LA.X
Celebrating 10 Years of Landscape Architecture Education

Section of Landscape Architecture — Department of Urbanism
Faculty of Architecture and the Built Environment TU Delft, The Netherlands

PROFILE

5-28

WORK

29-206

PEOPLE

207-249

PROFILE

Cultivating creativity

Evolution of the Landscape Architecture master track at TU Delft

The Master track programme in Landscape Architecture at the Faculty of Architecture and the Built Environment at TU Delft was launched in 2010. It all began with the introduction of the discipline of landscape architecture to the Faculty in 1948. The journey from this modest post-war beginning to the tenth anniversary of the Master track programme in 2020/2021 has been an adventurous one and can be broken down into three stages. The first stage – *preparing* - was a period in which education in landscape architecture was introduced and gradually developed. The decision to offer a Master track in Landscape Architecture was taken in 2007 and led to the *planning* stage, an intensive period of research and development culminating in the launch of the Master track in 2010. In the third stage - *cultivating* - the structure, content and delivery of the curriculum was refined and the scope of the programme was broadened. Over more than seventy years, the interplay between professors, teachers and students has brought landscape architecture education in Delft to a level of maturity of which the Faculty is justly proud.

Grounding

Landscape architecture was first introduced to the then 'Delft Technical College' in 1948. Over the next sixty years it developed from a series of guest lectures to a discipline with an independent chair and its own research and education programme.

Landscape art

In 1948 the Department of Architecture, which had come into existence in 1904, introduced Urbanism as a second major alongside Architecture. As part of this initiative, landscape architect Jan Bijhouwer was appointed professor in Landscape Engineering. Bijhouwer was fascinated by emerging practices and spatial patterns of modern society, in particular increasing car mobility, suburbanization and mass recreation. He drew attention to the spatial consequences of these societal changes for the Netherlands in publications and design proposals. His search for a new balance between city and countryside, nature and agriculture, and past and future landscapes also resonated in his teaching and research at both Delft and Wageningen Agricultural College, where he was Professor of Garden and Landscape Architecture.

The prelude for his appointment at Delft had been a series of lectures on urbanism that the school organized from the 1930s onwards, for which Bijhouwer was invited to give a guest lecture on urban green spaces. Later he helped to organize the series himself, and in 1946 started a lecture series on garden art at Delft. The Architecture Department subsequently decided to establish a track for urban design engineers with a specific component on landscape design. The teaching assignments of the three accompanying chairs included urban design, urban research and garden and landscape art.[1]

Bijhouwer's collaboration with colleagues at Delft led to him formulating a definition of landscape architecture that positioned it between the fields of architecture and urbanism.[2] His definition elaborated on an existing definition by American landscape architect Charles Eliot: "Landscape architecture is primarily a fine art, which aims to create and preserve beauty in the efficient adaptation of land to human service." To this definition Bijhouwer added, "By placing the emphasis on the creation and preservation of beauty, the boundary is set in relation to cultural technology. By mentioning efficiency, it is determined that beauty may not come at the expense of efficiency,

1
Gerrie Andela, *J.T.P. Bijhouwer* (Rotterdam: Uitgeverij 010, 2011), 190, 194.
2
Andela (2011), 188.
3
Jan Bijhouwer "Tuinstijl en schoonheid," in *Gedenkboek J. Valckenier Suringar* (Wageningen: 1945), 81.

but must originate from it. And by defining it as fine art, the mistake of seeing it as applied art is avoided."[3]

Landscape engineering

The Dutch higher education system changed dramatically in the mid-1960s. The development of extensive housing and infrastructure projects increased the demand for engineers while at the same time political and social interest in nature, the environment and landscape grew. Government-funded study grants were introduced to enable students from all social classes to attend universities, which led to the restructuring of higher education programmes. Over the next two decades the number of students at universities tripled, a rise which was also reflected in the number of students enrolling for programmes in landscape architecture.

Jan Bijhouwer retired in 1969. In his farewell speech as Professor of Landscape Engineering Bijhouwer used the term 'landscape engineering' to indicate a shift taking place in landscape architecture from the design of parks and recreation areas to landscape analysis. His successors, Meto Vroom in Wageningen and Frans Maas in Delft, emphasized the analytical as well as imaginative powers of landscape architecture. In order to strengthen their position in the professional field, landscape architects needed to harmonize 'scientific and creative qualities'. This new profile had to be convincing outside the discipline as well; the image of the craftsman designer and artist was to be toned down in favour of that of the scientist. Where possible, even creativity was to be associated with science.[4]

Terms such as 'engineering', 'analysis' and 'science' reverberated throughout the following period, accompanied by observations on new urban landscapes, societal changes and the increasing complexity and interdependency of planning and design. Maas's acceptance speech, *Van theekoepel tot caravan* [From teahouse to caravan], revealed his interest in the role of recreation landscapes, which he compared to the country estates of the 17th century as indicators of human relationships with landscape. "It is somehow symbolic of our discontent that we should speak of *re*creation as the highest form of leisure. This means that... we are looking for nature, the outdoors, as a medium for the revival of urban life." [5] Maas declared that changes in working conditions and technical developments "are increasingly influencing the image and function of both city and landscape. The time is therefore past when we could approach cities, parks and landscapes as rather static and solitary. Plans will have to consciously incorporate dynamics and multiple use." The sharp distinction between city and countryside was diminishing. "Both are parts of one coherent whole... Policy and plans will have to focus on this coherent whole. At present, non-urban areas, for example, are still seen too much as residual spaces. The greater involvement of, among others, landscape architects in the design of these areas could possibly improve this situation."

In 1970 the Architecture Department moved to a new building and was restructured into thirteen divisions, including landscape engineering. Maas reasoned that with the name landscape engineer, the landscape architect positioned his expertise between the urban planner and the civil engineer, between the cultural technician and the biologist and between the artist and the scientist. The term was meant to signify the expert's ability to handle complex, contemporary issues in all phases of the working process, from analysis to design. This stance reflected the views of many practitioners at that time, who bemoaned the fact that the term landscape architecture was limited to the concrete result and the aesthetics of a design. This search for a

4
Imke Hellemondt, *De Paradijsmethode: Opvattingen over het moderniseren van het landschap in de Nederlandse landschapsarchitectuur van de jaren zestig en zeventig van de twintigste eeuw* (Amsterdam: VU Uitgeverij, 2016), 51.

5
Frans Maas, lezing studiedag, "Veranderingen in beeld en functie van ons landschap," (19 januari 1968), archief NIROV (WGL), R579- 159, 7–8 and stellingen.

balance between creativity and science, between art and technology and the demarcation with other disciplines was not limited to Delft; landscape schools elsewhere were also grappling with these new-found mandates on the one hand and maintaining the 'core business' of the discipline on the other.

Landscape and ecology

This approach to landscape architecture was also based on an understanding of growth processes and gradients, introduced to the Faculty by the ecologist Chris van Leeuwen, who later became Professor of Ecology. Between the 1950s and 1980s he developed his Relation Theory, describing the functioning of (eco)systems as a relationship between space and time. His work not only formed the basis for approaches to sustainability in the built environment at the Faculty, but also for national policies on sustainable spatial planning. In particular, the principle of the ecological 'mainframe' (the basis for the current National Ecological Network) is based largely on his work. The emerging environmental awareness of the 1970s ensured that the topic was popular. Designers looking for new approaches turned to ecology to provide a new design language based on transitions rather than borders. The emphasis shifted towards the boundaries between spaces instead of spaces themselves. "The boundary makes the difference; that's where it happens."[6] The task of spatial designers is, after all, to make spaces visible and usable. The evolution of the chair of ecology at Delft after Van Leeuwen's retirement reflects the dynamics of this emerging field and the various iterations of ecology in the Faculty.

Landscape as living environment

Complementary to the rise of engineering, research and ecology as frames for teaching was the emerging notion of the 'living environment' introduced by Wim Boer. Between 1972 and 1987 Boer taught as a lecturer and later as Professor of Urban Greenspaces. Rather than separating technology and ecology, and city and countryside, and assigning them their own domains and specific forms, he advocated connecting them with each other by conceiving the landscape as a coherent whole and designed as such.[7] In order to achieve such an integrated landscape, Boer saw the need for an ecological basis to avoid a totalizing technological dogma, observing wryly, "that way, we can live in a landscape where the natural elements still prevail above the climate-regulating Buckminster Fuller bell jar lowered over a 'New Babylon' by Constant, the playground of the complete 'homo ludens', in the midst of pure wilderness and some super-automated production processes and perfected resources."[8] What he had in mind, more prosaically, was "the complexity of differentiated open spaces, of private gardens, streets, squares and parks... which are not designed for a single purpose, but can be experienced and used differently."[9] An important part of this approach was the knowledge and use of historical precedents and a focus on the design process itself. In his teaching, Boer tried to establish a relationship between the history of gardens and parks and the history of urban development with 'design-oriented' research.

This period also heralded a gradual, far-reaching change in higher education. In 1986, the colleges of applied sciences at Delft, Eindhoven and Enschede were renamed as technical universities, and the Department of Architecture became the Faculty of Architecture. This change of status meant that more and more attention was paid to research and the number of students grew spectacularly.

6
Taeke de Jong and others, eds., *The theory of Chris van Leeuwen; Some important elements* (Delft: Delft University of Technology, 2015), 3.

7
Hellemondt, *De paradijsmethode*, 64.

8
Wim Boer, "Stad en landschap. Een moderne woon-eenheid voor mensen," *Bouw* (1969): 1525.

9
Boer, "Stad en Landschap," 1522–1523.

The architecture of landscape

In 1994 Clemens Steenbergen took over as professor from Frans Maas. Intent on bringing the formal-spatial and artistic dimensions of the discipline to the fore, he renamed the chair Landscape Architecture. In his acceptance speech, *Symfonie van water, land en lucht* [Symphony of water, land and sky], Steenbergen built on the work of his predecessors, but hinted at three major new themes: the conquest of the natural landscape by means of architecture, the technique of the cultural landscape, and the urban landscape as interplay between topos and cosmos.[10]

Together with associate professor Wouter Reh, Steenbergen built the group into a sizeable team of research and teaching staff. The group published several books on the fundamentals of the profession along three research trajectories termed 'architecture and landscape', 'metropolitan landscapes' and 'Dutch polder landscapes'.[11] These themes would later lay the basis for the thematic foci of the first year programme of the Master track.

The first theme continues Maas's fascination for estate landscapes, based on the conviction that understanding their compositional logic was the key to the principles, tools and techniques of landscape architecture. This conviction held that the core business of a landscape architect is the creation of spatial compositions, regardless of shifts in context and problematique, and that gardens are the laboratory of the discipline. Two decades of typological research on the classical gardens led to the development of the formal layer analysis method, providing a toolbox for designers to understand, and design with, landscape architectural compositions. Using the theoretical model of architectural composition developed by Paul Frankl (1914)[12] as the starting point, the concept of landscape was elevated from its status as a surface upon which to project architecture to the object of architecture itself. The method breaks down the formal characteristic of a landscape composition into four layers: the rationalized and activated topography (basic form); the architectural elaboration of three-dimensional landscape space (spatial form); the metaphorical images referring to the natural, cultural and urban landscape (image form); and the use and experience of the landscape (programme form).

The second research theme, 'metropolitan landscapes', explored the formalization and development of an integrated approach to landscape and city. It elaborates the evolution of cities from a landscape architectural perspective, following the transition from the city as a more or less contained artefact in an open landscape to an open and dynamic metropolitan landscape as a carpet of urban and landscape fragments.

The notion of the physical landscape as the most important departure point for design, together with the search for the modern character of the Dutch landscape (as opposed to the still prevailing romantic and nostalgic images that cling to the notion of landscape), came together in the third research theme of the Dutch polder landscapes. Here the 'grammar' of reclaimed wetlands (polders) was introduced, interpreting the efficiency of polder building as a designerly way of thinking.

The Faculty of Architecture was reorganized yet again in the 1990s, with a management layer of departments added between Faculty and the various chairs. Landscape Architecture was incorporated as a chair in the newly formed Department of Urbanism, with consequences not only for management but also for education and content. Like the theory and history chairs, the Chair of Landscape Architecture had spread its teaching role across both architecture and urban-

10
Clemens Steenbergen, *Symfonie van water, land en lucht* (1994).

11
Clemens Steenbergen and Wouter Reh, *Architecture and Landscape: The Design Experiment of the Great European Gardens and Landscapes* (Berlin: Birkhauser, 1996); Clemens Steenbergen and Wouter Reh, *Metropolitan landscape architecture: Urban parks and Landscapes* (Bussum: THOTH publishers, 2011); Wouter Reh, Clemens Steenbergen and Diederik Aten, *Zee van Land: De droogmakerij als atlas van de Hollandse landschapsarchitectuur* (Wormer: Stichting Uitgeverij Noord-Holland, 2005).

12
Paul Frankl, *Die Entwicklungsphasen der neueren Baukunst* (Leipzig, Berlin: B.G. Teubner, 1914).

ism since its inception, but in the new setting the chairs' responsibilities became more restricted to urbanism.

Landscape history & heritage

The continued revival of societal interest in landscape and environment, which had started in the 1970s, culminated in 2005 in a new initiative to establish three new chairs in cultural history and spatial development at the Free University Amsterdam, Delft University of Technology and Wageningen University, the so-called Belvedere Chairs. Delft appointed landscape architect Eric Luiten to this position, with the aim of training designers in the knowledge and skills needed to link cultural history and contemporary spatial developments and to build theory and design knowledge on this approach. In his inaugural speech, *Tot hier… en nu verder* [Until here… and now onwards], Luiten noted that the conflict between the need for change on the one hand and the need for continuity on the other can be reconciled through design. In his input for the later programme accreditation process for the Master track in Landscape Architecture, Luiten observed that "landscape architecture concerns itself with integrating new programmes into a genius of place and time and with regard to the continuation of quality and identity of the landscape. This is increasingly evident in rural environments: accommodating new agrarian uses, new forms of housing and industry, ecological, recreational and tourist programmes are becoming important challenges for landscape architecture."[13] Understanding and integrating cultural history as an essential quality of landscapes thus became an additional principle for landscape architecture education in Delft. The Belvedere Chair gravitated towards the Chair of Landscape Architecture, coinciding with a new expansion of researchers and teachers in landscape architecture at the Faculty.

Groundworks

A growing awareness of the uniqueness of the mix of landscape architectural notions that had been developed at the Faculty over the years led in 2007 to the decision to develop a Master track in Landscape Architecture. This decision ushered in an intensive period of research and development of the Master track programme, combining the generic requirements that a graduate in landscape architect should meet with the specific TU Delft flavour.

Recognition

At the end of the last century, establishing a landscape architecture programme at TU Delft was still not considered a priority by the Faculty, even when in 1999 the Bologna Process presented an opportunity with the structural changes to the education programme that resulted in a two-tier Bachelor and Master degree structure.[14] Architecture had remained the disciplinary focus in the curriculum of the Faculty since its founding years, supplemented with designated programmes for urbanism and, since the early 1990s, with building technology and building management. Only these four streams were converted to separate Master tracks.

In the following years, however, a growing realization of the importance of the discipline in societal challenges finally triggered the decision in 2007 to initiate a fifth Master track: Landscape Architecture. In 2008 a total of 172 registered graduate programmes in landscape architecture were offered around the world, compared with a total

13
René van der Velde, *Landscape Architecture Programme Accreditation Submission* (Delft: 2009).

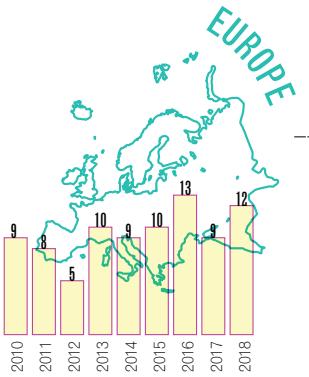
14
Agreement between European countries to ensure comparability in the standards and quality of higher education qualifications. To this aim their higher education programmes were converted to a two-tiered bachelor-master structure.

15
René van der Velde, *Accreditation Submission* (Delft: 2009).

FROM ...TO DELFT *infographic on where students come from the past ten years*

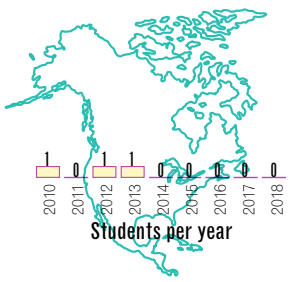
30 Different nationalities from all over the world meeting in Delft

EUROPE



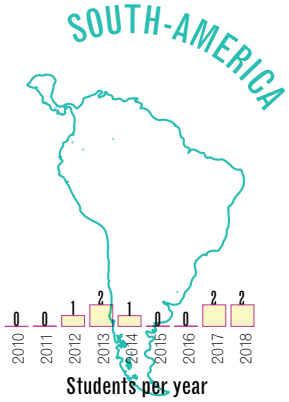
Students per year

NORTH- AMERICA



Students per year

SOUTH-AMERICA



Students per year

the course of a student
*location is indication of country origins

MOST STUDENTS
95% of the students come from Europe

LARGEST NR OF STUDENTS
2nd: the Netherlands with 51

FROM FAR FAR FAR AWAY
Chile: + 11 000km

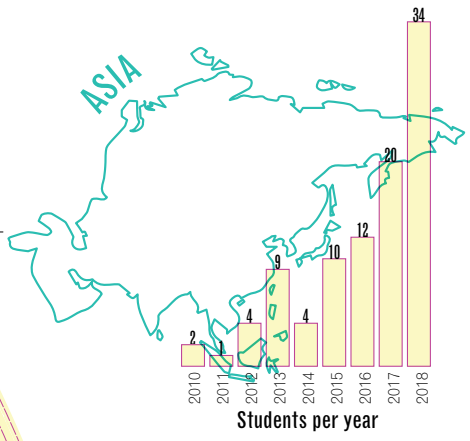
LEAST STUDENTS
Only 1 student comes from Africa

Albania: 1
Venezuela: 1
United States of America: 2
United Kingdom: 1
Tunisia: 1
Thailand: 3
Taiwan: 3
Switzerland: 1
South Korea: 2
Slovenia: 1
Singapore: 1
Russia: 2

San Francisco
Vancouver
Los Angeles
Denver
Monterrey
Mexico City
Houston
Chicago
Toronto
Atlanta
Washington, D.C.
New York
Miami
Bogota
Caracas
Lima
Santiago
São Paulo
Rio de Janeiro
Buenos Aires
London
Paris
Madrid
Casablanca
Dakar
Lago

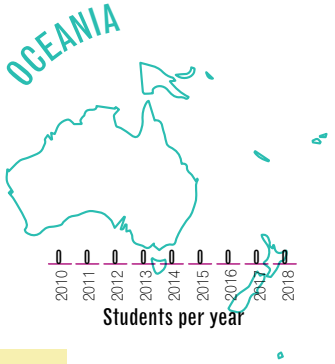
„I ALWAYS REMEMBER OUR FIRST EXCURSION. I DO NOT REMEMBER THE NAME OF THE PLACE, BUT I REMEMBER FRITS SAID: „AND THIS IS OUR highest mountain", AND I SAID: „WELL THIS CANNOT BE CONSIDERED a mountain". HE ASKED ME WHERE I WAS FROM AND I REPLIED: Ecuador [...]" ~ Estefany Mena

„I ENJOYED MOST WORKING IN THIS WONDERFUL ENVIRONMENT, SURROUNDED BY great people, HAVING THE CHANCE TO TRAVEL AROUND AND GET TO KNOW the Netherlands FROM A DIFFERENT PERSPECTIVE, SEEING THE PROGRESS IN MYSELF DAY BY DAY" ~ Maria Sachsamanoglou



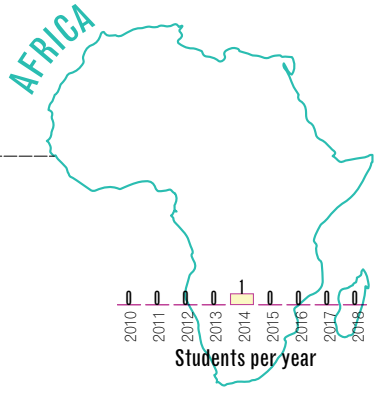
LARGEST NR OF STUDENTS
1st: China with 67 students

FROM FAR FAR FAR AWAY
Indonesia: + 11 000km



LARGEST NR OF STUDENTS
3rd: Greece with 15 students

„WE WERE QUITE A DIVERSE BUNCH FROM different cultural contexts. HOWEVER THE FIRST excursion TO THE QUARRY IN LIMBURG WAS THE MOMENT I REALISED THAT I AM GOING TO BE WITH THIS AMAZING BUNCH for the coming 2 years AND THAT I WOULD NEVER MISS HOME [...]" ~ Purvika Awasthi



Bangladesh: 1
Brazil: 1
Canada: 1
Chile: 1
China: 67
Colombia: 2
Costa Rica: 1
Cyprus: 1
Ecuador: 2
Germany: 2
Greece: 15
Hong Kong: 3
Hungary: 1
India: 14
Indonesia: 2
Italy: 8
Lithuania: 1
Netherlands: 57
Tokyo
Osaka
Seoul
Shanghai
Taipei
Beijing
Manila
Sydney
Hong Kong
Chengdu
Ürümqi
Melbourne
Bangkok
Kolkata
Singapore
Jakarta
Tashkent
New Delhi
Kabul
Moscow
Stockholm
Berlin
Kiev
Vienna
Tehran
Mumbai
Bangalore
Istanbul
Rome
Athens
Baghdad
Dubai
Riyadh
Cairo
Addis Ababa
Nairobi
Kinshasa
Johannesburg
Cape Town

of 66 only ten years earlier. This growth reflected a growing professional attention to landscape architecture in policy, planning and design, and an accompanying international demand for professional graduates.[15] The motivation in the programme accreditation submission read: "Landscape architecture has until now not been available as a graduate track at the TU Delft. Insight into the spatial nature of (Dutch) landscapes and techniques of landscape research and design form a modest but critical component of the education programmes of Architecture and Urbanism at the faculty. The Chair of Landscape Architecture fosters the development of the discipline through contributions to undergraduate, graduate and postgraduate teaching programmes, and is active via a compact yet prolific research programme. In recent years the chair has made fundamental and innovative contributions to the practice and theory of Landscape Architecture which has gained it an international reputation. The accumulated expertise of the chair in research and teaching now places it in a position to develop an independent graduate track in Landscape Architecture with an international status."[16]

Colouring the Delft Landscape Architecture Master track

A challenge was to find a balance between the entrance terms required by the Architects Register (*Architectenregister*)[17] and the specific competency mix expected of a Delft graduate.[18] As such, the first iterations of the programme content were based largely on an interpretation of the entrance terms of the Register.[19] In a following step these competencies were given much more of a Delft 'flavour' with the introduction of five core principles which met the entrance terms defined by the Architects Registration Bureau and at the same time made it specific to Delft:

— The programme covers the breadth of the discipline of landscape architecture, provides academic depth on crucial disciplinary themes, and is linked to the research programme.
— The programme is specific to Delft in that it positions design as the core competency, forefronts the relationship with architecture and urban design, and explores the relationship with (civil) engineering.
— Central to the programme are design project modules, which are 'critical' in that they oscillate between theory and practice, and between (historical) precedents and experimentation.
— Thematic exercises are positioned within each design project module, where conceptual, technical and analytical competencies are developed.
— Courses parallel to the design module develop historical, theoretical and methodological knowledge, skills and attitudes.

Moreover, the themes accumulated in earlier years also came into play to 'colour' the content and didactic side of the programme, condensed into the three themes: architecture and landscape, urban landscapes and Dutch landscapes. These three themes became the underlay for a set of courses per quarter to develop the theoretical, historical and methodological knowledge levels and skill sets to be applied in design courses. At the same time, topics from earlier periods, such as landscape engineering, ecology and heritage, were integrated in different ways.

16
ibid.; 3.

17
The statutory body controlling the protected title 'landscape architect'.

18
The generic exit terms are defined by the Academic Titles Act for Architects, which also defends the title of landscape architect.

19
The Delft graduate was to be able to prepare spatial concepts and landscape architectural designs at various scales which meet aesthetic, technical and functional requirements. The skills needed for this competency were outlined under various knowledge domains, skill sets and approaches, starting with the theoretical, methodological and instrumental foundations of landscape architecture. Knowledge of landscape architectural prototypes, typologies and transformations, along with insights into landscape formation in relation to land reclamation, landscape development, settlement forms, urbanization and the architectonic landscape. Underlying these insights, the Delft graduate was to have a working knowledge of the processes by which landscapes are formed, such as climatic, geomorphological and vegetative cycles, and environmental aspects of landscape development. Related disciplines also formed part of the TU Delft graduate's knowledge domain: awareness of the history of landscape architecture and its relationship to (the history of) architecture, urbanism and the visual arts, and by extension a working knowledge of the disciplinary foundations of architecture and urbanism, and of the social and behavioural sciences. Specific skill sets include visual, written and verbal communication, design research and research by design methodologies, and functional, temporal and compositional analysis. A final set of knowledge domains and skill sets included knowledge of plants and planting design, landscape construction technology, water management, and civil and environmental engineering.

Positioning

The university board awarded accreditation to the programme in November 2009, but this milestone did not translate into immediate acceptance of the initiative. The Ministry of Agriculture - responsible for initiatives around landscape design education - responded coolly, and within the Faculty the legitimacy of a separate track in Landscape Architecture was questioned.

These attitudes changed when, as part of the accreditation process, an international survey revealed three principal knowledge domains in which landscape architecture programmes were internationally positioned: schools of earth and life sciences, schools of arts and humanities and schools of architecture and engineering. With the Delft programme positioned in the architecture and engineering domain, a complementarity emerged in relation to the two other graduate programmes in the Netherlands: Wageningen University as an earth and life sciences school and the Academy of Architecture Amsterdam as an arts and humanities school. This observation not only helped to profile the programme, but also reduced a sense of competition with the two other Master programmes. With the realization of this complementarity, the ministry eventually warmed to the new programme.

Doubts from within the Faculty stemmed partly from the developing appreciation of landscape architecture and its interrelationship with urbanism in practice, research and education. Landscape architecture and urbanism have developed in parallel at Delft, culminating in the cohabitation of urbanism and landscape architecture in the Department of Urbanism in 1990. Although the parallels are clear, there are different interpretations of the role of landscape. From an urbanism perspective, landscape is seen as an agent for understanding, ordering and acting, and informing urban developments, but not as a primary subject of design. The Landscape Architecture Master track, on the other hand, offers a separate programme on developing the specific design competencies needed to address landscape transitions. This focus stems from the premise that clear and developed disciplinary expertise is essential for *multi*disciplinary approaches.

Internal support for the track grew further under the then Faculty dean Wytze Patijn, leading to the official decision to launch a fifth Master track at the Faculty, starting in the 2010–2011 academic year. The track opened with an exhibition showing landscape architectural projects with a diverse range of models from Dutch practices. Many of the more than two hundred graduates from the track now work in these practices.

First grounds

The past ten years has seen a range of refinements in the structure, content and delivery of the curriculum, driven by the evolving body of knowledge among academic staff, societal trends, developments in design practices and insights drawn from the many hours of intensive teaching experience over the past decade.[20]

Compositional thinking

A first and central theme for the programme is the subject of space and composition. This has been a central tenet for landscape architecture research and education at Delft from the beginning and so composition became a core subject in the educational programme for the Master track. How composition is understood and elaborated has evolved significantly, informed by research on the topic by various

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The PEOPLE chapter of this book gives more information on the staff in the form of biographical sketches and a Staff and Education timeline.

section members, by developments in the theoretical and methodological foundations of landscape architecture beyond the Faculty, by ongoing interaction with students and by the questions they brought forward.

The original formal layer analysis method distinguished basic form, spatial form, image form and programme form as a method for separating the complex composite of a landscape design project. The method quickly found a central place in design and methodology courses as a teaching and learning toolset for students to raise awareness of the components and agency of composition and highlight the importance of site reading and writing as a central theme of landscape architecture. As Steenbergen put it, "The composition as an artistic ideal distinguishes itself from nature in that it is a deliberate product of a human being, an artificial arrangement. In that light, a composition may be seen as a creative outcome of developing the notion of time and space."[21]

At the core of design thinking at TU Delft is the understanding that landscape architectural compositions are drawn from underlying landscape structures, landscape space and materiality, which function as carriers for changing uses, processes and cultures. As a consequence, site-specificity is central in compositional thinking in the educational programme: any landscape architectural composition is an expression, an articulation of the existing, specific qualities of the geographical location and its relation to the larger landscape context. When the implicit formal moments of the natural, cultural or urban landscape are made explicit in a design, one can speak of a landscape architectural composition. Landscape architectural quality arises where the architectural treatment of the successive landscape layers (the genius loci) makes the landscape 'legible' or 'transparent' as an independent identity. Ensuing elaborations of the formal layer analysis in research by members of the Chair of Landscape Architecture revealed how the method as a basic framework allows for many elaborations and landscape architectural operations.

Process thinking

In the course of those first ten years, this initial focus on composition as the carrier of the educational programme was complemented by the notion of process. This notion became steadily more prominent in the education programme and in research, unquestionably fostered by the appointment of Dirk Sijmons as Professor of Landscape Architecture in 2012. Sijmons had studied under Van Leeuwen in the 1970s and had used systems theory in his work at his practice, H+N+S.[22] The growing role of process thinking in society at large and academia in particular was articulated by his call to "free ourselves of our obsessions for morphology and typological studies of space, for these won't yield any positive knowledge without the consideration of the processes that are their better half."[23] In the education programme this shift became visible through the introduction of a number of emerging societal themes in the programme, such as a graduation lab on sustainable energy landscapes and concepts such as urban metabolism and nature-based solutions. In 2013 Sijmons was asked to curate the 2014 Architecture Biennale Rotterdam 'Urban by Nature'. He observed that "in the Anthropocene, we realize that city and nature overlap spatially and impact each other functionally. Thanks to this concept, we can better place many observations about human influence on natural processes."[24] This insight and the accompanying understanding of the impact of human actions on the planet influenced the content of the Master track. This required more focus on understanding and

21
Clemens Steenbergen, Henk Mihl and Wouter Reh, "Design Research, Research by Design," in *Architectural Design and Composition*, ed. Clemens Steenbergen, Henk Mihl, Wouter Reh and Ferry Aerts (Bussum: Thoth, 2002), 12.

22
H+N+S Landschapsarchitecten, founded in 1990 in Utrecht.

23
Dirk Sijmons, *Moved Movement: Farewell Address Chair of Landscape Architecture, TU Delft* (Amersfoort: H+N+S, 2015).

24
"International Architecture Biennale Rotterdam," accessed 19-07-2021, https://iabr.nl/en/editie/urbanbynature.

working with natural processes, such as erosion, sedimentation and succession, and with social processes, while taking uncertainties into consideration.

The last ten years show a growing integration between compositional and process thinking in research and education. The underlying importance of composition remains, driven by the fact that regardless of the rapidly changing set of problems for landscape architects to deal with, composition remains at the core of landscape architectural practice. Compositions which are drawn from underlying landscape structures function as carriers for changing uses, processes and cultures and therefore represent site-specificity, another topic at the core of the Master track.

Embedding an academic programme in its societal context

More practical changes also occurred. Revisions and expansions to the curriculum initiated by advances in design methodology via composition and process thinking dovetailed with the final hurdle for the academic programme: the eligibility of graduates of the Master track to officially register as landscape architects in the Dutch Architects Register, the *Architectenregister*. This procedure had not been arranged when the track was launched in 2010, as the Architects Registration Bureau had required the programme to demonstrate a full four years of education in landscape architecture, necessitating the inclusion of courses from the Bachelor programme. Given the multidisciplinary profile of the Delft Bachelor programme however, Bachelor courses were not dedicated to any particular discipline. Other sticking points were the perceived knowledge deficits in ecology, botany, hydrology, (construction) detailing, sociology and environmental psychology. To meet these requirements, the chair had initially offered additional courses in an extra programme (modules which are now included in the regular programme). Consequently, additional staff members were appointed to give more weight to ecology and the technical aspects of landscape architecture.

In the spring of 2015 a review commission concluded that adaptations in the undergraduate curriculum and changes in the Master track programme were sufficient to include the programme under the legislative provisions protecting the title of landscape architect. This was formally legislated in August of that year.[25] This step underlined an earlier review of the programme, in which they noted that "the Chair of Landscape Architecture builds on a tradition of more than 40 years of research and teaching in landscape architecture at the Faculty of Architecture. On almost all criteria, the committee welcomed the quality and depth of education. The committee hopes that their positive judgement of the programme contributes to further strengthening of the field of landscape architecture in the Netherlands and that it promotes cooperation between the three Dutch study programmes, each with its own emphasis: the life sciences in Wageningen, the arts in Amsterdam and now also architecture in Delft."[26]

Diversity

The growth of landscape architecture education in Delft took place within a Faculty that had gradually expanded from architecture to include a range of disciplines that address the built environment. In order to cover this widening of its scope, in 2013 the Faculty changed its name to the Faculty of Architecture and the Built Environment.

The diversification of the range of tracks was complemented by a diversification of the student cohort. Along with the other Master

25
Ministers van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer en van Landbouw, Natuur en Voedselkwaliteit en de Staatssecretaris van Onderwijs, Cultuur en Wetenschap, *Nadere regeling inrichting opleidingen architect, stedenbouwkundige, tuin- en landschapsarchitect en interieurarchitect; Regeling van de Staatssecretaris van Economische Zaken van 26 augustus 2015, nr. WJZ/15101541, houdende wijziging van de Nadere regeling inrichting opleidingen architect, stedenbouwkundige, tuin- en landschapsarchitect en interieurarchitect in verband met een wijziging van de variant landschapsarchitectuur van de Technische Universiteit Delft.*

26
Thijssen and others, *Advies toetsing master track landschapsarchitectuur TU Delft* (Den Haag: 2013), 34.

GRADUATING ALL OVER THE WORLD infographic on location of graduation projects and honourable projects

34 Different country locations for graduation projects

AROUND THE WORLD
Students between 2011 - 2020 chose project locations in 34 countries.

One dot represents one graduation project.

COUNTRY OF ORIGIN
Graduation projects are often located in students home country or in the Netherlands.

MOST LOCATIONS
Most graduation locations are in NL: 74 p

THE UNFAMILIAR
Sometimes students like to step out of thei zone and take part in a research project al looking for new context.

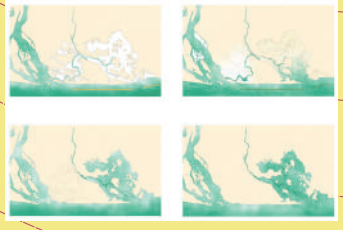
Vancouver
San Francisco
Los Angeles
Denver
Chicago
Toronto
New York
Washington, D.C.
Atlanta
Houston
Monterrey
Miami
Mexico City
Caracas
Bogota
Lima
Rio de Janeiro
São Paulo
Santiago
Buenos Aires
London
Paris
Madrid
Casablanca
Dakar

Albania: 1
Austria: 5
Belgium: 2
Bosnia and Herzegovina: 9
Brazil: 1
Bulgaria: 5
Canada: 5
Chile: 1
China: 12
Costa Rica: 1
Ecuador: 1

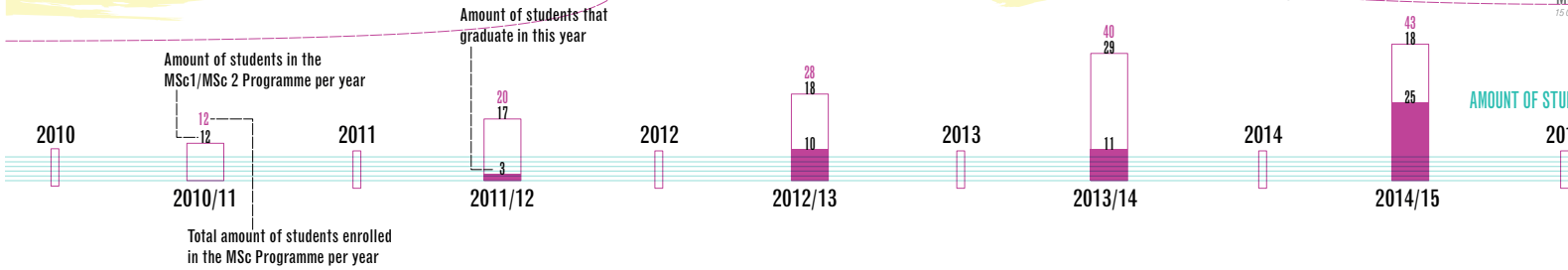
GRADUATION PROJECT WORTH MENTIONING

STUDENT: Barbara Prezelj
TITLE of project: Unfamiliar Territory
YEAR of graduation: 2016
LOCATION: Fort de Vaujours / Paris
MENTORS: Inge Bobbink & Heidi Sohn
ARCHIPRIX WINNER 2018

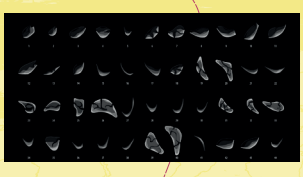
GRADUATION PROJECT WORTH MENTIONING



STUDENT: Eva Ventura
TITLE of project: Erosion for Betterment
YEAR of graduation: 2018
LOCATION: Volta Delta Ghana
MENTORS: Frits van Loon & Leeke Reinders
ARCHIPRIX NOMINATION 2019



GRADUATION PROJECT WORTH MENTIONING



STUDENT: Amina Chouairi
TITLE of project: The Operating Venetian Lagoon: The Agency of Barene
YEAR of graduation: 2020
LOCATION: Venice
MENTORS: Denise Piccinini & Taneha Kuzniecow Bacchin
ARCHIPRIX NOMINATION 2021 / BEST GRADUATE 2020 FACULTY OF ARCHITECTURE & THE BUILT ENVIRONMENT,TU DELFT

CREATING COLLECTIVE KNOWLEDGE

In most graduation labs, students work with similar approaches that they test on different sites.

CREATING COLLECTIVE KNOWLEDGE

Students of different years work sometimes work in the same region, like the Rhine-Danube corridor or the Pearl River Delta.

