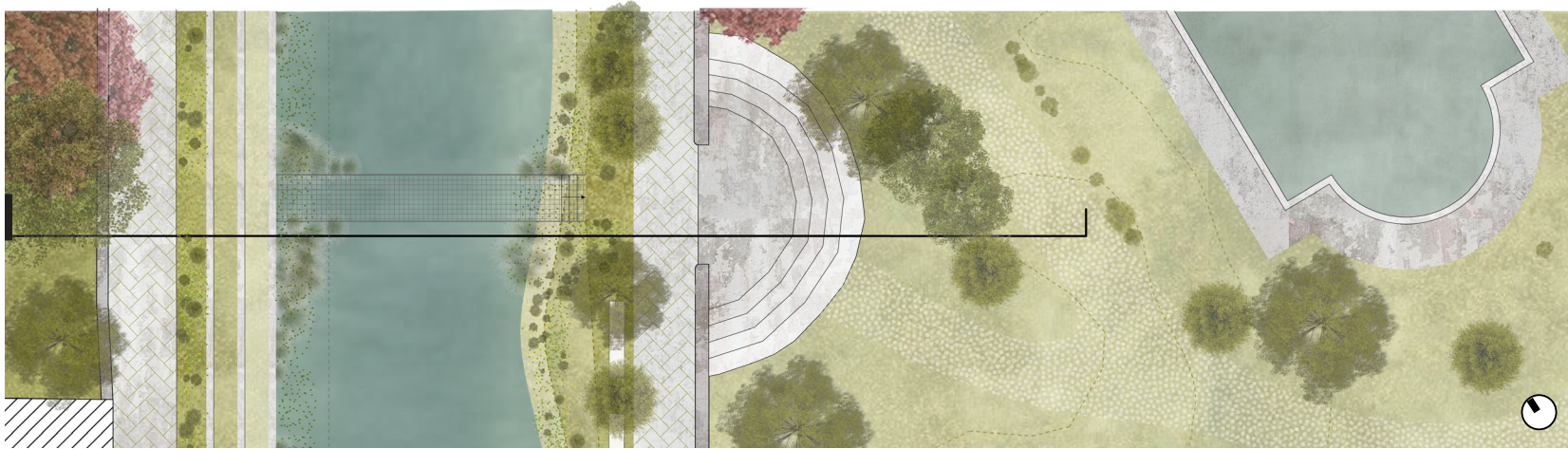
Project design  
**THE ARCHITECTONIC APPROACH**



