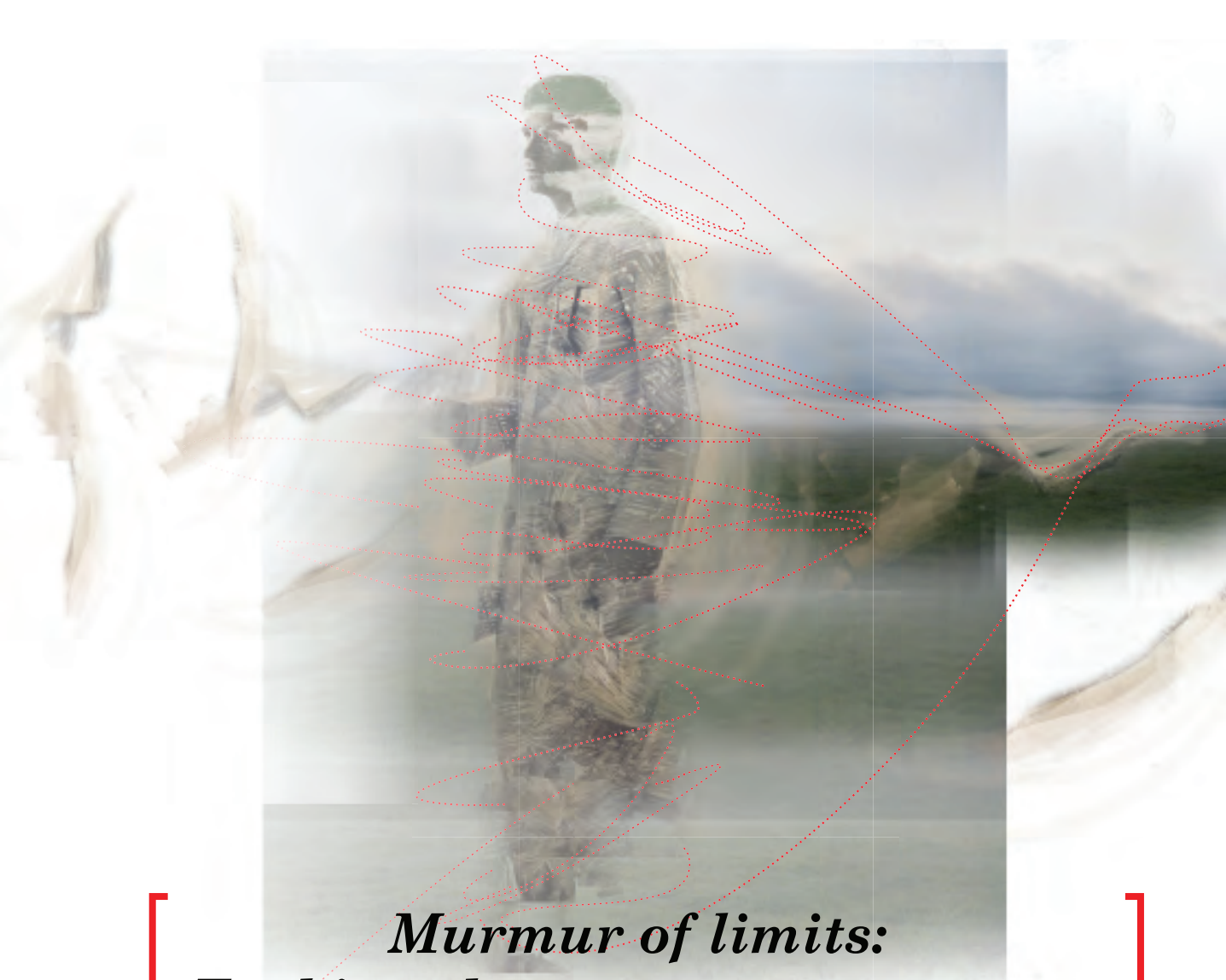

Murmur of limits: Evoking the sensuous encounter between ecological phenomena and humans

MSc Thesis
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Landscape Architecture & Planning

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Last but not least, I address to my family and Julen, eternal support and source of well-being, and specially to my mother, who always advised me wisely for continuing on the right track:

` There is no need to make it golden, silver is also fine´
and
` Little, but with love´

Thank you to you all.

Naiara Valcarlos

Summary

Schouwen Duiveland is the northernmost island of the province of Zeeland, in the Netherlands. It is an island that stages the encounter between nature and culture and their eternal battle. It is a very dynamic landscape, whose outline is equally shaped by both the forces of nature and human intention along centuries. In the ongoing process of dike building for allowing proper conditions for habitation, the catastrophe occurred in the last century, in 1953, has significantly altered Schouwen Duiveland and the estuary of Oosterschelde. The problems for agricultural production due to continuous salt infiltration led towards the decision of turning the area into new nature. Nature that works, indeed, as compensation measure for the lost ecological values due to the construction of the Oosterscheldekering in 1986.

The implementation of nature has taken place from an ecological perspective, taking as basis the historical reference of XVIth century, without taking into consideration the aesthetic experiences nature itself awakens in humans, and neglecting one of the fundamental concerns of good ecological restoration: the aesthetic experience. Furthermore, the municipality talks about the pleasure of enjoying such unique brackish habitat, when the reality is that little is accessible of such nature.

The research directs towards unveiling the ***human perceptible realm in relation to nature***, that occurs in a certain scale. This is a scale not based on graphic or numeric measures, but rather is in eternal motion, since it is a scale in which the perceiver and the environment are interdependent, in continuous transformation, and, furthermore, ***embodied***. When the embodiment takes place in nature, encounters a world in perpetuous movement; humans engaging with certain phenomena of nature, the ones that express within our time-space frame.

In the attempt of unveiling this sensuous encounter with phenomena of nature, we can only look for a scientific method that relies on the body as measuring tool of this realm, the body as sensuous data generator, and phenomenology then becomes the method in order to describe, rather than explain what consists of this sensuous encounter.

An extensive study of the landscape is done under phenomenological lenses. First by aesthetically embodying the landscape in the case study, and next, by bringing together the knowledge generated in the site and supporting it by aesthetic literature that frames the experiences systematically. In this loop of knowledge generation we come up with the relevance the ***limit*** has for aesthetic experience. The ***limit*** is represented by the dike in our case study, and the limit, or the dike is an ensemble of ***rhythms***: the rhythms of nature and the rhythm the materiality of the dike provides. We experience all of them on the dike line. The dike itself facilitating the ***murmur of limits:*** metaphor that evokes the interaction, the dialogue the elements and the rhythms of nature establish.

A new interpretation for the dike arises then, not only as the primary safety element in the case of Schouwen Duiveland, but also as facilitator of aesthetic experience. Together with an aesthetic strategy that pleas for contextuality and materiality of the site as departure point, and focusing on the processes and dynamics that conform the landscape, new ways for expressing nature, for enhancing its experience is tackled by means of design.

The design uses metaphors that depart from the study of the site as part of the aesthetic strategy for imagining new ways of perceiving the landscape. Three spots are selected, with different potentials, and following the premise that landscape and aesthetic experiences are embodied, the spots are designed as sequences in which the body encounters nature or its elements, with the dike, always, as main anchor point for experience, or facilitator for experience.

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context of research

there was once open a time

'... An immense peat area that expanded from the sandy soils of Bravant en Vlaanderen until the Northern sea...'

'... In the sea side, some kilometres further than nowadays, a complex of low dunes and beaches...'

'... By the peat, some narrow rivers flowing, inhabited. Only in the seaside and along the small rivers humans were living. By the death of plant material, this peat layer became even thicker along the centuries, resting on a layer of heavy greasy clay, which was deposited some centuries earlier by the sea, hereunder still resting another several meters of sandy layer...'

'... amongst the myriad of those rivers, some islands in the Northern sea, and amongst them, four, Schouwen, Duiveland, Bommenede, and Dreischor'

'... and the eternal battle between nature and man in shaping Zeeland, and Schouwen Duiveland...'

It is this way that this story begins. Nature shaping and outlining back and forth the relief of the islands, humans retreating and inhabiting the land, until the first earth dikes are constructed. The encounter between culture and nature.

The site serves as case study of the perception of nature under contemporary paradigm of ecological restoration.

The coming chapter explains how nature and man have both shaped the island of Schouwen Duiveland, since the first dikes until current ongoing nature development.

✻*Nature and its Storm Surges*

Around ***350 a.c***. the immense peat landscape got affected by a disaster when the sand barrier got broken in several places, allowing the sea to penetrate the area; when the sea interacts with the peat, it crumbles areas deposited by the sea, and large breaches arise then, fetching the underlying clay and part of the sandy layer.

> Deep gullies pushed themselves each flood a bit further in the peat. Due to the ebb current sand, clay and peat were again away. Sometimes when two gullies reached each other a short circuit was created. The peat area was so much superseded in islands that the peat layer was cross-sected by means of a highly branched channel system. This catastrophe was so radical that very few inhabitants remained in the area, except for, perhaps, in the dunes. The land remained inhabited for centuries; and the forces of nature had free play.
> Eventually quieter times came at which erosion was halted. Sand and clay particles were blown by the intruding seawater. As long as there was creek or stream power continued to exist, those were transported further, but when the flow rate decreased, they sank to the bottom; the heavier sandy grains first, the finer clay particles the last.
>
> In the long term, therefore, arose a pattern of sandy and clayey sedimentation on the residual peat remnants and gullies, whereby the small gullies eventually were completely silted, and therefore, again larger contiguous islands arose. Only the broadest gullies remained ultimately, the rest of the gullies becoming smaller and un-deeper. The gullies were filled with sand and sandy clay, the narrowest creeks with fine clay, and the remaining peat areas with a thin layer of the finest particles, therefore, the heaviest clay.
>
> (Beenhakker and Zeeland, 1994)

These dynamics created the type of landscape that is known as ***Old Land,*** along the ***III-VIII*** centuries.

But around ***800 a.c.*** the marshes were growing so far that the land became again more or less habitable. From the edges, therefore, from Vlaanderen and Brabant, men pulled in gradually the area inland with ***'schaapskudden'*** (a large group of animals of the same type that live and feed together, flocks of sheep, herd of sheep); they established their settlements in the most appropriate locations: in the highest areas, and where fresh water was available, in that midst of silted gullies and remaining gullies.

Oudland: Creek ridges and Pool grounds

The ***Oudland*** consists mainly of a variety of ***poel groden*** and ***creek ridges***.
Pool grounds are the original peat areas, laying relatively low and under the influence of salty ground water, in between the ***creek ridges,*** laying higher, and where the presence of sweet water is available.

Creek ridges

Creek ridges arise due to the tidal gullies formed during ***IV-VIII***th century. These consisted mainly of sand or sandy clay, since due to continuous flooding the peat was here entirely, or almost entirely washed away and the gullies were slowly, in time, silted with sandy material. This caused the revearsal of the relief: from being the lowest areas became into the highest ones, with slightly sweeter conditions. They lay higher than the pool grounds and they remain in the landscape as a backbone structure on the land where the oldest paths, farms and settlements were established.

Pool grounds

Pool grounds also arise due to the tidal gullies formed during ***IV-VIII***th century. The peat areas where gullies were not present were gradually also difficult to access due to argillaceous water. Only at very high tides were they sometimes under water and the accretion thus laid behind that of the creek ridges.

Therefore, in between the ***creek ridges*** laid lower stretches of land, with their width ranging from 100 meters to 5-6 km, with a layer of clay of 1-2 meters thick on top of the remaining peat. These low and wet areas we call them ***pool grounds***. This difference in height was furthermore strengthened along time, and the resilient peat was compressed by the overlying layer of clay.

This pattern of ***creek ridges*** and ***pool grounds*** is characteristic for all the old cores of the Zeeuwse and Zuid hollandse islands. And also of Schouwen Duiveland.

(Beenhakker and Zeeland, 1994)

Surrounding the land by dikes: Counteracting nature

Safety was not yet available though: although more rarely, the marshlands were still being flooded. Between ***1000*** and ***1300*** lots of sand was blown from the sea, creating the dunes Kop Schouwen. This is, indeed, the widest dune of Zeeland, with an altitude up to 35 meters high.

But the floods made presence as well during this time. Especially after the flood of ***XIth*** century the inhabitants started to elevate the land artificially in order to place the towns and farms on ***`terpen´*** (`mound´). But the heavy flooding of ***1134*** revealed this elevations not to be safe

600

enough, specially for the lower lying fields. This way, by ***XII th*** century the villages of Zeeland, including the islands of ***Schouwen*** and ***Duiveland*** were surrounded for the first time by enbankments of earth: the ***dikes***. (Bosch and Zeeland, 2011)

This is the departing time and departing landscape on which the inhabitants of Schouwen for the first time did imprint materially their will towards Schouwen and Duiveland, scenifying the eternal battle or struggle between nature and man, starting to turn the four primary islands into ***'the'*** island that remains as ***'the testimony of the lives and works of past generations'*** (Ingold, 2013) and that so magnificently scenifies the definition Naveh (1995) gives for cultural landscapes: ***'the tangible meeting point between nature and culture'***

The construction of ***dikes*** around the existing island or villages started around 1100, and is an activity that still, nowadays continues.

The following pages expose the historical development of ***Schouwen***, ***Duiveland***, ***Bommenede*** and ***Dreischor*** until becoming the current Schouwen-Duiveland (Bosch, 2012).

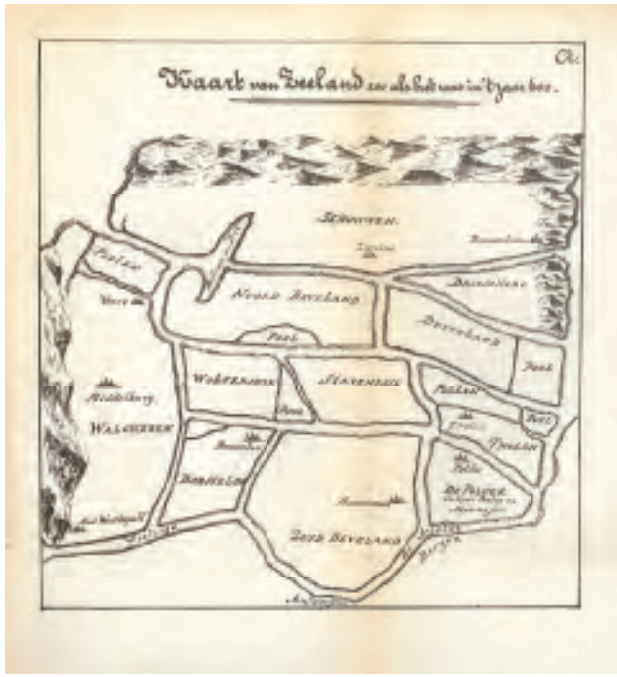


Illustration 1.Overview of Zeeland around 600a.c. (Fokker, 1908).

1274

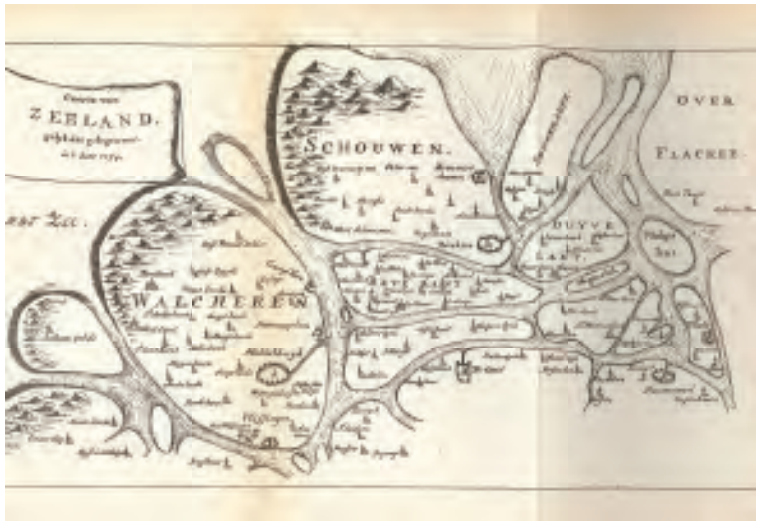
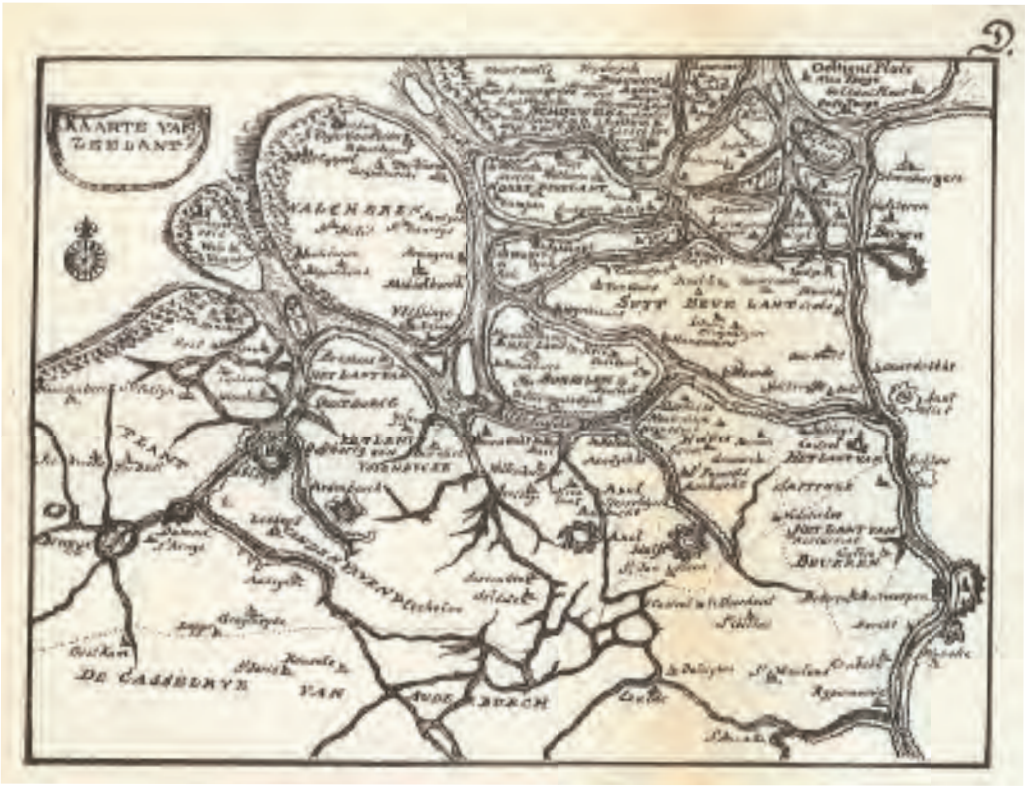


Illustration 2.The islands of Schouwen, Duiveland and Zonnemaere in 1274, surrounded by dikes. Sirjansland and Dreischor still are part of the same island. (Fokker, 1908)

600 a.c.



1274

Illustration 3. View of Zeeland by the same time. It shows a completely different image from nowadays, a land superseded by rivers and conformed by several islands (Fokker, 1908)

Illustration 4. Development of the formation of Schouwen-Duiveland. The drawing illustrates the situation before 1100, between 1200-1500, in 1500, and 1750.

Cultural landscape of Schouwen

*Reclaiming land

The former islands ***Schouwen***, ***Duiveland***, ***Bommenede*** and the island of ***Dreischor*** (see Illustration 3) were made into one island by the draining of inlets and creeks. But this is a process that occurred during a long time span, starting from ***XIIth*** century, until ***XX*** th century.

The flood of ***1134*** mentioned before was the immediate cause for starting to surround the ***Oudland Schouwen*** with ***dikes,*** and finishing in ***1206***. ***A broad low earth embankment*** was constructed from the southern tip of the dune, (see picture 9) through Zierikzee, the current Brouwershaven, back to the northernmost point of the dunes. Eastwards of this dike laid ***The Gouwe*** estuary. This connected ***Oosterschelde*** with ***Grevelingen***. On the other side of the ***Gouwe*** laid ***Dreischor*** and ***Sirjansland***. In the ***XIIIth century*** they formed together an island but due to a dike break Sirjansland was split from Dreischor and the trench ***Dijkwater*** was created (see Illustration 9, below) (Bosch, 2012).

1300.

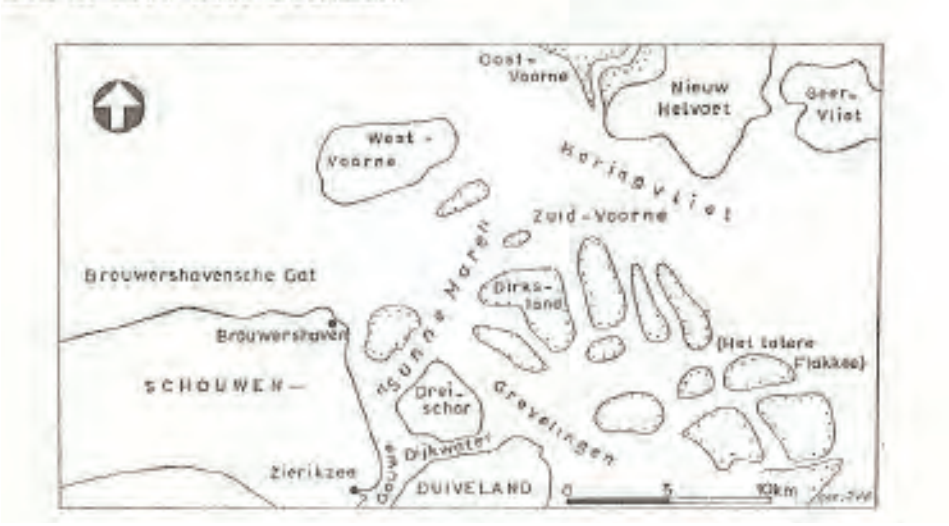
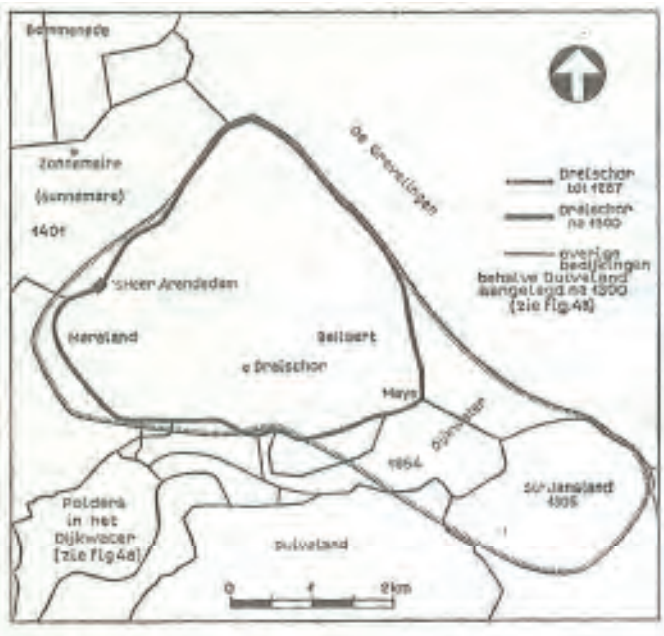


Illustration 5. Situation of the Sunne Mare (Sonnemaire in some other official documents, in the XIIth century. The picture shows the original four islands from which departs the cultural landscape: Schouwen, Duiveland, Dreischor, and Bommenede (name given in official documents). The Gouwe amd Dijkwater remain, with Sunne Mare, as open sea. Due to the very dynamic nature of the area, these shallow waters are reclaimed, not without lost in the process (de Bruin and Wilderom, 1961)



1287- after 1300

Illustration 6. Scheme of the development of Dreischor and SirJansland (de Bruin and Wilderom, 1961)

Until 1287 both Dresichor and SirJansland are part of the same island. A dike break (date not specified) cause them to split, and the so called Dijkwater was created. The endikement followed along time even though they continued to be independent islands, until very recent times, when Dijkwater was closed after 1953.

Along the centuries much land has been reclaimed, but huge amount of land has also disappeared under the waves.

Land has been reclaimed in between the islands of ***Schouwen*** and ***Dreischor***. ***Duiveland*** grew eastward first, and eventually westwards, getting adhered to ***Schouwen***. And thus, they draw on the map a growing pattern.
Nevertheless, in the southern part of ***Schouwen*** the history has gone differently, where land has been lost, and the sea have conquered once and again what man has reclaimed from it, and as it will be shown, it draws a retreating pattern in the landscape.

But we will start by the ***land reclamation***, being faithful to its timeline, and continue with the ***land that has been lost***, until getting to 1st of February of ***1953***, the storm that caused the dikes to fail, the ***delta plan*** that followed as a response to preserve security, and finally, the ***nature development*** that is taking place in the southern coast of ***Schouwen-Duiveland***.

The island of ***Schouwen*** ***before 1274***. It consists of the dunes on the western side, the southern boundary remains farther than the current existing line, and eastward, the first endikement of the island delimits ***Schouwen***.

The map shows the situation around ***1100*** where still remain some marshes in the northeastern side of the island.

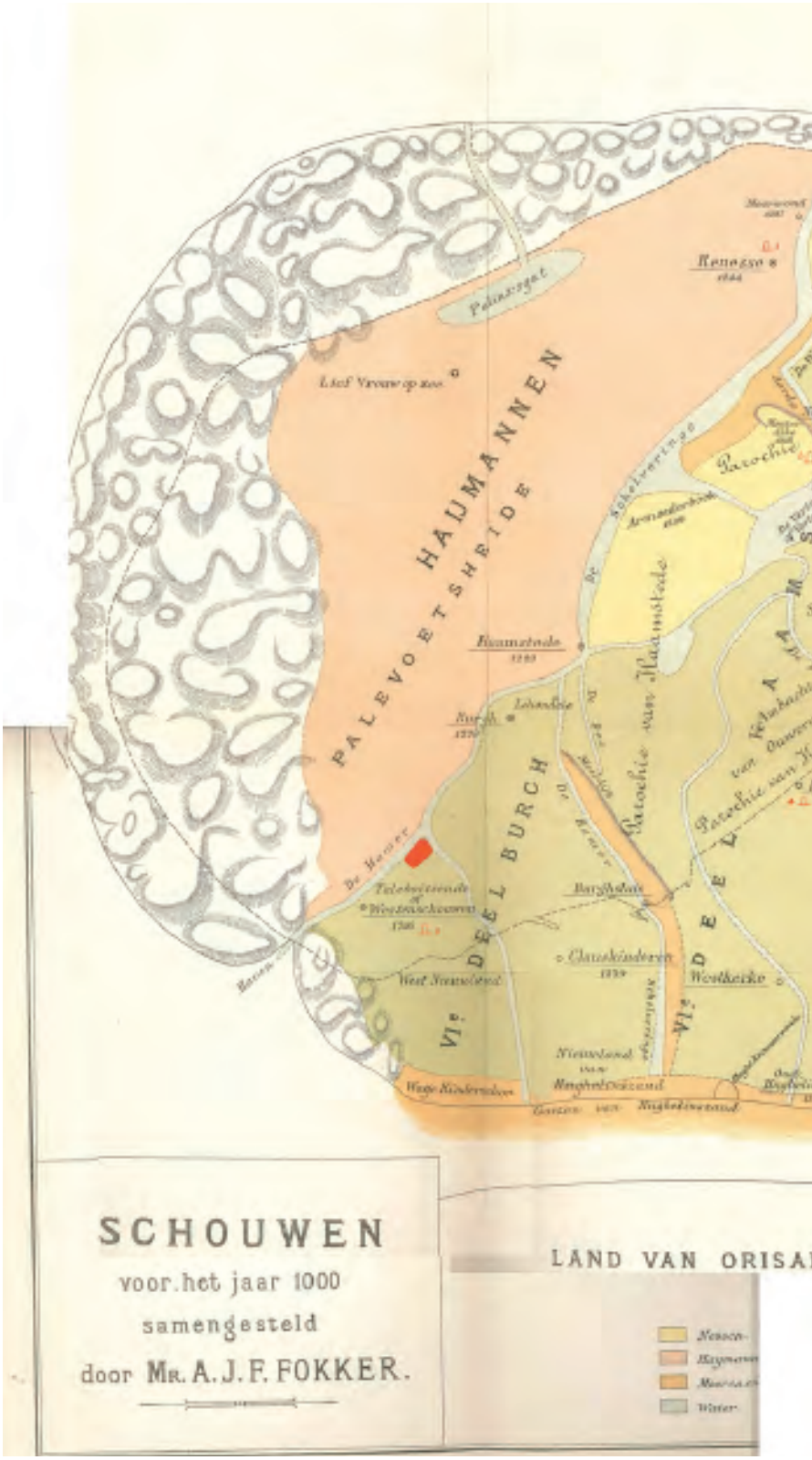
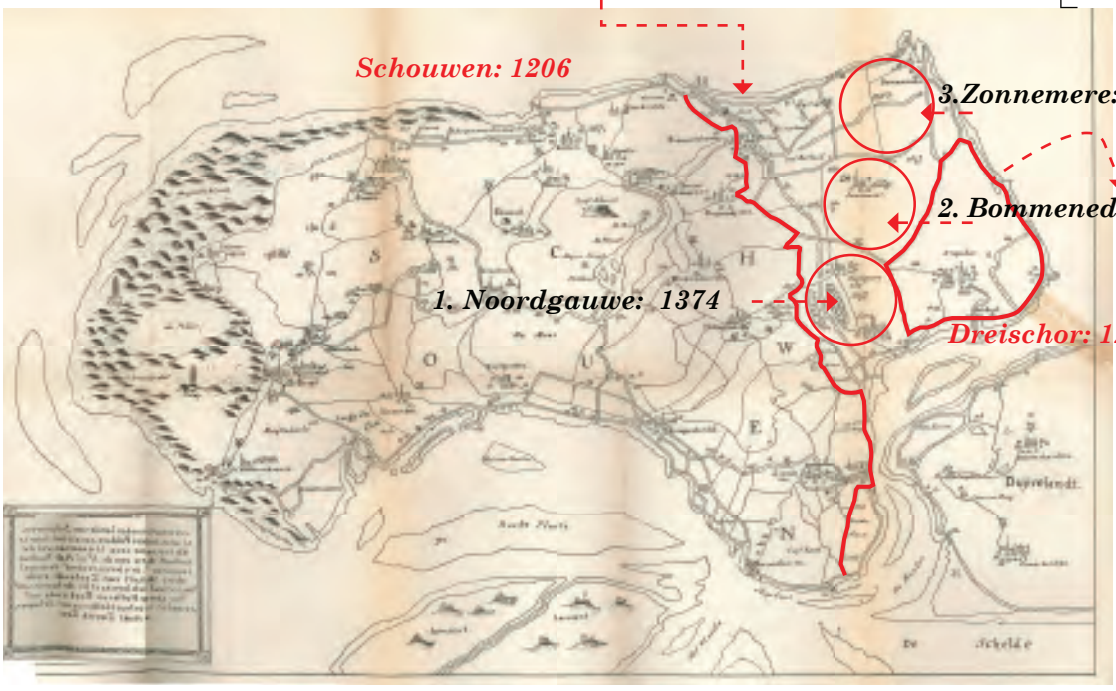


Illustration 7. Schouwen by 1100 (Fokker, 1908)

1532 - 1540

Illustration 8, and below illustration 9. They show the growing pattern of the reclamation between Schouwen and Dreischor (Fokker, 1908)

1532 - 1540



In *1374* the northern part of the ***Gouwe*** was dammed. The ***Noordgouwe*** polder arose and the island was connected to ***Dreischor*** with ***Schouwen***. In *1412*, the ***Zonnemaire*** was reclaimed and it was also connected with ***Bommenede, reclaimed in 1401*** and ***Schouwen,*** endiked since ***1206***. Adjacent to ***Duiveland***, in *1354* the polder ***Oosterland*** was completed. And after this, the polder ***Bruinisse*** in *1468*. This relatively large new land polders have a less turbulent history than many other parts of the island, since the area has only been flooded in *1953* by water from the sea. However, in the course ot time few dikes were constructed, some of which were lost (Bosch, 2012)

Illustration 10. Map showing the situation after 1682. It shows Oosterland reclaimed and adhered to Duiveland in 1354, and Bruinisse, in 1468. Bommenede, the northermost area of Schouwen is drown (Fokker, 1908).

Illustration 8 and 9 on the left page show the land that has been gained to the sea in the period of *1374-1412* (map dating 1532-1540). The map shows how departing from the endiked islands of ***Schouwen (1206)*** and ***Dreischor (1206)*** the land reclamation develops northwards, unifying ***Schouwen*** and ***Dreischor***.

In *1610*, the southern part of the ***Gouwe*** was dammed and thus, the first connection between ***Schouwen*** and ***Duiveland*** was established by means of the '***Steenen dijk***'. The ***Dijkwater*** remained for a long time the further separation between the two islands.
But in the flood of *1682* the island ***Bommenede***, located north of Zonnemaire was lost. Even being fortified, Bommenede drowned, and only part of the former island was once again surrounded by dikes, in *1701*. The town has remained drowned forever.

Inlagen and karrevelden

At places where a deep channel runs along the dike, the danger for dike fall arises. Under certain context (extreme low water by which the counter pressure in the outer side succumbs) the dike can unexpectedly loose balance and subside in the water. The effect is evidently similar to a dike break: in the coming tide the polder can be covered by water.
Restoration in this context is difficult: at the dike a hole has arose and in the sea side there is a deep gully. The new dike, therefore, can only be reconstructed from the inner side.
The places that are sensitive for dike failure are usually well known. In order to prevent this dike failure, these spots were reinforced by means of a dike that was built behind the main sea dike: the ***inlaag dike***. The area between the two dikes is called ***inlagen***. These inlagen are therefore mainly to be found along the ***dikes with a deep foreshore:*** the southern coast of Schouwen is a good example.

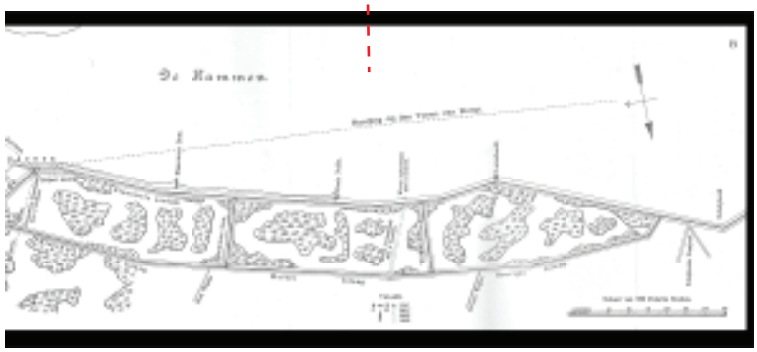
With the purpose of strenghtening the sea dike, from the ***inlaag*** usually clay was excavated, and therefore, many ***inlaag*** are low and swampy. The clay was taken off in agreement, and elongated shallow lakes arose, separated by dams on which carts could ride the removed clay. However, sometimes all the clay was dug; the inlaag then took the character of an inner sea, where the influence of the salt was very large, as it is in ***Flaauwers*** and ***Wevers inlagen*** in Schouwen.

Naturally, this system presented great danger for losing land forever. By each new dike failure the counter pressure was going further and in the polder of ***Schouwen*** a lot of land has been lost in this way (see picture 15). Nowadays rock filling is a good way for preventing dike failure and very rarely occurs. The decrease of such dangerous places has allowed to move from being functional areas to stable ones; therefore many ***inlagen*** have been able to develop towards stable environments.
The character of the ***inlagen*** depends on its altitude of position. If these inlagen consist of high lying ground, they were mostly used as arable land; if they were lying a bit lower, then, they were used as grassland. But, as we mentioned above, there are also inlagen that were lying so low that they mainly consisted of water.

The excavation of the clay behind the sea dike appeared also outside the inlagen. In that case arose wet grasslands with elongated shallow lakes behind the sea dike, but with the only difference consisting of the second dike, inlaag dike, being missing. We speak about the ***karrevelden***, where the clay was excavated and later transported by carts (Bosch, 2012)

1650-1

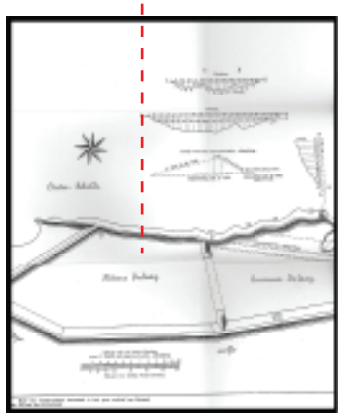
Picture 11.1 Aerial picture of Flaauwer and Wevers inlaag. Source: Provincie Zeeland



Picture 11.2 Flaauwer and Wevers inlaag, contructed in 1650-51. It was broken in 1797, 1801, 1808, 1803 (Fokker, 1908)

1672

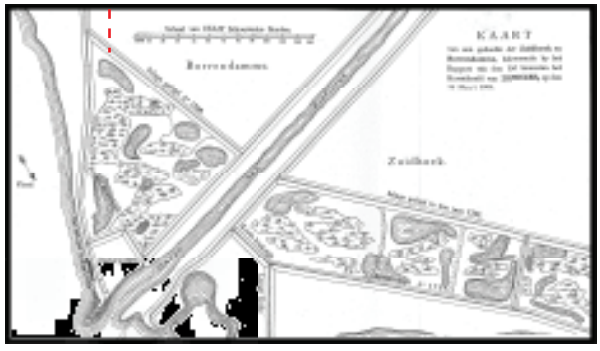
Picture 12.1 Cauwers inlaag. Aerial view of current situation. Source: Provincie Zeeland, 2011



Picture 12.2 Kitsers and Susanna Inlaag. Technical drawings (Fokker, 1908)

1804

Picture 13.1 Borrendamme. Current situation Source: Provincie Zeeland, 2011



Picture 13.2. Cauwers inlaag and Zuidhoek in 1801 (Fokker 1908)

*The old clay landscape

In the middle of the flat and low ***pool grounds*** of ***Schouwen***, next to the mills of ***Moriaanshoofd*** and between ***Zierikzee*** and ***Serooskerke*** lays a small polder area which is ***unique*** in Zeeland: the ***Prunje*** area. This is the only area in the entire province of Zeeland where the ***old blue sea clay*** comes to the surface. At first sight it differs little from the surrounding polders, but exploring it closer it becomes noticeable that the vegetation is here very scarce and salty. This low-laying marshy landscape consists of salty grasslands; trees and shrubs are missing.

In this area originally there existed a peat layer, the one which was flooded in the ***IIIth century***. The deposition of clay didn´t take place in this area, or almost not, because being the center of a huge ***pool ground*** area,the tidal channels did not penetrate that far. The peat lies therefore in the surface. (Beenhakker and Zeeland, 1994)

Moernering activity

The excavation of the peat layer with the aim of turf or salt gaining is called ***moernering***. During and after the ***Middle Ages*** in the largest part of Polder ***Schouwen*** peat was excavated, except for the landscape units in which the clay was too thick. The remaining peat is probably largely disappeared by oxidation.

With the loss of the villages in the southern part of polder ***Schouwen*** (see illustration 16) a lot of peat digging became available. This peat was excavated at low tide and then, at high tide, brought to the coast. These excavations have occurred in ***Schouwen*** at large scale and formed around ***1300*** one of the most relevant foundations on which Zierikzee's prosperity rested.

The peat was sometimes excavated to a depth of one or more meters. In contrast to the rest of the area, where traces of the moernering can be found, in Prunje there are no visible traces of the activity. The almost virtual absence of clay, which in other places was deposited on top of the peat layer, in combination with the very low position of the Prunje, however, indicates that here peat occurred, but that this could have been excavated.

The land surface now in the Prunje is 1.9 meters below sea level, while elsewhere in the heartland areas are up to + 0.7 m NAP. This means that here, in the course of time an average of around 2.6 m of peat has disappeared. The Prunje, due to the ***moernering*** lies so low that the seepage water is easily received.

Therefore the ***old clay*** reveals again on the surface. This heavy clay, as well as the peat has been saturated with salty water, so eventually this is a low lying, salty marshy environment. Before the land consolidation occurred as a consequence of the disaster of ***1953***, this was a poorly unlocked and drained place, very extensively used as pasture area, with very few paths, intersected by meandering locks and with many brackish holes. This was one of the loneliest places of Zeeland. Due to the reallocation the modern familiar pattern of rectangular large plots have been established and has now become

reachable. Due to the improved drainage, it became possible the higher grasslands to be transformed into arable land. The core of the area consists however of very salty grasslands, where much salty vegetation occurs. Still this is a very important resting area for the geese in winter time and a high water refuge for many waterfowls (Beenhakker and Zeeland, 1994).

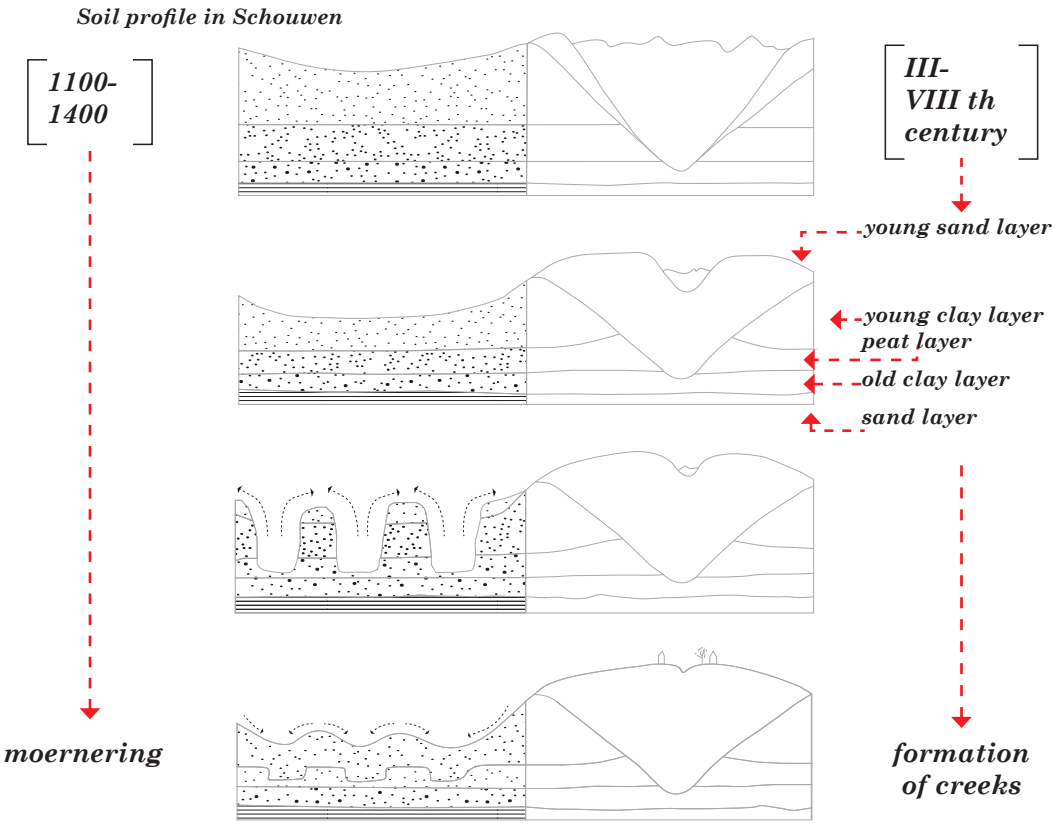
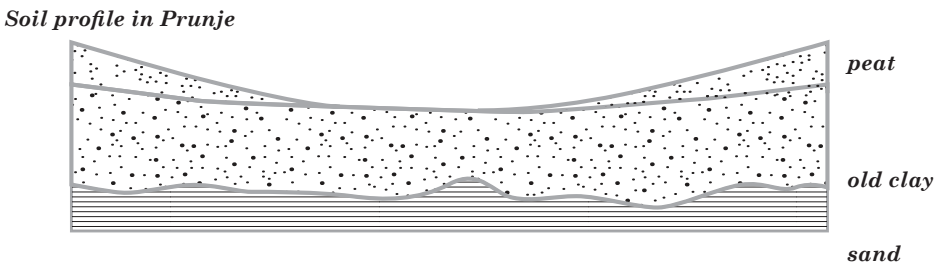


Illustration 14



Picture 14. The process of 'moernering': digging out the peat and the final ondulating landform. Next, the silting of creek ridges, the 'converstion of landscape', showing the height difference . Below illustration 15 with the soil profile in Prunje, Adapted from (Beekman and Zeeland, 1994)

*Loosing land

In the course of centuries due to many floods and dike fall, large parts of the reclaimed land were once and again fallen prey to the sea.

A very tangible and striking reminder of this turbulent history of land and sea is ***Plompe Toren***. On the south coast of ***Schouwen***, in *1475* the seawall laid three kilometers far from the church of the village ***Koudekerke***. The currents in the ***Oosterschelde*** however were very strong and undermined the southern seawall again and again. Time after time parts of the land acquired were lost under the waves.

In *1581* a new inner dike was again built, this time through the village of ***Koudekerke***. The dreaded dike failure did indeed take place, and the inner dike became seawall. Since then, this sea dike has been maintained. A part of the village, however, was lost in the dike failure, and the village church was demolished. Only the tower was not demolished, it continued to serve as a beacon for shipping. The ***Plompe Toren*** now stands lonely on the seafront; nothing is left from the village of ***Koudekerke***; only a new ***inlaag*** lies behind the tower.

It is this way that the south coast of ***Schouwen Duiveland*** contains in its current dike line its own history and story, with strectches of dike belonging to different time periods that draw on it a myriad of numbers, profiles and materials, representative of the battle between nature and man: from *1553-58,* followed by *1581, 1588-91,1650-51, 1662, 1673, 1673-75, 1679, 1726, 1748,* up to *1797* that shape the current main dike line and the second one of inlagen. The ***inlaag*** and ***karrevelden*** are found mainly on the southern coast of ***Schouwen and Duiveland.***

(Bosch, 2012)

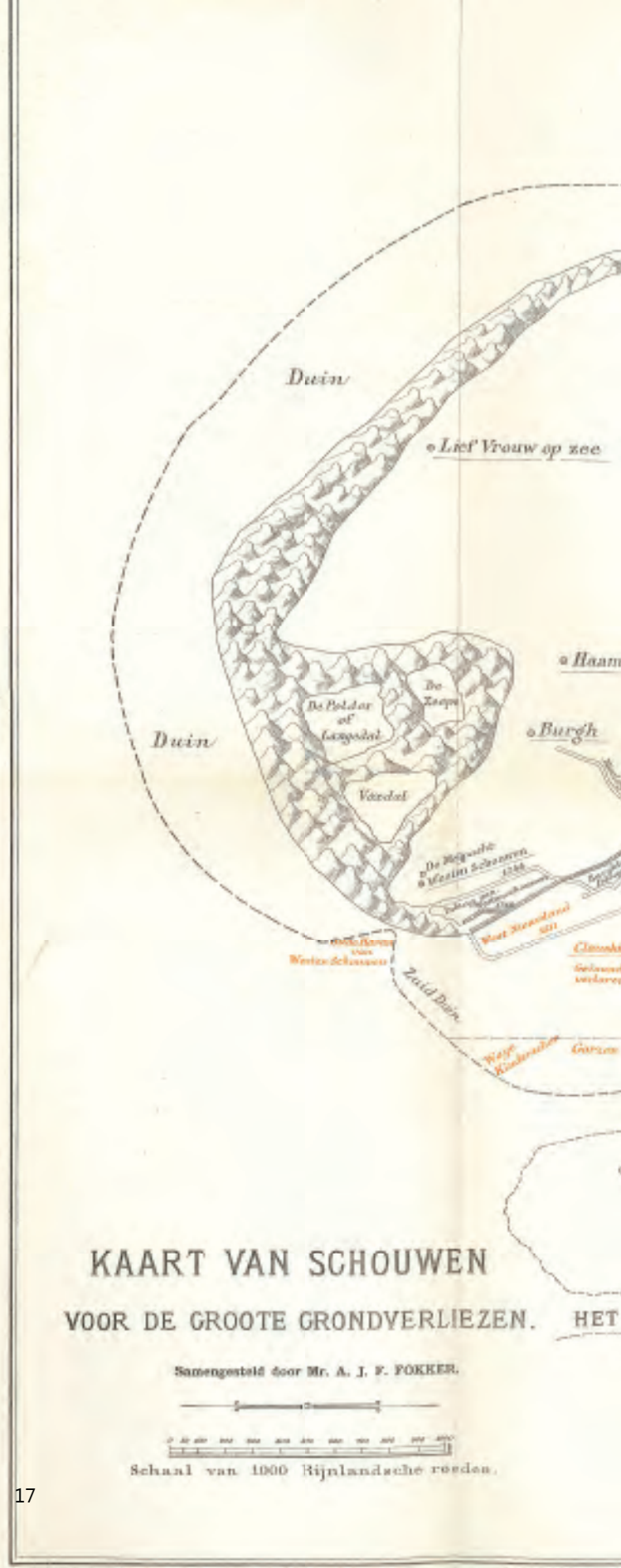


Illustration 16. Map dating from 1834 showing the main dike line and the inlagen. It illustrates the fascinating pattern that clearly links the dynamics of nature and human intention, their battle, and the advance of sea over centuries over land. The construction years of the drown towns and inlagen are legible in the map. source: (Fokker,1908)


HET GAT VAN BROUWERSHAVEN
HET EILAND SCHOU
WESTER VIERENDEEL
OOSTER VIERENDEEL
ZUIDER
DE KEEL
DE ROOMPOT
KAARSBOERS GAT
Groote Plaat
by laag Water boven leggende
maar van opkomde met hoog
Water, van geheele boven water
bleef leggen.
KAARTE VAN
SCHOUWEN EN DUIVELAND
op Ordre van zyne Doorluchtigste
Hoogheid W.C.H. FRISO, Prinse van
Oranje en Nassau, etc, etc, etc.
Aenstondags opgenomen A. 1752.
door de Ingenieurs
D.N. CAREL en ANTH. RATTINGH.
Uitgegeven te AMSTERDAM by ISAAK TIRION 1753.

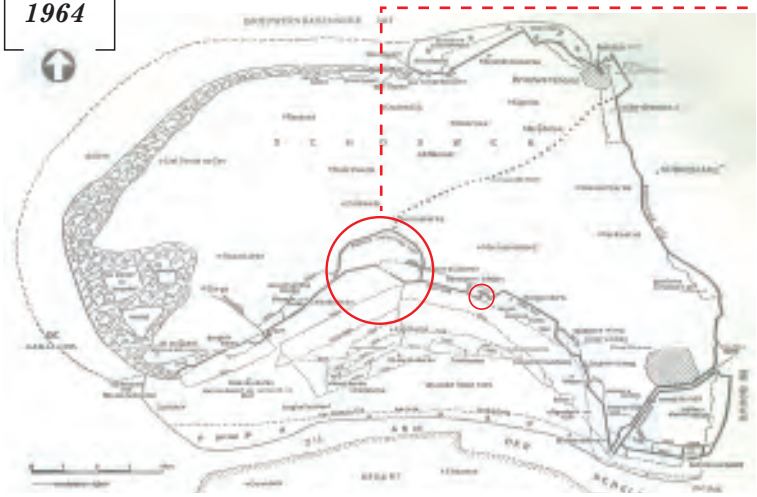
Illustration 17. Schouwen-Duiveland in 1743. The land between Duiveland and Schouwen has been endiked, with inlagen (Hattinga and Hattinga, 1753)

*1953, the disaster of 1st of February and new land allocations

The creeks in ***Ouwerkerk*** and ***'The Schelphoek'*** around ***Serooskerke*** are remnants of the flood of 1st February ***1953***, when during the storm nature took over the dike, causing the dike to break in two spots in ***Schouwen***. The main evidence of these failures is the hole at ***Schelphoek***, which could never be closed and therefore, a ***ring-shaped dike*** was constructed in ***1953*** after the catastrophe.
Over 200 acres of farmland were lost but nowadays almost all the creeks are planted with forest, and they have become popular recreation areas.

1952

1964



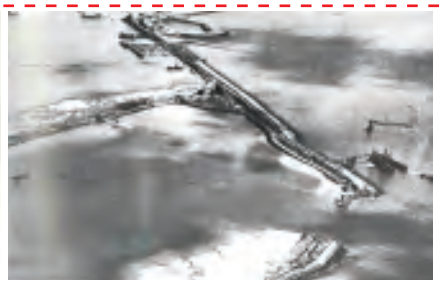


Illustration 20. The dike failure in Schelpoek (Wilderom, 1961)

Illustration 18 above, shows the outline of Schouwen in 1952, before the storm (de Bruin and Wilderom, 1961). llustration 19, below, with inlaage dikes of Schouwen, indicates the dike failures in 1953 (de Bruin and Wilderom, 1961)

The flood of ***1953*** also derived into a new land allocation in which larger plots were established in the landscape, mainly with agricultural purposes. This removed the historical land structure of the island. Below is given an example of the new land allocation in Dreischor. This same disaster was the driving force for reconsidering the enclosure of the sea arms, the so called ***Delta Plan***.

Illustration 21 (left) and 22. Land allocation in Dreischor (de Bruin and Wilderom, 1961)

Illustration 23. Detail of Schelpoek after the dike failure (de Bruin and Wilderom, 1961)

Illustration 24. Current situation of Schelpoek as recreation area.

Under the '***Delta Plan***' the dams ***Brouwersdam***, ***Grevelingendam***, ***Haringvliefdam***, ***Brielse Gatdam*** and ***Oosterscheldekering*** (Oosterschelde barrier) were constructed to close the sea arms. ***Oosterscheldekering***, finalized in ***1986***, is the only one that didn't close completely, meaning that the tidal influence persists. Only under storm conditions is the ***Oosterscheldekering*** closed, dividing the sea from inland. Still, its partial closure has had consequences for the ecological balance of the area, which now suffers from sand hunger due to the reduction in tidal range and velocities.

