FLUID BORDERS

NETHERLANDS
ZEEUWS-VLAANDEREN

FLANDERS, BELGIUM
ANTWERP

Floor Mare Schepel
4854535, Graduation project

Msc Urbanism, 2024-2025
Transitional Territories



ACKNOWLEDGMENT

This year, I had the opportunity to not only explore borders, but also push my own. I was given the opportunity to explore new approaches and develop my graphic and academic skills. I could not have gone through this journey alone, which is why I would like to thank some people in particular.

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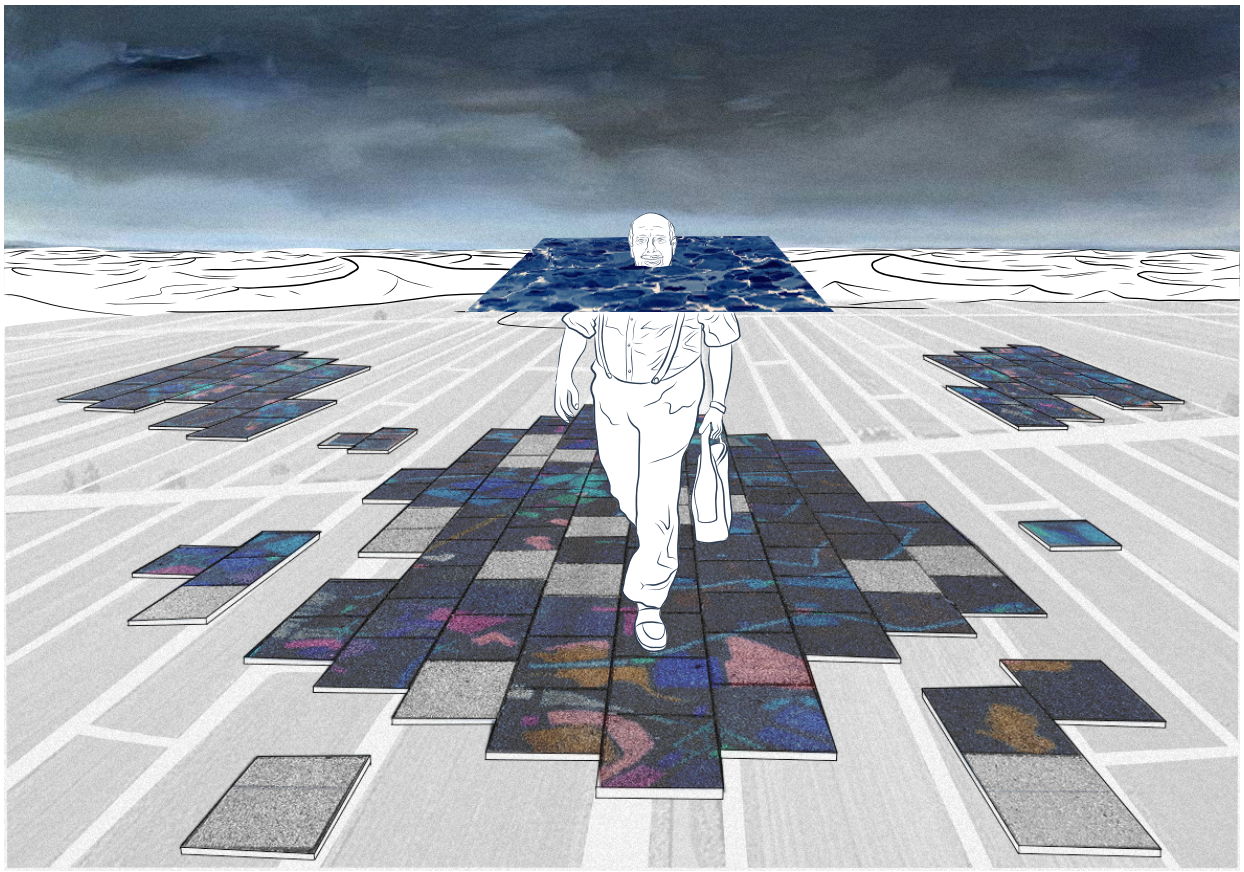


Figure 1. Waiting for the storm [Visual by author]

MOTIVATION

My interest in borders comes from concerns about climate change and its impact on the spatial planning and future liveability of the Netherlands. As a child, I often visited Zeeland and the museum Neeltje Jans, where I learned about the consequences of the flood disaster and the solutions in the fight against water. During my bachelor and master, the risks of climate change became increasingly clear, but also how the power of design can contribute to possible improvements. The question is not whether there will be a major storm surge, but when and to what extent.

So far, countries seem to focus mainly on protecting their own territory. Responsibility for climate adaptation often stops at the hard lines of national borders. Although there is cross-border cooperation, concrete perspectives on solutions that can actually prevent further sea level rise are still lacking. With this research, I hope to better understand the role that borders play in both our landscape and our thinking



Figure 2. Zeeuws-Vlaanderen [Image by D. de Boer, 2024]

ABSTRACT

This thesis examines the future of Zeeuws-Vlaanderen as a border region within the wider Flemish-Dutch delta, where socio-economic vulnerability and the impacts of climate change converge. Against the background of centuries of struggle against water, and in the face of rising sea levels, this research asks how borders can be redesigned to contribute to a resilient delta.

A combination of literature and spatial research was applied to understand the spatial and administrative impact of territorial borders. It also studied how border regions function in practice and how border residents experience them. The draft case study is Zeeuws-Vlaanderen, which is cut off from the rest of the Netherlands and Belgium by both the national border and the natural barrier of the Scheldt estuary.

The analytical methods used were translated into three spatial scenarios in which alternative boundary models were tested through design research. These scenarios are based on theories of Re-Bordering (Van Houtum), Borderscapes (Dell'Agnese & Szary) and the State of Exception concept (Agamben), combined with collective management of a Common (Ostrom). From this follows the concept of the Fluid Borderland. The border is no longer a hard line, but a border zone with shared responsibility and more autonomy. The aim is to develop a spatial and administrative design that not only facilitates climate adaptation, but also generates socio-economic opportunities.

The results were translated into an integrated vision of the future in which the border and the Scheldt no longer form barriers. Interventions such as connecting infrastructure, a border park and tidal parks with new, raised primary dykes protect the region from sea level rise. At the same time, connection is created, so Zeeuws-Vlaanderen is no longer approached as a peripheral region. The study invites a debate on the role of spatial planning in border regions and how re-b/ordering contributes to a more resilient, connected and just delta.

Keywords: Border, Sea-level rise, (Re-)B/ordering, Borderscapes, Delta, Landscape Urbanism, Radical scenario.



Figure 3. Birds crossing an electricity line [Image by author]

“WE DO NOT SEE THE BORDER AS A PHYSICAL BORDER, WE FLY ACROSS THE BORDER AGAIN AND AGAIN”

- RESIDENT ,HULST

BORDER

/ˈbɔː.dər/

NOUN
Border (DIVISION)
a line that has been agreed to divide one country from another

border (EDGE)
a strip that goes around or along the edge of something, often as decoration.
a narrow strip of ground around a garden, usually planted with flowers

VERB
border (FORM EDGE)
to form a line around the edge of something:

border (BE NEXT TO)
to be next to and have a border with another country

(Cambridge Dictionary, 2025)



Figure 4. Border at Baarlo-Nassau, NL | Baarlo-Hertog, BE. [Image by author]

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Territorial borders are as old as mankind and are the boundaries of territories. Due to wars, political changes, and landscape changes, territories have reformed, merged or, in some cases disappeared. When thinking of borders, famous borders from the past such as the Chinese Wall, Roman limes or the Berlin Wall come to mind. Since 2016, Donald Trump has been closing the 3200 kilometer US-Mexico border by building a wall. Dividing a rich, biodiverse landscape, all for the symbolic statement of keeping illegal immigrants out of the country. Building border objects like fences and walls has profound impact on the livability of the border landscape and, therefore, on the people and species that inhabit it (Peters et al., 2018).

Additionally, the legal regulation of a territory has an influence on the landscape of the territory, i.e. on the border landscape (van Houtum et al., 2005). In the Belgian-Dutch border area, this can be seen in the result of the 'ruilverkaveling' laws on the Dutch side of the border. Since 1924, farmers' parcels have been swapped and recombined into larger parcels, changing the Dutch landscape as it is known today (Rijksdienst voor het Cultureel Erfgoed, 2022). On the Belgian border, smaller parcels can be seen in the landscape. It is interesting to note that the closer one gets to the national border the parcellation on the Belgian side is similar to the Dutch parcellation. You could call this part of the 'border zone' the part where the territorial boundary characteristics overlap. The border zone then becomes a landscape in which the characteristics of two territories merge. Figure 5, illustrates these characteristics crossing the barrier (construction fence).

Looking at the borders as a landscape and not only as the imagination of a line drawn on the map. An interesting overlap of territorial characteristics can be seen. In the book Border condition Schoonderbeek et al, (2010) calls this the contradiction of the overlap of zones and areas. In the chapter 'Six monsters on edge', which explains the complex process of mapping border zones, Bloomer (2010) uses the beach surf as an example:

"Beach surf is a good figure for such territory: the edge between land and sea that is neither land nor sea, but both; and neither water nor sand, but both; also living plants and creators and their by-products and billions of micro-biota and theirs." (p.129)

The territory is the border zone of two territories. Although mappers, designers, planners and politicians try to make 'clear-cut' edges and borders by drawing lines in the landscape, the border will always be a symbiosis. This symbiosis of territories coming together is both in our imagination, in landscape, in culture and in regulation. To underpin border imaginations, Bloomer (2010) also refers to the horizon:

"At sea, the horizon appears as a smudged but distinct line. Had sailors' experience been limited,..., they might have suggested the line as an edge. Reasons might also have suggested that the line was an edge - no, the edge - of the world." (p.133)

The horizon is the boundary line of the earth 'zone' and sky 'zone'. It is the edge of our imagination. But like the beach surf, even the horizon is not always a clear cut line, see figure 6. So, hard and soft lines in the cartography of maps often fail to show the border symbiosis. Paradoxically, the hard lines on



Figure 5. Parcellation crossing border
[Visualisation by author]



Figure 6. New Horizon #122 05.01.2012 - 15h00
[van den Elshout, 2014]

paper are the same as lines drawn in the sand of the beach. As time comes, the tide will change and fade these territorial lines. With this the reference to climate change and rising sea levels is made, as Bloomer (2010) ends with:

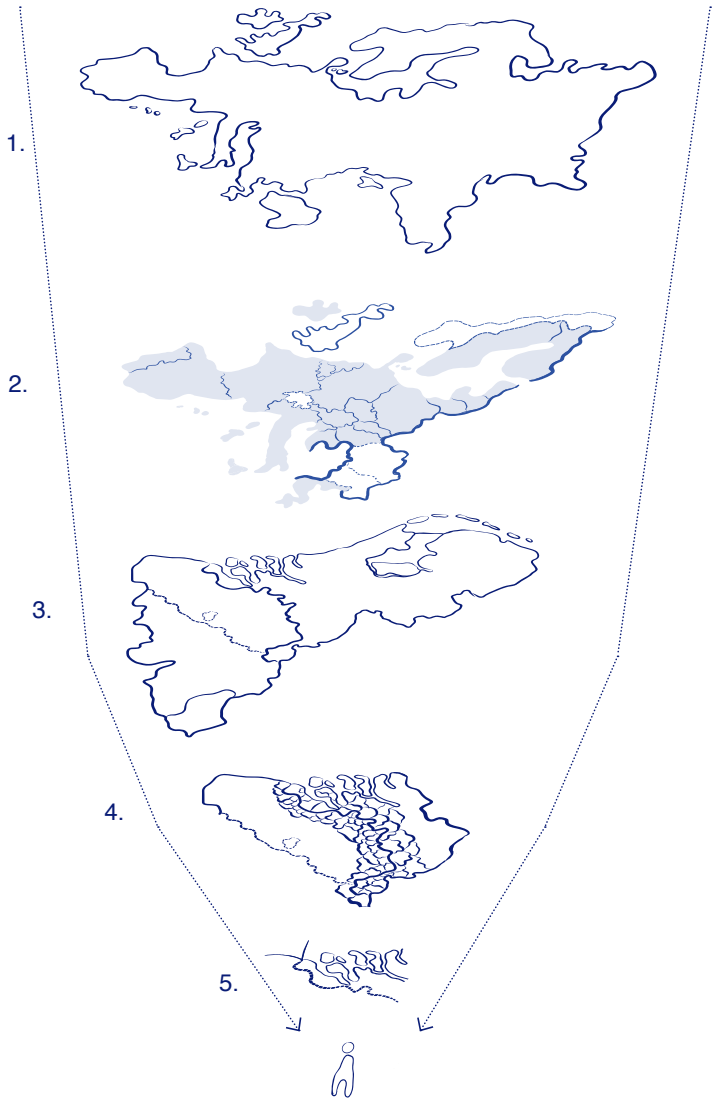
“In the future, whether distance or near, when the consequences of the Property line have spelled the end of life on land, it is over the messy, generative edge, the non-line in the sand, that we, who together may be one great, living, fresh-water-dependent organism, will return - our cycle of life complete - to the sea.” (p.133)

Although climate change will go beyond territorial boundaries, there seems to be a growing tendency to border our territories, and thus our responsibilities. From December 2024, the Dutch border is under stronger surveillance, out of fear of ‘illegal’ migration. Although this can be seen as symbolic politics, both the economy and border residents are affected by this surveillance (Vermeulen, 2024). Since the Schengen Agreement of 1985, over 400 million people can cross national borders without internal border controls, allowing people to work, study and live in different countries (European Council, 2025). Although it might be early to say, with this trend of more border controls it feels like the European ‘liquid’ borders are slowly freezing again.

On the other side, supranational cross-border collaboration is happening, like between the Netherlands and Belgium. Historically since 1830 there has been a border between the countries, which to this day continues to shif both naturally and socio-political changes. In 2016, 15 hectares of Belgian land and 5 hectares of Dutch land were swapped. The so-called border-correction was to control the ‘no-mans’ lands in the Meuse river where multiple criminal activities took place (NOS, 2016). This proves that territorial border change can be beneficial for both parties.

Like the name shows, Zeeuws-Vlaanderen is a cultural blend of Flanders and Zeeland. Although since 1839 the region has been part of the Netherlands, residents feel a strong connection towards Belgium. Hajer et al. (2005) call the border Janus-faced, a blend of two territorial characteristics. The natural barrier (or border) of the Schelde river disconnects the area from the rest of the Netherlands, meaning that residents depend on daily facilities from Belgium. For many, crossing the border multiple times a day is normal and part of the culture (Delft & Storm, 2021; Moeliker & Boogaard, 2024). Although the border is not experienced as a physical border, the imagination of the border both politically and in terms of regulation, reinforces socio-economic problems like population ageing and shrinkage (ICCP, 2022; Ministry of Infrastructure and Water Management, 2023).
Lastly, due to the expected rising sea levels, the border region is at risk to become completely flooded by 2100 (Council for the Environment and Infrastructure et al., 2023).

In this project the limits and potentials of borders will be explored. Both natural and man-made barriers will be analysed in the border regions of the Netherlands and Belgium, Flanders. The possibilities of re-designing borders to provide a liveable and resilient future will be tested and designed in Zeeuws-Vlaanderen.



1. Europe
2. Schengen Area and the European Union
3. Benelux
4. Border regions of Belgium and the Netherlands
5. Border region Zeeuws-Vlaanderen

Figure 7. Different scales of territorial borders [Visualisation by author]

1.2 | **PROBLEM FIELD** | A DISCONNECTED ISLAND

Deltares' sea monitor shows that in 2022, the annual average sea level height was 9.5 cm above NAP (Normal Amsterdam Level). This is the highest measurement of rising North Sea levels to date and fits the expected trend of global sea level rise (Stolte et al., 2022). Global sea levels are expected to rise by a maximum of 1 metre from current levels by 2100. In the most extreme case, there could be a rise of 2 metres (ICCP, 2022; Ministry of Infrastructure and Water Management, 2023). With the predicted rise, both the coasts of the Netherlands and Belgium will be severely affected; this problem crosses national borders.

Zeeuws-Vlaanderen, located in the province of Zeeland, the Netherlands, will be completely below sea level if the sea level rises by 1 metre (Climate Central, 2021). The landscape of Zeeuws-Vlaanderen is characterised by the Scheldt River. In Flemish Belgian territory, it is a tidal river. In the Netherlands, the Scheldt flows into the estuary of the Westerschelde. Historical analysis shows that Zeeuws-Vlaanderen has been shaped over the centuries by a combination of floods and reclamations. This is reflected in the number of kreken (creeks) and the large surface area of the polder landscape.

Moreover, Zeeuws-Vlaanderen is located in the border area of the Netherlands and Belgium. The border area between the Netherlands and Belgium has its own problems and characteristics. First of all, from a national perspective, border areas are often seen as buffer zones with neighbouring countries. This is socio-economically visible in the extent of cross-border commuting (woon-werkverkeer), but also in language and dialects. Zeeuws-Vlaanderen, for instance, has the largest share of Belgian border commuters in the Netherlands (CBS, 2024a). It also seems that the residential attractiveness for Belgians is high (Middeldorp, van den Bergen & Burema, 2020).

Nevertheless, like in many border regions, population shrinkage and population ageing are taking place. This is visible in the decline in the number of inhabitants in Zeeuws-Vlaanderen, and shrinkage is expected to increase further by 2035 (CBS, 2024b). Zeeuws-Vlaanderen is often seen as a 'peripheral region', or in other words an area located far outside the Randstad region. According to the report *Every Region Counts*, this is an incorrect term coming from the Dutch perspective in which Zeeuws-Vlaanderen is considered to be at the 'edge of the country', a so-called 'randgebied'. This is despite the fact that Zeeuws-Vlaanderen is close to the Flemish Diamond and thus in a European central context (Council for the Environment and Infrastructure et al., 2023). The fact that border areas are seen as the 'edge of a country' is also reflected in regulations, plans, maps and designs, which often stop at the hard line of the national border (van Houtum & Eker, 2014). There is also a lack of overlap in data and maps. However, since 2023, there has been an initiative, *Duurzame ontsluiting grensdata*, in which socio-economic data are shared (Ministry of the Interior and Kingdom Relations, 2023). Nevertheless, spatial data, such as data for infrastructure and geography, are still lacking, which limits designers and policymakers in their work.

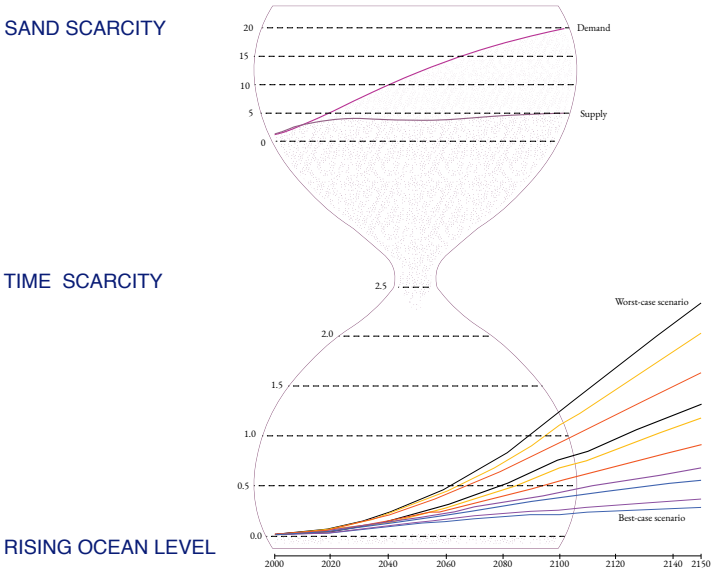


Figure 8. Time is ticking
[Visualisation by author, based on (IPCC,2022; Sverdrup et al., 2017)]



Figure 9. Context Zeeuws-Vlaanderen [Map by author]

For daily facilities, people from Zeeuws-Vlaanderen often cross the border, especially in the case of healthcare and education services. The previously mentioned report shows that the infrastructure and potential of cross-border transport connections are insufficient (Council for the Environment and Infrastructure et al., 2023). In general, Zeeuws-Vlaanderen residents do not experience the border as a physical barrier, but rather as a regulatory barrier. Some even feel more connected to Belgium, while others consider themselves border residents (Moeliker & Boogaard, 2024). During the COVID pandemic, the border was closed, bringing commuter traffic to a halt. In some places, the border was physically blocked with containers and piles of sand. People could no longer go to work or to supermarkets across the border (NOS, 2020). This shows that territorial changes have a direct impact on the liveability of a border area.

What makes Zeeuws-Vlaanderen unique compared to other border regions is the natural barrier of the Western Scheldt. This separates Zeeuws-Vlaanderen from the rest of the Netherlands. To reach 'the other side', or the Netherlands, the only option is the Westerschelde tunnel from Terneuzen to Middelburg (Moeliker & Boogaard, 2024). Illustrative of this situation, Dutch maps often portray Zeeuws-Vlaanderen as an island, usually leaving out the context of Belgium.

What complicates tackling flood risk in Zeeuws-Vlaanderen are the conflicting interests of the European, Belgian and Dutch authorities. For instance, the economic and logistical interests of the ports of Antwerp and Ghent play a major role. In addition, the Scheldt is protected by European Natura 2000 regulations. Moreover, the European Union requires land to be depoldered and returned to nature, as in the case of the Hedwigepolder, presently known as the border reserve Het Verdronken Land van Saeftinghe (European Environment Agency & European Commission, 2024).

A drastic new plan is needed to make Zeeuws-Vlaanderen liveable and future-proof against rising sea levels, by critically reviewing the current meaning and role of national borders.



Figure 10. Road barricading sand hills along Belgian border during Covid Pandemic in 2020. [Image by F. van Hecke, 2020]



Figure 11. Port of Antwerp and the border park the drowned land of Saeftinghe [image by author]

1.2 | **PROBLEM STATEMENT** | A DISCONNECTED ISLAND

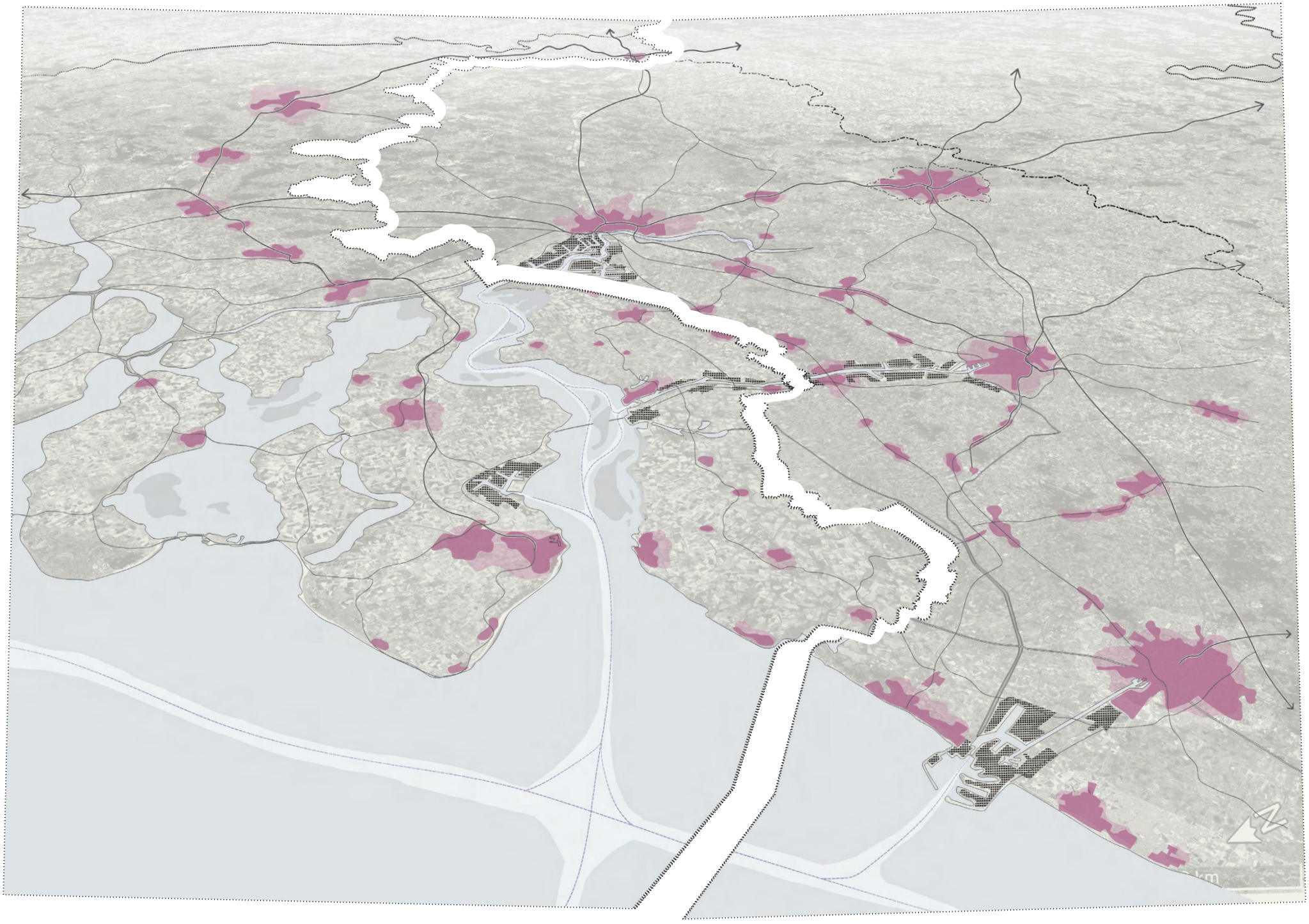


Figure 12. Mind the gap | Zeeuws-Vlaanderen as an island [Map by author]

Due to **rising sea levels** and **socio-economic challenges**, the Zeeuws-Vlaanderen border region is increasingly facing challenges.

The border regions are struggling with **population decline** and limited cross-border cooperation in **infrastructure, water management and spatial planning**.

Together with the **natural barrier** of the Westerschelde, this results in a challenge to the **livability** and **future-proofing** of the **region**.

An integrated and new border approach is necessary to make Zeeuws-Vlaanderen **resilient to rising sea levels**.

1.3 | **RESEARCH QUESTION** | TO RE-B/ORDER

The larger question within this research is: What is the role and meaning of territorial borders in times of climate change? Will the territorial landscape of Belgium and the Netherlands be reshaped by rising sea levels and increased flood risk?

From the literature review, two key conceptual approaches are used to understand the impact of borders on people and landscape: B/ordering (van Houtum et al., 2005) and Borderscape (Dell'Agnese & Szary, 2015; Harbers, 2003; Dolff-Bonekämper & Kuipers, 2004).

To explore this in a graduation project, the focus will be placed on the Dutch border region of Zeeuws-Vlaanderen. This has led to the following research question:

RESEARCH QUESTION

How can the challenges of **rising sea levels** and **socio-economic** pressures be addressed through the **design** and **re-B/ordering** of the Belgium–Netherlands border, by **re-territorialising** the Zeeuws-Vlaanderen **borderscape**?

SUB-QUESTIONS

Water I Landscape I Border

How does the national border shape the Dutch–Belgian border landscape?

How do the governance systems in the Netherlands and Belgium differ in their impact on cross-border water management?

How is the Zeeuws-Vlaanderen border landscape defined by its relation to water?

What are the current territorial border characteristics and the water barriers that define the Zeeuws-Vlaanderen border*scape*?

Socio-economics I Border

Which historical events, including floods and political shifts, have shaped the territorial border between Belgium and the Netherlands?

What are the current socio-economic challenges in the Dutch–Belgian border region, specifically in Zeeuws-Vlaanderen?

Future adaptation & Design I Border

How could alternative border scenarios improve flood resilience and cross-border cooperation in the region?

Which institutional and legal frameworks are required to support the re-territorialisation of border landscapes and shared governance?

How can Zeeuws-Vlaanderen be Re-B/ordered in spatial scenarios?

1.4 | **HYPOTHESIS** | GOAL

The study aims to redesign borders, including the territorial barrier in Zeeuws-Vlaanderen and the natural barrier of the Scheldt estuary. Socio-economic challenges and water management issues are translated into spatial opportunities for cross-border cooperation. A critical view of the border is adopted to inform the development of regional scenarios. These scenarios test different forms of border design as possible solutions to rising sea levels.

The hypothesis is that considering the border as an extended zone of exception with its own entity rather than a line can lead to a safe and resilient Zeeuws-Vlaanderen. A region that is able to withstand rising sea levels and effectively address the social and economic challenges posed by border areas, with cross-border collaboration.

Expected outcomes subquestions 1, 3 and 4
Water | Landscape | Border

A series of maps and cross-sections analysing the border landscape of the Belgian-Dutch border and specifically Zeeuws-Vlaanderen. The focus is on the interaction between the national border and water structures, leading to the identification of risk areas such as flood zones and delta infrastructure as potential design areas.

In addition, a spatial analysis of the borderscape provides insight into the identity of the border landscape. Through fieldwork, maps and satellite images, water as a natural and landscape boundary is examined. The configuration of dykes, waterways and creeks is analysed as defining elements in border formation.

Expected outcomes subquestions 2, 5 and 6
Governance & Socio-economics | Border

The analysis shows that the Netherlands and Belgium have different approaches to water management and spatial planning. Instead of a policy study, a qualitative approach was chosen, focusing on how institutional differences are visible in the landscape.

A historical narrative based on maps, archival material and literature shows how floods, military lines and political changes have shaped the border. Socio-economic vulnerabilities (such as shrinkage and ageing) have been depicted through existing data, fieldwork and interviews. This combination outlines both the problems and potential of the region.

Expected outcomes subquestions 7, 8 and 9
Future adaptation & Design | Border

A series of radical future scenarios in which the border area is redesigned. Each ‘what if’ scenario contains its own governance structures and spatial solutions, visualised in maps and cross-sections at multiple scales. An institutional analysis of the conditions for a cross-border area of shared responsibility also follows. One of the scenarios is developed into a concrete design proposal with spatial interventions.

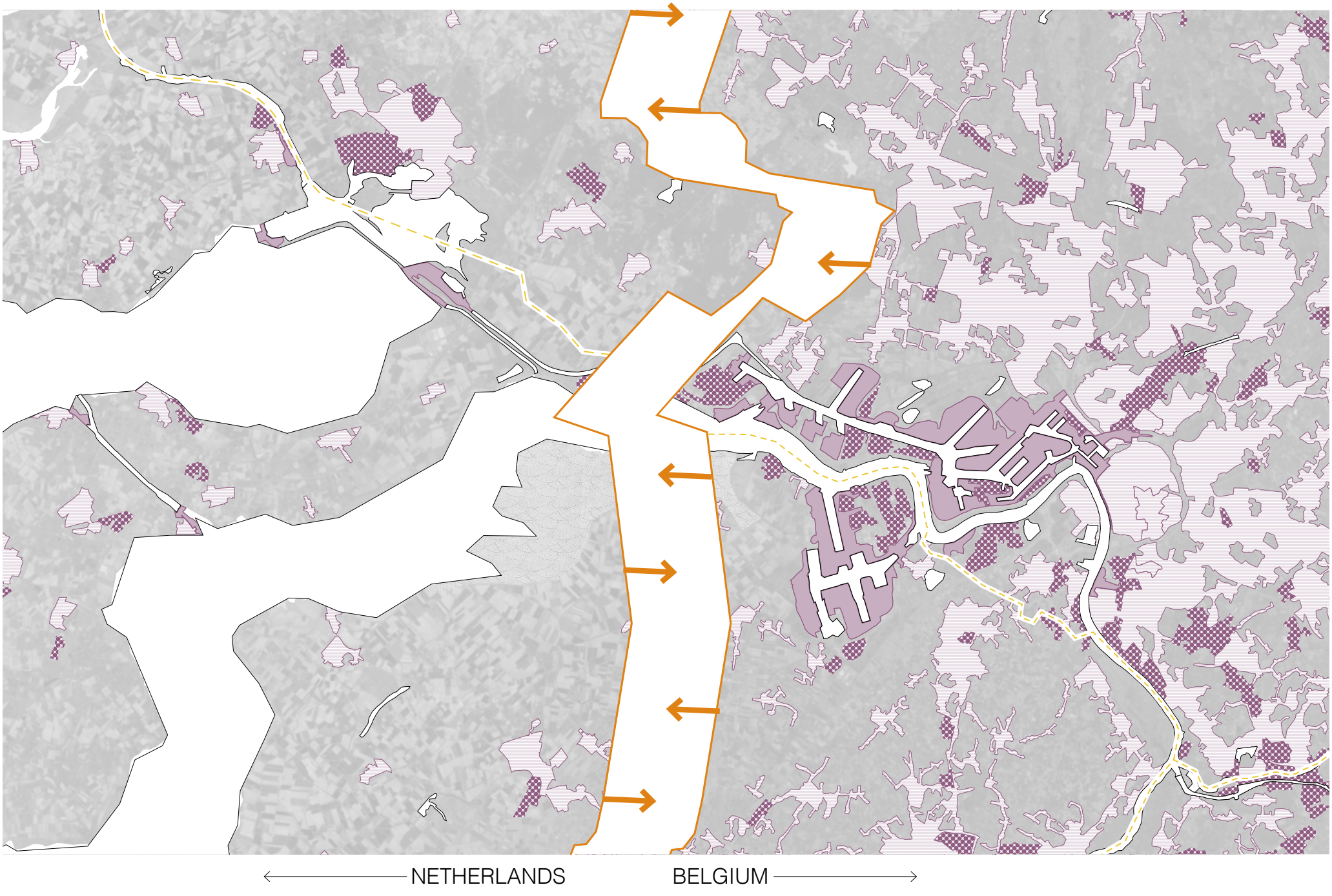
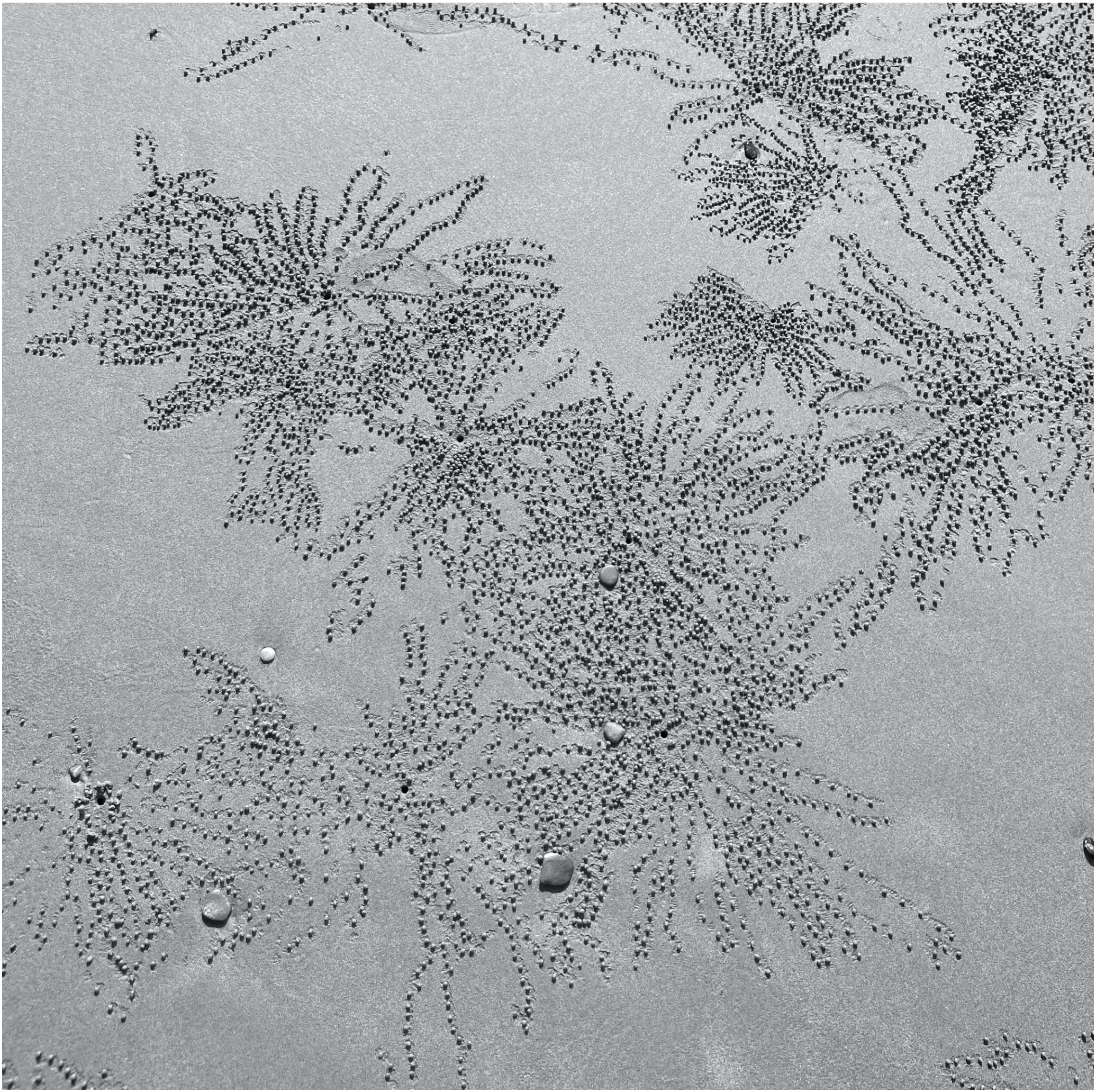


Figure 13. ‘Mind the gap’, how to re-connect the terriorial landscape? Location of Zeeuws-Vlaanderen and Antwerp. [image by autohor]



2. THEORY

“In the future, whether distance or near, when the consequences of the Property line have spelled the end of life on land, it is over the messy, generative edge, the ***non-line in the sand****, that we, who together may be one great, living, fresh-water-dependent organism, will return - our cycle of life complete - to the sea.” (Bloomer, 2010 p.133)*

Figure 14. *Urbanisation* | Marks in sand made by crabs [Image by author, Australia, 2022]

BORDER*SCAPE*

Borderscapes is often used to describe the dynamics and flows to explore the different shapes of spatial territorial borders. The origin of the word BorderScape comes from Appadurai's (1996) term construct of Scapes, which is the perspective to show the transnational imagination of a place. In Borderscapes: From Border Landscapes to Border Aesthetics (Dell'Agnese, Szary, 2015) three different perspectives are stated to define the term Borderscape. Which are summarised here below and used to define the definition of Borderscapes for this research.

Transnational constructs
According to van Houtum, van der Velde and Jacobs (2010) the meaning of borderscape is the constructed reality of a transnational border, which then shaped the border area, meaning that it can be reshaped and thus redesigned. Dell'Agnese and Szary (2015) concluded from this;

"So, a borderscape is an area, shaped and reshaped by transnational flows, that goes beyond the modernist idea of clear-cut national territories. " (p.5)

Material outputs
The other perspective on borderscape, is Harbers (2003) use in which Borderscape is based on the effects of the boundary from a national territory. In his book Euroscapes, he argues that borderscapes are expressed as natural barriers (like rivers), landscape patterns (overlap of land use, caused by different spatial ordering of countries) and statistical irregularities (nuclear power plants and wind parks on both sides of border, coffee shops at Dutch border region or firework warehouses at Belgium and German border regions).

The physical landscape of the area surrounding the boundary is then constantly shaped by the national territories. From Harbers statement, Dell'Agnese and Szary (2015) concludes the second definition of borderscape as:

"In this definition, the borderscape is the material output of the difference in sovereignty marked by the international boundary." (p.6)

Although natural boundaries like mountains, seas and rivers are acknowledged as part of the Borderscape. Old river trade routes are no longer barriers and therefore territorial divided square to the waterbody instead of following it (Harbers, 2003).

Territorial configurations
The notion of Borderscape by Dolff-Bonekämper and Kuipers (2004) is the 'crasis' of the words border and landscape. The borderscape then is a piece of land, the borderland, shaped by a territorial configuration, in which the landscape is a combination of boundaries including the presence of an international boundary (Dell'Agnese,Szary, 2015).
So, based on the definitions concluded by Dell'Agnese & Szary (2015) a new definition will be concluded for the context of the Netherlands-Belgium border.

In these last two definitions, the physical landscape of a border region is the Borderscape. It is the piece of land that is affected by the presence of the territorial border and thus shaped by it. In the first definition, the focus is more on the social constructs between territories. The gab between these societal imaginaries defines the border area, making it changeable and reshapable as imaginaries change. Together, these perspectives define the Borderscape as a hybrid concept that combines both the social and physical landscapes of border regions. It emphasises that borders are not static dividers but dynamic spaces influenced by transnational flows, territorial sovereignty and the physical landscape.

In this paper the definition for Borderscapes is: "The space which is continually reshaped by the interplay of social imaginaries of transnational territories and the material boundaries in the physical landscape."

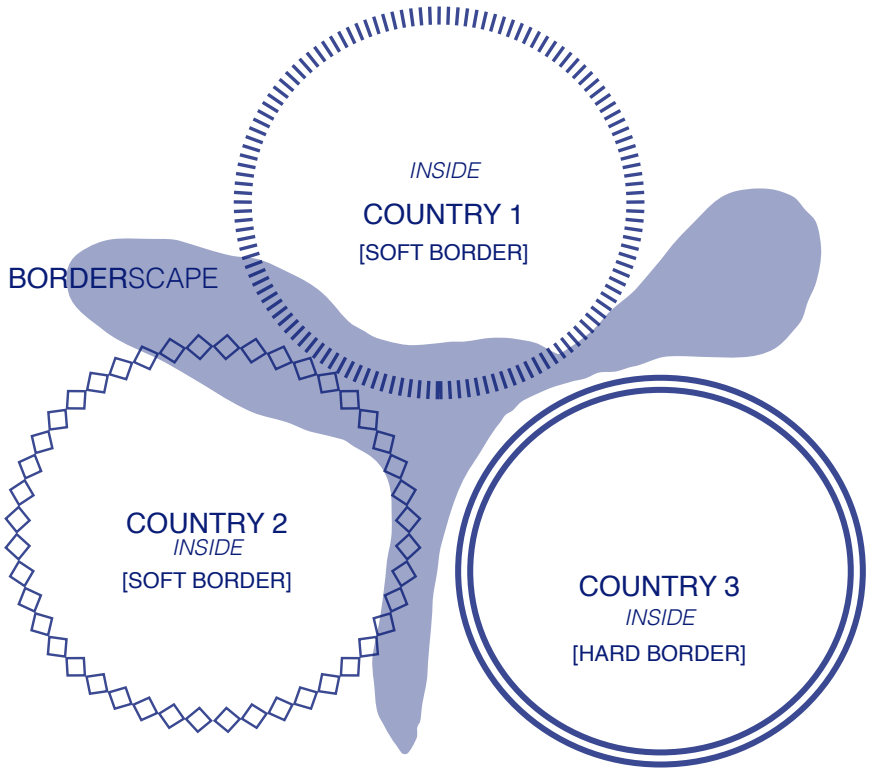


Figure 15. Interpretation of Borderscape Theory. Territories with different border strengths. [Visual by author]

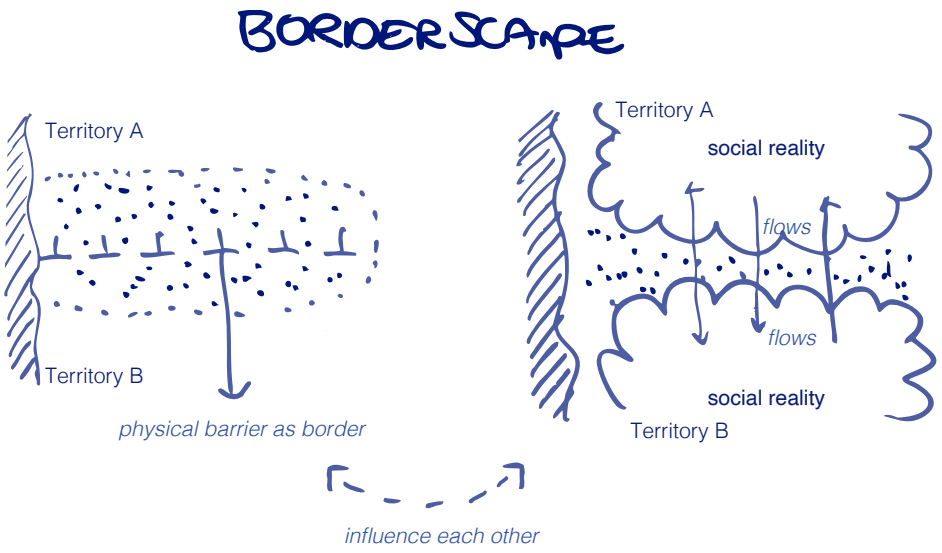


Figure 16. Interpretation of Borderscape Theory. Borderscape as border in two social realities and the physical border boundaries [Visual by author]

EURO*SCAPES*

Harbers (2003) describes: '...border areas as the fault lines between political entities.' (p.143). According to him, the current borderscapes (border areas) affected by statistics, like nuclear power plants, the potential ecological and economic damage should be taken into account. This comes from the expectation that the sovereignty of the European Union will fade the borderscapes between European countries. This results in a new -scape, the Euroscape.

Compared to the Borderscape [space affected by borders], the Euroscape is a lens to understand European border dynamics from a local to supranational scale. Moes (2024) describes it as:

"Seen through the lens of Euro-scapes, a term that encapsulates the intricate interplay of economic, linguistic, political, and cultural flows and imaginaries in Europe, it showed how such imaginations work to symbolically construct and reconstruct boundaries and identities." (p. 233)

For the contextualizing of Zeeuws-Vlaanderen, understanding the different identities, and thus scapes, could be an interressting direction.

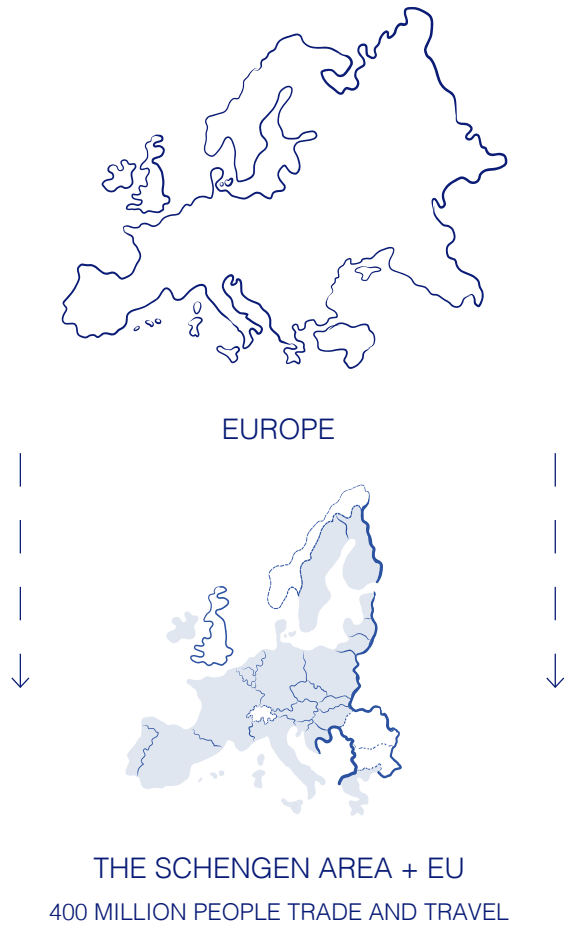


Figure 17. Europe's liquid borders
[Visual by author, based on (European Council, 2025)]

B/ORDERING

Re-thinking ordering borders
In the book *B/ordering space* (van Houtum, Kramsch & Zierhofer, 2005) the imaginations and effects of territorial borders are critically analysed. New theories are introduced like B/ordering and re-B/ordering. Also de-territorializing is an important part of the argument for rethinking spatial borders and territorial boundaries in the landscape.

Imagination of the border
The meaning and influence of a national border goes beyond the visible manifestations people have towards spatial borders. Van Houtum et al. (2005) formulates this as:
"A barbed- wired fence, a wall, a door, a gate, a river, a line in the sand or on a map are striking and well-known configurations of borders as visual objects. Yet, there is always more than the map or the eye can tell us. Crucial to an understanding of borders is not so much their material morphology, but the various forms of interpretation and representation that they embody." (p.2)

Borders show the location of a territory and its boundaries. The material output of borders can be referred to as border objects. Only by the social reality and the social practices of territories, these objects get their own value and therefore visual power (van Houtum et al., 2005).

Social construct
Like the theory of Border*Scape*, B/ordering focuses on the dynamic process of borders within the social, political, cultural and geographical contexts. In this a border is both a set of territorial boundaries and a set of barriers (Van Houtum et al.,2005). Territorial boundaries can also be seen as markings of a territory. Think of the signs along the road or boundary stones [Grenspalen].

Both a boundary and a barrier are formed and constantly changed by the influence of a territorial social reality. The social reality and its practices is a social construct, which constantly changes too. Because of the social construct, values and practices are translated in forms like policies and laws. This then has influence on the spatial planning and ordering of the territorial landscape. The social construct forms the shape, imagination and metaphors towards territorial identities, power, spatial ordering and thus borders. (Van Houtum et al.,2005).

ID/ENTITY

Van Houtum also uses the term Id/entity, which is the merging of the words Identity and Entity. A territory can have multiple id/entities, both on a national scale as on a local scale. Based on the book, Id/entity is the territorial aim to define what is inside and what is outside the entity's territorial boundaries. The term assumes that identity is dynamic and fluid as it is constantly changing through the social construction and spatial influence of its own territory. Additionally, due to globalization local id/entities are also influenced by the transnational economic, political, cultural and technological flows. So, it is the interplay of who is "us" and who is "them". The entity in Id/entity, besides the meaning of independence, also refers to the power dynamics of controlling territorial boundaries and borders. This is the need to define what is "ours" and what is "theirs". So what is inside or outside the border and thus the end of spatial responsibility and ownership (Van Houtum et al., 2005).

"..., IT IS THE IMAGINATION
THAT SHAPES AND CREATES A
WORLD, A *SOCIAL REALITY.*"
(VAN HOUTUM, ET AL. 2005)

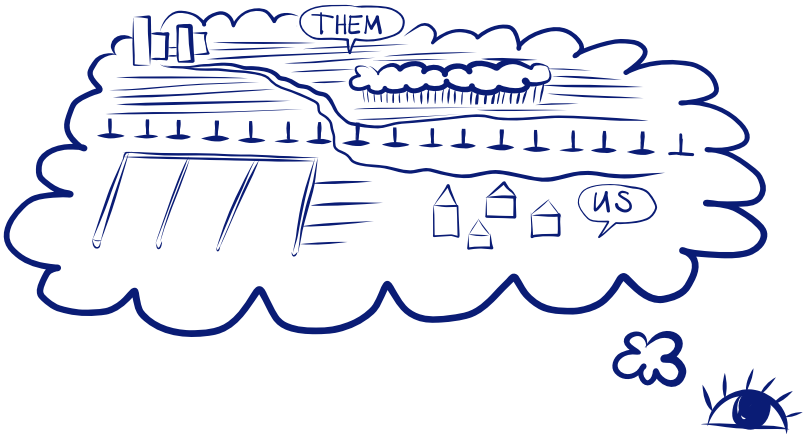
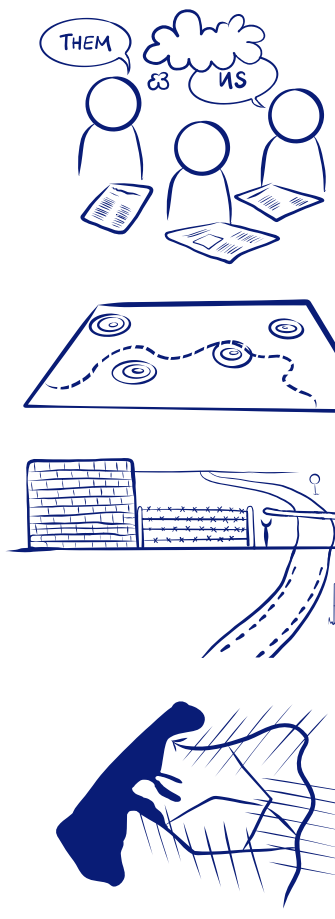


Figure 18. The border as a social construct [Visual by author]



IMAGINATION

IMAGINATION
- ID/ENTITY
- EUROSCAPE
- POLICY
- RESPONSIBILITY

VISUALISATION AND MAPPING

MAPPING
- DATA COLLECTING
- CARTOGRAPHY
- VISUAL POWER

MATERIAL BODY

MATERIAL BODY
- INFRASTRUCTURE
- WALL, FENCE, ...
- (TRAFFIC) SIGNS

LANDSCAPE

LANDSCAPE
- SPECIES
- SOIL
- WATER

Figure 19. The different 'layers' of B/ordering [Visual by author]

FUTURE SCENARIO'S DELTARES

In response to rising sea levels, the Ministry of Infrastructure and Water Management and the Delta Commissioner launched the Knowledge Programme 'Sea Level Rise' (KP ZSS). This resulted in the report *'Strategies for adaptation to high and scaled sea level rise*' in 2020. This study was based on the terminology of four coastal adaptation strategies developed by the Intergovernmental Panel on Climate Change, which were first introduced in the 1990s. These four adaptation strategies are Protect (Beschermen), Accommodate (Meebewegen), Retreat (Terugtrekken) and Advance (Zeewaarts gaan). Protect means keeping the water out, including through nature-based solutions. Accommodate involves learning to live with an abundance of water. Retreat means moving inland to higher and safer ground. The Advance strategy involves building in the sea and raising islands (IPCC, 2022).

Based on these strategies (scenario sealevelrise of 2 meter or more by 2100), the 2020 report developed four new adaptation strategies tailored to the Dutch context. It combines the strategies of Accommodate (Meebewegen) and Retreat (Terugtrekken) into a single strategy, referred to as 'Meebewegen'. The Seaward (Zeewaarts) strategy remains unchanged in interpretation. Protection, however, is split into two new strategies: 'Open Protection' and 'Closed Protection'. The key difference is that in the 'Closed' strategy, the river mouths are sealed off (Haasnoot, Diermanse, Kwadijk, De Winter, & Winter, 2020). In the case of Zeeland Flanders, this would mean closing off the Scheldt river.

It is interesting to note that in the report, the territorial border with Belgium and Germany is visualised in both the Zeewaarts and Meebewegen strategies. The report also refers to the possibility of cross-border migration under the Meebewegen approach. Furthermore, cross-border collaboration is identified as a key knowledge question for future phases.

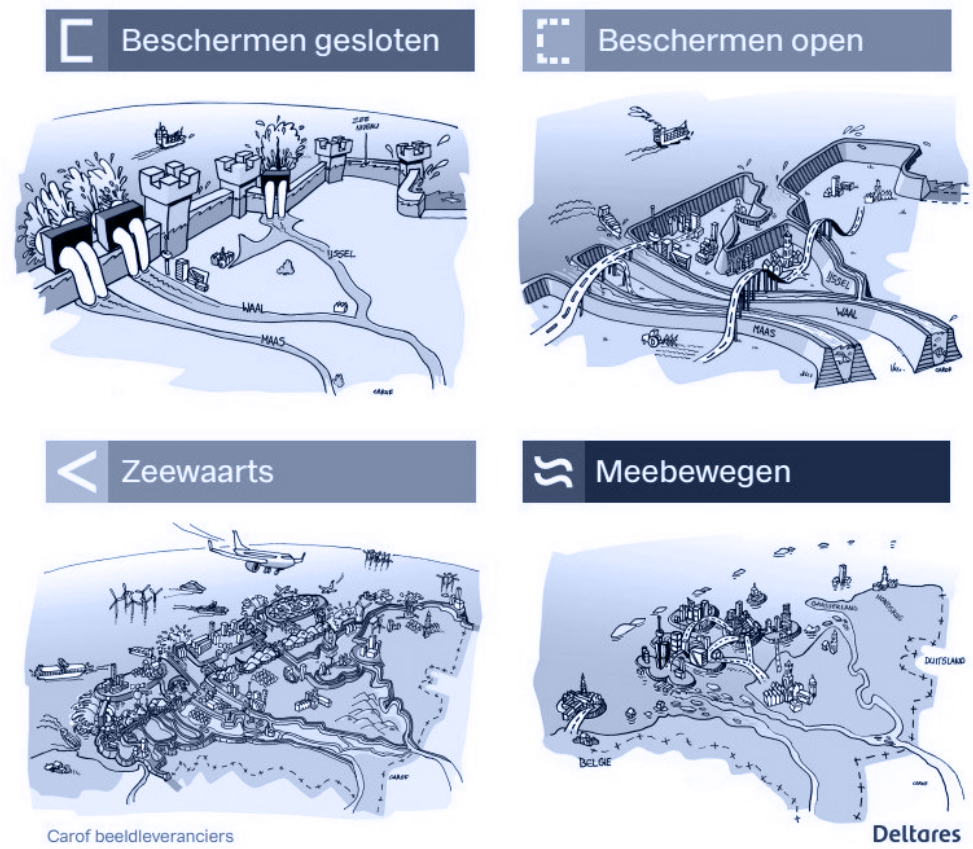


Figure 20. 4 Adaptation strategies framework [image by (Haasnoot et al,. 2020)]

DYKE RISE PER METER SEA LEVEL RISE

This study assumes two possible tipping points in future sea level rise. It concerns the most extreme scenario: a small probability with large consequences, see Figure # (Ministry of Infrastructure and Water Management & Delta Commissioner, 2023). The elaborated scenarios assume a sea level rise of 1 metre above sea level in 2050 and 2 metres in 2100.

The choice of this scenario is based on two considerations. First, in the 2024 Emissions Gap Report, the UN Environment Programme expressed concerns about the feasibility of stemming global warming. They expect that the Paris Climate Agreement's goal of limiting the increase to 1.5°C will soon become unachievable, and even the 2°C cap is under pressure (UNEP, 2024).

In addition, this scenario is used as a design tool to test solutions. Based on Figure #, a necessary dyke height of 2 metres and a widening of 40 metres are calculated (Ministry of Infrastructure and Water Management & Delta Commissioner, 2023). This provides scope to work with the worst-case scenario in the design.

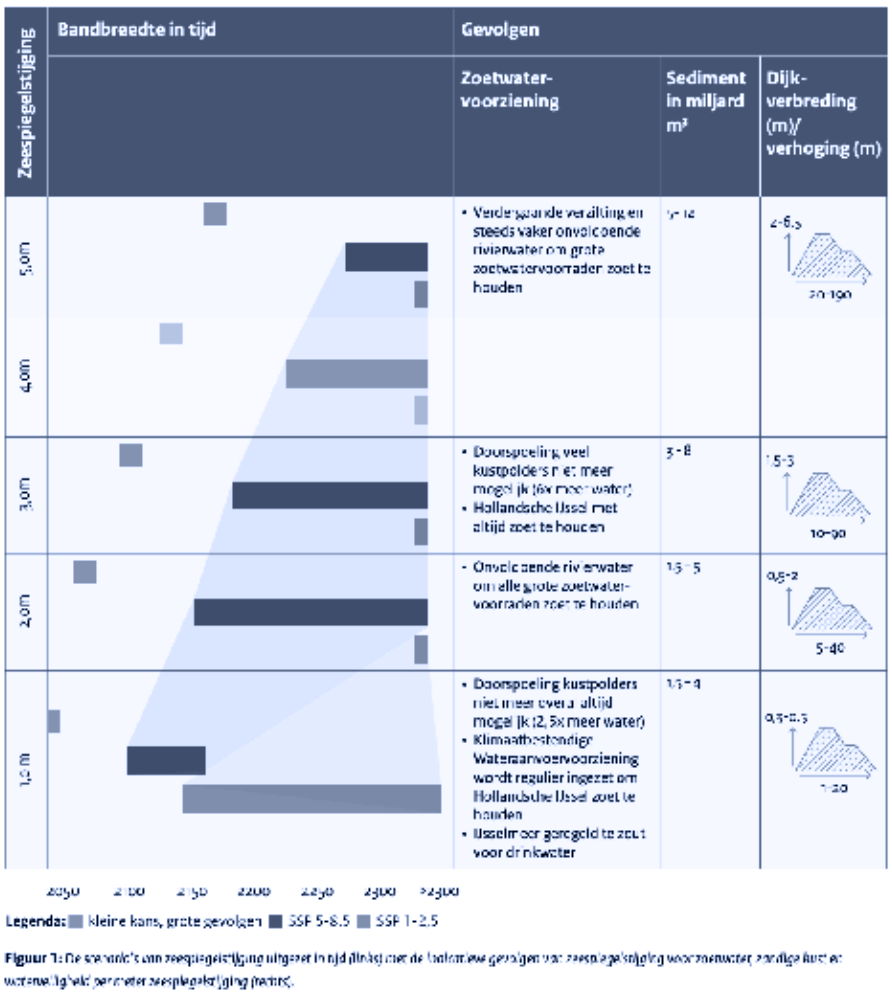


Figure 21. Scenarios vs consequences
[image by (Ministerie van Infrastructuur en Waterstaat & Deltacommissaris, 2023)]

THE COMMON | TRAGEDY OF THE COMMON

The Common, also called ‘Meent’ in Dutch, is described in the dictionary as ‘an area of grass that everyone is allowed to use, usually in or near a village’ (Cambridge Dictionary, 2025). According to Garrett Hardin (1968), commons are doomed to failure. In his example, he refers to fishing grounds and grazing land. He argues that when these areas are used as a common resource, and everyone can lay claim to them, individual use eventually exhausts them. Individuals, he says, are mainly focused on personal gain rather than the collective interest. It is an accumulation of individuals expanding their livestock each time, until the pasture becomes overgrazed. One remains trapped in a system of growth and depletion. According to Hardin, this inevitably leads to privatisation or central government control.

In 2008, Elinor Ostrom presented a counter response to this ‘tragedy of the commons’. According to her, Hardin underestimates the ability of users to organise themselves and develop systems that manage common resources in a sustainable way. For these resources, she uses the term ‘common-pool resources’ (CPR), such as forests, irrigation systems, fisheries and grazing lands. Her analysis of successful examples shows that people do not act solely rationally and selfishly, but can actually work together effectively on the basis of mutual trust.
Ostrom does not believe in a one-size-fits-all model, but emphasises the importance of contextual solutions (Ostrom, 2008). Based on several case studies, she formulated eight principles for managing CPR sustainably, which can be adapted to new situations.

Ostrom shows that communities are indeed willing and able to collectively manage shared resources, and that this does not always require governments or markets. The basis lies in institutional resilience, shared norms and sufficient autonomy (Ostrom, 1990; Ostrom, 2008).

The concept of the Common thus offers opportunities to rethink the border zone as an area of exceptions.
This study will look at further opportunities and strategies to apply the 8 principles. Allowing border regions to acquire their own degree of autonomy and identity.

THE EIGHT PRINCIPLES (Ostrom, 1990: Ostrom 2008)

1. DEFINED BOUNDARIES
It must be clear who is allowed to use the resource.

2. CONGRUENCE BETWEEN RULES AND LOCAL CONDITIONS
Rules must be consistent with the ecological and social context.

3. COLLECTIVE-CHOICE ARRANGEMENTS
Users should have a say in rule-making.

4. MONITORING
Users or appointed regulators should monitor usage.

5. GRADUAL SANCTIONS
Violations are punished with proportionate measures.

6. CONFLICT-RESOLUTION MECHANISMS
There should be low-threshold ways to resolve conflicts.

7. RECOGNITION OF THE RIGHT TO ORGANISE
Local communities should be able to make their own rules.

8. NESTED ENTERPRISES
In larger systems, multiple levels of governance are needed, working together.

THE STATE OF EXCEPTION

Agamben (2005) describes the concept of the ‘State of Exception’ as a legal-political mechanism in which the executive temporarily suspends the normal legal order. This is to deal with acute and existential threats. He builds on Carl Schmitt’s (1922) insight that the sovereign is the one who decides on the exception when the order fails. However, he adds a crucial nuance: the law is not definitively cancelled, but suspended. This creates a paradoxical ‘zone of uncertainty’ between norm and exception. In this space, citizens can benefit from protective measures on the one hand, while running the risk of having their fundamental rights restricted on the other. Agamben warns that such temporary grants of power can easily be made permanent, with far-reaching consequences for the democratic rule of law.

Agamben emphasises that the state of exception is not an exceptional irregularity but an unspoken condition of any law. By suspending the law without formally removing it, the state exposes invisible boundaries between what is actually valid and what is only enforced on paper. This continuation of the law creates an ambiguity in which political actors and citizens no longer know whether they have to abide by the letter of the law or the emergency measures that the state can issue at its discretion. Agamben sees a biopolitical dimension in this: by this, Agamben means that the government not only targets opponents, but can literally touch people in their physicality and give pause to their rights.

According to Agamben, the power to suspend laws is always already present in the legal system. When a state of emergency is declared, that implicit possibility becomes active and protective laws temporarily become inoperative. This poses a serious challenge to democracy, as legal certainty and rights can diminish during crises. Abuse of power, according to Agamben, can be prevented by clear frameworks: a strict time limit for the state of emergency and a transparent process in which the legislator tests in retrospect whether the measures taken were necessary and proportionate.

Agamben’s work invites critical reflection on the flexibility of the legal order and the tension created when laws are temporarily suspended. By positioning the ‘State of Exception’ not just as an emergency intervention, but as a response to a disaster where the current system has failed or is failing. This theoretical framework can also be used to show that exceptions within the law are possible and can be applied temporarily to prevent disasters. However, to protect democracy, this should only be used temporarily. A new long-term governance model requires a different framework, preferably a bottom-up approach.

BORDERSCAPE | B/ORDERING

Van Houtum also uses the term Id/entity, which is the merging of the words Identity and Entity. A territory can have multiple id/entities, both on a national scale as on a local scale. Based on the book, Id/entity is the territorial aim to define what is inside and what is outside the entity's territorial boundaries. The term assumes that identity is dynamic and fluid as it is constantly changing through the social construction and spatial influence of its own territory. Additionally, due to globalization local id/entities are also influenced by the transnational economic, political, cultural and technological flows. So, it is the interplay of who is "us" and who is "them". The entity in Id/entity, besides the meaning of independence, also refers to the power dynamics of controlling territorial boundaries and borders. This is the need to define what is "ours" and what is "theirs". So what is inside or outside the border and thus the end of spatial responsibility and ownership (Van Houtum et al., 2005).

RE-B/ORDERING | DE-TERRITIALIZING

So B/ordering is the practice of defining, controlling and shaping territorial boundaries into borders, which then results in a spatial landscape. Based on the new flows of globalization, the book introduces re-B/ordering as a practice to re-define, re-control and re-shape the results of territorializing and thus b/ordering practices that happened before. De-territorializing is part of the argument for re-b/ordering. Territorializing is the act of spatially ordering, marking and regulating the territory. When de-territorializing is used in the book (Van Houtum et al., 2005), it comes from the idea that due to globalization borders might become more liquid or even a 'borderless' world. That being said, the authors (Van Houtum et al., 2005) also argues that at the time there was a trend of desire for a stronger territorialization:

"Reflecting the latter, the dykes of control and containment of local id/entities have rather been re-strengthened and re-built over the past years. Perhaps it is in this context that the re-b/ordering of space should be apprehended as a reply, a counter-force to the liquidizing forces of postmodernity and recent waves of globalization." (p 2.)

This is based on the concept and book "*Liquid modernity*" (Bauman, 2000), in which the drastic changes of post-modernity and globalization, in which everything becomes liquid, merged or even vague. Stronger territorialization is a defensive act to control traditional identities and entities. Re-B/ordering could help territories of all scales re-define their position in the globalizing world.

STATE OF EXCEPTION | THE COMMON | RE-BORDERING

The border between the Netherlands and Belgium is not a fixed feature, but a social, political and landscape construct (Van Houtum et al., 2005). Several challenges come together in border regions such as Zeeuws-Vlaanderen: an ageing population, economic shrinkage, limited administrative attention and the increasing risks of climate change, such as sea level rise.

The border between the Netherlands and Belgium is not a fixed feature, but a social, political and landscape construct (Van Houtum et al., 2005). Several challenges come together in border regions such as Zeeuws-Vlaanderen: an ageing population, economic shrinkage, limited administrative attention and the increasing risks of climate change, such as sea level rise.

The Netherlands and Belgium each have their own sovereignty and governance structure, which stops at the hard border line. The delta landscape is under pressure from the effects of climate change, with direct consequences for border areas. Based on thinking from the ‘State of Exception’ (Agamben, 2005), in which legislation is suspended in times of crisis in order to act quickly, the question arises: what if we turn this thinking around? Instead of waiting for a disaster, such as a major flood, after which exceptional policies follow, the concept of re-bordering border areas can transform in advance into zones of cooperation. The concept of the Common (Ostrom, 2008), shows that shared resources can be sustainably managed through local cooperation and mutual trust. In a border area like Zeeuws-Vlaanderen, this offers the perspective of an alternative form of governance in which responsibility does not stop at the national border, but rather is shared.

In this way, water safety is facilitated and the border area is no longer seen as a peripheral area, but as a landscape of shared responsibility. By looking from (re-)B/ordering (Van Houtum et al., 2005), the “State of Exception” (Agamben, 2005) and the Common (Ostrom, 2008), space is created for a new vision: the border as a zone of autonomy, cooperation and resilience.

2.1 | **THEORY** | THEORETICAL FRAMEWORK

The literature review showed that a country or territory is influenced by the presence of borders. This includes both the own demarcation of a territory and the direct and indirect interaction between adjacent territories.

