

GROWING SOCIETY

the application of agroecology in public space design to tackle environmental and social issues

05-11-2021

MILIEUGEOGRAFIE

Is er rond de evenaar straks nog landbouw mogelijk? Wat de opwarming betekent voor ons voedsel

De opwarming van de aarde, die op de klimaattop in Glasgow beperkt moet zien te worden, heeft al enorme gevolgen voor de landbouw en de voedselzekerheid. En juist de gebieden die het nu al zwaar hebben, ondervinden die.

Mac van Dinther 29 oktober 2021, 11:10

volkskrant.nl



Beeld Lauren Hillebrandt

“WILL AGRICULTURE STILL BE POSSIBLE AROUND THE EQUATOR? WHAT GLOBAL WARMING MEANS FOR OUR FOOD.”

PROBLEMS

ENVIRONMENTAL

Global warming
Climate change
Extreme weather conditions
Sea level rise
Biodiversity loss

SOCIAL

social and economic inequality
segregation
poverty in resources and knowledge
slum forming

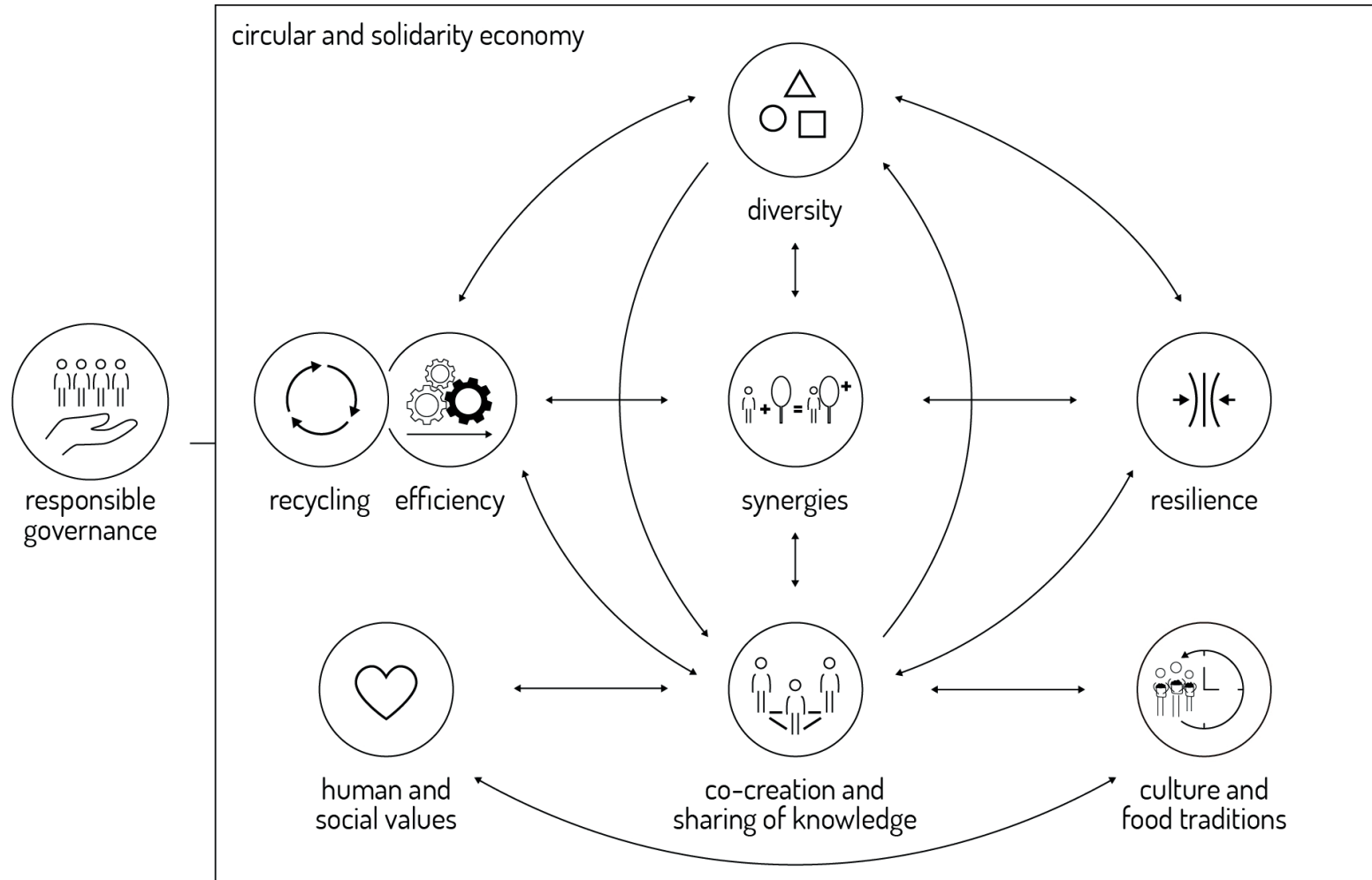
amplified by climate change due to
unpreparedness and lack of tools



Pakhuis de Zwijger. (2020, October 29). A Just Transition #3: De wereld voeden met agro-ecologie [Video]. YouTube. <https://www.youtube.com/watch?v=SUkHyuVzWu8&t=1548s>

AGROECOLOGY

AGROECOLOGY THEORY



by author based on FAO. (2018). The 10 elements of agroecology: Guiding the transition to sustainable food and agricultural systems. FAO. Retrieved from <http://www.fao.org/documents/card/en/c/19037EN>

HYPOTHESIS

AGROECOLOGY AS SOLUTION

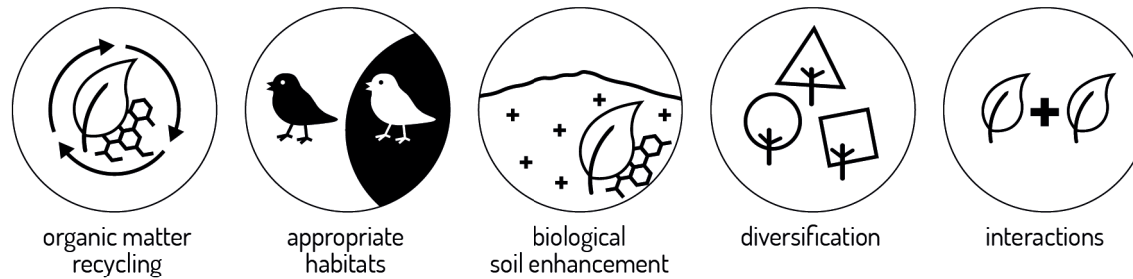
ENVIRONMENTAL

diversity
efficient use of resources
recycling

SOCIAL

responsible governance
human and social values
co-creation and sharing knowledge

AGROECOLOGY THEORY



Based on Altieri, M. A., & Nicholls, C. I. (2018). Urban Agroecology: designing biodiverse, productive and resilient city farms. *Agro Sur*, 46(2), 49–60. <https://doi.org/10.4206/agrosur.2018.v46n2-07>

AGROECOLOGY PRACTICE



**Agroecology
in practice**

*Yearly master class at organic CSA
garden Ommuurde Tuin,
taught by peasant farmers*

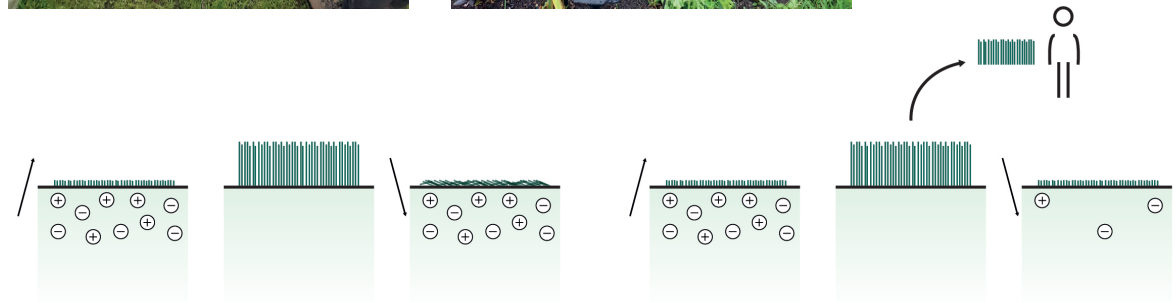
SOIL | CROP ROTATION &
DESIGN | BOKASHI COMPOST
DISEASES & NATURAL ENEMIES
TOOLS & MACHINES
SEEDS & SEEDLINGS
AGRICULTURE & CARE
CSA | SOLIDAIRITY PAYMENT &
GENERATING A FAIR INCOME

1 week in March
+ optional internship at garden
3 ECTS via FSE chairgroup (WUR)
Ommuurdetuin.nl/course

Boereengroep Toekomstboeren DE OMMUURDE TUIN WAGENINGEN FOOD SOVEREIGNTY HUB PROUD TO BE PEASANT



AGROECOLOGY PRACTICE

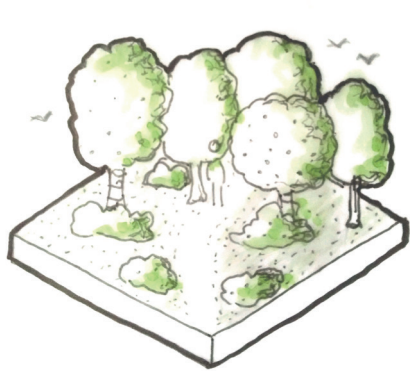


AGROECOLOGY PRACTICE

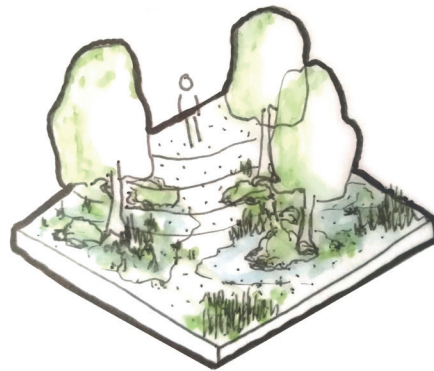
HOW IT ADDS TO BIODIVERSITY



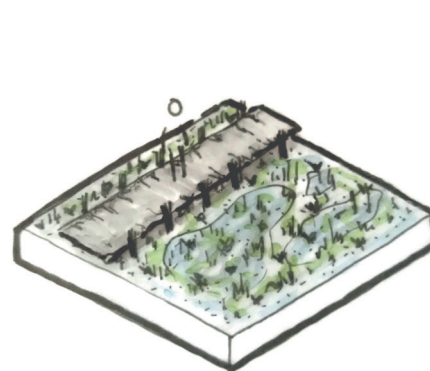
small scale agriculture



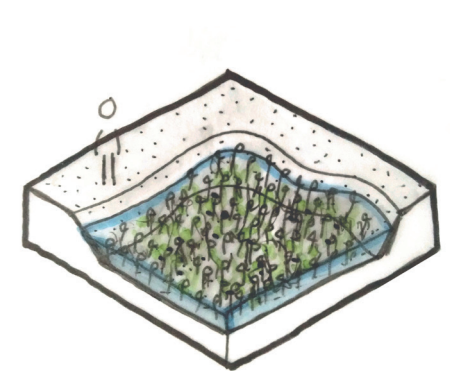
Food forest



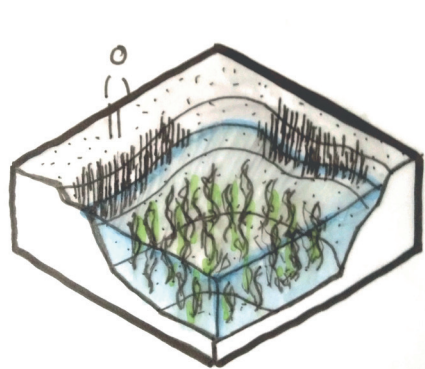
Wet food forest



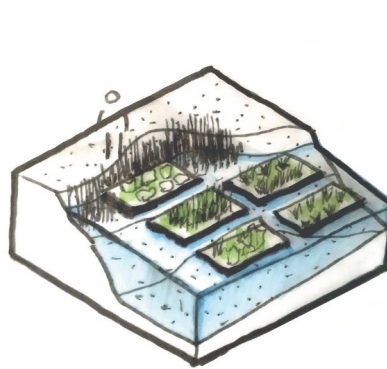
Wetland



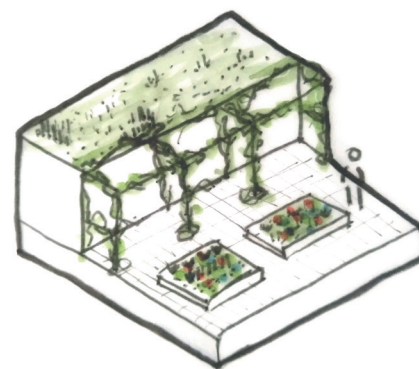
Paddy cultivation



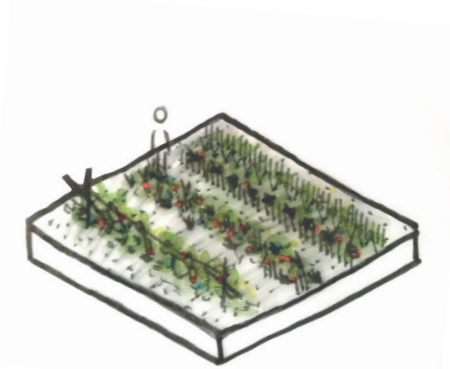
Deep aqua-agriculture



Floating agriculture



Integrated agriculture



Production field

AGROECOLOGY ORGANISATION

CSA
community supported agriculture



<https://twitter.com/CSANetwork>

HERENBOEREN



<https://www.bloeiinarnhem.nl/herenboeren-arnhem/#.YVCfuLgzZPY>

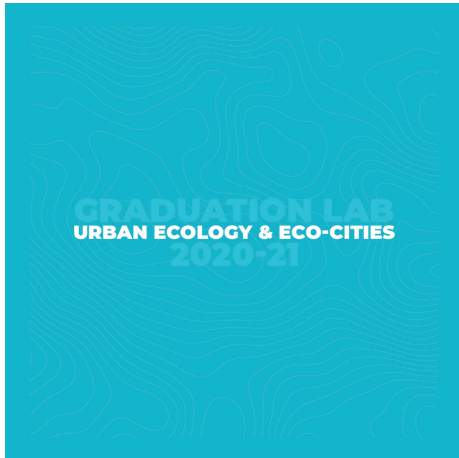
AGROECOLOGY ORGANISATION

GREEN INITIATIVES



UECL

URBAN ECOLOGY AND ECOCITIES LAB



<https://www.instagram.com/p/CH06m-FOMSHn/>



DakAkker, Schieblock, Rotterdam

URBAN ECOLOGY

“the whole of interactions of organisms, built structures, and the physical environment, where people are concentrated”

Richard Forman, 2014, Urban Ecology: Science of Cities

RESEARCH QUESTION

**HOW CAN A LANDSCAPE ARCHITECT TACKLE ENVIRONMENTAL
AND SOCIAL ISSUES USING AGROECOLOGY IN PUBLIC SPACE
DESIGN?**

METHODOLOGY

case study

city
+
neighbourhood

what is the spatial situation?

→ spatial analysis

what is the environmental situation?

→ environmental analysis

what is the social situation?

→ social analysis

agroecology

theory
+
practice

what is agroecology?

→ theory

how can agroecology be used in an urban application?

→ practice

how can agroecology be implemented in durable design?