*Delta Plan

Illustration 25. The Delta Plan projected in 1978 (Hocks et al., 2009)

Oosterscheldekering

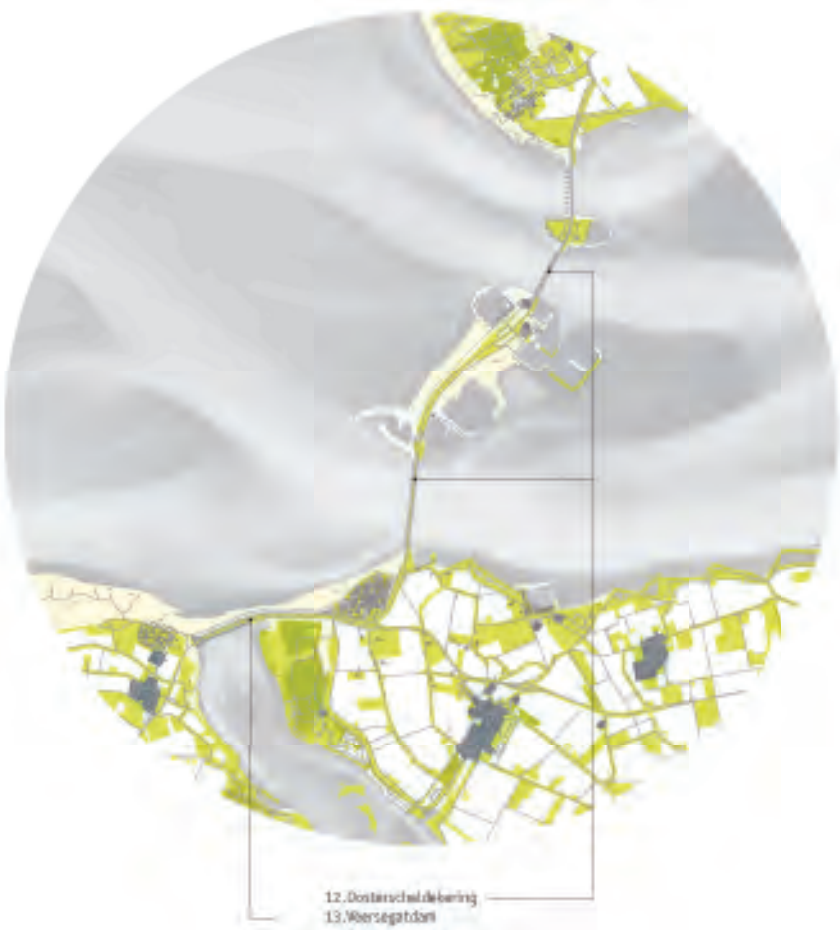


Illustration 26. Detail of the Oosterscheldekering and Veersegatdam (Hocks et al., 2009)

Nature Development: Plan Tureluur

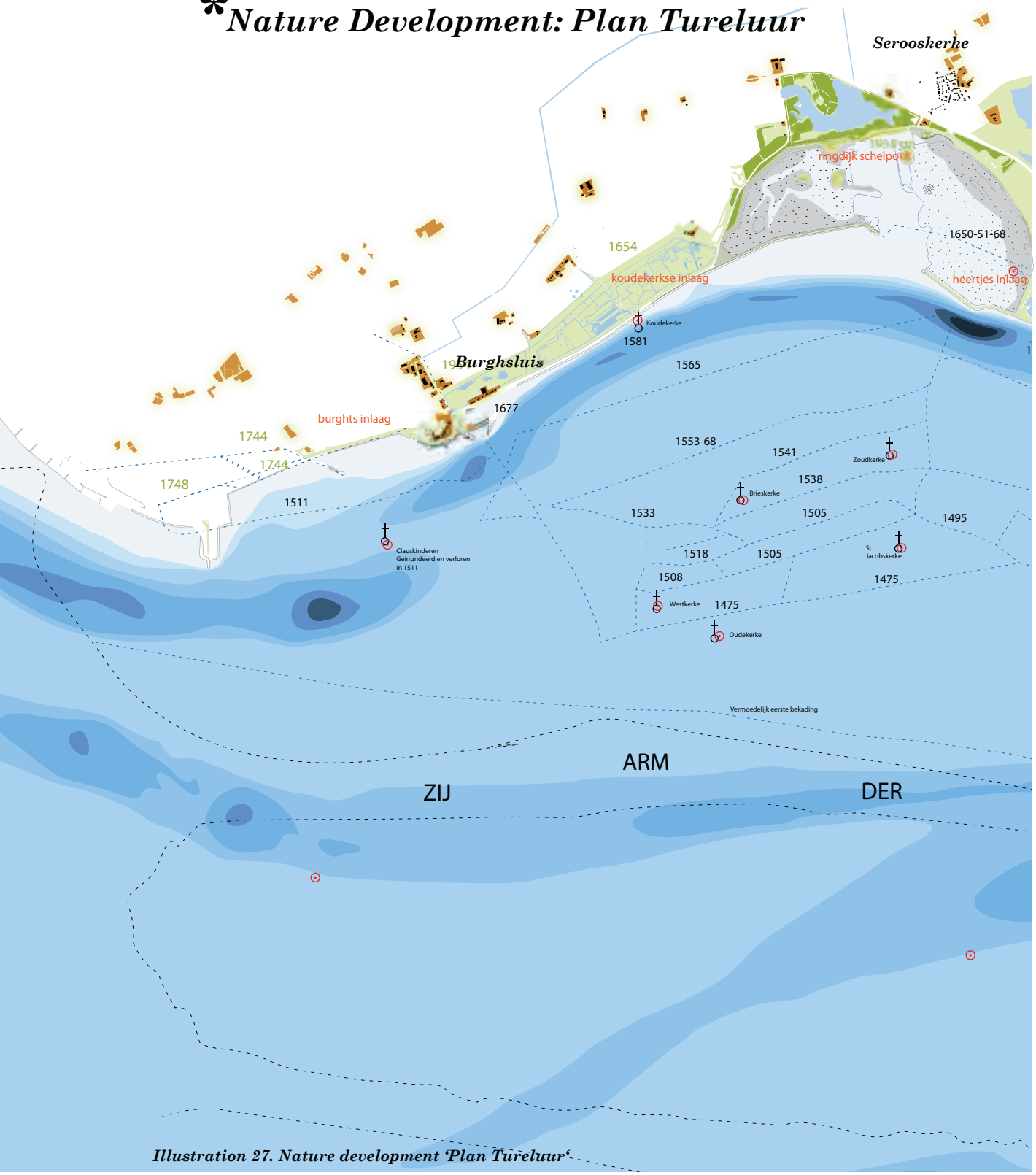
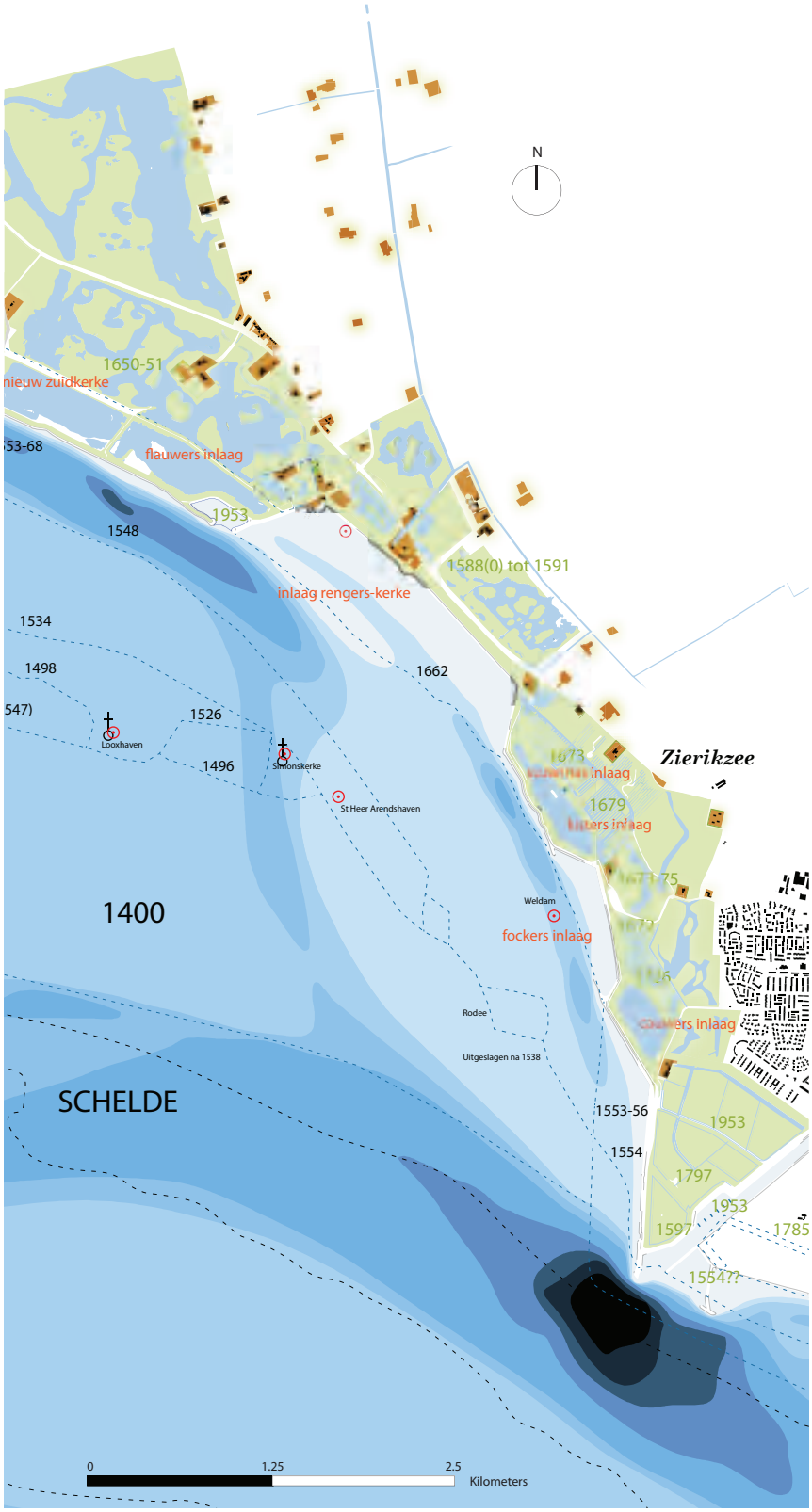


Illustration 27. Nature development 'Plan Tureluur'



Plan Tureluur, a large nature development project around the Oosterschelde is set up in cooperation with authorities and nature managements in order to make space for saline nature along the margins of the Oosterschelde.

The total plan will eventually yield an inner dike brackish marsh of an extensive 1200 hectares along the south coast of Schouwen-Duiveland. Meanwhile, the south coast of Schouwen is acknowledges as part of the European ecological main structure and is an important nature reserve area.

The south coast is included in the limitation of Natura 2000, the European ecological main structure. Construction of inner dike nature reserve areas along the Oosterschelde, preservation of sandbars and marshes against erosion and finally, the conservation of inner dike brackish marsh were important parts of this plan (Provincie Zeeland, 2011)

After the construction, the project area is now characterized by shallow creeks, annual brackish pioneering vegetations (habitat type 1310), salt marsh vegetation (habitat type 1330) and florid grassland. (Provincie Zeeland, 2011; (Beijersbergen and de Maat, 1996)

Illustration 28. ***Composition of pictures of the nature development in Schouwen Duiveland, the study case***

***

The historical development of the landscape explained in the previous pages, with the continuous endikement for reclaiming land, land being lost due to the force of the sea and its storms, the new land consolidation and the construction of the sea barrier has led towards the ongoing nature development in ***Schouwen Duiveland***, to the conditions for its development.

All the events in the past remain still in the landscape of ***Schouwen Duiveland***, both in its appearance and conditions, specially in the southern coast, where nature development is being implemented.

The southern coast of Schouwen Duiveland, with its history, materiality and as encounter between nature and man will serve as testing ground for the knowledge acquired along this research as case study.

***

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chapter 1

Introduction to research

This introductory chapter sets the basis for understanding the research. The chapter, continuing the topic of nature development explained in the former chapter, starts by defining what the aim of current ecological restoration is, a practice that is widely spread in the last decades in The Netherlands, as the facts and numbers of recent studies show; a phenomena that in the Dutch context is called ***'nature development'***.
The chapter continues with this issue by introducing the relevance of ***aesthetics*** within the field, from both ecological restoration and landscape architectural perspective, that leads towards the problem statement explained in ***section 1.2***.

Section 1.3 and ***section 1.4*** set the purpose of this study and the landscape architectural lenses, in order to come up in ***section 1.5*** with the knowledge gap.
This opens the path towards framing the objective of the research in ***section 1.6***.

Aware of the relevance of the worldview for research this is explained in ***section 1.7*** and in ***section 1.8*** the research question, the sub-questions that help in answering the former, and the methods for accomplishing them are described.

Section 1.9 gives an overview of the research and the chapter ends with an overview of the next chapters in the form of a guide to the reader, including the theoretical narrative.

1.1 Definitions and context for ecological restoration

The definition provided by the Society for Ecological Restoration in 1990 (Higgs, 1997) for the practice of ***ecological restoration*** is the next: ***'ecological restoration is the process of intentionally altering a site to establish a defined, indigenous, historic ecosystem. The goal of this process is to emulate the structure, function, diversity, and dynamics of the specified ecosystem'***.
This definition was farther developed in 1995 to state that: ***'ecological restoration is the process of renewing and maintaining ecosystem health'***.

This definition, according to Higgs (1997) is

> 'noteworthy for its detail and attention to the balance of functional repair and structural accuracy. However, it provides no indication of a wider cultural context for restoration practice. The context set by public perception is plainly less important than that which is rigorously determined by scientific methodology'.

A significant focus in restoration, accordingly, ought to be 'bringing back into harmony the relation between sustainable human practices and ecological function', since ecologists miss an important constituency if the role of humans in ecosystems is ignored (McDonnel&Pickett, 1995; Higgs, 1997). Wilson (1991) pointed out that ***aesthetic consideration*** form a major part of people's appreciation of nature and little attention has been given to conceptual concerns about aesthetics in the restoration literature (Higgs, 1997).

What is ecological restoration in the Netherlands?

✻ ***Facts and numbers for the Netherlands National Ecological Network*** (Leistra, 2014)

Ecological restoration in the Netherlands is an ambitious concept. It aims at the sustainable preservation, restoration and development of ecosystems that are of national and international importance.
In 1990 the objective of NPP, the first national policy to focus specifically on the conservation and creation of nature, was to link these reserves into a network of over 700,000 ha – roughly 20% of the surface of the Netherlands – by 2018. This network was to include not only existing nature reserves and forests, but an additional 130,000 ha as well, that needed to be ***'created'*** on land with a different use, mostly agricultural. In order to achieve the interlinked qualitative and quantitative objectives, the NPP spells out the kinds of nature that need to be realized. In this process the so-called nature target types determine the what, where and how of specific kinds of nature (Bal et al. 2001 in Leistra, 2014: 27). Both the NPP and the NEN have a ***technocratic character*** and a ***strong scientific and ecological emphasis*** (Wetenschappelijke Raad voor Regeringsbeleid 1998 in Leistra, 2014:26-7).

What is good ecological restoration ?

* *Ecological restoration practice in ecological field*

> ***'Ecological restoration*** is a practice of ***hope***; restorationists envision a better future as a result of their efforts'.
>
> ***'Ecological restoration*** is a practice of ***faith***; restorationists work in a world of uncertainty'.
>
> ***'Ecological restoration*** is a practice of ***love***; restorationists care about, and give their lives to, efforts that protect and enhance the lives of humans and other-than-human beings alike'.
>
> ***'Ecological restoration*** is a ***human practice***, and because it is, people matter'.

These are the statements written by Egan and Hjerpe (2011:1) reflecting upon the human dimension of ecological restoration. Human intention is a determining factor in ecological restoration, and therefore, the practice is 'inherently ***(1)*** value laden, ***(2)*** context driven, ***(3)*** prone to be immersed in disagreement and compromise, and ***(4)*** experiential' (Egan and Hjerpe, 2011:2). Numerous studies have shown that determining restoration goals and best practices are value-laden activities because they involve human perceptions, beliefs, emotions, knowledge, and, ultimately, behaviours (Gobster and Hull 2000; Bright, Barro, and Burtz 2002; Morford and James 2002; Shindler, Wilton, and Wright 2002, Egan, Hjerpe and Abram, 2011).

Accordingly this involves that:

(1) when ***ecological restoration*** is practiced from a ***strictly scientific perspective***, this is ***problematic***, because ecological science alone fails to capture the full extent of the issues we are trying to solve or that must be bridged in order to reach a science-based solution.

(2) ecological restoration activities take place in ***cultural***, ***political***, and ***economic contexts*** that produce different ***'straints'*** and definitions of ecological restoration. Instead of seeking greater control we must use pertinent strategies, such as the democratic process, inclusiveness, and respecting local values and knowledge. We must also recognize competing land-use views, differing visions of human–nature relationships, and opposing values related to job creation and financing. Working through these strategies can help develop solutions amenable to both nature and humans.

(3) finally, ***human involvement*** in restoration practices is ***experiential*** in both the physical and the psychological sense, making it open for educational possibilities, artistic interpretations, and spiritual and physical renewal. Ultimately, people are innately part of restoration projects as experts, learned amateurs, or volunteers, or as the general public affected by the results of restoration projects.

* *Landscape architectural view for ecological restoration*

'Ecological restoration has strong ties to the design arts, especially landscape architecture' (Egan and Hjerpe, 2011: 10)

As landscape architects we design landscapes for the general public. In this attempt of renewing and maintaining ecosystem health, in Europe the activity is focused on ***cultural landscapes***, according to the Society for Ecological Restoration (2014), 'landscapes developed under the joint influence of natural processes and human-imposed organization'.

Nassauer (1995) argues that there is a difference between the scientific concept of ecology and the cultural concept of nature:

> 'When we identify ecology with nature, we fail to recognize the cultural dimension of our perception of nature as pristine beauty'.

This is certainly not the only view available about nature, the one related to beauty. Not at least in the Netherlands, where research focused on depicting the types of nature that people distinguish and the levels of naturalness ascribed to these types of nature make no reference to beauty, instead, reveal that the cultural concept of nature is related to concepts of ***mastery*** over nature, ***responsibility*** for nature and ***participation*** in nature, with the respective images of arcadian, wild and penetrative nature. And the study shows that the ***responsibility*** and ***participation*** concepts were very high, indicative of a 'new biophilia' mainstream in Dutch culture (van den Born et al., 2001). What is certain therefore is that those visions are not related to ecological values, but to the relationship, as humans, we establish with nature, with emphasis in ***responsability*** and ***participation*** or engagement.
In the attempt of bridging ecology and culture, Nassauer (1995) as landscape architect suggests that if we need to understand ecological function at the scale in which landscapes are constructed and managed, which is the case in ecological restoration, then, human-scale analysis is extremely useful. The reason for this statement is that this analysis places ecological function within the framework of human experience, linking ecology with the cultural concepts we construct about nature. Landscape aesthetics then provides a critical linkage between humans and ecological processes (Gobster et al., 2007).

* *Ecological sustainability*

Much of our response to restoration projects is determined through individual experience; we talk about landscapes that we perceive or experience as pleasing, independent of their ecological value. It implies that landscapes perceived as aesthetically pleasing are more likely to be appreciated and protected than are landscapes perceived as undistinguished or ugly, regardless of their less directly perceivable ecological importance (Gobster et al., 2007).
Aesthetic consideration form a major part of people's appreciation of nature (Wilson, 1991 in Higgs, 1997). And this directly relates to the sustainability of restoration projects. Since restoration ecology, nature development in the Dutch context, is a human practice, it depends on the care and love we profess to them for achieving public support of, and compliance with, ***ecologically motivated landscape change.*** (Egan and Hjerpe, 2011; Gobster et al., 2007)

1.2 Problem statement

If we revise the statement in the previous section saying that determining restoration goals and best practices involve human perceptions, beliefs, emotions, knowledge, and, ultimately, behaviours, we can notice that the explanations given by the developers and managers of the site make little reference to this. They mention the characterization of the nature development by shallow creeks and vegetation types, the aim for space for saline nature along the margins of the Oosterschelde neglecting the inclusion of humans, not to mention aesthetic issues (Provincie Zeeland, 2011; Beijersbergen and de Maat, 1996) (see former chapter, section nature development) And thus, the statement of Leistra (2014) that the approach towards nature development in the Dutch context has technocratic character and a strong scientific and ecological emphasis is sustained. And as a consequence we are indeed missing an important constituency when the role of human in ecosystems is ignored (McDonnel&Pickett, 1995; Higgs, 1997), especially with the remarkable rising levels of nature-friendliness in The Netherlands looking for participation in nature (van den Born et al., 2001).
If we equal ecosystems and nature by omitting its cultural concept (Nassauer, 1995) we are also obliterating the experiential dimension of nature. And we get far in the process of bringing together sustainable human practices, human expectations about nature and ecological function. After all, if ecological recovery is a cultural practice, its support directly depends on the acceptance of the general public.

1.3 Purpose statement

The ***purpose*** of this research is to ***describe*** the ***realm of human experience in the milieu of nature***, in order to make available aesthetic knowledge for future ecological restoration projects. The research will make use of a case study, the southern coast of Schouwen Duiveland, that will serve as the testing ground for the expected sensuous knowledge that will be generated.

1.4 Landscape architectural lens

The ***purpose statement*** leads us to make certain assumptions. Landscape architecture is a holistic discipline that aims to understand the complex relations between natural and man-made systems. The inclusion of the experiential or aesthetic realm asks for defining how the field of landscape architecture understands it in order to proceed with the research. This thesis departs from some assumptions, the ones regarding how landscape, or nature as part of landscape, is experienced.
The phenomenon of perception, including the perception of landscape is not only a visual phenomenon as has been mainly considered until recently. It is an olfactory, tactile and auditory phenomena since landscape is embodied, involving according to Berleant (2004: 84-85) the active presence of the human body in appreciative experience. And this embodiment does imply not only the somatic, since it includes a whole array of factors that are not merely peripheral but that incorporate culture, history, and personal experience (Berleant, 2004: 84-85). This sets a departure point that frames the research.

1.5 *Knowledge gap*

The inclusion of ***human experience*** in the ***ecological domain*** involves to get acquainted with the elements of the landscape that awaken aesthetic experiences: which are those elements of the landscape within the realm of nature, how they express, and how we establish our ***'sensuous encounter'*** with them (Hogart in Pink, 2009:24). Nevertheless this represents already a ***knowledge gap*** within the field of ***landscape*** and ***aesthetics***. Karmanov (2009) states that

> 'despite the relevance of the relationship between the physical properties and the experiential qualities in relation to landscape perception for both the theoretical field and for the practice of landscape design' this has never been thoroughly investigated'

meaning that the theories for both studying this relationship and for translating them as design material are missing. This has also been highlighted within the ecological restoration domain by Higgs (1997), that remarks that little attention has been given to conceptual concerns about aesthetics in the restoration literature.

If from a landscape architectonic point of view landscape perception is ***embodied,*** this narrows down the ***knowledge gap*** for our field of study, focusing, then, on the relationship between the physical properties and the experiential qualities of the landscape, nature in our study, and our body, our embodiment of those. And this includes, as suggested before, theories that tackle with embodiment of nature.

1.6 *Objective of research*

With the knowledge gap mentioned above, the objective of the research then directs towards the next:

> identifying what are the qualitative elements in nature development that influence and can enhance our aesthetic embodiment of nature

being aware that little literature or body of knowledge is available for describing systematically this embodiment, and that the method for accessing sensuous data becomes part of what needs to be researched: how to access sensuous data systematically, and how to represent it graphically. How to describe this experiences, this embodiment of the landscape? What kind of theories are available for studying the embodiment? If landscape is field for action, and embodied, what theories are available for depicting this embodiment?

1.7 Worldview

Although the ***'philosophical worldview'*** (Creswell, 2009) is largely hidden in research, it influences the practice of research. Thus it is necessary to classify the world view. Creswell outlines four ***knowledge claims***: (post)positivist, constructivist, advocacy/participatory and pragmatic knowledge claims (Lenzholzer et al. 2013).

Within those four worldviews the ***constructivist*** is focused on human and culturally grounded perspective, and the attitudes, beliefs, interaction and experiences are the subject of the research; the methods used are open-ended, inductive and interpretive, and as a consequence, the researcher is directly involved (Lenzholzer et al. 2013). The researcher is part of a cultural, sensorial and material environment and acknowledges the context (Pink, 2009: 23).

Although the understanding of the processes and dynamics of the landscape is usually made from a positivist stance, their relevance for this research, in the milieu of nature development remains in their interpretation as theoretical and design material. This research asks for investigating the ***aesthetic components of the landscape and how those aesthetically reveal towards the researcher***, and the ***subjectivity*** is undeniable.

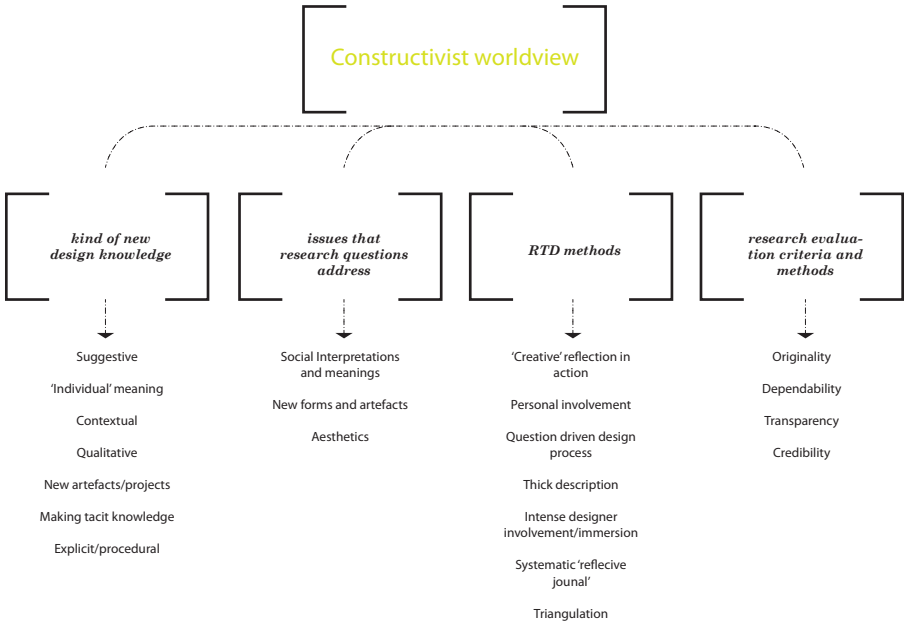


Illustration 1.1. Implications of the constructivist worldview for research. Adapted from (Lenzholzer et al. 2013)

Creswell (2009) mentions within the constructivist worldview the case study as an alternative strategy of inquiry. This is the case for this research, that immersed in the depiction of the ***human experience***, will generate not only general knowledge that can be applied in any context similar to the researched one, but also ***sensuous data*** that is context related, arising from the area itself. With this in mind, the case study becomes as relevant as the theories for studying the human experience of nature. This case study, as introduced in the context chapter, is the southern coast of Schouwen Duiveland and its role within the research will be more extensively explained in ***section 1.8***, devoted to explain the research methods.

1.8 Research question, sub-questions and methods

The research question copes with the issue of ***human experience*** in the midst of the need for including ***aesthetic perception of nature*** in ecological restoration projects, for supporting an ecological restoration practice that counts on a wider acceptation and public support, ensuring that the ***landscape change*** driven with ***ecological intentions*** is both sustainable and successful for the general public.

The main ***research question*** is the next :

> ***What*** consists of the ***aesthetic experience*** having as departure point our body, in relation to ***nature,*** in order to be interpreted as ***design material***?

The following ***sub-questions*** help in giving answer to the main research question, and focus in the ***realm of experience***:

[1] What is human experience of nature in the realm of perception?

[2] What are the qualitative elements that provide aesthetic experience in nature and what are the current experiences that evoke those elements in the nature development in the south coast of Schouwen Duiveland?

[3] How those qualitative elements can be interpreted as design material in order to enhance the experience in Schouwen Duiveland?

And since little body of knowledge is available for accessing sensuous data, still remains a ***method-driven sub-question*** that complements subquestions [2] and [3]:

[4] What method is appropriate for accessing and generating sensuous data?

Research methods

A qualitative research process is often an emergent process, as Creswell (2009) states. This means that the initial plan for research cannot be tightly prescribed and that all phases of the process may change or shift after the researcher enters the field and begins to collect data.

This has also happened during this research. But first we will explain the methods we will use in order to give response to the sub-question, so that altogether the main research question can be answered. Each of the questions will be accessed by specific methods and the following paragraph will clarify this.

The first sub-question will be accessed by literature that studies on the one hand how our body experiences the environment, aesthetic literature that focuses on perception, and more specifically in perception of landscape. The landscape architectural lens will need to be widened, since the study of perception per-se is not expertise field of lanscape architecture. The study of nature, on the other hand, will also ask for the study of literature that focuses on nature not as an ecological phenomena alone, but as provider of aesthetic experience. The link between both of them is expected to give answer to the question.

The second subquestion will ask for starting to focus on the site and will require three steps. First step will be to study the maps deeply, including the history and the historical landscape formation, as well as the current nature development. In order to get acquinted with the new development, experts and locals of the area will be interviewed, since they count on relevant site related knowledge barely accessible by documents. Those interviews will be prepared in advance but they will make room for the unexpected information that will come from the interviewees. Secondly, literature also will be accessed, literature that explains how nature is perceived in Dutch society since the case study is located in The Netherlands and literature that talks from a more generic perspective about nature and humans, so that in advance we can have a conception of what we can encounter in site in terms of sensuous data. This last step will be guided towards the the third step, field trips, that will be essential for giving answer to this question, observing the site, walking along it, making notes of what we are experiencing, sketching, making pictures and recording.

The third question will intend to link the sensuous data generated by means of the field trips with the previous map study of the site. This will be a very open and iterative process, that of thinking of the materiality of the experiences obtained in the site: it will require the analysis and systematic translation of the sensuous data and the establishment of its relationship with maps. Nevertheless, literature study is foreseen for this task: both from theoretical and representational perspective. Theoretical, in order to ground the needed link between materiality and sensuousness of the landscape, the knowledge that cannot be sustracted only by maps, in the attempt to give response to how interpret sensuous data as design material. Representational, in how to translate sensuous data into a format representative of lanscape architecture, most likely maps, but may new ways of representation arise that can be more accurate for the purpose of interpreting them as design material. Once this link is done, then data will be ready to be interpreted as design material from both theory and representational perspective.

The last question, which was ***method driven*** is already linked to and embedded with the former sub-question. Immersed as we are in qualitative research, the methods of inquiry direct towards descriptions, observation data, text and image analysis, about interpretation of patterns (Creswell, 2009). But as suggested before, the translation of sensuous data so that it becomes representative of the site remains a challenge that will form part of the research. This gap will be best nourished by the study of similar landscape architecture projects and their representation, or projects far from the field of landscape architecture but dealing with the sensuousness of landscapes, or even other art disciplines.

The design process will bridge the sensuous data generated in relation with the materiality of the landscape, the source for aesthetic experience, by designing, sketching, sketch and design again, in an iterative process of fitting appropriately the theory in a process not linear in character, with the design as the culmination.

For this the research will make use of a case study, as we have stated before, the southern coast of Schouwen Duiveland.

Case study

Schouwen Duiveland is the northernmost island of the province of Zeeland. Schouwen Duiveland is not only interesting due to the current ongoing nature development, but also due to the dynamics that have conformed the land. Human intention fighting the forces of nature has shaped the island, and still continue to do so.

The flood of 1953 caused a huge disaster in Schouwen Duiveland, almost disappearing under the waves. As a consequence, a large land allocation took place. And after this event, the so called Delta-Works were created, with the enclosure of the sea arms. And since 1990, a new context has arose in Schouwen Duiveland, which has driven the ***ecologically motivated landscape change***.

Context for ecologically driven landscape change in Schouwen Duiveland

* The ***Oosterscheldekering***, finalized in 1986, is the only dam that remains opened allowing the entrance and retreat of the tides. Partly due to the rapid recreation development, which today is still a major economic boost, makes the island Schouwen-Duiveland now known for its wide beaches, large marinas and his monument wealth (Provincie Zeeland, 2011)

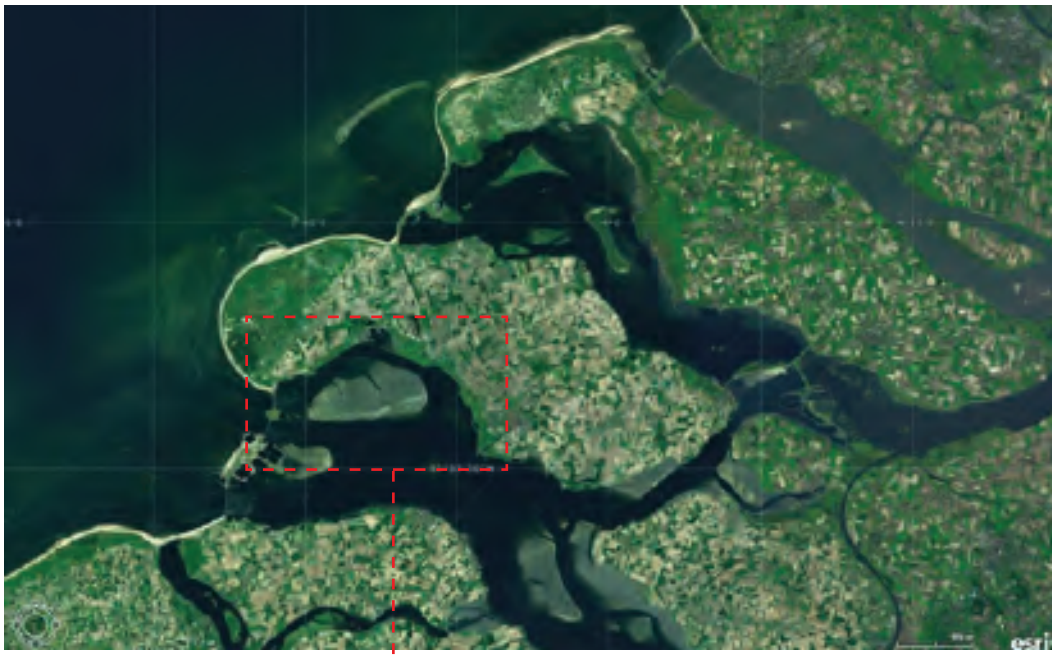
* The construction of the ***Oosterscheldekering*** had consequences in the equilibrium of the sedimentation and erosion patterns, with decreased tidal range. The mudflats are being eroded due to the unbalance between decreased current velocities and the size of the tidal channels. Land was and is therefore disappearing, and with it, natural values are being lost (Huisman and Luijendijk, 2009).

* Increasing problems with salinization in the area, with the seepage through the sea being more and more intense, and indeed being expected to be even more intense due to climate change, agricultural activity was not any more possible (van Baaeren and Harezlak, 2011).

* The recovery of the natural values due to their loss after the construction of the Oosterscheldekering together with the increase of the salinization and the problems it was causing in agricultural production led to the development of new nature, that indeed, works as compensation measure for the lost natural values.

The character of the new development is technocratic, with the focus on recovering the dynamics existent in former times. The reference image used is the one pointing to a 12th century situation: a medieval inner dike brackish marsh with creeks, saline and flowery grasslands. All of this is influenced by saline groundwater from the Oosterschelde. Through the project it was intended the original creeks, brackish marsh and sandbars to be visible again. The root vole, terns, waders and geese are the most important animal species for which the area is set up. Among others, summer birds like the avocet, the common tern and the arctic tern are also expected (Beijersbergen and de Maat, 1996).

As mentioned before, the southern coast of Schouwen Duiveland will serve as testing ground of the theories and knowledge generated.



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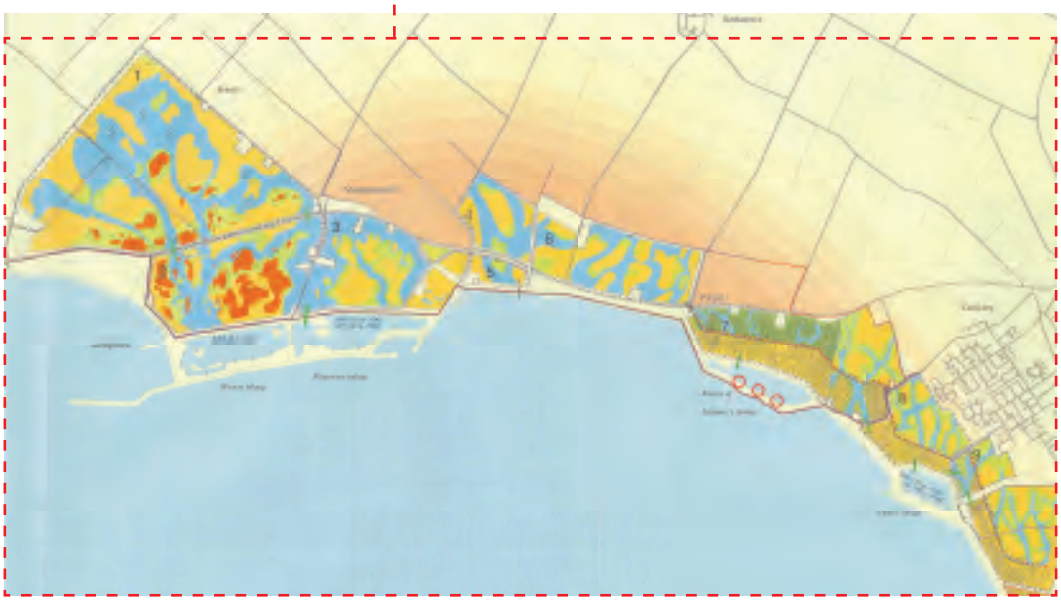


source: (Beijersbergen and de Maat, 1996)

1.9 Research structure

* Research purpose

The ***purpose*** of this research is to ***describe*** the ***realm of human experience in the milieu of nature*** in order to make available aesthetic knowledge for future ecological restoration projects, and to ensure their public acceptance and their sustainability.

* Research objective

To identify what are the qualitative elements in nature development that influence and can enhance our aesthetic experience of nature

* Knowledge gap

The lack of knowledge identifying the relationship between the physical properties and the experiential qualities in relation to landscape perception for both the theoretical field and for the practice of landscape design

* Research question

What consists of the ***aesthetic experience*** having as departure point our body, in relation to ***nature,*** in order to be interpreted as ***design material***?

Sub-questions:

[1] What is human experience of nature in the realm of perception?

[2] What are the qualitative elements that provide aesthetic experience in nature and what are the current experiences that evoke those elements in the nature development in the south coast of Schouwen Duiveland?

[3] How those qualitative elements can be interpreted as design material in order to enhance the experience in Schouwen Duiveland?

And since little body of knowledge is available for accessing sensuous data, still remains a ***method-driven sub-question*** that complements subquestions [2] and [3]:

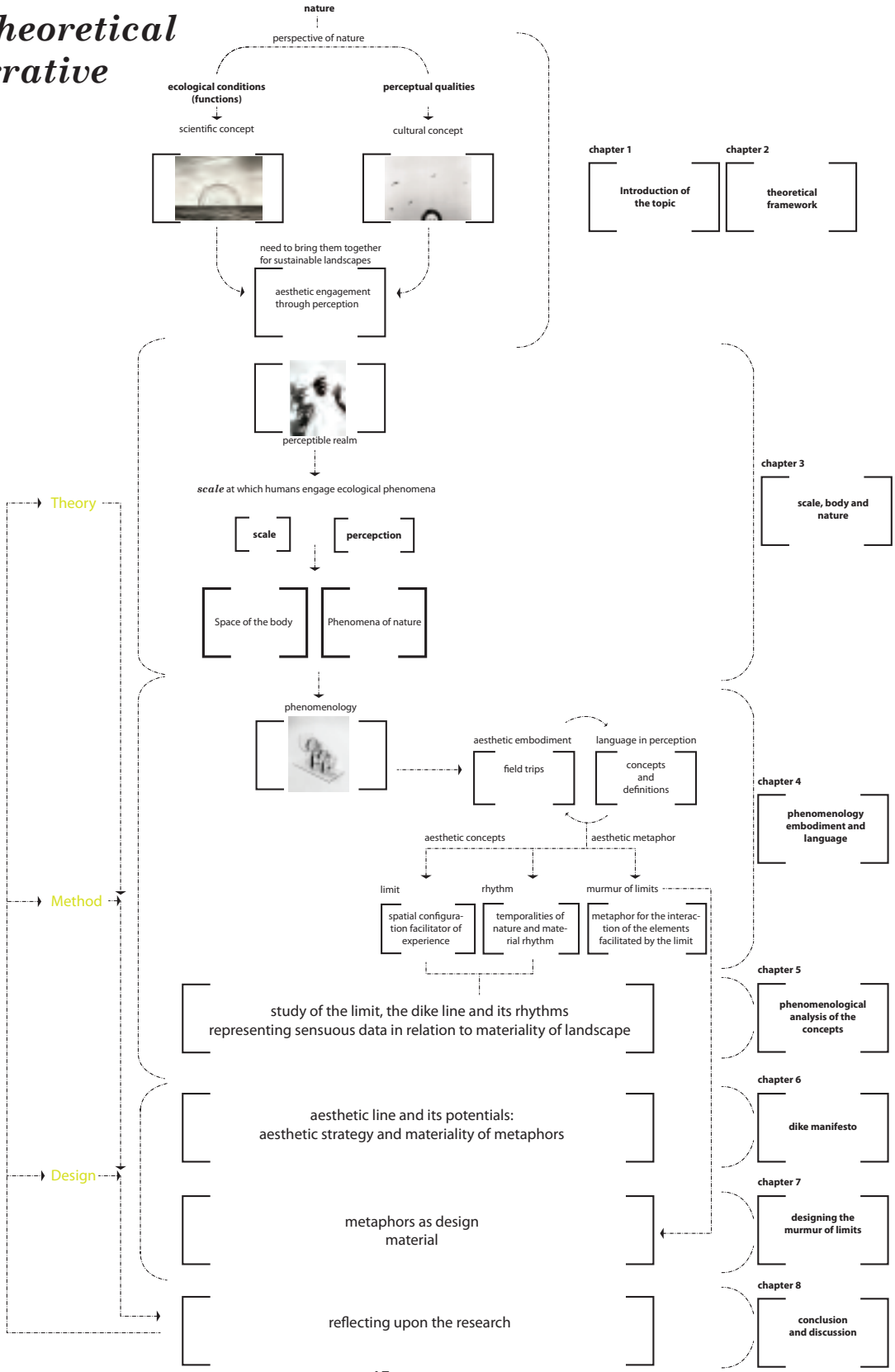
[4] What method is appropriate for accessing and generating sensuous data?

* Guide to the reader

In this chapter has been introduced the topic of the ***realm of human experience in the milieu of nature***. The problem and the purpose have been explained, the knowledge gap detected, the architectural lens to the problem explained, the worldview revealed, and the research question together with the sub-questions and expected methods specified.
Chapter 2 is devoted to the theoretical framework. It explains the theoretical foundations of this research, its assumptions including its architectural lens.
Chapters 3 departs from the attempt of depicting the ***perceptible realm,*** the ***scale*** at which humans engage with environmental phenomena, and it studies the body and its tactile space, linking to what kind of space our body generates in the midst of nature, by studying how nature expresses to our senses. ***Chapter 4*** follows with introducing phenomenology as the method for accessing and acknowledging the sensuous encounter established between our tactile space and phenomena of nature, and highlights the relevance of language in the process of perception, making the proposal of two aesthetic concepts that help in framing, by means of their definitions, the sensuous encounter: ***Limit*** and ***Rhythm***, delimiting spatially the study to the dike line as representation of the limit.

Chapter 5 continues with the extensive phenomenological analysis of the aesthetic concepts in which landscape, under phenomenological lenses is unveiled in sequences, and the dike line studied, both its dynamism and its relief, depicting systematically the sensuous encounter in the southern coast of Schouwen- Duiveland, linking it to its materiality.
Chapter 6, with all the phenomenological knowledge acquired explains the opportunities for a new dike line imbued with human scale. ***Chapter 7*** deals with the design, by explaining the design strategy, the intervention areas, and eventually, the design proposals. ***Chapter 8*** concludes with an overview of the research process, reflecting upon the constraints of the research, as well as upon the knowledge generated.

✻ *Theoretical narrative*



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chapter 2

Theoretical framework

The aim of this chapter is to clarify the landscape architectural lens used to ***approach*** the topic and to give an overview of the ***theories*** utilized during the research.

The chapter starts with an exploration of the terms landscape and nature in ***section 2.1***. This paragraph will show how landscape is approached within the field of landscape architecture, and ***section 2.2*** will explain the landscape models that serve as departure point for the research.

Section 2.3 discusses the landscape approach to ecological restoration in the attempt of bridging the gap between ecology and culture and its implications from a landscape architectural perspective.

Section 2.4 depicts what signifies this for landscape architects, exploring the possibilities that ecological restoration brings for landcape designers.

The chapter continues with ***section 2.5***, an explanation of how aesthetics has been approached historically, what are the current theories of appreciation of nature, and how those relate to the particularity of the site; eventually, it shows the ***aesthetic strategy*** chosen for this thesis.

Section 2.6 gives then an overview and a conclusion that summarizes the premises that drive the research, giving a final explanation of what landscape means for this thesis, what the landscape approach is, and which aesthetic strategy supports it.

2.1 Definition for approaching the phenomenon of landscape

Talking about Landscape

'What is then this thing or event called ***landscape***? The concept remains elusive and multifaceted, refusing to be closed. That its definition cannot be closed indicates that any scientific monopoly in its claim for knowledge is impossible' (Koh, 2013: 8). The same occurs when we try to give a definition for '***man*** and ***nature'***. According to Tuan (1970: 1), rather than being a discipline that belongs to any specific body of knowledge, 'it is a fundamental concern and as such, there can only be perspectives, elucidation and illustrative instances'. Many disciplines have studied the phenomenon of 'man and nature', from philosophers, biologists, anthropologists, to historians of ideas, art historians, and literary critics, each of them exploring the issue from their specific and particular perspective.

Still, aware of the complexity and openness of these terms we can look back to the etymology of these words. We start by landscape, which originates from the Dutch words 'land' and 'schap'. Vroom (2006: 177) defines 'land' as 'a territorial entity to be analysed objectively in its components, such as soils, water, vegetation and land-use'; 'Scape' is defined as 'the landscape of our daily living environment (...) what we see, with its meanings, and also with its stories of the past and the present, which raise our expectations and emotions'.
New meanings for landscape are evolving however, landscape is now understood as agent for change, a ***field of potential*** (Koolhaas, 1995), ***mat*** and ***matrix*** (Forman, 1995), ***thick surface*** (Allen, 2011), ***language*** (Spirn, 1998), and most of all body or ***embodied experience*** (Berleant, 2011) (Koh, 2013: 8). 'As long as the role of landscape changes and new challenges are faced by culture and society' (Koh 2013: 9) new definitions continue to evolve, and this enrichment of the vocabulary suggests new potentials for framing theoretically the term of landscape.

Talking about Nature

Talking about ***nature***, the most inclusive sense of ***'nature'*** is the ***'physis'*** of the pre-Socratic Greeks: it designates the All or Everything. For George Santayana nature is the 'public experience ... the stars, the seasons, the swarm of animals, the spectacle of birth and death, of cities and wars ... the facts before every man's eyes'. There are certainly many definitions for nature, but despite all the possible definitions, the most popular employ of the word ***'nature'*** in modern times is as a 'catch-all' term for everything that is not regarded as man-made (Tuan, 1970: 3).

To summarize, the distinction between ***landscape*** and ***nature*** relies on nature being considered untouched by humans, despite the fact of existing few places under that condition in contemporary society (Naveh, 1995). This suggests that nature is an interpretation or a generated concept. And still, beyond the interpretations, values, images and ideas the concept of nature involves, nature is subjective and emotional (de Groot, 2003; Tuan, 1970: 3).

To give a clear definition for ***landscape*** and ***nature*** at this stage is yet not possible.
The definition of ***landscape*** is closely tight to the interpretation we are able to instil to it.

The specific definition landscape acquires in this thesis is developed along the research process, both shaped and enriched by the theories that conform the theoretical framework. Therefore its meaning will be revealed by means of the explanation of the theories.
Still, we need a departure point for starting my exploration. Landscape models are a tool for framing the way in which we understand the landscape. Wageningen University has developed different landscape models that help in this difficult exercise of understanding and analysing the landscape, which are the core of this research thesis since they serve as departure point for the theoretical foundation.

The next section will explore the most important models for this thesis: the ***Triplex model***, the ***Socio-physical organisation model***, and the ***Intertwining triplex and socio-physical organisation model***.

2.2 *Landscape Models*

The Wageningen approach to landscape has primarily been formed by Kerkstra and Vrijlandt. They have defined landscape as ' the visible result on the surface of the earth of the interactions between man and nature' (Kerkstra and Vrijlandt, 1988 in Duchhart, 2007: 16).
The ***triplex model***, as developed by Kerkstra and Vrijlandt in the 1980's shows the interactions between human and nature in a three-layered model, consisting of an anthropogenic, biotic and abiotic layer (illustration 2.1) (Duchhart, 2007). As Kerkstra and Vrijlandt state, humans continuously influence their environment, but also the other way around, humans are dependent on nature for natural resources such as water, food, and fresh air. Landscape is the visual result, a snapshot at a certain moment of time, of this continuing process of change (Kerkstra et al., 1976).

[***Triplex model***]

Illustration 2.1. The triplex model with the abiotic, biotic and anthropogenic layers

[***Sociophysical organization model***]

Also in 1980's Kleefmann introduced the sociophysical organisation model that refined the influence of society on the landscape (illustration 2.2) (Duchhart, 2007). Kleefmann's model is more focused on processes and systems rather than the more pattern oriented triplex model. In Kleefmann's model the appearance of the landscape, also called sociophysical organisation, is determined by the interaction between the natural organisation and the social organisation: the two basic regulating principles of the model. The natural organisation contains an abiotic subsystem (representing inanimate nature) and a biotic subsystem (representing living organisms). Kleefmann sought for a more sophisticated approach to the anthropogenic layer: he emphasized the driving forces behind the factors that form the landscape. Subsequently, he defined the society as a social organisation with three subsystems: the economic subsystem (representing the organisation of production), the cultural subsystem (representing the shared pattern of norms and values), and the political subsystem (representing the intermediary between the two foregoing subsystems).

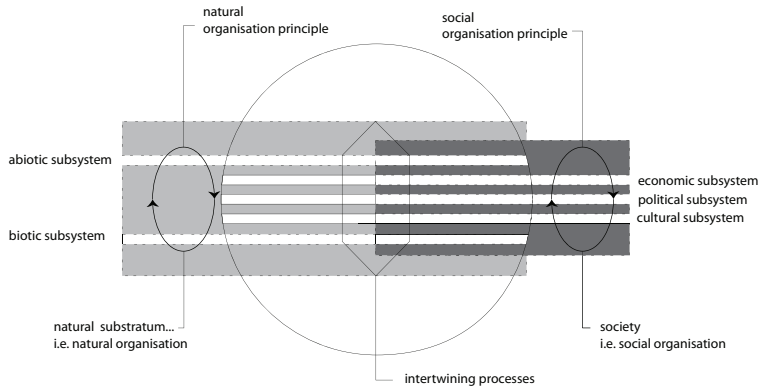


Illustration 2.2. The sociophysical organization

Intertwined triplex model

In 2007 Duchhart proposed a modified model, combining the triplex model and the socio-physical organisation model (illustration 2.3). In Duchhart's opinion, the theoretical notions behind both the triplex model and the socio-physical organisation model are complementary. Both models take the interaction between the natural landscape and the society as departing point for their exploration of the landscape. But, where the triplex model is strong in the description of the landscape in physical and tangible terms (pattern oriented), the socio-physical organisation model focuses more on the driving forces behind the factors that form the landscape (process / system oriented). Duchhart therefore proposes an intertwining model, in which the two are combined (Duchhart,2007).

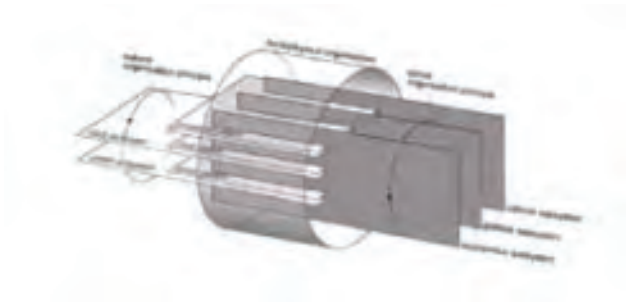


Illustration 2.3. Intertwined model

Conclusion

The ***landscape approach*** of Wageningen University forms a good foundation for the exploration and understanding of the complex whole that is called ***'landscape'.*** In the introduction of this paragraph we stated that landscape is not easy to define. However, with the help of several models, we can start by saying that ***'landscape'*** is the result of the continuous interaction between ***nature*** (natural organisation) and ***culture*** (cultural organisation). This theoretical idea is the basis for the approach to nature development in Schouwen-Duiveland.

2.3 Landscape approach to the practice of ecological restoration in nature development

Ecology and Culture

'With the changing role of landscape and the new challenges faced by culture and society, our epistemology and theory of knowing follow it' (Koh,2013: 9).

In view of accelerating biological and cultural landscape degradation, the need to protect and maintain ecological health, diversity, and ecosystem services in all types of landscapes is widely accepted. This asks for a better understanding of interactions between ***landscapes*** and the ***cultural forces*** driving them, essential for their sustainable management (Naveh,1995; Gobster et al. 2007).

