



SERIES ATELIER NOTES ON HERITAGE, CITY AND
LANDSCAPE 2020

SOUTHERN WATER DEFENCE LINE

DEFENSIVE AREA
BREDA
GEERTRUIDENBERG
THE NETHERLANDS

WORKSHOP ZUIDERWATERLINIE/ STELLING BREDA

Published by
Chair of Landscape Architecture,
Department of Urbanism, Faculty of
Architecture, TU Delft

Published for
MSc Track Landscape Architecture and
Urbanism, MSc 3; introduction Graduation
project. and

Student hub Zuiderwaterlinie, Center for
Global Heritage & Development

Within the framework of
2020–2021 Dutch Landscape Triennial
North Brabant– living lab Zuiderwaterlinie,

DSL Dutch Schools of Landscape
architecture

Client
Marc Berends Gemeente Breda
Jan Janse Staatsbosbeheer
Diana van Bokhoven and Anne–Wil Maris
Projectbureau Zuiderwaterlinie.

Design proposals
supervision:
dr ir Gerdy Verschuure–Stuip
[assistant professor Landscape architecture
and heritage, TU Delft]
drs R. Jansen
[assistant professor Archaeology, University
Leiden]

students TUDelft:
Floris Beijer
Willemijn Schreur
Jan Houweling
Ioanna Kokkona
Lotte Oppenhuis
Ran Yan
Farnoosh Bazrafkan
Emmanouela Armoutaki
Xinyu He

Dorien Tulp
Suxin Liaw
Pu Jiang
Kue–itso Chen
Gary Gilson
Francesca Mazza
Ivo Brands
Esmee van Eeden
Yu Zheng
Yayun Gao
Yun Sun
Yu Liu
Kailun Qi

students UL
Maaïke ten Hagen
Ruben van Dijk
Stella Ruigrok

Published
Delft, October 2020

@ 2020 alle rechten zijn voorbehouden aan
de auteurs. Gebruik van de tekeningen
alleen na nadrukkelijke toestemming
van de auteurs en TU Delft, leerstoel
Landschapsarchitectuur.

City Deal
Kennis Maken

DSL

DUTCH SCHOOL
OF
LANDSCAPE ARCHITECTURE



 **Gemeente Breda**



**CENTRE FOR GLOBAL
HERITAGE
DEVELOPMENT**


TU Delft



**Universiteit
Leiden**

SERIES ATELIER NOTES ON HERITAGE, CITY AND LANDSCAPE

Based on the method of research– by– design
possibilities are explored in regional and lo–
cal issues connected to heritage and identity
of city and landscapes for courses Heritage
Landscapes.

Previous studies published in this series:

- 2012 DRU factory, Uift
- 2013 Renkumse buitenplaatsen in een nieuw perspectief
- 2014 Renkumse buitenplaatsen in een nieuw perspectief 2
- 2014 Toekomstvisie voor de Wouwse Plan–tage
- 2015 New Dutch Waterline
- 2015 Regional studies of country estates landscapes
- 2016 Workshop Van Leeuwenhoekpark, Delft
- 2017 Musserts Wall, Lunteren
- 2018 Rijnstrangen
- 2019 Touristic challenges Giethoorn

Southern Water Defence line and the Landscape Triennial 2021

This booklet presents the designs made by students during the design workshop Southern Water Defence Line– Breda Geertruidenberg (design charrette). This design workshop was held in Breda/Delft/Leiden between 7 to 9 September 2020.

AWARENESS THROUGH INNOVATIVE DESIGNS

The main goal to organise this design workshops, a form of practice–educational cooperation, was to stimulate the transformation process, creating awareness for the entire Defence line and more particular the defensive area of Breda–Geertruidenberg (stelling).

For several year, the project bureau Zuiderwaterlinie is stimulating the reuse of this military landscape for future challenges in the province of North Brabant. The book ZUIDERWATERLINIE NOORD–BRABANT EEN OPEN BOEK, various transformation projects and growing attention for recreation and tourism is the result of that. The source of the historic information in this booklet comes from that study.

The next step in this process is the LIVING LAB SOUTHERN WATER DEFENCE LINE during the (delayed) LANDSCAPE TRIENNIAL 2021 VINCENT VAN GOGH NATIONAL PARK. The PROJECT BUREAU ZUIDERWATERLINIE, the eleven cities of the Southern Water Defence line, the STATE FORESTRY SERVICE, teamed up with representatives of the five schools of landscape architecture, working together in the DUTCH SCHOOLS OF LANDSCAPE ARCHITECTURE (DSL). This resulted in five forms of cooperation between practice and students from academic and applied universities (universiteiten en hogescholen) in different forms like: graduation projects, workshops and lab designs. Each of the Dutch landscape schools made future designs for one of the five defence areas (Stellingen) of the Southern Water Defence line.

Students from the Master track Landscape architecture (TU Delft) as well as the Master track Applied Archaeology (University of Leiden) worked on the proposals for the defensive area (stelling) Breda in the form of a short term workshop, design charrette or student hub.

A student hub is a joint education programme organised by the Center for Global Heritage and Development. The Center facilitate cooperation on heritage issues between the Erasmus University, Leiden University and Delft University of Technology (www.globalheritage.nl).

The area Breda–Geertruidenberg is part of one of the five defensive areas (stelling) of the Southern Water Defence line. This defence line connects the western part of the province North Brabant and its cities Steenbergen and Bergen op Zoom, to the eastern part of the province with Ravenstein and Grave.

The overall research question was how the military heritage could be a driving force for new spatial developments in the area? This booklet combines the ideas which were presented on the last day of the workshop.

DEFENCE AS A HERITAGE LANDSCAPE

The Southern Water Defence Line is one of the large scale waterlines (stellingen) create to defend the Netherlands. This defence line in North Brabant is part of the Zuiderfrontier, between Hulst in Zeeuws Vlaanderen to Groningen.

The Souther Water Defence Line started with the defence of individual cities, like ‘s–Hertogenbosch, Breda, Bergen op Zoom, Willemstad, Heusden, Megen, Ravenstein and Grave. These fortresses continued to expand over time, adapting to the demands of military developments in creating bastions and ramparts. The area played an important part in the military heritage of the Netherlands and the defence of Holland, the trading heart of the Low Countries at that time. The base was in the Revolt against Spain and the Eighty Years’ War (1568–1648).

“This should never happen again”, said the members of the Council of State after the Disaster year (1672). So Dutch fortification builder Menno van Coehoorn (1641–1704) was commissioned by the Council of State to strengthen the national defence. He came up with an ingenious plan to create coherence in the existing fortified towns, design the inundation field and created a military landscape. This military landscape which has changed over time, but is still visible and experiencable in the current landscape of North Brabant.

The Southern Water Defence Line is not only a

military line; it shows the difference between subsoils peat and sand, it shows different mentality (Catholicism/ Protestantism), etc.

DEFENCE AREA Breda– GEERTRUIDENBERG

The ‘green’ zone situated on the southern side of the city Breda is known for its recreational purposes, forests and heritage (castles). The area north of the city of Breda, the Vuchtpolder and Binnenpolder, stand for agriculture and are not associated with its historic relics of the military past and recreation.

Recently, recreational improvements were implemented, like the pedestrian bridges between the housing neighborhood and the Zwarte Dijk and the transformation of the redoutes with the lanses. These transformed redoutes are telling the story of peat reclamation, water management, and warfare in this area nowadays (see pictures on next pages). Other heritage sites like Linie Den Hout, Linie de Munnikenhof, Kleine Schans and Spinola Schans and many smaller elements can have new or additional functions.

Somewhat scattered over the entire area the military relics can be found. This had to do with 16th and 17th Century warfare. During an attack roughly two methods of attack could be used; by ruse and deceit or by siege of the major city. If a quick attack was not decisive, a long siege was needed. During a siege, two lines of defence were made in large circles around a city; a defence line facing the city and a defence line toward towards the open landscape away from the city. Between these two defence lines large encampments were made for the soldiers (circumvallation lines). Smaller redoutes were created for soldiers to hide in battle. But the military past is shown in a complex system of sluices, drainage canals, inundation field, rivers, all connected to the tide area Hollandse Diep. The rivers Mark, Weerjts and Bijloop were used to inundate the area with roughly 50–100 centimeters water.

The defence line and all aspects which are connected to it, is not the only heritage in the area. The landscape was dominated by marshlands and water and peat reclamation is important to the characteristics of the area. Water plays an important role and due to climate change and loss of biodiversity, the role of water in the past and future need to be reevaluated and redesigned. The landscape of North Brabant is defined by agriculture and the culture of agricultural societies are visible in the area as well. Although the workshop is focusing on the military past, the biography of the landscape is much more divers for a very

long period of time. And this long heritage should play an important role in new development.

RESEARCH BASED DESIGN WORKSHOPS

For the project bureau Zuiderwaterlinie, State Forestry Service (Staatsbosbeheer) and the municipality of Breda and Drimmelen, the role of the workshop was clear: students were asked to come up with innovative ideas for this heritage landscape for a new future. During the preparations and discussions with partners, ideas came up to give the workshop added value in participation of local stakeholders and to be more precise in what the core values of the area is. An organisation model was created to involve local historical groups, various governmental and non-governmental organisations to participate and to gain more knowledge on the main characteristics of the area and to define heritage values by analysing the outcomes. The outcomes of the workshop became part of funded research for the REGIEORGAAN SIA CITY DEAL KENNIS MAKEN for the city Breda and is worked out in the project Nieuwe Stellingnames.

During the process several options were worked out and discussed. During the preparations for the workshop the Covid 19 virus took over social life in the Netherlands, as in the world. This resulted in major changes in the layout of the workshop and participation became more difficult to conduct and test. The results of this will be described in Nieuwe Stellingnames (forthcoming in 2021).

The pandemic resulted in a blended workshop instead of a physical workshop on site. The first day – the first phase in the workshop – was on site with lectures, a biking tour and afterwards a sketching session in the open air at 1.5 meter distance of each other. During the second day supervision was online, with contact to some experts digital. On the third day, students presented their work in Breda for the alderman of the municipality and representatives of the State Forestry Service. To organise the workshop, three important themes were chosen to help students to come to a design, TOURISM & HERITAGE, FOOD & HERITAGE, WATER & HERITAGE.

Student plans were made in the short time span of only three days. The information was based on quick analysis and local experts during the workshop and information from the internet. Although these designs show innovative ideas, they need to be worked out to become more realistic and com-

plete.

TOURISM & HERITAGE

The main observation of this theme group Tourism & Heritage was that the separate military line was based on several separately located objects lacking coherence. Next to this, this area is not being used for recreation, only by a small group of people living close by. This is remarkable because it is one of the most intact military heritage areas of the Southern Water Defence line and is situated close to some neighbourhoods. Defence around Breda show three lines on the map.

The three theme groups formulated four generic goals for this area:

- 1) create a more coherent landscape,
- 2) create a more accessible landscape,
- 3) create a more inviting location,
- 4) attract younger people to the area.

The first group created a more coherent and a more accessible landscape, by creating more inviting locations. The main idea is to show the hidden geometry of the layout of the schansen with the triangular bastions, water ways and earth works in new art work. In REDISCOVERING GEOMETRY new landscape architectural or art elements were introduced to experience this military landscape. Recently, lances of the soldiers are used to connect these sites, but this plan shows more explicit elements to connect these objects.

The second group focused on ‘spatially’ organising a WATERLINE WEEKEND, in which adventurous activities like tree climbing and mountain biking, organic farming, water storage and recreational use of these new waterbodies are created. The Spinola schans was transformed into a camp side and opened to the landscape by removing part of the shrubs and trees on the side of the schans to create vistas to the landscape with modern means.

The third group focused on a PLAYFUL HERITAGE resulting in attracting different groups of tourists (nature explorer, regular user and history lover) in this area as well as new routes to open up the landscape for new recreational. Water storage, purification, walking and playing with water was combined in plans for the Spinola schans, Kleine Schans, Linie van De Hout, inundation zone and Linie de Munnikenhof. The main spot is the Spinola schans with a look out point positioned in the middle of the schans

and visitors centres in the earthen ramparts and so on.

These three plans show how new and (particular) adventurous functions can lead to more diversity in visitors. New function can activate this landscape and will provide additional outdoor recreation close to home in Covid-19 times in our 1.5 meter society. The Southern Water Defence line can be seen as a large zone in which new forms of recreation can become even stronger.

The Southern Water Defence Line is a heritage landscape as well as a visual landscape. All plans show ideas on how to combine these physical elements by waterbodies or pathways, as well as visual connections.

FOOD & HERITAGE

Two groups started the workshop from the perspective of agriculture and food. Their joint introduction started to ask for attention on the large amount of similar crops in this area and the need to remember how biodiversity is critically important (birds?). An example of organic farming in the area (Heining & Hoef) should be the starting point on how other farmers can contribute to a sustainable landscape. Both groups explained how the site was located in the former inundation fields with height differences on the gradient of soil types. The main goal of both groups was to redefine and reactivate agriculture in this area by restoring the connection to water and subsoils.

The first group tried to strengthen the IDENTITY THROUGH FOOD. The identity of water has shifted in the past from its role in protection and transportation to the role of heritage preservation. The Southern Water Defence Line is a good example for that approach. In this line of reasoning can agriculture shift from a stronger attention on economy and biodiversity to a location based identity for the future. The lower inundation fields can be used for different crops and wet agriculture. This approach can lead to a more fragmented or diverse landscape in which the former inundation field can be read in different crops or new forms of agriculture. To create this landscape, some parcels of land will be lowered and others made higher to create good conditions for this diverse types of agriculture. This can lead to a greater biodiversity, various landscape experiences showing the past in new development. The group made plan for the Spinola schans.

The second group focused on PRESERVING THE NATURAL AND CULTURAL LAYER and went back in time showing the influence of agriculture on the life's of people in the Breda region from prehistoric times until now in a biographical description. In this plan the different layers of this area are drawn. Similar to the previous group, the natural deeper areas, are used to create a more small scaled and divers agriculture production. They posed that the landscape of efficiency should become an adaptive landscape, in which restore, reuse and redevelop are the main topics with attention for the circularity of the landscape in time (seasons).

Both plans show a strong focus on new and divers forms of agriculture, various crops for improving biodiversity based on the subsidence and soil type. This is interesting for the entire line, because the complete Southern Water Defence Line is situated on the gradient of high and low land, on the division between peat landscapes and sand and therefore on the gradient of different ecosystems. The Southern Water Defence Line could function as a gradient in the landscape in which biodiversity creates a strong and healthy landscape.

WATER & HERITAGE

The ingenious inundation system of the hand of Menno van Coehoorn could only exist because of the characteristics of the landscape with its low and wet areas and the strong connection with water. Nowadays, the sponge function of the area has diminished due to consequences of climate change, efficient agriculture production and Dutch water management. Three plans were made to increase the amount of water retention in the area, needed in a sustainable system.

The three groups described the most important challenges like water scarcity, low water quality, not much water related activities, land subsidence, the heritage is not visible enough, too intensive land use, agriculture land is not diverse. But there are possibilities as well.

In plan REVEALING LANDSCAPES X HIDDEN MEANINGS historic relics are connected to new water bodies all to emphasize the military character of the landscape. A new routing is introduced to show (recreational) connections. These retention areas are important for new ecology and farming in the area and create areas which can be used for natural purification of the water. By bringing water into the fortress, these

places can get new meaning for recreation which is adding a new layer to the design. If you introduce water in Fortress Spinola, this is resulting in the combination of water retention and recreation.

In MOSAIC SPONGE the low situated places in the area, the former inundation fields of the Southern Water Defence Line, can be used to create a mosaic landscape with different soil heights for various types of plants or crops. In this plan, the old swamp landscape can be brought back to function as a place for a new wet agriculture (in this area). This approach makes a start with restoring the sponge function of the landscape of North Brabant.

In ENLIGHTENING WATER RETENTION, retention and irrigation are reused again in a modern way. In this plan the historic relics within the defence area are interlinked to each other. This idea was based on the former visual communication between the schansen and redoutes with candles in front of mirrors which reflect the visual communication. New ideas show prisms positioned on the top of several relics of the Southern Water Defence line reflecting this not so visible landscape. Through light art, this hidden landscape can be shown in a certain moment of time (manifestation?).

These three designs show clearly that not only the old remains of sieges around the city like schansen, redoutes, fortresses, line, but that the historic inundation systems situated in the lower areas can create good opportunities for plans on water management, sustainable agriculture and increase of biodiversity. This idea of water retention within the former inundation field is being suggested to the New Dutch Waterline (Panorama Krayenhoff), but can be worked out here even better and several plans made by the students show this possibility.

Recreation can give a new identity and meaning for new local and regional tourists to show this physical as well as visual landscape.



Three pictures on the first day of the workshop in the Breda area source: Jan Janse (up) and Gerdy Verschuure-Stuip (down).



Pictures of redoutes, Kleine Scans and linie de Munnikenhof by Gerdy Verschuure-Stuip, 2020

TOURISM & HERITAGE

JAN HOUWELING, LOTTE
OPPENHUIS, STELLE RUI-
GROK

IOANNA KOKKONA,
MAAIKE TENHAGEN, WIL-
LEMIJN SCHREUR

FLORIS BEIJER, RAN YAN,
XINYU HE

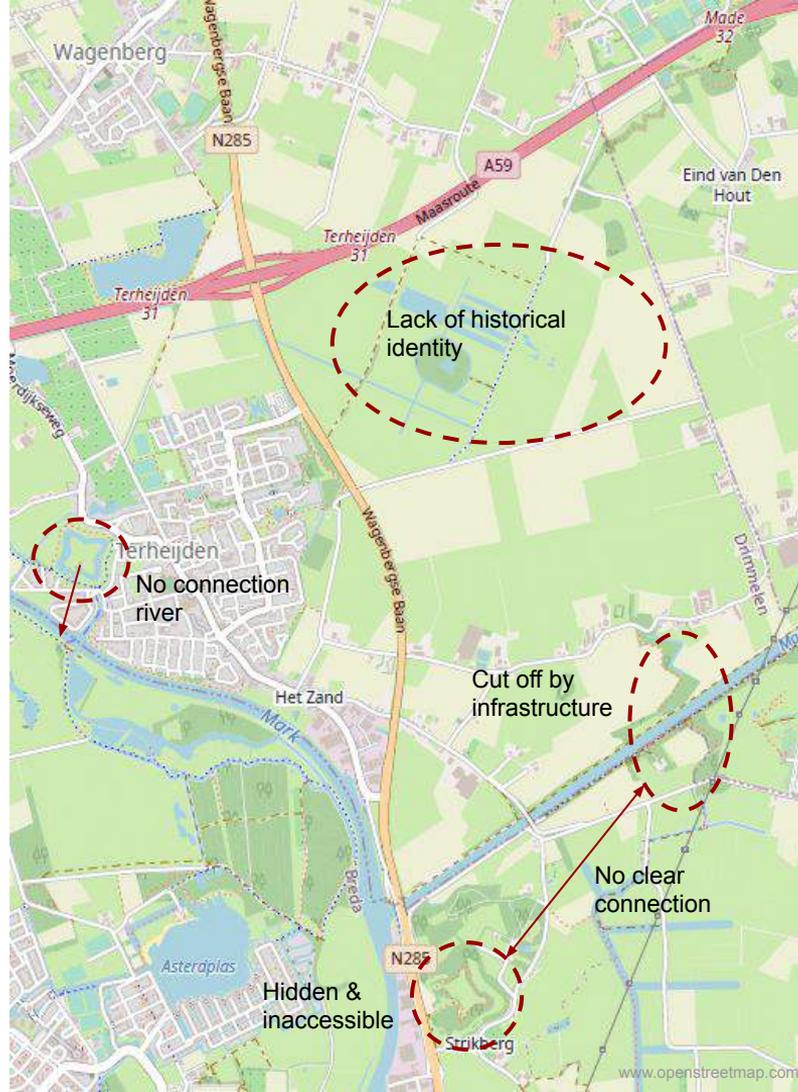
Location

- Zuiderwaterlinie;
- Spinolaschans
- Kleine Schans
- Linie v/d Munnikenhof
- Linie v/d Hout
- Zwarte dijk
- Innundation fields (such as Vuchtpolder)



Challenges

- Invisible landscape
- Cut off by infrastructure
- Incoherent landscape / lack of connection between elements
- Routes are unclear
- Information is hard to read from landscape
- Inaccessible
- Not enough walking routes



Unwelcoming entrance



Cut off by road



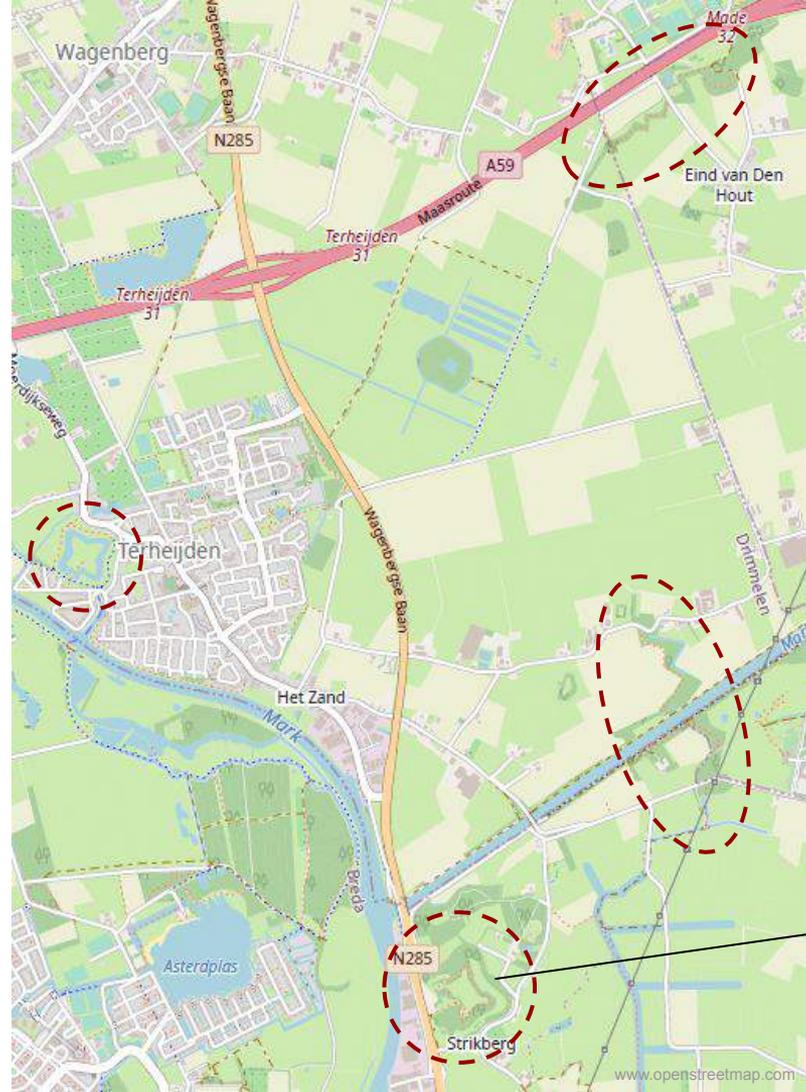
No hints for historical importance

Qualities

Diverse spatiality and ecological value

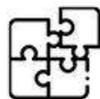


Recreational value



Historical and educational value





create a more coherent landscape

using the existing spatial qualities



create a more accesible landscape

*to experience the existing historical, ecological
& recreational qualities*



create a more inviting location

by adding facilities & information about the site



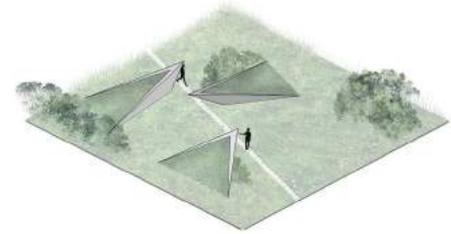
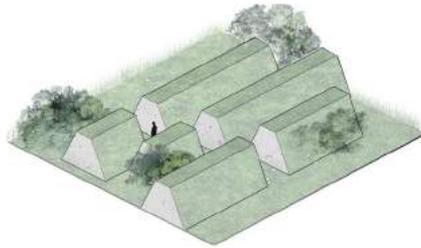
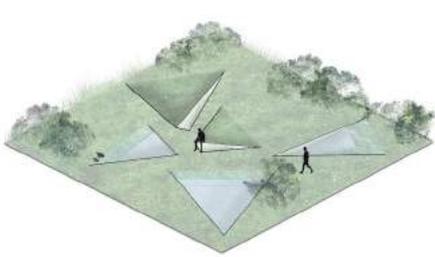
attract younger people to the area

by adding new activites

The groups and their angle

- Landscape of Hidden Geometry: A landscape of discovery through the geometry of the old military structures.
- Waterline Weekend: Creating an environment for a weekend getaway for those who are adventurous, active and like to be outdoors.
- Playful Heritage : Presenting the heritage landscape in a playful and engaging manner

Landscape of Hidden Geometry



Group A

Jan Houweling | Lotte Oppenhuis | Stella Ruigrok

Conclusion of the analysis



create a more coherent landscape

using the existing spatial qualities



create a more accesible landscape

*to experience the existing historical, ecological
& recreational qualities*



create a more inviting location

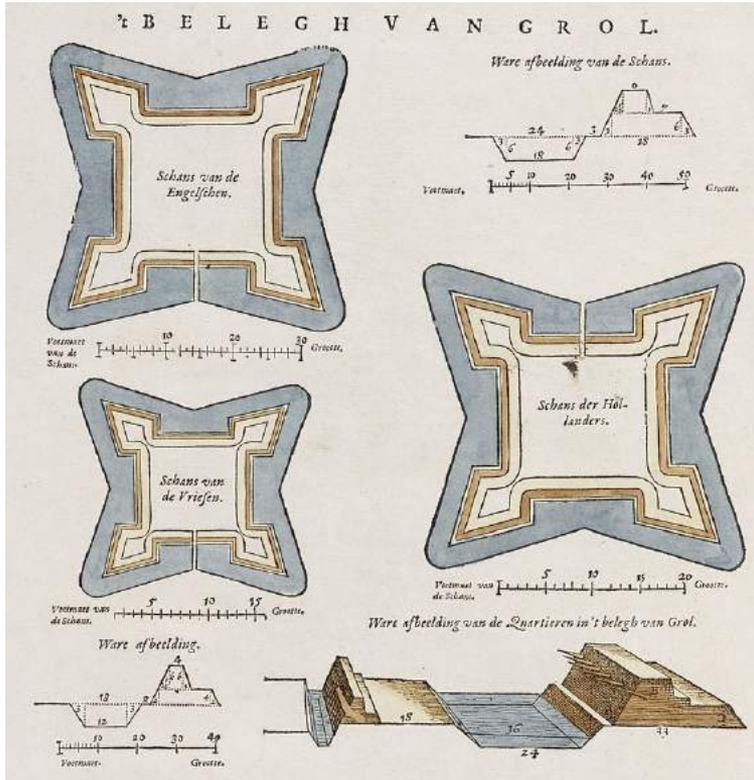
by adding facilities & information about the site



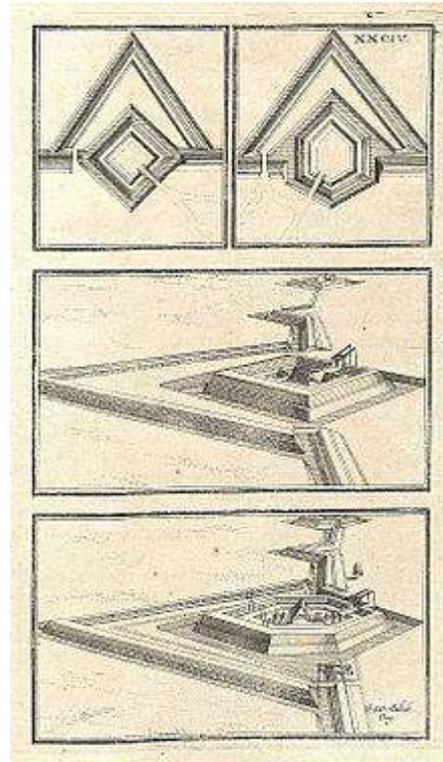
attract younger people to the area

by adding new activites

Starting point - Geometry

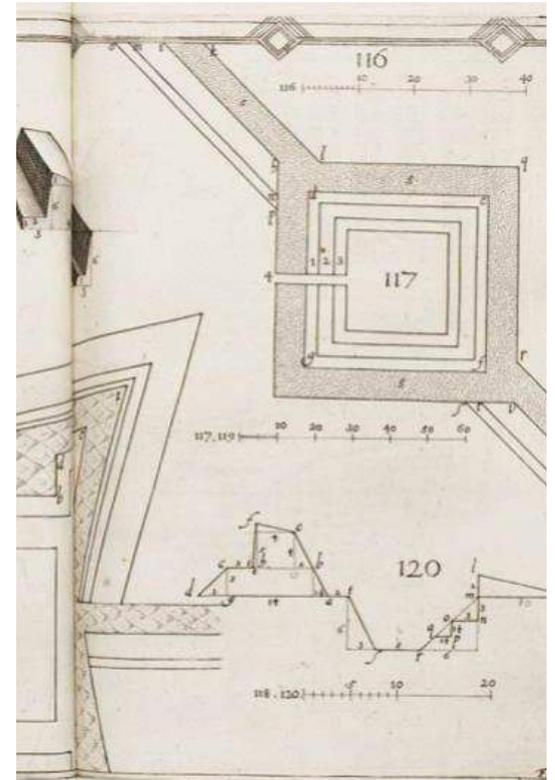


[nl.wikipedia.org/wiki/Schans_\(verdedigingswerk\)#/media/Bestand:Siege_of_Grol_1597_-_Fortifications_of_the_English,_Frisian_and_Hollandish_troops_\(J.Blaeu_1649\).jpg](https://nl.wikipedia.org/wiki/Schans_(verdedigingswerk)#/media/Bestand:Siege_of_Grol_1597_-_Fortifications_of_the_English,_Frisian_and_Hollandish_troops_(J.Blaeu_1649).jpg)



Quelle: Deutsche Filmmuseum

[www.wikiwand.com/de/Schanze_\(Festungsbau\)](http://www.wikiwand.com/de/Schanze_(Festungsbau))



<https://geheugen.delpher.nl/nl/geheugen/view?coll=ngvn&facets%5Bsubject%5D%5B%5D=geometrie&maxperpage=36&page=4&query=&resultsidentifier=LEMU01%3A00102453A-012&identifier=LEMU01%3A00102294-032>

Landscape of Hidden Geometry

The elements of this once strong fortification system remain as linear geometric bodies of soil in the landscape. The mystery that surrounds these elements is to be preserved because they provoke exploration. However, the elements are scattered throughout the area without any sense of connection. This concept aims to create a coherent route along the elements, expressed by geometric forms of land that guide the explorer along its way.