→ organisation

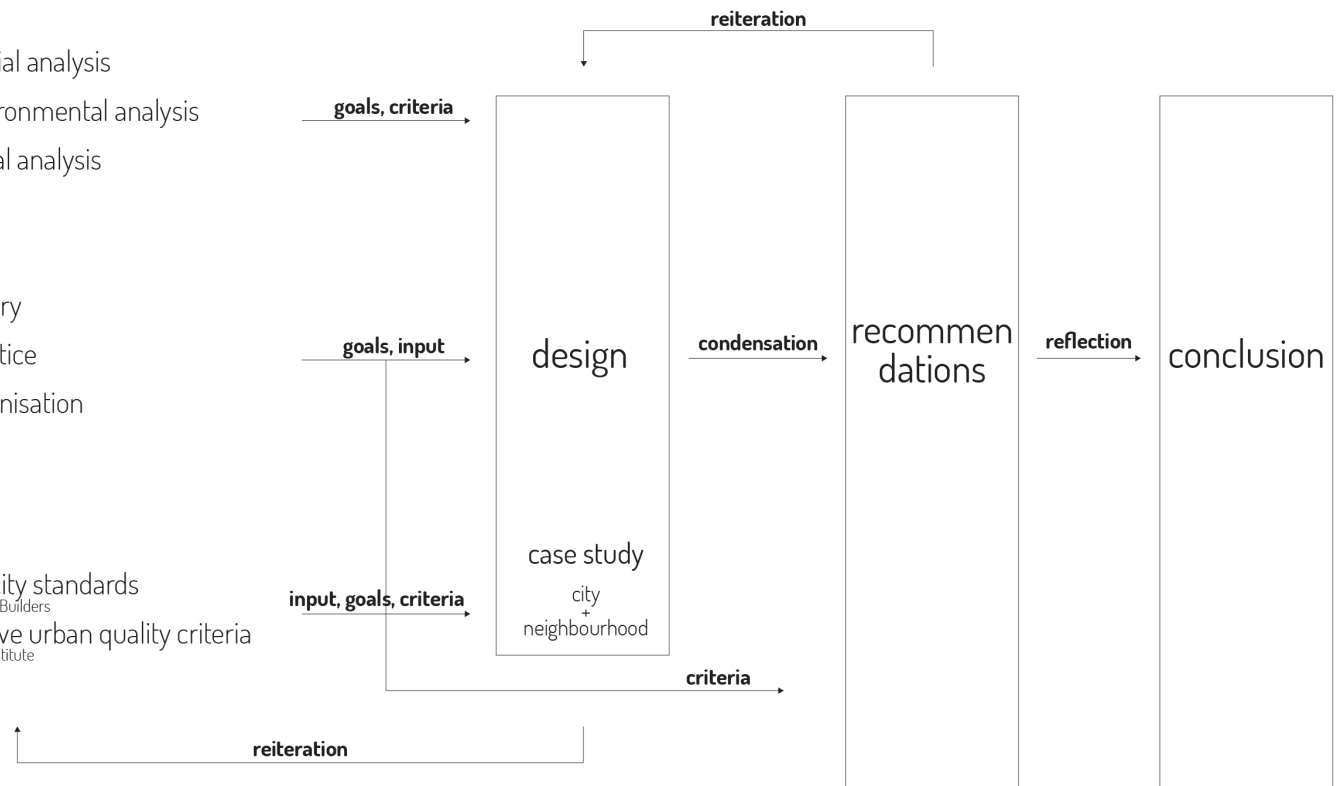
public space design

what are criteria for public space design?

→ ecocity standards
Ecocity Builders

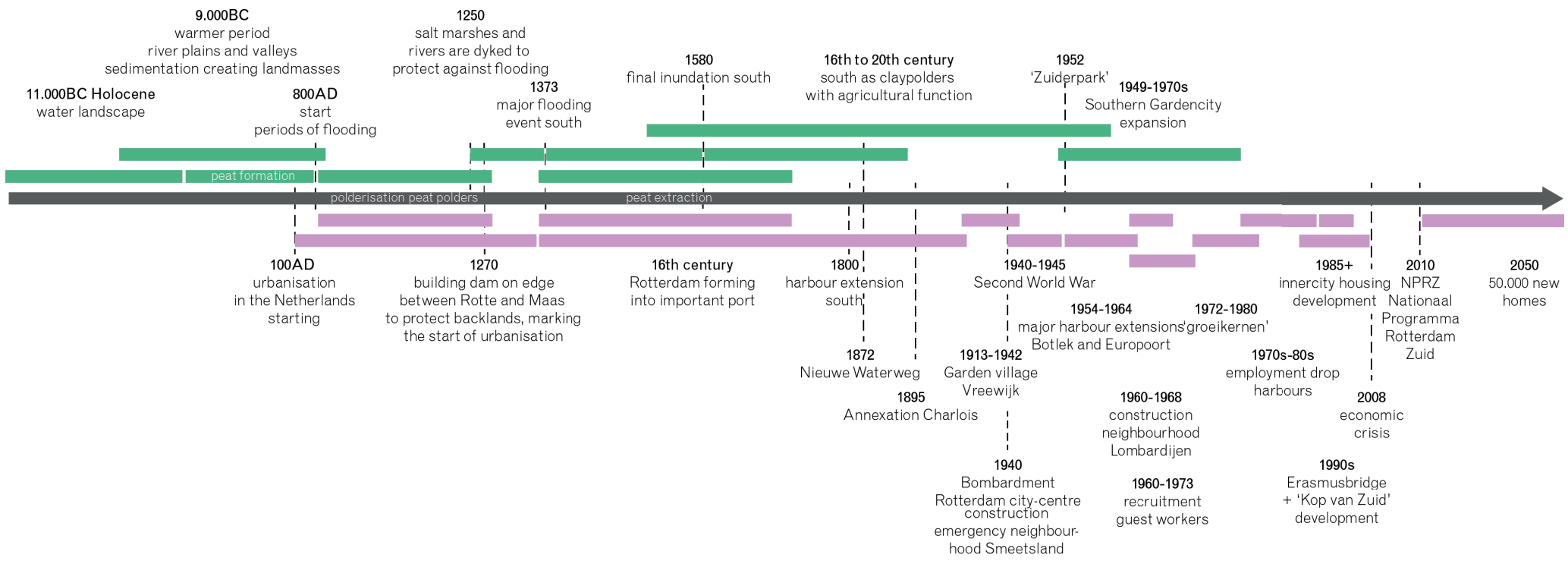
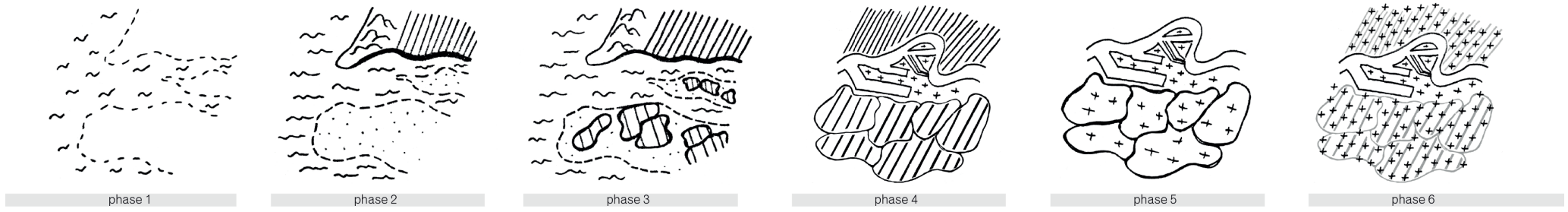
what are possibilities for reapplication?

→ twelve urban quality criteria
Gehl institute



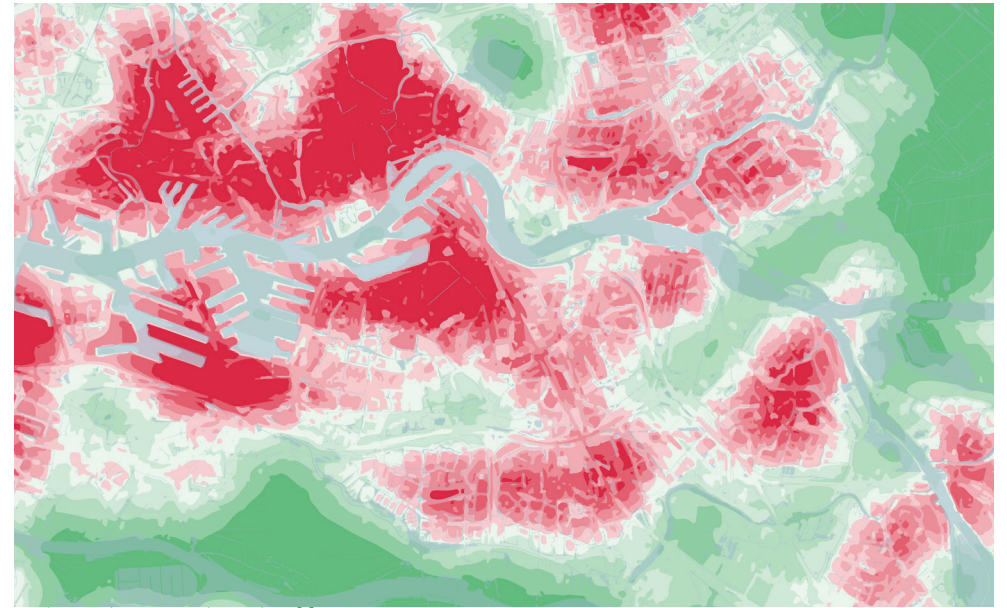
CASE STUDY INTRODUCTION

ROTTERDAM STORYLINE

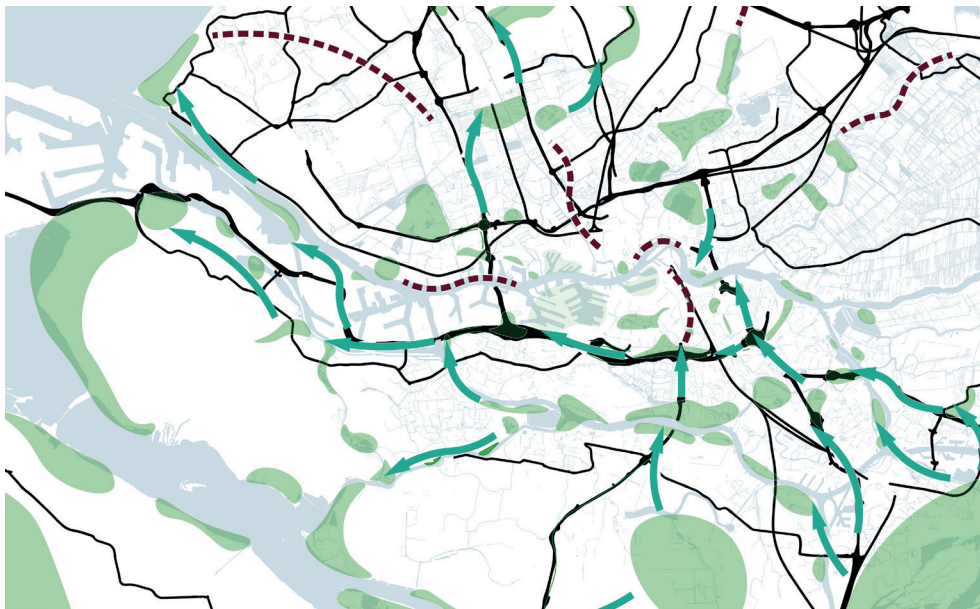




stepping stones



urban heat island effect



eco-corridors along infrastructure



2005 Groenplan Rotterdam in context with missing links



LOMBARDIJEN STORYLINE

LOMBARDIEN PAST



1850



1900



1938



1958



1968

Kadaster. (n.d.). Topotijdreis: 200 jaar topografische kaarten. Topotijdreis. <https://www.topotijdreis.nl/>

LOMBARDIEN PAST



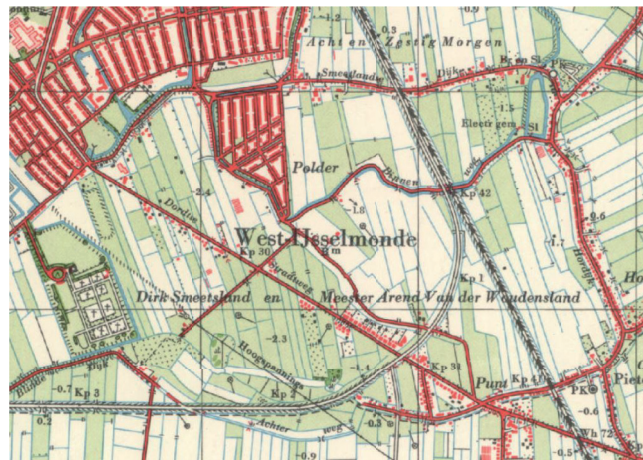
1850



1900



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1958



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Kadaster. (n.d.). Topotijdreis: 200 jaar topografische kaarten. Topotijdreis. <https://www.topotijdreis.nl/>

LOMBARDIJEN PAST



1850



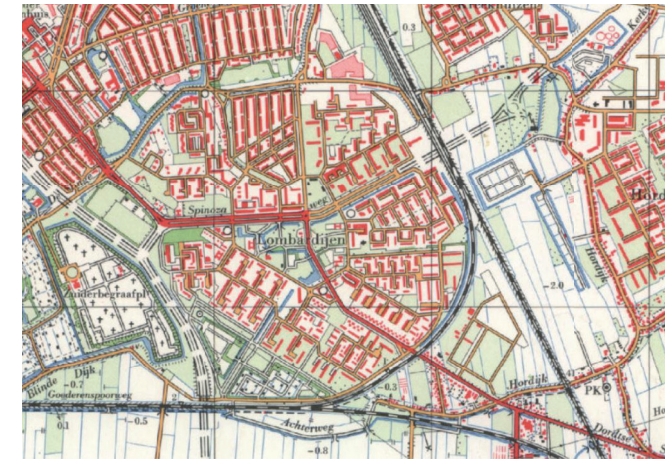
1900



1938



1958



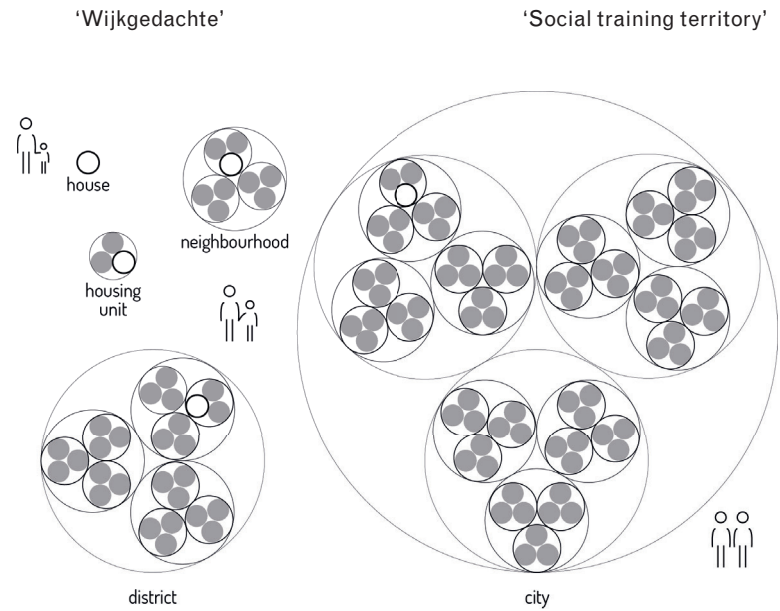
1968

Kadaster. (n.d.). Topotijdreis: 200 jaar topografische kaarten. Topotijdreis. <https://www.topotijdreis.nl/>