The status quo, is that a territory is the result of a social reality and thus a social construct. It is conceived. This social construct, in turn, influences the identity and entity of residents. Houtum et al,. (2005) uses the concept, Id/entity, for this purpose. This involves a continuous interaction between social reality and id/entity.
Another continuous interaction is the territorialise of an area as a result of the social construct. Houtum et al, (2005) calls this action b/ordering. This involves both policy ordering and spatial ordering around the border. The result of this is the Borderscape. This is the space influenced by the presence of a territorial border read off in the landscape (Dell'Agnese & Szary,2015; Harbours, 2003; Dolff-Bonekämper & Kuipers, 2004). In turn, the borderscape has indirect effects on people's social construct and Id/entity. Consider building a wall (hard physical border) between two countries. Or the Schengen law, which reduces border controls and makes crossing the border convenient.

In view of a possible rising sea level of >2 metre by 2100 (IPPC,2022;Haasnoot, 2020), the geographical landscape of the Eurodelta will completely change.
To ensure a livable future, the territorial landscape will have to be rearranged. The concept of the Common offers opportunities to rethink the border zone in terms of governance and as a region of exceptions, by using Ostroms (2008) 8 principles to manage a Common. The aim is to give border regions their own degree of autonomy and identity. Also, the term 'Re-Bordering' (Van Houtum et al., 2005) will be investigated and applied to spatial and strategic design.

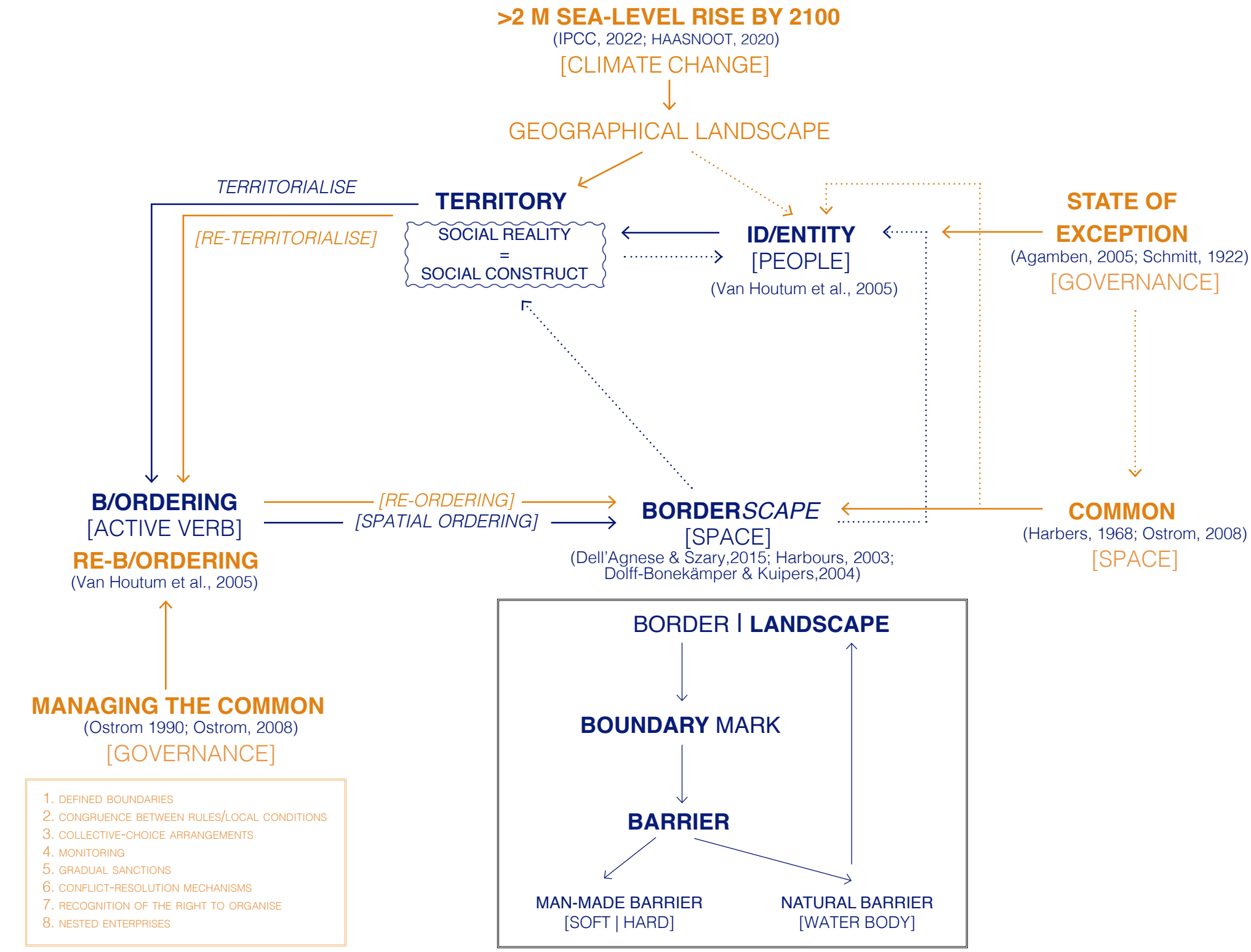


Figure 22. Theoretical framework [Visual by author]

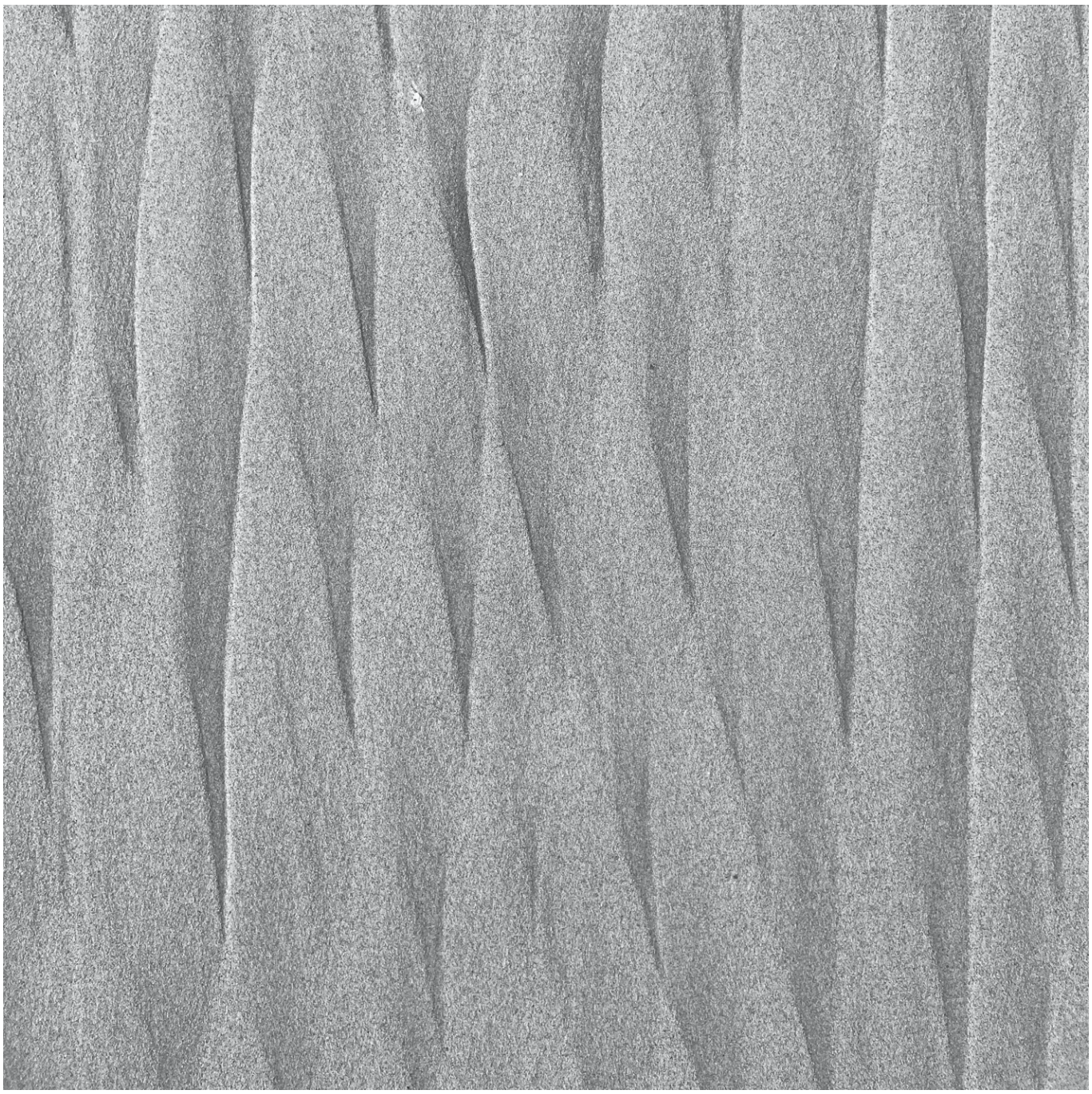


Figure 23. Lines in the sand [Image by author, Nieuw Zeeland, 2022]

3. METHODOLOGY

METHOD

Based on the preliminary research and the research question, a research methodology is established. In this chapter, the Conceptual framework will be explained. The methodological framework will be clarified and the intended research findings will be listed.

CONCEPTUAL FRAMEWORK

The conceptual framework consists of the ‘borders’ axis and the ‘dealing with future floods’ axis. This stems from the hypothesis and literature review. Within the framework, it will focus on the geo-political and socio-economic factors and interests influencing the border landscape.

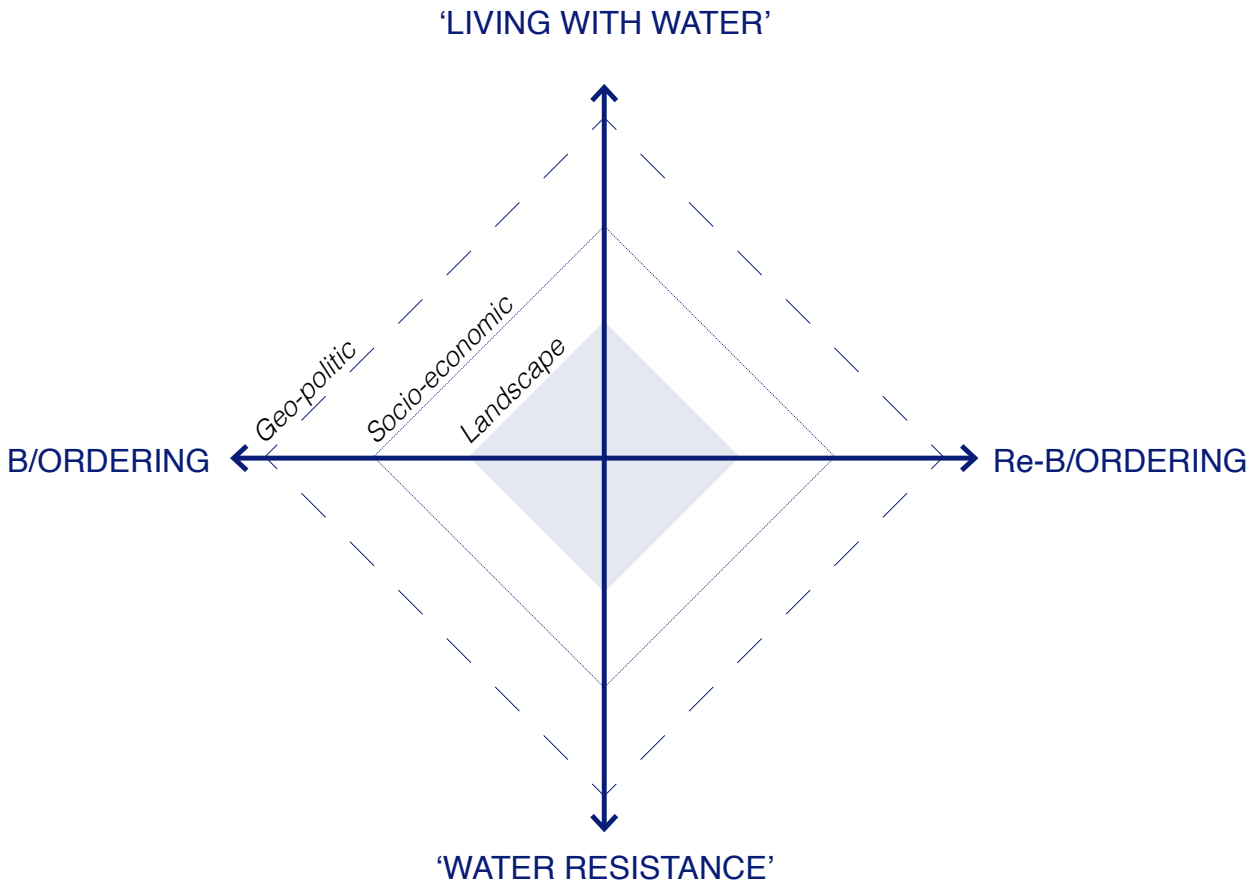


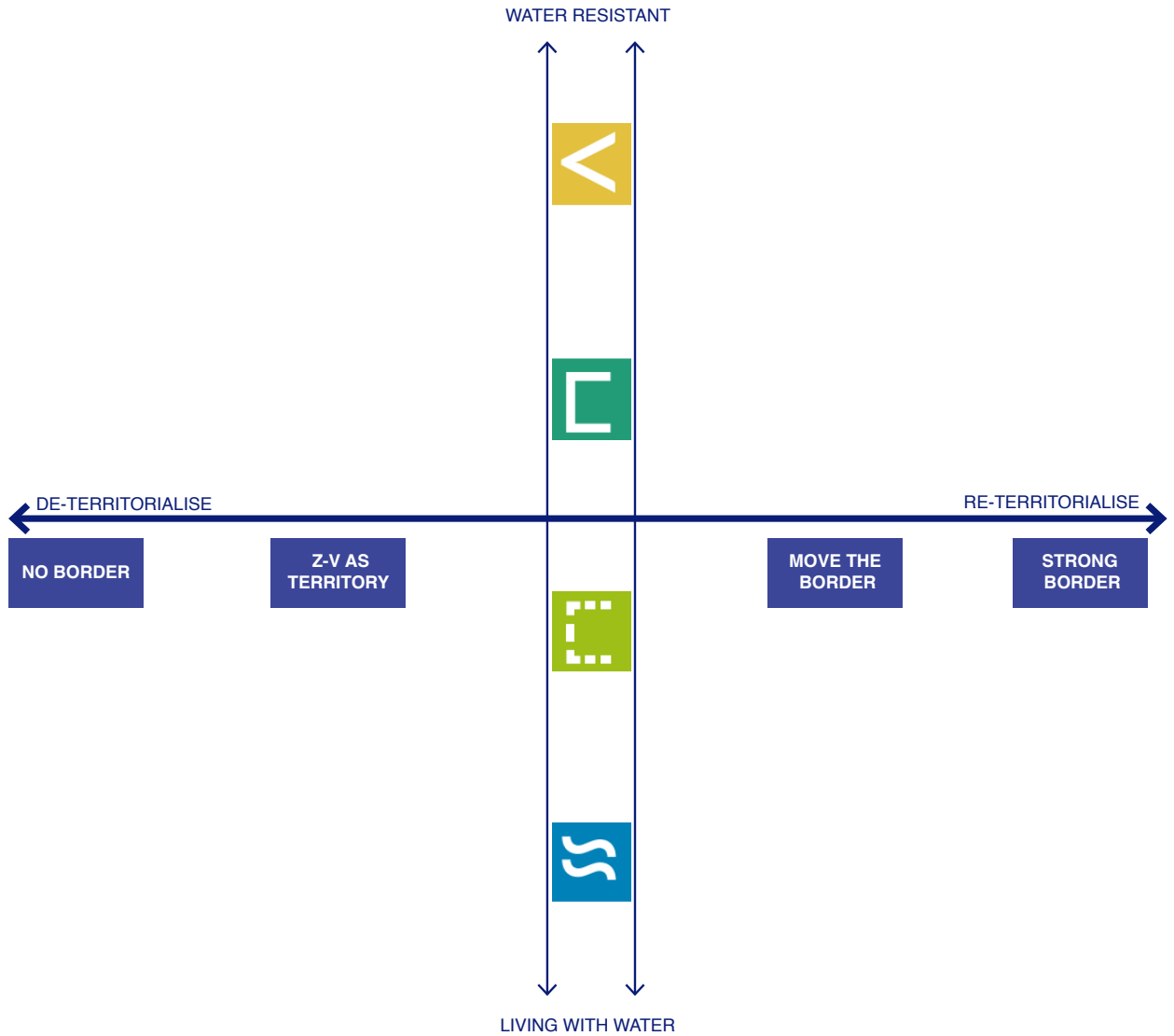
Figure 24. Conceptual framework
[Visual by author, based on (Haasnoot et al,. 2020; Houtum et al., 2005)]

RADICAL SCENARIO FRAMEWORK

Using Deltares' strategic directions (Haasnoot, Diermanse, Kwadijk, De Winter, & Winter, 2020), this research tests the impact of different water safety strategies on the Dutch-Belgian border region. The framework combines four adaptation strategies (Protect – open and closed, Accommodate, and Advance) with four hypothetical border scenarios, ranging from full cooperation to complete separation. This results in extreme spatial scenarios that explore how territorial and institutional borders affect flood resilience, infrastructure, and the liveability of Zeeuws-Vlaanderen.

The four border scenarios are:
(1) No border – the Netherlands and Belgium function as one country with joint governance.
(2) Zeeuws-Vlaanderen as a separate territory – the hard border is replaced by a shared management zone.
(3) Move the border – Zeeuws-Vlaanderen becomes Belgian, shifting the border to the Scheldt.
(4) Strong border – political tensions rise, ending cooperation and introducing physical barriers.

Each border scenario is tested against the Deltares strategies to examine consequences on water safety, infrastructure, and spatial planning. This method highlights how borders influence adaptation potential in the region. Special focus is placed on Zeeuws-Vlaanderen, a vulnerable border landscape where both national decisions and cross-border cooperation shape future resilience. The results are visualised through maps and spatial sections to support design exploration.



RADICAL/EXTREME SCENARIO'S

SOLUTION DIRECTIONS (HAASNOOT,DIERMANSE, KWADIJK, DE WINTER, & WINTER, 2020)

Zeewaarts | Beschermen gesloten | Beschermen open | Meebewegen

Figure 25. Extreme Scenarios framework [image by author]

3.1 | **METHODOLOGY**| FRAMEWORK

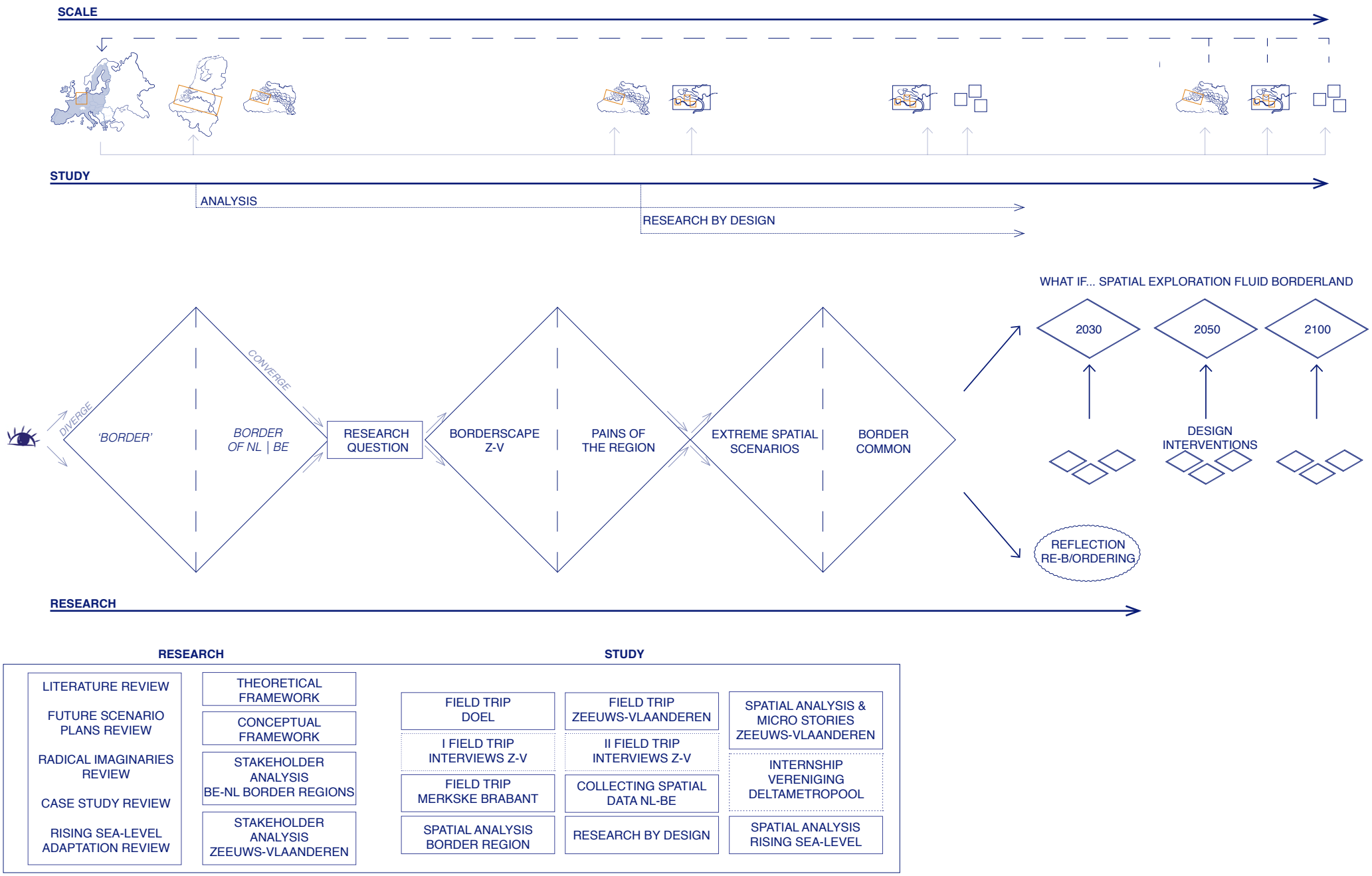


Figure 26. Methodological Framework [image by author]

METHODOLOGY

The research process takes a divergent and convergent approach inspired by the Double Diamond model. This structure enables the complexity of the Zeeuws-Vlaanderen border area to be explored while spatial scenarios are developed and tested.

The first phase involves mapping the entire Belgian-Dutch border landscape, analysing the natural system of creeks, polders, dykes and tides and how this overlaps with the territorial border. Using maps, cross-sections and satellite images, this phase examines how the border meets or intersects with the water system. Additionally, literature on borderscapes and re-bordering was used to reconsider the border as a socio-political construct.

Next, a qualitative analysis was conducted on the differences in governance structures between the Netherlands and Belgium. Rather than conducting a comprehensive policy study, the analysis examined how institutional differences are spatially visible. This was complemented by a historical narrative based on maps, archives and literature, which focused on the role of floods, wars and shifts in the perception of the border.

The results have been further analysed in the context of Zeeuws-Vlaanderen, where the influence of infrastructure and ports has been mapped. An overview of spatial opportunities has been created and linked to socio-economic indicators such as shrinkage and ageing.

Based on sea level rise and boundary scenarios ranging from ‘no boundary’ to ‘strong boundary’, a series of images depicting the area in the distant future have been designed. These were then developed into maps and used to design the Fluid Borderland base. Through a process of research by design, components from the scenarios are combined to create spatial proposals on a regional scale.

During the design phase, a series of radical future scenarios were created in which the border area was redesigned. Each ‘what if’ scenario contains a new governance structure and spatial solutions, visualised in maps and cross-sections at multiple scales.

At the end, a reflection was written on the role of boundaries in the design process, which includes ethics, ownership and cultural representation.

The internship at Vereniging Deltametropool supported the research by providing access to data, professional literature and contacts with stakeholders in the border region. This cooperation made it possible to participate in interviews and collect missing spatial information.

3.2 | **METHODOLOGY**| PROJECT TIMELINE

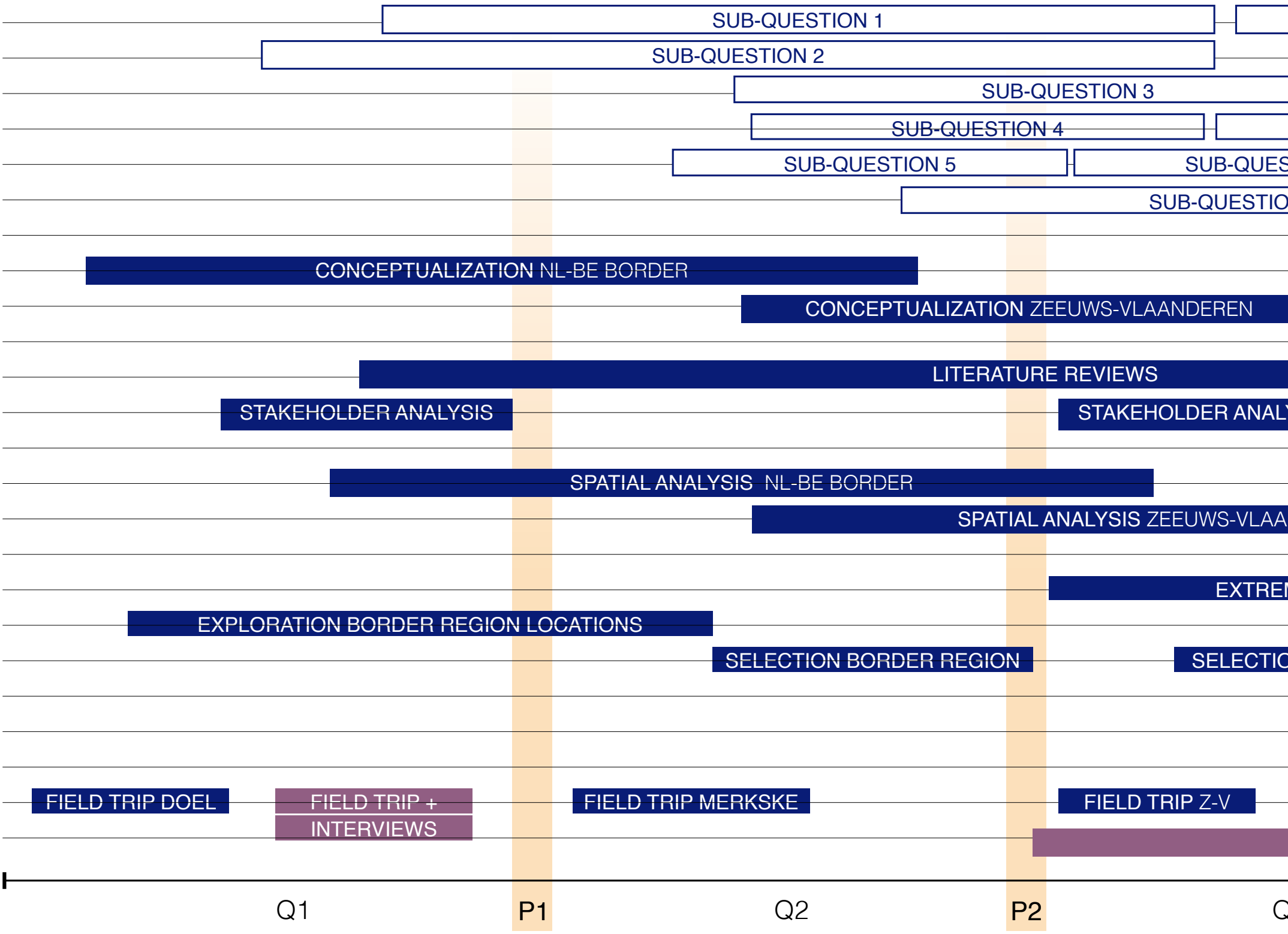
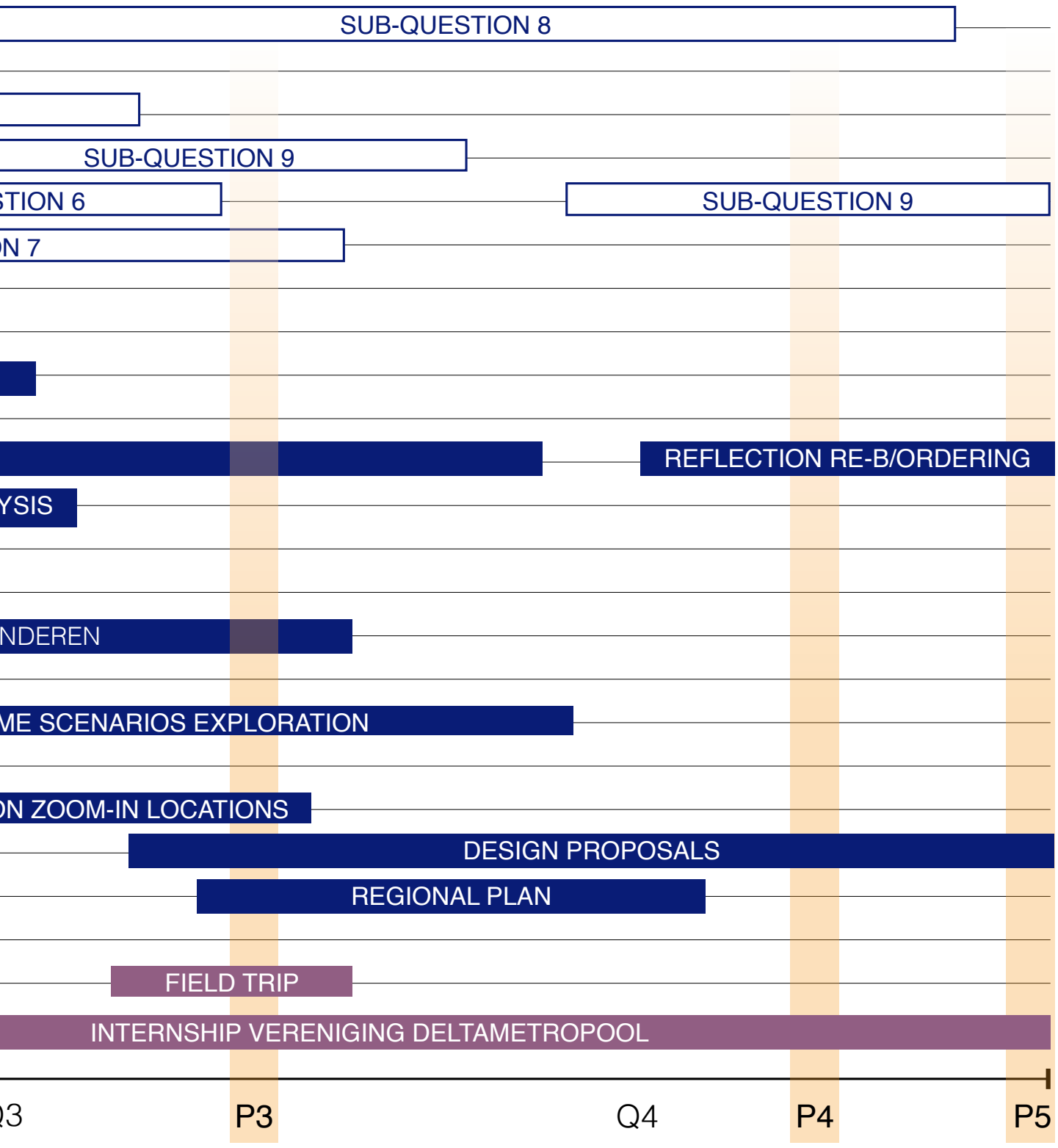


Figure 26. Timeline for the proposed project [map by author]


SUB-QUESTION 8
SUB-QUESTION 9
STION 6
SUB-QUESTION 9
N 7
REFLECTION RE-B/ORDERING
YSIS
NDEREN
ME SCENARIOS EXPLORATION
ON ZOOM-IN LOCATIONS
DESIGN PROPOSALS
REGIONAL PLAN
FIELD TRIP
INTERNSHIP VERENIGING DELTAMETROPOOL
Q3
P3
Q4
P4
P5

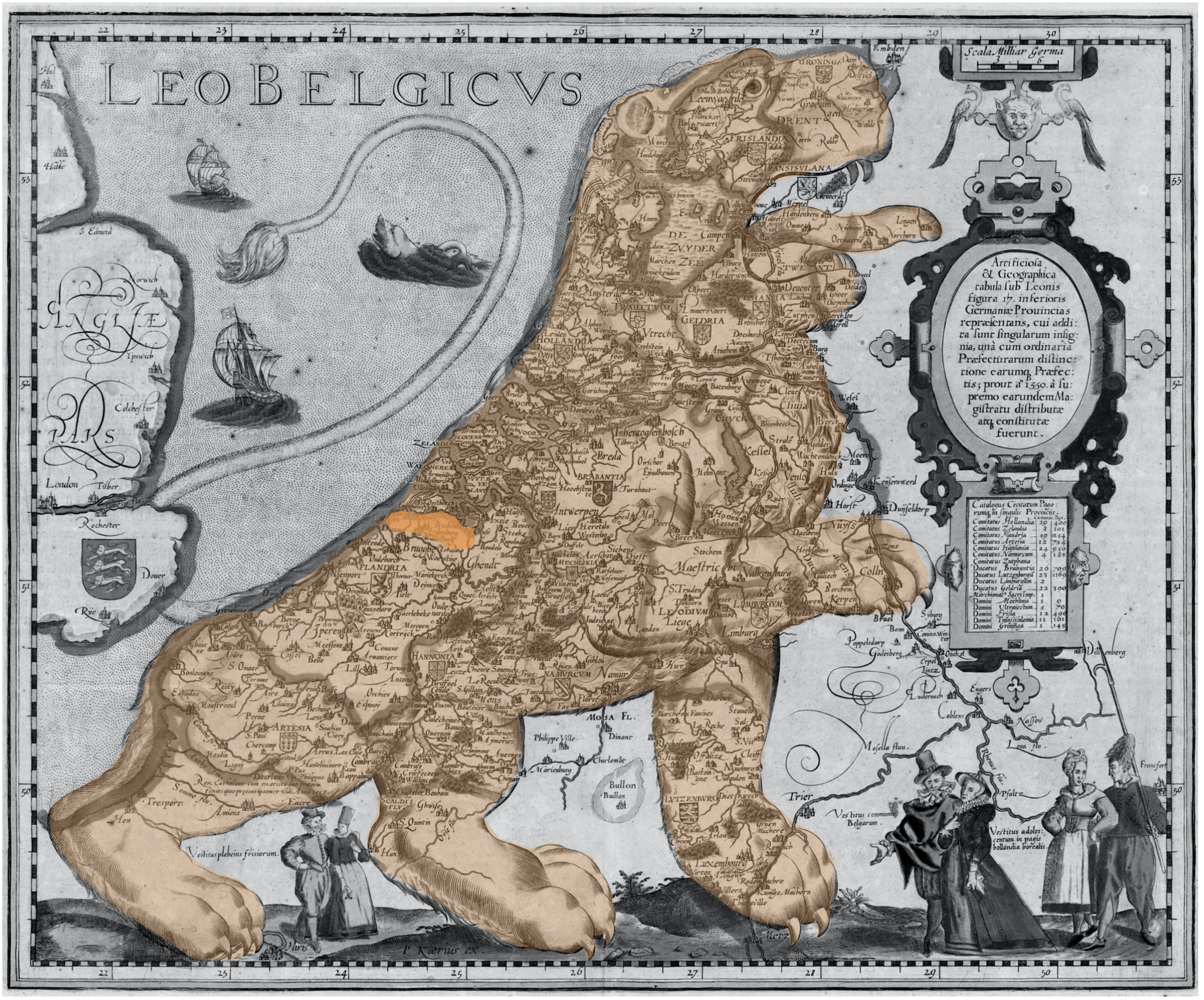


Figure 27. **1617** | Leo Belgicus, Holland propaganda during Spanish War, united by the Lion. [Map by Pieter van den Keere (Rijksmuseum, 2025)]

4. HISTORICAL CONTEXT

In 2030, the border between the Netherlands and Belgium will celebrate its 200th anniversary. Throughout history, a series of wars, political shifts and administrative reforms have permanently shaped the landscape of the border. The border region reflects the differences in the two countries' governance structures, regulations and spatial planning. It is these historical and institutional layers that explain many of the current dynamics in the border region.

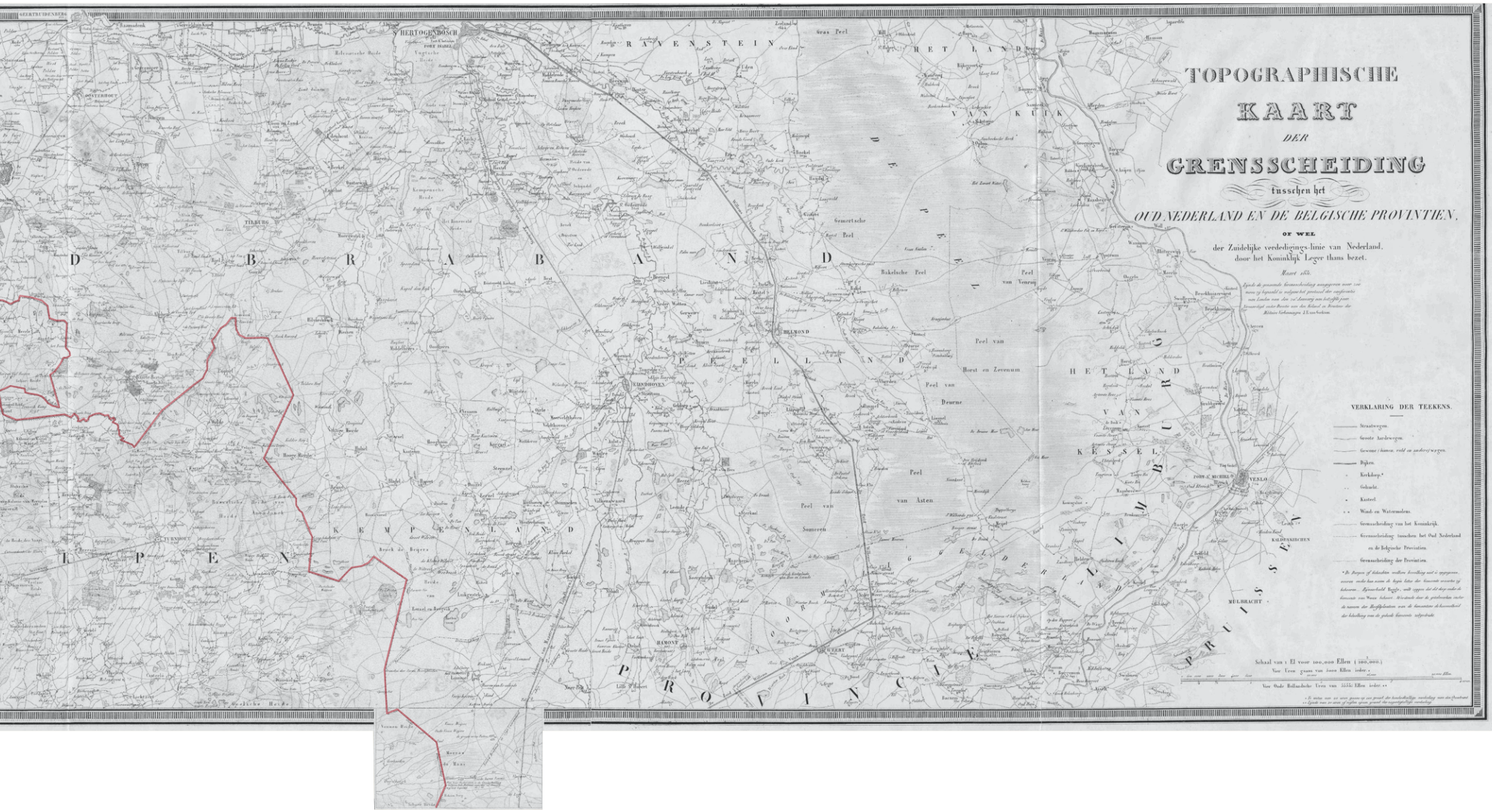


Figure 28. Topografische Kaart der Grensscheiding tusschen het Oud Nederland en de Belgische Provincien' 1831 (Universiteit utrecht, 2025)

INDEPENDENCE OF BELGIUM | 1830

In the 1820s, the south of the United Kingdom of the Netherlands became a place of political conflict. King Willem I, the ruler of the kingdom at the time, made Dutch the official language of the central government, which put him at conflict with the French-speaking population. In addition, the liberals and Catholics disagreed with the governance of the mainly Protestant focused despotism rule of the king. In 1828, these groups decided to work together against the king in the so-called "Monsterverbond" (De Maeyer et al., 2021). The poor socio-economic situation of the south of the Low Countries (hunger and national debt in the north) was the motive for the protests by the lower classes. Various protests and struggles began in Brussels.

In Dutch history it is called the Civil War, but in Belgian history it is called the Independence Revolution (De Maeyer et al., 2021; Delft & Storm, 2021). On 4 October, Belgium declared its independence, which was soon recognised by European kingdoms such as Britain and France. On 7 February 1831, the first constitution was written. The following summer, Leopold van Saksen-Coburg became the first King of Belgium, making it a constitutional monarchy. King Willem I continued to send troops to the 'south' and occupied the port of Antwerp until 1832.French troops were sent to help and ended the Dutch occupation of Belgium. The Treaty of London in 1831 resulted in the demarcation of the border between the Netherlands and the Belgian provinces, as shown on the map 'Topografische Kaart der Grensscheiding tusschen het Oud Nederland en de Belgische Provincien' (1831), which shows the border from the North Sea to Prussia.This map shows South Limburg (Kempenland) and Luxembourg as part of the Netherlands.The treaty was rejected by William I, mainly because the national debt in the north of the Netherlands had been much higher since 1815. As a result of the rejection, Belgium continued to 'occupy' Dutch-Limburg and Luxembourg. In 1839 Willem I recognised Belgium as a country, the final borders were decided, resulting in the 11 provinces of the Netherlands, including the provinces of Luxembourg and Dutch-Limburg (Delft & Storm, 2021).



ollowed from the same treaty that the Meuse came officially the border river, the line following e deepest point of the Meuse to the present y. Zeeuws-Vlaanderen became Dutch territory, eserving power over the Western Scheldt. In the ars that followed, there was constant conflict er the high toll the port of Antwerp had to pay. lgium decided to build canals to the Rurh area d Aaken. Meuse water was tapped to do this. is again lowered the Meuse water level in the therlands. The Meuse and Scheldt were used hinder each other economically (De Maeyer et , 2021; Delft & Storm, 2021; Berendse & Brood, 22).



Figure 29. Schelde border crosses in straight line the river.



Figure 30. At the Belgium border [Illustration by A. Hahn (Koops, 2023)].

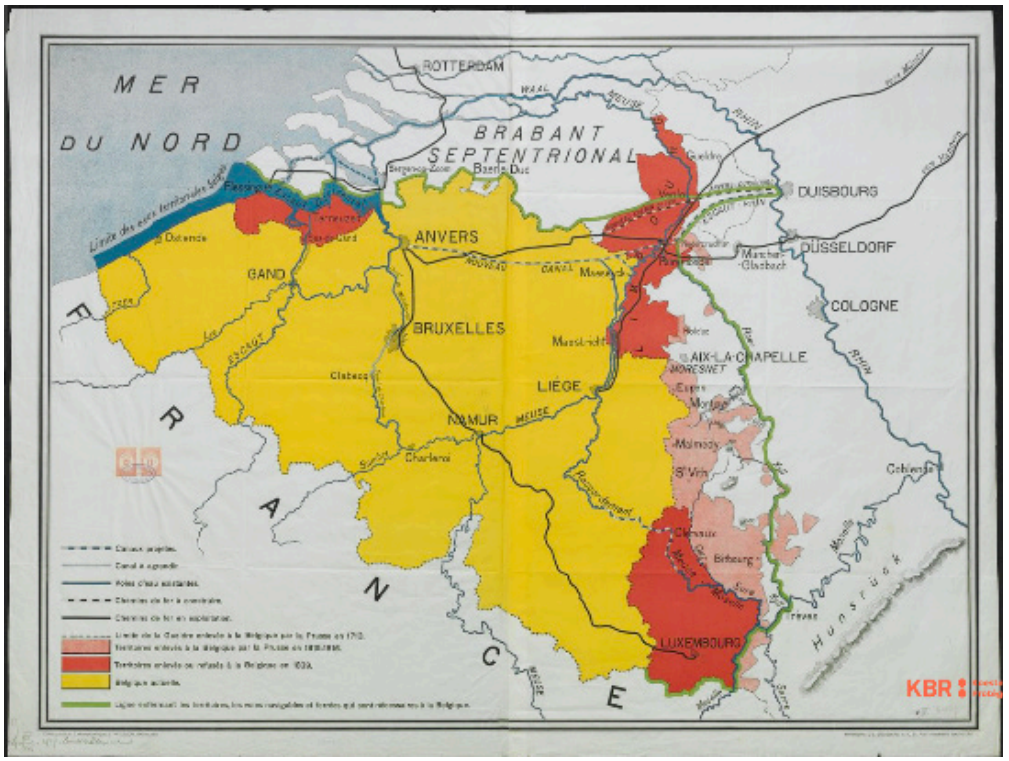


Figure 31. La Begique [Map by J. Goossens in (KBR,1919)]

THE WIRE OF DEATH | 1914 - 1917

The First World War, also known as the ‘Loopgraven oorlog’, left deep scars in the cultural history of Belgium. The Dutch remained neutral throughout the war. The occupation of Flemish ports was an important motive for the Germans to build a more powerful navy than the British navy (De Maeyer et al., 2021). In the first weeks of the German occupation, almost a million Belgians fled to the Netherlands, mainly from the Antwerp region. In addition to the passage of people, the border region became a centre for smuggling. Both the Dutch and the Germans controlled the border and fired at people crossing it. In the first year of the war, in order to control the 450 km border area from Knokke to Aken. The Germans built the ‘wire of death’, known in German as the ‘Grenzzaun’ and in Dutch as the ‘Dodendraad’. This barrier was built on Belgian territory and consisted of barbed wire with a high voltage of 2000 volts. Because the technology of electricity and its dangers was new, not only border crossers, but also children and inhabitants of the border area would die (Delft & Storm, 2021). This wartime barrier can still be seen today in the form of memorials along the border.

UNITY OF BELGIUM | 1919

The German occupation of the WOI focused on the ‘Flamenpolitiek’ to split the unity of the country in two by supporting radical Flemishists. The activists were promised more independence throughout the satellite state of Flanders. The ‘Oude Taalgrens’ was used as a geographical line to divide the territory of Flanders. The linguistic differences were used as evidence to build a ‘land bridge’ between the Germans and the Romans (De Maeyer et al., 2021). This was the starting point for the division of Belgium into ‘Gewesten’ (regions).

After the war, the Comité de Politique Nationale produced propaganda maps for the unity of Belgium. The maps show a larger territory of Belgium, including territories that the committee considered ‘nécessaires’ for the countries. It is interesting to note that on the map ... (De Maeyer et al., 2021) Zeeuws-Vlaanderen and Dutch-Limburg are highlighted as lost territories in 1839. The ‘new’ border is drawn in green along the north side of the Scheldt. In addition, instead of the Meuse as the border, the Roer, a tributary of the Meuse, forms the border between Belgium and Prussia (Germany).

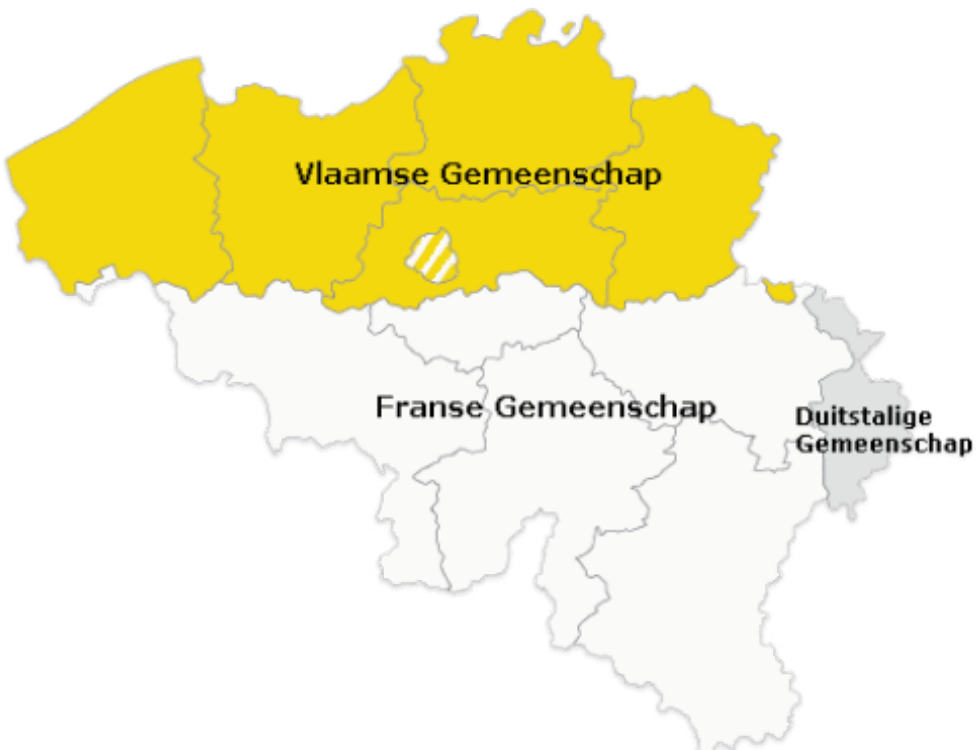


Figure 32. Spitsing Belgie in 3 gemeenschappen
[Map by Unknown (Vlaams Parlement, n.d.)]

LANGUAGE BORDER | 1970

In 1830, French became the official administrative language of Belgium, to the discontent of many Flemings. Political tensions lasted until 1970. Then the administration of Belgium was officially split into 3 communities (the Flemish (Dutch-speaking), the French (French-speaking) and the German-speaking Community) and the 3 regions (the Flemish Region, the Brussels Capital Region and the Walloon Region). The regions are based on the Language border, made during the German occupation (De Maeyer et al., 2021).

The Communities deal with person-related matters. The Regions deal with place-related matters. The national government now consists of six parliaments. National affairs are settled in the Federal Parliament. The Dutch-speaking community and the Flemish region together form one parliament (Belgian Federal Government, 2025). This means that the water management is organised per Gewest.

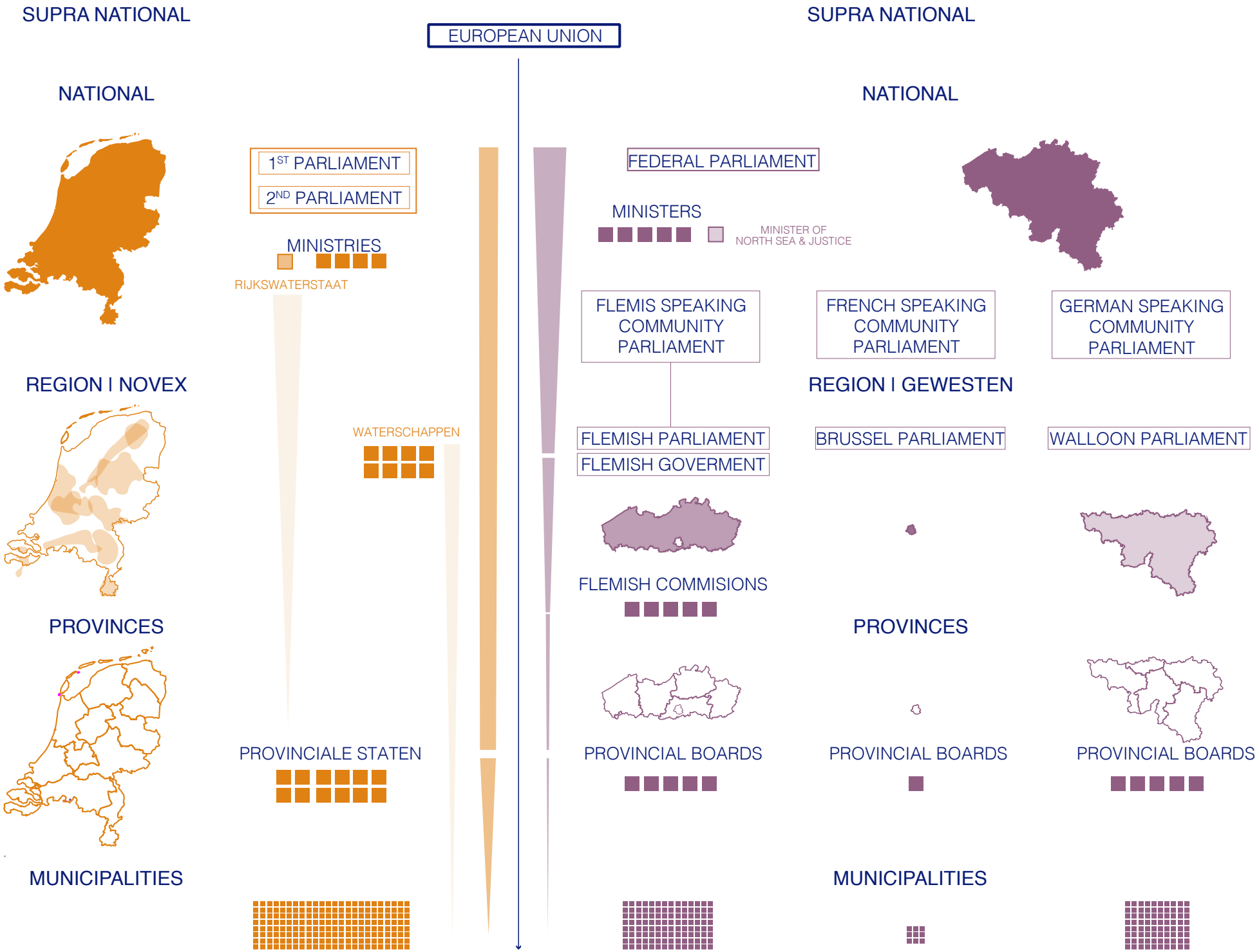


Figure 33. Governance of Belgium. [Visual by author]

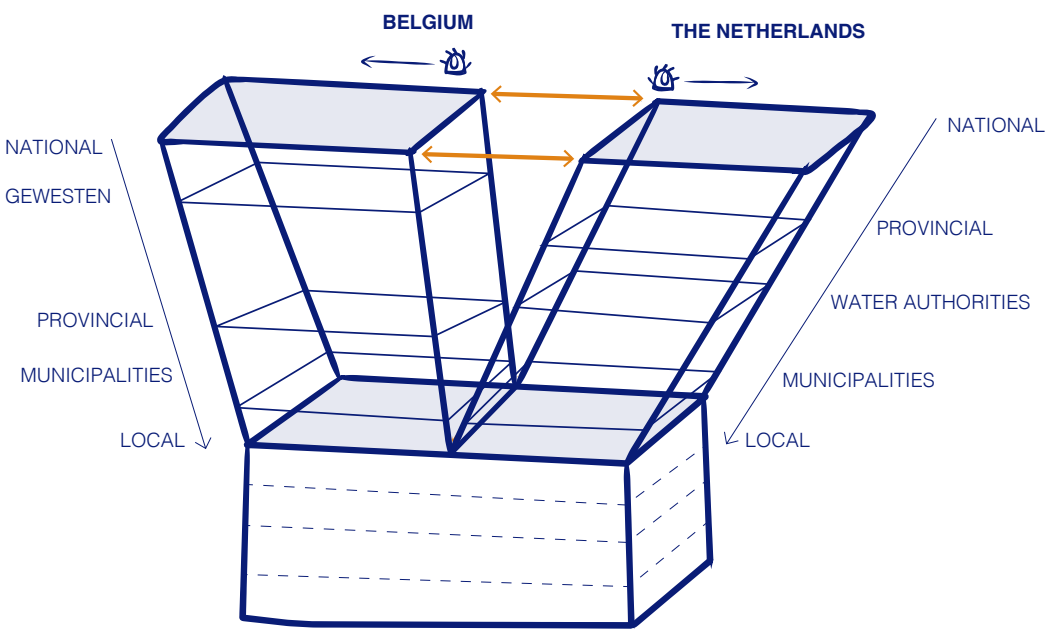


Figure 34. Gap between governance scales. [Visual by author]

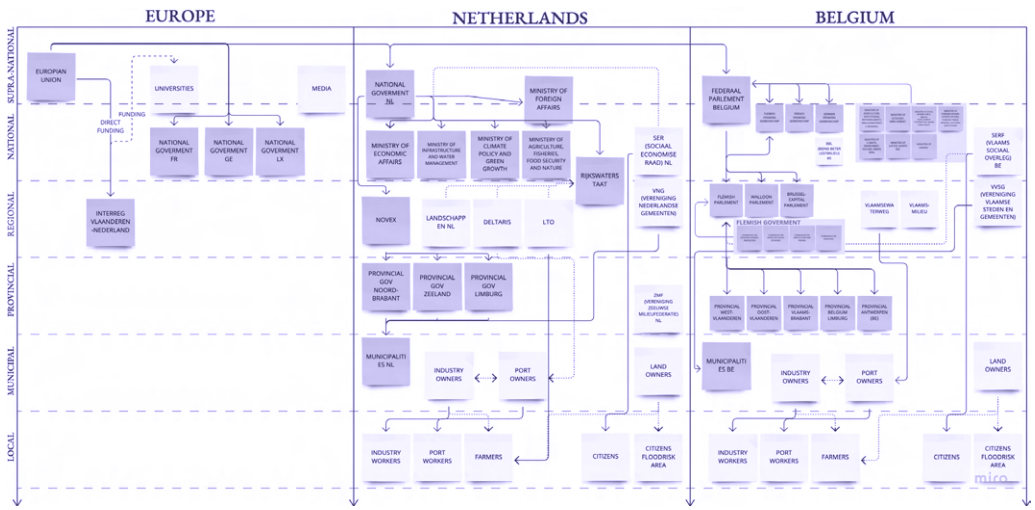


Figure 35. Stakeholder overview water management . [Visual by author]

The Netherlands and Belgium each have a different system of governance, which affects the way policy and decision-making are made. In addition, the countries differ in the division of responsibilities for water safety and related solutions. The use of scale also differs: a Dutch province has more of a mandate than a Belgian province, which is subordinate to the regions.

In the Netherlands, water boards (waterschappen) fall under the responsibility of Rijkswaterstaat. For this study, the focus is on the plans of Waterschap Scheldestromen. In Belgium, water management is organised by Gewest. For the Zeeuws-Vlaanderen case study, the focus is on stakeholders within the Flemish government. In this case, the Flemish Waterway is the main implementing party.

Both countries have to relate to European laws and regulations. This provides opportunities for cross-border cooperation, for example through EU-funded programmes such as Interreg.

“Interreg is a key initiative of the European Union that connects countries, regions and communities through a series of funding programmes promoting cross-border, transnational, interregional and outermost regions cooperation. By supporting projects that tackle shared challenges and deliver sustainable solutions, Interreg addresses regional inequalities while promoting economic, social and environmental development across Europe.” (Interreg, 2025)



Figure 36. On the border, in the nature park ‘Het verdronken land van Seafthinghe’. The horizon is the Scheldt river [image by author]

5. SPATIAL ANALYSIS BORDER

“The edge between land and sea that is neither land nor sea, but both; and neither water nor sand, but both; also living plants and creators and their by-products and billions of micro-biota and theirs.” (Bloomer, 2010. p.129)

5.1 | **WATER AS A BORDER** | RISK OF FLOODS GOES BEYOND HUMAN BORDERS

The map to the right shows how the impacts of climate change - in this case, projected rising sea levels (ICCP, year), goes beyond borders. Within the Eurodelta, three border regions are visible where a sea level rise of 5 metres deep penetrates the land. A joint approach is therefore more urgent than ever.

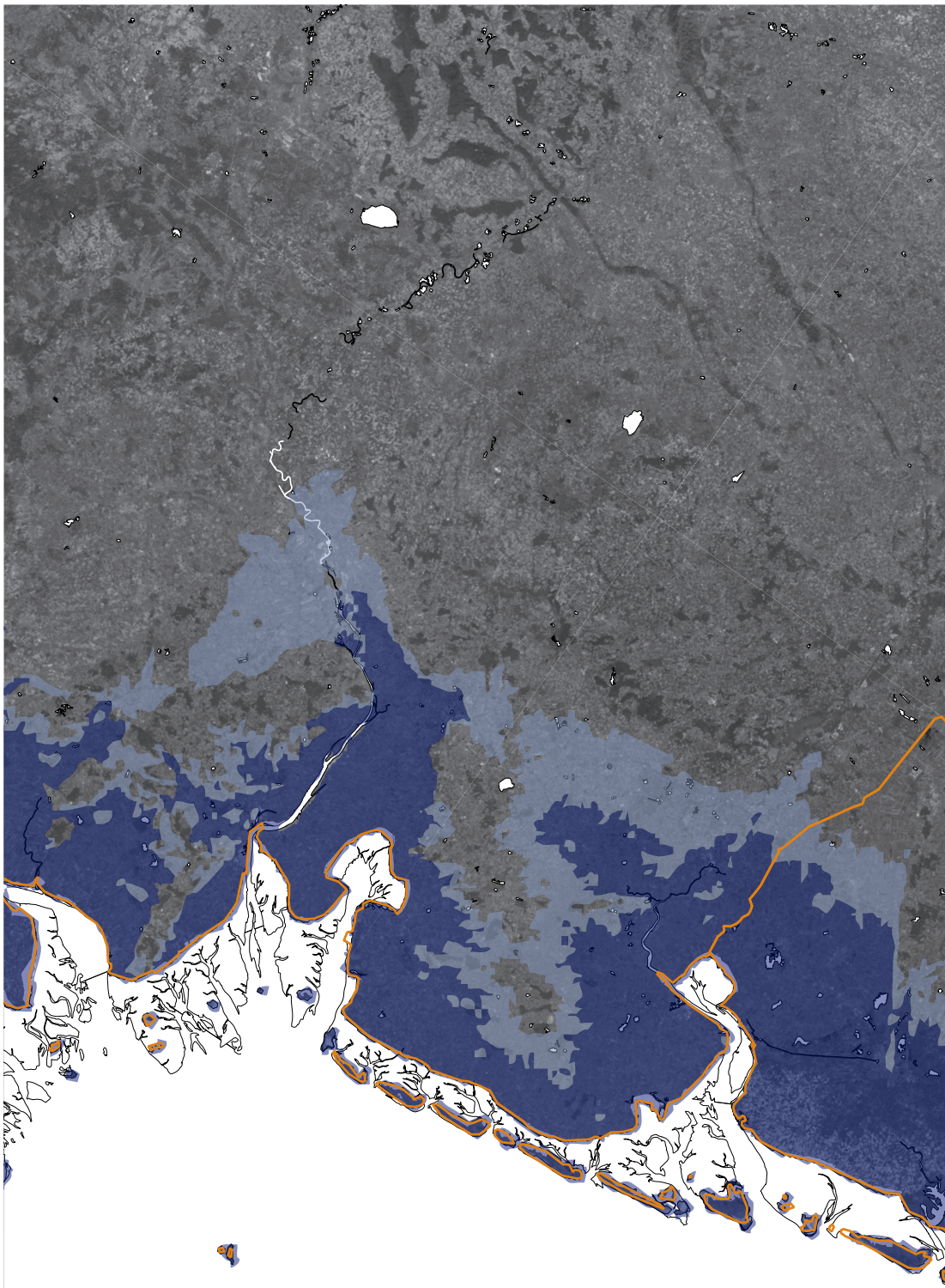
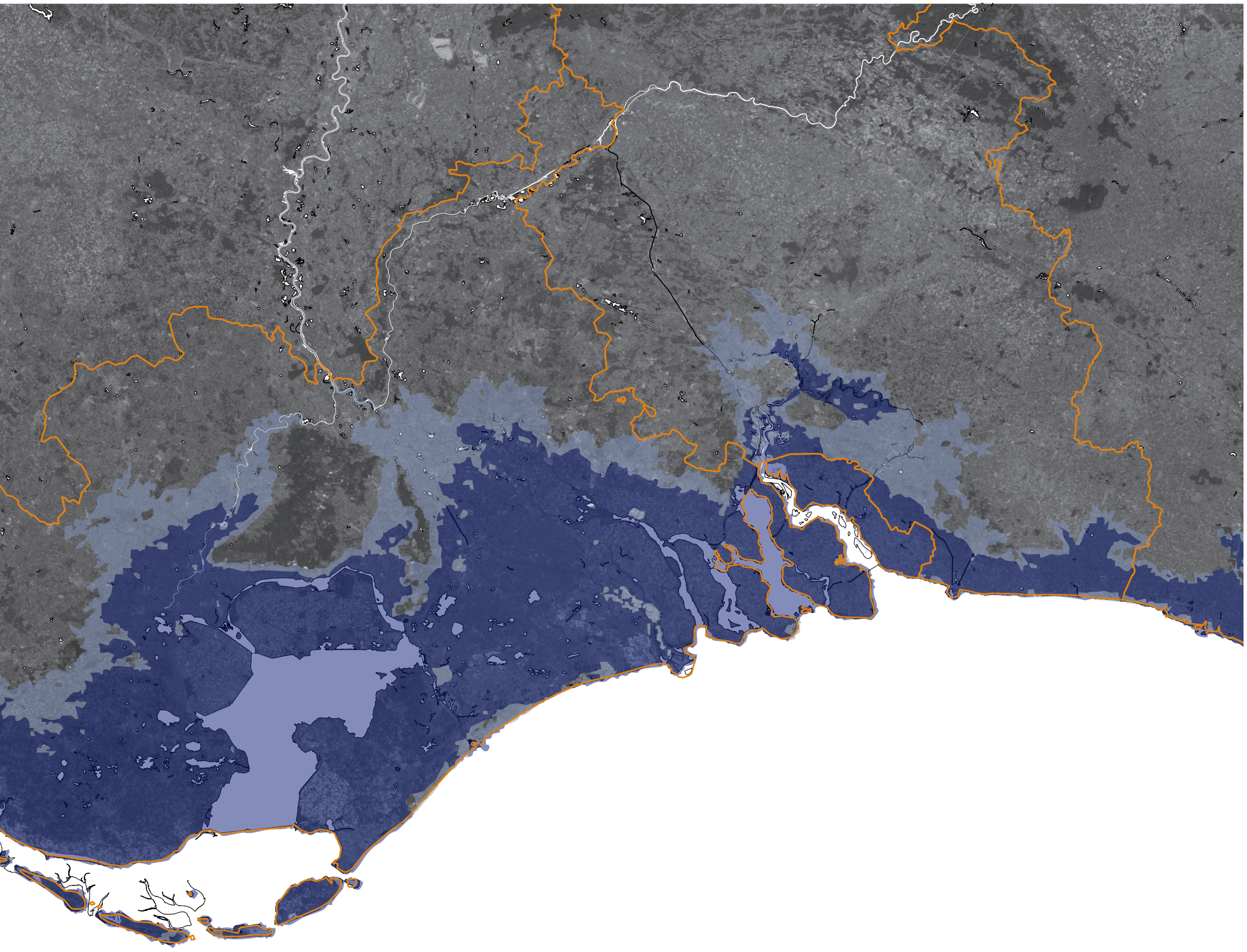


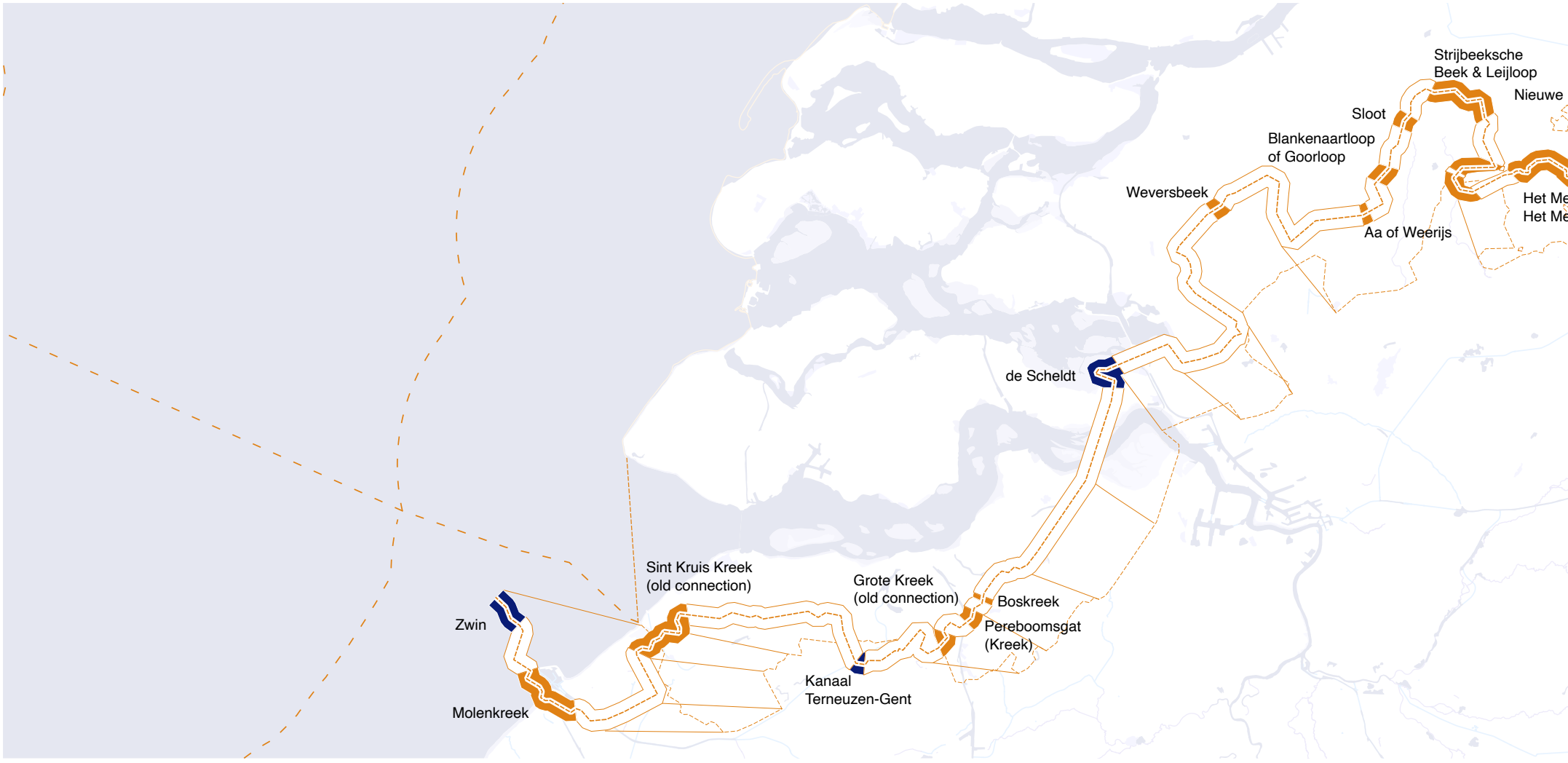
Fig. 37 Critical zone coast line floods [Visual by author, based on data (CIESIN, 2021)]

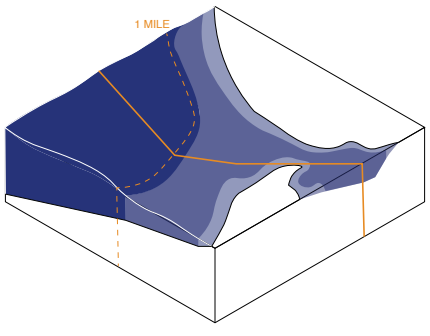
Legend

- Border
- Elevation hight: 0 - 5 m
- Elevation hight: > 5 - 10 m


0
25 KM
N

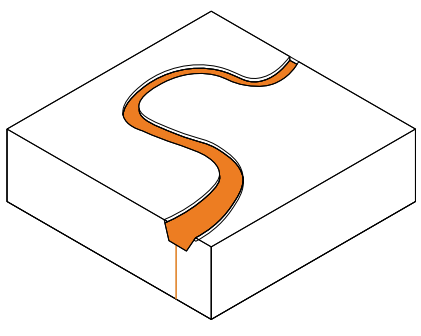
5.1 | **WATER AS A BORDER** | LIST OF WATER BODIES





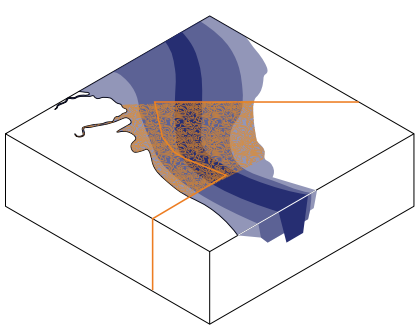
OLD ESTUARY

Het Zwin



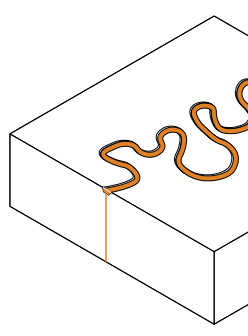
KREEK (BAY/INLET)

Molenkreek
Sint Kruis Kreek
Grote Kreek
Perenboomsgat
Boskreek



ESTUARY & TIDAL RIVER

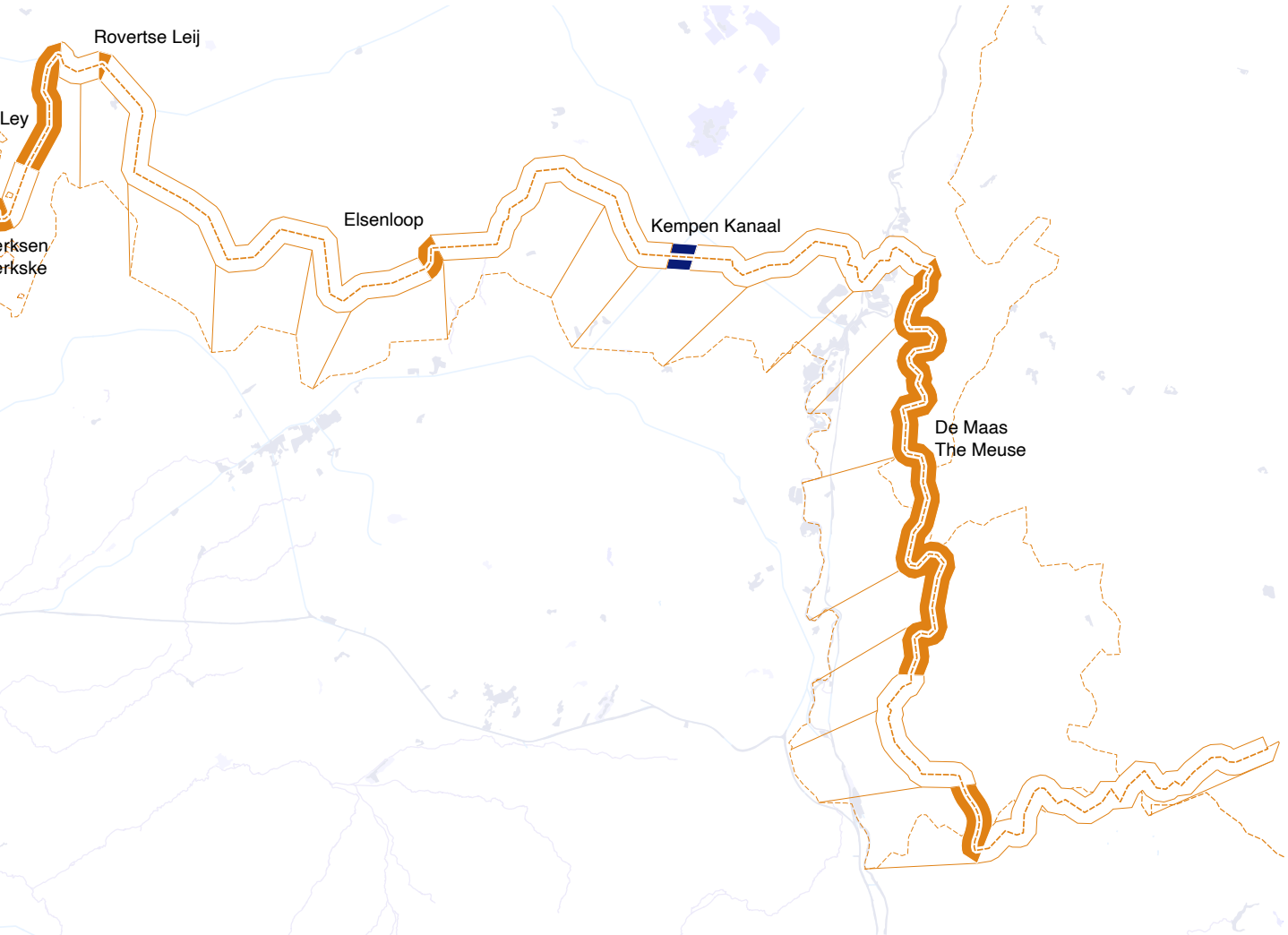
Westerschelde I Zeeschelde
Bovenschelde



BEEK (CRI

Weversbe
Aa of Wee
Blankenaartloop o
Strijbeeksche
Leijloop
Het Merkske I He
Rovertse
Elsenloo

Figure 38. Map of the Belgium-Netherlands border where there is overlap with waterbodies and structures [image by author, 2024]



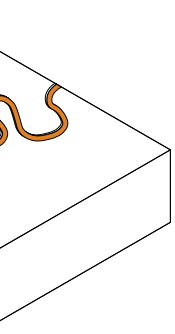
As with the Romans' Limes, natural elements are often used as territorial boundaries. This map, based on analysis via Google Maps, shows an overview of locations where water and the border either overlap (orange) or intersect (blue).