The artifacts emphasize lines of sight and create spatial connections between the fortification remains

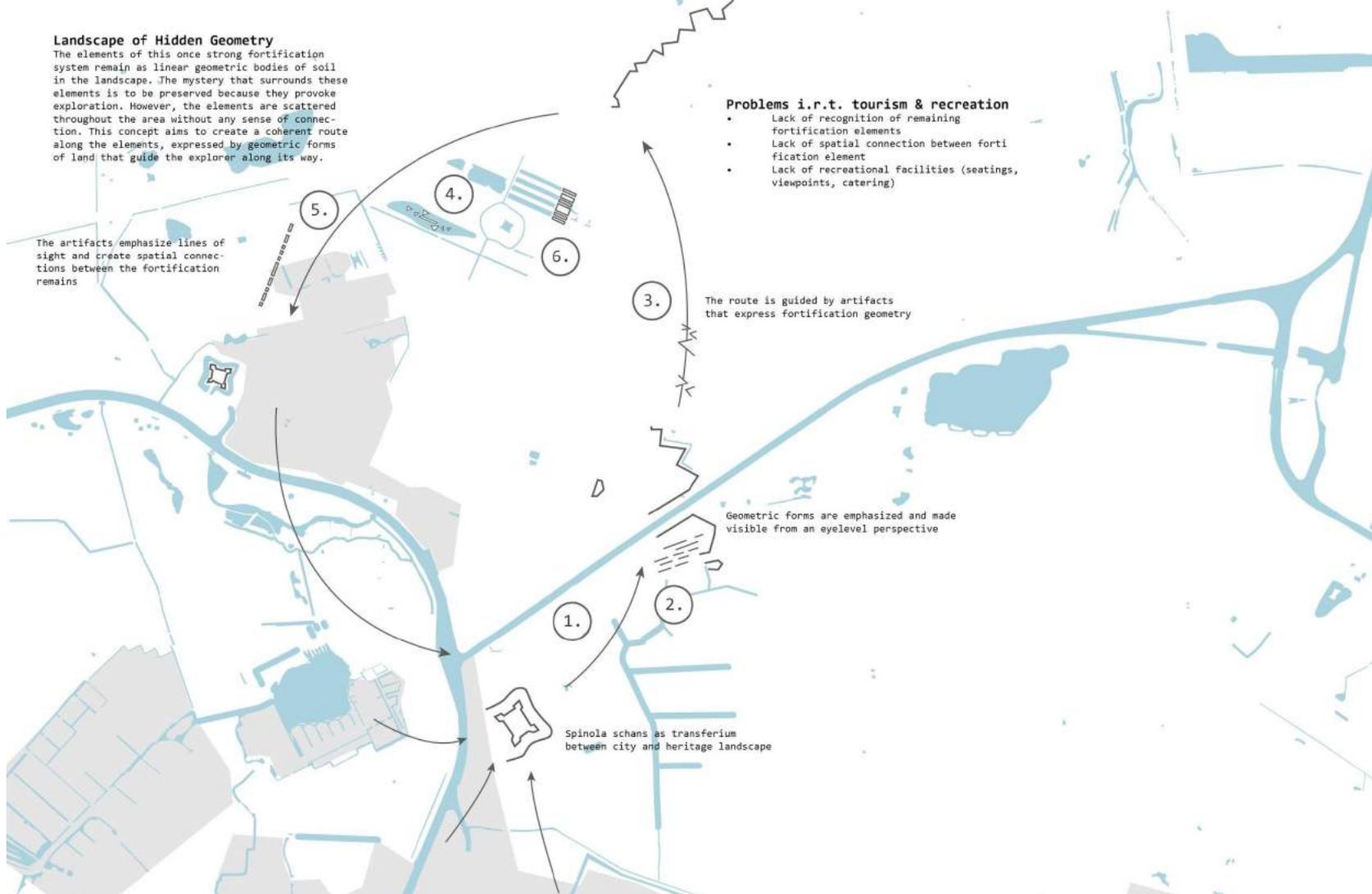
Problems i.r.t. tourism & recreation

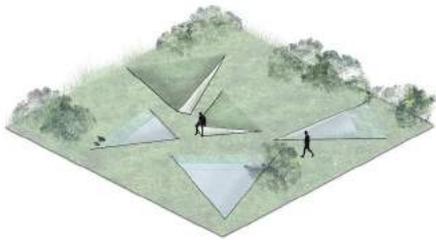
- Lack of recognition of remaining fortification elements
- Lack of spatial connection between fortification element
- Lack of recreational facilities (seatings, viewpoints, catering)

The route is guided by artifacts that express fortification geometry

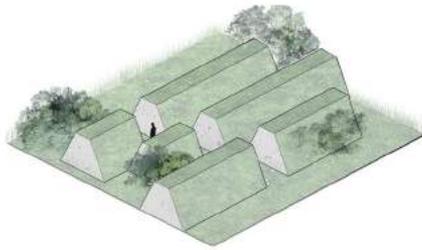
Geometric forms are emphasized and made visible from an eyelevel perspective

Spinola schans as transferium between city and heritage landscape

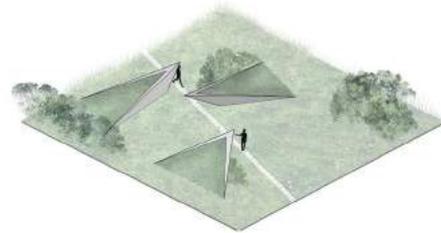




1. BREAKING GROUNDS



2. BREAKING THROUGH



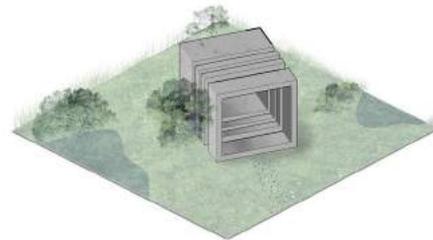
3. SHARDS OF THE PAST



4. WADING AND INUNDATING



5. THE BARCODE OF THE LANDSCAPE



6. FRAMING THE LANDSCAPE

Rediscovering geometry - Plan of the Spinolaschans



- People are **lured in** by interesting geometries at the entrance
- **Highlighting the geometrical shapes** of the Spinolaschans by same geometries and material placed in the landscape
- A **lush flower garden** is hidden inside (used as a place where you are allowed to pick flowers)
- The forest around stays so you can **discover the hidden place**
- The added objects make the geometry of the place more explicit turning it into **landart**

Rediscovering geometry - Section A-A'

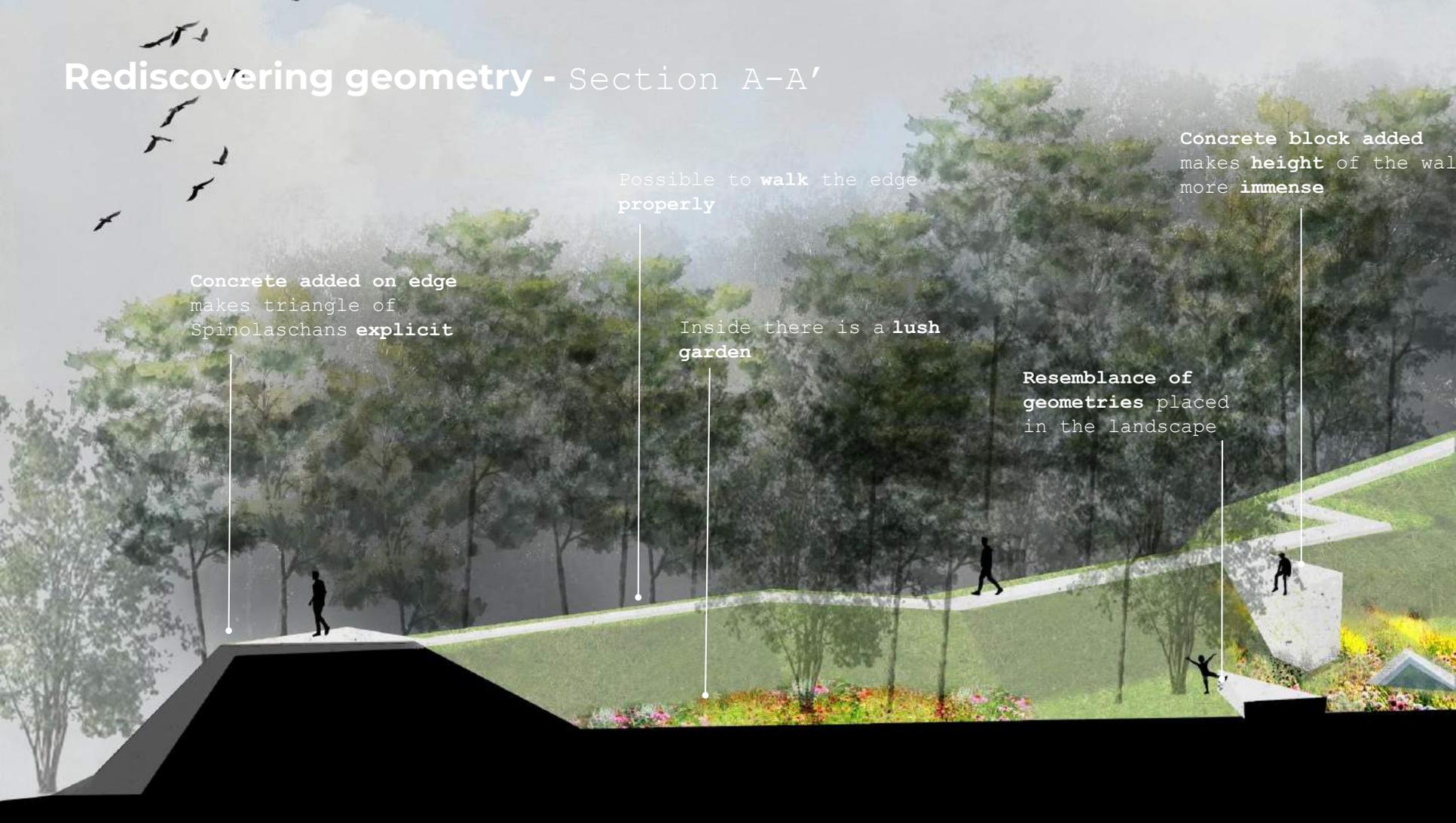
Concrete added on edge
makes triangle of
Spinolaschans **explicit**

Possible to **walk** the edge
properly

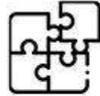
Inside there is a **lush**
garden

Resemblance of
geometries placed
in the landscape

Concrete block added
makes **height** of the wall
more **immense**



Vision Group Waterline Weekend



create a more coherent landscape

using the existing spatial qualities



create a more accesible landscape

*to experience the existing historical, ecological
& recreational qualities*



create a more inviting location

by adding facilities & information about the site



attract younger people to the area

by adding new activites



Waterline Weekend

an adventurous, cultural and historical landscape

*Ioanna Kokkona
Maaïke Tenhagen
Willemijn Schreur*

Breda, 9 september 2020



water taxi from / to Breda
accessibility over the water



central node
facilities: restaurant / bike rental
& observatory



camp site
secluded overnight stay



organic farming
collecting your lunch



recreational area
tree climbing / mountain biking



inundation area
water storage / wet farming



recreation on the water
swimming / diving



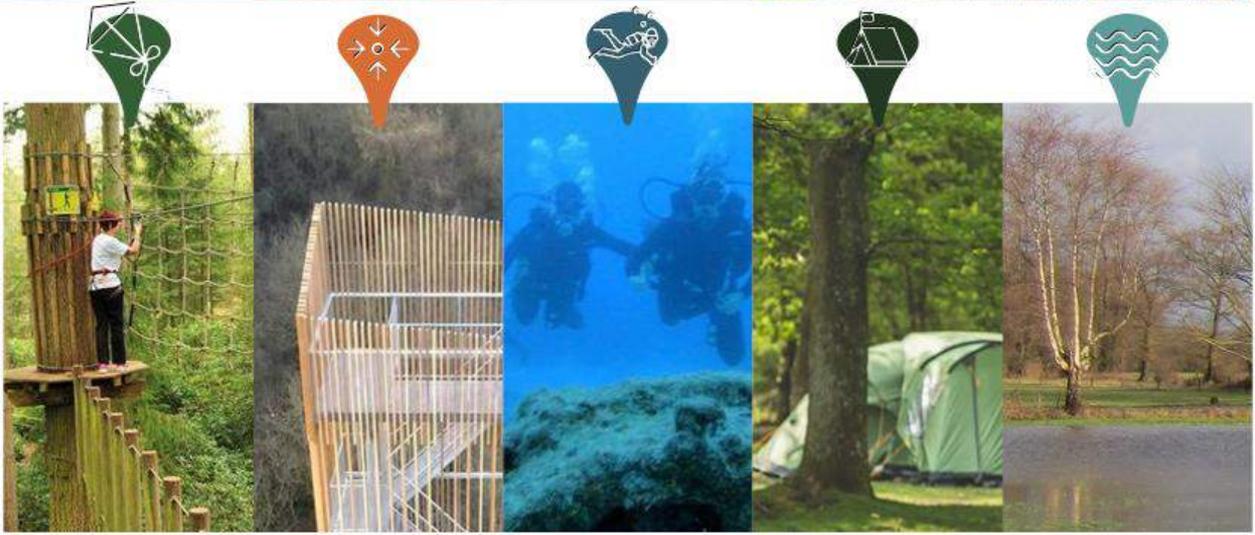
01. <https://rotterdam.info/locaties/de-snelle-water-taxi/>

02. <https://venueandmenu.com/escape-to/las-catalinas>

03. <https://wildexpeditions.tumblr.com/>

04. <https://joegardener.com/podcast/140-successful-journey-of-a-market-farmer-conor-orkmore-of-neversink-farm/>

05. <https://www.fashionfoiegras.com/2016/08/the-coworth-park-experience-perfect-get.html>



06. <https://www.bizjournals.com/triangle/blog/real-estate/2015/02/goape-treetop-course-blue-jay-point-park-raleigh.html?r=full>

07. <https://inhabitat.com/ultra-slim-viewing-tower-rises-66-feet-over-the-river-vecht-in-the-netherlands/>

08. <https://www.pinterest.ca/pin/789607747161502203/>

09. <https://www.visit-hampshire.co.uk/accommodation/hollands-wood-campsite-p1616781>

10. <http://atelieremje.blogspot.com/2012/01/water-in-plaats-van-weiland.html>



Organic Agriculture

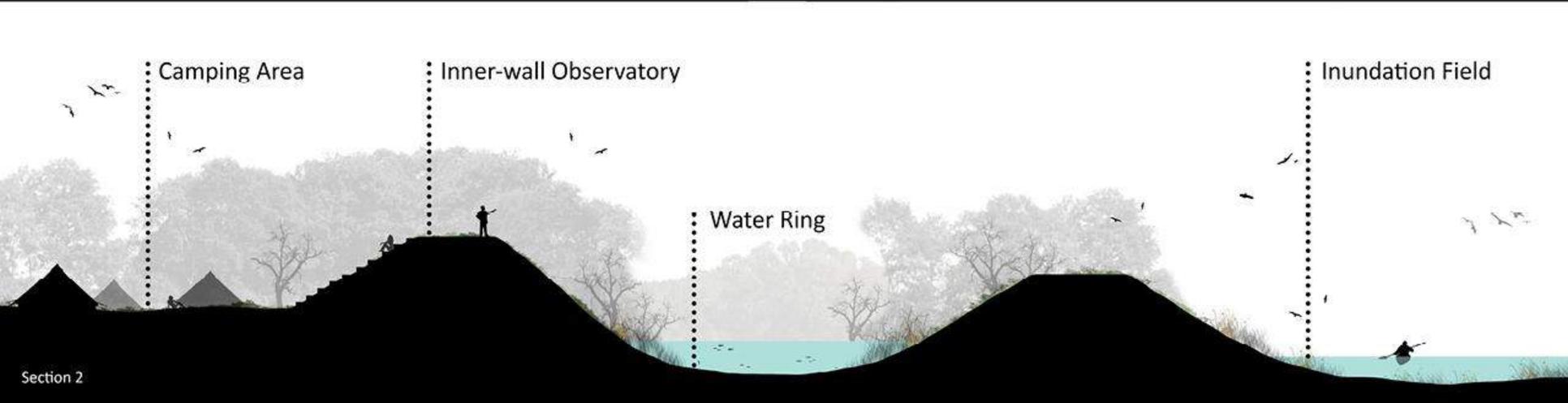
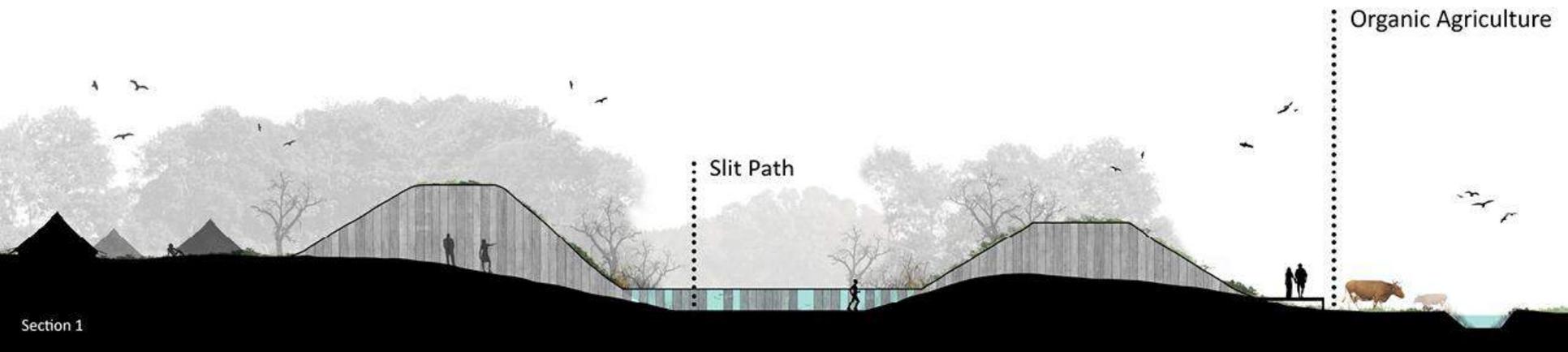
Entrance

Observatory

section 1

section 2

Entrance





mountain biking at the Linie van de Munnikenhof



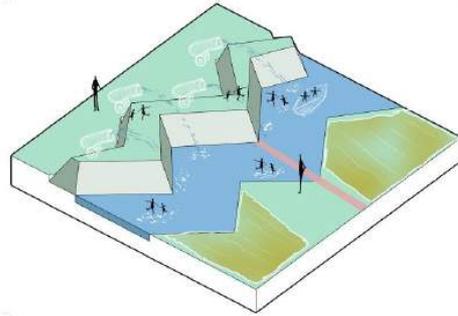
entrance to the Spinolaschans



SPINOLASCHANS

camping at the Spinolaschans

Playful heritage



Group C

Floris Beijer | Ran Yan | Xinyu He

Vision Group 1C



create a more coherent landscape
using the existing spatial qualities



create a more accesible landscape
*to experience the existing historical, ecological
& recreational qualities*



create a more inviting location
by adding facilities & information about the site



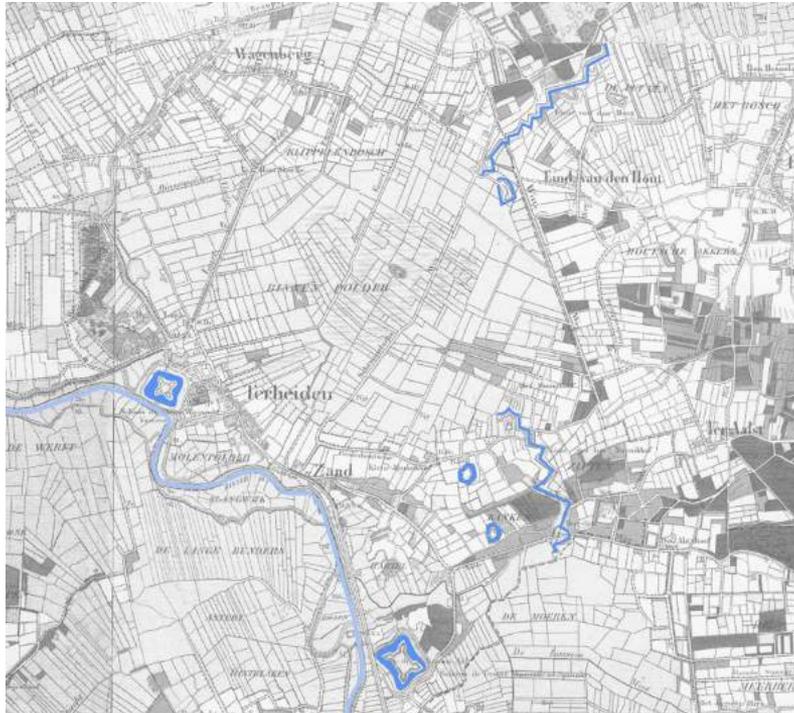
attract younger people to the area
by adding new activites

Vision- Let's know the heritage by playing

Fortress/inundation zone/people playing/
multiple activities and groups/viewpoints
/height difference/ meaningful stone



Historical water map



After www.topotijdreis.nl

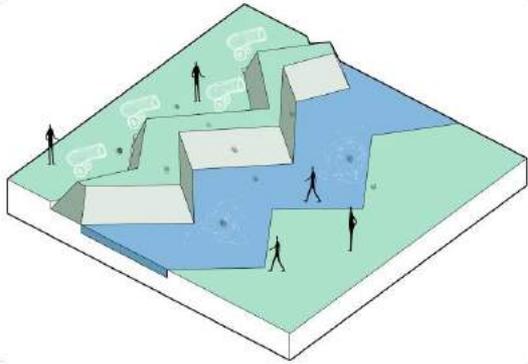
Old water body of fortress in 1860



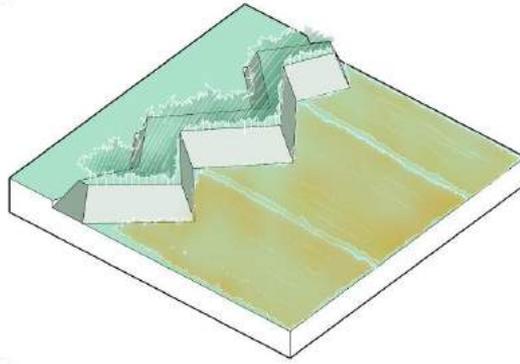
After www.topotijdreis.nl

Historical inundation zone of fortress

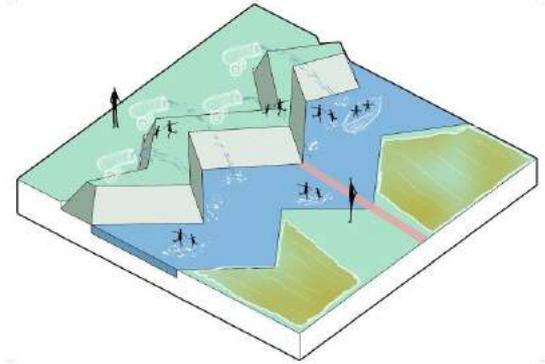
Concept- Water as guide to play the history



Past- People used water as a natural barrier for the defence line



Now- People pump out water for agriculture, heritage become invisible



Future- People reintroduce the previous water structures to play with heritage

Important Spot

1. Spinolaschans (Main spot)
2. Kleine Schans
3. Inundation zone
4. Linie van Den Hout
5. Linie van de Munnikenhof
6. Inundation zone