Project design  
**THE ARCHITECTONIC APPROACH**

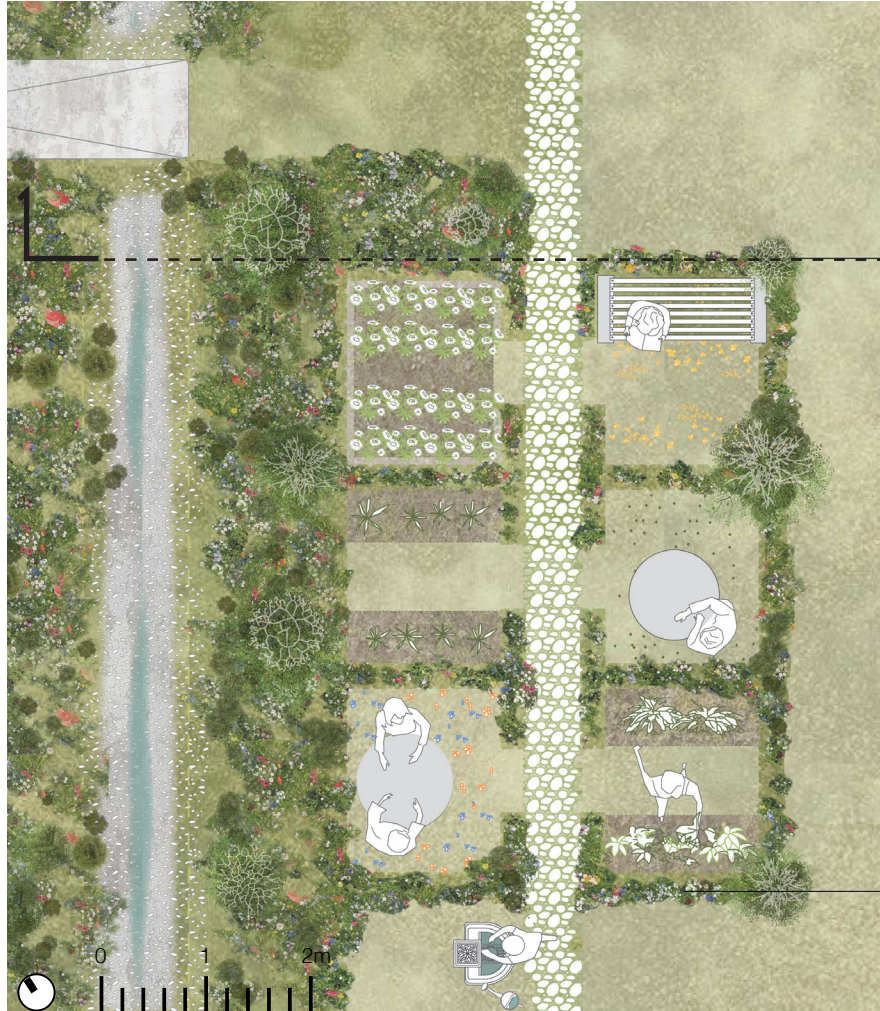


Project design  
**THE HYBRID APPROACH**

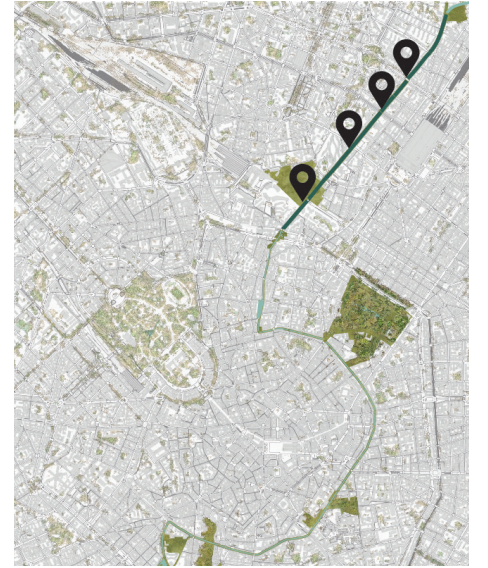