Six different forms have been identified. In the Southwest Delta, the border runs through estuaries, creeks, and a canal. In North and South Brabant, it mostly overlaps with small streams. Limburg and Flemish Limburg are divided by the Grensmaas.

While making this map, it became clear that the relationship between water and the border is dynamic. Small water bodies were sometimes used to define the border, while others, like drainage ditches, were added later. They overlap, align, cross, or almost seem to reach for each other.

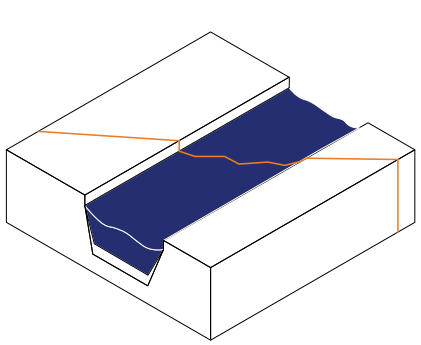
During my field visits, it became evident how invisible the border can be. Only when you know that a water body also marks the national boundary does the line become visible.

In further research, water and other landscape elements in Zeeuws-Vlaanderen will be examined more closely.



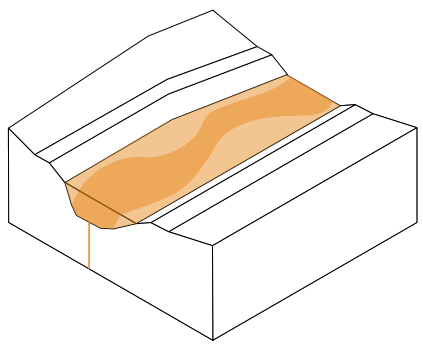
EEK)

eek
erijs
of Goorloop
e Beek
p
et Merksen
Leij
op



CANAL

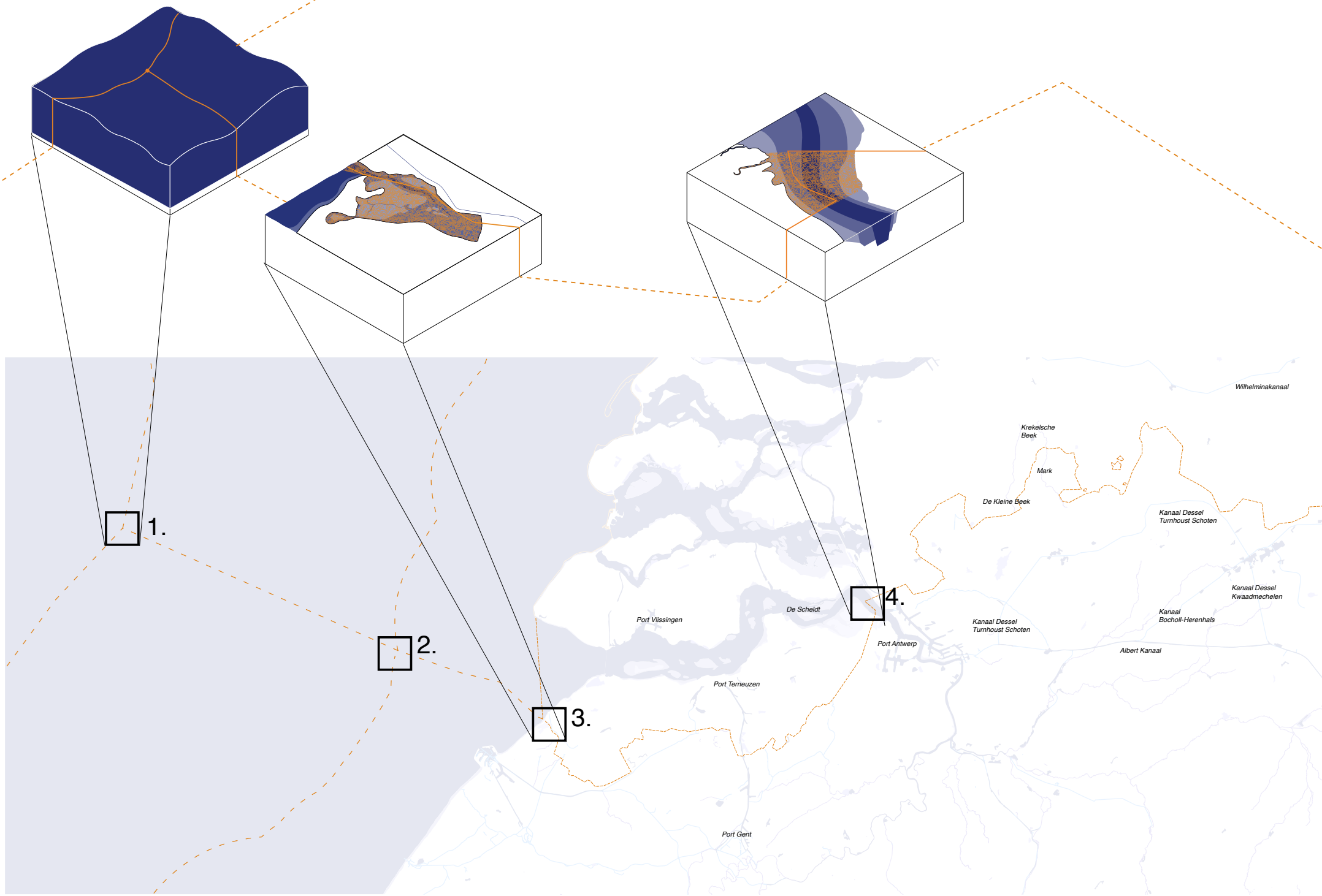
Kempen Kanaal
Terneuzen-Gent Kanaal



RIVER

Maas I Meuse

5.1 | **WATER AS A BORDER** | INTERESTING INTERACTION OF WATER & BORDER



1. NATIONAL CONTACT POINT
[border UK-BE-NL]

2. 12 MILE ZONE
[BE-NL-DK-DE-LX]
International fishing zone

3. HET ZWIN

It was an old estuary, back in 1100 which went all the way to Brugge, the economical hub of the Low Lands at the time. After a big flood, the estuary moved directions. This became later the Scheldt (Berendse & Brood, 2022).

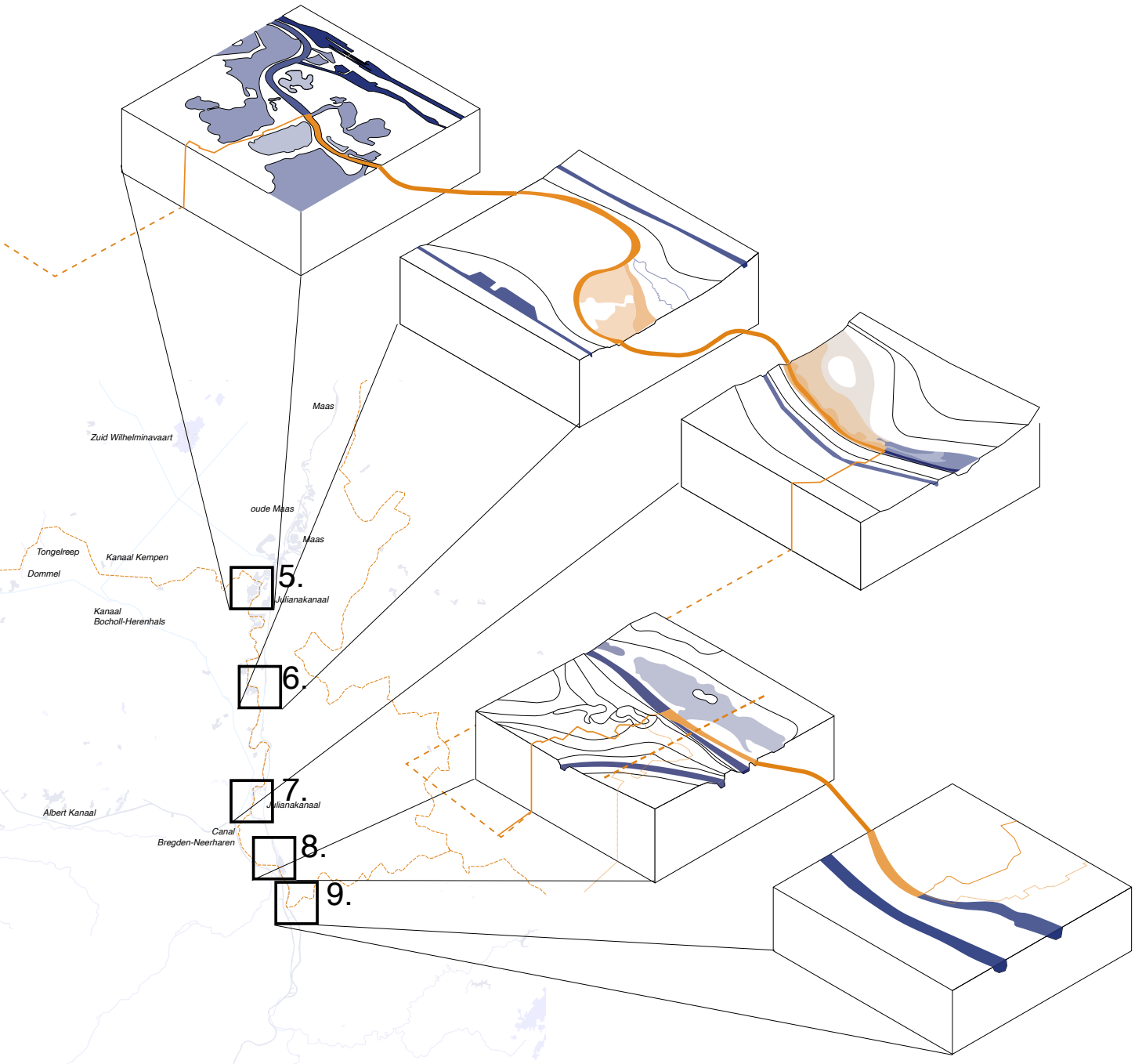
4. BORDER SCHELDT

Interresting, way the border is drawn. Could be that there was a small island in the past.

5. START MEUSE BORDER

First point where Meuse becomes the border-river. It is an area with natural and man-made lakes.

Figure 39. Map of the waterbodies and the border [image by author, 2024]



6. SYMETRIC MEUSE

oth Belgium and Netherlands dug canals in 1800-1920. To ild a more reliable trade route (De Mayer et al., 2021).

7. & 8. MAASTRICHT

Border leaves the river, goes around the city Maastricht and then returns into the Meuse again.

9. END MEUSE BORDER

Here the border leaves the river again. Interresting is to see that here also the Flemish border follows the river and then leaves it again.

5.1 | **WATER AS A BORDER** | THE SCHELDT BORDER

Besides the border river Meuse, the estuary and tidal river Scheldt are also intersected by the national border. The way this border is drawn into the landscape is one of the main motives for this research. So far, I have not been able to identify a clear reason why the Scheldt border runs as it currently appears on maps.

Furthermore, it highlights how the expansion of the Port of Antwerp stops abruptly at the hard national border. The scale of Dutch arable land parcels is also mirrored in the adjacent Belgian plots, indicating a cross-border influence in land use patterns. Finally, the border park 'The Drowned Land of Saeftinghe' is visible. This park has existed since 2016 and is the result of Dutch–Belgian–European cooperation. The land had to be de-poldered by the European Union as compensation for emissions (European Environment Agency & European Commission, 2024).

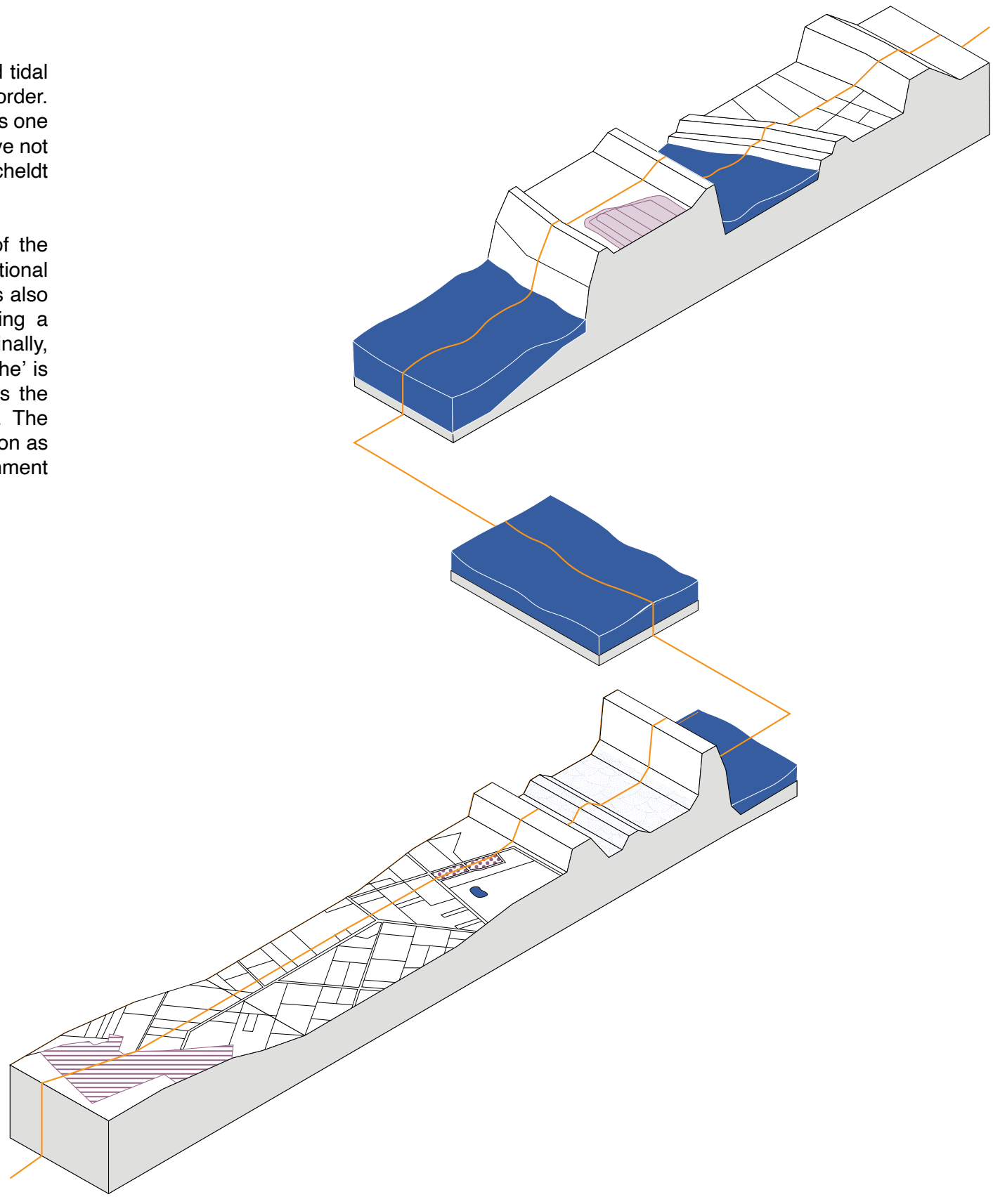
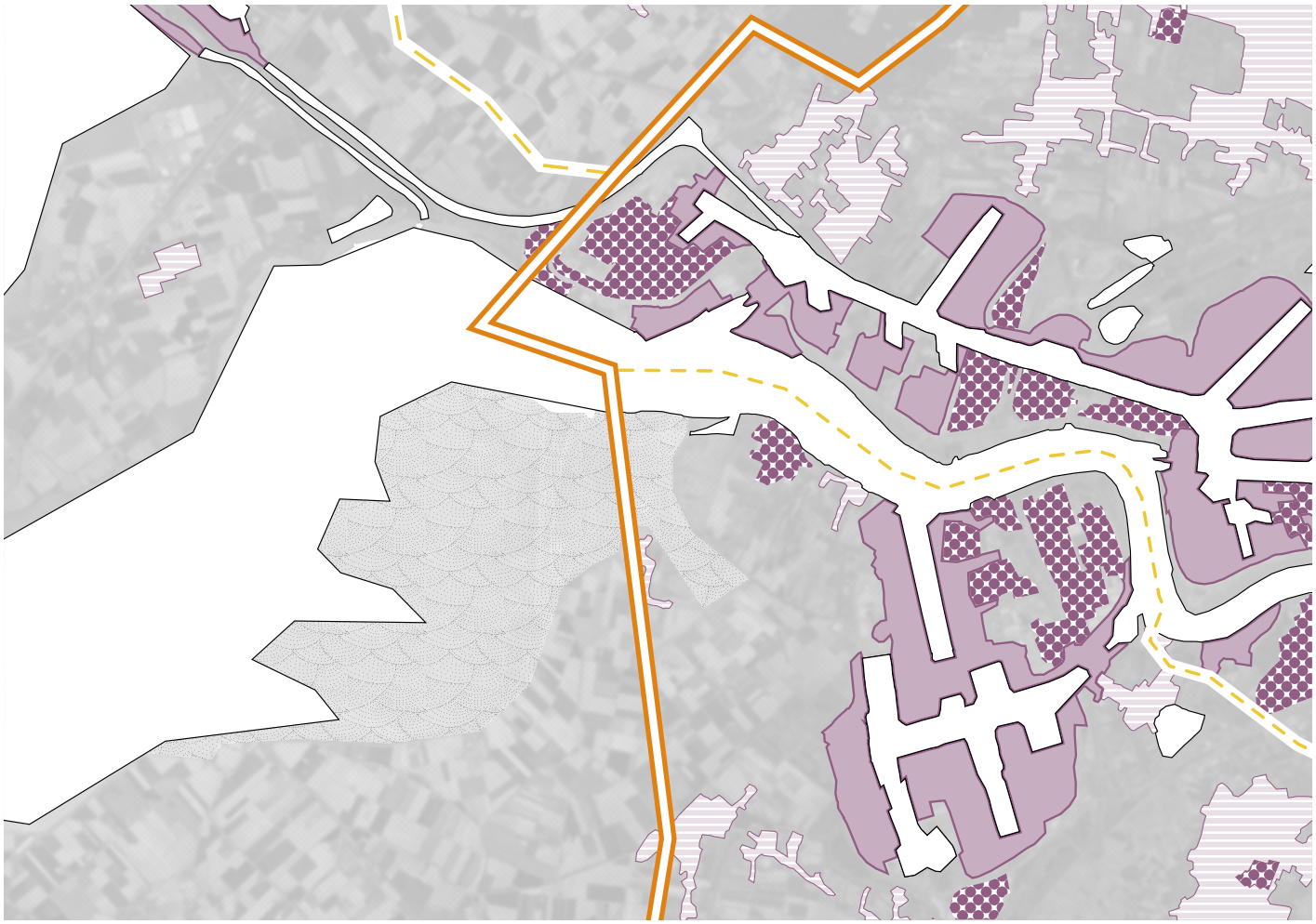


Figure 40. *Alteration*, axonometric of the border in the Scheldt. [Visual by author]



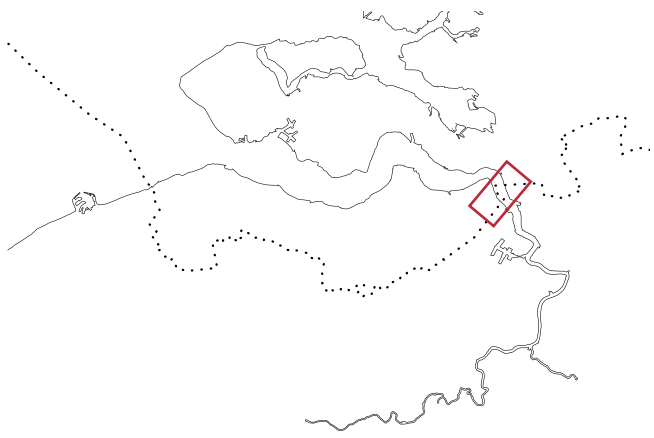


Figure 41. Border at Zeeuws-Vlaanderen and Port Antwerp [Map by author]

Legend

- Water
- Port
- Industries
- Provincie, NL
- Vlaams gewest, BE
- Heavy Industries
- Satellite
- Verdronken Land van Saeftinghe
- Urban

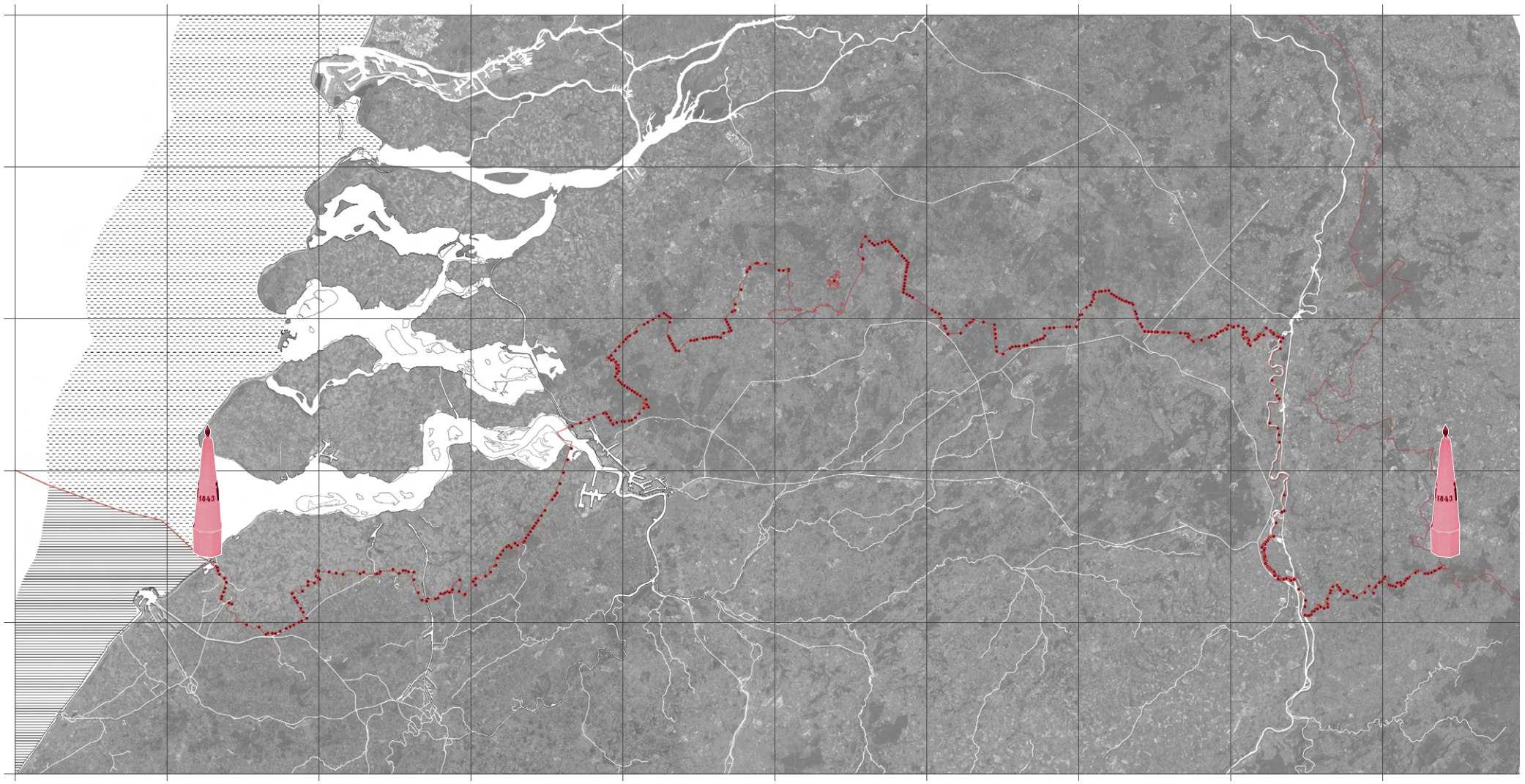


Figure 42. Context [Map made by Author (Datasets)]

The border between the Netherlands and Belgium has been marked with border posts since 1843. There are a total of 365 border posts along the national border. Following the Maastricht Convention in 1843, 1:10,000 scale maps were drawn up to indicate the national border. In some places, 1:500 scale maps were needed to show the border location in detail (Lesaffer, 2016). The Three Countries Point, where Germany, the Netherlands and Belgium meet, is one of the most famous border posts. But there is also a pole at the Zwin in Zeeuws-Vlaanderen, indicating from where the border runs into the sea.



Legend

- Water
- Satellite
- Border
- Water territory NL
- Water Territory BE
- Border marker

0 40 KM N

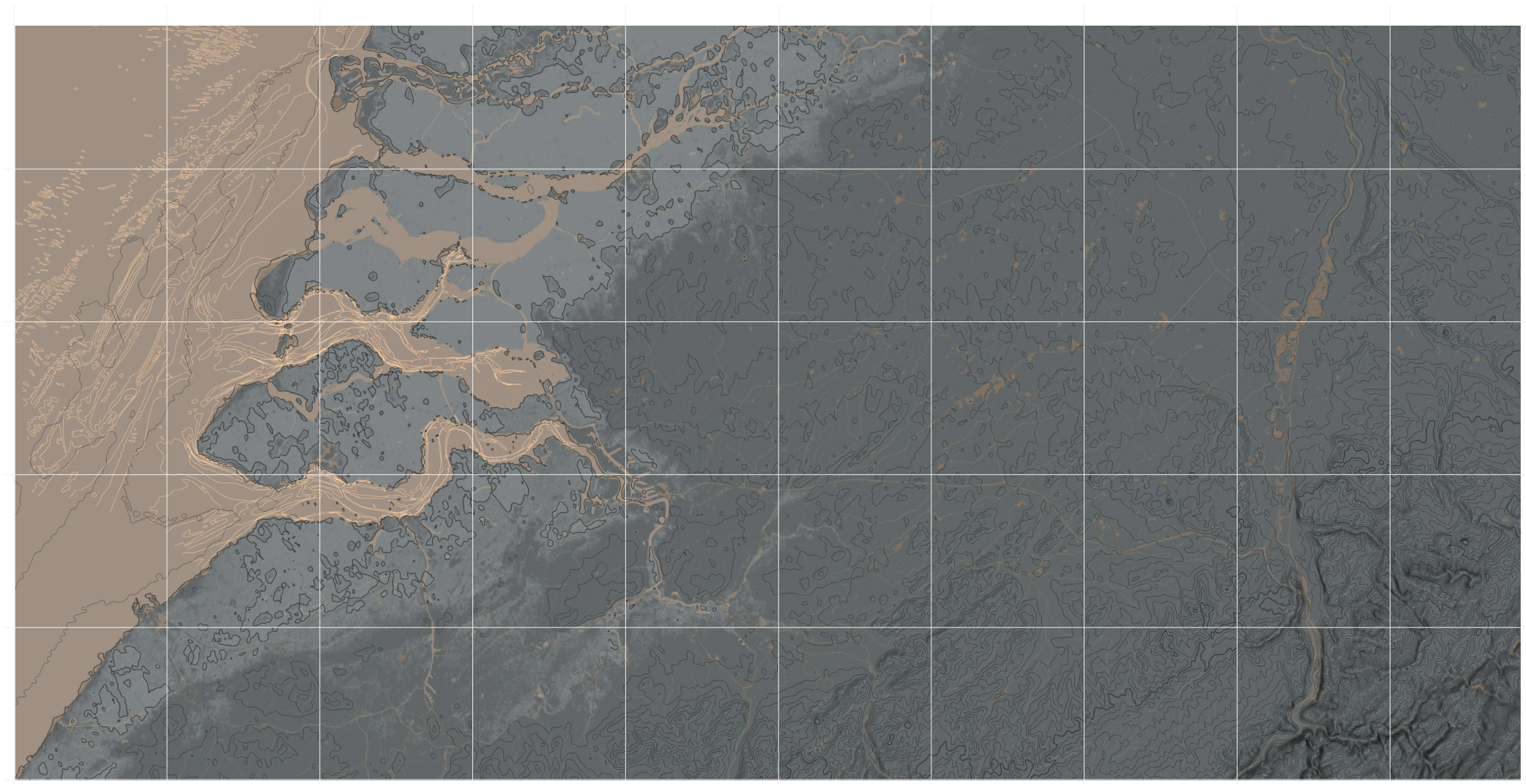


Figure 43. Elevation and flood risk [Map made by Author (Datasets)]

The map above shows the topographic elevation. The areas in light grey mark zones located at six metres above sea level. Compared to other border regions, Zeeuws-Vlaanderen is characterised by a relatively low elevation, which increases its vulnerability in the face of sea level rise.

Legend

- Water
- Elevation hight: < 6 m
- Elevation hight: 6 - 250 m
- Elevation lines sea
- Elevation lines land

0 40 KM N

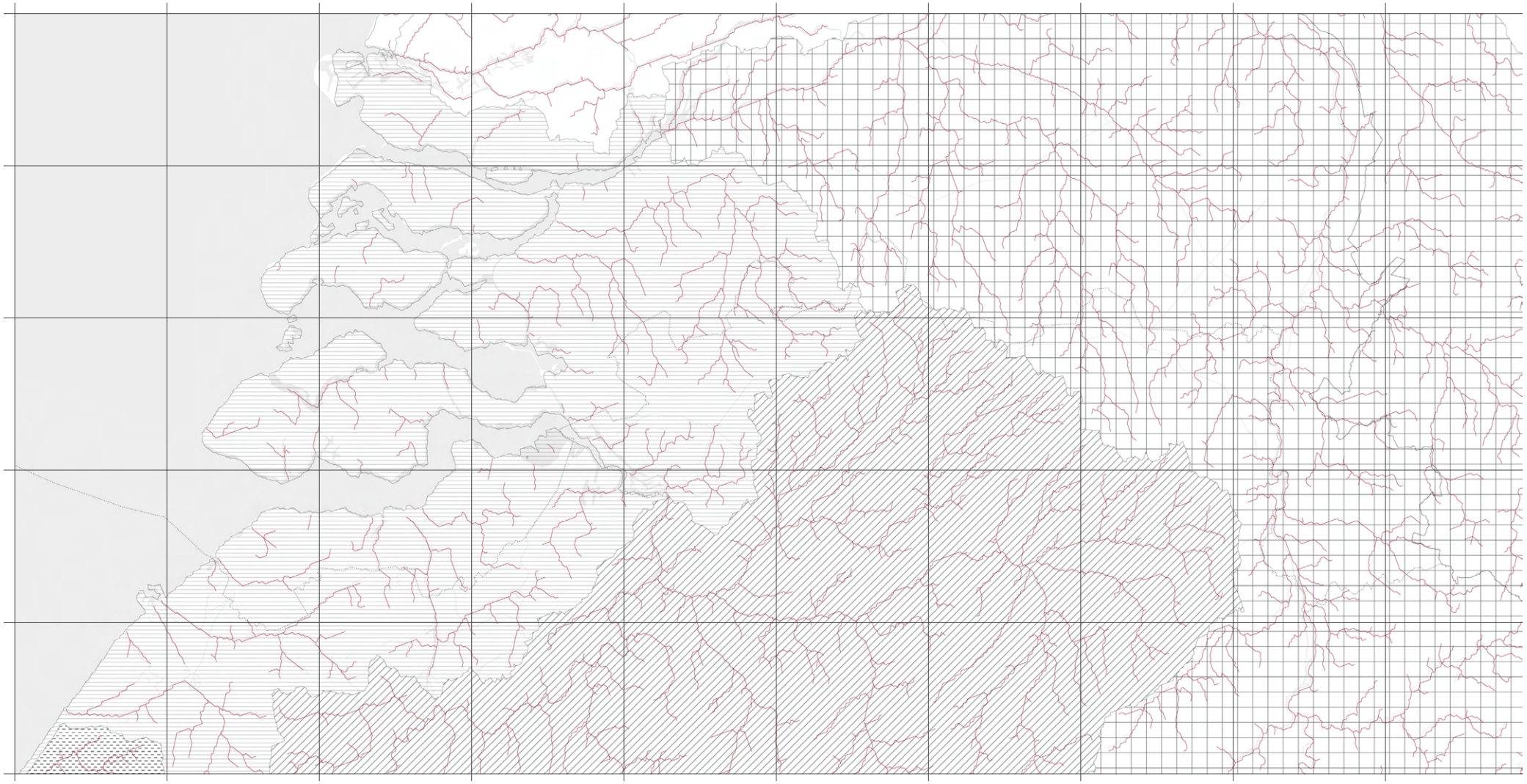


Figure 44. Hydro Basins [Map made by Author (Lehner & Grill, 2013)]

Surrounding the border between the Netherlands and Belgium are three major hydrological basins that define the border landscape: the Rhine-Meuse-Scheldt Delta, the Meuse Basin and the Scheldt Basin. These three systems partly overlap and together form the dynamic water structure in this border landscape. Their presence explains the complexity of water management, border formation and spatial planning in Zeeuws-Vlaanderen and neighbouring Flemish areas.

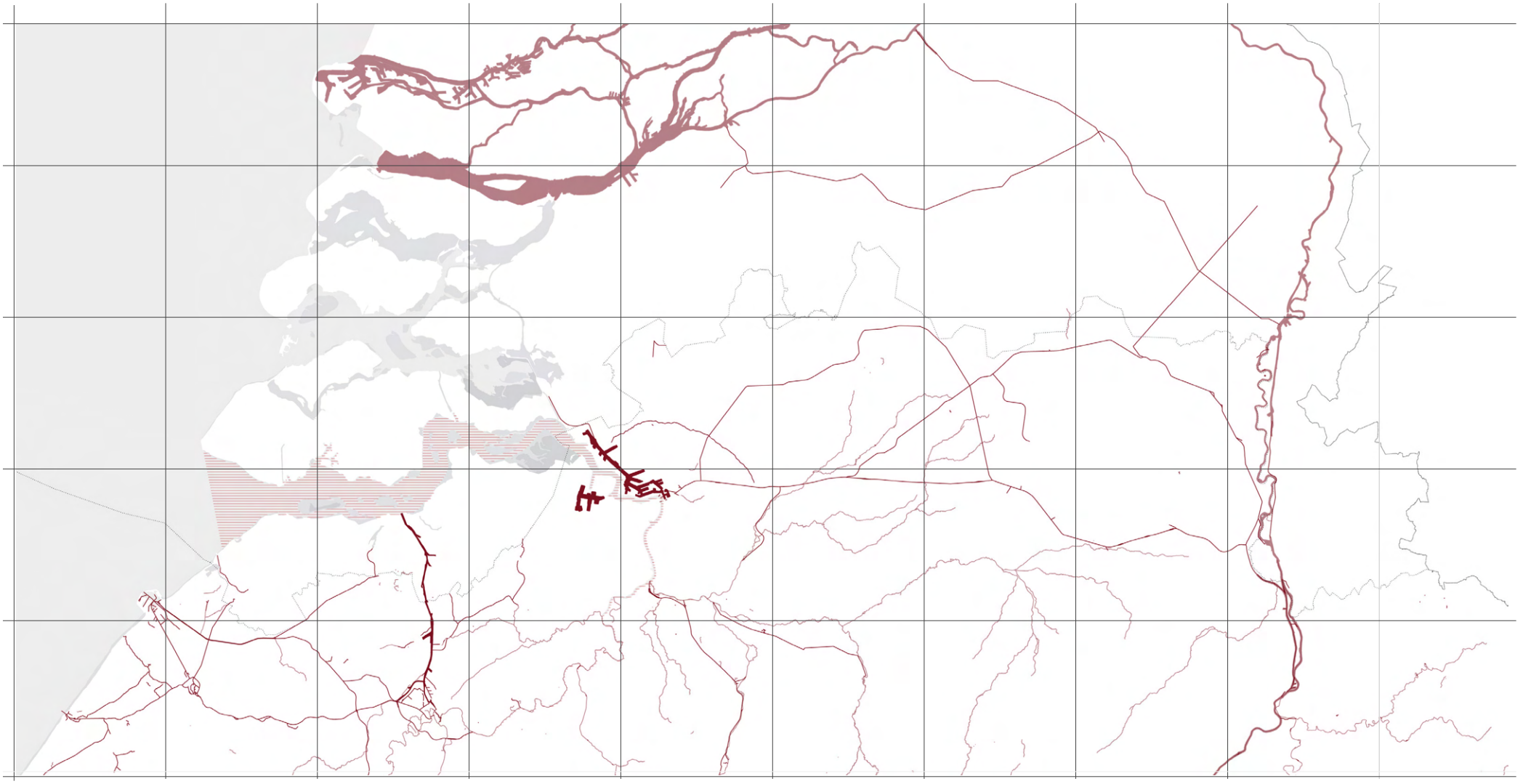


Figure 45. Water bodies and Structures [Map made by Author (Datasets)]

For this map, smaller water structures have been omitted due to scale; these have already been explained in previous maps. Between the Netherlands and Belgium, there are only three canals that form man-made transboundary waterways: the Ghent-Terneuzen Canal, the Albert Canal and the Bocholt-Herentals Canal. The Meuse is the longest body of water that acts as a natural border. There are also two smaller cross-border water structures in Zeeuws-Vlaanderen, such as the Leopold Canal near Sluis and the Zijkanaal to the Baalhoek near the former Hulsterlo Canal. However, these are no longer in use as active navigation routes.

Legend

Scheldt Estuary
North Sea
Border
Canal and Dock
River

0 40 KM N

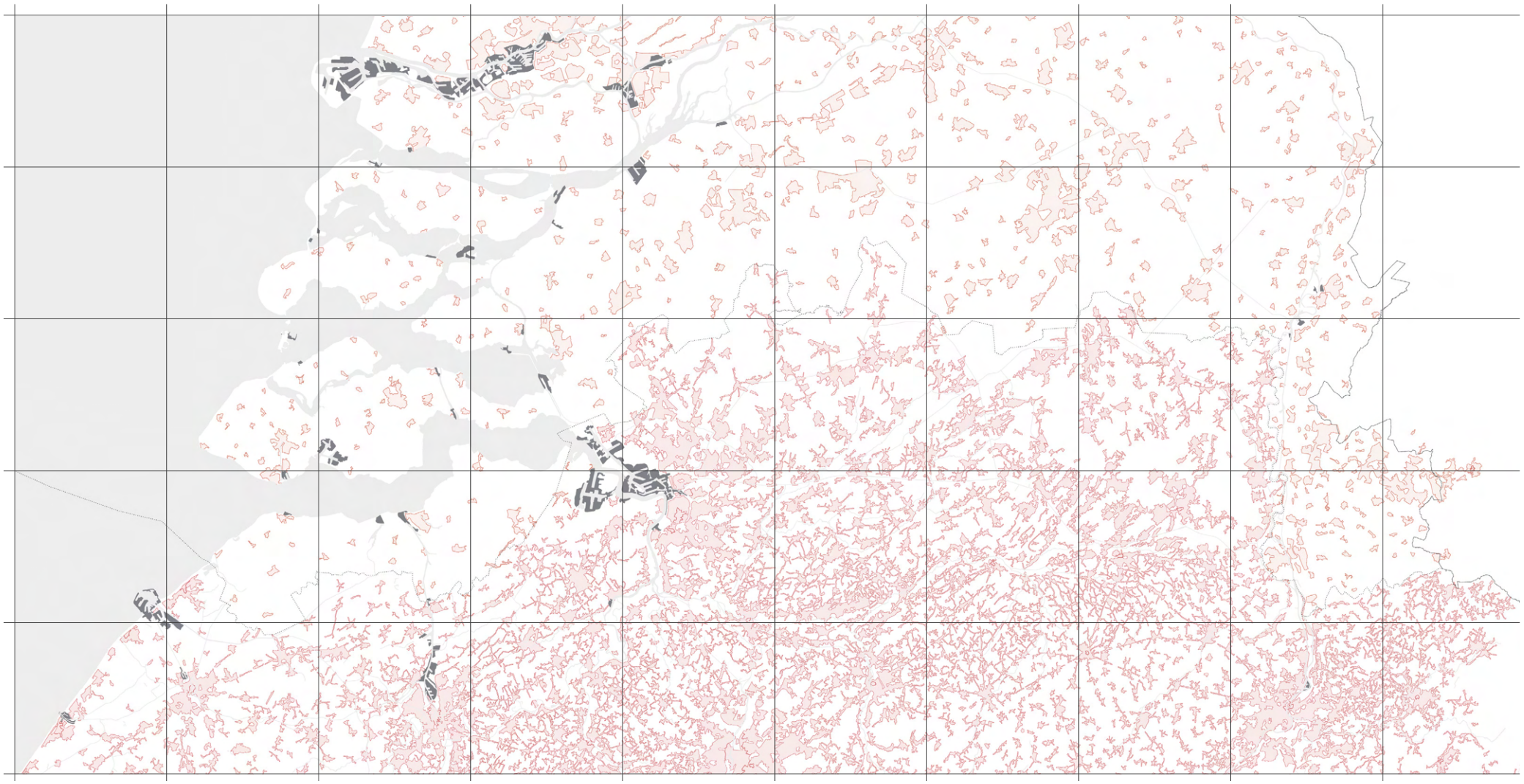


Figure 46. Urban [Map made by Author (Datasets)]

A higher degree of urbanisation is clearly visible on the Belgian side of the border. This difference is partly due to different spatial planning principles. In Belgium, the urban fabric develops mainly according to a ribbon or linear morphology, with villages stretching out along roads. By contrast, the Netherlands has a more clustered or radial village structure, with buildings concentrated around a central core. Zeeuws-Vlaanderen is relatively sparsely populated and has a low building density, which is clearly visible on the map.

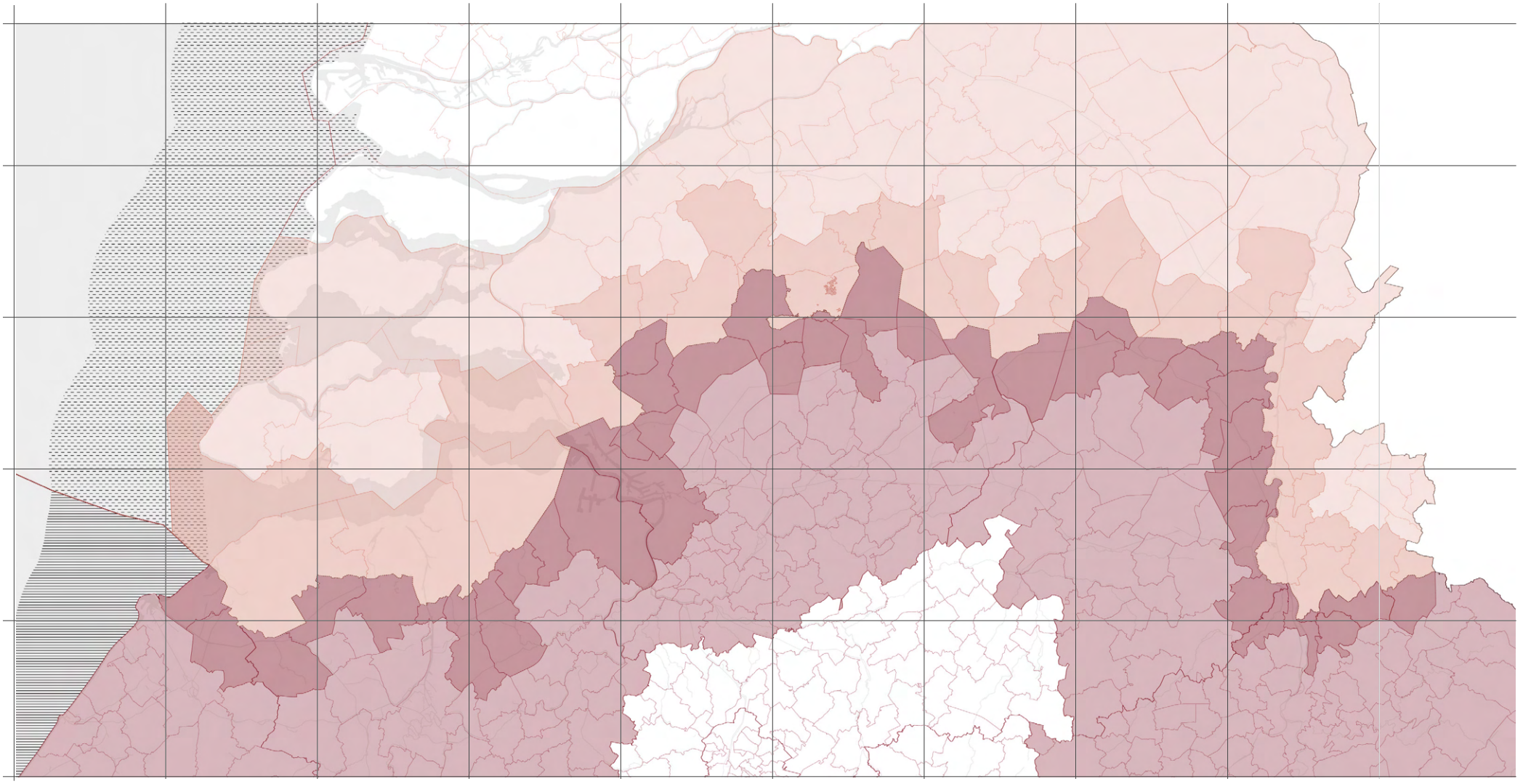


Figure 47. Governance [Map made by Author (Datasets)]

The map shows the border municipalities on both the Dutch and Belgian sides. Zeeuws-Vlaanderen is located in the province of Zeeland and consists of three municipalities: Sluis, Terneuzen and Hulst. The area borders three Belgian provinces: West Flanders, East Flanders and Antwerp.

The map was drawn up to investigate to what extent one can speak of a common border landscape. Does this landscape belong only to the neighbouring municipalities, or does it extend further? This question remains open for the time being.

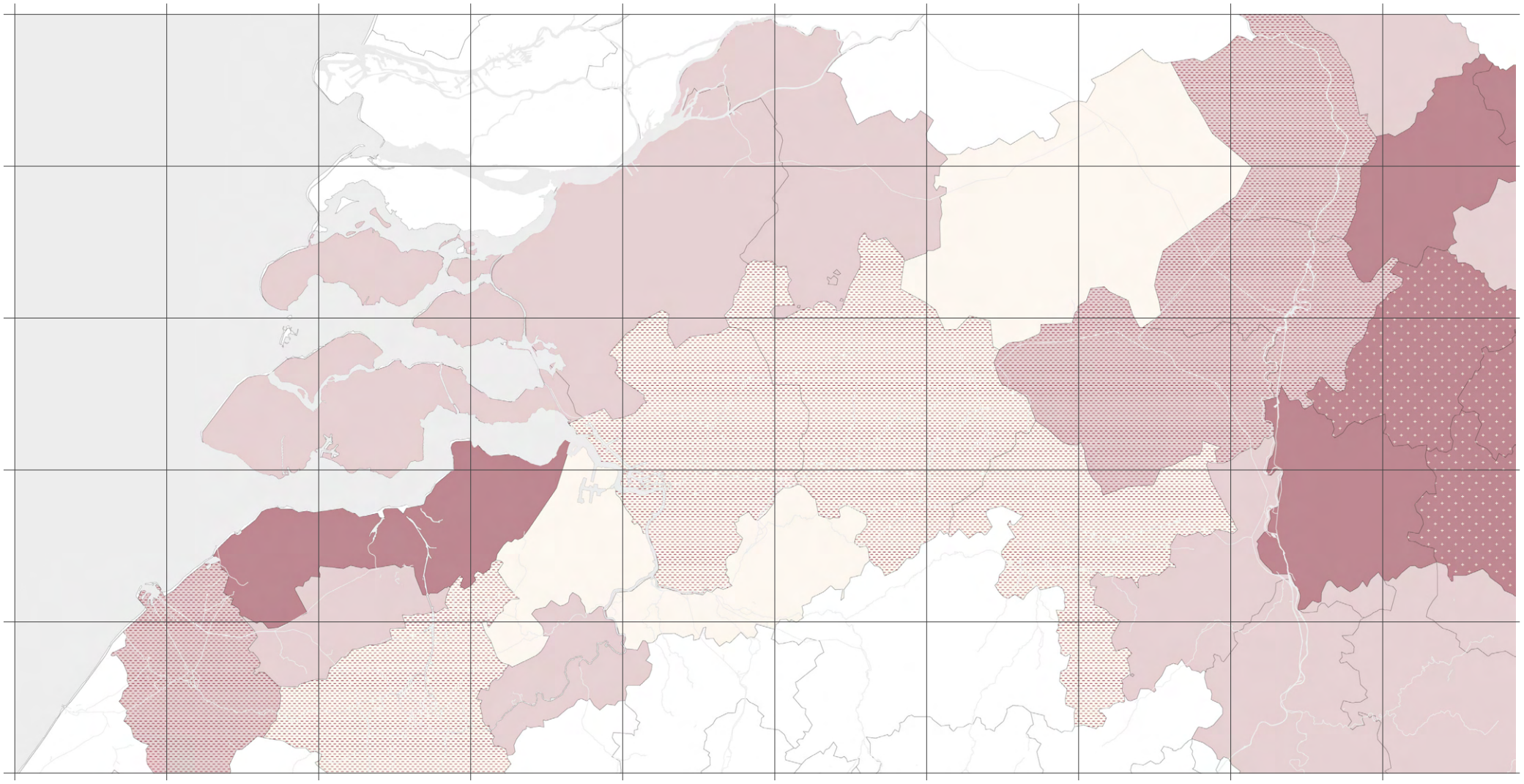
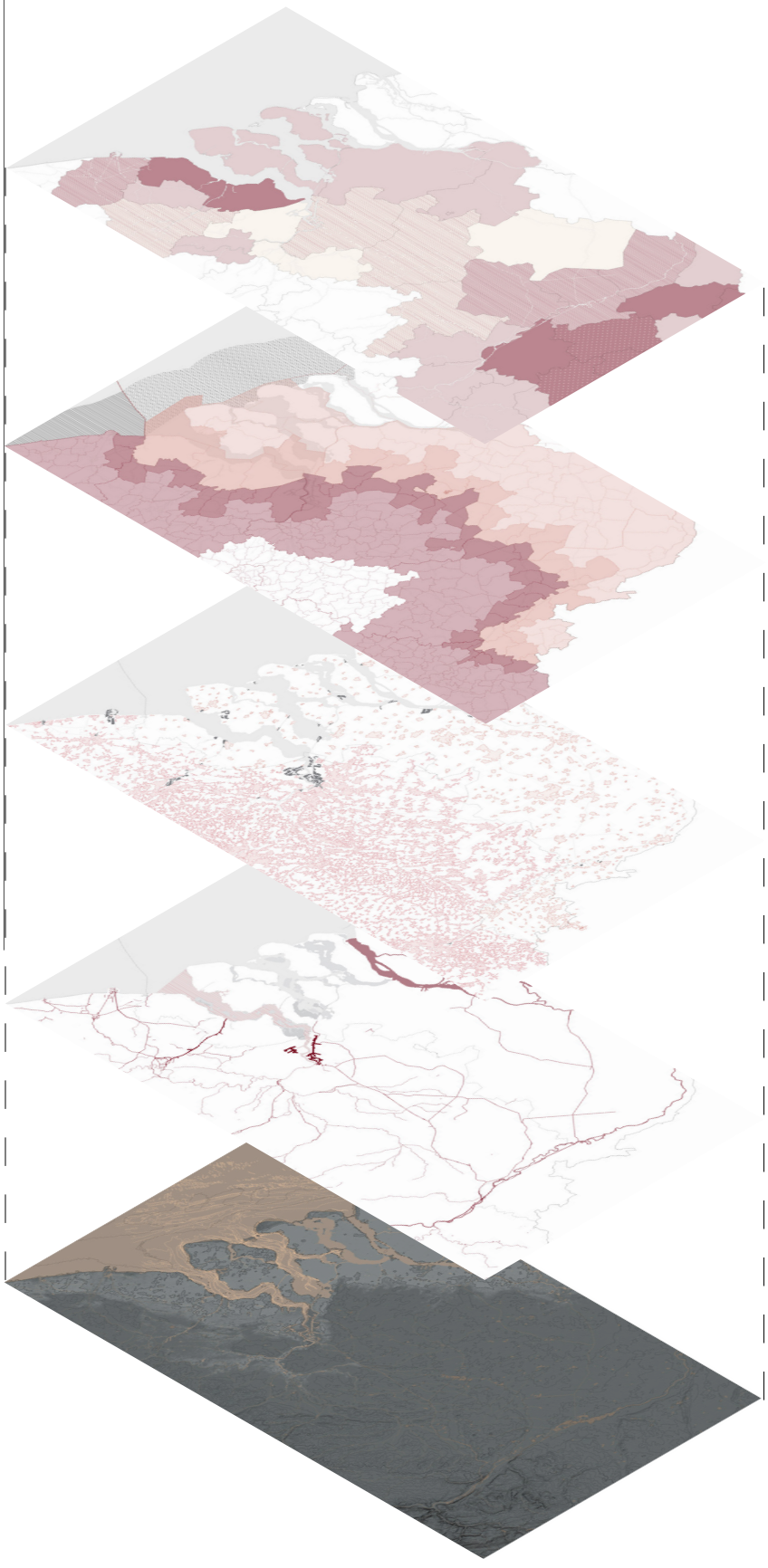


Figure 48. Population shrinkage [Map made by Author (Van den Berge, Middeldorp & Burema, 2020)]

The report *Opportunities Without Borders?* (Kansen zonder grenzen?), Van den Berge, Middeldorp & Burema, 2020) shows that population growth in the Netherlands is declining most significantly in peripheral regions. These are also the areas where the population is ageing the fastest. The map shows population growth between 2010 and 2018; horizontal stripes indicate regions where further shrinkage is expected between 2020 and 2030.



The border between the Netherlands and Belgium is not an obvious line, but the result of centuries of political negotiations, natural processes and landscape structures. Since 1843, this border has been physically marked with border posts, including the famous post in the Zwin where the border literally draws into the sea. This physical presence highlights how hard a border can be, while the surrounding landscape shows that borders are often diffuse and layered.

The analysis shows that Zeeuws-Vlaanderen is a relevant case for rethinking borderlands. Not only is it part of the international Scheldt basin, it is also located in a region vulnerable to sea level rise as well as struggling with strong demographic decline. According to the report Kansen zonder grenzen? (Van den Berge, Middeldorp & Burema, 2020), this is the area where the population is ageing fastest and where further shrinkage is predicted until 2030.

The spatial and socio-economic challenges converge here at a scale where both the border and the landscape are palpable. It is a region where the national border creates physical, political and cultural barriers, while at the same time it shares natural structures such as the Scheldt and the polders with Belgium.

Figure 49. Axonometric of the BE-BL Border landscape [Map made by Author]

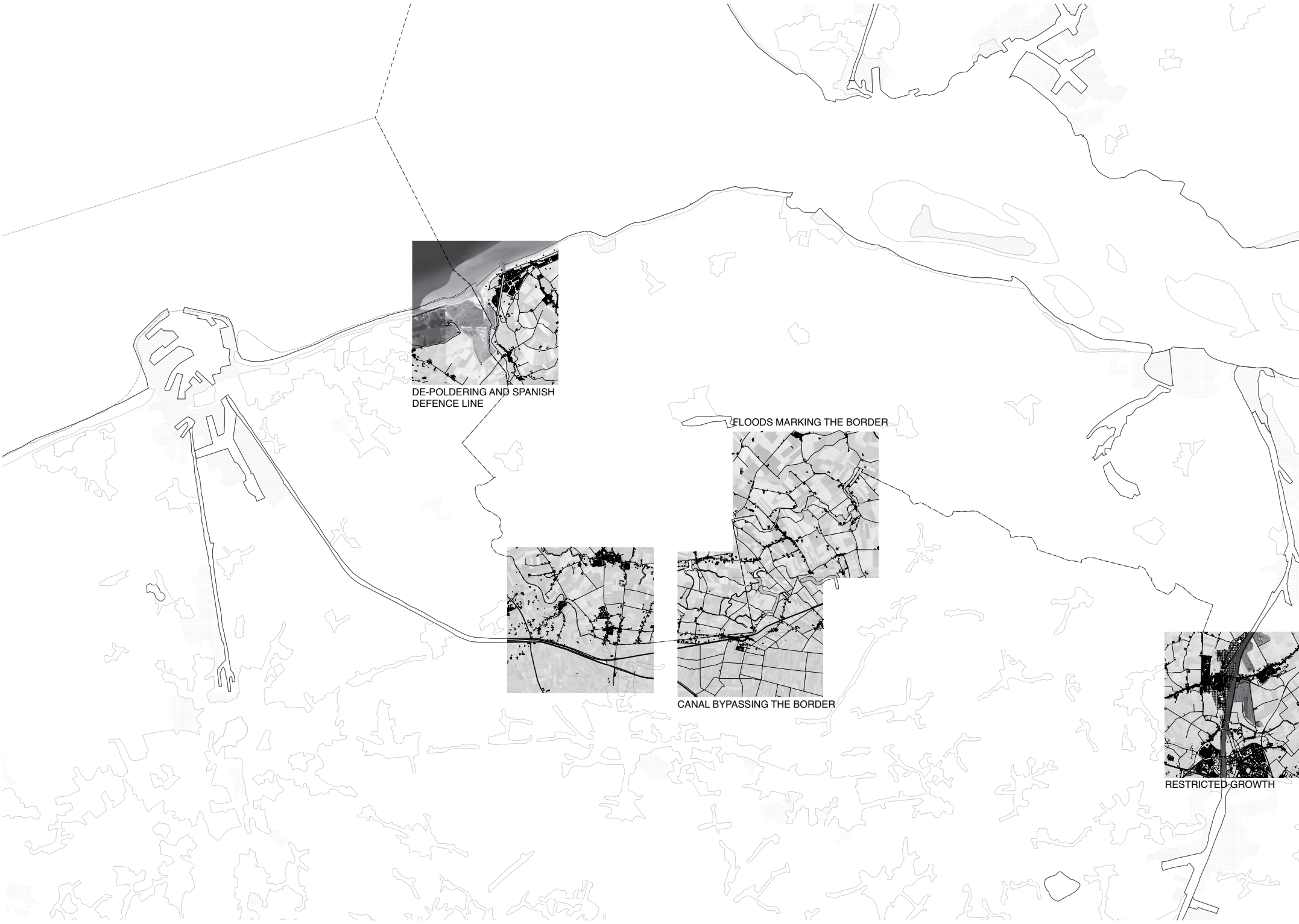


Figure 50. BorderScape of Zeeuws-Vlaanderen [Map made by Author]

6. BORDERSCAPE OF ZEEUWS-VLAANDEREN



DIKE AS THE BORDER

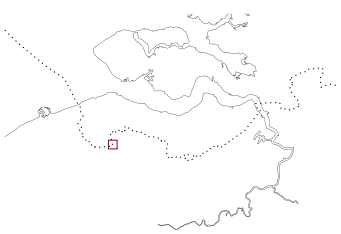


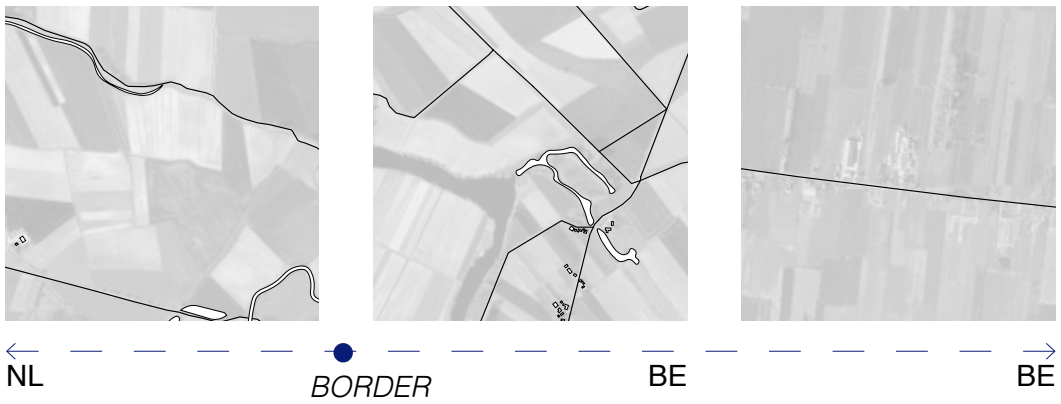
INDUSTRIAL NATURE COMPENSTATION

LIVING ON THE BORDER

6.1 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | BOUNDARY ALLOTMENT







Clear differences in agricultural structure are visible along the Belgian-Dutch border. In the Netherlands, large-scale land consolidation took place from 1920 onwards, leading to larger, regular plots. On the Belgian side, this process started later and less intensively, making the transition in plot structure near the border clearly visible.

Both sides have a typical polder landscape with mainly arable farming, such as grain, sugar beet and potatoes. In Flanders, there is also more fruit farming. These similarities and differences form an important part of the shared border landscape.