Tourist Analysis



Nature Explorer

- Camping
- Hiking
- Cycling



Regular User

- Leisure Activity
- Child-play
- Exercise



History Lover

- Shooting Game
- Historical Sightseeing
- Heritage Exploring

Route & Activities



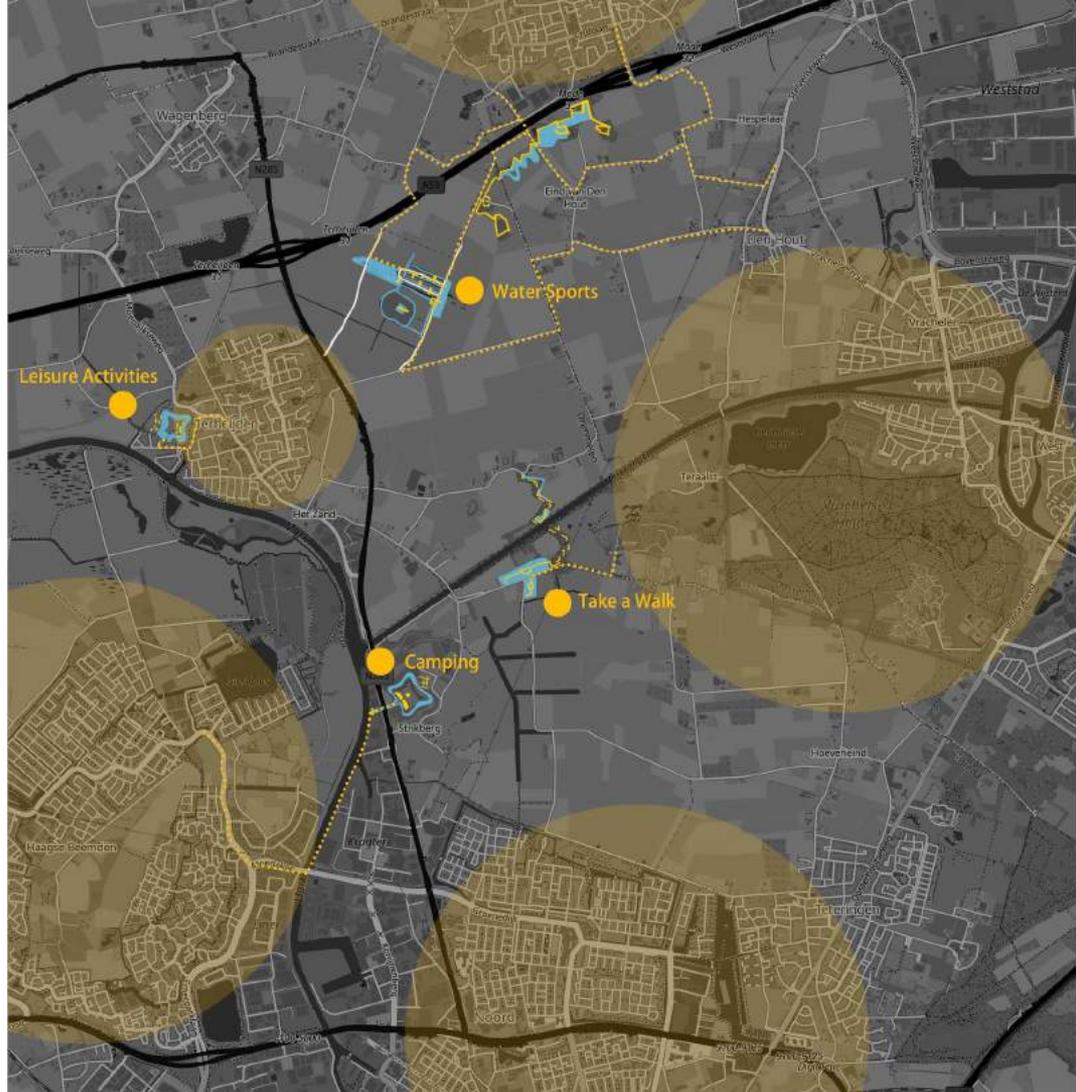
Nature Explorer



Route & Activities



Regular User



Experience On-site

1. Spinolaschans (Main spot)

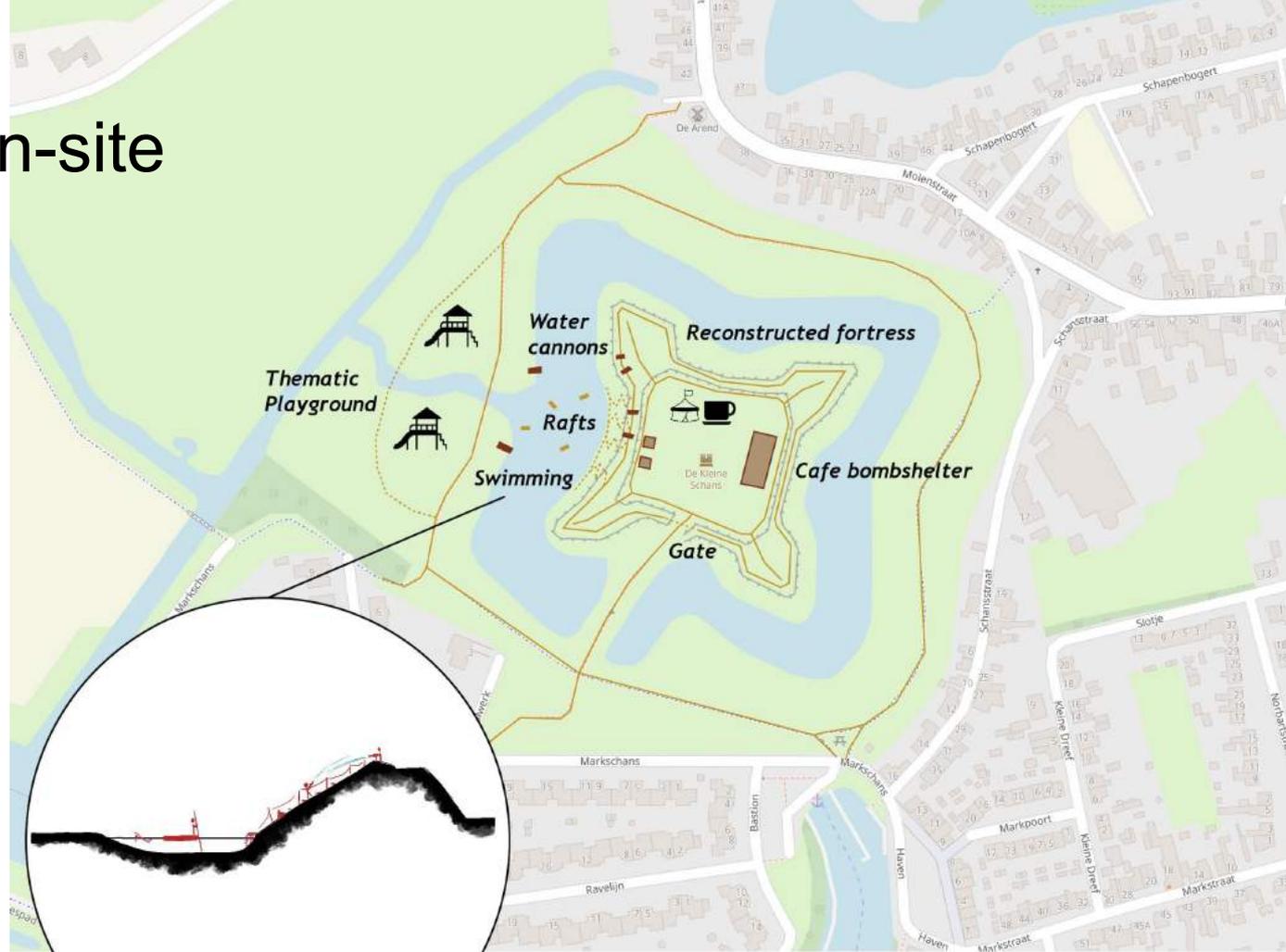


- Give first impression of the whole route
- explicit the fortress by cut trees and introduce water
- Attractive modern observation tower
- Underground visitor center
- Camping



Experience On-site

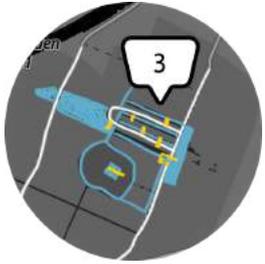
2.Kleine Schans



- Reconstruct the fortress
- More facilities (cafe, toilets, etc.)
- Water recreation (swimming, water cannons, rafts, slides)

Experience On-site

3. Inundation zone



- Hill park
- Water park for leisure
- Water sports in flooding area

Experience On-site

4.Linie van Den Hout

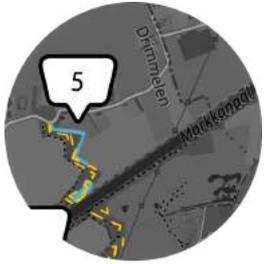


- Attractive heritage water playground
- Water shooting game
- Observation deck on fortress
- Water storage and purification

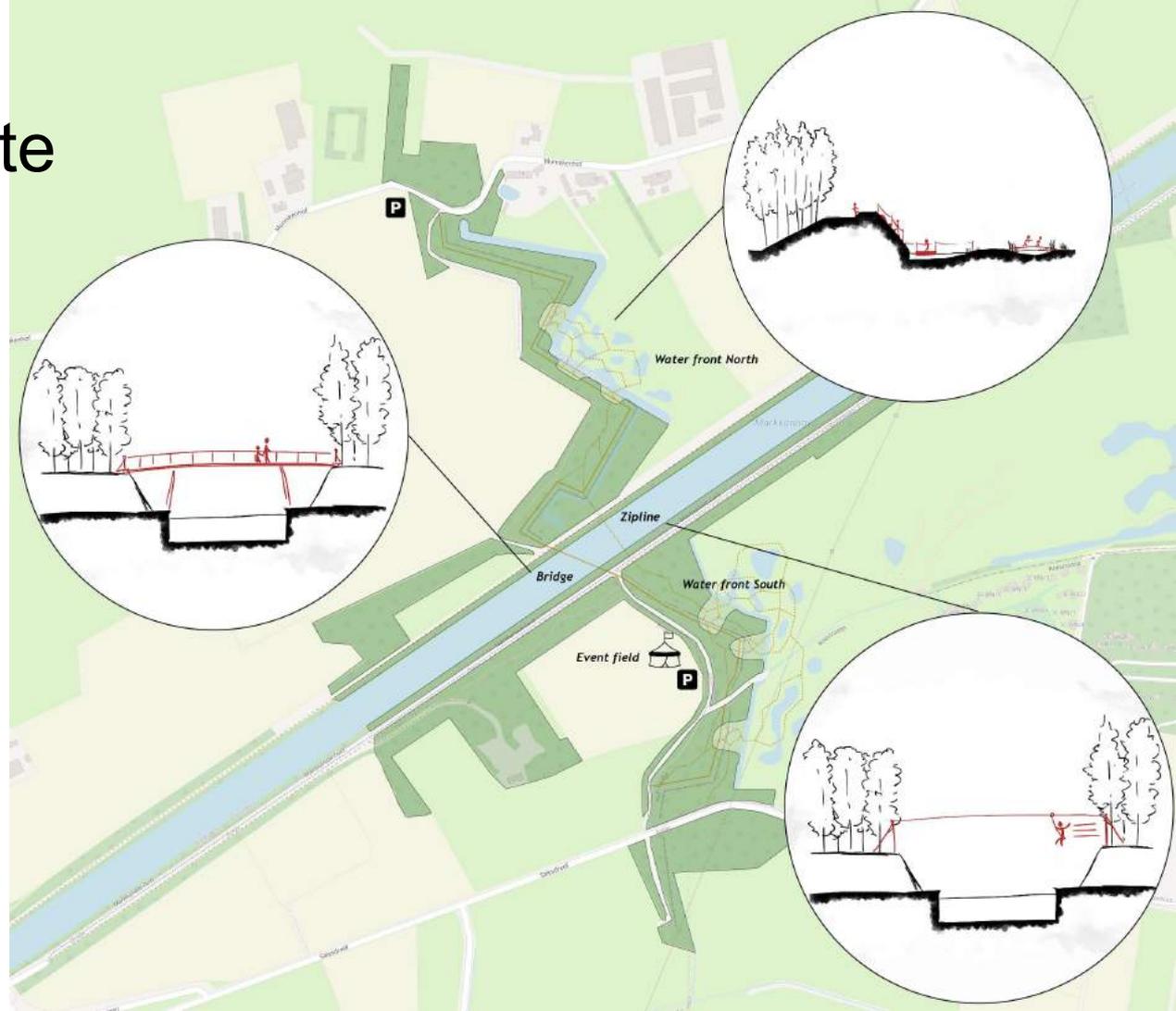


Experience On-site

5.Linie van de Munnikenhof

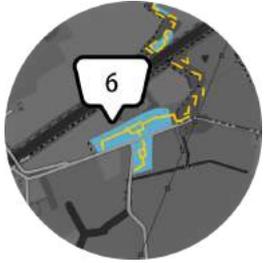


- Casual route over line
- Adventurous playful route over line
- Bridge and zipline to cross canal and connect both sides
- Water rich playground



Experience On-site

6. Inundation zone



- Re-enact the inundation zone
- Play with water
- Water square below water surface
- Cycling and walking



FOOD & HERITAGE

SUXIN LIAW, EMMAN-
OUELA ARMOUTAKI, YUN
ZHENG, DORIEN TULP

PU JIANG, FARNOOSH
BAZRAFKAN, KUEITSO
CHEN



FOODSCAPE BREDA

Suxin, Emmanouela, Yun, Dorien
Pu, Farnoosh, Kueitso

CURRENT FARMING

NETHERLANDS



birds?

CURRENT FARMING

BREDA

A black and white photograph of a cornfield. The corn plants are arranged in neat rows. In the foreground, there is a grassy area and a paved surface. Several white signs with black text are placed in the field, marking different experimental plots. The word "monoculture" is overlaid in white text in the center of the image. The sky is filled with scattered clouds.

monoculture

P7932

G5189C8

P8333

P8134

P8393B

P8834

P8888



BIOLOGISCHE BOERDERIJ
**HEINING
& HOEF**

WELCOME TO OUR ORGANIC FARM

Our family business and organic farm Heining & Hoef is located on the border of Breda and the picturesque village of Teteringen in cozy Brabant. In this oasis of peace, the cows can still enjoy fresh grass in the meadow to their heart's content. On our organic farm we enjoy our...



OIL MILL

Brabant Huttenhut oil is certified 100% organic and 100% vegetable. Grown and processed at our organic farm Heining & Hoef.



LIVESTOCK FARMING

Various cattle are walking around the estate: Brandrode cattle - an old Dutch breed - sheep and pigs. The meadow birds also feel at home here in large numbers.



AGRICULTURE

Heining & Hoef owns, leases and manages arable plots in and around Teteringen. The activities on land are geared to the rhythm of nature, so that no mowing is done during the breeding season. The meadow birds sail and fly here.



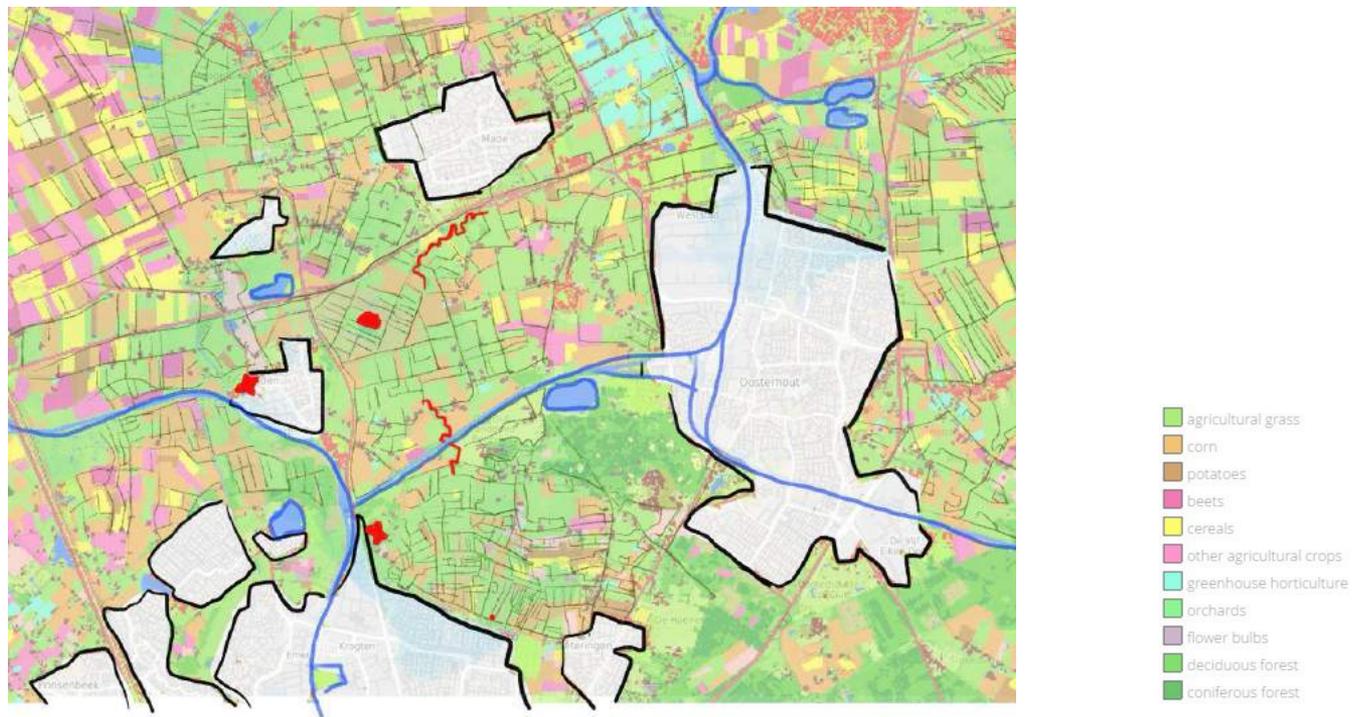
NATURE MANAGEMENT, CONSTRUCTION & MAINTENANCE

Heining & Hoef explains for various clients in the public and commercial sector manage, manage and take care of nature.

