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a view on spatial planning in Flanders

Metropolitan

In and around Brussels, the open space is constantly changing. But Brussels does not need to passively undergo these changes: open space comes with a lot of potential to adopt an active, guiding and structuring role in developing quality for the urbanised space. Yet, presently this potential often remains underexploited.

Unknown, unloved? The potential of open space in Brussels and its Periphery

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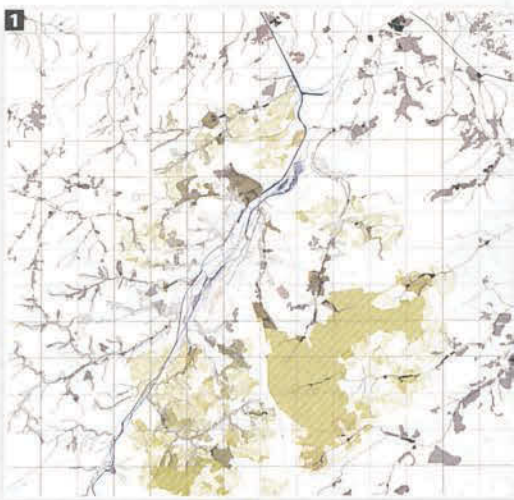
The role of open space served as the basis of research undertaken as part of the *'Metropolitan Landscapes'* study project. Using design research methods, both the open space and the actors who work in the metropolitan region in and around Brussels were surveyed and investigated in depth. In doing so, particular attention was attributed to the suburban open space, situated in the front line of real estate speculation and on the boundary between more urbanised and rural areas.

The *'Metropolitan Landscapes'* study was performed as part of LABO RUIMTE [Space Lab]. The Brussels Living Environment Department, the Flemish Land Company, the Brussels Urban Development Department, the Flemish Department of Environment and Spatial Development, and the Brussels and Flemish Government Architects joined forces to carry out the study. Later on, this coalition was further strengthened with the inclusion of the Nature and Forests Agency. The result was an extraordinary partnership between Brussels and Flemish urban and 'open space' agencies. Together they explored ways to give shape to a different, shared view of the position and role of open space in this metropolitan area. The results of the study were compiled in a book.

The Brussels metropolitan area faces huge social challenges: to create jobs for a varied and rapidly-growing population, develop an efficient and sustainable mobility system, deliver quality food supply, ecological and spatial water management, work towards the energy transition, counteract the loss of biodiversity, etc. Cooperation is vital, as the 'metropolitan space' in which these challenges are unfolding, just so happens to function as a cohesive spatial-social system which transcends regional and sector boundaries. In debates on landscape too, the traditional rural-urban divide is increasingly being exchanged for a 'metropolitan landscape', which integrates built-up and undeveloped space and interweaves urban and rural functions. The *'Metropolitan Landscapes'* study explores how a mutual ambition can be outlined setting out from contrasting agendas and how forms of cooperation may be set up aimed at a collective interest. In this context, the 'Brussels Metropolis' — a term that frequently gives rise to discussion — is understood to refer to the Brussels Region as well as the Flemish Periphery of Brussels.