Figure 51. Parcels ignoring the border line [Image by Author]

Figure 51. Polder landscape [Map made by Author]

Legend

Border

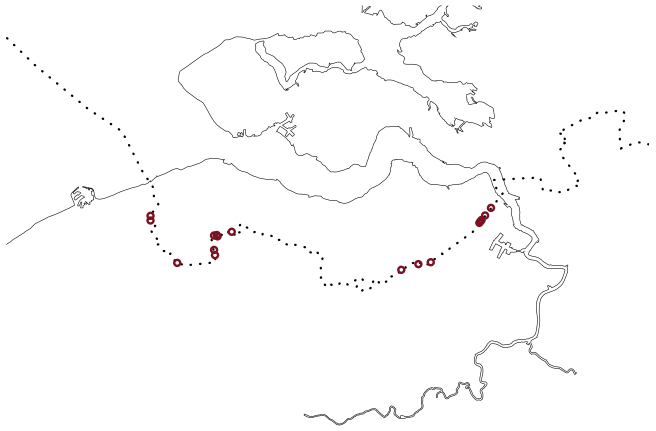
Polder landscape

0 20 KM N

6.1 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | BOUNDARY ALLOTMENT | ZOOMING IN

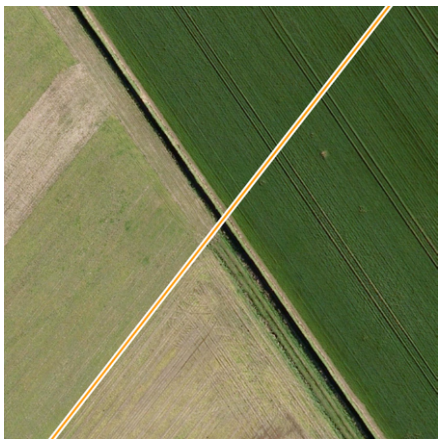


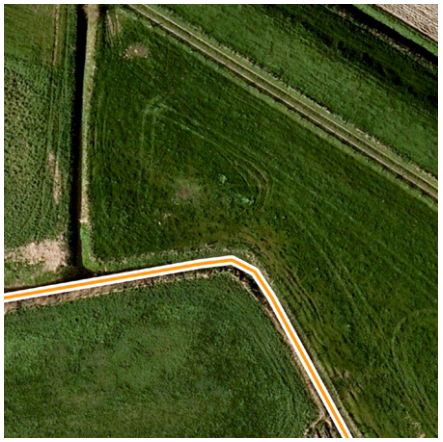












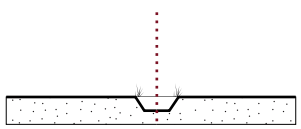


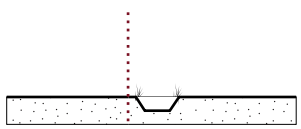


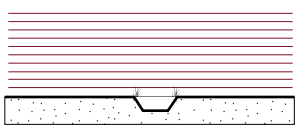
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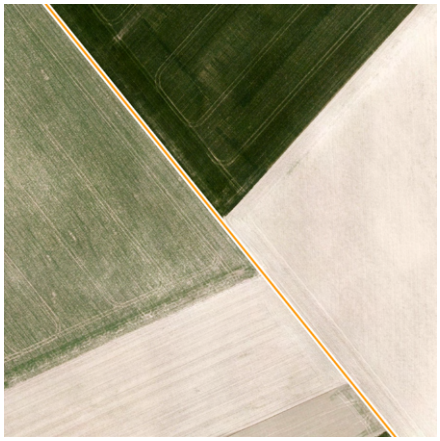
ALMOST

CROSSING







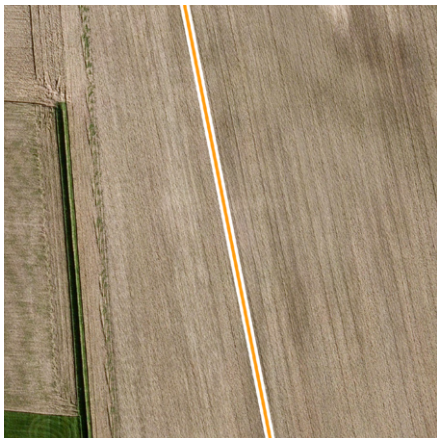




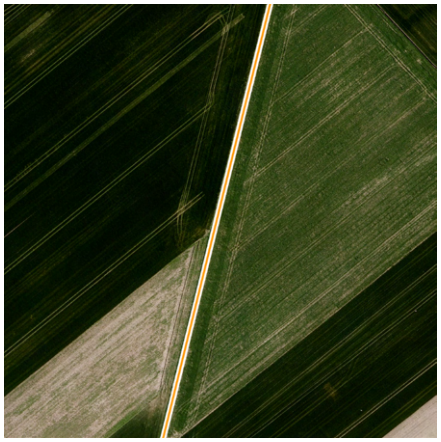












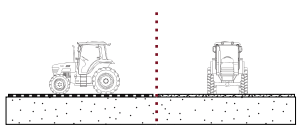


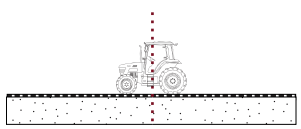


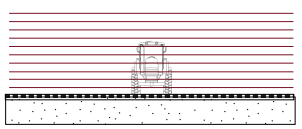
FOLLOWING

IGNORED

CROSSING







6.2 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | LIVING ON THE (PAVED) BORDER





0 1 KM N



0 10 M N

"I AM A BORDER RESIDENT, NOT DUTCH NOT BELGIAN. I AM BOTH"

- RESIDENT, KIELDRECHT



Along the border and just beyond it are small villages and towns, such as Kieldrecht and Nieuw-Namen. These two villages have slowly merged together, but each retains its own identity. This is visible in the use of materials, street furniture and layout of public spaces.

Nevertheless, residents feel a strong connection with their neighbours on the other side of the border. The border is crossed daily, for work, shopping or family visits.

"WE DO NOT SEE THE BORDER AS A PHYSICAL BORDER, WE FLY ACROSS THE BORDER AND AGAIN"

- RESIDENT ,HULST



Nieuw-Namen, NL

Kieldrecht, BE

Take a look at the pavement and street furniture

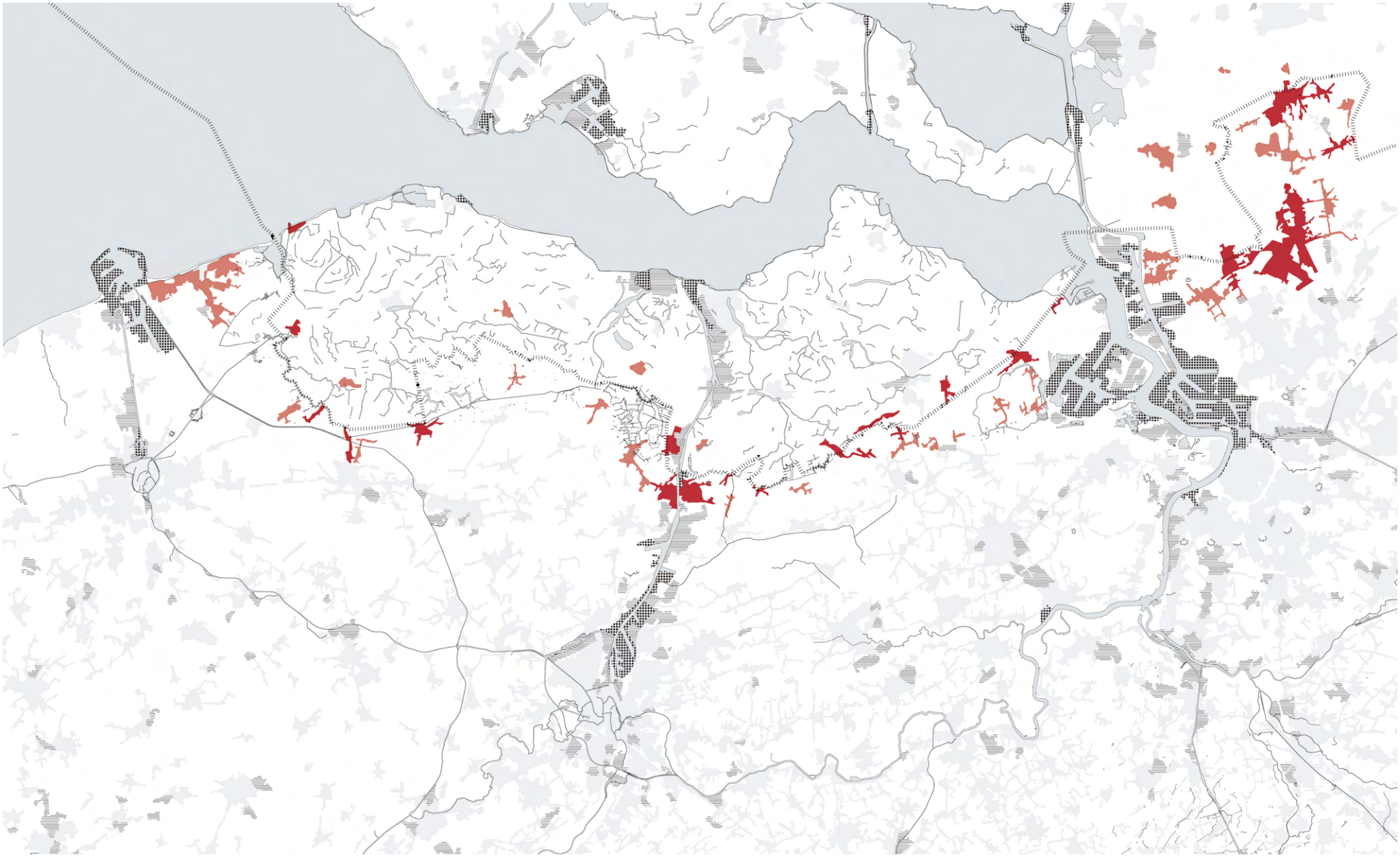
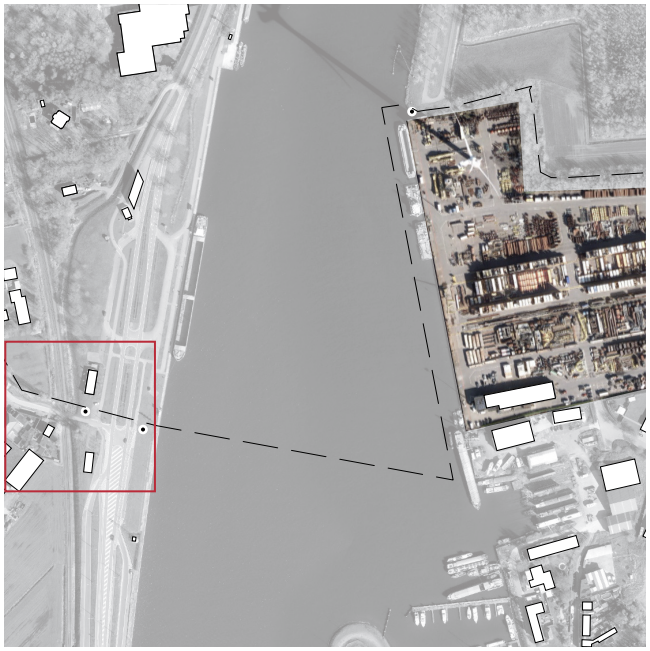


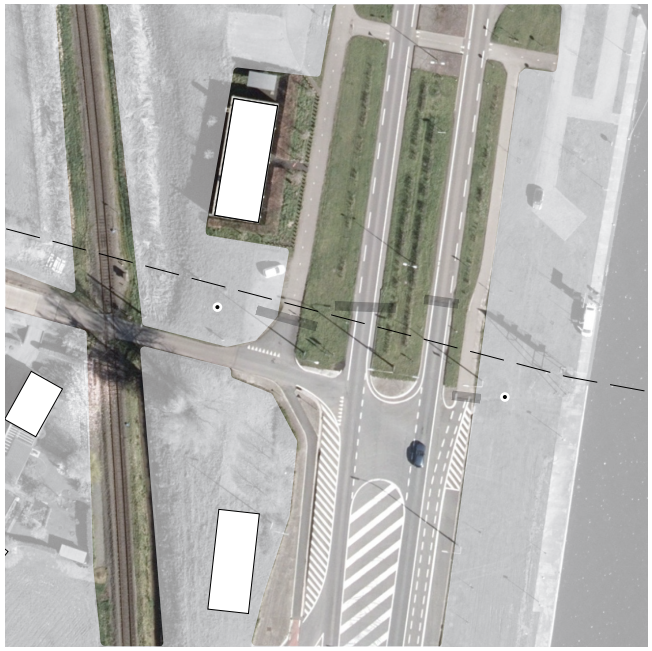
Figure 52. Living on the border [Map made by Author]

6.2| **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | LIVING ON PAVED BORDERS





0 100 M N



0 10 M N



0 1 CM N

Across the border are many small farm roads that allow you to cross the border unnoticed. There are only four main roads, such as the one next to the Ghent-Terneuzen Canal.

There also used to be a customs house on the Belgian side, as on the Dutch side (see figure #). These houses are now out of use, but the political situation between the Netherlands and Belgium is constantly changing. Since 2024, border controls have been re-established (NOS, 2024). In the future, these old buildings could be brought back into use should cooperation deteriorate further.

Anyone driving across the border will feel the difference in asphalt: the Netherlands and Belgium each use a different type of road surface. Interestingly, the transition of the asphalt is not exactly on the border, but often falls two to three metres across (see figure # and #). This constitutes a small but striking example of cross-border responsibility in physical space.



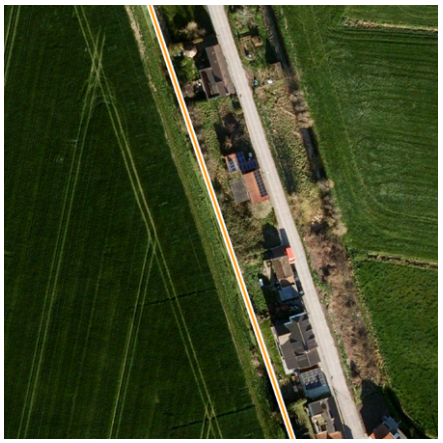


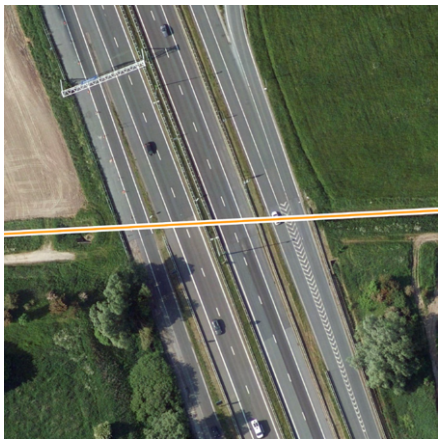


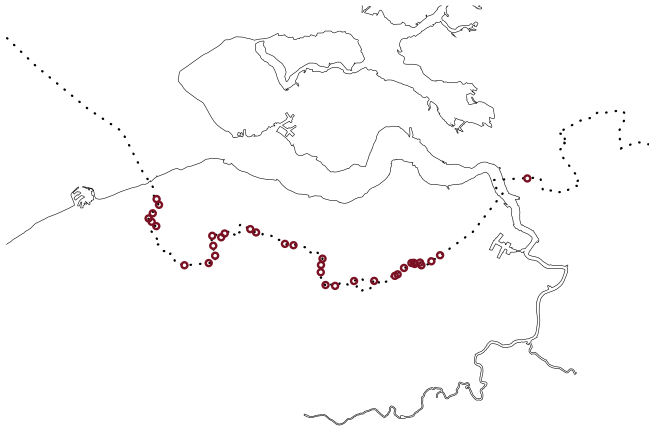
Figure 53. Driving over the border [Map made by Author]

6.2 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | PAVED BORDER | ZOOMING IN



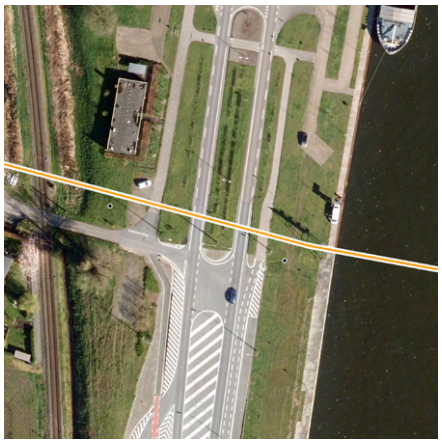














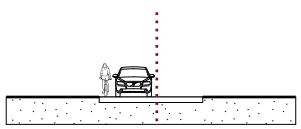
MATCHING

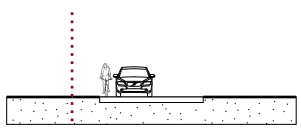


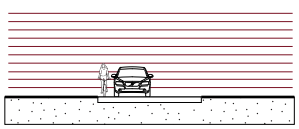
ALMOST



CROSSING





















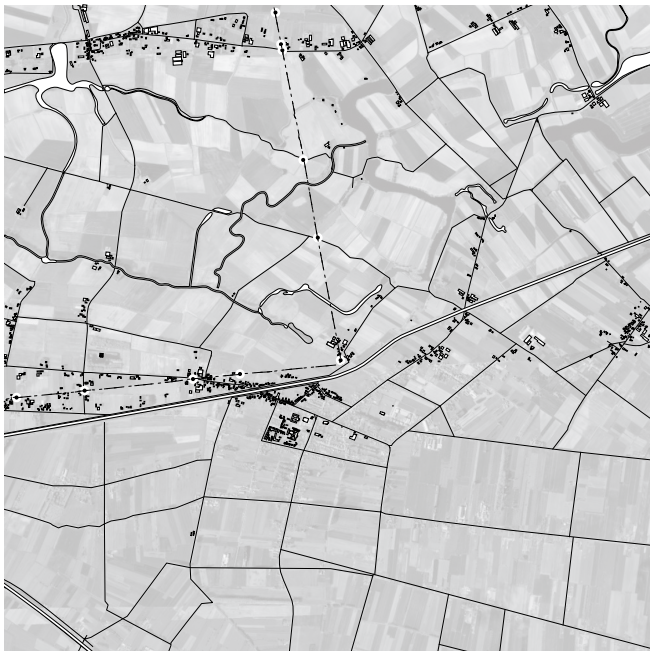


MATCHING

DEVIDING

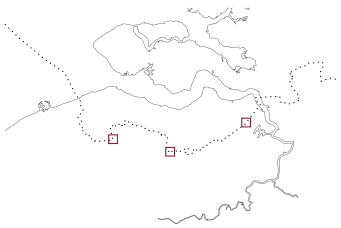
CROSSING

6.3 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | LIQUID BORDERS



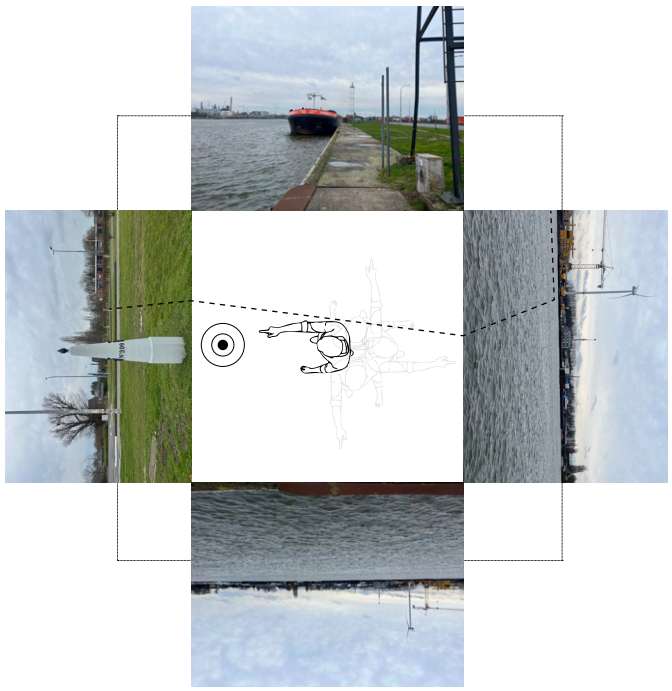






Water and the border have a special interaction. In some places, the border still meanders, as a reminder of an old creek that once lay there. Where water can form a natural barrier, it can also actually connect people.

For instance, the canal is an important corridor for North Sea Ports, physically connecting the ports of Ghent and Terneuzen. At the same time, waterways also exist from a period when cooperation between the Netherlands and Belgium was lacking, such as the Leopold Canal. This canal runs right along the border.



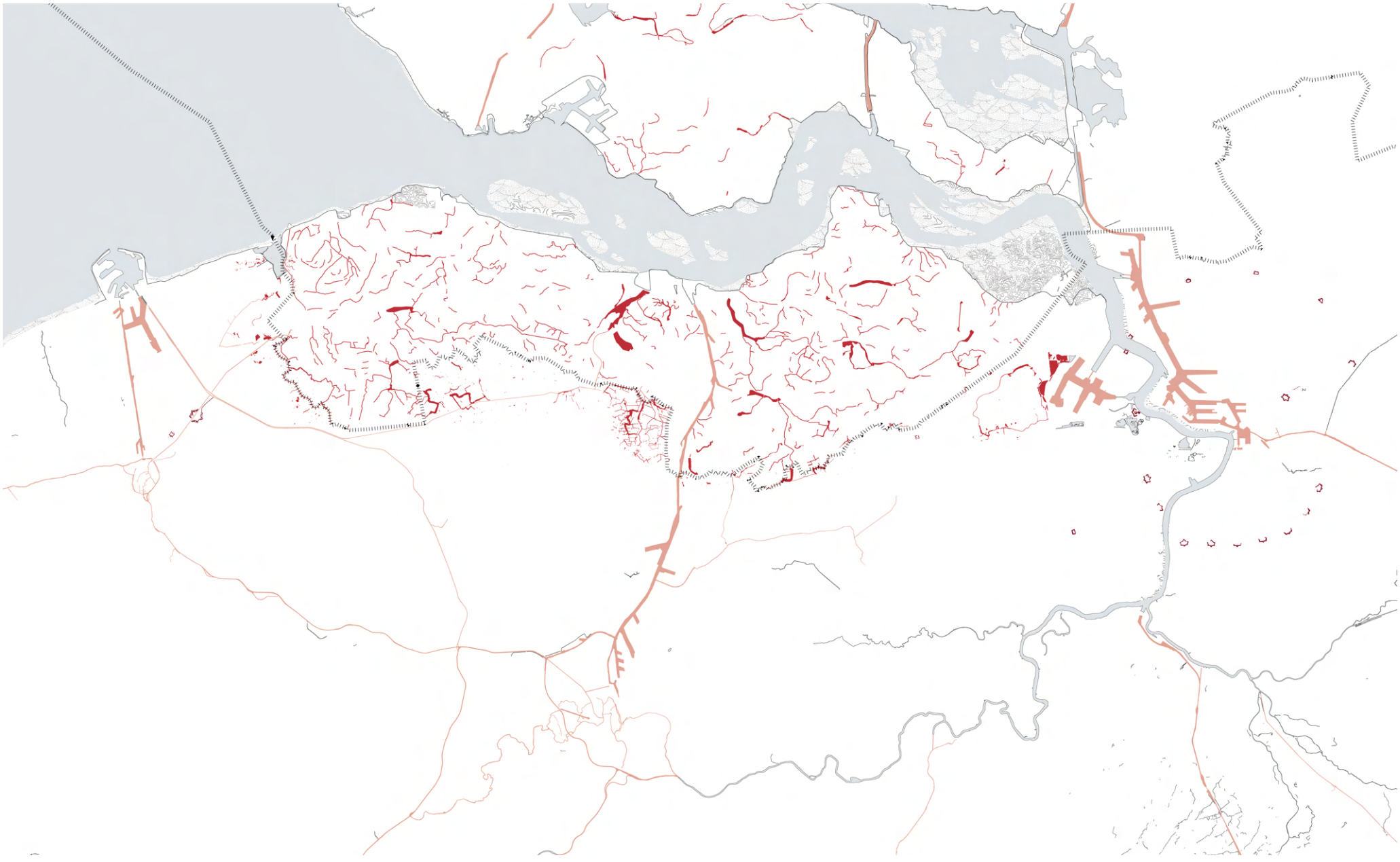
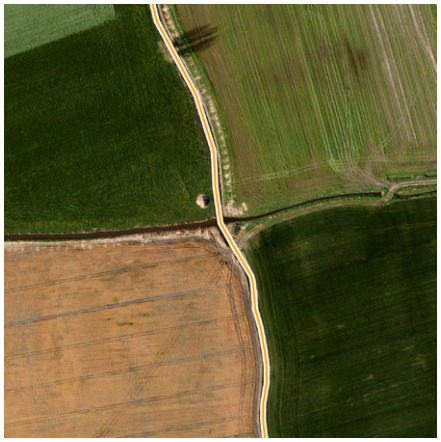
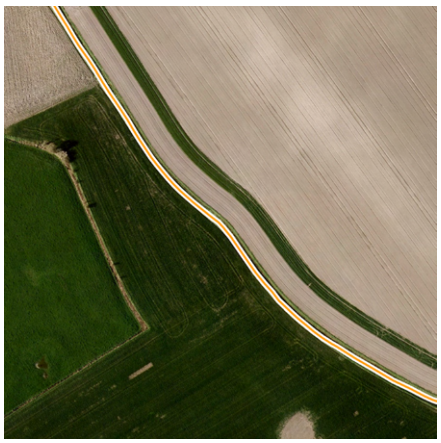


Figure 54. Water on the border [Map made by Author]













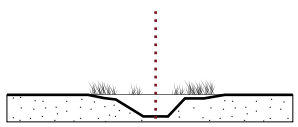


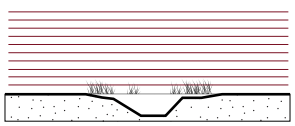




MATCHING

CROSSING



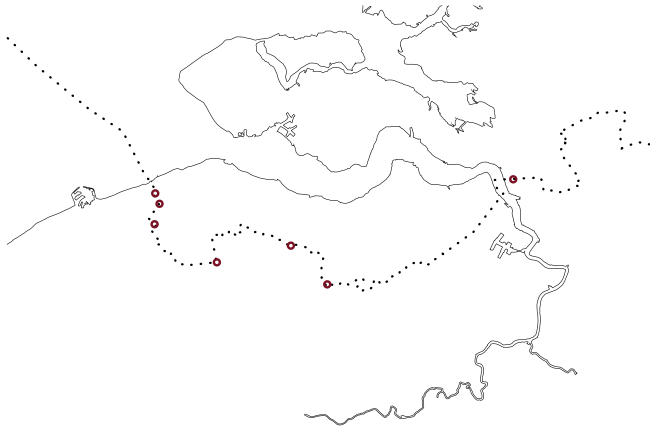










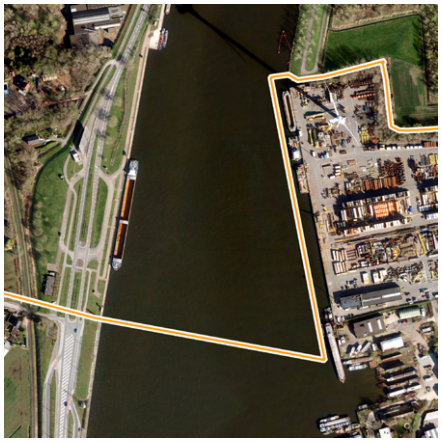




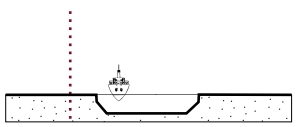
ALMOST

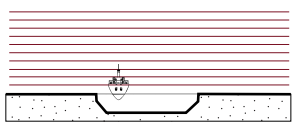


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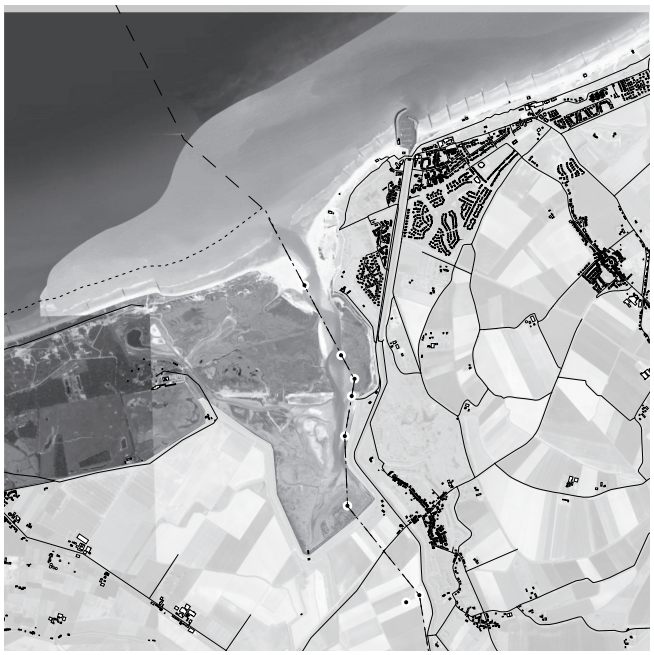


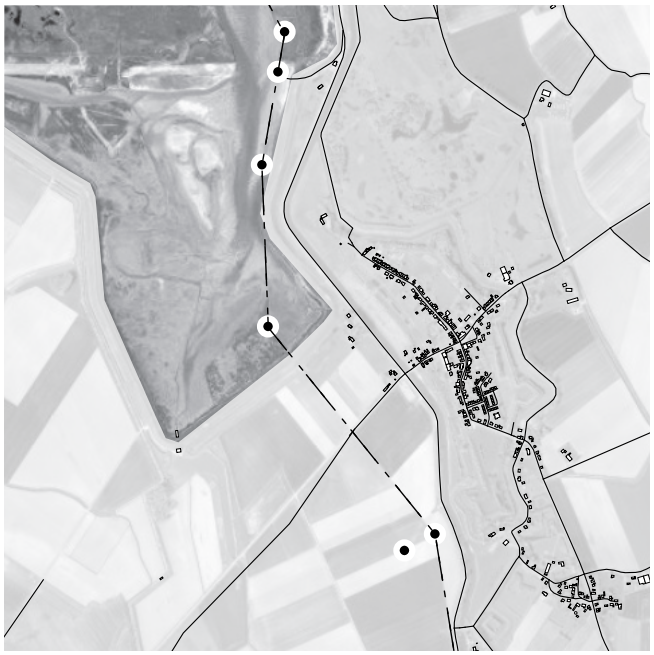
SHADOW CROSS





6.4 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | DYKE AND DEFENCE LINES







Several dykes and Spanish defence lines can be found around the border. Zeeuws-Vlaanderen used to be part of the Flemish duchy. During the Eighty Years' War, many dykes and defensive structures were built in this area. These structures later formed a physical demarcation of the national border.

However, data is often missing for the Flemish part, which makes it difficult to paint a complete picture.

Figure 55. Dykes protecting the border [Map made by Author]

Legend

- Border
- Primary dyke
- Low dyke
- Lost dyke
- Defence lines
- Fortification
- Water Fortification

0 20 KM N











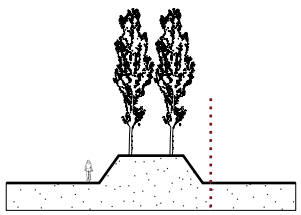


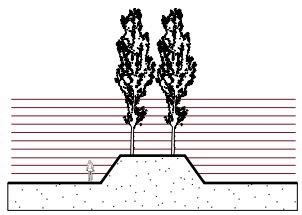


ALMOST



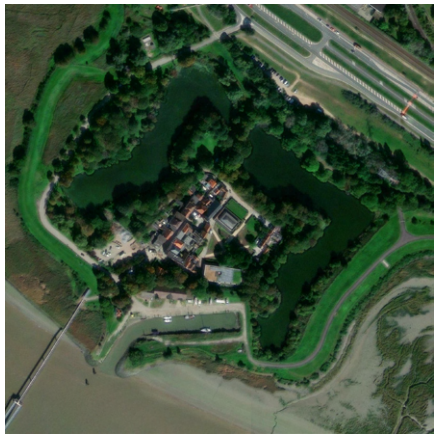
CROSSING





















NOW NETHERLANDS

AS THE BORDER



NOW BELGIUM

6.5 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | DYKE AS THE BORDER



1578-1582 | Stop rooting in my garden Spanish pigs!.
[Map by anonymous (Rijksmuseum, 2022)





1613-1615 | War on the Kauwenstijnse dyke, 26 may 1585
[Map photographed by F. Hogenberg (Rijksmuseum, n.d.; Lola architects et al.,2014)

During the Eighty Years' War, dykes were often the sites of battles and military strategy. The Hollanders frequently used flooding as a tactic against the Spanish forces. A well-known example of a tragic conflict is the Kauwenstijnse Dyke, located in what is now the Port of Antwerp.

In 1664, polders were divided between the Hollanders and the Spanish Netherlands as a result of the newly drawn border. In Zeeuws-Vlaanderen, fearing that the polders would be deliberately flooded by the Dutch, a dyke was constructed through the middle of the polder, known as the Free Dyke (LoLa Landscape Architects et al., 2014, p. 199).

On the rigth, you can see the Koningsdyke, originally a Spanish defence dyke between the Land van Waas and Hulst. This is the same area where the Free Dyke was located. Today, the dyke lies within Belgian territory and serves as a bicycle path connecting Klinge/Clinge and Kieldrecht/Nieuwe-Namen.



Figure 56. Section of the Konings Dyke [Map made by Author]

Interestingly, the more one zooms in, the more it becomes clear that the precise data for the national border does not align perfectly. Although this may be due to the use of different coordinate systems or data management methods, designers observe a band of approximately 0.23 metres of in-between borderland (source: NL-BE datasets).

A notable example is a dyke in the landscape marked by Canadian poplar trees, serving as a clear visual landmark.

This mismatch illustrates how Belgian and Dutch datasets do not fully correspond in defining the exact border location, creating uncertainty in spatial planning and design across the border



Legend

Soil

Border Dutch Data

Border Belgium Data

0 5 m N

6.5 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | DYKE AS A UNITER

To compensate for the damage caused in recent decades by port transport, agriculture, dredging of the Scheldt, and the expansion of dykes, the Dutch and Belgian/Flemish governments established the Westerschelde Nature Package (BRON).

Through this consultation, three sites were identified where 600 hectares of wetlands would be created by de-poldering existing polders. The aim was to restore feeding grounds for migratory birds.

In addition to the Hedwige-Prosperpolder and Waterdunnen, the Zwin area was expanded from 155 to 275 hectares through de-poldering. To achieve this, the so-called “International Dyke” had to be breached (Omroep Zeeland, 2019). The cross-section shows the Willem-Leopolder polder. This dyke has since taken over the international function and now serves as the junction between the two countries and their coastal water defence systems.

A strong example of cross-border cooperation.



2019 | De-poldering of ‘International Dyke’ **by Belgium and Dutch Government**
[Visual and photo by (Omroep Zeeland,2019)



Figure 57. Section of the new International dyke [Map made by



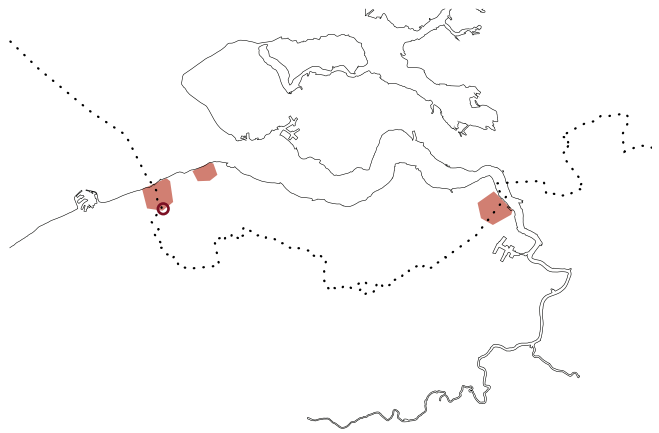


Legend
Soil
Border Dutch Data
Border Belgium Data



y Author]





0 5 m N

6.6 | **BORDERSCAPE OF ZEEUWS-VLAANDEREN** | CONCLUSION

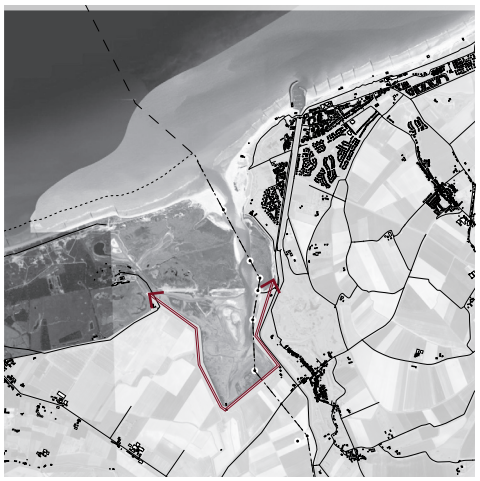
The border landscape of Zeeuws-Vlaanderen is a hybrid space where water, history and culture come together. From the Borderscape concept, in which borders are seen as zones of interaction rather than hard lines. It becomes clear that this region is more than just a division between the Netherlands and Belgium.

Physically, the landscape has been shaped by centuries of water management and border defences. Dykes, creeks and military structures, such as the Free Dyke and Koningsdijk, act as visible traces of the past. Some dykes and boundary lines follow past watercourses, while others mark the tension between national interests. Elements such as the Zwin, which is once again functioning as a cross-border nature reserve due to recent de-polderisation, show how landscape and border continue to shift.

Socio-culturally, the border is both tangible and permeable. Villages like Kieldrecht and Nieuw-Namen have grown together, but retain their own identity. The border is crossed daily for work or family, but differences in language, infrastructure and policy remain tangible. The difference between ribbon development in Flanders and core development in Zeeland is a visible consequence.

Finally, the area shows how border landscapes are shaped by administrative systems, such as the difference in land consolidation (Ruilverkaveling) on and around the border. At the same time, there are strong examples of cooperation, as in the case of North Sea Port and nature restoration in the Westerschelde.

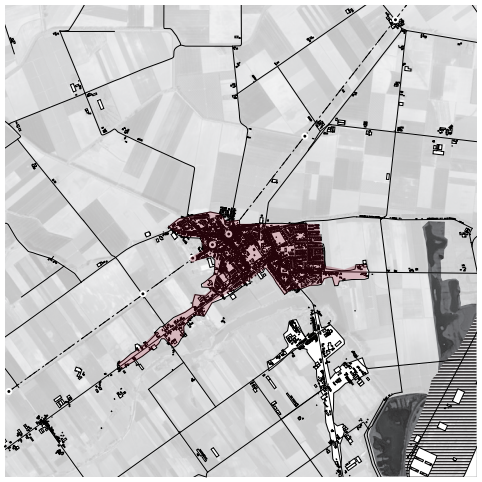
Zeeuws-Vlaanderen is thus a clear example of a Borderscape: a border area constantly shaped by the interaction between natural structures, cultural significance and political borders. The landscape shows that a border not only separates, but that through territorial differences, it connects people and landscape.



CROSS-BORDERED COLLABORATION



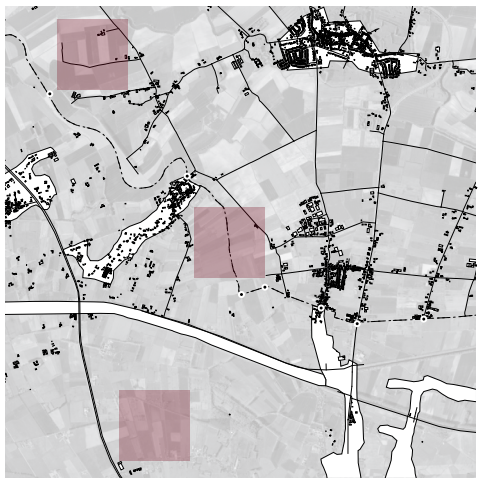
OLD DEFENCE LINES



GROWN TOGETHER



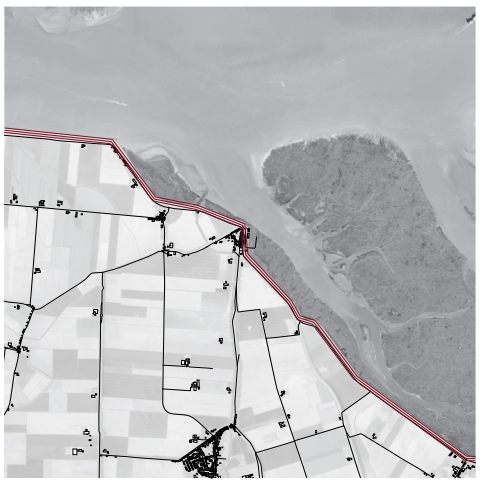
CANAL TRYING TO KISS THE BORDER



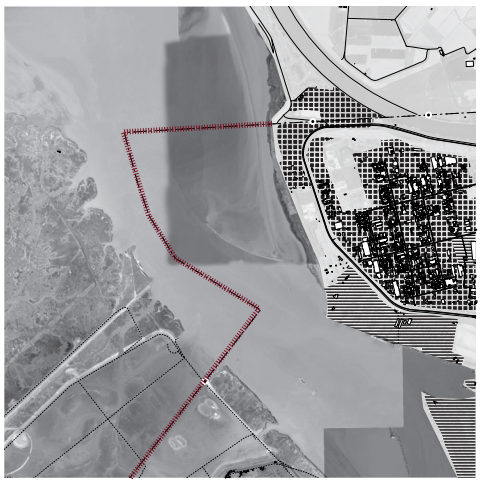
DIFFERENT PARCELLATION



WORKING TOGETHER



BORDERED FROM WATER



INVISIBLE WATER LINE

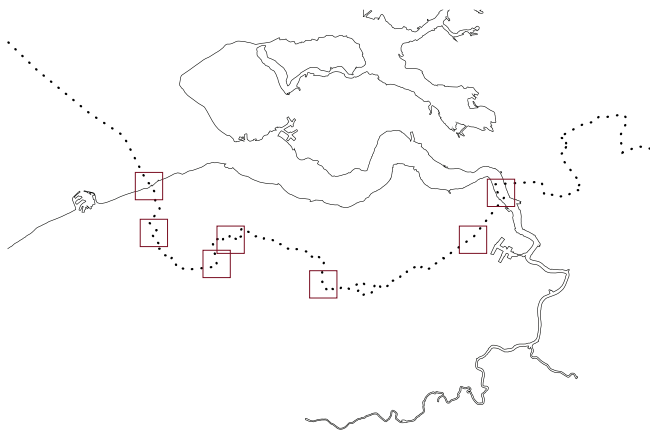




Figure 58. *Human vs natural boundaries* | [Image by author, planet earth, 2025]

7. PAINS OF THE REGION

Where do natural boundaries en human borders end?

The borderscape encompasses more than just the physical border. It is shaped by cultural differences and forms of governance that permeate the border zone. Zeeuws-Vlaanderen is an area where national systems, language regions and identities converge.

This chapter focuses on the cultural layer, the tensions and pains of the region. The area is divided not only by national borders, but also by bodies of water.

Zeeuws-Vlaanderen is not an edge area, but rather a transitional space where old structures and new identities coexist.

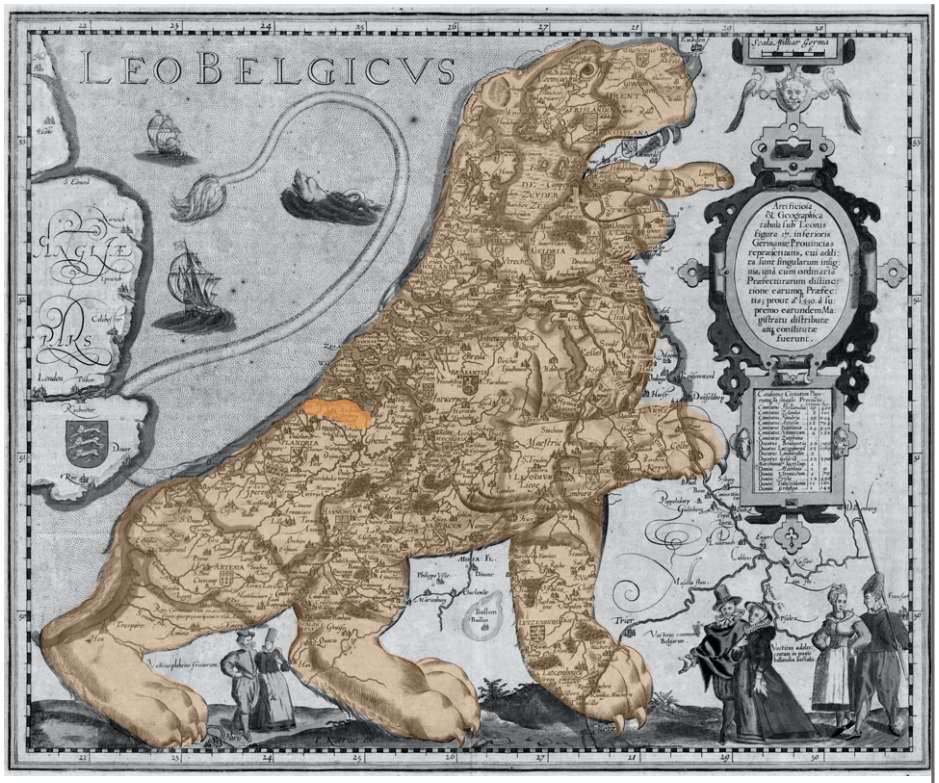
7.1 | **PAINS OF THE REGION** | THE MIXED DNA OF ZEEUWS-VLAANDEREN

Belgium's growing influence in Zeeuws-Vlaanderen not only raises questions about economic and administrative boundaries, but also touches on deeper, historical layers of identity. While Zeeuws-Vlaanderen is formally Dutch today, that national divide is still relatively young. Only since 1830, after Belgian independence, was the current border definitively established - a border that, while politically clear, has remained culturally and socially porous ever since (Van Acker, 2002).

It is notable that the flags of Zeeland, Flanders and Zeeuws-Vlaanderen all carry a lion as their symbol. This hints at a shared history. While creating the timeline, it became clear that present-day Zeeuws-Vlaanderen was once part of the Flemish Duchy. This duchy had several rulers over the centuries, which led to a cultural stratification that is still felt today in the differences between the Netherlands and Belgium.

The map "Leo Belgicus" was created during the Eighty Years' War as a propaganda tool for the reunification of the Low Countries. At that time, Zeeland Flanders was still part of the Spanish Netherlands which was at war with the Republic of the United Netherlands (De Maeyer et al., 2021; Delft & Storm, 2021; Berendse & Brood, 2022).

The timeline to the right shows that the border and its region have taken many forms throughout history. What remains is a history of mixed DNA, an area shaped by influences from both sides.



1617 | Leo Belgicus, Holland propaganda during Spanish War, united by the Lion.
[Map by Pieter van den Keere]

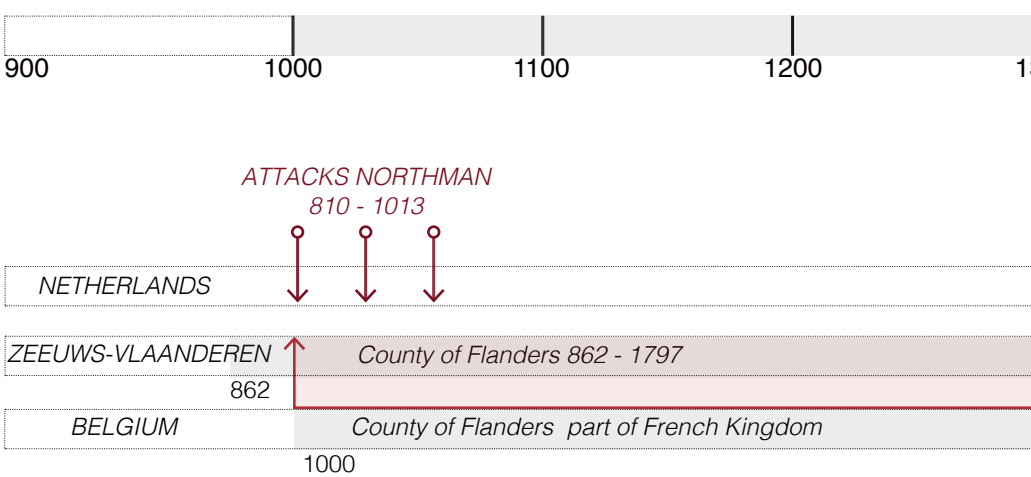
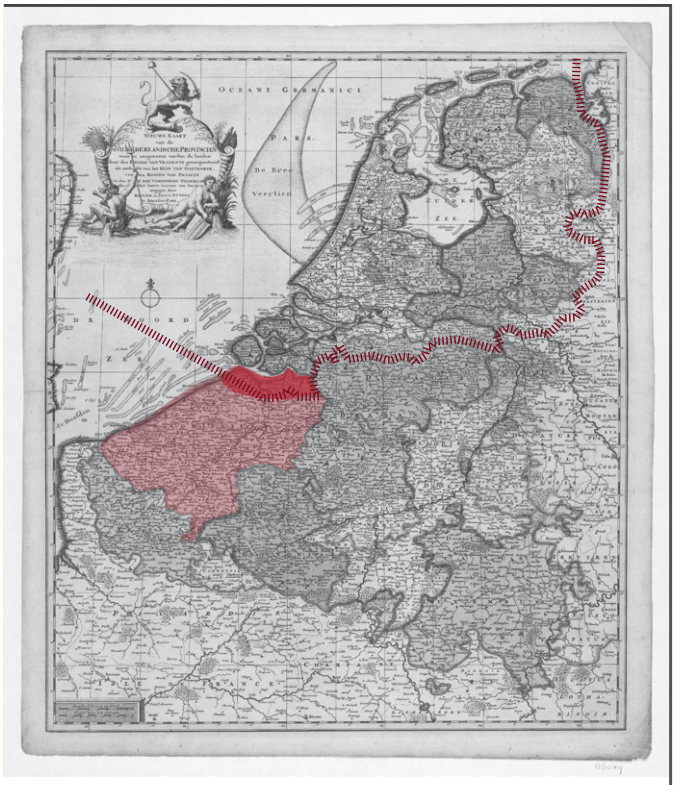
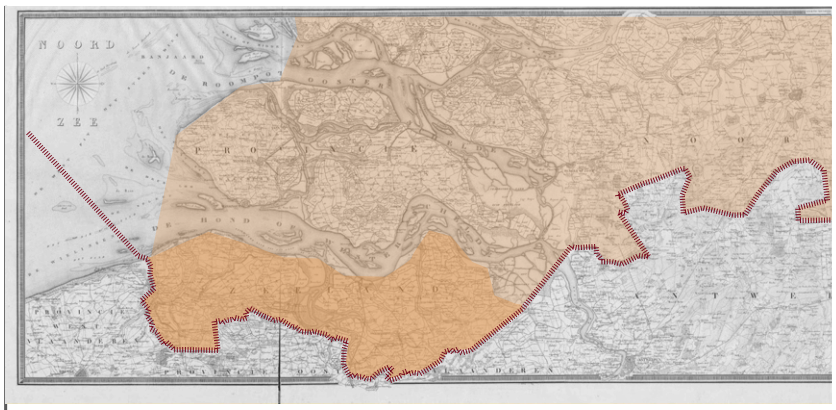


Fig. 59 Mixed DNA [Timeline made by Author (De Maeyer et al., 2021; Delft & Storm, 2



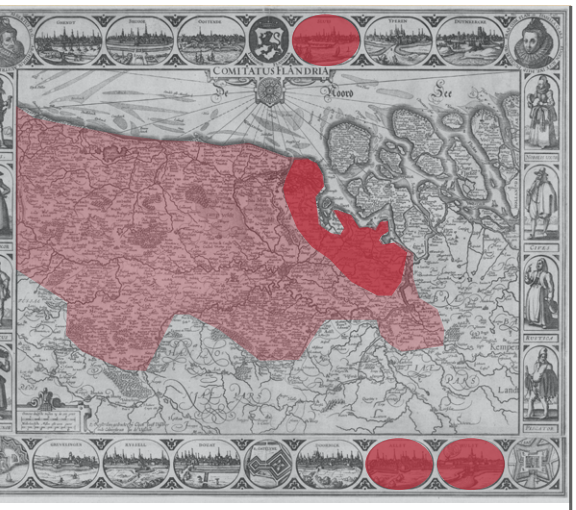
1725-1750 | Republiek der Zeven Verenigde Nederlanden
[Map published by R.Ottens (Rijksmuseum, 2025)]



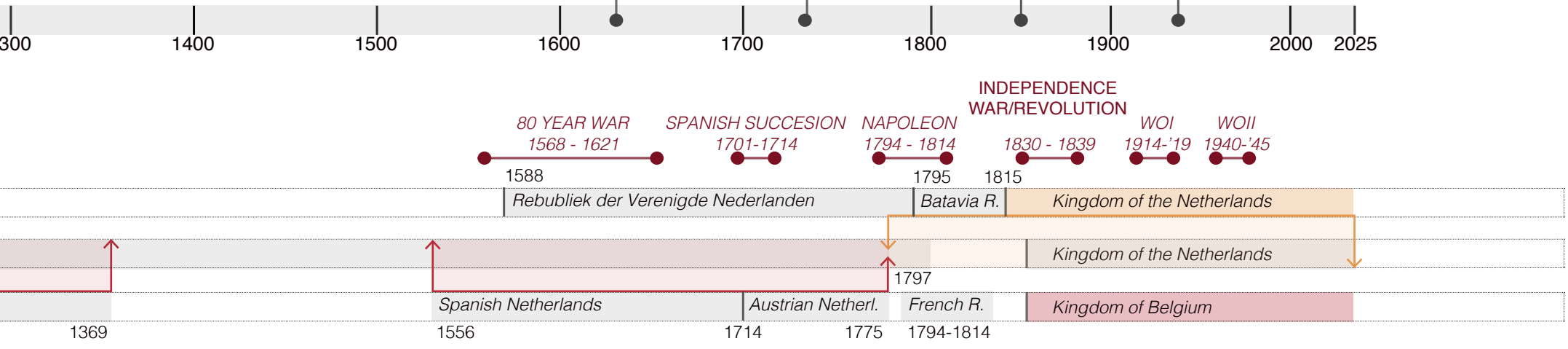
1831 | Topografische Kaart der Grensscheiding tusschen het Oud Nederland en de Belgische Provincien
[(Universiteit Utrecht, 2025)]



1919 | Protest anti- anaxation by protestant Zeeuws-Flemish ladies in the Hague
[(Zeeuws Archief, 2025)]



21-1633 | Comitatus Flandria
ap published by C. Jansz. Visscher (Rijksmuseum, 25)]



2021; Berendse & Brood, 2022)]

That shared history is tangible. Families, dialects and agricultural practices span the border. In modern times, the shared DNA of the region raises new questions about identity and entity. To whom does the land belong? Research shows that this question is increasingly difficult to answer. While Zeeuws-Vlaanderen feels increasingly forgotten (Versprille, 2011), at the same time interest in the region from a Belgian perspective is growing.

In East Zeeuws-Vlaanderen, an estimated 15 to 20 percent of agricultural land is now in Belgian hands. This is partly the result of buyout schemes for port expansions in Antwerp, where Belgian farmers can invest relatively easily in Dutch territory with high buyout sums. Belgian investors also buy up farmland through Dutch BVs, so the statistics are probably an underestimate (Research Collective Spit, 2024).

Thanks to the convenient location within the Flemish Diamond and the low house prices, more and more Flemish people are settling in Zeeuws-Vlaanderen. Some welcome this development; there are even campaigns to attract young Flemings (Versprille, 2011). At the same time, others are growing concerned about an increasing “Flemishization” of the region, with Belgian influences becoming more prominent. Some Zeeuws-Vlaanderen residents perceive that newcomers seek little connection with the community, leading to tensions and feelings of alienation (Binnenlands Bestuur, 2024; Rijnierse, 2022).

Changes in land ownership, economic orientation and administrative distance from The Hague reinforce feelings of disadvantage. The region is rapidly aging as young people move away, seeking opportunities elsewhere (Binnenlands Bestuur, 2024; Rijnierse, 2022).

At the same time, a paradox lies in this border region. It is precisely here that strong interconnectedness exists. which is also the way people call themselves border residents. On both sides of the border there are mutual dependencies in work, care, education and trade. Many residents naturally use each other’s facilities - whether Flemish hospitals or Dutch schools. In everyday life, the border sometimes feels more like a bridge than a barrier (Moeliker & Boogaard, 2024).

*“We are **neither Dutch nor Belgians**. We are **not Zeelanders and not Flemish**. Our language and our culture are very different from those on the Other Side. Catholics also live here; we are un-Zeeuws burgundy and convivial.”*

- Farmer Zeeuws-Vlaanderen (Versprille, 2011)



Fig. 60 Grensbewoner [Image by Author]

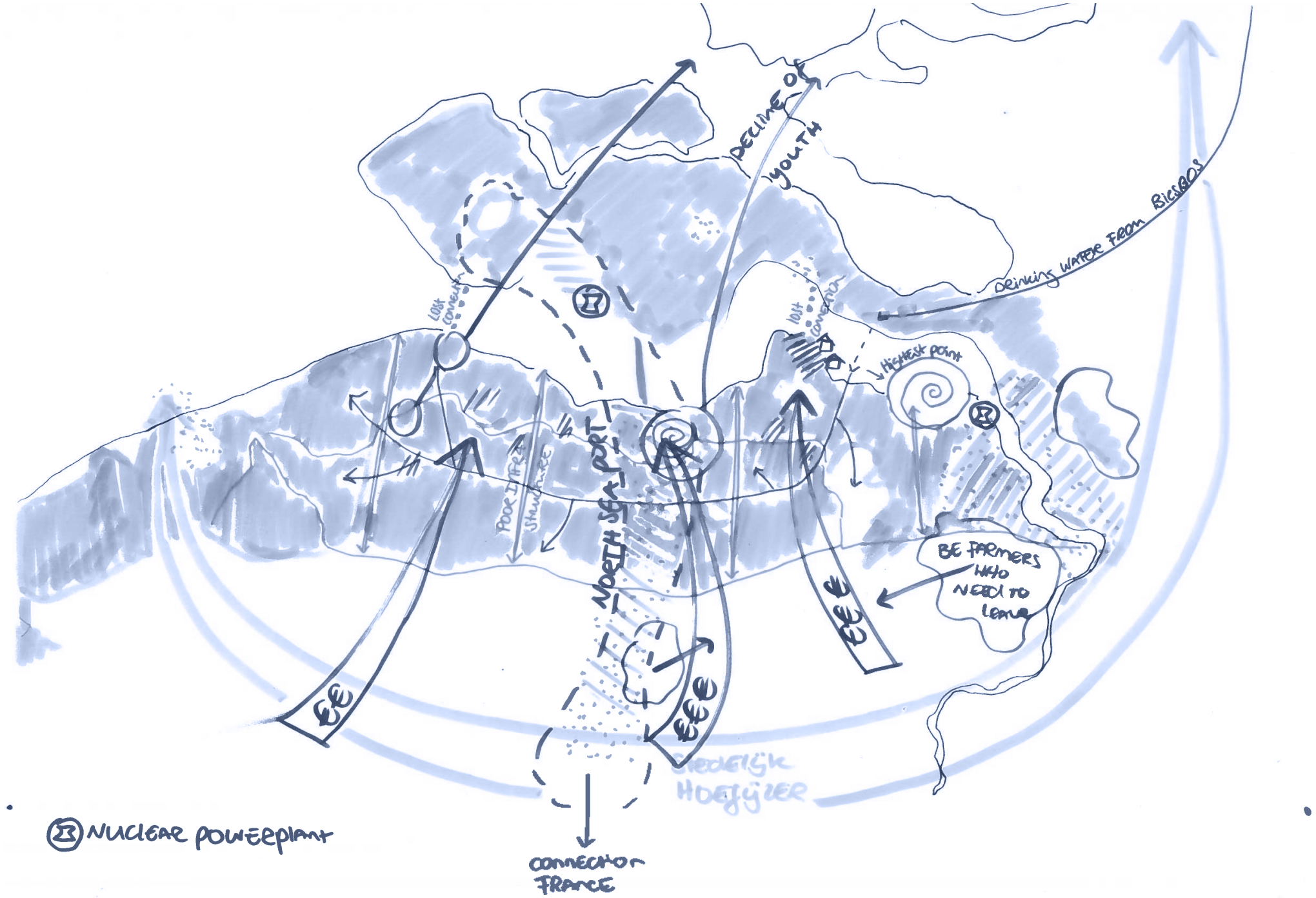


Fig. 61 Follow the money, not the border [Map hand drawn by Author]

7.3 | **PAINS OF THE REGION** | A GOOD NEIGHBOR IS WORTH MORE THAN A DISTANT FRIEND

In 2030, the border between Belgium and the Netherlands will exist for 200 years. This border was formed after the Belgian battle for independence, which was accompanied by armed conflict that included fighting in and around Zeeuws-Vlaanderen. Over the years, the hard border has had different meanings and forms: during wars, political tensions, and most recently during the COVID-19 pandemic, the border has been closed for periods (De Maeyer et al., 2021; Delft & Storm, 2021; Berendse & Brood, 2022).

Nevertheless, the political relationship between Belgium and the Netherlands has generally remained strong. Cooperation and free movement of goods and people make the border soft barrier. This can be seen in initiatives such as Benelux and later the European Union. Thanks to the customs union and the Schengen area, internal borders within Europe have become increasingly liquid.

A historic key moment occurred in 1863, when Belgium bought off the Scheldetoll. Until then, there were many conflicts over the use of the Scheldt and Meuse rivers, both of which function as border rivers. Since then, the tide has turned, and instead structural forms of cooperation have emerged, such as the Flemish-Dutch Scheldt Commission (VNSC). In doing so, water no longer acts merely as a border or barrier, but rather as a connecting element between the two countries.



1830-1839 | Independence Revolution
[painting by E.C.G. Wappers (Wikimedia Commons, 2012)]



1914-1917 | The Wire of Death of WOI
[Postcard from (Zeeuwse Ankers, 2021)]

An electric fence build by German occupation was build to stop Belgian refugees to flee to the 'Neutral' Netherlands. The fence divided Dutch Clinge from Belgian Klinge following the border thought the heart of the villages.

STRONG BORDER

1800 — 1825 — 1850 — 1875

SOFT BORDER

1851 | Treaty between the Netherlands and Belgium the abolition of tolls for navigation on the common Meuse.
[(Ministerie van Buitenlandse Zaken, 2020)]

1863 - 1883 | Monument Freedom of the Scheldt
[Photo from (Stadsarchief Antwerpen, n.d)]

In 1863, the Kingdom of the Netherlands and the Kingdom of Belgium came on an agreement to the surrender of the Scheldt tolls. After paying a large amount of money the Belgiums had since then full acces to sail on the Dutch part of the Scheldt, the Westerschelde (Ministerie van Buitenlandse Zaken, 2021). In 1883, a statue was build in Antwerp to cellibrate the free trade route (Vlaamse overheid, 2019).

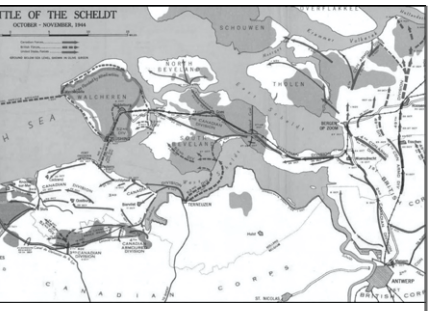


Fig. 62 Friend or rival [Timeline made by Author]

Legend

Collaboration on water management

Border as a strong physical border



44 | The Battle of the Scheldt
hoto by US-Army (Wikimedia Commons, d.)]

ring WOII, the scheldt became important battle field. In Zeeuws-aanderen and West-Vlaanderen polders re flooded by German occupation as a r strategy.



1944 - 1985| Border Controls
[photo by J. Torbijn 1960 (Zeeuws Archief, 2025)]

Border control from Clinge to Klinge, Duane checking cars and people on goods and documents.



2020 | Covid Pandamic
[Image by F. van Hecke, 2020]

Road barricading sand hills along Belgian border during Covid Pandemic in 2020. With the goal to stop Dutch pendelaars from crossing the border (NOS, 2020)



2024 | New Border Controls
[Image by ANP (NOS, 2024)]

For the first time since 1995 Schengen agreement, the regular border controls are back with the goal to stop illegal migrants from entering the Netherlands (NOS, 2025).

STRONG BORDER

NEW TYPE OF BORDER

SOFT BORDER

1900 1925 1950 1975 2000 2025

1992-1993 | Treaty on European Union (TEU) / Maastricht Treaty (European Parliament, n.d.)

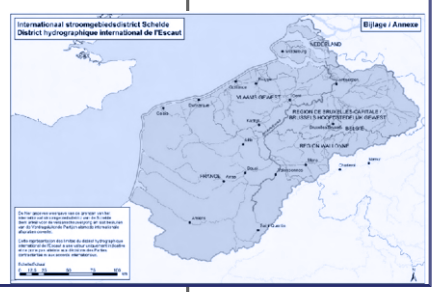
| Benelux (Belenux Unie)
by (Benelux Union, 2023)]

ng as a Douane-unie to have travel of goods within Belgium, erlands and Luxembourg, the union works together on economy, safety, e and sustainability. Collaboration ater safety, like predicting floods lso happening (Ministerie van nlandse Zaken, 2024).



2002 | Scheldeverdrag Gent
[Map by (ISC CIE, 2021)]

Cooperation between the Netherlands, Belgium, and France on implementing the Water Framework Directive, drafting a joint management plan, and consulting on high water, droughts, and major water pollution incidents.



1985 | Schengen Agreement
[Image by (European Counsil, 2025)]

Signed on the border of Luxemburg, Germany and France, the Schengen Borders Code includes an area without internal border controls between participating 29 countries. Making it possible to work and travel freely across borders (European Council, 2025).





2016 | Land Swap
[image by J. Juinen (New York Times, 2016)]



2024 | Terneuzen sluis
[Image by (North Sea Port, 2024)]

King Pilip and King Willem-Alexander together opened the new lock of Terneuzen. In total the cost were over 1.2 billion euros, paid by both Netherlands, European Union and Belgium. Although the Lock being on Dutch Territory, Belgium invested 80% of the cost (Daams, 2024).

7.4 | **PAINS OF THE REGION** | THE BACK-YARD OF TWO COUNTRIES

In border regions within Europe, functions perceived as nuisances are often literally pushed to the edges of countries. Windmills, heavy industry and refugee shelters are remarkably often placed in peripheral areas (Harbers, 2003). Zeeuws-Vlaanderen is a clear example of this.

Because Zeeuws-Vlaanderen is situated on the border of two countries, it receives double pollution from both sides. The region acts as the dumping ground for cross-border industry.

Five Zeeland companies are among the 30% biggest polluters of the Dutch process industry (EenVandaag, 2022). Together with the Antwerp port region, Zeeuws-Vlaanderen is home to some of the most polluting companies in north-western Europe, including Dow Benelux, Yara TC Sluiskil, Zeeland Refinery, ExxonMobil and TotalEnergies (source).

Although these industries are very important for employment, their presence is accompanied by heavy environmental pressures. Research shows a link between industrial air pollution and the development of chronic diseases (Bergstra et al., 2022). The GGD Zeeland advises the government to develop targeted policies to reduce air pollution in the Canal Zone (Terneuzen-Sas van Gent) (GGD Zeeland, 2022).

Elevated concentrations of PFAS are measured on both sides of the border, see figure #. According to research conducted by the Federal Agency for the Safety of the Food Chain (FASFC), elevated levels of PFAS were found in the blood of cattle grazing in the Groot Grenspark Saeftinghe nature reserve.

There are also cross-border pressures when it comes to nuclear energy. There are nuclear power plants on both sides of the border, whose lifespans are being extended or expanded. In Belgium, legislation has been amended, allowing the Doel plant to remain open until at least 2035 (NOS, 15 May). In the Netherlands, a study is currently under way on where four new nuclear power plants could be placed. According to the latest updates, both Borssele and Terneuzen are being considered as possible expansion sites (NOS, 16 May 2025).

“All the disadvantages will fall on the shoulders of the Zeeland Fleming, who will not only pay for the cost of cleaning up the mess and the health impacts of the industry, but will also see only a small portion of the economic benefits of these activities in return.”