LOMBARDIEN GARDENCITY



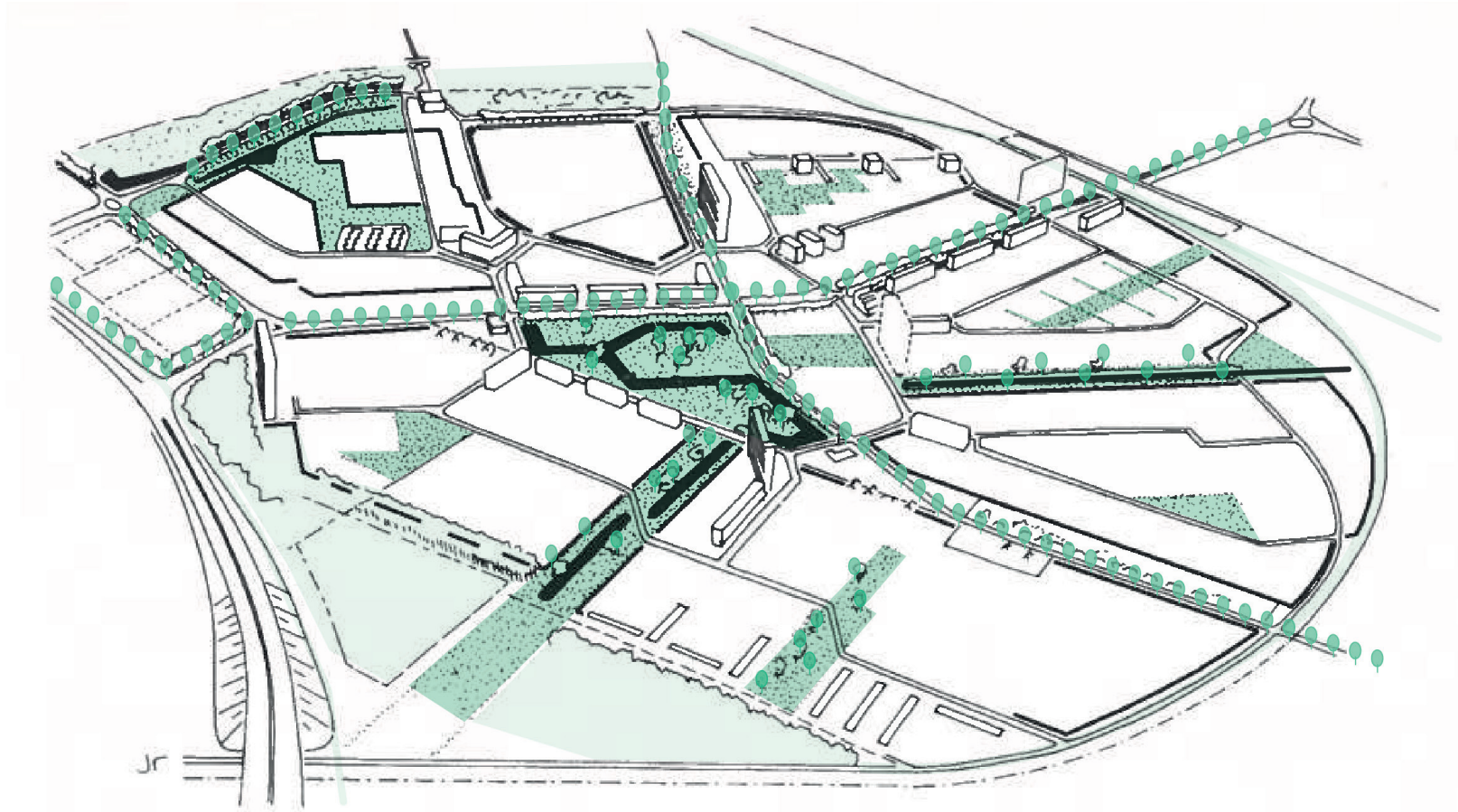
page 135 of Zweerink, K., & Hage, K. (2005). Van Pendrecht tot Ommoord. Bussum: Uitgeverij Thoth.



LOMBARDIJEN GARDENCITY



by author based on page 170 of Zweerink, K., & Hage, K. (2005). Van Pendrecht tot Ommoord. Bussum: Uitgeverij Thoth.



page 171 of Zweerink, K., & Hage, K. (2005). Van Pendrecht tot Ommoord. Bussum: Uitgeverij Thoth. edited by author

BUILT ENVIRONMENT



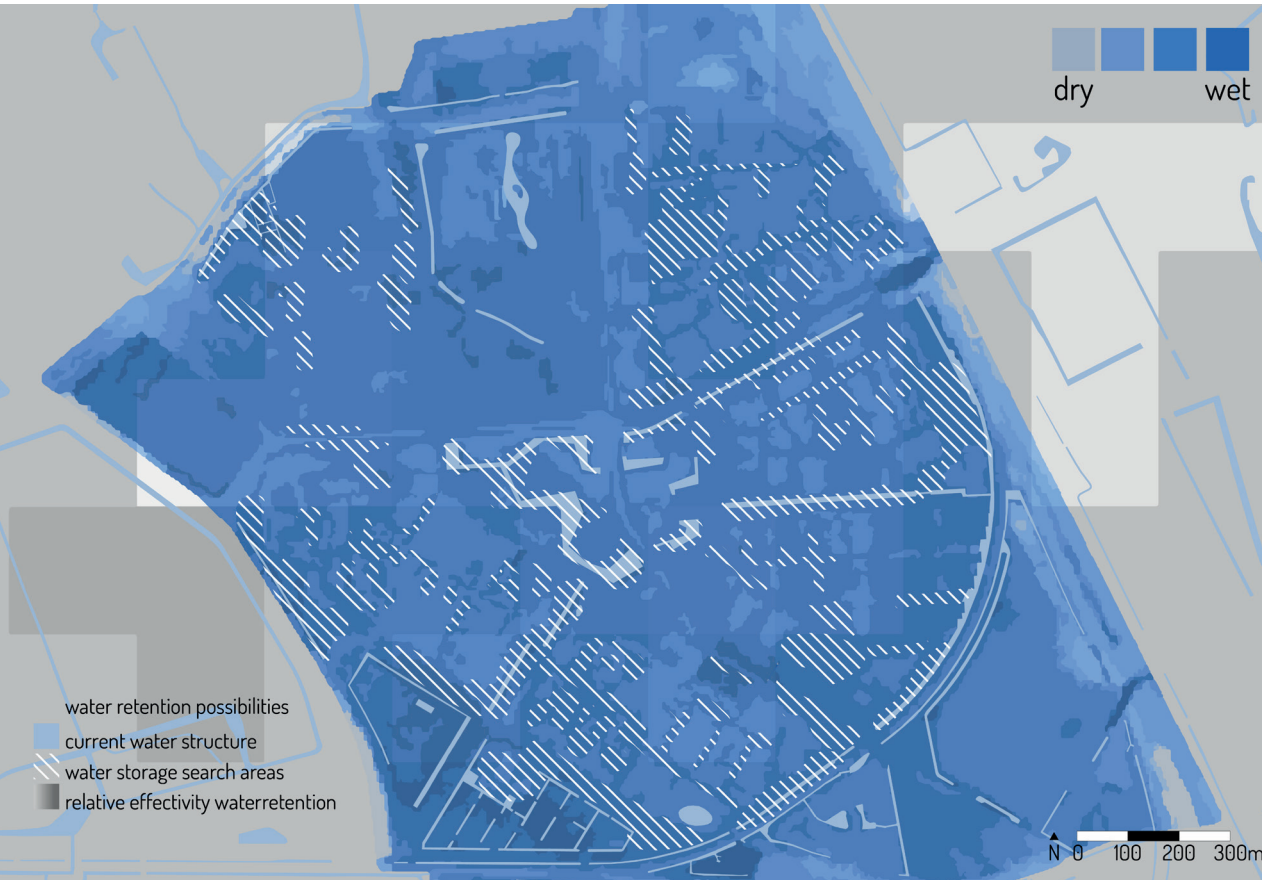
development diagnosis

ACTIVITY



activity diagnosis

WATER



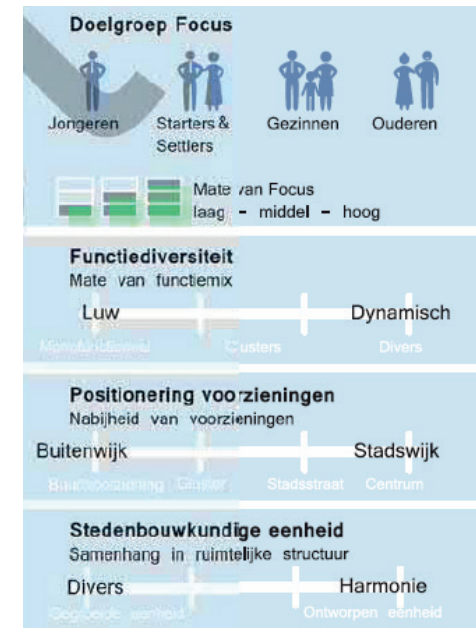
water management diagnosis

BIODIVERSITY



biodiversity diagnosis

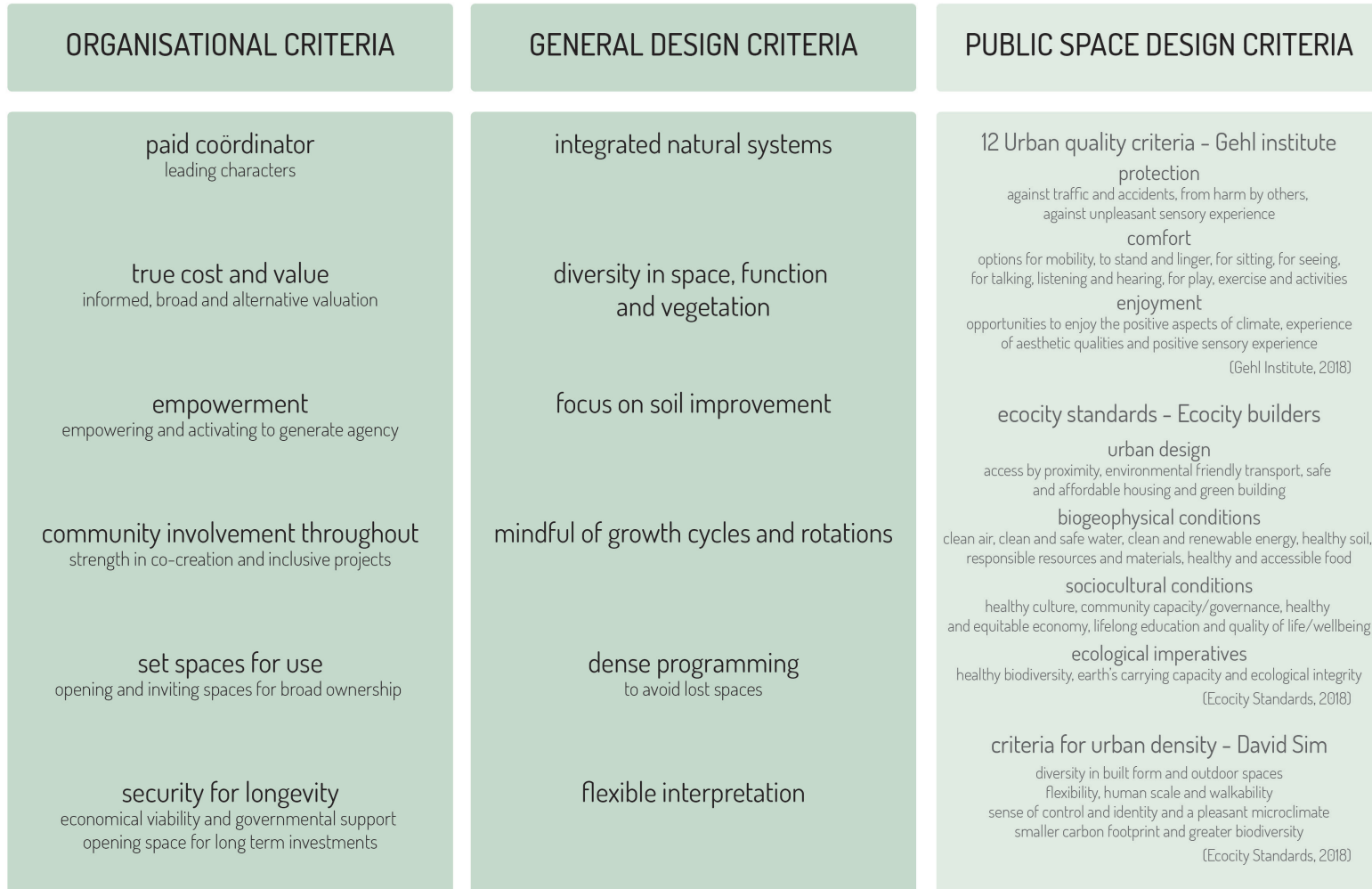
LOMBARDIEN DENSIFICATION



page 9 of Gemeente Rotterdam. (2018). Concept gebiedsatlas ontwikkeling woningvoorraad: Uitwerking woonvisie 2030. Retrieved from https://rotterdam.raadsinformatie.nl/document/6307670/1/s18bb001355_2_30080_tds

Algemeen Dagblad. (2019, July 18). Hier gaat Rotterdam de komende jaren tienduizenden huizen bouwen. AD.nl. <https://www.ad.nl/rotterdam/hier-gaat-rotterdam-de-komende-jaren-tienduizenden-huizen-bouwen~a990df97/>