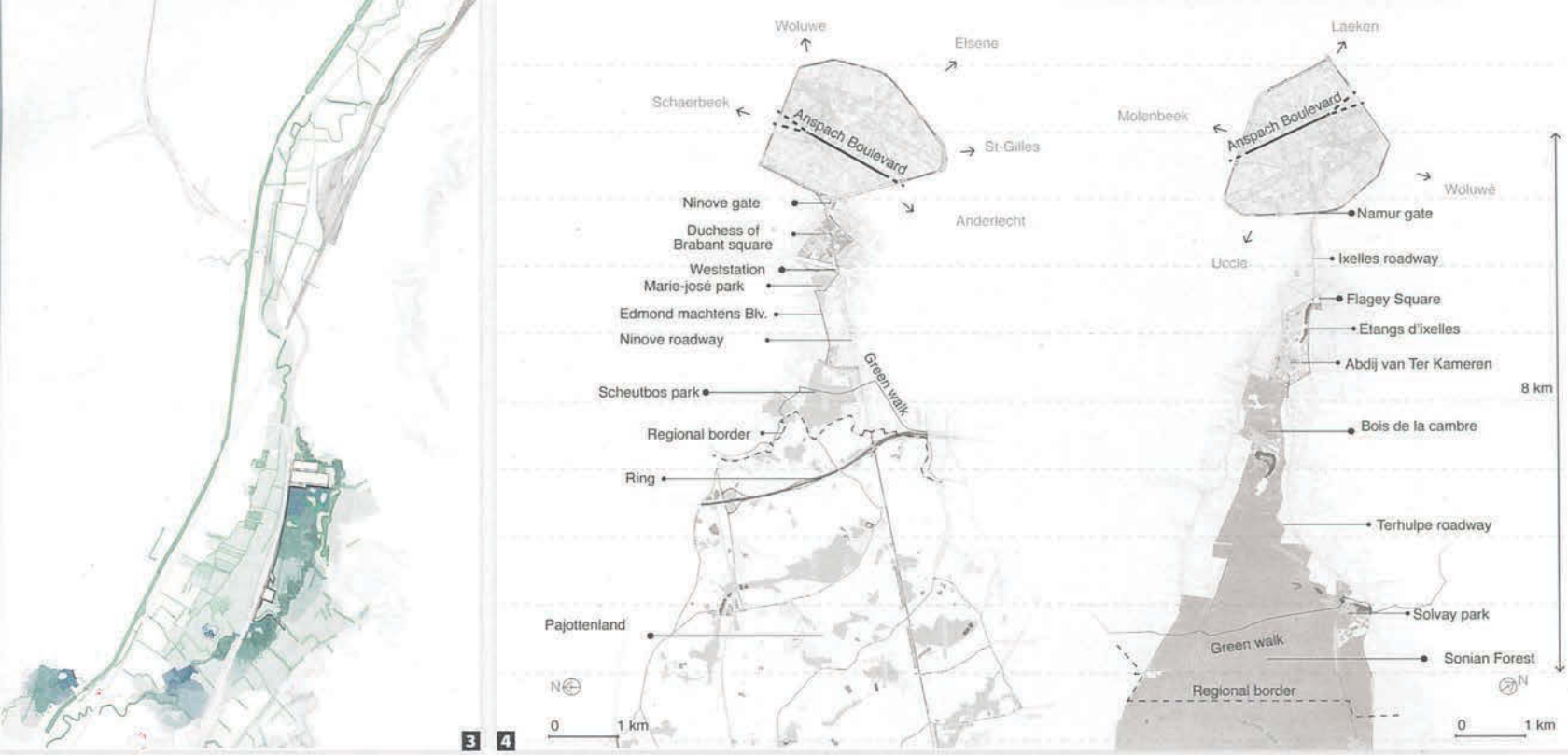
Four structures and three criteria for a metropolitan landscape

Bureau Bas Smets and 'LIST urbanism-architecture', together with the VUB's 'Earth System Sciences' research group, conducted the initial, exploratory stage of the study. They gave their own interpretation to the term 'metropolitan landscape', assessed how this could take on meaning for Brussels and how this definition would be able to unite players around a joint objective. This preliminary study was of crucial importance to build a joint conceptual framework shared by the seven initiators. The team first and foremost identified four large rural structures which, historically speaking, have shaped the Brussels landscape: the Zenne Valley, which went on to be intersected by many other infrastructures over time; the built-up landscape, defined as a series of deliberately planned figures such as large parks, squares and traffic arteries; the system of parks and open spaces surrounded by buildings; and finally the finely meshed river and brook system, which provides a basis for many developments in Brussels. Bureau Bas Smets and LIST designated these four large structures as the 'exemplary landscape', which may be considered as the underlying, defining structure for the development of metropolitan landscapes in Brussels today.



1 The exemplary Brussels landscape, consisting of the 'valley of infrastructure', the 'built-up landscape', the 'system of parks' and the 'wet landscape'. © Bureau Bas Smets & LIST

2 Overview of the four test areas. © Bureau Bas Smets and LIST



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However, a lot of the open spaces in Brussels are highly fragmented, and mostly make up hybrid landscapes. But even these fragmented open spaces have unused potential to become actual metropolitan landscapes. To bring them into sharper focus, three criteria were defined which Brussels landscapes need to comply with to be referred to as 'metropolitan': (1) easy access for a broad public, which reflects the diversity of the metropolis, (2) the extent to which neighbouring programmes and functions connect with the landscape, giving the latter urban magnitude and allure, and (3) the actual contribution of the landscape to the wider ecosystem of the metropolis. This system value is conceived of in a much broader sense than the strictly ecological value. It also addresses the question of how this landscape relates to the four large structures outlined above, and how it helps to keep the 'city as a system' running. This kind of system value is therefore determined in part by the role of the landscape in the areas of hydrological regime, ecological continuity, the contribution to air quality, acoustic absorption, protection against erosion, agriculture, logistics and social interests, etc.