Current projects aiming new nature development have enhanced the ***ecological function*** of the landscape, stating that the options that determine such concept are in relation to biotic and abiotic thresholds (Hobbs, 2001). In reality, the practice of landscape restoration is as much a ***cultural activity*** as any other human endeavour (Van Diggelen, 2001). As Higgs (1997) has compellingly argued, '***good restoration requires a view expanded beyond the technical to include historical, social, cultural, political, aesthetic and moral aspects***'. Indeed, we are not just looking for a technological nature, but nature that is a counterpoise to technology. According to Higgs (1997), '***aesthetic experiences***'... and therefore, principles guiding them, '...are important in nature restoration to such extent that they enhance public acceptance of restoration'. And, as Berleant states, if we want 'to include the diversity and range of ***experience of nature***, then the concept of ***landscape*** needs to be stretched in many directions:

from ***object*** to an ***area***

from a ***visual experienc***e to a ***multi/sensory*** one

from ***natural scenery*** to the whole range of ***human-made transformations of nature***

(Berleant ,2011)

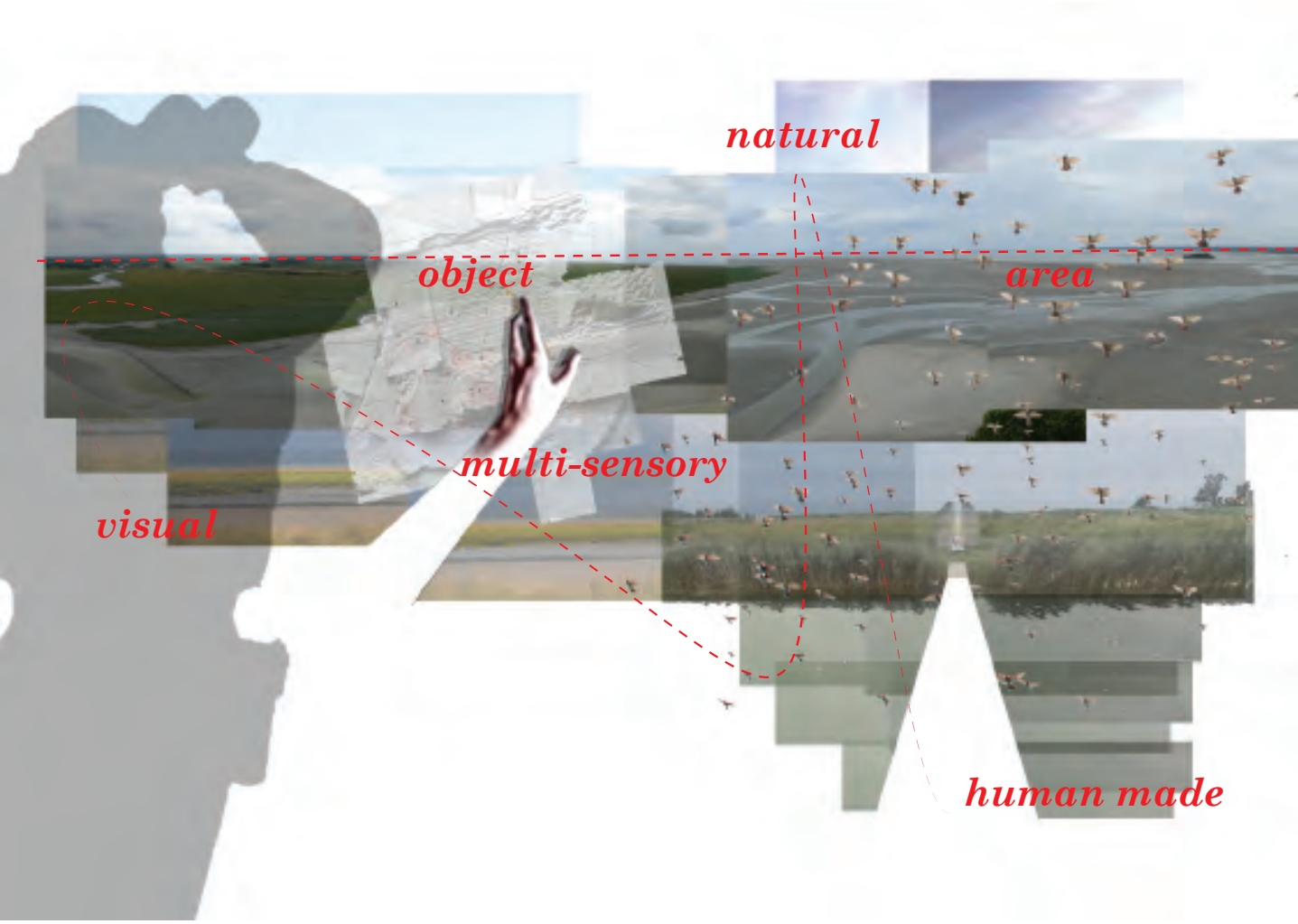


Illustration 2.4 Extending the meaning of landscape. Naiara Valcarlos ©

> 'A ***landscape approach*** is different from a strict ***ecological approach*** in that the former goes beyond the ***scientific*** by recovering ***poetic*** and ***representational*** aspects of ***landscape*** as ***culture***'
>
> (Koh, 2013: 14).

Landscape as Culture

Landscape is also constituted as an enduring record of –and testimony to - the lives and works of past generation who have dwelt within it' (Ingold, 1993). Naveh (1995), reflecting upon the interaction between ***culture*** and ***nature*** states that '***as human beings we live not only in the three-dimensional Euclidian physical-geographical space of our land and water systems, but also in this conceptual space of the noosphere (from the Greek noos = mind), namely the sphere of the human mind and consciousness*** '. This is the realm of our feelings, imagination and understanding, perception and conception, what is called our '***existential space***'.

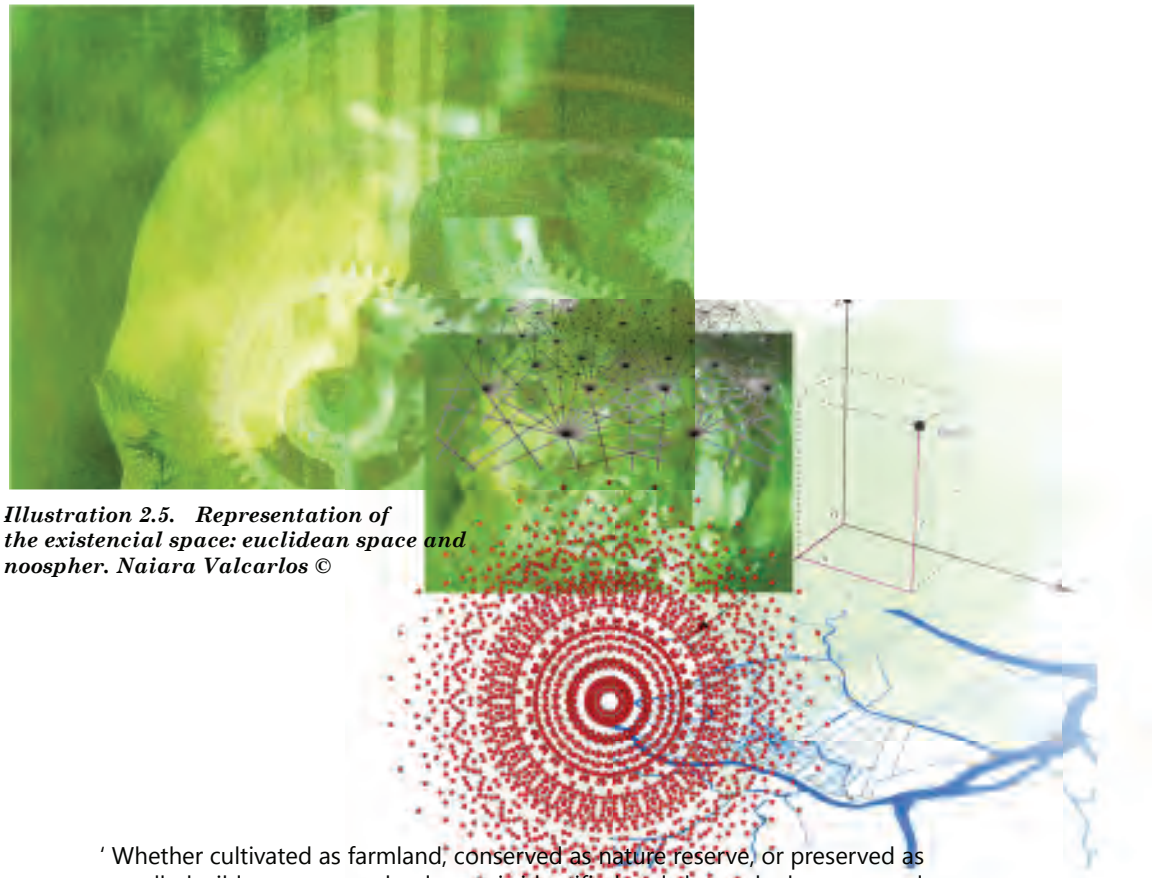
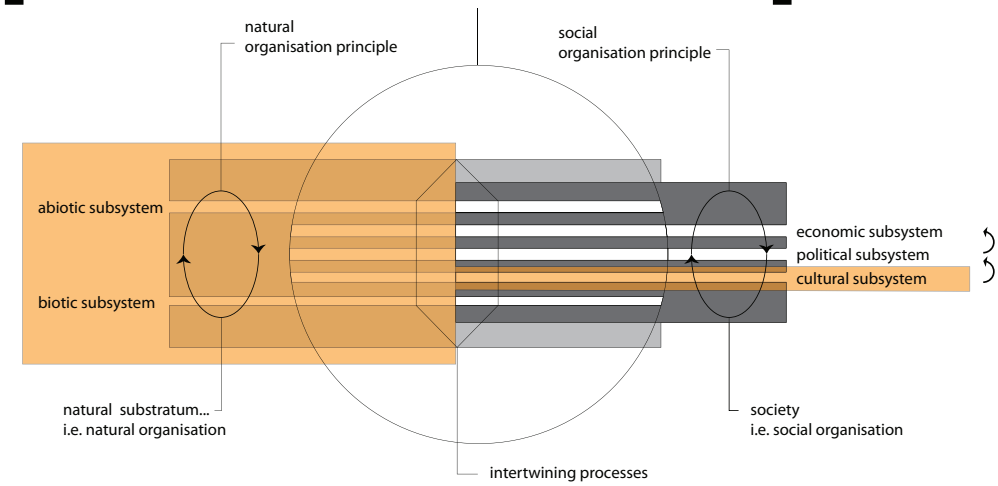


Illustration 2.5. Representation of the existencial space: euclidean space and noospher. Naiara Valcarlos ©

' Whether cultivated as farmland, conserved as nature reserve, or preserved as so called wilderness, every landscape is identified and chosen by humans, and ***embodies and displays the effects of human action***' (Berleant, 2012)'

We advocate a ***landscape approach*** that celebrates the existential dimension of the landscape, the one that makes room and enhances feelings, imagination and perception, but framing ecological process to be expressive of human care, meaning and values (Koh, 2013: 14). Therefore, from a landscape architectonic perspective, we bring the ***cultural subsystem*** of the landscape model of Wageningen University to the front. Because landscape as a concept that includes ***culture*** (and phenomenology) complements the 'scientific and dualistic' concept of ***ecology.***

Sociophysical organization model_cultural subsystem



Cultural subsystem adaptation for research

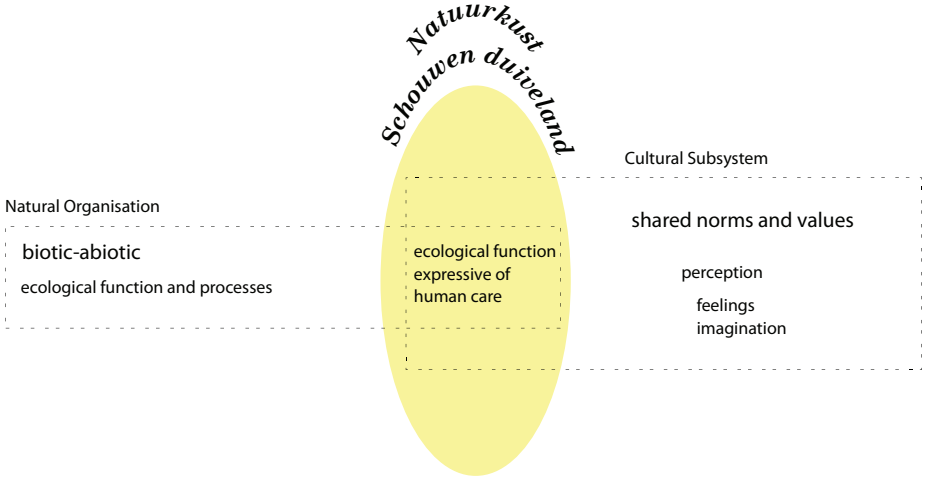


Illustration 2.6 , above, cultural sub-system according to WUR. Illustration 2.7. below, personal interpretation of the model.

Illustration 2.8. Perceptible realm: scale of human experience. Naiara Valcarlos ©

Perceptible realm

In the theoretical exploration for relating ***our existential space*** and ***ecology*** the ***perceptible realm*** is,

> ***'the scale at which humans engage with environmental phenomena':***
> ***the scale of human experience***
>
> (Gobster et al. 2007)

Its characteristic is that ***interactions*** within this scale give rise to ***aesthetic experience***s, engaging people powerfully with ecosystems. And according to Nassauer (1992), human intention can support ecological function. How? By bringing ecological function into the sphere of human perception.

Following this line of thought they argue that interactions within a landscape perceived as pleasing can become a tool that helps to catalyse changes that ensure ***sustainability.*** They are not the only ones asserting this, for this is in line with the paradigm acknowledged by Berleant (1992), Saito (2007), Dee (2010), Whiston-Spirn (1998), Kaplan (1979), Bourassa(1987) and (Roncken et al. 2011) to create the immersive in order to lead to `***recognition, love, respect and care for the environment***´ (Roncken et al. 2011). An ecological understanding of nature leads towards a scientific concept of nature which is independent from the cultural concept of nature. Wilson (1991) points out that aesthetic consideration form a major part of people's appreciation of nature. Both ecological function and cultural perception are independent, and good ecological functioning alone is not enough for ensuring the sustainability of landscapes that require of human management for their well-functioning, as it is the case in the nature development of Schouwen-Duiveland.

This paradigm puts ***aesthetics*** forward as a means towards ***sustainability*** that is grounded on human affection of landscapes. And on this path from aesthetics to sustainability, ***landscape perception*** becomes a key process (Gobster et al. 2007); indeed, the catalysing process that connects humans with ecological phenomena .

This gives an additional value since helps us demarcating in spatial terms the relationship between human experience and ecosystems, and helps not only in enhancing public acceptance of restoration, but opens the possibility for their durability in the longer term.

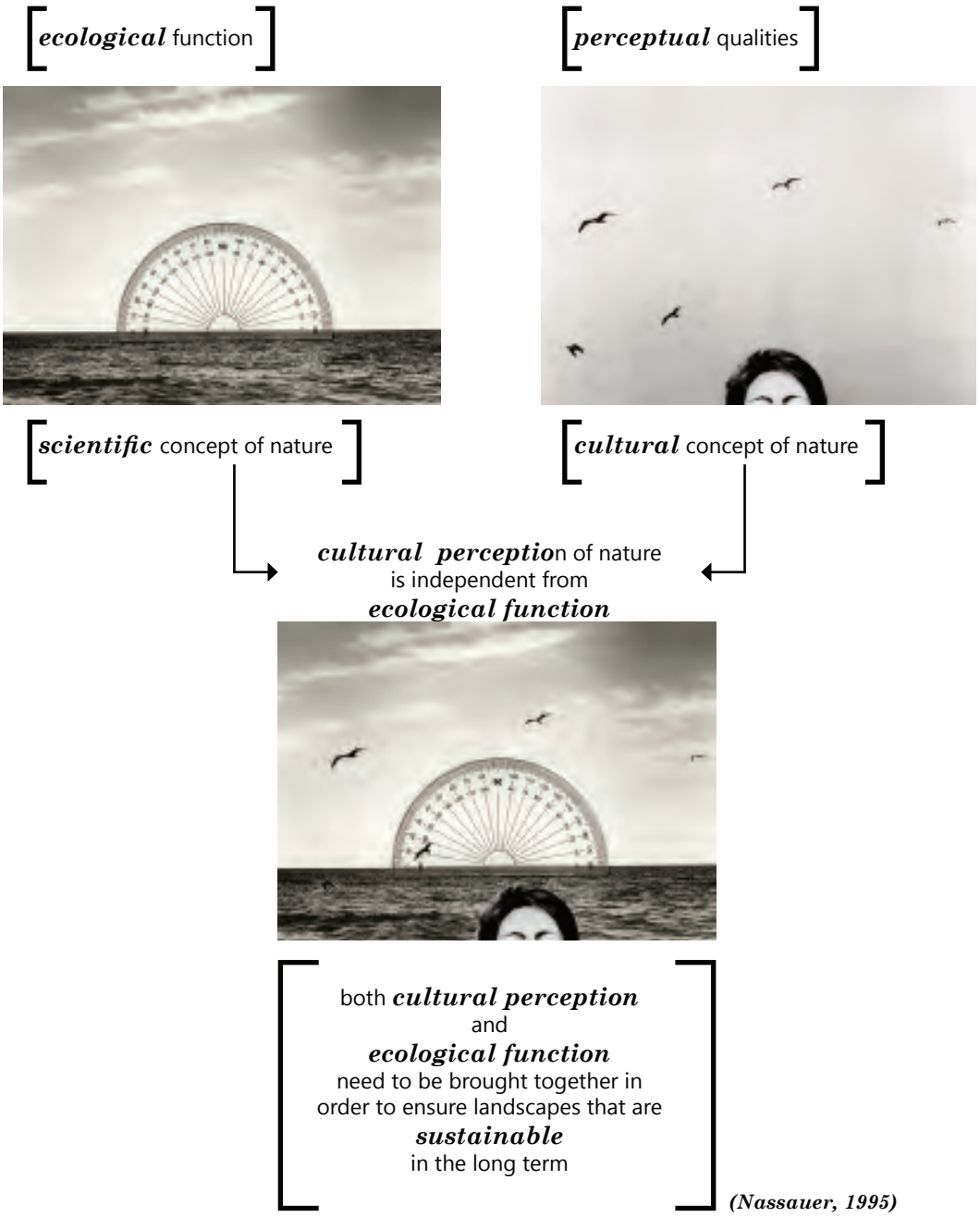


Illustration 2.9. The dualism between the ecological function of nature and the cultural perception of nature. The first one leads towards a scientific understanding, the latter one, towards the cultural conception of it. Author of pictures: Chema Madoz ©.

2.4 What can we do as landscape architects?

Design in landscape architecture

'To an extent, designers may conceive any new form for landscape. For this, contemporary designers may choose from a host of initial generators and sources' explains Dee (2010) . Several new definitions are available for describing landscape, and these are a good departing point. However, a simultaneous starting point for landscape form must also be the existing structure of site and context, and the elemental components of landscape—water, vegetation, topography, structures, and sky (Dee, 2010). As Koh (2013:9) mentions, 'landscape itself is, after all, local and locational' (Koh, 2013: 9).

Relevant claims that attain to landscape architects:

'The landscape designer is responsible for a wide range of aesthetic experiences' Dee (2010) claims.

'Design, in landscape approach, becomes not just form-making but contextualizing and process- ordering (Koh, 2013:12).'

'Everything that exists has form' (Olin, 1988).

'Human beings are subject to natural forces; they are capable of imposing their will on these forces, but also to respond to them with deeply felt emotion' (Tuan, 1971:1).

Bringing together those statements, as landscape architects we are able amongst others to create form (understood form giving equal to design: the exercise involving contextualization and process ordering) that provides aesthetic experience. The question remains in to which kind of process we are going to give form without neglecting the ecological domain. And next to this, what aesthetic strategy are we aiming for?

Approaching Aesthetic Strategies

Is it about reconsidering aesthetic landscape categories, the picturesque, the beautiful and the sublime rooted in the traditional philosophy of aesthetics (Brook, 2013: 110) and translating them to the XXIst century context? Is it about revealing aesthetically landscape preferences the Dutch society shows for natural landscapes, the Arcadian small/scale harmony of people-nature interplay, the Wild nature, elementary place, or the Penetrative type of nature that creeps into places that we have designed to be our own? (de Groot, 2003). In the "post" era, for instance, the interest in narrative, writing, and reading landscape came to dominate aesthetic strategies for designing landscape (Dee, 2010). Eventually, we sense that aesthetic strategies vary according to the definition we are able to give for landscape. Nevertheless, the focus and the means are the same, the human experience domain: both our body and mind.

Getting back to the statement of ***section 2.4*** existing structure of a site and the elements that compose it are the primary matter for design. The ecological implementation is taking place in the study area. So we rather attend to and reflect upon the processes and dynamics, their properties and the delight they provide to us (Eaton 1989:28 in Mozingo 1997) than turning the ecological development into an aesthetic category or to landscape preferences.
According to Spirn, this will evolve from ***'dialogues that engage both culture and nature'*** (Spirn 1988: 108-9).

The task involves a ***shift*** on the ***aesthetic strategy***:

> ***the focus on the processes and dynamics that conform the living landscape***
> ***by 'thinking, expressing' them aesthetically;***

In a way, to reveal them in their almost adamic sense, as Celaya (1991: 26) claims or Spirn (1998: 108) explains, ***'an aesthetic that celebrates motion and change, that encompasses dynamic process, rather than static objects'***. Therefore, effort is made in accurately understanding the processes and dynamics existent in the site. This does not exclude the cultural realm, since the interaction between those processes and dynamics, and humans have outlined the current landscape, drawing its specific materiality and are part of its structure.

Eventually, thinking or expressing processes and dynamics aesthetically implies, if we revise the meaning of the word aesthetics of Greek origin that means sense perception, to reveal them in the way we perceive them, in the way we sense those phenomenon: our sensuous encounter with them (Pink, 2009:24). This is an aesthetic strategy that celebrates this sensuous encounter: ***emphasize the potential nature itself displays for aesthetic experience by means of its processes, dynamics and elements,*** for interpreting them as design material.

2.5 *Aesthetics : history and contemporary discourse for aesthetic appreciation*

It is not easy to depict what ***aesthetics*** consists of. Whether the aesthetic resides mainly in the response of the experiencer or mainly in the qualities of that which is experienced is a complex question within aesthetics (Brook,2013: 108). It stresses the ubiquity of the objectivist and subjectivist paradigm in underlying human perception of landscape (Lothian, 1999).
It would take too long to explain how this paradigm has shifted towards the subjectivist, but in summary, historically the shift has been from thing to person, the person's mind, with an important turn taking place during the late seventeenth to early eighteenth century (Brook, 2013: 108).
What remains very significant is the fact that this discussion has centred in objects and their qualities, to clarify, whether those qualities are inherent to the object and independent to the perceiver, or their aesthetic value remains in the eye of the beholder. But landscape, regardless the definitions we might assign to it, is ***not*** an ***object***, and ***neither*** a ***subject***. And as such, the clear division drawn between object and subject is inadequate to identify and illuminate the perceptual pleasures that evokes (Berleant, 2014).

Theories of aesthetic appreciation of landscape. Phenomenological approach to aesthetics

Contemporary theories of aesthetic appreciation talk about landscape as being ***embodied***, with Berleant as one of the most representative authors. For Berleant the direct ***engagement*** with the landscape is '***not just a visual act but a somatic engagement in the aesthetic field***' (1992: 166). The use of the term '***field***' indicates a move not just to the ***senses*** but to their ***integration*** with the ***landscape*** itself:

> ***'The landscape is understood as a field of forces continuous with the organism, a field in which there is a reciprocal action of organism on landscape and landscape on organism, and in which there is no sharp demarcation between them.***
>
> ***In the same way, using organism involves, for the human domain, the inclusion of both body and mind. And such a pattern, with landscape understood as field, may be thought as a participatory model of aesthetics***
>
> (Berleant 2005:9 in Brooks, 2013: 112).

Theories of appreciation of nature

Coming closer to the study area, we approach the contemporary philosophy about appreciation of ***nature***. It involves two different paradigms: the ***cognitivist*** and ***non-cognitivist***.
The cognitivist with Carlson, Rolston, and Eaton ahead claim that scientific knowledge is the only valid and correct frame for properly appreciating nature. Non cognitivists, including Brady, Berleant, Carrol, Helpburn, Godlovitsch, Foster and Brady, without refusing the relevance of such knowledge, they ***'share an inclusive stance towards the subjective side of aesthetic experience'*** (Brady, 2003:87), arguing that the cultural framework next to the individual framework are equally relevant, if not even more, for the aesthetic appreciation of nature.

Whereas the scientific framework praises ecological, biological and geological knowledge as the basis for appreciation, the cultural framework includes the historical, symbolic and sacred values of landscape and makes emphasis on the ***perception***, ***emotion***, ***imagination*** and ***thoughts*** that as individuals ***nature*** can generate. From this can be assumed that the cognitivist paradigm favours the strict ecological function of the landscape for its implementation. Nonetheless, as explained in ***section 2.3*** part of the scientific community in charge of ecological restoration finds this a too narrow view for its successful implementation. And therefore, it can be deduced that the cultural and individual frameworks need to be considered.

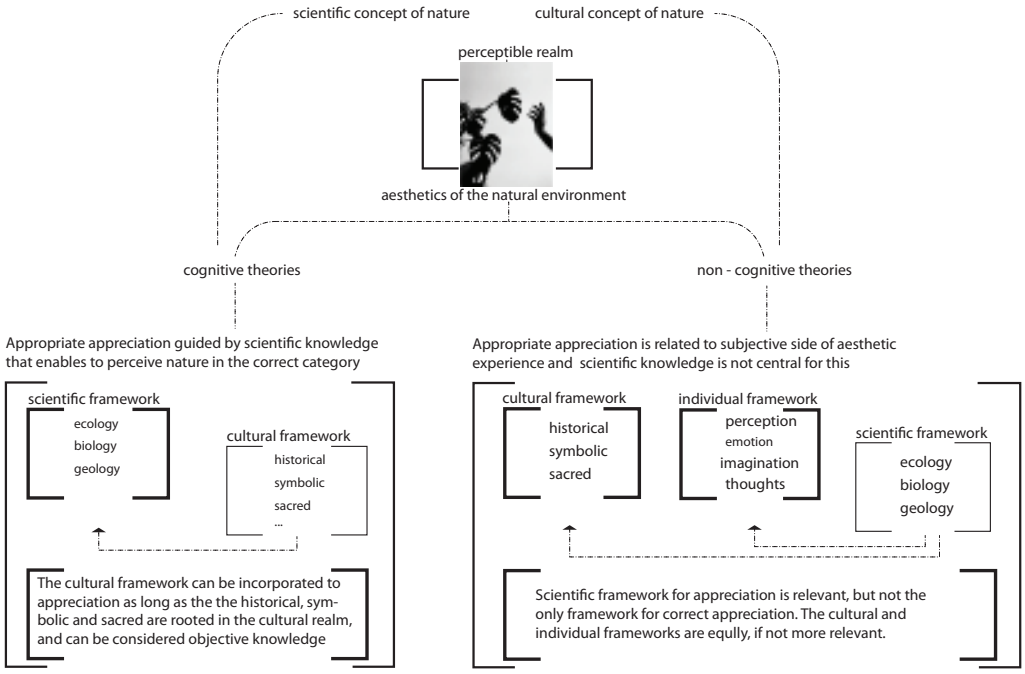


Illustration 2.10. Scheme of contemporary theories of appreciation of nature

Revealing processes and dynamics aesthetically: use of aesthetic language

To capture the aesthetic expressivity of the processes and dynamics requires to spell our sensuous encounter with them. This requirement derives on the one hand from the methodology, the phenomenological method used for generating data and from the statement of processes being the departure point for design on the other hand.

With this purpose, essays about nature perceived by humans written by art historians, writers and artists serve as foundation for approaching these phenomenon aesthetically: Kosme de Barañano (Chairman in methodology of history of art and sculpture at the university of Fine Arts, Altea), Octavio Paz (writer), Gabriel Celaya (writer and poet) Jose Corredor Matheos (art critic) and especially the work of Chillida, the sculptor that has purposefully worked in sculpting the forces of nature and how those relate to humans. His reflections on space and nature serve as design material.

Following Berleant's aesthetic premises, the processes are not only aesthetically embodied, but also spelt by means of aesthetic language: language that instils bodily expression, where the meanings are tied to the expressivity of the processes and to the expressive nature of our gestures, and to the direct sensations induced by these movements (Abrams, 1997: 79). But following the path of language, Eaton states that 'landscapes embody metaphors', and 'a metaphor works by exploiting the core meaning of a term' ... and... 'through metaphors a very particular image is evoked' because 'a new way of perceiving is created by extending the old in new directions' (Eaton, 1990).
This brings us to consider that metaphors themselves can help in creating new ways of perception, and eventually, enriching or expanding the definition and perception of landscape.

To conclude

aesthetic language intends to spell our sensuous encounter with phenomenon of nature, to spell its processes and dynamics aesthetically;

metaphors embrace this language and suggest new ways for perceiving and eventually designing nature.

2.6 Conclusion

Therefore, as landscape architects, professionals dealing not only with aesthetics but also with the ***'inherent openness and dynamics belonging to the living field of landscape'*** (Abrams, 1997:32) we are able to express aesthetically those same processes and dynamics by means of form. This is precisely what our discipline can bring to the practice of ecological restoration. We can put a step further on bridging the gap between strict ecology and culture. We do know about processes, still our knowledge domain expands, allowing us to frame them expressive of human care, meaning and values' (Koh, 2013: 14)

To conclude, I would like to make a summary for the ***definitions*** developed for landscape, the ***landscape approach*** that it entails for the research, and the ***aesthetic strategy*** that supports the approach.

***

Definition for ***landscape***:

_. ***landscape*** is ***field for action*** (Berleant, 1992)

_. ***landscape*** is ***embodied*** (Berleant, 1992)

_. ***landscape*** is manifestation of ***culture*** (Ingold, 1993)

_. ***landscape*** is ***existential space***: (Naveh, 1995)

Euclidean geometry + noosphere (conceptual landscape)

where ***Existential space*** is the realm of our

feelings,

perception

imagination

***

***

Landscape approach

We advocate a ***landscape approach*** that celebrates the existential dimension of the landscape, the one that makes room and enhances feelings, imagination and perception, but framing ecological process to be expressive of human care, meaning and values (Koh, 2013: 14)

***

Aesthetic strategy for nature

Emphasize the potential nature itself displays for aesthetic experience by means of its processes, dynamics and elements, by thinking and revealing them aesthetically, and eventually interpreting them as design material (Abrams, 1997:32) .

Effort is made in attending to and reflecting upon the processes and dynamics, their properties and the delight they provide to us (Eaton 1989:28).

Aesthetic language intends to spell our sensuous encounter with phenomenon of nature, to spell its processes and dynamics aesthetically; metaphors embrace this language and suggest new ways for perceiving and eventually designing nature.

Eventually, contemporary landscape aesthetic theory that integrates landscape with the senses including both mind and body as a participatory model of experience aligns with the individual framework of appreciation of nature that considers the perception, emotion, imagination and thoughts relevant for its proper appreciation. This aesthetics celebrates in the same way our existential space, which is not only the three dimensional Euclidean space conformed by land and water systems, but also the conceptual space.

***

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chapter 3

The Perceptible Realm: scale, body and nature

This chapter explores the ***perceptible realm*****,** the ***scale*** at which humans engage with environmental phenomena, as a further step in the theoretical exploration of the relationship between ***aesthetics***[1] and ***ecology***[2]**.**

The chapter starts by describing the ***perceptible realm*** in ***section 3.1*** setting the key concepts that need to be further studied: ***scale*** and ***perception.***

Section 3.2 then explores the several meanings ***scale*** does have, and understanding that eventually its core meaning involves the interrelationship between human and nature, ***section 3.3*** explains the space of the body, and its material production.

Section 4 focuses on studying the phenomenon of nature, its expression and how we encounter sensuously those phenomenon that are manifestation of nature.

Section 3.5 depicts nature and time in relation to human scale.

Finally ***section 3.6*** gives a conclusion with the outcomes concerning the perceptible realm and advances the required following steps.

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1 **Aesthetics**: from greek 'I sense , I feel' **,** Alexander Baumgarten defined it as 'the science of sensory knowledge directed toward beauty'

2 **Ecology:** A branch of science concerned with the interrelationship of organisms and their environments

3.1 *Reflecting upon the Perceptible realm*

The definition of ***perceptible realm***, ***scale*** at which humans as organisms ***perceive landscapes and engage with ecological phenomena***, given by by Gobster et al. (2007) draws the idea of certain limited space in which human perception of landscape occurs. Differently said, it suggests that human perception of landscape has boundaries or limits.

The specific reference to one ***scale***, the ***perceptible realm***, also suggests the co-existence of different types of scales, the ***perceptible realm*** being only one of those: the one related with human perception.
Contemporary ***ecology*** for instance, with the paradigm shift from the 'balance of nature' towards 'flux of nature' recognizes ***equilibrium*** in a relative spatiotemporal ***scale*** and ***scale*** becomes then a spatiotemporal rate with which to measure for instance, disturbances (Callicott, 2002). In this milieu of ecology ***scale*** is defined as '***the term used to describe the relationships between two measurements, such as the extent over which a process occurs and the spatial extent of a system***' (Pickett and Ostfeld, 1995: 268 in Simus, 2011)

Nevertheless, next to the idea of a certain limited space or spatiotemporal relativity, ***scale*** can also be interpreted differently, for instance if we look at theories of landscape perception or aesthetics of the environment. Berleant (2014) says that ***aesthetic engagement*** is ***generated*** through active participation and creative perceptual involvement with the environment, stressing the continuity and interpenetration of perceiver and the landscape, and suggesting that then ***scale*** is ***context related*** and in continuous motion or transformation.

The interpretation or definition of the ***perceptible realm*** very much depends on the definition we are able to provide for the words ***scale*** and ***perception,*** in their relation to ***nature***.

And eventually, we come to the next question:

> Is it possible to ***describe***, ***detail*** and eventually ***draw*** the ***boundaries*** of the realm in which ***human perception*** occurs?

In order to explore this issue we pose four main ***statements*** that guide us in its discovery:

* We are looking for the ***scale*** in which landscape perception occurs.

* ***Perception*** or appreciative experience can only be generated through our own body; we feel due to our body (Pallasmaa, 2005:40; Simonsen, 2005; Berleant, 2004: 85; Merleau-Ponty in Abram, 1997: 45, Barañano, 1991:16;)
* ***Space*** and ***body*** are interdependent; perception is participatory: the body perceives and is dependent on the specificities of the surrounding, to how the environment manifests itself (Merleau-Ponty, 1962; Lefebvre, 1991: 61)

* The environment is in the study area ***`nature development´*** or ***' new nature'***, posing the question of how ***nature*** talks to our senses

Scale and ***perception*** become ***key concepts*** which need to be understood and ***related*** on the grounds of ***nature***.

Illustration 3.1. The perceptible realm.
Author: Chema Madoz ©

3.2 *Scale*

Definition

The term ***scale*** has several meanings. It is the diatonic and chromatic succession of musical notes; it is a graduated line used for measuring; it is the proportion between the dimensions of a drawing and the dimensions of the object represented. Common to all of these meanings is a certain idea or image of ***relation***, or more exactly, of ***interrelation***: between notes, between dimensions, between human beings and their environment (Barañano, 1991: 15)

On maps, the scale ***determines*** the precision and the number of details which are represented. The plan survey (the rivers, roads, buildings, etc), and the altimetry (the curve levels or images of the topography, the mountains and valleys) are made by the map scale. And the map scale then consists of both a ***graphic scale*** and a ***numeric scale***: there are distance measures and elevation measures, what we call topography or image of the place. In any case, ***scale*** is the relation between a measured distance on the map and the corresponding measure on the real terrain.

In architecture the treaty by Le Corbusier, the leading modernist architect that used the golden ratio in his Modulo system, is representative of the ***scale of architectural proportion***, which intended to use the ***proportions of human body*** in order to ***improve the appearance and function of architecture.***

* The ***Modulor System*** uses the proportions of the body in order to improve the function of architecture.

This new system is anthropometric, mathematical and armonic, and based on a man who is 1.83 meters high, that when he raises his arm, reaches approximately 2.20 meters high.

The Modulor is an armonic ***system of measures*** and not of numbers. It is constructed according to human measures, to the aureal section and to Fibonacci series.

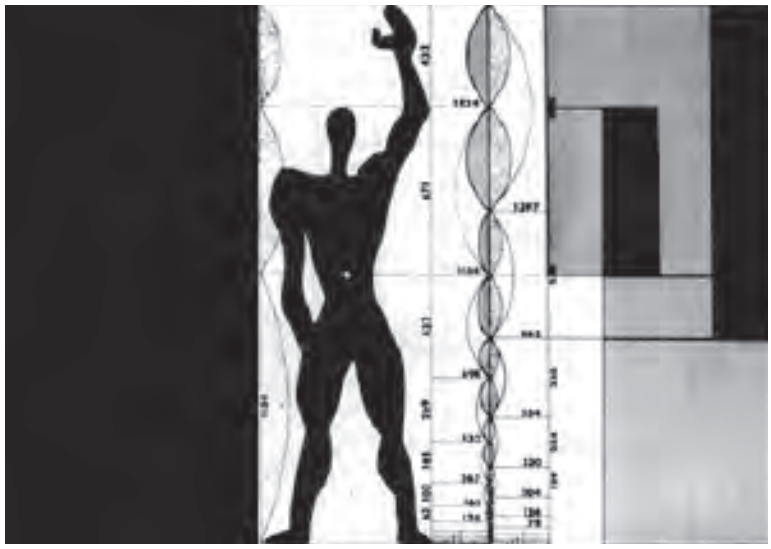


Illustration 3.2 'Modulor System' by Le Corbusier.
Source: Google

Different scales, relationships

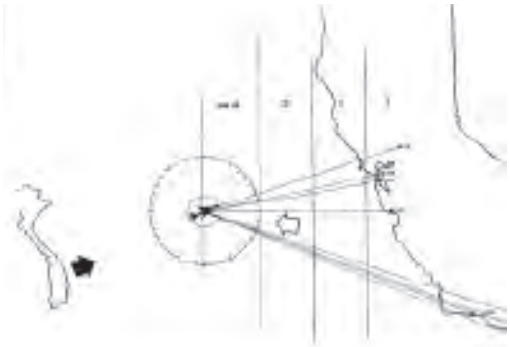


Illustration 3.3. Joseph Bird, graphical and temporal scale of the defense of the american continent from viet-cong invasion. Source: Google

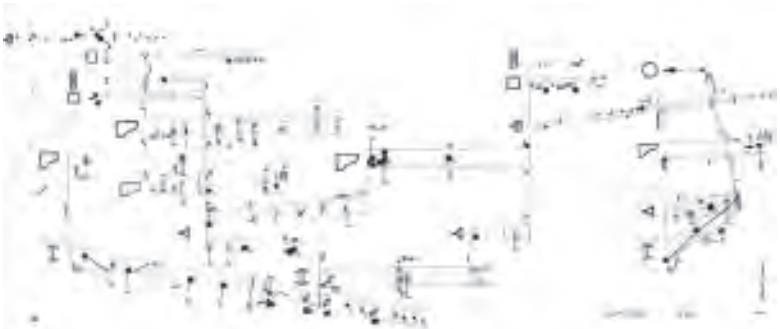


Illustration 3.4. Francois Bayle. Musical scale. Points critiques, 1960 . Source: Google

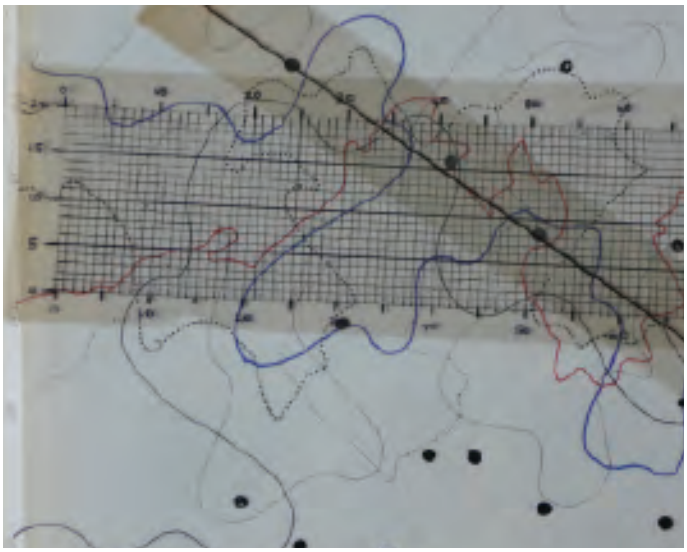


Illustration 3.5. Graphic and numeric scale representing topography. Source: Google

Illustration 3.6. Robert Moran, sketch of a tragic one act opera, 1965. Risomatic scale. Source: Google

But ***scale*** is not only a question of mathematical measures, be they audial or visual. It is also a question of our physical sense of touch suggests Barañano (1991: 15) in his reflections about human scale. ***Scale*** in the milieu of perception is closer to our ***physical sense of touch***, to that ***telluric knowledge of the skin***, the tellurian wisdom of the flesh, a ***relation*** or ***interrelation*** that has its starting point in our skin and relates to the telluric substrate: sea, earth, sun, wind, and fog.

This ***scale*** has as departing point the external boundary of our mind and body, our own skin, that contains all our senses (Pallasmaa, 2005: 40). This is the ***scale*** related to the intimate, what is most interior in anything. It can be found in what is intrinsic, interior, at the root, and in the familiar, confidential or trusted. It is related to the realm of the ***non-transferable,*** to the e***xpansion and contraction of our senses***; eventually, skin that reveals as a map on which knowledge is generated, gathered and stored in the form of '***sensuous data***' (Barañano, 1991; Howard 1686 in Pink 2009: 26), or what Merleau Ponty (1962: 4) refers to as ***'sense data'***.

The tactile flesh or the tactile space is the ***sensuous space*** where the distances are measured not by means of ***geometry*** but by means of our ***hand*** and the ***extension of our body***, by means of the metrics that we own (Barañano, 1991: 16); therefore ***embodying*** instead of by graphic or numeric measures; shifting from numbers and lines that become representative tools for ***describing*** and ***understanding*** the environment, towards the measures that we own ourselves in order to ***conceptualize***, ***understand*** and ***manage*** the environment.

Illustration 3.7 Chillida´s hands.
Author: Eduardo Chillida©

3.3 Scale and Tactile space

Space of the body

> 'Isn´t (located) the essential regulator of our contact with reality, both material and mental, in our ***sense of touch***, in the archaeology of our flesh?' -asks Barañano (1991: 15) in his aesthetic essay about ***human scale***.

The body´s space is not only visual, encompasses the auditory, olfactory and tactile as well. It is not the abstract space of the Cartesian coordinates. As Galimberty has argued,

> 'The ***body´s space*** is not ***positional***. It is not the real or logical compass in which things arrange themselves according to an abstract system of presupposed coordinates by a geometric spirit which lacks any point of view.
>
> 'Rather it is ***situational***, because it is measured from the situation in which the ***body*** finds itself when it decides to do something, keeping in mind the possibilities at its disposal´ (Galimberty in Barañano, 1991:16)

Merleau-Ponty also recognizes the body in a field of ***space*** and ***time***, and starting from the ***spatiality of the body*** he accentuates how this is not a spatiality of position, but a spatiality of ***situation*** (Merleau Ponty, 1962 in Simonsen, 2005).

It is from beyond our skin that external space begins; it is our sense of touch that gives us a measure of the action our arms or our legs perform at any given moment. The body is the border that spatial relations cannot exceed but it is also the border from which they depart.
The homogeneous and objective geometrical space, known as Euclidean space, ***described***, only makes sense departing from the guiding space of the body, from which abstractly, it is constructed (Barañano, 1991: 16); according to Lefevbre (1991: 169-170) '***each living body both is space and has its space; it produces itself in space at the same time as it produces that space***'. And the ***boundary*** between the self and the environment is open and indeterminate, the skin becoming a membrane through which the outer space is identified by means of our ***senses*** (Abrams, 1997:46). As Pallasmaa (2005: 100) explains: ***'Our contact with the world takes place through the skin of the self, by means of specialised parts of our enveloping membrane'***. Because ***'not only is the body not a simple fragment in space, instead, there would be no space if we did not have a body'*** (Merleau-Ponty, 1962 in Wylie 2007; Simonsen, 2005).

It is from the intimacy of our being from which we measure the world around, the world of the objects and with them, we measure ourselves. And the body serves both as ***point of departure*** and as ***destination***, becoming an intrinsic part of the ***'lived experience'***
(Simonsen, 2005).

The outer space, the environment becomes then ***field for action***, where humans recognize and generate their own ***vital*** or ***existential space*** meaning that the memory of the distances and directions remain in their arms and legs in the form of ***sensuous data***. (Barañano,1991: 24; Naveh, 1995; Pink, 2009: 26)

It is above all a ***vital space***, organized by an indivisible series of acts which permit us to place or locate things above or below, to the right or to the left, near or far; that is to say, a series of acts by which we determine an orientation and a direction (Barañano, 1991:16)
And as part of the lived experience, the body constitutes a practico-sensory realm in which this vital and existential space where we orientate and find our own direction is simultaneously perceived and generated through smells, tastes, by touching it and hearing, as well as through sight and stored in our skin as sensuous data (Simonsen, 2005; Naveh, 1995).

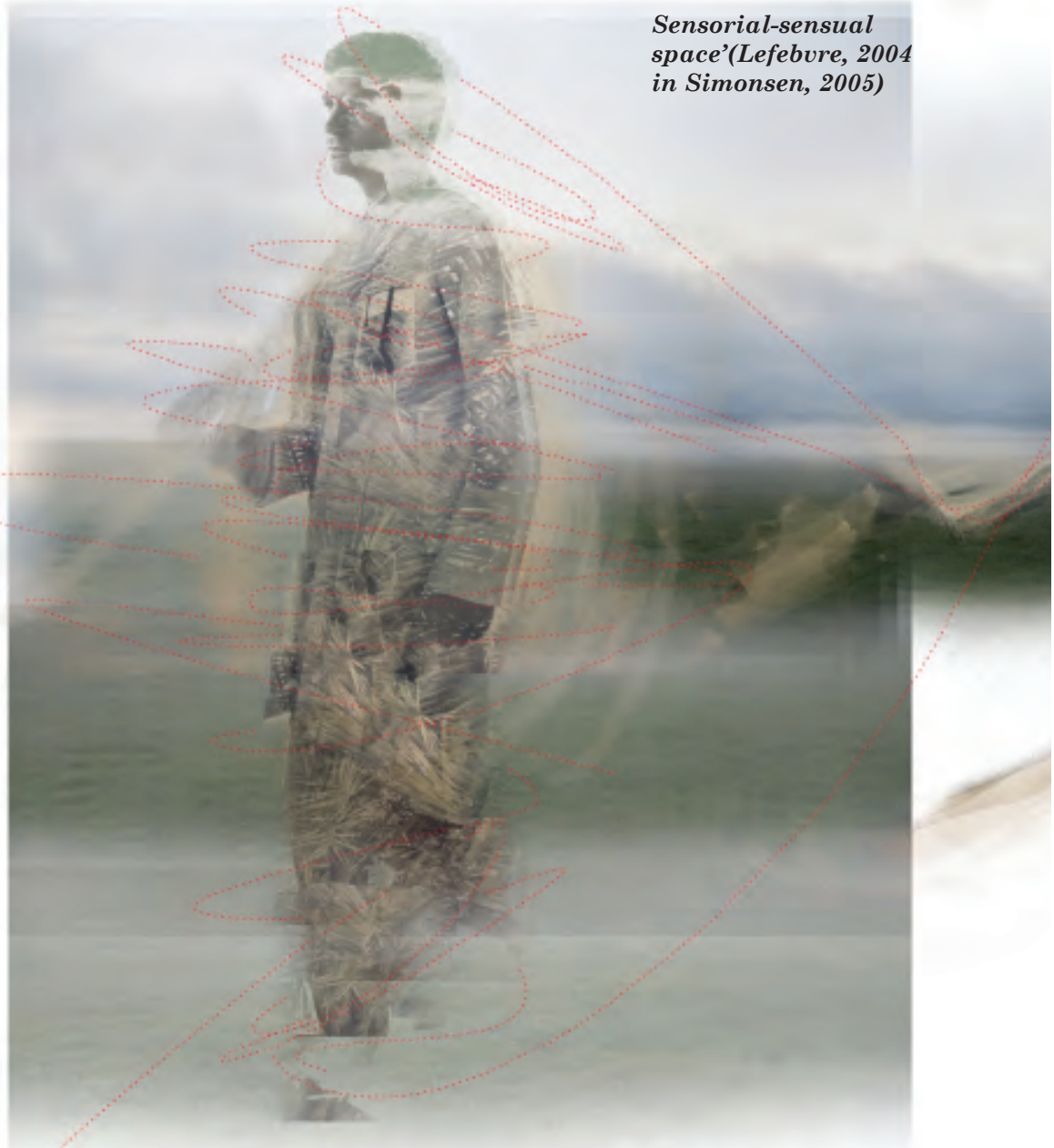


Illustration 3.8 'Sensuous encounter with the environment': extension of the body, expansion of the senses. Knowledge is generated, gathered and stored in the form of sensuous data (Rodaway 1914 in Pink, 2009: 26) Naiara Valcarlos ©

Body and Material Production

The body produces a space which is both ***biomorphic***, resembling or suggesting the forms of living organisms, and ***anthropological***, where social and cultural beliefs and values are embedded. The external boundary of our body, our skin, open and indeterminate (Abram, 1997), implies more a conceptual rather than a clearly demarcated differentiation between internal and external space. Nevertheless, in the process of generating, gathering and storing the external environment as sensuous data, external space is sensuously encountered '***through a double process of orientation and demarcation***' (Simonsen, 2005).
Orientation, projecting into the environment pairs of determinants such as right and left, up and down, here and there, centres and peripheries, symmetries and asymmetries, axes and planes, allows us to determine our situation, as Barañano (1991:16) has already suggested
Demarcation adds to this paired traces and marks that are both practical and symbolic directions in order to make it meaningful. All this is connected to a conception of the spatial body:

> A body so conceived, as produced and as the production of space, is immediately subject to the determinants of that space ... the spatial body's material character derives from space, from the energy that is deployed and put to use there. (Lefebvre, 1991:195)

In this way, the body is involved in the sensuous encounter of space - concrete and material - and our conception of space - abstract and mental (Simonsen,2005).

Body and Nature

This ***field for action*** or ***vital space*** is however difficult to be depicted when it is indeed ***nature*** what we are perceiving, a term that becomes most commonly understood as landscape untouched by humans (Tuan, 1971:1). This is more a fiction than a reality, since there are very little stretches of land that remain untouched by humans, including the landscapes we perceive as natural, so 'undisturbed and virgin' (Naveh, 1995). How does the body, our skin, by means of the senses relate to nature? What kind of sensuous data is generated?

3.4 *Phenomena of Nature*

A holistic description given for nature by the poet Celaya underlines that ***nature*** is ***life*** and ***sequence***, forces and elements embedded in eternal action and reaction of ***connected phenomena*** that eventually comprehend a unity. Nature is a singular entity, but multiple in its manifestations or expressions (Goethe in Neydler, 1996: 161).
Nature, as all embracing phenomenon (Tuan, 1971:1) is ***life*** and ***sequence*** independent from the field of knowledge we acknowledge it. But immersed in the ***realm of perception*** as we are, intending to depict the ***sensuous encounter with nature***, how do we orientate and demarcate ourselves in the midst of nature? What kind of space does the body generate?

The space of Nature

The space of nature is not only the Euclidean three dimensional space. It is a visual configuration, auditory, tactile, emotive, ***prior to the division of the senses*** (Simonsen, 2005; Barañano, 1991: 23).

All the manifestations of natural phenomena that we encounter in the ***realm of perception*** are

> ***'related in a constant way, and they merge one into the other; they form a series of waves from the first one to the last one'***
>
> (Goethe in Naydler, 1996: 163)

It is due to this that the sensuous encounter with ***nature*** has no demarcation, no clear departure and ending point, since we can proceed dividing it into its minimal details or on its whole, following the trace widthways and high upwards. (Goethe in Naydler, 1996: 163)

Nature is made of ***forms***, and those forms are ***sensitive***, they live in perpetual movement and they suffer continuous changes, they are expressive (Paz, 1991:39). Acknowledging that nature is life and sequence, and ***form*** belonging to its realm, each form is at the same time a momentary equilibrium of forces and elements in eternal struggle, a structure only in appearance stable and already moving towards another shape (Goethe in Naydler 1996: 162). It is in the midst of this eternal struggle that '***human perceptual experience encounters form and the effects of form, becoming the vehicle for the sensuous encounter***'(Dee, 2010).

Nature and its expresiveness

Nature is ***life*** and ***sequence*** from an unknown centre till an unrecognizable limit. `***Nature speaks upward to the known senses of man, downward to unknown senses of him***´ and all nature reveals to another sense (Goethe in Seamon, 1998: 85).

> 'When the eye is closed the ear is pricked up, from the lightest puff to the most violent murmur, from the simplest sound until the supreme harmony, from the most vigorous and passionate scream to the sweetest word of reason, it is only nature which talks, reveals its existence, strength, life and relationships, in such a way that the blind, who has been denied the infinity of the visible, can perceive by auditory bias an infinite life.'
>
> (Goethe in Naydler, 1996: 165)

Each phenomenon in nature, rightly observed, wakens in us a new organ of inner understanding' . (Goethe in Naydler, 1996: 204). And focusing in our embodiment of nature, Merleau-Ponty (1962: 21-22) explains that our encounter with the environment is always ***'inherently synaesthetic'***: our senses overlap and blend one into the other, what Bachelard refers to as '***the polyphony of the senses'*** (Bachelard in Pallasmaa, 2005: 41).

To exemplify this phenomenon of inner understanding, the short poem written by Chillida (1994):

I didn't see the wind, I saw the clouds moving.
I didn't see the time, I saw the leaves falling (Chillida, 1994).

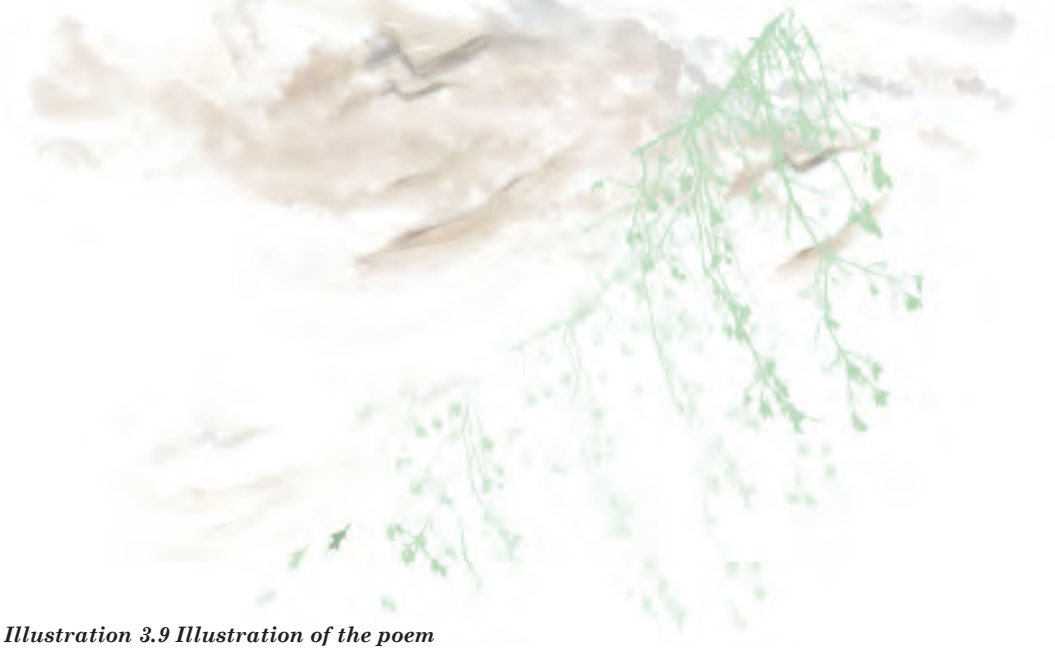


Illustration 3.9 Illustration of the poem

Form is what we perceive, sense, live within, manipulate, and experience because processes are expressive. Nevertheless, not all processes, both ecological and material, are perceivable (Dee, 2010). And this suggests that a delimiting factor next to the expression of ***form***, is, indeed, ***time***.

3.5 *Nature and time in relation to human scale*

If ***nature*** is eternal change that manifests in connected phenomena by means of ***form***, the body and the space the body generates relate to those phenomena that express by means of form. However, certain natural processes or phenomena of nature are `only slow in relation to our time, to our body, the measure of rhythms´ (Lefebvre, 2004 in Edensor, 2010: 7). Certain phenomena of nature perform beyond our scope, or differently said, they manifest in time-space frames that are out of the scope of our senses. To illustrate this simple idea, a singular manifestation of nature: the blooming of a flower.

Illustration 3.10 Blooming of flower

We perceive the blooming of the flower because:

- it ***manifests materially*** in such a way that can be perceived by our senses, visually, olfactory and tactile wise;
- it ***manifests materially*** in a time span that is perceivable for humans.