GRADUATION PROJECT WORTH MENTIONING

STUDENT: Eleni Chronopoulou
TITLE of project: The Oppositions of Kifissos
YEAR of graduation: 2018
LOCATION: Kifissos / Athens
MENTORS: Inge Bobbink & Esther Gramsbergen
BEST GRADUATE 2018 FACULTY OF ARCHITECTURE & THE BUILT ENVIRONMENT,TU DELFT

GRADUATION PROJECT WORTH MENTIONING

STUDENT: Paan Surajaras
TITLE of project: Breathe
YEAR of graduation: 2019
LOCATION: Ho Chi Minh city
MENTORS: Inge Bobbink & Esther Gramsbergen
WINNER KUIPERCOMPAGNON AWARDS 2019

rojects = 41%

lft

r comfort
road,

Stockholm
Moscow
Amsterdam
Berlin
Kiev
Vienna
Geneva
Rome
Istanbul
Athens
Cairo
Tehran
Baghdad
Kabul
New Delhi
Kolkata
Mumbai
Bangalore
Beijing
Seoul
Tokyo
Osaka
Shanghai
Chengdu
Taipei
Hong Kong
Bangkok
Manila
Singapore
Jakarta
Kinshasa
Johannesburg
Cape Town
Sydney
Melbourne
Auckland

Japan: 2
Italy: 4
Indonesia: 4
India: 3
Hungary: 1
Honduras: 1
Greece: 2
Ghana: 2
Germany: 12
rance: 1
Taiwan: 2
Switzerland: 1
United States of America: 10
Vietnam: 1
South - Africa: 1
Slovakia: 5
Serbia: 4
Portugal: 1
Norway: 1
the Netherlands: 74
Morocco: 1
laysia: 1
Thailand: 2

DENTS PER YEAR
15
38
23
15
2015/16
2016
49
27
22
2016/17
2017
58
35
25
2017/18
2018
77
48
29
2018/19
2019
68
20
48
2019/20
2020

Prize winning project

tracks at the Faculty, the programme builds upon the Bachelor programme and was designed in the first place to attract mainly Dutch students with a Bachelor degree in architecture and a strong design background. However, non-European students in particular found landscape architecture at TU Delft attractive because of the university's standing in the world ranking of universities. This led to an international student population with backgrounds ranging from architecture and urbanism to landscape architecture and landscape planning, with either a solid design background and hardly any knowledge of landscape materials and systems or a solid landscape background and less experience in formal design. Unexpectedly, the primary task of the teaching staff became to bring students from such diverse backgrounds up to the same standard. This diverse student community is challenging but at the same time is a source of inspiration to keep on developing and adapting the programme.

Events such as a biannual excursion have proven valuable in bonding and building a 'community of learning' among the students. These international excursions are the moments when first year and second year Master students, teaching and research staff spend time together on an equal footing in an intensive programme of visiting historical and current landscape architecture projects.

The education programme

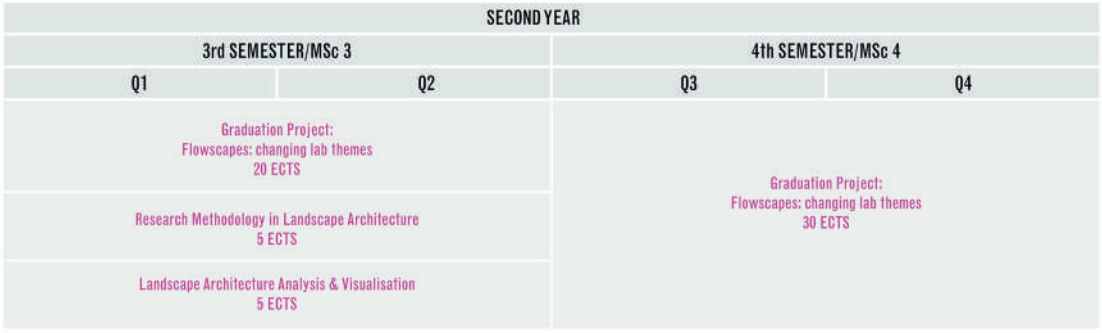
Dutch landscapes form the basis of our study programme, because we as teachers know them very well and it is easy to visit them again and again. By questioning the natural, social and technical mechanisms that shaped the form, space and experience of these particular landscapes, the students learn to understand the mechanisms that create landscapes worldwide. The thematic development of the education programme of the Master track has been informed by a fruitful exchange between ongoing research by chair staff, changing societal challenges and visions, and changes in the structure of the Faculty's teaching programme. The programme is divided into three parts.

In the first part – the first three quarters of the Master track – relevant concepts of landscape architecture are introduced, echoing the three pillars defined as the basis of the landscape architecture education programme: Architecture and Landscape (AL), Dutch Landscapes (DL) and Urban Landscapes (UL). Originally each quarter consisted of four courses, but now the curriculum concentrates on two integrated courses for each quarter: a design course and a course on theory, methods and critical thinking.

The second part is an elective (fourth) quarter, allowing the students to meet students and colleagues from other disciplines. This can be an elective quarter in landscape architecture or one of the other departments within the Faculty, such as architecture or urbanism, or a discipline beyond the Faculty.

FIRST YEAR			
1st SEMESTER/MSc 1		2nd SEMESTER/MSc 2	
Q1	Q2	Q3	Q4
Design project: Architecture & Landscape (AL) 10 ECTS	Design project: Dutch Landscape (DL) 10 ECTS	Design project: Urban Landscapes (UL) 10 ECTS	LA On Site 15 ECTS
Theory, method & critical thinking: Architecture & Landscape 5 ECTS	Theory, method & critical thinking: Dutch Landscape 5 ECTS	Theory, method & critical thinking: Urban Landscapes 5 ECTS	

The third part of the programme is a year-long individual graduation thesis in which knowledge, skill sets and attitudes gained and developed in the first year programme come together. Since 2014 the two pillars of the current research programme - composition and systems - form the thematic dialectic for the graduation studio, expressed in the idiom *Flowscapes*. "The Flowscapes studio explores infrastructure as a type of landscape and landscape as a type of infrastructure."[27] Following the steady rise in student numbers, the Flowscape studio diversified into multiple labs. These are initiated by research themes within the Landscape Architecture section and change over time.[28]



The different parts of the curriculum address the same competencies, but each time from a different perspective: design skills; landscape analysis; knowledge of landscape-specific materials, of history and of precedents; presentation techniques; and academic skills.

Designing landscapes

The education programme in the first year introduces relevant concepts of landscape architecture, always with a design assignment at the core, supported by fieldwork, workshops and excursions, and complemented by a theoretical course revolving around the same subjects. The three different assignments each have their own central scale and level of complexity, oscillate between individual work and group work, and nurture different competencies.

Architecture and Landscape focuses on designing a route and a garden and is about mediating and expressing the one to one relationship between humans and landscape. The relation between the landscape and the architectonic intervention - buildings, gardens and routing - is studied with a focus on perception and place. This phenomenological focus complements the understanding of landscape architecture as a formal condensation of existing, implicit formal landscape characteristics.

Dutch Landscapes explores the cultural landscape of the Netherlands and addresses regional design problematiques. The design task, integrating new farming concepts with recreation and living, takes understanding and working with water–land dependencies as a starting point for design. The historical, ecological, programmatic and functional qualities of the polder landscapes are studied and transformed across different scales.

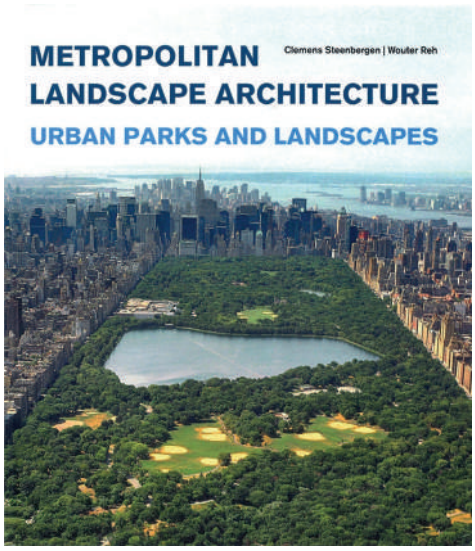
Urban Landscapes explores the complex relationship between city and landscape with a focus on the need to transform the urban realm

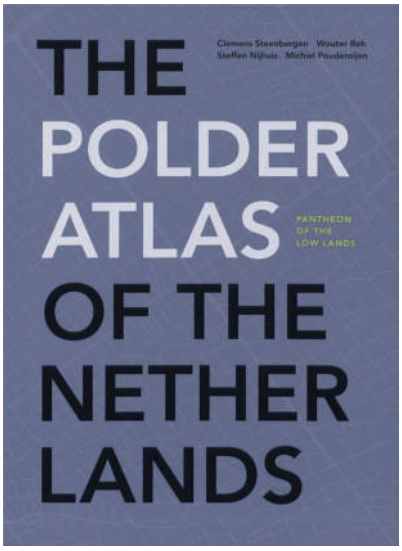
27
Gary Strang, "Infrastructure as Landscape [Infrastructure as Landscape, Landscape as Infrastructure]," *Places Journal* 10, no. 3 (1996): 8.

28
At the moment four labs are active (2021): Resilient Coastal Landscapes, Circular Water Stories, Urban Forest Places and Urban Ecology and Ecocities.

into more sustainable, adaptive, ecological and social environments.

In the second Master year, students work together in graduation labs. Under the umbrella of a joint research theme linked to the research portfolio of the section, students develop their individual design assignments, with relevant scales, design methods and analytical and theoretical focus. The students' theses are grounded in individual research work, not only as a basis for design, but also as an integrated and iterative project in which landscape architectural theory, site analysis, precedent studies and research by design mutually inform each other.





Fundamental literature of the Master track developed at the faculty.

Reading landscapes

The first source for designing landscapes is analysing the existing qualities. The basis for the educational programme is 'reading and writing the landscape'; in other words the primary objective of landscape analysis is not to determine its problems, but to uncover the existing qualities of the landscape as the basis for design, the material for transformation. Even when framing it as such, there are still many different ways to analyse landscapes. By the time the students are expected to be ready to create their own assignment, they will have encountered a range of analytical tools, with the focus on these three: phenomenological analysis, palimpsest analysis and systems analysis.

From a phenomenological perspective, landscape is experienced from the first-person point of view. By providing specific and precise exercises, such as walking and drawing exercises, students are encouraged to intentionally experience the different perceptual qualities of existing landscapes as the gateway to understanding their underlying logic.[29] From the perspective of the palimpsest, the landscape is considered to be the result of a continuous transformation through time and design is an episode in this ongoing narrative. A formal analysis of the consecutive - natural, cultural and urban - landscape layers is at the basis. An example of the palimpsest perspective is the landscape biography in which actor perspectives and narratives of current and

29
See micro essay 'Walking', p. 192

former users, such as farmers, tourists, animals etc., form the centre point of site analysis. From a systems perspective, the natural or urban landscape is understood as a living organism, and the metabolism of energy, infrastructure water, food and waste is analysed as different layers that make up its fabric.

Considering landscape architecture in the first place as the art of understanding and transforming existing landscapes, landscape materials first and foremost are approached as spatial and systemic, rather than technical components. Students research and experiment with the spatial and atmospheric qualities of tree species, planting arrangements and compositions, with the spatial expression of water systems, green structures and other urban flows or with the implications of the many manifestations of time for design and its perception.[30]

Learning from the grandmasters

As in any discipline, landscape architects should know their history. The development of the discipline and the corresponding historical and contemporary examples are addressed throughout the programme.[31] The emphasis however, is not on historical knowledge or style elements, but on discovering knowledge on conceptual thinking and the art of spatial design. Students are encouraged to reconstruct the design process of the historical cases by analysing how different layers of the design respond to the existing landscape – 'learning from the grandmasters'.

Drawing and modelling

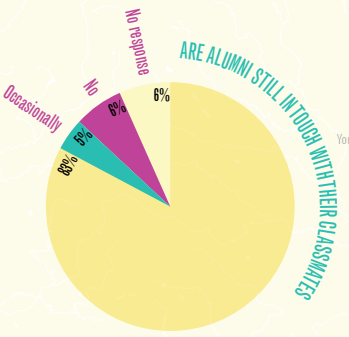
To study the context, the site, the ecosystem and the social realm at all scales requires a sophisticated toolbox for drawing and modelling. Various tools and techniques fundamental to landscape education have earned a prominent place over the last decade, starting with techniques such as hand drawings and model making. Hand drawings remain highly relevant to the design process, especially when it comes to sketching initial ideas, carrying out phenomenological analysis and illustrating explorative surveys.

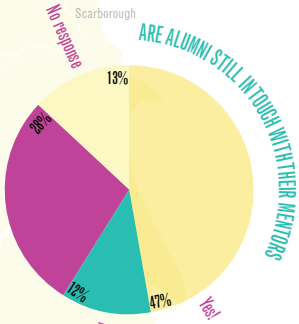
Because the base material of landscape architecture is plants, earth and water, working with physical models will remain necessary. Nevertheless, many students work with digital models as well, and with digitalization and data becoming more prominent in practice the use of GIS is now becoming a standard tool in the programme.[32] GIS allows the combination of multiple datasets to aid design research and research for design, particularly in bringing digital technology into play in procedures such as mapping. The technique of mapping has been developed in various forms in different courses.[33]

On-site

Even with an emphasis on site analysis, learning to design often remains an abstract procedure, with paper results. Therefore, we highly value those projects where students can actually get their hands dirty. One of the elective modules offered by the section is called On-Site. Between 2011 and 2018 this took place in the context of the Oerol open air art festival on the island of Terschelling, where students worked in multidisciplinary teams to develop and build temporary landscape installations. From 2018, this on-site teaching method was transferred to the Delft campus in a challenging and experimental assignment focusing on the interaction between ecological concepts and the campus society. The campus has accrued remnants of these 'gardens' that were built over the years and have been embraced by the campus maintenance crew, who were also part

30
See micro essay 'Trees', p. 178
31
See micro essay 'Repertoire', p. 157
34
These four perspectives are derived from urban landscape theorist Sébastien Marot, who distinguished four principles as the foundation of landscape architectural analysis and design: 1) the choreography of specific materials and spaces in the landscape (three-dimensional sequencing); 2) recalling and building on history (anamnesis); 3) staging and cultivating new conditions (preparation); and 4) creating relationships with boundaries, adjacent areas, the environment and context (relational structuring). Sébastien Marot, "The reclaiming of sites," in *Recovering landscape: Essays in contemporary landscape theory,* ed. James Corner (Princeton Architectural Press, 1995), 49–50. In the last 15 years these perspectives have been further elaborated by others, such as Prominski (2004), Jauslin (2012), Nijhuis (2013), Van der Velde (2018) and Bobbink & de Wit (2020), which has led to the current definitions in the Master track.





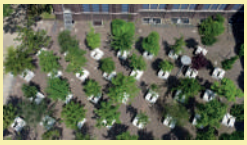
Out of 197 alumni we had 93 responses for the data used in the graphs

FUN FACT

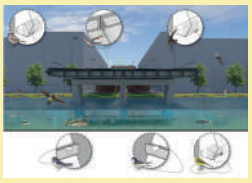
One LA couple even got married! And several children are born!

ARE WE STILL IN TOUCH?

We have asked our alumni whether they have kept contact with their classmates and mentors. Out of 93 respondents, 83% is still in touch with their classmates, and 47% with their mentors.



ALUMNUS: Lotte Dijkstra
COMPANY: TU Delft - Urban Forestry
PROJECT: Urban Climate Arboreta
YEAR of completion: 2020
LOCATION: Delft, the Netherlands



ALUMNUS: Nadia Kalogeropoulou
COMPANY: Smartland Landscape Architects
PROJECT: Nature-inclusive bridge Amstel
YEAR of completion: under construction
LOCATION: Amsterdam, the Netherlands

ALUMNUS: Amina Mni
COMPANY: Lodewijk B
Architects
PROJECT: 1 Garden fo
YEAR of completion:
LOCATION: Amsterda

International project

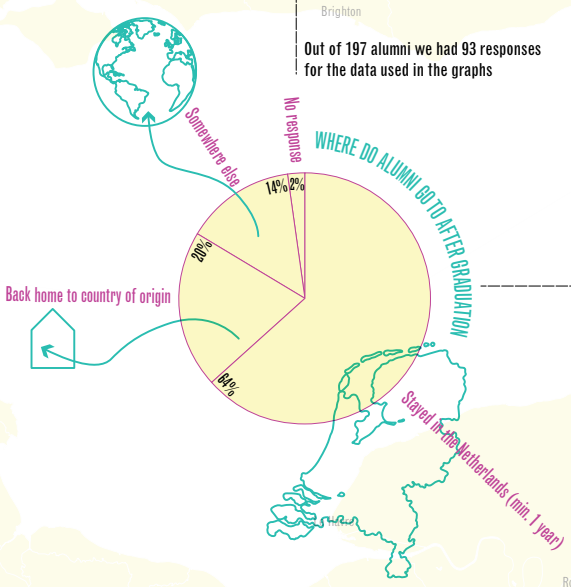
ALUMNUS: Jade Appleton
COMPANY: Mott MacDonald
PROJECT: HS2 - high speed rail
YEAR of completion: Under construction completion in 2026
LOCATION: London to Birmingham

One dot is a project location.
The dot is an approximation of the location.

STAYING AROUND

Out of 93 respondents, 64% of the alumni stayed in the Netherlands for at least one year after graduation.

Out of 197 alumni we had 93 responses for the data used in the graphs



A SELECTION OF PROJECTS

During the Alumni event we have asked our alumni whether they could show us a project that they have worked on and are proud of. The projects form a small - arbitrary - selection of projects that our alumni work on after graduation.

AFTER GRADUATION

Alumni published over the years several peer reviewed papers based on their graduation work.

FIRST ALUMNI EVENT an infographic on the online get together with our alumni on June the 17th 2021

N

f
aljon Landscape

or Suzanna
2020
m, the Netherlands

ALUMNUS: Peter van Oosten
COMPANY: Idverde Advies
PROJECT: Wigpark
YEAR of completion: Ongoing
LOCATION: Almere, the Netherlands

ALUMNUS: Galia Costantini
COMPANY: OKRA
PROJECT: Enschedestraat
YEAR of completion: 2020
LOCATION: Hengelo, the Netherlands

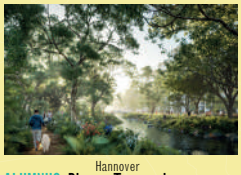
ALUMNI: Robert van der Pol & Erica Chladova
COMPANY: LMNL
PROJECT: Hidden House & Garden
YEAR of completion: 2020
LOCATION: Rotterdam, the Netherlands

ALUMNUS: Kalliroi Taroudaki
COMPANY: KCAP & Felixx
PROJECT: East Dike Waterfront
YEAR of completion: 2020
LOCATION: Shenzhen, China

Dutch office - international project

ALUMNUS: Antonia Koukouvelou
PROJECT: Micado
YEAR of completion: competition 4th prize
LOCATION: Goumoens-la-ville, Switzerland

International project

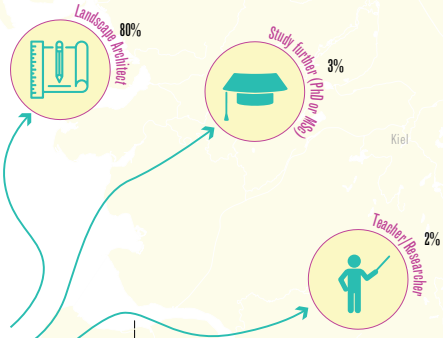


ALUMNUS: Bhavna Tyagarajan
COMPANY: Arup
PROJECT: Indonesia New Capital City
YEAR of completion: Ongoing
LOCATION: East Kalimantan, Indonesia

International project

ALUMNUS: Ayu Prestasia
COMPANY: Dekona Studio
PROJECT: Landscape Development of Kedaton Temple
YEAR of completion: Ongoing
LOCATION: Muara Jambi, Indonesia

International project



MOST COMMON JOBS CHOSEN BY OUR ALUMNI

ALUMNI AND THEIR WHEREABOUTS

Most alumni find a job as a landscape architect/designer in offices or municipalities (about 80%). Some alumni follow a different trajectory and focus on studying further (PhD, or another Master) or become a teacher.

A SELECTION OF PROJECTS

Alumni go back home, or work at large international companies. This results in projects all over the world, influenced by the Delft approach.

N-E

E

300 km

S-E

S

Flensburg
Kiel
Lübeck
Hamburg
Bremen
Oldenburg
Leeuwarden
Groningen
Assen
Zwolle
Haarlem
Amsterdam
Utrecht
Arnhem
's-Hertogenbosch
Eindhoven
Dortmund
Duisburg
Essen
Düsseldorf
Wuppertal
Hasselt
Maastricht
Liège
Namur
Bonn
Koblenz
Hannover
Braunschweig
Göttingen
Erfurt
Coburg
Würzburg
Diekirch
Arlon
Grevenmacher

of the tutoring team for the project, along with a variety of experts such as film-makers, artists and ecologists.

Also, several design projects are supported by workshops where students are encouraged to play with soil and water in order to gain an understanding of their spatiality and dynamics, explore possibilities for ecological development by drawing up planting schemes and test technical principles in their designs.

Academic skills

Finally, academic research and academic writing form a necessary competency and structural component of different courses in the programme. Students are trained in critical research and writing skills, such as plan description, plan comparison, reflection and literature studies. These activities also develop student competencies in positioning and problematizing design assignments and reflecting on different epistemologies, their impacts on design processes and vice versa. Discourse analysis also develops a student's ethical and operative attitudes to societal challenges. Part of the graduation project is a research report in which theories, methods, tools and techniques are studied, experimented with and applied to underpin the design and make it, in its uniqueness, verifiable for peers.

Future grounds

From the inception of landscape architecture education at TU Delft, the definition of the discipline has meandered back and forth between an emphasis on composition and process, on space and time, and on site and systems. The outcome is a Master track that finds itself at the intersection between these polarities. This has been translated into four complementary perspectives from which landscape analyses and landscape design can be understood: palimpsest, perception, process and scale continuum.[34] Although these perspectives have become common ground in the contemporary discussion on landscape architecture worldwide, in the Delft interpretation the combination of these perspectives is an expression of the site-specificity of design and of the merging of analysis and design, of reading and writing the (urban) landscape. These perspectives are not mutually exclusive, but overlap and strengthen each other. Landscape can be understood as a sedimentation of previous, natural, cultural and urban transformations.[35] It can be understood as a catalyst of the human perception of space and its material, sensory qualities.[36] Landscape is a dynamic system of natural and societal processes,[37] and any part of any landscape is affected by and affects the larger physical and immaterial contexts.[38] Most of all, this means that any design response to any landscape should not only aim to solve, give space and incite, but most of all to present a formal expression of previous and new transformations, perceptual qualities, processes at work and larger contexts.

Where the track now stands after ten years of development is neatly summarized in the information flyer on the Master track for prospective students: "The Landscape Architecture track looks for a site-specific balance between geometry and geomorphology, culture and nature, form and function. The track offers a two year educational trajectory in an academic setting of analysis, conceptualization, elaboration and verification. Students explore and train to become experts in spatial composition of natural and artificial materials in outdoor spaces, through all levels of scale. The curriculum's content emphasizes the continuity and transformation of

35 See micro essay 'Palimpsest', p 130

36 See micro essay 'Perceiving space', p 141

37 See micro essay 'Process', p 155

38 See micro essay 'Scale Continuum', p 167

landscape systems due to the interchange between natural processes and ongoing human intervention over time. This design attitude that we advocate covers an ever-growing societal need for mutual adaptation of systemic[39] characteristics and spatial quality."[40]

SdW, RvdV & IB

39
The systemic approach is defined as a new discipline which brings together theoretical, practical and methodological approaches relating to the study of what is recognized as too complex to be approached in a reductionist way and which poses the problems of borders, internal and external relationships, structures, laws or emerging properties characterizing the system as such, or the problems of mode of observation, representation, modelling or simulation of a complex totality. Gérard Donnadieu, Daniel Durand, Danièle Neel, Emmanuel Nunez and Lionel Saint-Pau, "The Systemic Approach: what is it all about? Synthesis of the work conducted by the AFSCET group "Dissemination of the systemic thinking" (2003). https://www.afscet.asso.fr/Archives/Systemic-Approach-eng.pdf

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"Information folder of LA track Faculty of Architecture and the Built Environment TU Delft," 2020.

WORK

A snapshot of landscape architecture education

An important ingredient in successful design education is identifying a number of more or less clearly defined stages in the design process. Together these describe how to narrow an initial wide range of possible approaches down to a single final proposal or outcome. This overview of ten years of advanced landscape architecture education shows at least five stages that we, as teachers, have always identified and which can be seen in the drawings made by our students. We call these stages exploring, understanding, conceptualizing, modifying and engineering the landscape. Ideally, completion of the five stages results in a contextualized and coherent design result.

The landscape design process – five steps to take

These five steps are interdependent. In their description we have combined generic terms from design theory with specific elements of landscape architecture as a creative and environmentally inspired discipline. The framing of the landscape architecture design process as a play with five acts suggests a linear learning curve. But of course, intermediate findings, preliminary conclusions, unexpected knowledge gaps and corrective shortcuts influence the order and internal consistency of the design trajectory. A typical process is full of iterations.

Exploring landscape

Before preparing any spatial modification, landscape architects have to become familiar with the phenomena and characteristics of an existing terrain or territory. Taking the spatial setting, daily atmosphere and local context seriously is a prerequisite for all landscape design. There are many ways to become acquainted with a specific topography and marvel at its human and non-human inhabitants, but they should always be live on site, unbiased and done at least twice. First and second impressions should be photographed or filmed, hand-sketched or otherwise reported or collected.

Understanding landscape

If you do not understand the landscape, you will not be able to make appropriate interventions. Understanding means looking beyond first impressions and fully grasping the underlying systems, functionality and spatial parameters, as well as the ecological, geological and sociological mechanisms over time. Looking behind the scenes enables the designer to (literally) draw and visualize conclusions on the environmental potential and impediments. In this stage, the qualities of the landscape are synthesized and explained using data and expertise; it is when quantitative notions and facts join the more subjective interpretations of a territory.

Conceptualizing landscape

Any planned and designed interference with the landscape involves interplay between a set of technical or social requirements and the essential qualities of a given site. In this stage, the landscape architect actively interprets the given design brief and creatively selects appropriate landscape components with which to situate the intervention. Conceptualization is the art of reduction, convergence and professional appropriation. A landscape concept will, by definition, have a personal touch that can be graphically summarized in a logo or diagram.

Modifying landscape

The landscape plan is a visualized proposal to guide a spatial transformation. Depending on the level of complexity and comprehensiveness, the plan should provide insight into what is to remain intact and what will be changed in order to create a better condition for future development. A good landscape design highlights physical alterations, adaptations and additions. It can be accompanied by a series of images that illustrate the decisive arguments behind the proposal and its added value for people and planet. Modifying any appreciated landscape requires optimism, persistence and tact.

Engineering landscape

A crucial aspect of landscape architecture is the capacity to elaborate a design into material terms and engineering activity. In this stage, planning meets operation: the pudding is prepared to be eaten. Technical feasibility, quantitative dimensions and sustainable execution are the criteria of landscape engineering. Drawings include sections showing alignments and proportions, with schemes that explain the proposed result after completion. Good engineering is based on experience, know-how and craftsmanship, takes ownership and maintenance into account, and anticipates the effects of growth and use.

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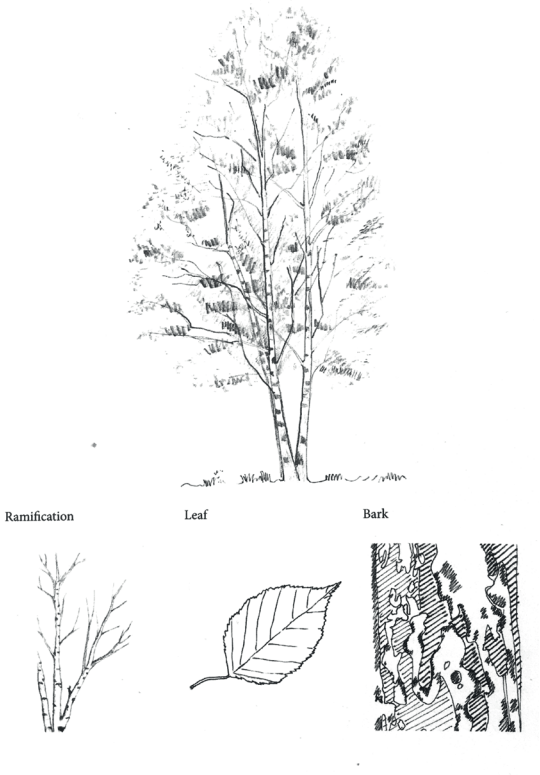
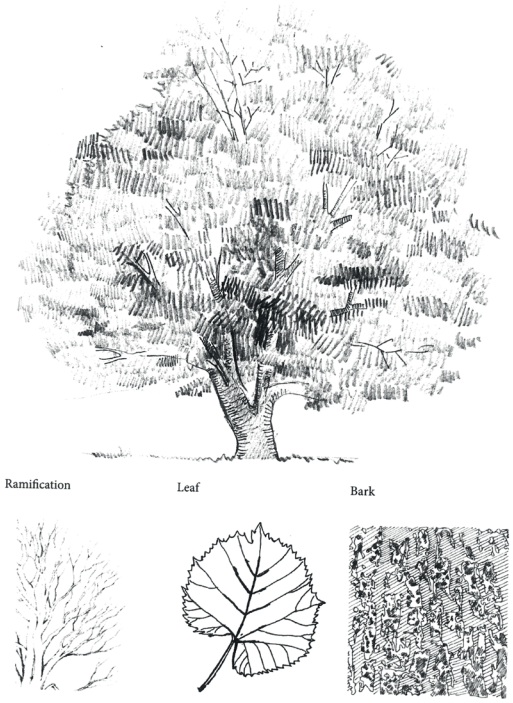
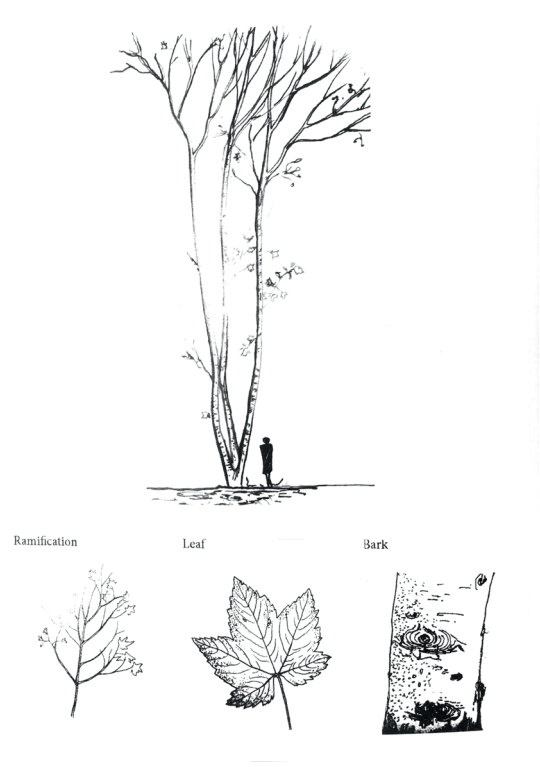
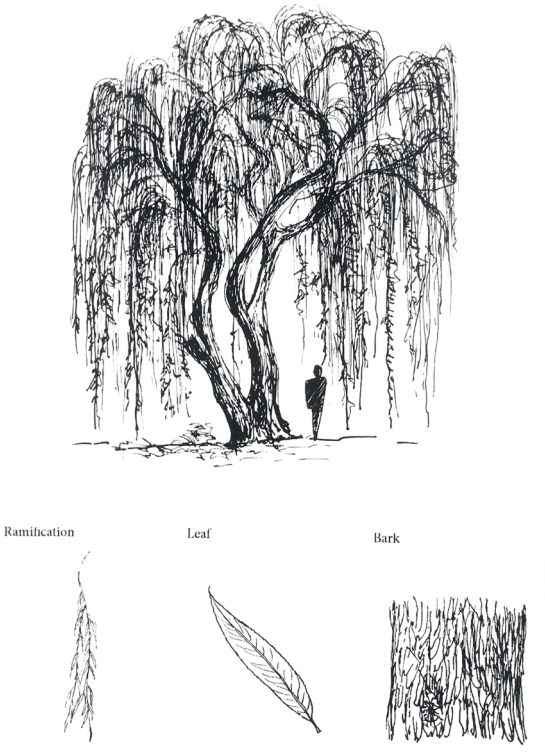


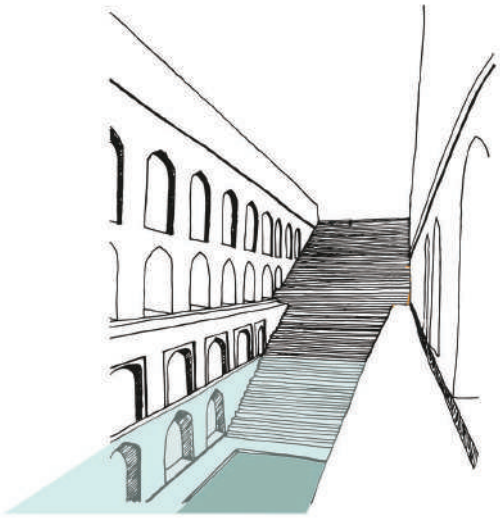
Tilia tomentosa

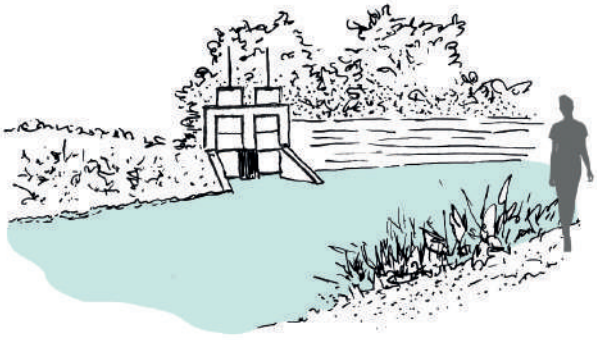


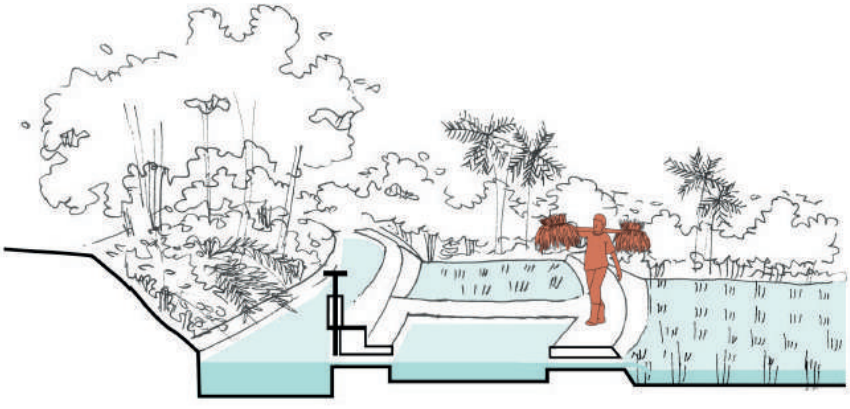




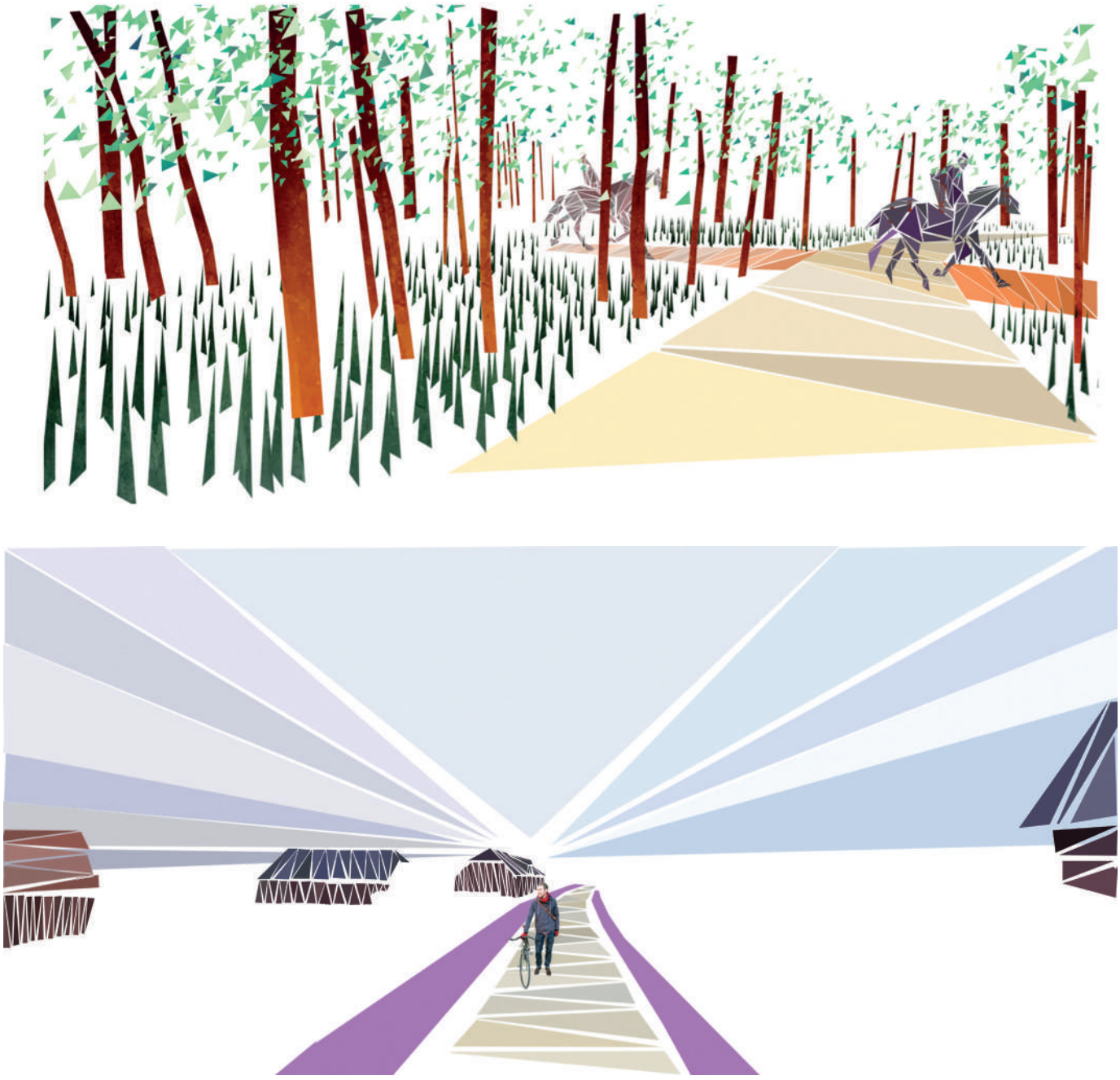
Tree Architecture
Drawing is used to explore the spatial characteristics of trees: overall form, branch structure, leafs and bark: *Betula pubescens (1), Tilia tomentosa (2), Acer pseudoplatanus (3), Salix x sepulchralis 'Chrysocoma' (4).*