Design in the Anthropocene

The debate on how open space and landscape can be made to function again as part of a broader system is conducted elsewhere too. In his curator statement[1] for the International Architecture Biennial of Rotterdam (IABR) held in 2014, Dirk Sijmons, for example, stressed the importance of a hybrid urban landscape. He based this on the announcement of a new era by geologists: the Anthropocene. The Anthropocene is the era in which man intervenes on this earth as a natural force. Each landscape — and certainly the landscapes in Brussels and Flanders — has been manipulated by man. This has consequences: environmental problems, the extinction of species, climate change. But the lesson drawn from this by Sijmons is largely a positive one: during the Anthropocene, man and natural processes have become intrinsically interconnected, forming a new and interesting whole, something which opens up perspectives. When 'natural' and 'man' no longer exclude each other, there is a big and interesting challenge in thinking up a hybrid urban landscape where nature and man, built and open, rural and urban all spatially overlap and functionally interact.

Herein lies a major role for spatial planners. The complexity of the periphery or 'intertown' and the multitude of spatial claims and functions that exist alongside and intertwined with each other, demand a different planning, a different administration and a duly considered management of these spaces. Because spatial issues in the periphery, more so than elsewhere in Brussels and Flanders, cannot be dealt with per sector or per project, cooperation and integrated planning are a necessity for all sectors and administrations, both 'hard' and 'soft'. Planners could play an important mediating role in this process.

Four design team in as many test areas

With this role in mind, and continuing to build on the criteria developed by Bureau Bas Smets and LIST, four design teams were assigned to work on four test areas in the *'Metropolitan Landscapes'* study (Fig. 2, p. 9). They explored the possibilities of lifting open spaces to become metropolitan landscapes where natural and human processes coalesce.

The first study area, the southern Zenne Valley, is a 'wet' landscape *par excellence*. Interventions in the hydrological regime here have a potential impact that reaches very far and wide,

1 http://iabr.nl/nl/curator/c2014antropoceen

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3 A system of dykes creates room in the Zennenbeemden for water buffering. © WIT Architects, OSA research group KU Leuven, Annabelle Blin & Philip Stessens. **4** Comparison of the shape and spatial structure of the research area (Pajottenland to Ninoofsepoort) with another city sequence (Sonian Forest to Naamsepoort). Can the example of the Sonian Forest provide inspiration to also develop such a collective identity and cultural resonance for the area around the Scheut Forest? © Coloco, DEVspace & Gilles Clement. **5** A productive park for the Molenbeek Valley, with the Ring road – as an icon of connection – as a potentially strong symbol of a new relationship between the city and the countryside. © Agence Ter. **6** The green verges along the rail tracks, as part of the 'green grid', can develop into strong ecological and bicycle connections. Simple interventions - such as a different green management and removing fences and obstacles - may contribute to this. © LOLA Landscape Architects, Floris Alkemade Architect & Grontmij Belgium

as far as the built-up Brussels suburbs and the city centre. The team made up of members from WIT architects, OSA Research Group for Urban Planning and Architecture of the KU Leuven, landscape designer Annabelle Blin, and ULB researcher Philip Stessens raises the question as to whether solving the water problems upstream from Brussels could also create new interesting public and natural areas. Setting up a dyke system, for instance, could transform the 'Zennebeemden' (lowland pastures along the banks of the river Zenne) into a large tidal area and a unique nature landscape for the metropolis.

The Parisian Coloco, the Brussels DEVspace and landscape designer Gilles Clément have gathered a team of landscape and garden designers, town planners, architects, botanists and artists around the 'Scheutbos' site in the western part of Brussels. The team regards the fertile land as one of the biggest strong suits of this site. In the firm belief that this quality should be preserved for future generations, an argument is made not to put the land value but the user value of the open space centre stage. They explore how a metropolitan landscape can arise from small actions from the bottom-up, running from Ninoofsepoort to the Scheutbos (Scheut Forest), with an equally strong presence in the collective consciousness of residents and users as its southern counterpart, the 'Zoniënwoud' (Sonian Forest).

Landscape design agency Agence Ter draws on the relief of the Molenbeek Valley in the north-western part of Brussels to develop an attractive park, intended to serve as a hinge between the urban, Brussels part of the Molenbeek Valley and the Flemish agricultural plateau. Agence Ter seizes on the planned widening of the Ring near the crest of 'Laarbeekbos' (Laarbeek Forest) to create an ecological connection. This connection will also serve as a new public terrace that acts as a connecting point between the urban and the rural landscape, between the places where food is consumed and where food is produced. By doing so the 'back' — the Ring Road — is turned into a 'front'.