Despite the fact that processes beyond our ***perceivable realm*** are as essential as the ones that occur in our perceivable realm, from a perceptual point of view, the engagement with aesthetic experience of nature occurs at this ***form scale*** (Dee, 2010)

Then, we ask the next question:

> ***Which are the phenomenon of nature perceivable under our time/space frame?***

'(There is) nothing inert in the world' says Lefevbre (2004), all is in movement: the 'trees, flowers, birds and insects and the forest that manifests in multiple ways, the soil, the earth, the sun, the sea', all of them ***'non-human rhythms'*** (Edensor, 2010: 6), that require different temporalities for their manifestation, and also, to be perceived: polyrhythmic ensemble.
Indeed, we can say that nature manifests, expresses or reveals in different time patterns, rhythms or temporalities.

By acknowledging the usually ***cyclical patterns*** of nature that involve the processes of growth and decay, the surging of rivers, the changes in the weather and the activities of animals and birds which breed, nest and migrate, we can perceive the ubiquitous presences of non-human entities and energies in and through place (Edensor, 2010:7).

* Still, the processes of ***growth and decay*** manifest in shorter time pattern than the surging of rivers.

* The ***changes in weathe***r can be ***momentaneous*** as well as involve longer time span related to climate change conditions.

* The ***cycles of the moon and sun*** manifest in ***everyday rhythm***, even though they continue in eternal motion and transformation.

* The nesting and migration of birds is mostly related to the ***seasonal cycle*** of nature.

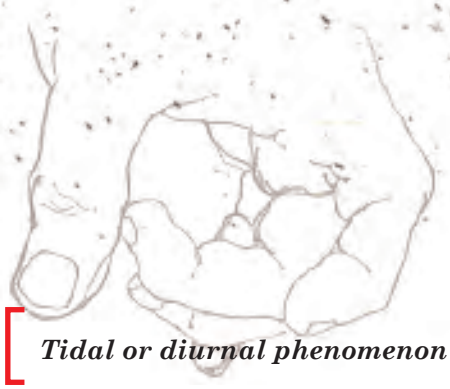
* ***Millennial changes*** associated with c***limatic, geological and geomorphologic events*** possess time patterns and irregularities that deeply impact on place and space but which operate at a longer temporal scale (Edensor, 2010:7).

Rhythms of nature

Ephemeral phenomenon

The movement of the leaves, the water being moved by the wind, the clouds travelling on the sky, the shadows shifting: phenomenon experienced in the landscape as short-lived and which come and go irregularly (Palang et al. 2007:3)

Fig. 3.11 *Ephemeral phenomenon*



Tidal or diurnal phenomenon

Tidal phenomenon provide a temporality which is highly visible hour to hour.
This then is a natural rhythm which is apprehended within everyday human time .
Tidal landscapes are affectively charged places because they stand at the edge of the sea, scramble that profound margin 'betwixt land and sea', create the liminal spaces of intertidal zones, threaten to inundate at high tide, threaten to drain to nothing at low tide, and repeatedly empty and fill (Jones, 2010)

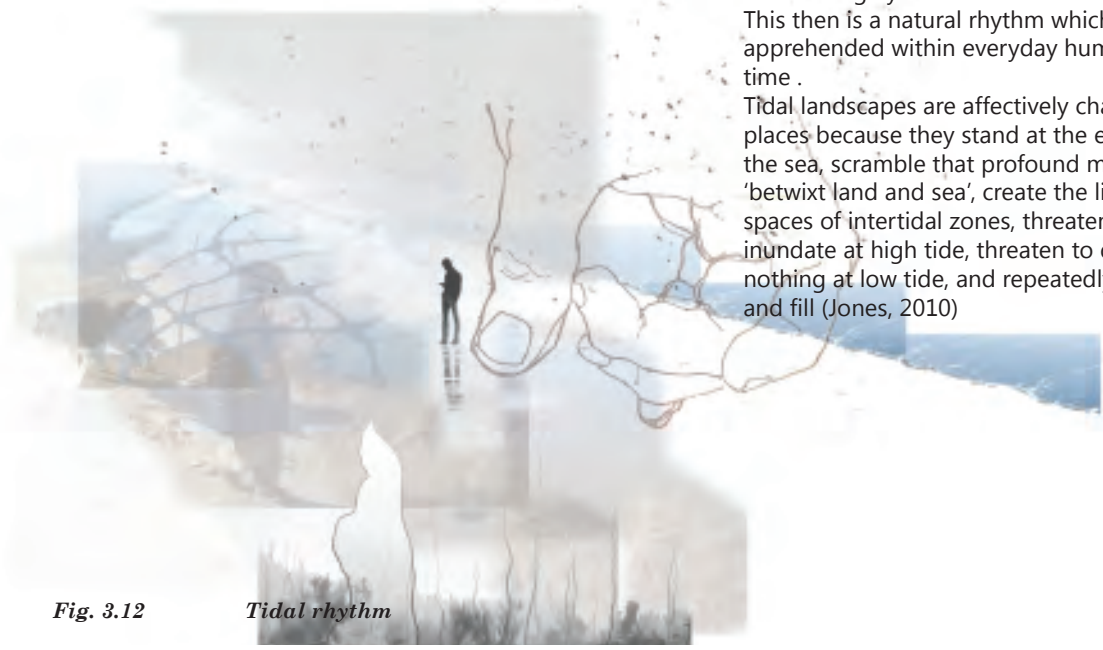


Fig. 3.12 *Tidal rhythm*

Seasonal phenomenon

Phenomena that have a regular repeating pattern that express in the fluctuation of water, with the growth and decay of leaves, the migration of birds, the blooming season: repetition of variable patterns that usually only bring imperceptible change on a daily basis, but perceptible changes in a year basis (Palang et al. 2007:3)

Fig. 3.13 ***Ephemeral, tidal and seasonal rhythms***

Rhythms of nature

light	sun
wind variation	moon
weather conditions	tide

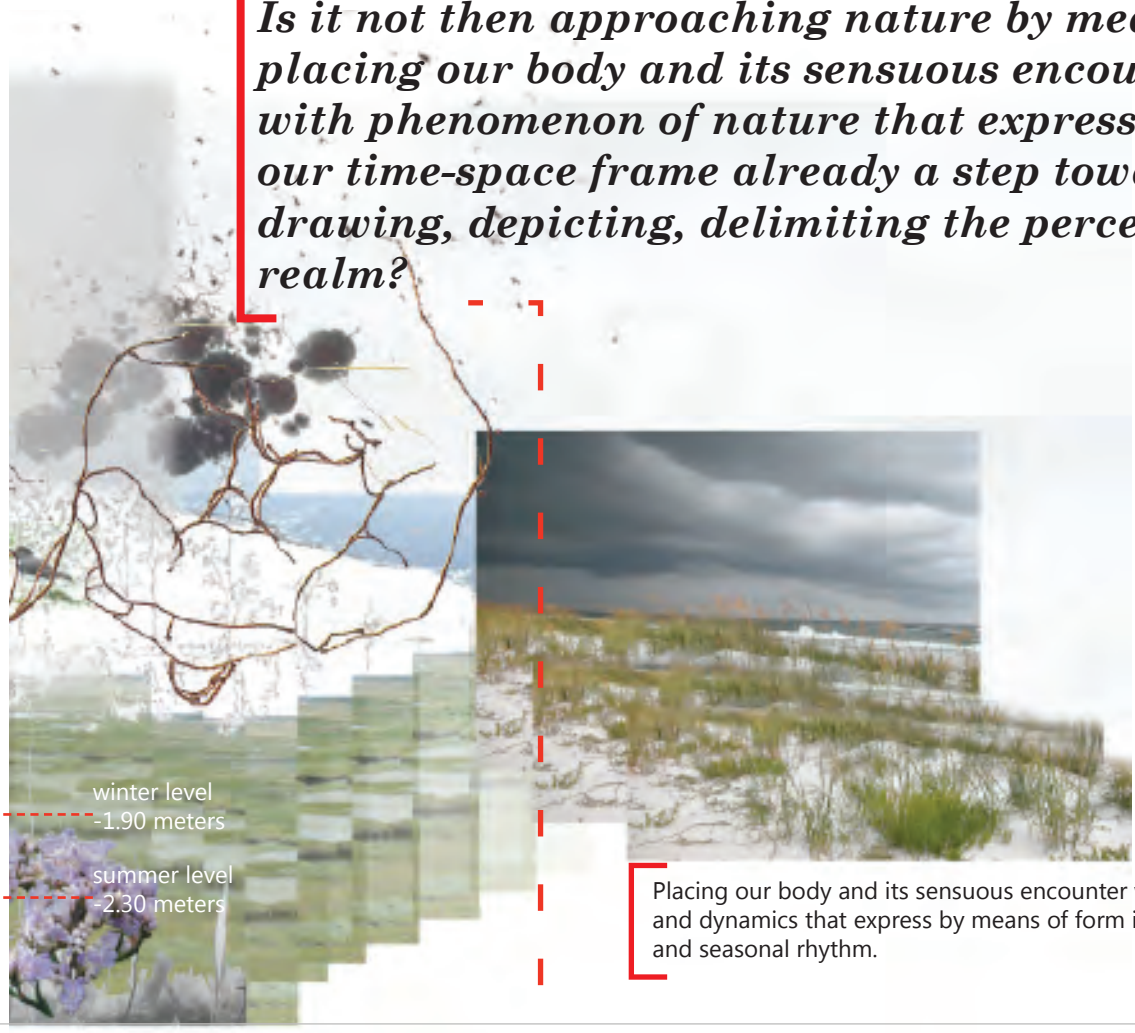
Fig. 3.14 Ephemeral, Tidal, Seasonal and Geo-morphological rhythms

growth and decay

flora and fauna

water fluctuation

Is it not then approaching nature by means of placing our body and its sensuous encounter with phenomenon of nature that express in our time-space frame already a step towards drawing, depicting, delimiting the perceptible realm?



Placing our body and its sensuous encounter with processes and dynamics that express by means of form in this everyday and seasonal rhythm.

climate change

geomorphological processes

3.6 Conclusion

The ***Perceptible Realm,*** the ***scale*** at which humans engage with environmental phenomena is thus reduced to:

tactility of ***phenomenon of nature*** , which is subject to

the ***temporal pattern***
and
spatial expressivity
of the processes and dynamics of nature

In summary, to the embodiment of the processes and dynamics that reveal in our time-space frame; processes and dynamics that manifest in nature in cyclical rhythm of momentaneous, everyday and seasonal temporalities.

This involves the next:

* There are not a-priori measures, numbers or graphics that help to delimit this ***scale***, because in the milieu of perception aesthetic engagement is in continuous motion and it is about the interpenetration between perceiver and environment

* ***Scale*** then is context related and in continuous motion or transformation

* Unveiling this aesthetic engagement or sensuous encounter between nature and our body asks for exploring the phenomenon of nature having as departure and ending point our skin: membrane that contains all our senses and our brains. And our skin, from a perceptual point of view, engages with phenomenon of nature that express within our time-space frame.

This requires a specific landscape analysis that takes the human ***body*** and ***perception*** as its main basis, as departure and ending point.
Method that relies on the skin as a tool for
generating and ***describing***
sensuous data.

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chapter 4

Phenomonelogy, Embodiment and Language

This chapter explores ***phenomenology*** as the method for depicting the perceptible realm, the ***scale*** at which humans engage with environmental phenomena.

Section 4.1 makes a summary of ***chapter 3***, in order to proceed with ***section 4.2*** that starts by describing what consists of ***phenomenology*** as philosophical tradition, the intentions that it aims: to describe the way the world makes appearance to humans, rather than explaining it. It continues by linking this scientific view to the field of landscape architecture as a very particular method for studying landscapes, and reflecting upon the role of language in the exercice of unveiling the world, and the landscape, under this phenomenological lens.

Given the relevance of language for description, ***section 4.3*** provides aesthetic definitions for phenomenon of nature. Definitions that are instilled with the way humans embody those phenomenon.

Section 4.3 and ***4.4*** reflect upon the aesthetic concepts of ***Limit*** and ***Rhythm*** and their relevance for better framing the embodiment of phenomenon of nature, that are in continuous motion, express in different rhythms as explained in ***chapter 3*** and that most vividly express in the ***limits.***

Eventually the chapter concludes with ***section 4.5*** by giving specific definitions for ***limit*** and ***rhythm*** so that they can be studied under phenomenological lenses, and with ***section 4.6*** an overview is given of the outcomes of the chapter.

4.1 *Reflecting upon the method*

* We have ended the former chapter asserting that in the ***realm of perception*** ***scale*** is related to our skin, the permeable boundary that contains our specialised senses and brains, and that when our skin encounters the phenomenon of nature, then, we engage with form that expresses in a specific time-space frame, time-space frame in which we are able to perceive the manifestation of nature.

* We have also stated that nature reveals in different ***rhythms*** or temporalities and not all of them belong to our realm, to our time-space frame, despite the fact of all of them being relevant.

* Focusing in phenomenon of nature that manifest in our perceivable time-space frame, then, we come to:

the ***ephemeral rhythms***, 'phenomenon experienced in the landscape as short-lived and which come and go irregularly' (Palang et al. 2007:3),

to ***tidal rhythm***, that provide a temporality which is highly visible hour to hour and is apprehended within everyday human time ' (Jones, 2010)

and

to ***seasonal rhythm*** , which are the phenomena that 'have a regular repeating pattern' that usually only bring imperceptible change on a daily basis, but perceptible changes in a year basis (Palang et al. 2007:3).

* And to determine this ***sensuous relationship*** we establish with ***phenomenon of nature***, which is based on our skin, on our body, on the measures that we own, needs a method that relies on this skin as a tool for generating and describing sensuous data, a method that takes the ***human body*** and ***perception*** as its main basis.

* And amongst the several methods available for looking at the landscape, ***phenomenology*** is a convenient one.

Phenomenology

Illustration 4.1. Phenomenology
Author: Chema Madoz ©

4.2 Phenomenology

Origins of phenomenology

Phenomenology is the Western philosophical tradition that has most forcefully called into question the modern assumption of a single, wholly determinable, ***objective reality*** (Abrams, 1997: 31).
Edmund Husserl inaugurated the philosophical discipline of ***phenomenology*** in the early 1900´s, aiming to turn toward the `***things themselves***´, toward the world as it is experienced in its felt immediacy, in our sensuous encounter with it. Phenomenology would seek to ***describe*** as closely as possible the way the world makes itself evident to awareness, the way things first arise in our direct, ***sensorial experience***. By thus returning to the taken-for-granted ***realm of subjective experience***, not to explain it but simply to pay attention to its ***rhythms*** and ***textures***, not to capture or control it but simply to ***become familiar*** with its ***diverse modes of appearance*** or ***expression*** – and ultimately to give voice to this enigmatic and ever-shifting patterns - ***phenomenology*** would articulate the ground of the other sciences (Abrams, 1997:35).

Phenomenology and Landscape

Phenomenology offers a particular approach to the study of landscapes, shaping both ***what*** is studied under the heading of landscape, and ***how*** it is studied (Wylie, 2013: 54). 'The relationship between phenomenology as philosophy and landscape involves developing an account of ***culture-nature*** relations that is radically different from an orthodox scientific conception of nature as an ***external realm***, distinct from human thought and practice' (Wyllie, 2013: 54).
De Lue and Elkins describe ***phenomenology*** in terms of an encounter, ***sensuous encounter*** – a ***lived***, ***embodied*** and ***affective*** experience -from which arises both a sense of self and a sense of landscape (Wyllie 2013: 58).

This affective experience can provide a rich, intuitive approach to meeting nature and discovering patterns and relationships that are not only stimulating intellectually but also satisfying emotionally and spiritually (Seamon, 1998:10).

The ***phenomenological method*** brings (aligns) human being and therefore human scale and sensuous encounter together. As J. Wylie writes, phenomenology grapples with fundamental issues around ***subjectivity, knowledge*** and ***perception*** (Wilye, 2007: 147).
Nevertheless, in order to proceed with ***revealing*** the sensuous dimension of experience of nature we borrow the method already suggested Rudi van Etteger (2014) and focus on ***qualitative description*** of the ***aesthetic embodiment***[1] of the landscape as main tool for depicting the ***perceptible realm***:

1 According to Berleant (2004: 88), being fully present through the distinctive presence of the body with the sensory focus and intensity we associate with the experience of art.

to explore the extension of our body, the measure, the length of our arms reaching the landscape

Phenomenology and Language

Merleau Ponty tried to demonstrate that the event of ***perception*** unfolds as a reciprocal exchange between the living body and the expressive/animate world that surrounds it. He showed as well, that this exchange, for all its ***openness*** and ***indeterminacy***, is nevertheless highly articulate. The disclosure that preverbal perception is already an exchange and the recognition that this exchange has its own coherence and articulation, together suggested that ***perception***, this ongoing reciprocity, is the very soil and support of that more conscious exchange we call ***language*** (Abrams, 1997: 53).

Marcia Eaton in her article `Responding to the call for new landscape Metaphors', writes that we can only communicate with an already existent language (and cultural sign system) advising us to describe the landscape in recognizable terms (which are rooted in shared social perceptions.) In the same line A. Whiston Spirn asserts that landscapes can be read, that have a language, and that landscapes can be designed using this language, but that this language comes from the landscape itself, not in words (Spirn, 1998). Dualism? Not indeed. This means that we perceive landscapes according to the language we own for expressing them and that this same language should be more acquainted with the elements that compose it. After all, language is one of the multiple manifestations of human understanding and interpretation.

'Natural language, yes, in an adamic sense, hence, manifestation visible, sensitive and immediate' (Barañano, 1991: 20)

What is the language of the southern coast of Schouwen Duiveland? How does it speak to our senses? are the first questions that come to our mind when we intend to describe the landscape in the way we sense it, in our sensuous encounter.

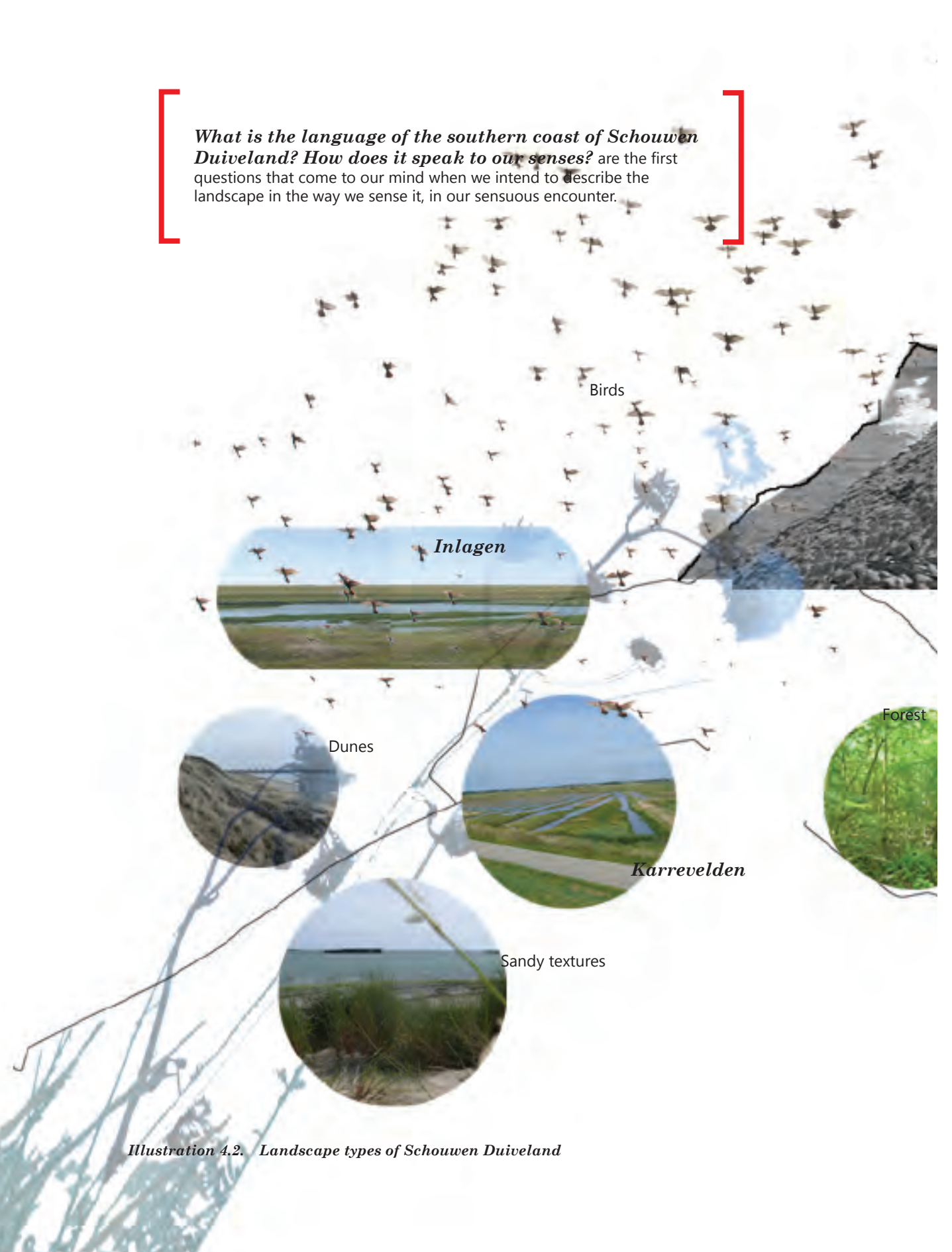
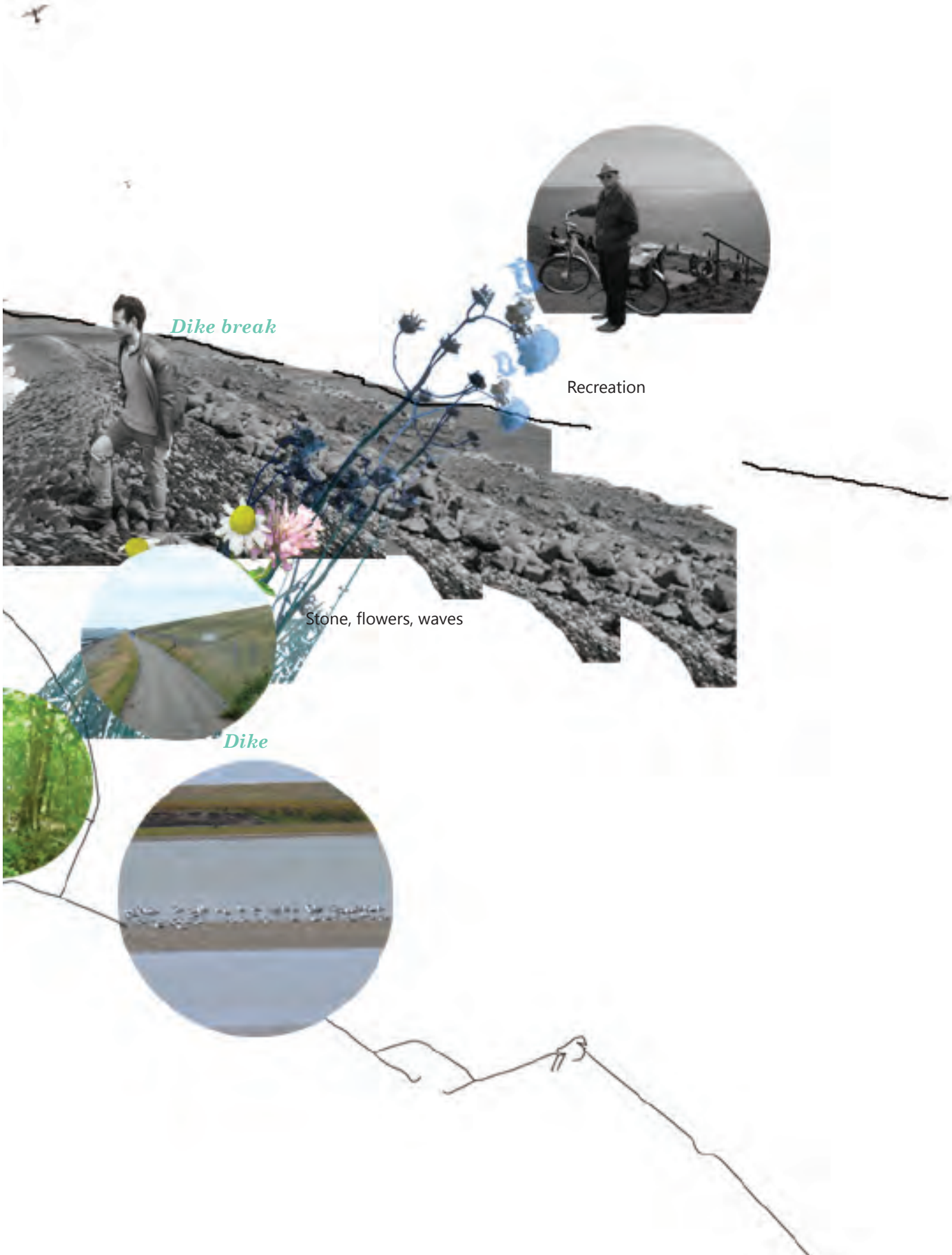


Illustration 4.2. Landscape types of Schouwen Duiveland


Dike break
Recreation
Stone, flowers, waves
Dike

Schouwen Duiveland is the northernmost island belonging to the province of Zeeland. Zeeland makes reference already in its etymology accurately to ***sea*** and to ***land***; the two elements of nature that have most forcefully defined its ***contour***.

Schouwen Duiveland very well stages the interaction of landscape and culture as the' ***tangible meeting point between nature and mind***' (Naveh, 1995). Equally shaped by both the forces of nature and human intention, the landscape is 'constituted as an enduring record of – and testimony to - the lives and works of past generations who have dwelt within it, and in so doing, have left there something of themselves' (Ingold, 1993).

Illustration 4.3. Historical endikement of Schouwen duiveland

The essence of the landscape of Schouwen Duiveland still nowadays can be best described making allusion to elements of nature.

Shallow water *Horizon* *Sea* *Sky* *Clouds*
Low Vegetation

And to human intention and expression

Dikes *New Nature*

4.3 Aesthetic definitions for Schouwen Duiveland

The definitions that are explained below are infused with human ***scale***; they are infused with our ***measures***, with the ***tactile relation*** our permeable boundary, our skin by means of our specialised senses and mind establishes when we sensuously encounter ***phenomena of nature***.

**** Sea***

the sea, the relief faced with the sky, the air and the wind (Barañano, 1991: 21)

its waves, perpetual repetition, always and never the same, always identical and always different (Chillida, 1991)

lines and reliefs that are the waves and their foams (Barañano, 1991: 21)

**** Wind***

an invisible hand that combs the sea and the forest as well as the hair of men and women (Paz, 1991:41)

**** Horizon***

the ***horizon***, etymologically speaking, is in fact the ***limit*** of our body´s vision, the frontier of our ***ocular experience*** (Barañano, 1991: 16).

**** Panorama***

Visual opening that is contemplated from an elevated site (Barañano, 1991:24)

**** Aroma or salt spray***

The aroma is another metaphor
of the wild and wanderer space (Paz, 1991:43)

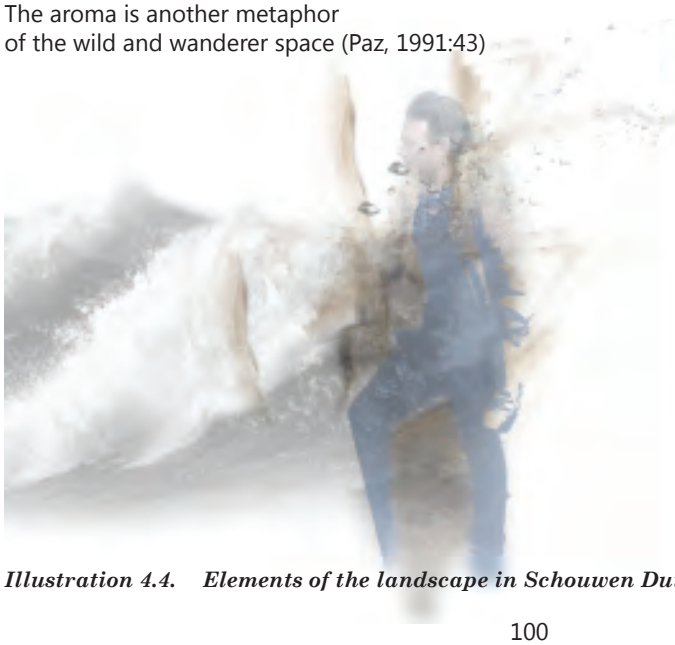


Illustration 4.4. Elements of the landscape in Schouwen Duiveland

* *Dike*

The ***dike*** is man - made material manifestation, ***form*** that relates ***nature*** with ***human intention***. Humans materializing the concept of protection from the forces of the sea, moon and wind, tides and storms that become menace when humans have conquered the space belonging to the sea: secret pact (Barañano, 1991: 15).

Nevertheless, from a ***phenomenological standpoint*** nature and its forces are expressed in a different mode of ***appearance*** by means of the ***dike***:

(from the phenomenological booklet in chapter 5)

... We listen to the sea and see the waves crashing on the dike. The wind that covers it all overwhelms us combing our hair and the grass and the flowers of the dike, making visible what by definition is not, the air. In the dike we experience the horizon, the sea and the sky merging in one line, drawing the limits of our body´s vision. The dike becomes panorama, frame for the horizon and the lines and the reliefs of the waves and their foams...

The dike is ***transposition*** of the visual, olfactory, tactile and auditory. The dike becomes ***material form*** that both opposes and transposes. The dike opposes the natural expression of the sea meanwhile facilitates a new expression of the elements of nature. As J. Allen (2000: 54) explains, the '***formal significance*** of boundaries ***drawn in space*** is that such lines connect as much as they divide those on either side of a boundary'.

The dike therefore as a boundary or a limit that opposes as well as connects.

Illustration 4.5. The dike, the sea, the waves, the foams, the grass, the birds, the horizon, the clouds, and humans. Naiara Valcarlos ©

4.4 *The concept of Limit*

The similarity between ***boundary*** and ***limit*** in its material configuration is evident. Boundary, according to Casey (2011: 94) implies to be a humanly constructed entity. He adds to this that it is permeable, porous, allowing the transmission of people and animals. This is only partially true for the dike line, since the dike is constructed for not allowing the influence of the tides.

The concept of ***limit*** however contains in itself a dimension that involves the greatest amount, number or level of something that is either possible or allowed (Cambridge dictionary, 2014), taking further the spatial configuration already implied in the concept and enlarging it, to include, its expressiveness.

Chillida is one of the most recognized sculptors of the XXth century and the concept of ***limit*** is the primary subject of his artistic investigations. This concept, so natural in the Greek World (and particularly evident in the relation between the landscape and architecture), and which appears throughout Heidegger´s analysis of space, has been described by Chillida in the following way (Barañano,1991: 16):

> ***'The limit is the true protagonist of space', 'just as the present, another limit, is the true protagonist of time'***
>
> ***`Where all the things become relevant´, ` when things stop being´***
>
> ***`Where things touch each other but remain different´***
>
> ***(***Chillida, 1991***)***

And making use of this abstract language, he suggests that it is in what he calls the ***limits*** where the most relevant phenomena occur.

Limit in relation to perception: murmur of limits

Isn't it the limit, represented in Schouwen Duiveland by the dike, the spatial configuration where phenomena of nature more vividly express?

Limit, bringing together all the definitions given above comes to mean that it is the space where the greatest amount of experience is allowed and outstands from the surrounding space, being true protagonist, playing the main role in the aesthetic expressiveness of the landscape.

Thinking of the significance the dike materially and perceptually means, it is what the phenomenologist Casey (2011: 92) describes as being ***'perceptually obvious***, standing out and unambiguous in its presentation' ... 'and undeniably ***present in ongoing perceptual experience'.***

Chillida goes still further in his aesthetic investigations, exploring the interplay of phenomenon of nature and poetic language, in order to suggest the metaphor ***`murmur of limits´***.
His concept of ***murmur of limits*** goes deeper than just water and land elements, questioning the interplay of ***limits*** between sea and sky, water and wind, voices of the water and voices of the air, those lines and relieves that are the waves and their foams (Barañano, 1991:21).
In this way, ***murmur*** becomes metaphor for the soft continuous sound played by the sea and the winds, their voices that are mediated by the ***limit***, the man-made material manifestation: ***murmur*** meaning interaction, the communication the elements establish and that expresses and accompanies us along the line, the limit the dike represents in the landscape. Because in his metaphorical investigation ***murmur*** is also ***rhythm***. Therefore, specific ***rhythm*** given by the materiality of the dike in combination with the movement the elements, in their interaction, facilitated by the dike, display. Then, the dike, the ***limit***, a ***line*** in plastic language, rather than opposing or dividing, under the umbrella of ***murmurs***, allows a new interaction of the elements.

> The ***limit*** as the spatial configuration where aesthetic expression most intensively manifests
>
> ***Murmur of limits*** as the interaction of the elements that takes place by means of the dike, phenomena with which we engage

The dike, in relation to the ***perceptual realm*** becomes

* ***spatial configuration*** allowing the greatest sensuous encounter with phenomena of nature: the ephemeral, the tidal and the seasonal rhythms we concluded in ***chapter 3***, the rhythms of nature that manifest in our perceivable time-space frame

* ***spatial configuration*** from which we start exploring the extension of our body, the length of our arms

* ***spatial configuration*** from which we depart and by means of which phenomenal knowledge is generated, gathered and stored in the form of sensuous data, in close relation with the materiality of its form and its textures;

* ***spatial configuration*** where the flesh of the site takes place

But not only this, the metaphor extends to the culture-nature encounter, where the limit plays the role of mediator line between the man-made ***inlagen*** and ***karrevelden***, cultural heritage of past land management, and the sea.
This cultural inscription in the landscape indeed makes a point in the aesthetic embodiment: it becomes material manifestation of human practice, containing its own history, storyline and materiality.

Murmur of limits

Lines and reliefs that are the waves and their foams

Illustration 4.6. Murmur of limits: elements of nature interacting. Naiara Valcarlos ©

4.5 *The concept of Rhythm*

Coming back again to Chillida and his aesthetic investigations, an art historian reflecting on Chillida's work and words explains that:

> ***'discovering the rhythm equals to discovering the similarities and differences, the essence ... Once reduced to its essence, form and the elements, at the beginning thought of as being different, reveal their profound relationship*** (Corredor - Matheos, 1991:34).

This statement is related to the aesthetic exploration Chillida has carried out along his extended oeuvre. Therefore, it belongs to the aesthetic and plastic realm, closely related to the exercise of thinking and unveiling space. Nevertheless, ***rhythm*** as concept that relates ***form*** with the ***elements*** that compose it can be translated into landscape.

Rhythm and its definitions

'Time is also part of the lived experience, and it can take many forms, such as physical, biological, mental, cosmic, social, cyclical and linear time, all of which we encounter in everyday life and in the body' (Simonsen, 2005).

First, isn't it true that the dike line and the surrounding elements of the landscape that conform the nature development of Schouwen Duiveland, the sea, inner shallow water, and earth, create a specific landscape composition?
Isn't it true that different proportions between the elements draw different landscape compositions? And as long as the proportion of those elements changes, the landscape reveals different sequences[1], still consisting of same elements and forces of nature. Eventually, isn't it true that we then experience along the dike line different sequences that provide different sensuous encounters?

Second, isn't it that nature itself reveals in different rhythms as suggested already in ***chapter 3 section 3.5***? In that section it has been explained that nature expresses in time space-frames not always perceivable for humans (Dee, 2010; Edensor, 2010; Ingold,2000). There are different temporalities, different time frames and nature makes itself perceivable (in motion) for humans only if they express themselves in our human time space frame. The phenomenon we experience in Schouwen Duiveland in motion express in cyclical and lunar cycles: the seasons and the tidal movement.

1. A succession of related shots or scenes developing a single subject or phase of a film story (Merrian Webster Dictionary)

And third, ***rhythm*** is also ***dynamism***, the dynamism of the line, as Barañano describes it, when we consider it a plastic element, containing serial features that install a sense of spatial belonging (along the dike) (Baranano, 1991: 16; Edensor, 2010:6). Serial features that in the dike line mean the entries to it, historical dike breaks, and relics on the dike line.

The line, with its ***direction*** and the ***variations on it*** has the ability ***to frame differently the phenomena of nature*** and with ***different intensities*** depending on its ***relief***. Therefore, embodying the landscape by means of the line, differently .

Rhythms are essentially ***dynamic*** (Lefebvre).

* ***Rhythm*** as different proportion/relations of elements of nature that compose in the landscape sequences .
* ***Rhythm*** as time duration in relation to the expression of phenomena of nature (non-human rhythms): seasonal cycle and lunar/tidal cycle in Schouwen Duiveland
* ***Rhythm*** related with directionality and variations of the line, including its materiality and mobility (embodiment), both contained in the line, providing different intensities

To conclude, it is a ***rhythmic ensemble***, meaning that changing rhythmic processes interweave to afford places a mixity of temporal perceivable phenomena (Crang, 2000), and the ***dynamism*** of the line affords perceivable phenomena with different intensities. ***Spatial configuration*** through which ***rhythms*** co-exist: both natural rhythm, expression of nature, and material rhythm, provided by the line.

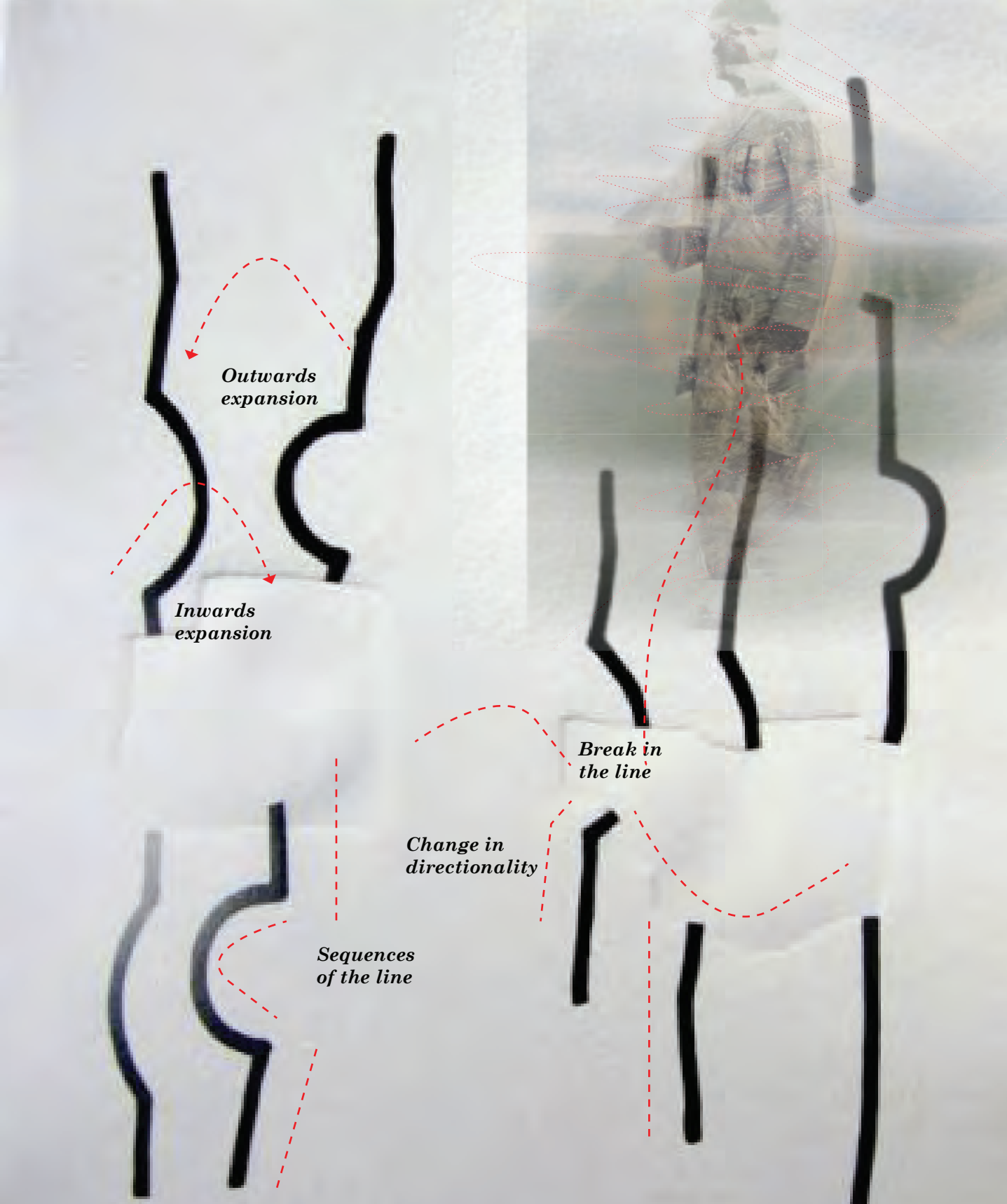


Illustration 4.6. The dynamis of the line framing different sequences and intensities. Eduardo Chillida ©

4.6 Conclusion

To conclude, when we bring together the concepts of ***limit*** and ***rhythm*** we provide a ***spatial configuration*** where the phenomena of nature more vividly express themselves, that expressiveness consisting of the murmur or interaction of the elements and processes of nature. Along the dike line the elements conform different sequences based on how those elements relate in the lanscape, nature expresses in different rhythms, and the limit contains its own dynamism, framing phenomena with different intensities.

Eventually, ***limit*** and ***rhythm*** are site contextual concepts for space and time in which the phenomena of nature and their temporality in relation to human perceptual frame is already embedded. And both are interrelated.

The dike line, the representation of the limit in Schouwen Duiveland therefore is:

spatial configuration* from which we start exploring the extension of our body, the length of our arms

spatial configuration* from which we depart and by means of which phenomenal knowledge is generated, gathered and stored in the form of sensuous data

spatial configuration* that reveals sequences of the landscape

spatial configuration* that links temporal perceivable phenomena

spatial configuration* that affords the ***murmur of limits***, forces of nature in eternal interaction expressed in different intensities

spatial configuration* where the flesh of the site takes place

To summarize:

spatial configuration* where the flesh of the site takes place by means of an ensemble of ***rhythms*** and ***murmur*** of the forces of nature

(Crang, 2000; Chillida, 1991)

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chapter 5

Phenomonelogical analysis of the aesthetic concepts

This chapter illustrates the ***phenomenological analysis*** of the ***aesthetic concepts*** developed in ***chapter 4:*** ***Limit*** and ***Rhythm.***

It intends to give voice to the phenomena of nature in the way they first arise in our direct ***sensorial experience*** as explained in ***section 4.2*** (Abrams, 1997:35). The arrival to these concepts is driven not only by aesthetic and philosophical theory explained in chapter 4, but also by sojourns that allowed the ***sensuous encounter*** with the landscape, and shed light in the essence of the perceptual experience of Schouwen Duiveland. This eventually led to the aesthetic concepts and aesthetic definitions that help in framing the phenomenological analysis. These concepts are revised along ***section 5.1***, and the relevance of language in ***section 5.2***

These sojourns are explained and illustrated in the form of a booklet in ***section 5.3*** and it summarizes the ***sensuous encounter*** taken place on such sojourns.
Section 5.4 focuses on the ***aesthetic concepts*** and their ***phenomenological analysis*** in the south coast of Schouwen Duiveland, that consists of three main studies: ***'the sequences of the landscape'***, ***'the dynamism of the line'*** and ***'the relief of the line'***, each of them containing their own conclusion of the analysis.

Section 5.5 summarizes the outcomes in maps: the sequences of the existing landscape on the one hand, and the intensities of murmur of limits in relation to the dike relief on the other.

'La clé, c'est regarder... regarder
observer
voir
imaginer
inventer
créer
(Le Corbusier, 1963)

'The key, is looking ... looking
observing
seeing
imagining
inventing
creating
(Le Corbusier, 1963)

Illustration 5.1. The glasses of Le Corbusier.
Source: http://www.maisonbonnet.com/en/frames/041-modele-le-corbusier.php

5.1 Revising aesthetic concepts

Limit

As explained in ***chapter 4,*** ***limit*** is the ***spatial configuration*** that frames the greatest amount of experience allowed, and outstands from the surrounding space, playing the main role in the ***aesthetic expressiveness*** of phenomena of nature:

it is an ***outstanding edge*** as spatial configuration (Casey, 2011),
and
it is at the same time ***mediator*** of the forces of nature

allowing a new expression of them.

In Schouwen Duiveland this ***limit*** is materialized in the ***dike***. And as mentioned in ***section 4.2*** the dike line is ***material manifestation*** that relates ***human intention*** with the ***forces of nature***, signing a secret pact.

The dike, from a ***phenomenological standpoint*** is:

* ***spatial configuration*** allowing the sensuous encounter with the phenomena of nature: the ephemeral events, the tidal rhythm, and the seasonal rhythm; facilitator of experiences and revealing them anew

* ***spatial configuration*** from which we start exploring by means of our hand and the extension of our body, by means of the metrics that we own

* ***spatial configuration*** from which we depart and by means of which phenomenal knowledge is generated, gathered and stored in the form of sensuous data

* ***spatial configuration*** where the flesh of the site takes place

And the metaphor ***murmur of limits*** is:

* the ***interplay*** of phenomena of nature, the communication the elements establish and that expresses and accompanies us along the line the dike represents in the landscape; specific ***rhythm*** given by the materiality of the dike in combination with the ***rhythms*** that nature itself owns, allowing a new interaction of the elements: voices of the water and voices of the wind, the lines and reliefs that are the waves and their foams, the horizon as the limit of our sight experience, and the murmur of water and land, nature and man

Rhythm

Rhythm is the concept that brings the ***temporal expression*** of phenomena of nature together with the material expression the ***limit*** contains by means of its history, dynamism, and materials. To summarize, it is a ***rhythmic ensemble***, meaning that:

* changing rhythmic processes interweave to afford places a mixity of temporal perceivable phenomena (Crang, 2000).

* the ***dynamism*** of the line affords perceivable phenomena with different intensities.

Eventually,

* ***Spatial configuration*** through which rhythms co-exist or

* ***Spatial configuration*** where the flesh of the site takes place by means of a ***rhythmic ensemble***.

5.2 The role of aesthetic concepts and language in phenomenological analysis

Both concepts, ***limit*** and ***rhythm*** form a symbiosis; they are site contextual concepts for space and time in which the expressivity and temporality of phenomena of nature in relation to human perceptual frame is already embedded, as has been previously mentioned in ***section 4.4***. Spatiality and temporality are inseparable (Simonsen, 2005; Chillida, 1991). Or, according to Lefebvre (1991: 175), ***'time is distinguishable but not separable from space - the two of them manifest themselves as different yet inextricable'***. Therefore, a clear demarcation is impossible. And consequently the phenomenological analysis will then take as basis the spatial configuration of the dike and reveal its expressivity in relation to material and temporal rhythms.

In the same way if nature is life and sequence, the elements are in continuous interaction, and thus, its perception is inevitably in dialogue, merging one into the other.

In ***chapter 3*** we have stated that ***scale*** in the milieu of perception is closer to our ***physical sense of touch***, to that ***telluric knowledge of the skin***, an ***interrelation*** that has its departing point in our skin and relates to the telluric substrate. This is at the same time the sensuous space where the distances are measured not by means of geometry but by means of our hand and the extension of our body. ***Geometry*** then in this ***phenomenological analysis*** is used for conceptualizing the space in its real dimension, becoming the canvas on which to illustrate the ***sensuous data*** that is generated under the umbrella of the concepts and definitions, aware as we are that the sensuous encounter we are intending to illustrate does not belong to the geometrical realm, but to our sense of touch.

5.3 Aesthetic embodiment of south Schouwen-Duiveland

The ***aesthetic embodiment*** (Berleant, 2004) has as main premise to describe the ***sensuous encounter*** with the nature development of the southern coast of Schouwen Duiveland. The booklet gathers all the trips to Schouwen Duiveland and presents the step towards the discovery of the ***concepts***.

5.4 Analysis of the aesthetic concepts of *Limit* and *Rhythm*

Aesthetic embodiment of the site and the concepts and definitions departing from the elements of the landscape that configure Schouwen Duiveland nourish each other in the attempt of illustrating the sensuous encounter. The phenomenological study illustrates the ***sequences*** we can experience in the nature development, the ***dynamism*** the line shows in relation to its serial features (Edensor, 2010), and the ***intensity*** the ***murmur of limits*** present along the ***dike*** line.

Revealing the sequences of the landscape taking as basis de Limit

We pose the next questions to ourselves:

What are the elements of the landscape?

Sea, dike, land, shallow water, low salty/brackish vegetation, forest, invisible wind

What is their composition, distribution like along the dike?

What are the materials?

Water, wet and dry sand, grass, stone, asphalt

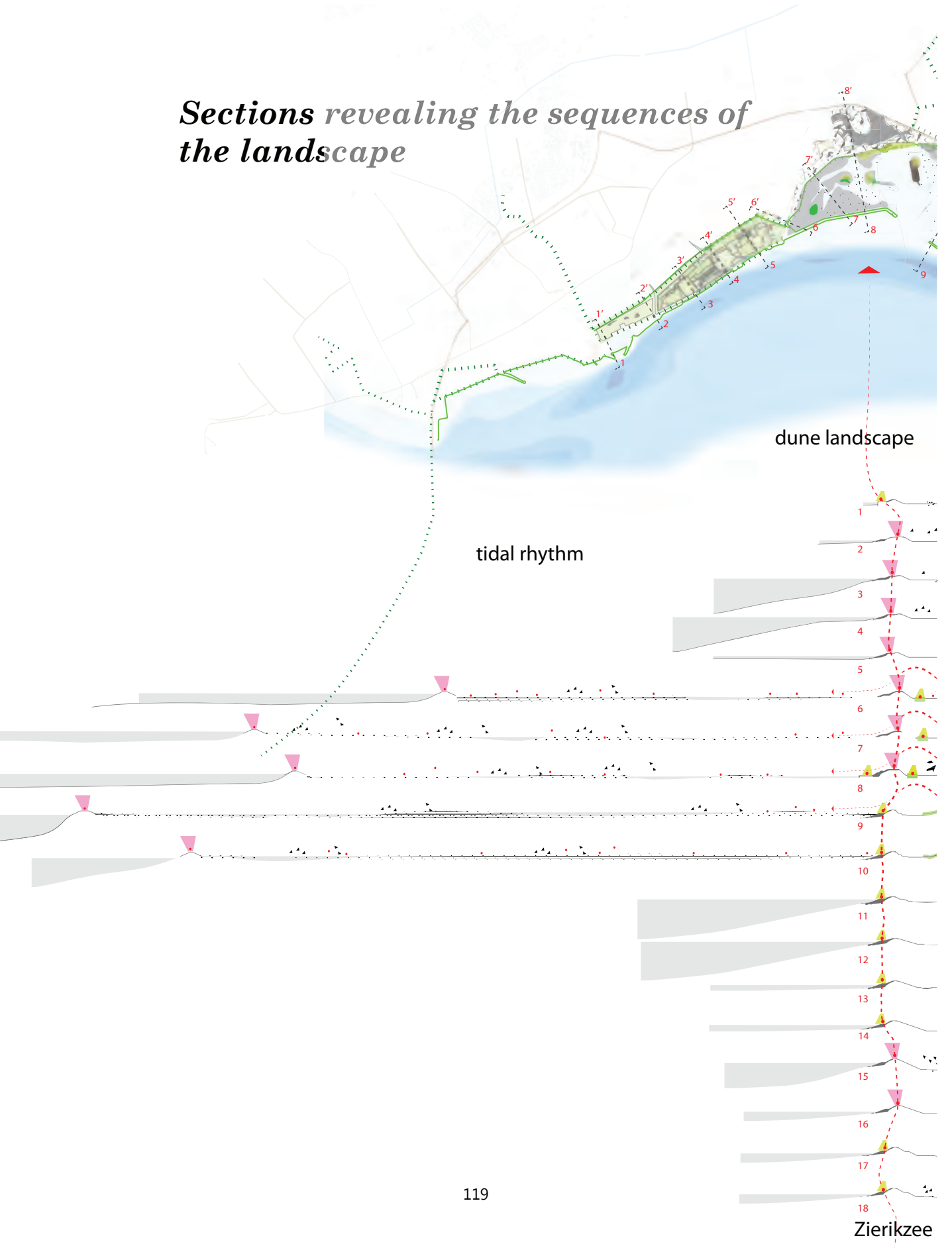
How do they all relate each other and to us?

As infrastructural line, path, that the dike becomes, it also allows to experience the landscape; landscape that reveals as the interaction of the forces of nature and human intention along the centuries. Through the act of walking we discover the landscape in different ***sequences***; sequences in which the interrelation of water, land and vegetation goes varying.

The technique used for revealing and illustrating these sequences has been the sections along the landscape. Those sections have as basis the dike line since the human body moves along this path in the nature development. This technique allows to position the human body in the specific location (red dots on the section), and makes possible to illustrate how far or close the eyes reach, to intuit the horizon in each section, to discover the landforms in contrast to the flatness, and eventually, the composition of the elements.

By drawing sections each 500 metres approximately we are able to have an overview of the different compositions, and for how long each of those compositions extend.

***Sections** revealing the sequences of the landscape*



We discover five ***sequences***.