- Bart Leloux, Chairman Dwars Brabant-Zeeland, Green Left (Overdwars, 2025)

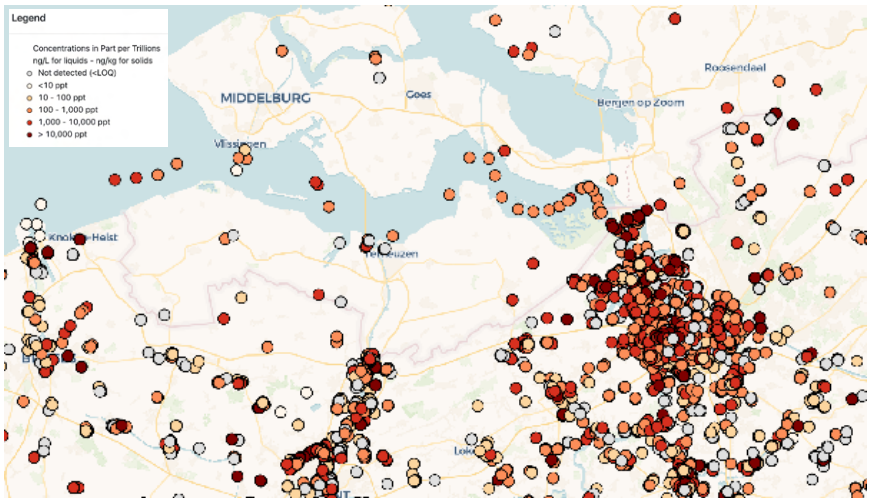


Fig. 63 Measurements PFas [Map made by PFAS Data Hub (2025)

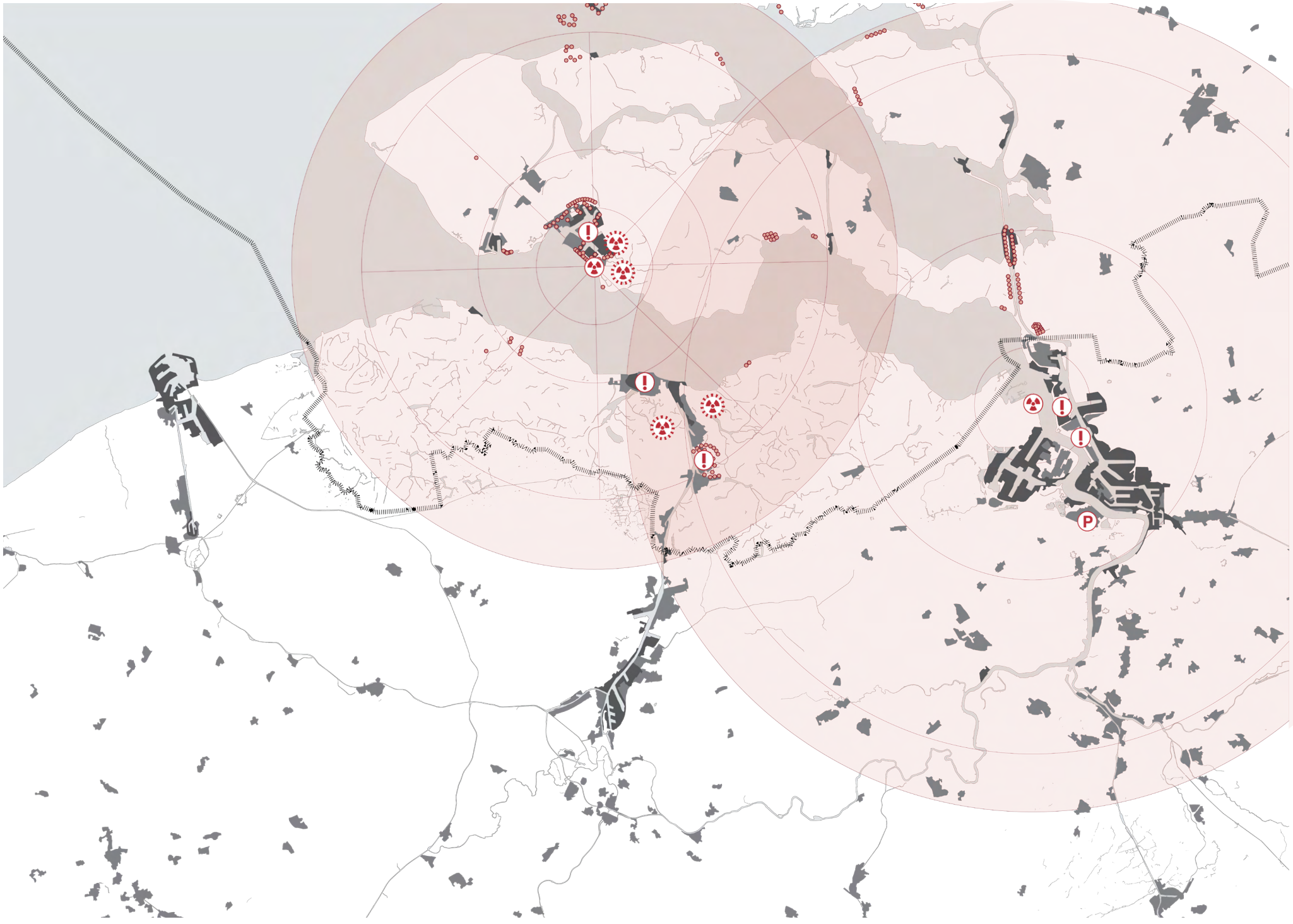
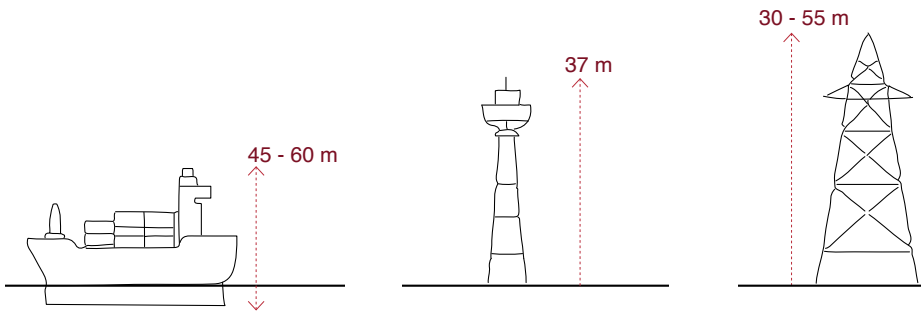


Fig. 64 The industrial shoreline [Map made by Author]

7.4 | **PAINS OF THE REGION** | THE BACK-YARD OF TWO COUNTRIES

In addition to the polluting effects of industry and ports on the border region, the associated structures are visually dominant in the flat polder landscape. Many of these elements are frequently the subject of “Not in My Backyard” debates.

Cranes, container ships, nuclear power stations, electricity pylons, radar towers, and wind turbines define the horizon and shape the identity of the border landscape. These structures not only impact the view but also symbolise the character of the region. They can be seen as ‘border landmarks’, physical markers of national infrastructure and economic interest within an otherwise open and expansive setting.



Cranes, container ships, nuclear power stations, electricity pylons, rada

Fig. 65 The industrial shoreline [Map made by Author]

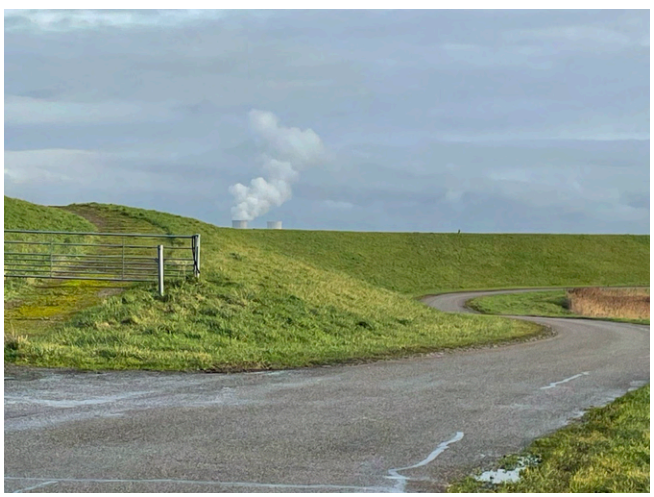


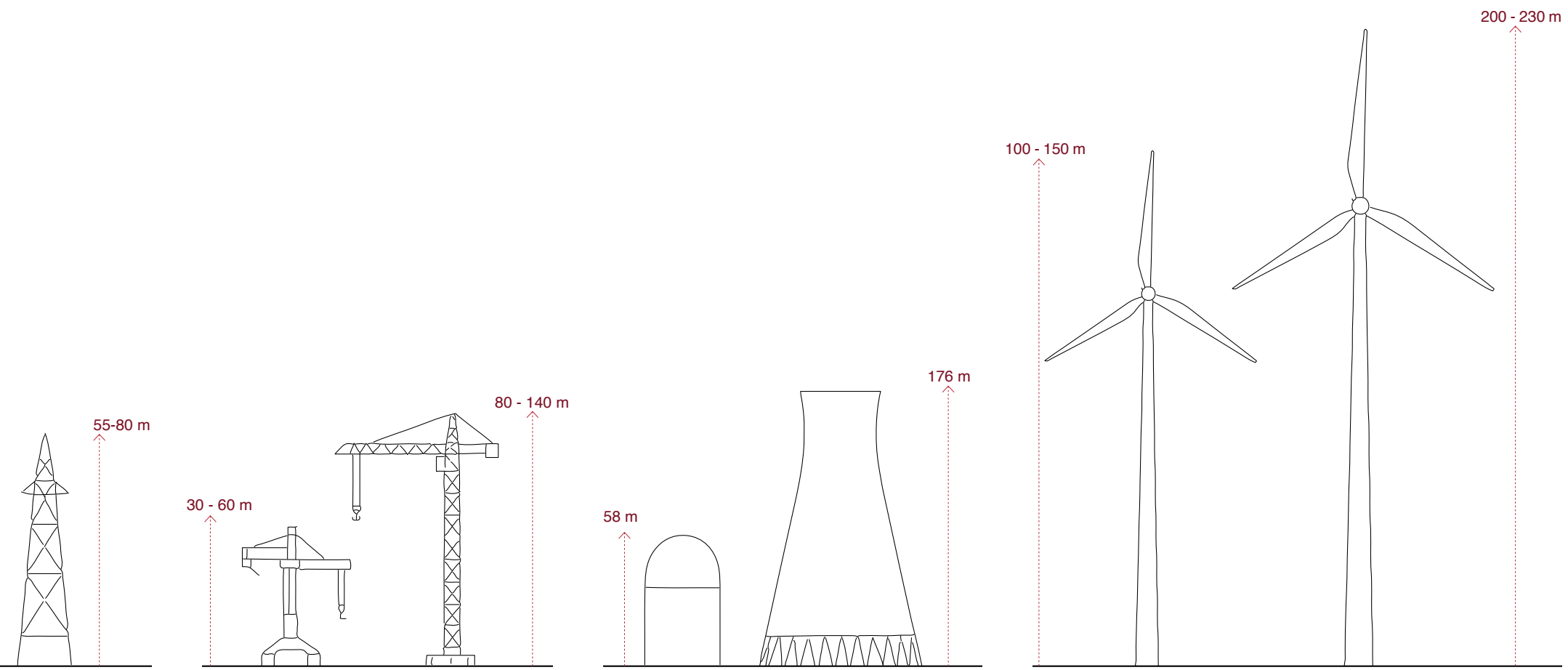
Figure 66. *Nuclear power plant Doel above dyke*. [Visual by author]



Figure 67. *Dutch fruit parcel watched* by the port of Antwerp [Visual by author]



Figure 68. *Belgium village* [Visual by author]



ar towers, and wind turbines



Figure 69. *Dutch wind turbine trying to kiss the border*
[Visual by author]

7.5 | **PAINS OF THE REGION** | OUT OF SIGHT, OUT OF MIND, OUT OF CONNECTION

Zeeuws-Vlaanderen has for years lacked good public transport connections, both within the region and with the rest of the Netherlands and Belgium. The direct bus connection between Breskens, Terneuzen, Antwerp and Breda - popularly known as the “Breda bus” or the “Watersnoodslijn” - has been discontinued. This connection was extensively used by students living at home, but was also the fastest route to the rest of the Netherlands for many inhabitants of Zeeuws-Vlaanderen (Zeeuwsch Vlaams Advertentieblad, 2024).

A train connection is lacking. Where a railway line used to run through the region, travellers today have to travel via a cumbersome route: by train to Middelburg, followed by a long bus ride to Terneuzen. This slow and fragmented connection reinforces the feeling of distance and isolation.

Dependence is also high in other basic services. All drinking water in Zeeuws-Vlaanderen is supplied through pipes from the Biesbosch. Although border water serves as a back-up for the municipality of Hulst and is used as an industrial source, the region is highly dependent on this single supply route (Omroep Zeeland, 2017). Any disruptions could have a direct impact on livability.

Pressure on the healthcare sector is also noticeable. The hospital in Terneuzen is facing severe staff shortages, making it increasingly difficult to provide basic care. Emergency care, birth care and intensive care are under pressure. The low population density and lack of facilities make it difficult to attract or retain healthcare professionals. Residents of Zeeland Flanders often cross the border for care (Zeeuwse Zorg Coalitie, 2020).

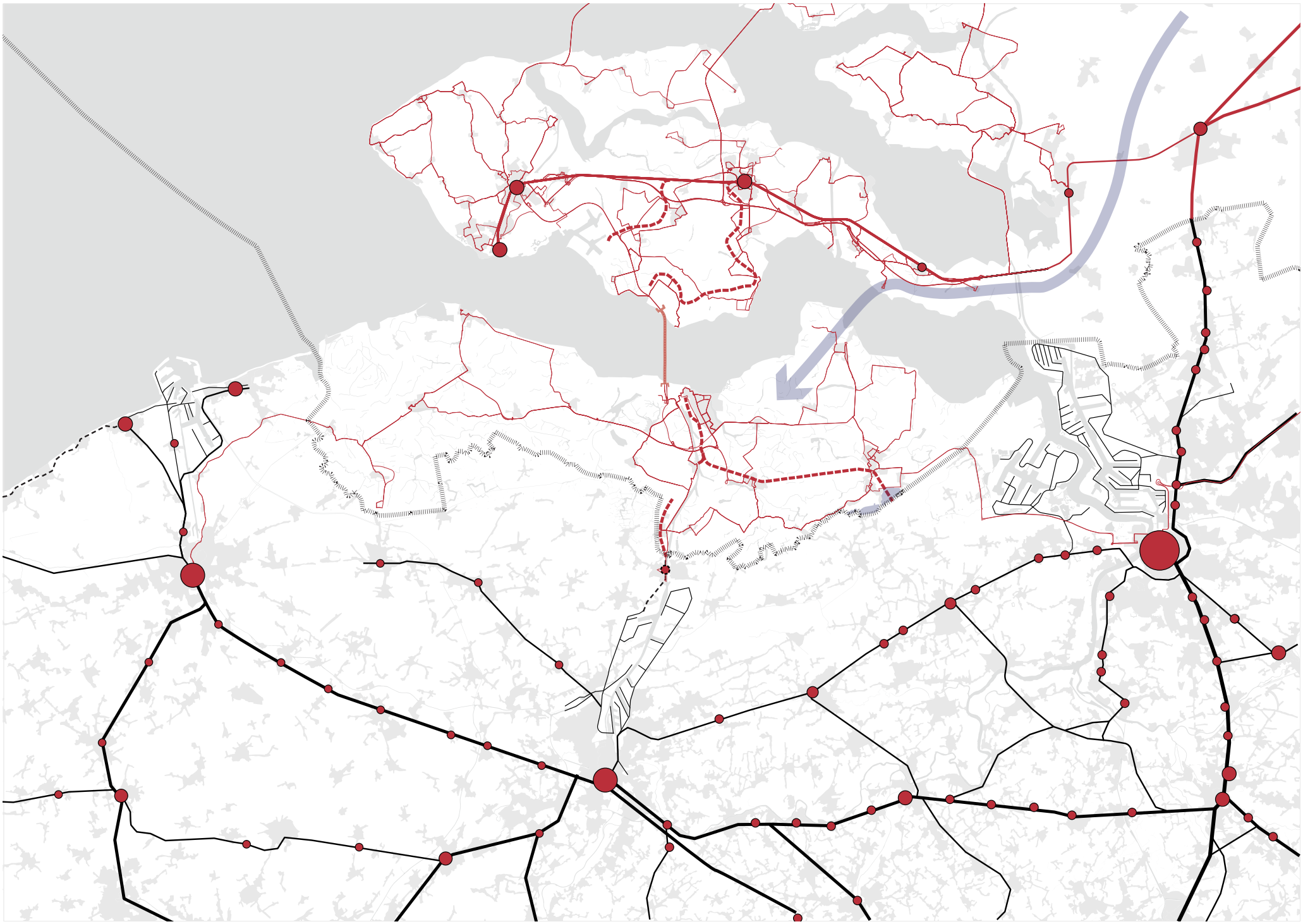
In the summer months, pressure on facilities increases further. Tourism temporarily doubles the demand for care, while no extra capacity or infrastructure is available to absorb this.

‘A good public transport network is essential for young people to travel from student towns back to Zeeuws-Vlaanderen.’

- D. Bracke, CDA (Zeeuwsch Vlaams Advertentieblad, 2024)



Fig. 70 Bredabus [Photo by J. de Block (Zeeuwsch Vlaams Advertentieblad, 2024)]



Legend

- Water
- Urban
- Bus line
- Old Train rails
- Trains Belgium
- Train Netherlands
- Border
- Tunnel
- Drinking water
- Train station large
- Train station small
- Train tracks industry

0 — 20 KM — N

Fig. 71 Disconnected public transport [Map made by Author]

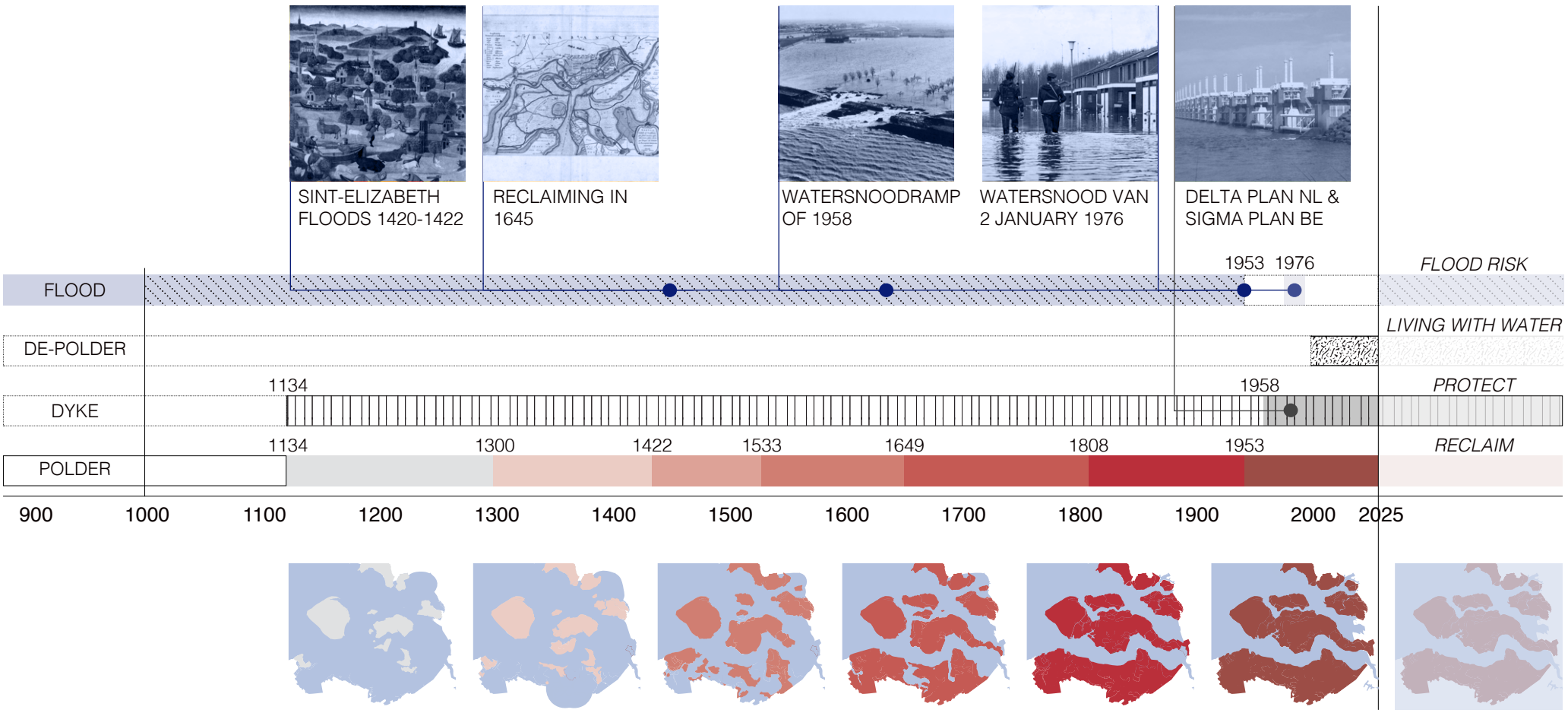


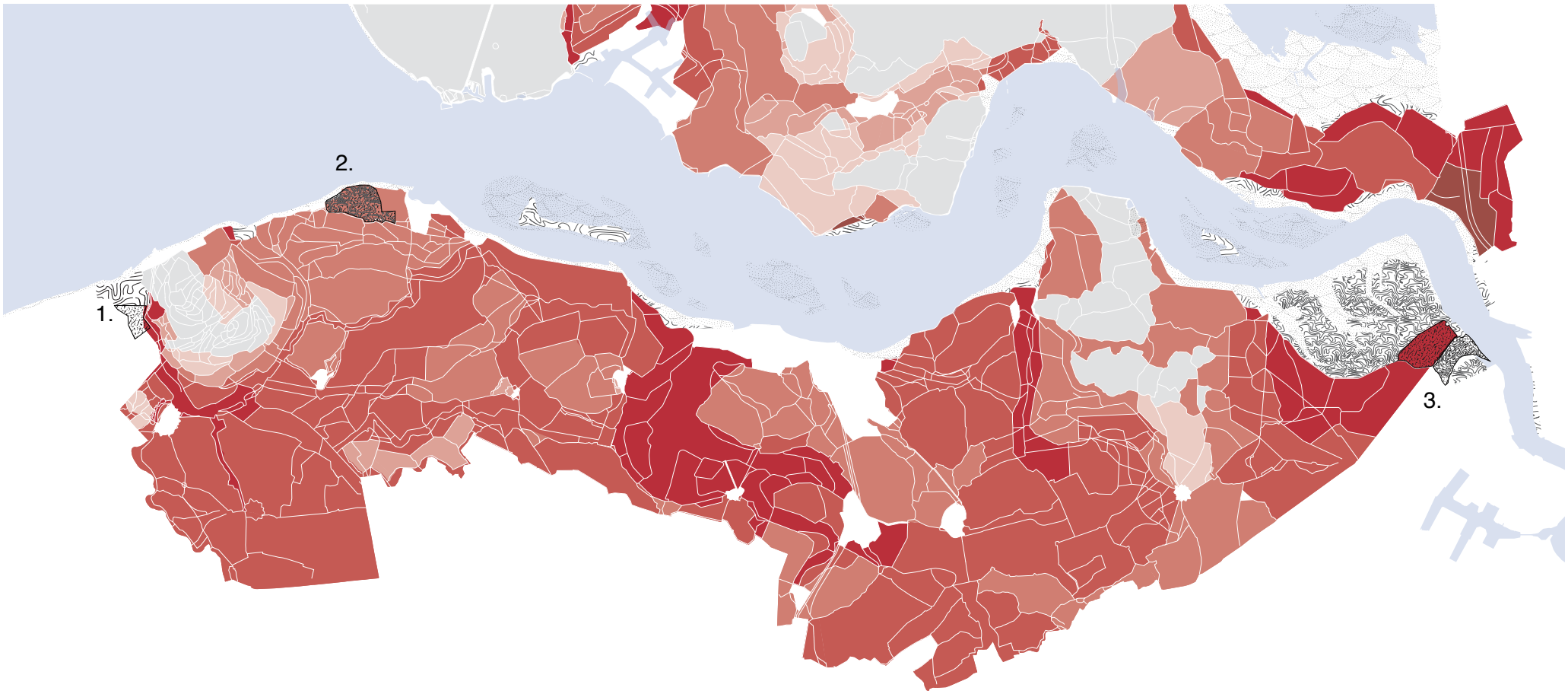
Fig. 72 Timeline and map reclaimation of Zeeuws-Vlaanderen [Map and Visuals made by author (WFS opendata Zeeland, 2025)]

Zeeuws-Vlaanderen would not have existed if it had not been reclaimed in the Middle Ages by Flemish monks, who built the first dykes. Later, the region was further reclaimed for the extraction of salt moorland, a precious raw material at the time, which further subsided the soil. Over the centuries, major floods occurred. The Sint-Elisabethflood around 1422 was extra catastrophic due to the subsidence caused by peat extraction (De Maeyer et al., 2021; Delft & Storm, 2021; Berendse & Brood, 2022).

In the 20th century, new flood disasters led to large-scale government measures, such as the Delta Works in the Netherlands and the Sigmaplan in Flanders. These interventions permanently changed the landscape, but also provided protection. At the same time, they created new tensions.

The trauma of land loss resonates in recent discussions about de-poldering, where agricultural land is returned to the water to compensate for nature development. For many residents, this feels like a repetition of the past: again giving up land, again fighting for subsistence in a landscape that is never completely stable.

A well-known example is the depoldering of the Hedwige-Prosperpolder, on the Belgian-Dutch border. After years of litigation and friction, the area was finally de-poldered. Since 2016, Groot Grenspark Saeftinghe has been connecting the knowledge and interests of residents around the border park. Local stakeholders share their insights with larger bodies and governments there (Natuur en Bos et al., 2019).





1. Het Zwin



2. Waterdunnen



3. Hedwige-prosperpolder

Fig. 73 In black re-poldered land vs in red polderland [Map made by author (Google Maps, 2025)]

“We had to leave our land behind to make room for birds...”
- Inhabitant Kallo

0 10 KM N

7.7 | **PAINS OF THE REGION** | DISCONNECTED BY WATER

When residents of Zeeuws-Vlaanderen refer to the rest of the Netherlands, they often speak of “d’n overkant” (the other side). The Western Scheldt is a physical barrier separating the region from the rest of the country. The only connection through Dutch territory is the Westerschelde tunnel, which opened in 2003. Until 1 January 2025, each crossing required a toll: five euros per trip. This led to much frustration among residents, who felt structurally disadvantaged (BRON).

Before the construction of the tunnel, two ferry services existed, serving as accessible connections to the other side. These ferry services were decommissioned after the opening of the tunnel.

The Western Scheldt is among the busiest rivers in the world and is the maritime gateway to the port of Antwerp (VNSC, 2019). From small pleasure boats to huge container ships, the water is intensively used. This crowding limits the possibilities of building new bridges or tunnels. The Scheldt thus functions as a highway for shipping. About 13 million m^3 of sand is dredged every year to keep the navigation channel at depth, with far-reaching consequences for the ecosystem (Deltares, 2024).

During the corona pandemic in 2020, the Belgian-Dutch border was temporarily physically blocked off with fences and sand hills. Residents of Zeeuws-Vlaanderen felt more cut off from their surroundings than ever. Where groceries were first done across the border and people worked or visited family in Belgium, border traffic suddenly became impossible. The region felt like an island, hemmed in between water, borders and rules.

Although pleasure boating was formally allowed, the high waves of container ships made it increasingly dangerous to go up the Scheldt. Residents used to head out at low tide to dry sandbanks for recreation. Nowadays, this is no longer allowed, partly because of the intensity and danger of heavy shipping traffic.



Fig. 74 Scheldt as CONTAINER SHIP HIGHWAY
[Visual by author]

“Hello, I couldn’t go anywhere! I was on a kind of island. It makes you realise how vulnerable you are.” - Resident Hulst.



Fig. 75 Westerschelt Tunnel, ONLY GATEWAY TO NL
[Visual by unknown (Westerschelde tunnel, 2022)]

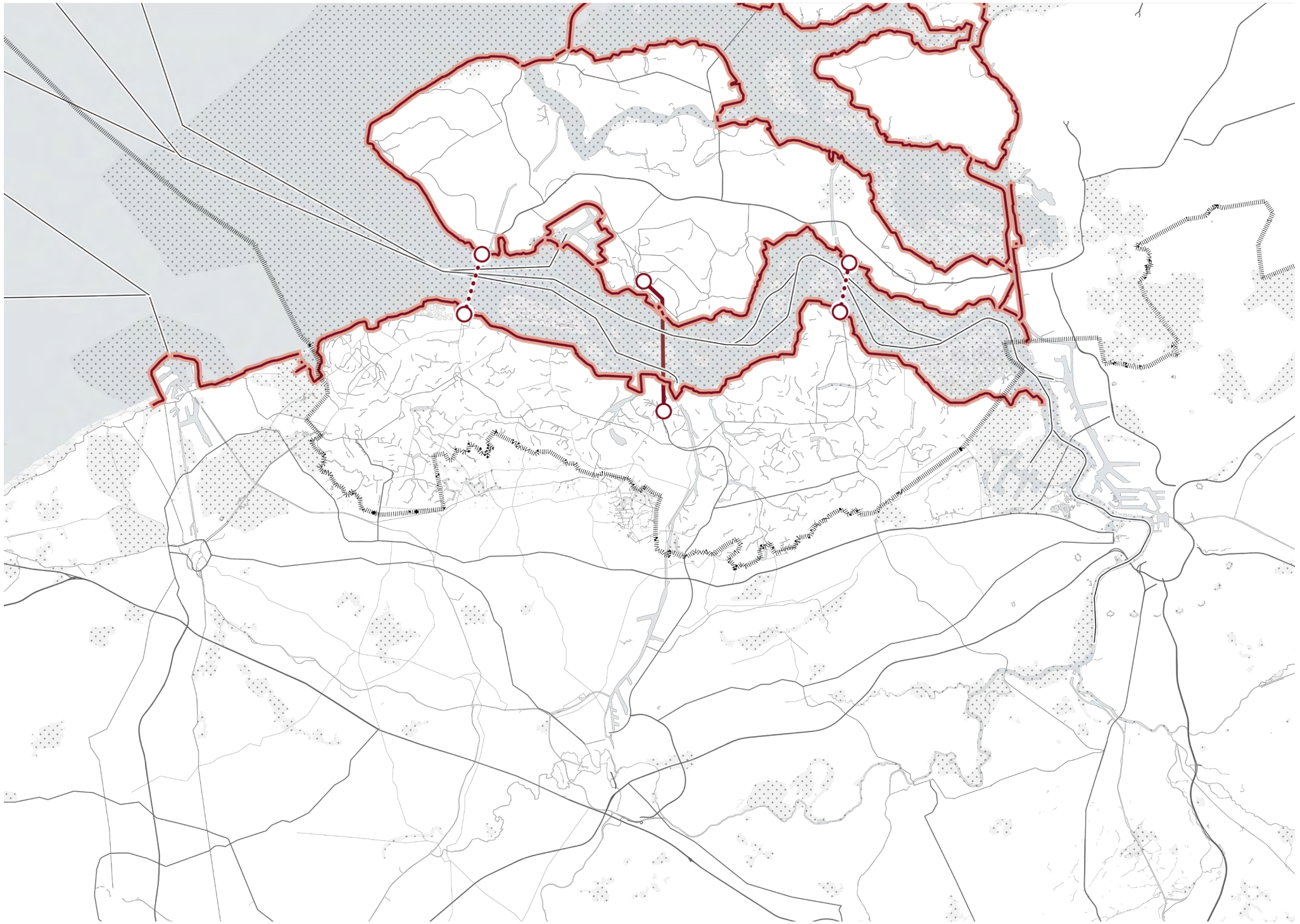


Fig. 76 Borders in the Scheldt [Map made by author]

7.7 | **PAINS OF THE REGION** | DISCONNECTED FROM WATER

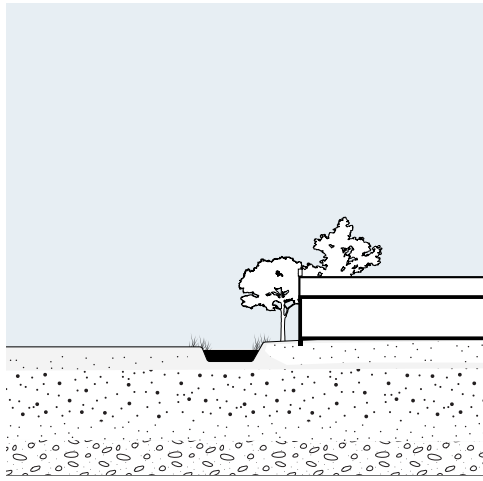
Raising dykes to ensure water safety also has a downside. By raising the dykes, direct contact with the Scheldt and its tides is lost.

Shown here is the dyke near the village of Baalhoek. Although the village consists of less than 11 houses, it was once a lively community where the dyke served as a central meeting place. Before the dyke was raised in 1974, the village had a small harbour at the foot of the dyke. Interviews with residents reveal that this harbour and its connection to the Scheldt meant more than just access to water; it was a way of living with the water. At high tide, ships sailed into the village and food, goods and stories were exchanged. In this way, residents felt connected to larger cities, such as Rotterdam.

During the 1953 flood disaster, dyke breaches also occurred in Zeeuws-Vlaanderen. The concrete blocks placed at the time turned out not to be high enough. After the dyke was raised as part of the Delta Plan, the dyke changed from a social landscape element to a hard barrier. No longer an extension of the backyard, the dyke was physically separated from the village by a narrow motorway. Raising it also gave the dyke the character of a wall between man and water.

In response to sea level rise, a further raising of the dyke is needed: up by two metres and widening by 40 metres. It is uncertain whether the village of Baalhoek will withstand this engineering intervention.

“We used to run up the dyke to see if the water was high enough to go swimming.” - Resident, Baalhoek



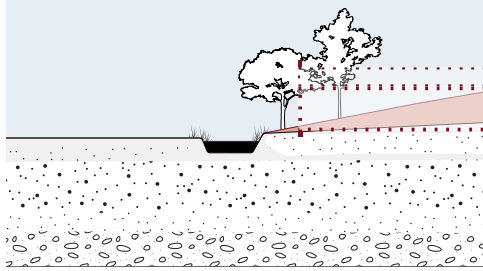


Fig. 78 Section of dyke at Baalhoek, bef



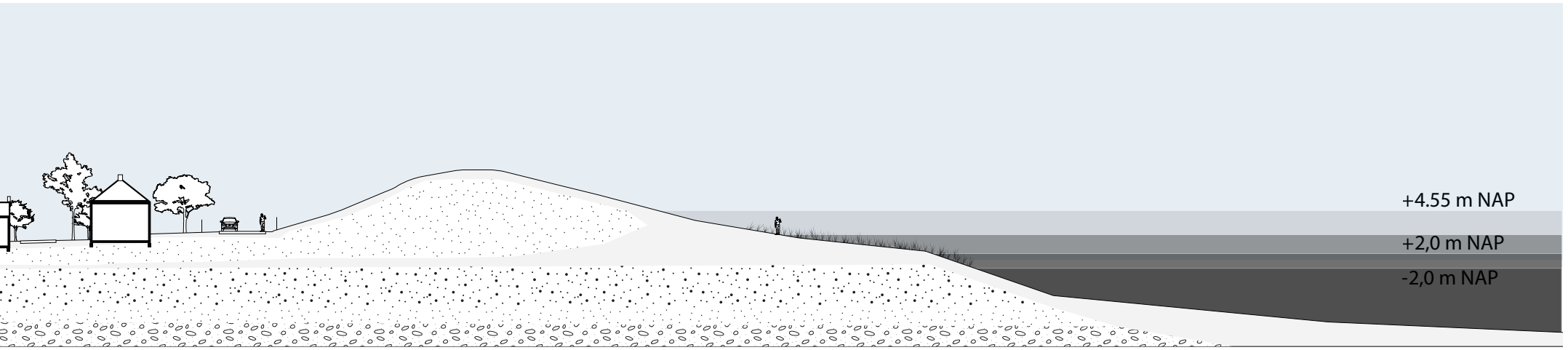
Fig. 77 Drowned land of Saefthinge, NO ACCESS [Visual by author]

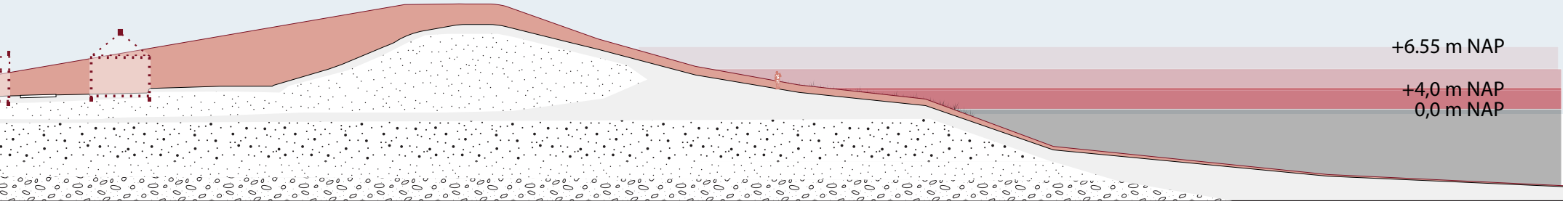
Another form of disconnection between man and water is the development of nature reserves. Stricter regulations mean that in large parts of the Western Scheldt it is forbidden to enter the area without a guide. Whereas people used to go into the mudflats and salt marshes themselves to get eels, shrimps and fish from the Scheldt, living off and with the tides, that practice has largely disappeared. Fewer and fewer people possess this local knowledge, threatening to lose an important part of the region’s identity and cultural heritage.



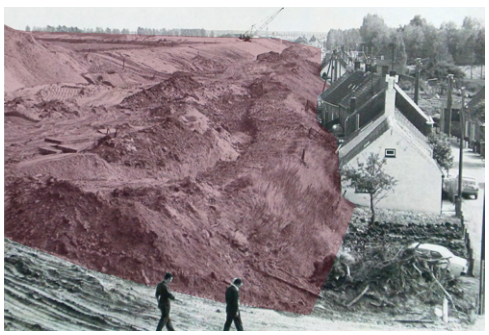
Baalhoek 1968

Fig. 79 Dyke Baalkoek elevated after big





ore and after elevation [Visual by author]



Baalhoek 1974



Baalhoek 1980

g flood of 1953 [Photos by C. Kotvis, (ZB Bibliotheek van Zeeland, 2025) edited by author]



7.8 | **PAINS OF THE REGION** | FROM PAIN TO POTENTIAL

Due to Zeeuws-Vlaanderen's mixed DNA and its location between two countries, there is a natural connection with both the Netherlands and Belgium. Despite the fact that this sometimes causes friction, therein also lies the region's strength. It provides opportunities for cross-border cooperation and shared ownership.

As a border area, Zeeuws-Vlaanderen is vulnerable to political tensions and changes. When the border closes or is more strictly enforced, there will be shortages of facilities. The region therefore needs more control over its own future. At the same time, it shows that when it does cooperate, strong networks can emerge.

Due to its location between the Scheldt and the national border, Zeeuws-Vlaanderen is often perceived as a forgotten island. This is reflected in the poor infrastructure making it disconnected from both the Netherlands and Belgium. New spatial and mobility strategies are needed to give the region economic perspective and better connectivity.

The region has been struggling with pollution from heavy industry and port activities for decades. Wind turbines, nuclear power plants and other large-scale infrastructure are remarkably often located at the border. As a result, Zeeuws-Vlaanderen carries the burden of two countries. Clearly, this situation must change. Not by moving pollution to another border area, but by forcing a transition to clean and circular industry.

The visible landmarks of industry, ports and infrastructure have become part of the character of the border landscape. These elements offer an opportunity for the future to work not only functionally but also symbolically as signs of shared responsibility and cooperation.

Besides legal borders, water also plays a dividing role. The Scheldt forms a physical barrier towards the Netherlands. With increasing shipping traffic, higher dykes and limited access to the water, residents experience distance from their life with the tides. There is a need for new ways to relearn how to live with water as has historically always happened in this region.
With rising sea levels, risks are increasing. Loss of land, culture and human security lurks. Although the subject of de-poldering is sensitive, new design strategies will have to be sought that make living with and from water possible again. Not as a loss, but as an opportunity to transform old traumas into future-oriented solutions.

CONCLUSION

The cost of protecting the land from flooding is becoming so high that the question arises as to whether Zeeuws-Vlaanderen can continue to exist without slowly disappearing into the sea.

Nevertheless, the region is strategically located between the Randstad and the Flemish Diamond. The area has so much potential that it would be a missed opportunity not to develop it.

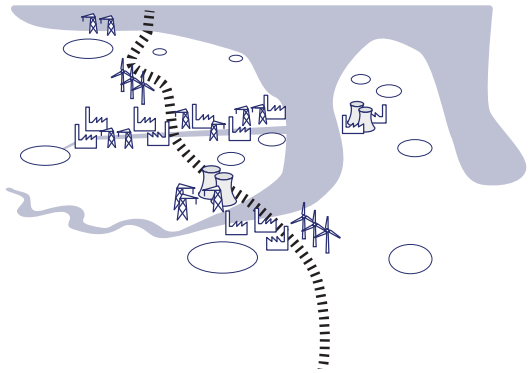
Realising this potential requires new infrastructure, as well as the knowledge and acceptance necessary to live with water and tides. Developing and enforcing sustainable industry and future-proof ports is crucial.

The an important condition for this is that Zeeuws-Vlaanderen is granted more authority and administrative capabilities of an entity in its own right as a border region. Then can the region direct its own future.

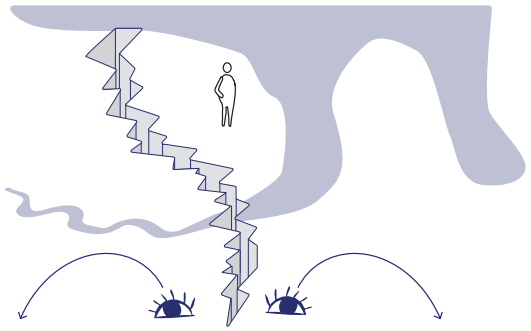
From Pains



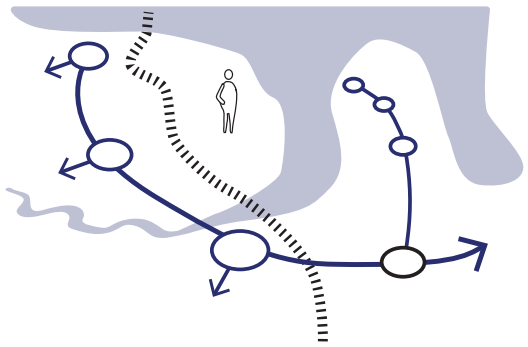
MIXED DNA VS IDENTITY CRISIS



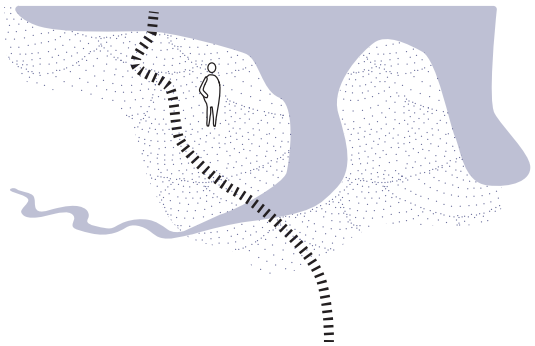
BACKYARD OF TWO COUNTRIES



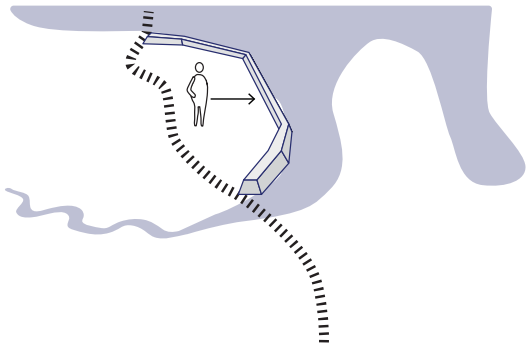
DEPENDENCE ON RELATIONS WITH NEIGHBOURS



OUT OF SIGHT, OUT OF MIND OUT OF CONNECTION

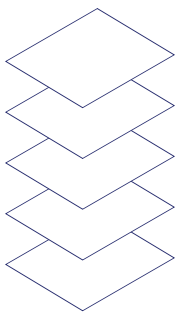


TRAUMA OF LOSING LAND



DISCONNECTED BY/FROM WATER

To Design Gap



~~DIS~~**CONNECTED** INFRASTRUCTURE

~~DIS~~**CONNECTED** FROM AND BY WATER

~~DIS~~**CONNECTED** BY GOVERNANCE

~~DIS~~**CONNECTED** THROUGH ECONOMY

~~DIS~~**CONNECTED** BORDER LANDSCAPE

To Design Potential

Fig. 80 Design direction [Visual by author]

NL



BE

Figure 81. The border melting together, physical and mentally
[Image by author, Zeeuws-Vlaanderen, 2025]

8. RADICAL SCENARIO EXPLORATION

To border or not to border?

8.1 |RADICAL SCENARIO EXPLORATION | FRAMEWORK

To explore how the presence or absence of a national border influences strategies for responding to sea level rise, a design-based framework has been developed. This framework is based on four flood adaptation strategies formulated by Deltares (Haasnoot, Diermanse, Kwadijk, De Winter & Winter, 2020). These strategies have been applied to the South-Western Delta from a Dutch perspective (Grensgevallen & Deltares, 2025). For the Belgian and Flemish perspective, the Sigmaplan and Coastal Vision 2050 (Kustvisie 2050) have been consulted.

Although both Deltares and the Coastal Vision 2050 use a strategy referred to as “Zeewaarts” (“Seaward”), their interpretations differ significantly. Not only do they apply different definitions of what “Seaward” entails, but they also base their strategies on differing projections of sea level rise by 2100. For example, Coastal Vision 2050 assumes a rise of 80 cm, while Deltares considers alternative scenarios. These discrepancies complicate the development of a cross-border spatial strategy—one that takes into account both national and local socio-economic interests within the border region, while also ensuring long-term water safety in the face of rising sea levels.

Using Deltares’ strategic framework, a structured method has been developed to test different water safety strategies. In doing so, the consequences for the neighbouring country are also considered. Furthermore, the framework examines the role of a hard national border—whether present or absent—and how such a border functions as a critical junction in strategies for water safety and infrastructure. Finally, it outlines the consequences for the spatial position and liveability of Zeeuws-Vlaanderen.

The framework includes four different border scenarios, ranging from full cooperation to complete separation:

1. No border: The Netherlands and Belgium have become a single nation, governed by a unified administrative and water management system.

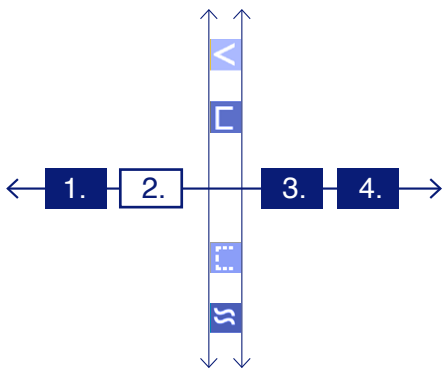
2. Zeeuws-Vlaanderen as a separate territory: The hard border between the Netherlands and Belgium no longer exists, replaced by a jointly managed border zone.

3. Move the border: Zeeuws-Vlaanderen has become part of Belgium, and the national border now lies within the Scheldt estuary, similar to the approach used for the River Meuse (Grensmaas). Cooperation between the two countries is limited.

4. Strong border: Political tensions have escalated, cooperation has ceased entirely, and a physical barrier has been constructed along the national border.

These four border scenarios are combined with the four Deltares strategies to generate extreme spatial projections. These are further developed into maps and cross-sections.

This research by design approach enables exploratory spatial design studies of future territorial possibilities. Based on the four extreme scenarios, components are selected that form the foundation for new design proposals contributing to a potential future environmental vision.



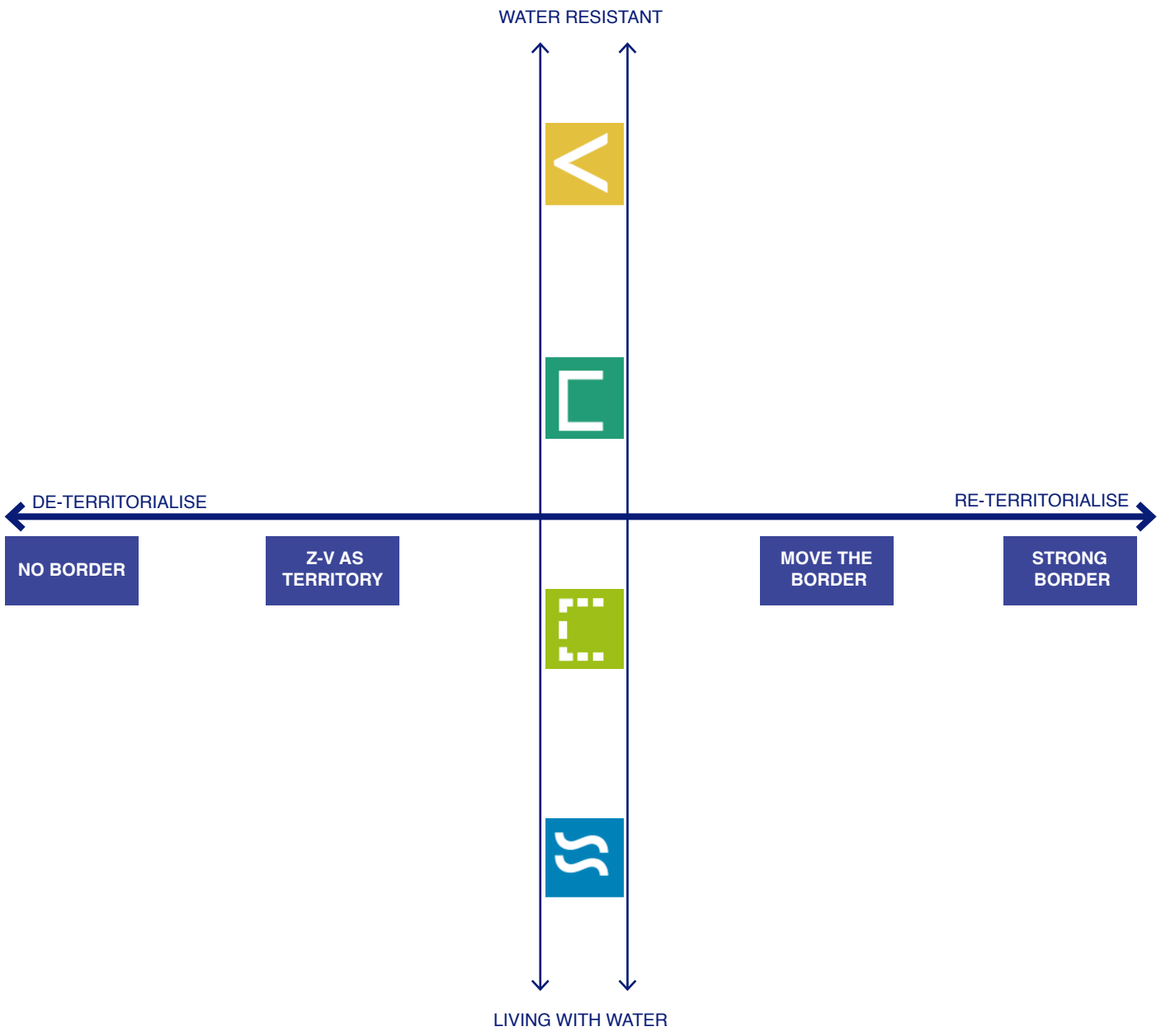
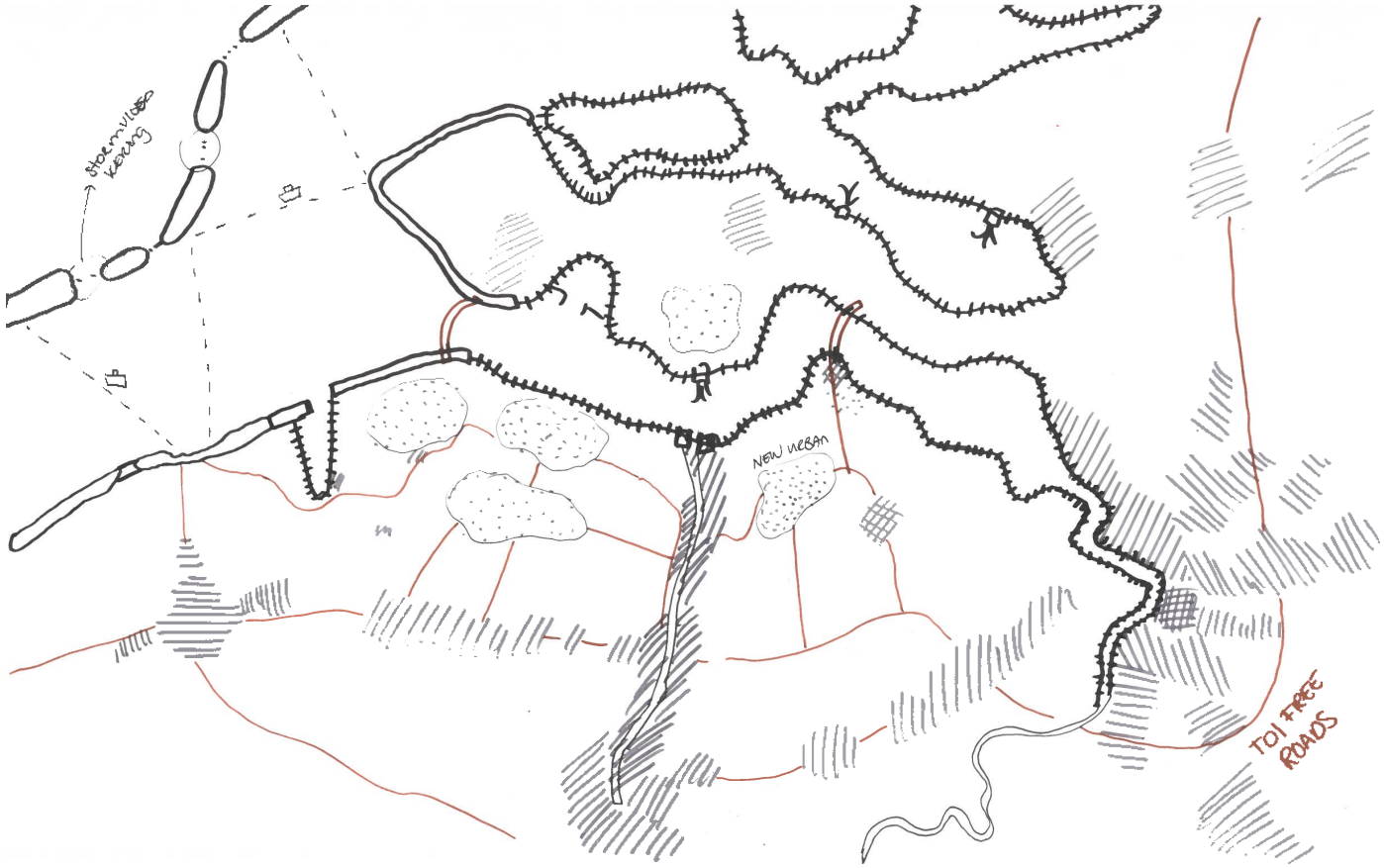


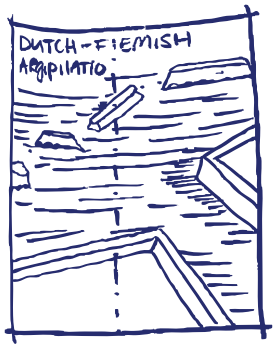
Figure 82. Extreme Scenarios framework [image by author]





NO BORDER | DUTCH-FLEMISH ARCHIPELAGO

Because the border no longer exists, a seaward strategy can be applied along the entire south-western Delta. Infrastructure towards Antwerp, Ghent and Bruges can be improved, allowing the urban fabric of Zeeuws-Vlaanderen to develop further. Thanks to the protective archipelago, lower dykes along the Westerschelde are sufficient. Additional infrastructure across the Westerschelde can also be considered.



Legend

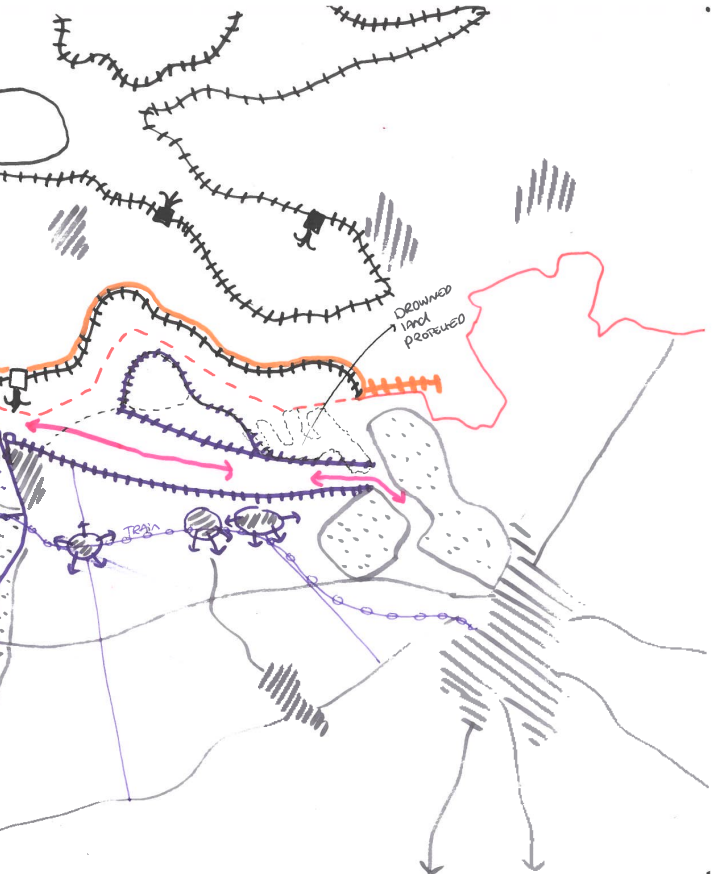
- based on drawing Deltaris
- self-implementation Dutch perspective
- self-implementation Belgium perspective
- border
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- industries and ports
- moved border
- Risk Salnisation
- Sweet water storage
- XXXL dyke
- XL dyke

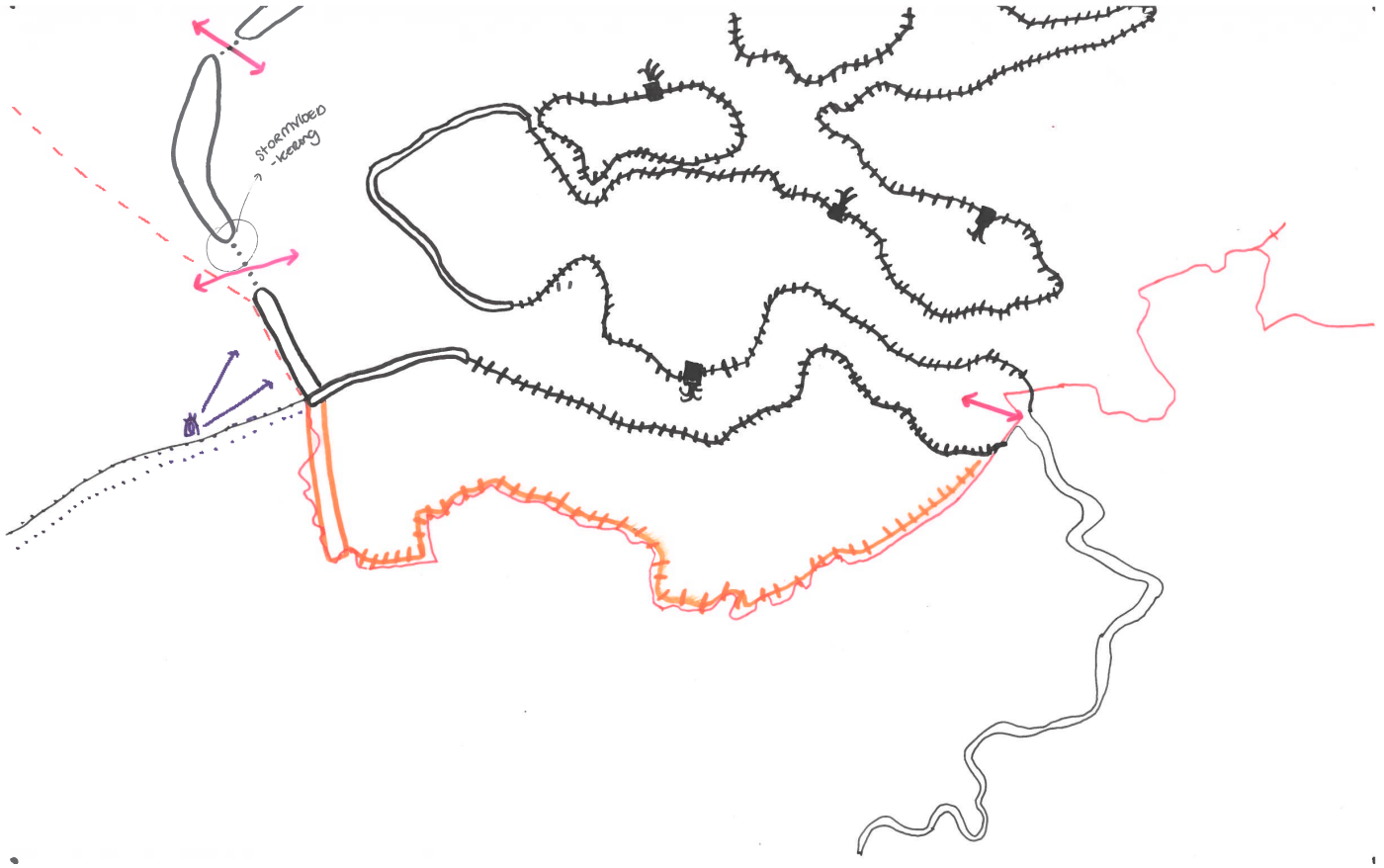
MOVED BORDER | SCHOR AND SLIK (BAY MUD) A

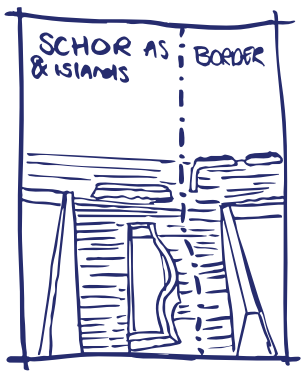
With the border running through the Scheldt and Zeeuws-Vlaanderen belonging to Belgium, investment can be made in coastal expansion on the Westerschelde side, similar to the current Belgian coast. This will change the characteristics of the urban fabric, possibly leading to a decline in Dutch identity in Zeeuws-Vlaanderen.

Both countries may choose to each build their own protective islands off the coast, with the possible result that, in case of insufficient cooperation, the border forms a shipping corridor between the two territories.

In the 1970s, there were plans to build the Baalhoek Canal. Now that Zeeuws-Vlaanderen is part of Belgium, the interests for this could be pushed through, with residents' interests possibly becoming secondary to the economic and infrastructural priorities of the port of Antwerp. This canal will give the port of Antwerp more opportunities to expand and create a shorter channel to the North Sea.





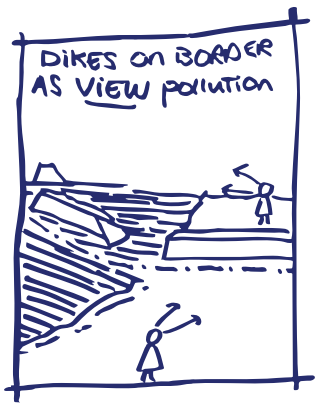


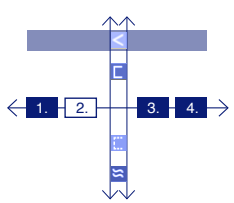
STRONG BORDER | DYKE NEXT TO BORDER AS VIEW POLLUTION

In case the Netherlands defends its coast by expanding seaward, the Zeeuws-Vlaanderen coast will have to place dykes along the border to counter the risk of flooding through Belgian territory.

Islands and dykes could be placed near the border. For Belgium, this could be perceived as affecting the view of the landscape. The border landscape will be bordered by dykes surrounding Zeeuws-Vlaanderen like a wall.

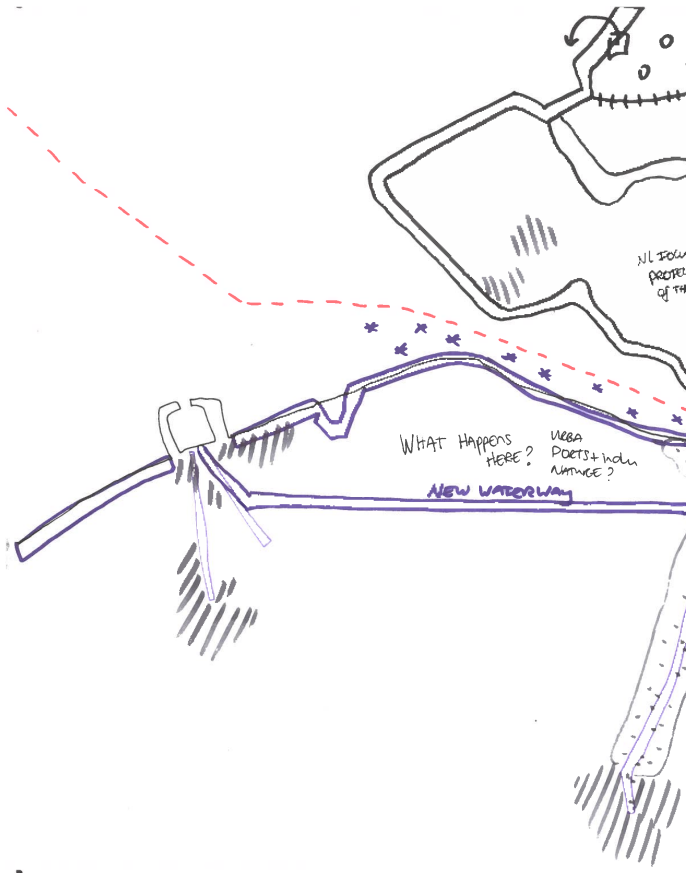
Although in this case the Scheldt could remain navigable, it is possible that Scheldt tax would again be charged. In the seaward strategy, primary dykes would not have to be raised as much. Nevertheless, Zeeuws-Vlaanderen will become physically isolated from both countries.





8.3 |**RADICAL SCENARIO EXPLORATION** | BESCHERMEN-GESLOTEN - PROTECTED CLOSED ST



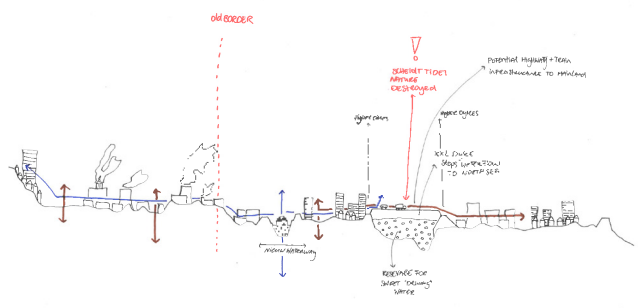


NO BORDER | SCHELDT NO LONGER BORDER, NATURE BORDERED

Within the “Protect-Closed” strategy, the Scheldt will be closed as an estuary. In the Deltaris plan, an example was given for a closure at the mouth of the Scheldt. In this scenario, however, the closure is placed just at Terneuzen, so that the closing dyke can also function as a road. The rest of the Scheldt can then serve as drinking water storage for the entire region and beyond.
To keep the port of Antwerp operational, a new waterway will be built, connecting the ports of Bruges and Sas van Gent, along which industrial expansion is possible. The additional infrastructure is shown dotted in brown.

Although the border has disappeared, the new waterway may be experienced as a spatial barrier of water. Also, the ecosystem of the Scheldt and the polder and dyke landscape will be completely disrupted. The consequences of the disruption of the Scheldt could extend beyond the border of France.





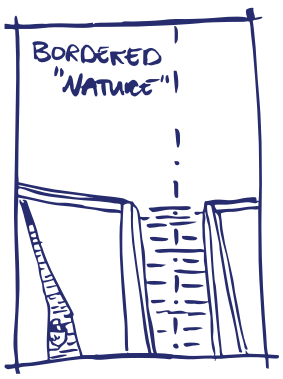
MOVED BORDER | BORDERED NATURE, SCHELDT

Suppose Belgium also applies the “Protect Closed” strategy, the Scheldt near the port of Antwerp could be closed off, as this area is entirely on Belgian territory. In addition, a new waterway would be built through Zeeuws-Vlaanderen, splitting the region spatially by a water barrier.





T NO LONGER TRADE ROUTE

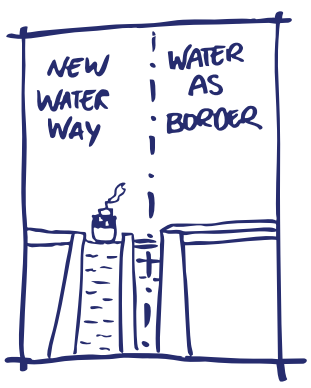


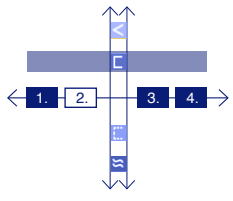
STRONG BORDER | ZEEUWS-VLAANDEREN BORDERED BY TWO WATER STRUCTURES

The Netherlands is completely closing the Westerschelde with a dam. A dam will also be placed near the point where the border crosses the Westerschelde to capture and retain freshwater from the Scheldt River.