Project design  
**GARDENS OF CARE**



Forestami



Project design  
**GARDENS OF CARE**



Stage 1

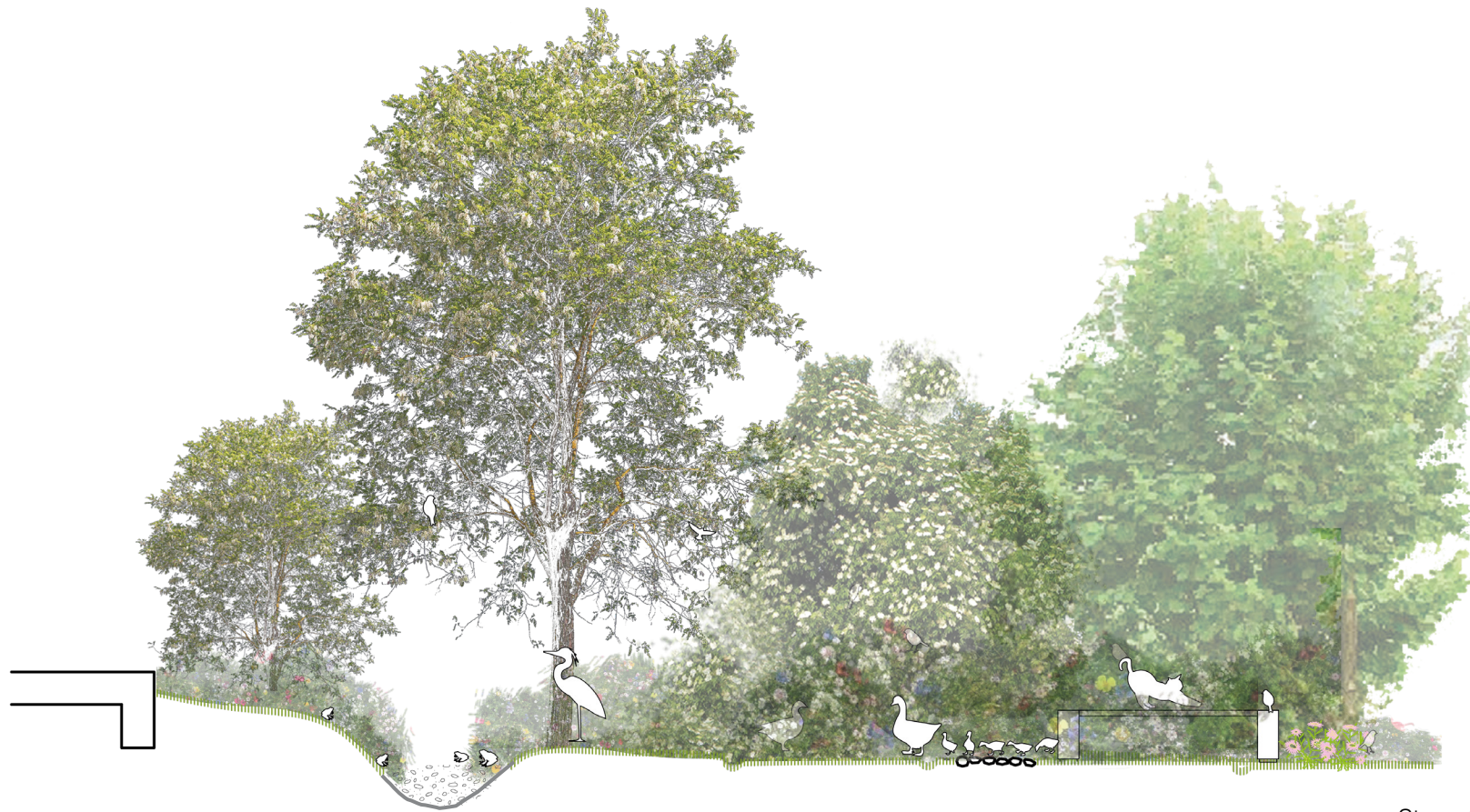
Project design  
**GARDENS OF CARE**

FIG. 4.17.3