-. ***Old Land***

_. ***Schelpoek after 1953***

_. ***Water - Land Nature***

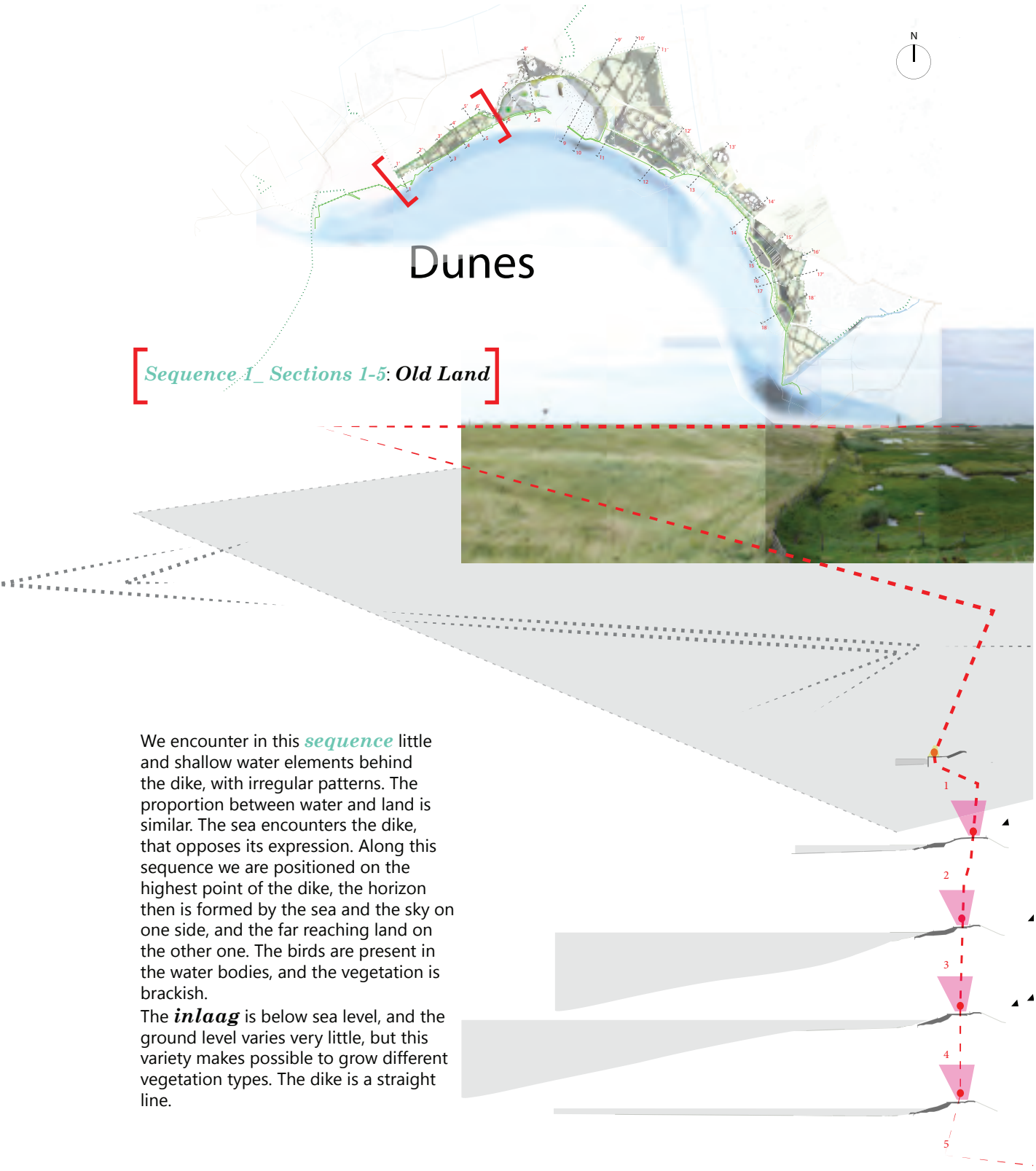
_. ***Transition Zone***

_. ***Land - Water Nature***

The following pages illustrate and explain the ***sensuous encounter*** along these five ***sequences***

Dunes

Sequence 1_ Sections 1-5: ***Old Land***



We encounter in this ***sequence*** little and shallow water elements behind the dike, with irregular patterns. The proportion between water and land is similar. The sea encounters the dike, that opposes its expression. Along this sequence we are positioned on the highest point of the dike, the horizon then is formed by the sea and the sky on one side, and the far reaching land on the other one. The birds are present in the water bodies, and the vegetation is brackish.

The ***inlaag*** is below sea level, and the ground level varies very little, but this variety makes possible to grow different vegetation types. The dike is a straight line.

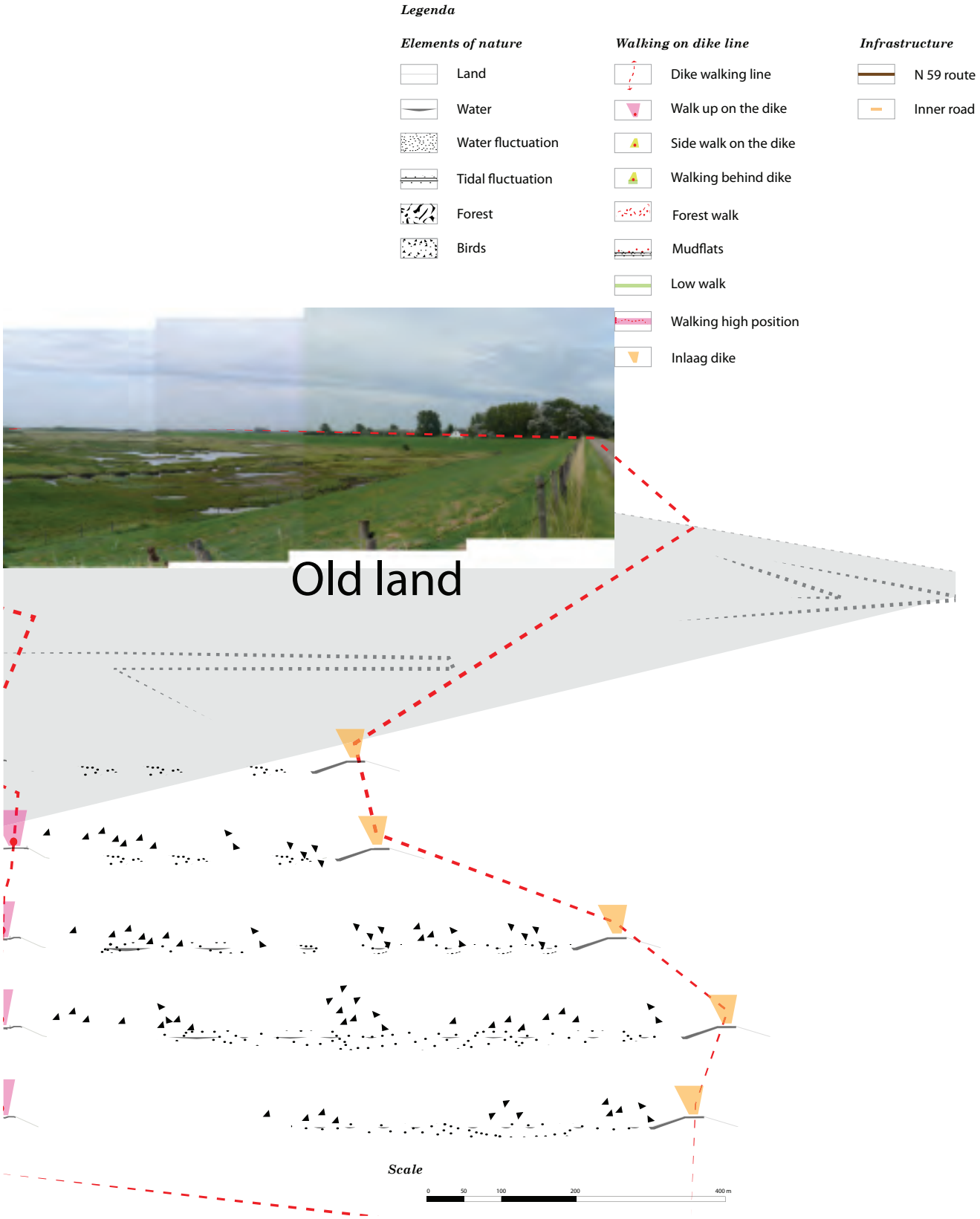
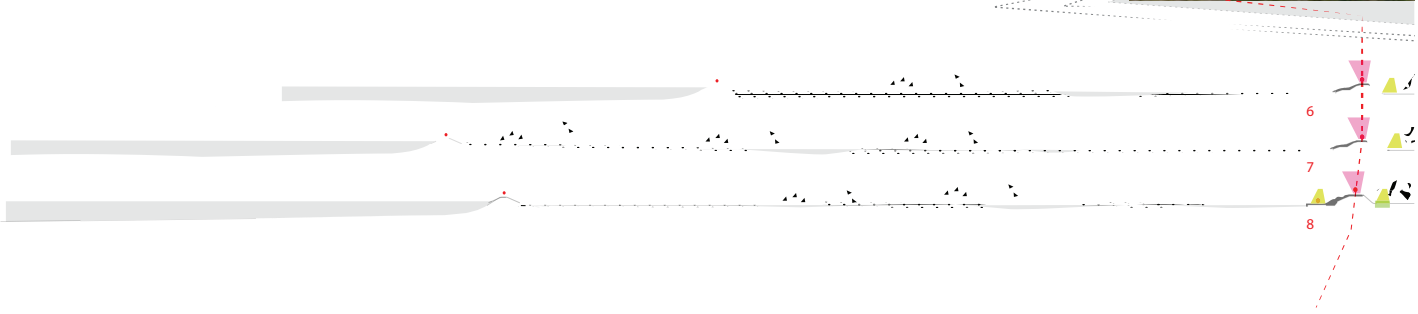


Illustration 5.3. Oudekerksche inlaag, Old land.

Sequence 2_ Sections 6-8: ***Water-Land nature***

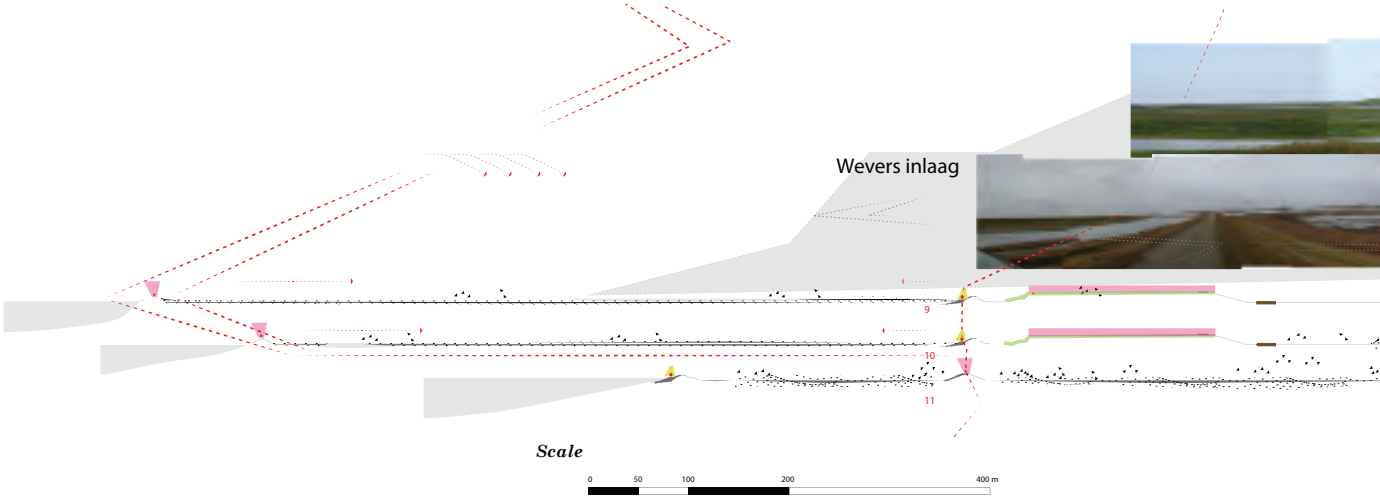


We find a ***sequence*** in which the sea and its tides express fully due to the dike break in 1953. The sea comes in and out in a kind of bay where sand is deposited by the tides, with shoals appearing and disappearing due to the tidal rhythm. The ring dike is immersed with the surrounding and makes appearance with a less rigid form, generating a gradient in which different kind of vegetation grow towards the sea, a gradient on which we are allowed to walk in different levels, experiencing different vegetation and textures. We are able to touch nature. The horizon encounters the remnants of the old dike line, and far, the sea and the sky.

Illustration 5.4. Open sea from the dike, and the forest, located behind the dike in Schlepoek

Behind the dike, through a vegetated wall we get immersed in a forest which is lower than the sea level (-0.6m), where we walk around a fresh water lake.
The sound of the sea then disappears, and instead, we perceive intense scents from the flowers. The ground consists of soft grass, and since the trees are high (around 4-6 meters) the sea landscape disappears. The vegetation is rich, from fresh condition growing plants, to sandy environment. The main feature is that the dike gets immersed with the surrounding landscape, becoming a less rigid element that merges the rhythms of nature, the tidal and the seasonal, and provides new textures and nature, becomes, tactile.

Sequence 3_ Sections 9-12: ***Water-Land nature***

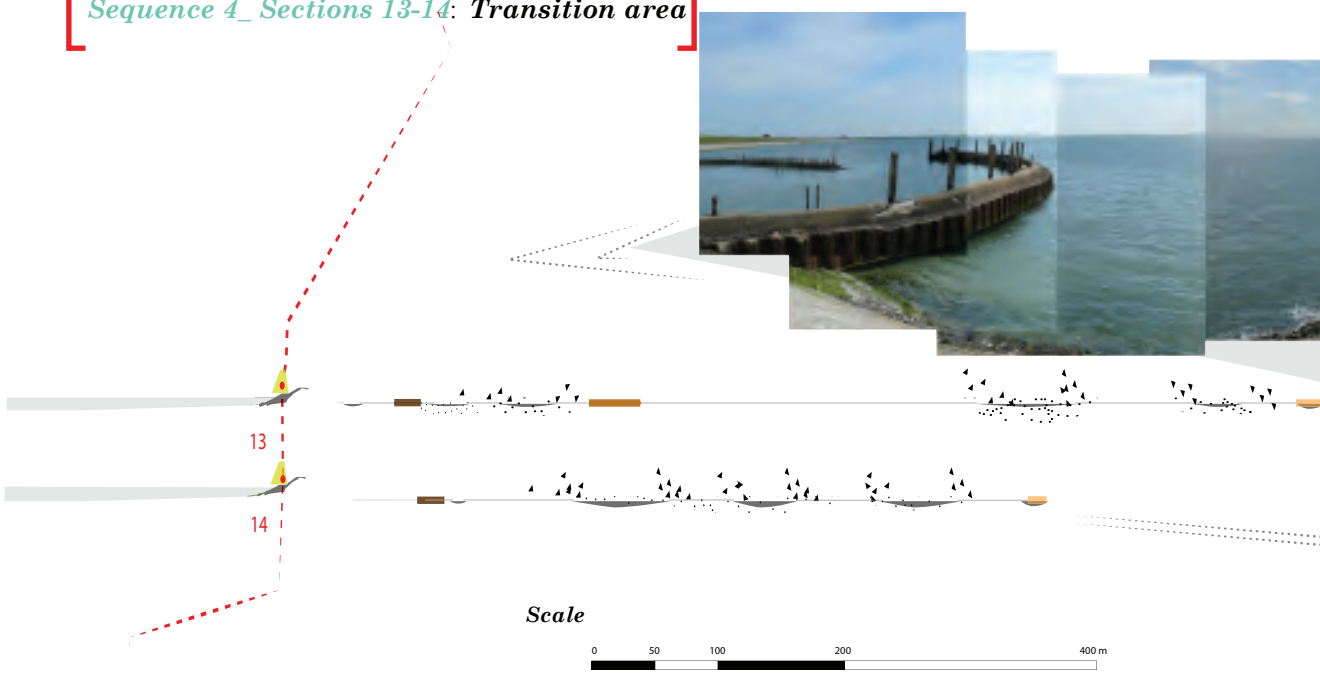


The ***sequence*** consists of very large water elements, the proportion of water being larger than the land and nature development extending both seawards and landwards. The birds are foraging in large numbers, and this sequence contains ***Wevers and Flaauwers inlaag*** which are again covered in water. It is a sequence in which we feel tiny in comparison to the large water elements. If we walk on the most seawards dike, the primary dike, then we are very close to the sea, feeling its immensity and power, feeling very exposed, making us to imagine how easily we could be engulfed by the sea. It is an undulating line, sensuous form, sinuous.

Illustration 5.5. The large water elements of Prunje and Wevers Inlaag

The sea has free movement in parts of the sequence, whereas in the other one encounters the dike opposing its natural expression. Nevertheless we walk along the inner inlaag dike mainly, therefore the sea is not visually present unless we decide to approach the first dike line; but the access is not convenient. The salt spray covers it all. But we are barely able to touch anything. The vegetation is brackish with reed in the edges of the large water elements. The horizon extends and extends, making the land to feel like infinite.

Sequence 4_ Sections 13-14: ***Transition area***



Scale

0 50 100 200 400 m

Legenda

Elements of nature

- Land
- Water
- Water fluctuation
- Tidal fluctuation
- Forest
- Birds

Walking on dike line

- Dike walking line
- Walk up on the dike
- Side walk on the dike
- Walking behind dike
- Forest walk
- Mudflats
- Low walk
- Walking high position
- Inlaag dike

Infrastructure

- N 59 route
- Inner road

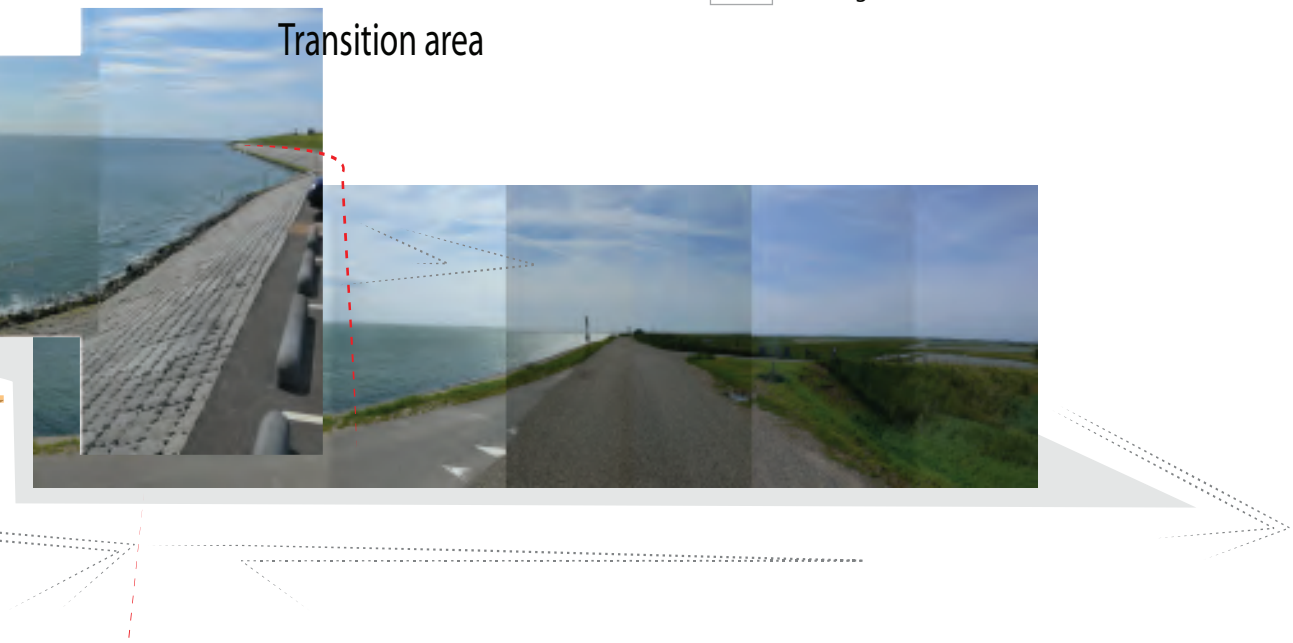
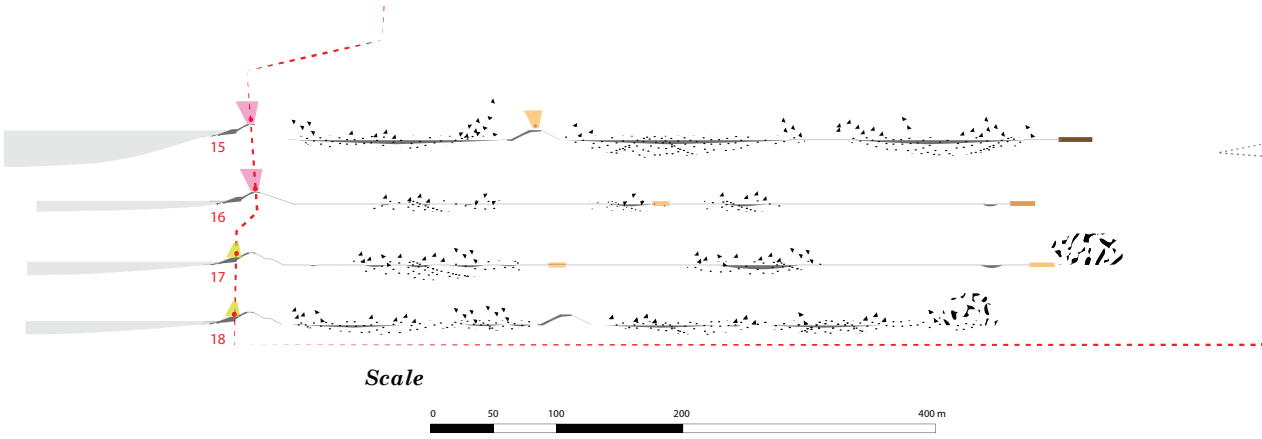


Illustration 5.6. The harbour

This sequence consists mainly of the straight elongated dike-line, with small in size and shallow water elements behind the dike, since the nature development stretches in this sequence, almost disappearing. The sea encounters the dike, but the bottom of the sea is not deep, so the waves come to encounter smoothly the dike, making more audible the cadence of the waves, with some mudflats next to the dike, being covered or not depending on the tidal rhythm. The horizon expands along this sequence far towards the shoals where sea lions live, providing relief to the horizon. We walk on the low side of the dike section, therefore, the sea is the only natural phenomenon to be perceived. There is a harbour and a cafe, thus human intentionality in the landscape is also present.

Sequence 5_ Section 15-18: ***Land-Water nature***



Land water sequence is the outmost expression of the encounter between culture and phenomena of nature. It contains ***inlaag*** and ***karrevelden***, material manifestation of human intention and the forces of nature, of their interaction. Even though not being accessible currently, they show the particular land configuration in the form of large lakes for inlaag, and land-water alternating stripes in karrevelden. It is very flat, and it is below sea level, (up to -1.6m) and we find again large elements of water in the landscape, even though smaller than along section 9-12. The birds are large in number again, and the dike opposes the sea and its tidal rhythm.

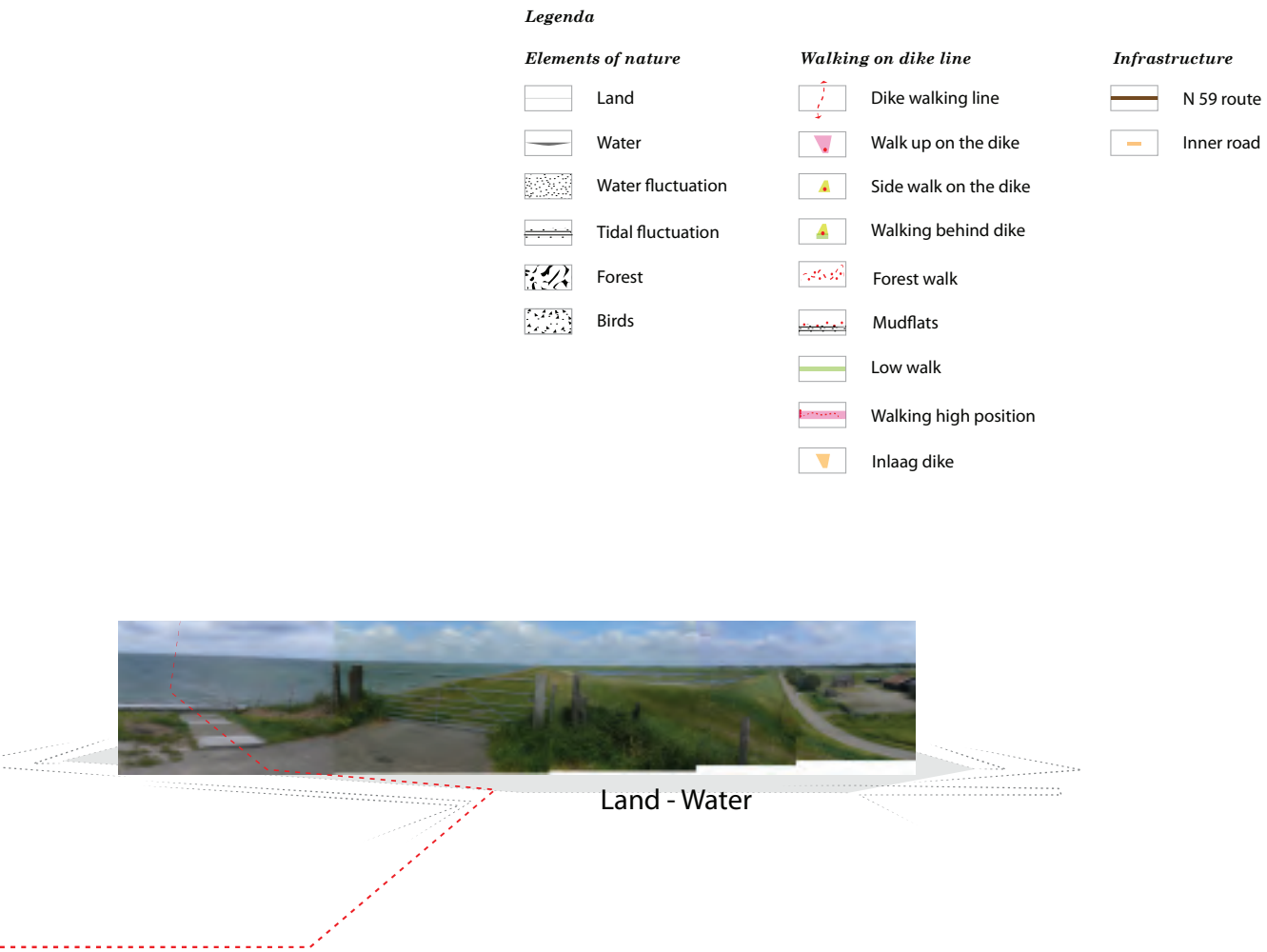
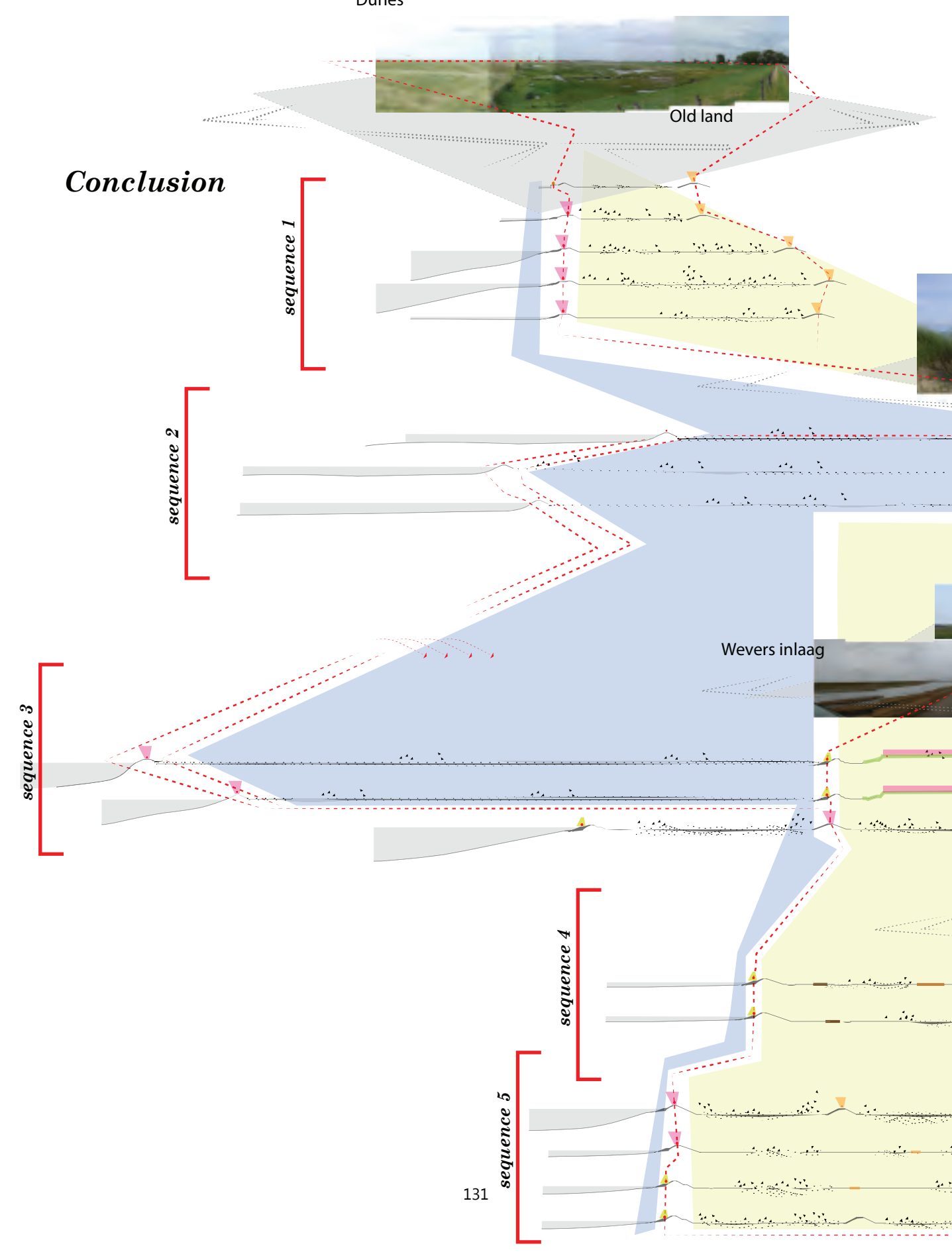


Illustration 5.7. Nature around Zierikzee, with inlagen and karrevelden

Along the dike we perceive very vividly the power of the wind and the sea, since the dike is perpendicular to the main wind direction. The dike contains more varied vegetation than in the other sections and we are completely exposed to the forces of nature as said before, to the winds, the waves, to the smell of the sea. And since we walk most of the time on the side of the dike, the horizon expands until encountering the sky on the one side, and in the other, we just encounter the dike, which is steep due to its height, and magnificent.


Dunes
Old land
sequence 1
sequence 2
Wevers inlaag
sequence 3
sequence 4
sequence 5

Conclusion

We find ***five sequences*** in which the different composition of the elements provide different sensuous encounters:

_from experiencing the free tidal expression of the sea (sequence 3) to the restrained ones (1-2-4-5),

_from enclosed forest (sequence 2) to absolute exposure (1-3-4-5),

_from large water elements (3) to little ones (5),

_from sequences revealing the past cultural landscape (1-5) to landscape sequences in which nature took over men intention (2-3) and expresses freely without constraints.

The sequences show as well a distinction between the tidal and the seasonal rhythm. The sea, with its tidal rhythm is present in all the sequences, either through encountering the dike, or fully expressing itself without the restriction of the dike, for instance, in Schelpoek. Shallow water/land nature however reveals most perceivable in a seasonal rhythm, with water fluctuating and vegetation changing its appearance seasonally, but its perception, since it remains inland is dependent on the dike. Therefore, the dike needs to be further studied. All in all, still, the different relations of these elements give us different sequences.

Illustration 5.9. Material for analysis

The Rhythm of the line

We are going to study the ***rhythm*** of the ***line***, its ***dynamism***, understanding the line as a ***'formal element containing serial features that install a sense of spatial belonging'*** (Edensor, 2010:6): the entries to the dike line, the changes of our situation on the dike, the dike breaks, and the ***inlaag*** and ***karrevelden*** as inland extension of the dike line.

The direction and the interruptions on the line are considered as well, since the line has the ability to provide us with specific frames for experiencing the phenomena of nature, determining what ***sensuous encounter*** we are going to experience, and influencing how this expresses by means of the relief of the dike, by means of determining our situation along the line. This ***situational condition*** (Baranano, 1991 ; Naveh, 1995) has been already addressed in the study of sequences: it was shown what was our situation in relation to the dike. But we will now reveal this ***situationality*** in its full dike length.

The technique used for illustrating the ***rhythm*** of the ***line*** has consisted of a thread that attaches to the dike line on the map, so that we are able to score on it all the features. By just taking the thread and extending it long wards we can establish the real distances in between those features. The advantage of keeping this real measures and using the thread is that we are able to reproduce exactly the walking or cycling line and distances as if we were walking or cycling on it, mimicking all the detours the dike implies.
In addition this method allows to determine what has been the historical development of the dike as well. It is easy to assume that there exists a direct relationship between the relief of the dike and the forces of nature that encounter it: the sea, its waves, and the wind. This method unveils also the relationship between human intention and the forces of nature along the history.

For illustrating all we have mentioned above we start by drawing:

The height of the dike line > its relief face to the sea and the sky; its history (Barañano, 1991:21)

Interplay of levels > the exposure to phenomena of nature

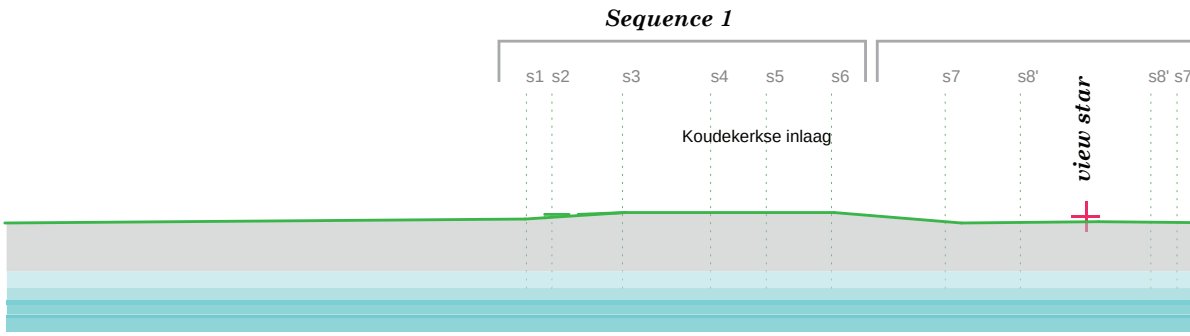
Second dike line > relief linking culture and forces of nature

Repeating signs > dike entries, historical dike breaks and relics that draw features on the dike line (Barañano, 1991:18)

The following pages illustrate them

a. The height of the line: the relief face to the sea and the sky

(Barañano, 1991:21)



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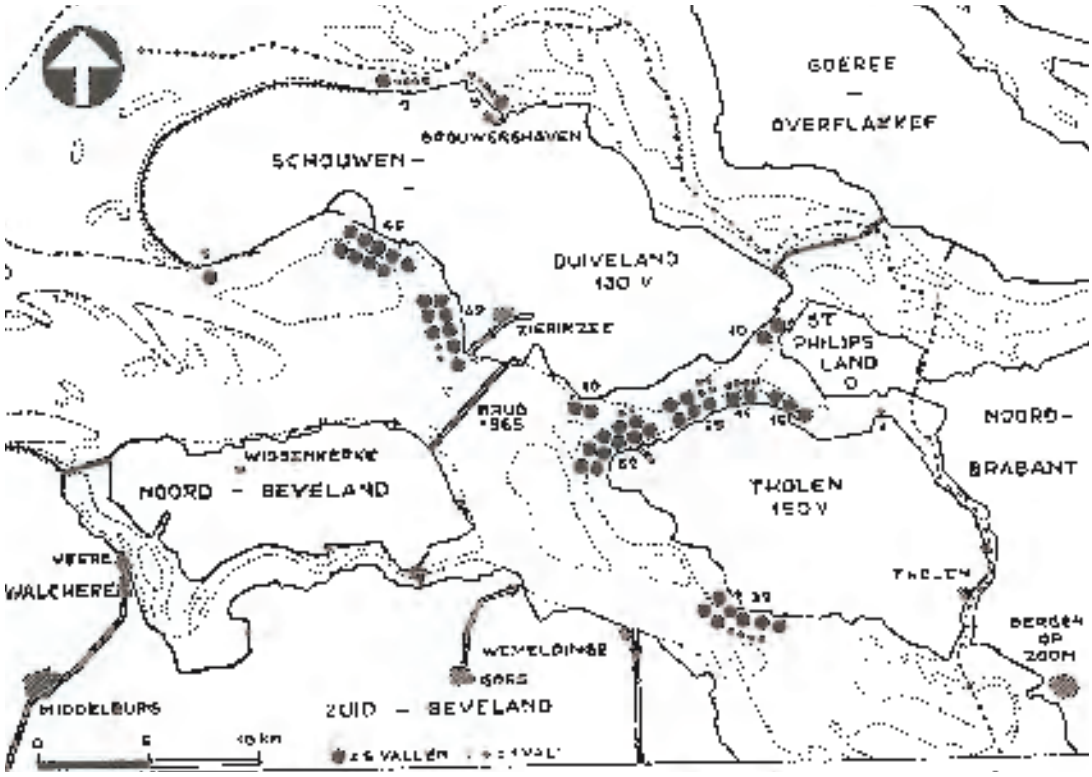
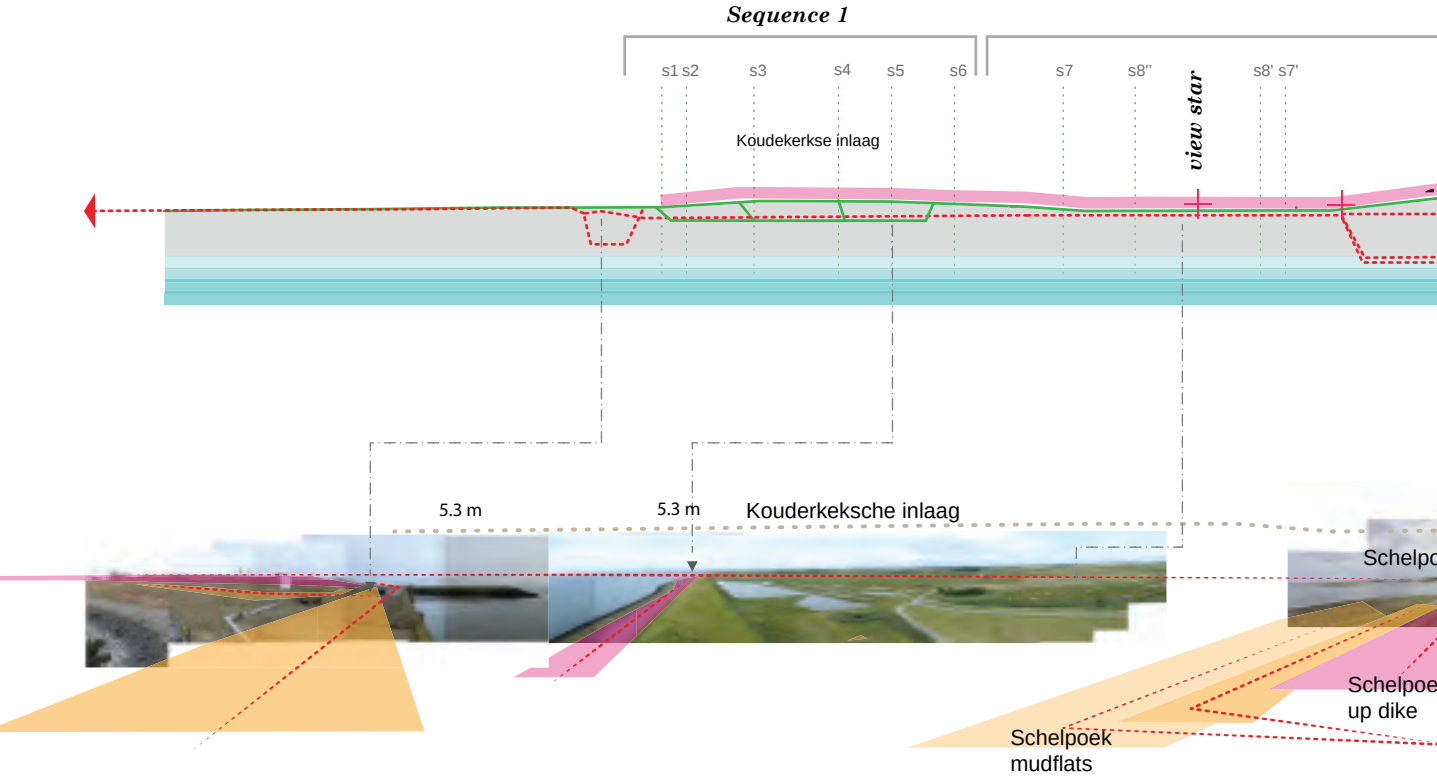


b. Interplay of levels: exposure to phenomena. Our situation along the line

*(*Barañano, 1991:19*)*

b. *Interplay of levels: exposure to phenomena. Our situation along the line*

(Barañano, 1991:19)



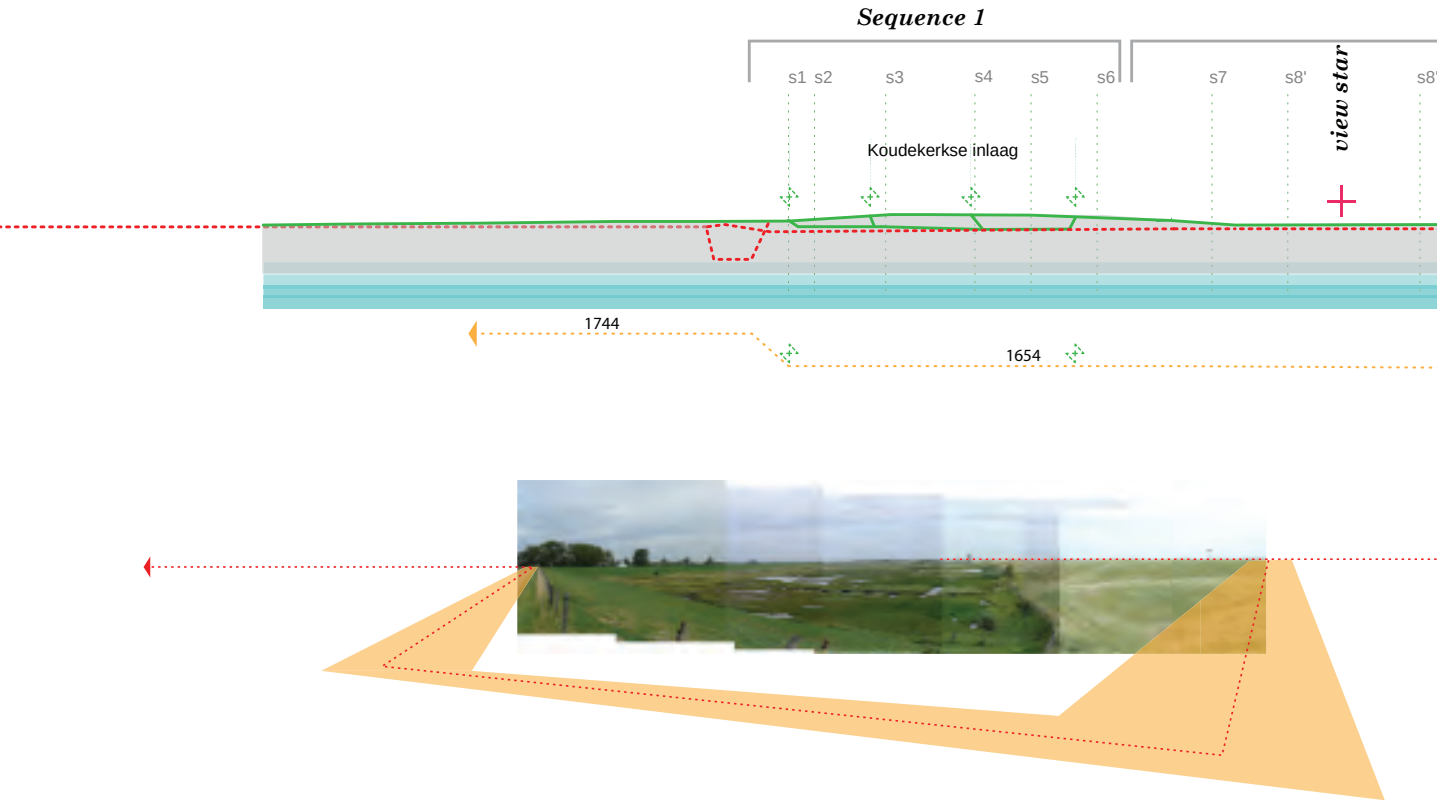
This entails the ***exposure to phenomena of nature***.
Being on ***top*** of the dike involves the ***sensuous encounter*** with the ***tidal and seasonal rhythms***, even though the seasonal rhythm gets available only visually and the tidal rhythm reveals less intense. However, we get a wide and vast horizon.
Instead, being on the lower side of the dike involves the intense and vivid ***exposure*** to the ***tidal rhythm*** and to the ***murmur of the limits,*** the interaction, conversation of the elements present in the landscape: water, wind and foams, sea and sky as horizon on the one side, dike and sky as horizon on the other side.

The nature development disappears then behind the dike, becoming un-tactile, invisible and almost mute nature if were not for the large number of birds that we can listen to.
As we can see above, we mainly walk on the sea side of the dike, so nature development is almost non-existent from the perceptual standpoint.

Starting from the left of the map, then, from a straight dike that locates us on its top (5.3 m high), the dike evolves in order to merge with the surrounding landscape providing different walking possibilities (6.3 m high), and where the sea expresses freely, mowing towards more and more steep and rigid up and down movements towards the end of the line, in which we mainly walk on the sea side of the dike (ending on 9.5 m high), therefore, unable to perceive the nature development.

c. Secondary line: linking culture and forces of nature

c. Secondary line: linking culture and forces of nature

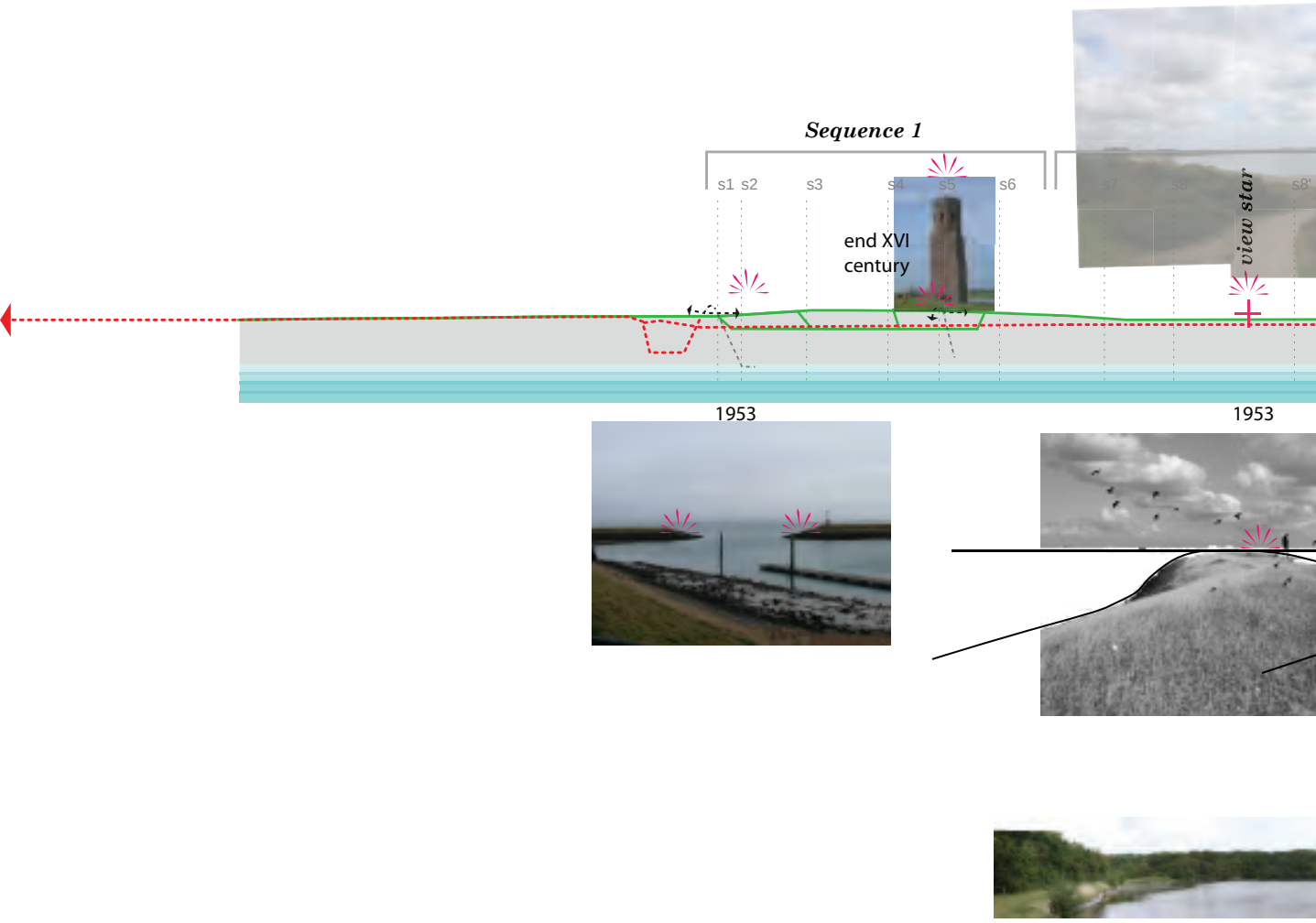


d. Repeating signs: serial features that install a sense of spatial belonging

*(*Barañano, 1991:18; Edensor, 2010:6*)*

d. Repeating signs: serial features that install a sense of spatial belonging

(Barañano, 1991:18; Edensor, 2010:6)



Entries to the dike, dike breaks that end in the sea and relics of former villages that disappeared under the waves in storms.

The entries to the dike change the directionality of the line allowing to cross it perpendicularly, signifying the interruption in the linear rhythm. This perpendicular condition emphasizes the relief of the dike face to the sky, drawing, as in a painting, a linear horizon demarcating two main colours. The greenness (in summer, brownness in winter) of the dike merging with the sky, the dike line becoming the horizon.

Illustration. 5.14. Different entries to the dike

Illustration. 5.15. Painting by Marc Rothko. Source: Google

Illustration. 5.16. Sketches in the site

Illustration. 5.15 -5.16. Drawing by Mark Rothko and sketches made in the site. The dark blue encounters the light blue by means of a line that divides as well as unifies them. The dark blue represents the dike, the light blue the sky when we are crossing and entering the dike from inland. In the dike line the dark blue preserves the seasonal rhythm whereas on the other side the tidal rhythm, invisible and un-tactile but audible and present by the smell of salt spray, remains.

The historical dike breaks mean a halt in the walking activity, the dike getting submerged in the sea. The materiality is then celebrated, since the composition of the dike goes slowly vanishing, and the different breaks become testimony of their construction time, of the history behind them. The older the dike the most has been exposed to the eternal movement of the waves, to the wind, eroding, settling life on the rocks, creating their own habitat (shelter). They are material and tangible manifestation of human intention in interaction with the forces of nature, eventually nature gaining the battle.

And even if only one, the relic standing on the landscape, ***Plompe Toren***, means a halt in our walking activity, reminder of past villages and inhabitants, a kind of totem on the landscape, inviting us to stop, to look around, and to imagine how it could have looked the landscape like in former times.
This event does not interrupt the line, instead it widens it, by inserting an anew widened spatial-temporal meaning. The line and its space is expanded, providing an experience that goes beyond the encounter between tidal and seasonal rhythm, it becomes a different spatial configuration that celebrates the historical meaning of the site and slows down our bodily rhythm in order to remain in the place.

Illustration 5.17 The spatial-temporal widening of the line.
Source : http://slager-genealogie.nl/fotoalbumzld/fotoalbum_zeeland.htm

Conclusion

The outline of the dike and the forces of nature that encounter it, the sea, its waves, the wind, the channels, and human intention have shaped the outline of the island. The dike line, both primary and secondary are related to the safety requirements of the specific locations due to exposure to the waves, strong winds, and the depth of the channels.

The situation along the dike determines our encounter with sensuous phenomena. When we are situated up, we access the tidal and seasonal rhythms, which is happening in very little occasions. Only along ***Wevers*** and ***Flaauwers inlaag*** and ***Schelpoek*** is the seasonal rhythm perceivable due to our situation ***on*** the dike. For the rest, we mainly walk next to the tidal rhythm, the seasonal rhythm manifested in the nature development becoming mute and invisible. The widening of the line, getting immersed with the surroundings, provides with a more varied encounter, since the dike itself draws a gradient.

The interruptions along the line that bring variety reduce to the ***dike entries***, to ***past relics***, and to ***human intervention*** placed on the dike line.

The ***relic***, that widens the space of the dike for embracing it, brings the memories of past lives, but mainly it widens the spatial-time frame of the dike. Space is expanded, bringing a spatial enrichment to the walking activity, experiencing a material time that not only involves the tidal and the seasonal rhythm, but makes us immersed in the historical. The widening of the space, moving from a linear and rigid geometry towards a curved and evolving space allows the ensemble and co-existence of those rhythms.

The ***entries*** to the dike, that are almost pictorial compositions when entering the dike perpendicularly reveal the tidal rhythm in its immensity, as a panorama that is unveiled to us. Perpendicularity towards the line draws an artistic composition but when it is entered differently, the dramatic pictorial composition is lost.

The ***dike breaks*** are still evident in the dike line, bringing us very close to the immensity of the sea, to touch it, allowing to experience very vividly the murmur of limits: the encounter of the voices of the water and the wind, the foams and their reliefs, suggesting that the relief has direct relationship with the murmur of limits. These breaks, placed along the dike line in specific spots, they rather provide variety to the line, prolonging its linearity. They announce an extension of the line from the distance, and when placed on it, they immerse us with the sea and they allow a very vivid experience of the murmur of limits.

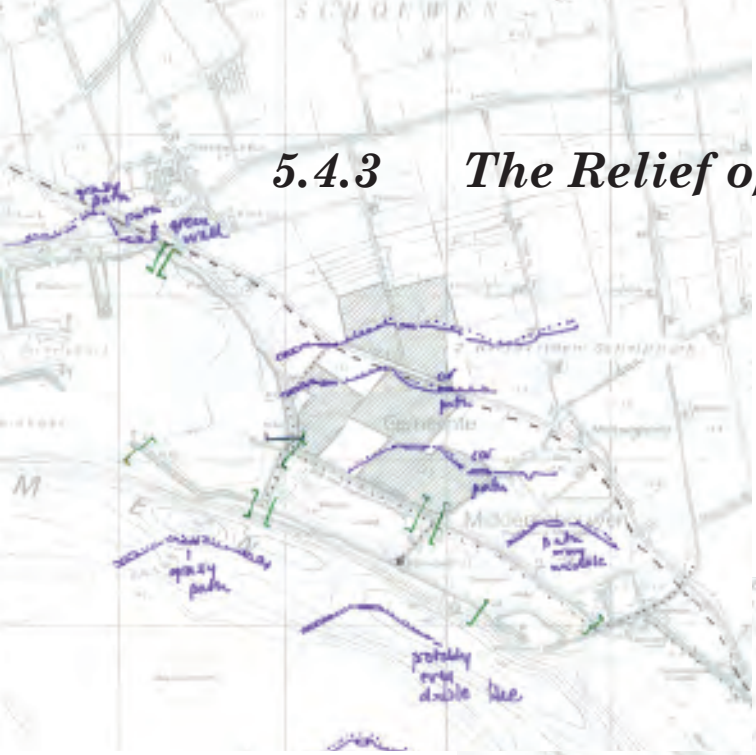
In order to better clarify the relationship between the intensities that we encounter in the dike line in relation to the different relief or outlines the dike contains, we proceed with their study.

5.4.3 *The Relief of the Line*

(Barañano, 1991)

The relief of the line provides different intensities of the forces of nature that interact in the dike line.

We proceed then studying the most relevant reliefs or outlines of the dike line and what is the intensity of those interactions.