Design Team LOLA Landscape Architects, Floris Alkemade and Grontmij scrutinised the post-industrial infrastructure in the area between Brussels, Machelen and Vilvoorde. They looked into how infrastructure is able to create a landscape that offers room for flexible future developments and a better coalescence of ecology, economy, living and recreation. The concept of a green grid is intended to lend extra quality and identity to existing infrastructures and planned mobility projects, it is able to reactivate derelict land and generate greater social value. In doing so, the team addresses the question of how we can make the many (economic) developments contribute to a larger scale landscape.

Each of these designs sets out a series of questions that merit further attention and debate. How do we convincingly lend value to open space? How do we improve both the ecosystem services and the accessibility of this landscape to the benefit of a broad metropolitan population? How do we set up collaborative schemes around future projects for the open space, between authorities, citizens, community organisations and businesses? The aim of the design studies conducted here is not to provide definitive answers to all of these questions. Planners are often generalists par excellence, but they cannot do things all by themselves. What planning design can do is to provide the impetus for further debate with the residents of the Brussels region, with their highly diverse needs and wishes. Which is very much the intent of this study and the book that came out of it: to return the debate to the politicians and society, and invite them to continue to work together on qualitative urban development with open space as a solid foundation.

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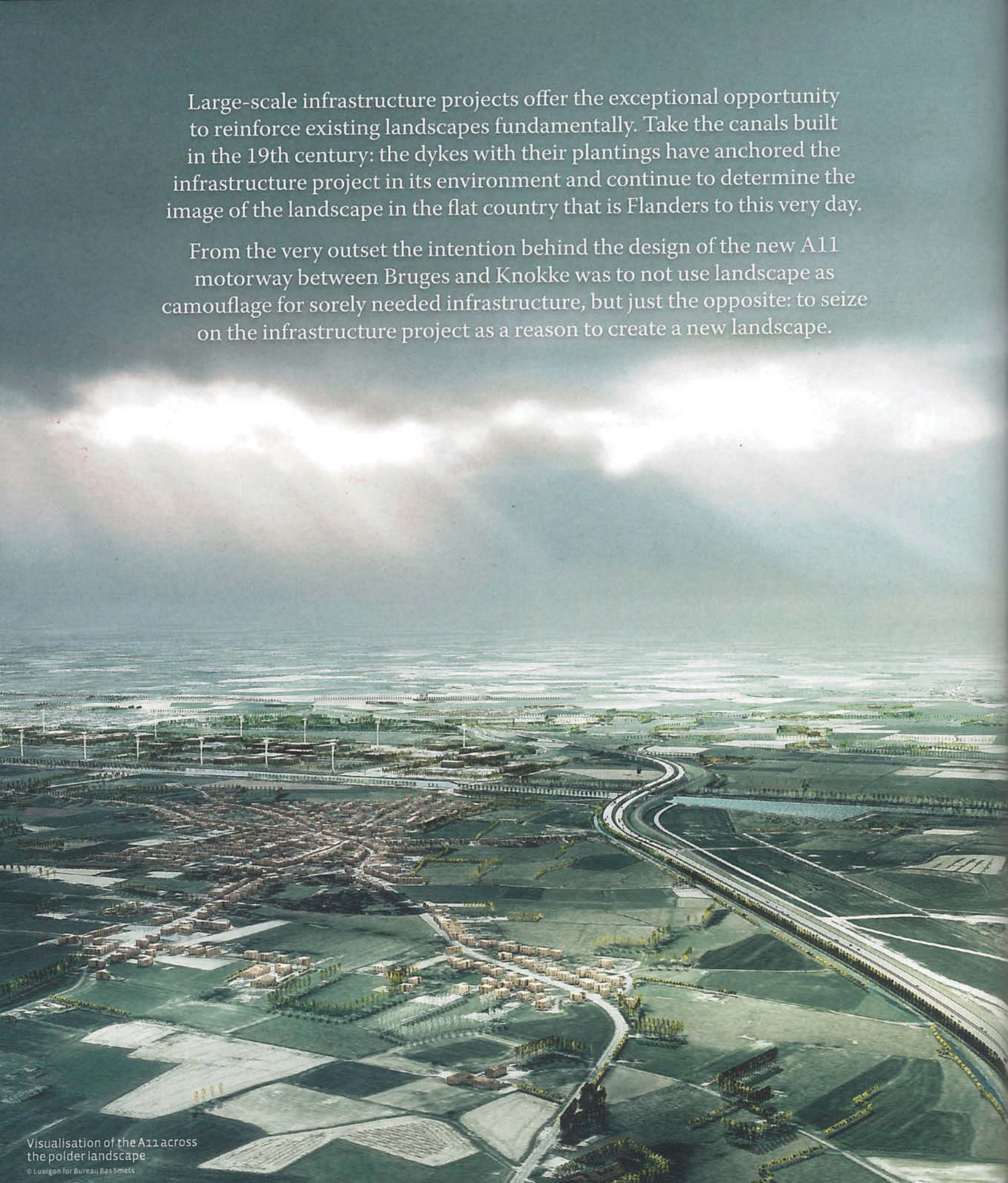
THE PUBLICATION **'Metropolitan Landscapes'** (Dutch/French) can be downloaded from: www.vlaamsbouwmeester.be/nl/nieuws-publicaties/publicatie-metropolitan-landscapes