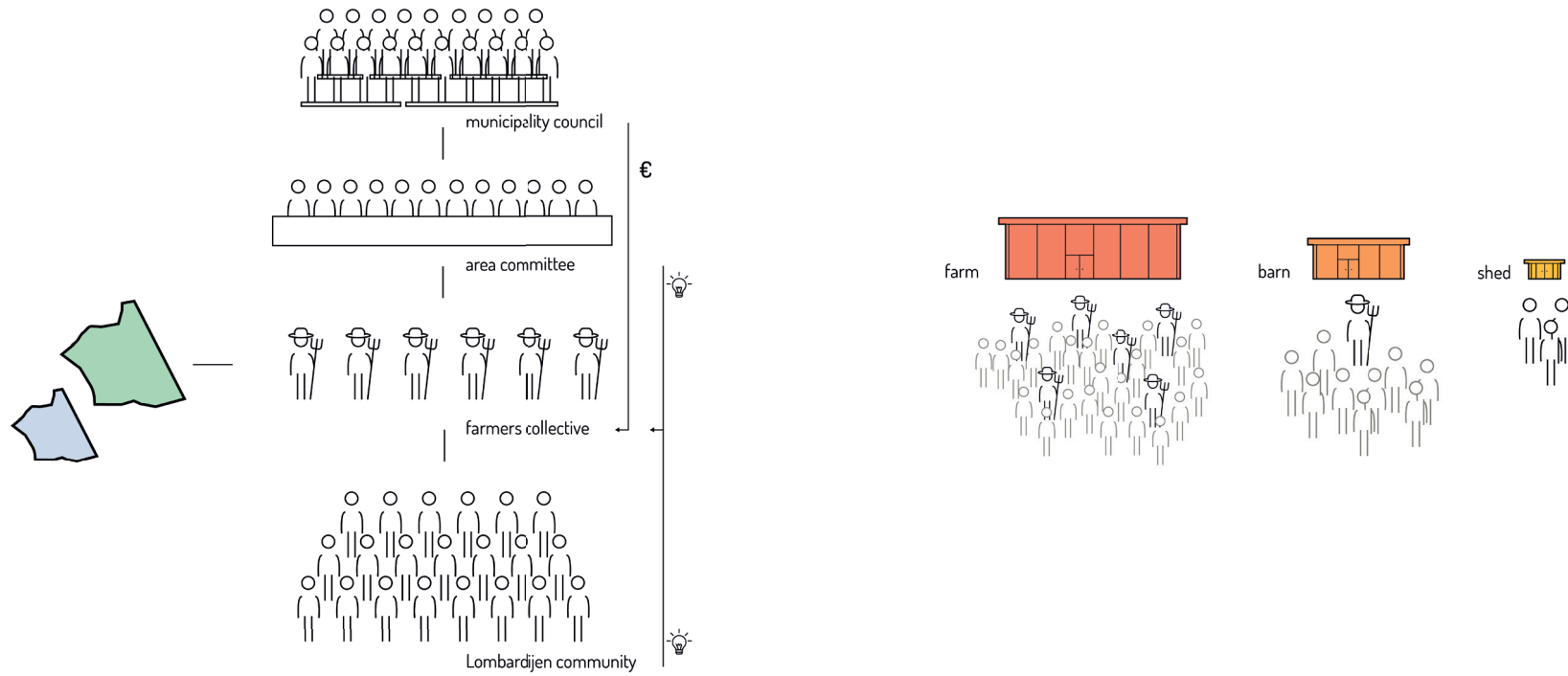
CRITERIA

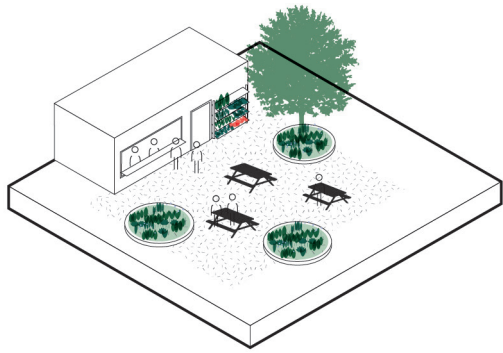


DESIGN

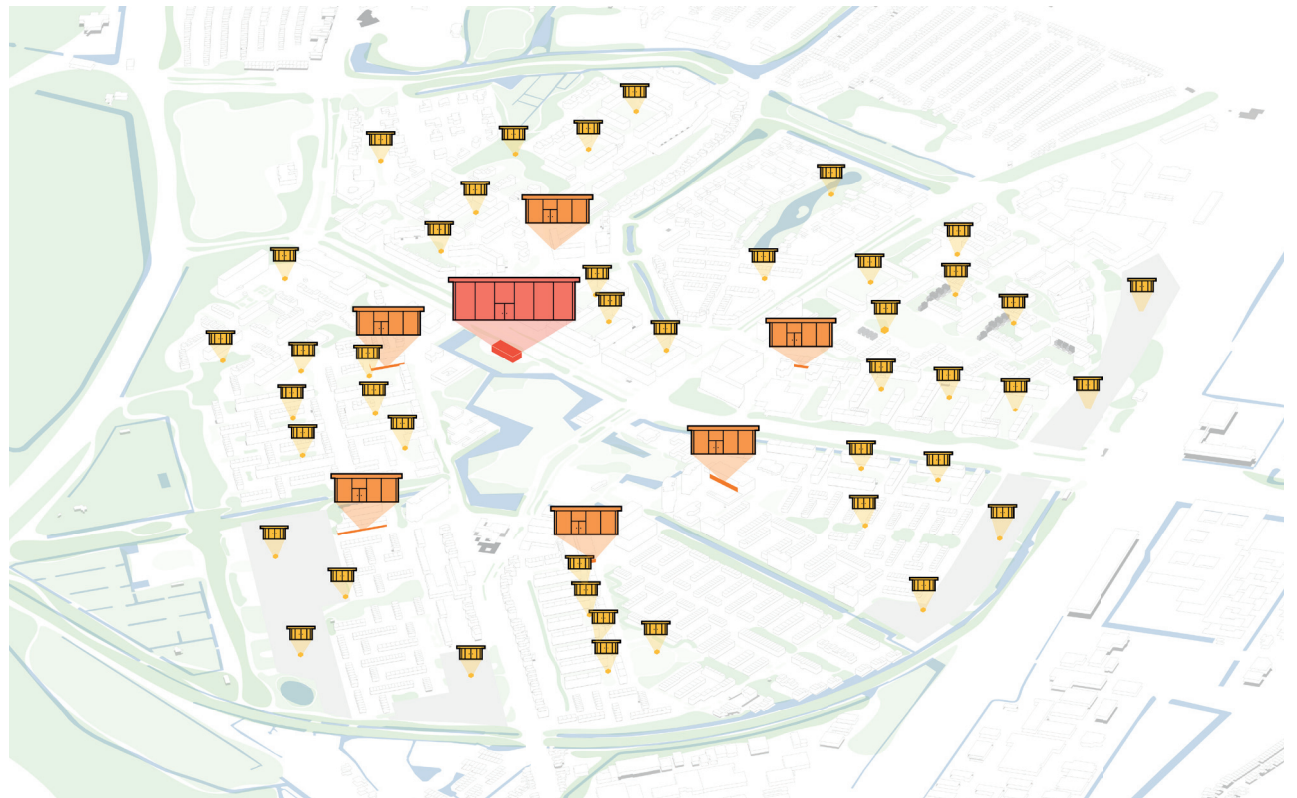
GARDEN CITY TO FARMING CITY

FARM BARN SHED STRATEGY





social hubs



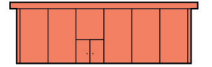
farm



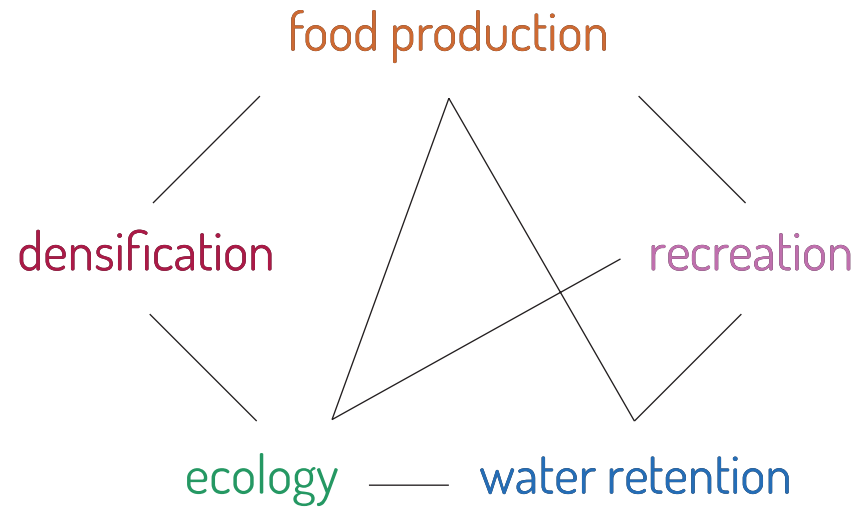
barn



shed



LOMBARDIEN VISION

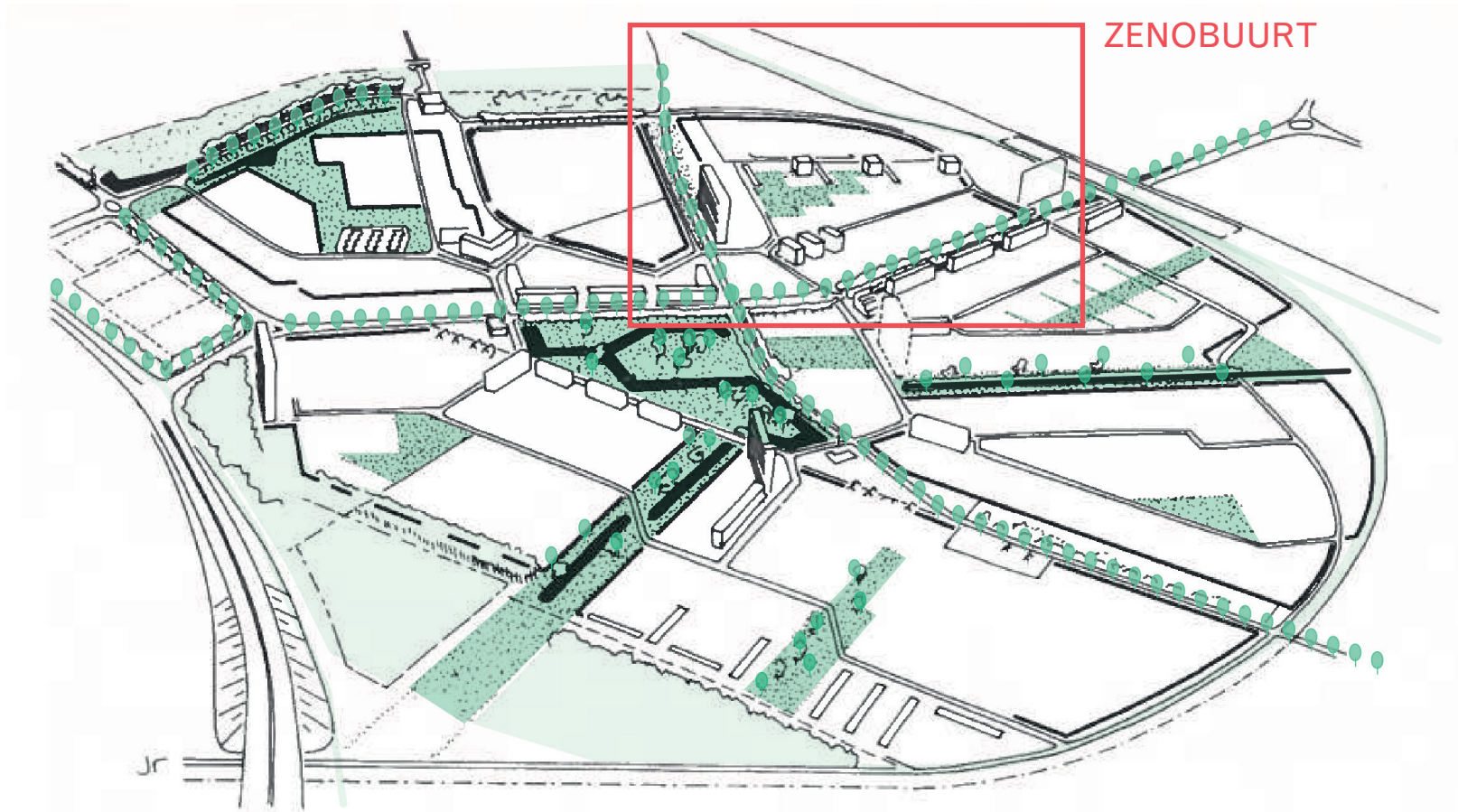


LOMBARDIEN VISION





ZENOBUURT MASTERPLAN



page 171 of Zweerink, K., & Hage, K. (2005). Van Pendrecht tot Ommoord. Bussum: Uitgeverij Thoth. edited by author