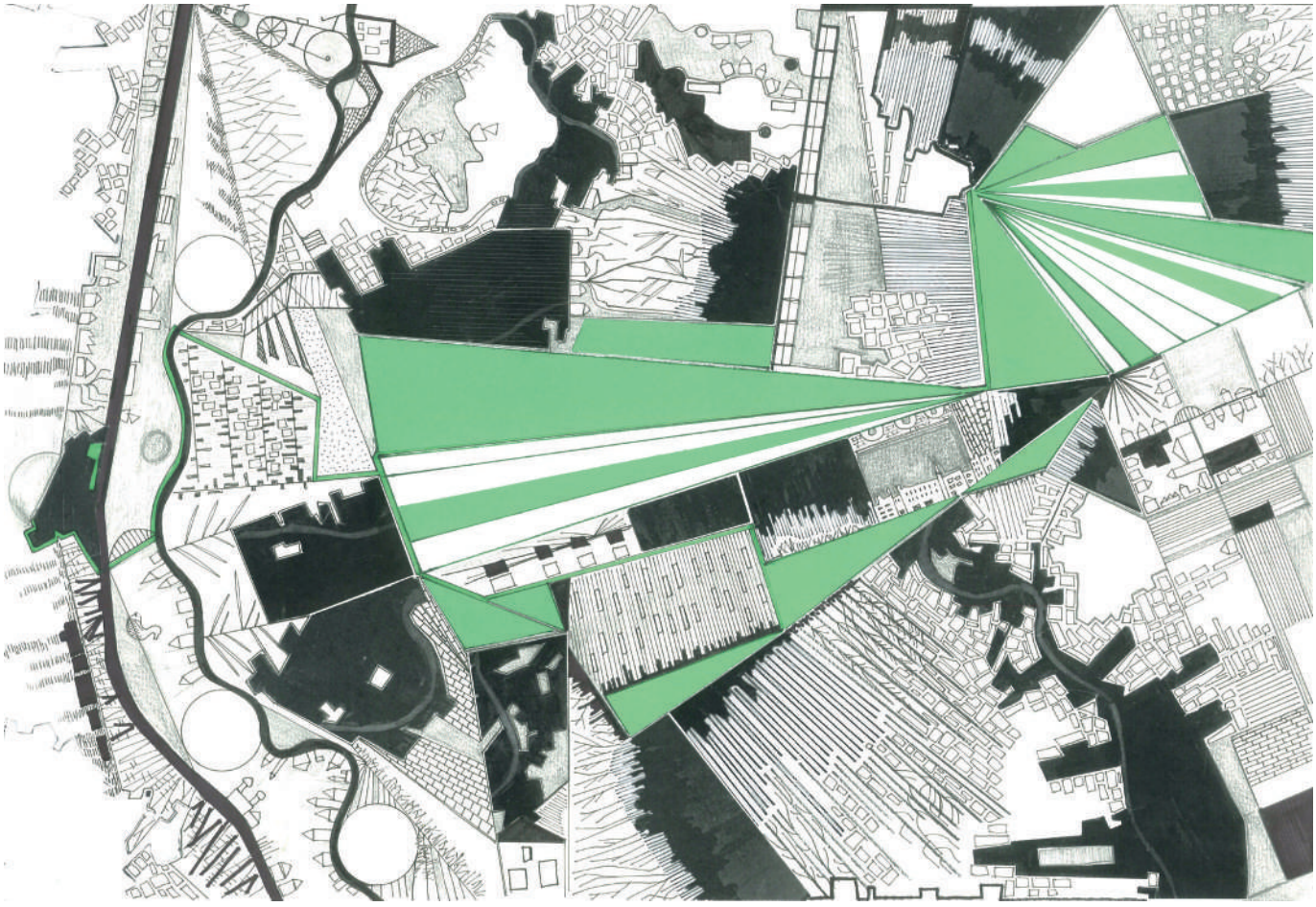




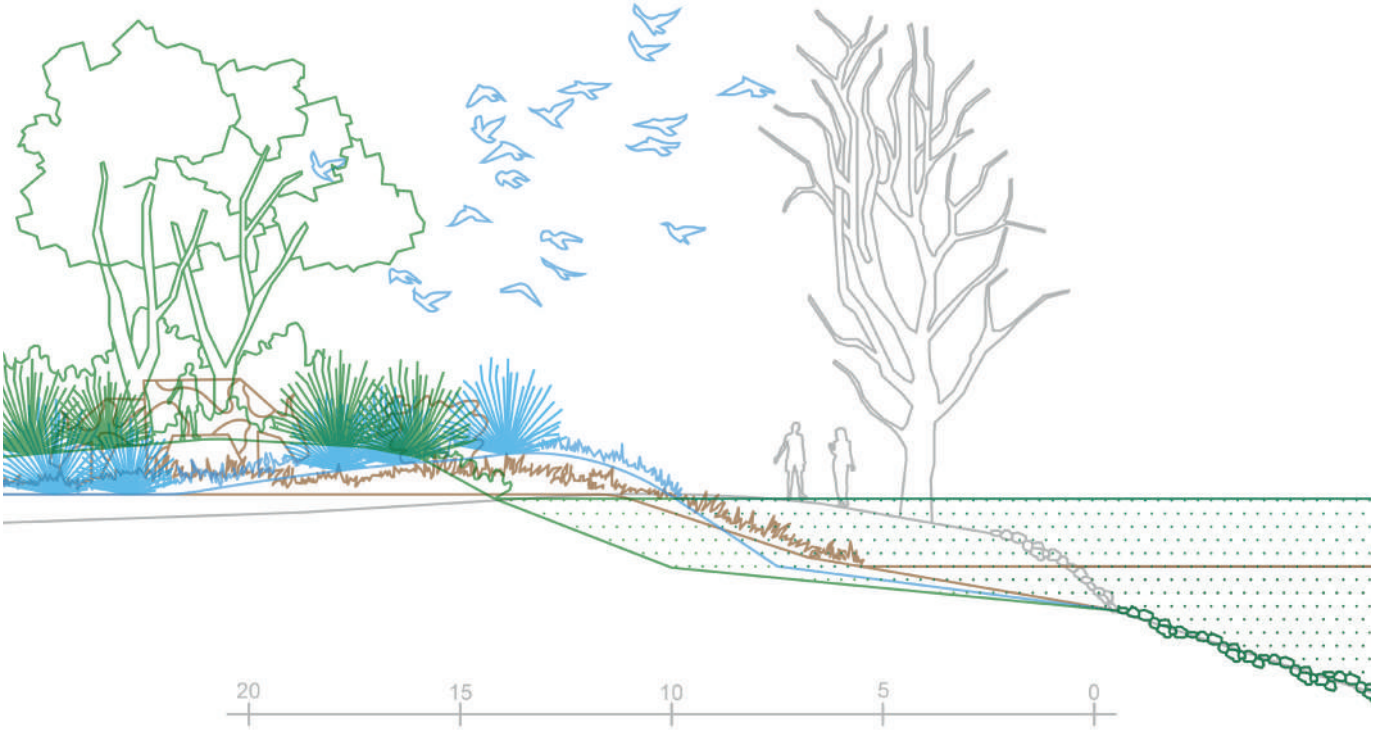
Traditional Water Systems
Illustrations of five different sites: Monstra D'Acqua (fountain), Rome, Italy (1). Baoli (stepwell), India (2), fish trap, Gunditjmara, Australia (3), Pän (sluice), Ksôkong Tsùn, Taiwan (4), Solokan (irrigation channel), Kampung Naga, Indonesia (5).

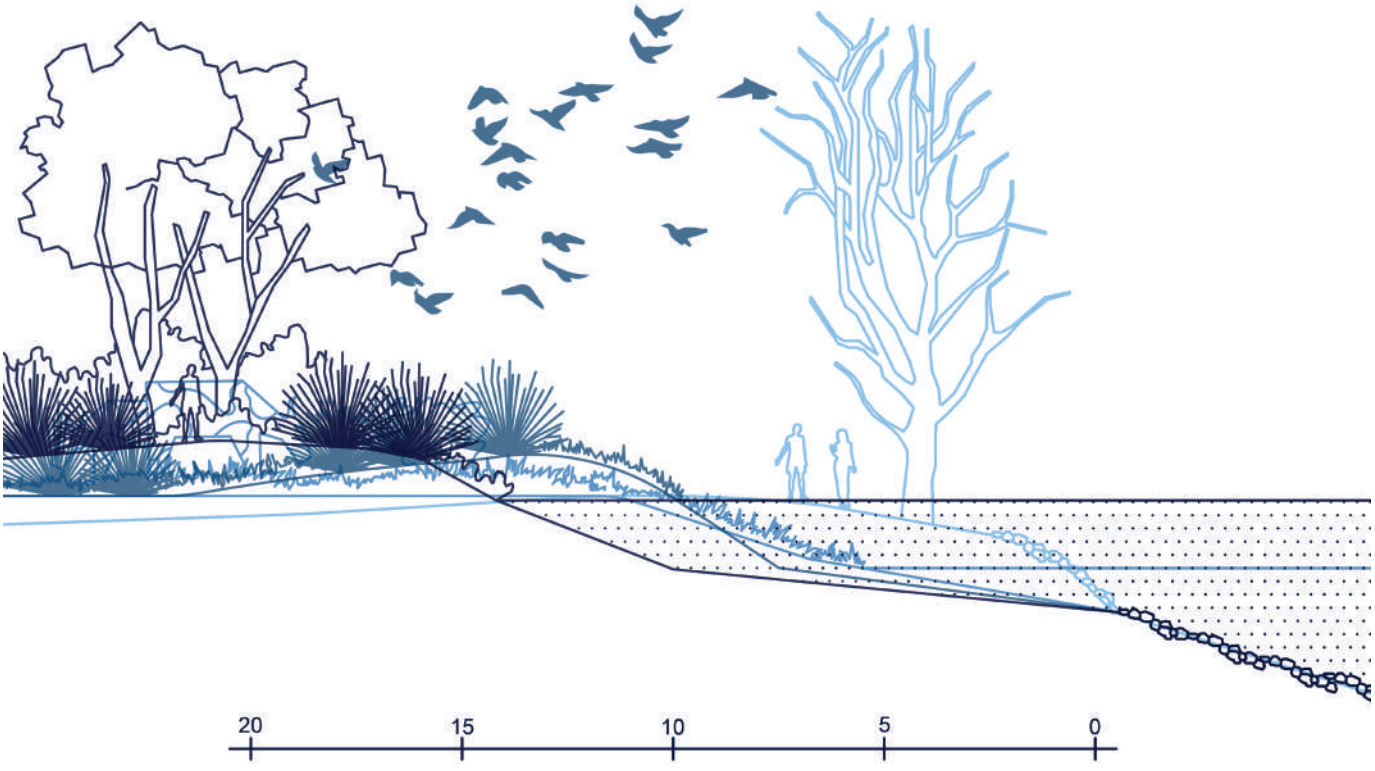


Mixed media representation
Abstract graphic representation of landscape characteristics and multiple use: horseback-riding in a forest, biking through the farmland (project: 'Mixscapes').



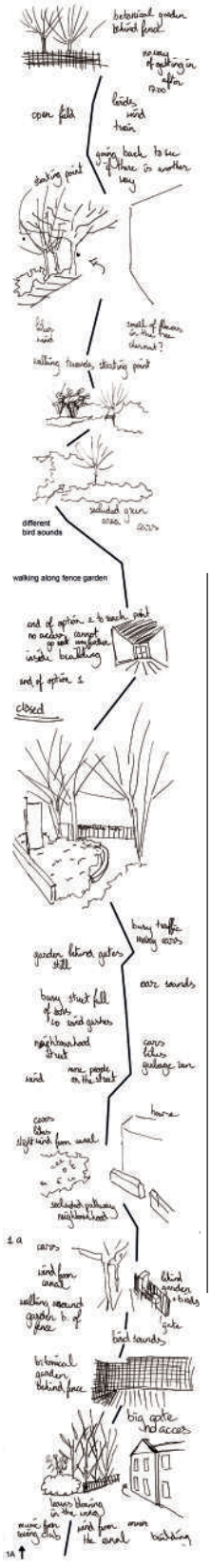
Experimental mapping
Two different techniques: assemblage of landscape patterns in different layers (1) and adding colors to highlight similarities (2).

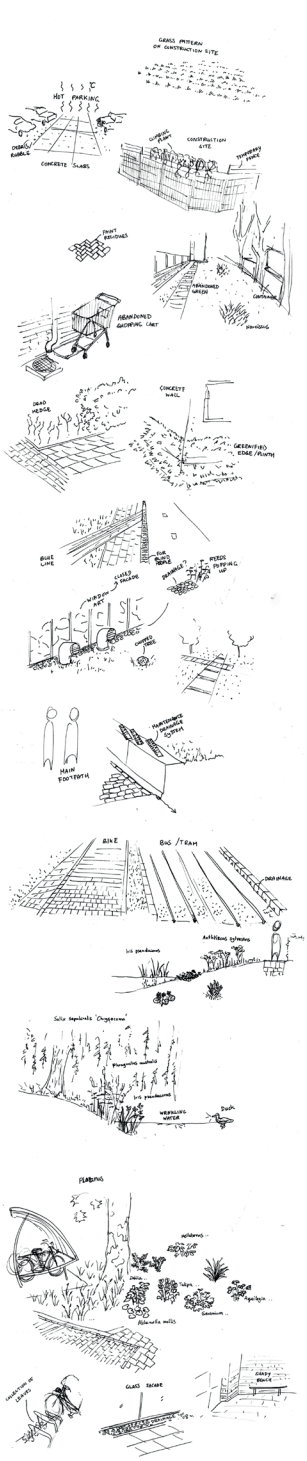


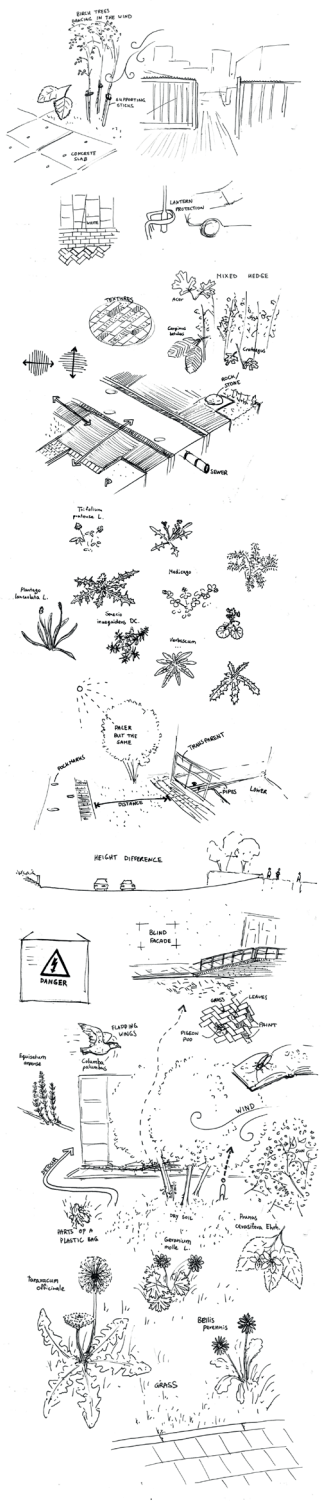


Explanatory sections of river dynamics
Stages of natural succession and hydrological conditions drawn with different colors. Application of shades of one color express time lapse.

Influences on the landscape over time
Layered see-through model showing the changes in the course of the river and physical manipulations by different actors in the landscape around the city of 's-Hertogenbosch.







Walking the landscape
Four individual walks, following a more or less straight line; a method to collect and note observations that together describe the character of an assigned site.

Aesthetics

Since the relationship between people and landscape is at the core of landscape architecture, the aesthetic dimension is strongly emphasized throughout the Landscape Architecture Master track. Students are encouraged to create aesthetic spatial compositions, not in the sense of beautiful images (pleasing to the eye), but in the sense of immersive spaces that invite a bodily response and full engagement, spaces that affect us in the moment because we come into visceral and immediate contact with them.

The 18th century philosopher Alexander Baumgarten introduced the concept of aesthetics, a word derived from the Greek *aesthesis* [sensation].[1] In its original meaning aesthetics had primarily to do with perception, and sense perception was superior to the cognitive power of reason. However, Baumgarten's emphasis on the sensuous disposition was quickly replaced by a taxonomy of 'the five arts' – architecture, sculpture, painting, music and poetry – the scope and criteria of which were delimited in terms of a dualism of vision and hearing. In his *Critique of Judgment* (1790) Immanuel Kant replaced this dualism of vision and hearing with a division into the arts of space and the arts of time and divorced aesthetics from perception altogether.[2] Following Kant's definition of aesthetics, the apparent objectivity of visual perception has become the standard, in as much that we scarcely even pay attention to any other perceptual paradigms. The methods of the natural sciences remained leading in the aesthetic evaluation of the environment and in the thinking about (landscape) architecture through most of the 20th century.

However, it is increasingly understood that the appearance of the designed landscape is more than a visual, stylistic or ornamental issue, but rather an "immersive, aesthetic experience [which] can lead to recognition, empathy, love, respect and care for the environment. ... The act of experiencing designed landscapes polysensually, over time, through and with the body, is not simply an act of pleasure, but possibly, one of transformation."[3] "The aesthetic dimension is not an optional add-on to managing the town and landscape as dynamic systems but an integral aspect. Aesthetics is not a matter of ornamentation but of creating experiences and spaces for social routines and spatially anchored activities. We are situated exactly at the interface of what is out there and our perception of it."[4]

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1. David Howes, *Empire of the Senses: The Sensual Culture Reader* (Oxford: Berg Publishers, 2005), 245.
2. Ibid., 245.
3. Elizabeth K. Meyer, "Sustaining Beauty. The Performance of Appearance." *Journal of Landscape Architecture*, no 3 (2008): 7–8.
4. Ellen Braae, *Beauty Redeemed: Recycling Post-Industrial Landscapes* (Risskov: Ikaros Press; Basel: Birkhäuser, 2015), 122.

Composition

The expression of design lies in the way different design themes or layers work together to form a meaningful whole. The designed composition integrates the different aspects (programmatic, physical, representational, technical or constructive) into a new coherence that allows and provokes reading and interpretation beyond the boundaries of the programme and the construction. The composition activates, as it were, the content: the material, topographical, technical, cultural and economic substance. In this sense, the composition determines the power of expression and forms the core of the landscape architectural design.[1]

According to the Oxford Dictionary, composition is not only "the different parts that something is made of; the way in which the different parts are organized," but also "the act of composing something," and the term has acquired the meaning of a creative process in which the artist creates a work of art from scratch and arranges his materials according to inner rules. Specific to landscape architectural composition as taught in Delft, however, is that it concerns not only the mutual relations of the parts to a whole, but also the relation of this whole, and of the parts, to the existing landscape. The landscape architectural composition takes place at the intersection of topography and internal logic. The playing off geometry and geomorphology, size and infinity, regularity and irregularity, pattern and process, art and nature, *otium* and *negotium*, monumentality and ambiguity, determines the character, the solidity and the wealth of interpretative possibilities of the composition.

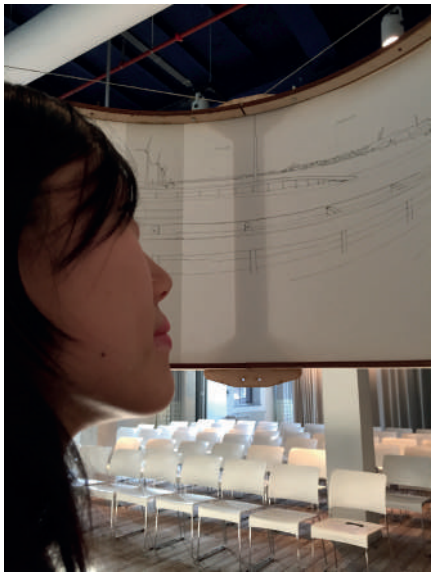
The relationship between situation and design, between *position* and *com-position*, involves the architectural manipulation of the formal (the shaping) versus the landscape (the underlying structure). In order to understand the characteristics of a landscape properly and to respond to them through design, one can subdivide landscapes into 'layers', in a way comparable to music. Music also consists of layers: the melody, the rhythm, the changes in volume and the interaction between the instruments. One layer may be more prominent than another, but they are all necessary to create a composition. A listener does not need to distinguish those separate layers but would notice it immediately if one were missing or not in keeping with the rest.[2] To create a landscape architectural composition, the landscape architect, like a composer, must be able to read and interpret those layers in order to make each layer of the design respond to the corresponding layer in the landscape.

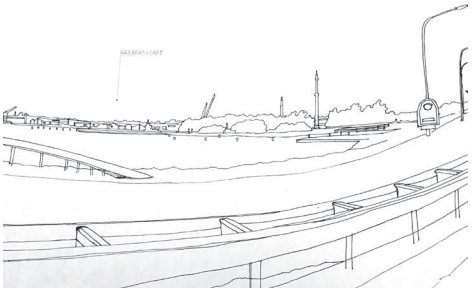
The different layers that constitute the formal characteristics of landscapes are the underlying structure of the topography, with its own directions, dimensions and hierarchies, the landscape space (between enclosure and horizon), the landscape images and corresponding atmospheres and materials (such as forest, sea, mountain, plain), and the functioning of the landscape, the social, technical and ecological operations. Correspondingly, four layers in a landscape architectural composition can be distinguished. In the layer of the *basic form* the interference between the plan and the geomorphology and topography of the site is rationalized and activated. *Spatial form* is about the architectural elaboration of three-dimensional landscape space, the visual-spatial relationships between the design and the panorama, between enclosure and horizon. The *image form* relates to the representation of nature and the relationship of nature and culture. The *programme form* deals with the spatial organization and interpretation of the programme.

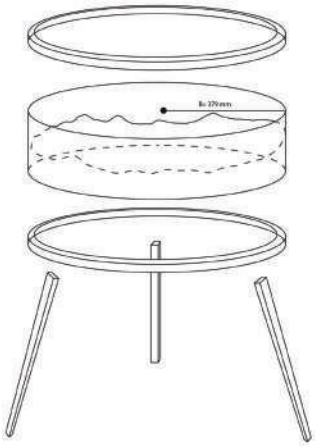
SdW

1. Clemens Steenbergen, *Composing Landscapes: Analysis, Typology and Experiments for Design* (Bussum: Uitgeverij Thoth, 2008), 14.

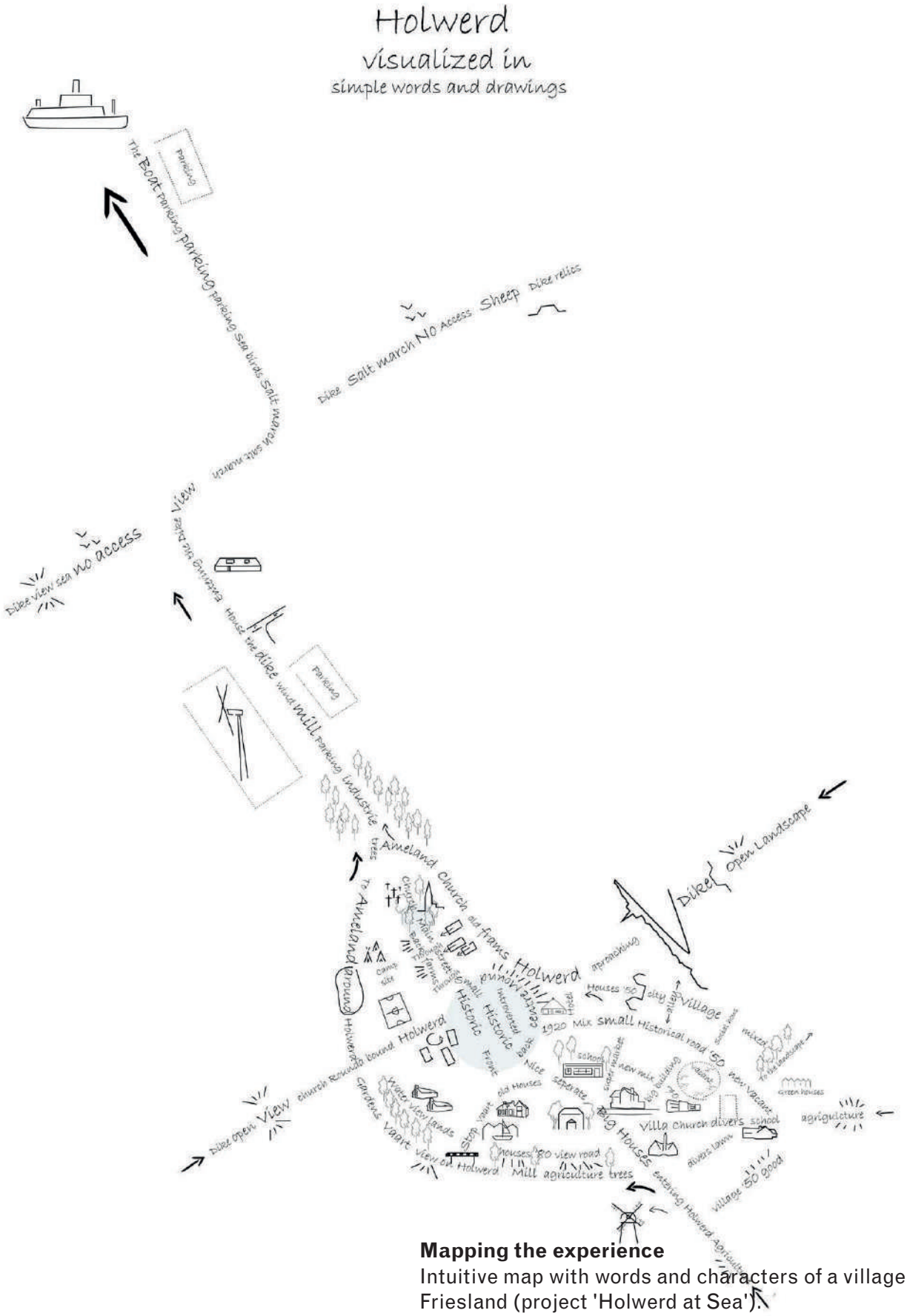
2. Saskia de Wit, "De Geest van de Plek," *Tuin en Landschap*, no 8A (2007): 8.





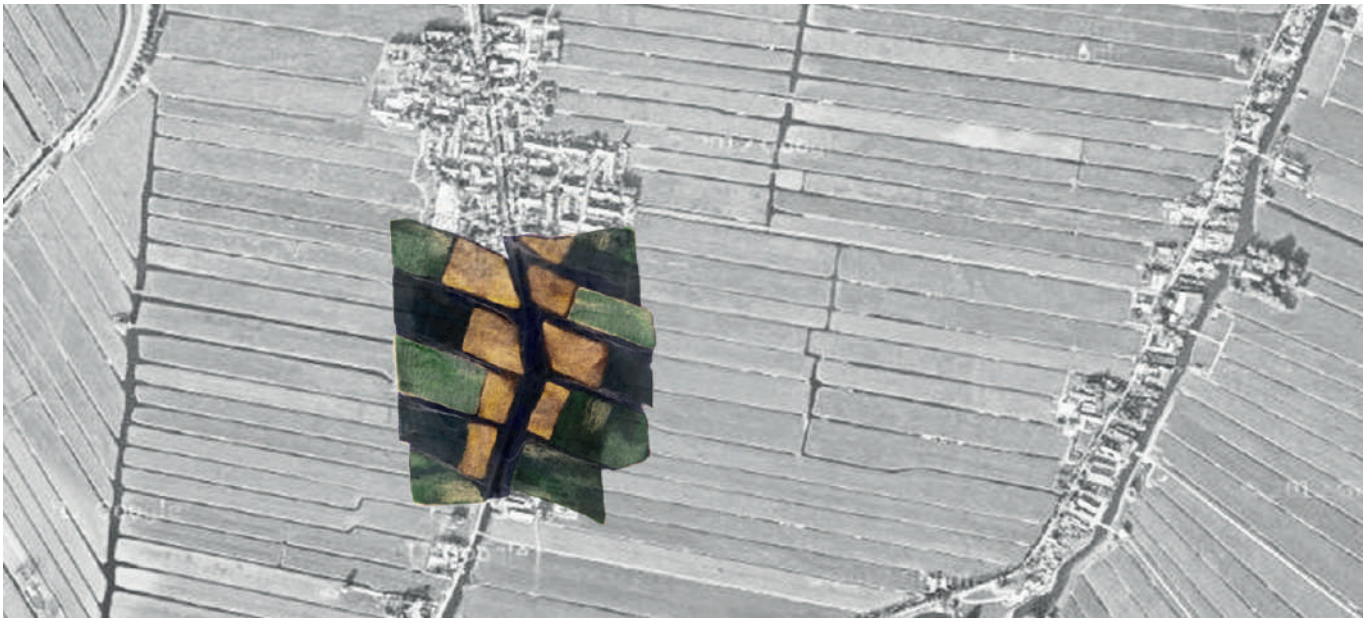


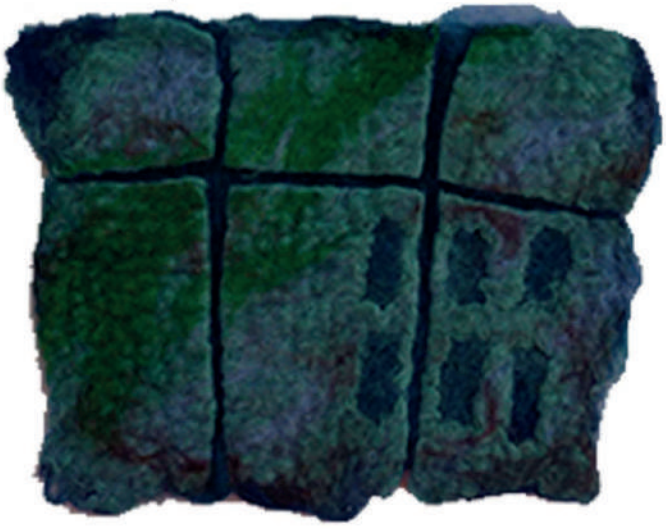
Three-dimensional panoramic installation
Exhibition device to experience the design for the Houtribdijk in the Dutch IJssel Lake, workshop 'Let's talk about water' (project: 'From infrastructure to flowscape').



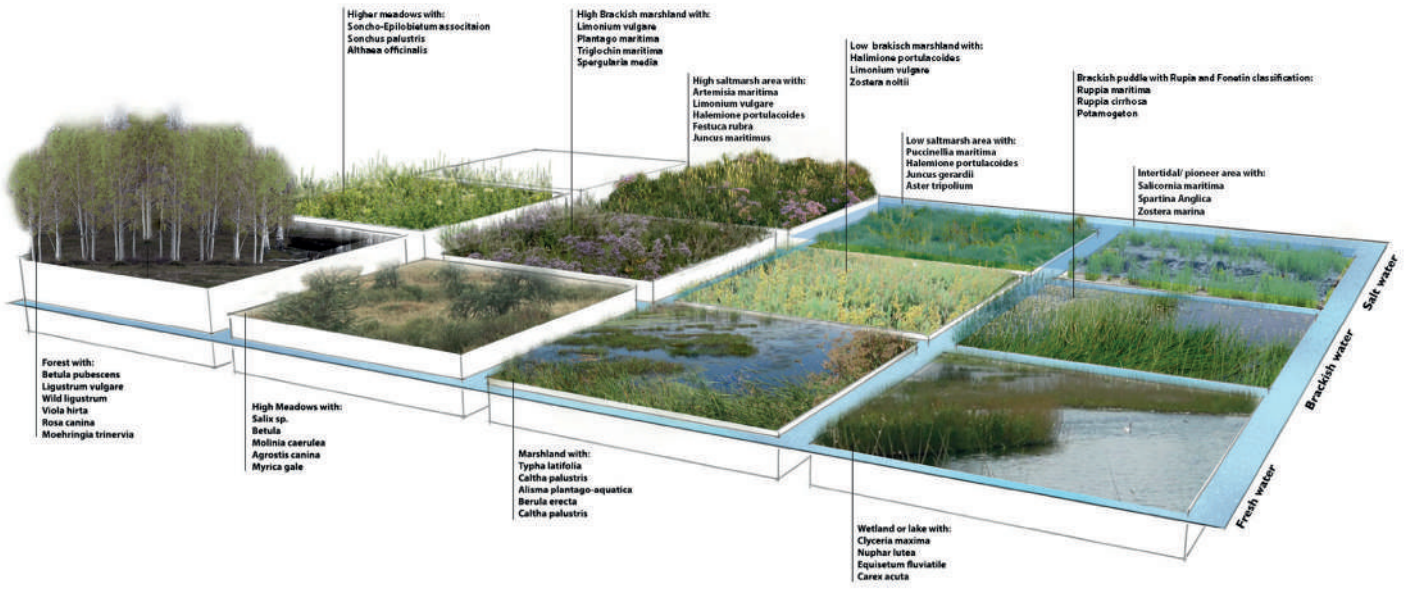
Mapping the experience
Intuitive map with words and characters of a village in Friesland (project 'Holwerd at Sea').

Hands-on landscape action
Activity on a sandy beach: drawing traces with natural materials (workshop during the Oerol festival on the island of Terschelling).

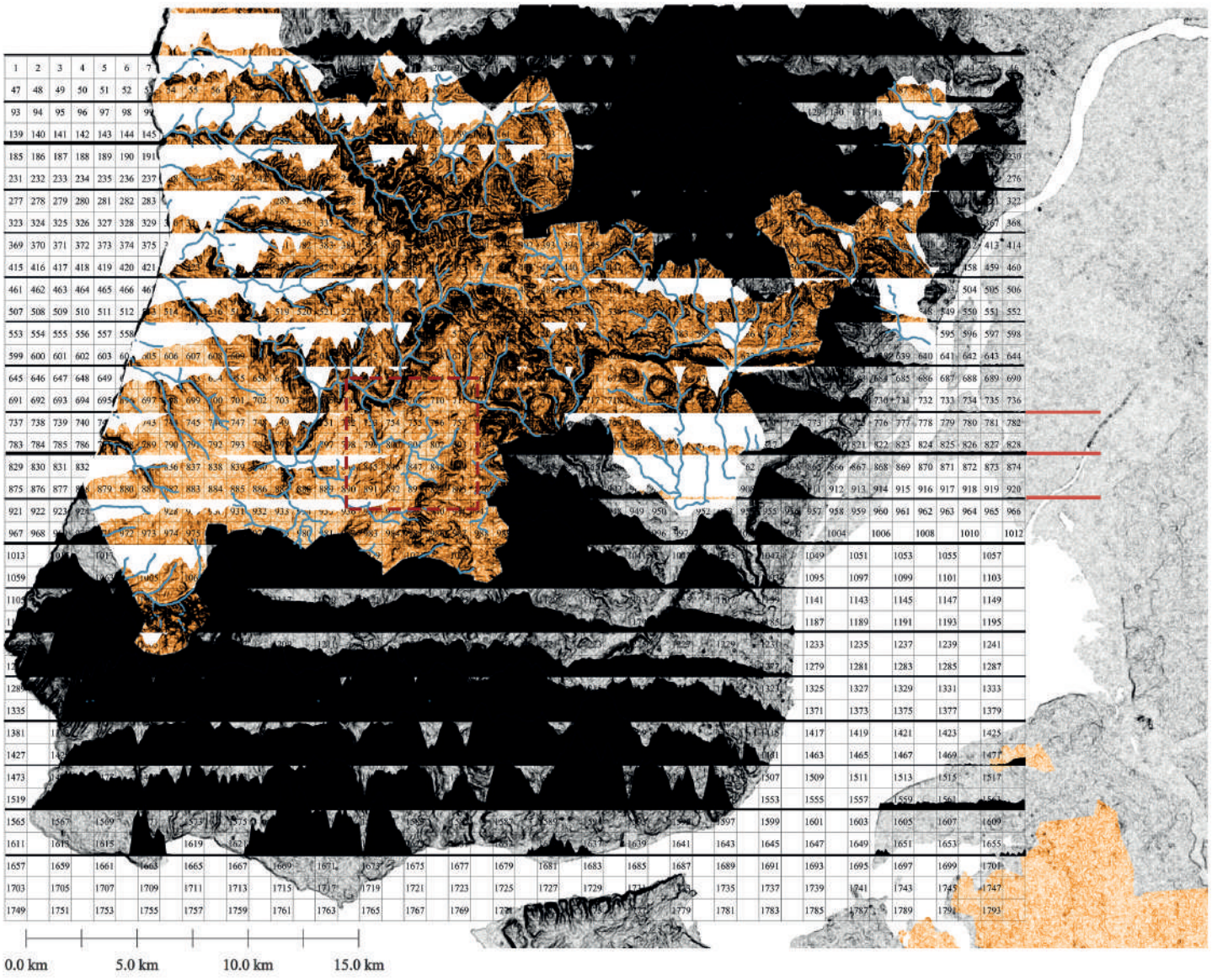




Peat is felt – felt is peat
Felt is like peat, a material which is soft and expands when absorbing water and shrinks when letting out water. Felt experiment with a focus on shape and with a focus on textures. Collage of felt experiment combined with the map.



Overview of ecological conditions
A habitat matrix expressing vegetation characteristics in a salt-fresh water gradient in Friesland, based on work of VISTA Landscape Architects.

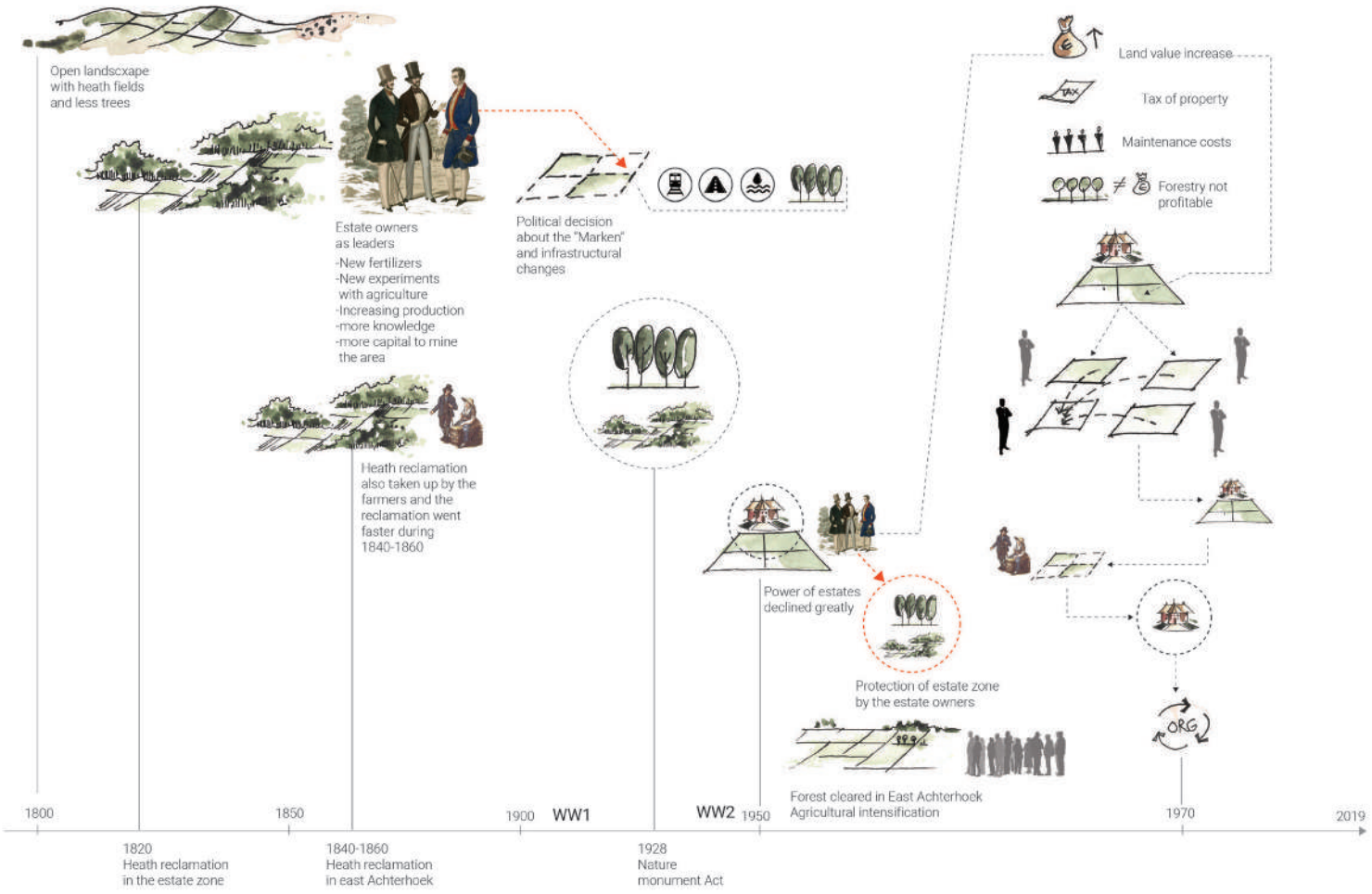


Representation of landscape
Sectional analysis of slopes, waterways, soil type and land use (agricultural mosaic, urban structure, forest areas) to describe the social-ecological and morphological relationships in the Lisbon area (project: 'The landscape in the gradient').