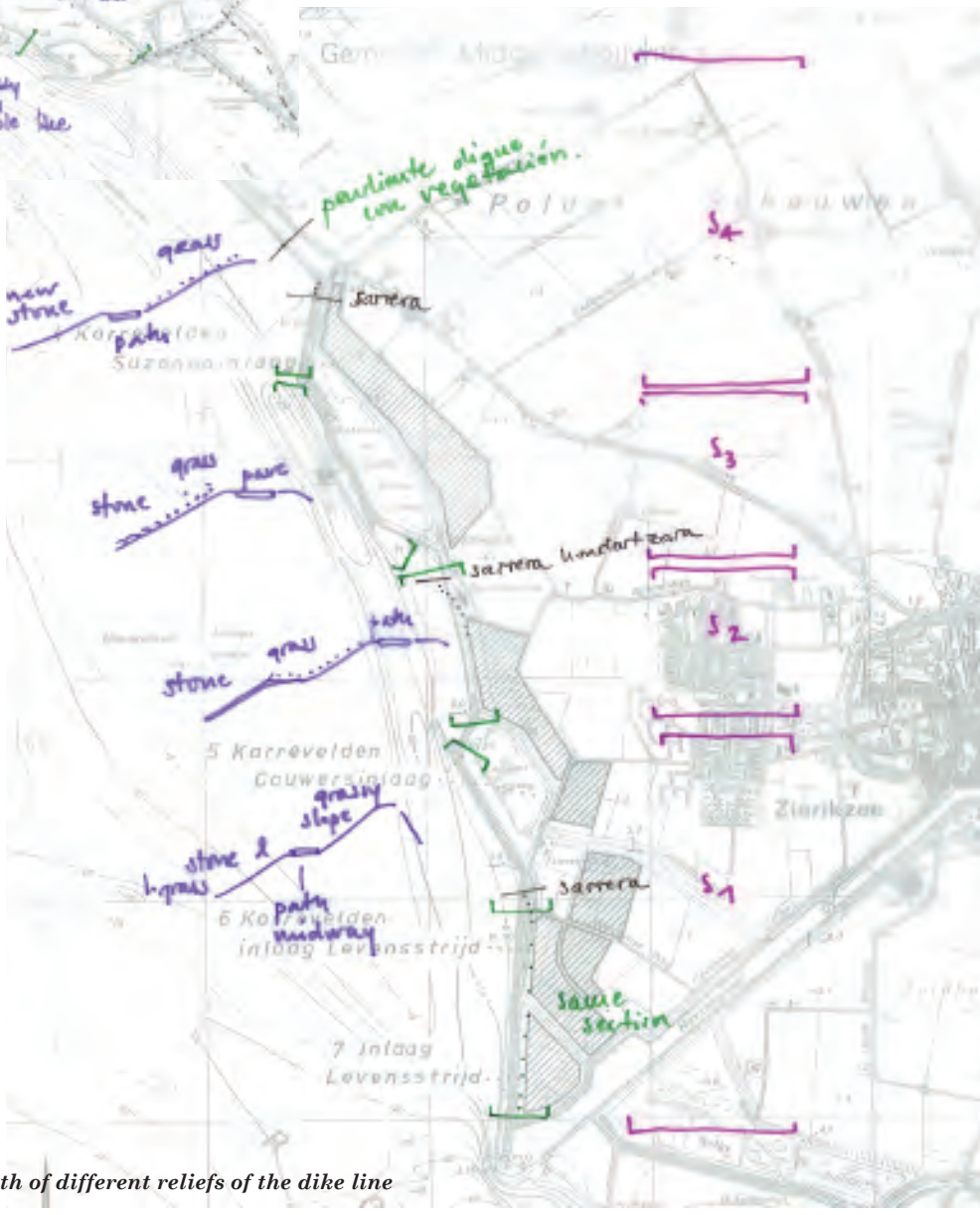
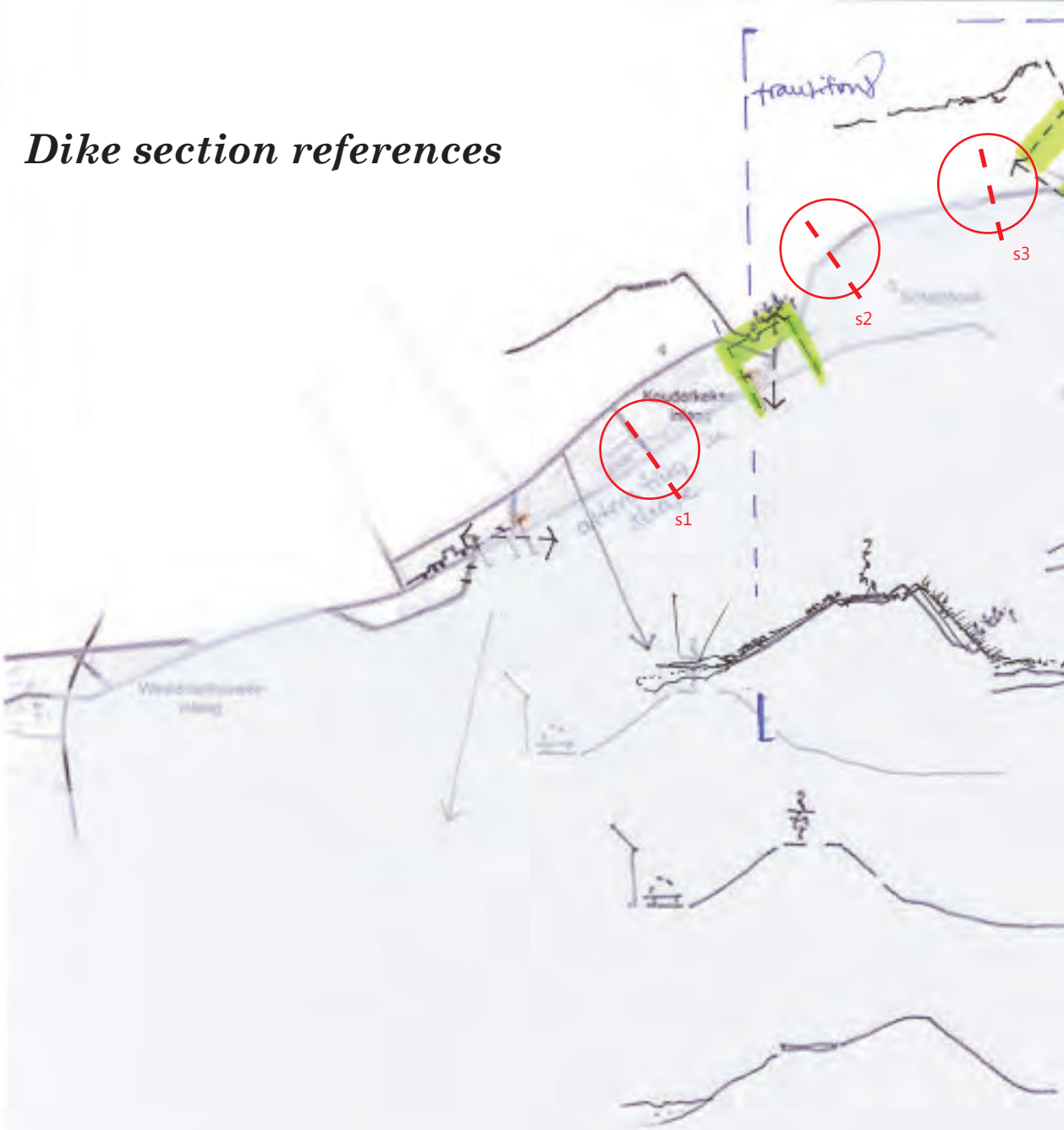


Illustration 5.18 Sketcth of different reliefs of the dike line

Dike section references



transition 7
transition 6
transition 5.
transition 4
transition 3
transition 2.
transition 1
transition
stone
grass
kind of symmetric
covered in grass
this has wider section on the top
Wevers inlaag
Flaauwers inlaag
s4
s5
s6
s7
s8
stone
rocky
including double
put path in there
entry to see
transition 1
from mid top.
entry. section
including double
vegetated
stone - grass
it has the path in the midway.
tran

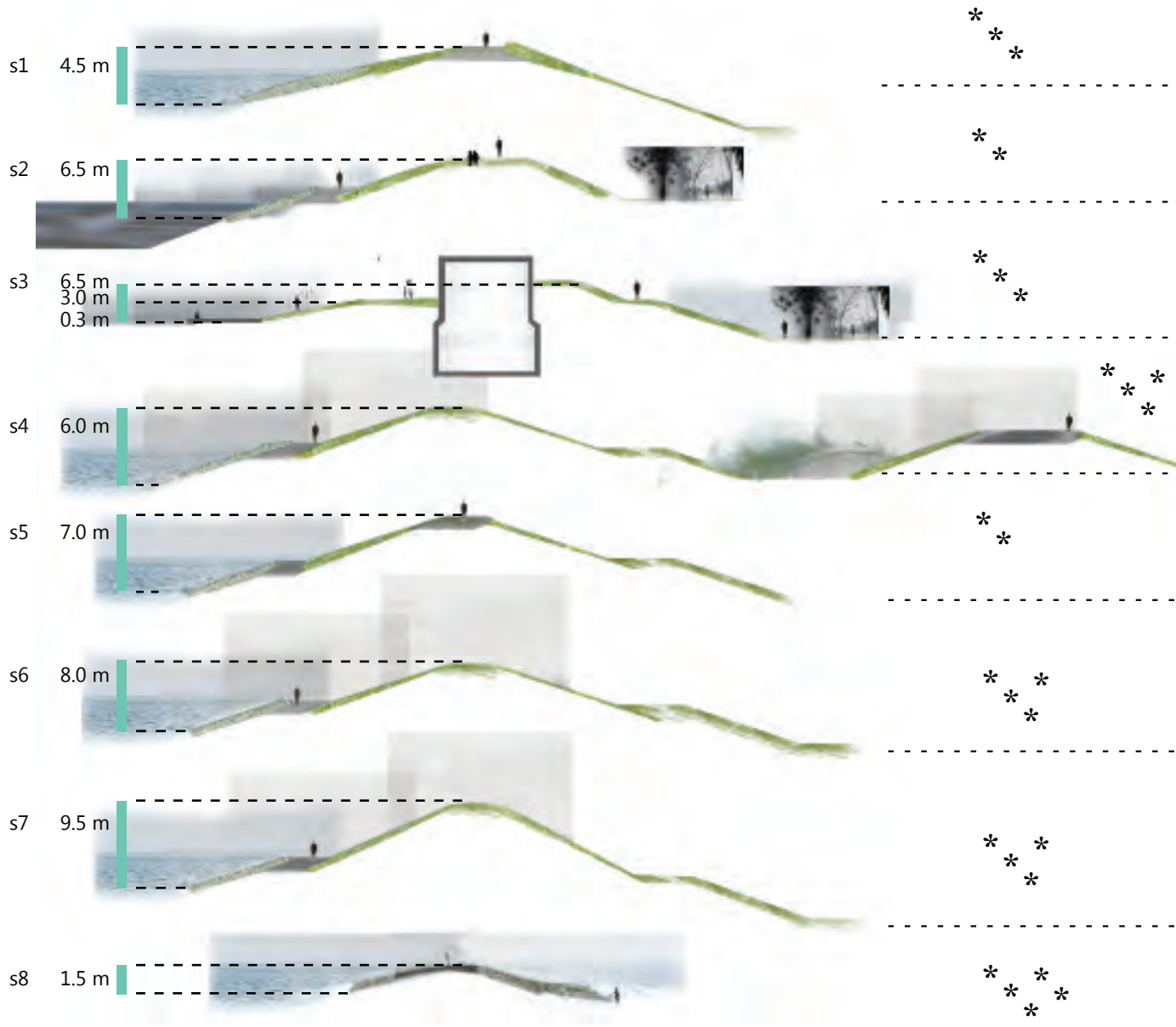


Illustration 5.19. Most characteristic dike sections and their intensities

* * *	sea & sky/ open field	*
* * *	sea & sky/ forest	/
* *	sea & sky/ caisson	/
* * *	sea & sky/ inlange & open field	*
* *	sea & sky/ open field	*
* * * *	sea & sky/ dike	/
* * * *	sea & sky/dike	/
* * * * *	sea & sky/ foams and waves	/

lines and reliefs of the waves and foams

sea and sky: horizon

land and water: nature

Conclusion

The character of the relief from a phenomenological standpoint is directly related to the kind of murmur most vividly we are experiencing along the dike line. The character of the relief is related to the deepness of the sea face to it, and to the main wind directions. It is under these circumstances that the dike is provided with a specific relief that allows as well nature's specific expression.

The intensity is largest when the dike is highest, except for the areas in which the dike merges with the sea as in ***section 8***, the historical breaks, when we are completely exposed and almost ready to be engulfed by the waves.

The steepness of the slope of the dike, as we said, is related with the exposure to the forces of wind, the deepness of the sea (the sea then encounters the dike more strongly than in shallow bottom). The steeper the slope, as in ***section 7, 6 and 5,*** the strongest the manifestation of nature from human perceptual point, since the more magnificent is the dike. The dike lets us experience the wind overwhelming our body and making the landscape in eternal movement, making us become tiny elements in the vast landscape, encountering the foams and the waves, their cadence accompanying us along the dike line. Between those sections, still, it is more intense when we walk ***in*** the dike line (section 7 and 6) rather than ***on*** the line (section 5).

When the slope is not that steep (the forces of nature then are also not so powerful, otherwise the dike would ask for a higher section), for instance in the dike ***section 3***, we breathe openly, de-contracting our muscles, and a wide horizon opens to us. When we walk on the ***inlaag*** line, ***section 4***, then the sea and its tidal rhythm disappears in order to be immersed in the seasonal cycle, with large water elements covering the landscape, less exposed to the wind and the waves, (the tidal rhythm disappears then, becoming almost mute), with wide horizon, allowing to experience the encounter between inner water and land with their vegetation.

When the dike gets immersed with the surrounding environment, as it occurs in ***section 3*** and ***2,*** we get protected from the strong winds behind the dike, feeling enclosed, but aware that the immediacy for moving from exposure to the vastness, from enclosure to the intimate is available: the dike is a wider line that encompasses different gradients and therefore, exposure possibilities.

And the horizon, as we see, along most of the dike line is formed, defined, shaped by the sea and the sky on the one side, and the dike on the other.

5.5 Conclusion maps

landscape sequences

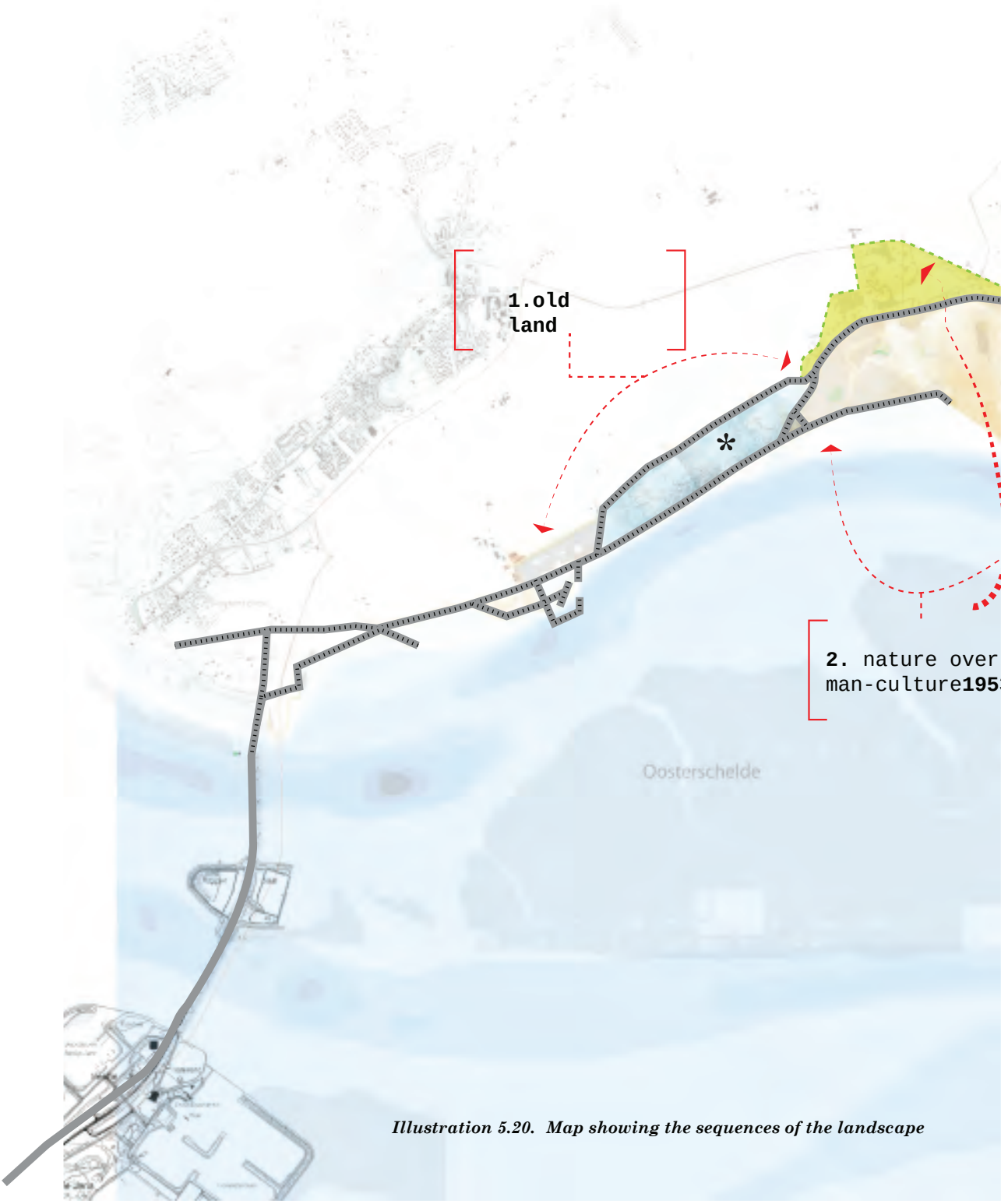
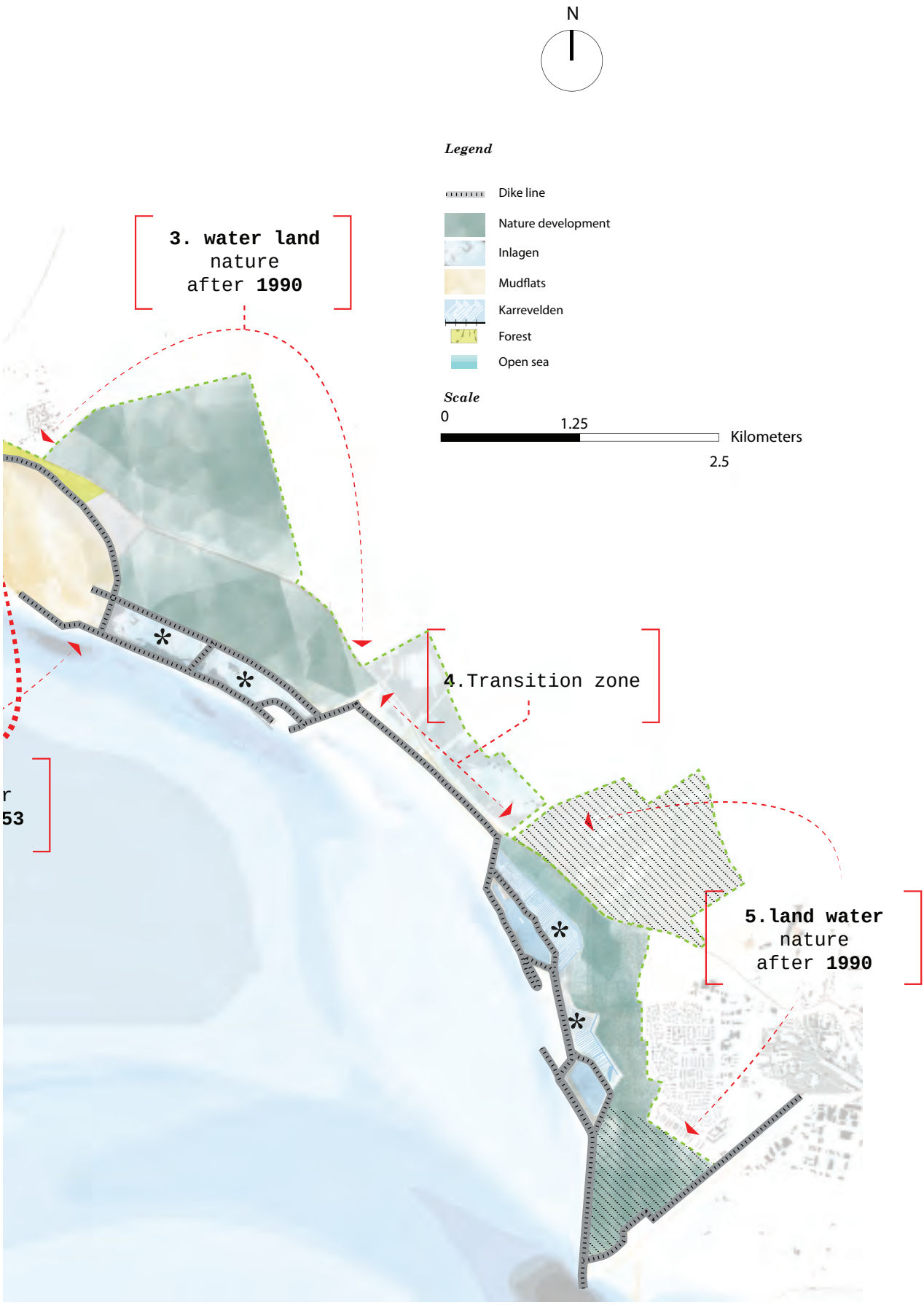


Illustration 5.20. Map showing the sequences of the landscape


N
Legend
Dike line
Nature development
Inlagen
Mudflats
Karrevelden
Forest
Open sea
Scale
0
1.25
2.5
Kilometers
3. water land
nature
after 1990
4.Transition zone
r
53
5.land water
nature
after 1990

murmur of limits

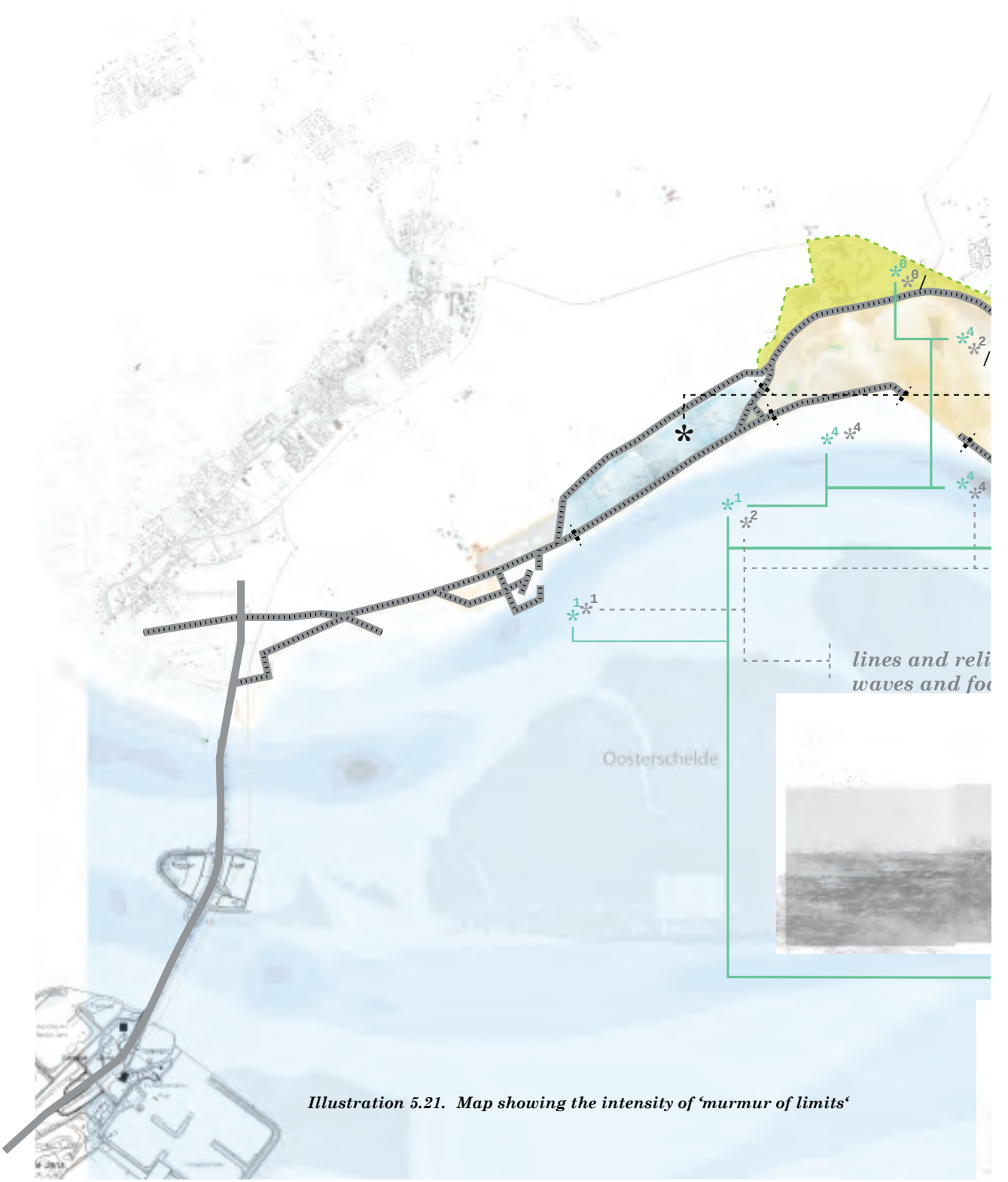
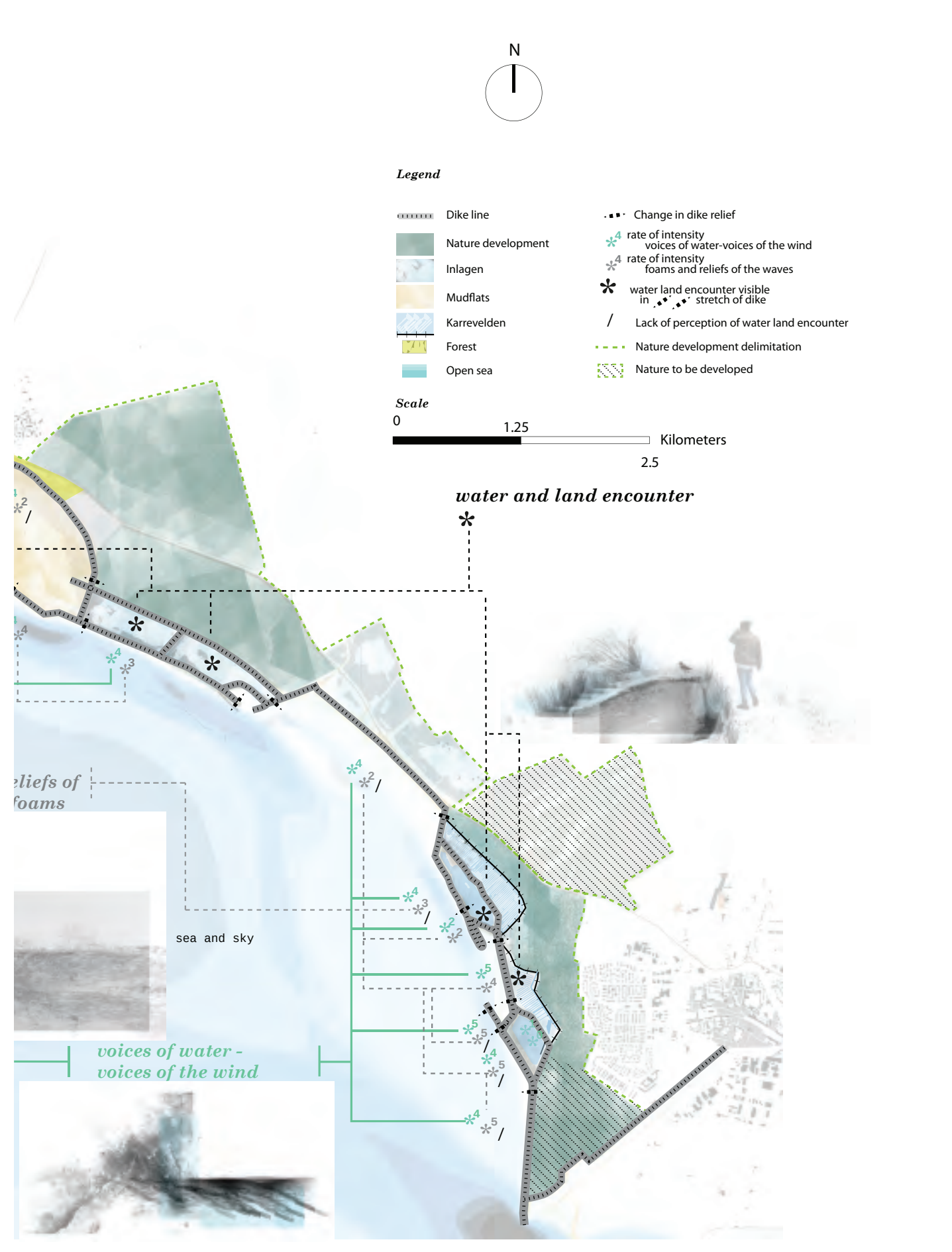


Illustration 5.21. Map showing the intensity of 'murmur of limits'


N
Legend
Dike line
Nature development
Inlagen
Mudflats
Karrevelden
Forest
Open sea
Change in dike relief
rate of intensity
voices of water-voices of the wind
rate of intensity
foams and reliefs of the waves
water land encounter visible
in stretch of dike
Lack of perception of water land encounter
Nature development delimitation
Nature to be developed
Scale
0
1.25
Kilometers
2.5
water and land encounter
eliefs of
foams
sea and sky
voices of water -
voices of the wind

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chapter 6

Dike Manifesto

This chapter sets the milieu for the shift in ***dike paradigm***.

In the attempt of depicting what this shift in paradigm means ***section 6.1*** explains the ***different perspectives*** that lead towards a widened understanding of the dike, a view that infuses the aesthetic expression of phenomena of nature to the dike.

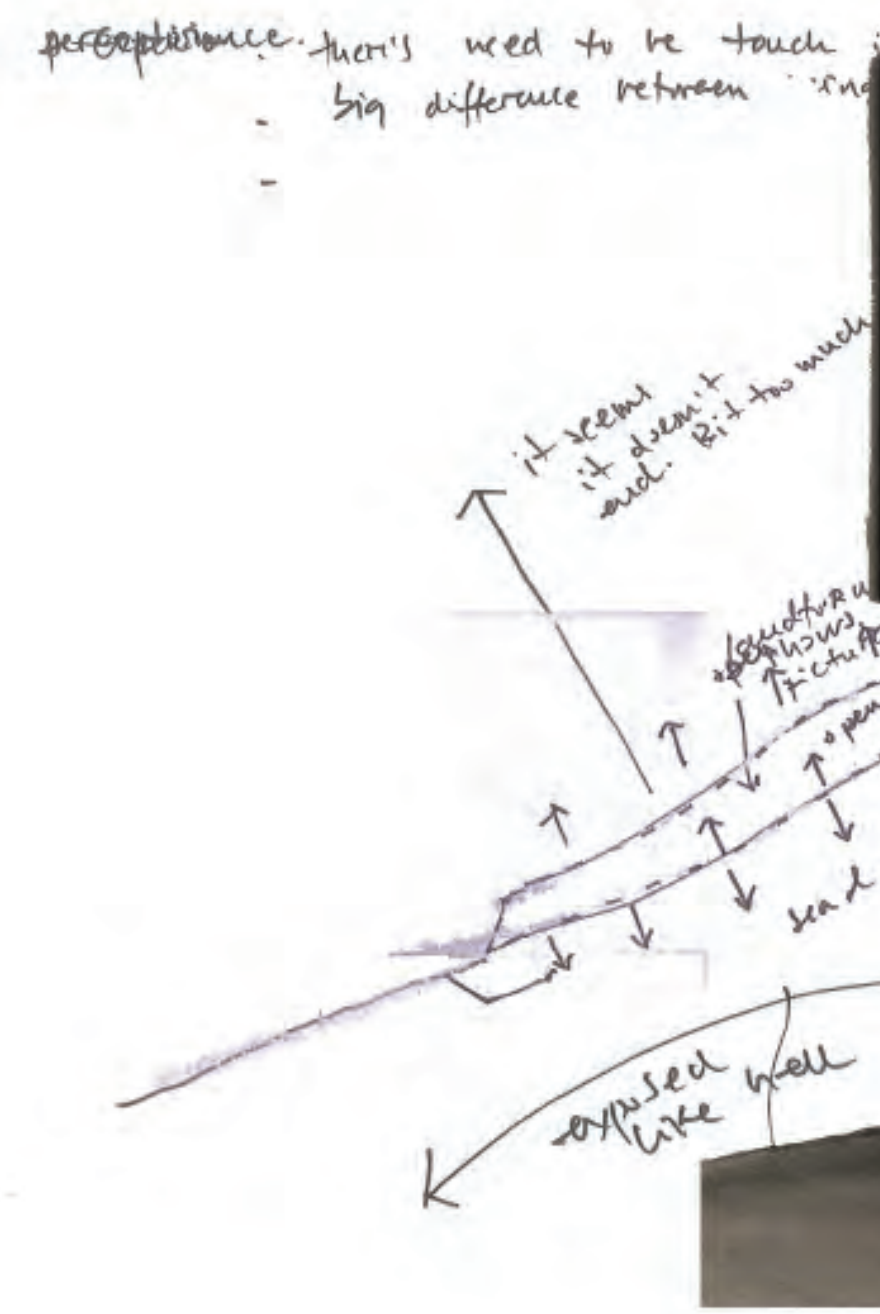
In order to have an overview of what the dike paradigm represents for Schouwen Duiveland, the study case of this thesis, ***section 6.2*** focuses on the ***dike manifesto***, explaining the changes and opportunities that arise under these ***new perspectives***.

Being aware that these new intentions need to be supported by an ***aesthetic strategy***, this is further explained along ***section 6.3***.

Section 6.4 explains more widely the ***'murmur of limits'*** already mentioned in ***chapter 4*** that as ***aesthetic metaphor*** gathers the perceptual phenomena occurring in Schouwen Duiveland, but looking at it as potential ***design material***.

For this purpose ***section 6.5*** studies the ***materiality of the metaphors*** so that they can be interpreted and used as design material.

Section 6.6 finalizes the chapter with the conclusions, suggesting design potentials.



Picture 6.1. ***Dike paradigm. Sketches of the phenomenological study that are intended to be instilled to the dike***

wonder & joy.
Highest point
open large views.
open
stop.
limit dike
very open & boring.
very strong
the dike
+ stops the tidal rhythm
but also provides
sublime experiences.

6.1 *Dike Paradigm*

In the former chapter, we stated that

> the ***dike*** represents the ***limit*** in Schouwen Duiveland.

And the ***limit***, as ***design material***, can be understood from different standpoints:

* From ***formal language*** the ***limit*** is a ***line***

* From ***cultural perspective*** the ***limit*** is ***material manifestation of human intention***: it has its own history and materiality

* From ***phenomenological perspective*** the ***limit*** is ***spatial configuration*** provider of ***aesthetic experience*** and ***ensemble of rhythms,*** meaning that changing rhythmic processes interweave to afford places a mixity of temporal perceivable phenomena (Crang, 2000), and the dynamism of the line affords the sensuous encounter of those phenomena with different intensities.

These perspectives co-exist with the understanding of the dike as main safety element in Schouwen Duiveland.

But keeping in mind the new perspectives above mentioned, if we intend to infuse them to the limit without setting aside the current understanding of the dike as safety element, and aim to make them expressive, we find ourselves immersed in a distinct concept or thought pattern about the dike: a ***paradigm.***

The ***limit***, the dike, or the line, then, widens its scope:

[from ***defense line*** to ***aesthetic line***]

[from ***technical line*** to ***experiential line***]

This shift involves that we move:

* From ***geometric*** and technical ***scale*** to a dike imbued with ***human scale***

* From a ***rigid*** to a ***sensitive*** dike

6.2 *Dike Manifesto*

* The ***limit***, the ***dike*** as ***design material*** is also:

a line

material manifestation of human intention with its history and materiality

spatial configuration provider of aesthetic experience by means of a mixity of temporal perceivable phenomena

* We depart and end in the ***dike line*** and its ***embodiment***; what we can re-imagine is the dike as ***spatial configuration*** (Simonsen, 2005). What we can interfere, play with, and explore is the ***dike***.

* Exploring the dike from ***formal***, ***cultural*** and ***phenomenological*** standpoints involves certain implications.

* As ***formal exercise***

_. Reveal anew the ***dynamism*** of the ***line*** in its length: by breaking the line, or expanding it landward or seawards

_. Reveal anew the ***character of the relief*** by altering the slopes of the dike, or by contracting or expanding its relief. As example, ***Plompe Toren***, where the relief of the dike widens in order to emplace the tower and the dike relief is enriched with a new spatial-temporal meaning

The first exercice leads towards main gestures in the line, and in the landscape. The second one, instead, leads towards ***altering*** the i***ntentisity of the murmur of limits*** and brings changes in the smaller scale.

* From ***cultural perspective***

_. Reveal anew or update the historical line by introducing our date and interfering in the memory we infuse to it, altering its materiality not only with safety purposes, but aesthetic intentionality that translates into new sensitive ***materials*** and ***forms*** (form giving understood as contextualizing and process ordering (Koh, 2013: 12)) that enhance the ***sensuous encounter*** with the forces of nature.

* From ***phenomenological perspective***

_. To celebrate the dike as rhythmic ensemble where changing rhythmic processes interweave to afford places a mixity of temporal perceivable phenomena (Crang, 2000), and the dynamism of the line affords the sensuous encounter of those phenomena with different intensities.

6.3 *Aesthetic strategy*

To set the ***dike manifesto*** also involves to count on an ***aesthetic strategy*** that sustains it.

As explained in the theoretical framework we look for an ***aesthetic strategy*** that celebrates ***motion*** and ***change***, that encompasses ***dynamic processes*** rather than ***static objects*** (Spirn, 1988):

_. An ***aesthetic strategy*** that celebrates the ***sensuous encounter***

_. An ***aesthetic strategy*** that takes the ***contextuality*** of site as departing material for enhancing aesthetic experiences by '***thinking, expressing***' aesthetically the processes and dynamics that conform the living landscape.

And eventually, focusing on the southern coast of Schouwen-Duiveland, this leads to emphasize the potential nature itself displays, its elements and forces, for aesthetic experience, for interpreting them as ***design material***.

Still, we have Berleant's aesthetic premises arguing that not only are the processes aesthetically embodied[1], but they are also spelt by means of aesthetic language: language that infuses bodily expression, where the meanings[2] are tied to the expressivity of the processes and to the expressive nature of our gestures, and to the direct sensations induced by these movements (Abrams, 1997: 79).

This language has already been approached in ***chapter 4*** with the intention of giving voice to the phenomena occurring in Schouwen Duiveland. More precisely by means of ***metaphors***, those that according to Eaton work:

> ***'by exploiting the core meaning of a term'*** ... and...
>
> ***'evoke very particular images' ...***
>
> and this way
>
> ...***'a new way of perceiving is created by extending the old in new directions'***
>
> (Eaton, 1990)

---

1 **embodiment**: The active presence of the human body in appreciative experience (Berleant, 2004)

2 **meaning:** We explore meaning in relation to the qualities we perceive, through what we sense, what we imagine, feel emotionally about nature or by the various narratives and knowledge that may be fed into aesthetic experience (Brady, 2003:63)

6.4 *Evoking metaphors: Murmur of limits*

The metaphor utilized for reaching the core meaning of the sensuous encounter in Schouwen Duiveland is ***murmur of limits,*** borrowed from Chillida (1990).

The metaphor encompasses the ***interaction of the elements*** along the ***limit***, where most vividly express themselves.

Murmur means ***continuous and blurry noise produced by an element that is in movement,*** according to the Spanish Dictionary, and its definition suggests ***the aural expression of the movement***. The movement is in the elements, which is their essence, since they are life and sequence: they are in eternal struggle or movement.

Murmur is also ***the sound of something being said very quietly, a soft continuous dialogue*** (Cambridge Dictionary), and it evokes the conversation between the elements, their expressivity, their interaction.

According to Chillida, ***murmur*** means ***rhythm***: ***movement*** and ***cadence*** (Chillida, 1991). But also our movement along the dike line.

And this ***sound, cadence, dialogue*** or ***movement***, in Schouwen Duiveland, in its dike landscape, is produced by:

the voices of the water and the voices of the wind
with the sea encountering continuously the dike, in its eternal movement, in cadence and rhythmic movement, producing a sound by means of the air that at the same time combs the grass of the dike, making it dance, the air becoming sound and movement at the same time, sea and dike in dialogue, and us, situated amidst them, ***in*** or ***on*** the dike, sensuously encountering it

the reliefs and lines of the waves and their foams
the lines and reliefs that we look and sense from far and long ago meanwhile we walk along the dike, approaching, until they encounter the dike, and us, static or in motion along the dike; they become cadence that accompanies us along the line, coming to touch them (in few occasions), feeling their freshness and the smell that overwhelms us

the horizon
the ***limit*** of our ocular experience: the sea and the sky; the dike and the sky, water and sky, vegetation and sky. Not a static composition but in eternal motion and transformation, redefined eternally by means of the changing of our situation along the dike.

the murmur of rhythms
the tidal rhythm, characteristic of the tidal landscape that '***scramble that profound margin betwixt land and sea***' and '***create the liminal spaces of intertidal zones with its tidal fluctuation that threaten to inundate at high tide and drain to nothing at low tide***' (Jones, 2010) is not that dramatic in Schouwen Duiveland due to human intentionality; the dike limits the expression of the highly visible temporality of the tide that operates hour to hour and that is apprehended within everyday human time, but allows to become the grounds for the seasonal rhythm and its expression, feeding the soil of the inner margin of

land and sea, ***'threatening to inundate'*** at winter and ***'drain to nothing'*** in summer and allowing the blooming of reddish brackish vegetation and specific fauna, only able to grow under such consensual conditions; bringing unperceptible changes from human time-space frame on dayly basis, but making visible, audible, aromatic and tactile in longer cycles: the seasonal cycle (Jones, 2010).
Therefore, the seasonal and tidal rhythms co-exist and dialogue by means of the dike.

Picture 6.2. Koudekerksche inlaag with low water level in summer

Picture 6.3 Koudekerksche Inlaag with higher water level and vegetation (salicornia europaea) becoming red

Picture 6.4 Schelpoek with low tide

Picture 6.5 Schelpoek with high tide

6.5 *Materiality of metaphors*

What is the materiality of the metaphors for design?

Voices of the water/voices of the wind. The voices of the water and voices of the wind are related with the dike relief and its exposure to the forces of the wind and the waves. The exposure is given by means of the dike, but their intensity can be revealed anew by considering the steepness of the line, its relief.

Materials also play a role, since the element that speaks through the voices is the air. Air, that when encounters the steep grassy slope of the dike evokes a dance in which the wind itself makes visible and the landscape is shown in continuous motion.
So playing with materials entails to interfere with this cadence that accompanies us along the dike line, making visible the continuous motion of the landscape.

Foams and reliefs of the waves. They are related with the deepness of the bottom of the sea and the materials they encounter when they meet the dike that opposes their natural manifestation.
The waves, when coming to die on rocks, express more vividly, more violently than in flat surfaces. The oldest dikes of Schouwen Duiveland covered with rocks in their end are an example in opposition to the renewed dike stretches, that end with flat surfaces, where the foams and reliefs are less vivid.

At the same time when the bottom is shallow rather than deep, the waves come to end to the dike more smoothly than when the bottom is deep.

The foams and reliefs of the waves can be enhanced by thinking of what materials they encounter, so eventually by considering the materiality of the dike.

Horizon: sea and sky / dike sea. The horizon is nothing else than the limit of our ocular experience. Therefore we can reconsider our situation in relation to the dike, ***in*** or ***on***, or imagine new situations for relating with the dike; and by this fact come up with new horizons and visual encounters that we consider aesthetically relevant, and suggest new perceptual encounters, including aural, and tactile.

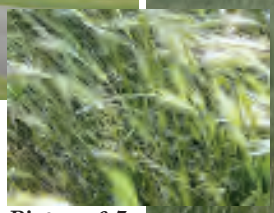
Along the dike, when the horizon is formed by the sea and the sky, the way we experience it is bound to the directionality of the dike line since it is the dike the spatial configuration that frames it. The dike can be reconsidered even for embodying the linearity of the horizon.

The dike is part of the horizon as well, when from inland, together with the sky, they become the limit of our visual experience, for instance, in ***inlagen*** and ***karrevelden***.

Murmur of Rhythms: Land and water/culture and nature.
The tidal landscape with its tidal rhythm is an affectively charged place. Its hour to hour operationality and dynamism is its outmost expression and delight for us. The seasonal rhythm manifesting inland operates in a longer temporality. Both rhythms dialogue by means of the dike, but are barely perceptible as an ensemble, as manifestation of nature in the dike landscape. And as stated, the essence of the limit is that of being a rhythmic ensemble that affords places a mixity of temporal perceivable phenomena (Crang,2000).

To rethink the materiality for allowing the mixity of temporal perceivable phenomena would enrich the sensuous encounter in Schouwen Duiveland.

Picture 6.6.

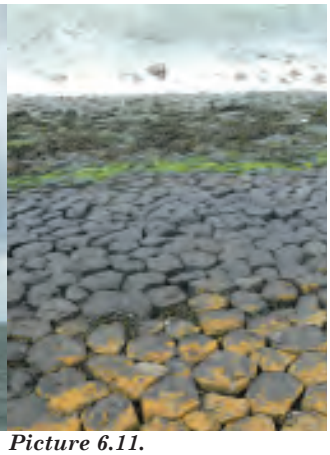


Picture 6.7.

Picture 6.8.

Picture 6.9.

Picture 6.10.

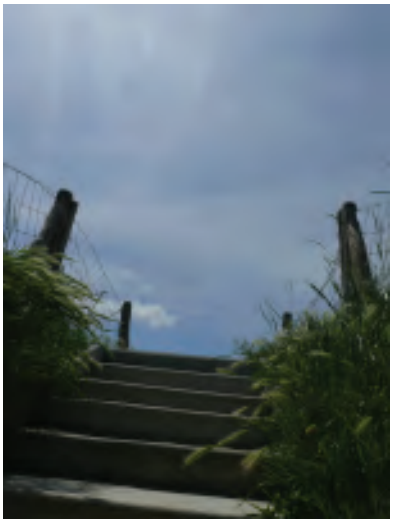


Picture 6.11.

Pictures 6.6, 6.7. and 6.8. illustrate the wind moving the grass of the dike, turning into a landscape in motion. Picture 6.9. shows that the tectonical compositin of the dike stays mute compared to the grass. Pictures 6.10. and 6.11. show the sea encountering the dike, generating life and murmuring, creating sound and movement, rhythm that accompanies us amidst the cadence of the grass.



Picture 6.12. Dike failure, and the waves showing the relief and foams in old dike. Picture 6.13. and 6.14. show the relief of the renewed dike, with softer endings

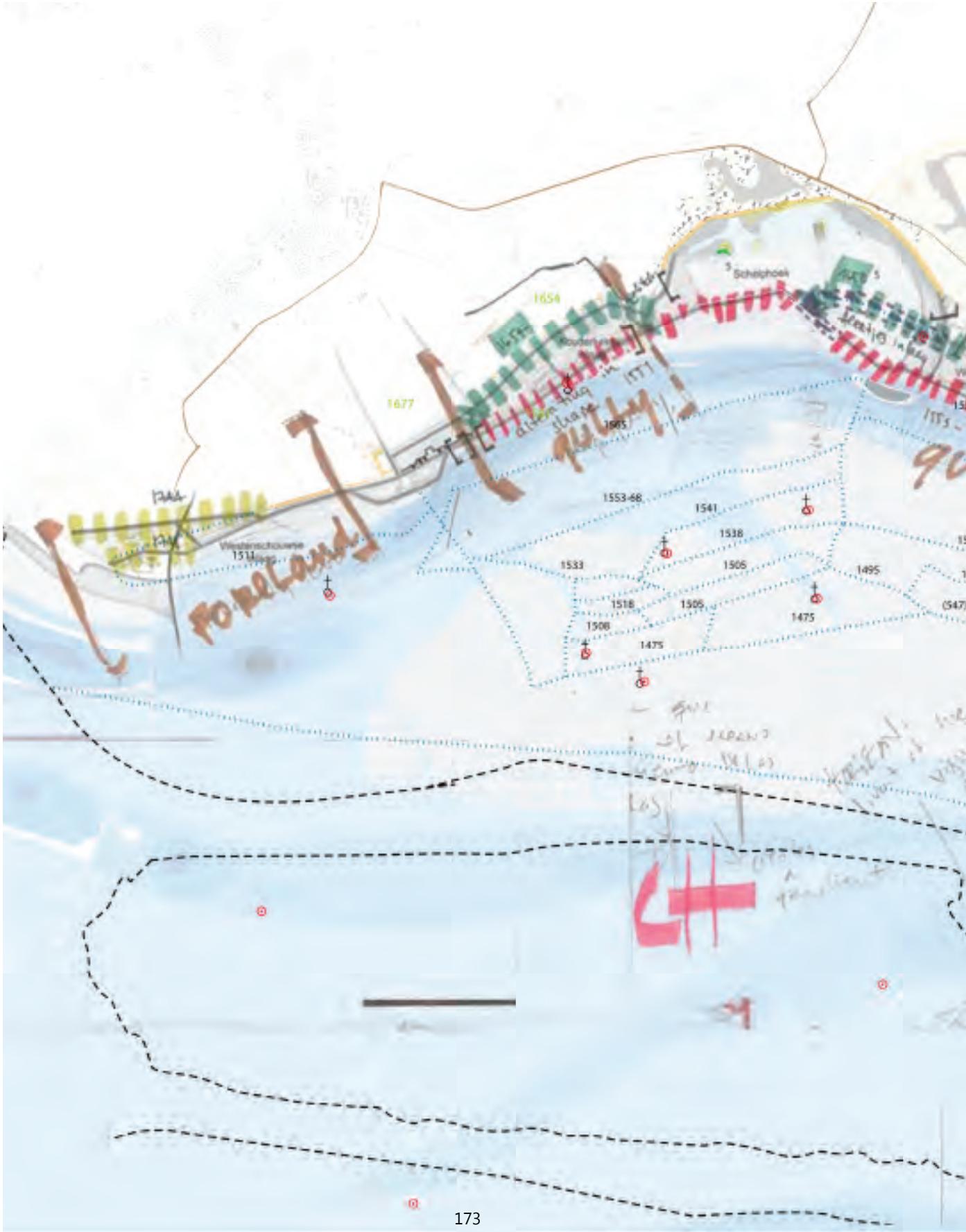
Picture 6.15. Horizon extending landwards, formed by vegetation and sky. Picture 6.16 . The dike and the sky encounter each other and become our horizon.



Picture 6.17. Inner land and sky. The dike remains in the background as horizon

Picture 6.18. Vegetation and sky conform the horizon

Picture 6.19. Dike and sky


Schelphoek
1654
1677
1605
1553-68
1541
1538
1533
1505
1495
1518
1505
1475
1508
1475
Westerschouwe
1511

Picture 6.20. Map showing the shallow and deep waters

6.6 Conclusion

The widening of perspectives for understanding the dike beyond a safety element leads us towards a ***dike paradigm*** that opens new possibilities and challenges from a design standpoint. These new perspectives are related to the enhancement of the sensuous encounter with the nature development of Schouwen Duiveland, in which the ***limit***, the dike in Schouwen Duiveland arises as the most expressive spatial configuration for providing new sensuous encounters. These new perspectives involve the understanding of the dike from ***formal***, ***cultural*** and ***phenomenological perspective.***

The ***dike manifesto*** has summarized the new meanings implied under the dike paradigm, explaining what the challenges and opportunities are. The boundaries between the dike as a line, as material manifestation of human intention or as rhythmic ensemble don't need to be specified. Indeed, they are intermingled: altering the line or its outline involves changing the intensity of what is perceived, therefore altering the phenomenon we encounter, and affects to the materiality of the dike, imprinting our time to it.

This is sustained by an ***aesthetic strategy*** that pleas for ***contextuality*** and ***materiality***, a strategy that celebrates ***motion*** and ***change***, ***processes and dynamics*** as design material. The final intention is to enhance the sensuous encounter with nature, and the processes and the dynamics, that are aesthetically embodied, are also spelt by means of an aesthetic language. This aesthetic language, context related, helps in generating new ways for perceiving the landscape. And as such, the potential of the ***metaphors*** is used for instigating, imagining and exploring a new way for perceiving nature, using the southern coast of Schouwen Duiveland as case study and testing ground of such strategy.

As explained before, the metaphors have their own material basis, and therefore, some locations have more potential than others for becoming design material.

With what we have mentioned, there are already highlights:

* The most exposed areas, the ones perpendicular to main wind directions are the most meaningful locations concerning the voices of the water, voices of the wind.

* The shallow bottoms are prone for enhancing the cadence and allow the interaction with the dike slope, for making tactile the foams and reliefs of the waves and the foams.

* The horizon relates to our situation along the dike line, opening the possibilities for thinking of new perspectives framed by the dike

* The seasonal rhythm manifests more vividly in ***inlagen*** and ***karrevelden*** due to their particular man-made shape, and therefore, infused with human scale. Allowing this to pair with the tidal rhythm can be the outmost expression of the dialogue between the rhythm of tides and season, between culture and nature that co-exist by means of the dike.

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chapter 7

Designing the murmur of limits

This chapter explains the spots of the southern coast of Schouwen-Duiveland that serve as testing ground of the theories developed along the research.

The ***embodiment*** of the dike line as ***phenomenological analysis***, together with the ***metaphors,*** that help in imagining new ways for encountering sensuously the landscape are the main tools for design. Contextuality, its processes and dynamics that reveal or express in different rhythm patterns, and its materiality, as well.

Section 7.1 starts by summarizing the meaning of the metaphors and their relationship with the site, each of the spots selected and the specific driving forces for the design.

Section 7.2 will show what are these intervention areas.

Section 7.3, 7.4 and 7.5 show the design interventions, and ***section 7.6*** makes a conclusion of the designs in relation to the dike manifesto and aesthetic strategy set in ***chapter 6.***

7.1 Metaphors as design material

Design strategy

The design works as a system sustained on ***metaphors***, and each spot makes emphasis in one of them. Eventually, the ensemble provides a wider variety of experiences to the dike line than the existing one currently, by inserting new sensuous meanings to the ***limit***, to the ***dike line***. The designs, testing ground for the theories developed, celebrate the limit as ***spatial configuration*** that facilitates these new ***sensuous encounters***.