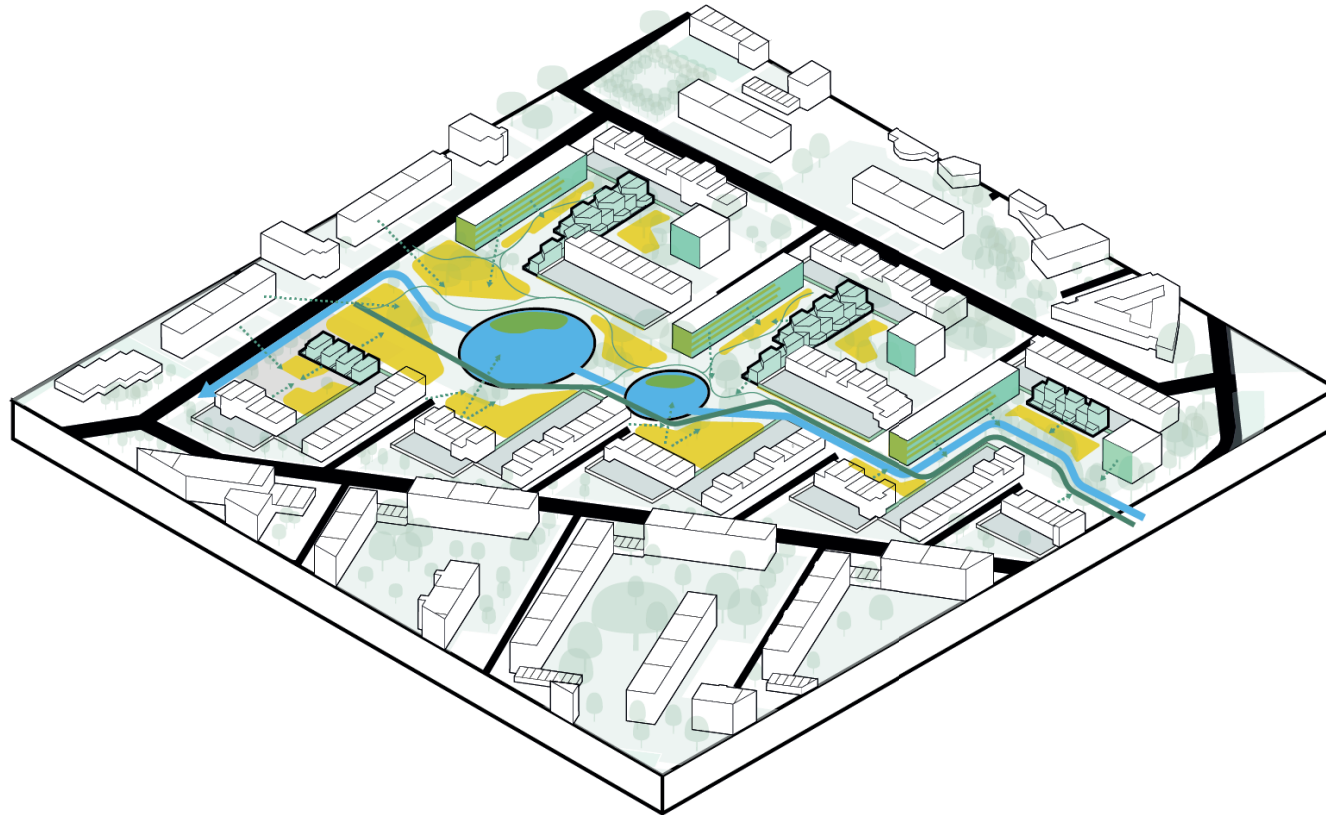


A1

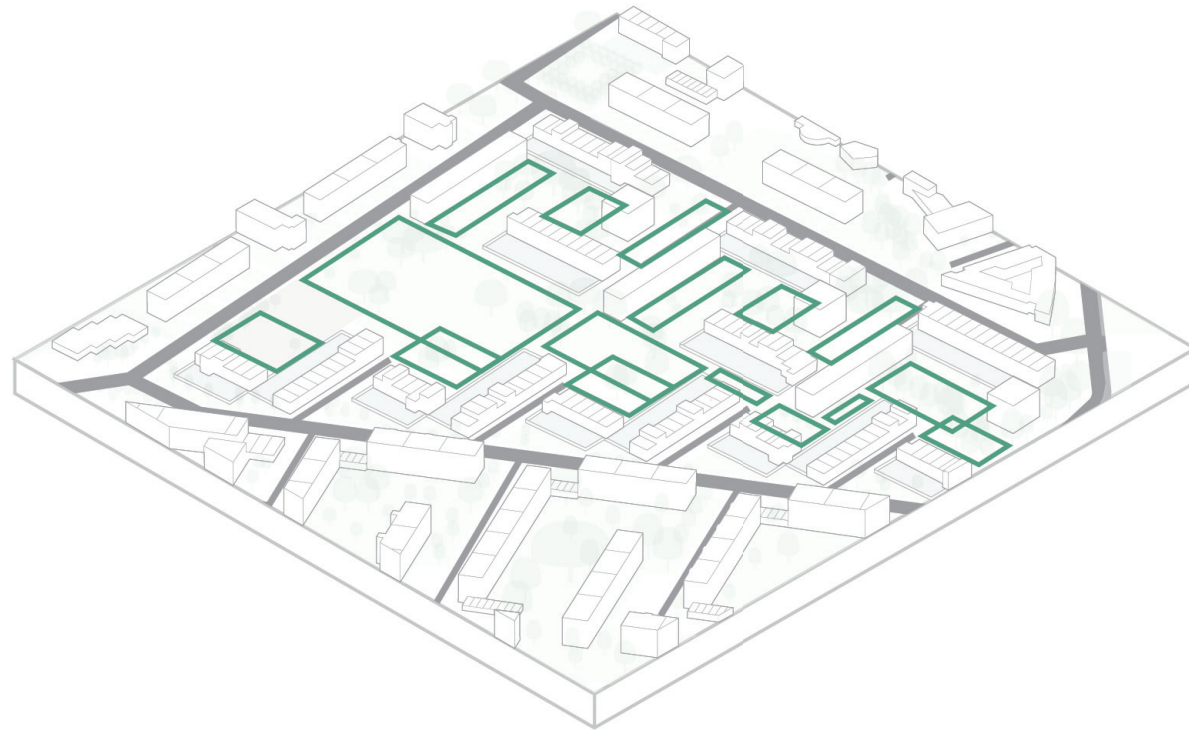
A2

N

ZENOBUURT

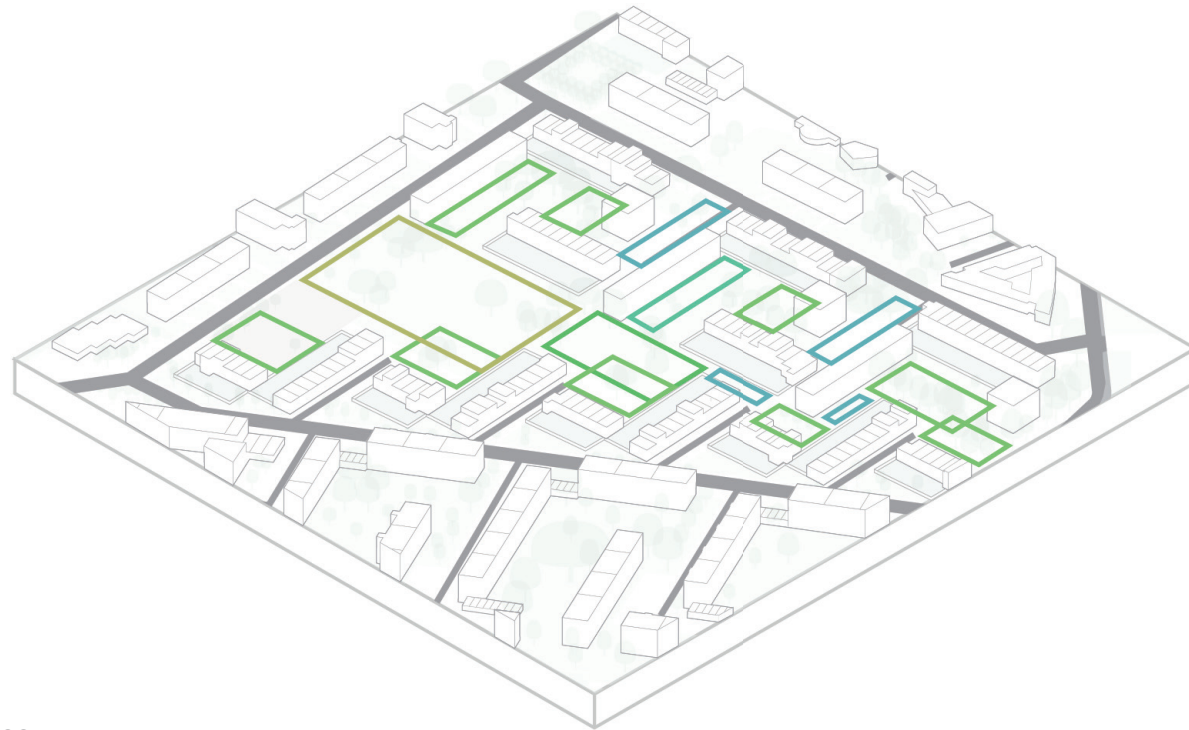


ZENOBUURT



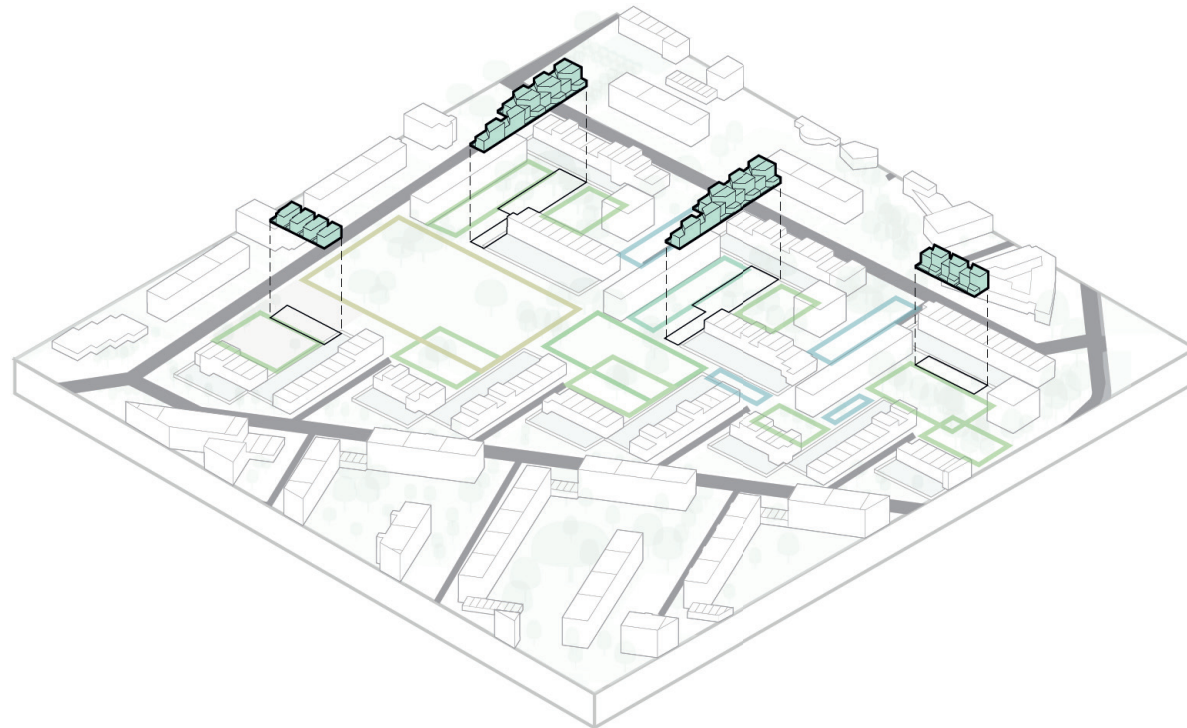
creating enclosed spaces

ZENOBUURT



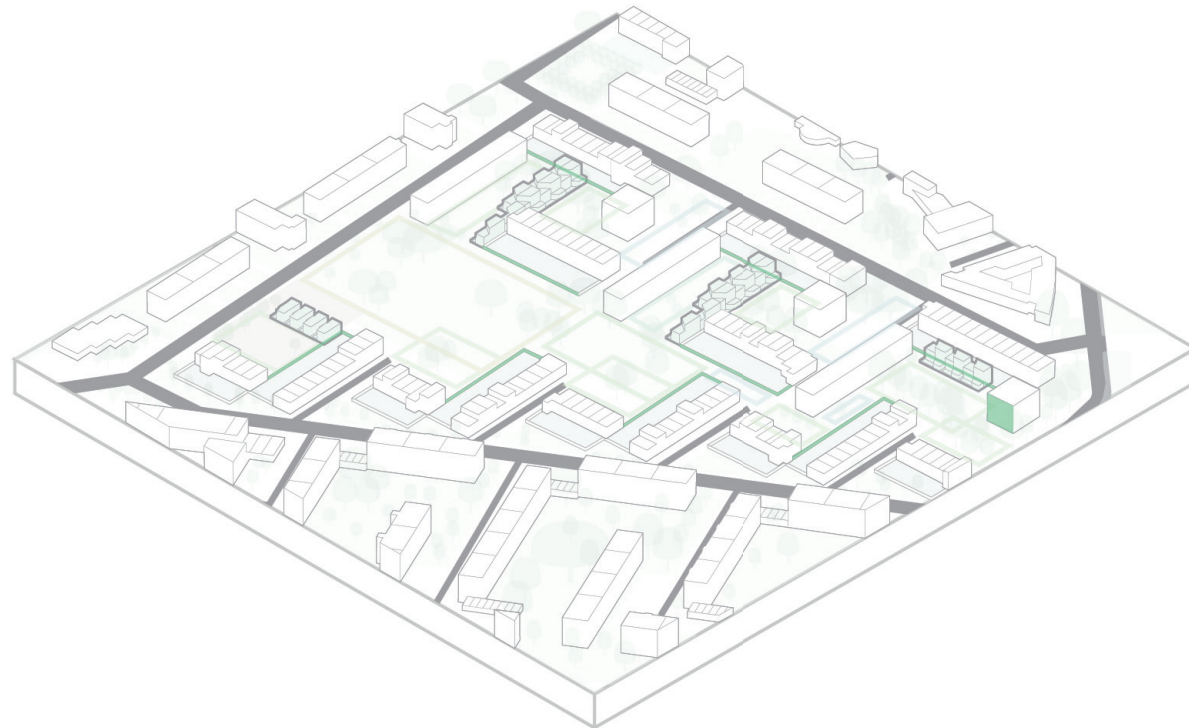
differentiating spaces

ZENONUURT



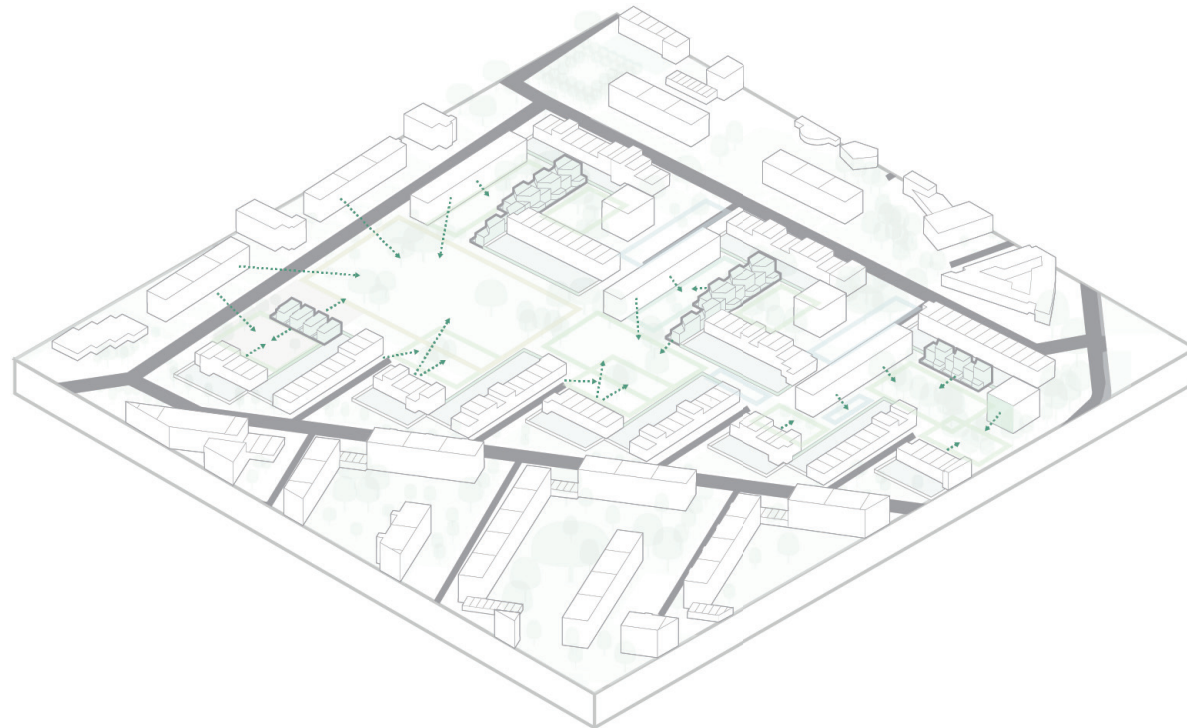
generating activity and enclosure through acupuncture densification

ZENOBUURT



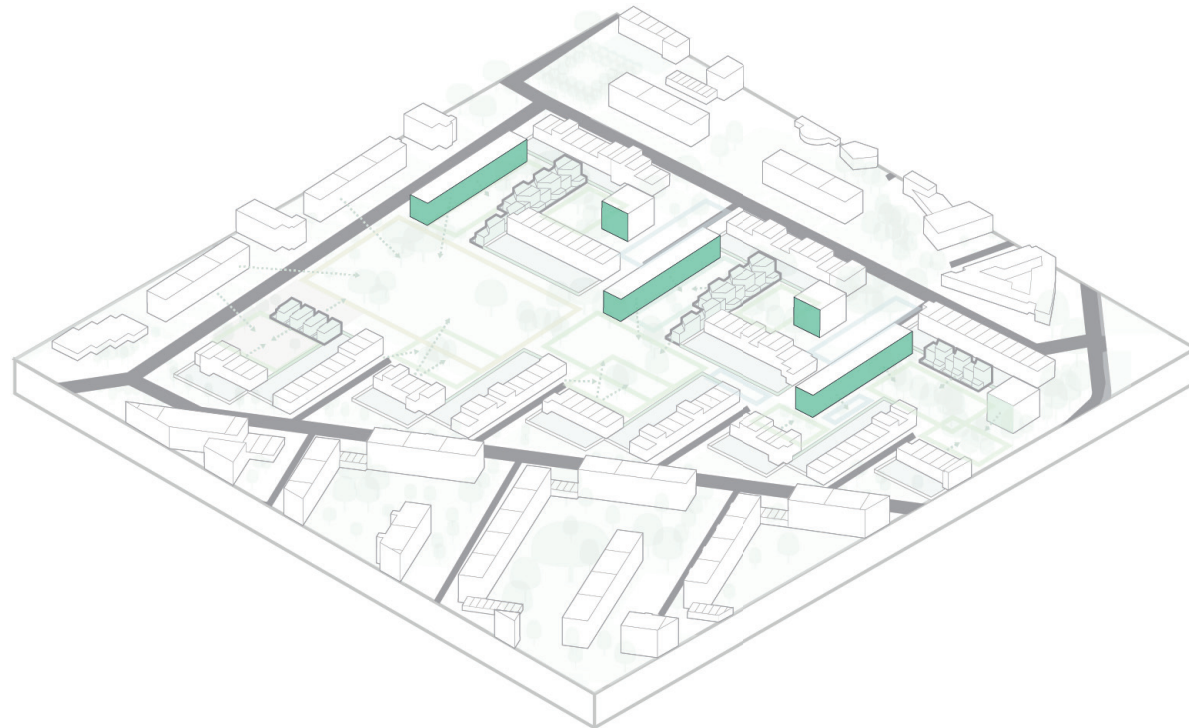
activating dead facades and fences through vegetation

ZENOBUURT



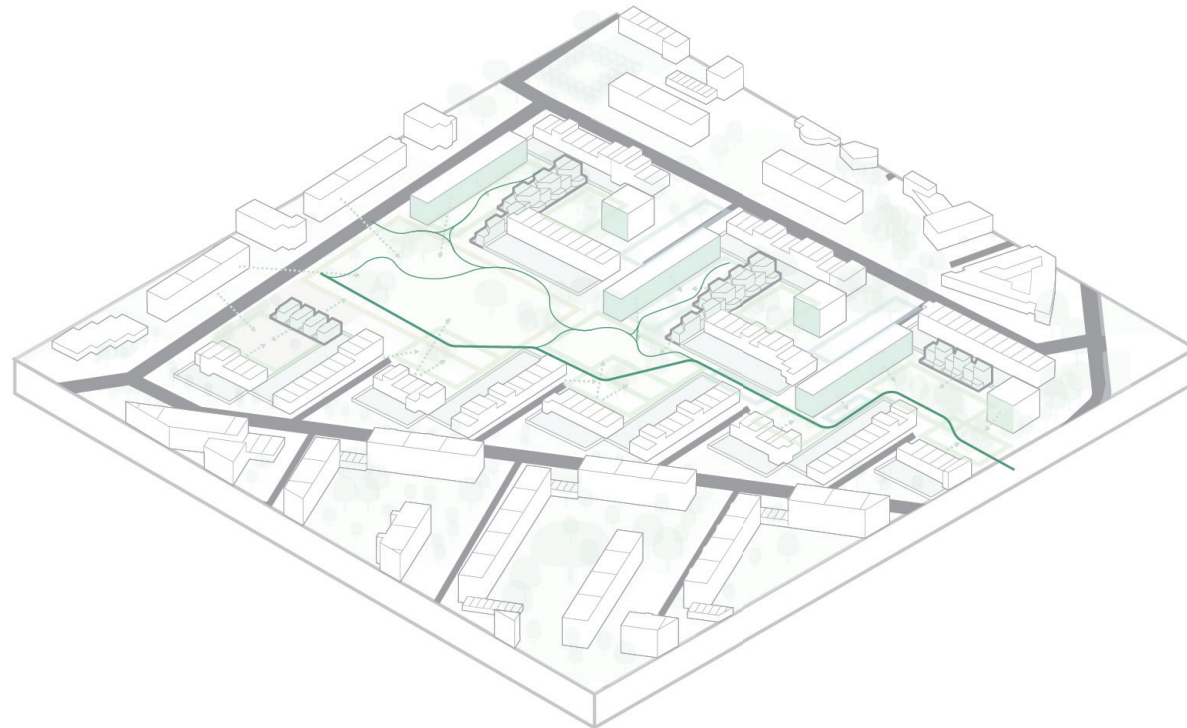
linking spaces with buildings for social control and eyes on the street