Flowscapes studio, Antonis Athanasiou, 2017/18

Sectional representation of landscape development vision
Components of a new cultural landscape. Sectional representation of the transitional areas: location of vineyards, strengthening ecological corridors, recreational path structure and forest patches (project: 'The landscape in the gradient').

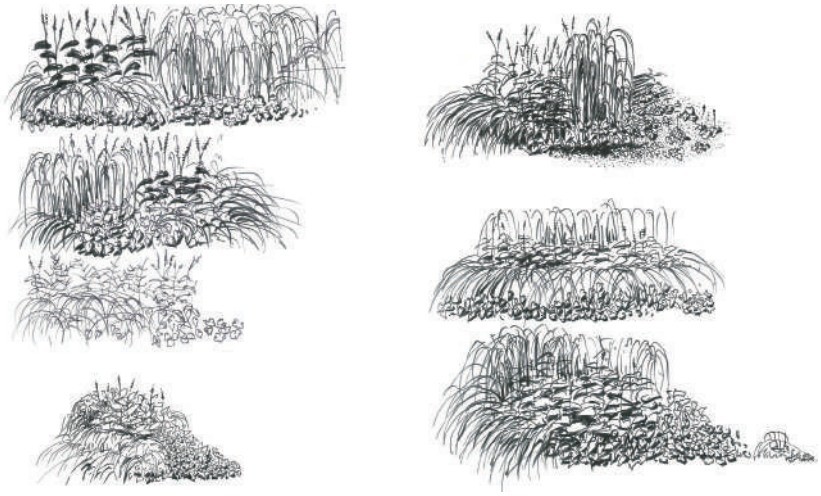
Flowscapes studio, Antonis Athanasiou, 2017/18



Schematic landscape biography
A graphic timeline depicting 200 years of political, social and economic power shifts in the Dutch Achterhoek landscape (project: '(Re)exploring the value of productive landscape and its link to the heritage estates, Netherlands').

Flowscapes studio, Gardens of Gelderland lab, Alia Shahed, 2019/20

Representation of landscape changing over time
Layered pop-up of a historical sequence of an estate landscape near the city of Breda, Netherlands.



Investigation of plant characteristics
Drawings of different textures for a garden construction at the Center of the Gardens of Mien Ruys, Netherlands.

Drawing time

Drawing time is essential to landscape architects, since they create projects using natural materials which change in size, form, structure, colour and components over time. Time includes growth, change or dynamics, compilations, and so on. It refers to cyclical processes in a landscape context, such as the day and night rhythm, the tidal change and the seasons, and progressive changes like tree growth, succession, sedimentation, demolition and erosion. Time expresses very short durations (minutes) and very long durations (centuries), repetitive and predictable happenings like the yearly flourishing of the tulip fields, rare events such as floods, and earthquakes. Many, if not all, aspects of the landscape are touched by, or subject to, these different manifestations of time. Time is one of the primary keys for unlocking the meaning of landscape. Teaching the representation of time and understanding its possibilities for stirring the design is therefore a vital part of an education in landscape architecture. That is why the Landscape Architecture Master track addresses how to represent time, especially in drawings and models, because they are our primary communication tools and used as inputs for design. As Corner puts it, "Sowing the seeds of future possibilities, staging the ground for both uncertainty and promise."[1]

Using a series of drawings to analyse the past and show time is a standard method in design courses. Another type of time drawing represents future developments step by step, mainly looking fifty years ahead and often done almost mechanically by adding elements to the plan, showing the growth of trees and the changes in space. However, it is possible to give a more critical role to time drawings by underpinning the shift of existing components over time and discovering different paths to the future, which often hold unforeseen discoveries. The ability to generate open-ended suggestions might be the most innovative aspect of drawing time. This type of time drawings can be used as a research tool.

The research project Design for Change: Experimental Time-drawing in Practice was initiated in 2018 to investigate what type of drawings landscape architecture practices use and how they include the time dimension in their work.[2] Students worked on projects provided by practices, experimenting with how the projects could enhance the expression and communication of temporalities. Different methods of drawing time were explored: series of plans and sections, toolboxes incorporated into flow charts, if then diagrams, films, flipbooks and others. Analysis of the output showed that these drawings addressed different goals. Some drawings were about exploring drawing techniques, striving to find ways to communicate changes over time in a straightforward manner; others were more about research, inspired by the time drawings, resulting in suggestions for adaptation and modifications. Both outcomes are vital since they put time on the table as one of the most critical aspects of landscape design, which is not self-evident to clients since they are often largely unaware of the impact of time on the landscape. By drawing time, the expert (landscape architect) can better inform the client and create awareness of long-term thinking, opening pathways to more inclusive, sustainable landscapes.

A brief review of the work produced during the ten years of the Landscape Architecture Master track revealed that time drawing as part of the design process has been given more attention over the last two years. We are looking forward to developing this topic further.

IB

1. James Corner, "Terra Fluxus," in *The Landscape Urbanism Reader*, ed. Charles Waldheim (New York: Princeton Architectural Press, 2006).

2. Inge Bobbink and Noel van Dooren, *Design for Change,* NWO-KIEM research in collaboration with H+N+S and Karres & Brands (TU Delft, Landscape Architecture: 2020).

Ecology

Ecology studies the relationships between organisms and their environment (Encyclopaedia Britannica): these entail interactions both between organisms themselves and with their abiotic (non-living) environment, such as rock, soil, water and fallen leaves. In urban ecology the environment is the city where buildings and people are concentrated.[1]

Ecology is an important factor in landscape architecture because it is at the centre of natural, cultural and urban systems. Urban ecology is the main approach for building a framework for synergetic urban landscape planning, linking it to crucial issues like climate adaptation, circularity, food production and health.[2] At local level, understanding the ecology of a site helps the designer to assess whether a design intervention contributes to building a more liveable and sustainable environment, for people as well as other organisms. Shaping and designing environments can be approached on the systems, habitat and species levels.

Operating at the systems level in (urban) landscapes is mostly about understanding and steering different flows and/or metabolisms, and their mutual interrelations. For example, water extraction in one place might lead to drought and ecological degradation elsewhere. Intervening at the systems level by returning used and previously extracted water to the system has the potential to restore ecosystems in different areas and on a larger scale.

Operating at the habitat level is about intervening in the place where an organism or a community of organisms lives, including all living and non-living factors or conditions of the surrounding environment (Encyclopaedia Britannica). This provides interesting possibilities for ecologists and for landscape architects, such as shaping ponds and waterways, planting trees, provide maintenance plans and even small interventions. All of these can have a big effect. Nature-inclusive building or design focuses on things like adding bird or bat boxes, but is now moving towards providing the right habitats for a group of species. For a designer, the habitat is the spatial link to biodiversity, site-specific design and experience.

The third level is what is often referred to as 'nature-inclusive building or design'. Here, the focus is on the small scale, linking the habitat to the site and species particularity. At species level, sites are shaped or landscape interventions are made to trigger ecological processes that support desired natural developments. Mostly the design focuses on humans and beneficial species such as ornamental or fruit trees, trees for creating favourable conditions like shade, or edible plants, but the focus can also be on more optimal habitat conditions for other species. At any given site, the may be aim may be to increase biodiversity, which means increasing the variety of potential habitats, the number of species and genetic variety. Target species with many interdependencies, which are usually higher up the food web, require richer environments or ecosystems with different habitats.

Student assignments are about understanding a landscape or site. They are also about understanding the processes at work in landscape formation and about understanding the many different habitat conditions in the landscape or site. Additionally, they are about translating this understanding into design principles and, finally, into a site-specific spatial design intervention that not only benefits ecology, but also increases spatial quality and adds to the quality of spatial experiences.

NT

1. Richard T.T. Forman, *Urban Ecology: Science of Cities* (New York: Cambridge University Press, 2014).

2. Nico Tillie, "Synergetic Urban Landscape Planning in Rotterdam: Liveable Low-Carbon Cities," *A+ BE | Architecture and the Built Environment* 24 (2018): 59–62.

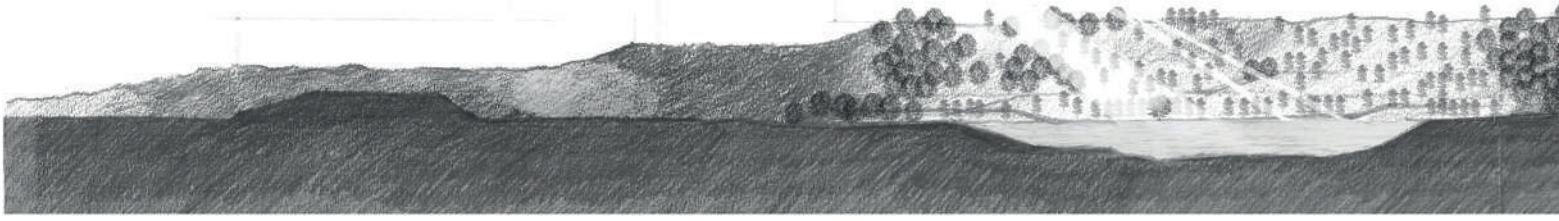
Tentative models of tree habitus
Modeling as a method to study spatial characteristics of different tree types.

Panorama analysis
Visual book and splice-map of panoramas between the intimate Gelderland estate landscape towards the open agricultural farmland of the East Achterhoek (project: 'Rejuvenating links: Estates & Hinterland').

Flowscapes studio, Gardens of Gelderland lab, Alia Shahed, 2019/20

Model making as a tool for communication
In a design game with strict rules the model was used in the city of Mostar to collect residents' ideas for redevelopment of a site (project: 'Enhancing the survival landscape').

Flowscapes studio, Neretva Recollection lab, Isabella Banfi, 2018/19



LIGHT & SHADOW
SEQUENCE DIAGRAM

SPATAIL SEQUENCE OF LANDSCAPE

1
Low Light Density
Tight Space with Dark forest.

Very Low Light Density : Enclose space

2
Medium Light Density : Water reflection / Open scape.
Open Space with Lake / Terrace / Forest.

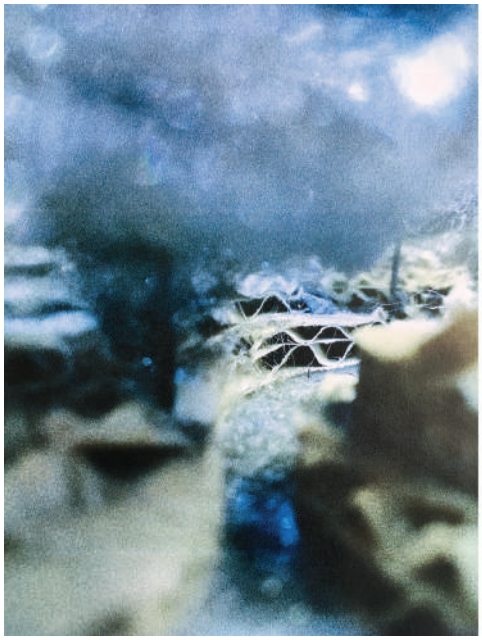
Analytical section and model-making
Section (1) of a quarry supporting a design that focuses on the experience of light and shadow. Model (2) of designed routing and building in the quarry (project: 'Landscape design in the quarry 't Rooth').

TRANSITION OF LIGHT

SECTION DIAGRAM scale 1:750

Very Low Light Density
Enclose space for Entering main scape.

3
High Light Density : Open scape / Small Mountain.
Bright Open Space with variation of Light.

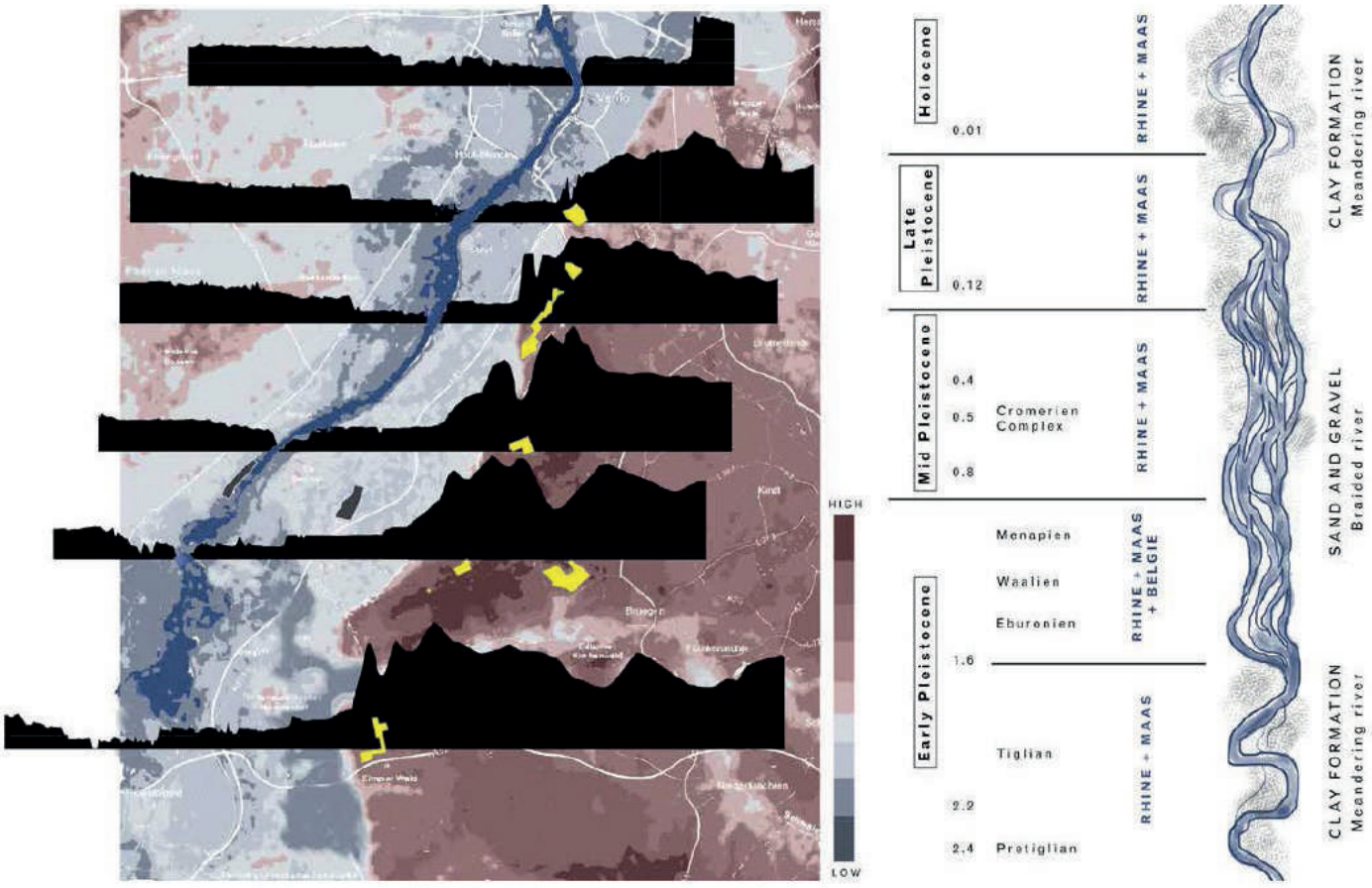


Modeling spatial effects
Elaborating the design for a quarry by exploring the spatial effect of different planting arrangements (project: 'Landscape design in the quarry 't Rooth').

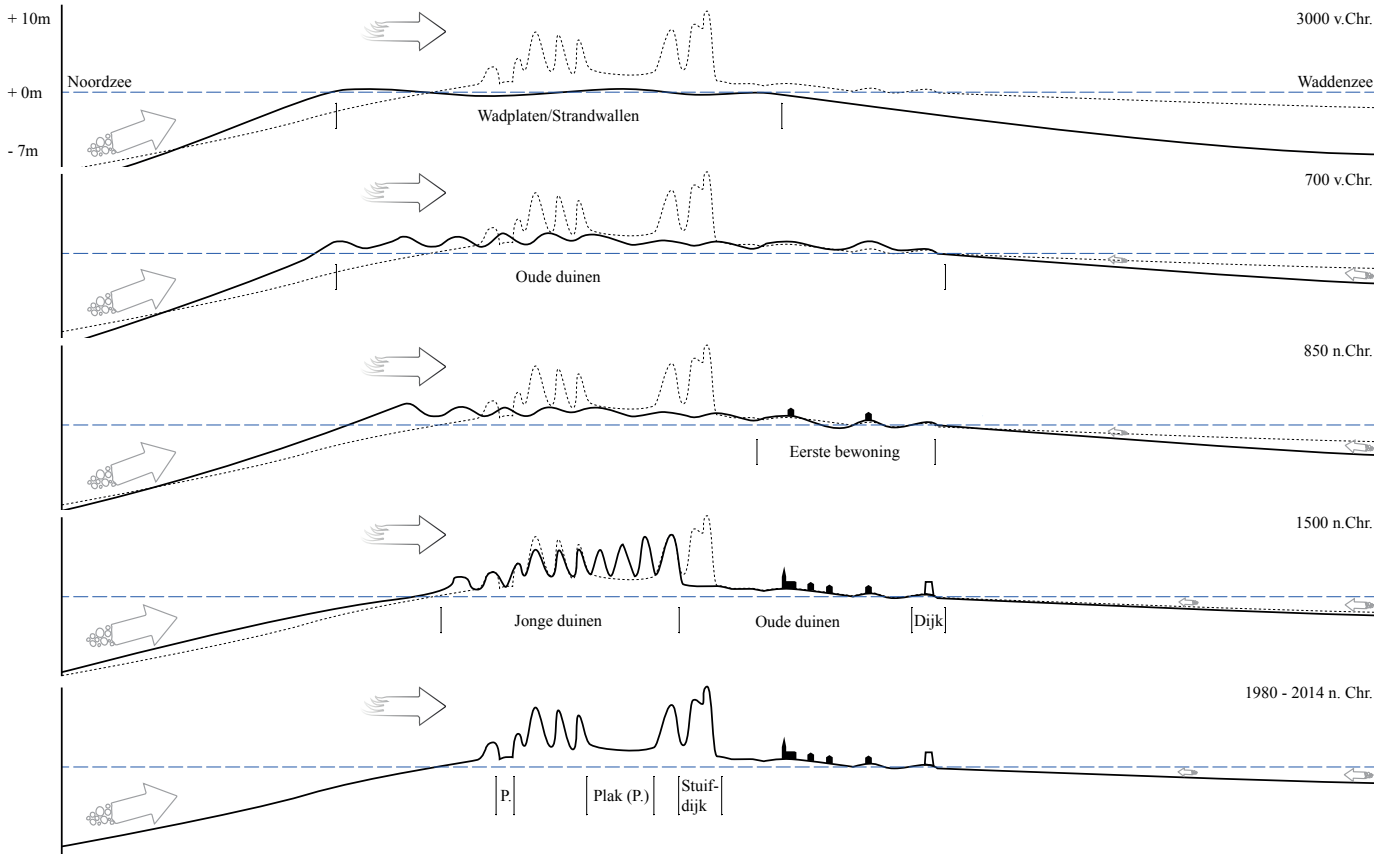
Visualisation of sedimentation process
Analysis of tidal land-water dynamics in the Dutch Wadden Sea.

Figure 64: Experiental test on Kijkduin

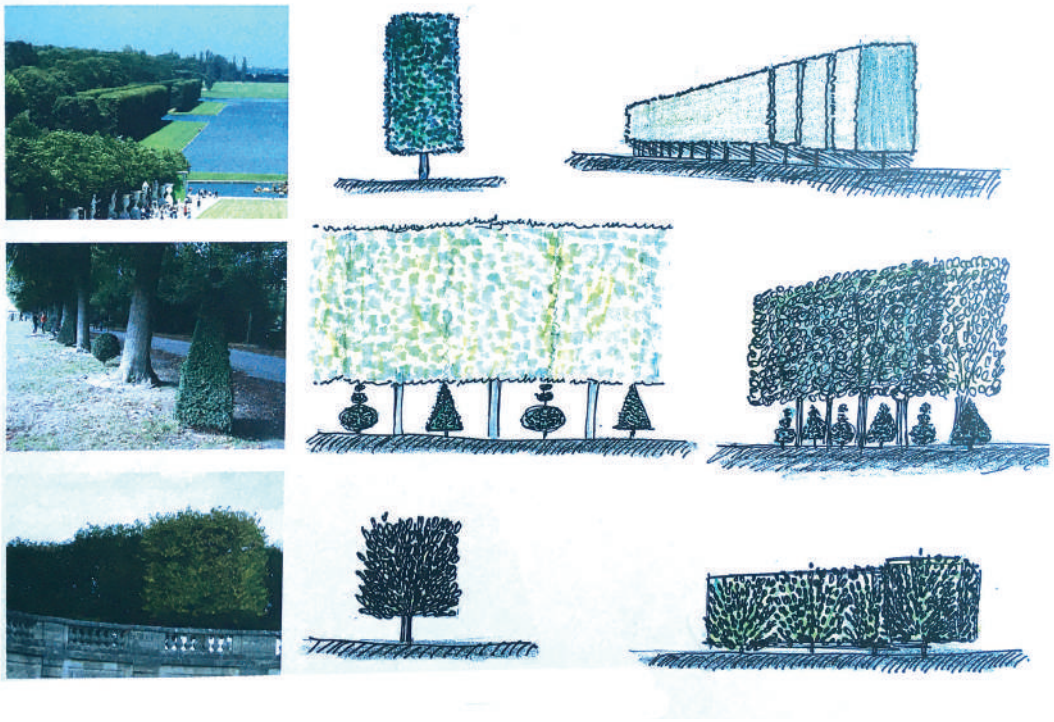
Test installation on the beach
Real life model to figure out how built elements influence the sedimentation process (project: 'From infrastructure to flowscape').



Analytical map and sections
Understanding landscape relationships by sections and map overlay (project: 'Machine made landscapes').

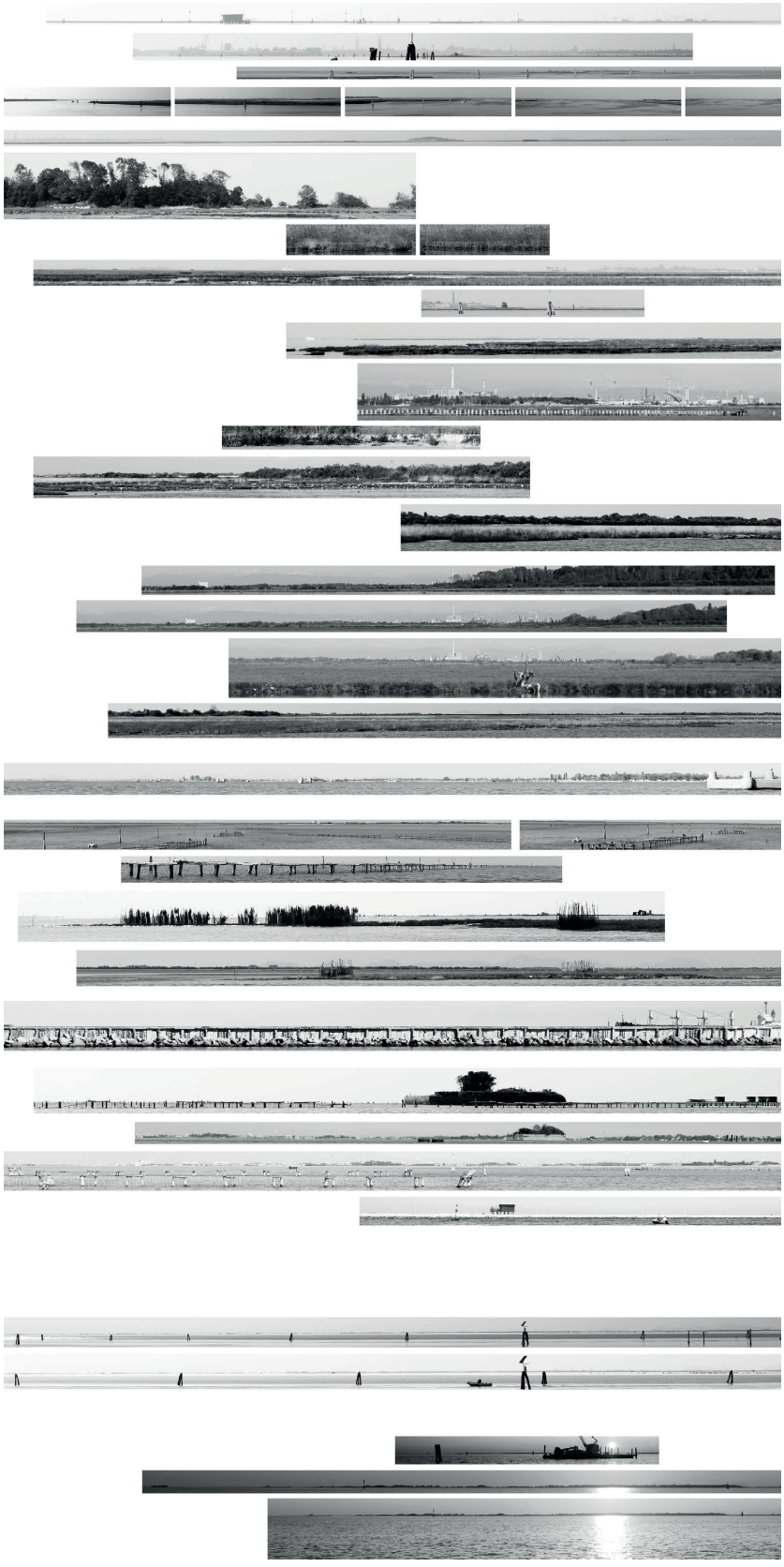


Explanatory geological sections
Series of drawings showing the formation of Terschelling, an island in the Wadden Sea, spanning 5000 years (project: 'Institute of Time Taking (IoTT), Oerol Festival').



Tree arrangement studies
Photographs and drawings based on various site visits.

Three-dimensional illustrations
Role, shape and configurations of trees in the urban area alongside the former peat river Rotte in Rotterdam.



Landscape photography and collage
Series of long horizons captured during a site visit in the Venetian lagoon (project: 'The operating Venetian lagoon').

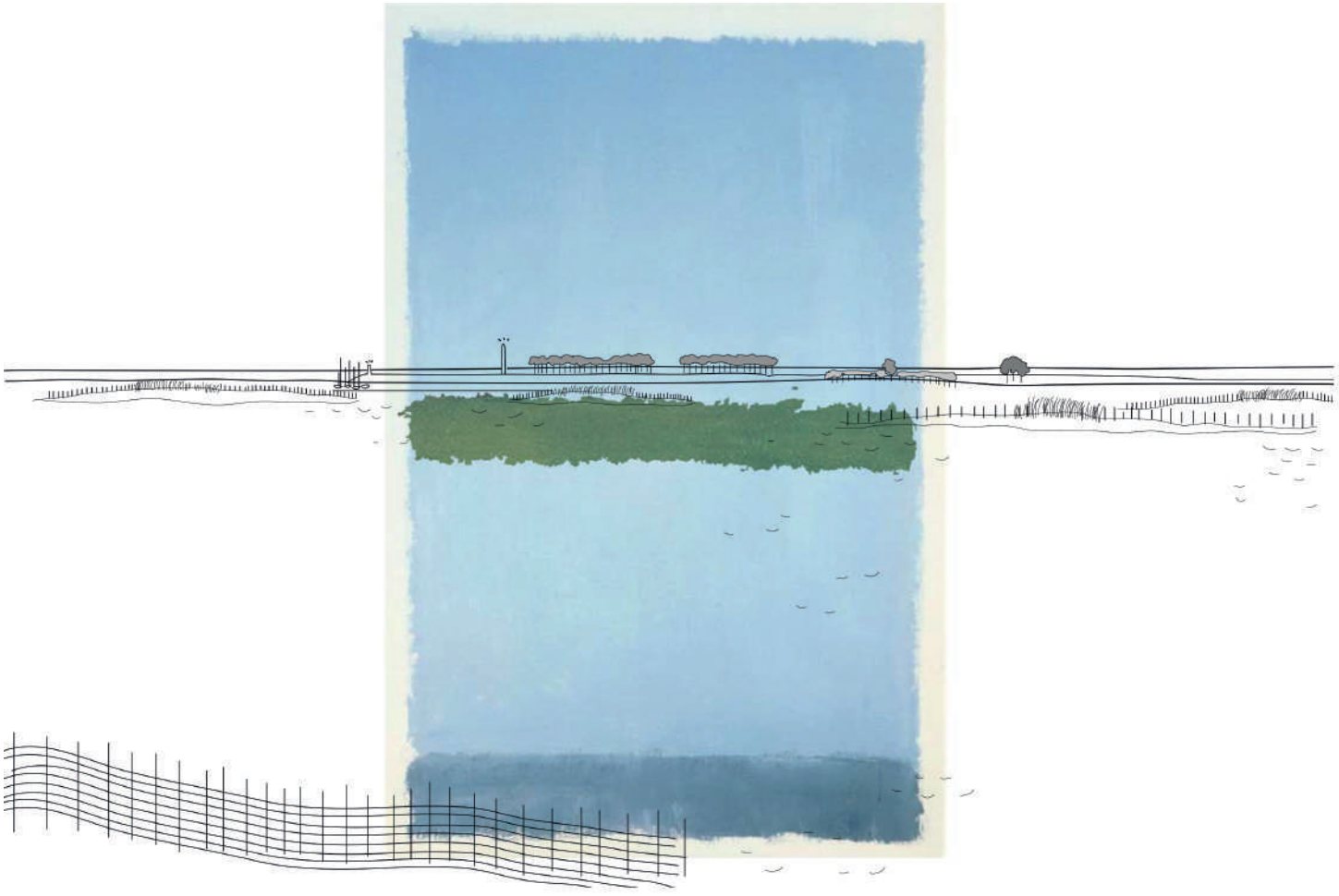


Figure 70: Marshland growth-high land with Mark Rothko horizon

Multi-dimensional representation of a design
Grasping the poetry of the design with mixed media (project: 'The Houtribdijk as an operative landscape structure').

On site viewing installation
Criticizing the visual disturbance of the ocean's horizon by vast fields of wind turbines (project: 'Vedute - a statement in book format').

Edges

Boundaries have an incredible impact on spatial planning, on society and ecology, both positive and negative. When designing landscapes, one of the most fundamental interventions is the demarcation, separation and connection of its parts, drawing a line that demarcates a boundary between public and private, inside and outside, wet and dry, a boundary that defines ownership, control, or lack of it. That line, however, is never two-dimensional, it has a thickness, it creates a space. How can it be given landscape architectural expression?

The experience of space is defined by the position and quality of the edges. "Edges are interlocking forms or places of transition that enclose and separate different spaces."[1] They can be places where people can orient themselves, places that offer shelter and psychological as well as physical protection. They differentiate a secure inside from an undefined outside and at the same time connect the inside to the outside. They create communication and separation, often having the role of a mediator and articulating both inside and outside.[2]

Boundaries in the landscape are rarely hard and usually porous, transparent, ambiguous; the matter they consist of is more or less porous, allowing us to look and move through them. In a landscape, we constantly cross boundaries and move from one space to another, and then again to the next. So a well-designed edge is a balancing act between definition and porosity. "Thinking about edges as physical and conceptual entities within landscapes provide the opportunity to be integrative, complex, rich and subtle in the design of spatial transitions. Edges 'knit' the fabric of the landscape together and connect architecture to landscape and vice versa. ... As thickened 'wall' planes, edges enclose and separate spaces as well as contain 'sub-spaces' within their form."[3]

Thresholds are specific components of edges that allow and invite transitions from one space to the next. "Thresholds have transitional and integrative functions that are similar to edges but are 'centred' spatial entities rather than linear forms, ... relatively small spaces which sit between larger spaces or between building and landscape. ...Thresholds are places of transition, and if well designed, places that help to integrate the physical landscape and the experience of it."[4]

It is at the physical edges of the designed intervention that the relationship between design and landscape becomes explicitly perceivable. Detailing and materializing the edge is about negotiating the relationship between a designed ensemble and the surrounding landscape. Therefore, one could say that the designed edge is the most direct expression of the landscape architectural intervention.

SdW

1. Catherine Dee, *Form and Fabric in Landscape Architecture: A Visual Introduction* (London and New York: Spon Press, 2001), 115.
2. Saskia de Wit, *Hidden Landscapes: The Metropolitan Garden as a Multi-sensory Expression of Place* (Amsterdam: Architectura & Natura, 2018), 397.
3. Dee, *Form and Fabric in Landscape Architecture*, 115, 123.
4. Ibid., 123, 169, 171.

Flowscapes

Flows can take many forms in the landscape, ranging from watercourses to roads and energy networks. These *flowscapes* can be regarded as operative landscape structures,[1] because they direct and facilitate spatial development, stimulate social and ecological interaction and establish the relationship between process and form, between 'flows' and 'scapes'. The notion of flowscapes can serve as an impetus to develop the concept of urban landscape infrastructures into a landscape architecture approach. This approach addresses the urban landscape as a layered and dynamic system in a designerly way and integrates different scales in space and time. Flowscapes open up new perspectives on strategic regional landscape design and local design interventions in at least three fields of application.

The first field of application focuses on *transport landscape infrastructures*. Here the design concentrates on flowscapes that facilitate different modes of transportation, energy supply, waste treatment and information dissemination and use the resulting structures to create socio-ecological inclusive landscapes. Considering these utilitarian systems as urban landscape infrastructures turns them into entities of multiple use that integrate technical, aesthetic and social values. These multimodal transportation systems then shape the conditions for urban development and offer opportunities for new types of public space. Typical design operations in this context are the planning and design of transit landscapes, shared spaces, multimodal nodes, transit-oriented development, harbour and brownfield transformation, and energy landscapes.

The second field of application takes *green landscape infrastructures* as a landscape architecture design assignment. These urban landscape infrastructures maintain and develop natural ecosystem values and, as a set of interconnected green space networks, provide associated social, economic and aesthetic benefits to humans. Green space structures can act as organizational structures for sprawling metropolitan areas, providing space for nature, leisure/recreation and cultural heritage. Food production and energy supply are becoming increasingly important as green landscape infrastructures. Typical design operations include the planning and designing of metropolitan park structures and agricultural urban landscapes, urban ecology and the protection of heritage landscapes.

The third field focuses on the design of *water landscape infrastructures.* Nature-based solutions provide the basis for developing multifunctional landscapes for flood protection, nature development and aqua agriculture in coastal lowlands and rivers, while sustainable water management, freshwater supply and circular wastewater treatment in urban environments provide opportunities to create urban landscape infrastructures that fulfil multiple needs. The application of traditional ecological knowledge and water management is vital in creating resilient water landscapes that adapt to their cultural and natural context. Typical operations include planning and designing multifunctional flood defence structures, river landscape modifications, aquatic landscape development, coastal and riparian habitats, urban water systems and waterfronts.

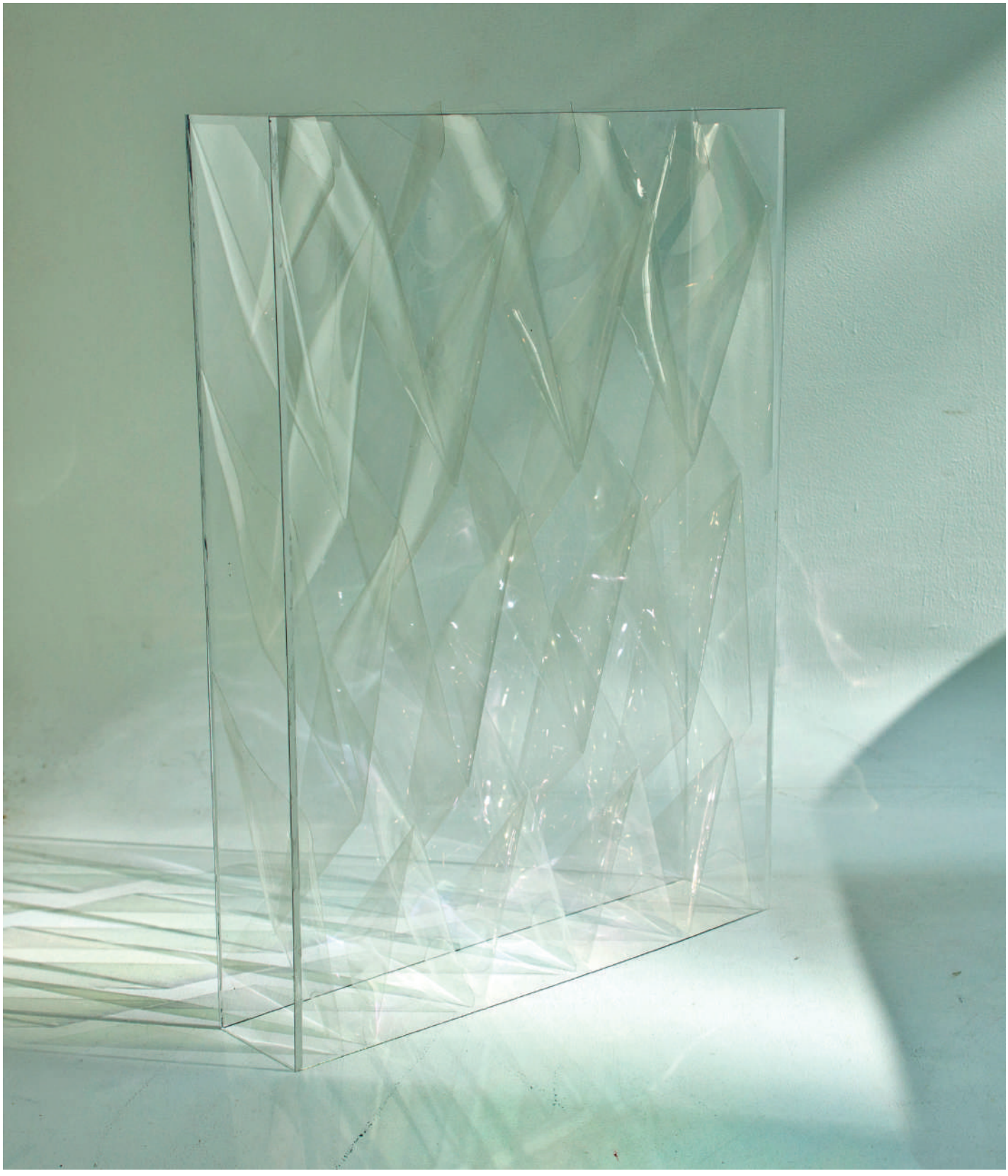
In the MSc Landscape Architecture Graduation Studio on Flowscapes, we employ research through design as a powerful synthesizing journey of discovery in which these three fields, and their combinations, can be tested and explored in depth. Design is the tool for drawing up possible spatial future hypotheses and sampling their local and regional consequences. Interdisciplinary design-based case studies at different scales give landscape architecture students a better understanding of the dynamic between social and ecological processes and typo-morphological aspects. These inquiries into flowscapes should reconcile the desire for economic growth with efforts to create a built environment that is more sustainable and socially and ecologically balanced.