Large-scale infrastructure projects offer the exceptional opportunity to reinforce existing landscapes fundamentally. Take the canals built in the 19th century: the dykes with their plantings have anchored the infrastructure project in its environment and continue to determine the image of the landscape in the flat country that is Flanders to this very day.

From the very outset the intention behind the design of the new A11 motorway between Bruges and Knokke was to not use landscape as camouflage for sorely needed infrastructure, but just the opposite: to seize on the infrastructure project as a reason to create a new landscape.



Visualisation of the A11 across the polder landscape

A11

Infrastructure project generates new landscape

BAS SMETS [BUREAU BAS SMETS]

Infrastructure as a landscape

The A11 motorway connects the port of Zeebrugge with that of Antwerp via a transverse link between two roads, the N31 and the N49, which run north-south. This missing stretch — 11 kilometres between Bruges and Knokke — is one of five 'missing links' in our road network, which the Government of Flanders has designated as a priority. In 2010, a call for tenders was launched for the design, construction, funding and 30-year maintenance of the A11, a so-called 'Design Build Finance & Maintain' project. After two tender rounds, the Via Brugge consortium around Jan De Nul N.V. was awarded the commission. Bureau Bas Smets was in charge of the spatial quality of the infrastructure project in general and for the landscape design in particular, whereas Zwart & Jansma Architects handled the design of the engineering structures. An integrated design was created in close collaboration between all parties, with the distinct ambition to reinforce the existing landscape through the infrastructure.

Perception of the landscape In the polder landscape that was gained from the sea, now dissected by the A11, each element has a specific function. Here, hedgerows protect the farms against the wind, whilst providing branches and twigs for the stove. The planting of poplars acts to stabilise the dykes, whilst reed beds and pollard willows brace the banks of the canals. The landscape was designed to meet a specific need and derives its uniqueness and beauty from this legibility. Each tree, each hedge has been planted by man on what was once a flood area. The shallow relief makes for sweeping panoramic vistas, punctuated by these vertical elements. In doing so, the flat polder land generates a vertical landscape.

Through the years, the legibility of this utilitarian landscape has somewhat faded, but an assiduous reading of the landscape unravels the human interventions in a series of landscape elements. By deploying exactly these elements in the integration of the A11, the existing landscape is valued and harnessed, while avoiding the introduction of alien elements. The design of the engineering structures is in keeping with this landscape-based vision, with the infrastructural elements adding a new component to the landscape. They are broken down into two groups, based on how they are experienced. The first group of structures is first and foremost experienced by road users. These structures are designed as a family of new objects in the landscape. The design of the second group, which can mainly be observed from the surrounding area, is based on the logic of the landscape. The two families each have their own vocabulary.

EACH TREE, EACH HEDGE HAS BEEN PLANTED BY MAN ON WHAT WAS ONCE A FLOOD AREA.

In doing so, the entirety of interventions along the A11 consists of the implementation of landscape-based elements while making use of the various groups of engineering structures. The result is a landscape in which the various entities will have a better legibility after the A11 has been completed. This enhanced legibility ensures continuity in space and consequently continuity over time.

Methodology The A11 project is an example of integrated design, whereby infrastructure and landscape are designed simultaneously, each influencing the other. An enormous amount of information had to be processed in order to assess alternatives and to arrive at well-argued design decisions.

For this project, we worked up a specific method in order to ensure the spatial quality of the landscape. On the one hand, the existing landscape is studied with the utmost care to strengthen it. The statutory regulations that govern this landscape are mapped alongside, so that they may be taken into account as widely as possible.

THE PLANTINGS DIVIDE THE HALF-OPEN POLDER LANDSCAPE INTO SPATIAL COMPARTMENTS.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Reading the landscape

The current landscape is typified by a simultaneity of all time layers. A precise reading explains the existing landscape in its various elements, the 'layers', each following its own logic. As a first step, the elements of the landscape are individually investigated. During the second step, the elements are compared against each other, in search of structuring combinations that make up the building blocks of the landscape. As part of the third step, these building blocks are clustered according to a number of landscape entities or components. Based on this reading, three major entities can be defined in the current landscape: the Infrastructural Landscape, the Linear Polder Landscape and the Fragmentary Polder Landscape.