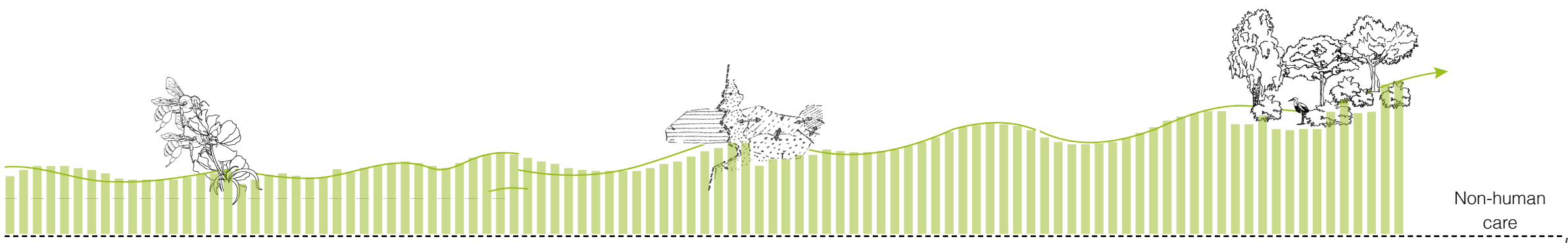
Stage 2

Project design  
**GARDENS OF CARE**



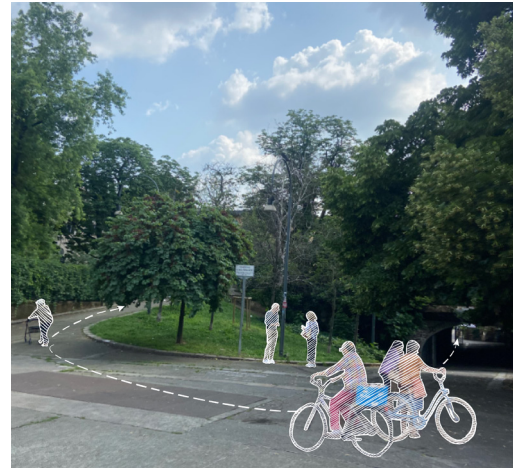
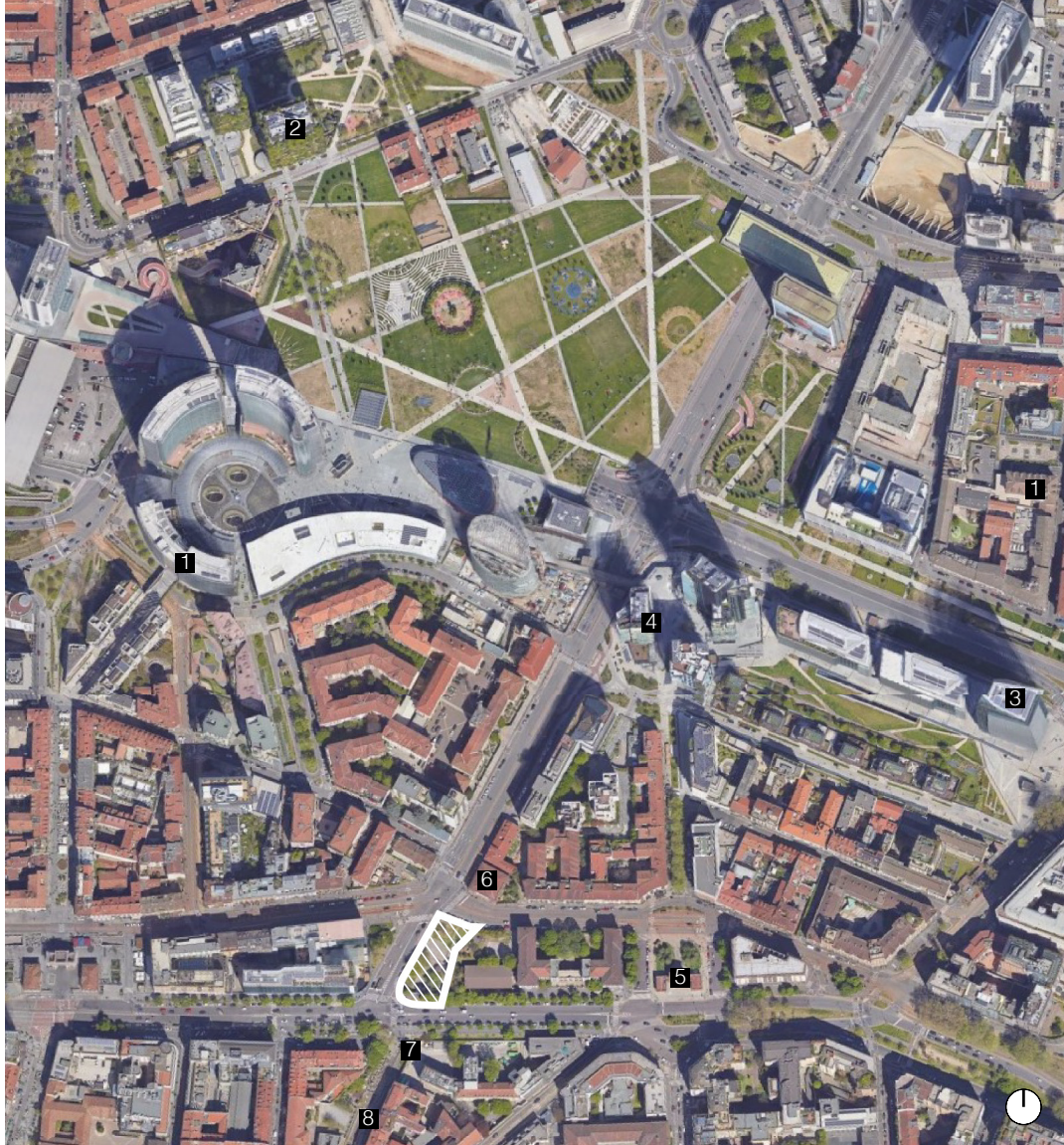
Stage 3