SN

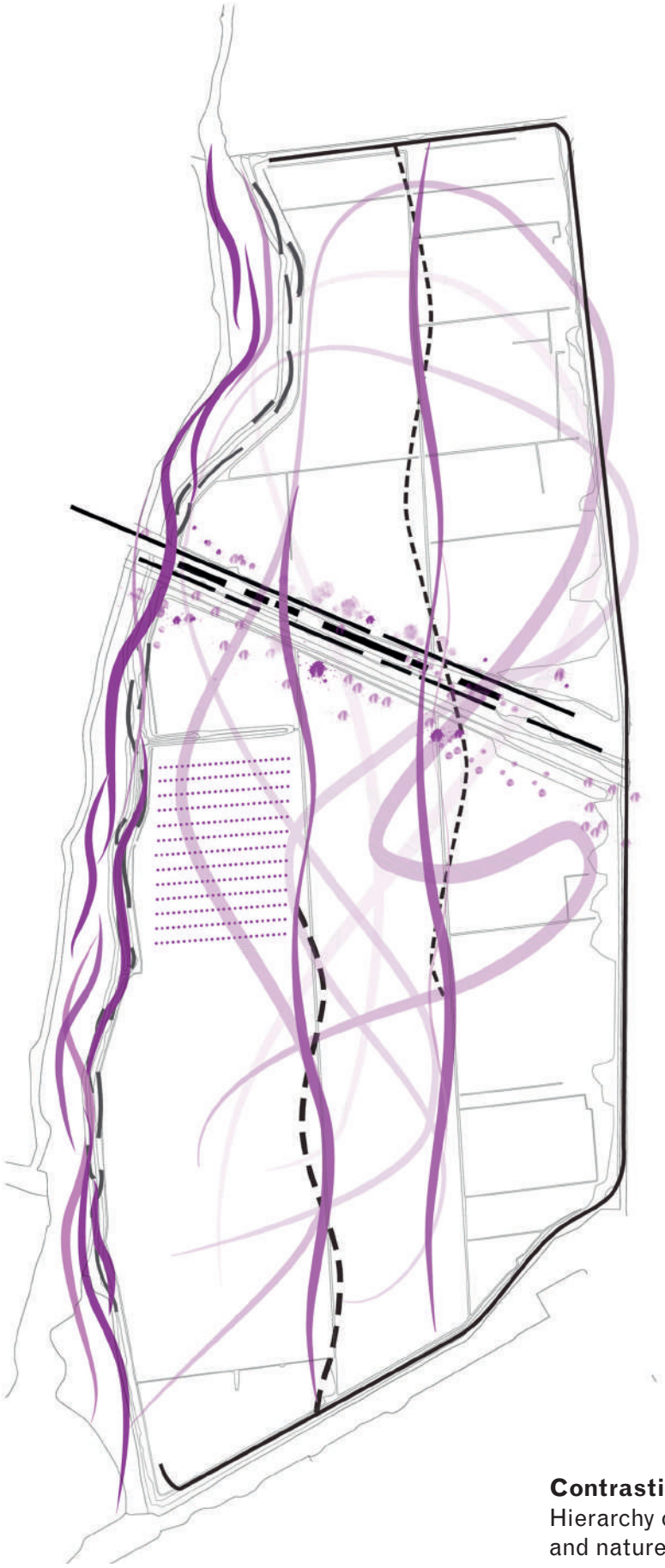
1.
See also: Steffen Nijhuis and Daniel Jauslin, "Urban Landscape Infrastructures: Designing Operative Landscape Structures for the Built Environment," *Research In Urbanism Series* 3, no 1 (2015): 13–34. http://dx.doi.org/10.7480/rius.3.874; Steffen Nijhuis and Daniel Jauslin, "Flowscapes: Design Studio for Landscape Infrastructures," *Atlantis* 23, no 3 (2013): 60–62.

My father came back every season to try and meet his love,
but every time he failed.

Intuitive drawing
Still inspired by the movie Magnolia illustrating water and city (workshop: 'Let's talk about water').

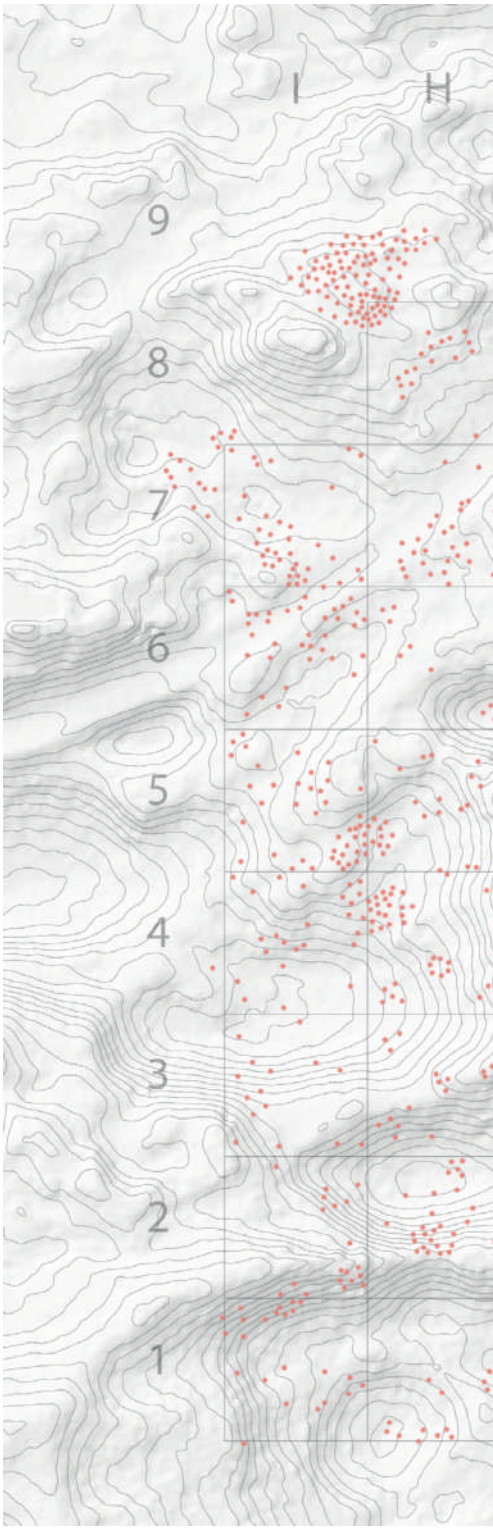


Landscape 'boxed' into a three-dimensional object
Controlled landscape, rain, cloud and wind (project: 'Vedute - A statement in book-format').



Contrasting patterns concept
Hierarchy of movements: of the city, the cultural landscapes and nature in the Tweemanspolder near Rotterdam.


I H G F E D C B A
9 8 7 6 5 4 3 2 1
vogels wind rust uitzicht overzicht
rust vogels zon licht
0 20 50m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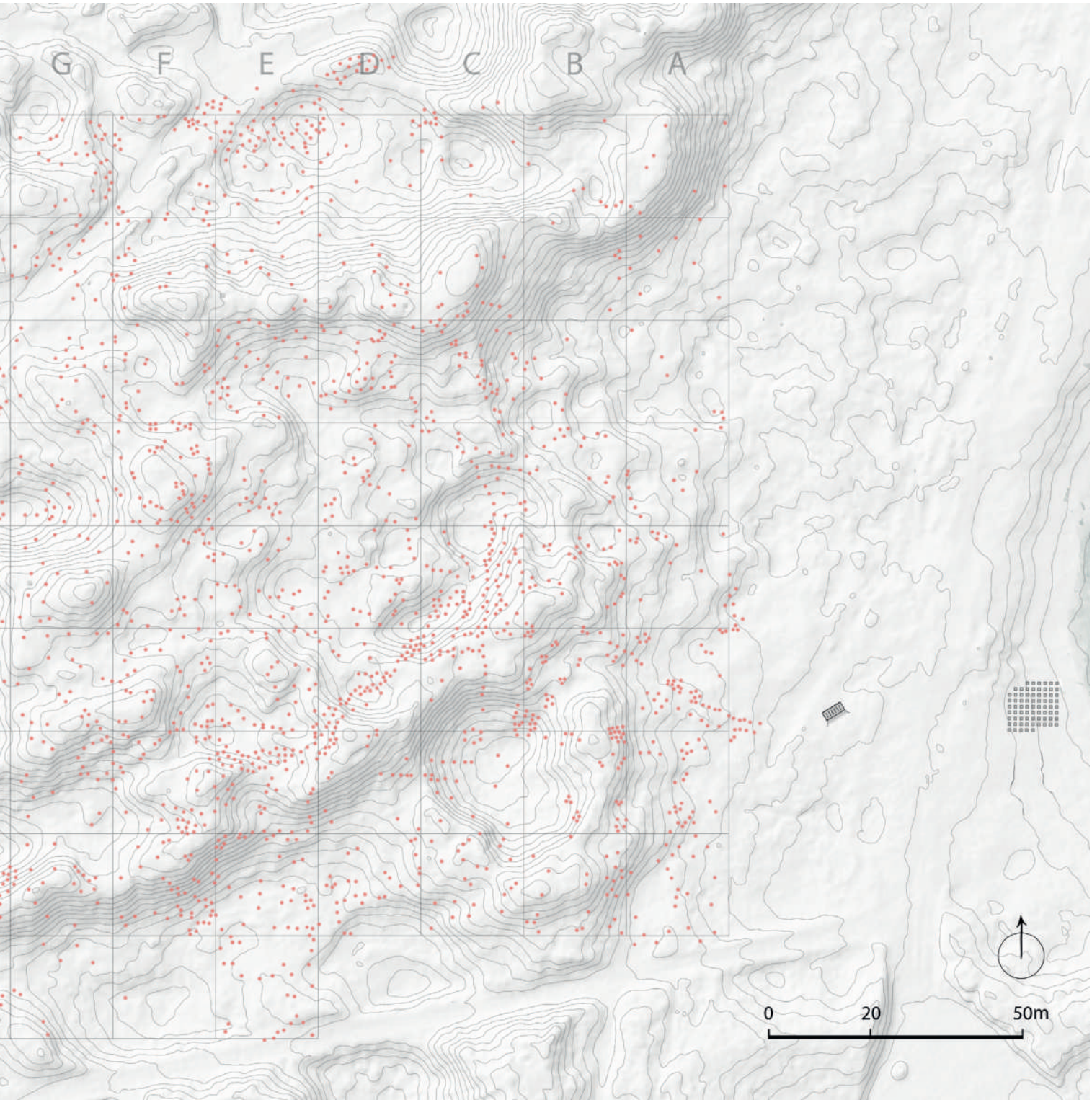
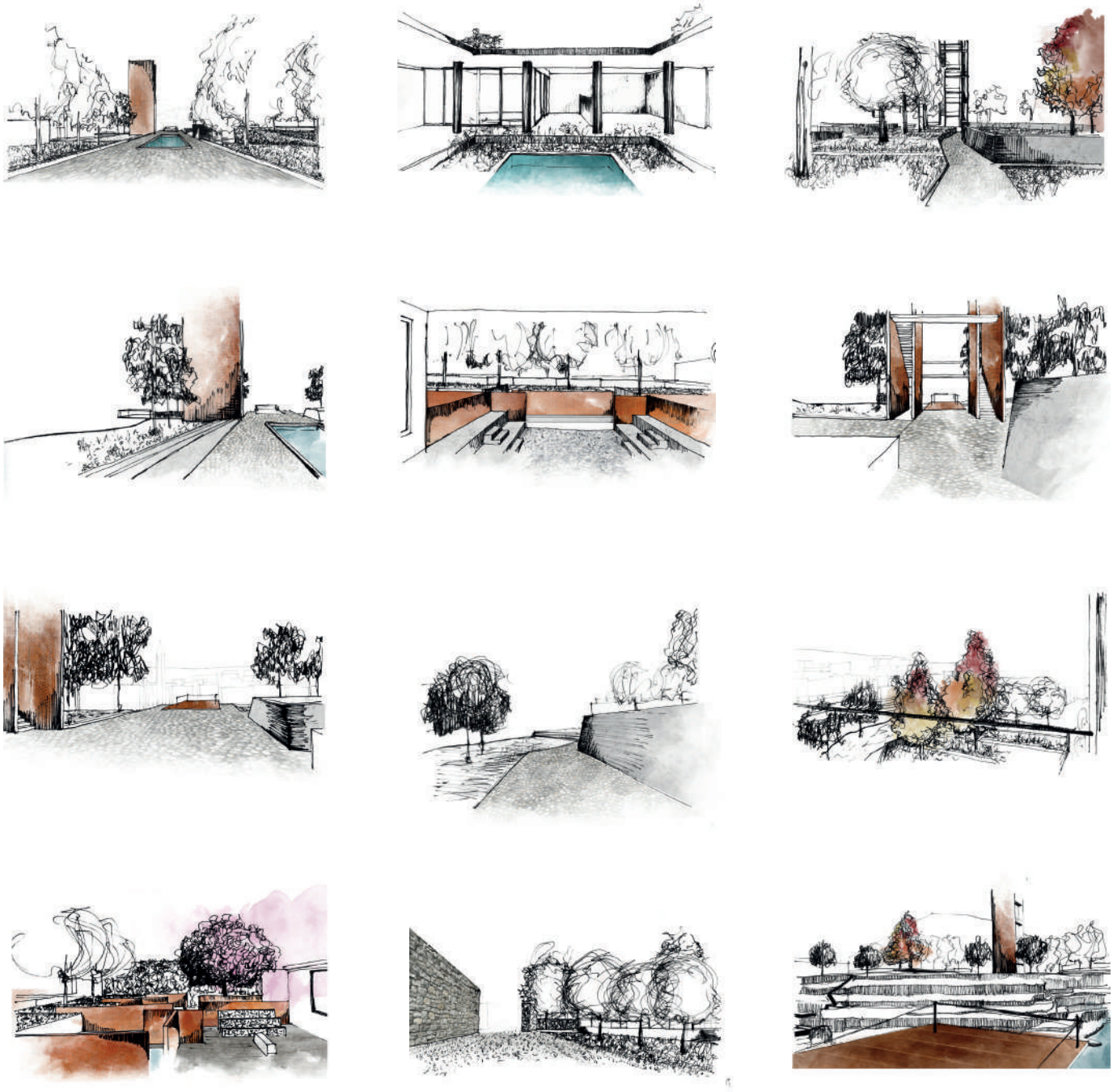
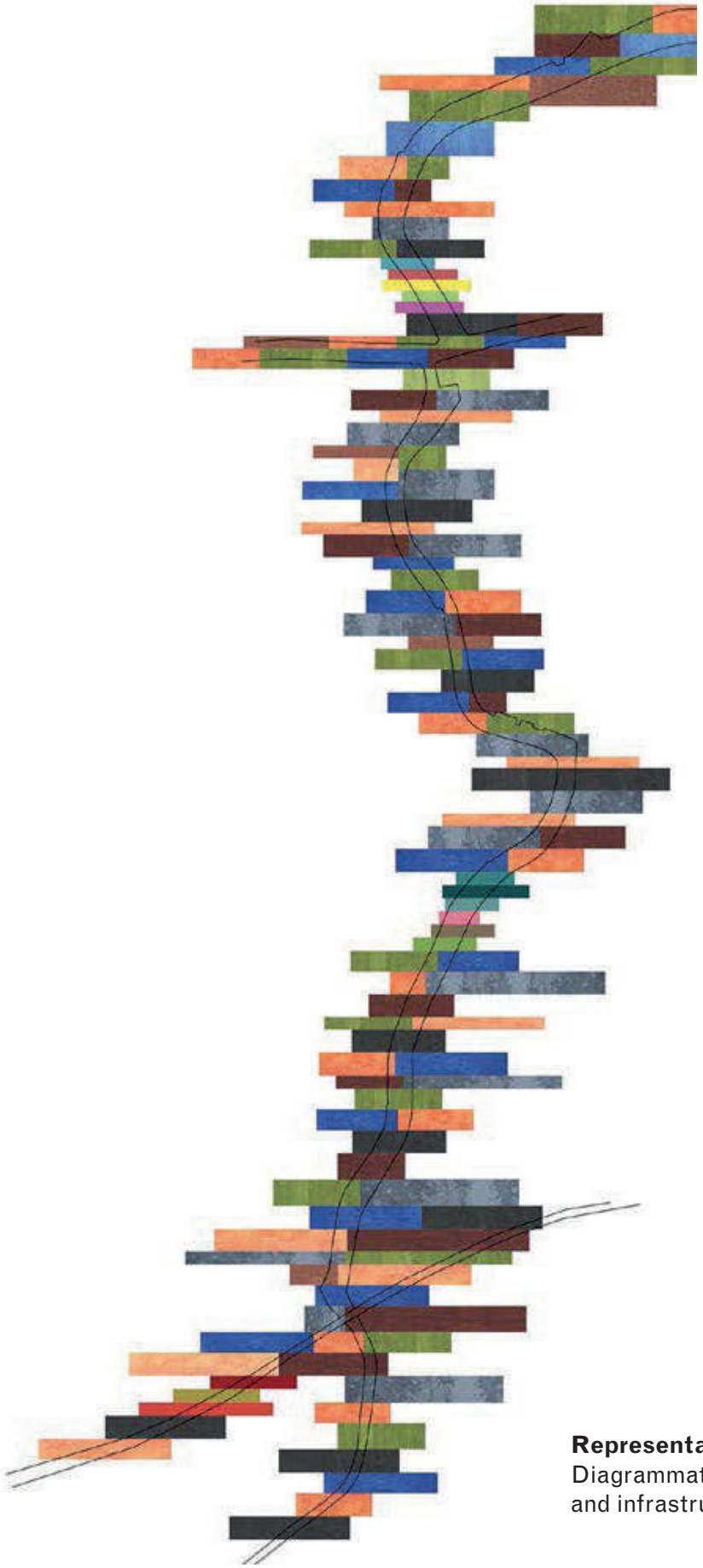


Mapping public landscape preferences
A pattern image of places and spots in the forest that had an emotional impact on visitors; data gathered through an interactive inventory on the island of Terschelling (project: 'Pin(k) a Place project, Oerol Festival').



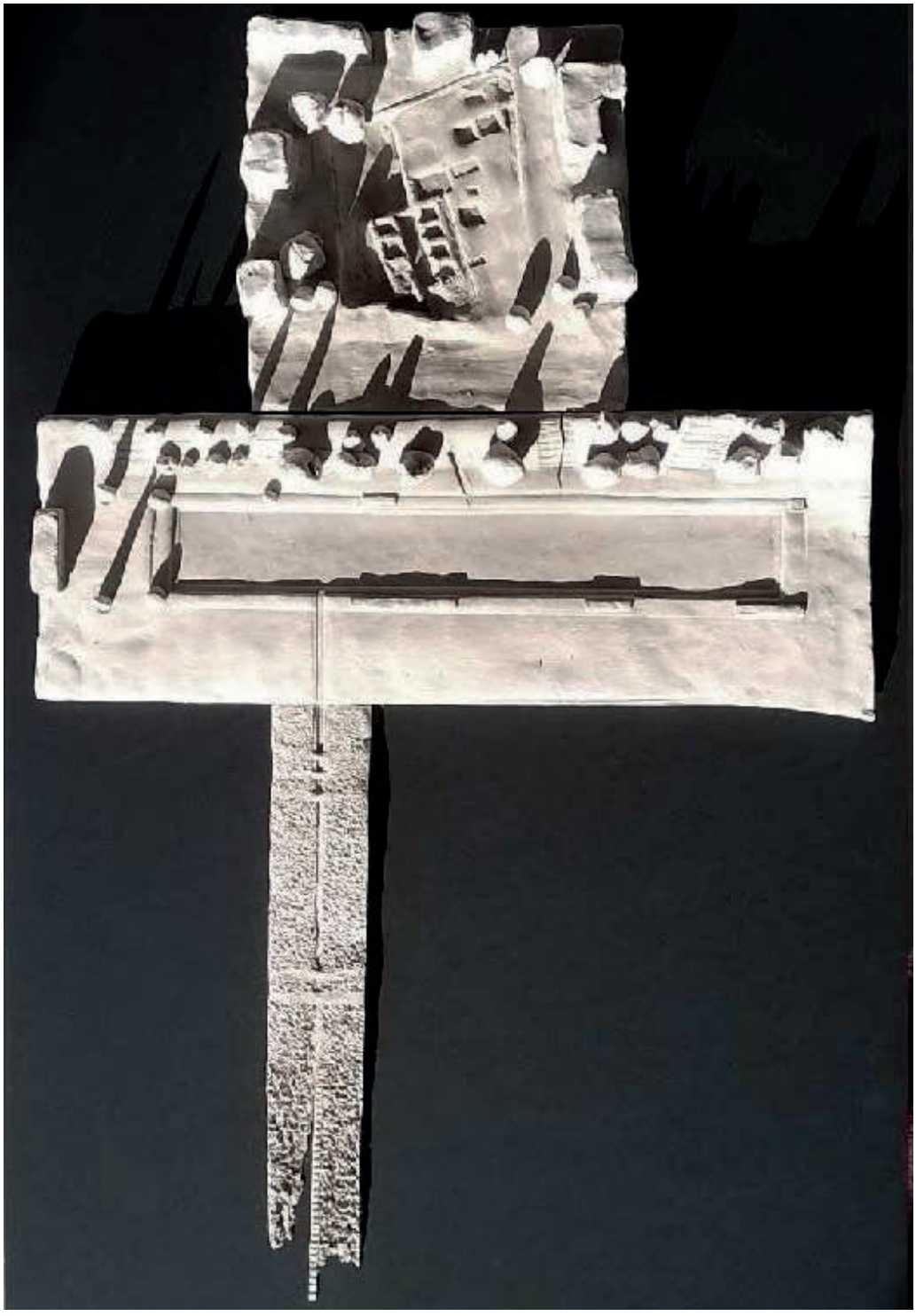
Illustrative sequential design sketches
Routing through the old Bascine gardens transformed into a retreat for meditation for all inhabitants of Mostar (project: 'Reclaiming the memory').



Representation of landscape characteristics
Diagrammatic sketch of buildings, water surfaces, vegetation and infrastructure along the former Rotte river, Rotterdam.

Design proposal for new public space
Eye-level perspective of designed neighborhood Papendorp in Utrecht, Netherlands. The implemented green-blue structure cleans surface water and stores CO2 and NOx in trees used as building materials.

Tentative regional perspective
Spatial proposal for the distribution of renewable energy installations in the Gooi area, Netherlands (workshop: 'The Next Landscape').



Clay model of final landscape design
Model showing three different water-related sites as component parts of the public realm (project: 'Mending Varna').

Flowscapes studio, Tatiana Lyubimova, 2015/16

Gardens

"The garden is the place where the great inventions of our time are made."[1] In order to stimulate invention, experimentation and landscape experience, the curriculum of the Landscape Architecture Master track starts with the garden. "Gardens are the laboratories of the landscape … These prototypes are the reference points and the marks which we establish in a contemporary landscape over which we have no control."[2] From material, horticultural and technological inventions to compositional tools to expressions of societal fears and anxieties, the inventiveness of gardens has always been unlimited. The core business of landscape architecture remains the creation of spatial compositions, regardless of the shifts in context and problematique, and what better place to experiment than the garden?

The garden is form and process simultaneously. On the one hand, the garden is the most compressed unity, in which the historical, functional and spatial complexity of the landscape manifests itself – by representation, by exposing the existing landscape characteristics, by making connections. And at the same time, "assuming that a garden – even in the metaphorical sense – cannot exist without nature, neither as an idealised image of pristine nature nor as a cultivated manifestation of domesticated nature, then change is inevitably one of the most important inherent properties of the garden. This understanding about complex changing interrelationships is especially relevant for a better comprehension of the complexity, dynamics, heterogeneity, entanglement and variety of the larger metropolitan landscape."[3]

Although nobody denies its roots in garden design, in the course of the emancipation of landscape architecture as an independent profession, the garden as a design problem came to be seen as trivial in the light of the major societal and environmental consequences of advancing urbanization. But it is not a matter of setting the innocent garden in opposition to important societal challenges; the skill of designing a garden – the ideals, the art and the craft – is part and parcel of acquiring the ability to understand and design landscape and the challenges it faces. The exploration of nature and technology in a garden leads to a greater awareness of the environment and to a good sense of the fascinating interaction between nature and artifice, quiescence and vigour, form and function, space and time.

SdW

1. Bernard Lassus, quoted in Udo Weilacher, *Between Landscape Architecture und Land Art* (Basel: Birkhäuser 1996), 109.
2. Michel Desvigne and Christine Dalnoky, "Michel Desvigne and Christine Dalnoky," in *The Landscape: Four International Landscape Designers*, ed. Katrien Vandermarlierle (Antwerp: De Singel, 1995).
3. Udo Weilacher, "Garden Thinking in Cities of Tomorrow," *SPOOL 7, no 1, the Garden in the Landscape Metropolis* (2020): 127.

Heritage landscapes

Heritage and change may seem to be incompatible, but in fact they are fundamentally inseparable, simply because monuments are changing all the time – like the shifting shades of a multicoloured coat. This essay gives the reader a compact lexicon of core heritage management verbs, illustrated with case studies from the New Dutch Waterline and the Southern Water Line, two military defence lines that have been frequently used as design sites in our Landscape Architecture Master programme over the past ten years.

The verb *conserve* is frequently used for maintaining the current state of a building, a landscape or ensemble. Maintaining a site prevents the current site decaying, as Ruskin argued.[1] Fort Honswijk and Fort Everdingen have been kept almost in the state they were in when the Dutch army left, with their towers, bunkers and multiple service buildings. If you visit these forts you can identify the various changes that have been made, and with a little background knowledge you can even read their history like a book.

If a new or adapted use is made of a heritage site that involves substantial modifications, we use the verb *transform* to describe the mixture of new and old. Fort Asperen was altered to hold art exhibitions. A new dome was added on top of the existing building to let daylight in, but at the same time care was taken to ensure that bats could still fly in and out undisturbed. At Fort bij Rijnauwen the nature conservation value of the site was given a higher priority than the architectural qualities and it has been transformed into a wildlife sanctuary. Visitors have limited access to *protect* its natural overgrown beauty. Some might say the natural values have won; others might call the heritage approach an example of organized decay.

Another frequently used verb is to *restore* (or even *reconstruct*) to describe the method of going back to a certain moment in time, as Viollet-le-Duc argued[2] Restoring a site to its state at a certain time is a tricky operation. Which reference period should be chosen? Why should a certain moment in time prevail over later changes? The heritage management approach chosen for Fort bij Vechten was designed to bring this dilemma to expression: restore and preserve in one design. A straight 50 metres wide band was drawn across the fort. Within this band the historic situation was restored and the rest of the site was more or less kept as it was. Some feel this combines the best of both worlds by showing the restored state as well as later additions as a living palimpsest; others feel the historic experience of the complete fort has been lost.

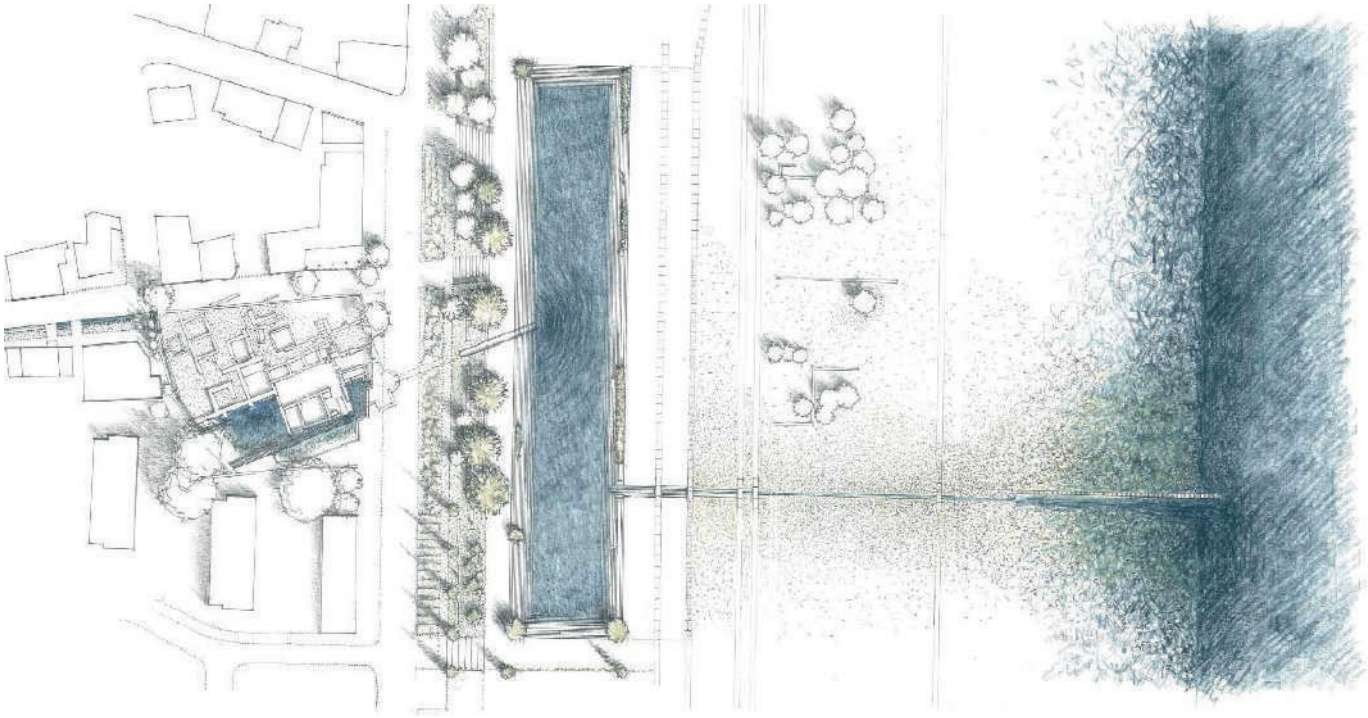
Finding the right word becomes problematic when complete landscapes change and so new terms like *reuse, reconceptualize* and *visualize* have been adopted. These new approaches focus on preserving the past on a higher level of abstraction where historic ideas, former uses, and old systems and narratives all matter. They draw inspiration from the authors and users of the landscape. The incision of Bunker 599 shows the soldier's experiences on the edge of an inundated field, with the narrow interior of the bunker and the poles indicating the water level during inundation. For the Southern Water Line, students proposed hydro agriculture in the lower-lying inundation fields and reinterpreting the self-sufficiency of fort life through the development of a new eco-village.[3] These examples show how ideas, historical use and meaning can stimulate historical continuity and the connectedness of people with their surroundings in new approaches – which are needed for the future.

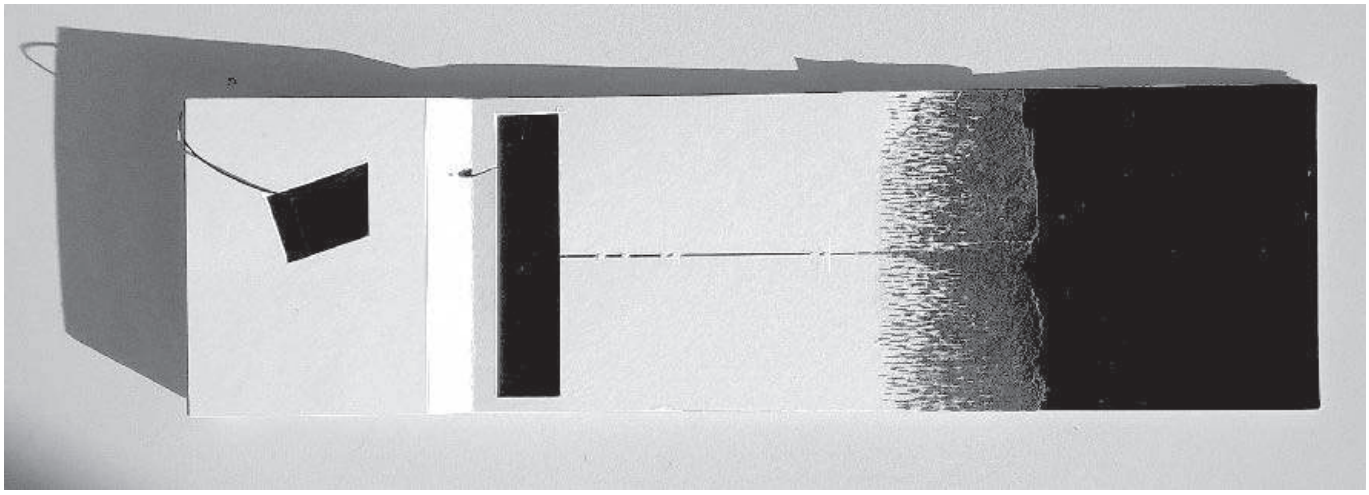
GV

1. Marlite Halbertsma and Marike Kuipers, *Het Erfgoeduniversum: Een Inleiding in de Theorie en Praktijk van Cultureel Erfgoed* (Bussum: Uitgeverij Coutinho, 2014), 84–86.

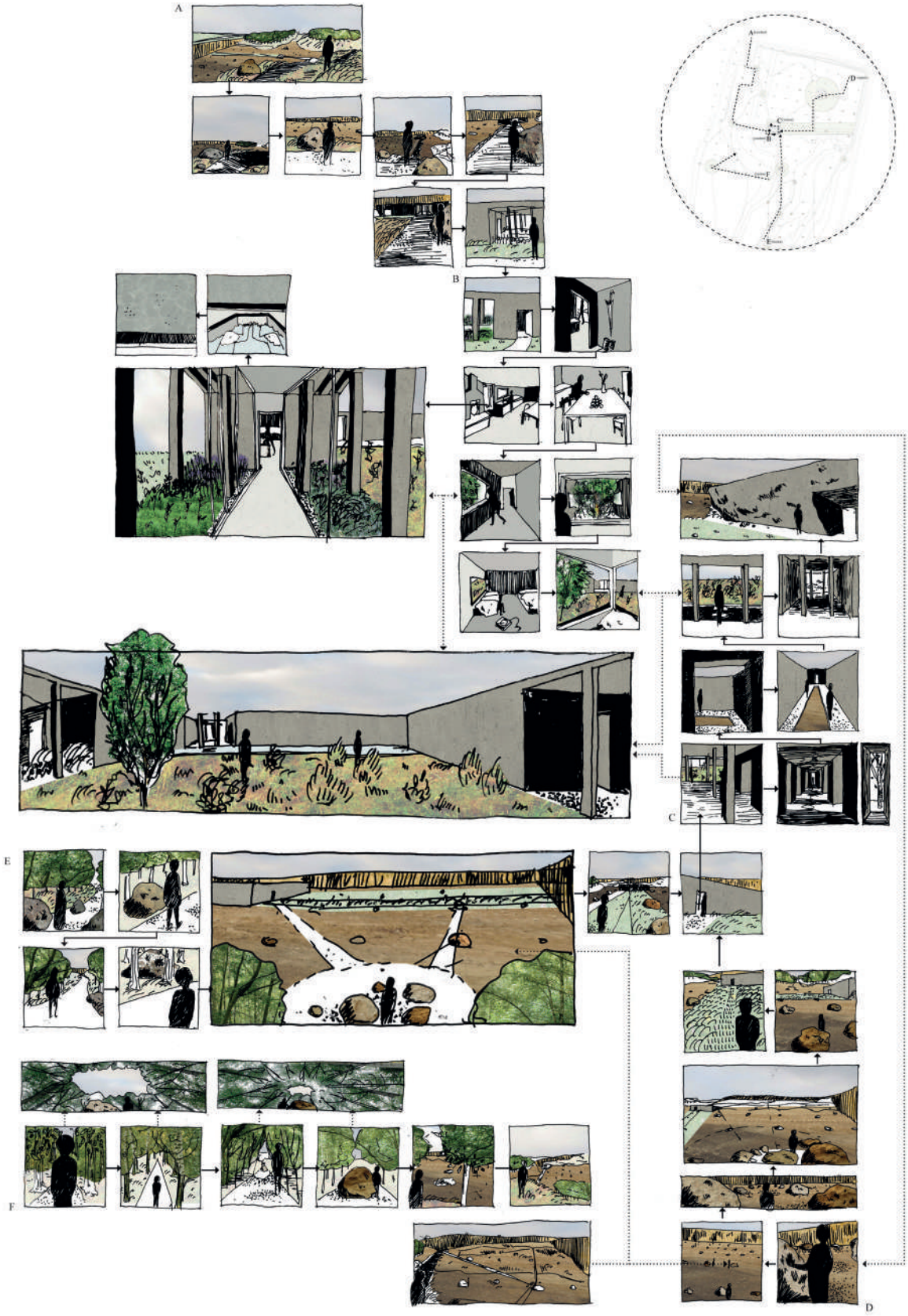
2. Ibid., 82–85.