Infrastructural Landscape The Infrastructural Landscape is characterised by large-scale landscape interventions that were carried out at the same time as larger infrastructure projects. The Boudewijn and the Tweelingen Canals draw unmistakable lines through the landscape. The planting of several rows of poplars along the canals acts to create a dense screen behind the flatland, which renders the polder landscape in front visible. This structure of a higher order lends the landscape a clear legibility. The plantings divide the half-open polder landscape into spatial compartments. In addition, because of their different nature, they make for greater biodiversity. Bats like to follow the canal, while the pink-footed goose has a preference for open areas where it can keep an eye on possible predators. The Damse Vaart canal crosses both canals and acts as a boundary to the south of the area.

Linear Polder Landscape The polder landscape is typified by winding roads that connect villages and often have an unbroken line of plantings, which ensure a see-through view. These plantings are found mainly in the half-open landscape between the Boudewijn and the Tweelingen Canals. The roads, some of which have a single line of trees and others a double line of plantings, are often higher than ground level. A series of dykes, which act as a slope line bank, have specific dyke vegetation.

Fragmentary Polder Landscape The farms that are/were scattered across the original open polder landscape had sides made up of hedgerows, which not only offered protection against the wind, but also provided fire wood. Canals were often dug along the boundaries of the plots. The smaller waterways were hemmed in by reed beds, the larger streams by pollard willows.

Exemplary Landscape Each landscape holds the promise of being an ideal landscape. We have devised a methodology to make this latent landscape visible. In the existing landscape around the A11, there are three major entities, consisting of a finite series of landscape building blocks. Through a careful selection of these blocks we arrive at an Exemplary Landscape, in which the existing elements are harnessed to the maximum. That Exemplary Landscape acts as the reference framework for the spatial decisions to be taken over the years to come. This method of operation not only ensures the robustness of all design decisions, but equally fosters sustainability, as we only use

1 Infrastructural Landscape : canals with several rows of full standard trees © Bas Smets 2 Linear Polder Landscape: discontinuous line plantings along main roads © Bas Smets 3 Fragmented Polder Landscape : farms with hedgerows © Bas Smets 4 The flat polder land generates a vertical landscape © Bas Smets

elements that are already in place. It also makes sure that, with the arrival of the A11, a portion of this Exemplary Landscape is effectively being built.

Landscapes and statuses

Alongside the physical characteristics of the landscape, there are also various statutory instruments, such as the Birds Directive and the Habitat Directive, which govern parts of the landscape. Transferring all of these designated areas on maps reveals the Statutory Landscape. This map details the sensitivity of any given area. Where various statutory regulations overlap, the design will be subject to several directives. As for the reading of the existing landscape, cartography is a central design tool. Mapping the rules of the various statutory instruments renders them visible, so that each of these regulations can be separately examined to thoroughly understand the applicable legislation. Subsequently, the various rules are compared to identify overlaps or similarities.

There are three major categories: the Habitat Network, the Birds Directive area and the Cultural-Historical and Recreational Network. These three categories bring together all applicable directives in a methodically structured way.

Habitat Network Even though the polders are a man-made and controlled landscape, many lower laying areas were recently flooded. These flood areas often correspond to areas that are also considered to be of biological value. Their reduced agricultural use means that they are extensively managed. The Habitat Directive and VEN (Flemish Ecological Network)[1] areas in turn overlap with these areas. The projection of all these areas produces a patchwork map, on which the intensity of the overlaps indicates the ecological value of a given area. The resulting Habitat Network highlights the potential expansions of the Habitat Directive Area and, in doing so, helps to assess the different variants for the infrastructure. Fragmentation of habitats is avoided in the design and where possible living areas are reinforced and expanded.

1 Vlaams Ecologisch Netwerk

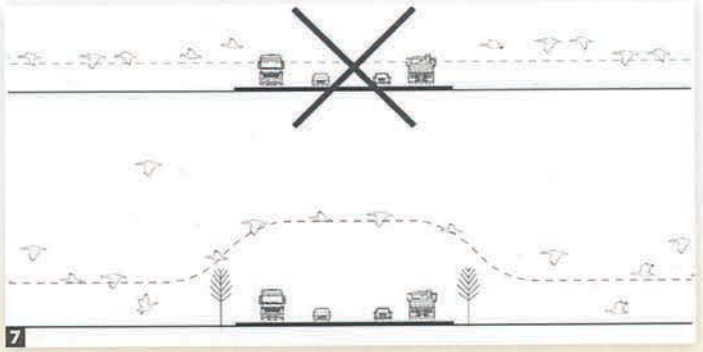
Provisions for Birds Directive area The sites designated under the Birds Directive, same as the Habitat Directive areas, are part of Natura 2000, an ecological Europe-wide network of special protection areas. The A11 transects the protected area where the pink-footed goose overwinters. To minimise the impact on the area, the reference design required the route to be built below ground level and to avoid ascending vegetation. The Birds Directive specifies that full standard plantings may well bring about a degree of disruption across a certain distance, but that a road brings much greater disruption. If anything, full standard trees may help birds when flying over the carriageway. Thus, the critical assessment of various directives creates new possibilities for spatial solutions.