Project design  
**GARDENS OF CARE**



Project design

**SITE 1 - CUCINE ECONOMICHE**



CONTEMPORARY  
CITY SKYLINE

HISTORICAL  
HERITAGE



1

*Unicredit  
Tower*



2

*Bosco  
verticale*



3

*Diamante  
Tower*



4

*Solaria  
Tower*



5

*Porta  
Nuova*



6

*Opera Pia  
Cucine Economiche*



7

*Ponte delle Gabelle  
Baths*



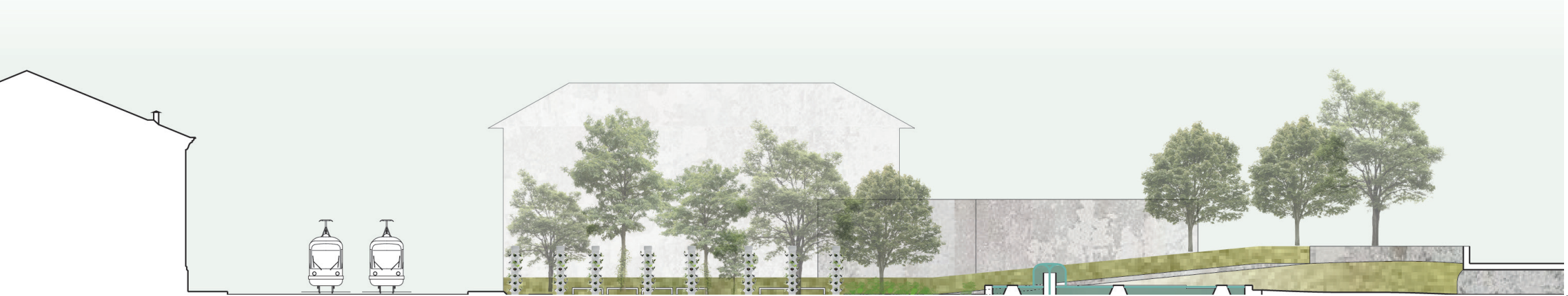
8

*Incoronata  
sluice*



Project design  
**SITE 1 - CUCINE ECONOMICHE**

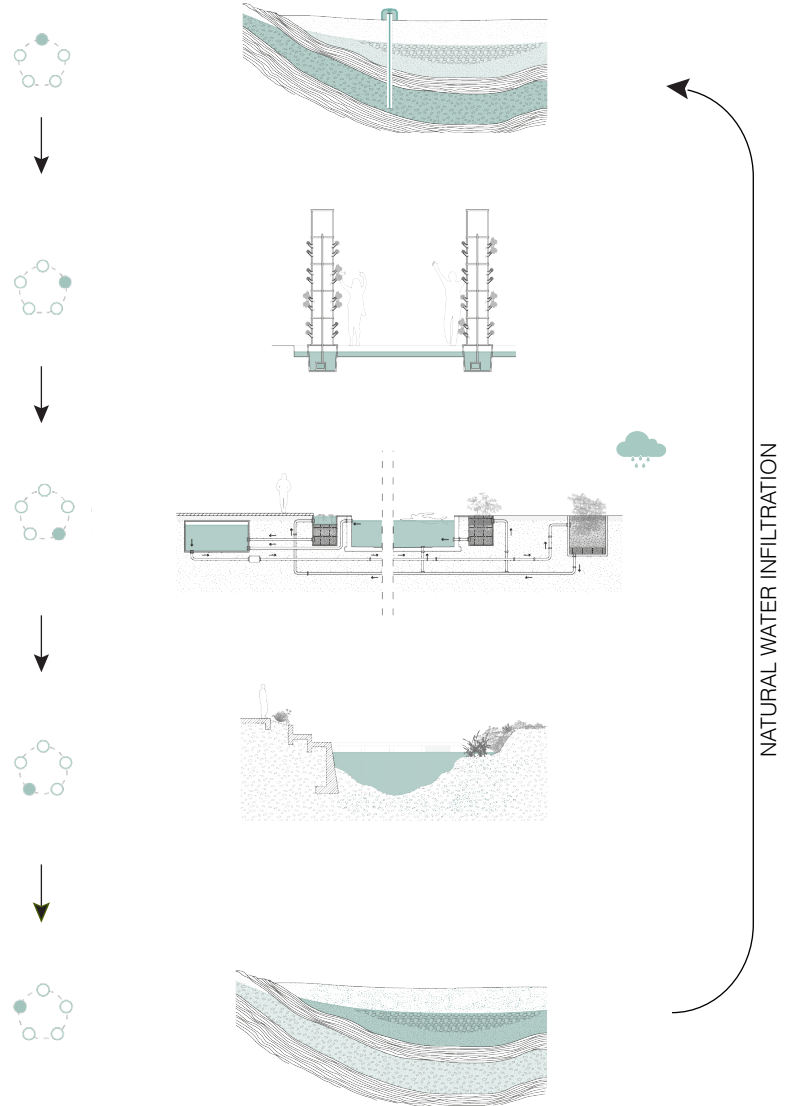
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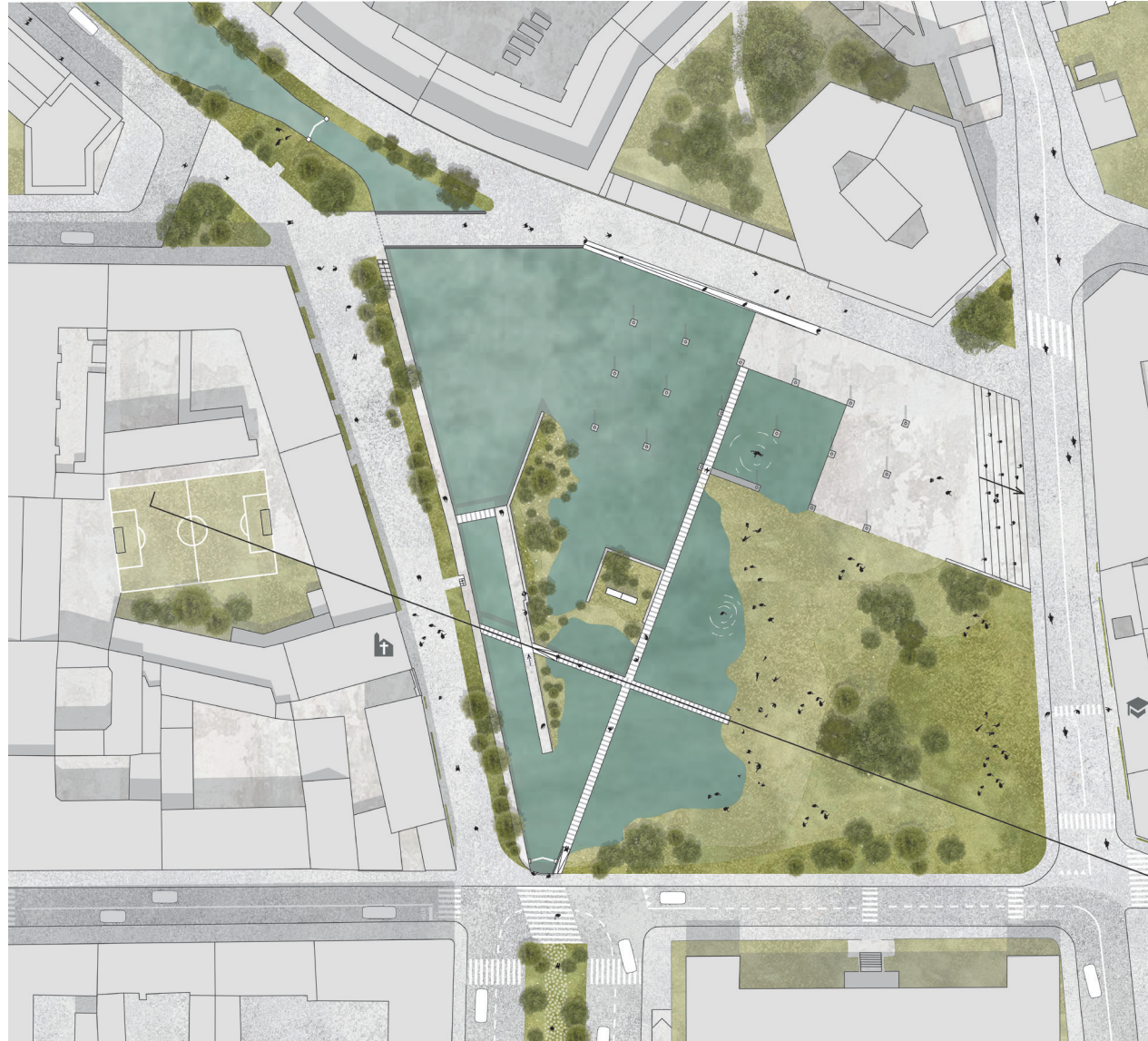
Project design