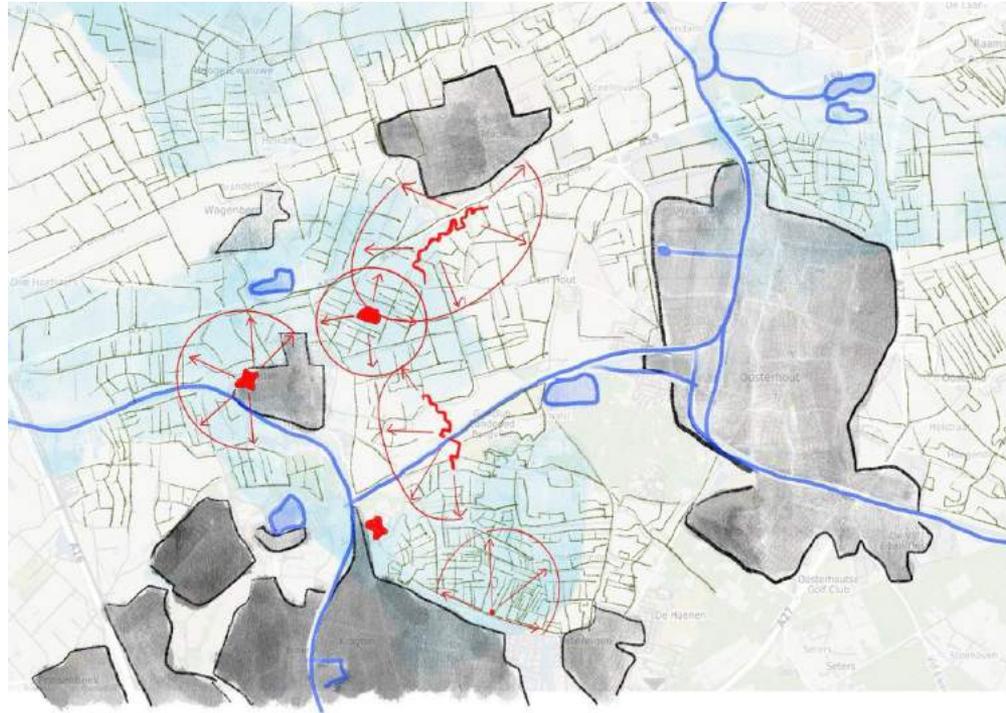


independent entity in landscape
without connection

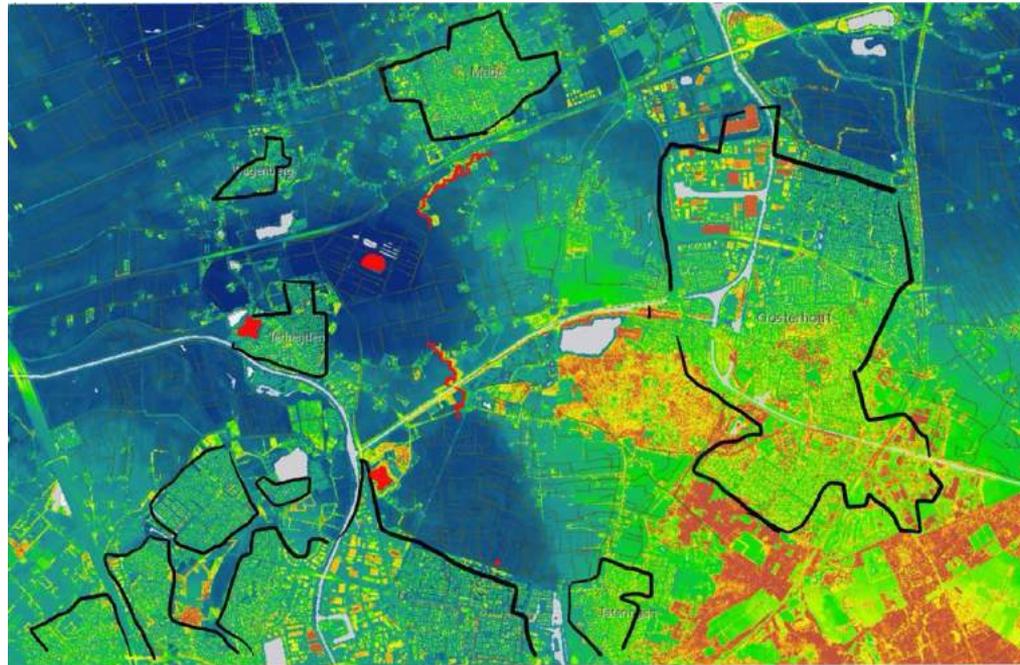
land use



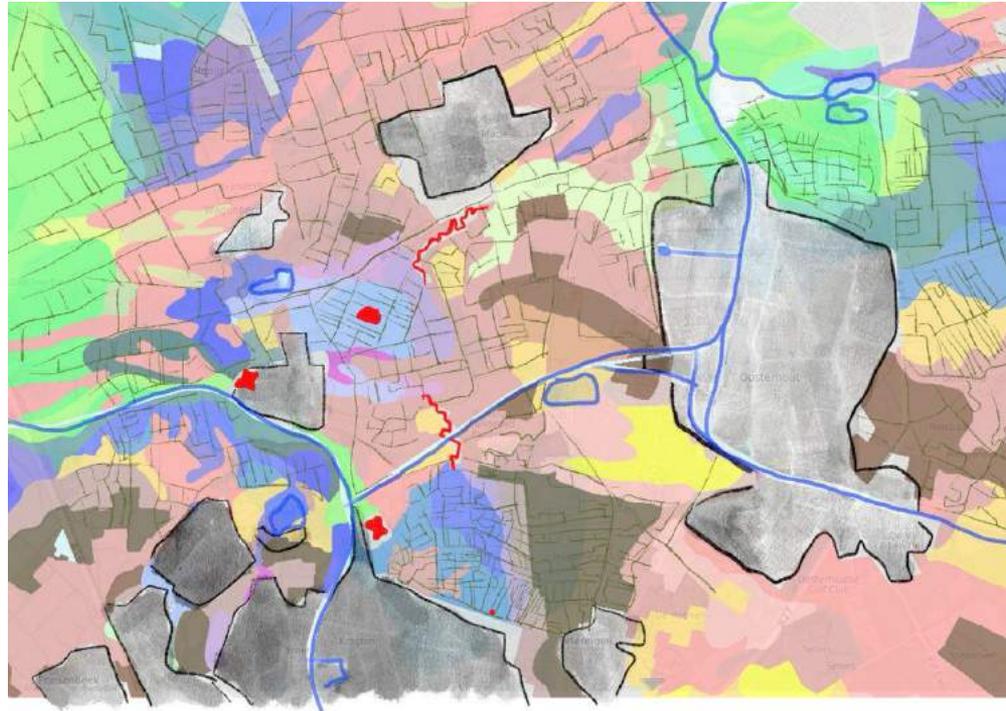
heritage and inundation zone



elevation



soil type



APPROACH

redefining/reactive agriculture

REDEFINING FOODSCAPE IN BREDA

Approach 1

**IDENTITY
THROUGH
FOOD**

Suxin, Emmanouela, Yun, Dorien

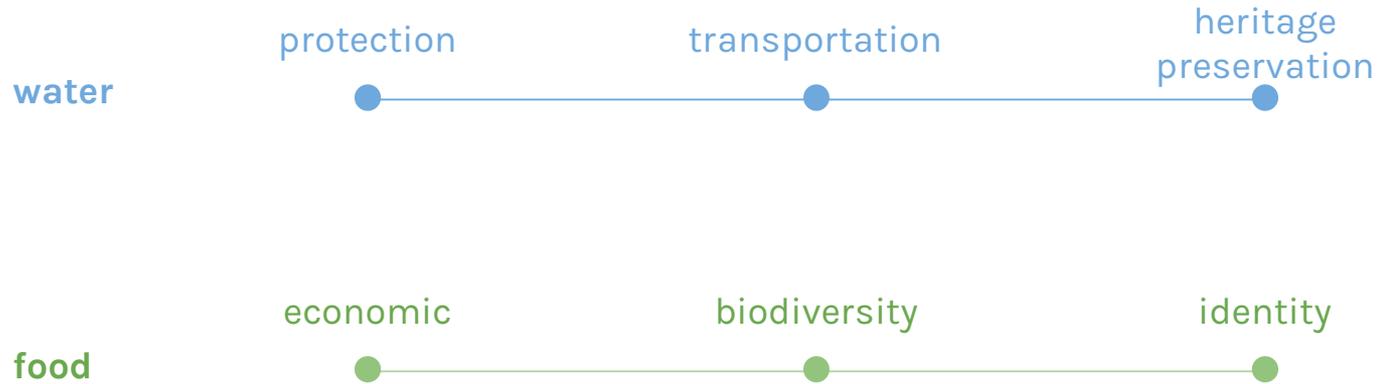
Approach 2

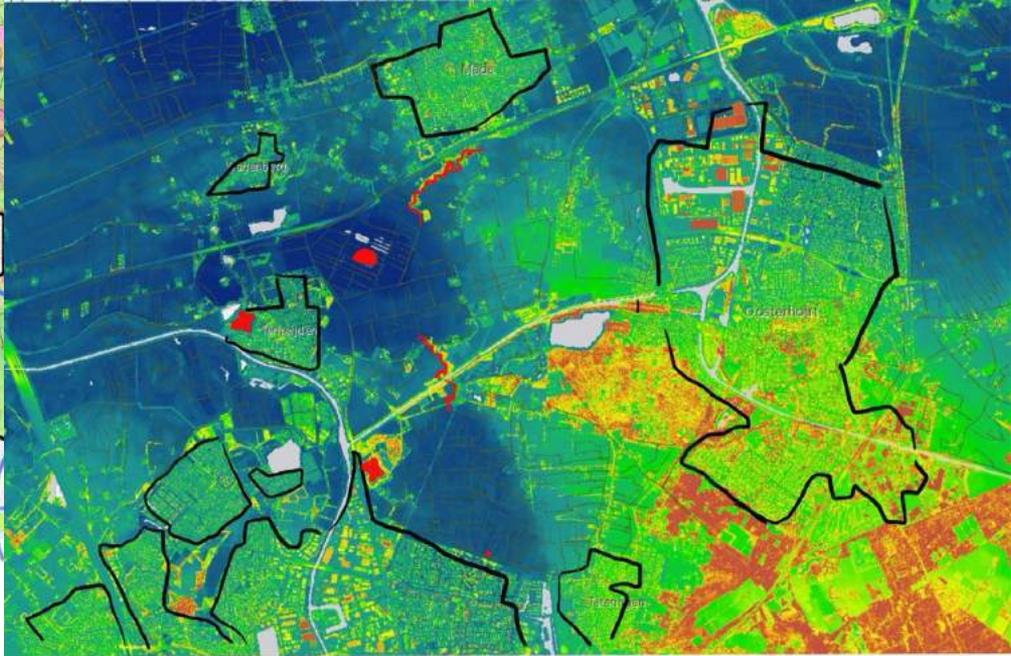
**BACK
TO THE
FUTURE**

Pu, Farnoosh, Kueitso

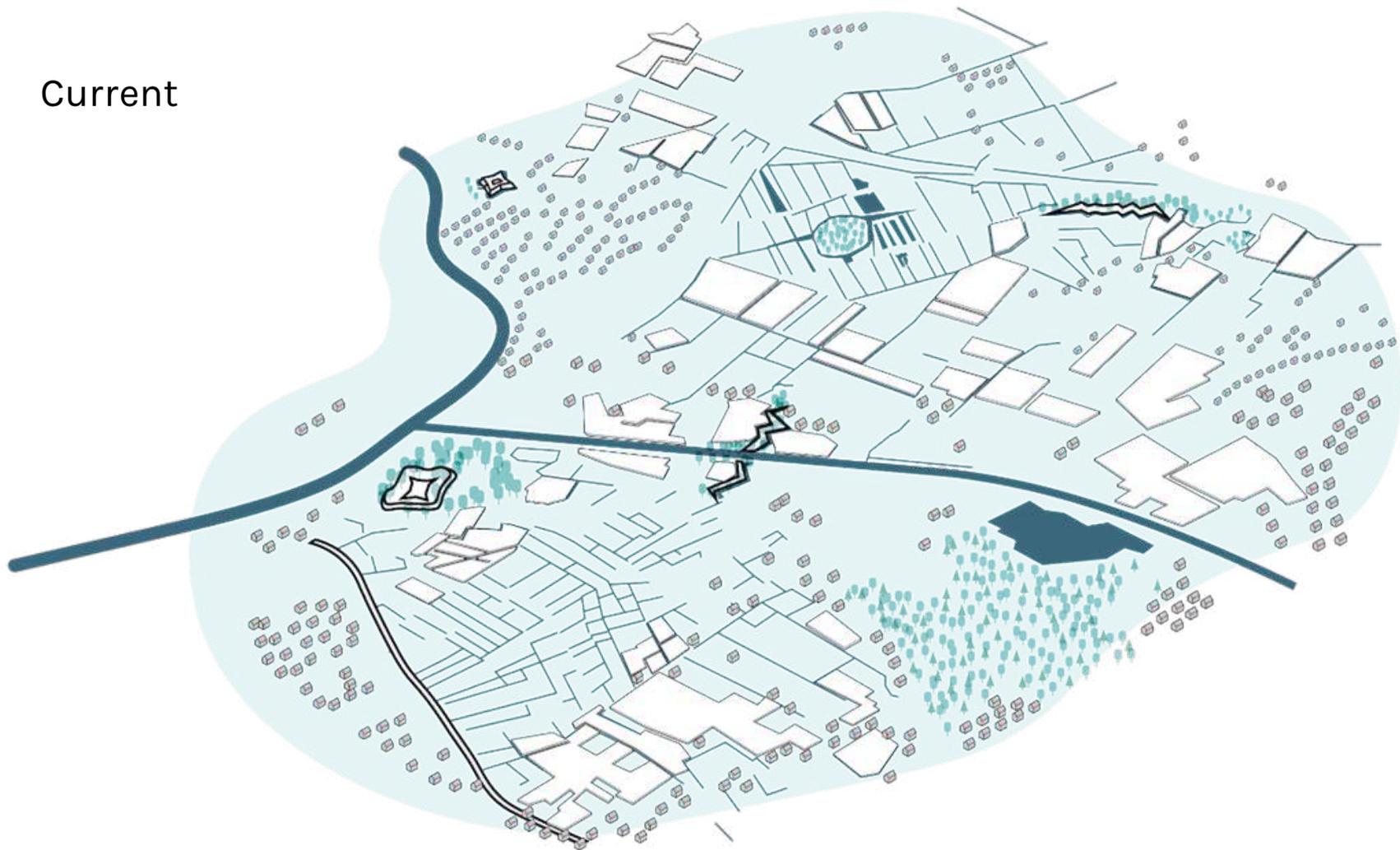
APPROACH 1
UNDERSTANDING BREDA IDENTITY THROUGH FOOD

Changing roles





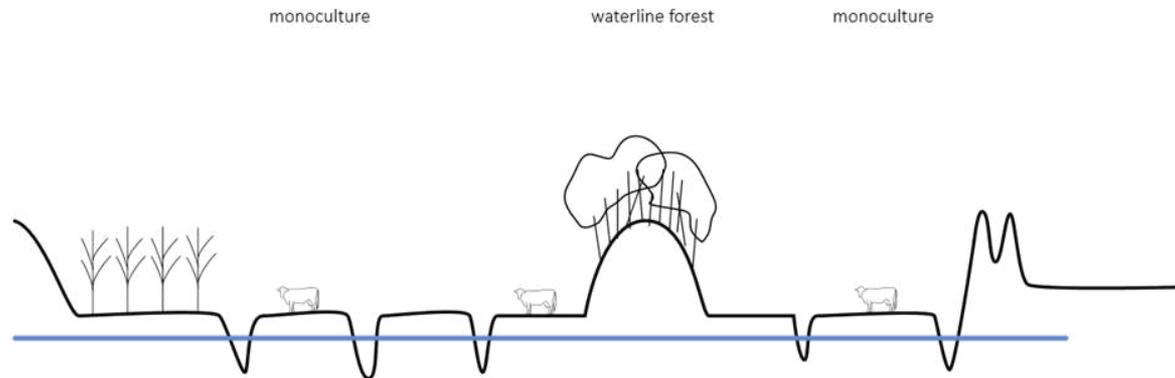
Current



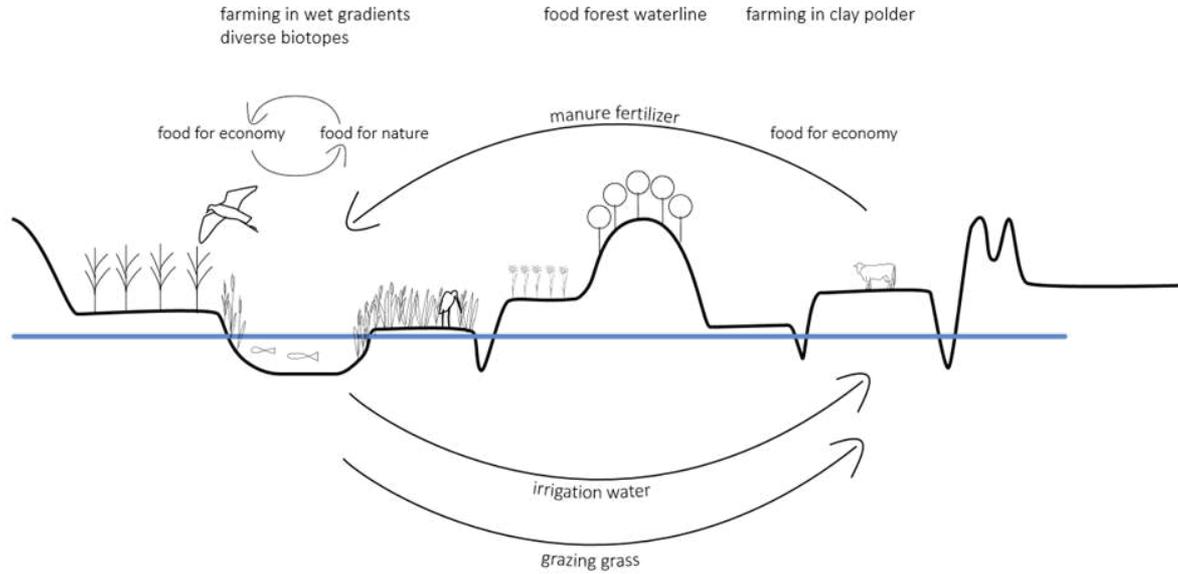
Vision



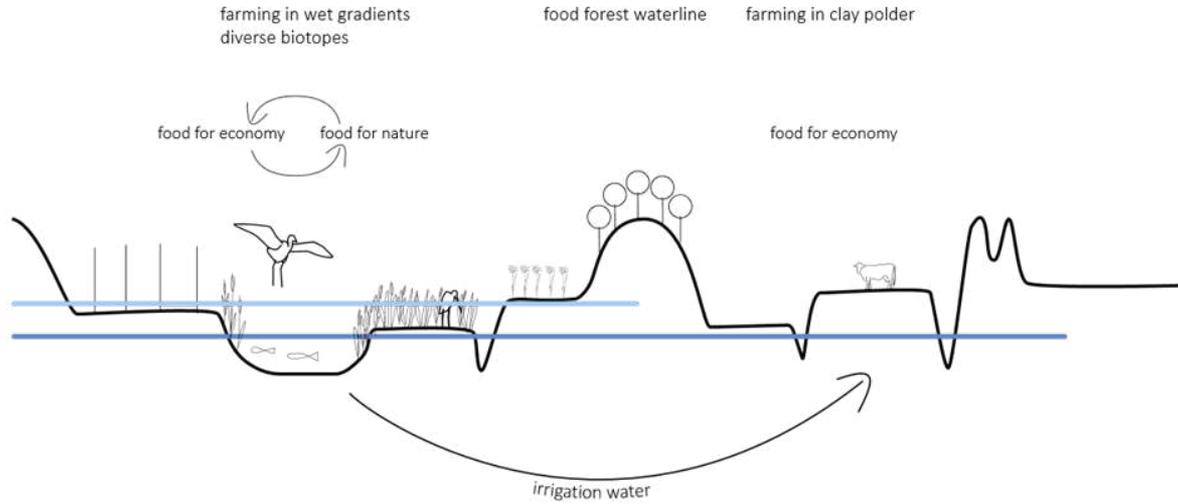
Current section



Concept section



Concept section



Crop matrix



/CROP LIST/

Sandy dunes:

- Sea buckthorn
- Peach
- Sweet cherries
- Japanese plum
- Apricot

Sandy + High moisture:

- Maize
- Carrot
- Melon
- Butterfly bush
- Red chokeberry
- Rose of Sharon

Sandy + Low moisture:

- Goat's beard
- White turtlehead
- Hosta longissima
- Meadowsweet
- Cranberry

Clay + High moisture:

- Squash
- Lettuce
- Brussels sprouts
- Snap beans
- Broccoli
- Cabbage

Clay + High moisture:

- Peat moss

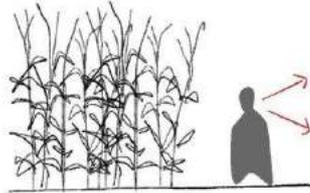
Water 20cm depth:

- Duckweed
- Watercress
- Sweetflag
- Waterchestnut
- Malanga

Water 40cm depth:

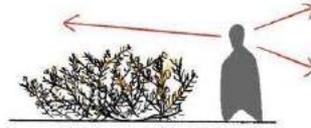
- Water lotus
- Water spinach
- Reed
- Rice

crop spatial quality



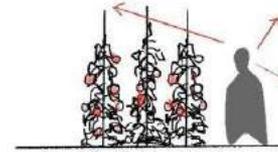
Maize

- wall
- block view
- enclosure



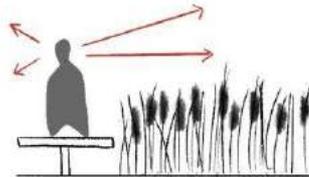
Sea buckthorn

- soft barrier
- add colour to landscape (orange fruit)



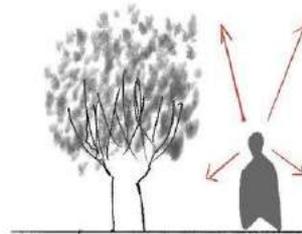
Tomato

- opaque barrier
- adds colour (red)
- usually narrow walkway



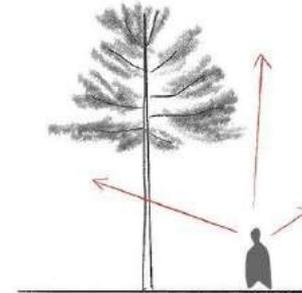
Cattail

- barrier
- indicates height diff
- indicates wind



Sweet cherry

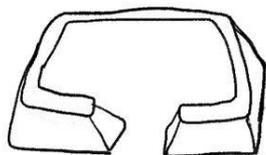
- human scale barrier
- adds horizontal dimension to space



Pine

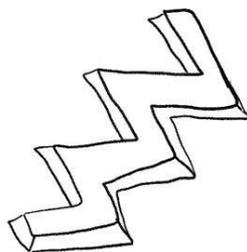
- column
- verticality

food showcasing heritage element



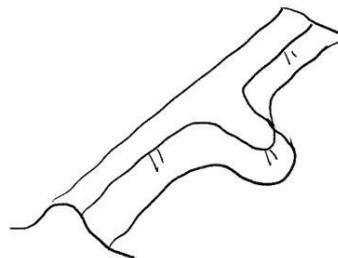
Spinozas

-enclosure
-open centre



**Linie van de
munnikenhof**

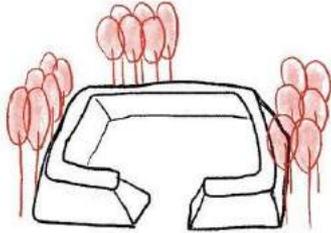
-zig zag
-edge pointy



Zwarte dijk

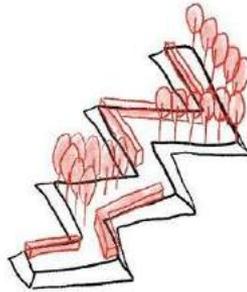
-openness
-elevated

food showcasing heritage element



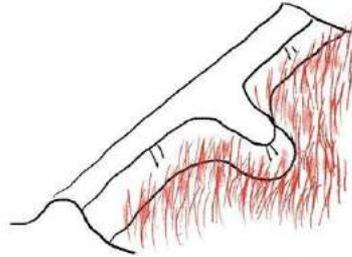
Spinolas

- enclosure
- open centre



Linie van de munnikenhof

- zig zag
- edge pointy



Zwarte dijk

- openness
- elevated

Spinolas
(current)



Spinolas
(vision)



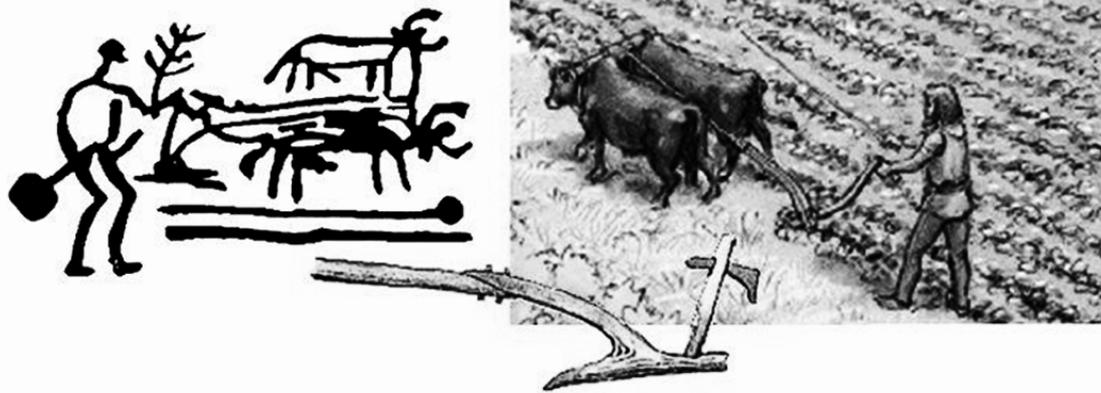




APPROACH 2
PRESERVING THE NATURAL AND CULTURAL LAYER

**ADAPTING HISTORY TO THE FUTURE:
AN AGRICULTURAL SUPPORTIVE COMMUNITY FOR BREDA**

LESSONS FROM THE PAST: ADAPTIVE AGRICULTURE DURING THE BRONZE / IRON AGE



Source: Noord-Brabants Archeologisch Gemeenschap, retrieved from: <http://www.nbag.nl/06-04-2014.html>