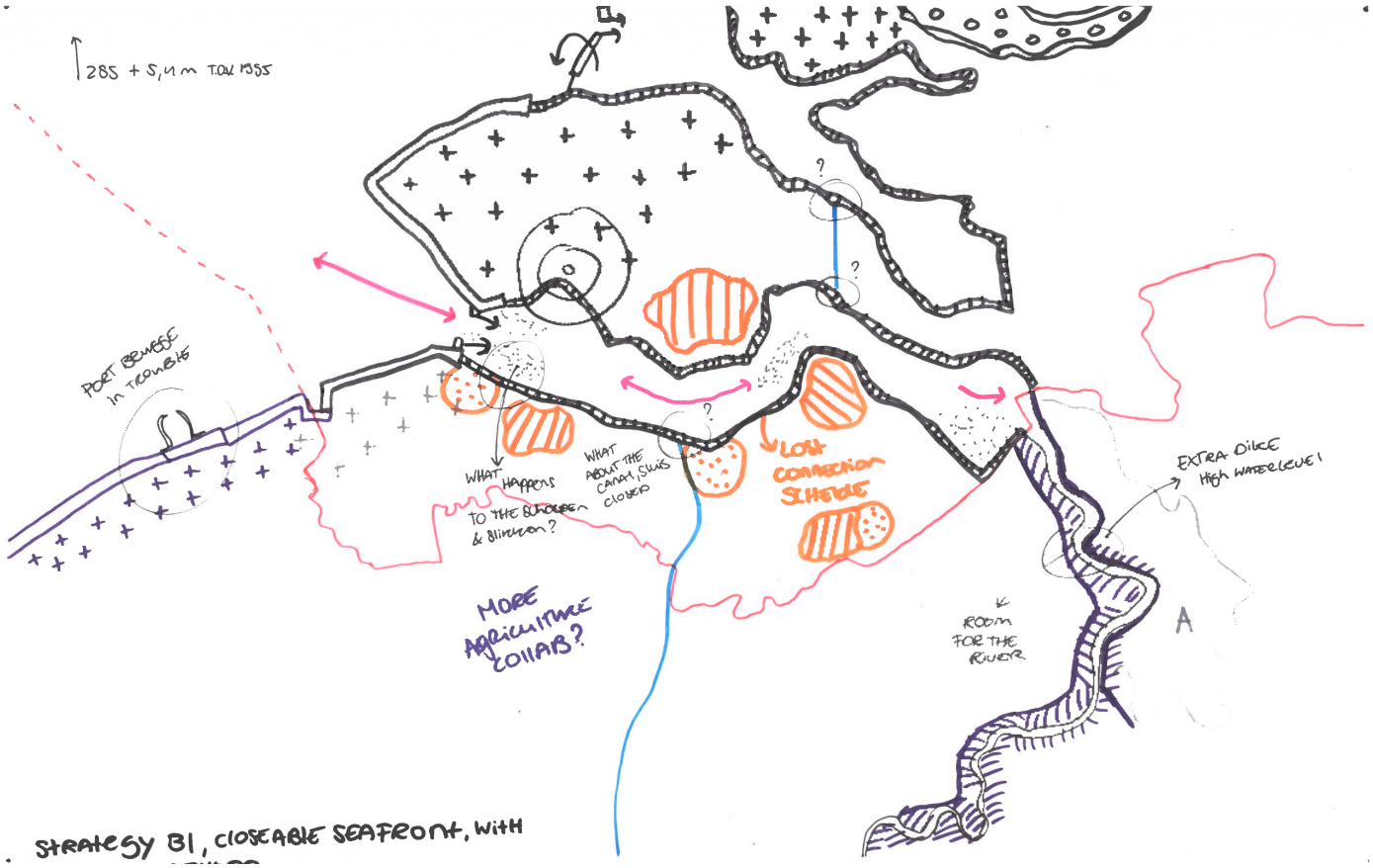
In response, Belgium could decide to build a new waterway right along the border. For this, water from the Scheldt will be diverted to the port of Bruges. This will completely dry up the canal between Terneuzen and Sas van Gent, as the water will be diverted on Belgian territory. Heavy industry and possibly nuclear power plants are planned in the area between the new waterway and the border, potentially spreading environmental pollution towards Zeeuws-Vlaanderen.

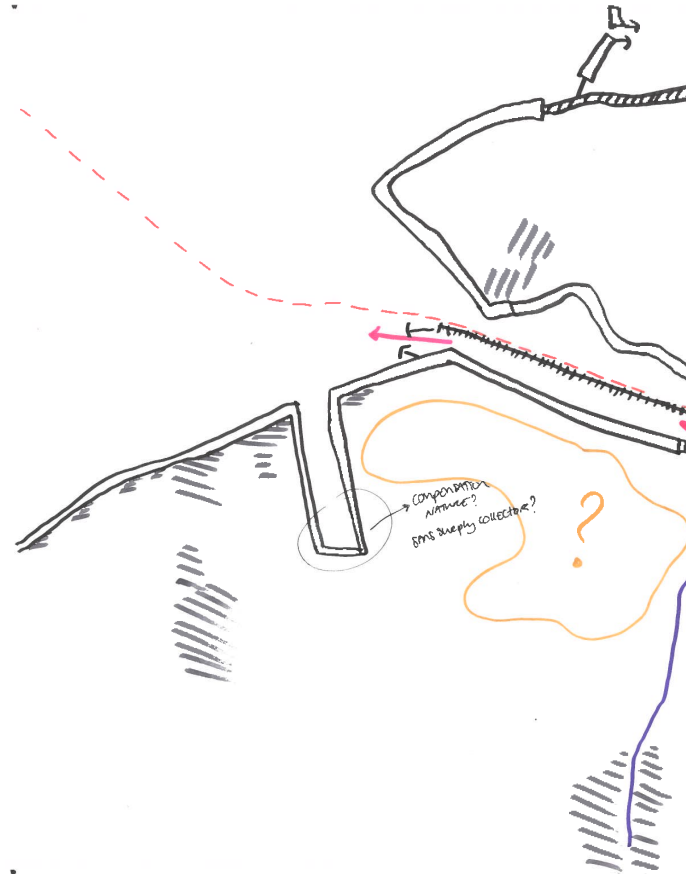
As a result, Zeeuws-Vlaanderen becomes isolated between two extensive water structures. Existing industry and ports lose their functionality as a result of the closures, and infrastructure becomes difficult to access due to the construction of new dykes.





8.4 |**RADICAL SCENARIO EXPLORATION** | BESCHERMEN-OPEN - PROTECTED OPEN STRATEGY

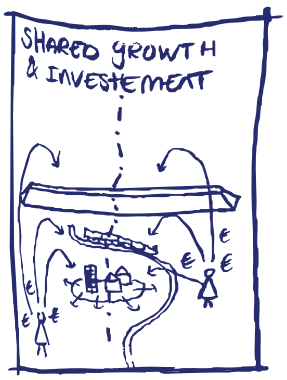




NO BORDER | SHARED GROWTH AND PROTECTION

Despite the former border still being visible, it no longer fulfils a functional role. Joint investments will be made in a strategy to keep the Scheldt open for the benefit of the ports of Antwerp and Terneuzen. The Dutch and Belgian coasts will also be jointly reinforced and raised. The elimination of the border will make it easier for Belgians to settle in Zeeuws-Vlaanderen. This will enable further urban expansion, assuming that people prefer living near water and coastal areas.

That said, large dykes will have to be placed along the Scheldt, further reducing direct contact between people and the river. Moreover, the Scheldt is losing its natural dynamics and increasingly acts as a transport axis for container shipping.

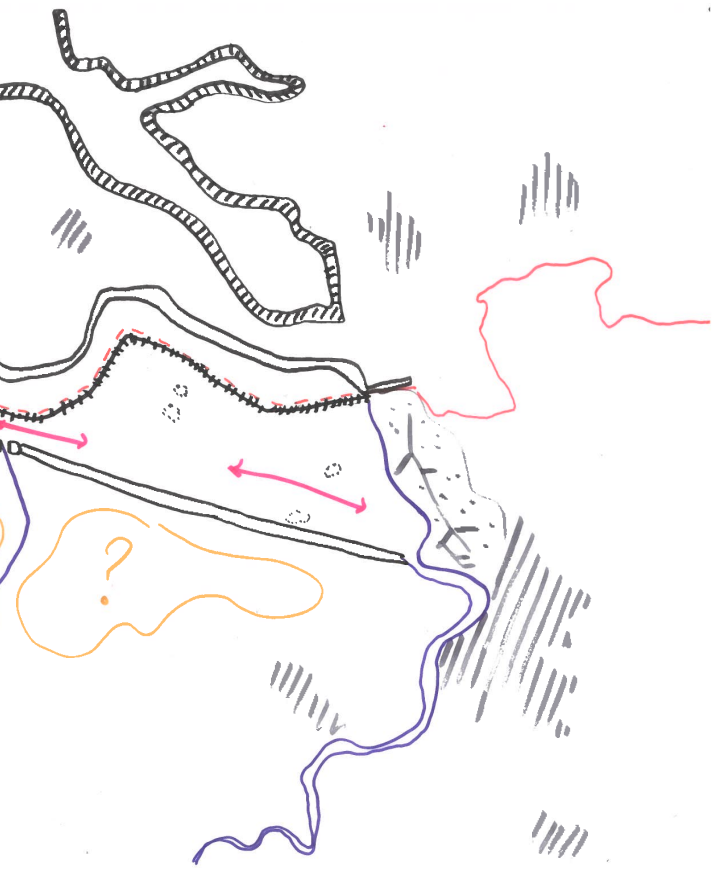


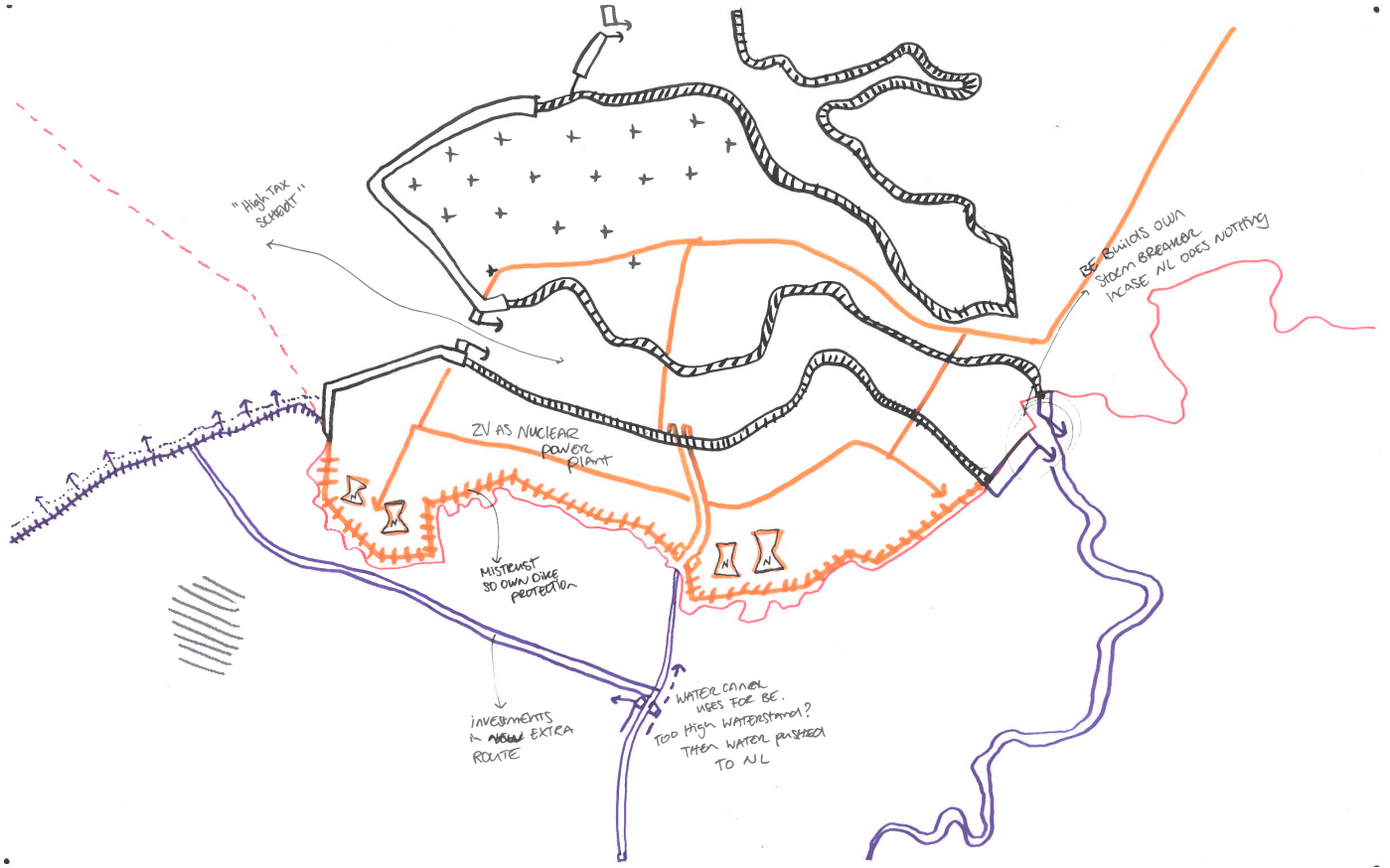
MOVED BORDER | DYKE AS BORDER IN SCHELDT

In this scenario, parts of Zeeuws-Vlaanderen are flooded to create a faster route from the port of Antwerp to the North Sea. Dykes are placed right along the border to prevent sediment from Dutch territory from entering the shipping channel. To compensate for this drastic modification, the Zwin could be given more space inland. Zeeuws-Vlaanderen will be significantly de-poldered for the economic interests of the Belgian ports.

Legend

- based on drawing Deltaris
- self-implementation Dutch perspective
- self-implementation Belgium perspective
- border
- infrastructure
- industries and ports
- moved border
- Risk Salnisation
- Sweet water storage
- XXXL dyke
- XL dyke





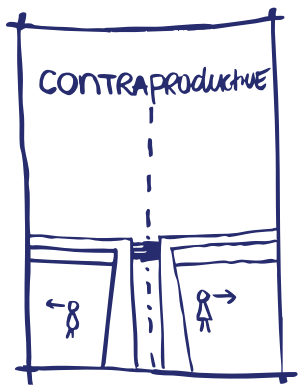


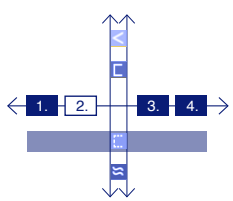
STRONG BORDER | CONTRA PRODUCTIVE BY LACK OF TRUST

In this case, the political situation between the two countries is tense. There is much mistrust over mutual intentions regarding heavy industry and nuclear power plant construction. Due to a lack of communication and cooperation, both countries are independently expanding their coastal defences. The result is a potentially counterproductive plan: both countries are building dykes along the border, driven by the expectation that the other may not build sufficiently safe dykes.

As a result of the large investments and political tensions, Scheldt taxes are reintroduced. This makes it too costly for Antwerp to use the Western Scheldt, leading to economic losses.

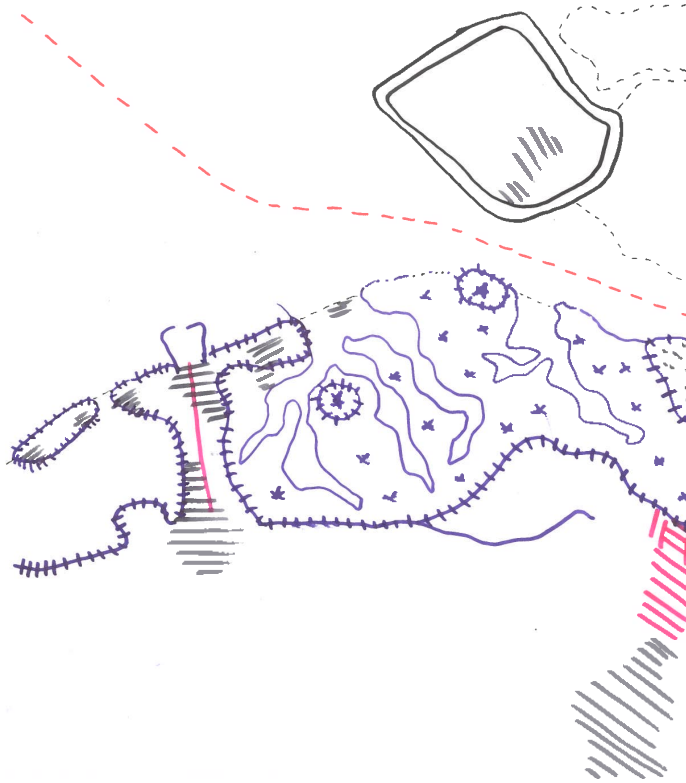
As an alternative, Belgium extends its existing canal network from Zelzate to Bruges. This will involve tapping water from the North Sea Port canal, resulting in the canal and the lock at Terneuzen becoming unusable.





8.5 |**RADICAL SCENARIO EXPLORATION** | MEEBEWEGEN - LIVING WITH WATER

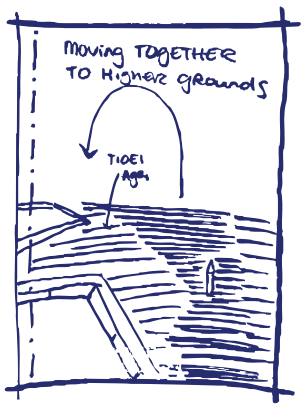


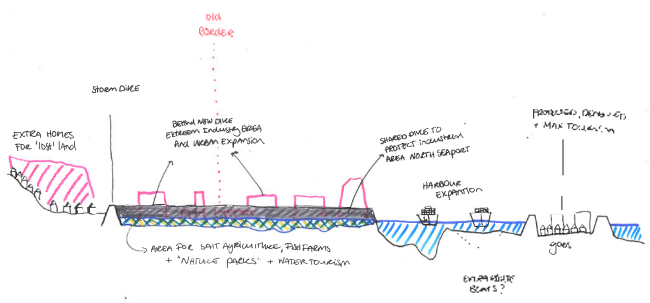


NO BORDER | MOVE TOGETHER TO HIGHER LANDS

To move with rising sea levels, large areas of agricultural land will be de-poldered and transformed into areas of tidal nature and aqua farming. Important industrial areas and ports will be protected to safeguard the regional economy and keep pace with global growth. Villages of cultural-historical value will also be preserved by building large dykes. This will create small islands accessible only by boat.

For Zeeuws-Vlaanderen, this means that the area will be re-flooded to a significant extent.





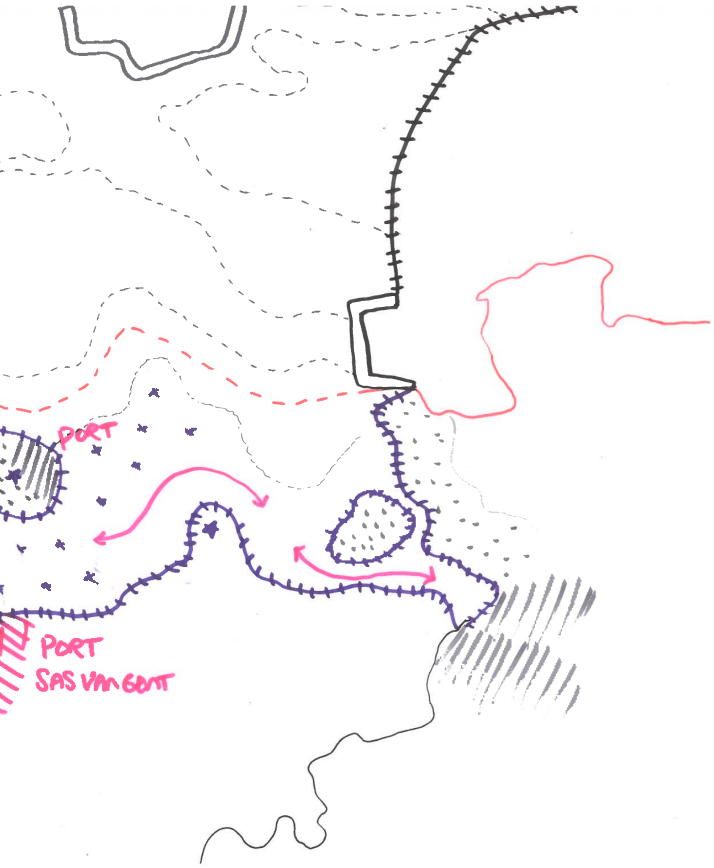
MOVED BORDER | DEEPEST WATER FORMS BORD

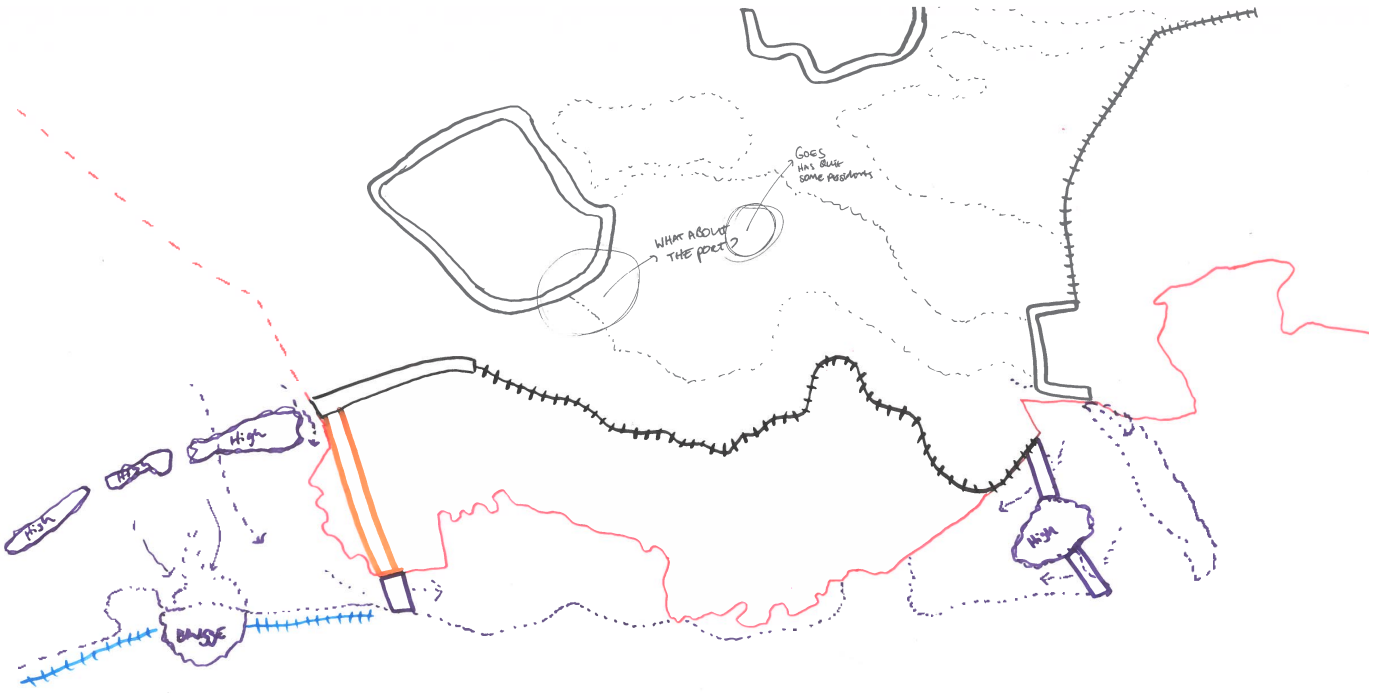
Zeeuws-Vlaanderen, now part of Belgium, could act as a buffer zone by flooding large areas. Low lying land could be excavated and reused to build new coastal defences.

Now that the border lies in the Scheldt- based on the deepest point, as also applied at the Grensmaas, the question arises how this border will develop in the future. Rising sea levels will change the Scheldt estuary, potentially shifting the location of the border as well.

Legend

- based on drawing Deltaris
- self-implementation Dutch perspective
- self-implementation Belgium perspective
- border
- infrastructure
- industries and ports
- moved border
- Risk Salnisation
- Sweet water storage
- XXXL dyke
- XL dyke



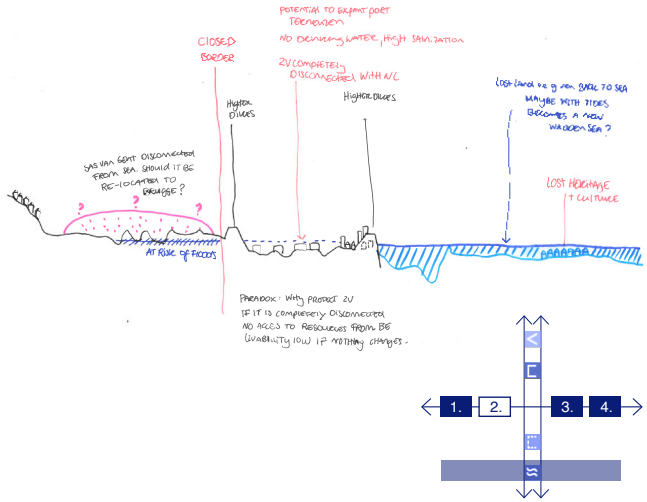




In Deltares' sample plan, Zeeuws-Vlaanderen will be protected within this strategy. However, if Belgium chooses not to implement its coastal vision for 2050 and cedes parts of the land to the sea, there will still be a flood risk for Zeeuws-Vlaanderen via the border with Belgium. To reduce this risk, construction of a border dyke is necessary.

In this scenario, Zeeuws-Vlaanderen becomes completely isolated from the rest of the Netherlands. The Westerschelde tunnel is no longer accessible. Because of the reinforced border with Belgium, liveability deteriorates considerably; access to employment, food supply and drinking water-that currently comes from the Netherlands-is put under severe pressure. Zeeuws-Vlaanderen increasingly functions as an island, enclosed by dykes and a hard national border.





Conclusion

The exploration of radical scenarios shows that the border and the degree of cooperation between the Netherlands and Belgium have a major influence on how the landscape of Zeeuws-Vlaanderen can develop in the future. Without mutual coordination, vulnerabilities remain. When one country raises its dykes and the other does not, the risk of flooding through the neighbouring country remains.

Especially the first three strategies require large amounts of sand for coastal reinforcement or island construction. In addition, new physical boundaries arise, such as high dykes, a new waterway or closing off the Scheldt as a shipping route. These elements will increasingly function as hard divisions in the landscape.

In many scenarios, Zeeuws-Vlaanderen ends up in a vulnerable position: further isolated, flooded or used as a catchment area for industry and water. Cultural heritage, regional identity and liveability may be lost as a result. This underlines the need for Zeeuws-Vlaanderen to gain more position and say within cross-border strategies. The region must be included as an independent entity in the policies of both countries.

No scenarios have yet been developed in which Zeeuws-Vlaanderen functions as an independent entity. Indeed, this possibility raised new, complex questions. For example: How should control of Zeeuws-Vlaanderen be organised within the cooperation between the Netherlands and Belgium? What degree of autonomy is conceivable or desirable within a border zone? Can and should the border zone function as a “free street”? And where then are the actual and administrative borders of such a zone? How to create an entity without creating new borders?

The following chapters will look at reference spatial entities and the opportunity of applying the theory of a common.

Reflection on framework and results

The framework used provided valuable insights, but also had limitations. During the development of the scenarios, new questions arose that did not fit within the original frameworks. Questions such as: how does the economy develop and what role do ports play in it? What will happen to nuclear power plants, will they expand or will there be new energy sources in the future? Will the population grow, or shrink? And how does climate migration play a role?

Looking back, the framework proved less well-defined, making the scenarios broad and sometimes varying in perspective. Sometimes the focus is on Dutch interests, other times on Belgian ones. It is important to note that these scenarios originated from a single designer and were therefore influenced by personal interpretation and bias.

For future use, the framework could be more sharply defined, for instance by formulating clear assumptions about population development and economic growth in advance. It is also advisable to apply the method by several people, nationalities or disciplines, to achieve a more diverse and balanced picture.

A strong feature of the framework is that it raises questions and starts the conversation. The scenarios do not offer fixed answers, but function as a design tool to quickly explore different possibilities and make spatial choices open to discussion.

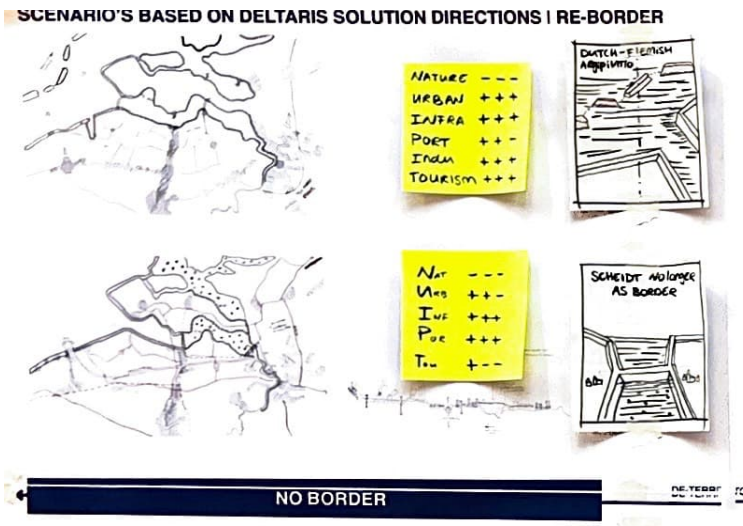
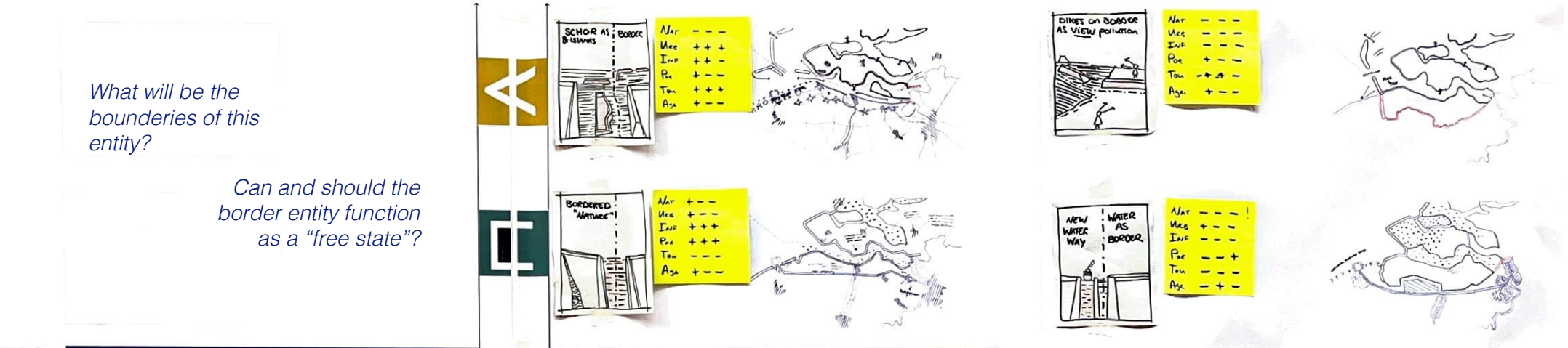


Figure 83. Result extreme scenarios framework [image l

What will be the bounderies of this entity?

Can and should the border entity function as a “free state”?



What will be the Id/Entitiy of the border zone?

How to create an entity without creating new borders?

What degree of autonomy?

by author]

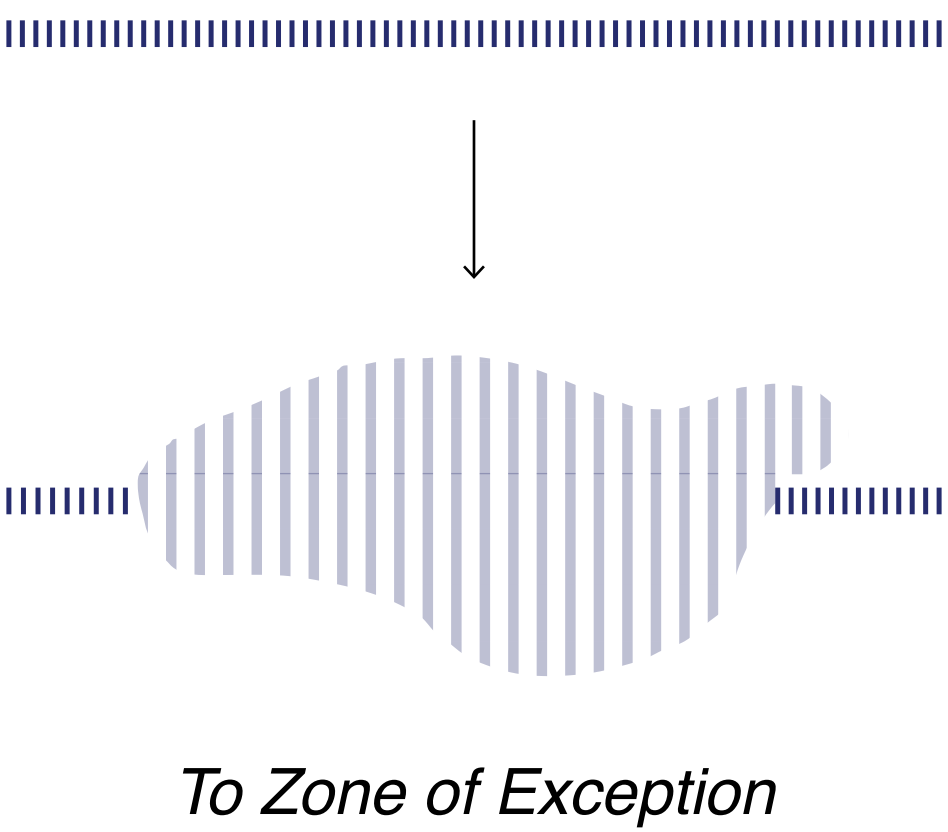


Figure 84. Re-designing the border as it is [Image by author]

9. ENTITIES AND INTEREST

What if the border is no longer just a line on the map, but an area with its own exceptions and administrative control? To answer the question how to re-B/order, spatial autonomies within Europe are looked at to explore what forms of identity, autonomy and sovereignty are possible. This exploration shows what opportunities this offers for developing a new body of the border.

9.1 |**REFERENCES OF ENTITIES** | CASE STUDY SPATIAL AUTONOMIES



VATICAN CITY
MICROSTATE
0,49 km²
882 inhabitants

ECCLESIASTICAL MONARCHY

The Holy See (Pope & Roman Curia)

Sovereignty | Yes
Autonomy | absolute
Schengen | No, but open border



MONACO
MICROSTATE
2,08 km²
± 38.000 inhabitants

HEREDITARY CONSITUTIONAL MONARCHY

Prince & Council of Goverment

Sovereignty | Yes
Autonomy | full, reliant on France
Schengen | No, but open border

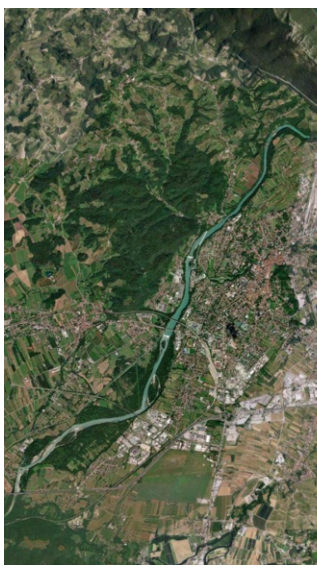


SAN MARINO
MICROSTATE
61,19 km²
± 34.000 inhabitants

PARIAMENTARY DEMOCRATIC REPUBLIC

Congres of State (2 Captians Regent)

Sovereignty | Yes
Autonomy | full political & legal
Schengen | No, but open border



NOVA-GORIZIA (SL) I GOR
BINATIONAL TOWN
350,1 km² (combined)
± 71.753 inhabitants (combi

BINATIONAL MUNICIPALIT

City Councils & EU EGTC (E
Territorial Cooperation)

Sovereignty | No
Autonomy | Locally
Schengen | Yes

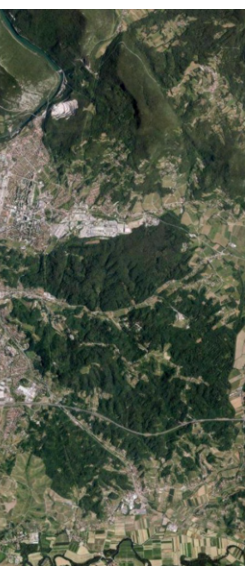
Figure 85. Overview examples spatial autonomies and entities in Europe [Visual by author (Google Earth, 2025)]

Microstates, such as Monaco and San Marino, for example, have their own sovereignty but lean heavily on their neighbours. Creating a microstate should not be the goal. In the case of Zeeuwsvlaanderen, this could even be counter-productive. Instead, it would underline differences and create new borders instead of fading existing ones. This can lead to conflicts over boundaries and identity.

Although Åland has no sovereignty and is part of Finland, it has its own parliament and thus administrative autonomy. Its geographical location, surrounded by water, forms a natural boundary here. In the Basque country, the degree of autonomy varies depending on whether the area is in France or Spain.

Re-B/ordering the border in the case of Zeeuws-Vlaanderen is not intended to draw new boundaries, as would be the case with a free state. Instead, the aim is to approach the border as a connecting space between two countries, giving the border region more control over issues such as infrastructure, water safety, nature and the economy.

Besides the theory of the common, a European Grouping for Territorial Cooperation (EGTC), such as the cooperation between Gorizia and Nova Gorica, offers a promising model to further explore governance from an exceptional position. Such but small-scale EGTC cooperation also already exists in the Linieland of Waas and Hulst (EGTS Linieland, n.d.).



RICIA (IT)

ES WITH EGTC

European Grouping of



ZONE OF EXCEPTIONS
FLUID BORDER LAND OF BE-NL
876 (NL) + ? (BE) km²
± 105.600 (NL) + ? (BE) inhabitants

UNDER CONSTRUCTION

UNDER CONSTRUCTION

Sovereignty	| UNDER CONSTRUCTION
Autonomy	| UNDER CONSTRUCTION
Schengen	| Yes



ÅLAND (FI)
AUTONOMOUS REGION
1.580 km²
± 300.000 inhabitants

AUTONOMOUS PARLIAMENTARY REGION OF FINLAND

Åland Goverment with Premier

Sovereignty	| No
Autonomy	| Legislative & demilitarised
Schengen	| Yes



BASQUE COUNTRY (SP - FR)
AUTONOMOUS REGION
10.202 km²
± 2.540.000 inhabitants (combined)

AUTONOMOUS COMMUNITY (ES) & INTERCOMMUNAL REGION (FR)

Basque Goverment (SP) & Pays Basque Agglo Excitive Board (FR)

Sovereignty	| No
Autonomy	| Fiscal & legislative (SP), locally (FR)
Schengen	| Yes

"European Grouping of Territorial Cooperation (EGTC) allows public entities of different Member States to come together under a new entity with full legal personality. Through an EGTC Member State public authorities can set up a single joint structure to implement projects, investments or policies in the territory covered by the EGTC, whether co-financed by the EU budget or not" (European Commission, 2025)

9.2 |**WHO HAS INTEREST** | STAKEHOLDERS

0 - GOVERNMENT AGENCIES

NL **BE** **EU**

Rijksoverheid · .be · Europese Unie

Rijkswaterstaat Ministerie van Infrastructuur en Waterstaat · Vlaanderen verbeelding werkt · European Commission

PROVINCES

Provincie Zeeland · Provincie Oost-Vlaanderen · Provincie Noord-Brabant · Provincie Noord-Brabant · west-vlaanderen de gedreven provincie · Provincie Antwerpen

AGENCY

European Committee of the Regions · European Environment Agency · Euregio Scheldemond · Interreg

MUNICIPALITIES

VNG · gent: · AEBR AGEG ARFE · gemeente Hulst · BRUGGE · gemeente SLUIS · A · Terneuzen · KNOKKE HEIST

1 - PORT & INDUSTRY

NL **BE**

North Sea Port · Port of Antwerp Bruges

INDUSTRY

DOW · ExxonMobil · YARA · TotalEnergies · zeeland REFINERY · 3M

2 - WATER SAFETY

NL **BE** **EU**

Rijkswaterstaat Ministerie van Infrastructuur en Waterstaat · De Vlaamse Waterweg · Schelde

Waterschap Scheldestromen · sigmaplan · Kustvisie

RESEARCH

HWBP voor sterke dijken · BWMSTR · Deltares

3 - INFRASTRUCTU

NL **BE**

connexxion wij zijn transdev · LIJN · Westerschelde Ferry

Figure 86. Overview Stakeholders around border Zeeuws-Vlaandern [Visual by author]

URE

4 - NATURE

NL BE EU

5 - AGRICULTURE

NL BE

6 - ECONOMY

NL BE

Building on the conclusion above, that border zone residents should have a stronger say, a list of stakeholders with influence and interests within the themes of water safety, infrastructure, urban fabric, knowledge, nature conservation and economy has been drawn up alongside. Highlighted in bold are the actors who facilitate cross-border cooperation as contributors.

According to Ostrom's (2008) theory of managing the commons, it is essential that stakeholders at different scales are part of the partnership the so-called ''common council''. This involvement contributes to shared and sustainable management of transboundary resources.

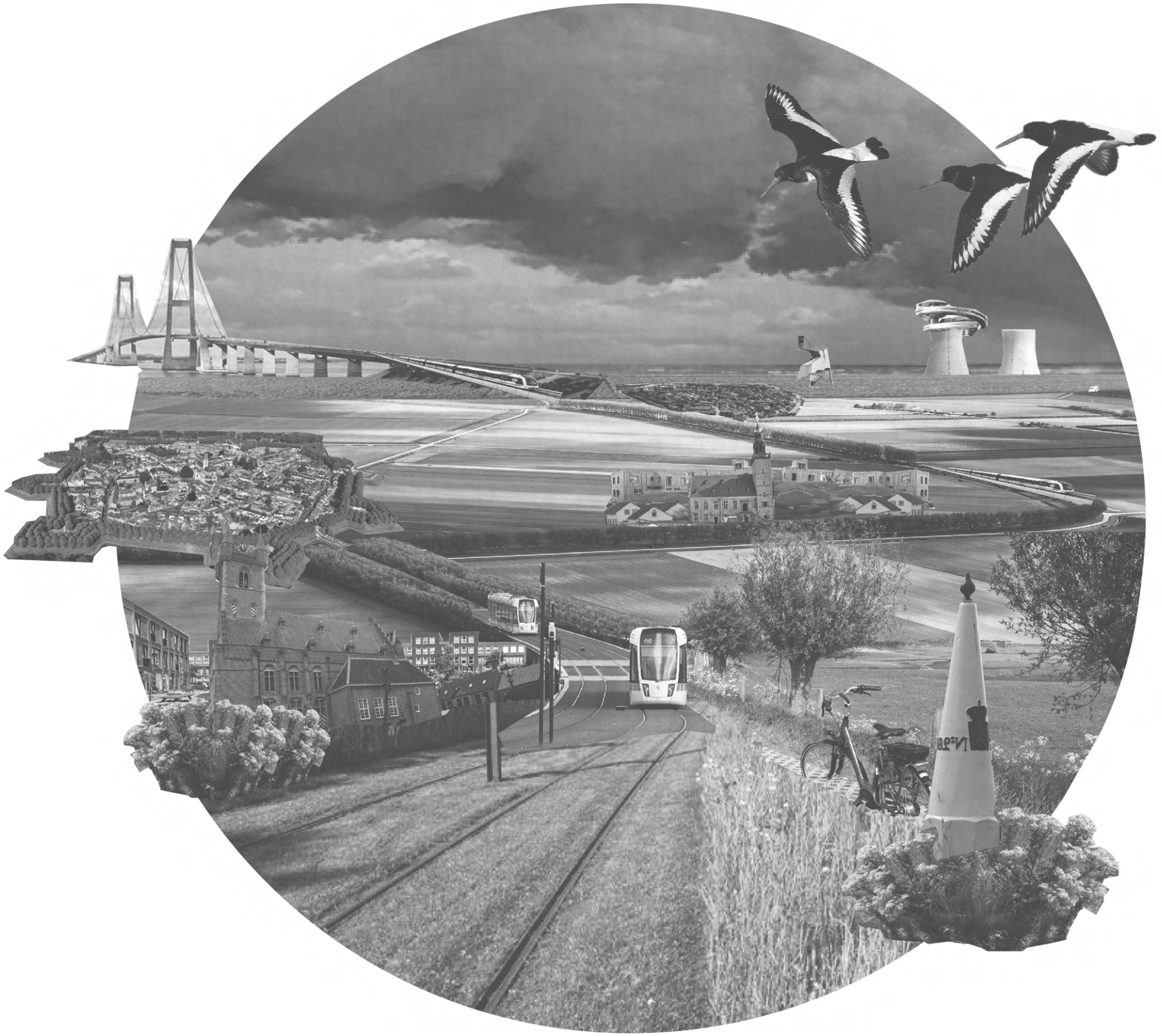


Figure 87. *Introducing the Fluid Border Land* [Visual by author]

10. DESIGN PROPOSAL

Based on the pains of the region, the radical scenario framework, and research into spatial forms of autonomy, a list of challenges is identified that can be translated into design opportunities and concrete interventions. These are tested through three scenarios that address rising sea levels, potential new border configurations, and the forms of cooperation they require.

In this design proposal, the aim is to develop scenarios showing the possibilities when the border has become Fluid Borderland, that is, a place of exception, based on the theory of the Common where the region has acquired its own entity.

In addition, based on the analysis, design opportunities have been translated into concrete design interventions.

Three what if scenarios were created. The scenarios show the expected sea level rise along with the associated consequences. Two scenarios visualise how the Fluid Borderland can be used to transform Zeeuws-Vlaanderen and East and West Flanders into a resilient and future-proof region. One scenario shows the worst-case scenario, in which only the minimum is preserved.

DESIGN INTERVENTIONS

RE-CONNECTED GOVERNANCE
- The border becomes a bandage rather than a line
- A Fluid Border Land is governed by Ostrom's 8 principles (2008)

RE-CONNECTED INFRASTRUCTURE
- A network of (high-speed) trains connects the Fluid Border Land to the Randstad and the Flemish Diamond
- Self-driving light rails link smaller villages to the regional network
- A bridge reconnects the Fluid Border Land with 'the other side' – physically and symbolically

RE-CONNECTED ECONOMY / INDUSTRY
- The industrial 'backyard' is cleaned up through stricter rules on pollution and emissions
- New forms of agriculture are explored, such as seaweed cultivation and crop rotation adapted to saline groundwater

RE-CONNECTED BORDER
- Landmarks act as unifiers
- Viewpoints along the border and the Scheldt visually reconnect people with the landscape
- A connected park integrates existing nature and historical structures, such as dykes and defence lines, allowing people to engage with the polder and kreken landscape

RE-CONNECTED WITH WATER
- Land is depoldered to give more space to the Scheldt; the flooded zones support tidal activities
- Existing dykes are raised with gentle slopes, offering multifunctional space for recreation
- On both dry and tidal land, wooden walkways improve access to water

Figure 88. From opportunity to intervention [image by author]

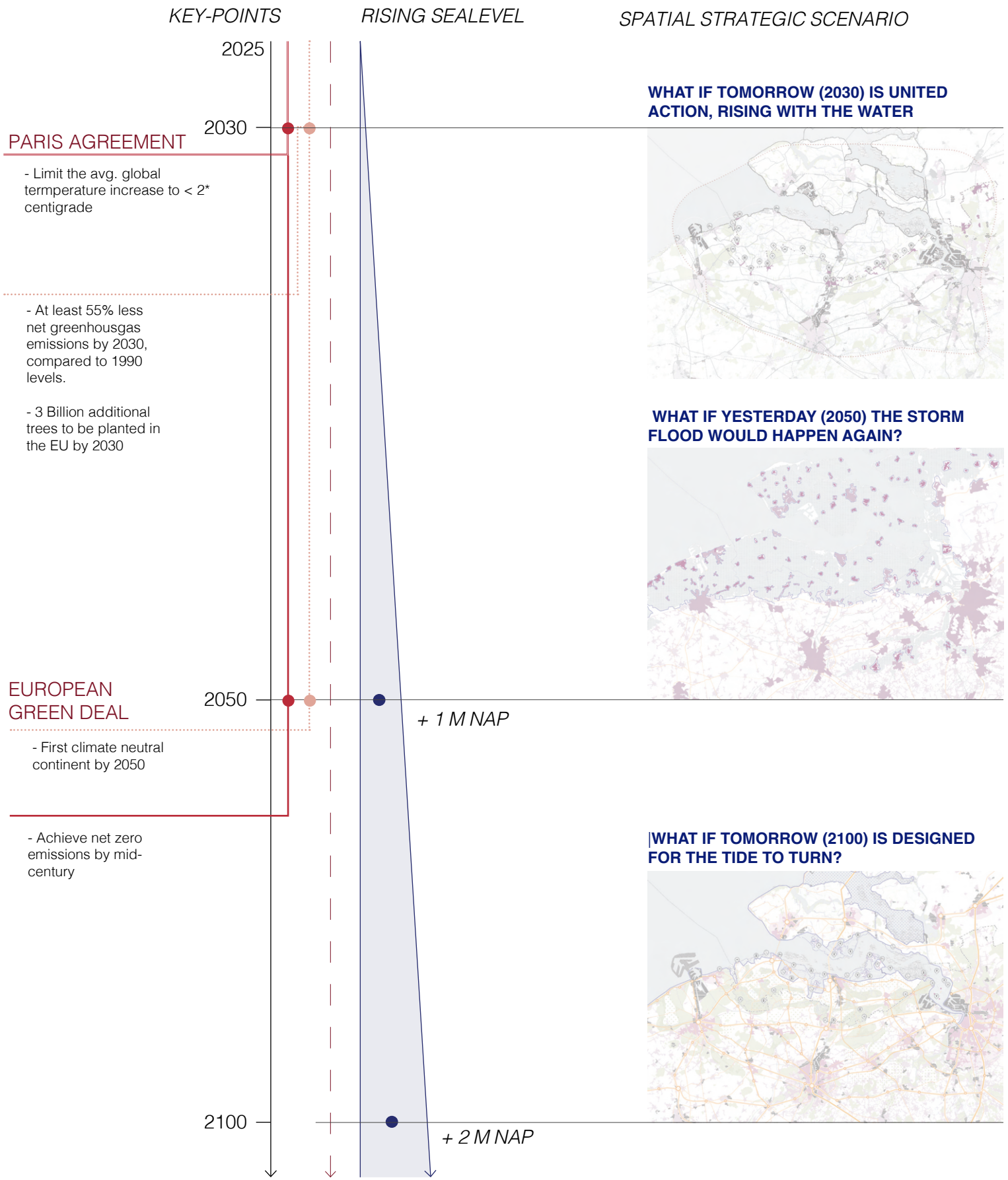


Figure 89. Timeline Scenarios [image by author]

10.2 DESIGN PROPOSAL | GOVERNANCE OF THE FLUID BORDERLAND

The Fluid Borderland is an area of exception in which the border is stretched into a zone encompassing Zeeuws-Vlaanderen and parts of West and East Flanders, between the cities of Bruges, Ghent and Antwerp. This zone will have its own status and administrative entity, giving it more control over cross-border tasks.

Based on Agamben (2005), this exceptional position is not seen as a temporary emergency measure, but as an opportunity to act proactively before the crisis. It offers room for experimental cooperation on topics such as water safety, infrastructure and landscape.

The governance of this zone is organised according to the principles of the Common (Ostrom, 2008), with shared ownership and a combination of top-down interventions and bottom-up involvement. A cross-border council is proposed for this purpose, in which local, Flemish and Dutch parties decide together.

To avoid creating new borders, the delineation of the Fluid Borderland is layered. Thus, the border becomes a shared landscape and framework for cooperation rather than a dividing line.

OSTROMS (2008) 8 PRINCIPALS TO MANAGE THE COMMON

1. CLEARLY DEFINED BOUNDARIES	2. CONGRUENCE BETWEEN APPROPRIATION AND PROVISION RULES AND LOCAL CONDITIONS	3. COLLECTIVE-CHOICE ARRANGEMENTS	4. MONITORING
- The borderscape is a cross-Fluid Border Land-pool resource. - With legally recognised borders, e.g. through an EU Interreg programme + EGTC. - With a cross-border management body (e.g. 'De Meentraad') in which both Flemish and Dutch stakeholders are represented.	- Clear Law and regulations for the purpose of water safety, land use, urban network, infrastructure, industry and ports. - For example, at all times agriculture and industry take into account protection of nature and people.	- Give citizens, farmers, industry and nature organisations a say through local 'Common Meetings'. - Make use of co-creation and participatory design processes	- Policies and actions are monitored using datasets and research by universities and schools. - Residents have a window for reporting problems and complaints. These are monitored and followed up for further improvement and preservation of liveability.

Figure 90. Governance of Fluid Borderland [image by author]

BOUNDARIES OF THE FLUID BORDERLAND

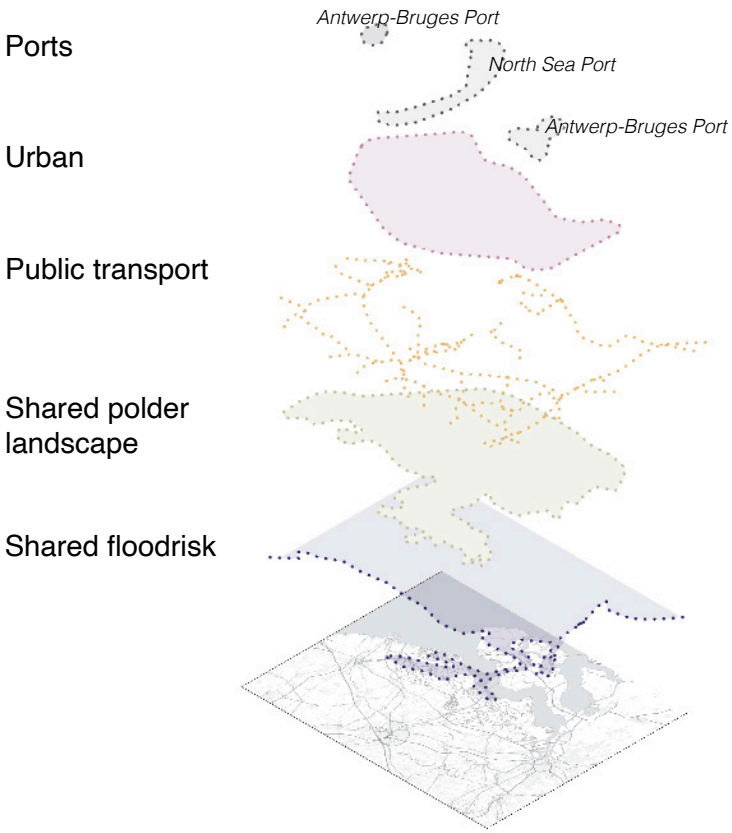


Figure 90. Layered boundaries of the Fluid Borderland [image by author]

5. GRADUATED SANCTIONS	6. CONFLICT-RESOLUTION MECHANISMS	7. RECOGNITION OF THE RIGHT TO ORGANISE	8.NESTED ENTERPRISES
- The Common has a graduated sanction system. Which monitors the commitment of violations.	- There is a low-key cross-border mediation body where conflicts between users (e.g. farmers and nature managers) can be resolved quickly and informally.	- There is legal scope for local governance of the Common within national frameworks (such as the cross-border intergovernmental body, the International Scheldt Commission).	- The common works together at different scales: local (villages and towns), regional (Vlaams gewest) and provincial administrations (Zeeland, Brabant, East and West Flanders), national and European. - Water management, infrastructure, urban and ecological planning is aligned through multilayer governance models.

10.2 DESIGN PROPOSAL | GOVERNANCE OF THE FLUID BORDERLAND

The stakeholder overview shows the main actors per cooperation layer within the Fluid Borderland: ports, urban, public transport, polder landscape and flood risks. For each layer, public, private and civil society parties involved in cross-border cooperation have been identified. This creates a basis for shared ownership and future-proof governance.

BOUNDARIES OF THE FLUID BORDERLAND

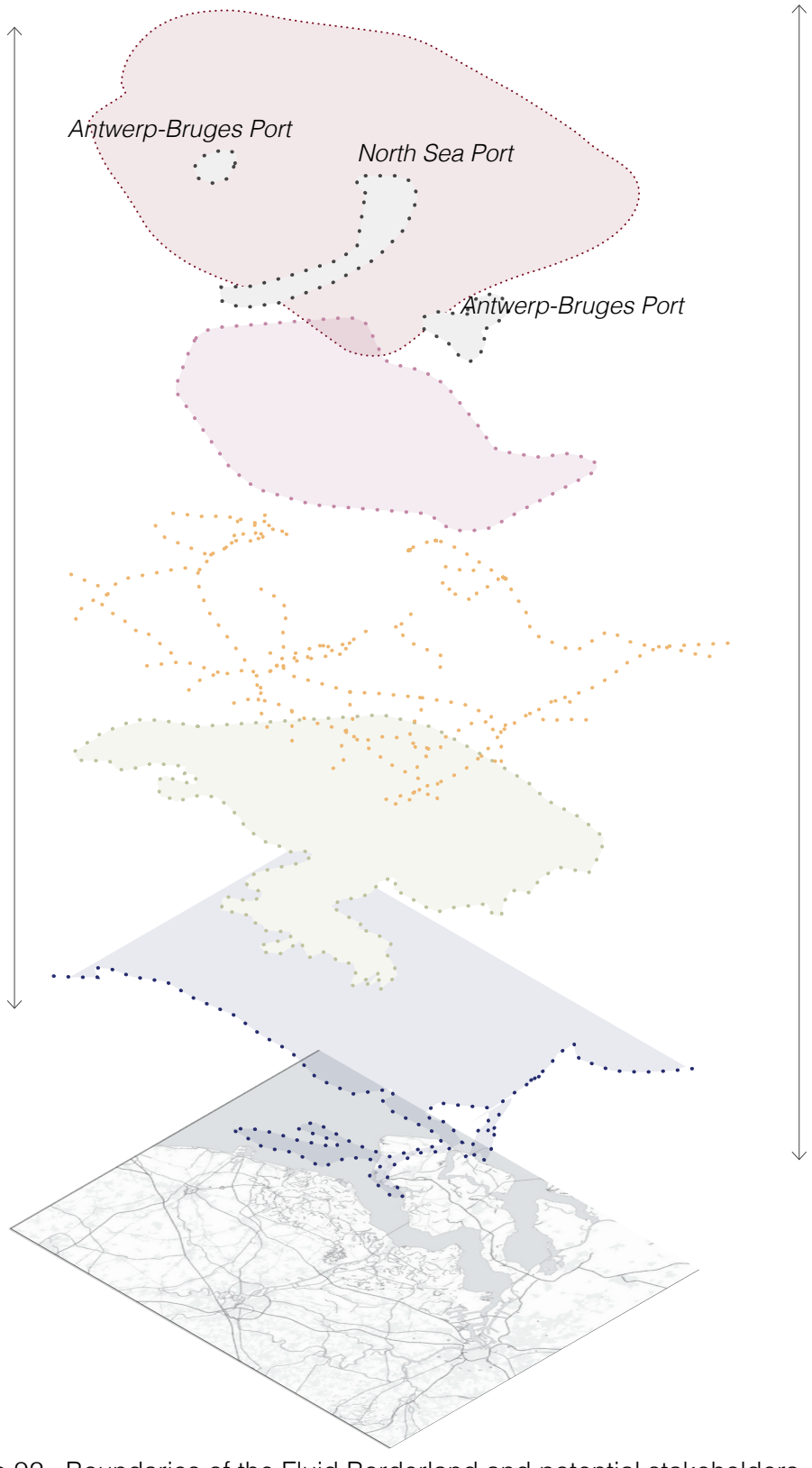


Figure 92. Boundaries of the Fluid Borderland and potential stakeholders [image by author]

STAKEHOLDERS

GOVERMENTS

PARLEMENT



PROVINCES



EUROPEAN AGENCY



PORTS



URBAN

MUNICIPALITIES





EUROPEAN AGENCY



PUBLIC TRANSPORT

TRAIN BUS FERRY



POLDER LANDSCAPE

NATURE



AGRICULTURE



SHARED FLOODRISK

WATER SAFETY

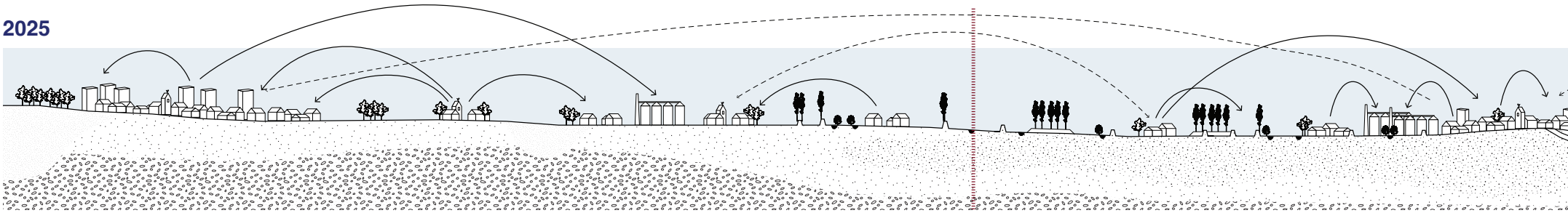


RESEARCH



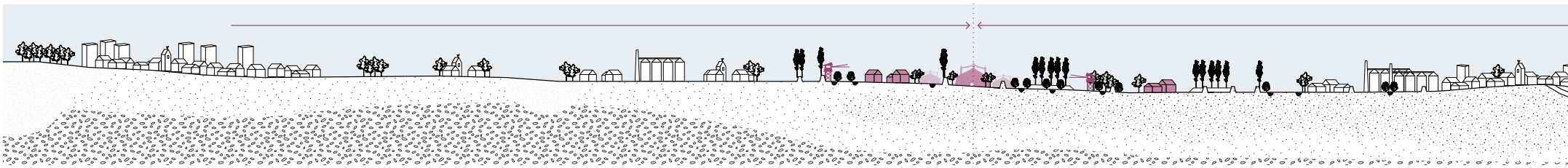
10.3 | **DESIGN PROPOSAL** | OVERVIEW STRATEGIC SPATIAL SCENARIO SECTIONS

2025



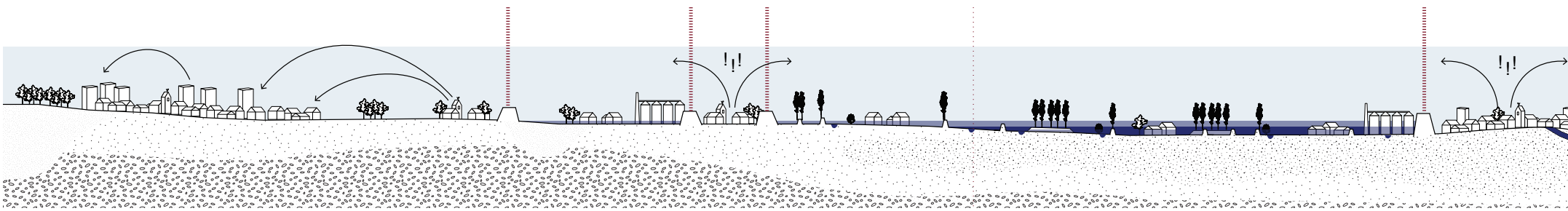
BE | NL

2030 | WHAT IF TOMORROW IS UNITED ACTION, RISING WITH THE WATER



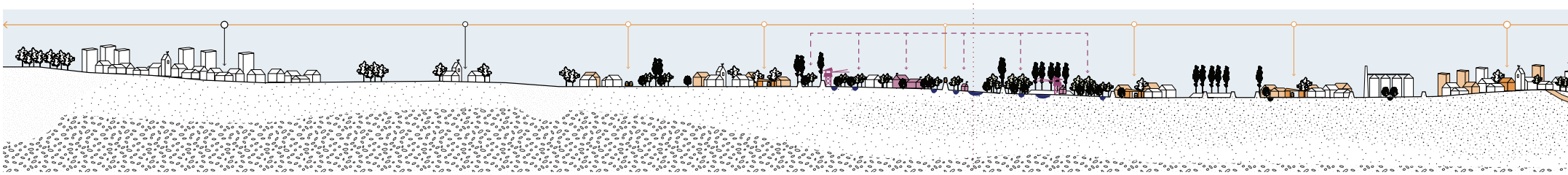
BE | NL

2050 | WHAT IF YESTERDAY THE STORM FLOOD WOULD HAPPEN AGAIN?



BE | NL

2100 | WHAT IF IS DESIGNED FOR THE TIDE TO TURN?

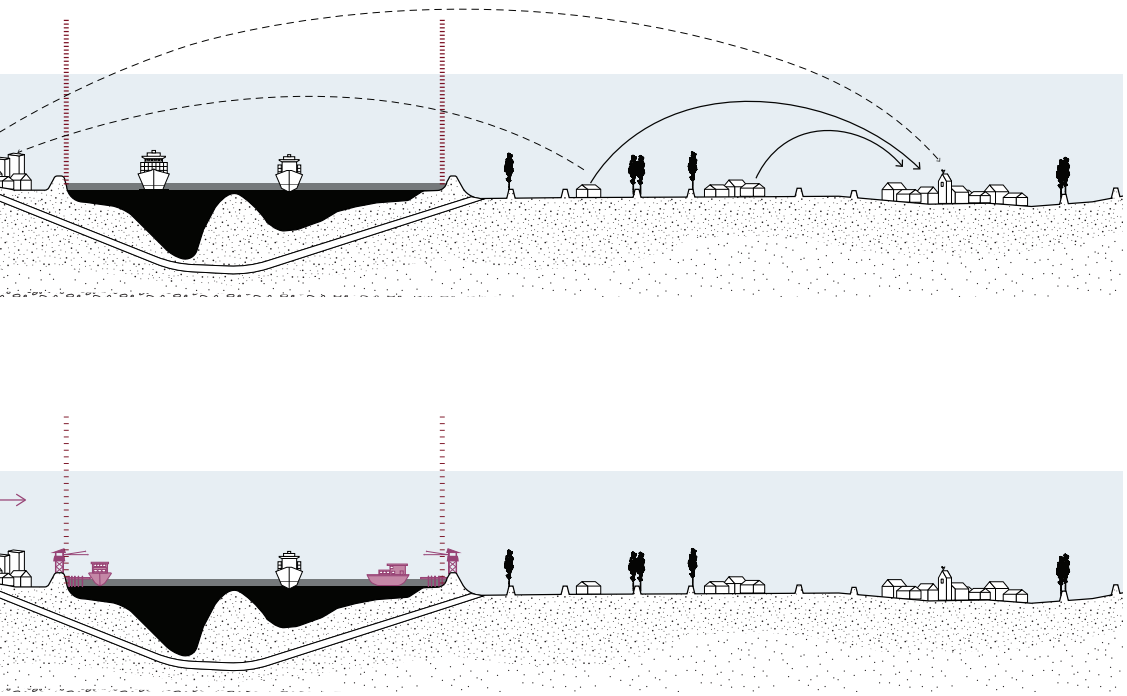


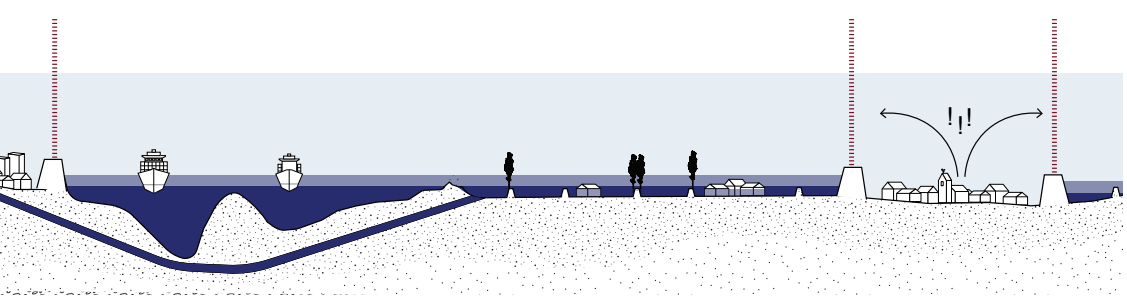
BE | NL

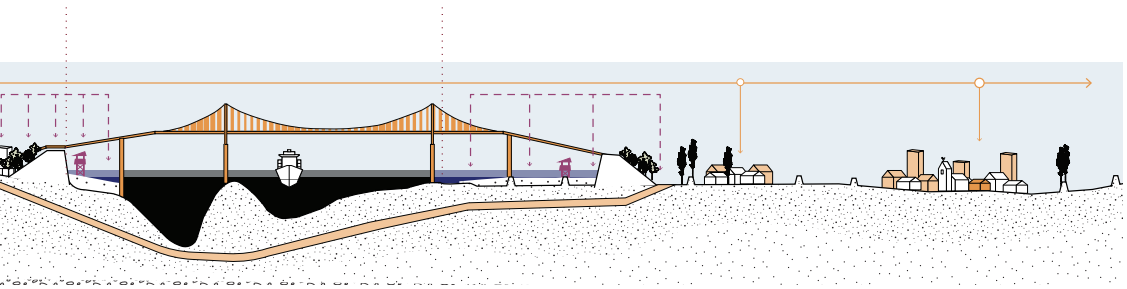
Figure 93. Overview schematic sections per strategic scenario [image by author]

Legend

- Water
- Tide
- Flood
- Gravel
- Sand
- Loam
- Sea clay
- Commuting traffic
- Border
- Re-connecting landscape and border
- Commuting traffic by public transport
- Cross-border commuting traffic
- Exciting stations
- New stations
- Green expansion





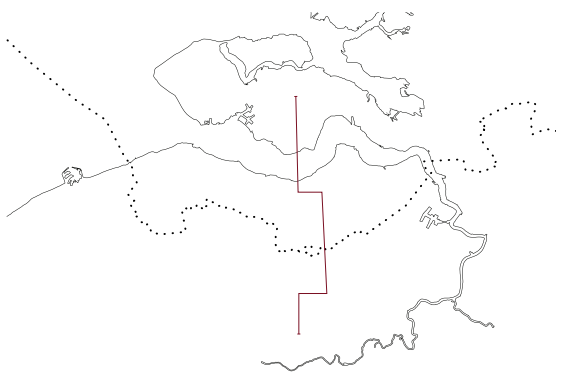


These conceptual cross-sections show the spatial development of the Fluid Borderland by spatial scenario.

In 2030, the border as a unifying element takes centre stage, with festivities along the Scheldt and at border points celebrating shared identity.

In 2050, the cross-section shows what happens when cross-border cooperation fails: storm damage, flooding and fragmented infrastructure.

In 2100, the cross-section shows a resilient border park with space for water, nature and recreation. A new public transport network connects the rural region and restores connections between villages.