The metaphors, explained in ***chapter 6***, are the nex:

Voices of the water, voices of the wind
The wind that makes the sea audible, and makes the dike landscape, covered in grass, in eternal movement.

The relief and the lines that are the waves and their foams
The waves, coming to break in the dike, generating a continous movement

Horizon: the limit of our ocular experience
The enhancement between the elements of the landscape and our situation in relation to them. The horizon that is therefore in continuous movement, redefined constantly by the act of walking.

Mumur of rhythms: tidal and seasonal rhythm
Based on the dialogue mediated by the dike between the tidal and the seasonal rhythm that express in different time frames.

[*voices of the water*
voices of the wind]

The metaphor ***Voices of the water, voices of the wind,***
after the phenomenological analysis has been concluded that manifests most vividly in the stretch where the dike most magnificently manifests: where the main wind direction is perpendicular to the direction of the dike, where the sea is deepest, and the dike highest.

This stretch belongs to sequence 5, and the design intends to enhance or sublime this experience by altering its perception by means of a sequence in which the metaphor is experienced as an evolving sequence.

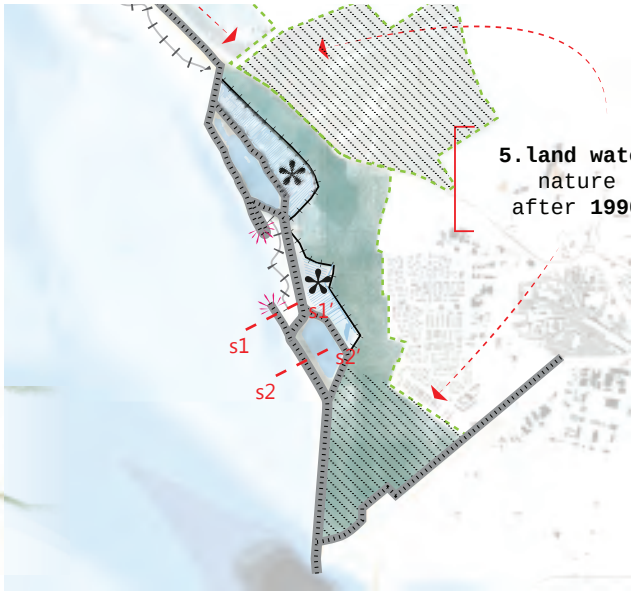


Illustration 7.1. The section of the dike along sequence 5

Illustration 7.2. Sequence 5: land water nature

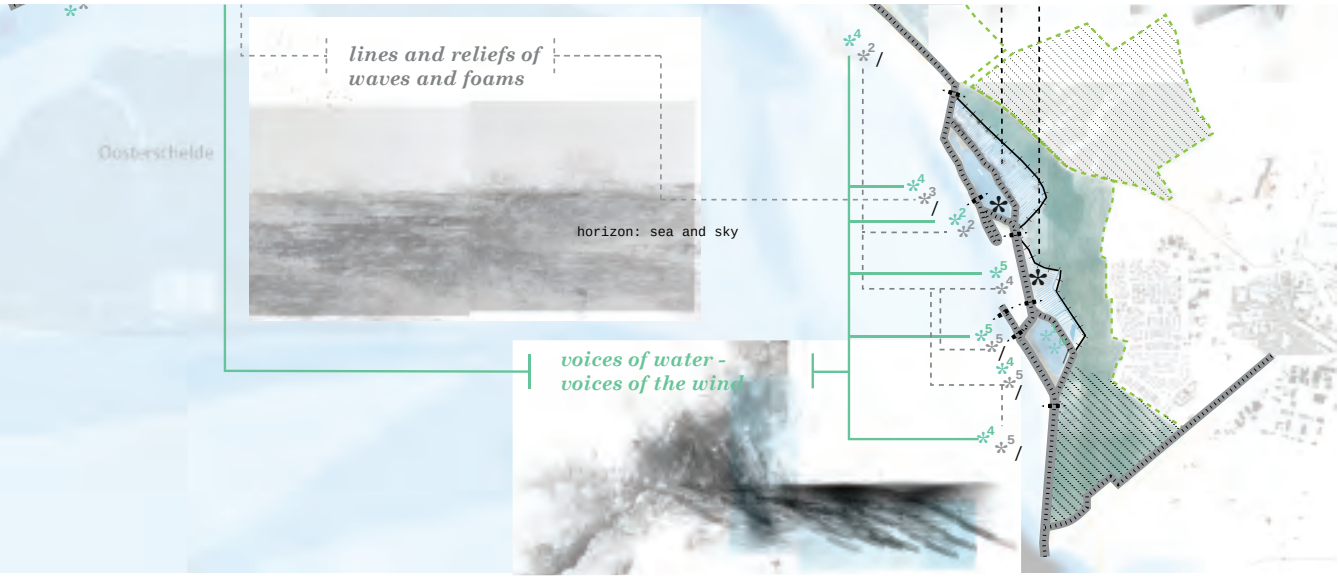


Illustration 7.3. The high intensity of the voices of water and voices of the wind along sequence 5

murmur of rhythms
tidal and seasonal rhythms

The metaphor ***murmur of rhythms: tidal and seasonal rhythms,*** encounter between nature and man is best scenified in the historical ***karrevelden*** as the phenomenological study has clarified. The dike divides both rhythms, but facilitates by means of the seepage the conditions for the development of the unique brackish ecosystem.

Nevertheless, it is barely perceptible, due to the outline of the dike, that only allows us to walk on the side of the dike most of the time.

By altering the dike, we can have access to the joy of this unique ecosystem that manifests in seasonal rhythm, coming to ***touch*** this unique nature.

The design will intend to provide with the required modifications of the dike line and the inner nature for this purpose.

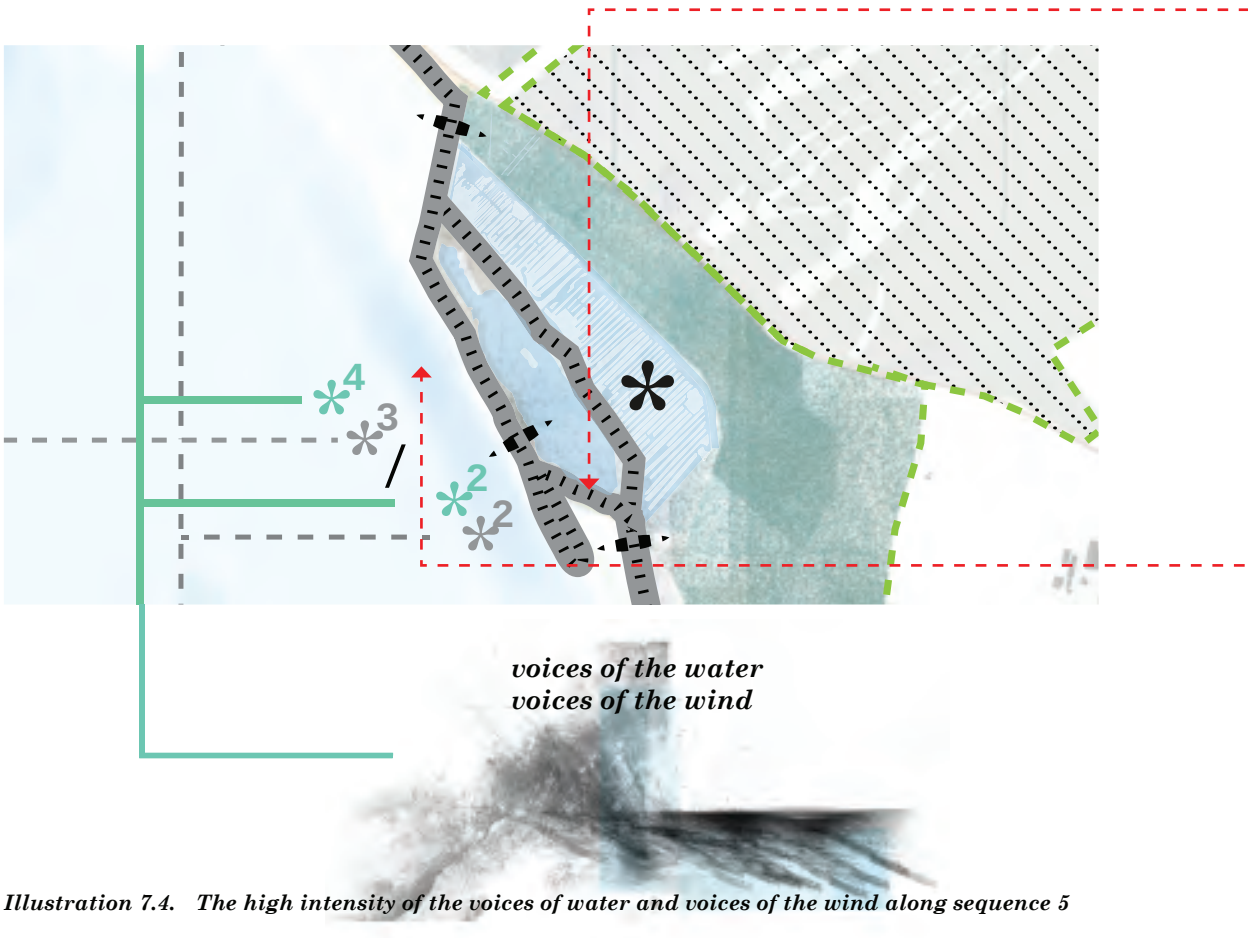


Illustration 7.4. The high intensity of the voices of water and voices of the wind along sequence 5

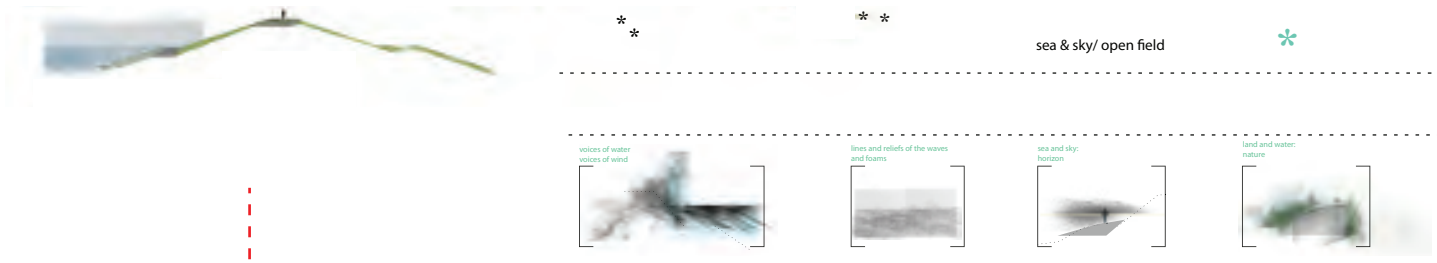


Illustration 7.5. The intensity of the 'murmur of limits' according to the phenomenological study

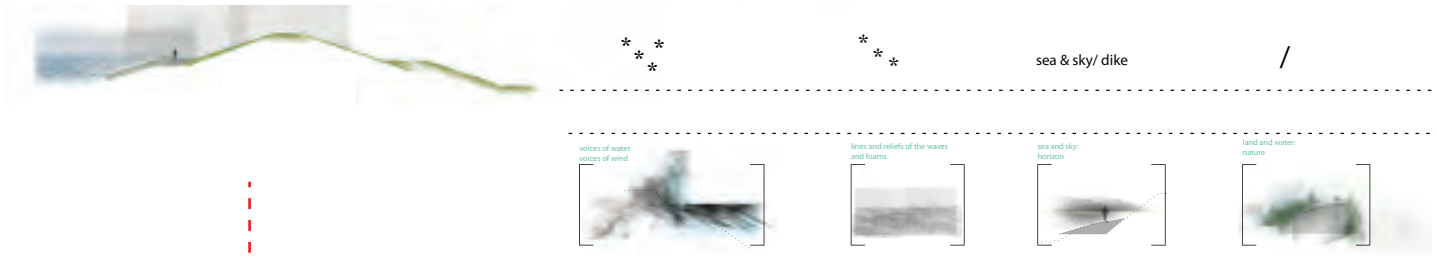


Illustration 7.6. The intensity of the 'murmur of limits'according to the phenomenological study

horizon,
the limit of our ocular experience

The horizon, the limit of our sight or ocular experience is interpreted as design material. It looks for the embodiment of the act of encountering the horizon. Horizon formed by the sea and the sky, the most sublime ocular experience in the area, due to its simplicity.

The design idea searches for a spot where the line of the horizon manifests most wide and elongated, and where a shallow bottom allows to act materially on the dike. And then the dike provides a widening of the temporal-spatial frame for experiencing this limit.

Taking into account the phenomenological study the transition zone looks for an appropriate intervention area. The bottom is shallow, the intensities not that high due to the lower section of the dike, the horizon very wide, and from the phenomenolical booklet it was stated that the line was too rigid, not a too pleasent area.

Therefore, this is the selected site for interfering in the dike line and provide to it the embodiment of the horizon.

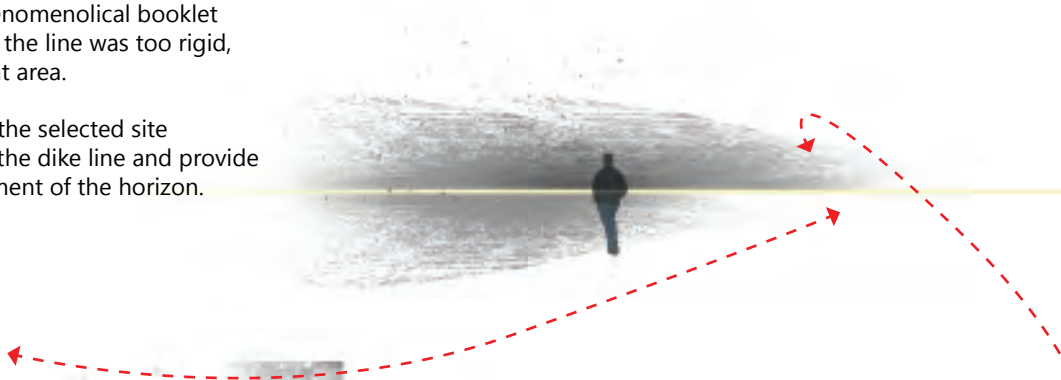


Illustration 7.7. The horizon: sea and sky

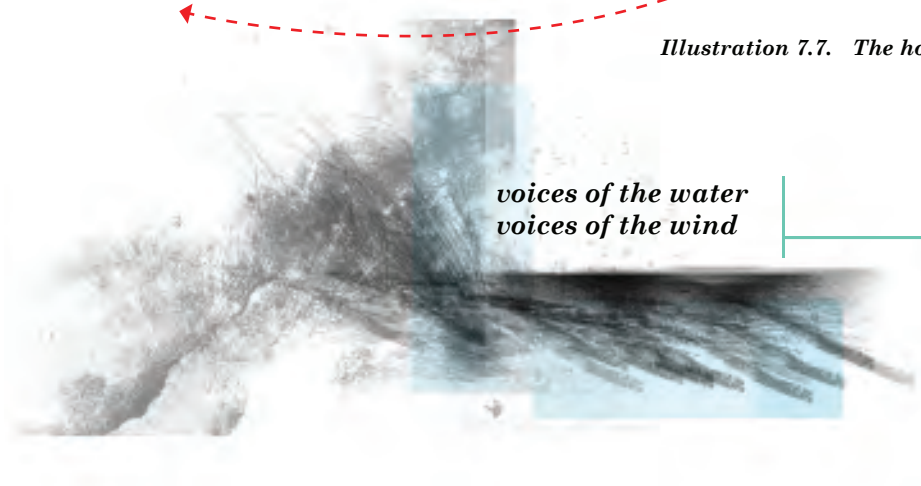


Illustration 7.8. Voices of the water voices of the wind, lower in intensity

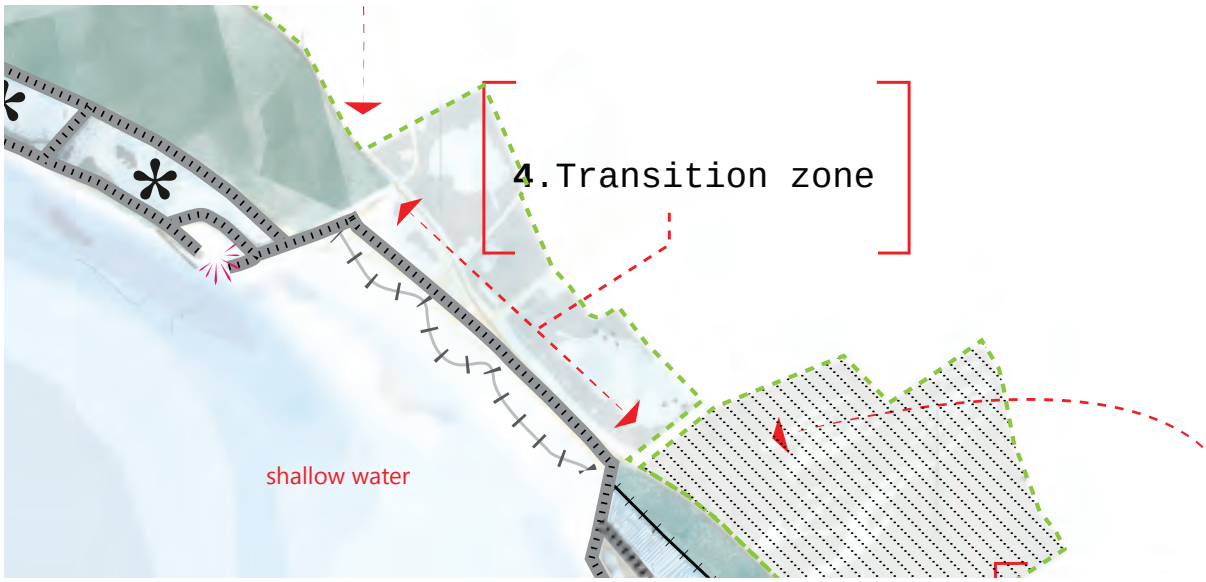


Illustration 7.9. The transition zone, from sequence 4, with shallow water

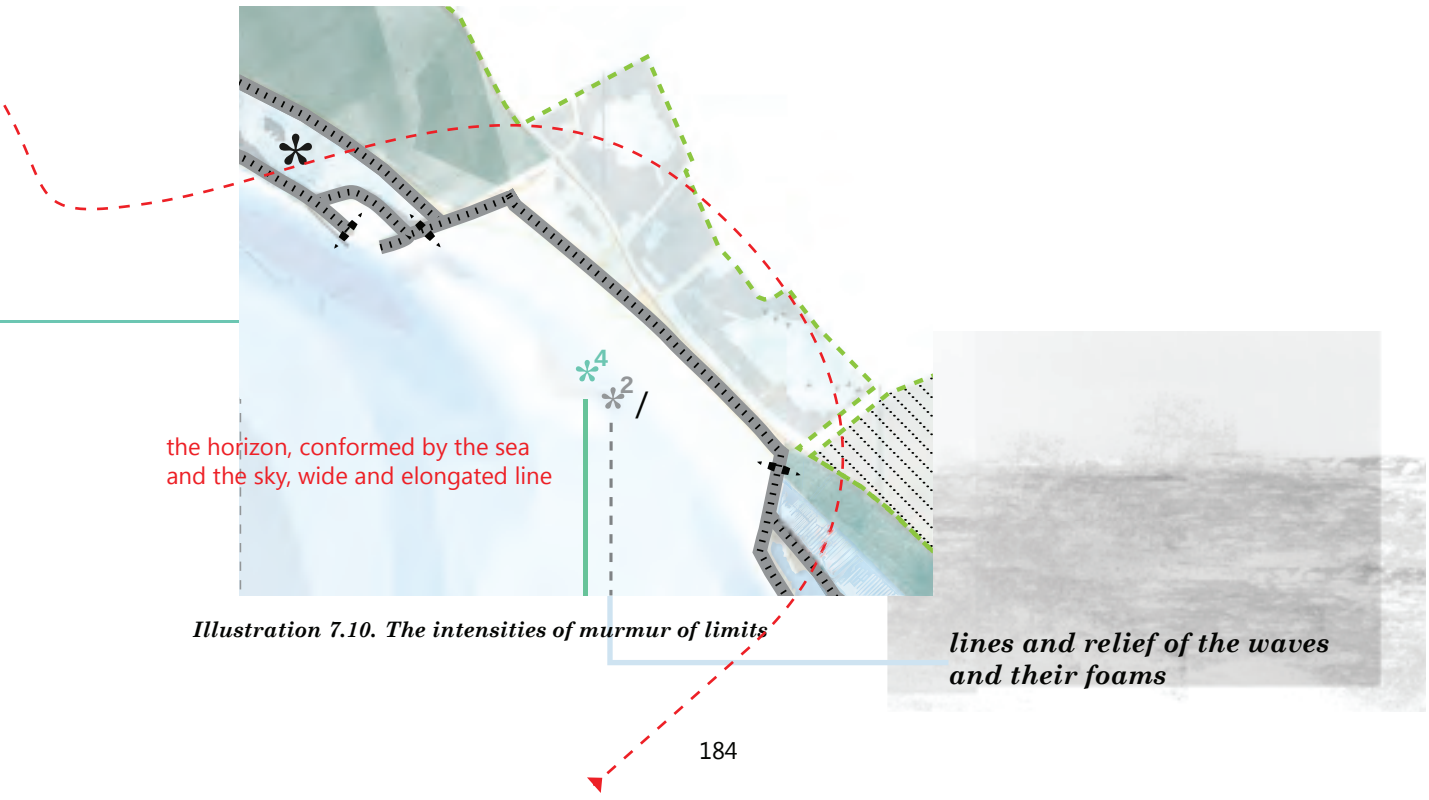


Illustration 7.10. The intensities of murmur of limits

7.2 Design Interventions

The ***intervention areas*** are three.

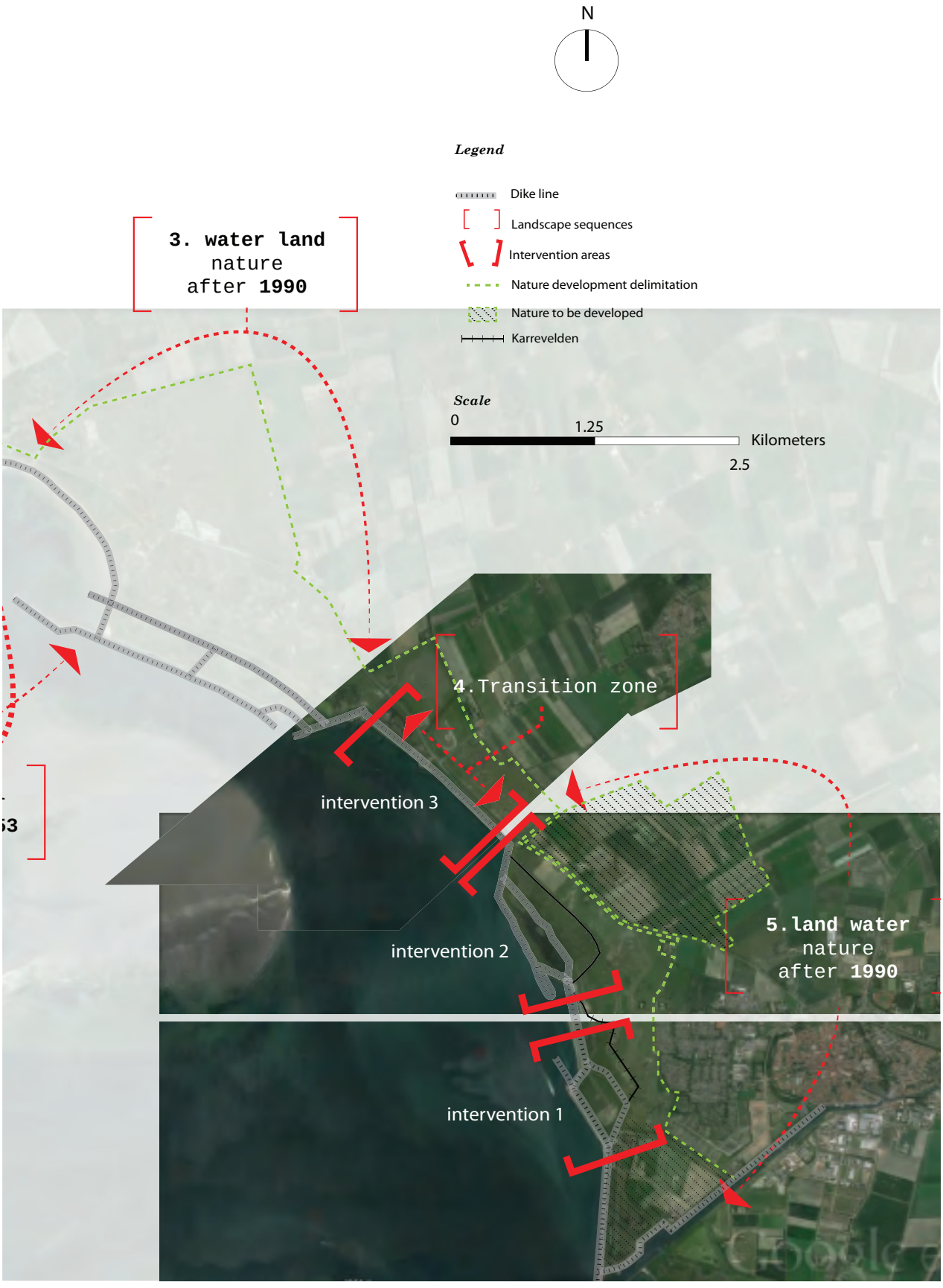
As mentioned before, based on the ***murmur of limits***, each intervention makes specifically emphasis in one of the ***metaphors***:

- ***voices of the water***
  voices of the wind
- ***lines and reliefs***
  that are the waves
  and their foams
- ***horizon***
  limit of our ocular
  experience
- ***murmur of rhythms***

The following pages illustrate and explain the ***intervention areas***.

Intervention areas

Illustration 7.11. Intervention area (Google Earth)


N
Legend
Dike line
Landscape sequences
Intervention areas
Nature development delimitation
Nature to be developed
Karrevelden
Scale
0
1.25
2.5
Kilometers
3. water land
nature
after 1990
4.Transition zone
intervention 3
intervention 2
intervention 1
5.land water
nature
after 1990

7.3 *Invervention 1*

Illustration 7.12. Intervention area 1 (Google Earth)


N
Legend
Dike line
Landscape sequences
Intervention areas
Nature development delimitation
Nature to be developed
Karrevelden
Scale
0
1.25
2.5
Kilometers
voices of the water
voices of the wind
5.land water
nature
after 1990
intervention 1

Existing situation

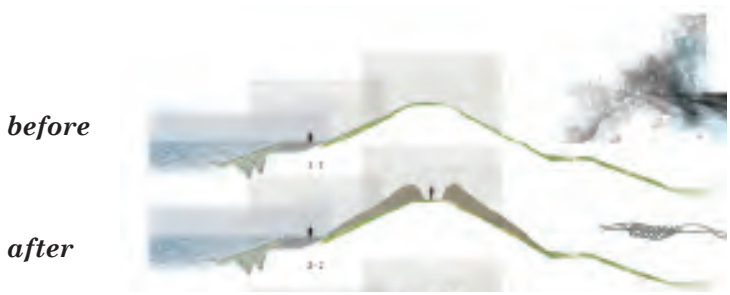
Illustration 7.13. Reference map of the invervention area and pictures of the existing situation

Voices of the water, voices of the wind

The limit, the dike, is given a new outline, a new widened relief.

The dike is heightened following the existing slope, and provided with a second walking path, immersed in the dike. This gives the possibility to either walk exposed to the winds, the sound of the sea, the foams, the movement of the grass, with open horizon, on the side of the dike, or to walk on top, immersed in the dike, surrounded by it, revealing the dike anew, as an element that rather than exposing us, now, it protects us, that becomes closely tactile, making the voices of the water and the winds to reveal only in their aurial expression, becoming echo, remote, and, indeed, not embodied as a visual or tactile phenomena: the transposition of the visual landscape to the aurial and new tactile space.

What we see, is, the sky and the grass.



But the dike becomes a sequence (300 meters long): it is narrow, focused on the sky and the new tactiliy, and we walk through it, in sort of canyon, enclosed space, until it widens, opens, the line breaths, in order to open towards a space that reveals to us as a panorama. The limit comes to embrace the space, to indeed determine it, in an ellipse, continuing to protect us, but also allowing us simultaneously the perception of the seasonal rhythm, with the big water elements on one side, and the tidal rhythm on the other. Both as a visual phenomena again.

We come to sit on the stairs, in order to look at the sea, exposed again to the wind, to the sea, to its foams and waves, and discovering the dike break that lies down. We go down the stairs, and we lead towards the path, wooden path that guides us until the end of the dike break. The rocks located on both sides of the broken dike enhance the waves and the foams, so the voices of the water get enhanced, and we get to the end of the path, in order to be in the midst of the sea.

In overall we impose over the given material, we provide a new relief that enhances the experience of the voices of the water and the winds and we give them a new expression, allowing different intensities.

Illustration 7.14. Intervention map

Sequence of space

s1

s2

s3

Illustration 7.15. Sections of the landscape sequence

Exposed and Embraced by the dike

Illustration 7.15. Section of the dike canyon

exposure to the foams and waves
to the voices of the water, voices of the wind

Illustration 7.16. Along lower side of the dike, exposed to forces of the elements

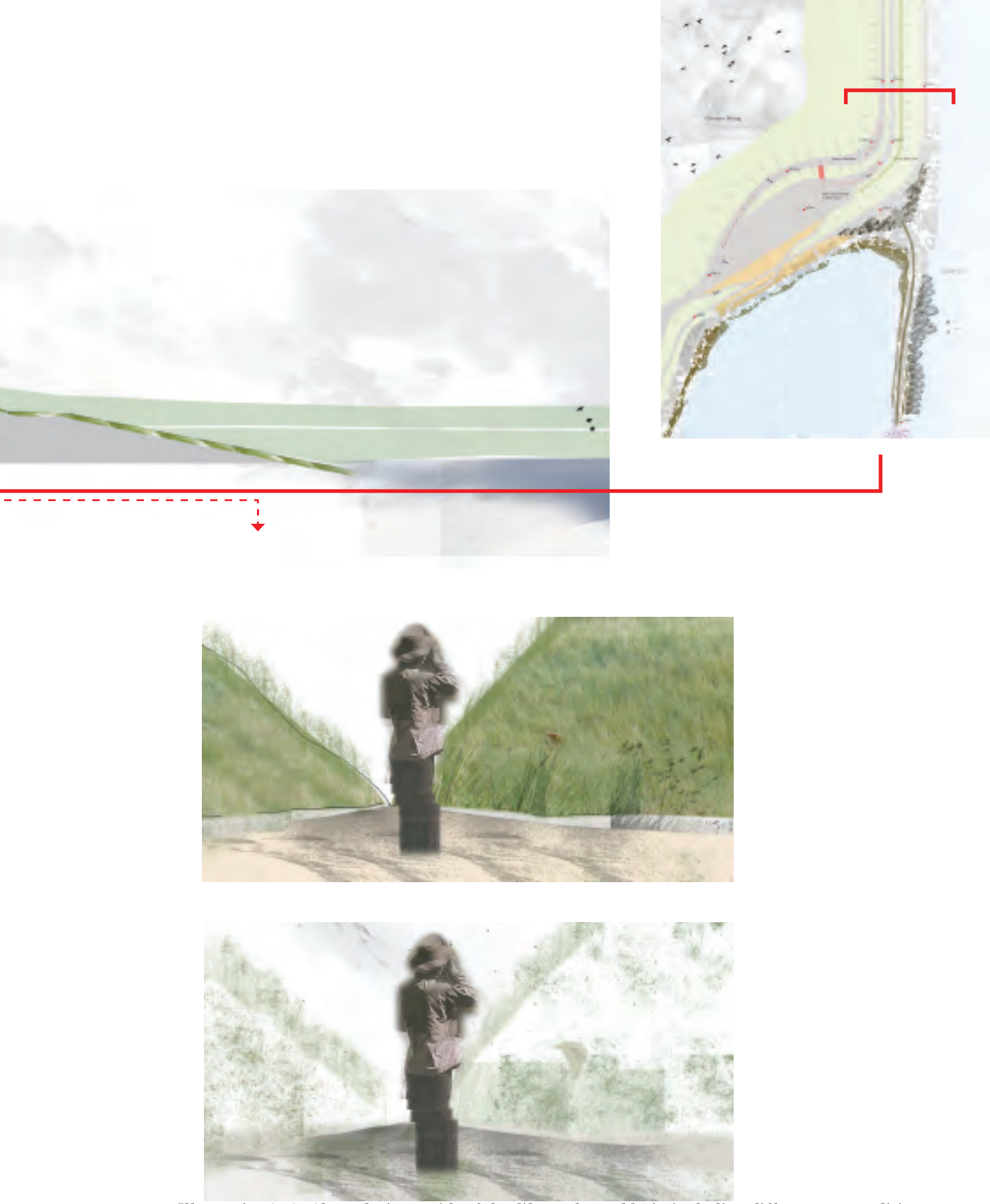


Illustration 7.17. Along the inner side of the dike, embraced by it, including different seasonalities

Dike canyon and open space

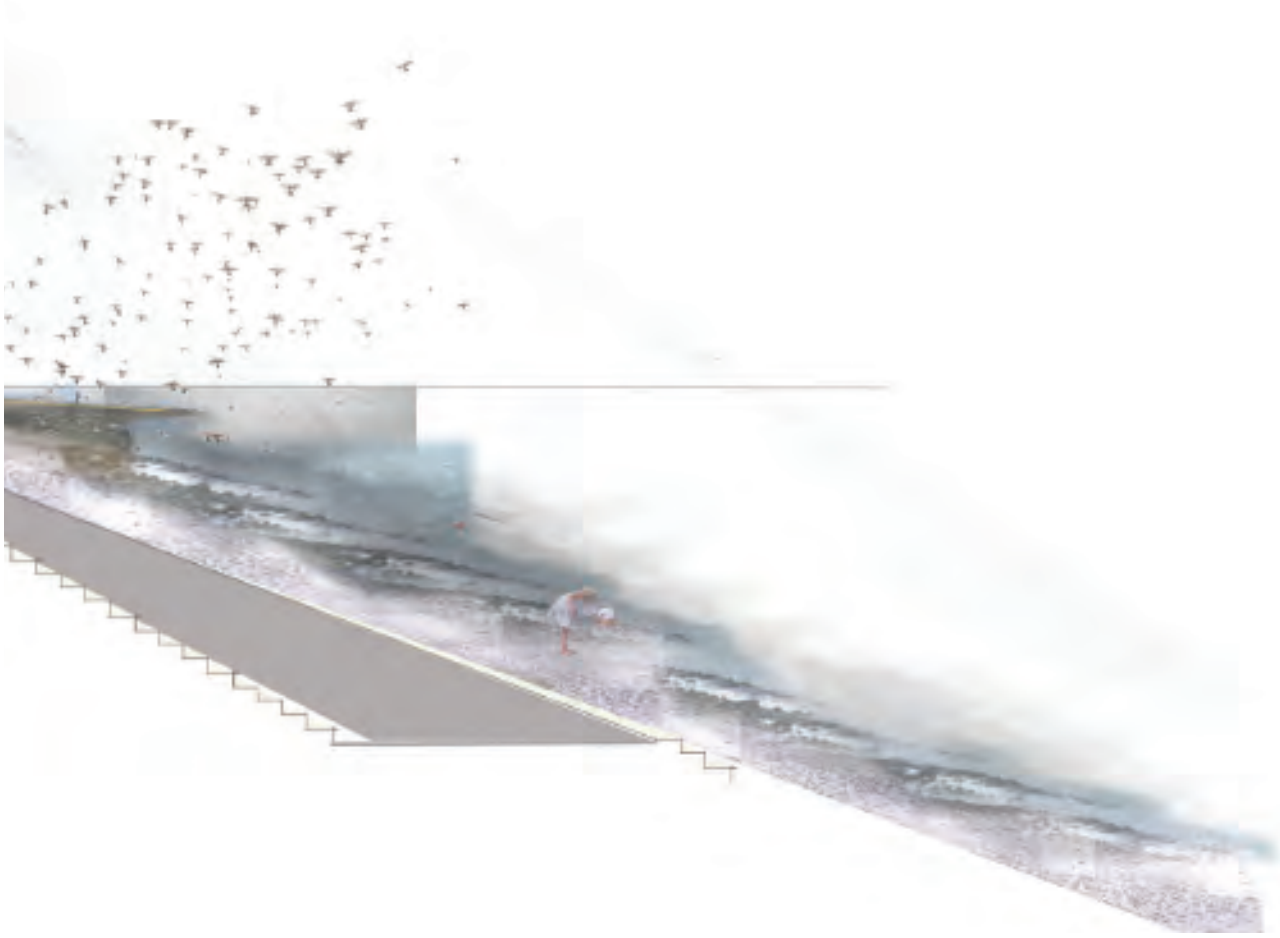


Illustration 7.18 and 7.19 View of the open space, that becomes panorama. It shows the possibilities of the public space, how also, along time, sand by means of the wind or storms can be stored on the surface, giving new textures

1

Embodying the waves, the foams, the salt spray and the wind

Illustration 7.20. Construction of a wooden path on the historical dike break

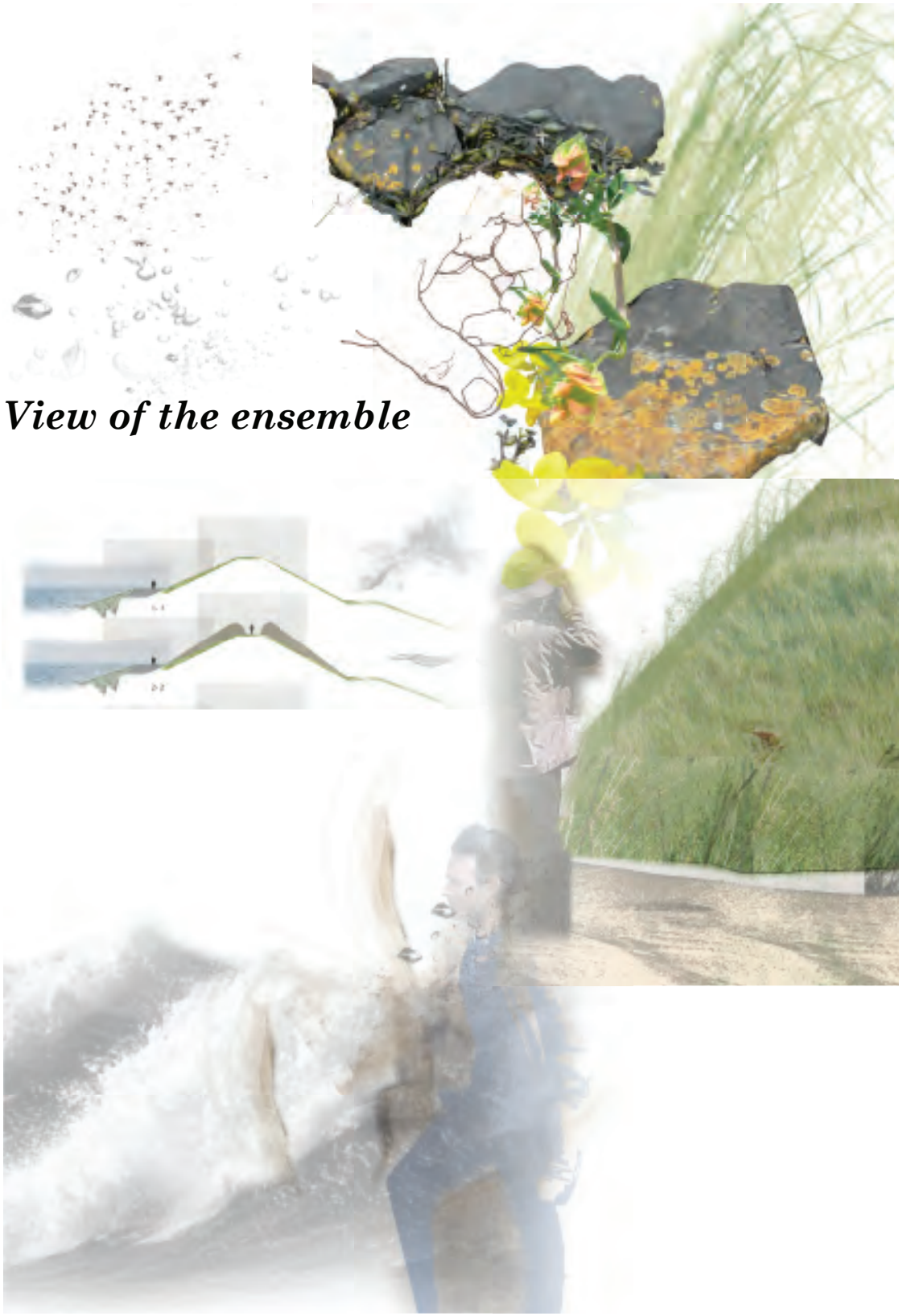


Illustration 7.21. Overview of the proposal

7.4 Intervention 2

Illustration 7.22. Intervention area 2 (Google Earth)


N
Legend
Dike line
Landscape sequences
Intervention areas
Nature development delimitation
Nature to be developed
Karrevelden
Scale
0
1.25
2.5
Kilometers
murmur of rhythms:
tidal & seasonal
culture & nature
intervention 2
5.land water
nature
after 1990
Google ear

Existing situation

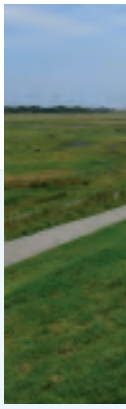


Illustration 7.23. Reference map of the invervention area and pictures of the existing situation

Intervention 2

The selected area, representative of the interaction between nature and humans has currently no accessibility.

The tidal rhythm remains perceivable, but due to the fact that we walk on one side of the dike most of the time, the nature development remains invisible, and untactile (except in the dike stretch shown in the picture of the former page).

The intervention intends to make this murmur of tidal and seasonal rhythms perceivable.

Murmur of rhythms

By means of minimal interventions the historical ***karrevelden*** whose major changes manifest in seasonal rhythm will become perceivable. By means of a landscape sequence we allow to experience the tidal and seasonal rhythm not only as a visually embodied experience, but as a tactile, olfactory and aurial embodied experience.

Culture and ***nature*** are already interacting since centuries ago as an intermingled system, from an ecological point of view as the unique brackish habitat that manifests in ***karrevelden***, and from a cultural perspective with the specific shape given to the land by humans as response to the threat of the sea, where human scale is instilled.

We are walking on the top of the dike line, and then, we divert (if wanted) our path landwards. From the intense voices of the wind, voices of the water, and horizon formed by the sea and the sky, we get immersed, slowly, accompanied by the decreasing murmurs that we leave behind, as an echo, in a new landscape, that formed of inner water and land interacting, in slower motion, manifesting in seasonal rhythmic pattern. The voices of the wind, when the wind is strong, are overwhelming due to the openness of the ***karrevelden*** landscape, and the horizon changes completely, with the dike in the background as the limit of our visual experience.

By placing wooden paths on the inner side of the ***inlaag*** dike and the boundary of ***karrevelden***, the land stripes can be accessed, and we can move along them, in a kind of laberynth, slowing down our walking rhythm, and coming to discover the existing vegetation, smelling and tasting it, listening to the birds. The ***inlaag*** dike remains opened as well, so we can decide whether to get immersed inland, below sea level, or to walk on top of the ***inlaag*** dike, having a wide panorama of the surroundings. Or, to combine all these both possibilities.
The dike, or the limit, in the background, also shows some material hints, allowing us to orientate and demarcate our situation, its structure within the composition. And the new water land murmur, existing beforehand, gets accessible: new experiential limits.

And when the ***karrevelden*** have been explored we get to cross perpendicularly the dike in a composition that becomes almost artistic, in order to get up, traverse the dike, and come to encounter, again, the immensity of the sea, with its murmur of limits: the voices of the water and the wind, the lines and reliefs of the waves, its aroma, intensively, once again.

Illustration 7.24. Existing situation

Illustration 7.25. Proposal for murmur of rhythms

Depicting the proposal

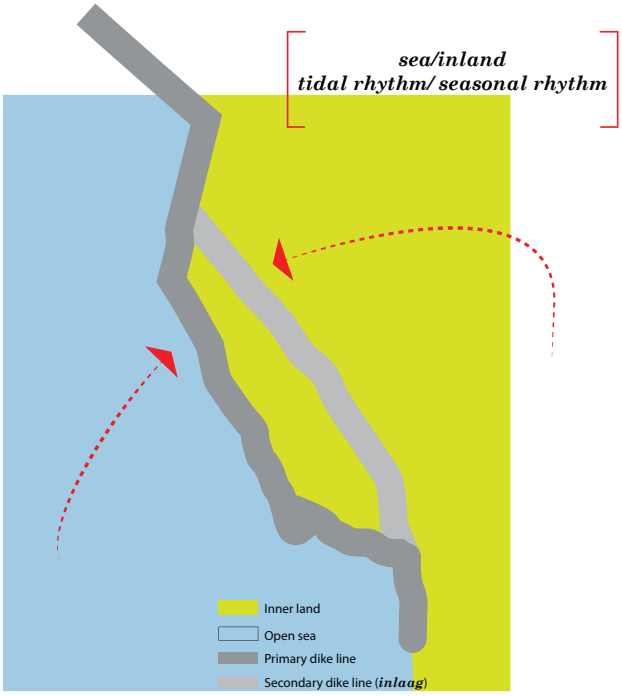
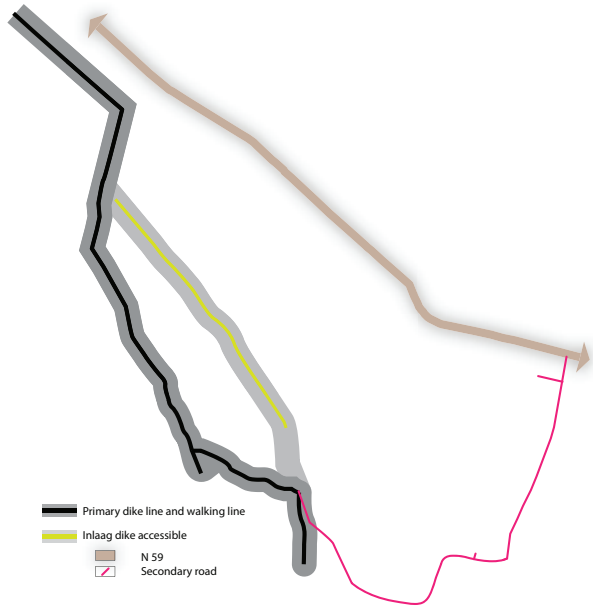


Illustration 3.2.



Infrastructure

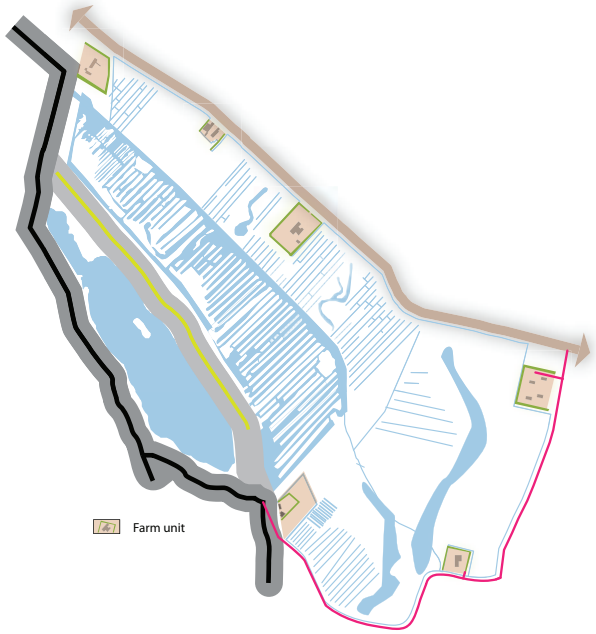
The illustrations show the area depicted in its components.

The intervention focuses on allowing the access to the historical ***karrevelden.***

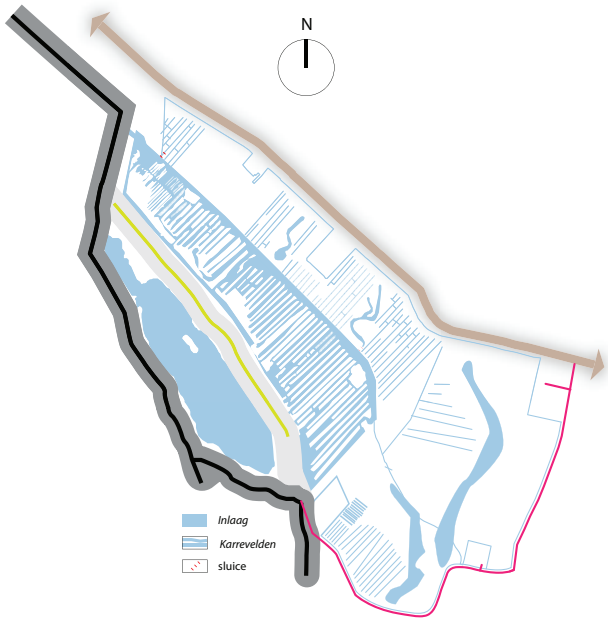
The final drawing shows that two main accesses are given to the area that cross the dike perpendicularly, becoming a panoramic site: we encounter either the tidal or the seasonal rhythm from a higher point, in its immensity.

The wooden paths are located on the one side on the lower side of the ***inlaag dike,*** on the other side next to the main water element.

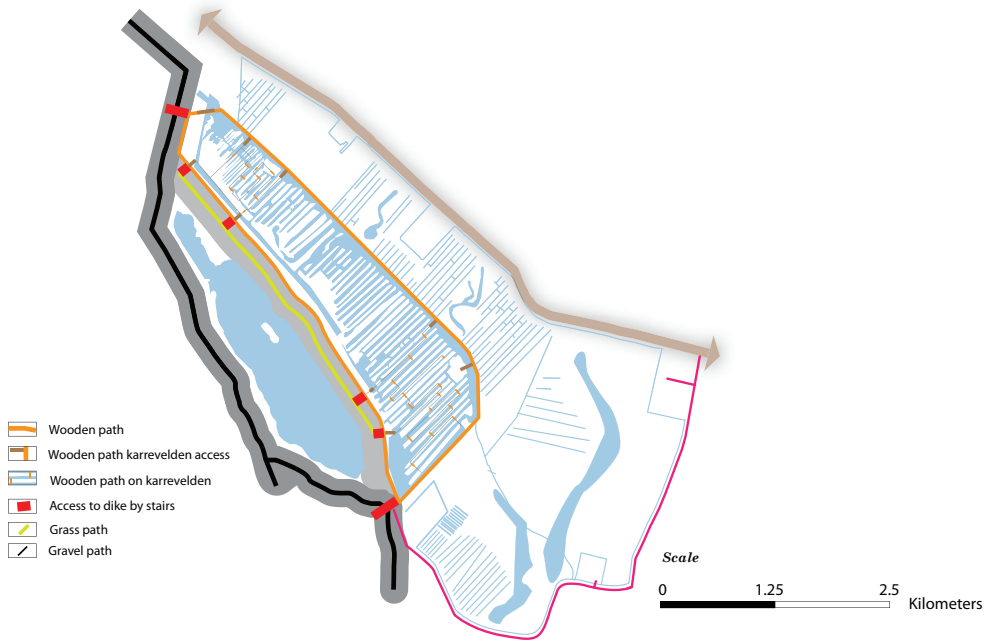
From there we access the ***karrevelden***, in a sort of laberynthine round that makes as cross some of the water elements by means of smaller wooden paths.