LESSONS FROM THE PAST FOR SUSTAINABLE AGRICULTURE IN NOORD-BRABANT

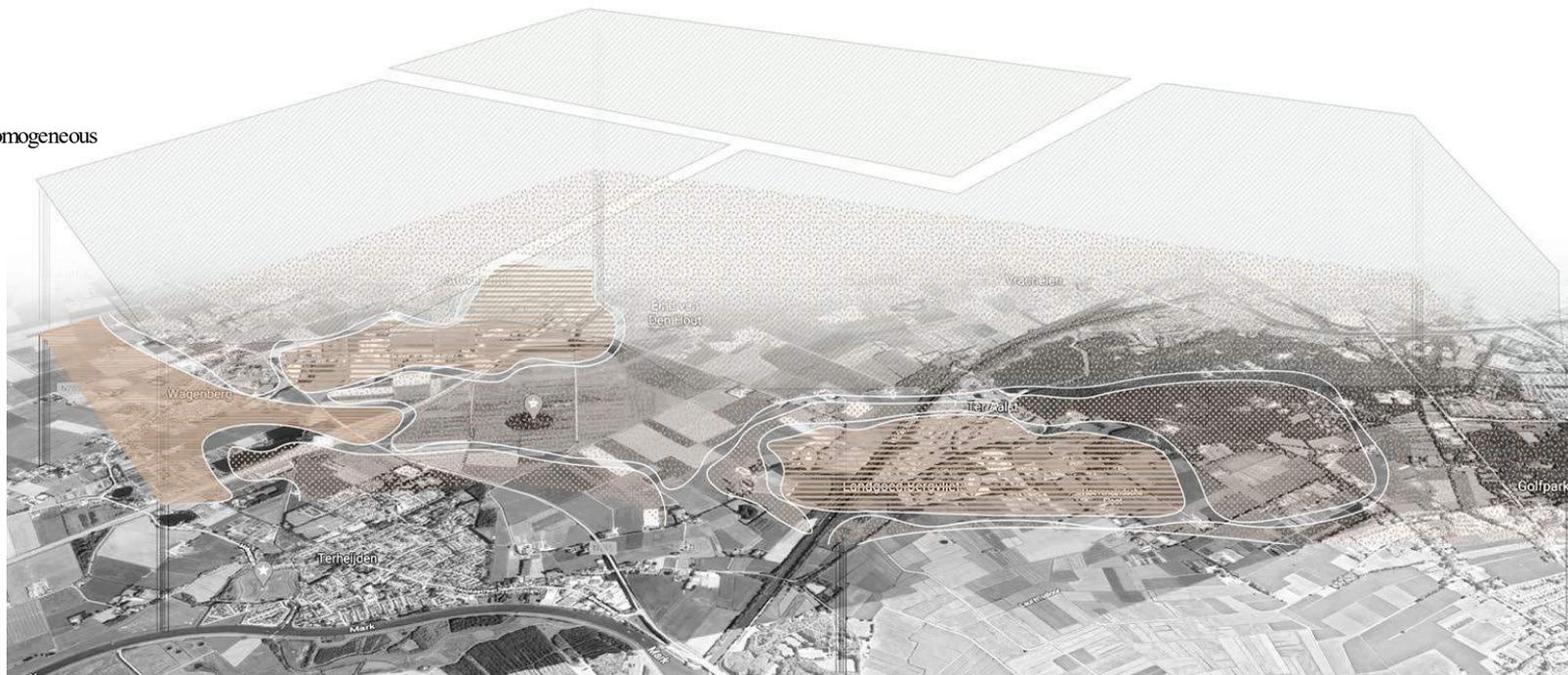


Source: Brabant Dorpsleven, retrieved from: <https://brabantsdorpsleven.nl/>

HOMOGENEOUS AGRICULTURE STATUS

Agriculture layer- Homogeneous

Natural layer-Soil

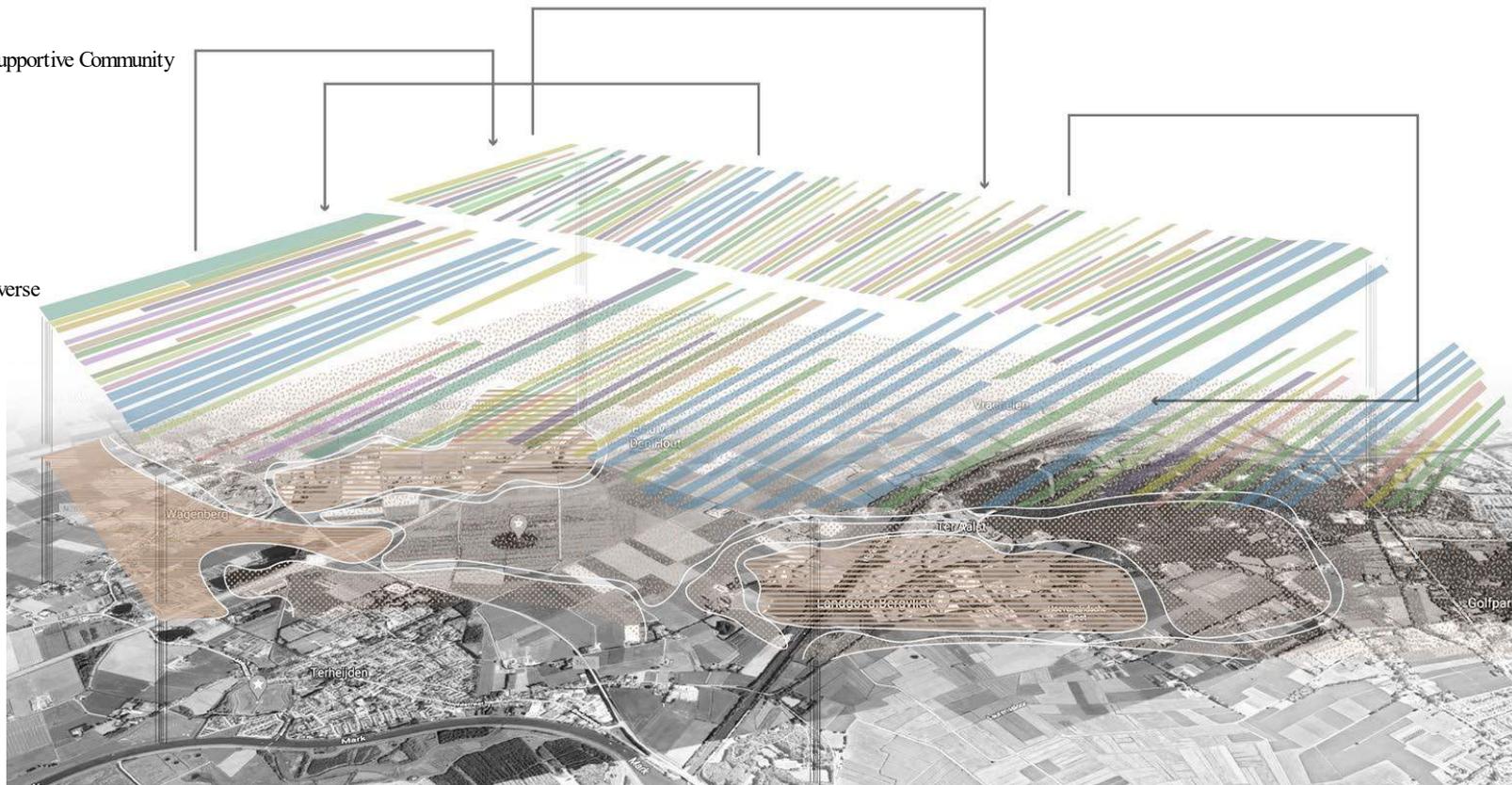


DIVERSE AGRICULTURAL FUTURE

Cooperative layer- Supportive Community

Agriculture layer- Diverse

Natural layer- Soil



REGIONAL PLAN

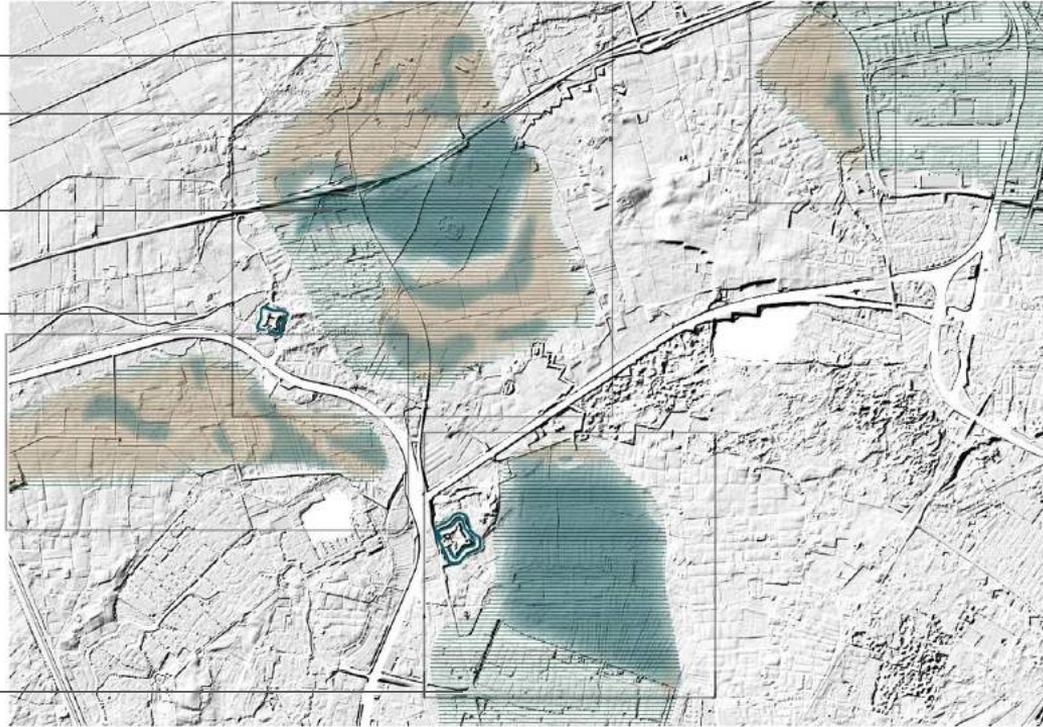
Dry Agriculture

Seasonal Wet Agriculture

Wet Agriculture

Water Storage

Inundation Area



ADAPTABLE FOR MORE EFFICIENT AGRICULTURE AND MORE NATURAL AREAS

Seasonal Wet Agriculture

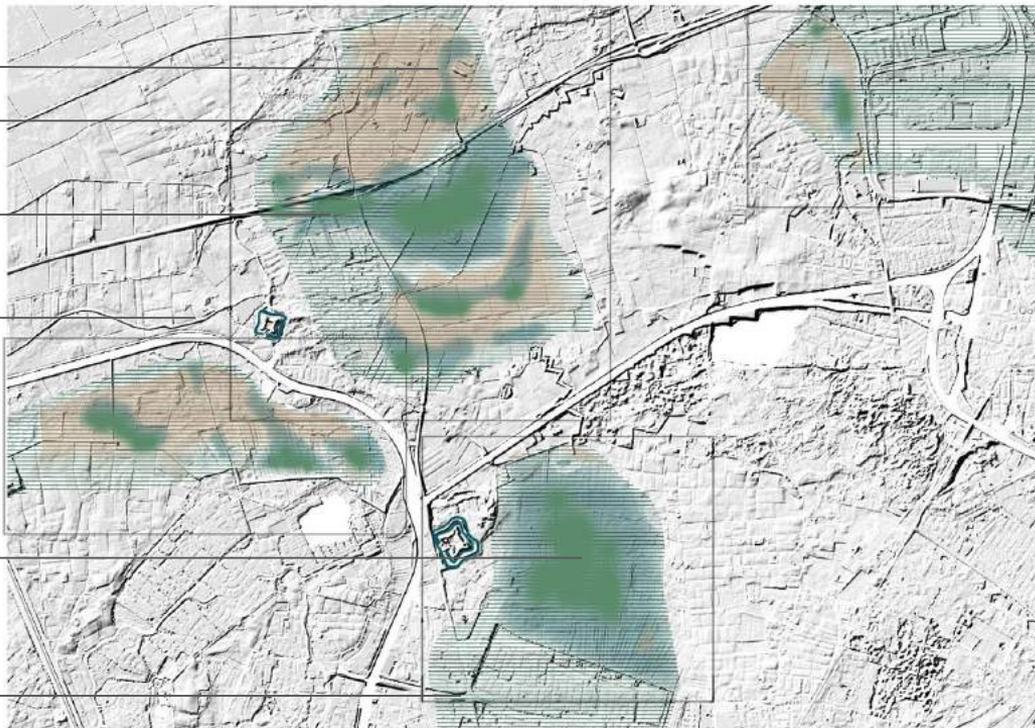
Dry Agriculture

Wet Agriculture

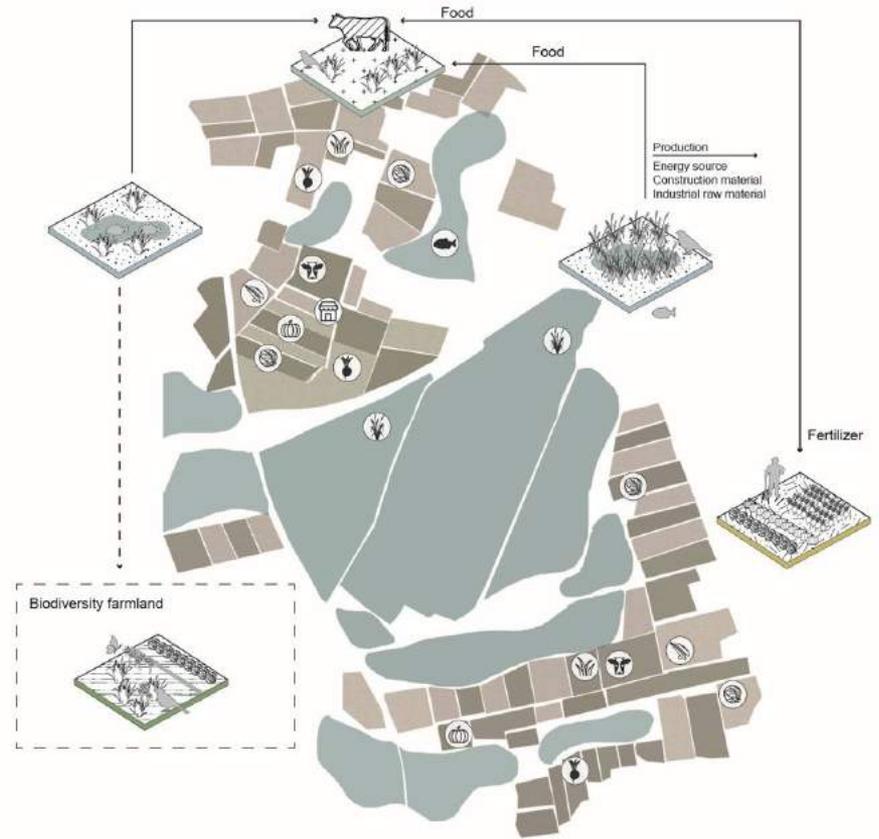
Water Storage

Natural Area

Inundation Area



MASTER PLAN



BEFORE AND AFTER



FROM THE LANDSCAPE OF EFFICIENCY



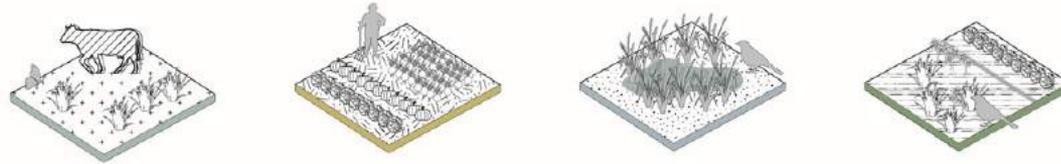
TO AN ADAPTIVE LANDSCAPE



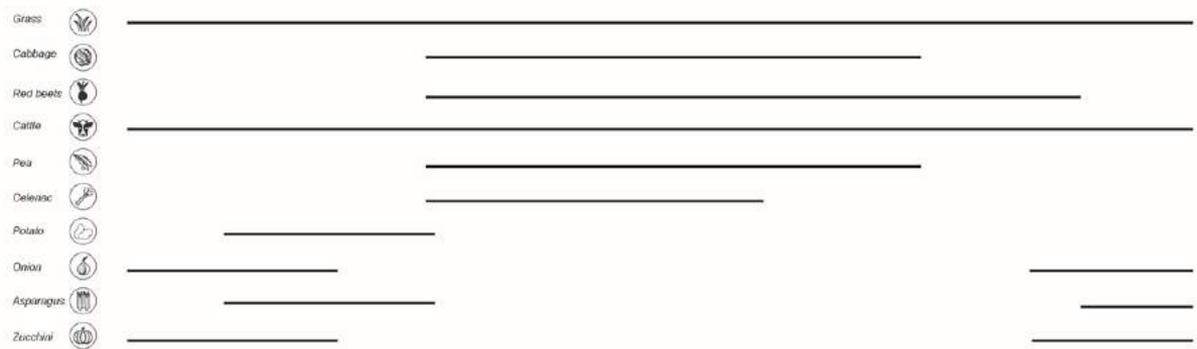
VISUAL I



SEASONAL AGRICULTURE



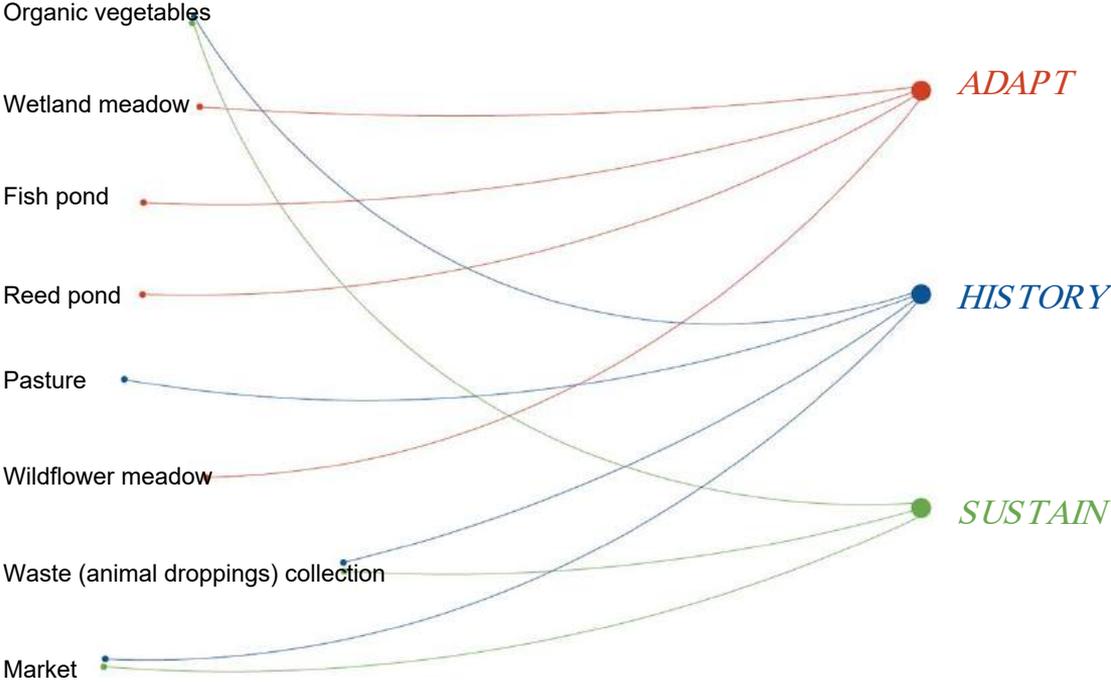
Spring Summer Fall Winter



VISUAL II



DESIGN CONCEPT



VISUAL III

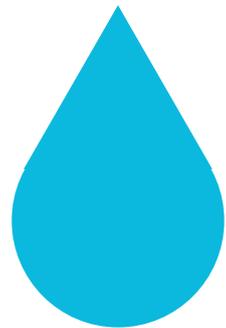


WATER & HERITAGE

GARY GILSON, RUBEN
VAN DIJK, FRANCESCA
MAZZA

ESMEE VAN EEDEN, YA-
YUN GAO, YU ZHENG

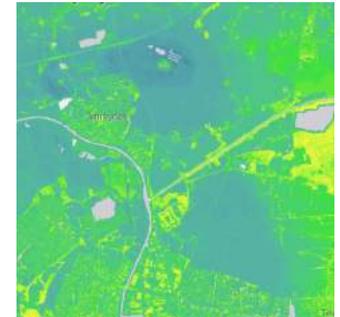
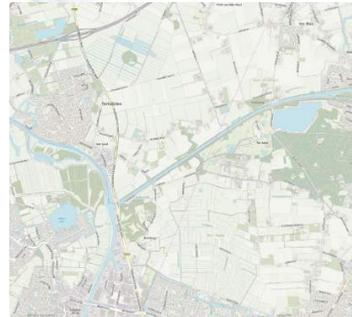
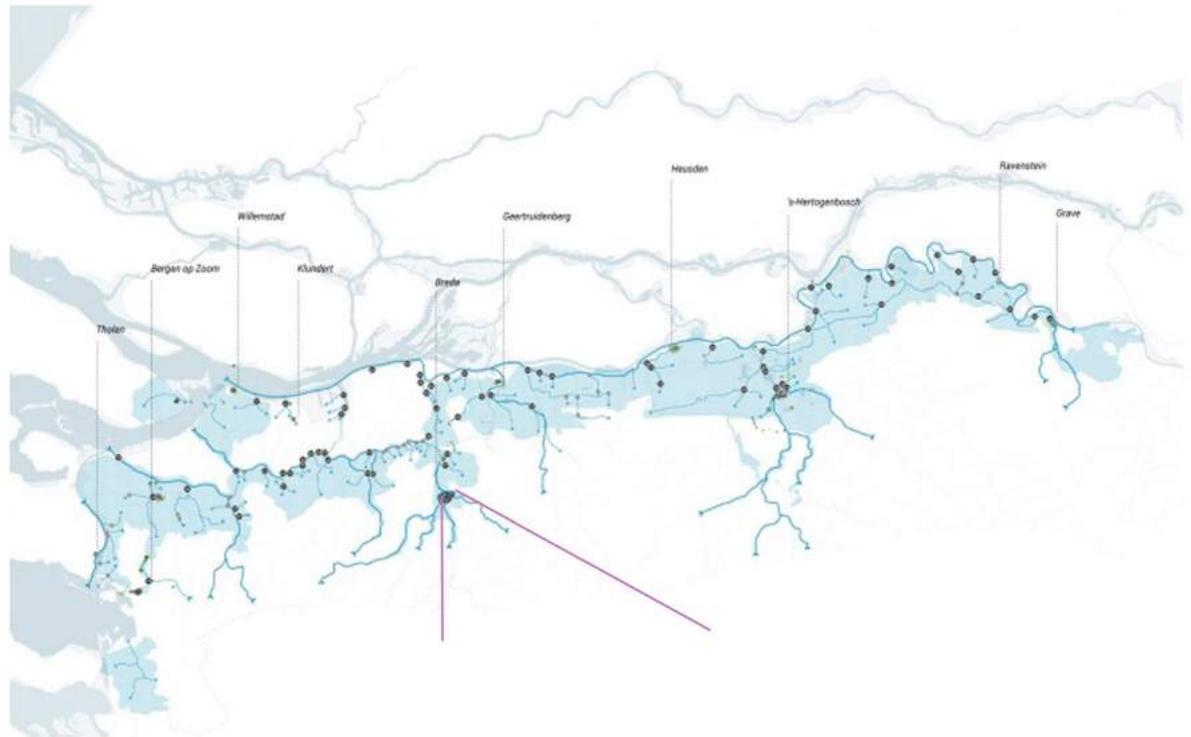
IVO BRANDS, KAILUN QI,
YU LIU



Water

Location

- Lower ground for inundation
- Higher ground for fortress



Challenges



Water scarcity



Low water quality



Not much water
related activities



Land
subsidence



The heritage is
not visible enough



Too intensive
land use



Agricultural land is
not diverse

The lost sponge function



Is this next?



Qualities

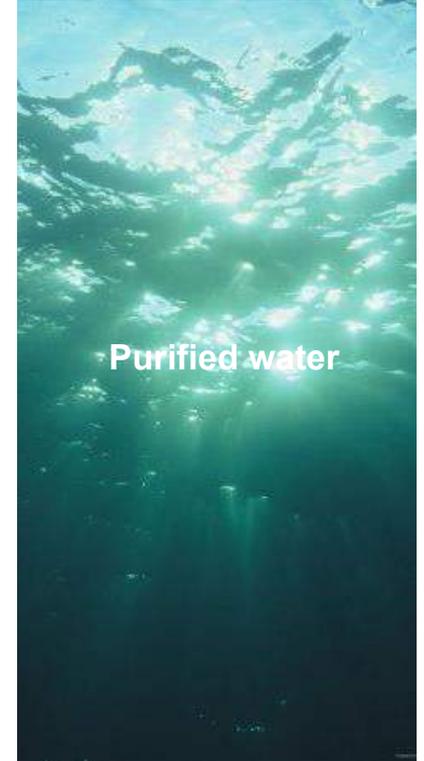


Image source: <https://https://nl.pinterest.com/>

Potentials

- Heritage values
- Diversing land use
- Nature preservation place with good water conditions
- Interesting elevation
- High visitor potential
- Presence of old inundation field



GROUPS

A. **Revealing Hidden Landscapes**

Gary Gilson, Ruben van Dyke, Francesca Mazza

B. **Mosaic Sponge**

Esmée van Eeden, Yayun Gao, Yu Zheng

C. **Enlightening Water Retention**

Ivo Brands, Kailun Qi, Yu Liu

Current Landscape

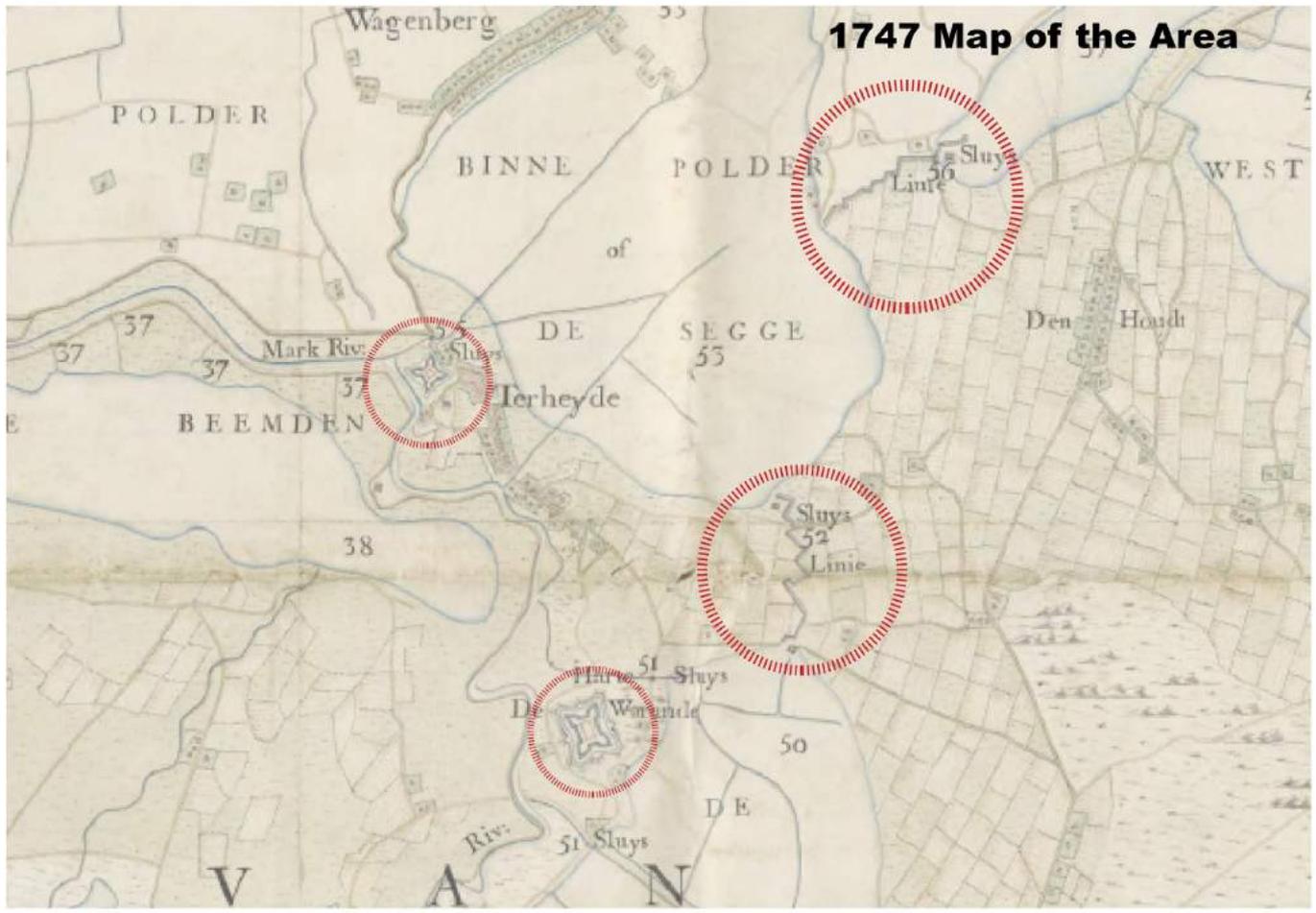


Oosterhout





1747 Map of the Area





Military Heritage Elements



Kleine Schans



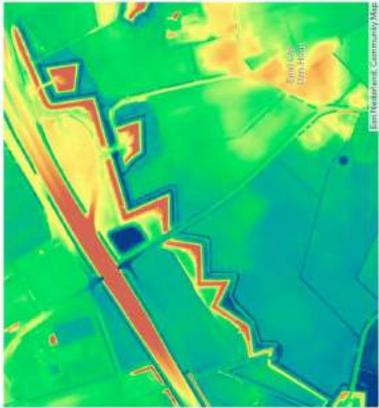
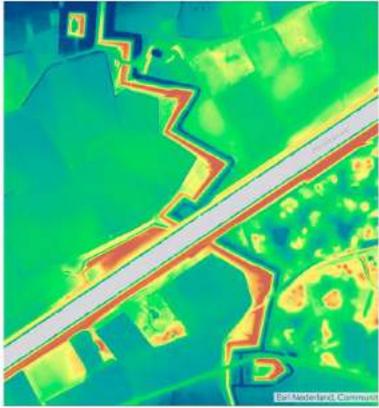
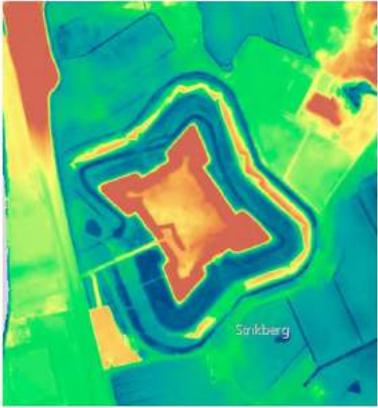
Spinolaschans



Linie van de
Munnikenhof



Linie van Den
Hout



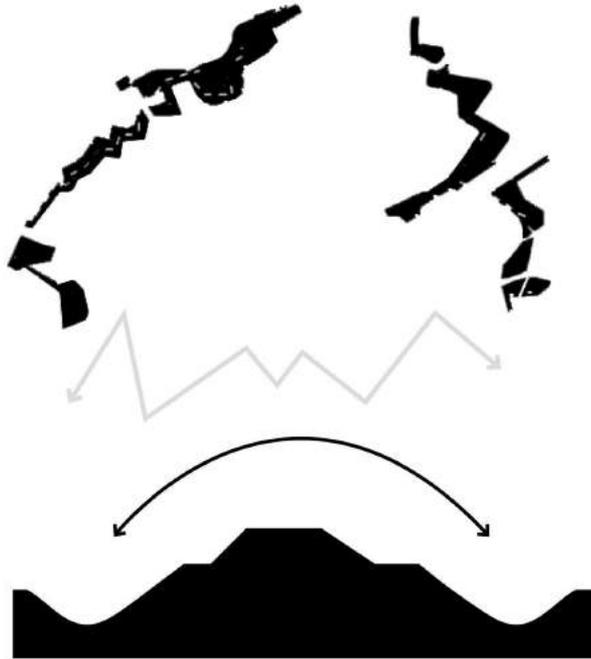
A New Narrative?

Enhancing Lost Meaning of the Structures



Oosterhout

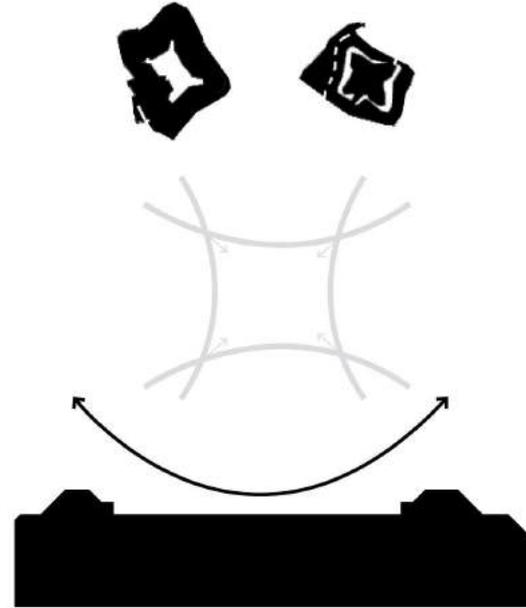
Waterlines



Central Volume-Dyke
Sides- Ditches
Zig-Zag pattern
Guiding nature

Morphology

Schans

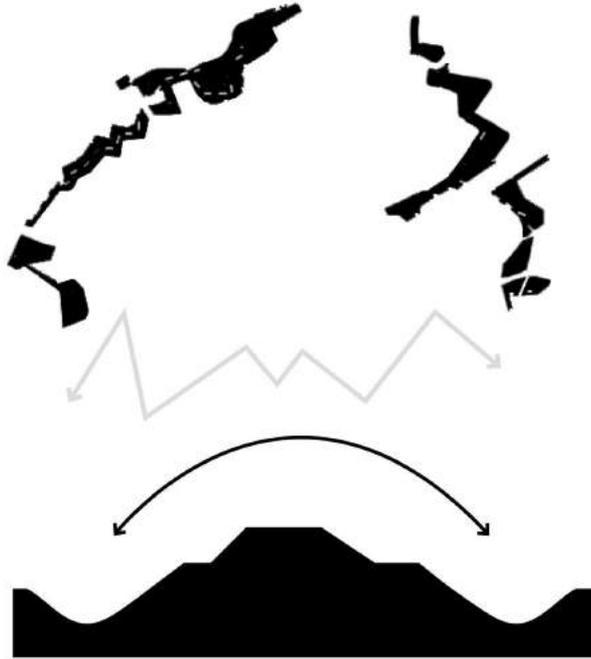


Central Volume-Enclosure
Sides- Dykes
Enclosed volume
Protective nature

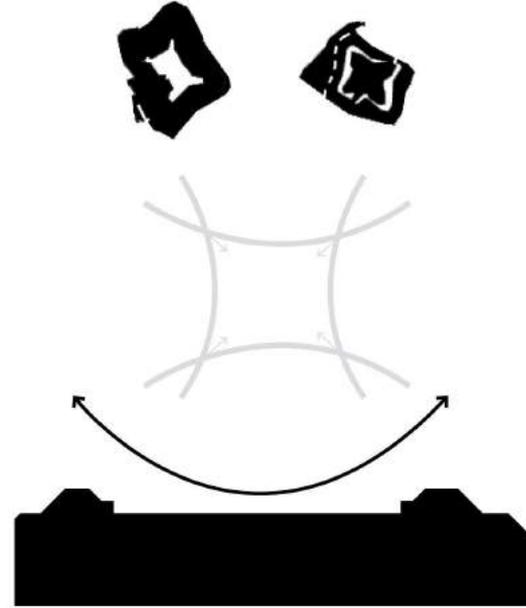
Waterlines

New Function

Schans



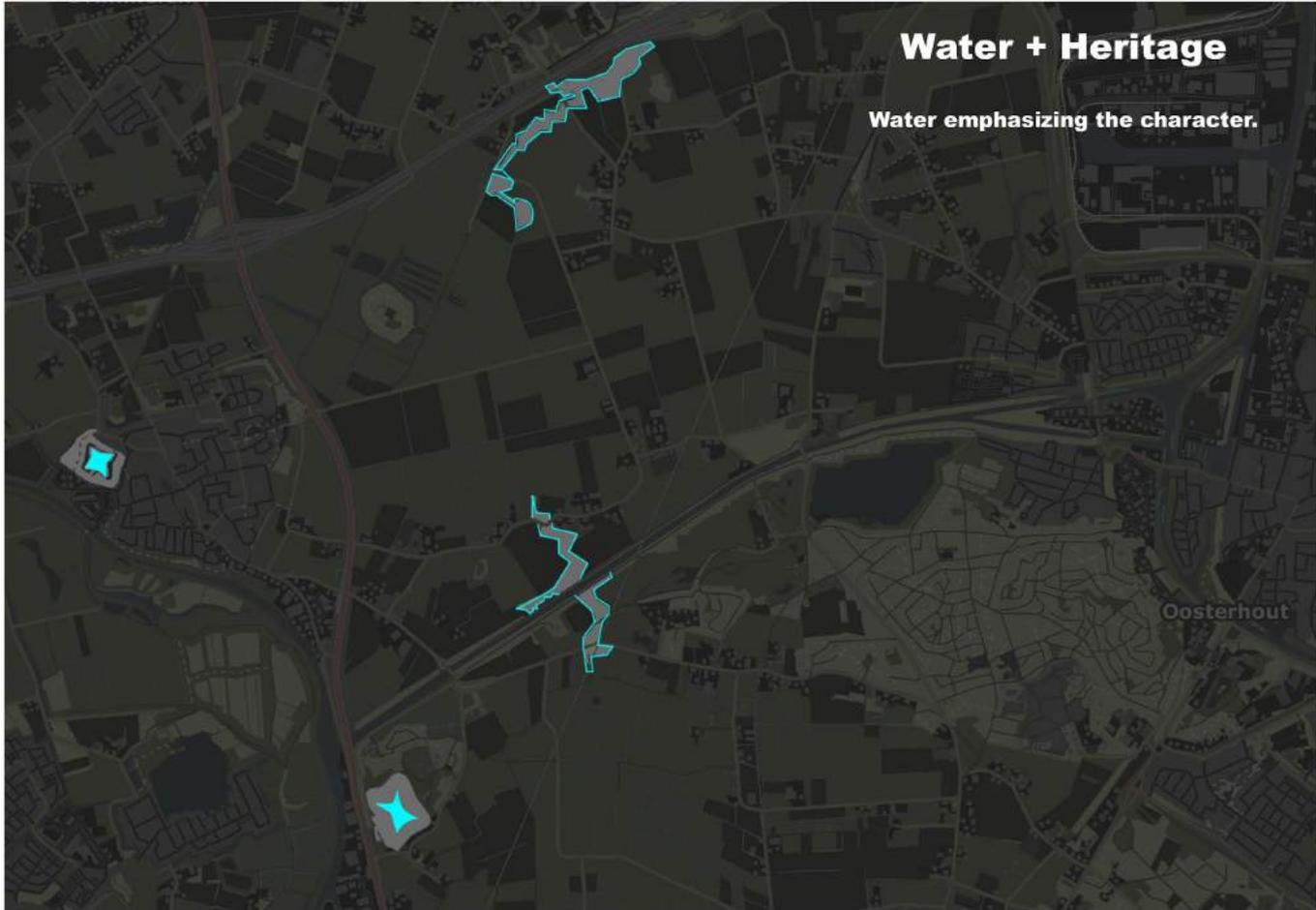
Articulate Flow of Water.
Filtration
Transport
Recreation



Store Water
Create Enclosed activities.

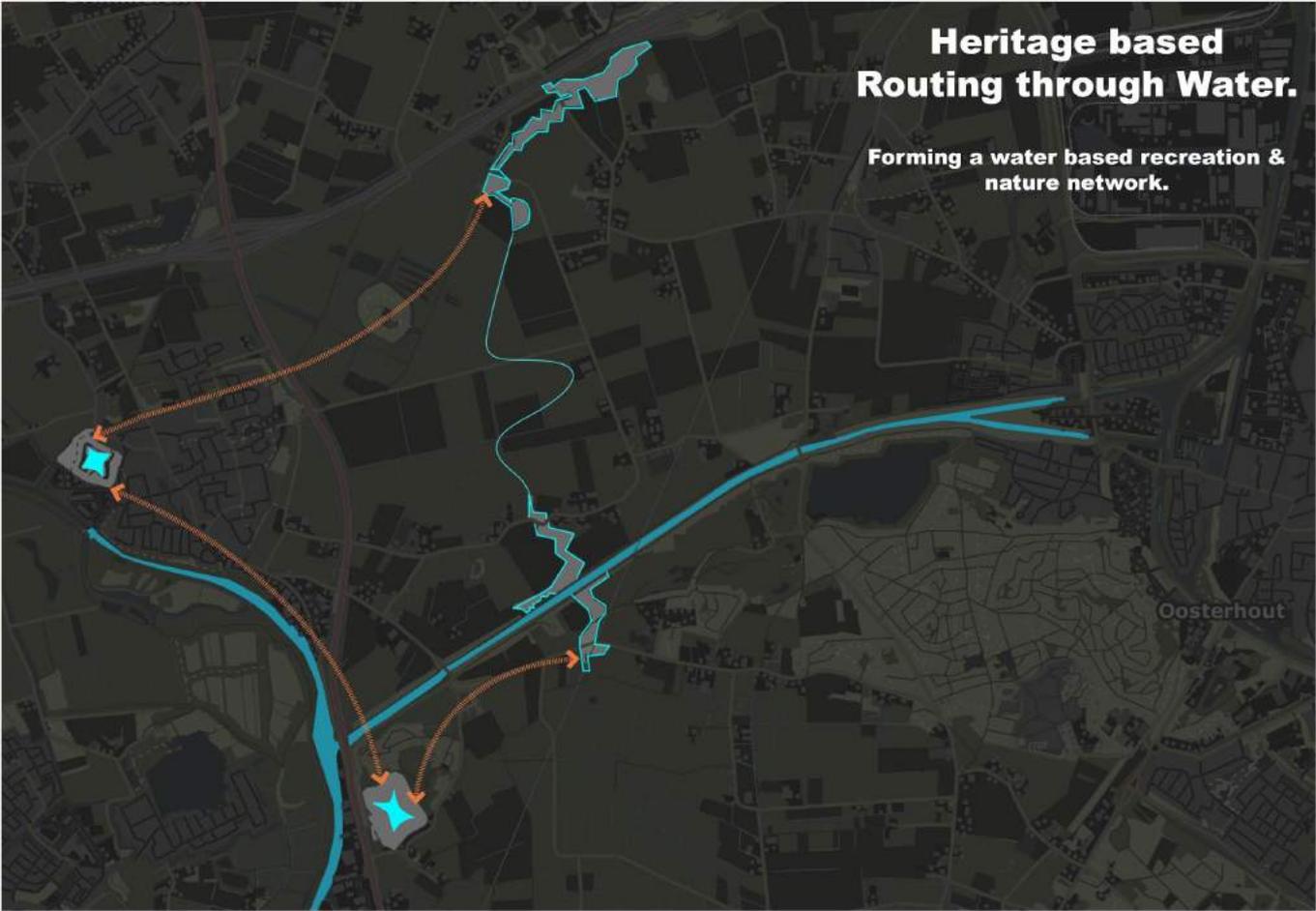
Water + Heritage

Water emphasizing the character.