ZENOBUURT



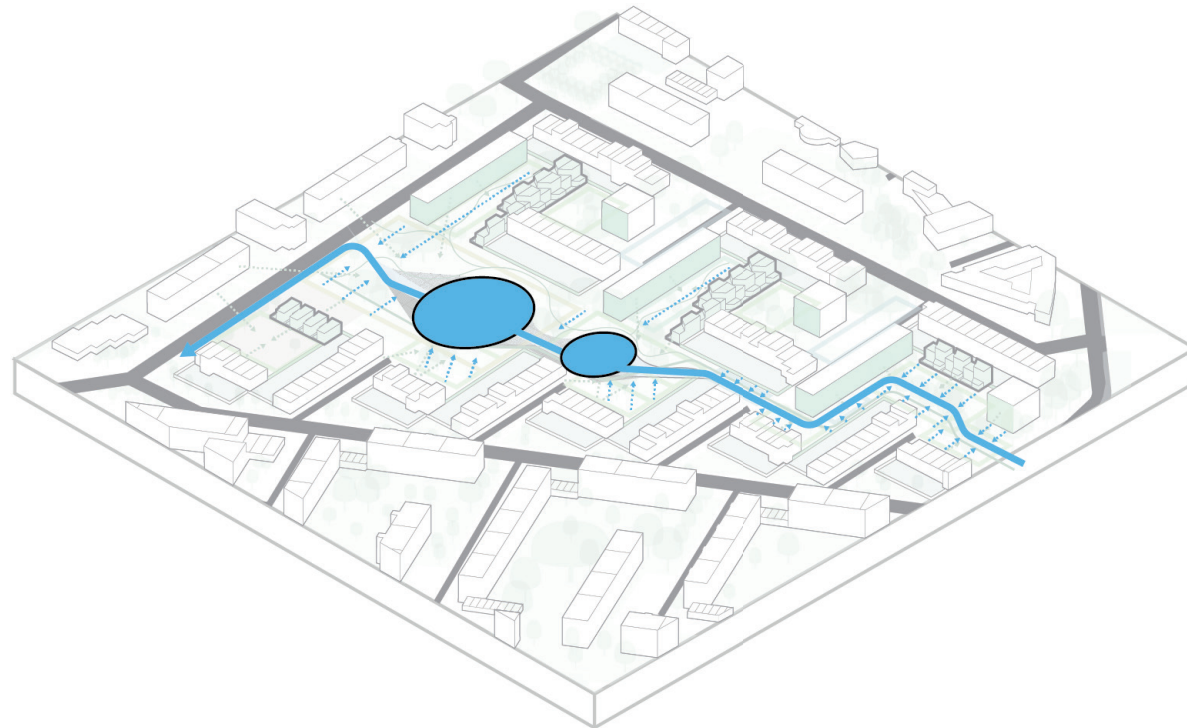
involving back facades through easy access

ZENOBUURT



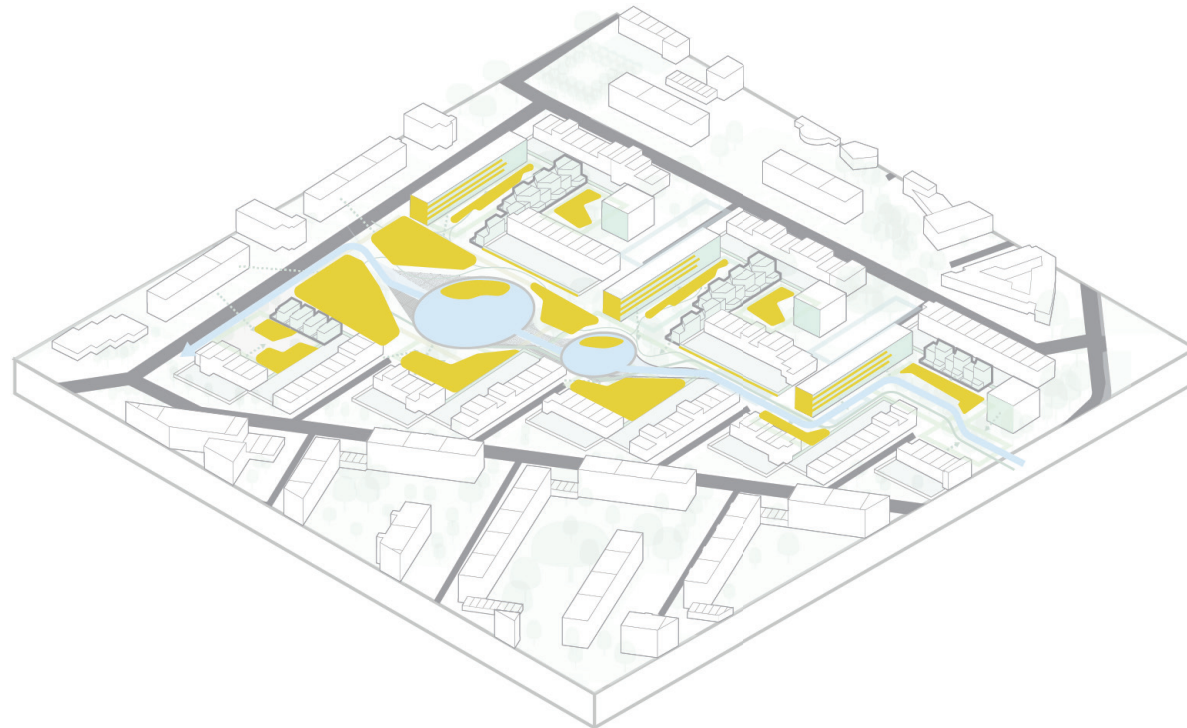
offering direct and organic routes through the contrast of maintained and wild characters

ZENOBUURT



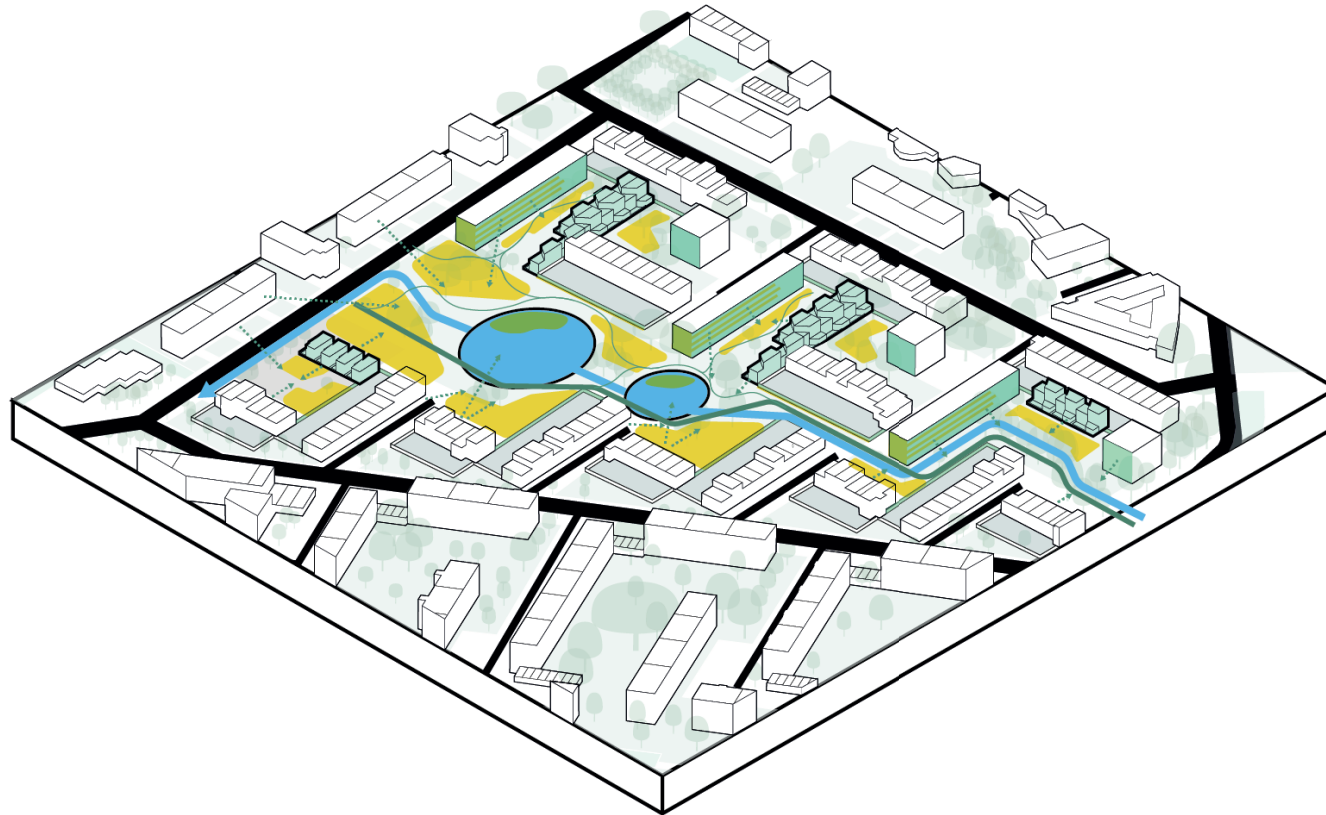
introducing a waterstructure for water storage, guiding movement and transporting percipitation

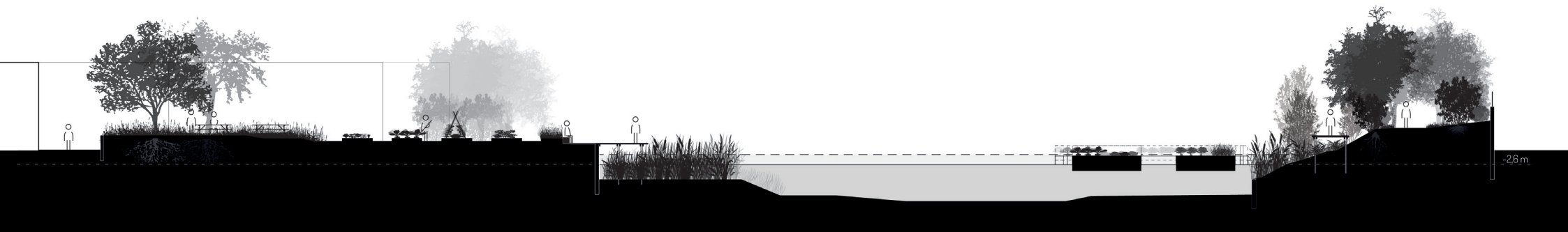
ZENONUURT



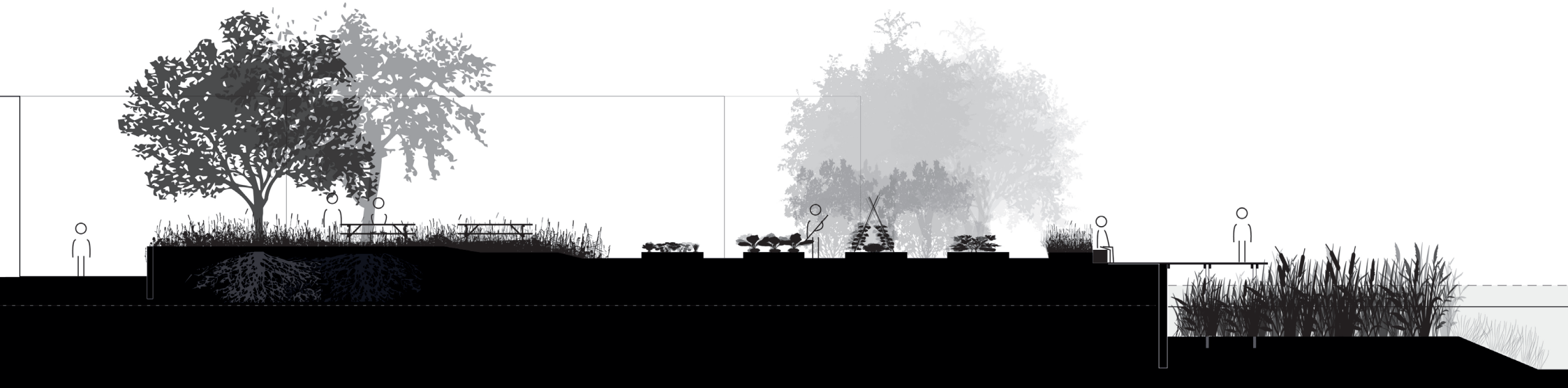
introducing food production for programming, social cohesion, biodiversity enhancement and resilience