Cultural-Historical and Recreational Network Whereas the polder area was once purely functional and productive land, it is now partially protected because of its historical value. The cultural-historical network was combined with the recreational network because they are complementary.

Statutory Landscape The Statutory Landscape is the visualisation of the existing directives. In the larger area around the A11, there are three categories: the Habitat Network, the Birds Directive area and the Cultural and Recreational Network. Setting out from these three categories, we identified the best possible ways to integrate the directives in the design. This approach not only ensures that all directives are duly observed, it also illustrates the possible opportunities or in-fills. As such, all directives combined are not just a checklist in retrospect, but a design tool that is adopted to identify and exploit opportunities.

An integrated design for an evolving landscape

A reference design was added to the basic documents of the specifications which mapped all the problems raised by the development of the A11. A local solution was proposed for each problem. Setting out from the two reference frameworks defined, the Exemplary and the Statutory Landscape, we redesigned the



5 Isometry of the entire design area. © Bas Smets **6** Water course with reed bed. © Bas Smets
7 Full standard trees along the motorway guide the birds when they fly over. © Bas Smets
8 The polder landscape is a preferred overwintering site for birds. © Bas Smets

proposed solutions. Committing these building blocks ensures that the A11 helps to accomplish the Exemplary Landscape, while the Statutory Landscape is further developed. This approach was applied for the entire route of the A11 and worked into an achievable landscape plan.

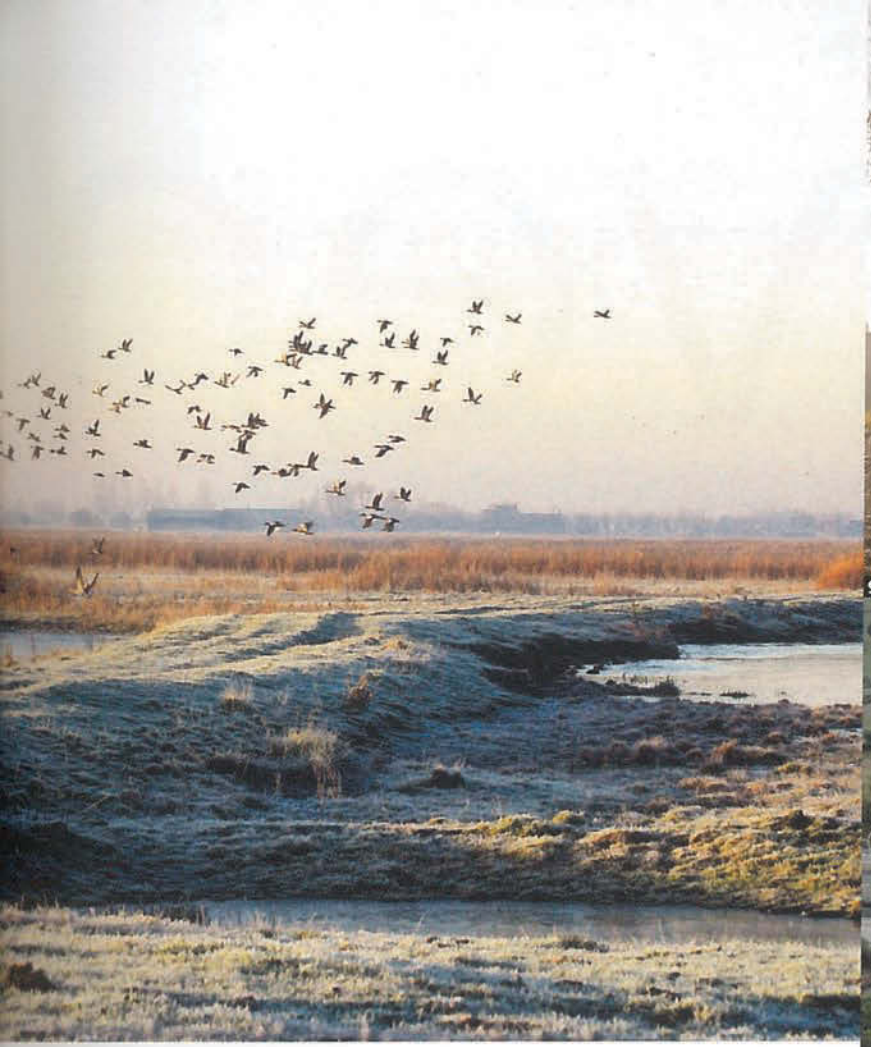
The spatial quality of the design is the upshot of over two years' intensive collaboration. All disciplines were represented in this endeavour: planners, engineers, maintenance specialists and contractors jointly addressed the full range of issues. At weekly meetings, each design partner presented a status update of their work. This method of operation meant that everybody was kept fully informed of the engineering studies as a whole at all times. More so, every partner was able to put forward comments to the engineering studies of any other partner at any time.