Heritage based Routing through Water.

Forming a water based recreation & nature network.



New Ecology + Farming



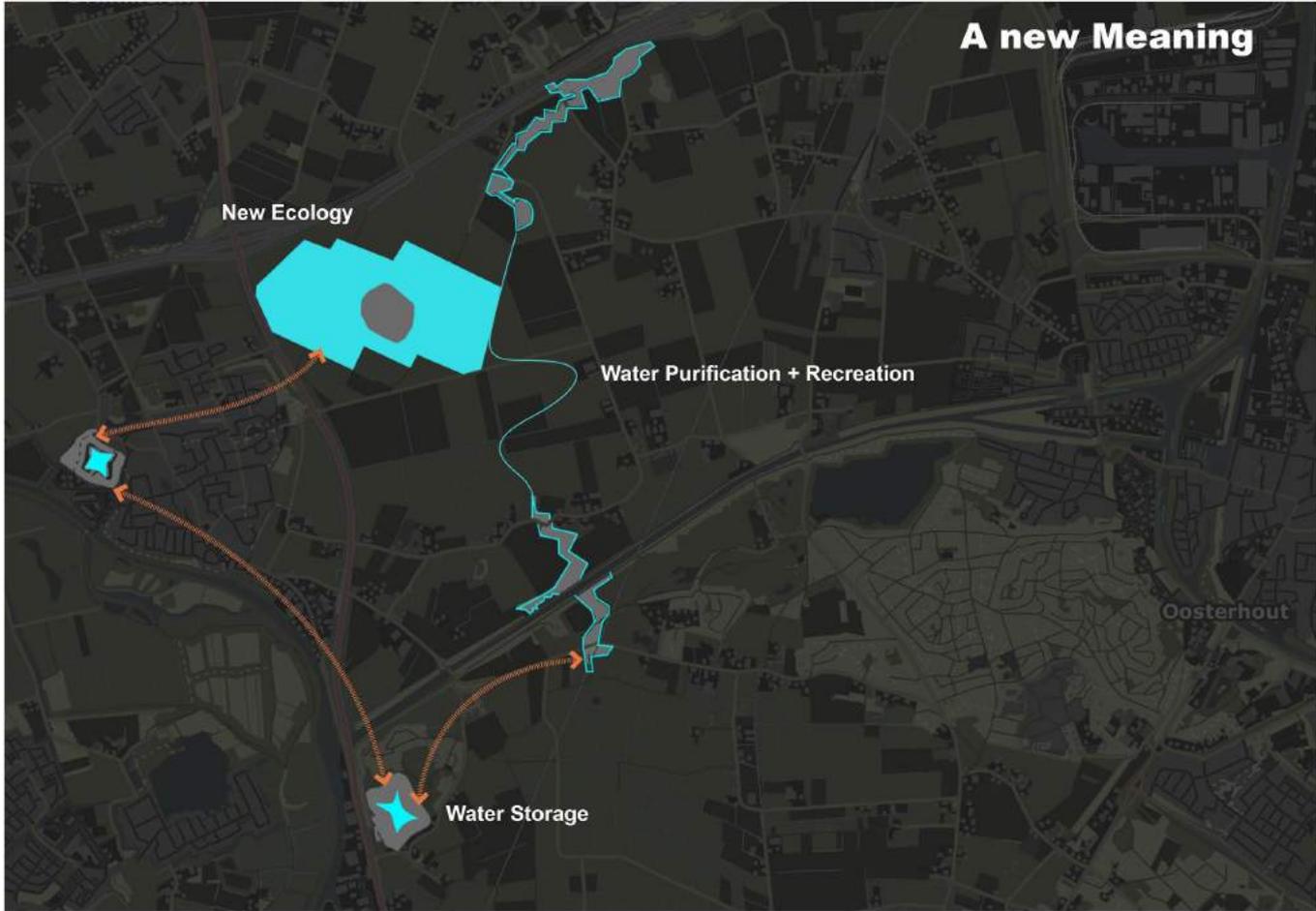
A new Meaning

New Ecology

Water Purification + Recreation

Water Storage

Oosterhout



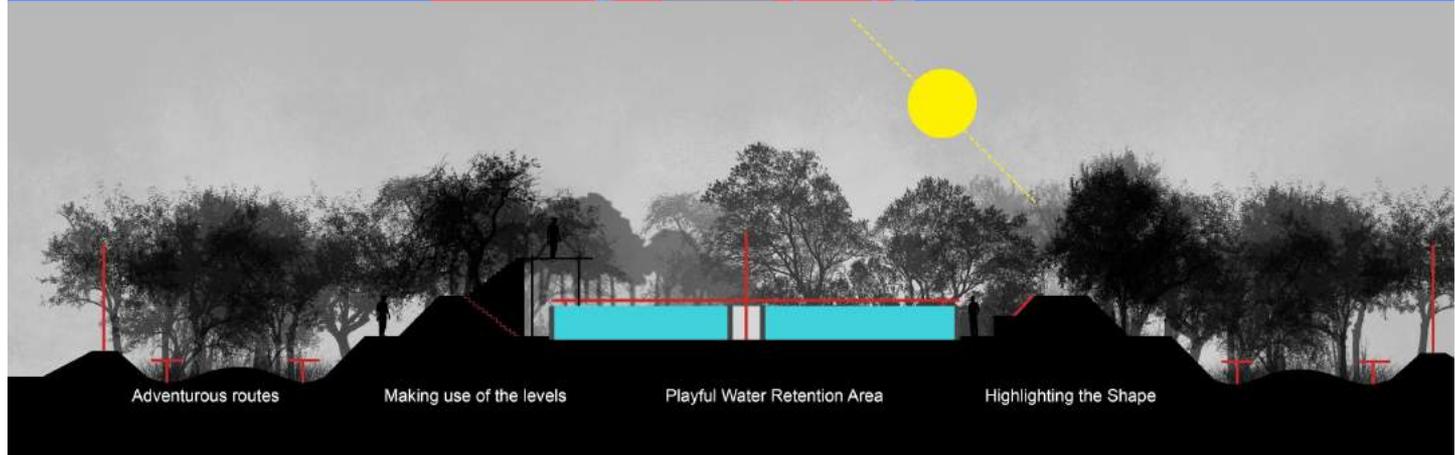
Schans as a Water Reservoir



**Waterline as
recreation + water
purification System**



Experiencing the Schans

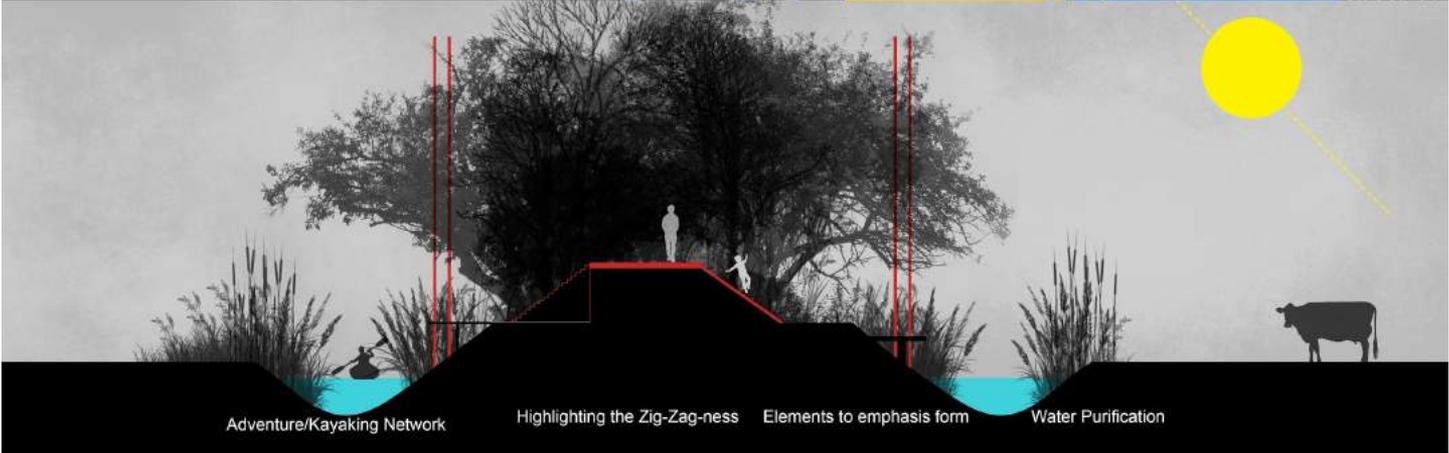


Adventurous routes

Making use of the levels

Playful Water Retention Area

Highlighting the Shape



Adventure/Kayaking Network

Highlighting the Zig-Zag-ness

Elements to emphasis form

Water Purification

The Island of Life



Trekking/Camping

Meadow Birds

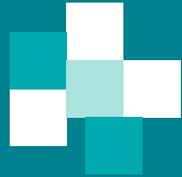
Meadow Plants

Water based agriculture

REVEALING



HIDDEN LANDSCAPES X HIDDEN MEANINGS

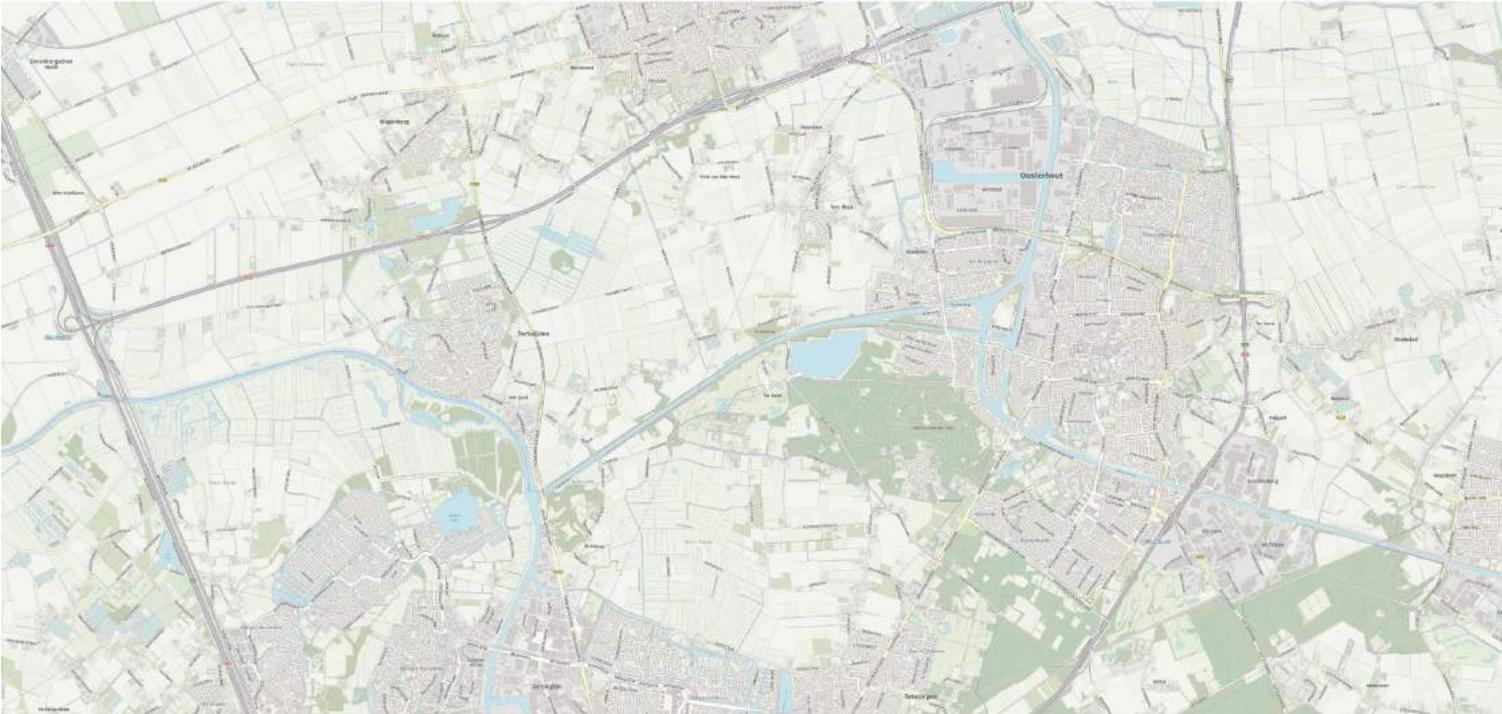


Mosaic Sponge



Group B: Esmée van Eeden, Yayun Gao, Yu Zheng

Analysis



1:35000



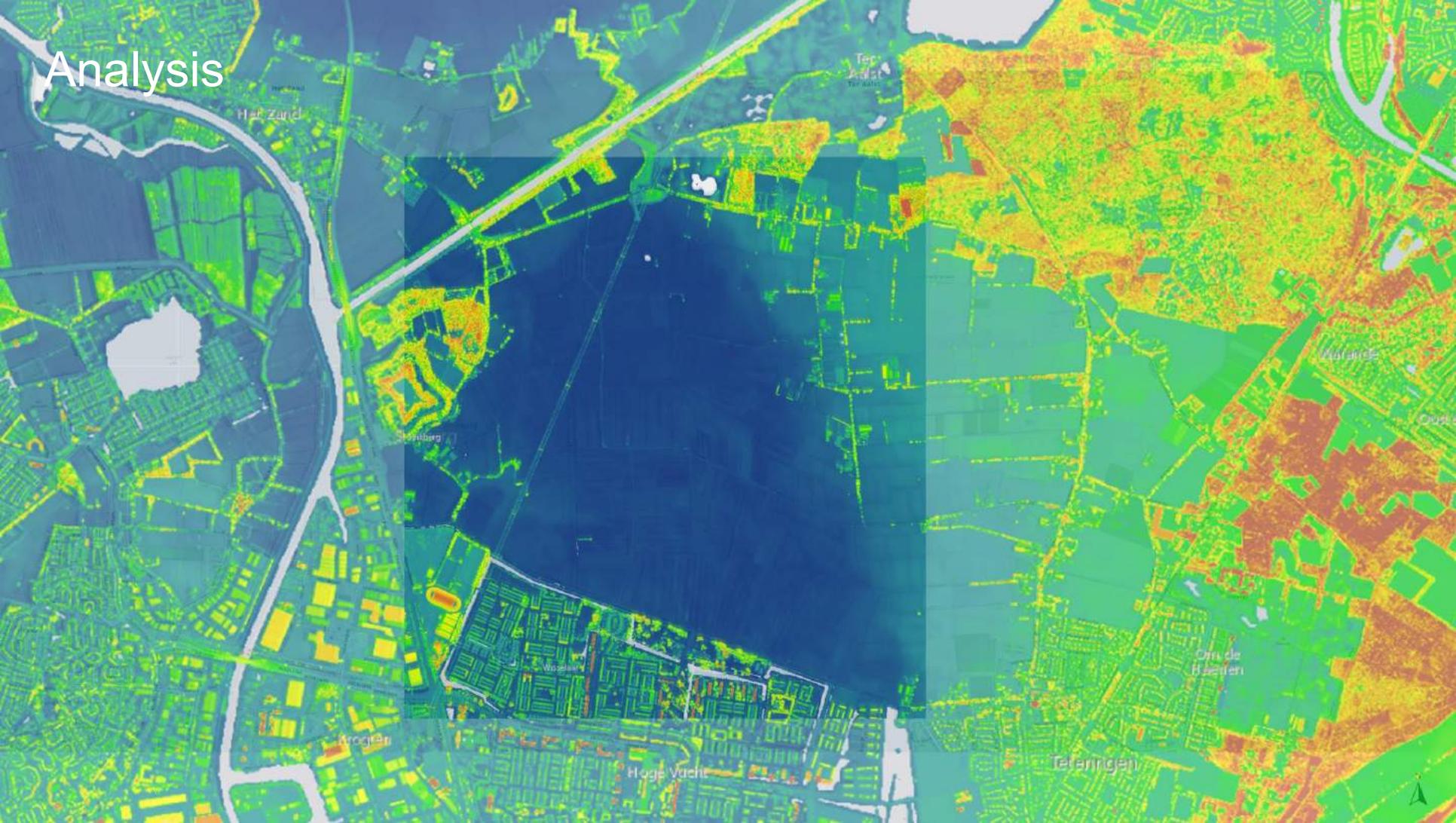
Analysis



1:15000



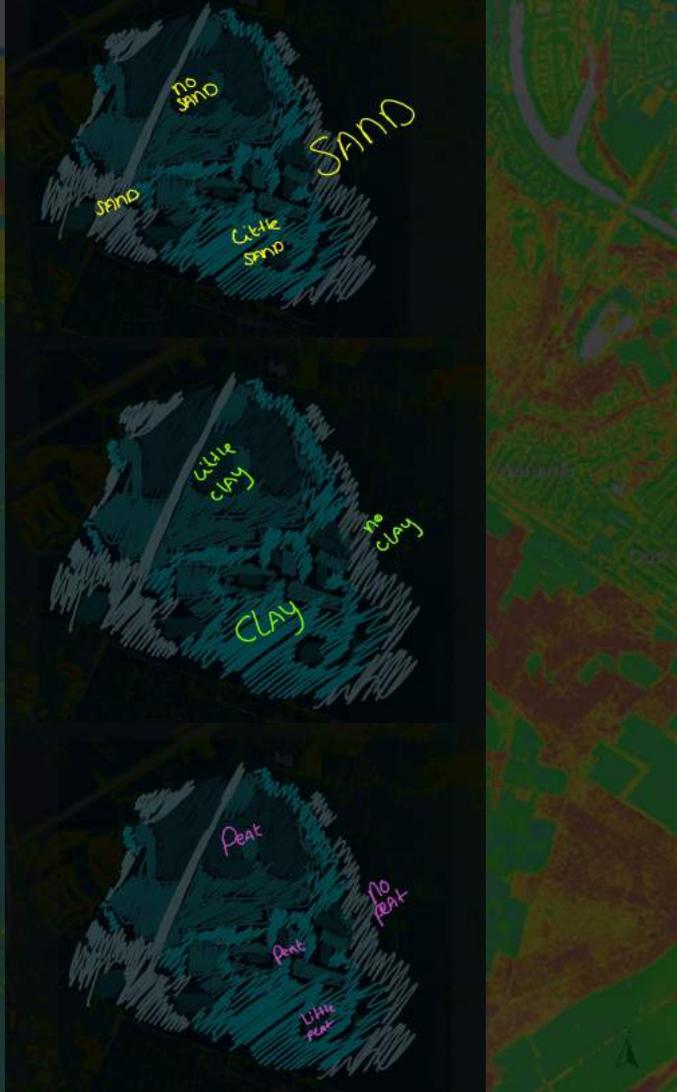
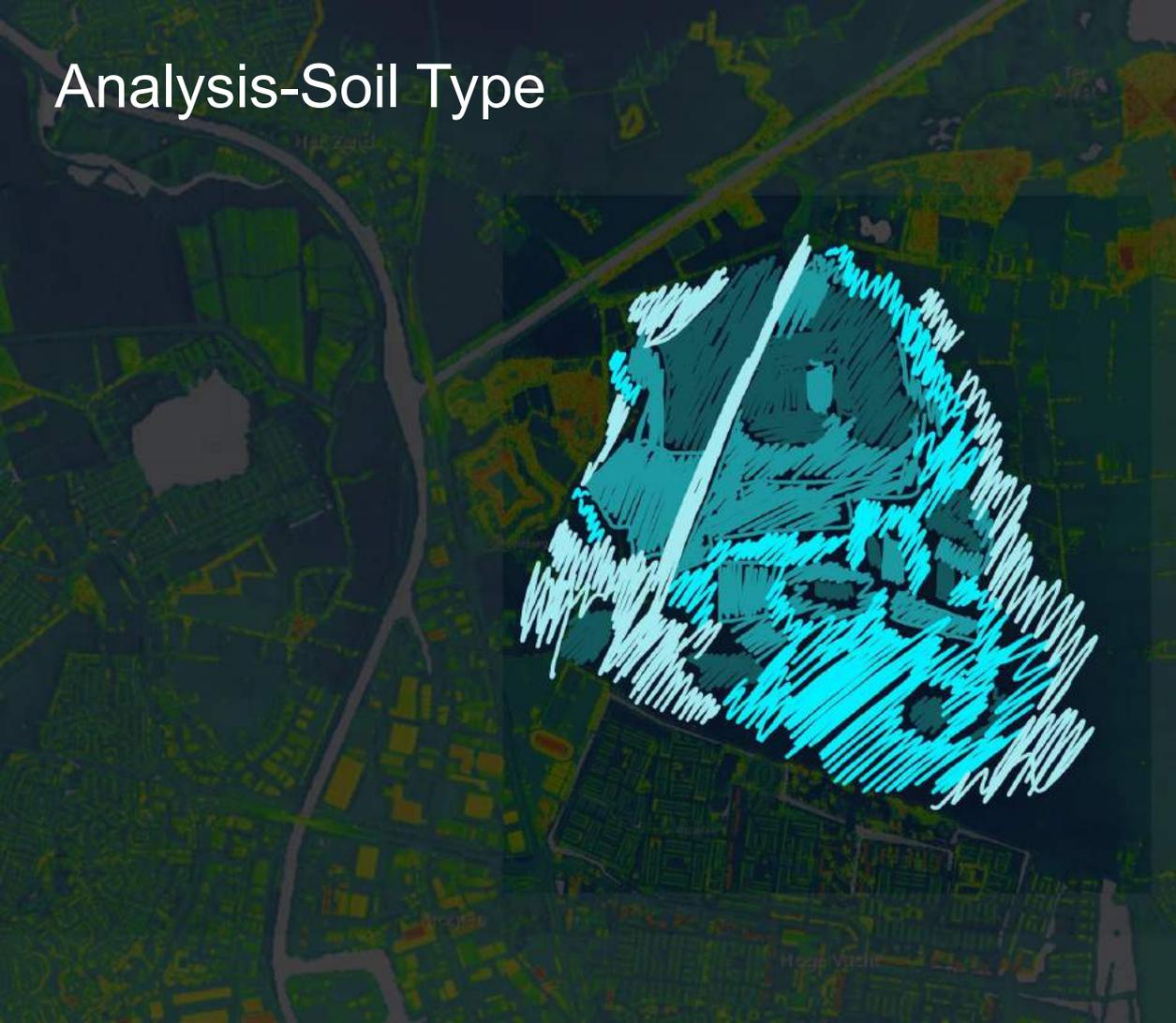
Analysis



Analysis



Analysis-Soil Type



Analysis-Parcels



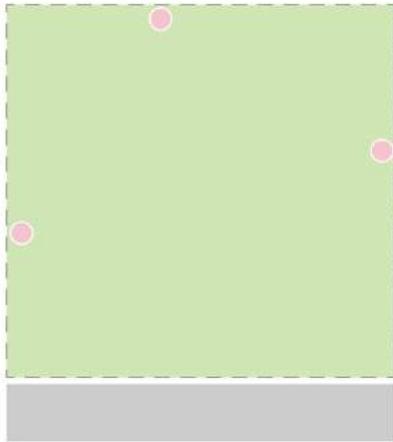
Analysis



Main concept

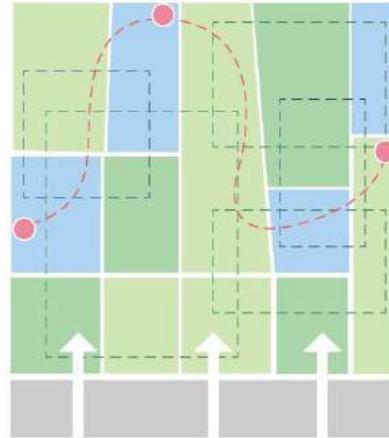
Diversify the land use, create more possibilities by dynamic water level.

Current Situation

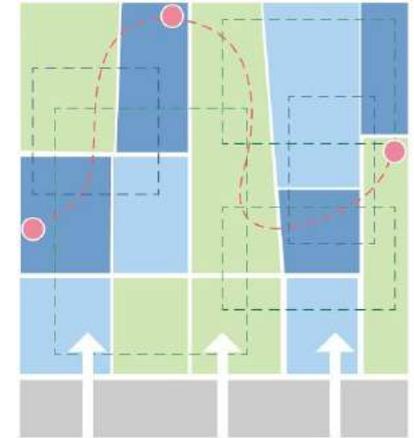


Seasonal Adapts

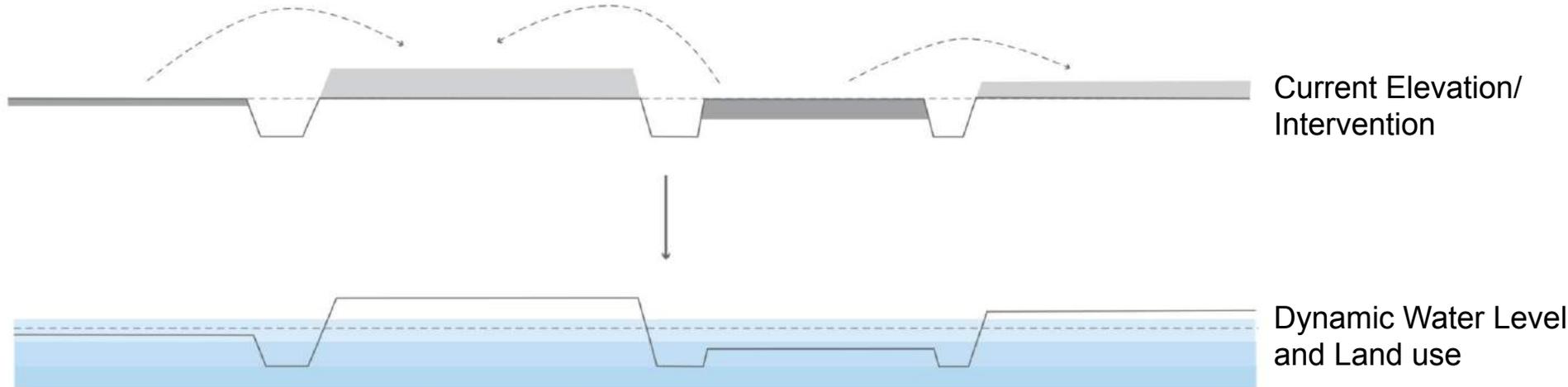
Dry Season



Wet Season



Concept parcels

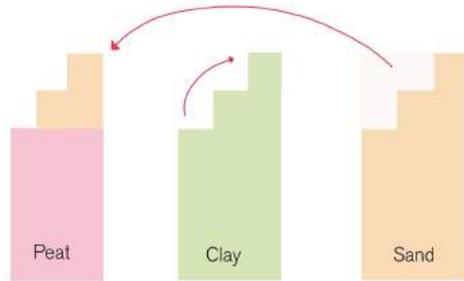


Concept soil movement

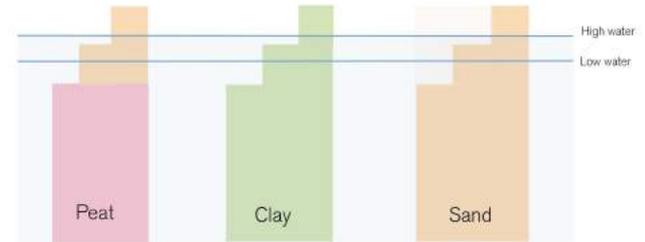
Current situation
at the Vucht polder



Proposed situation with
soil movement
principle



One water level which
may fluctuate during
the year. Peat soil is
always wet.