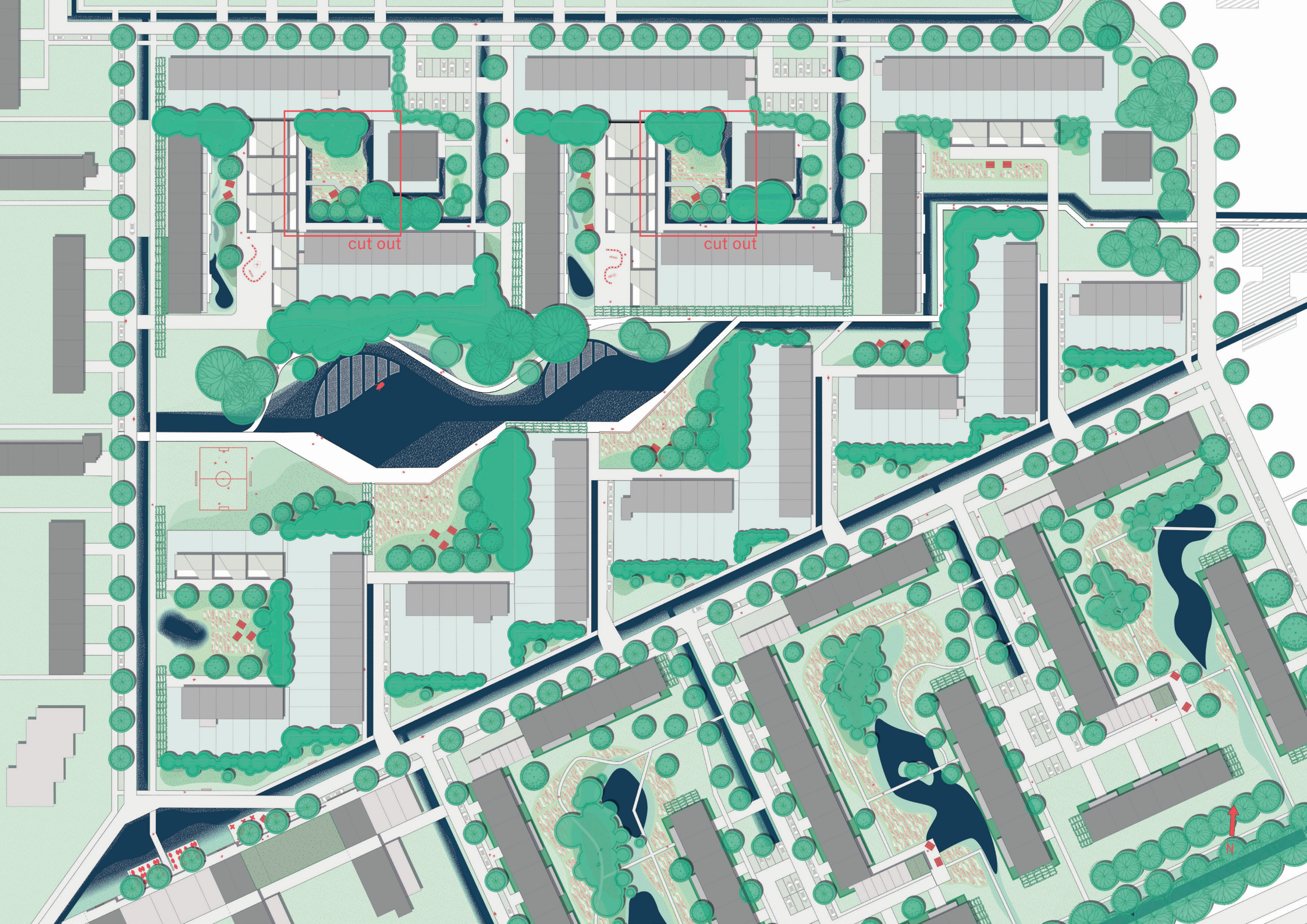
ZENOBUURT









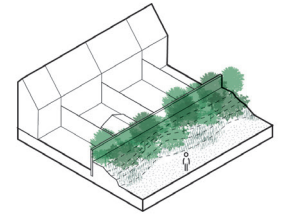
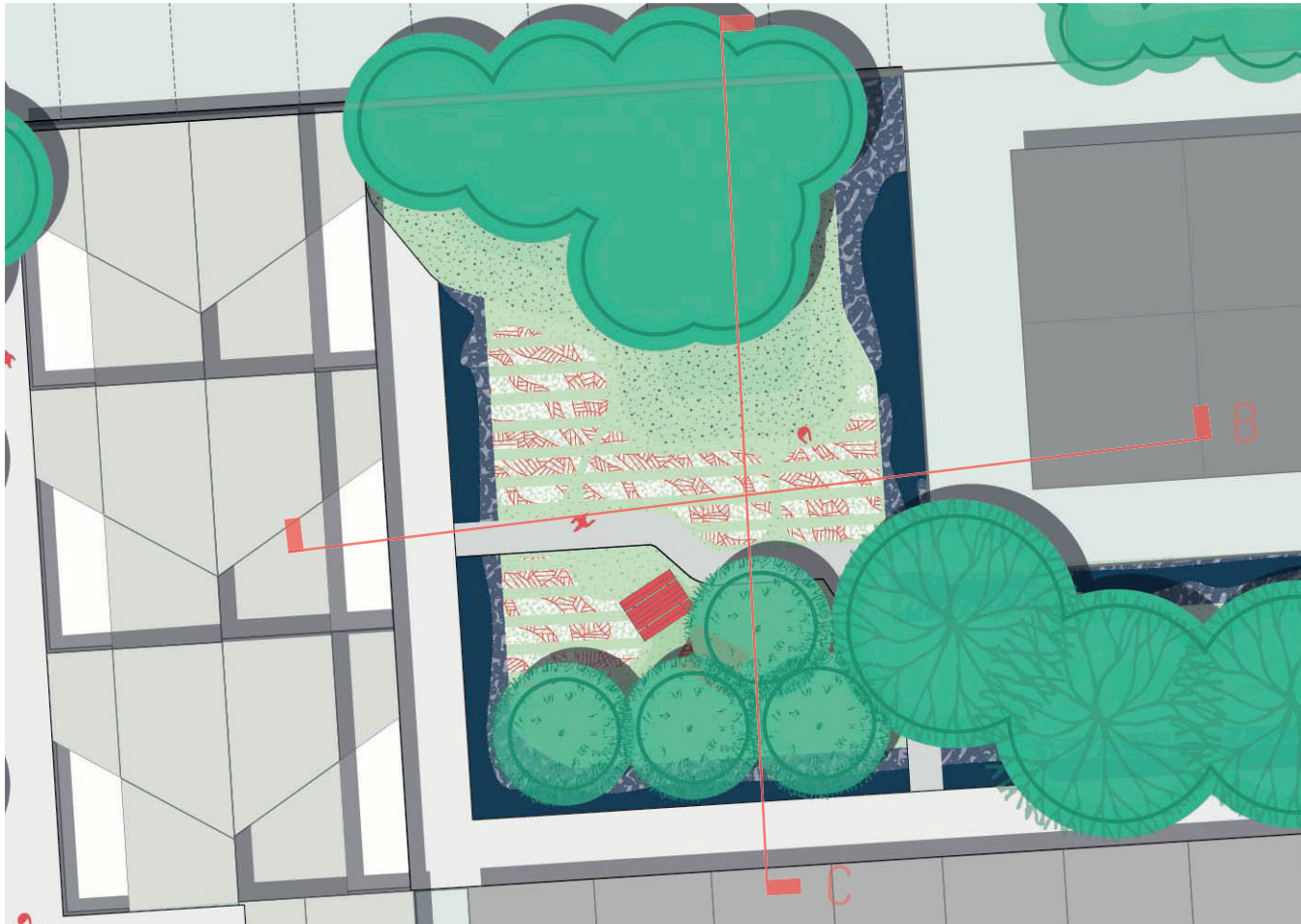


cut out

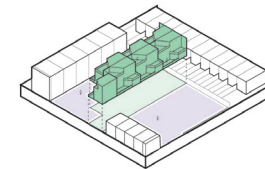
cut out



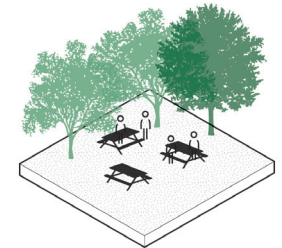
SHED DESIGN



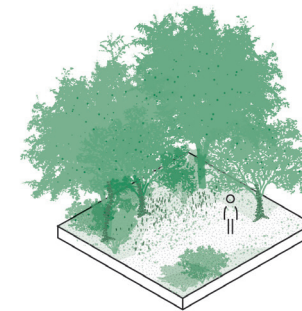
vegetation wall



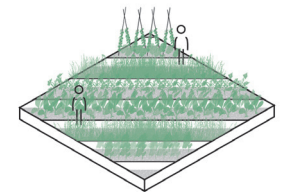
densification for activation



meeting spaces

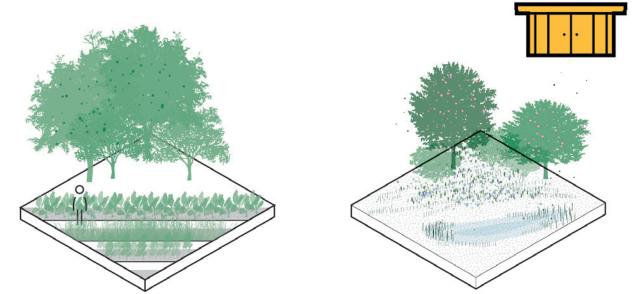


food forest



production fields

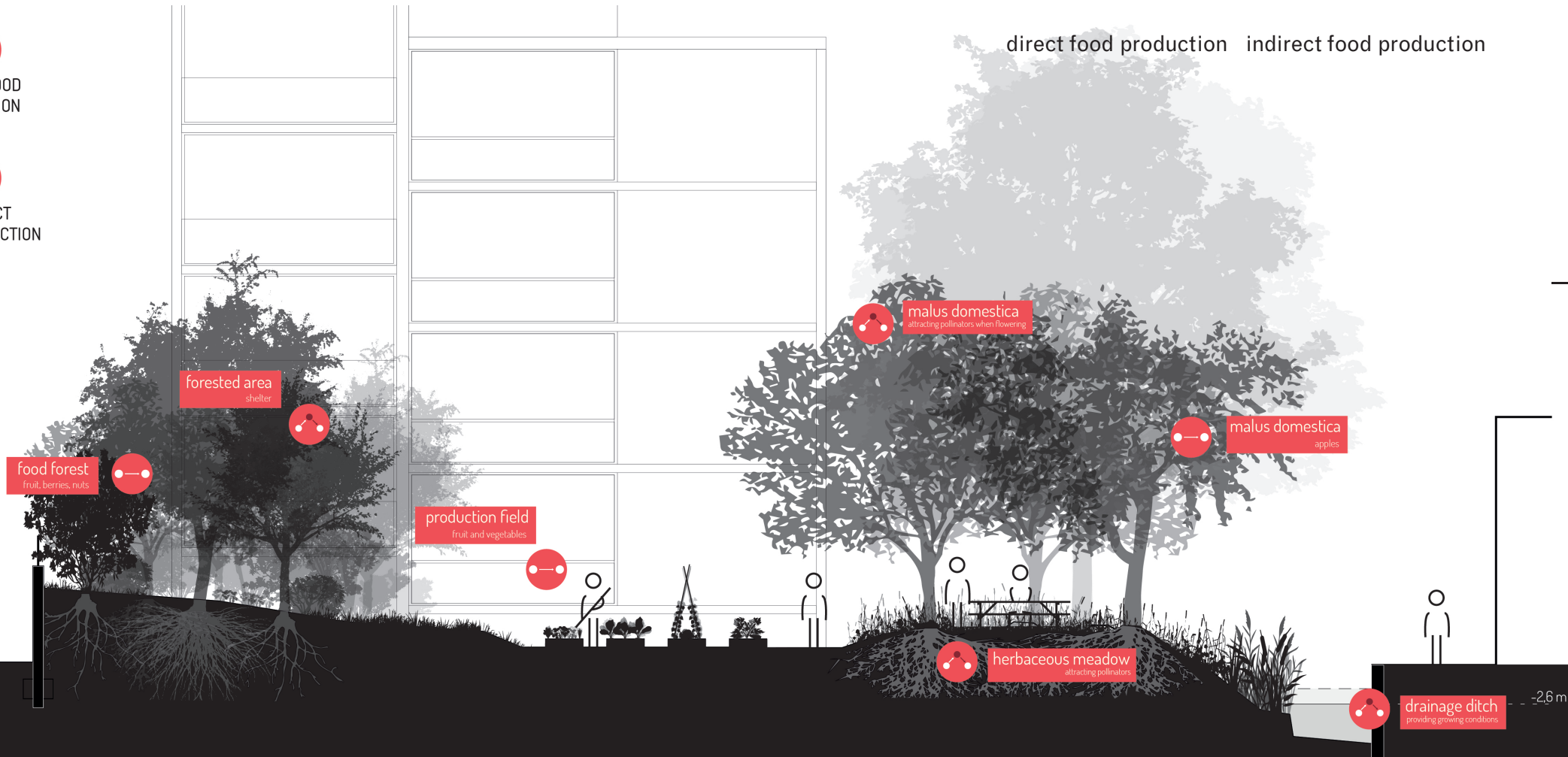


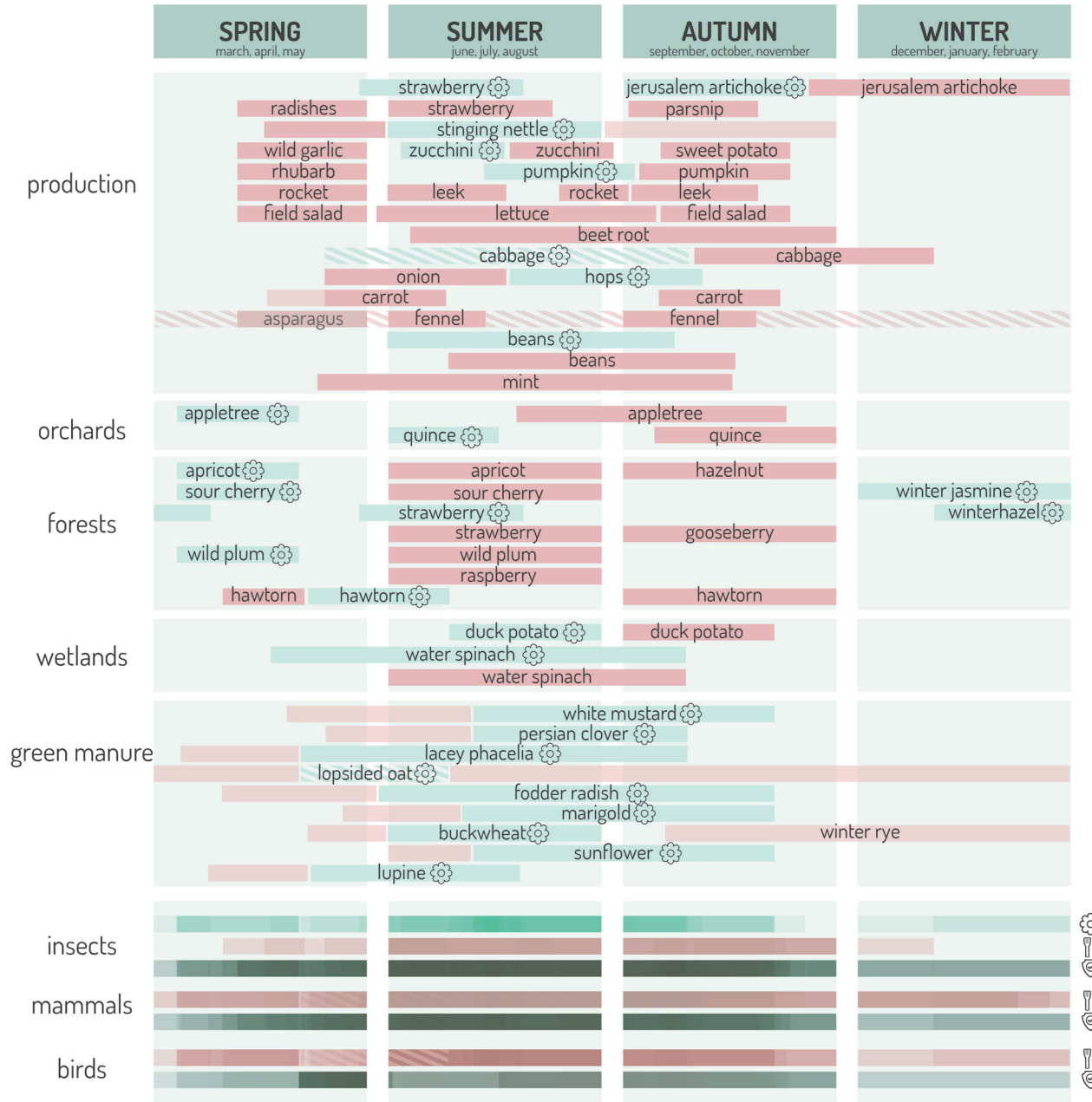


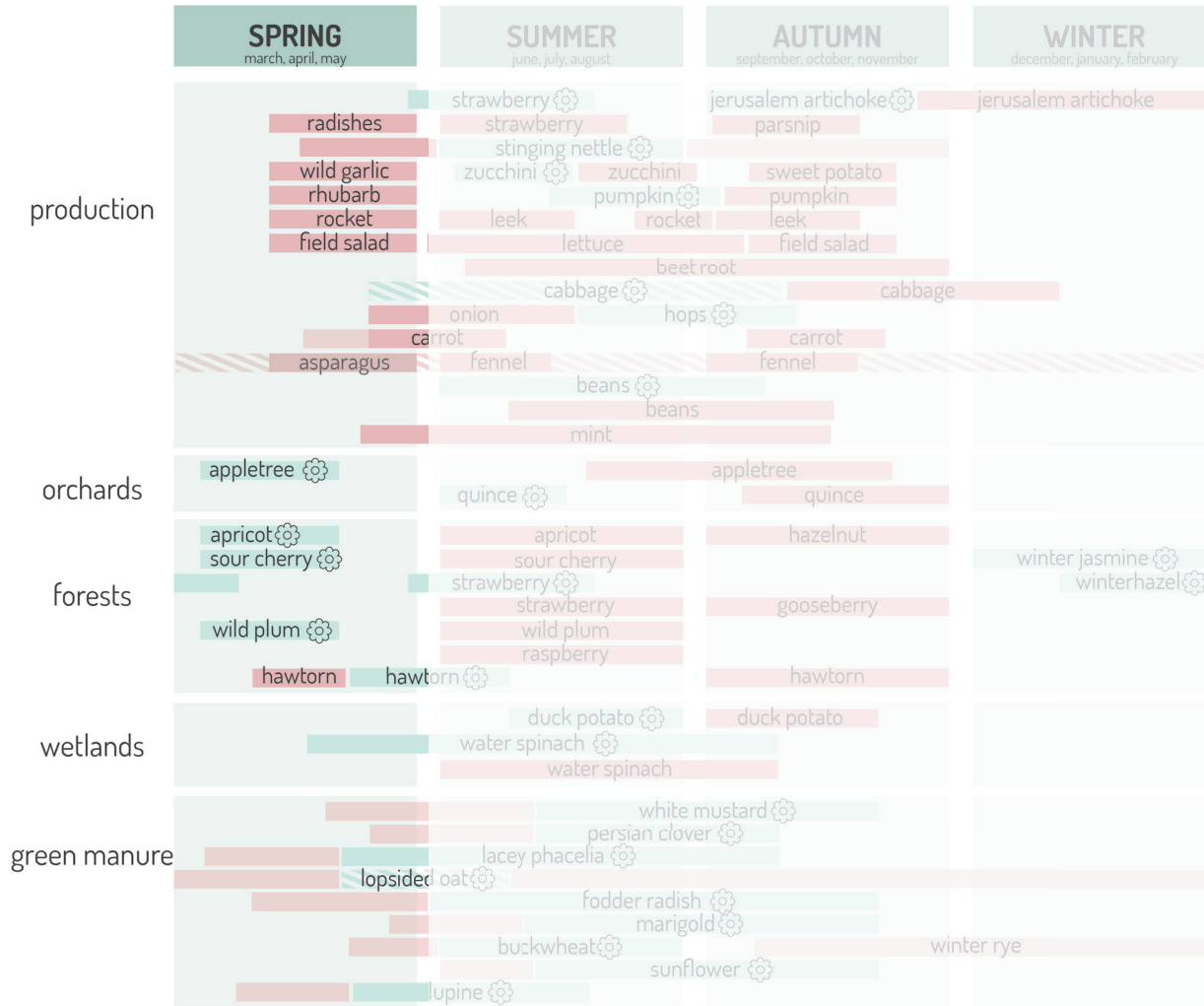
direct food production indirect food production