CONTEXT

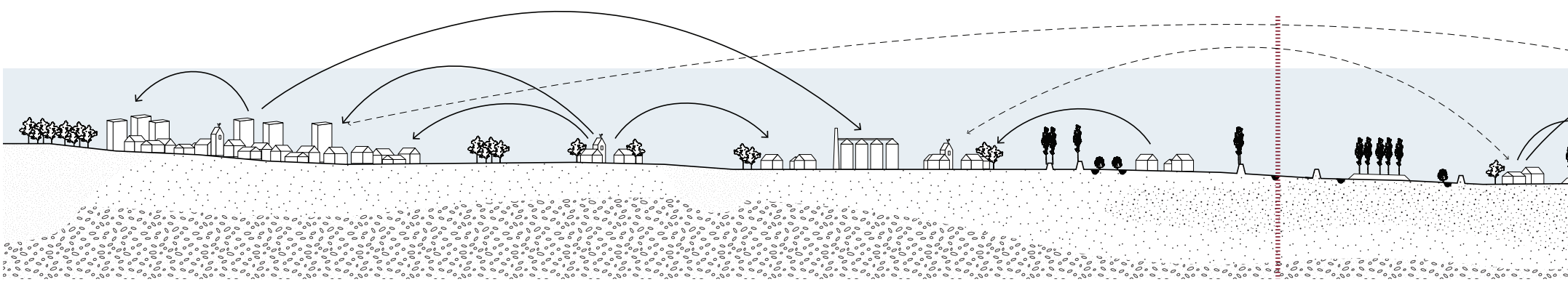


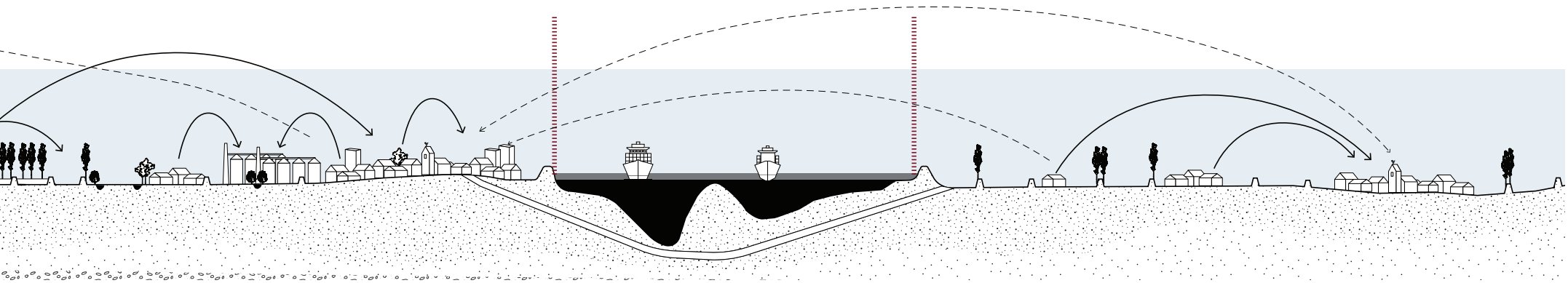
Figure 94. Schematic sections 2025 [image by author]

Legend

- Water
- Tide
- Flood
- Gravel
- Sand
- Loam
- Sea clay
- Commuting traffic
- Border
- Re-connecting landscape and border
- Commuting traffic by public transport
- Cross-border commuting traffic
- Exciting stations
- New stations
- Green expansion

ABORATION BETWEEN BELGIUM AND THE NETHERLANDS





SCENARIO

Given the current geopolitical context, achieving the Paris Agreement targets appears increasingly unlikely. Therefore, scenarios with faster-than-expected sea level rise are considered. This includes projections of 1 metre rise by 2050 and 2 metres by 2100 (above NAP). As a border region, Zeeuws-Vlaanderen requires intensified cross-border cooperation to address these challenges in water safety and management.

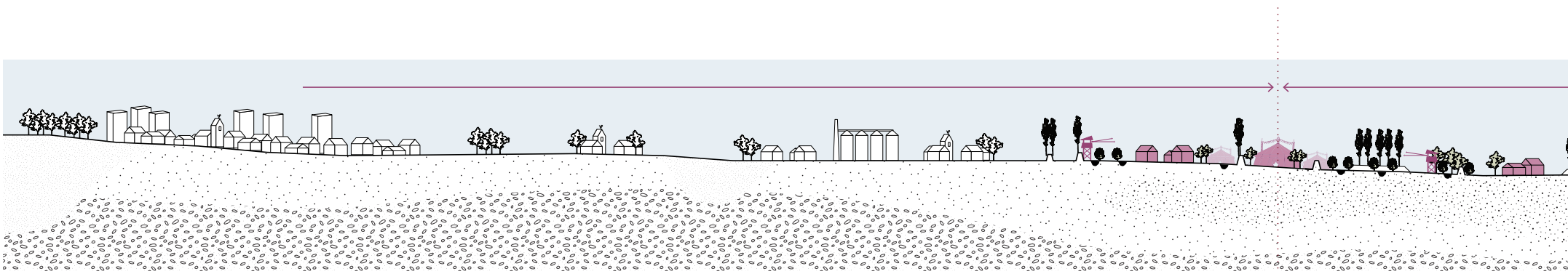
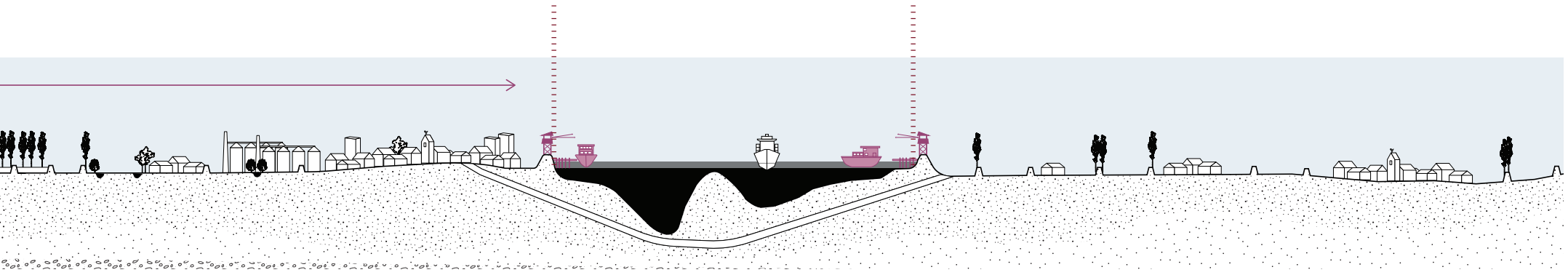


Figure 95. Schematic sections 2030 [image by author]

Legend

- Water
- Tide
- Flood
- Gravel
- Sand
- Loam
- Sea clay
- Commuting traffic
- Border
- Re-connecting landscape and border
- Commuting traffic by public transport
- Cross-border commuting traffic
- Exciting stations
- New stations
- Green expansion





10.4 | 2030 | WHAT IF TOMORROW IS UNITED ACTION, RISING WITH THE WATER

GOAL

To mark 200 years of the Belgian-Dutch border, celebrations across border regions highlight shared and distinct identities.

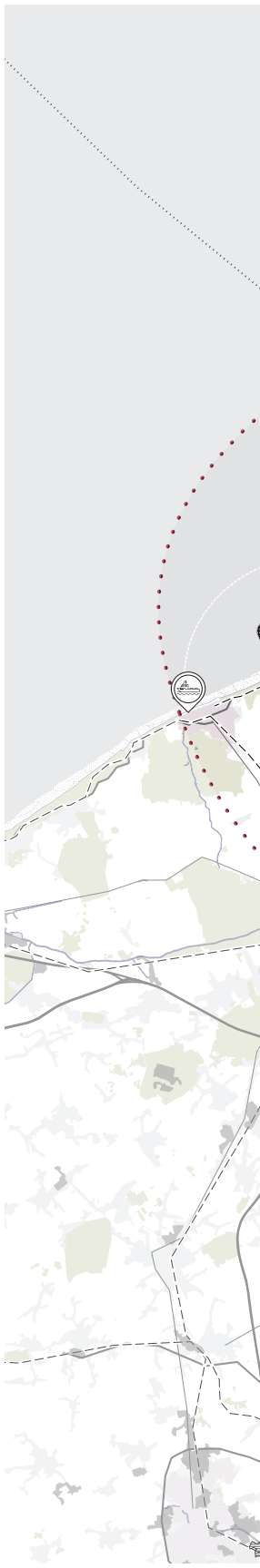
By 2030, an agreement between the Dutch, Belgian and Flemish governments establishes a new governance model for the region, referred to as the Fluid Border Land, a zone of exceptions. This grants the area legal and administrative autonomy to manage shared networks of water safety, infrastructure and liveability. A central headquarters in Sas van Gent and Zelzate will host the Fluid Border Land board, symbolically opened during the anniversary events.

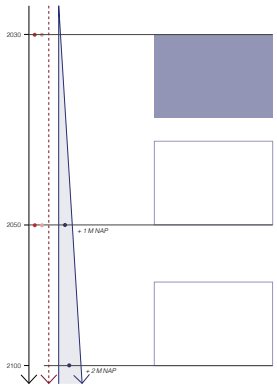
FLUID BORDER LAND, ZONE OF EXCEPTIONS

Within the Fluid Border Land, no new nation-state is created, nor are hard borders introduced. Instead, it functions as a legal and administrative buffer zone between Belgium and the Netherlands, with its own framework of exceptions.

EXAMPLES OF AGREEMENTS

- All industry and ports within the State form a joint network to enhance global competitiveness and jointly reduce emissions, requiring cooperation among North Sea ports and Port of Antwerp-Bruges.
- Belgian and Dutch cities retain national identities, but the Common's boundaries extend to their edges. This gives them shared responsibility in the region's urban growth and infrastructural development.
- Existing bodies like the Scheldemond Euregion and the Flemish-Dutch Scheldt Commission form the foundation of the new governing structure.
- For water safety, key agencies like Rijkswaterstaat, Scheldestromen Water Board, HWBP, De Vlaamse Waterweg, Sigmaplan, Kustvisie and the Vlaams Bouwmeester, form a joint Water Safety Board to consolidate expertise and resources.



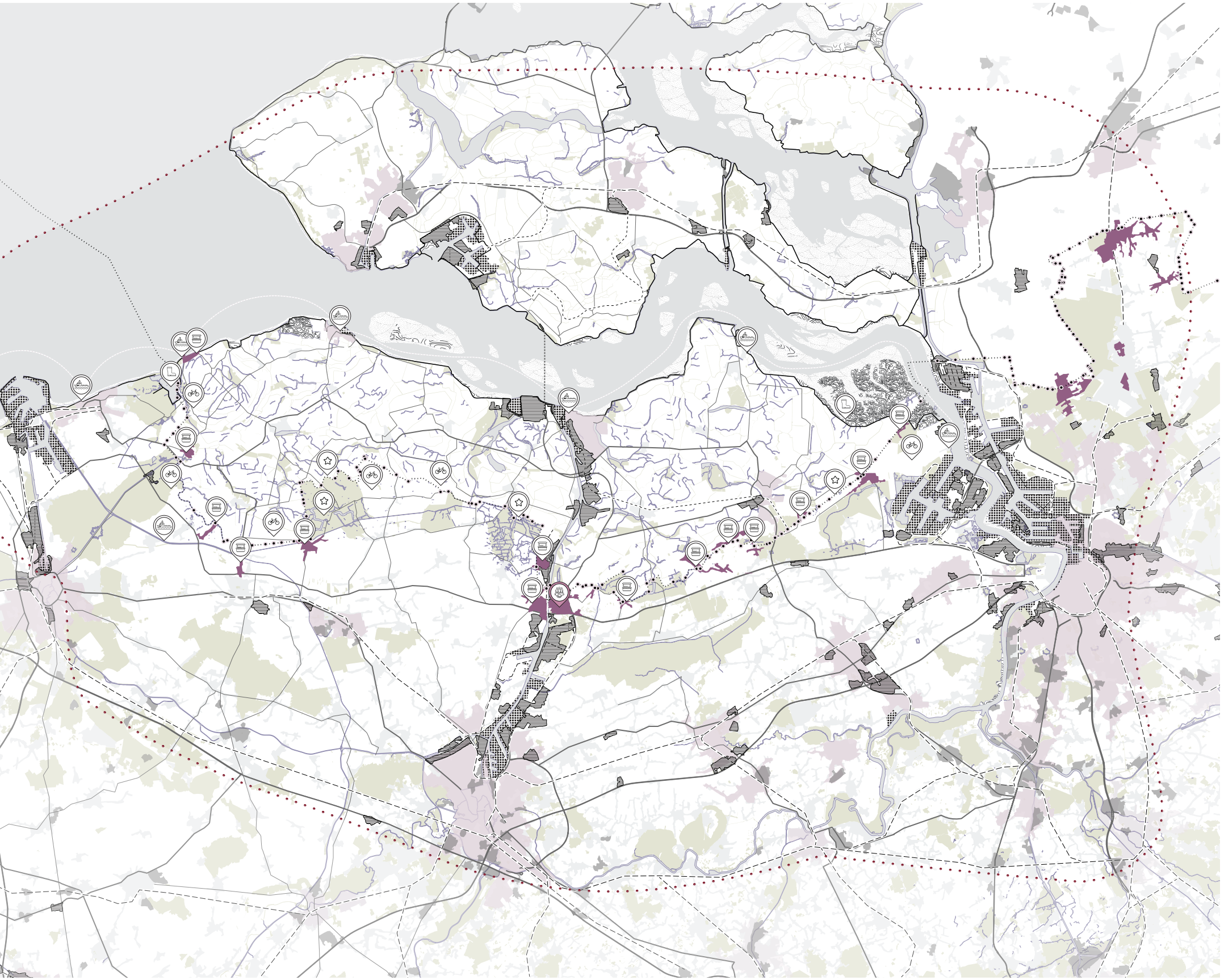


Legend

Ferry | Bike route | Meent board | 200 year Fair | Landmark | Look-out point | Guided tidal tours

Legend

Water
Urban
Villages/ small towns


Industry
Port
Current protected nature
Kreek
Slik
Schor
Train network
Western Scheldt Tunnel
Old train network
Primary dyke
Ferry connection 200y Border
Border villages
Border
Border markers
Boundary Fluid Border Land
0
10 KM
N

SCENARIO

Globally, the goals of the Paris Agreement have not been achieved. Due to climate change, even under the lowest-probability scenario (see diagram), the sea level has risen by 1 metre above NAP. Additionally, as a result of more extreme weather events, a storm surge has breached primary dykes and dunes along both the Dutch and Belgian coastlines.

Due to failed collaboration between Belgium and the Netherlands on water safety, the coastal defences of both countries are misaligned. If the Netherlands fails to sufficiently reinforce its dykes, water will reach beyond the border into Belgian territory and vice versa.

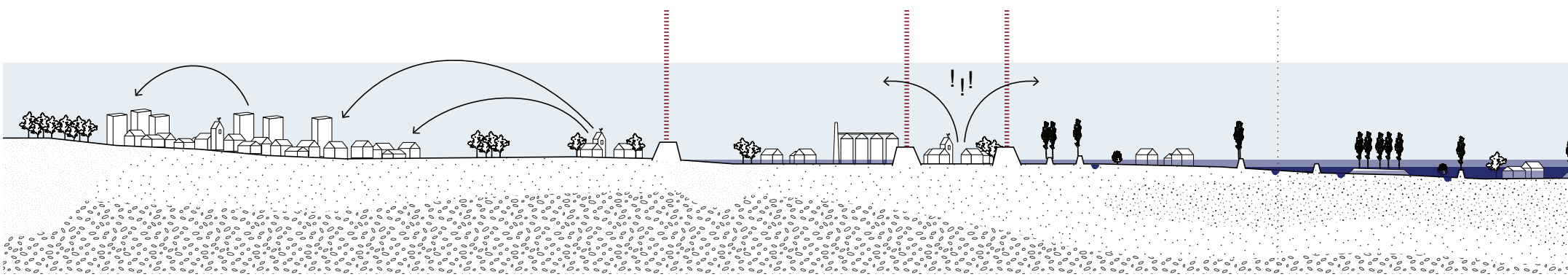
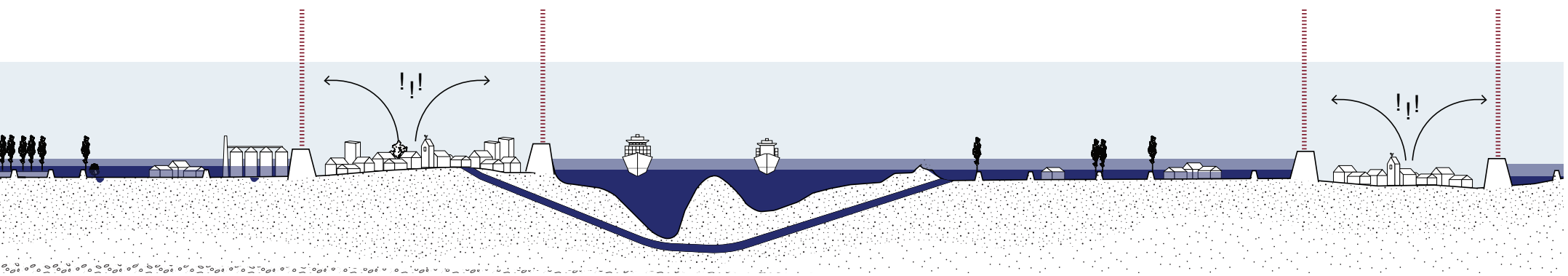


Figure 96. Schematic sections 2050 [image by author]

Legend

Water
Tide
Flood
Gravel
Sand
Loam
Sea clay
Commuting traffic
Border
Re-connecting landscape and border
Commuting traffic by public transport
Cross-border commuting traffic
Exciting stations
New stations
Green expansion



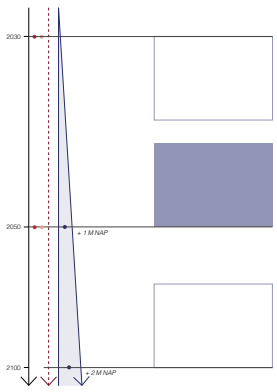


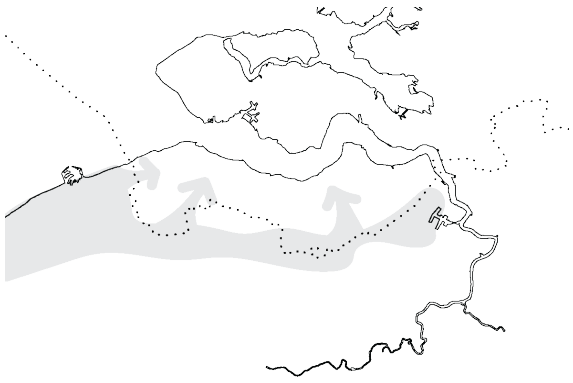
10.5 | 2050 | WHAT IF YESTERDAY THE STORM FLOOD WOULD HAPPEN AGAIN?

RESULT AFTER THE FLOODS

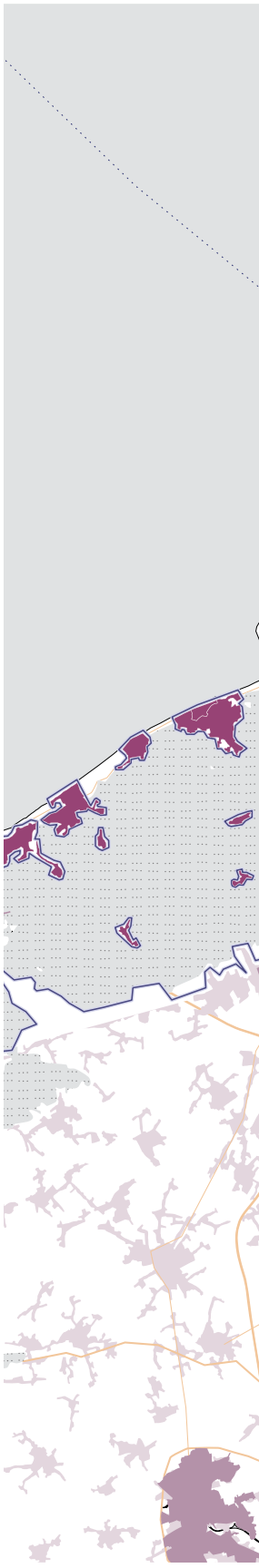
Zeeuws-Vlaanderen and the Belgian provinces of West and East Flanders have been flooded. In addition to major damage to homes, businesses, industry and infrastructure, the landscape has been severely affected. Large sections of dykes have breached, and pumping stations have failed, causing water to stagnate without proper drainage.
Although parts of Hulst, Sluis, Terneuzen, Cadzand, Breskens, Knokke-Heist, Zeebrugge and Blankenberge remain dry, they are now completely disconnected. Cities such as Bruges, Zelzate and Antwerp also suffer flood damage.
Apart from roads built on embankments, the entire infrastructure has become unusable. Like the Westernscheldt tunnel which has been fully flooded. It would take many years to polder the land again.

Chemical industries and the Doel and Borssele nuclear power plants have been damaged, leading to leaks of sewage and hazardous chemicals. The soil has become salinated, making current arable farming no longer viable. Nature has also suffered heavily due to the lack of fresh groundwater. Architectural heritage has been irreparably damaged, and parts of the historic Spanish defence lines now lie submerged.

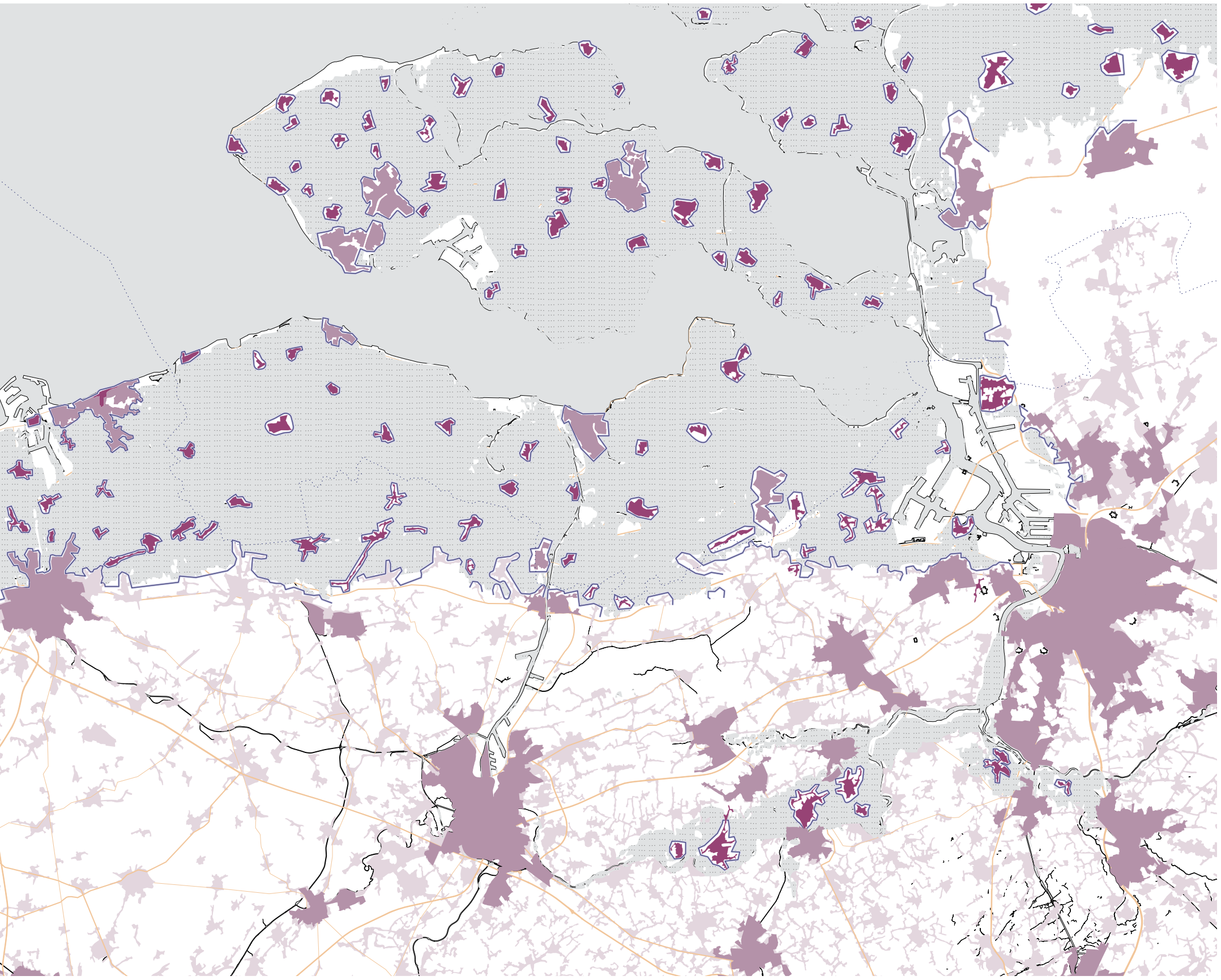








Legend
Water
Results Flood
Border


Cities
Villages
Disconnected Urban
Roads
Dykes 11 m high
0
10 KM
N

SCENARIO

Globally, the goals of the Paris Agreement and Green Deal have not been achieved. Due to climate change, the sea level has risen by 2 metres above NAP.



RE-CONNECTED TO KREEK LANDSCAPE



DYKES AS CORRIDORS FOR MOBILITY AND NATURE

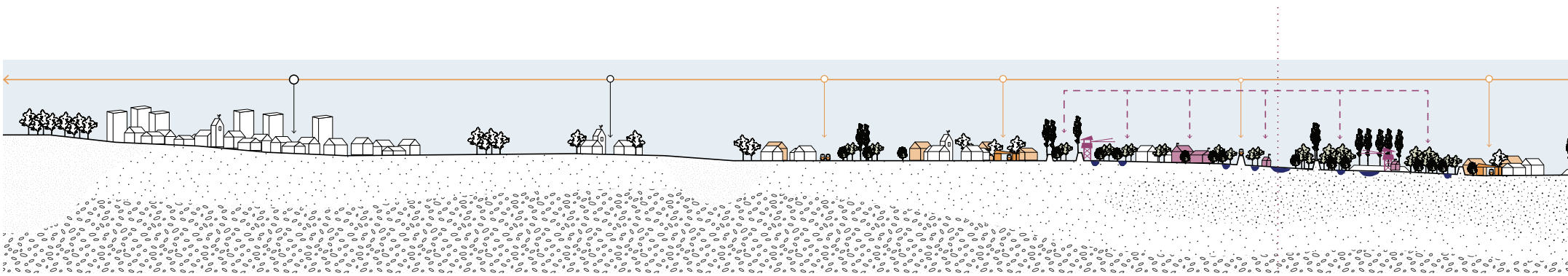


Figure 97. Schematic sections 2100 [image by author and C. Boogaard, 2025]

Legend

- Water
- Tide
- Flood
- Gravel
- Sand
- Loam
- Sea clay
- Commuting traffic
- Border
- Re-connecting landscape and border
- Commuting traffic by public transport
- Cross-border commuting traffic
- Exciting stations
- New stations
- Green expansion

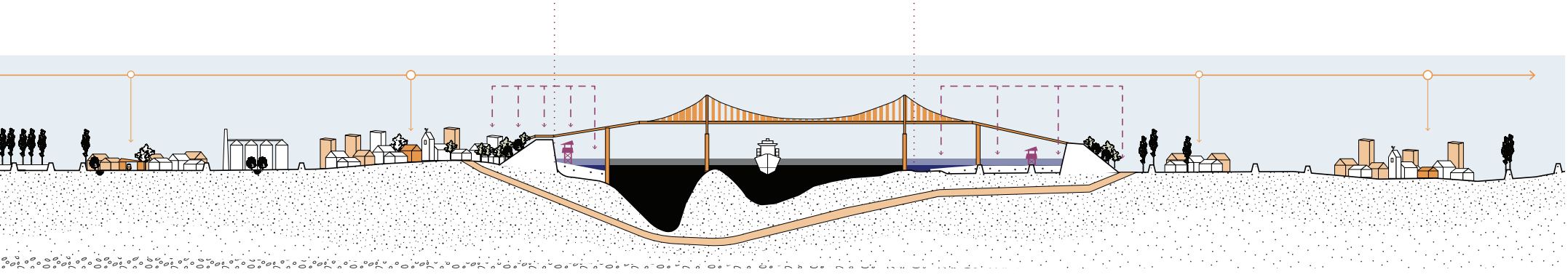
CROSS BORDER COLLABORATION BETWEEN BELGIUM AND THE NETHERLANDS



RURAL LANDSCAPE CONNECTED BY LIGHT RAIL



TIDAL PARKS AS RESOURCE AND PROTECTION



10.6 | 2100 | WHAT IF TOMORROW IS DESIGNED FOR THE TIDE TO TURN?

GOAL

The border becomes a corridor for living and working with tidal nature. A stronger sense of belonging uniteds the region. The Fluid Border Land has been established and working towards a resilliant watersafetyplan while improving living conditions by reconnection facillities.

ACTIONS

1. Schelde channel changes

Parts of the coast along the Scheldt will be de-poldered, to make give room for the Scheldt. Before the land is under control flooded, sand from the land will be used to build higher dykes.

The ports of Antwerp and Vlissingen-Borssele will be partly de-industrialised and converted into zones for seaweed, fish, and mussel farming. Industrial landmarks, such as the Doel and Borssele nuclear power plants, will be cleaned and repurposed as cultural spaces, e.g. a tidal museum or viewpoint.The agriculture and polders that are flooded will be partly used for aquifarming. The new coastline will follow as much excising dykes as possible and safe most villages from being flooded.

2. Reconnected Infrastructure and Ecologies

Infrastructure

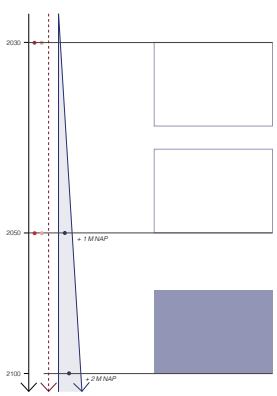
- A new high-speed train will connect the Randstad, Delta, Ghent and Brussels, positioning the Common as a vital corridor.
- The Flemish and Dutch train networks will be linked by a new train tunnel between Vlissingen and Breskens. The current Western Scheldt tunnel will be transformed into a high-speed rail connection.
- A self-driving metro network (like Singapore) will connect small towns to major hubs, including routes through flooded zones for access to tidal farms and tourism.
- A combined metro and car bridge between Terneuzen and Goes will allow container ships to access Antwerp. Due to its height and scale, the bridge should become a regional landmark, comparable to the Euromast or Storebælt Bridge.

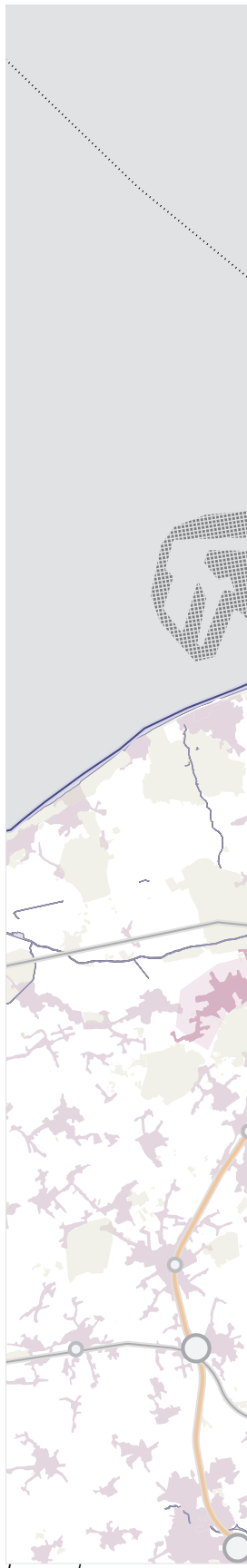
Ecology

- Existing natural zones between Belgium and the Netherlands will be linked and expanded.
- Agricultural lands between nature zones may be transformed into food forests.
- The Kreek landscape and Spanish defence lines will form a binational cultural park, where the border becomes an educational and recreational element.
  – Bike paths along dykes, creeks, defence lines, and border points
  – Lookout towers provide panoramic views
  – New tourism potential: nature camping, eco-lodges, etc.
- Better public infrastructure allows larger cities and villages to grow, enabling people to live in smaller towns while working in urban centres.

3. New Border Conditions

The border land is now a bufferzone between Netherlands and Belgium. Meaning that the region a status separate gets in terms of governance to reach goals on water safety, infrastructure and livabillity. Organised by a Border Board (Meentraad).





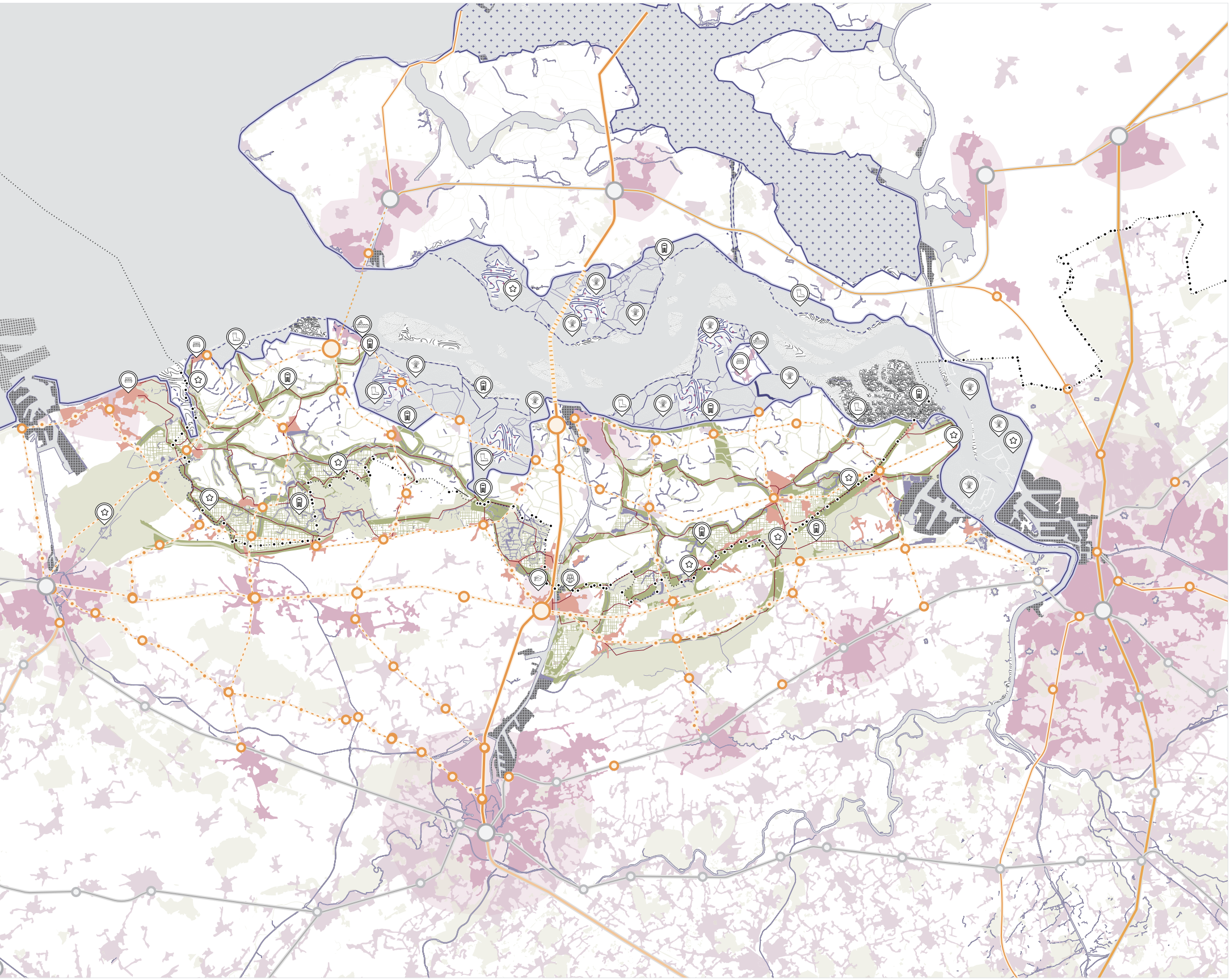
Legend

Water
Urban
Urban expantion
Villages/ small towns

0 10 KM N

Legend

Ferry | Aqua farm | Meent boards | New higher education | Landmark | Look-out point | Guided tidal tours | Tourism



Industry
Port
Current protected nature
Corridor for nature
Kreek
De-poldered land
Slik
Schor
New train network
Current train network
Light rail network
Highway
Dyke elevation 12m
Opened primary dyke 9m
Opened tidal dyke 4,5m
Tidal dyke 3m
Farming food Forrest
Drinking water storage
Bridge and train tunnel
New train tunnel
Border
Border markers
Aqua farming

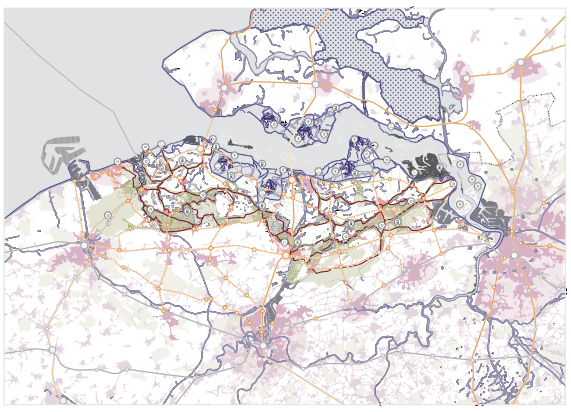
10.6.1 | **2100** | OVERVIEW OF INTERVENTIONS

The visual shows the different layers of the Fluid Borderland by interventions. The first layer shows the economic cooperation between the port of Antwerp-Bruges and North Sea Ports. Both are allowed to expand in strategic locations, but sacrifice space adjacent to the Scheldt for tidal parks, which function as natural buffers against flood risks.

The ecological layer shows where land is being de-poldered. These areas are not only given back to the water, but also used for aquafarming. This offers farmers and businesses new new opportunities. At the same time, public spaces inspired by the Verdronken Land van Saeftinghe and the Zwin are created, with watchtowers, bird huts and houses along the tidal nature.

The infrastructure layer is divided into fast and slow mobility. There will be a new rail link between Bruges, Terneuzen and Goes, which will not only open up the Fluid Borderland, but also better connect Zeeland with the Flemish Diamond and the Randstad.
A light rail network will be constructed for small villages and cities. This intervention symbolises faith in the region and enables socio-economic growth. Currently, the last bus lines are disappearing and people are heavily dependent on cars.
Slow mobility and ecology are combined in a network of nature corridors and bicycle highways. These connect protected nature areas, dykes and creeks, and create a cross-border recreational cycle route towards the Scheldt.

Some polders are transformed into food forests, creating ecological connections and leaving room for local agricultural activity. Finally, the urban layer shows the expected growth locations within the area, where small-scale densification can take place.

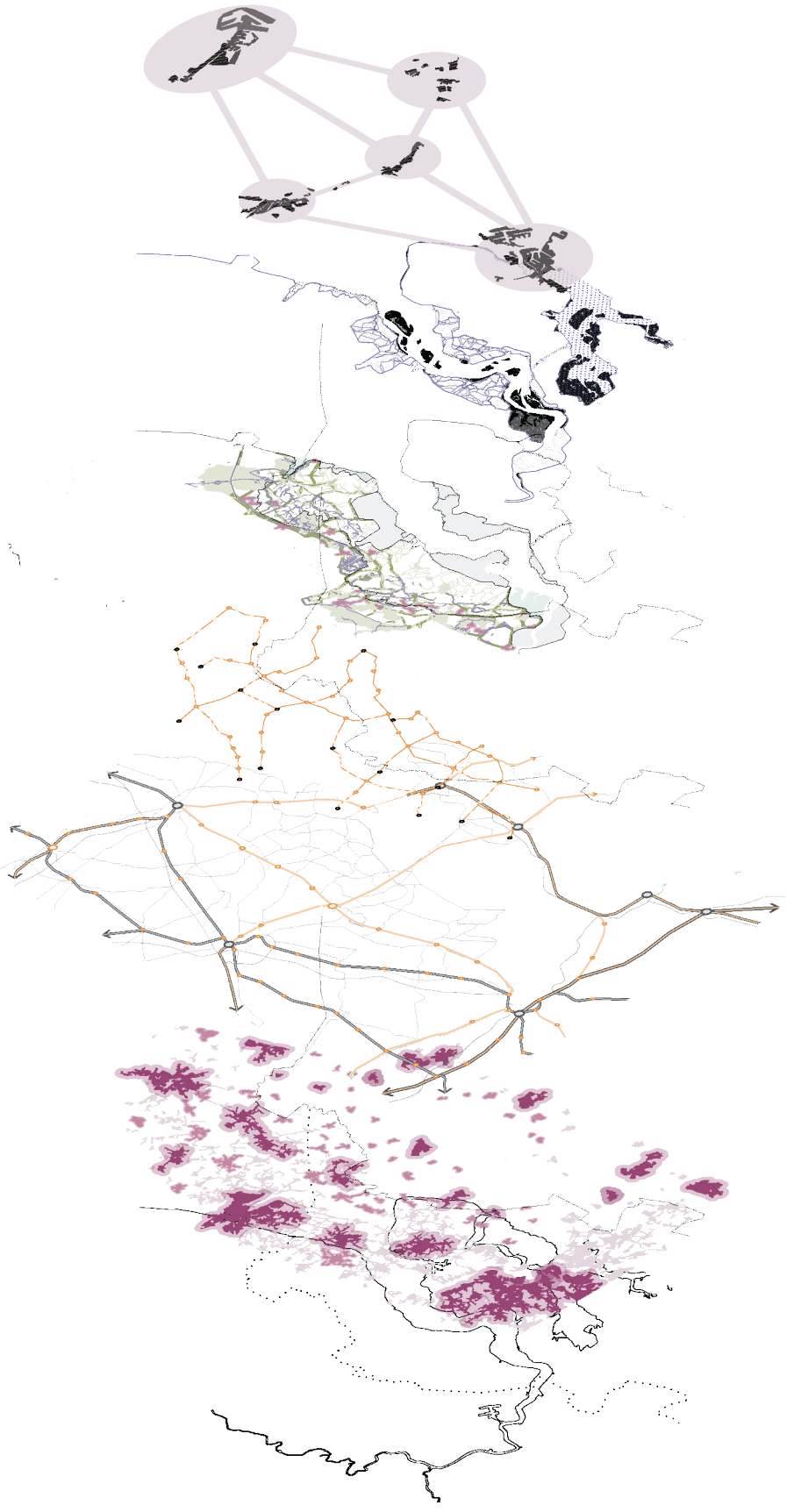












ECONOMY

- Industry
- Port

FLOOD PROTECTION

- De-poldered land
- Slik
- Schor
- Dyke elevation 12 m
- Opened primary dykes 9m
- Opened tidal dykes 4,5 m
- Tidal dykes 3,0 m

POLDER AND DYKE NATURE

- Current protected nature
- Corridor for nature
- Kreek
- De-poldered land
- Aqua farming
- Food forest

PUBLIC TRANSPORT

- New train network
- Current train network
- Light rail network
- Highway
- Bridge and train tunnel
- New train tunnel

URBAN

- Urban
- Urban expansion
- Villages/ small towns

SCHELDT ESTUARY

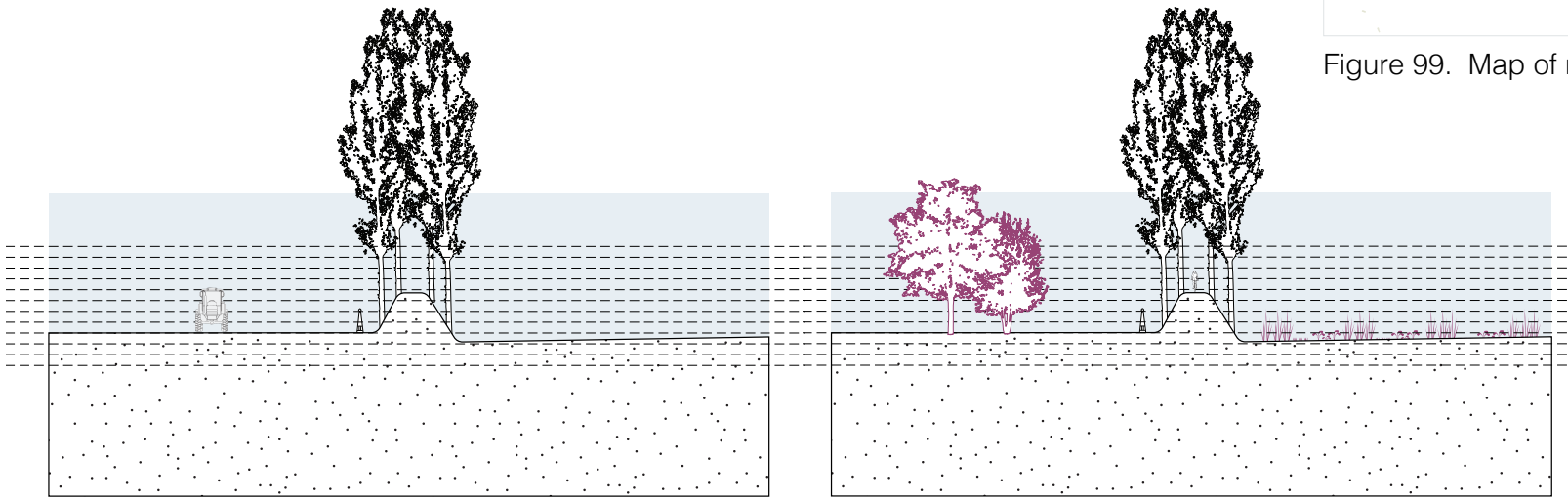
- Border

Figure 98. Overview interventions 2100 [image by author]

SLOW MOBILITY

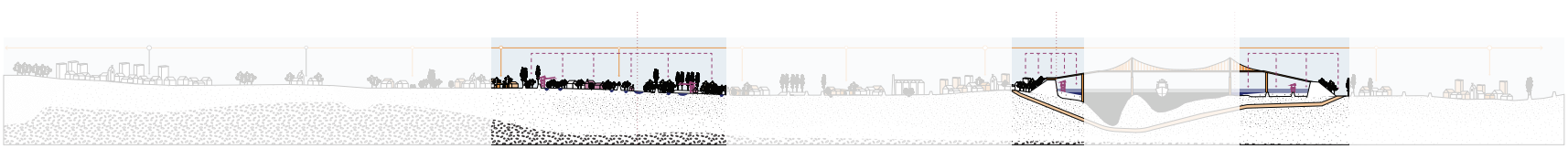


Figure 99. Map of re-



DYKES AS CORRIDORS, COMBINED WITH FOOD FORESTS

Figure 100. Conceptual sections of dyke and Kreek corridors [image by author]



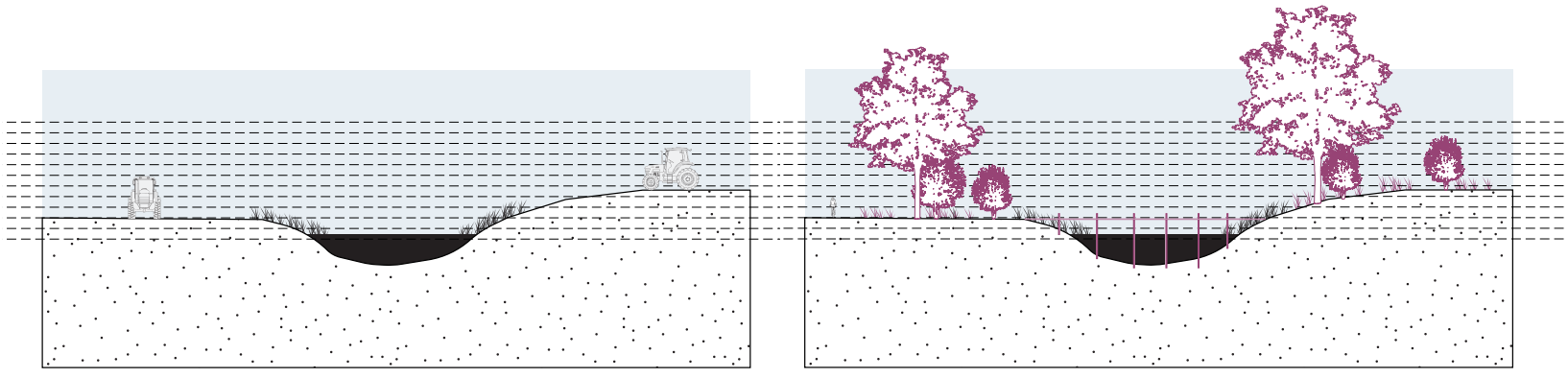
Legend

Ferry | Aqua farm | Meent boards | New higher education | Landmark | Look-out point | Guided tidal tours

Legend

Water
Urban
Urban expantion
Villages/ small towns

-connecting protected nature by corridors [image by author]

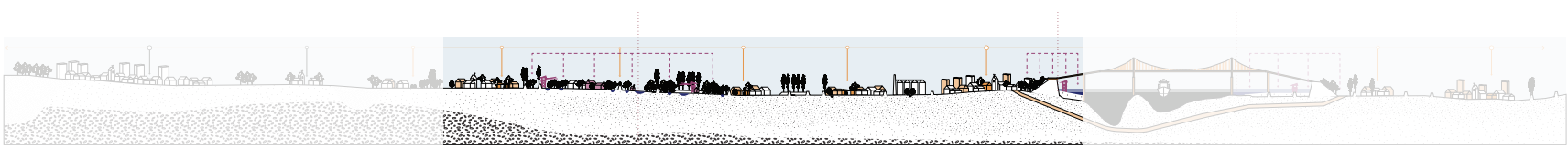


KREEKS GET MORE ROOM AND FORM SMALL CORRIDORS

Industry
Port
Current protected nature
Corridor for nature
Kreek
De-poldered land
Slik
Schor
New train network
Current train network
Light rail network
Highway
Dyke elevation 12m
Opened primary dyke 9m
Opened tidal dyke 4,5m
Tidal dyke 3m
Farming food Forrest
Drinking water storage
Bridge and train tunnel
New train tunnel
Border
Border markers
Aqua farming

SLOW MOBILITY BIKE ROUTE

Figure 101. Map new

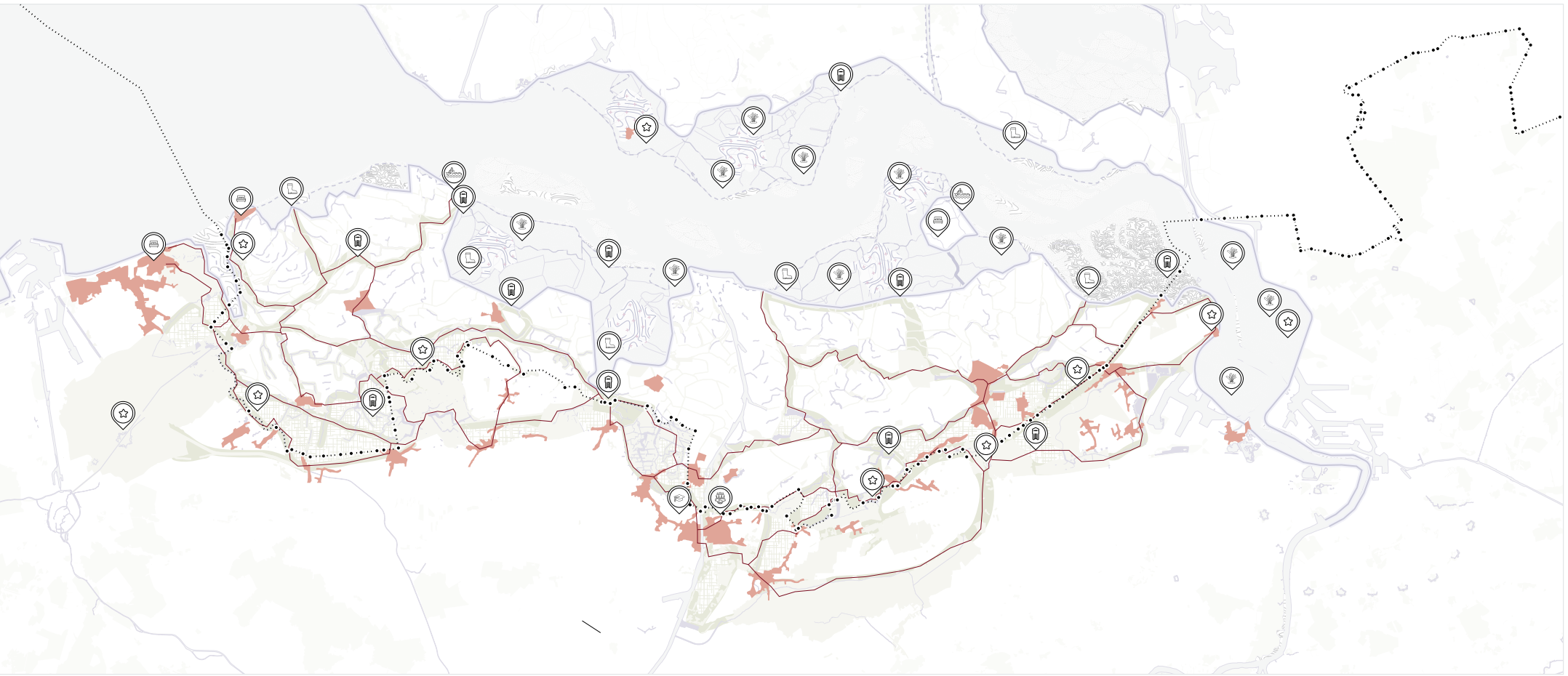


Legend

Ferry
Aqua farm
Meent boards
New higher education
Landmark
Look-out point
Guided tidal tours

Legend

Water
Urban
Urban expantion
Villages/ small towns



y bike routes around national border and Scheldt [image by author]

Industry
Port
Current protected nature
Corridor for nature
Kreek
De-poldered land
Slik
Schor
New train network
Current train network
Light rail network
Highway
Dyke elevation 12m
Opened primary dyke 9m
Opened tidal dyke 4,5m
Tidal dyke 3m
Farming food Forrest
Drinking water storage
Bridge and train tunnel
New train tunnel
Border
Border markers
Aqua farming

10.6.4 | **2100** | RE-CONNECTING THE FLUID BORDER LAND BY FAST MOBILITY

FAST MOBILITY

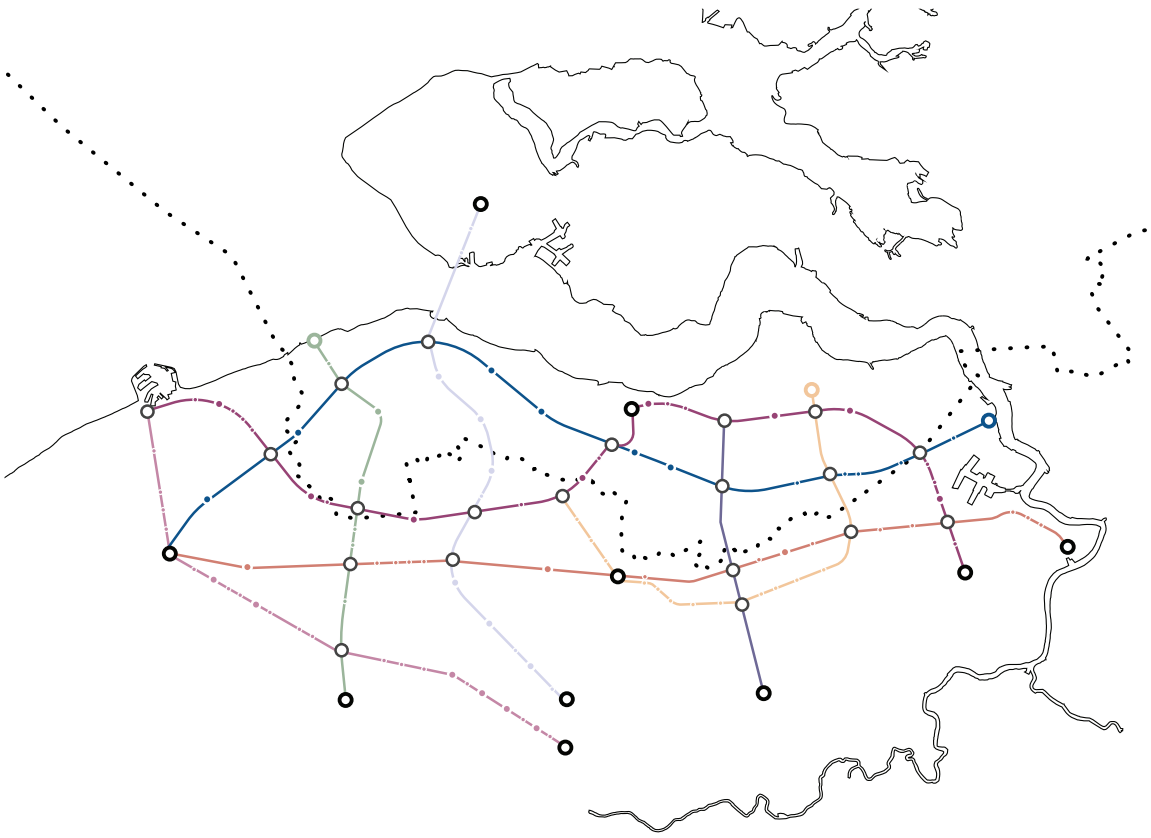


Figure 102. Map new light rail network in Fluid Borderland [image by author]

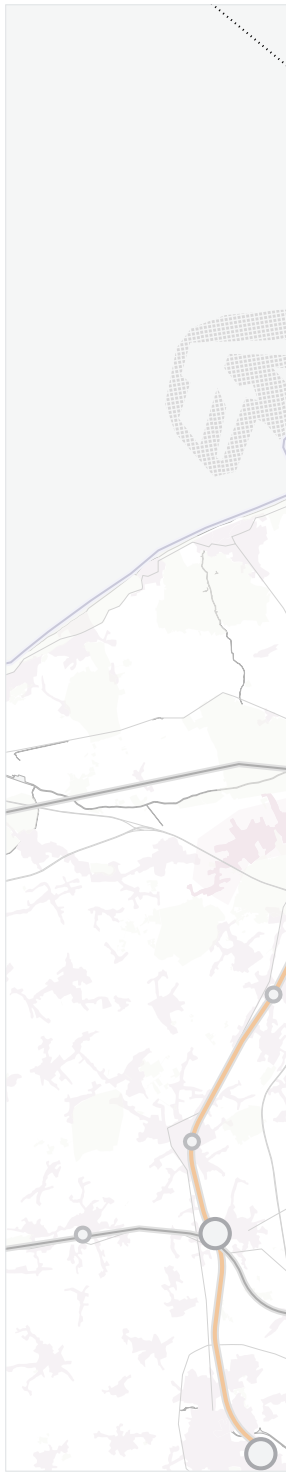
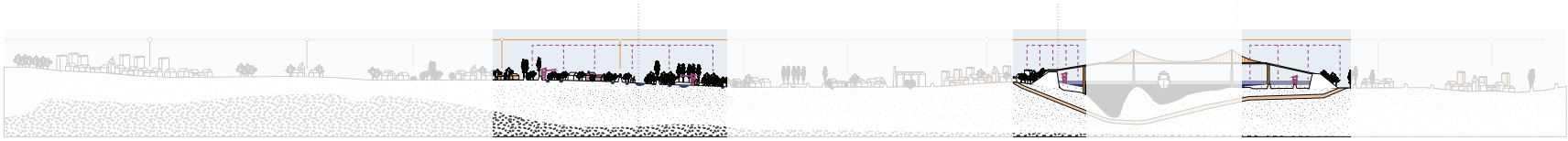


Figure 103. Map new

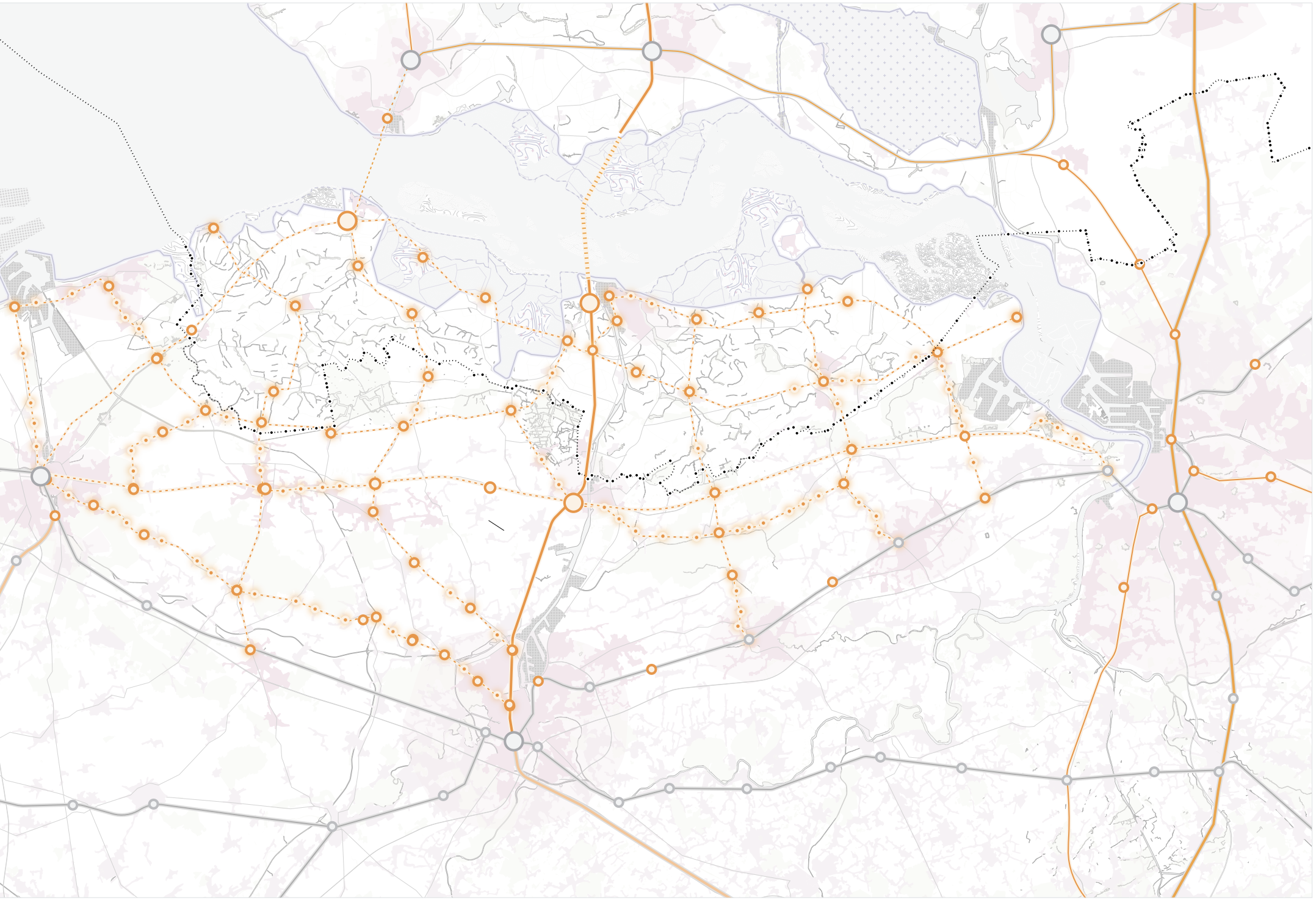


Legend

Ferry | Aqua farm | Meent boards | New higher education | Landmark | Look-out point | Guided tidal tours

Legend

Water
Urban
Urban expantion
Villages/ small towns



y fast mobility network in Fluid Borderland [image by author]

Industry
Port
Current protected nature
Corridor for nature
Kreek
De-poldered land
Slik
Schor
New train network
Current train network
Light rail network
Highway
Dyke elevation 12m
Opened primary dyke 9m
Opened tidal dyke 4,5m
Tidal dyke 3m
Farming food Forrest
Drinking water storage
Bridge and train tunnel
New train tunnel
Border
Border markers
Aqua farming

10.6.5 | **2100** | SECTION ‘BEYOND THE BRIDGE’

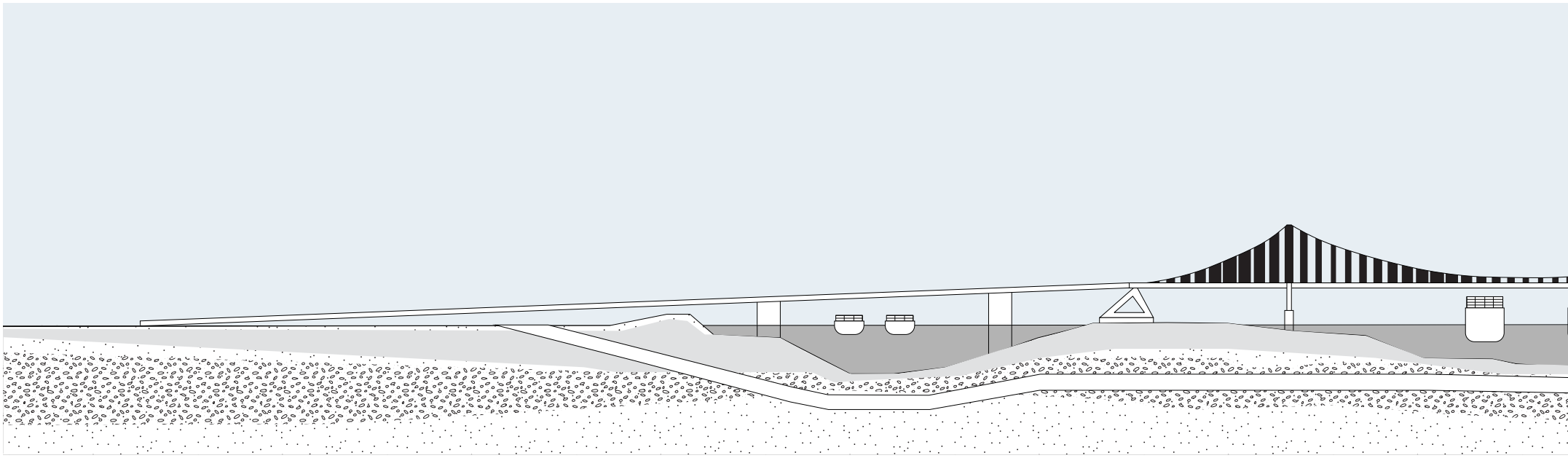
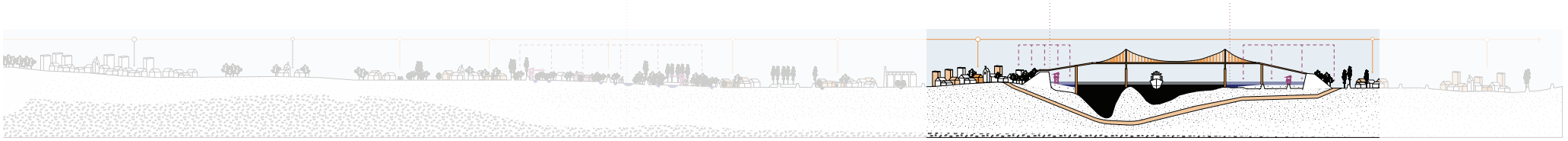


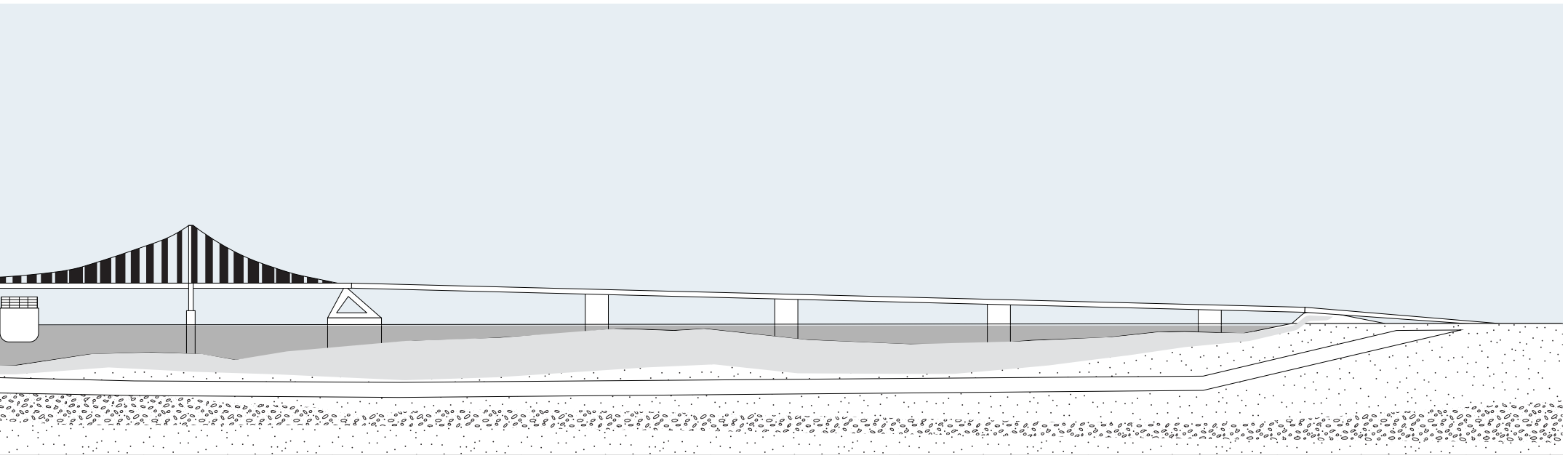
Figure 104. Conceptual section, re-connecting physically, visually and mentally by bridge as landmark [image by author]

A key infrastructure project within the scenario is the construction of a bridge between Terneuzen and Goes. This bridge is inspired by Denmark’s Storebæltsbroen, an iconic structure. The height of the bridge allows large container ships to sail unhindered to the port of Antwerp, while at the same time creating a new link between Zeeuws-Vlaanderen and Zuid-Beveland. The existing Western Scheldt tunnel will be lengthened and transformed into a train tunnel.