**SITE 1 - CUCINE ECONOMICHE**



Project design

**SITE 2 - VIARENNA SLUICE**



Project design

**SITE 2 - VIARENNA SLUICE**



*Darsena of Milan*



*Arena 21 kindergarten*



*Chiesa del Buon Pastore*

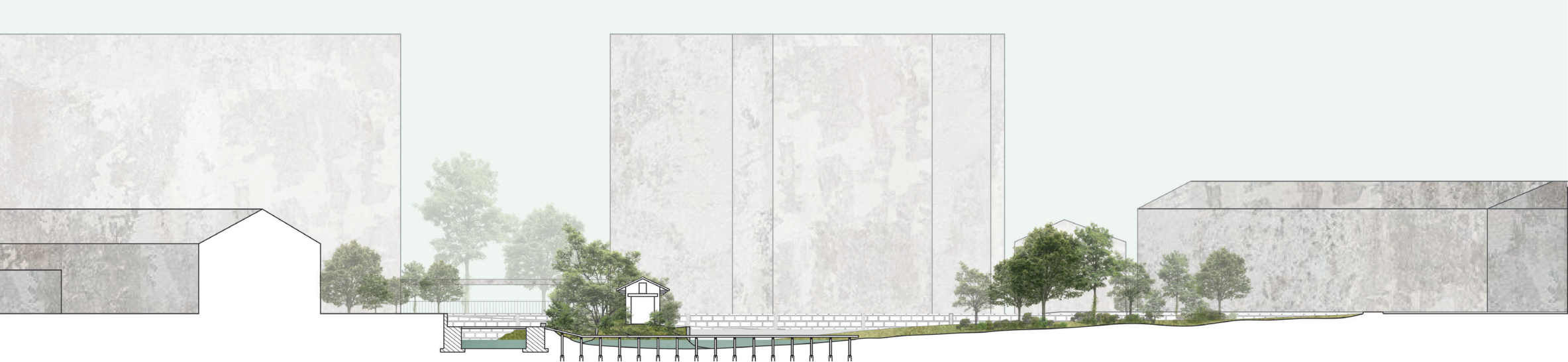


*Underground parking lot*

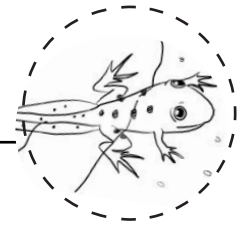
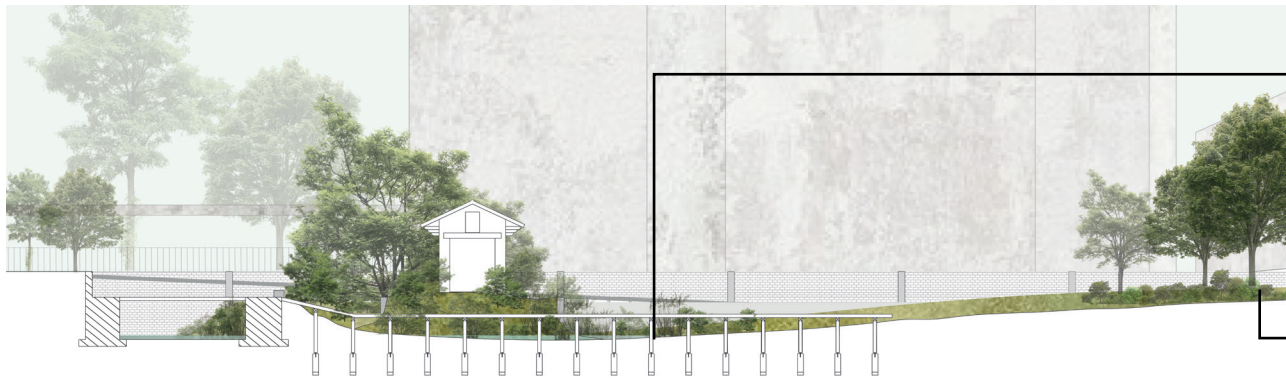
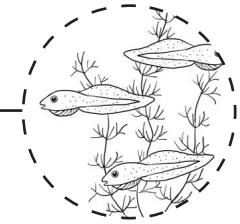
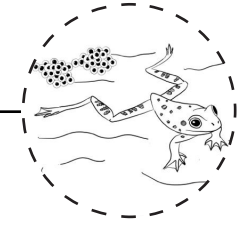