The variants for each solution were considered against the various disciplines. In a large number of cases, this elaborate iterative design process led to solutions that would have been impossible to work out by a single discipline. In doing so, infrastructure project, landscape design and environmental policy come together in a single cohesive design in which everything revolves around the spatial quality.

Four examples illustrate this approach, which was consistently applied to all aspects of the design.

1. The transition between the port area and the polder landscape The reference design had proposed to establish a clear boundary between the two areas. Setting out from a reading of the landscape, our proposal was to view this delicate transition not as the start of the port area but as the location where the polder landscape ends. From this perspective, the boundary was designed as a dyke. This new dyke is to be consistently continued between the two canals, to the effect that the infrastructure acts to reinforce the landscape. In addition, it is to be planted with a double row of trees, willows and poplars, in reference to the original polder landscape. A cycle path is to be built between the trees and the whole width is to be used to expand the biologically valuable area.

2. The selected variant for the eastern exit complex The reference design had proposed to create a mound in which the complex exit was organised underground. This mound would be planted with vegetation, rendering the complex invisible. The reading of the landscape, however, showed that a planted mound was not a feature of the polder landscape. We proposed to design the exit in line with the existing landscape elements. The N49 is an important access road and draws a clear line through the landscape from Knokke to Maldegem. We saw this axis as a possible component of the Infrastructural Landscape, which reinforces the open room structure. This is why we proposed to keep the axis of the N49 as horizontal as possible to ground level and to give shape to this axis with a quadruple



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9 The boundary between the port area and the polder landscape is designed as a dyke planted with poplars and willows © Lucigen for Bureau Bas Smets
10 View of the roundabout at Natiënlaan over the new water landscape © Zwarts & Jansma

row of full standard trees, reflecting the view of the canals. All this would make the link with the A11 subordinate to the view of the N49. The design of the engineering structures is in keeping with this approach: the pillars of the viaducts are sited as an extension of this row of trees. In several places, bridge transitions are to be replaced by a tunnel so as not to disturb the view of the N49.

3. The Natiënlaan roundabout The reference design had planned a sunken roundabout to provide a thoroughfare for a grade-separated passage for bicycle traffic. The view that was put forward was that of a dune landscape.

In the polder landscape, the water level is very high and only a watertight construction would allow for a dune landscape to be built below groundwater level. Our proposal was to create a water landscape through which a bicycle link would be created in cement. Thanks to the high groundwater level, a surprising water landscape is put into place. Moreover, it replaces a number of links encased in ducts and as such connects to a series of improved wildlife tunnels which connect the grassland to the Zwin. Cyclists find themselves riding through this water landscape in an open watertight construction. Motorists get a panoramic view of the water landscape from the roundabout. Consequently, the design for the roundabout delivers added value for wildlife, cyclists and motorists. Knokke has been given a unique 'gateway' that produces the transition between the polder landscape and the urban area of the spa town.

4. the creation of green barriers around the industrial estates The industrial estates have largely replaced the original economic activity of the farms. In the same way as the hedgerows used to protect the farms against the wind, today we are screening off the view of industrial sheds. This can be seen as the transformation of an existing landscape building block. By treating the green barriers as a contemporary version of the hedgerows, we can give the landscape a greater legibility and continuity. In doing so, vegetation and typologies alien to the area are avoided and the Fragmented Polder Landscape is reinforced.

In each of these examples, all disciplines unite in one single design. By definition, this method of simultaneously exploring all angles ensures a sustainable and robust design.

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WEBSITE www.bassmets.be | Presentation @ deSingel (Antwerp): www.youtube.com/watch?v=YSXPR0MihSE (Highway A11 on 57:38) | Presentation @ Harvard (USA): www.youtube.com/watch?v=YSXPR0MihSE