3. Ilse Huizinga and Gerdy Verschuure-Stuip, "Het beeld van een linielandschap," *Groen* 5 (2021): 14–19.

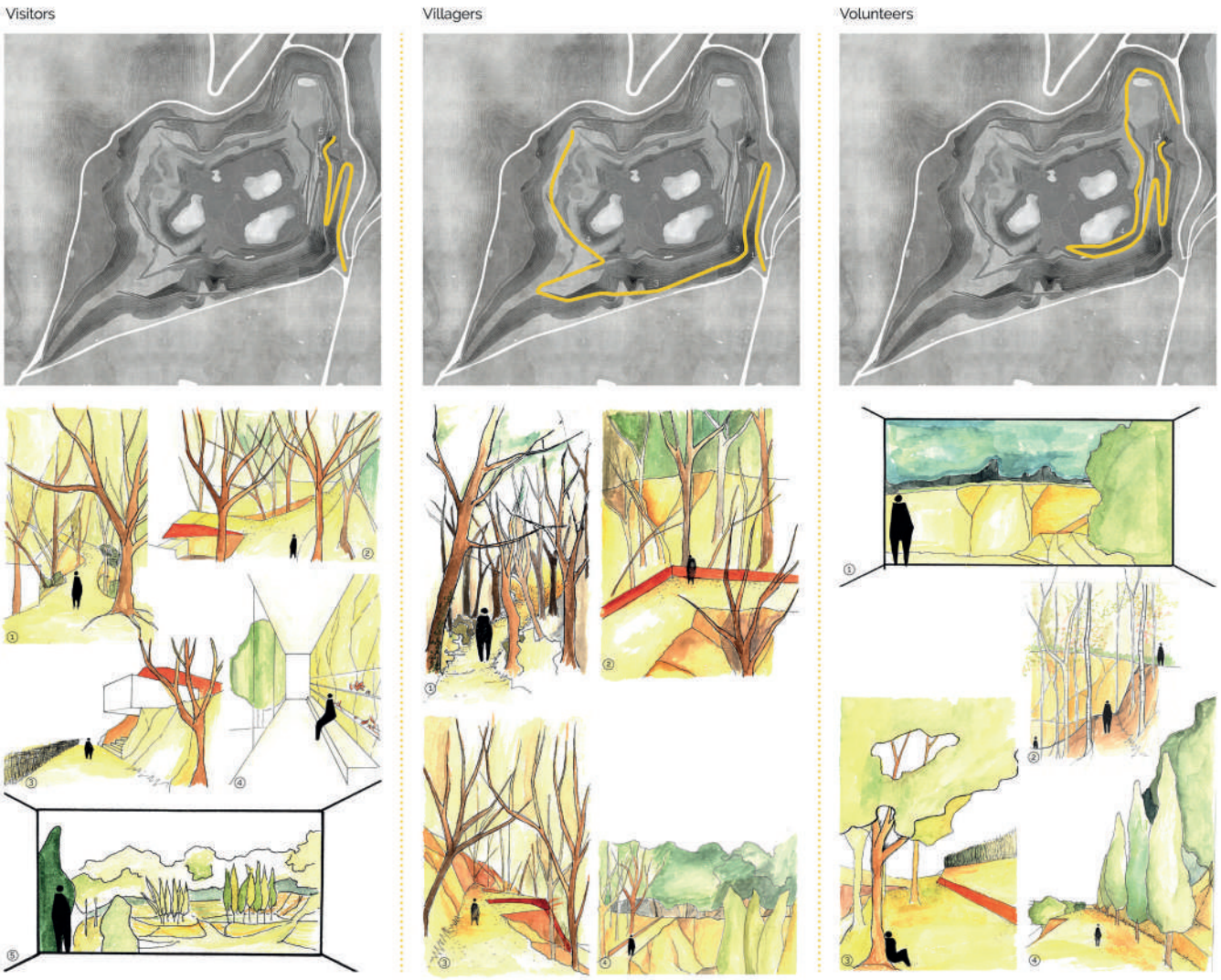


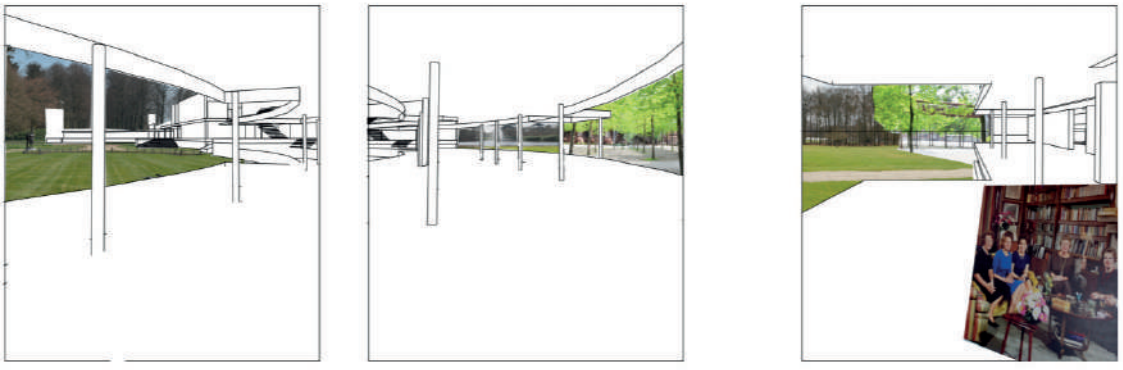


Final design drawings and conceptual model
Hand drawing (1) of the final design showing three different water-dependent parts of the public realm. Conceptual model (2) of the exact location and intervention (project: Mending Varna').



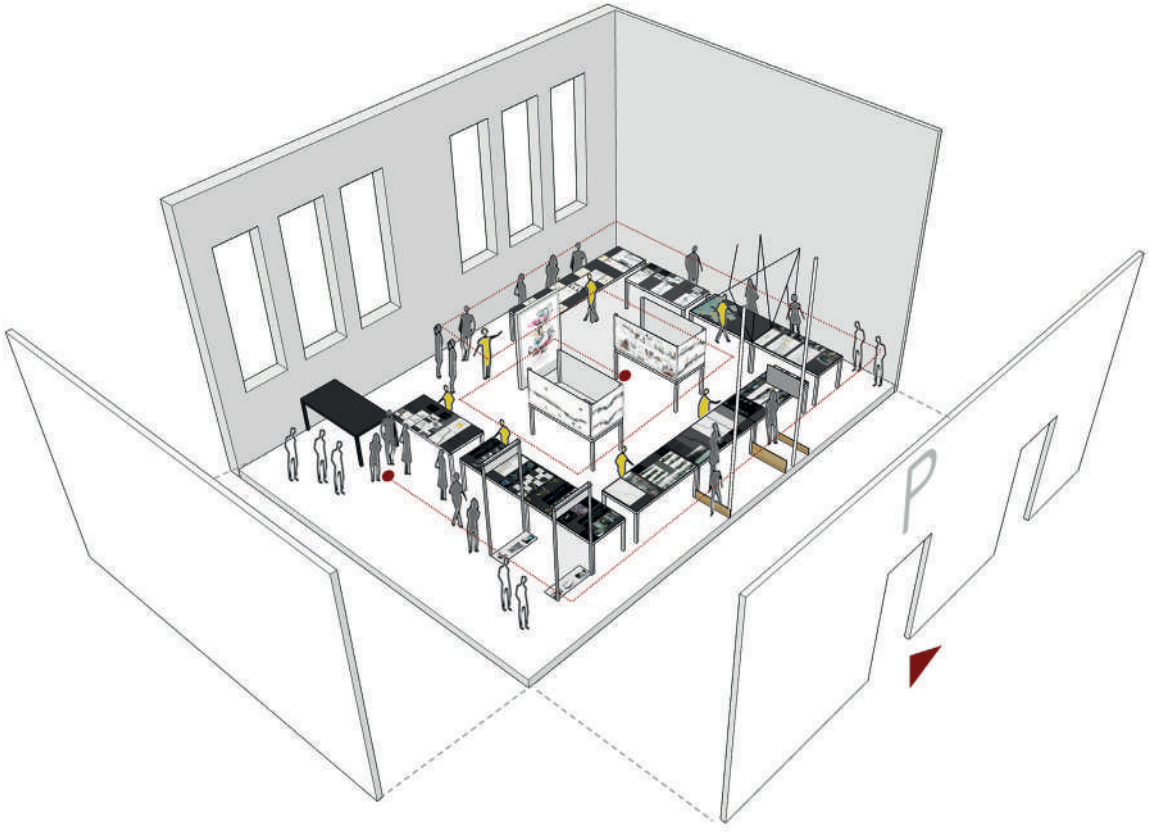
Illustrations of design proposal
Landscape design for a quarry explained by a series of visualizations depicting the sequence of images while walking through the Meertens gravel pit, Netherlands.





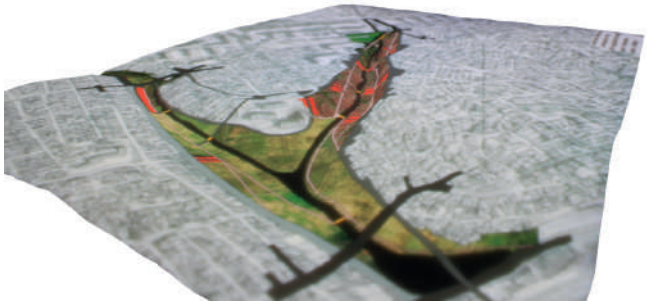
Illustrations of design proposal
Landscape design for the Meertens quarry in the Netherlands; visualizations of a walk by three different personas: the visitor, the villager and the volunteer. Each route has its own atmosphere and utility.

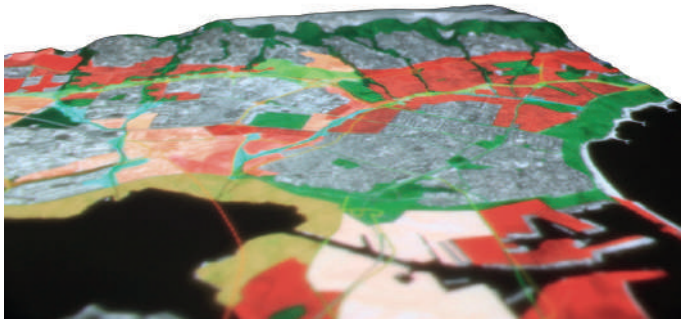
Viewing box of collected items
Collection of small objects found by visitors on the island of Terschelling. Labeled and categorized by differences in smell, sound, color (project: 'Institute of place-making' at Oerol festival).



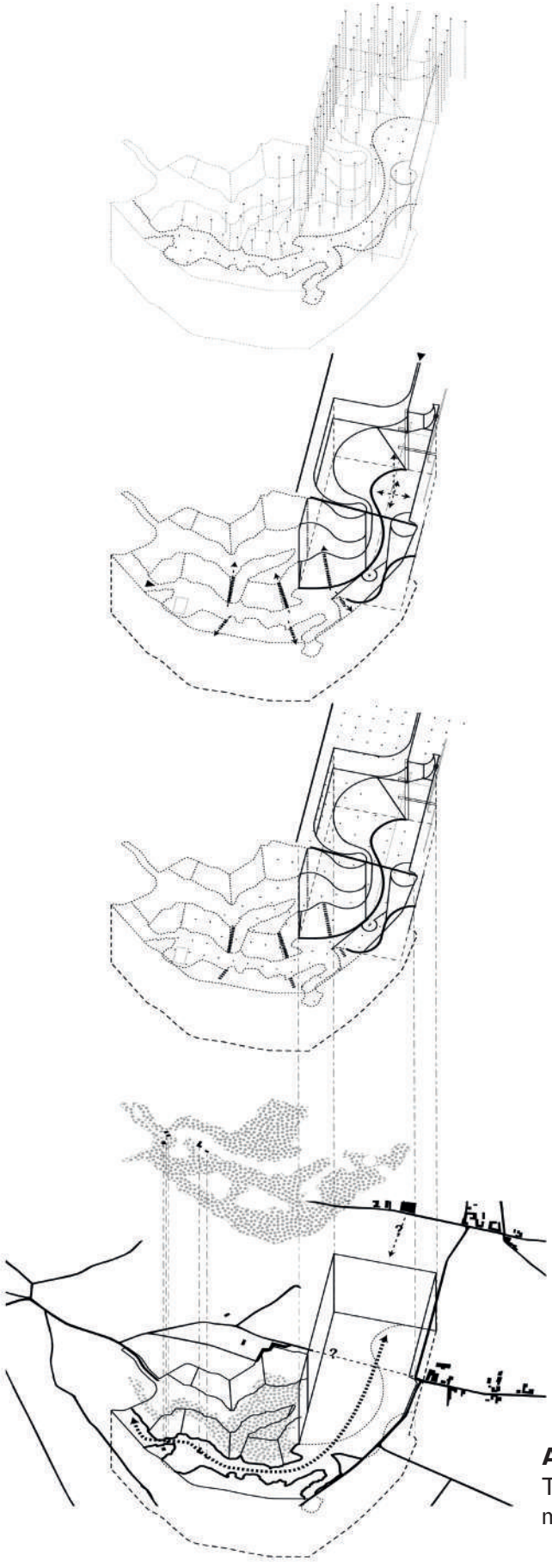
Project installation
The final presentation of this graduation project was an installation in which a stroll along the Neretva river is simulated. The final design is placed in the middle, as destination of the route and the most important part of the thesis (project: 'Reclaiming the memory').

Flowscapes studio, Neretva Lab, Elissavet Markozani, 2018/19

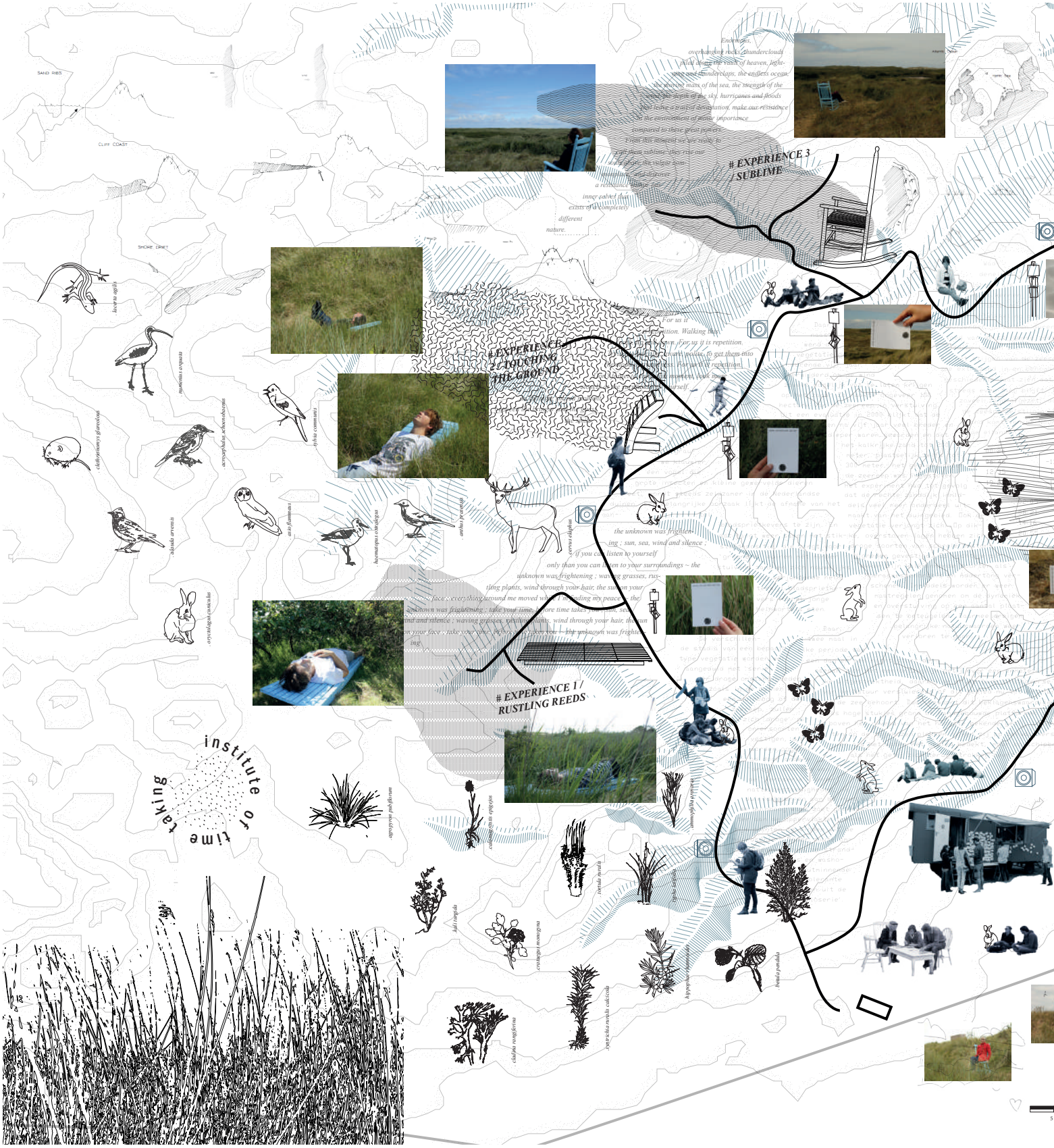




Projection installation of final design
Projection of drawings on a topographic model, explaining the gradual transformation that the design proposes (project: 'Forum Romanum in Varna').

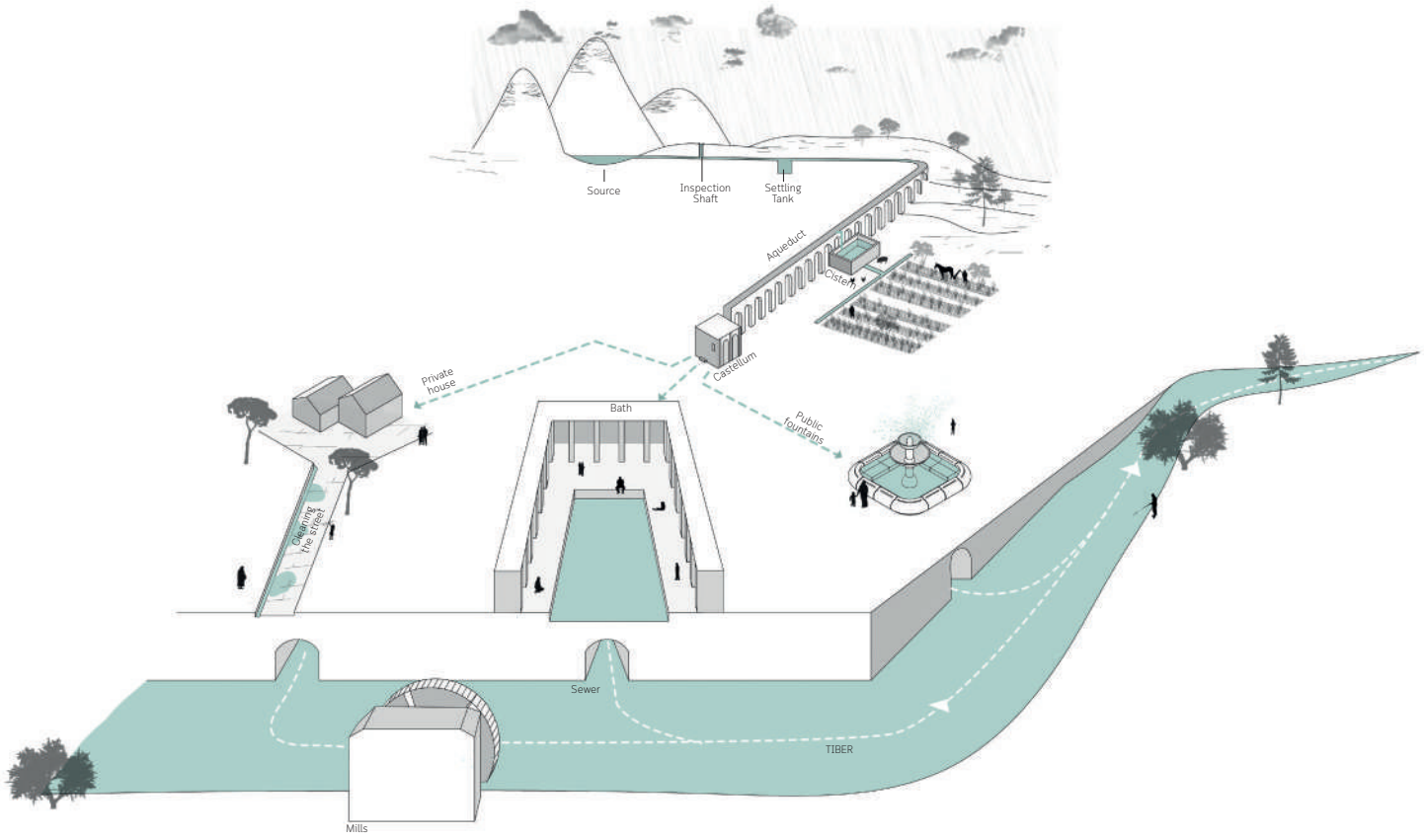


Axonometrical 'exploded' view of design
The different design layers of the landscape architectural modification of a former quarry (project: 'Villa urbana').


SAND RIBS
CLIFF COAST
SHORE DRIFT
EXPERIENCE 3 / SUBLIME
EXPERIENCE 2 / TOUCHING THE GROUND
EXPERIENCE 1 / RUSTLING REEDS
institute for taking time

Mapping landscape impressions

The project invited people to take different points of departure, and follow a more objective and a more sensorial walk along a predetermined route. Together the observations result in a narrative based on the topography of the dune landscape, its history and processes, hidden beauty and environmental qualities (project: 'Institute of Time Taking, Oerol festival).



Circularity drawing of traditional water system
Ancient water elements make the water supply and distribution for the city of Rome possible (project: 'Revealing Rome's water-based urban culture').

Flowscapes studio, Circular Water Stories Lab, Camilla Di Nicola, 2019/20

Horizon

Landscape architecture is that specific form of spatial art which encompasses treatment of the horizon. In the Dutch open polder landscapes the horizon is an implicit value and provides the context in which students of landscape architecture can research the value of space, transparency and openness. Under the influence of metropolitan processes, the landscape is densifying and spatial cohesion is under threat. It is a task of landscape architecture to recreate that connection to the intangible, to what lies beyond the horizon, to create a choreography of space.

To a large extent, the horizon determines our understanding of space. Even though space extends in all directions, the view of the horizon is more decisive for the experience of space than the ground beneath us or the sky above us. The horizon is the outer limit of landscape space: it encloses the world and delimits the field of phenomena, always in relation to the viewer. Boundaries in the landscape are ambiguous and variable. Forms spread, diverge and open up, together forming an environment. Openings become passages, and from passage to passage all places are connected to the horizon. The only visible boundary is the horizon, a boundary that moves with the viewer.[1] As we move and perceive, a different spatial reality appears around us every time, within which, as the observing subject, we seem to form the centre.[2]

The relationship to the horizon on the one hand – horizontality – and to the upright position of a person on the other – verticality – thus becomes a way of defining the relationship between humans and their environment, making it an essential carrier of landscape architectural design. The horizon plays a role in defining not only the quality of a situation, but also those situations that are not yet visible as we move through space. So any landscape intervention is in essence, as Michel Corajoud says, only bounded by the horizon and a landscape architectural design is not only determined by the quality of the location itself, but also by what lies next to it and beyond it, in a telescopic succession of spaces all the way to the horizon.[3]

The flat landscape of the Dutch lowlands in particular is defined by the horizon. In the polders, the essence of landscape space is determined by the tension between the enclosure of the rooms of farmyards, estates and polder avenues on the one hand and the unbounded view to the horizon on the other. "In the Dutch lowlands the Arcadian pleasure landscape is caught in nothing else than organization and horizon."[4]

SdW

1. Michel Corajoud, "Hors Champ: Interview with Michel Corajoud," *Faces*, no 55 (2004).

2. Ton Lemaire, "Een Wijsgerige Wandeling door het Landschap," in *Landschap in Meervoud*, ed. Jan Kolen and Ton Lemaire (Utrecht: Uitgeverij Jan van Arkel, 1999), 58.

3. Corajoud, "Hors Champ".

4. Clemens Steenbergen, "De poëzie van de vlakte," in *Nederlandse Landschapsarchitectuur, tussen Traditie en Experiment*, ed. Gerrit Smienk (Amsterdam: Uitgeverij THOTH, 1993), 42.

Immersion

According to the Merriam-Webster Dictionary, immersion is a "state of being deeply engaged or involved; is an absorbing involvement often based on extensive exposure to surroundings or conditions that are native or pertinent to the object of study." Immersion as a research technique and pedagogical method is often used in cultural anthropology when students travel to a foreign country and immerse themselves in a society or culture, living and experiencing everyday life in another way.

Gernot Böhme, a German philosopher, goes further by saying that the experience of immersion, the 'mindful physical presence', as he refers to it, hinges on the interplay between body and mindful body. It is a phenomenon which requires sensitivity as a key concept and has a key space – the atmosphere, as the space where one finds oneself. We experience the space but we also experience our own consciousness of experiencing it.[1]

As landscape architecture is about the design of spaces in very close dialogue with the natural and cultural features of the site, the practice of immersion can make a very valuable contribution to the design process, giving the observer a chance to disclose the more ephemeral, subjective, yet constitutive, properties of a site that are needed in order to detect atmospheres, hidden meanings, social characteristics and the aesthetic values of what surrounds us.

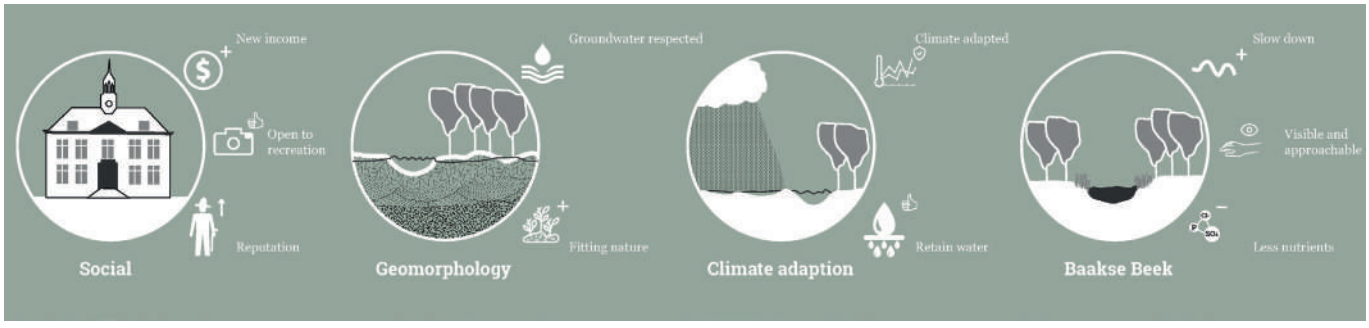
By exposing ourselves in a conscious way to the atmospheric characteristics of what surrounds us, we are able to articulate sounds, light, humidity, colour, texture, geometries, temperature, etc. The interplay between these characteristics creates a multisensory experience that reduces the physical distance between us and that which surrounds us and stimulates our emotional perception. It is through physical interaction with the world that we develop the understanding of space and materiality necessary for making an aesthetic judgement of spaces, of scales, of proximity or distance, of motion or quietness, and of built forms (other than abstract descriptions).

The practice of immersion is one way in which designers can expand their conceptual and emotional thinking, develop a relational understanding of sites as driving forces and use this in their design practice. The exercise of 'walking in a straight line' and the non-linear immersive approach – which involves a range of techniques including deviations and collective mapping – was introduced into the MSc Landscape Architecture curriculum to create the opportunity for the students to have an immersive experience. It is based on the belief that our senses, emotions and feelings should play a complementary role to the rational in determining what to base our design decisions on.

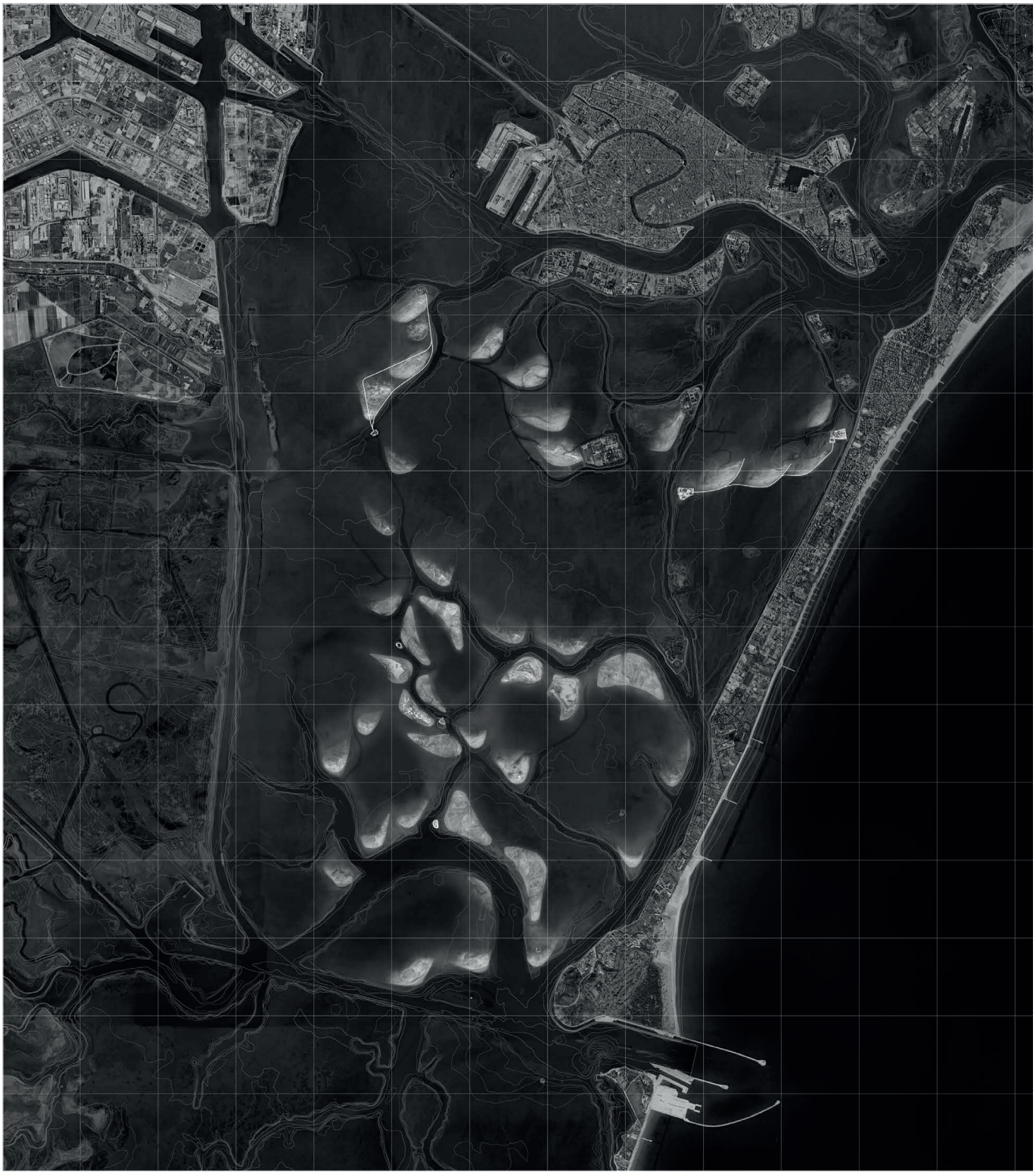
This linear/non-linear walking exercise establishes a qualitative recognition of the site: obstacles are encountered and the perception and 'view' of the students is influenced by expected and unexpected events, objects and atmospheres along the way, introducing a deeper site attachment and serendipity into the design phase. The experiential dynamic of walking and the sensorial relationship with the site make the students aware of the particularities they encounter and the deviations they are inclined to make. Noting these particularities and encounters is a first step in mapping the site's capacities.

DP

1. Gernot Böhme, *Architektur und Atmosphäre* (Munich: Wilhelm Fink Verlag, 2006); translated as Gernot Böhme, "Atmosphere as Mindful Physical Presence in Space," *OASE*, no 91.



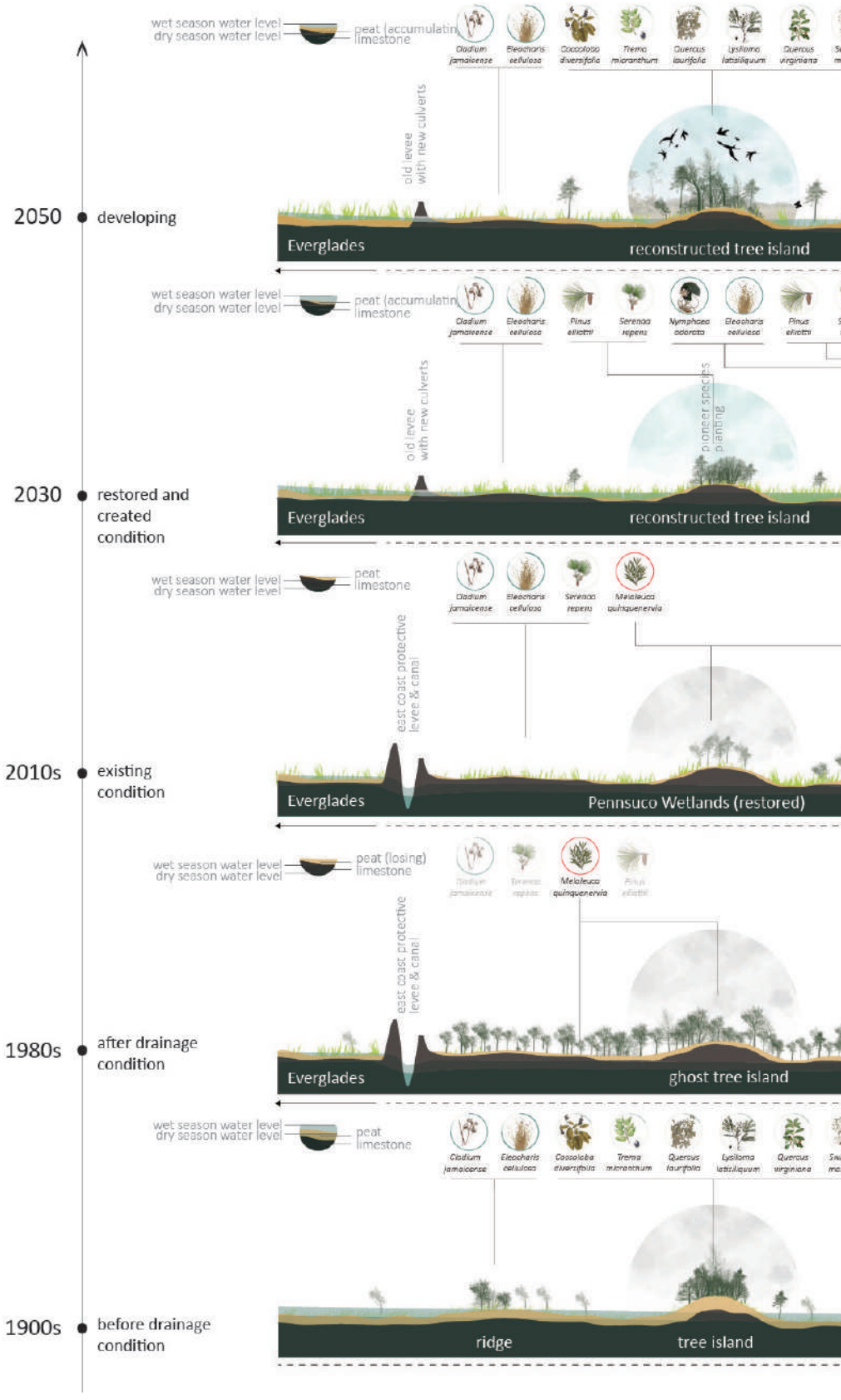
Mapping water management over time
To enhance water retention capacity, historical landscape-based water storage techniques are reintroduced in the area of the Baakse Beek in the east of the Netherlands.



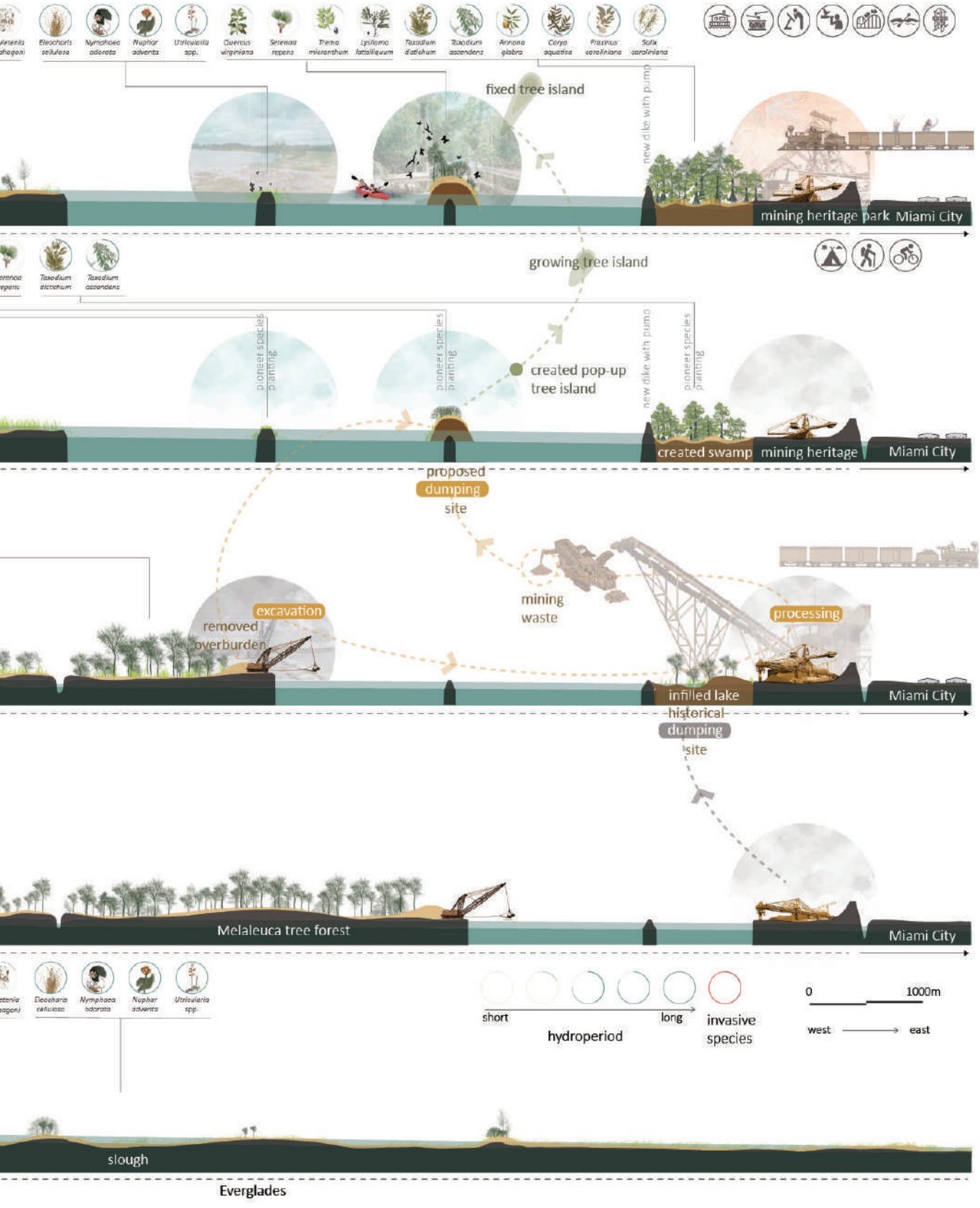
Drawing of proposed landscape in the Venetian lagoon
Proposed configuration of the barene influenced by natural forces (tides, winds, vegetation) resulting in a variety of combinations of underwater and above-water structures which capture suspended sediments and support accretion (project: 'The operating Venetian lagoon').