The bridge becomes not only a functional element in the network, but also a landmark for the region, a landmark that symbolises cross-border cooperation and the future-oriented vision of mobility and climate adaptation. The combination of public transport (light rail) and car traffic will increase the accessibility of small villages, and give the region a direct connection to larger cities in both the Netherlands and Belgium.

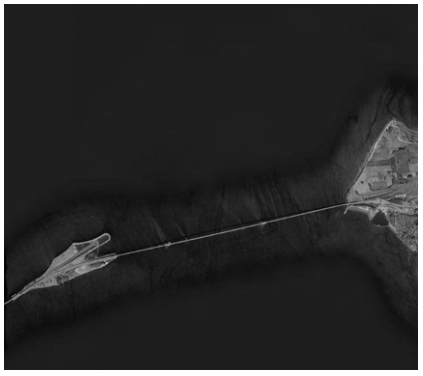








2,5 km



0 2,5 km



Figure 105. *Reference bridge* | Storebæltsbroen [Image from (Wikimedia Commons, 2012)]



10.6.6 | **2100** | SECTION NEW TIDAL AREA WITH LIGHT RAIL

This cross-section shows how in 2100 the primary dyke ring is moved further inland. Pieces of polder are excavated as building material for the new primary dykes. The old primary dyke is broken open in parts to allow in tides and the new sea level.

The new area, which will become tidal, will have various functions, the main one being to allow humans to coexist with the tide once again.
New forms of aqua-farming, such as mussels, oysters and seaweed, will be allowed to take place in the flooded polders.
There will be a tidal park where people will have free access to tidal nature. A footpath will appear at low tide. Old dykes in the tidal park will be partially breached, but will retain a footpath so that they remain walk able at low tide. Small wooden houses will be built on the old broken-up dykes, which can serve as storage rooms, hotels or watchtowers.

The new primary dykes will have a height of 11 metres and a total width of 100 metres. The slope of the dyke will be made as gradual as possible, creating space for new features such as a park, roads and a light rail. People should feel that they can walk up slowly and enjoy the view on top.

On the plots of land that will not be de-poldered, crop rotation will be used to counteract monoculture. Salinisation of the groundwater will also have to be taken into account in new arable farming; crops will have to be specifically selected for this.

At the foot of the new primary dyke, a light rail station will be built at this location of the cross-section. The metro will pass through the tidal park on several sections. It will stand on piles built on existing dykes in the tidal flats. The height is sufficient to remain operational at both high and low tides. Only in the event of a storm can the light rail be temporarily taken out of service. People can then still travel from Terneuzen to Breskens via the other light rail.

Furthermore, the purpose of this metro is that people can enjoy the view across the dyke to the Scheldt, and to all the new activity in and around the dyke. This allows the metro, besides being a connection for commuters, to become a tourist attraction.

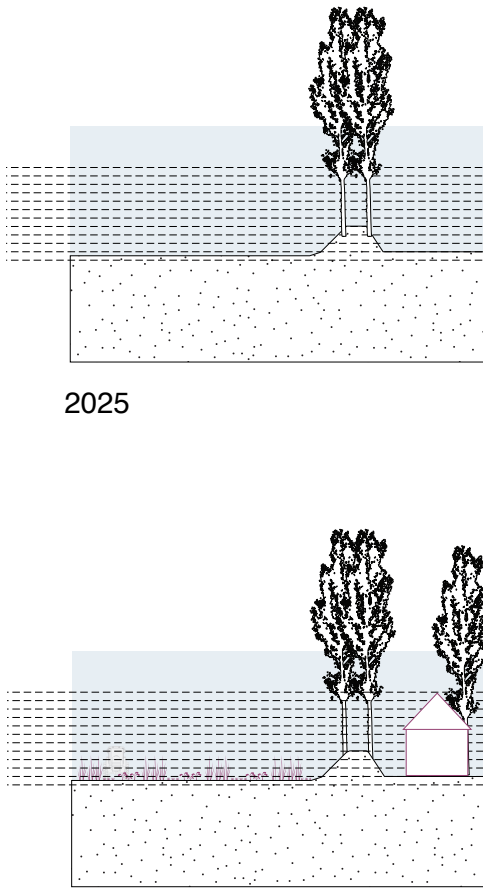
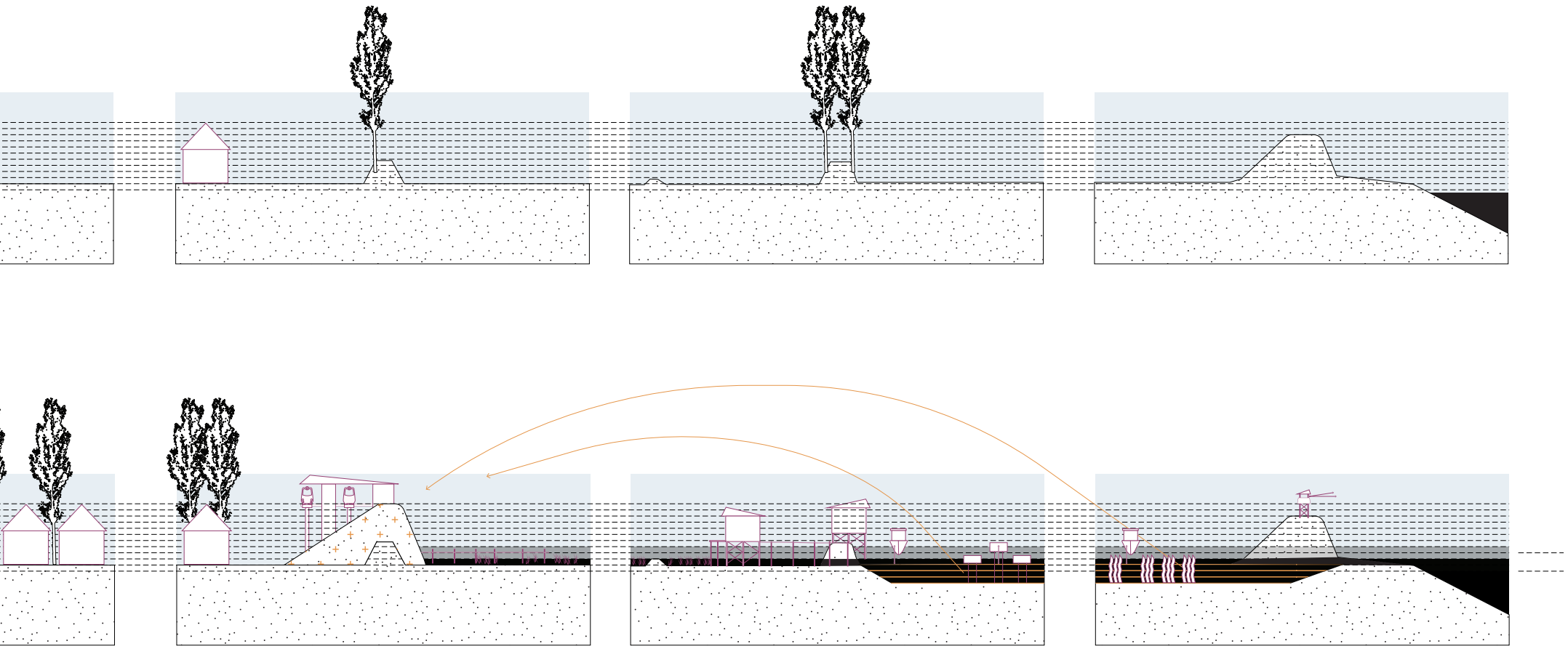


Figure 106. Conceptual section





es of

New elevated Primary Dyke build by sand from de-poldered lands

Tidal Parks with new types of aqua farming

Old Primary Dykes get Lookout points

of de-poldering [Visual by author)]



10.6.7 | **2100** | SECTION NEW TIDAL AREA WITH LIGHT RAIL CONNECTION

The previous cross-sections are schematic; here, an impression at scale is shown, showing both a dyke raising and a situation with de-poldered polders. These images show how people can once again work, recreate and live on and next to the dyke.

Although the elevation is significant, the dyke remains accessible and offers opportunities for use. Instead of a closed, green barrier, it forms an inviting space between people and water.

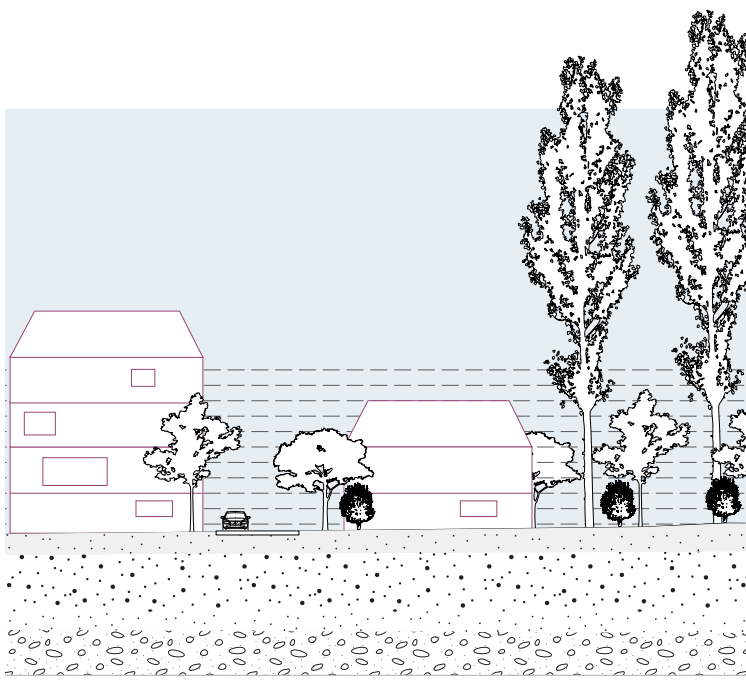
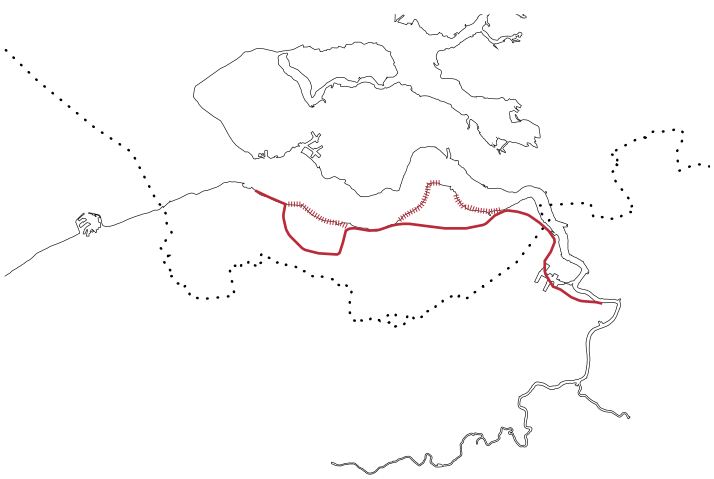


Figure 107. Conceptual section, Villages with light rail co



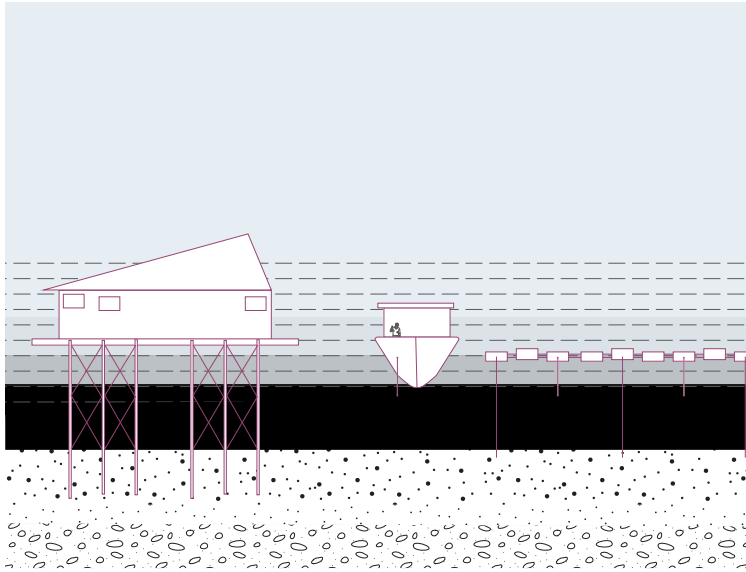
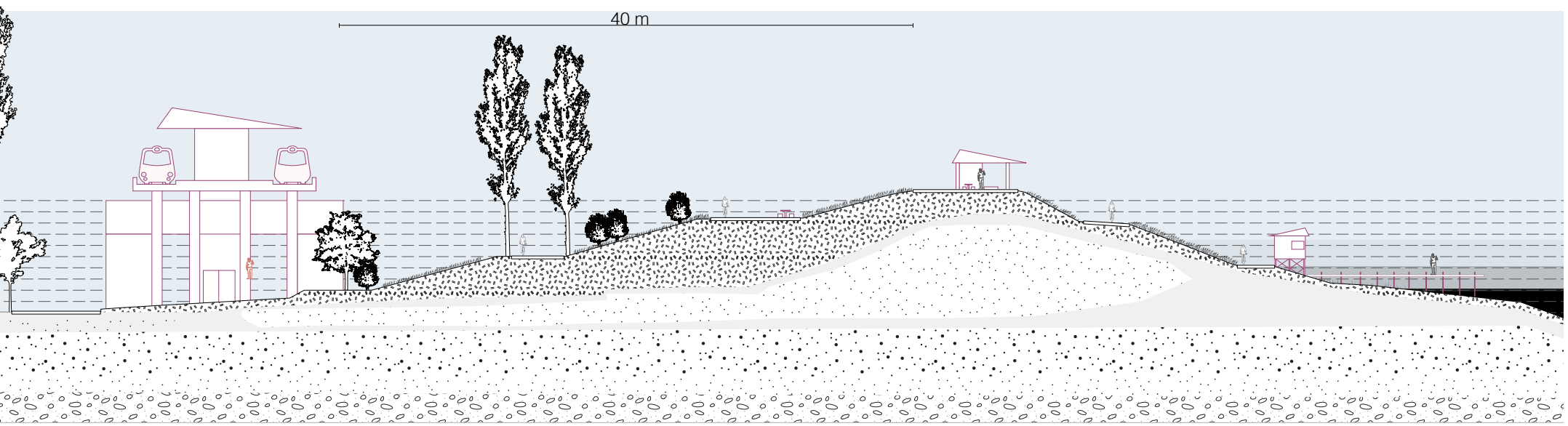
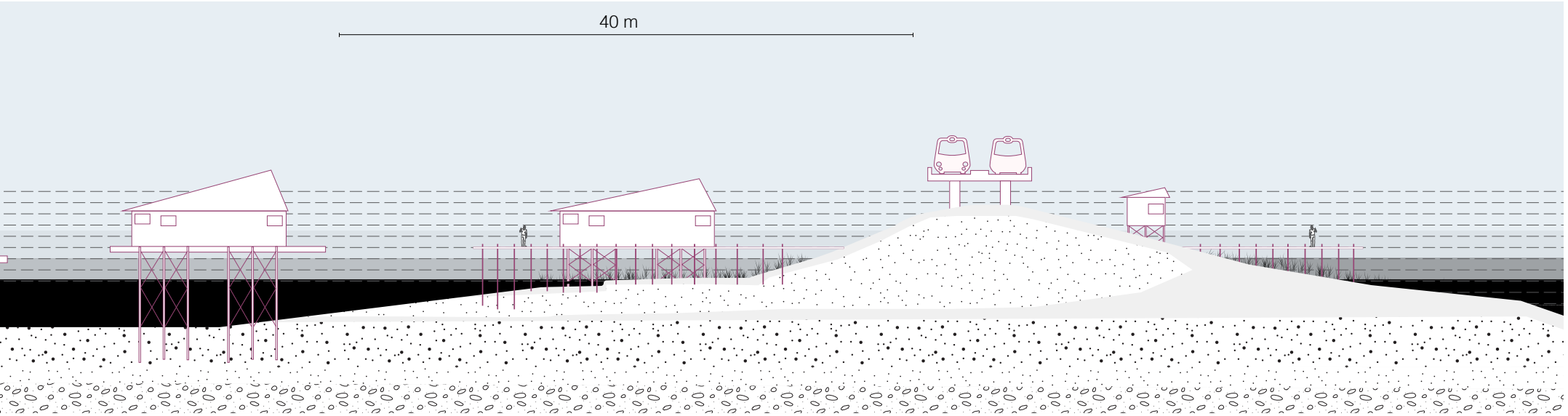


Figure 108. Conceptual section, new tidal area with light

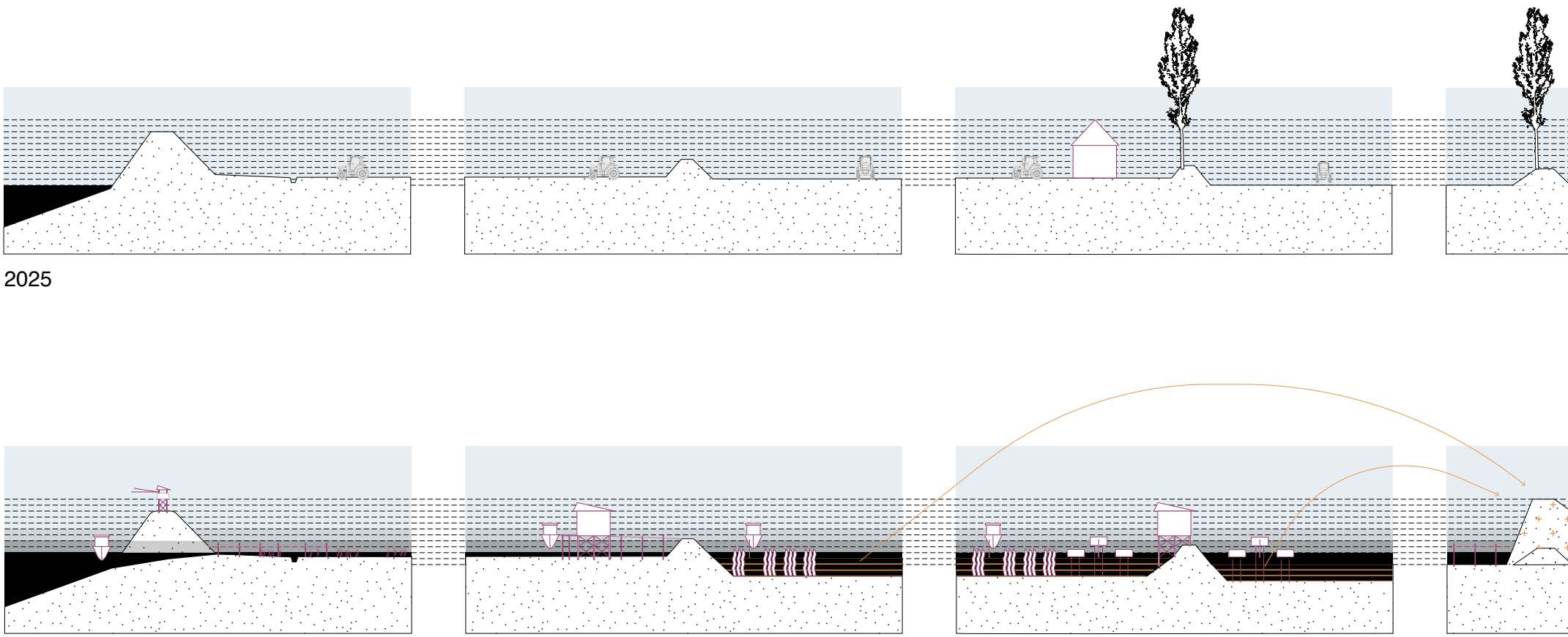


nnection and new primary dyke [Visual by author)]



rail connection on old primary dyke [Visual by author)]

10.6.8 | **2100** | SECTION NEW TIDAL AREA WITH ISLAND

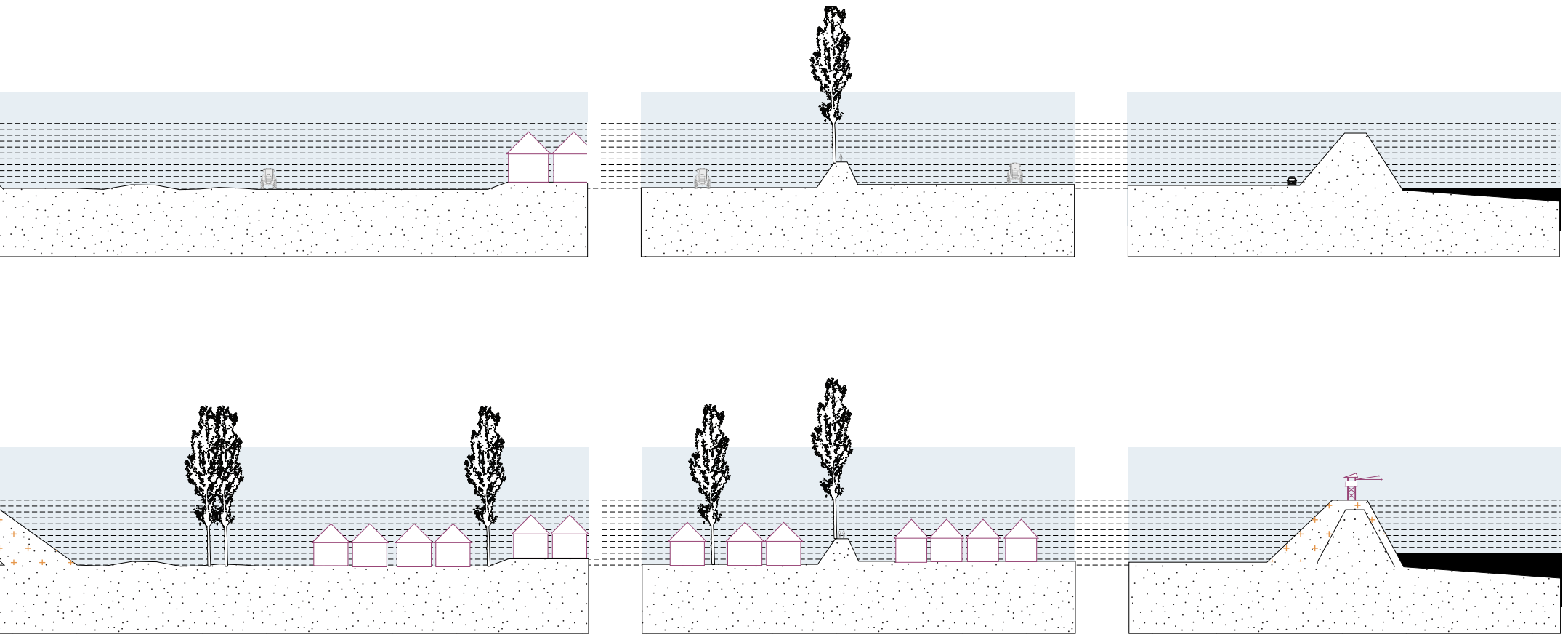


2025

Old Primary Dykes get Lookout points New types of aqua farming Elevated dyk

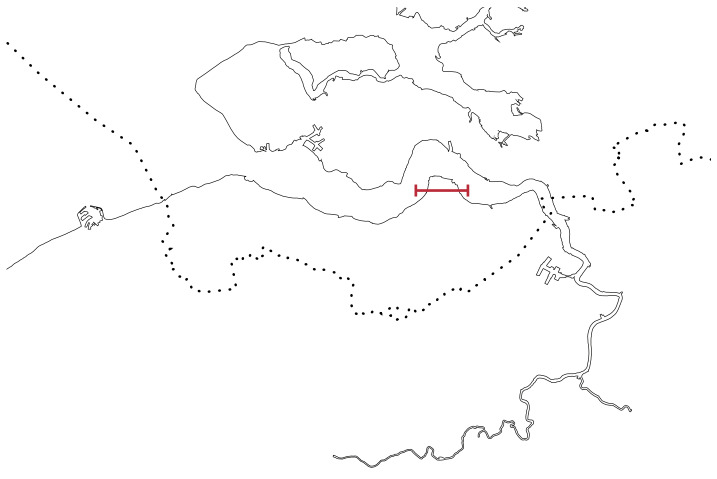
Figure 109. Conceptual sections, before and after interventions [Visual by author)]



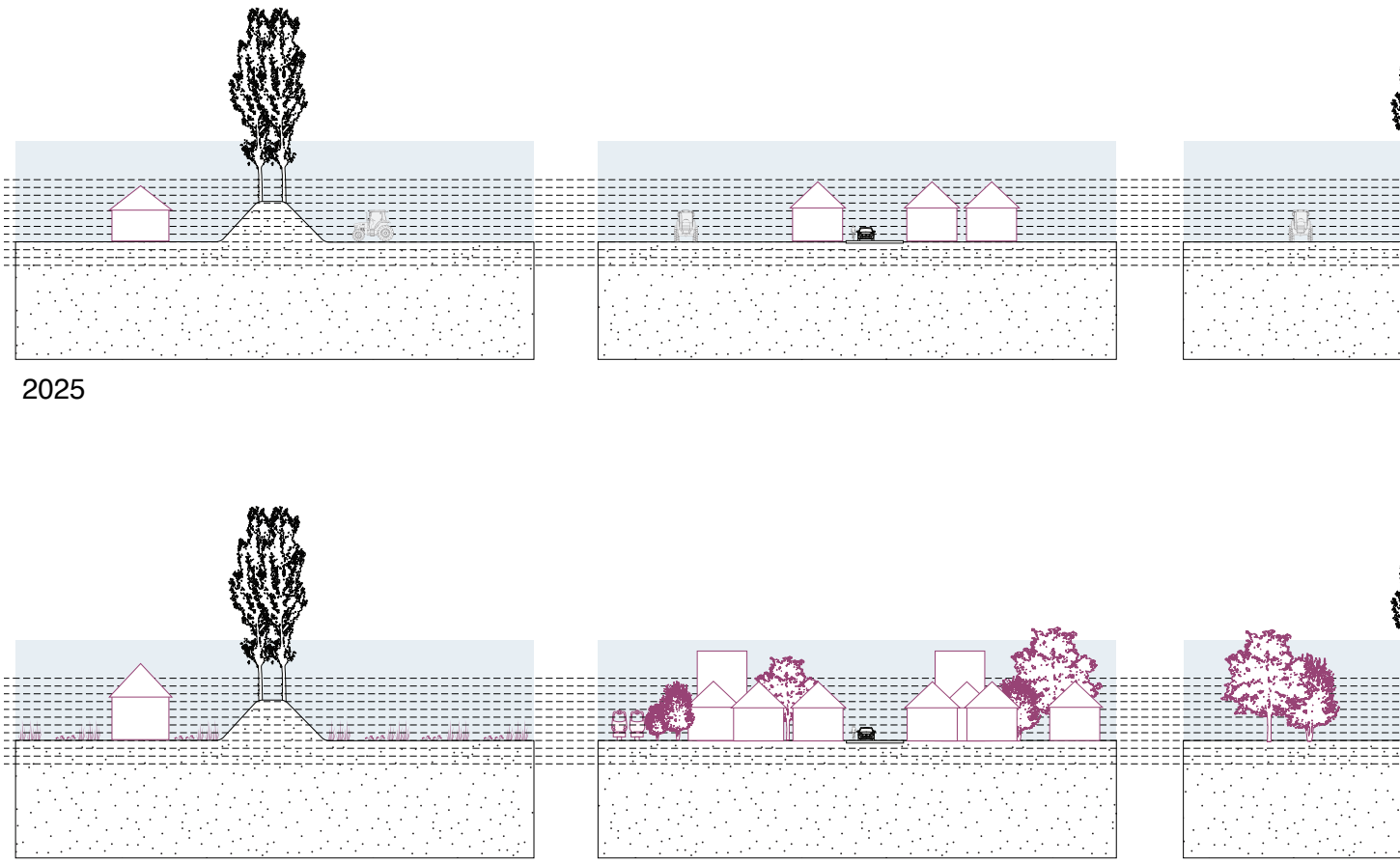


kes become Primary

Island has access by ferries and Tidal Dykes



10.6.9 | **2100** | SECTION BORDER PARK



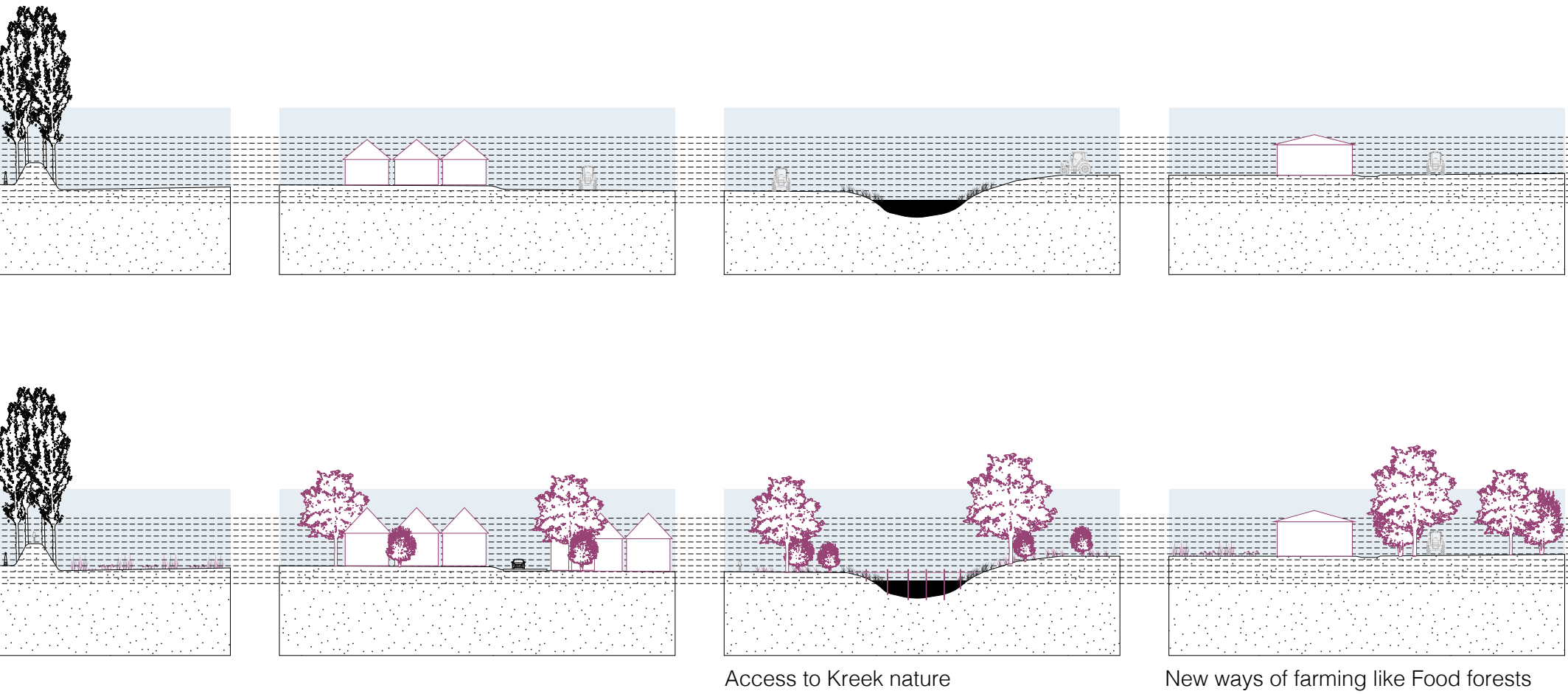
New Urban Density and Metro Border Park

Figure 110. Conceptual sections, before and after interventions around border park [Visual by author)]

Nieuwe-Namen and Kieldrecht continue to grow together as one fused village, connected by the border and a new metro station. The border is a connecting element that is crossed daily for work, school or recreation.

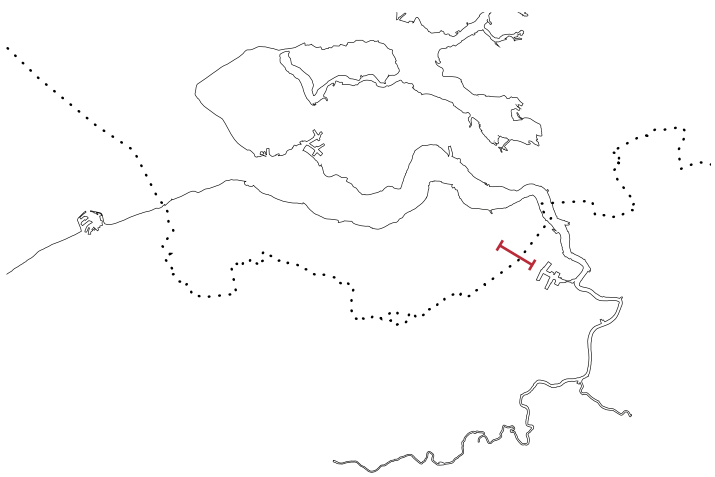
The creek landscape will be given more space, and landscape elements will be added to make visitors and residents aware of the natural dynamics of the area. Educational footpaths, watchtowers and information points explain the relationship between water, nature and cultural history.





Access to Kreek nature

New ways of farming like Food forests



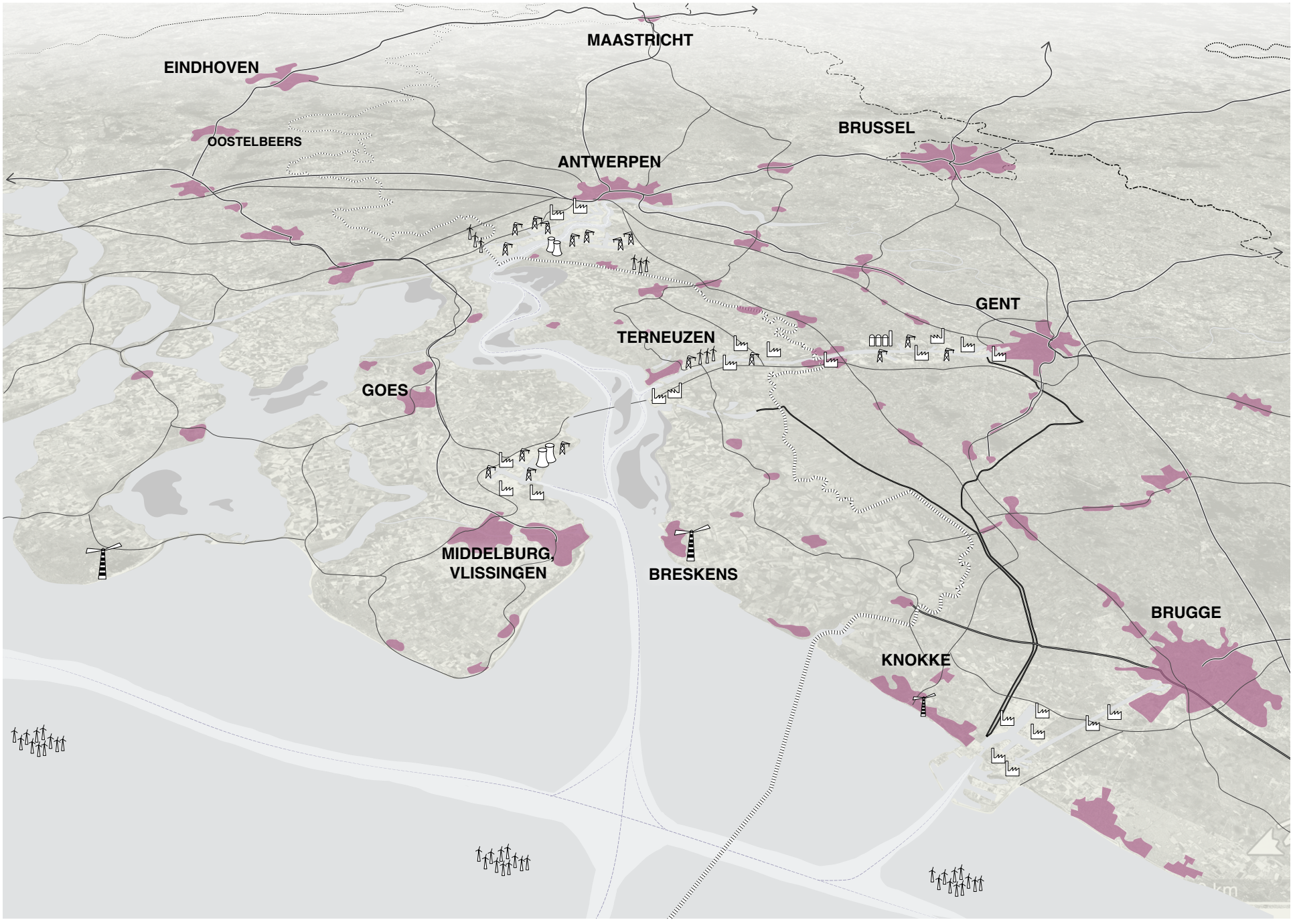


Figure 111. *B*irdseye current situation 2025 [Visual made by author]

This bird's-eye view shows the current and possible future situations of the Fluid Border Land. The illustration shows that Zeeuws-Vlaanderen has become an important corridor between the Flemish Diamond, the Randstad, Eindhoven and Maastricht. It is also strategically located for connections with the rest of Europe, both by train and by boat.

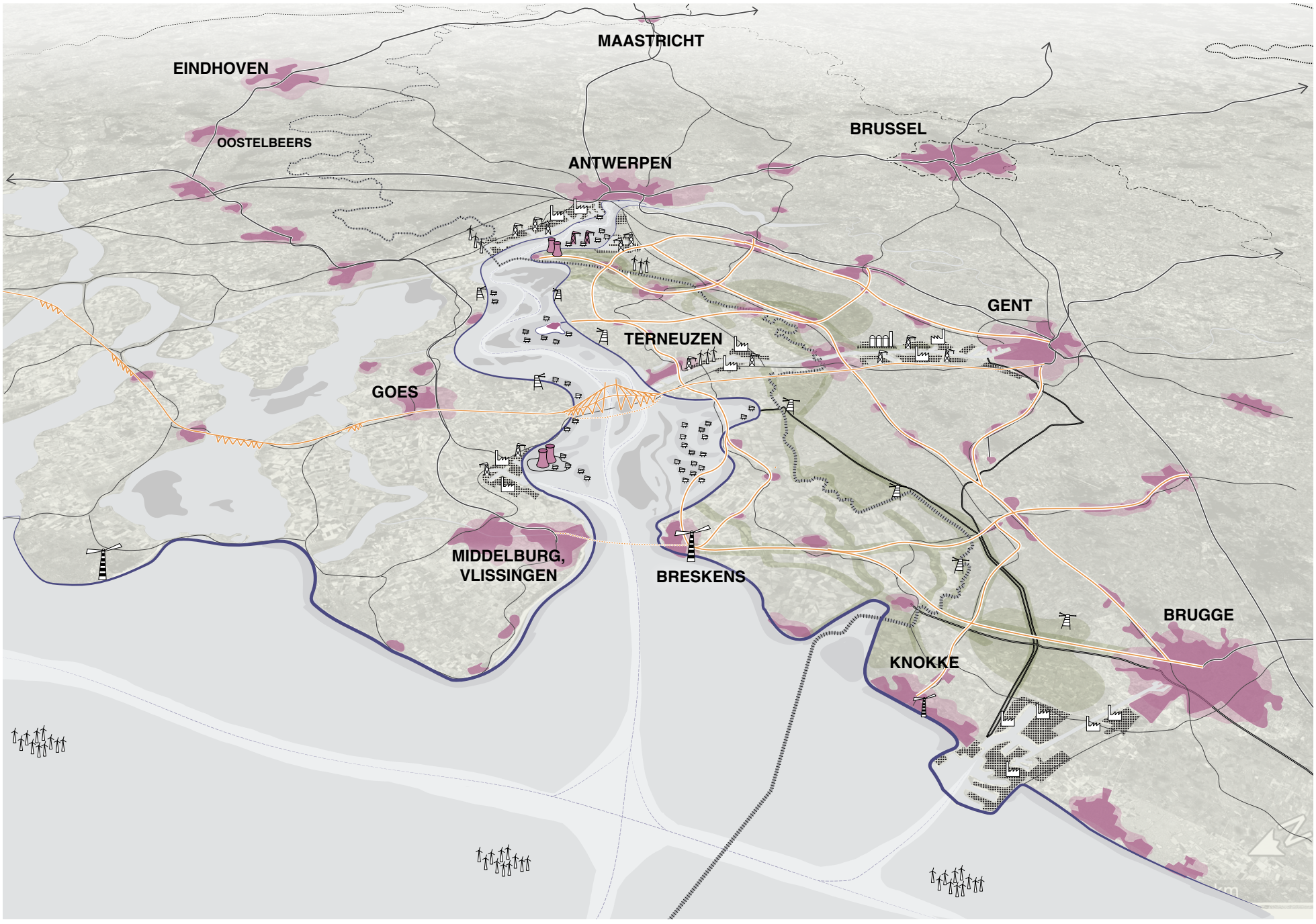


Figure 112. *B*irdseye of Fluid Border Land in 2100 [Visual made by author]

Legend

- Water
- Urban
- Urban expantion
- Villages/ small towns
- Industry
- Port
- current protected nature
- corridor for nature
- New train network
- Current train network
- Light rail network
- Highway
- Dyke elevation 12 m
- Border
- Bridge and train tunnel
- New train tunnel

NL



BE

Figure 113. *Landscape vs Border line* [Visual by author, Google Earth, 2025]

11. CONCLUSION RE-B/ORDERING

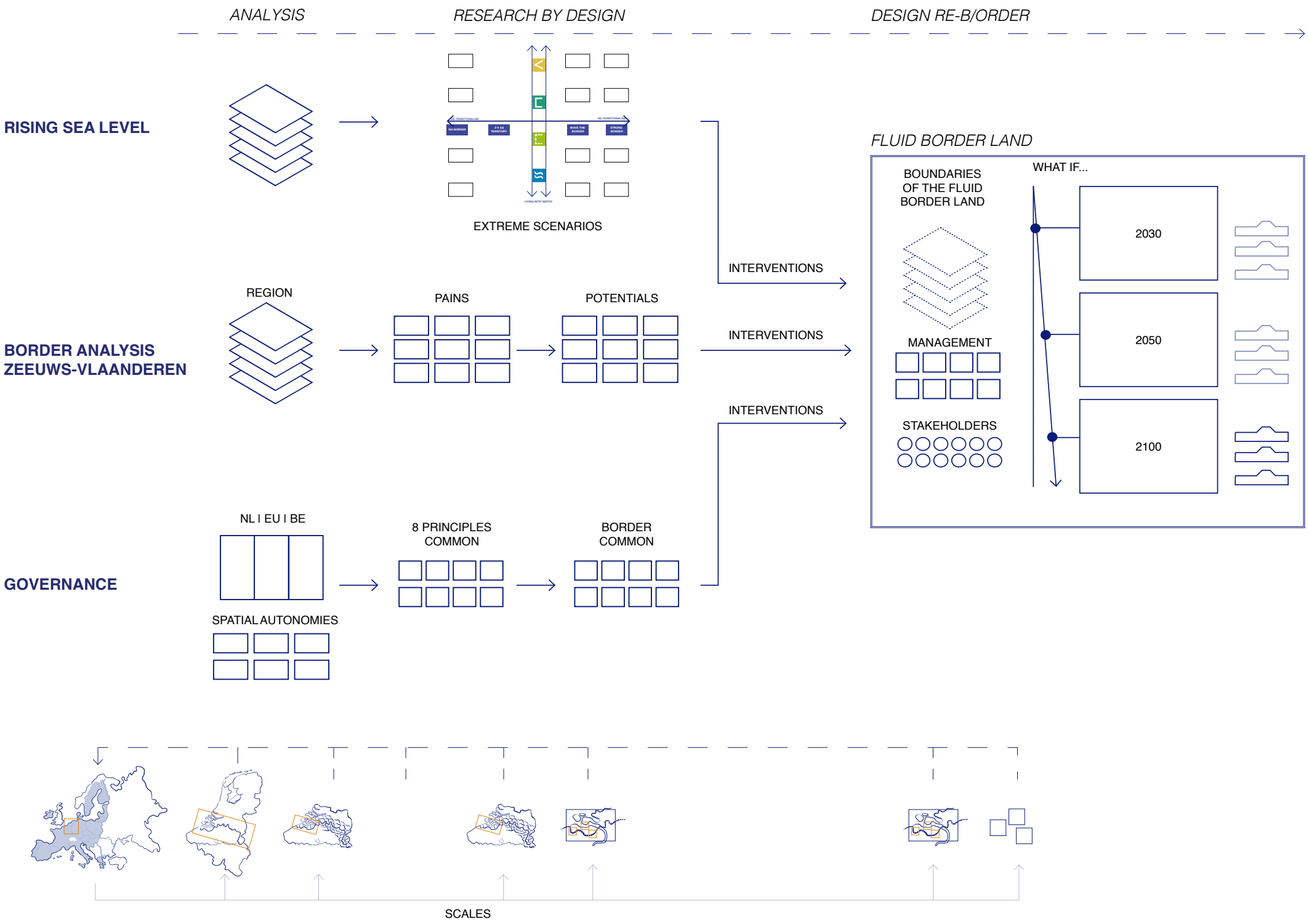


Figure 114. *Re-B/ordering method* [Visual by Author]

After a thorough analysis of the border area between the Netherlands and Belgium, the Zeeuws-Vlaanderen border area was chosen as a test site for applying re-b/ordering in a spatial design.

1. ANALYSIS:

- Investigate different scenarios of sea level rise, focusing on the extreme variants based on Deltares research.

- Border and its landscape: examined are the origins of borders from a historical and geographical perspective (water/barriers etc.), in addition to the characteristics of a border region and the factors influencing its layout, infrastructure and demography. This part of the study involved fieldwork, including interviews with (border) residents.

-Governance: for a border region, the influence of governance and administrative focus is of great importance. Zooming in on the Netherlands, Belgium and the EU. All influence the border region. In addition, spatial autonomies in Europe were looked at to collect examples of areas between countries, with different forms of formal and legal governance, autonomy and entity.

2. RESEARCH BY DESIGN

- The 'radical scenarios' framework was developed and example spatial plans were developed that apply different Deltares strategies to other forms of boundaries. This has revealed that the boundary has a major influence on the possibilities of planning for water safety. The main conclusion is: to achieve a future redesign of Zeeuws-Vlaanderen, far-reaching cooperation is necessary. The problems of sea level rise are cross-border and therefore so are the solutions needed. The border should no longer be applied as a line, but approached as a zone of exception.

- From the analysis, 'pains of the region' were concluded based on the location between the national border and the Scheldt border. These pains were then converted into design potentials, which in turn lead to design interventions. These interventions are applied in the spatial 'What if' scenarios.

- Based on the eight principles for managing a Common, these have been applied to a proposal for the management of the Fluid Border Land. An important principle is a clear demarcation of the borders of the Common. To arrive at this demarcation, layers such as urban fabric, infrastructure, polder landscape, industry/ports and the flood hazard area were mapped. The sum of these layers forms the Fluid Border Land. It is important that this demarcation does not form a new border, but only indicates the region of exception.

3. DESIGN RE-B/ORDER

- To visualise and test what Zeeuws-Vlaanderen within the Fluid Border Land might look like in the future, three spatial 'What if' scenarios were drawn up.

- In these, the extent of sea level rise was worked out for the years 2030, 2050 and 2100. Two scenarios (2030 and 2100) involve far-reaching cooperation. The 2050 scenario elaborates on a situation where cooperation has not been established. These scenarios are detailed and visualised in maps and cross-sections.

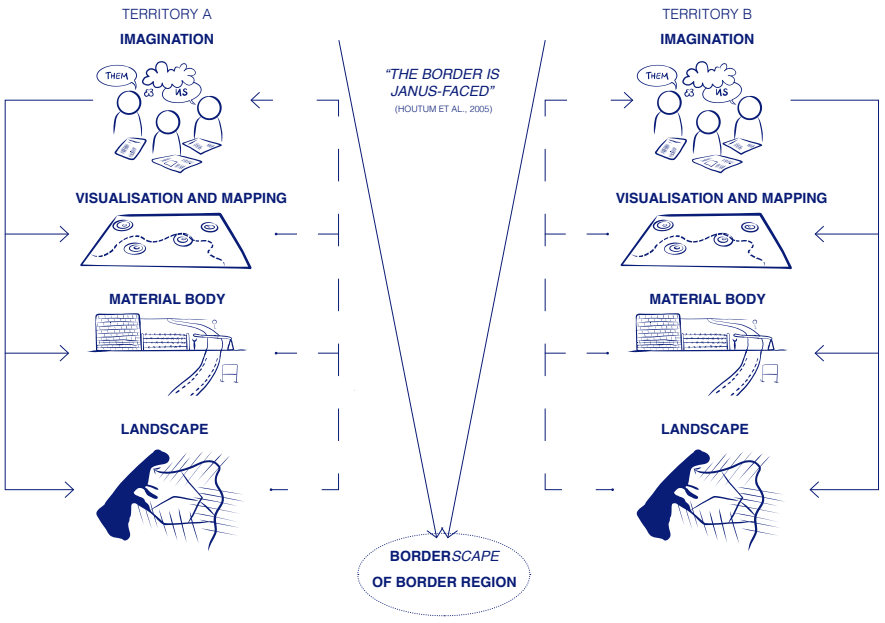


Figure 115. *Re-B/ordering affecting the BorderScape* [Visual by Author]

CONCLUSION

The research is driven by the question: *How can the challenges of rising sea levels and socio-economic pressures be addressed through the design and re-B/ordering of the Belgium-Netherlands border, by re-territorialising the Zeeuws-Vlaanderen borderscape?* Based on this question, the theory of B/ordering (van Houtum et al., 2005) was applied as a lens to examine the influence of national borders on spatial development, identity and administrative organisation. The theory outlines that the ordering of borders is based on a social reality, or social construct and is thus changeable.
In this project, the Re-B/ordering approach, as rearranging and rethinking border structures, led to testing alternative border configurations within spatial design scenarios for a rising sea level of 2 metres by 2100.

The Zeeuws-Vlaanderen case study shows that physical and administrative borders, in this case strengthened by the natural barrier of the Westerschelde, intensify existing socio-economic vulnerabilities. The unique context of Zeeuws-Vlaanderen is that, as a border area, it is both peripheral in administrative attention, and physically cut off from the Netherlands by its natural border, the Westerschelde. This has led more to demographic shrinkage, economic stagnation and reduced investment in infrastructure and facilities.

Although the design within the “What if” scenarios does not offer a direct solution to the complex reality, the process reveals valuable insights into how spatial design can contribute to rethinking borders with the surrounding region.

The project suggests that reinterpreting the border is not only necessary in times of climate change, but also offers opportunities to reconnect and strengthen current socio-economic structures.

As a result of the research, the border has been transformed from a line to a zone of exception: the Fluid Border Land. This aims to achieve an integrated, cross-border approach, rather than adopting different strategies on either side of the border. This approach aims to softens the Janus-faced effect of the border and helps make the border region resilient and future-proof.

DISCUSSION

The project highlights the lack of an existing methodology for spatial design on national borders. By using design as a research tool (research by design), it reveals how border regions like Zeeuws-Vlaanderen cannot be approached exclusively from a national perspective. The border does not function as a separation, but as an intersection of interests, identities and systems.

The application of B/ordering as an analytical framework makes it clear that borders are not fixed givens, but changeable constructions that can be re-negotiated, both symbolically and spatially. The designs in this project propose to transform the border region into a Fluid Border Land: an area of shared management, shared risks as well as shared opportunities.

Yet this proposal raises questions of feasibility. The degree of political willingness, legal adaptation and institutional cooperation required to reorganise border zones is a major challenge. There is also a need for multi-voicedness: the perspective of residents, local authorities and companies should be more explicitly part of the design process.

The project also shows that Zeeuws-Vlaanderen is not an isolated case. The insights are more widely applicable to border regions where climate adaptation, shrinkage and administrative fragmentation come together. The need for cross-border cooperation is obvious, but requires new spatial thinking models. Re-B/ordering represents a useful step for this.

It is important to recognise that this study was conducted from a Dutch perspective, which inevitably involves a certain degree of cultural and historical bias. The focus was mainly on Zeeuws-Vlaanderen, partly due to the available data and the geographical demarcation. As a result, the Belgian border areas were analysed less in-depth.

Zeeuws-Vlaanderen has a distinct regional identity, including its own flag and anthem. On the Belgian side, this regional profiling seems less pronounced, possibly because the identity there is more strongly linked to the wider Flemish Gewest and one is less physically cut off from Belgium. These differences deserve further analysis. Especially in terms of governance, identity and social-economic problems on the Belgian side of the border.

For follow-up research, it is recommended to examine the Belgian side of the border region more systematically and analyse spatial forms of autonomy within it. International comparisons with other border regions and commons-like cooperation structures can also provide new insights. By comparing such studies side by side, a richer and more nuanced picture of the potential for Re-B/ordering in border areas could emerge.

LIMITATIONS

A major limitation within this study was the lack of overlapping and consistent data. Both countries collect and structure spatial information differently, making direct comparison difficult. As a result, the border is visible not only in legislation and identity, but also in knowledge production. This fragmentation hinders an integrated approach to cross-border spatial tasks.

In addition, the Netherlands and Belgium each have their own strategies to deal with sea level rise. This makes the border area an interesting bottleneck on the one hand, but extra complex in terms of policy coordination on the other. Follow-up research recommends comparing plans such as the Flemish and Dutch Coastal Vision, the Sigma plans and the strategies of the Flemish Master Builder. A comparative policy analysis can help to understand how spatial choices reinforce or clash with each other.

A second limitation is that the urban and administrative perspective was underexposed. The focus of this project was deliberately on the landscape and the border as a socio-spatial construct. As a result, governance structures, planning processes and institutional complexity were largely left out. A deeper policy analysis could further enrich the scenarios, especially in terms of feasibility.

The project Schakelpunt Grensbelemmeringen Vlaanderen-Nederland (Interreg, 2024), which investigates where concrete cooperation falters at the policy level, offers a valuable basis for follow-up research in this regard. The results can provide insight into legal bottlenecks, cultural differences and opportunities for cooperation.

In addition, residents and local authorities were not actively involved. The border has been analysed here mainly through maps, literature and fieldwork. Participatory methods such as interviews or workshops could have deepened the social perspective on the border.

The scenarios developed are radical in nature and intended as spatial explorations. They have not been tested for administrative or economic feasibility.

Finally, for future research, Bruno Latour's work Down to Earth: Politics in the New Climatic Regime is recommended. This theory offers a framework for thinking in which climate change is not just an ecological problem, but a fundamental shift in geopolitics and responsibility. It provides a valuable starting point to reformulate cross-border cooperation around climate challenges.

ETHICAL PARAGRAPH

It is acknowledged that the project has a top-down approach. It would be valuable to additionally conduct more interviews where residents are invited to draw the border themselves, as applied in the Euroscape study (Moes, 2024). This bottom-up approach makes it possible to reveal personal and cultural interpretations of the border, which often differ from formal and administrative boundaries.

As this project touches on themes of identity, representation and territorial transformation, it is important to reflect on the position of the designer. As a researcher who is not from Zeeuws-Vlaanderen or Flanders, I am aware of my cultural bias. This became clear, among other things, while drawing up historical timelines, in which narratives on both sides of the border differed greatly: one side spoke of a war, the other of a revolution. This was particularly striking while accessing two seemingly similar books; The History of the Netherlands in 100 Old Maps (Van Delft & Storm, 2021) and The History of Belgium in 100 Old Maps (De Maeyer, Galand, Vannieuwenhuyze & Vanthemsche, 2021) Both published by the same publisher, but with a completely different approach to historical events.

Redrawing or rethinking borders risks reinforcing existing power structures or creating new forms of exclusion. Who determines the form and function of a new border zone? Who gets involved, and who stays out? In follow-up research, a more participatory approach can ensure better embedding of local voices in the design and decision-making process.

Ecologically, this project also involves ethical considerations. Interventions such as dyke relocation, new infrastructure or de-poldering will affect both the landscape and the habitat of residents, non-human life and biodiversity. The balance between climate adaptation and ecological justice requires careful, inclusive considerations.

Finally, the idea of a "state of exception" or a "common" also raises questions about sovereignty, accountability and legitimacy. Experimental forms of governance should not circumvent democratic processes, but rather create space for cooperation and transparency.

12. REFLECTION



Figure 114. *Skyggeferden* | Reflecting in on borders [book cover by S.A. Rasmussen, 2012]

1. How do you see the relation between your graduation project topic, the studio topic, your master's track (Urbanism), and your master's program (MSc Architecture, Urbanism and Building Sciences)?

The project looks at the interaction between the landscape of water, a national border and the expected rising sea level. This involves looking at the impact of natural and man-made boundaries and reconsidering what they might look like in the future. These topics fit within the studio Transitional Territories as it deals with landscapes changing due to climate change and critically rethinking social constructs within our society, and how this can change spatially border regions.

Looking back at my master's, the themes of climate change, scenario thinking and the socio-cultural significance of water were a recurring theme. The project fits within the Urbanism track because both the analysis and the design are multi scale. I tried to take an interdisciplinary view of the project by focusing on policy, culture, socio-economics and landscape around the theme of borders. In addition, my project can also be linked to the track Landscape, because I have tried to create a link between water and the landscape, on the one hand as a border, and on the other hand as a connector.

2. How do you see the relation between research and design in your graduation project?

The central question within this project was: can I redesign the border an sich? To answer this question, I drew on theories such as (Re-)B/ordering (Van Houtum et al., 2005) and Borderscape (Dell'Agnese, Szary, 2015). These helped me understand the material, landscape and regulatory impact of territorial boundaries, and how they affect the landscape. From this, themes followed on which I could analyse the landscape. Based on these insights, I tested new ways of designing with and around a border. To my knowledge, there is no design method yet in which Re-bordering theory is applied by designers and planners.

The project shows a strong interaction between research and design, being mainly research by design. Establishing a radical scenario framework allowed me to test new forms of borders, but also the possibilities and problems that arise within the already existing Deltares strategies.
At the same time, the extensive historical and spatial analysis of the Dutch-Belgian border, and later specifically of the Zeeuws-Vlaanderen border area, allowed me to get a better idea of where the design opportunities lie for redesigning this area. In doing so, I focused on identifying problems in border areas and how these can be reflected in the context of Zeeuws-Vlaanderen. I translated these problems into a design concept: from disconnected to connected. To achieve this goal and address the problems, I devised design interventions from this and used them as a basis for the spatial "what if" scenarios. The ultimate goal was to show a new perspective on how the border is no longer a line in our imagination, but becomes an area of cross-border cooperation, so that it can contribute to a future-proof region.

3. What do you see as the value (and limitations) of your way of working: your approach, your used methods?

The value of my project is to put border areas on the map differently. It is a worry that regions are isolated or forgotten in times of spatial scarcity and social transition. Through my research, I believe it is necessary to look at borders differently, both spatially and in our imagination. The fundamental question is: to where does our responsibility and ownership extend? A question that only becomes more urgent in times of climate change. Finding future-proof solutions requires looking across borders, literally and figuratively.

In this project, I tried to visualise this approach spatially by graphically rotating perspectives, zooming in and out to explore the border. I explored the border as a line on a map and wondered if it could also be reflected in the landscape. I did this using satellite images, field visits to various border locations, conversations with residents of Zeeuws-Vlaanderen and literature about their border experience. Thanks to these conversations, I gained more insight into local realities and related issues.

What makes the research complex is that a border has different meanings and effects, in language, imagery and policy. Borders are abstract social constructs, but at the same time have very concrete consequences. A notable problem was the lack of connecting data on both sides of the border. This limits doing spatial design-oriented research. How do you design a new form of border without redrawing a (territorial) boundary line? While designing, I discovered how a new line, intended as a connection, can also turn into a new barrier. For example, a railway line can symbolically and physically connect people, but at the same time create a barrier in the landscape.

The scale of the project, geographically and content-wise, meant that I had to make choices. As a result, many parts remained conceptual. This raised new questions, such as: What is the economic value of a seaweed farm? Is it a real alternative to industry? This could be highlighted further in follow-up research. My aim was to better understand boundaries through a spatial and landscape lens, and use these insights as input for redesign. However, boundaries are also about entity, ownership, responsibility, politics and power. So choosing a landscape approach also meant a certain limitation. During the design phase of re-branding the border region into a zone of exceptions, governance issues emerged. Choosing the Landscape track and a focus on landscape and water was logical given my approach. At the

same time, a more managerial angle, as within the Complex Cities studio, would also have added a lot of value.
Looking back, it became clear during the project that redesigning borders and border areas is inextricably linked to governance. As an urban planner, you have knowledge of planning and policy, however, this is limited. It is therefore desirable that Re-Bordering is approached interdisciplinary in follow-up research, such as in collaboration with administrative scientists and border researchers.

4. What are the academic and societal value, scope and implications of your graduation project, including ethical aspects?

The social relevance of the project lies in standing up for forgotten and vulnerable border regions such as Zeeuws-Vlaanderen. As mentioned earlier, the scope of the research is to transform border regions into vital and resilient regions that do not separate, but rather connect. Border regions are often approached differently within a national perspective, which contributes to socio-economic inequality. Moreover, rising sea levels pose a direct threat to the safety of residents. With this research, I want to open a discussion on the role of territorial borders in times of climate change. Worldwide, many border areas are at risk of flooding, which means Zeeuws-Vlaanderen can be internationally relevant as a case study.
The scientific relevance lies in developing a design-oriented approach to border issues, linking theories from border studies and climate adaptation to spatial design. As Eker and Van Houtum (2012) point out, there are gaps not only in overlapping data and policies, but also in how we can spatially design with and on borders. Few spatial applications or design strategies exist so far for the concept of re-b/ordering. With this research, I contribute to the development of new thinking frameworks that designers can use to work on border areas as dynamic landscapes.

The design and research process within this project has been mostly top-down. This is because of the methods chosen, the level of scale and the fact that the research was conducted by me as an external researcher. Because the project touches heavily on themes of identity, ownership and representation, I became aware of my cultural bias. This became apparent when drawing up historical time lines, which name the same events differently on both sides of the border: one speaks of a war, the other of a revolution. I tried to make historical comparisons as neutrally as possible. Critically looking back, most sources are Dutch, this has coloured the research. Follow-up research should look at Zeeland Flanders from a Belgian lens.

Rethinking and redesigning borders raises ethical questions. Who gets to decide what a border area looks like? Who is heard, and who is not? While cross-border cooperation offers opportunities, there is also the risk of exclusion or shifting responsibility. In follow-up research, it would be valuable to involve residents from both sides of the border through interviews or participation, in order not only to redesign the border, but also to redefine it together. In addition, design interventions such as new infrastructure or tourism can lead to socio-spatial inequality or gentrification.

Finally, ecological interventions such as de-poldering are very sensitive in the region. This is partly because in the past the Dutch, Belgian and European governments made top-down decisions without involving residents. So who decides which nature is preserved and which is sacrificed for climate adaptation? The non-human perspective is also underexposed and represented in this study.

5. How do you assess the transferability of your project results?

The results of my project are partly context-specific, but at the same time offer starting points for broader applications. Zeeuws-Vlaanderen is unique in many ways, with a double border, but the tensions here between national interests, border residents and climate issues are recognisable in many other border areas. Think of the Ems-Dollard between Germany and the Netherlands, or the border delta between France and Belgium near Dunkirk. What is transferable are the methods tested in this project. Creating a radical scenario framework, applying the lens of (Re-)B/ordering and designing at different scales in a border context can serve as tools for other designers, policymakers or researchers working with border areas. In particular, the combination of spatial analysis and governance consideration could be tested in other European contexts.

6. Which parts of the research or design approach deserve a different approach or improvement in the next project?

If I were to do the project again, I would reserve more time from the beginning to build cooperation with actors on the Belgian side of the border. Due to the focus on Zeeuws-Vlaanderen and the fact that many sources and data were available from a Dutch perspective, the Belgian part of the border area was not investigated as thoroughly. Although this was partly due to the size of the project and time constraints, I realise that a more balanced approach could have enriched the analysis and made the project stronger.

In addition, earlier in the process, I would try to actively involve policymakers, researchers and residents in interactive sessions. This would not only increase the relevance of the design interventions, but also ensure wider support and understanding of local interests. A suggestion could be to work with living labs or participatory workshops in a follow-up project. Finally, I would like to link the design even more strongly to economic and legal feasibility. The themes around autonomy and cross-border governance raise complex questions about ownership, competences and financing. In a follow-up, I would therefore frame it even further and limit it to only water safety, for example.

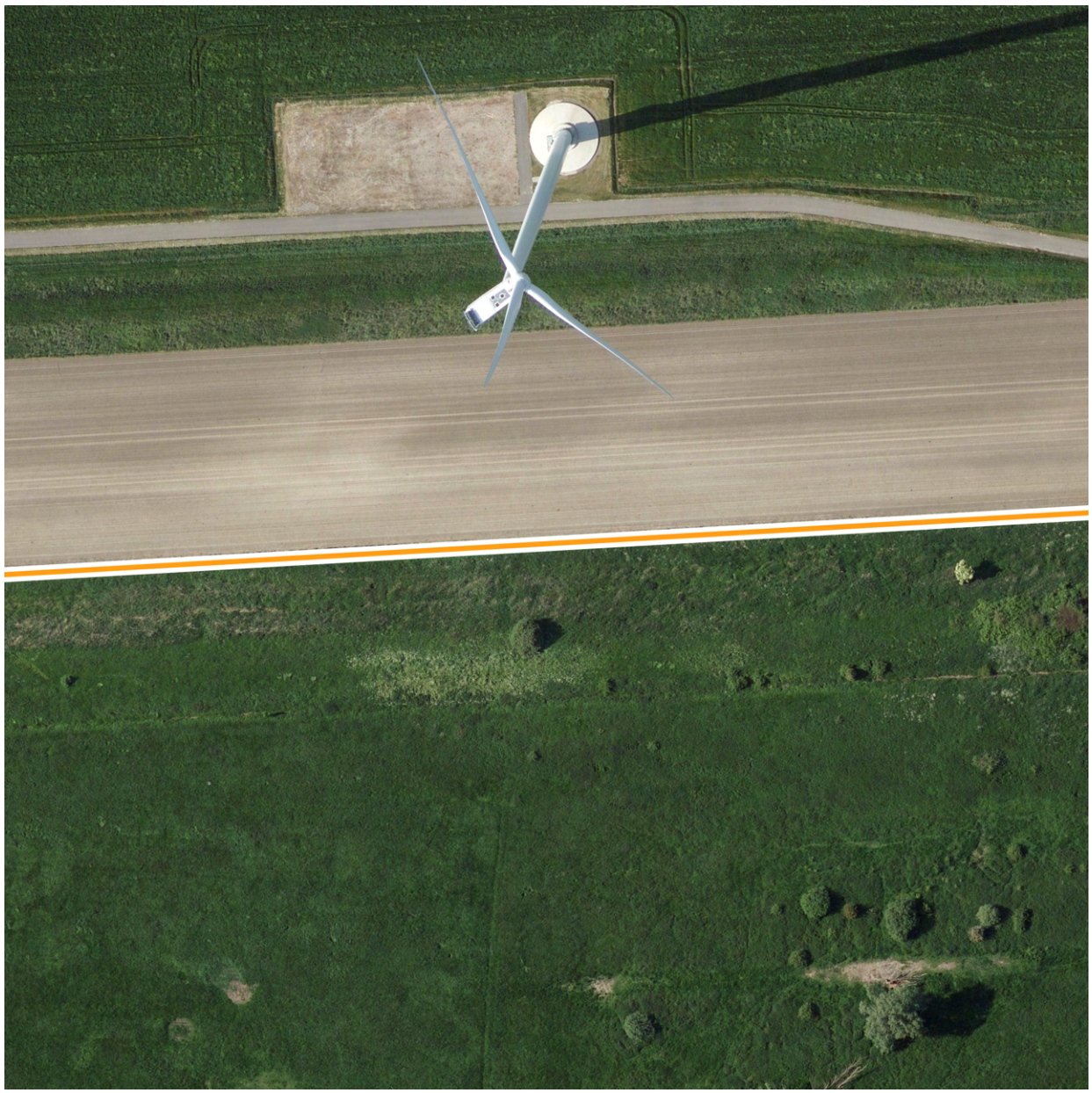
7. To what extent did I stretch my own borders during this project?

During this graduation project, I explored and pushed my own borders in several areas. I noticed that I found it difficult to make decisions, so I tended to keep exploring further and further instead of making choices sooner. This is visible in the scope of my analyses. I could have moved faster to design in hindsight.

I also found it challenging to work independently on a complex project for a year and keep an overview in it. I am curious by nature and can therefore lose myself in details. This year was a lesson for me in keeping an overview and reflecting on the big picture in between.

Another was relying on the design process itself. I tend to draw only when I have the picture complete in my head. This year, I learned that design-oriented research actually requires iteration, exploring, adjusting and accepting that not everything is right at once. Drawing is not just a tool for communicating ideas but also for coming up with ideas. As well, I further developed technical skills, such as working with QGIS and new visualisation techniques.
Engaging fully in these processes has allowed me to broaden my approach and attitude as a designer and researcher.

NL



BE

Fig. 116 Dutch wind turbine trying to kiss the border
[Visual by author (Google Earth, 2025)]

13. REFERENCE LIST

13.1 | LIST OF REFERENCES

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