Farm units



Water system



Intervention

Illustration 7.26. Proposal for murmur of rhythms

Section

s1

s1

Change is only perceivable in longer cycles: in seasonal rhythm

Illustration 7.27. Section through the dike and karrevelden in spring time

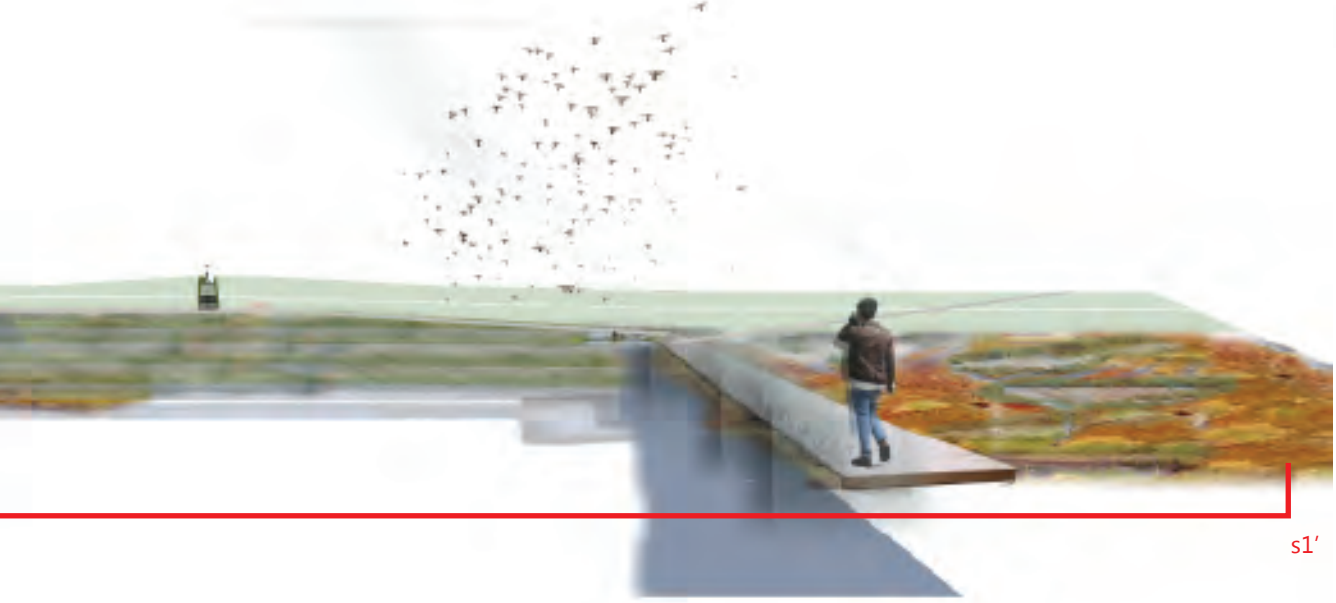
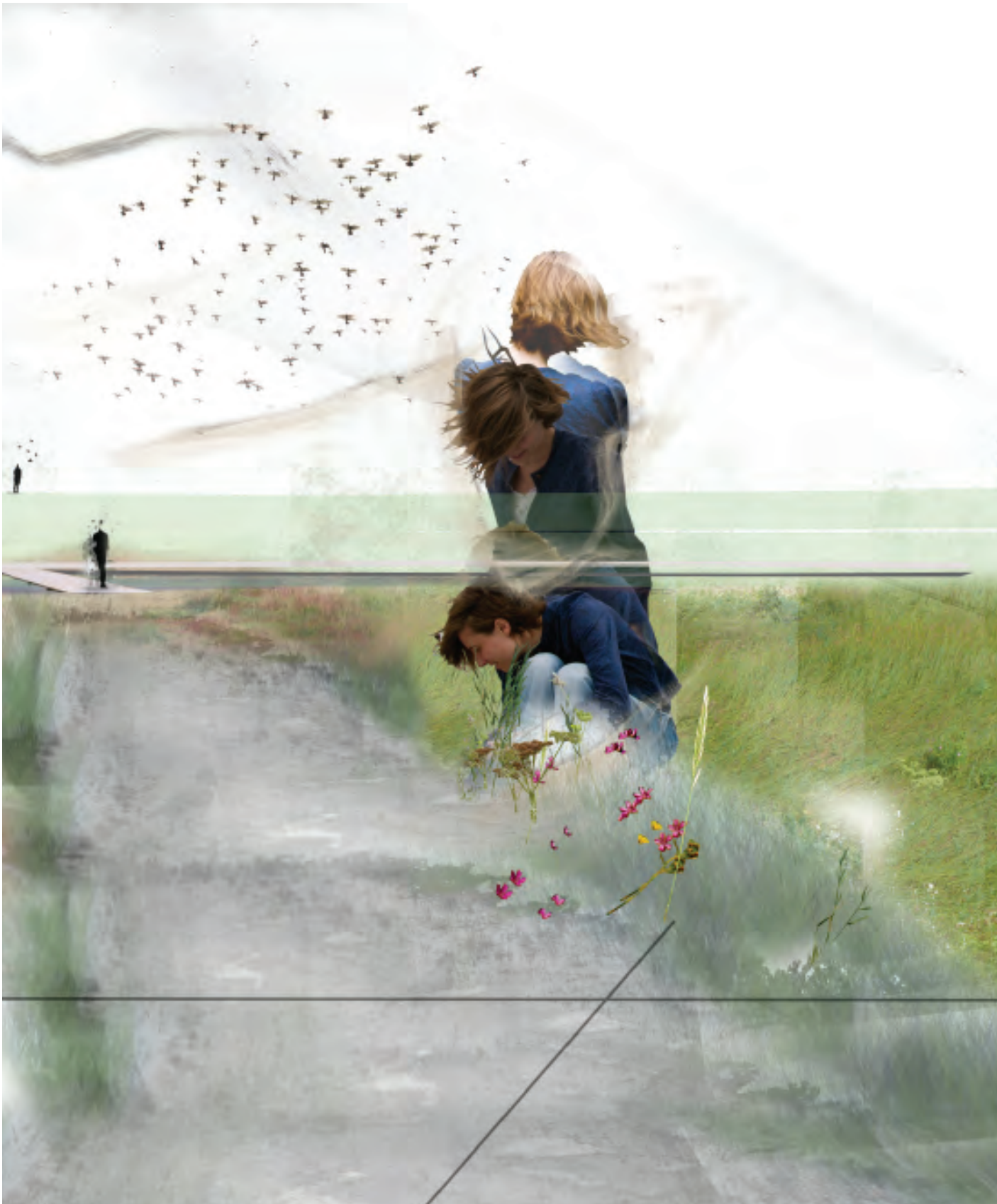


Illustration 7.28. Section through the dike and karrevelden in autumn time

Illustration 7.29. Walking on karrevelden

In Karrevelden

Illustration 7.30. Experiencing karrevelden. The dike becomes the horizon. More quiet, the tidal rhythm remains almost obliterated



Touching nature

Illustration 7.31. Embodying the vastness. Touching the vegetation

Getting towards the sea

Illustration 7.32. Leaving behind the karrevelden, accessing the tidal landscape through the dike, heightened in order to provide the feeling that we cross the dike, perendicularly, opening the wide panorama and revealing the tidal rhythm

7.5 *Intervention 3*

Illustration 7. 33. Intervention area 3 (Google Earth)


N
Legend
Dike line
Landscape sequences
Intervention areas
Nature development delimitation
Nature to be developed
Karrevelden
Scale
0
1.25
2.5
Kilometers
horizon:
limit of our sight
experience
4.Transition zone
intervention 3
Google

Existing situation

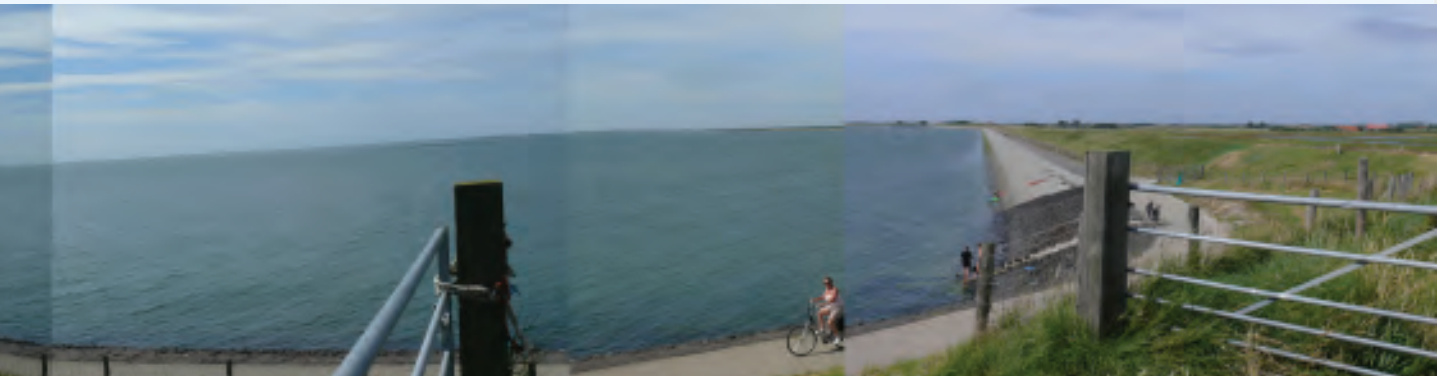


Illustration 7.34. Reference map of the invervention area and pictures of the existing situation

Horizon, the limit of our sight experience

embodying the horizon by means of the mussel landscape

We distract the ***line***, inducing a new direction, towards the ***horizon*** formed by the sea and the sky, in order to embody the encounter of the limit of our sight experience.

I place wooden paths that accompany and allow this encounter of the ***limit of our sight experience***, paths that are placed in different heights, related to the tidal fluctuation that ranges from -1.00m up to +1.40 meters (with climate change it is expected to rise 20 cm.) and that therefore, interact with the tidal rhythm.
At ***low tide*** all the paths, five of them are available, at ***mid tide*** three of them, and at ***high tide***, two of them. And in this way, it becomes a landscape that varies according to the tidal rhythm, almost disappearing under the waves, or completely exposed. The paths that are always above sea level are furthermore accessible for wheel chairs as well by means of slopes that connect the entries of the paths.

The access to the ensemble of paths, by means of stairs or slopes, all made of concrete structure, rest on the dike. The space remaining in between the stairs and the slope is covered with stones. Therefore, when the tide is rising, the sea encounters those rocks, showing more lively than in the current situation. In between those spaces panoramic areas are projected, so that we can sit and perceive the mussel landscape in its immensity. And when we walk down the stairs, the rocks give the feeling of closeness and tactile feeling, allowing us, if wanted, to get out of the traced paths, and to further experience the life settled on those rocks.

Furthermore, the paths, in the edges have mussel poles. They work as elements that enhance even more the ***flattened horizontality*** of the path, by enclosing and directing our view towards the ***horizon***. Since the poles are fixed to the bottom, each different height of the path is experienced differently; the poles rich different heights. In the lowest paths they are above our head, in the mid height paths they reach our arm, in the highest paths the poles reach barely the level of our feet. Eventually the poles bring tactile richness to the act of ***embodying the horizon***, becoming an edible landscape, and giving a new temporality, that of the mussels growing in seasonal rhythm.

Under ***stormy conditions***, however, the landscape disappears under the waves, becoming mute, un-tactile and invisible.

In order to place the paths, the slope of the existing dike is extended. This is possible to be done, since the bottom of the sea water is shallow.

The paths are instilled with the rhythmic vibration of the waves that come up and down with the tides, and that imprint their expressivity on the materiality of the paths, and this rhythmic vibration determines how to encounter the horizon, and becomes the cadence that guides us towards ***encountering the limit of our sight experience.***
It is the formation of space on the relief of the line.

Here we only talk about the tidal rhythm, and the overwhelming horizon. Voices of the wind and water are a bit enhanced by means of the stones, creating foams and reliefs.

Existing relief of the dike

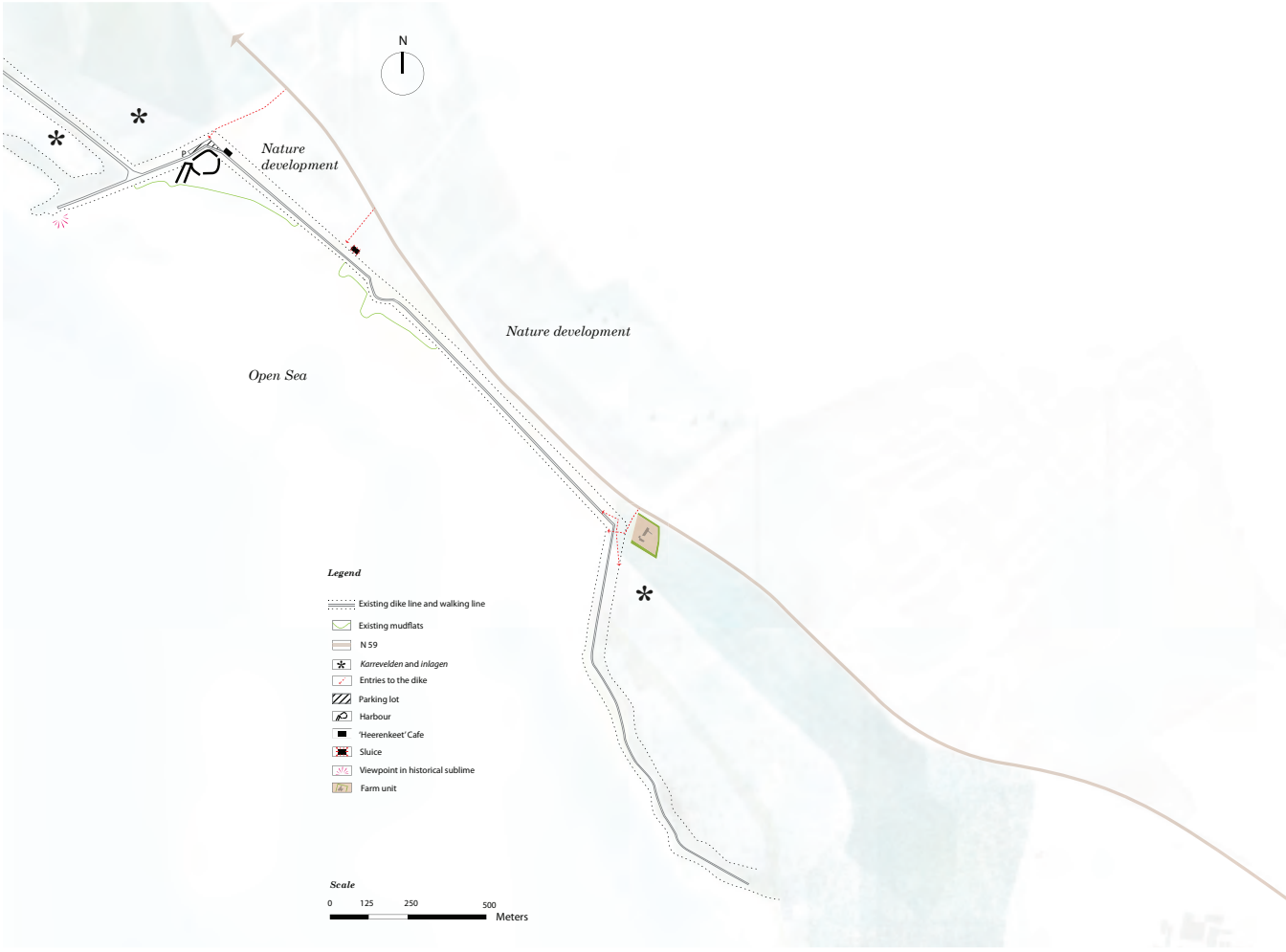


Illustration 7.35. Existing situation existing dike section

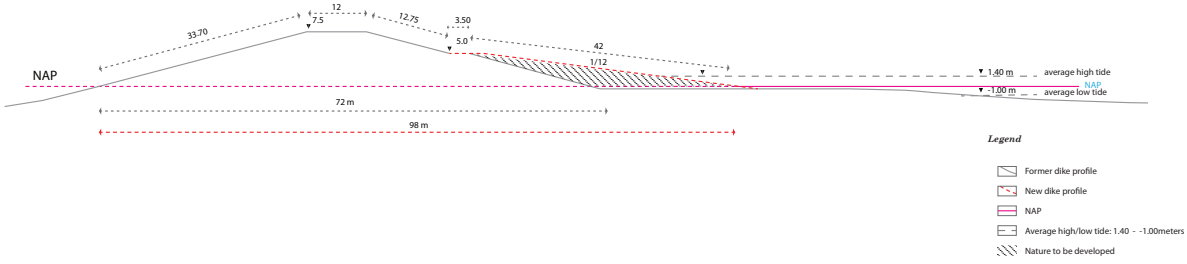


Illustration 7.35. Existing situation of dike profile, including the proposed new profile

New relief of the line: conforming space by means of the relief

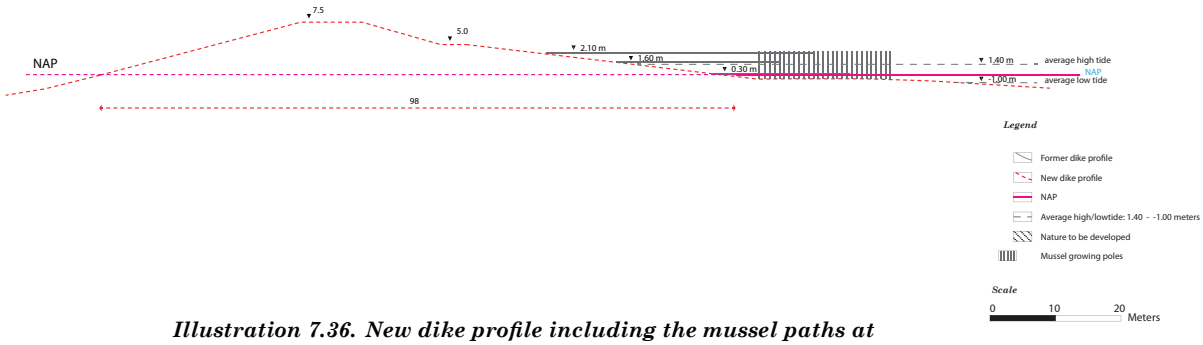


Illustration 7.36. New dike profile including the mussel paths at different heights

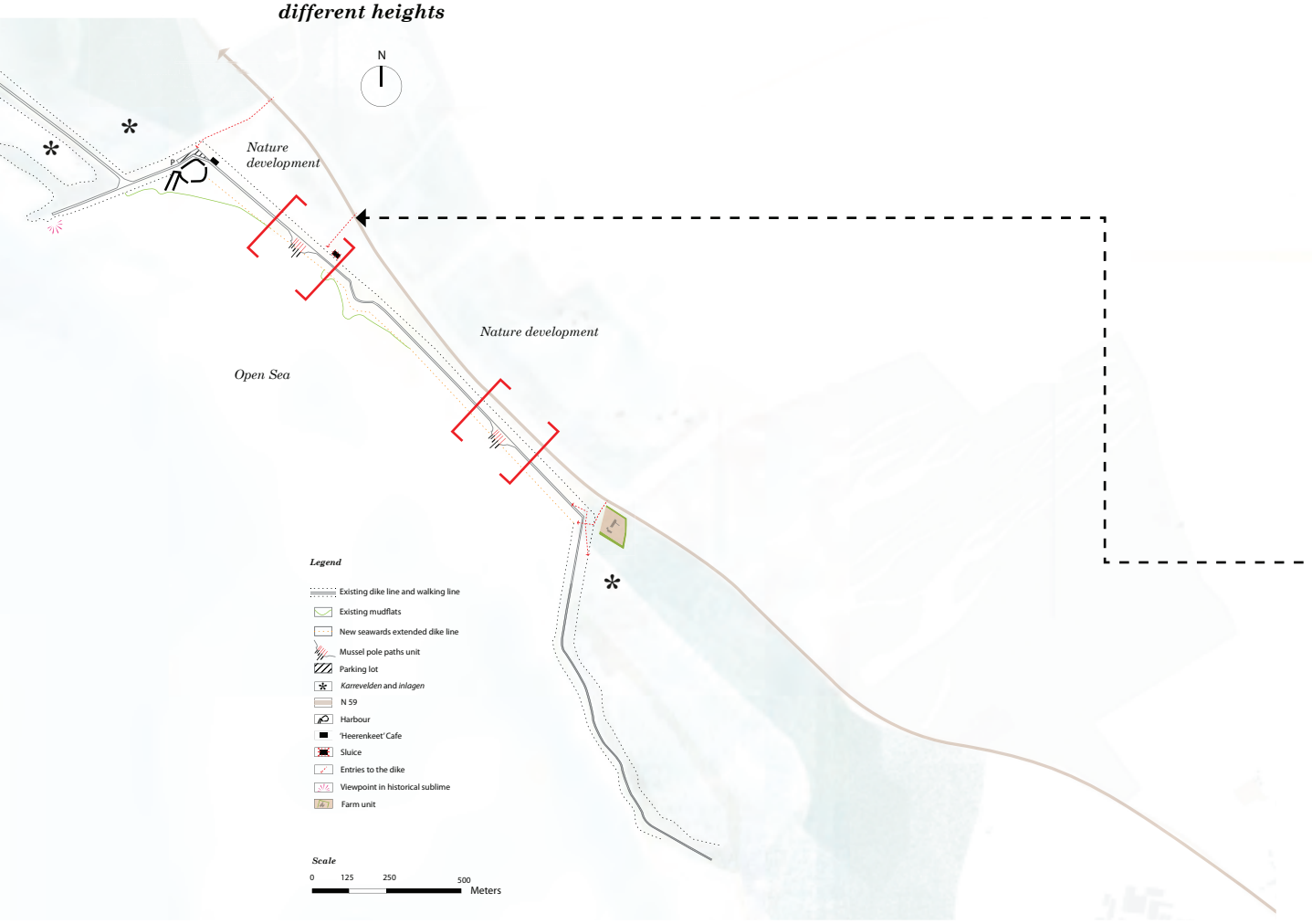
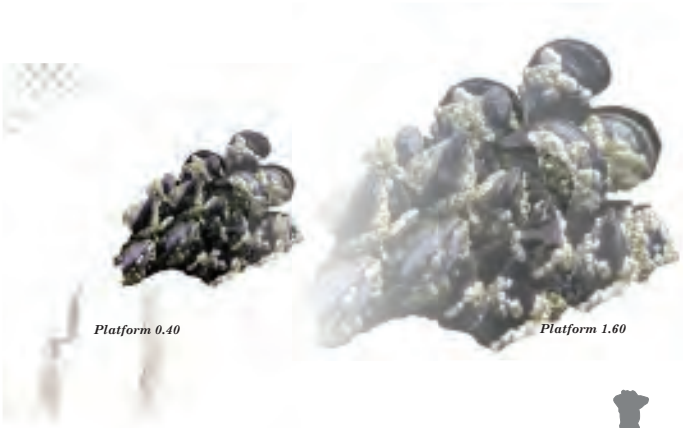
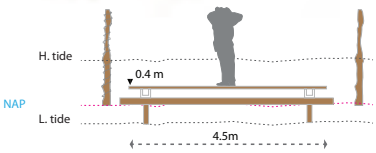


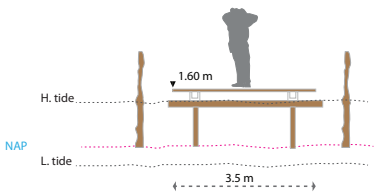
Illustration 7.37. Mussel path units along the dike stretch



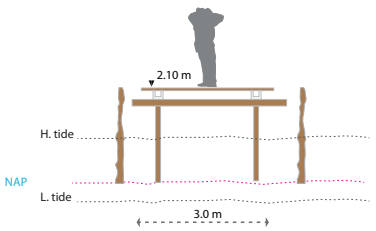
Platform 0.40



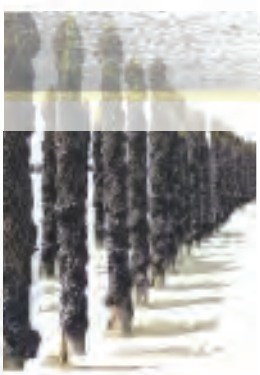
Platform 1.60



Platform 2.10



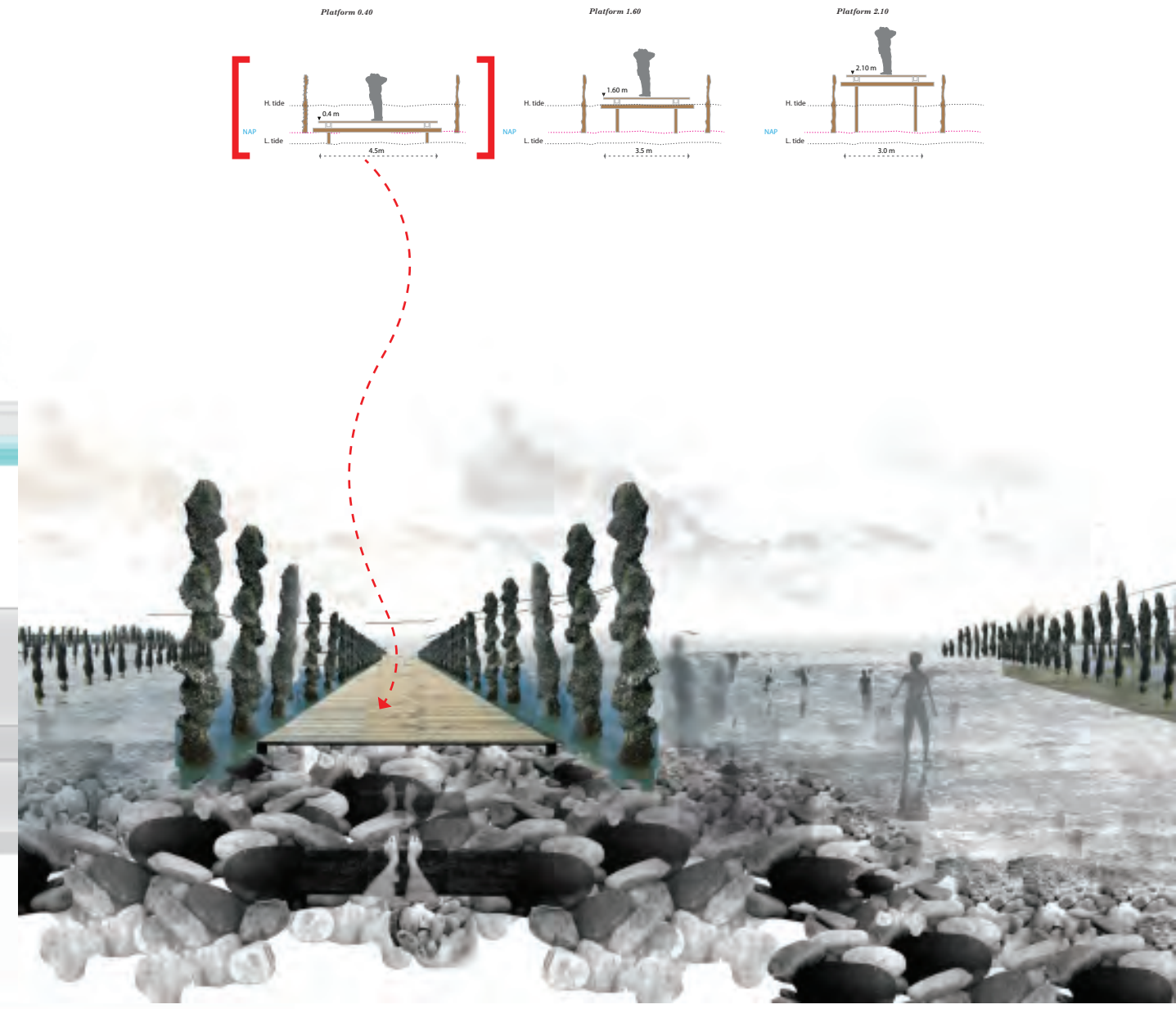
Nature development



The dike line expands landwards and incorporates the mussel poles.
Three different heights of the mussel avenues make the landscape to be in eternal motion, in relation with the tidal rhythm. And this event makes the encounter with the horizon in continuous transformation as well, since it conditions our situation on the dike.

Illustration 7.38. Above, detail of the mussel path. Below the the mussel unit

Illustration 7.39. Paths visible and accessible at low tide. Above, the elevation



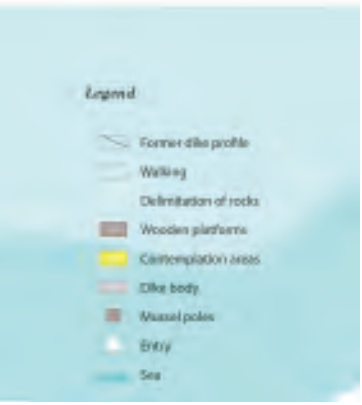
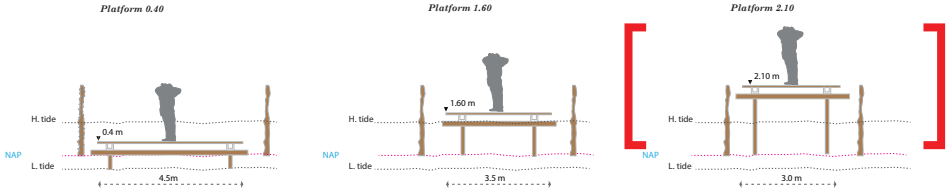


Illustration 7.40. Detail of the lowest path, with the mussel avenue guiding the embodiment of the horizon.

Illustration 7.41. The mussel landscape is partly under the waves, and the act of embodying the horizon is reduced to the paths above the sea level



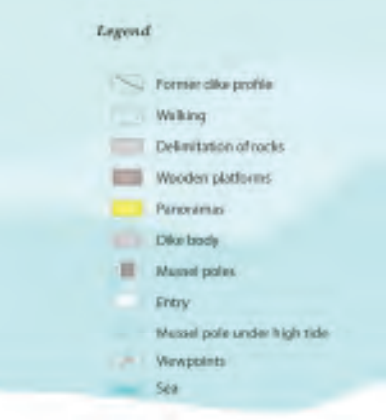
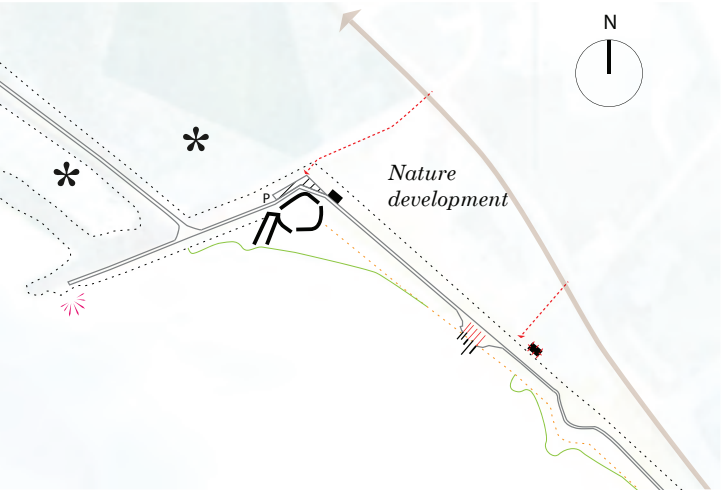


Illustration 7.42. Detail of the landscape at high tide, under the waves. We are not allowed to access



Spring tide and Stormy conditions

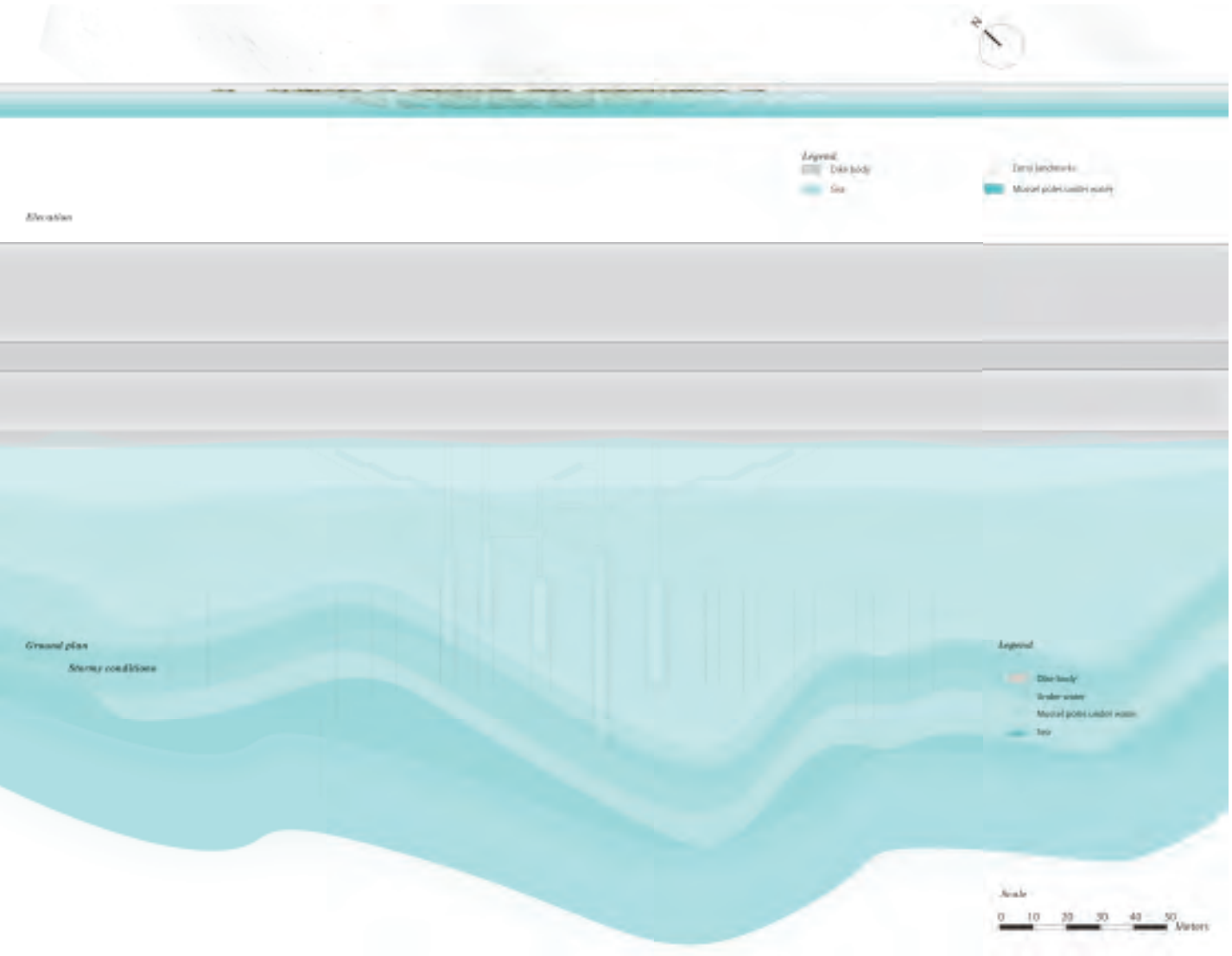


Illustration 7.43. At exceptionally high tide, spring tide, the landscape can disappear. Only the mussels will stand visible

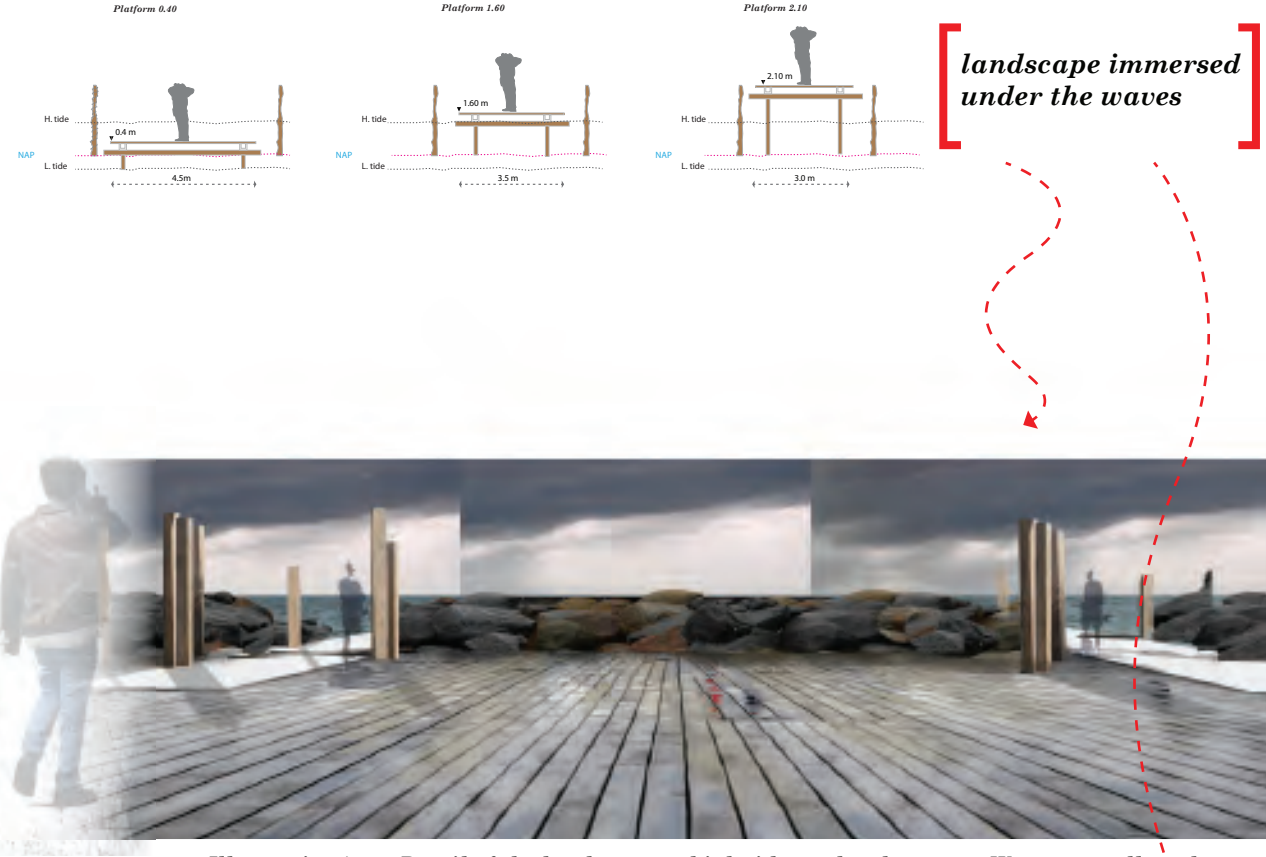


Illustration 7.44. Detail of the landscape at high tide, under the waves. We are not allowed to access

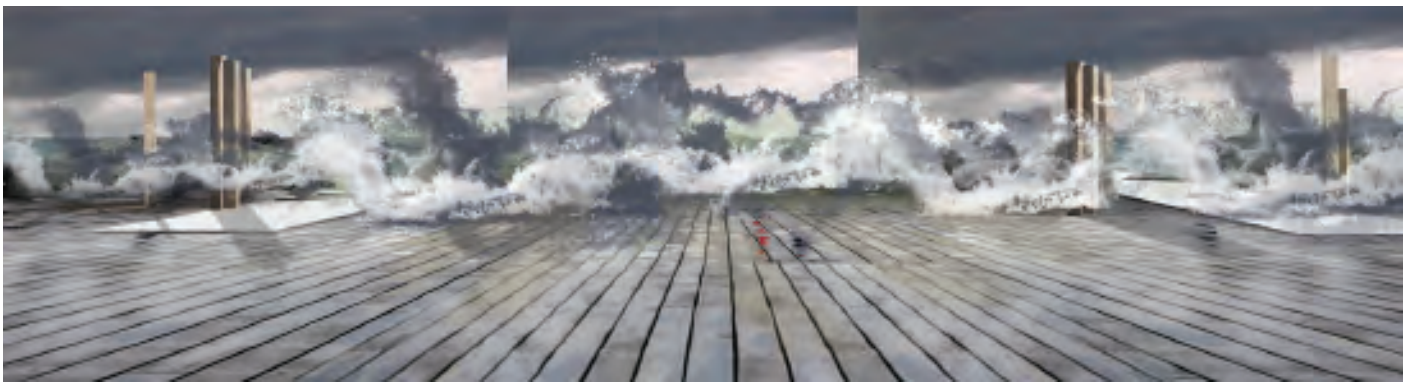


Illustration 7.45. At stormy conditions, the dike becomes almost unaccessible, a threatening experience

7.6 Conclusion

The design interventions have followed the aesthetic strategy stated in ***chapter 6:***

> _. An ***aesthetic strategy*** that celebrates the ***sensuous encounter***
>
> _. An ***aesthetic strategy*** that takes the ***contextuality*** of site as departing material for enhancing aesthetic experiences by '***thinking, expressing***' aesthetically the processes and dynamics that conform the living landscape.

Departing from these premises, the design strategy has been developed by metaphors that work as a system on which the design interventions are sustained. Each of the spots has made emphasis on one of the metaphors in order to enhance the expressivity of such metaphor. And a dike line that is more expressive is obtained. The dike by means of the interventions breaths and gets widened in order to make room for new experiences. It opens to new spaces for allowing new spatial temporal meanings, allows the full awareness of the rhythms of nature by making them tactile, increases the intensities of the experiences that the dike affords, but mainly it provides the dike line a new meaning and new activities that by enhancing the perception of nature, makes the experience of nature richer, not only dependent on the ecological function of the area. By aligning the existent ecological function with our perception of nature, by instilling in the area our scale, our measures, our views, our tactily, the nature development gets enriched.

Intervention 1 has focused on the metaphor ***'voices of water, voices of the wind'*** and is the intervention that most alteres the existing situation. The dike is redesigned, given a new relief where open public space is embedded, and the dike given a second walking line, immersed in the dike. This gives two possibilities: either to walk completely exposed to the wind and to the sea, to that lanscape in motion by means of the wind, or to walk immersed in the dike, that becomes element that protects us, tactile, revealing the sea as an echo, making the voices of the water and the winds to reveal only in their aurial expression. We feel this aurial expression, remote, but intense, since it is not perceivable as a visual experience. Both walking possibilities encounter each other by means of the mentioned widened space on the dike, that becomes panorama.

Intervention 2 is the most subtle proposal. Working with the metaphor murmur of rhythms, the encounter between culture and nature, the seasonal and tidal rhythms, the design proposal makes accessible to the public the crown of the inlaag dike, and by introducing wooden paths the historical ***karrevelden,*** with its unique habitat, fauna and flora that manifests in seasonal rhythm gets accessible to the public, far from the sea, in quiet and slow motion landscape that encounters in its end, by trasposing the dike, the tidal rhythm.

Intervention 3 has purposefully focused on the embodiment of the horizon, and with that aim paths that guide us towards the horizon are proposed: paths that are settled in the midst of a mussel landscape. In between mussel poles, and anchored to the dike, the paths are located in different heights interacting with the tidal rhythm, that guide us towards the horizon. The act of embodying the horizon gets tightfully linked to the tidal rhythm.
Our situation is not conditioned any more by the dike for determining the horizon, but by the paths that appear and disappear with the tides. The embodiment of the horizon and the tidal rhythm get bounded then.

Eventually, we have obtained a dike line that as mentioned in ***section 6.1*** moves from being a ***defense line*** into an ***aesthetic line***, a line that rather than being only ***technical*** is an ***experiential*** line, instilled with ***human scale***, sensitive to our skin, and to phenomena of nature.

chapter 8

Discussion and conclusion

This chapter concludes the research and reflects upon its process, its achievements and its failures or limitations, the reasons behind for those, what brings the research to the field of landscape architecture and to aesthetics, and what needs to be further researched.

First, ***section 8.1*** will provide with an overview of the research process.

The research method followed for accessing and generating ***sensuous data*** has been one of the most relevant outcomes of the research process, and as such, it is worth to discuss how the method has influenced it. ***Section 8.2*** will unveil this.

Section 8.3 will give a conclusion of the research by reflecting upon the general concerns of the research and its validity, considering how the research could be useful in other settings and what has brought this research to the field of landscape architecture and the study of aesthetics.

The chapter ends with ***section 8.4*** giving suggestions for further research.

8.1 *Reflecting upon the research process*

During the seven chapters of this thesis ***the realm of human experience in the specific setting of nature development*** has been investigated, supported by the ***phenomenological method*** as main tool for accessing and generating ***sensuous data***, that eventually is interpreted as ***design material***.

The constraints experienced with the method along the research, which will be further explained in ***section 8.2*** due to their relevance for the research, have purposefully driven the research in new directions.

On the way aesthetic concepts that frame the sensuous encounter with nature have been incorporated. The first concept has been ***limit*** and together with the aesthetic metaphor ***murmur of limits*** both have linked the ***spatiality*** with the ***sensuousness*** of the ***forces and elements of the nature development*** which are in eternal motion, and are perceivable only when manifested under our time-space frame.
This has revealed the ***dike***, the representation of the aesthetic concept of the ***limit*** in Schouwen Duiveland not only as a safety element, but as spatial configuration provider of aesthetic experience where the murmur of limits, the interaction of the elements and forces in eternal motion most magnificently express.
Rhythm becomes the second aesthetic concept that implies not only the different rhythms in which nature expresses, but widening the spatial scope of the limit, makes us understand that the line itself, by means of its materiality, provides specific rhythm to the act of embodying the landscape. ***Rhythm*** is also ***dynamism***, the dynamism of the line, when we consider it a plastic element, containing serial features that install a sense of spatial belonging (along the dike) (Baranano, 1991: 16; Edensor, 2010:6).
Eventually, the ***limit***, or the dike is a ***rhythmic ensemble***, meaning that 'changing rhythmic processes interweave to afford places a mixity of temporal perceivable phenomena' (Crang, 2000), where the eternal movement of the elements and forces of nature most vividly express, and the ***dynamism*** of the line affords perceivable phenomena with different intensities. ***Spatial configuration*** through which ***rhythms*** co-exist.

The aesthetic concepts, definitions and metaphors that help in framing the phenomenological study have served as theoretical and design material that help in bridging theory and design in the research as well.

An aesthetic strategy that intends on the one hand to celebrate the ***sensuous encounter taking the contextuality*** of the site as departing material, and on the other hand to enhance aesthetic experience by ***thinking and expressing processes aesthetically***, has sutained and guided the design phase of the research.

Metaphors instilled with human perception, with our scale and suggested both by art literature and the contextuality of the site have been very inspiring in the exercice of imagining how to experience the landscape under new sensuous encounters, keeping in mind that the dike remains as the main facilitator for aesthetic experience.
For this, the exercise of sketching has taken place with the intention to illuminate what the definitions, concepts and metaphors were pointing. The process has not been linear in character, instead, the role of the language and concepts both as theory and design material have shaped each other until giving light to design. Actually, the different phases have been carried out altogether and at the same time, since they have bridged theory and design.

8.2 Discussing the method: phenomenology

Phenomenology has been the method used for a***ccessing, storing and generating sensuous data,*** taking our body as departure and ending point, and relying on it as the most accurate tool for generating sensuous knowledge.
The body serves as data generator, but the translation of the sensuous data to a scientific frame has been made by means of field notes, as suggested by Etteger (2014). The aim was to access the area approximately each 500 meters in order to describe the sensuous encounter.

The method has shown to involve some restrictions for field related data generation that arose when the site was visited (see phenomenological booklet):
The restrictions are the next:

- The constraint for making field notes of the experiences, due to the vastness of the study area.

- Language available for describing this sensous encounter.

These two constraints have purposefully driven the research in new directions as mentioned in ***section 8.1.*** The ***first constraint*** has led towards narrowing down in spatial terms the phenomenological study. Making use of aesthetic literature that copes with the expresiveness of nature in relation to space, the aesthetic concept of ***limit*** has been the answer to this restriction. This has facilitated to focus on the phenomenological study of this spatial configuration. The ***limit***, in the case study is represented by the ***dike line***, and thus, the phenomenological study has focused on thoroughly studying it.

The second constraint deals with the lack of sensuous language for the description of expressive phenomena of nature. More precisely, the processes are expressive, but as the knowledge gap in ***chapter 1*** already suggested, there is barely study on the physical properties and their expresiveness in relation to our embodiment of those phenomenon (Karmanov, 2009). And the lack of appropriate language frames within this knowledge gap. A language that is instilled with human sensuousness of the processes. Or differently said, the processes are expressive to our body, but little literature is available acknowledging their expressiveness from a human experience standpoint.

In order to access sensuous language the reference has been Chillida. His oeuvre is not only plastic, but intellectual as well, and has mainly worked based on human scale and the grasping of the forces of nature by means of sculpture. His understanding of space is aesthetic and instilled with human scale, as describes Barañano (1991) and this is the main reason why the definitions of the elements of the landscape, as well as the definitions for the aesthetic concepts are based on his writings, or on reflections on his oeuvre. Definitions that evoke the perception of nature, and are themselves, rather than definitions, indeed, metaphors evoking this human perception of nature. He has deeply reflected upon and worked with the elements of nature and was follower of the phenomenological philosophy of Husserl, and mainly of Heidegger. So, taking into account the need for an aesthetic language to complement the phenomenological language, this source of language has been considered adequate enough.

And eventually, supported by Eaton's (1990) proposal for making use of new metaphors that lead to the perception and design of new landscapes, altogether, they come to give a more concrete answer to the application of the phenomenological method.

The concepts, helped by the aesthetic understanding of space, come to suggest a more contextualized approach to nature: the dike and its rhythms. And the metaphors become source of design material.

Field trip and its outcomes

The fieldwork trips to Schouwen Duiveland have been elemental for the research.

The phenomenological booklet that describes the aesthetic embodiment (Berleant, 2004: 88) has provided with two different types of conclusions: the ones regarding the outcomes of the sensuous encounter, and the others concerning the method as source for accessing and generating sensuous data. Nevertheless the relevance of the field trips themselves within the research has not been explained yet, and this section will explain this issue.

The theoretical knowledge generated needs to be laid down to the study case in order to verify its reliability, and also the site serves as source of new knowledge generator, in case the theory does not completely fit the context: eternal loop.
The field trips took place in different periods. The advantage of having seen the region in both winter and summer is that a broader knowledge of how nature and its processes and dynamics reveal in the study area is acquired. It is clear that a closer study would be beneficial for the research in order to track the subtle differences of the landscape, but this is impossible due to time constraints. This trip allowed to test the theoretical knowledge materially and to complement it with the unexpected experiences that were got in the place. For instance, as explained in the booklet, it was unexpected that the difference of the dike heights to be so obvious in the landscape and how much it influenced they way we experienced nature, or the area of Schelpoek, that even being clear that it was an area surrounded by forest, in site arose as a shelter spot full of scents and subtleties that hidden behind the sea, where the body got completely relaxed and decontracted, safe from the strong winds. Or we could have never imagined how important the wind is in the aesthetic experience, so overwhelming, so powerful and magnificent, reaching to the extent of making us forget about the sea landscape, turning into a dynamic and in motion airy landscape. After all, it is hardly possible to intuit the experiences we can get in the site by means of map study, literature that explains the source of the landcape and its current conditions, tourism leaflets that make more emphasis on the experiences of the site, or pictures of the area.
This site experience has been enormously relevant in raising the awareness about the need for generating maps that connect the materiality of the site with the experiences that it affords. And taking as basis the ***limit*** and ***rhythm***, the ***phenomenological study of these concepts*** has required to analyse the landscape first in its main features, sequences; next, narrowing down, the dynamism of the dike line, how it guides us and what elements we find along; and eventually the different outlines of the dike, that so different experiences afford. The sum of the three are thought to have given an appropriate linkage between the materiality of the landscape and the sensuous experience it provides.

Next to the systematic descriptions done in the field trips, pictures and videos were produced. Even though these don't give any additional information about the sensuous encounter (since the intention of those descriptions is to give voice to the way we first experience the site, by means of the body, at that moment), the material is very useful for better understanding the materiality of the site in relation to the sensuous encounter, back to the desk work. Map study, materiality of the landscape and its embodiment get properly linked with this additional materials.

8.3 Conclusion

General concerns

This research places itself as a qualitative research. It has studied aesthetics or ***human experience in the setting of nature development***. It has explored literature about landscape perception and nature as expressive phenomenon. It has made use of qualitative research methods, counting on field trips and thick descriptions by the researcher as part of the phenomenological method. It has borrowed aesthetic concepts and definitions from knowledge fields other than landscape architecture considered appropriate by the researcher for complementing the phenomenological method, from arts and scultpture. All this in the attempt of instigating, probing, shaping and changing possible modes of representing and generating aesthetic knowledge (Hansen, 2011). And eventually, part of the knowledge generated, is, contextual.

Subjectivity in this research then is inherent. But it is legitimate under the constructivist worldview, as long as

> ***'based in the sensory objectivity/biased of the author, it allows to offer insights into how sensory experiences are revealed and form part of a specific cultural and historical context'***
>
> (Pink, 2009: 23)

and it is legitimate as well to generate ***aesthetic knowledge*** based on ***art discipline***, since as Lenzholzer et al. (2013) state,

> ***'landscape architecture is also a creative discipline'***
> ***... and***
> ***'we can build the methodological body of knowledge from the arts within the constructivist knowledge claim'***
>
> (Lenzholzer et al., 2013).

How the method followed in the research could be applied to other study areas? How to deal with contextuality of landscapes?

The knowledge generated is only partly contextual. The study of literature explaining what consists of aesthetic experience, the study of the most expressive spatial configurations for aesthetic experience, the limit, and the understanding of nature as an ensemble of rhythms with which we engage when those manifest in our time-space frame is theory that can be applied to landscapes with the same issue at hand, to enhance the experience of nature. As research framework then can be applied.
The phenomenological study is obviously context related, and the data generated is not transferable, or only in a very generic way. Nevertheless, the method for accessing sensuous data is suitable if we take into account the restrictions experienced in the former section and we bridge them in future research.

The definitions that describe the elements of nature, sea, wind, panorama, horizon, and the metaphor of murmur of limits that gathers the interaction or conversation of the elements and their aural and motional expression, that in Schouwen Duiveland expresses by means of the 'voices of the water, voices of the wind', 'the lines and reliefs that are the waves and their foams', 'the murmur of rhythms of nature' being the encounter between nature and culture and seasonal and tidal rhtyhms, are context related, to the dike landscape, to its uniqueness. Nevertheless, this method can be applied anywhere else, especially in dike landscapes, and in other settings as well, by making attention to the elements, and looking for definitions instilled with human sensuousness of the elements.

What brings this research to the field of landscape architecture and the study of aesthetics?

The research has intended to give answer to the knowledge gap mentioned in ***chapter 1***, and therefore, it has attempted to bring knowledge to the study of aesthetics, both from theory and design practice perspective. These are the conclusion to the research that bring knowledge to the field of landscape architecture and the study of aesthetics:

* The research has concluded that the ***perceptible realm*** is far from being a scale that can be represented with graphics or numbers. It is a ***tactile space***, and its ***aesthetic embodiment*** becomes the main tool for its acknowledgement. So it raises the awareness of studying ***perception by means of the body.***

* The research has used Schouwen Duiveland as case study, but the theoretical knowledge framed under the aesthetic concepts, the relevance of studying phenomenologically the limits and apprehending nature as an ensemble of rhythms, of phenomena that manifest in different time-space frames, sets a departing point for further studies. It delimits and sets foundations for research that copes with similar issues, or similar context.

* The tenacious investigation of the dike is representative of the ***phenomenological study*** of the aesthetic concept of ***limit*** in relation ***to the rhythms that co-exist*** in it. And the study of the ***dynamism*** of the line links the ***materiality*** of the dike in relation to those ***rhythms***, to the experiences it provides to us. The research has attempted to bring a representation mode of the landscape that links sensuous knowledge with the materiality of the site in the form of maps. Attempt that brings insights to the method of phenomenology, in the way the sensuous knowledge generated with this method can be represented; a very relevant issue for landscape architects working with this method.

* Furthermore, it reinforces the ***field study*** as main source for accessing sensuous data, specially by means of extended ***descriptions***, accompanied by ***aesthetic language***.

* Raises awareness concerning the ***lack of sensuous language*** that needs to be incorporated if aesthetic investigations want to be carried out by means of descriptions. Aesthetic language instilled with human scale, with our view, with our way of sensing nature, but expressive of the processes and dynamics existent in the site.

* Explores the use of languge by means of ***metaphors for new ways of perceiving and designing landscape***, by studying the materiality and contextuality of the existing situation, and framing it as design material sustained by the metaphors, that provide designers with new ways for imagining landscapes.

8.4 *Further research*

In general, after the research has arrived to its end we can conclude what further research would be beneficial for the body of knowledge of landscape architecture.

In the study of human experience in relation to landscape little study has been done specifically about nature. There is more research available about the perception of urban environments, how we perceive them, but little about how nature is experienced, due to being a very broad topic. Until now, concerning the study of nature and humans research has been done on the benefits nature brings to humans from psychological and spiritual perspective, but not about how we encounter it sensuously, and even less literature is available coping with the sensuous expressiveness of the landscape as potential design material. Therefore, these two suggestions are given:

_. Further study on how humans encounter sensuously nature
_. How this data can be interpreted as design material that could eventually derive into design principles, guidelines, or design strategies.

Concerning the method two directions are suggested. During the research process the lack of design literature coping with representative tools for linking the materiality of the landscape with its aesthetic expresiveness has been a relevant issue. Therefore, further research is proposed in this direction:

_. Further exploration on representative tools for the translation of sensuous data generated in site, expressive of the sensuous encounter sensuousness that bring together sensuous data with the materiality of the landscape.

This is likely needed to be nourished not only from the field of landscape architecture, but from other art fields. This can lead towards the enrichmente of the representational language of the field of landscape architecture.

And eventually, following the thread of language, but moving from representational language towards language as design material itself, this thesis has made use of very specific language as source for framing the sensuous encounter by means of aesthetic concepts and metaphors, also borrowing definitions for the elements that are imbued with human scale. This is only one of the multiple possibilities for enriching the aesthetic vocabulary of landscape architects, and also limited to the knowledge of the researcher and to time constraints. The possibilities are multiple though. And the design process have shown that indeed, design can be supported by metaphors originated from the site in the attempt of guiding the sensuous encounter in new directions.

_. Further study on how language can be framed within the phenomenological method, the diverse sources for enriching it, would be a nouvel and interesting approach.

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The End