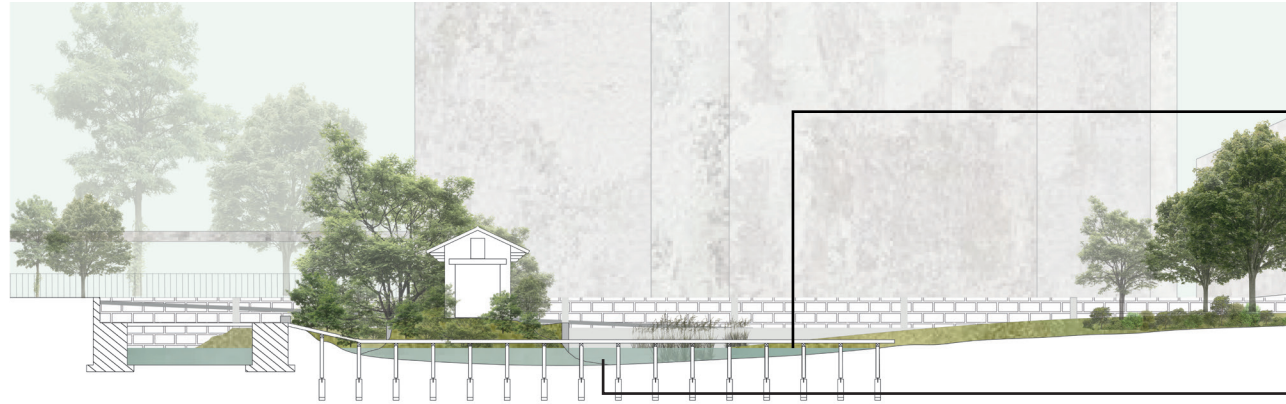
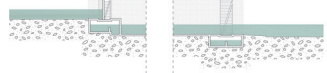
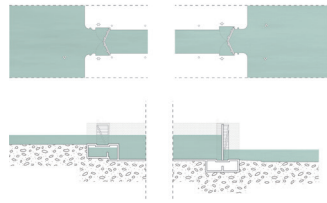


*Viarenna sluice monument*

Project design  
**SITE 2 - VIARENNA SLUICE**



Project design  
**SITE 2 - VIARENNA SLUICE**



Project design  
**SITE 2 - VIARENNA SLUICE**



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**THANK YOU FOR YOUR ATTENTION**

**I HOPE YOU ENJOY**