DIRECT FOOD
PRODUCTION

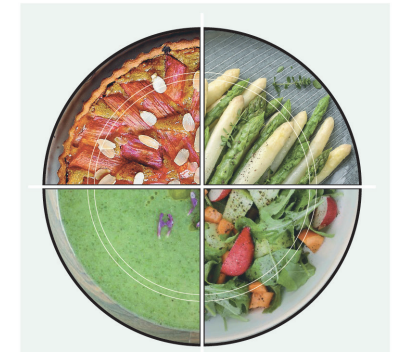

IN-DIRECT
FOOD PRODUCTION







menu

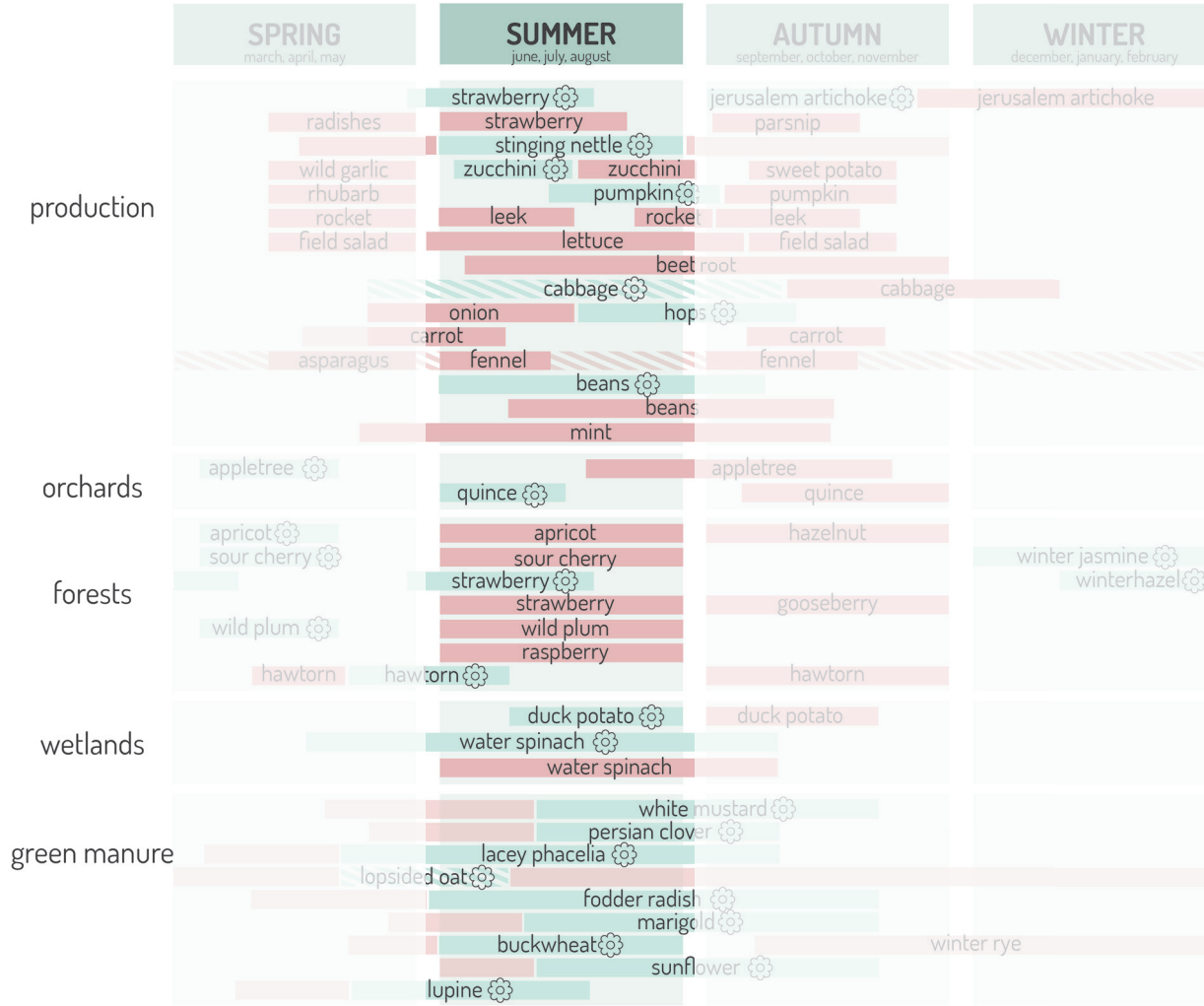


asparagus with nettle soup and a salad of mixed greens and radish and a rhubarb tart for desert

actions
volunteers

prepare beds, planting seedlings, building growing structures, harvest first crops, mulching, compiling food packages

- harvest
- blooming
- perennial harvest
- perennial blooming
- blooming
- food
- shelter



menu



zucchini pasta with water spinach salad and a desert of summer fruit salad

actions
volunteers

weeding, covering crops for pests, prepare beds, planting seedlings, harvest crops, harvest fruit, sowing green manure, compiling food packages, making jam

- harvest
- blooming
- perennial harvest
- perennial blooming
- blooming
- food
- shelter



menu

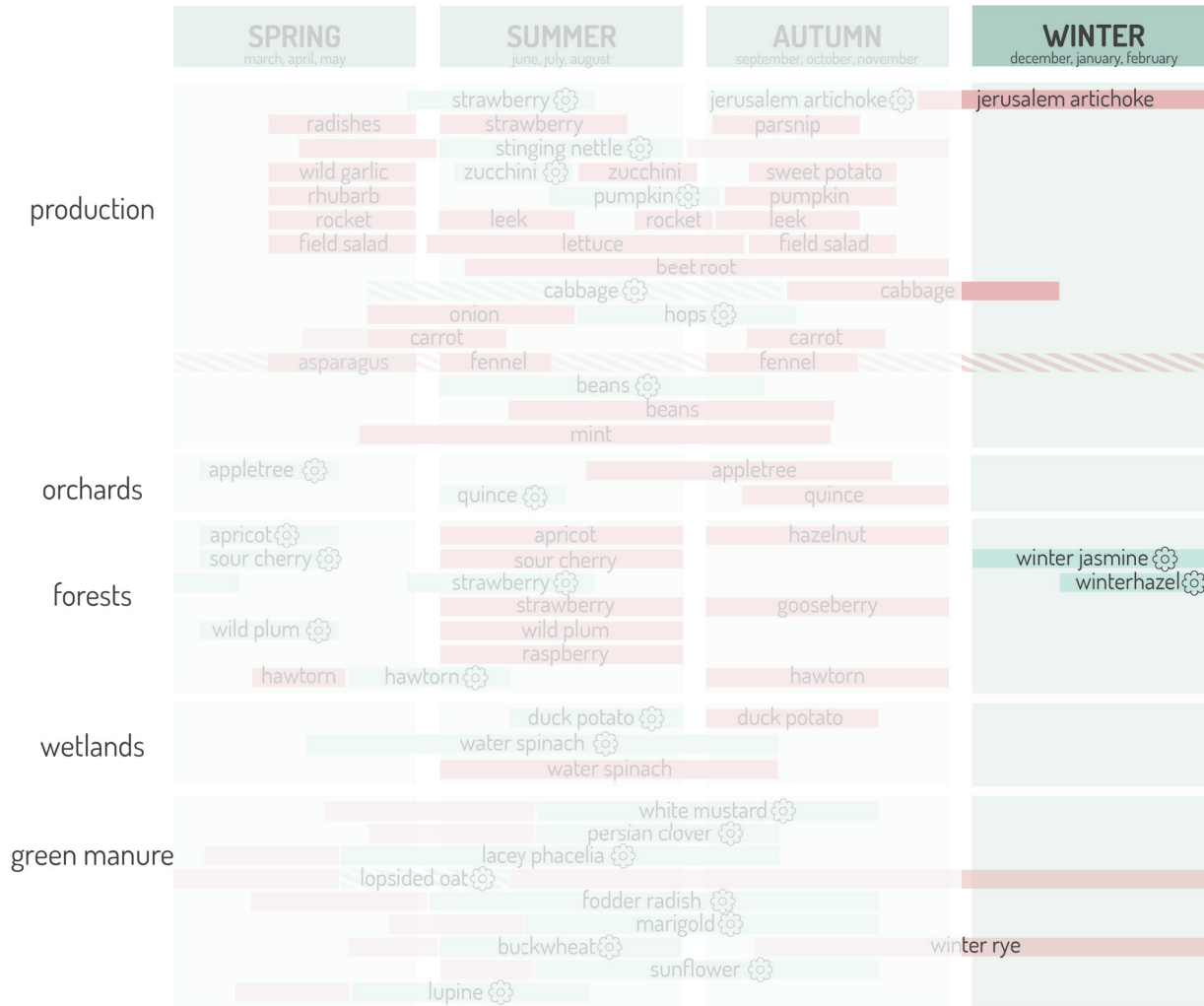


dahl with oven roasted sweet potato, pumpkin and carrot with a side of beet- apple-fieldgreen salad

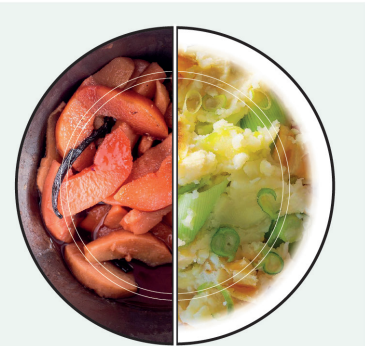
actions
volunteers

weeding, prepare beds, planting seedlings, harvest nuts, harvest berries, harvest crops, sowing green manure, compiling food packages, making jam

- harvest
- blooming
- perennial harvest
- perennial blooming
- blooming
- food
- shelter



menu



parsnip and leek 'stamppot' with stewed quince pear as desert

actions
volunteers

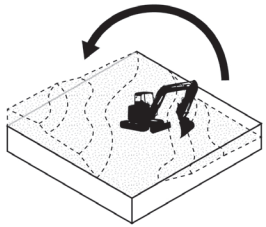
last harvest crops, sowing green manure, dry tea leaves, maintenance tools, pruning, plan for the new year

- harvest
- blooming
- perennial harvest
- perennial blooming
- blooming
- food
- shelter

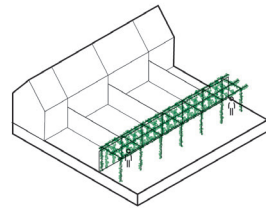
FEEDING LOMBARDIJEN



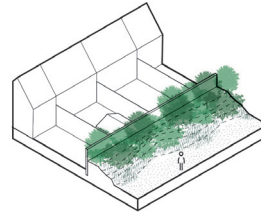
REAPPLICATION



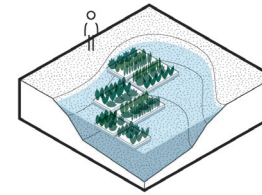
creating relief



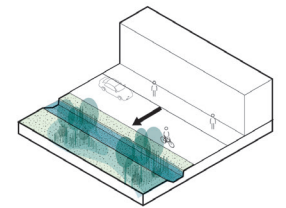
living fences



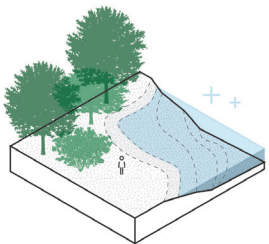
vegetation wall



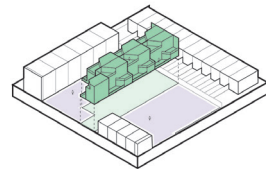
hydroponics



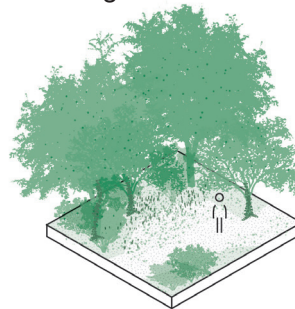
water buffering



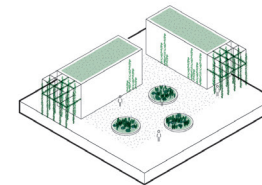
adding surface water



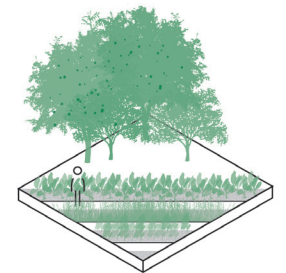
densification for activation



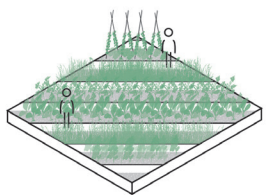
food forest



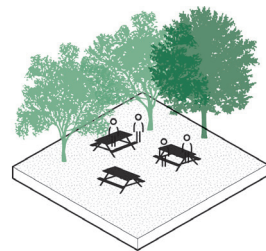
integrated food production



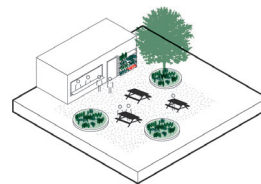
direct food production



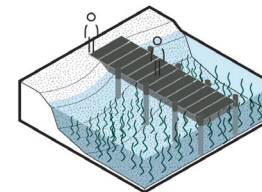
production fields



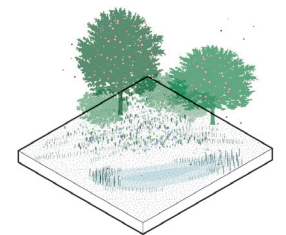
meeting spaces



social hubs



aquatic agriculture



indirect food production

CONCLUSION

RESEARCH QUESTION

HOW CAN I, AS A LANDSCAPE ARCHITECT, TACKLE ENVIRONMENTAL AND SOCIAL ISSUES USING AGROECOLOGY IN PUBLIC SPACE DESIGN?



GROWING SOCIETY

the application of agroecology in public space design to tackle environmental and social issues

05-11-2021