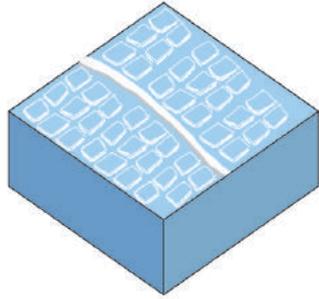


Masterplan

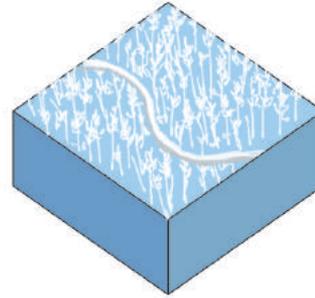


Diagram-Wet Condition

Lobster Farm



Reed Agriculture



Water Storage

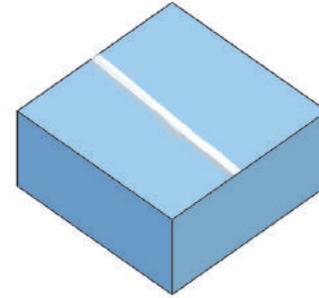
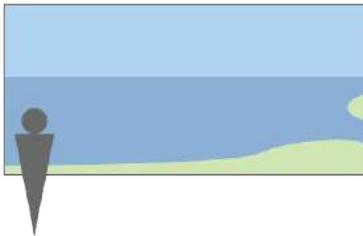
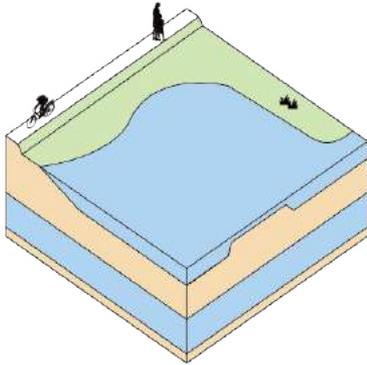


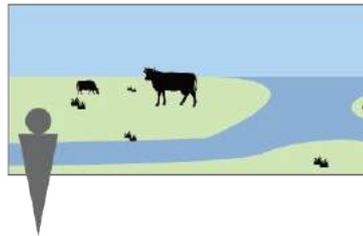
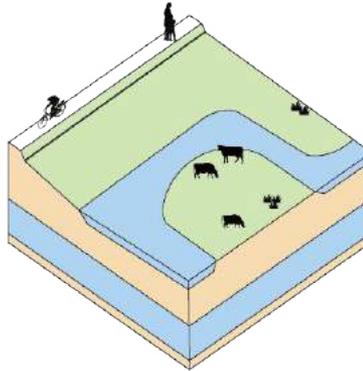
Diagram-Marsh Condition

Marsh

Water Storage



Summer- Agriculture



Winter- Nature

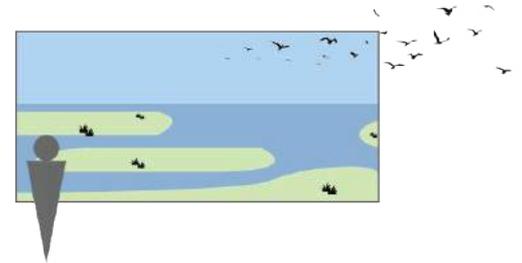
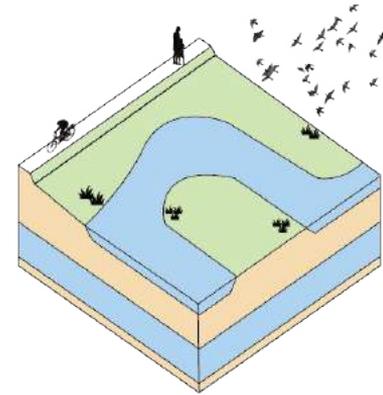
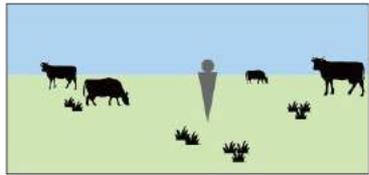
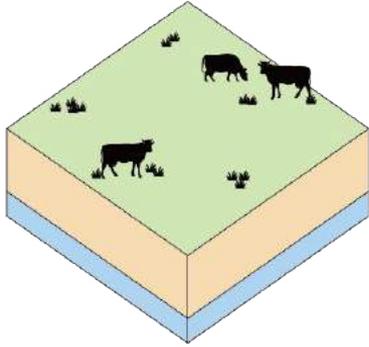


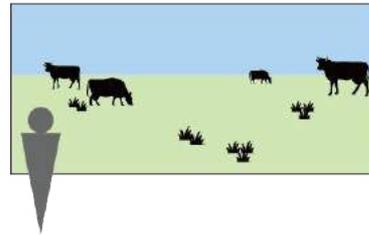
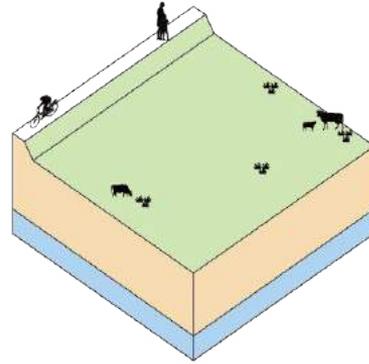
Diagram-Dry Condition

Dry

Grazing



Viewing



New use of parcels



Fortress



Walking through the swamp



Aqua Farm/Wet Agriculture



Group C

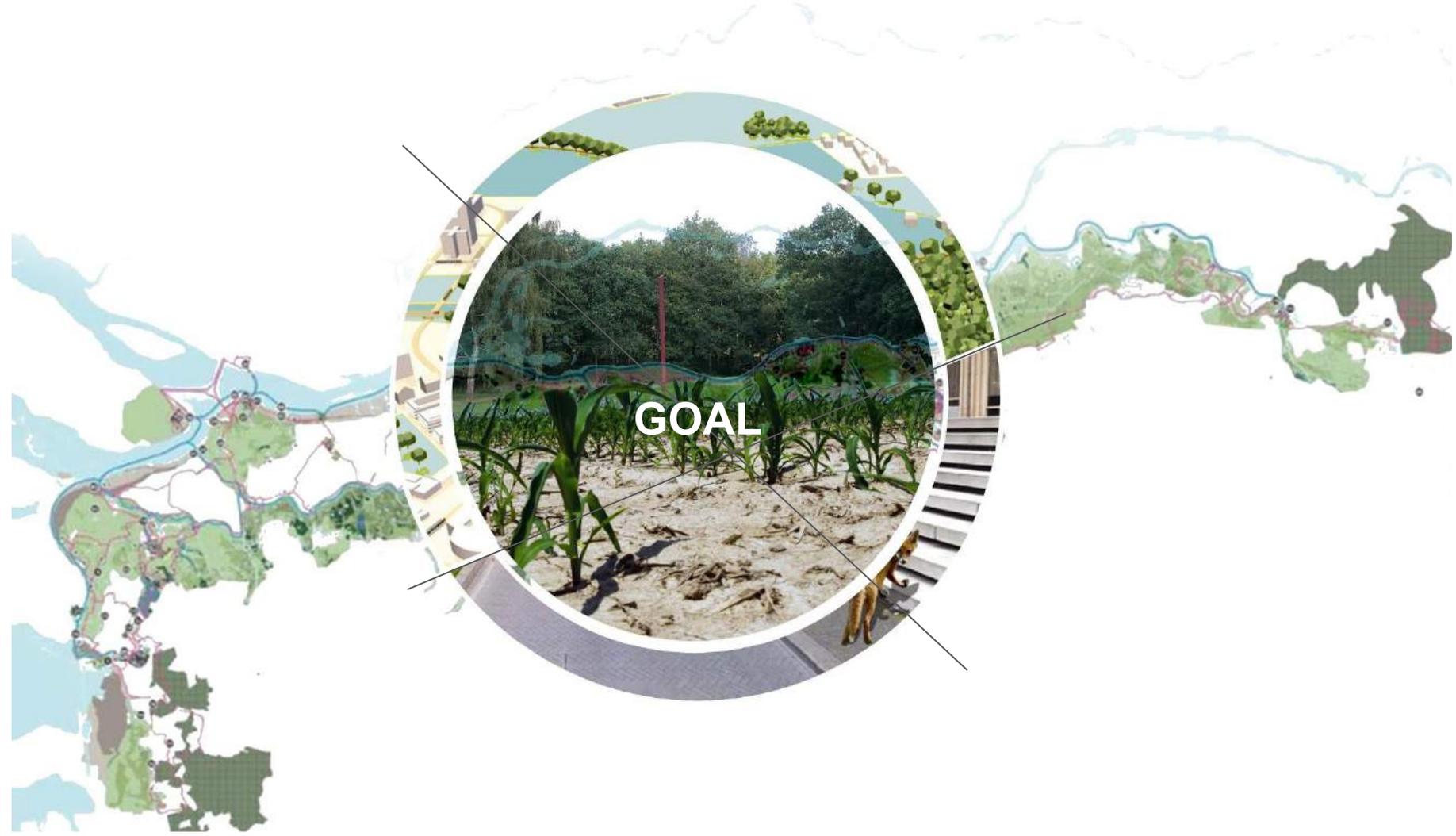
Enlightening Water Retention

Ivo Brands, Kailun Qi, Yu Liu

GREETING TO THE SITE



PROBLEM

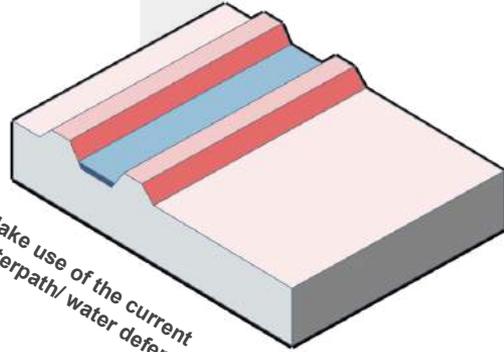


GOAL

HOW COULD WE DO THAT?

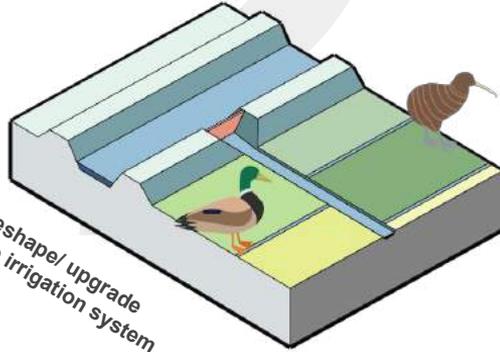
STRATEGIES

1



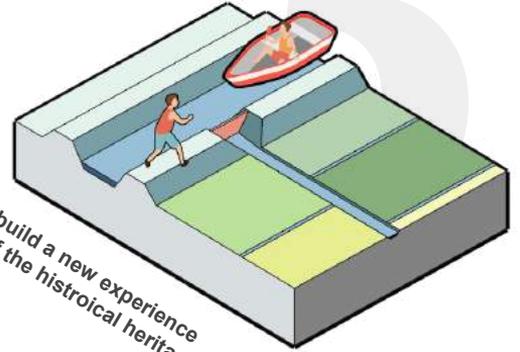
Make use of the current
waterpath/ water defensive line

2



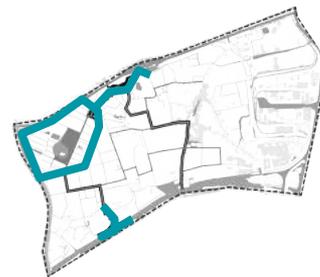
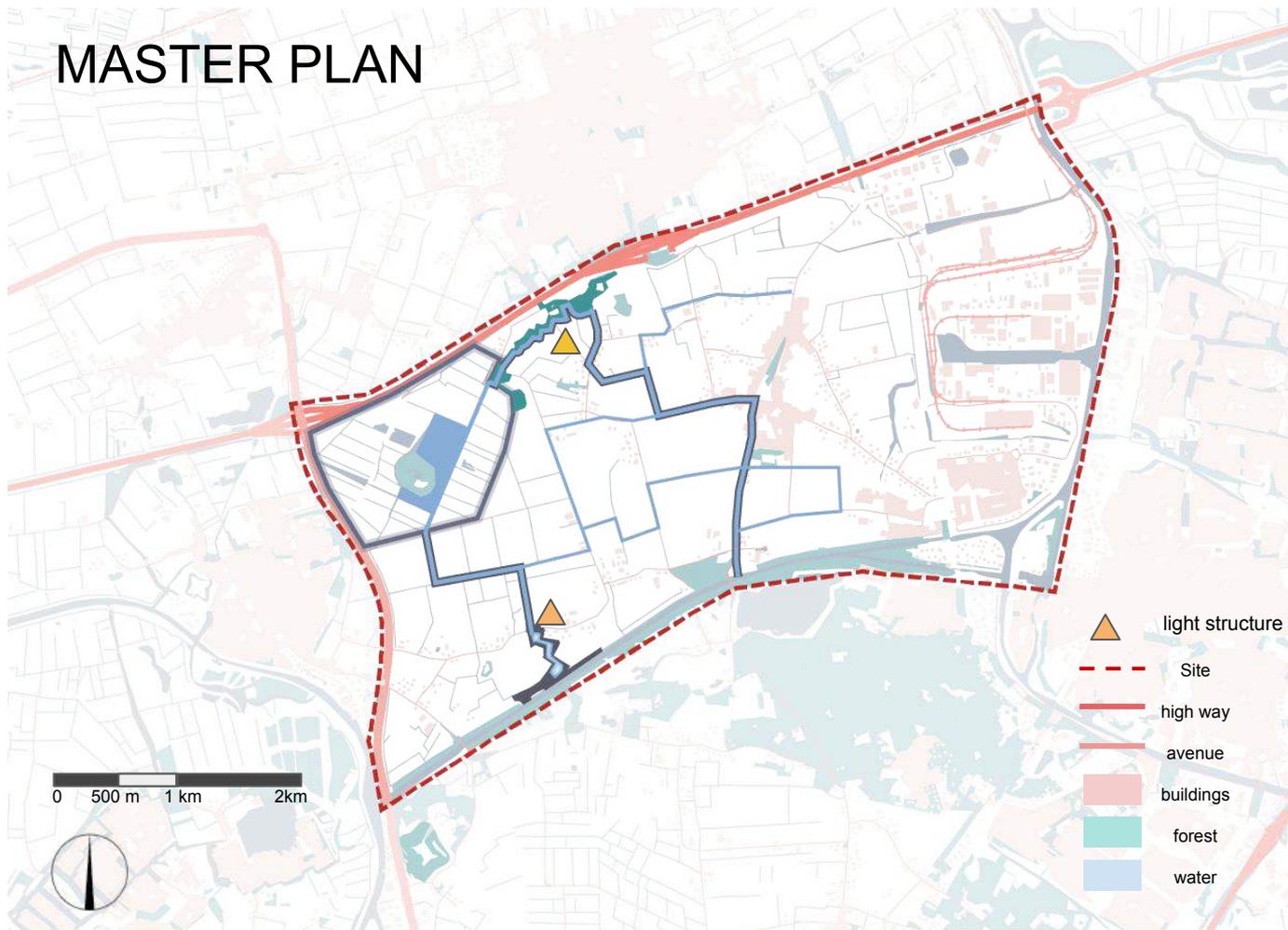
reshape/ upgrade
the irrigation system

3

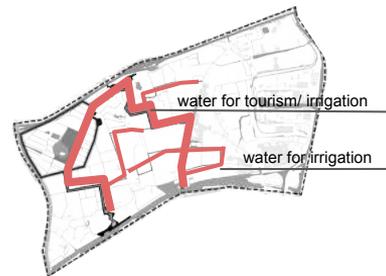


build a new experience
of the historical heritage

MASTER PLAN



REUSE OF HERITAGES

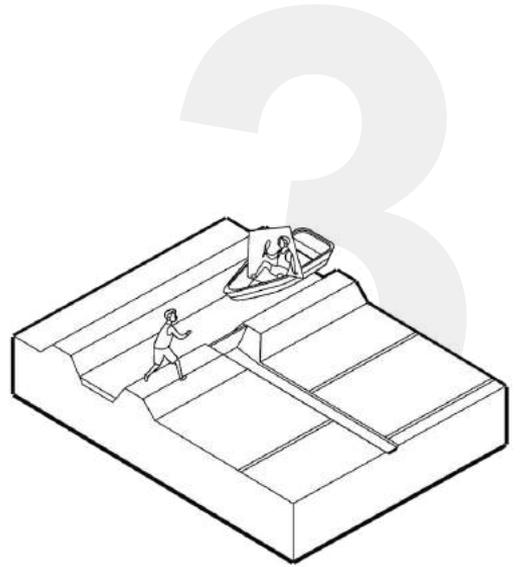
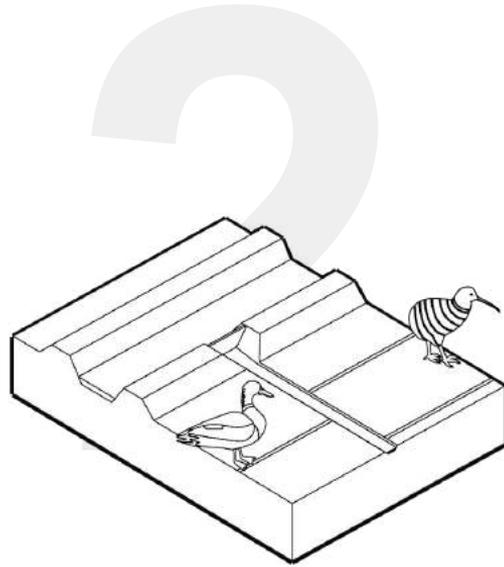
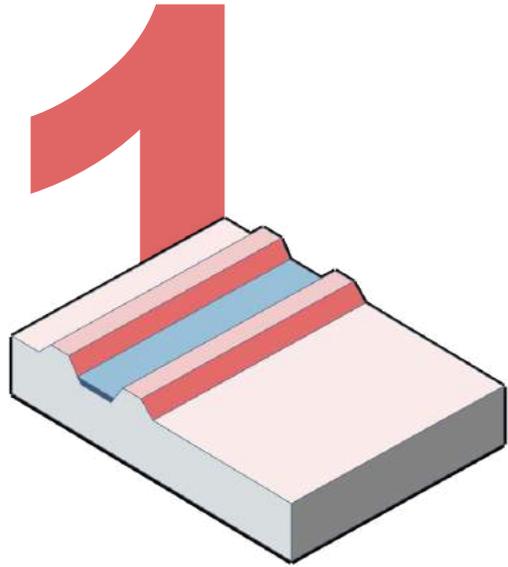