Flowscapes studio, Circular Water Stories Lab, Amina Chouairi, 2019/20

Landscape installation to monitor natural processes
Testing field on the beach of the island of Terschelling to observe the movement of sand influenced by the wind (project: 'Aeolis - gap the border, Oerol festival').

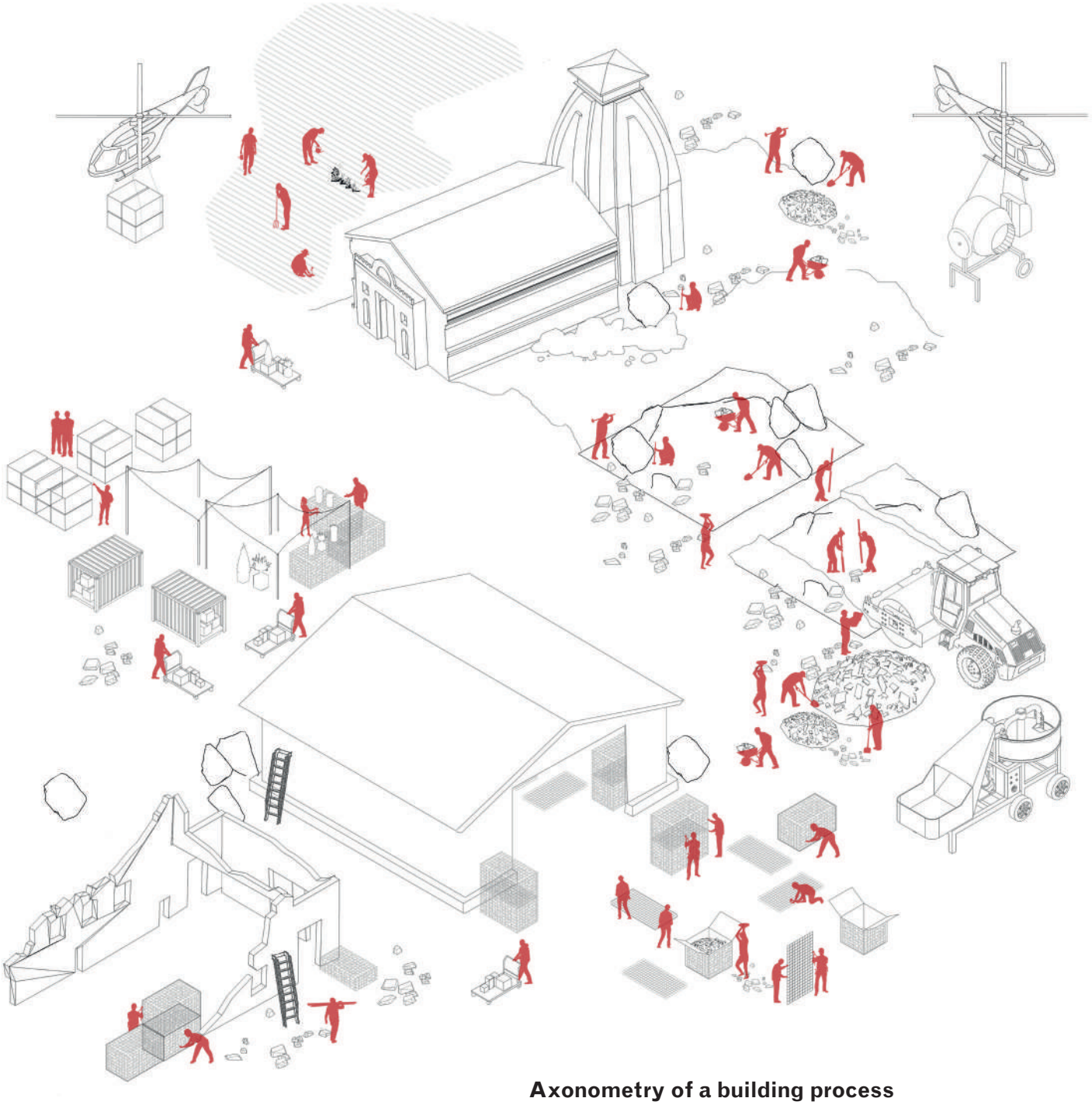


Flowscapes studio, Resilient Coastal Landscapes Lab, Cai Huang, 2018/19

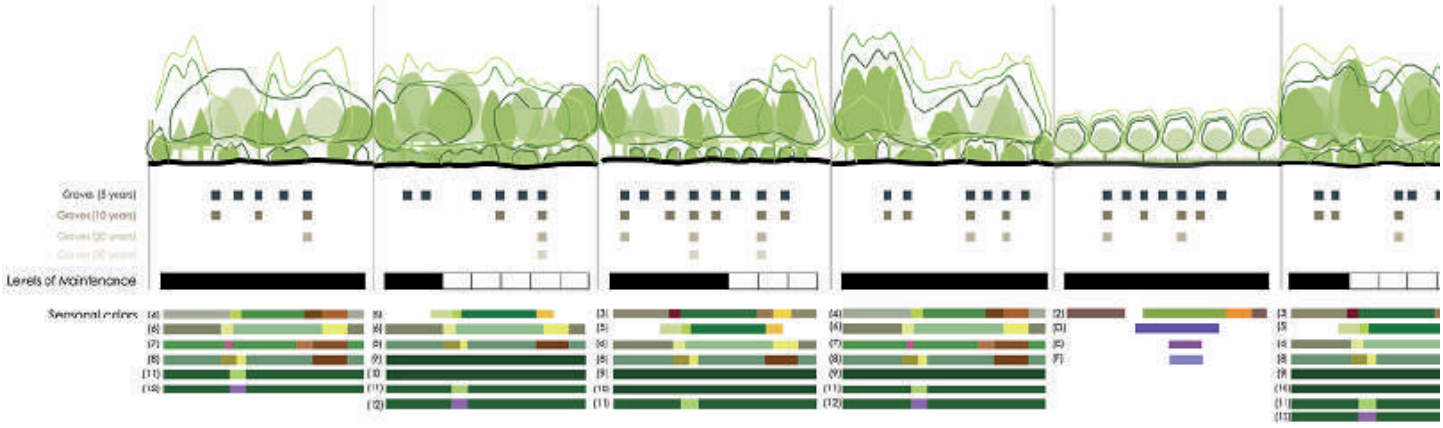


Sections illustrating landscape development over time
Comprehensive landscape restoration and development strategy in south Florida (project: 'From boundary to border').

Executed outdoor artifact
Site-specific intervention meant to start the transformation of the TUDelft campus into an ECO-campus; the project is one of a series of so-called ecological incubators that support incremental development of biodiversity (project: 'The art of letting g(r)o(w)').



Axonometry of a building process
Drawing of the physical aspects of the reconstruction process, according to the design proposal, with material found on site (project: 'Rising out of the wrath').



Section explaining the planting scheme
Combination of spatial, botanical, seasonal and programmatic aspects, meant to function as an instrument to inform maintenance of the site (project: 'Design for change for a cemetery in Hamburg').

Landscape biography

The landscape is not just the decor of objects, spaces and structures made in the past, but it also embodies the values and stories of our ancestors, which we must respond to in our own time. Throughout history the landscape has been changed by farmers, colonists, rulers, landowners, investors and developers, and more recently by landscape architects. Their stories can be used as an entry point for analysing the landscape's past, understanding the current landscape and creating new solutions based on former landscape processes. These stories form the basis for a *landscape biography.*[1] They can be used to analyse the past, understand the current landscape and create new, inclusive solutions based on former landscape processes.

In their first year, students of the Landscape Architecture Master track (MSC1/ Q2) learn how to compile a *landscape biography* as a means to analyse a landscape. A landscape biography explores how a landscape has been transformed over time by focusing on specific human interventions. It illustrates the idea of a landscape as a continuously changing phenomenon, an unfinished story of how people have altered the landscape for their own purposes. In that sense the biography serves as a reference for future interventions.

The first step in the landscape biographical approach is to draw the landscape and ecological patterns and structures in a series of maps at various scales. The second step is to identify the social, functional, economic and ecological patterns and structures in the landscape resulting from its use by the animals and people who changed the site. These people can be considered to be 'authors' of the landscape, which in this approach is 'written' like a book. Students draw former infrastructure, land reclamations, urbanization and recreational uses, and represent these in maps, diagrams or short films. The main aim in this stage is to uncover the stories of how specific authors used and transformed their living environment in the past. The stories should provide an explanation of how landscape patterns and structures have evolved, both visually and textually. Ancient descriptions, old diaries and personal quotes form the basis for reconstructing all sorts of stories of authorship. Old pictures or paintings are analysed and can be used to visualize these stories. The third step is to analyse view lines and landmarks and interpret previous research to obtain a more in-depth understanding of the use and meaning of the landscape. This third step is the most abstract form of landscape analysis and completes the triangular analytic interpretation of form, use and meaning.[2] It explains why a site has changed.

Students finalize their landscape biography with a set of drawings and the construction of an 'object' that summarizes or complements the historical findings. The object can be a series of models, dioramas, booklets, light models or films to explain the human-made history of the landscape. These objects free our landscape ancestors from anonymity and can be a starting point for the design phase in which the existing landscape informs inclusive design proposals.

GV

1. Jan Kolen, Hans Renes and Rita Hermans, *Landscape Biographies: Geographical, Historical and Archaeological Perspectives on the Production and Transmission of Landscapes* (Amsterdam: AUP, 2015).

2. Henri Lefebvre, *The Production of Space* (Oxford: John Wiley And Sons, 1991); Edward Relph, *Place and Placelessness* (London: Pion, 1976); Edward W. Soja, *Third Space: Journeys to Los Angeles and Other Real-and-Imagined Places* (Cambridge: Blackwell Publishers, 1996); Ed Taverne et al., "Greep op de Stad," in *Nederland Stedenland: Continuïteit en Vernieuwing*, ed. Ed Taverne, Len de Klerk, Bart Ramakers and Sebastian Dembski (Rotterdam: nai010, 2012), 9–20; Gerdy A. Verschuure-Stuip, *Welgelegen: Analyse van Hollandse Buitenplaatsen in hun Landschappen (1630–1730),* Series A+BE 19, no 07 (Delft: TU Delft, 2019).

Learning by doing

"When a word is deprived of its dimension of action, reflection automatically suffers as well; and the word is changed into idle chatter, into verbalism, into an alienated and alienating 'blah'."[1]

Being part of a building process is a unique and experiential learning opportunity. Through making, we create a deep condition of engagement, not only with the landscape we are in, and with the materials, scales and atmospheres we are working with, but also with the entire process of making. According to Richard Sennett, the motivation for this engagement comes from the drive for metamorphosis, the potential of transformation intrinsic in us, which heightens our consciousness and state of alertness.[2]

The experience of building with our own hands is a bodily process anchored in material reality. It is about turning abstract concepts into concrete artefacts; ideas have to be checked and adjusted along the way to be transformed into objects. The tactile experience, the bodily embedment that occurs during the making of things, is a process of discovering in which imperfections and unforeseen potentials encountered in reality demand imagination and improvisation. The full engagement of the maker creates a condition in which the maker becomes his own tool through the generation of new thoughts, discoveries and intuitive exploration. It is a cognitive process that creates tacit knowledge and a visceral experience.

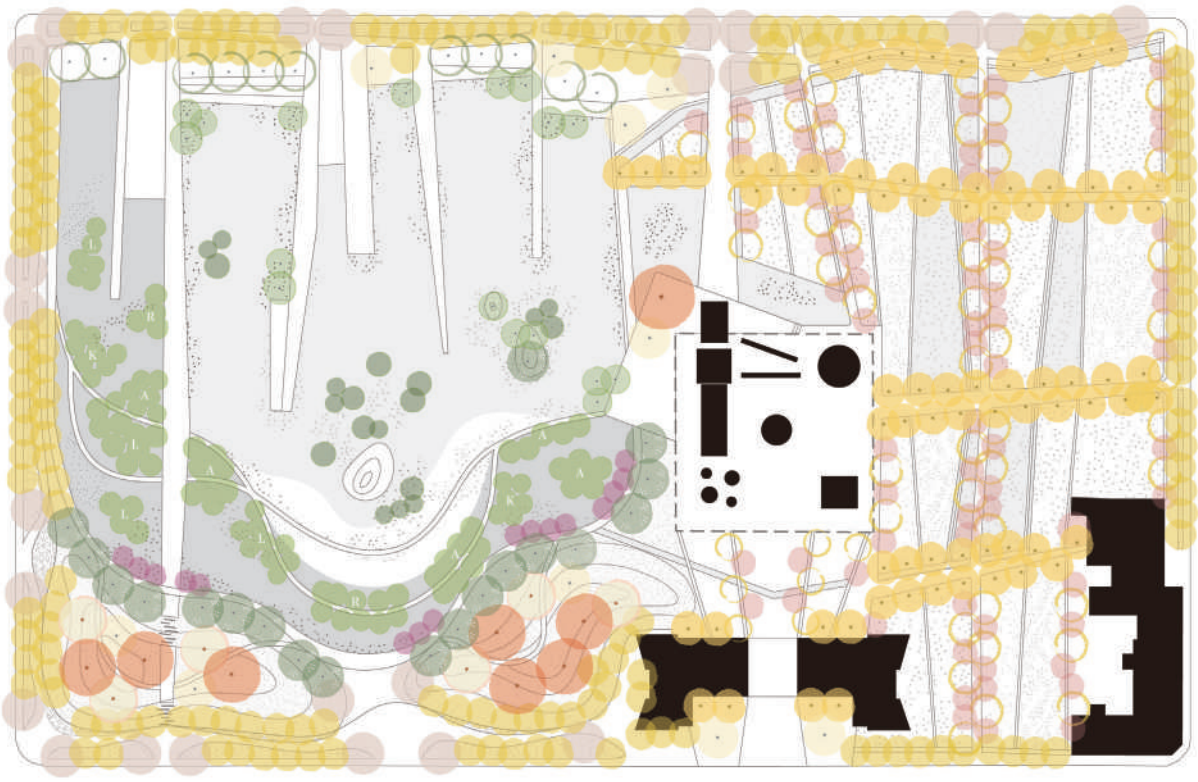
Moreover, this experience is a goal in and of itself, since it gives a deep feeling of accomplishment and reward. Most of all, however, it creates an immersive experience which the senses register as knowledge that can be accessed in other moments. Despite the results of the building process, the memory of it will be saved in body and mind.

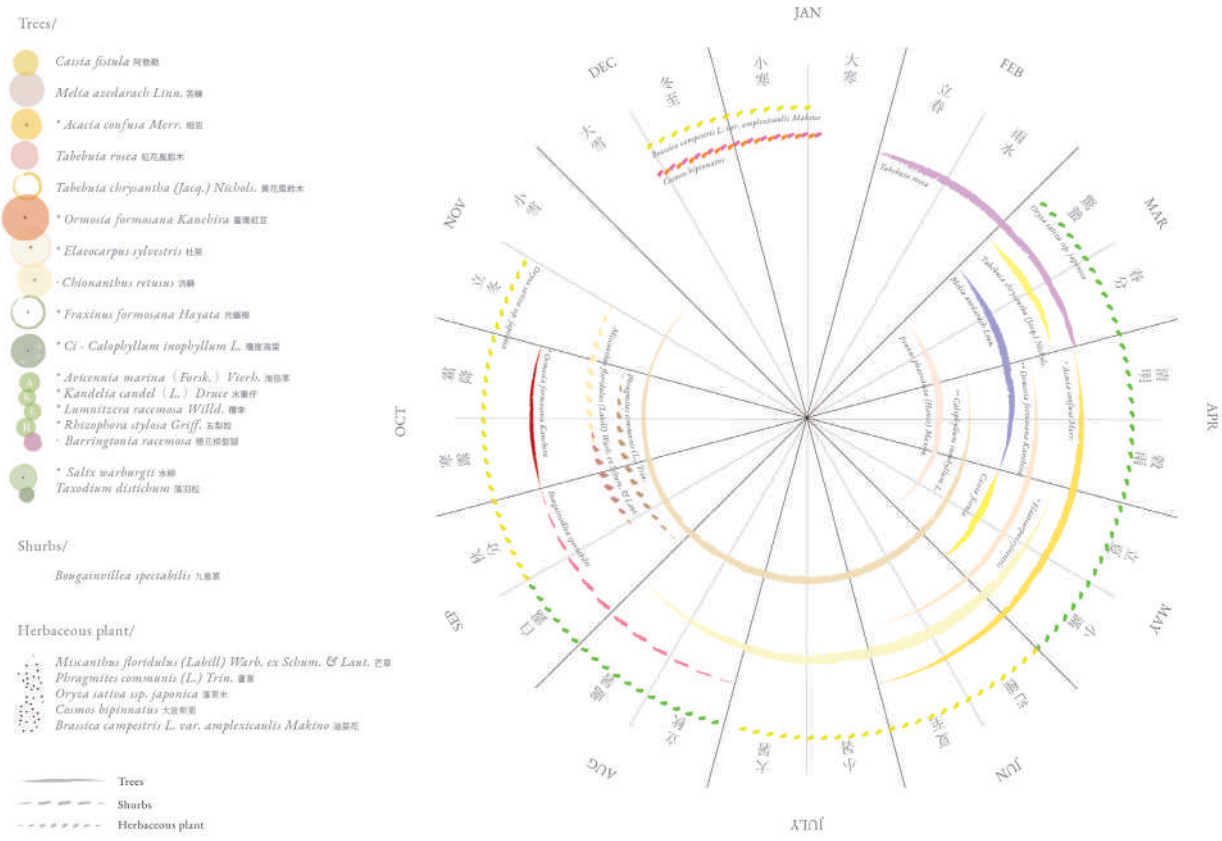
Learning by doing is a vital part of the MSc Landscape Architecture curriculum at TU Delft. Within our curriculum, the building experience as an agent of learning takes on many forms, such as making models, textile crafts, testing sediments and erosion processes, and plant cutting workshops. The learning by doing method is explored in most depth in the elective course MSc2/Q4 Landscape On Site. During this course the students actually build temporary spaces and structures at a 1:1 scale. Drawing in the studio is replaced by a strong presence on site, developing projects in a hand-crafted process that allows for adaptions and alterations to be made during the actual building process together with people visiting the project and in dialogue with stakeholders. This 'building by doing' teaching method creates a deep sense of engagement throughout the whole design process.

DP

1. Paulo Freire, *Pedagogy of the Oppressed* (London: Penguin books, 1966).

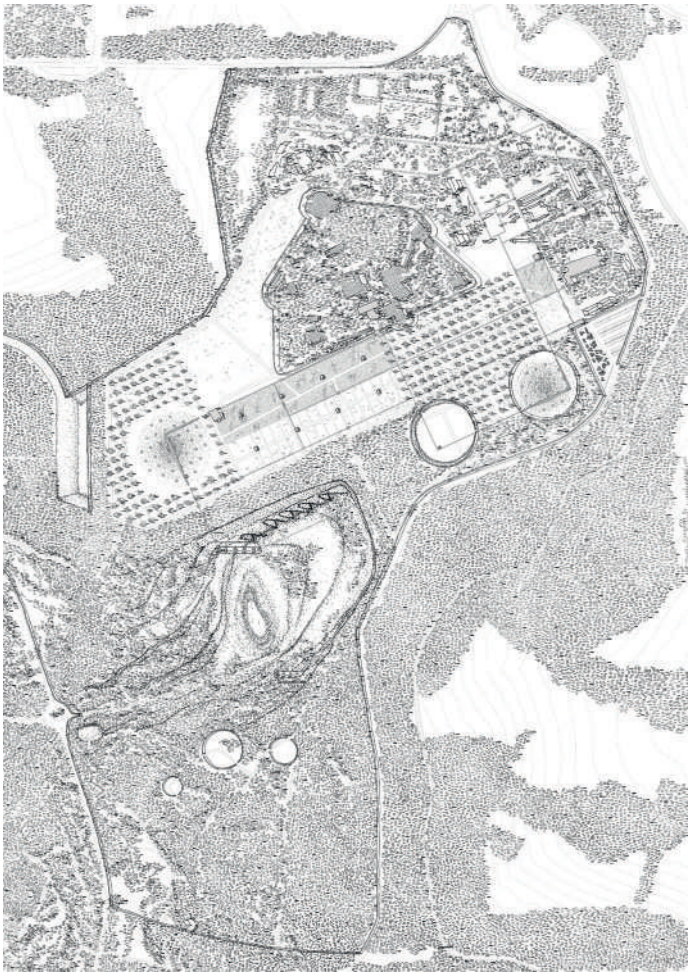
2. Richard Sennett, *The Craftsman* (London: Penguin books, 2008)

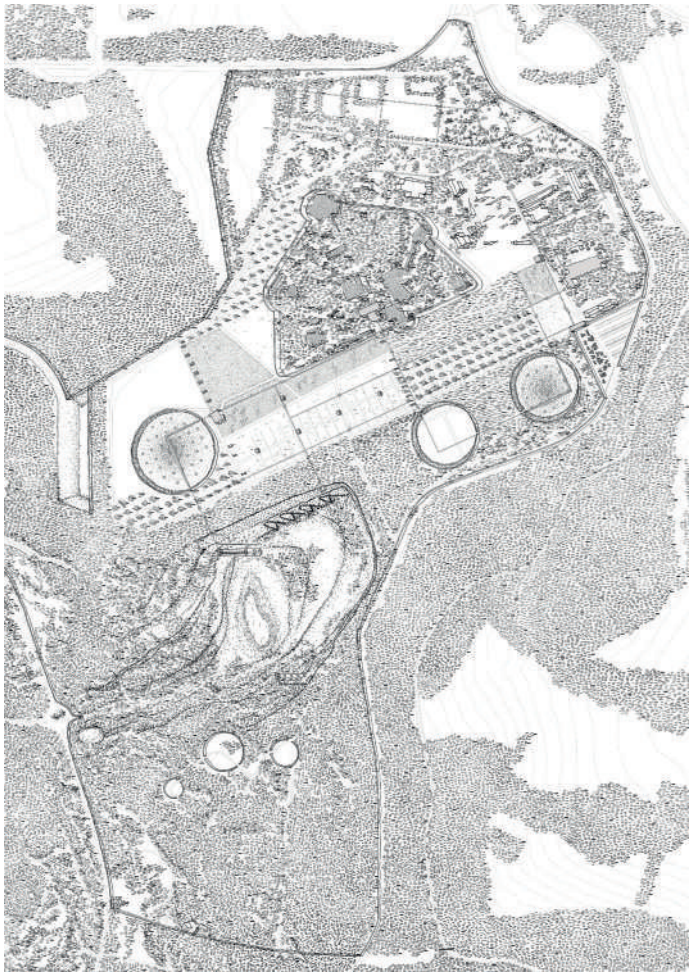




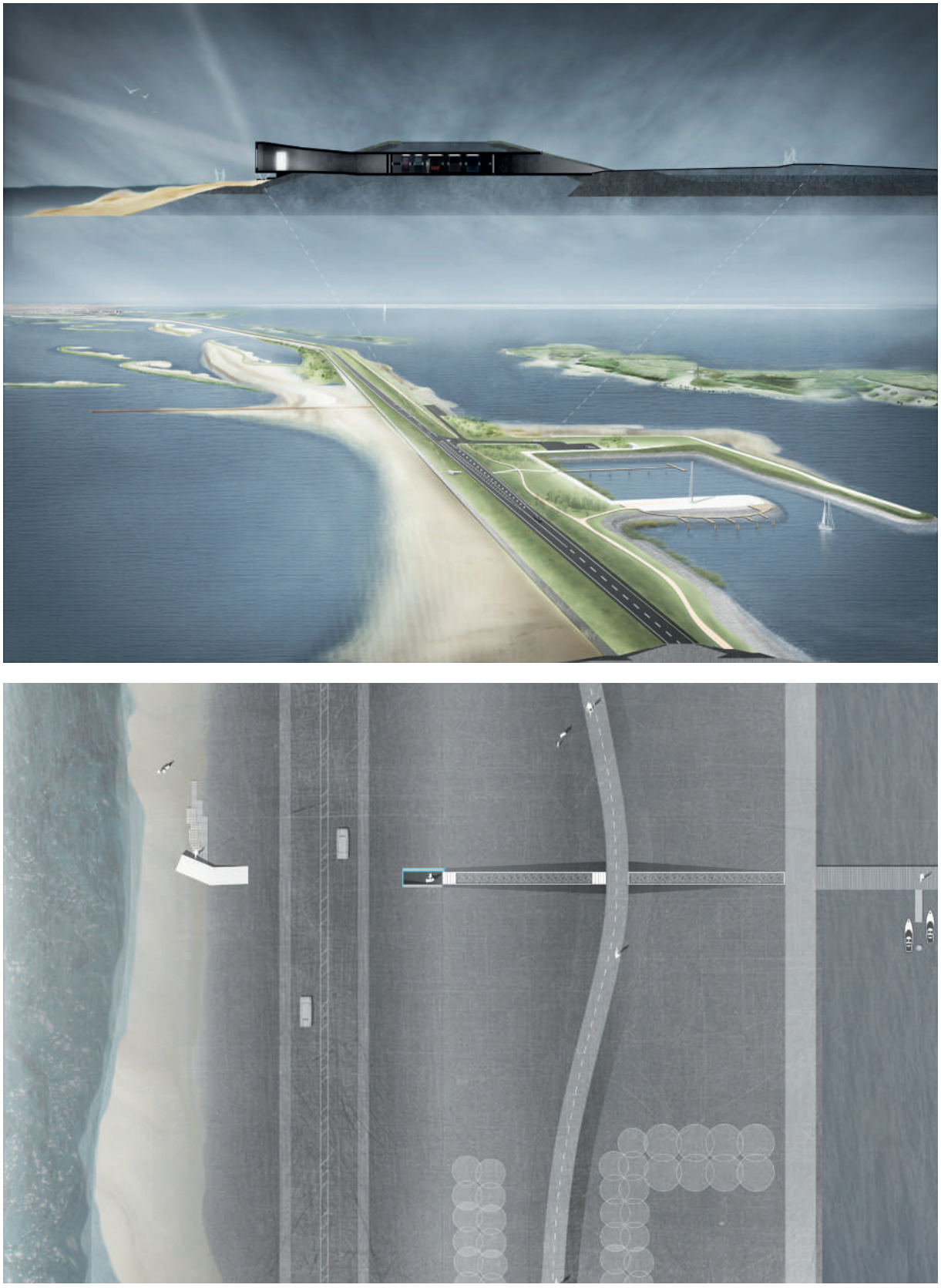
Design and diagram explaining the proposed landscape
Planting plan based on seasonal variation, terrain slopes and water dynamics and quality - from fresh to brackish to salty (project: 'Reveal the unseen').

Flowscapes studio, Circular Water Stories Lab, Man Chuan Lin, 2019/20





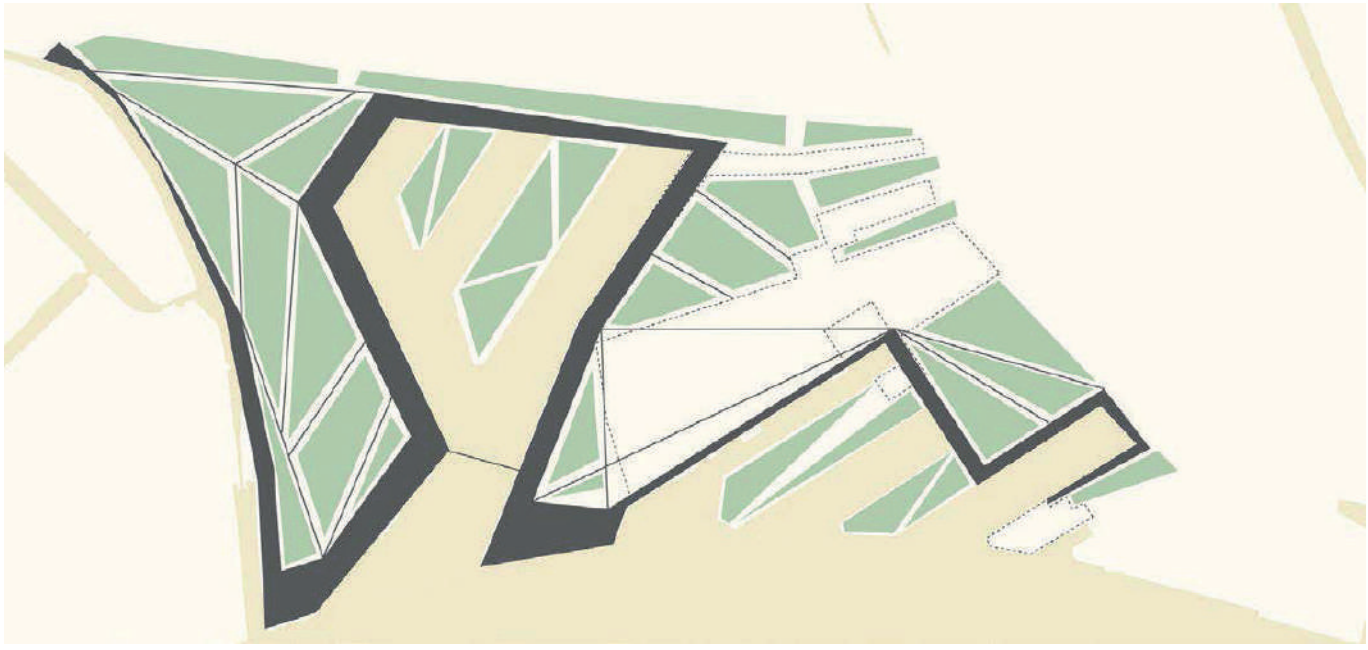
Isometric drawings expressing a foreseen landscape transformation
Four time-frames compose a framework to enable alternative ways of reading, intervening and representing the site's regeneration process (project: 'Unfamiliar territory').

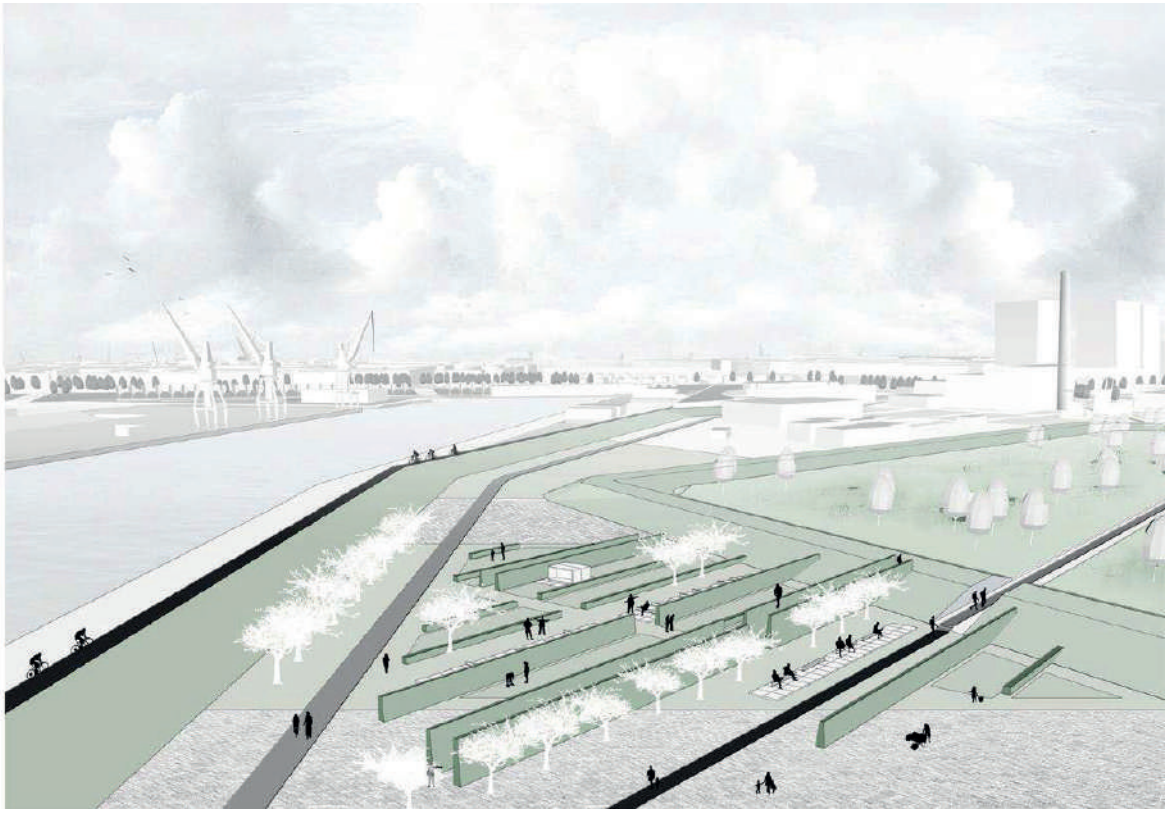


Presentation drawing of the design
The reinforced Houtribdijk in the Dutch IJssel Lake as a multi-purpose utilitarian landscape (project: 'From Infrastructure to flowscape').

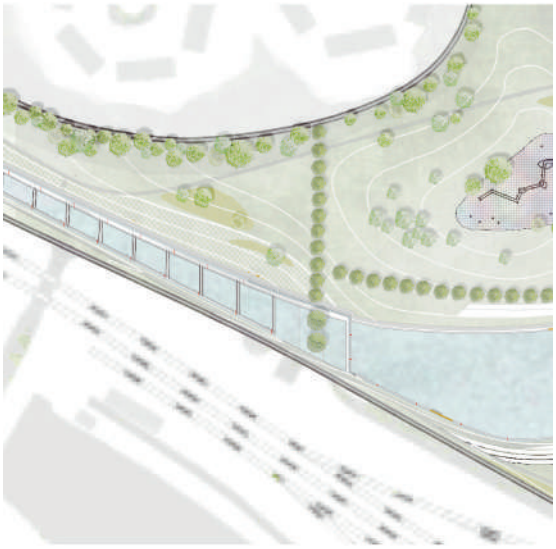
Inviting landscape installation
Dune strollers are invited to sit down and relax in the blue chair and enjoy their view on the landscape (project: 'Institute of Time Taking, Oerol festival').

Model showing longitudinal and lateral sections
Visualization of landscape design for urban agriculture in Maksuda, Varna, Bulgaria (project: 'Forum Romanum in Varna').





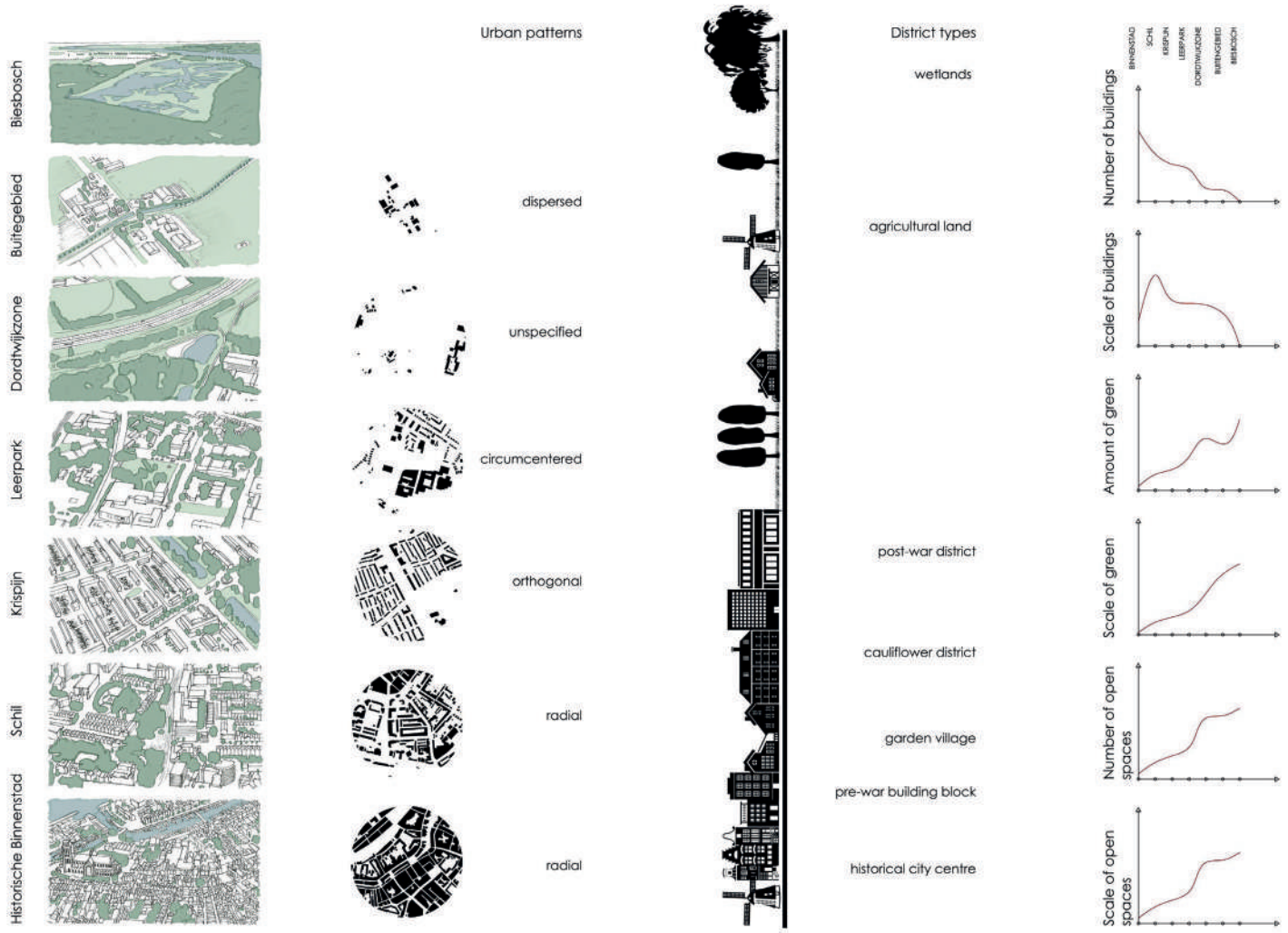
Design drawing for a former harbor area
Geometrical concept (1) of the design proposal; perspective (2) of the harbor park (project: 'Merwe-Vierhaven waterfront park').



Design proposal and perspective drawing
The design offers a varied and differentiated spatial experience alongside a series of cascading azolla ponds (project: 'Rethinking parks in a shrinking setting').

Flowscapes studio, Urban Ecology Lab, Lok Yan Chu, 2019/20

Perspective of energy producing public space
Collage of design proposal for the former Maritime Museum square in Rotterdam; a patchwork of solar energy panels create awareness among passengers (project: 'Energy awareness in public space design').