MULTI-FUNCTIONAL WATER

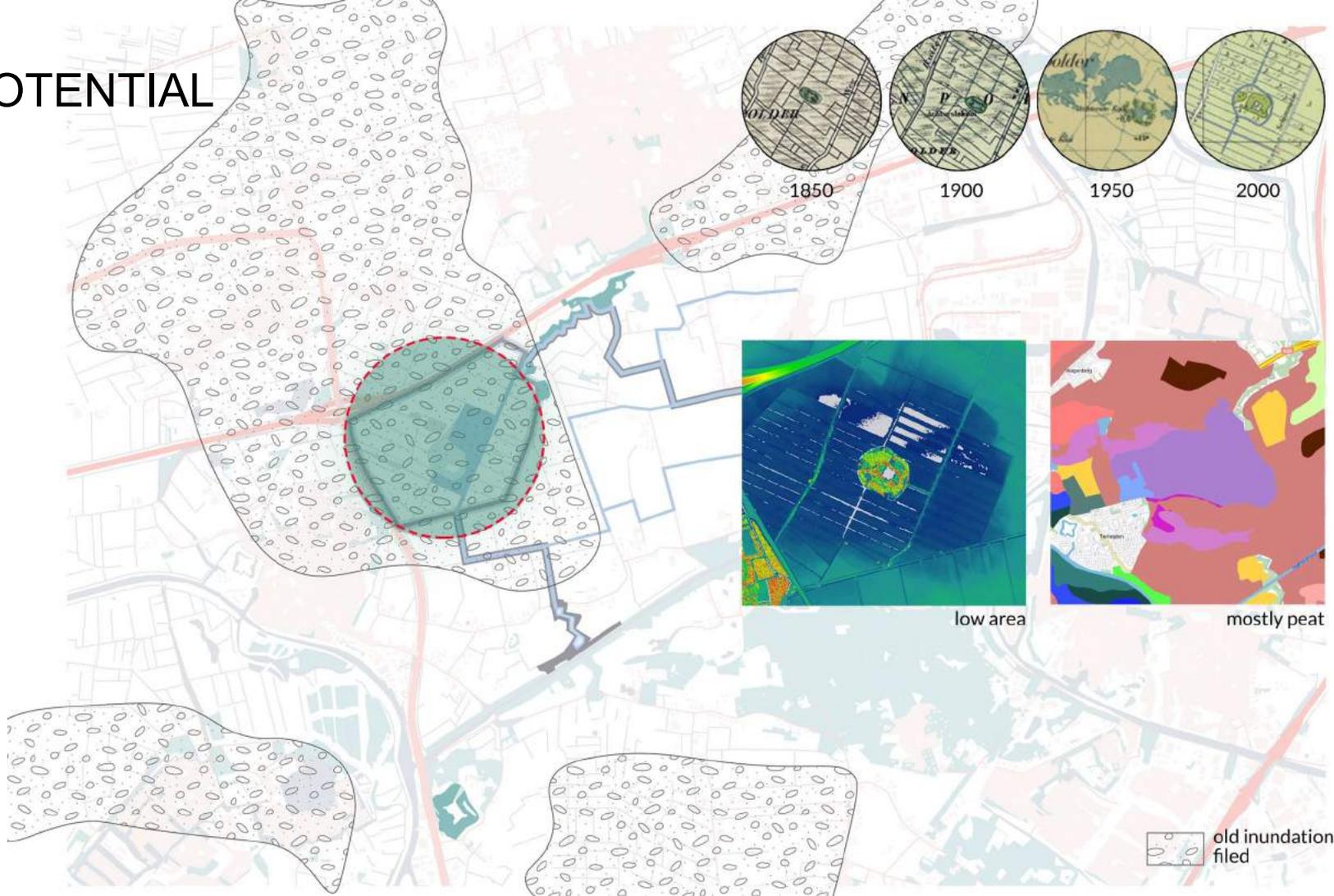


IRRIGATION SYSTEM

LAYERS



POTENTIAL



POTENTIAL

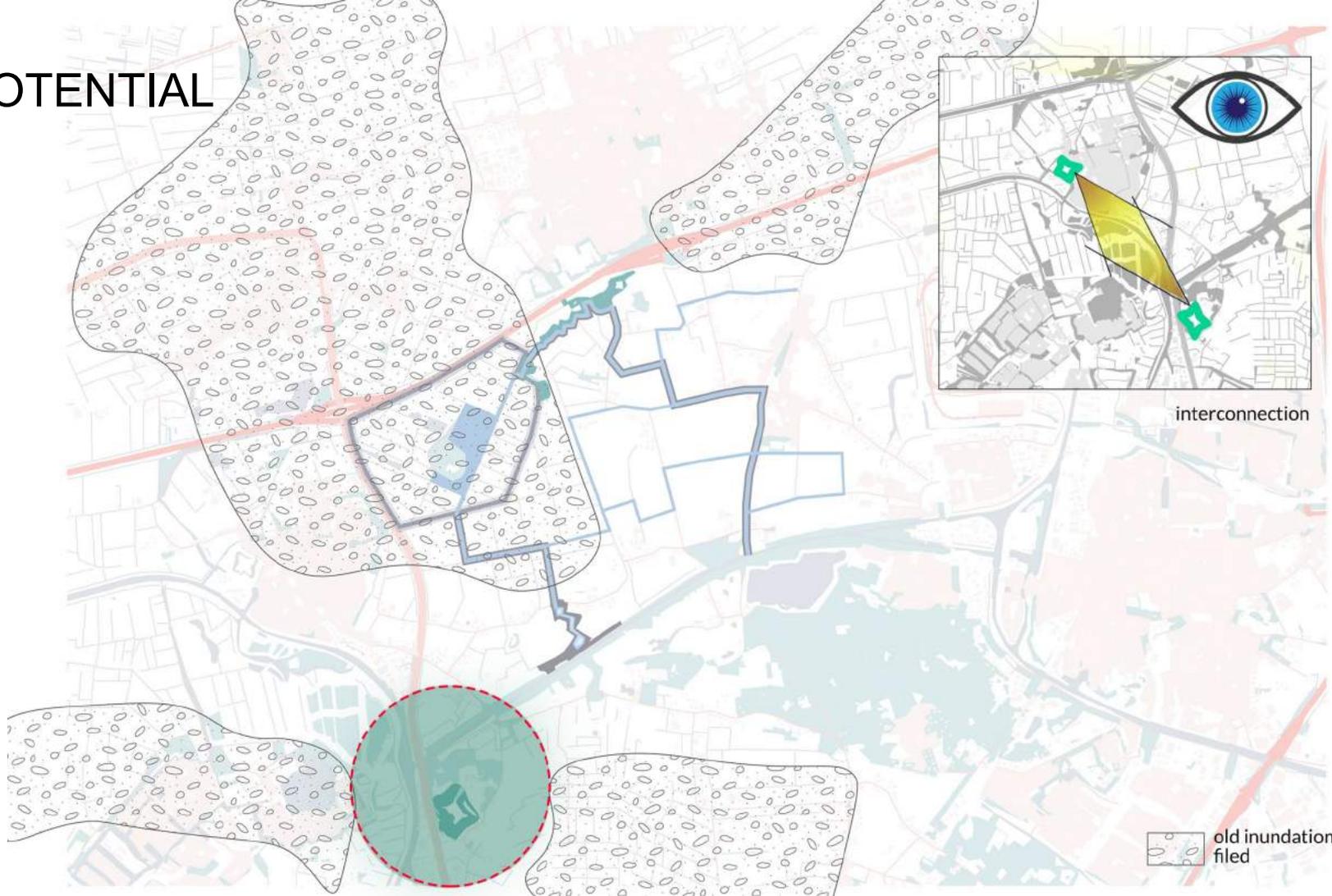


POTENTIAL

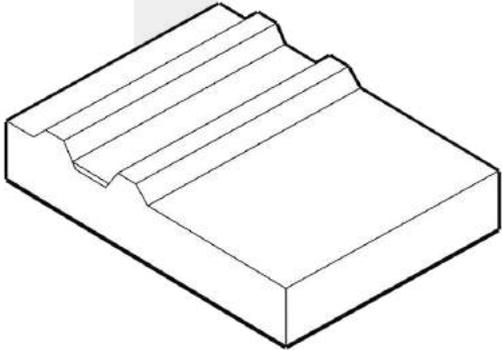


interconnection

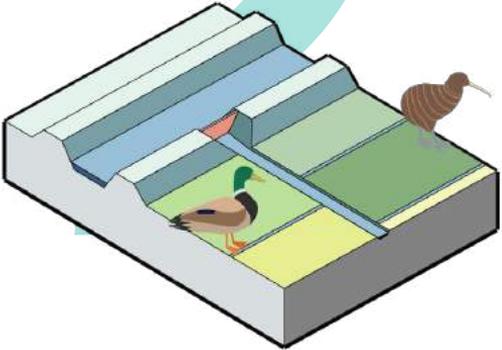
 old inundation filed



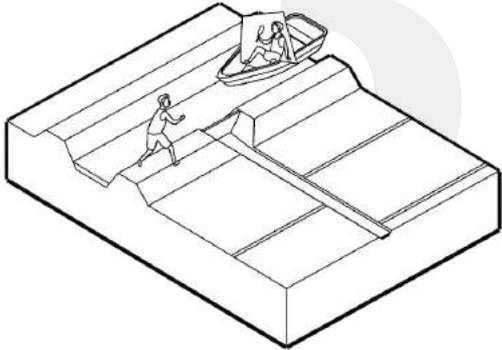
1



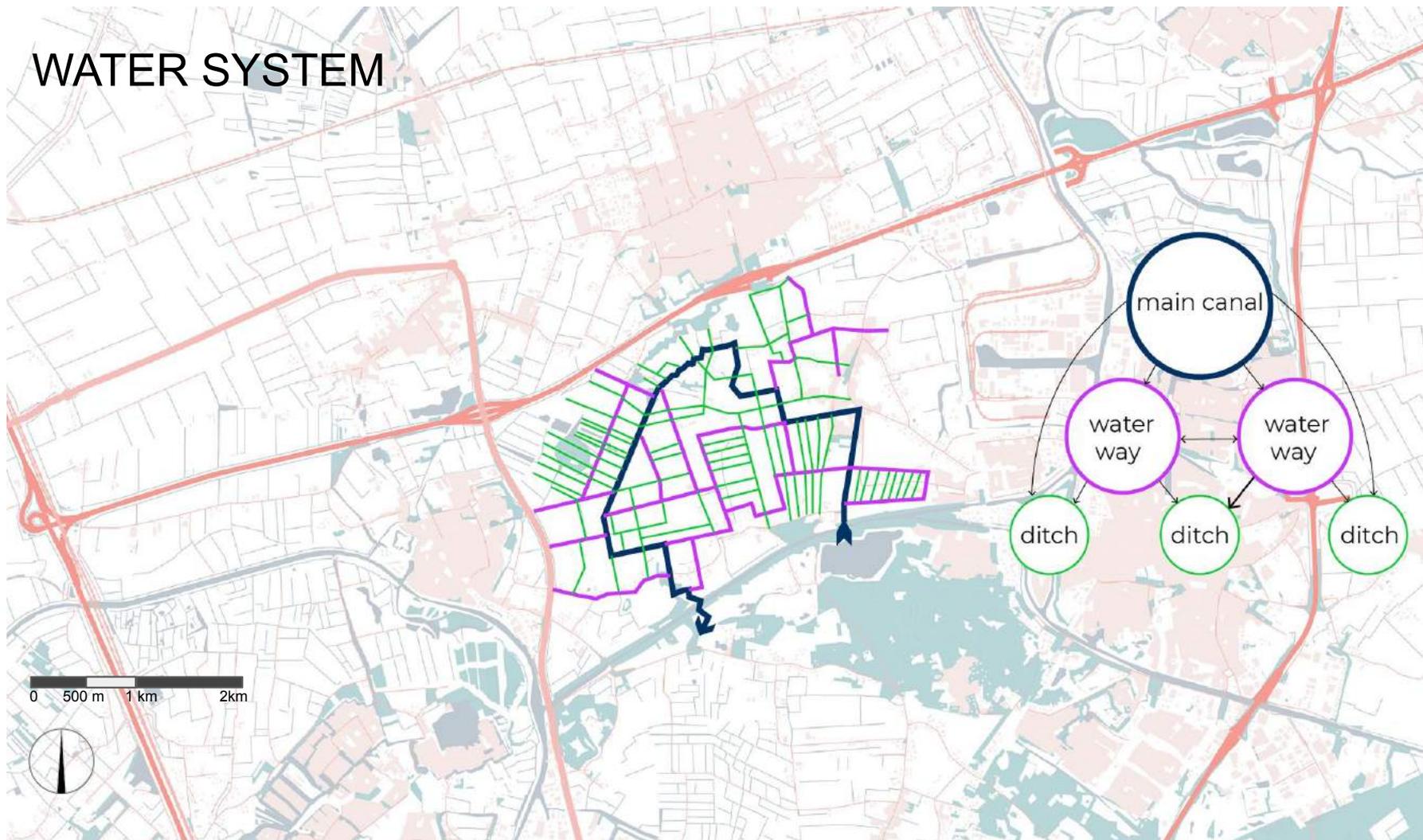
2



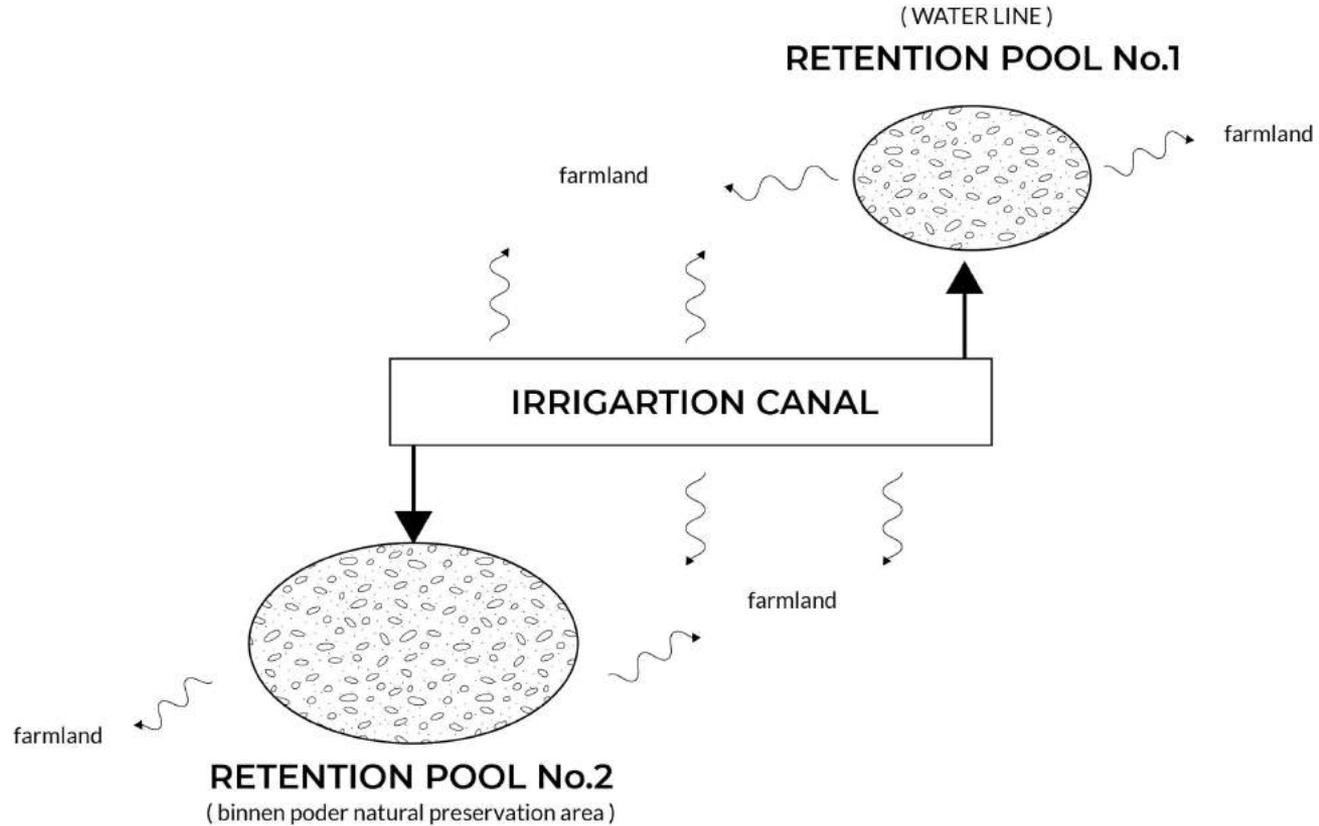
3

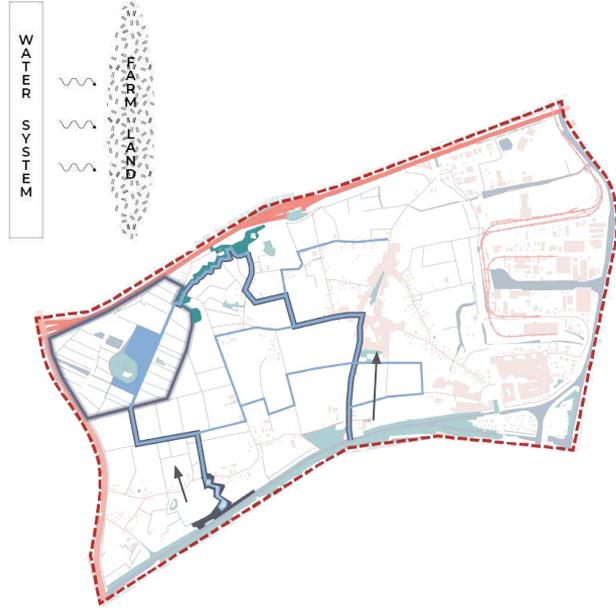


WATER SYSTEM

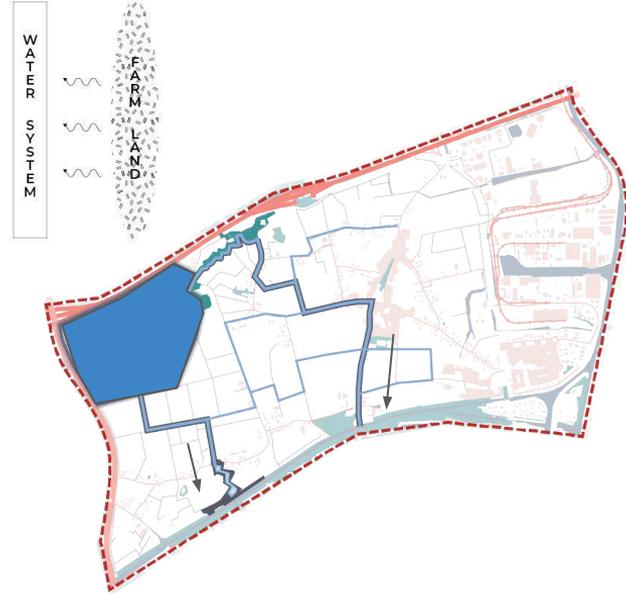


HOW IT WORKS



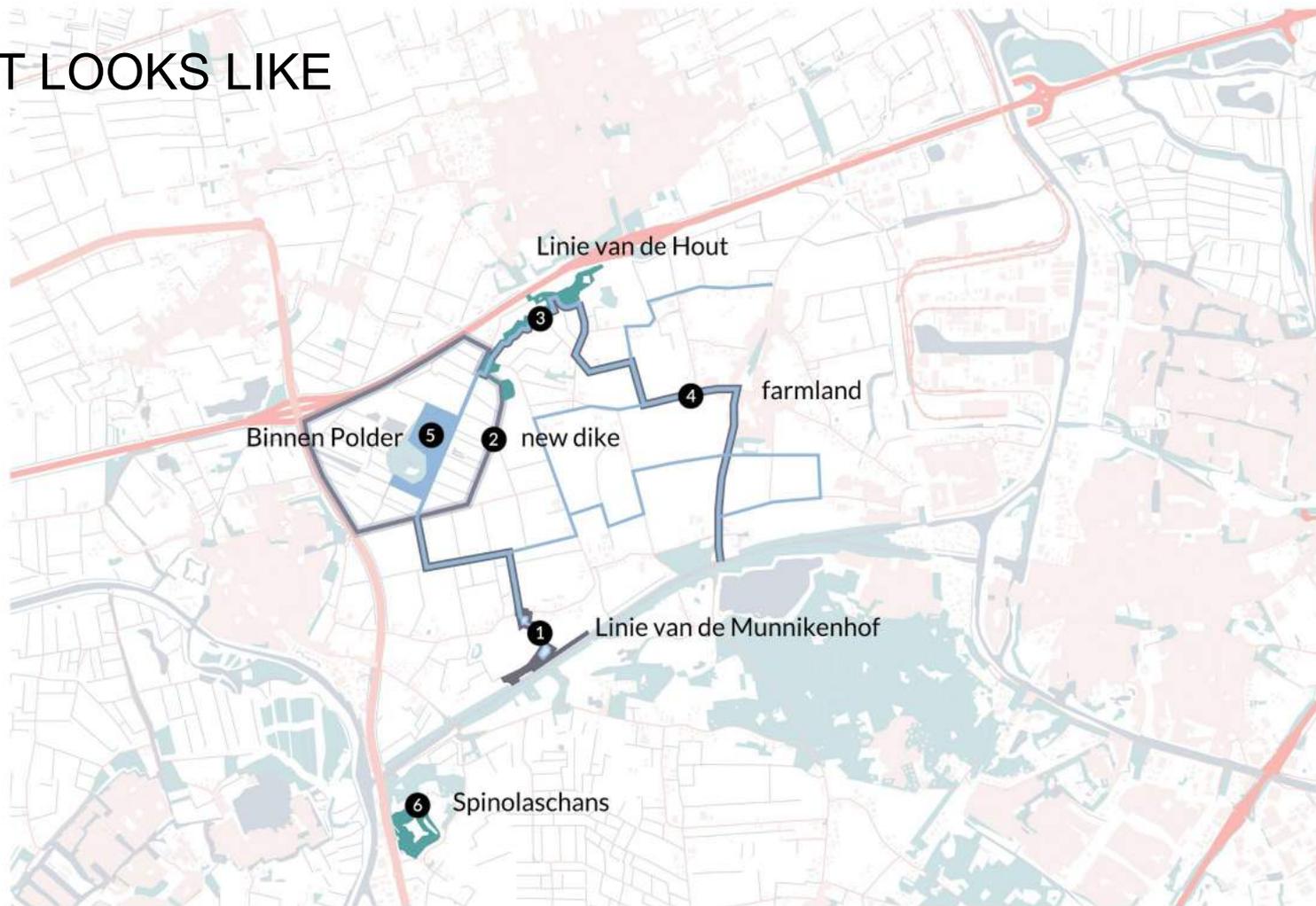


DRY SEASON



WET SEASON

HOW IT LOOKS LIKE





section 1



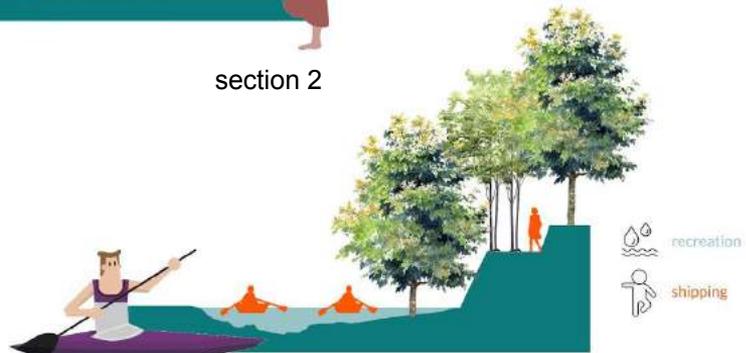
section 4



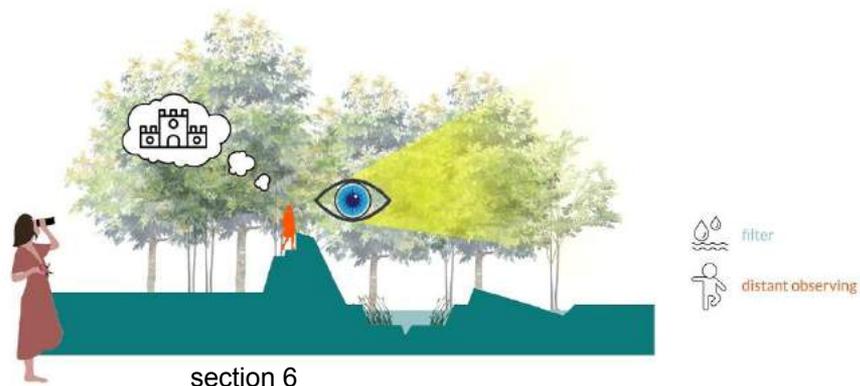
section 2



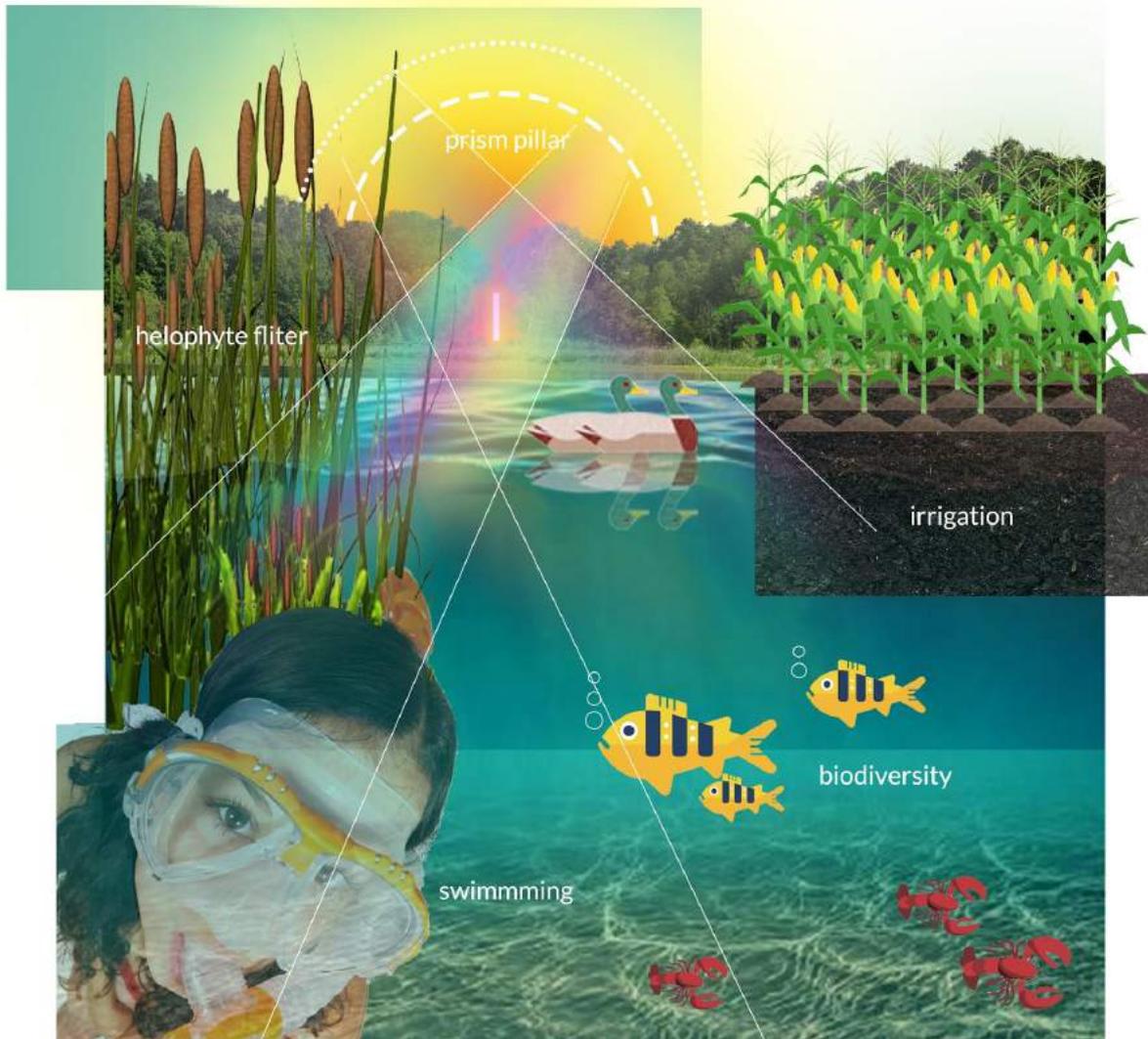
section 5



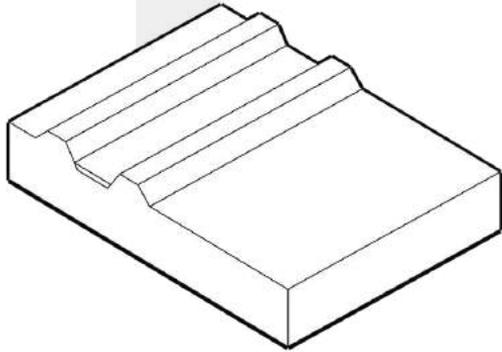
section 3



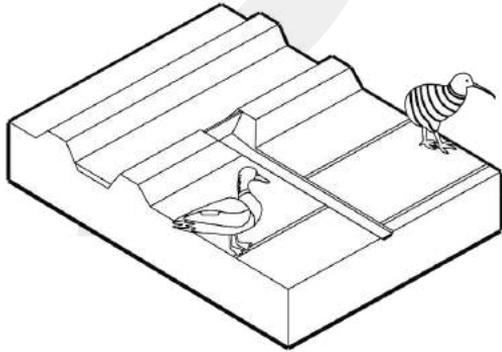
section 6



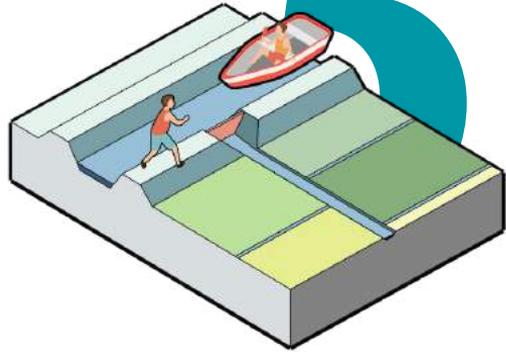
1



2



3

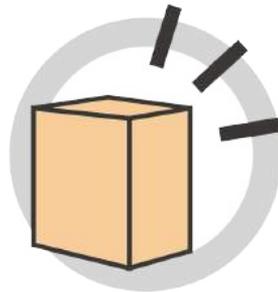


During World War II, soldiers have used candlelight, mirrors or other light sources to communicate.

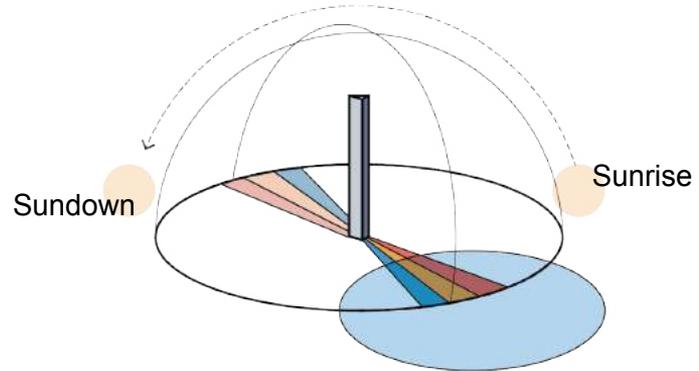
Previously, a form of light communications are believed to have taken place as well.



Traditional
'Grenssteen'



Existing
Monument



EXPERIENCE

situation 1: with water stored
on former defence flood planes



situation 2: dry period
offers a different experience of
the landscape

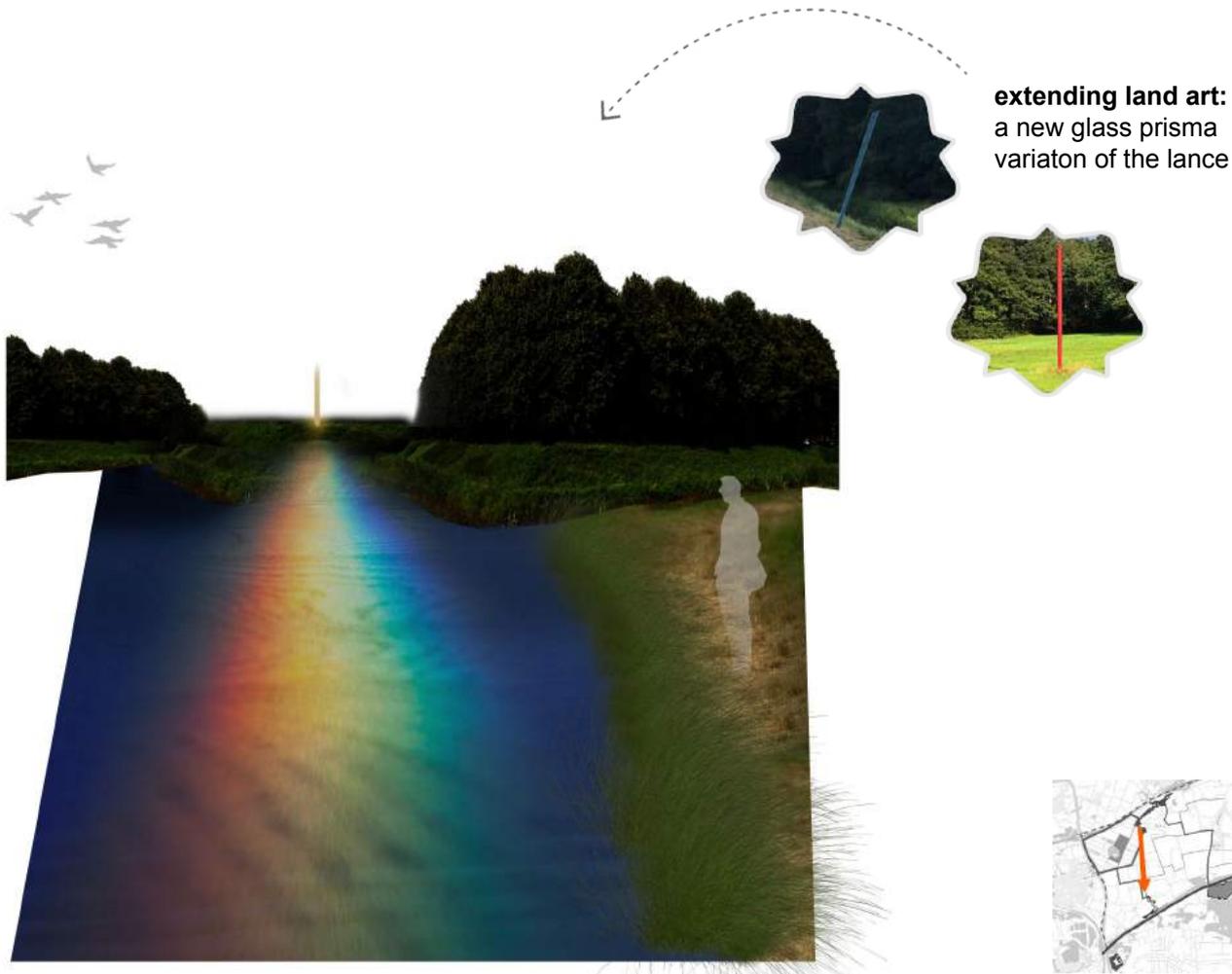
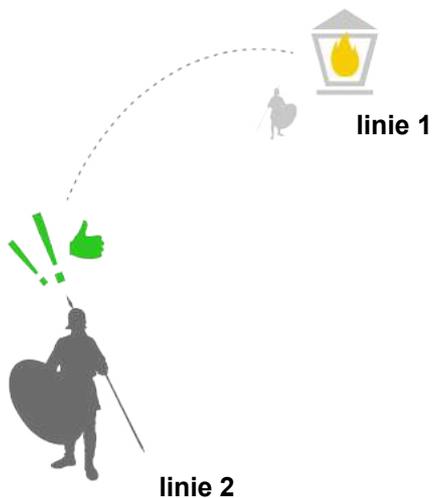


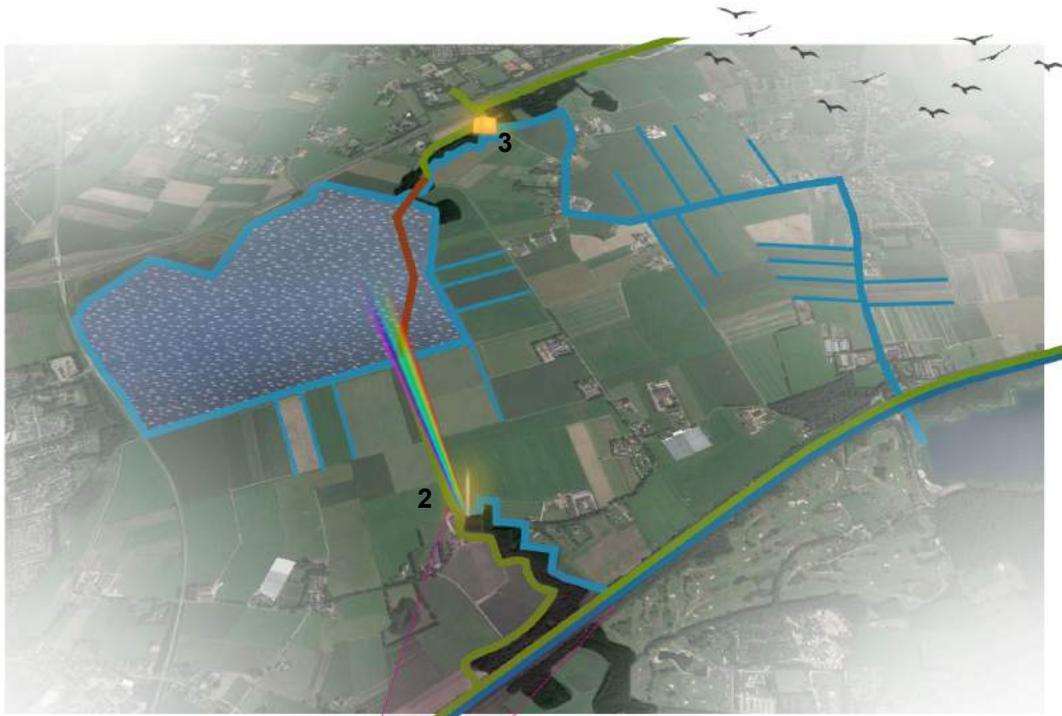
historic boundary stone highlights the
no longer hidden line
as a luminous cube



EXPERIENCE

A **prisma** distributes light across the new water retention area, based on historic **light communications** between linies





Connecting people with the inundation history

The viewpoint on the Spinolaschans (1), the prisma on the Linie van de Munnikenhof (2), and the cube on the Linie van den Hout (3)...

...visually connect the now-hidden historic structures with the landscape along an added water retention layout



LEGEND

-  path/road
-  walkway over pool
-  retention canals
-  retention pool on former flood plane
-  view from secluded Spinolaschans
-  luminous cube based on historic boundary stone
-  glass prisma based on historic light communications