Diagrammatic reproduction of spatial characteristics
The city of Dordrecht in the Netherlands, explained as a collection of residential neighborhoods, each interpreted as an urban landscape (project: 'Dordrecht floodscapes').

Flowscapes studio, Maria Sachsamanoglu, 2017/18

Urban metabolism

Wolman (1965) describes in 'The Metabolism of Cities' a kind of hypothetical city that is compared to the human body.[1] In practice, the study of an urban metabolism involves an overall quantification of the inputs, outputs and storage of energy, water, nutrients, materials and waste for an urban region.[2] This can be broadened to include related flows such as logistics, biota and so on. In recent years two branches seem to have developed in urban metabolism studies, one taking an environmental, the other a more sociological perspective. The spatial perspective did not receive the attention it deserved for a long time.[3]

The focus of the International Architecture Biennale Rotterdam 2014 – Urban by Nature was on this topic.[4, 5] How can the characteristics and possibilities of substance flows best be applied to urban life by means of spatial design? And also, our own TU Delft Landscape Architecture Flowscape graduation studio touches on this perspective, linking flows to different scales, vision making, site design and sense of place.

The discrepancies between the seeming exactness of urban flow quantifications and the complex process of coming to design propositions make the usability of urban metabolism often fuzzy. Therefore, a step-by-step approach is suggested here:[6]

Analyse the flows, depict the facts and figures and define a knowledge base covering a wider socio-economic context and the attached challenges, involving stakeholders and frontrunners from the start. Make a spatial representation of the data and knowledge found, such as in the form of flow diagrams and schematic illustrations of the flows in direct relation to the landscape's spatial systems. Formulate the different relationships between individual flow systems, quantitatively, qualitatively and spatially. Define the assumptions, objectives and barriers to possible future scenarios. Extract the challenges and opportunities of different scenarios for realizing circularity or reciprocity.

Develop a spatial strategy in the form of an architectural vision, including the type of interventions required to enhance urban metabolisms. During this step the flows that are useful to be combined are brought together and potential synergies are described. Assess and improve the design propositions in an iterative way. Every iteration should think through how the efficiency and effectivity of flows can be enhanced, what the environmental impact of a design proposition is and how it could improve the quality of life in the widest sense of the word.

NT

1. Nancy Golubiewski, "Is There a Metabolism of an Urban Ecosystem?: An Ecological Critique," *Ambio* 41, no 7 (2012); Abel Wolman, "The Metabolism of Cities," *Scientific American* 213 (1965).

2. Christopher Kennedy et al., "The Study of Urban Metabolism and its Application to Urban Planning and Design," *Environmental Pollution* 159 (2010).

3. Rob Roggema, ed., *TransFEWmation: Towards Design-led Food-Energy-Water Systems for Future Urbanization* (Springer International Publishing, 2021).

4. George Brugmans et al., *IABR-2014: Urban by Nature*, Catalog of the International Architecture Biennale Rotterdam (Rotterdam: International Architecture Biennale Rotterdam, 2014);

5. Nico Tillie et al., *Urban Metabolism: Sustainable Development of Rotterdam* (Rotterdam: International Architecture Biennale Rotterdam, 2014).

6. Nico Tillie, "Synergetic Planning and Designing with Urban FEW-Flows: Lessons from Rotterdam" in *TransFEWmation: Towards Design-led Food-Energy-Water Systems for Future Urbanization*, ed. Rob Roggema (Springer International Publishing, 2021).

Metropolitan landscape

Design locations in the Landscape Architecture Master track vary from nature reserves and polder landscapes to condensed urban cores. Although these are highly different situations with their own unique history and ecology, they follow the same inherent landscape logic, where even the most urban area is influenced by the landscape underneath and the most natural area is influenced by urban forces. Even the Himalayas are littered with human debris and Sherpas can distinguish the traces of human infrastructure to find their way to the top. Even the grid of Manhattan is determined by the natural shape of the island.

These are all components of the metropolitan landscape, which is a hybrid, complex and profound mix of city and landscape, nature and culture, spaces and flows. They are not clearly divided, but exist in a gradient, including diffusion as well as densification. The metropolitan landscape can be defined as a hybrid of different systems, overlapping and interacting: that of nature, that of the agricultural landscape and that of the city, each with its own topography, morphology, spatial form and visual structure. The landscape interacts with the urban condition as a permanent, underlying substructure, as a physical open space system, and as metabolic process. This interaction leads to various intermediate spatial forms characterized by flexible and dynamic relationships, congestion, layering and interpenetration. According to Lars Lerup, in this unstable, dynamic environment the continuity and compositional logic of the classical city appear to be replaced by a contiguity of elements and networks, different spatial conditions that exist next to and on top of each other in a constant process of formation.[1]

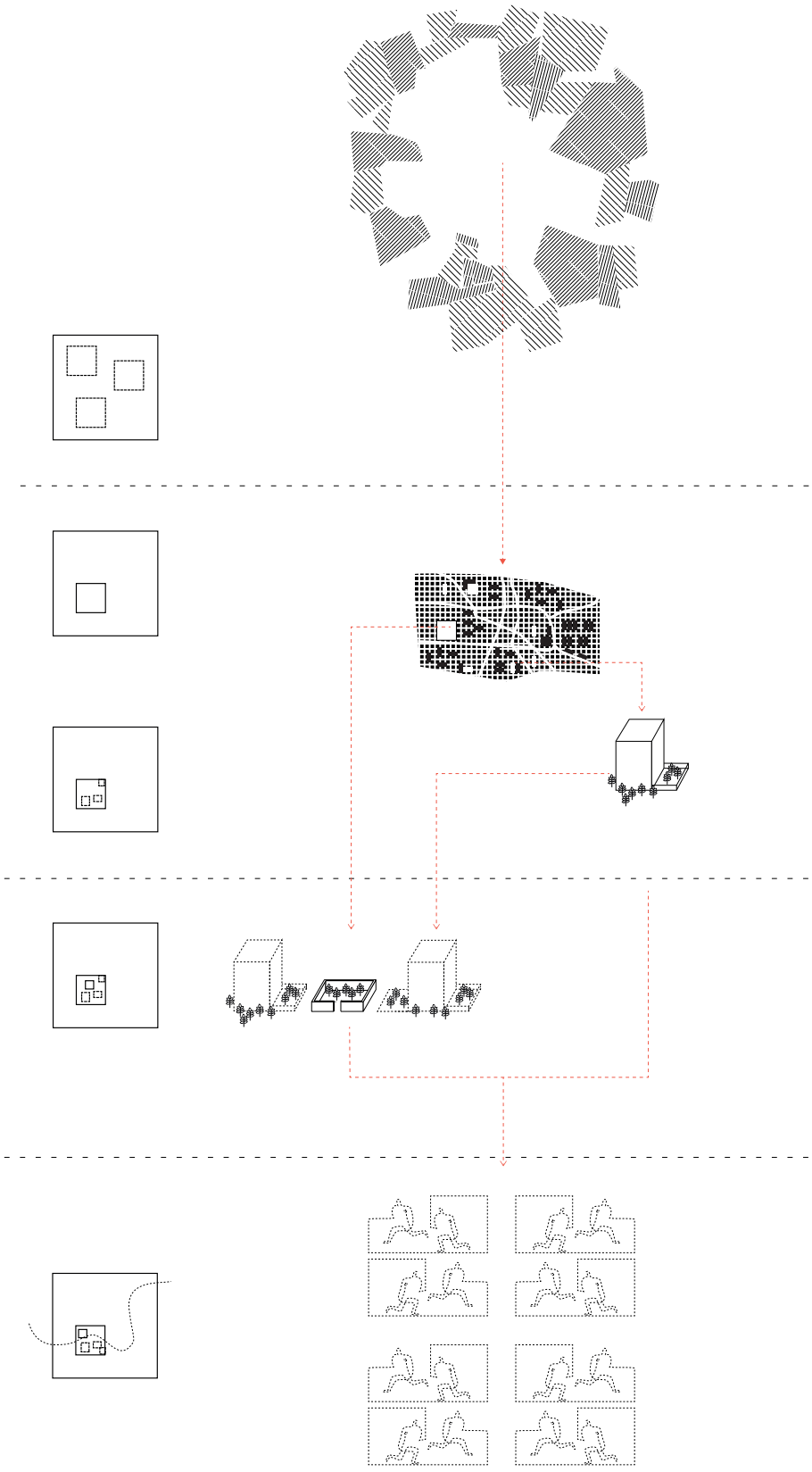
The metropolitan landscape is not so much a new landscape type or a new type of urbanity, not a spatially defined artefact, but a new way of looking that replaces the classical urban–rural dichotomy with a range of all kinds of urbanity, landscape and infrastructure. Historically, urban and rural realms were divided administratively, economically and in planning terms. The hinterland was, by definition, a place demarcated by interaction with a centre. But these notions, based on clear distinctions between core city and urban fringe, centre and periphery, city and landscape and town and country, are not capable of addressing the current condition of a polycentric and fragmented patchwork urban-landscape tissue. For a long time, greater freedom of movement has loosened the urban fabric, activities have become more scattered and "urbanity is no longer the exclusive trait of the city dweller; the suburbanite and the exurbanite are among the most urbane of men."[2] When, as a result of the continuous process of urban expansion and transformation, the entire territory ultimately disintegrated and the city became polynuclear, the difference between city and landscape becomes blurred. Thomas Sieverts coined the notion of *Zwischenstadt* [the 'in-between city'] highlighting the interstice as the new urban realm, extended green areas, which tend to form the (unplanned) core of new urban developments, a new fractal urban pattern, which – if addressed and cultivated – can yield valuable tools for addressing the metropolitan condition.[3] The resulting metropolitan landscape is characterized by multiple modes of organization and dynamic socio-spatial processes. What is hinterland and what is centre becomes, at best, but a difference in magnitudes of information flow and of volumes of activity.

SdW

1. Lars Lerup, *After the City* (Cambridge, Mass.: MIT Press, 2000); Clemens M. Steenbergen and Wouter Reh, *Metropolitan Landscape Architecture* (Berlin: Birkhäuser, 2011).

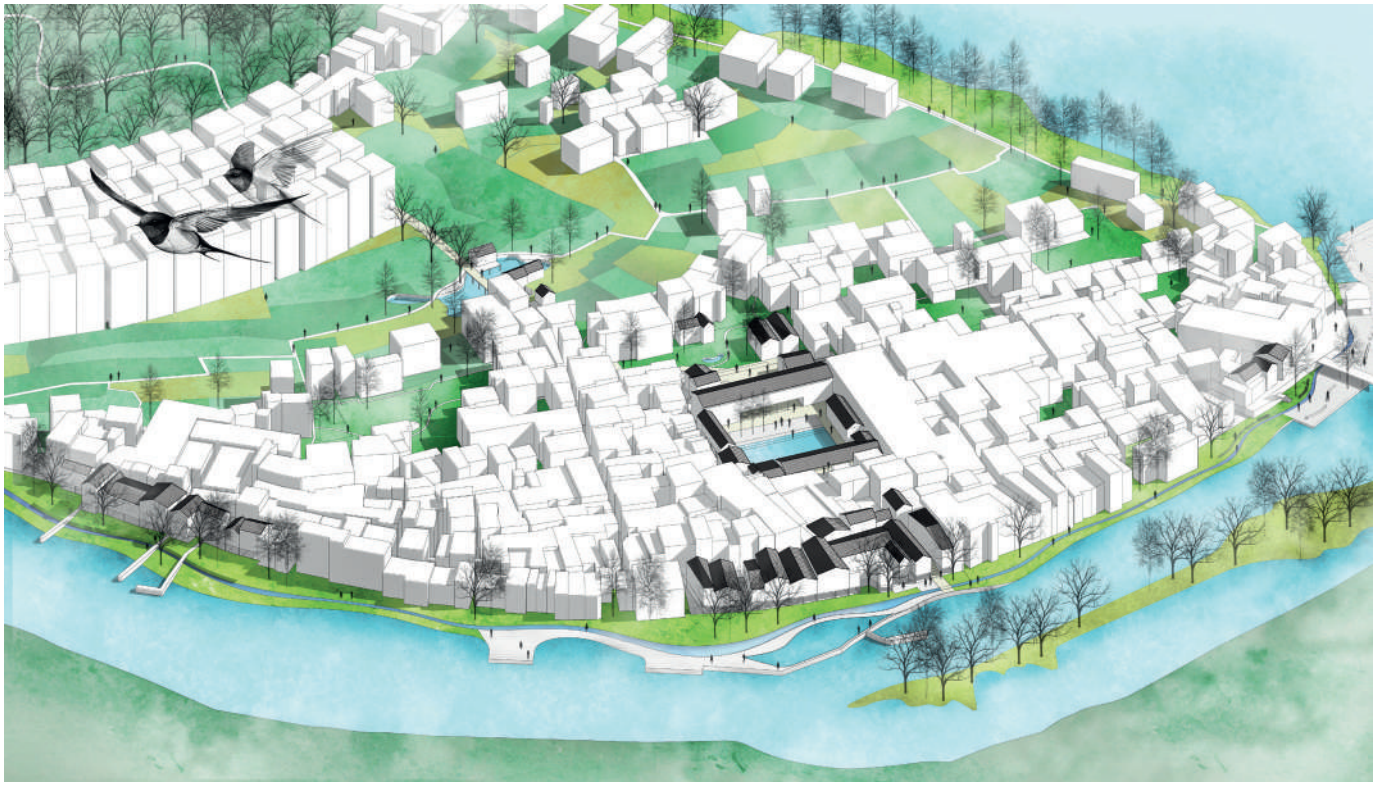
2. Melvin M. Webber, "Urban Place and Nonplace Urban Realm," in *Explorations into Urban Structure*, ed. Melvin M. Webber, John W. Dyckman, Donald L. Foley, Albert Z. Guttenberg, William L. C. Wheaton and Catherine Bauer Wurster (Philadelphia, PA: University of Pennsylvania Press, 1964), 89.

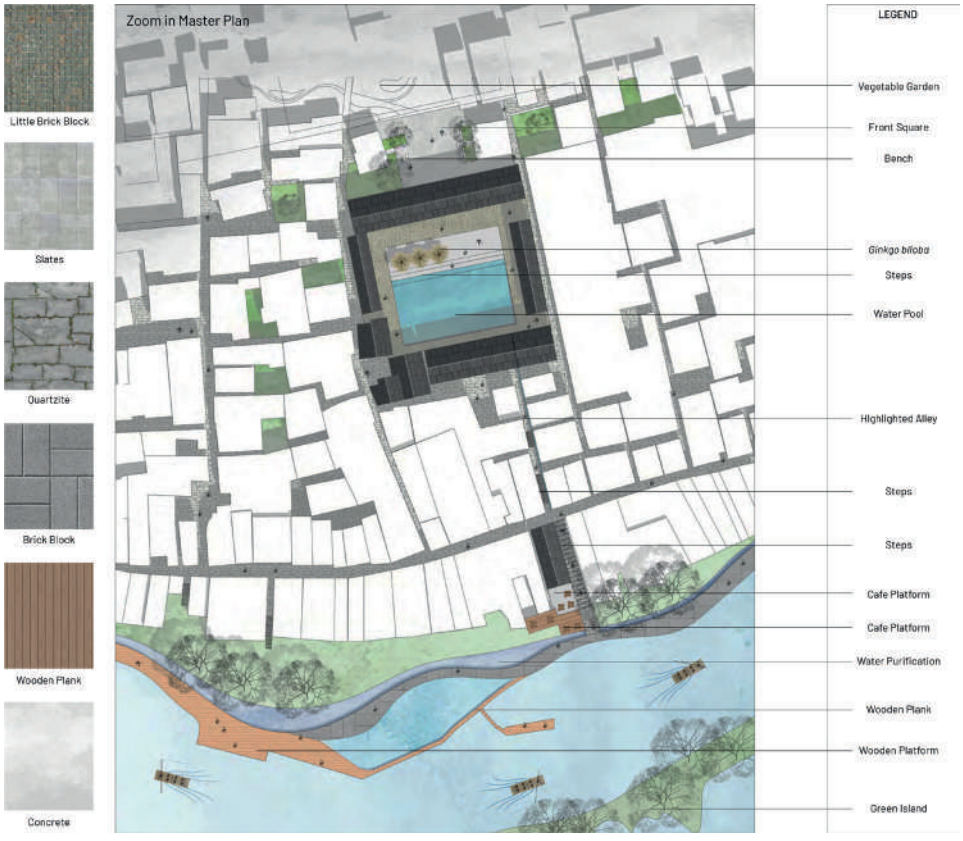
3. Thomas Sieverts, *Zwischenstadt: Zwischen Ort und Welt, Raum und Zeit, Stadt und Land* (Berlin: Birkhäuser. 1997).



Schematic representation of scale levels
In four steps from the metropolis to the street and the square (project: 'Frame of frames').

Flowscapes studio, Explore Lab, Maria Alexandrescu, 2014/15





Bird's eye view and isometric map showing landscape proposal
Design for new public spaces along the dynamic riverfront and around the water square (project: 'A new watery balance').

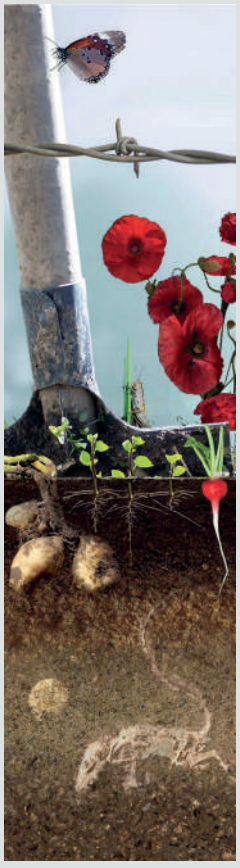
Flowscapes studio, Circular Water Stories Lab, Jiawei Zhao, 2019/20

Perspective and plan for urban and landscape restoration
Masterplan for the riverfront and detailed design of the water garden as publicly accessible green spaces in a post-war city (project: 'Re-connecting Mostar').

Flowscapes studio, Neretva Lab, Anna Saracco, 2018/19

Manipulated photograph and section
Sub-humid biotope features in paved Athens, Greece (project: 'Athens in Flux').

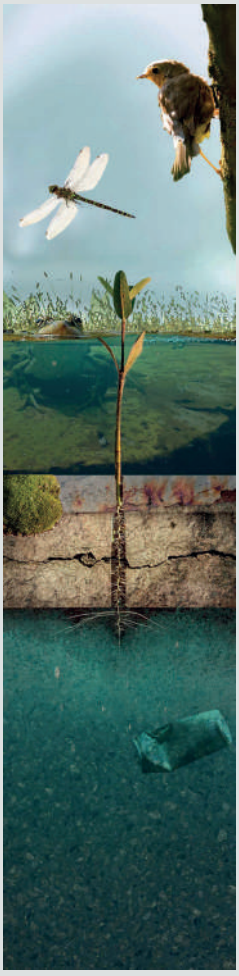
natural landscape



garden landscape

industrial landscape

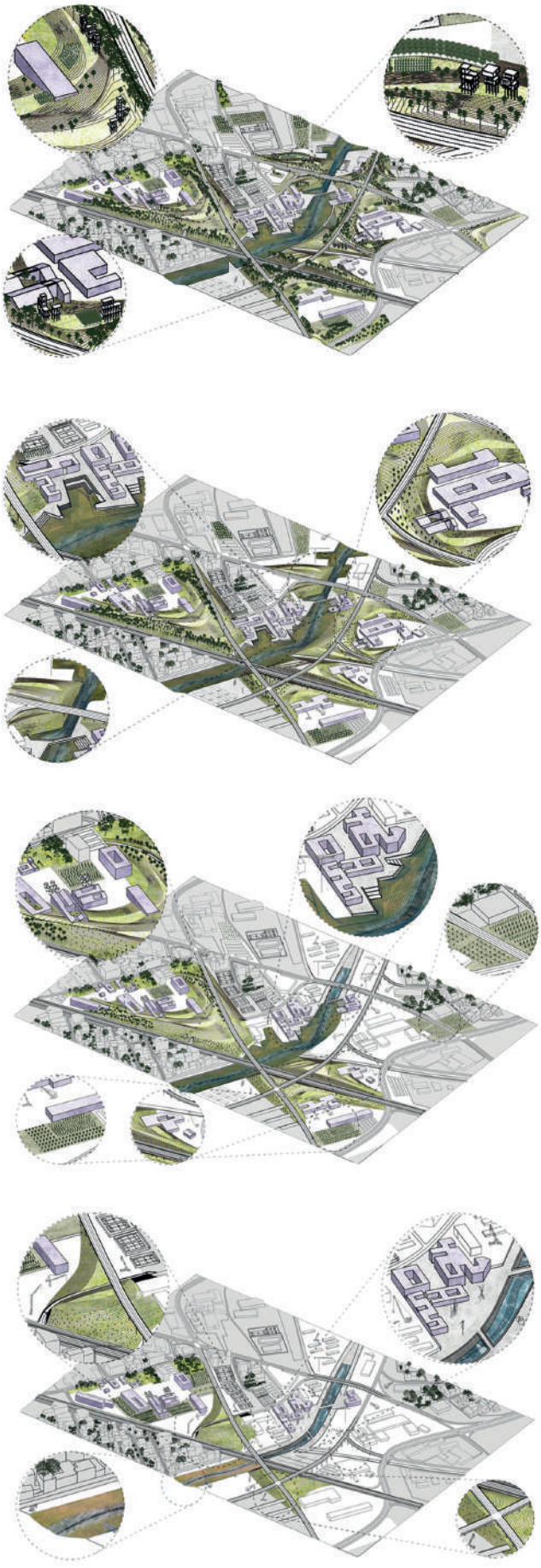
post-industrial landscape



prospective landscape

Collage of miniature biotopes
Experimental observation and reproduction of plant growth under different conditions.

Associative mapping
Exploration and reproduction of the character of the Rotterdam area, Netherlands.

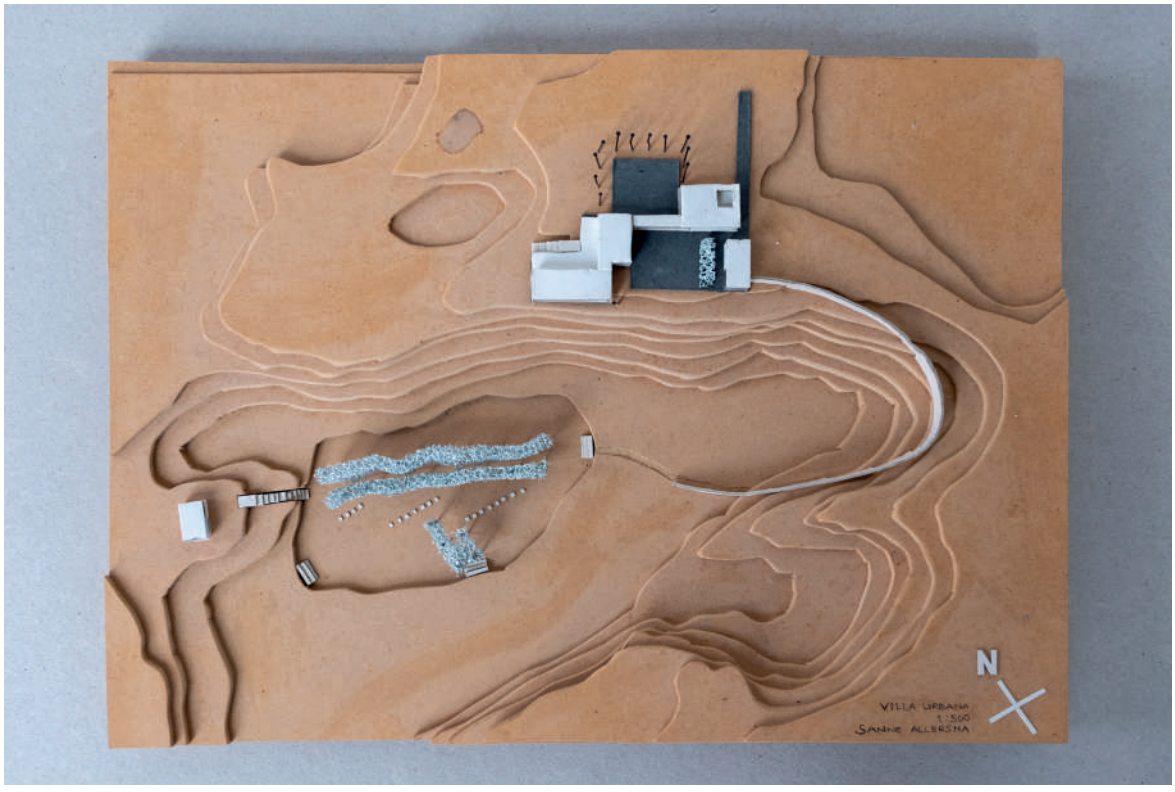


Fourfold representation of the design proposal
Layered drawing illustrating consecutive interventions over time aimed at the creation of more space for water and of a greener, healthier environment in Athens (project: 'Oppositions of Kifissos').

Flowscapes studio, Lela Chronopoulou, 2017/18

Bird's eye view of landscape design
This proposal of a pocket park for the TU Delft campus demonstrates the technical and spatial elements of a polder composition.

Bird's eye view of a proposed urban landscape
Besides restored access to the river, the plan offers a market space in the park for all inhabitants and improved water quality (project: 'Breath').



Models showing the insertion of a villa in a quarry landscape
The interrelation between house and surroundings interpreted as a gradient between cultivated and wild, between private and public.

Nature

'Nature' can lay claim to being the most central of terms in landscape architecture. It permeates the discipline in all kinds of ways, from its working materials to its operations and agencies, and from its methodologies to its historical and ontological foundations. These permeations reveal themselves in teaching and learning throughout the Master programme, the results of which are evidenced in one way or other by all of the student work in this publication. The diversity of these outcomes testifies to the fluidity of the term for the discipline and the need for students to be conscious of how they think about nature and the ways in which they engage with it in their work. The dilemma for them (and for the teaching staff) is that while nature is a permanent theme in the discipline, the term is both broad and mutable. As Williams observes, nature is an abstraction, a set of ideas for which many cultures have no one name, "a singular name for the real multiplicity of things and living processes."[1]

Scholarly attempts to map and describe the status quo of this multiplicity offer frameworks for reflection and considered design action. Drawing on a continuum of disciplines across the sciences and humanities, Drenthen, Keulartz and Proctor identify five major contemporary conceptions of the term 'nature': *evolutionary nature* as a scientific vision arising from evolutionary processes which, via fields such as evolutionary psychology, has been applied to account for the nature of human thought and behaviour; *emergent nature* as a reality in which parts do not sufficiently explain the whole, seeing nature, via the origin and behaviour of a range of complex systems – ecosystems, the heart, even consciousness – as an emergent phenomenon; *malleable nature* as the notion that biophysical and human nature are subject to human alteration, challenging whether certain things understood to be natural are 'really' natural or bear traces of human influence; *nature as sacred* as a popular (non-scientific) point of view whereby nature is understood as possessing sacred or spiritual qualities; and *nature as culture*, standing in stark opposition to evolutionary theory, whereby nature is seen not so much as a reality, but as a human idea of that reality.[2]

Frameworks such as these offer students reflective tools to help them position and problematize their personal – and societal – approaches to the natural world and to develop appropriate responses to design briefs. Extending these ideas to planning and design practice, we can note the emergence of a related and partly derivative set of lenses to unravel the multiple meanings of the term 'landscape', including: landscape as earth-life system, landscape as habituated milieu, and landscape as experiential scene/setting.[3] These lenses in turn backdrop the quartet of operative perspectives and related methodologies for contemporary spatial/landscape design: (1) Perception, (2) Anamnesis, (3) Multi-scalar thinking and (4) Process design.[4] These perspectives form the backbone of studio teaching in the Landscape Architecture Master programme at TU Delft.

RvdV

1. Raymond Williams, *Problems in Materialism and Culture: Selected Essays* (London: Verso. R., 1980), 67–85.

2. Martin Drenthen, Jozef Keulartz and James Proctor, eds., *New Visions of Nature* (Dordrecht: Springer Netherlands, 2009).

3. James Corner, "Eidetic Operations and New Landscapes," in *Recovering Landscape: Essays in Contemporary Landscape Architecture* (New York, NY: Princeton Architectural Press, 1999), 153–170; René Van der Velde, *Transformation in Composition: Ecdysis of Landscape Architecture through the Brownfield Park Project 1975–2015,* PhD Dissertation (Delft: TU Delft, 2018).

4. Sébastien Marot, "The Reclaiming of Sites," in *Recovering Landscape: Essays in Contemporary Landscape Architecture*, ed. James Corner (New York, NY: Princeton Architectural Press, 1999), 45–57; Martin Prominski, *Landschaft Entwerfen: Zur Theorie aktueller Landschaftsarchitektur* (Berlin: Reimer, 2004).

Palimpsest

Landscape architecture is not about creating, but transforming a landscape that already exists. It is a purposeful intervention in which new uses, practices and meanings are integrated into the existing topography. As they appear to us at any one time, landscapes are the result of a series of past developments, of a succession of layers and a series of decisions taken at different moments for various reasons.

As such, landscapes can be considered as *palimpsests*. A palimpsest is a reused piece of parchment that has been written on. Because parchment was expensive, the top layer of this parchment with the text on it was scraped off so that the parchment could be written on again. One would think that many ancient writings were lost this way, but the opposite is true as the original text often remained partly visible. Thanks to the costliness of parchment many ancient writings have been preserved that would otherwise have been destroyed along with the parchment.

As with these precious parchments, landscapes are 'reused' when their meaning or function becomes obsolete. The patterns of the preceding landscape are still visible, but unlike parchments, the traces of the old determine how the transformation of the landscape took place. Landscapes can be 'read' as biographies that reveal the political, cultural and economic changes of the past as layered entities. These traces of different times can reinforce or contradict one another as old and new patterns are superimposed and present at the same time.

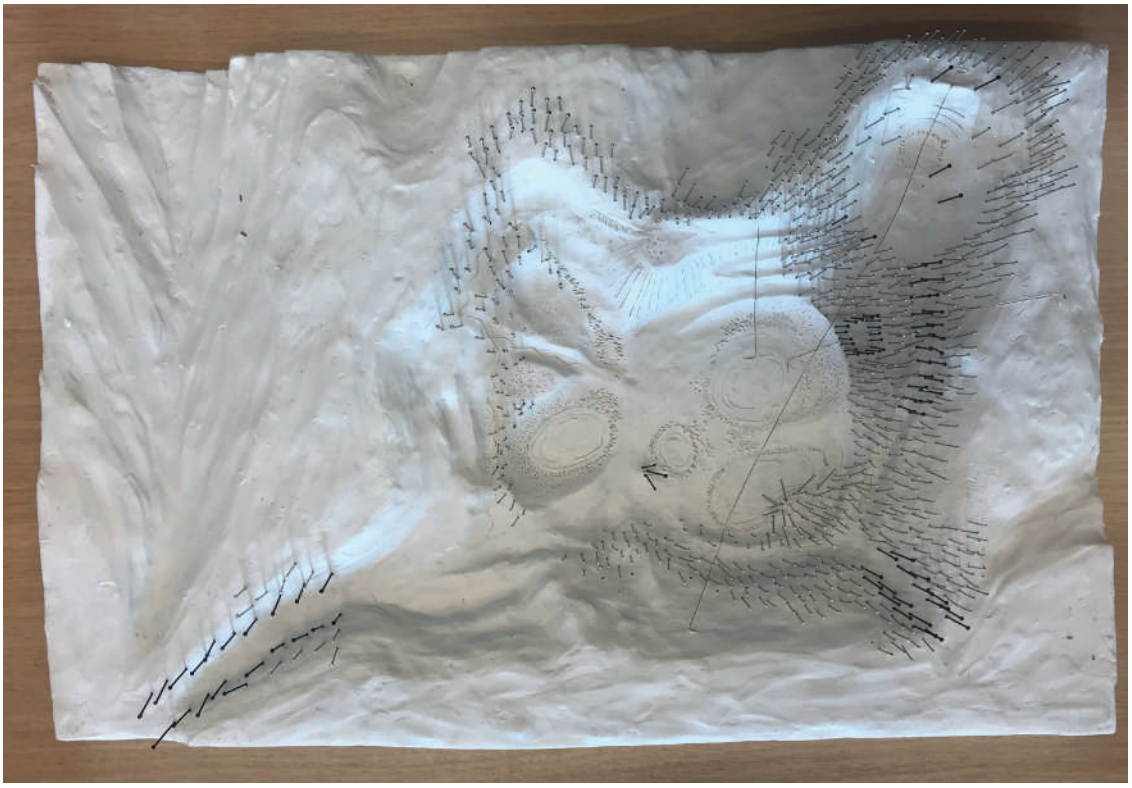
The physical spatial development crystallizes into different stages, each with their own organization and form. The starting point of this development is the natural landscape. Its form can be thought of as consisting of several 'basic forms' whose physical appearance reflects its geological evolution, defined by the interaction of earth, water and wind. The cultural landscape arose out of the cultivation of the soil, the social-cultural-technical adaptation of this natural landscape, generating its own patterns, materials and narratives. The urban landscape, in turn, arose from a civil engineering process enacted on both natural and cultural layers to accommodate the urban functions of living, working and recreation. The historical stratification and the spatial coherence of the morphogenic system of nature, the cultural technical system of agriculture and the civil technical system of the city form the landscape-urban system. The landscape form reflects its genesis but has no formal determinations: the form is latent, implicit, present, but not yet made explicit.[1]

Landscape architectural design adds successive chapters to this ongoing story. Knowledge of existing layers is one of the starting points for new landscape transformations. When the implicit form of the natural, cultural or urban landscape is expressed and made explicit in the design, one can speak of a landscape architectural transformation. This transformation is not an unambiguous reflection of the substrate in the form, but is accompanied by transformations to create a three-dimensional architecturally controlled coherence, which makes the landscape as an independent identity expressive. This attention to the past does not mean that a landscape architect should shy away from radical changes when needed: a well-considered response in dialogue with what went before may be a subtle transition or a sudden rupture; either way, it is a conscious response to the landscape as a palimpsest, a new layer in response to the layers already there.

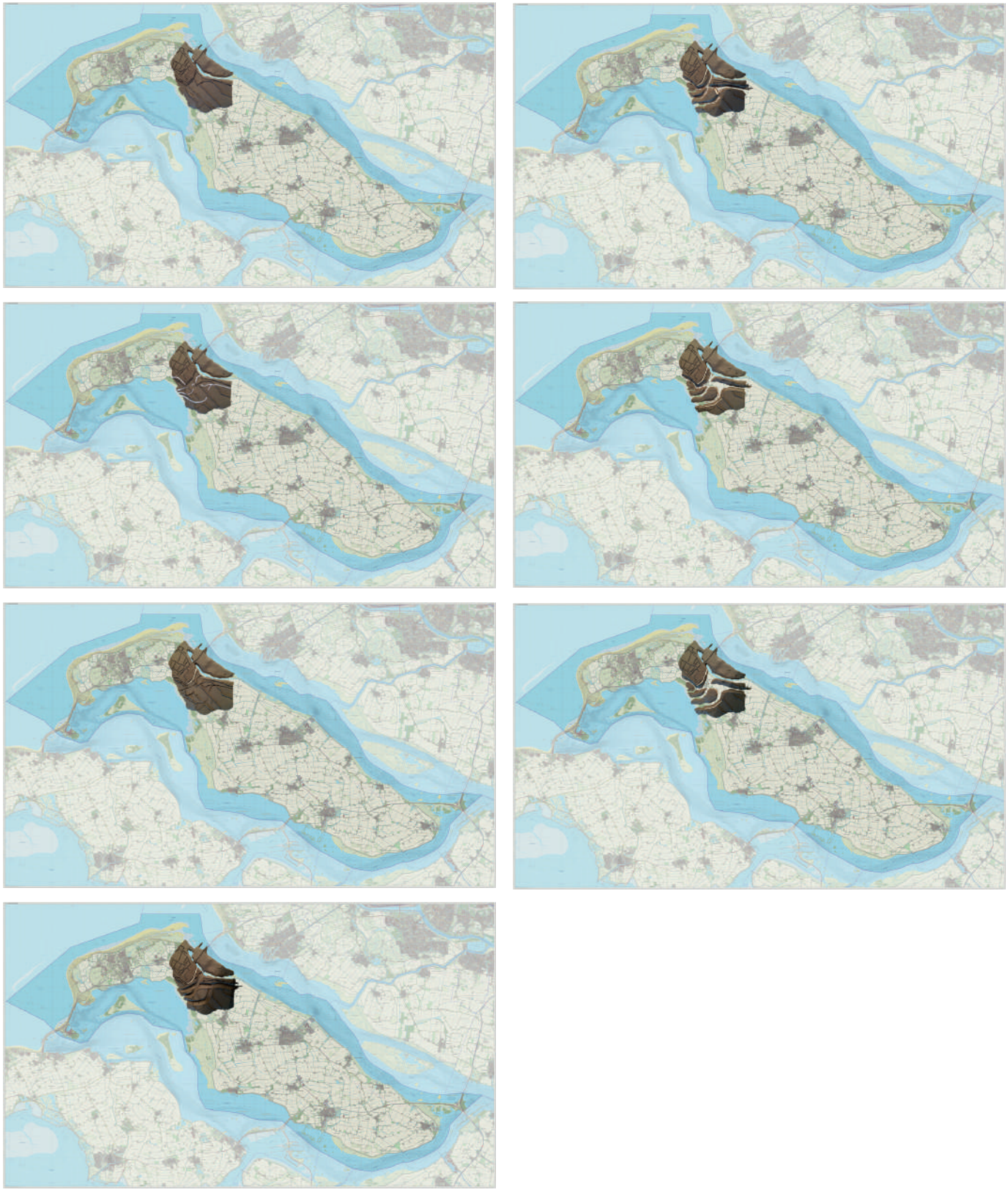
Landscape is an ambiguous notion and cannot be truly understood when looked at from a single perspective. Each landscape transformation must therefore be viewed and conceived from different angles. Palimpsest thinking is one of the four complementary perspectives underlying all courses of the Delft Landscape Architecture Master track: palimpsest, perception, process and scale continuum. The Delft interpretation of these widely accepted perspectives is that the interrelations between them are an expression of the site-specificity of design and of the interdependence of analysis and design.

SdW

1. Saskia de Wit, "Layered Lowlands," in *The Architecture Annual 2003–2004*, ed. Henco Bekkering, Deborah Hauptmann and Hans de Jonge (Rotterdam: 010 Publishers, 2005), 112.



Models to explore and represent space
Different materials clay and pins (1) and foam-sheets staked on top of each other (2) are used to test the composition.



Clay model on topographic map
Demonstrating the development over time of the water passage between Goeree and Overflakkee in the Dutch delta (project: 'People watch, let nature build').

Viewing box showing historical transparency
The gradual transformation of the Rotte landscape is depicted by time-frames that offer insights on the form and use of the landscape through time.

the ohlsdorf park
2050

spring

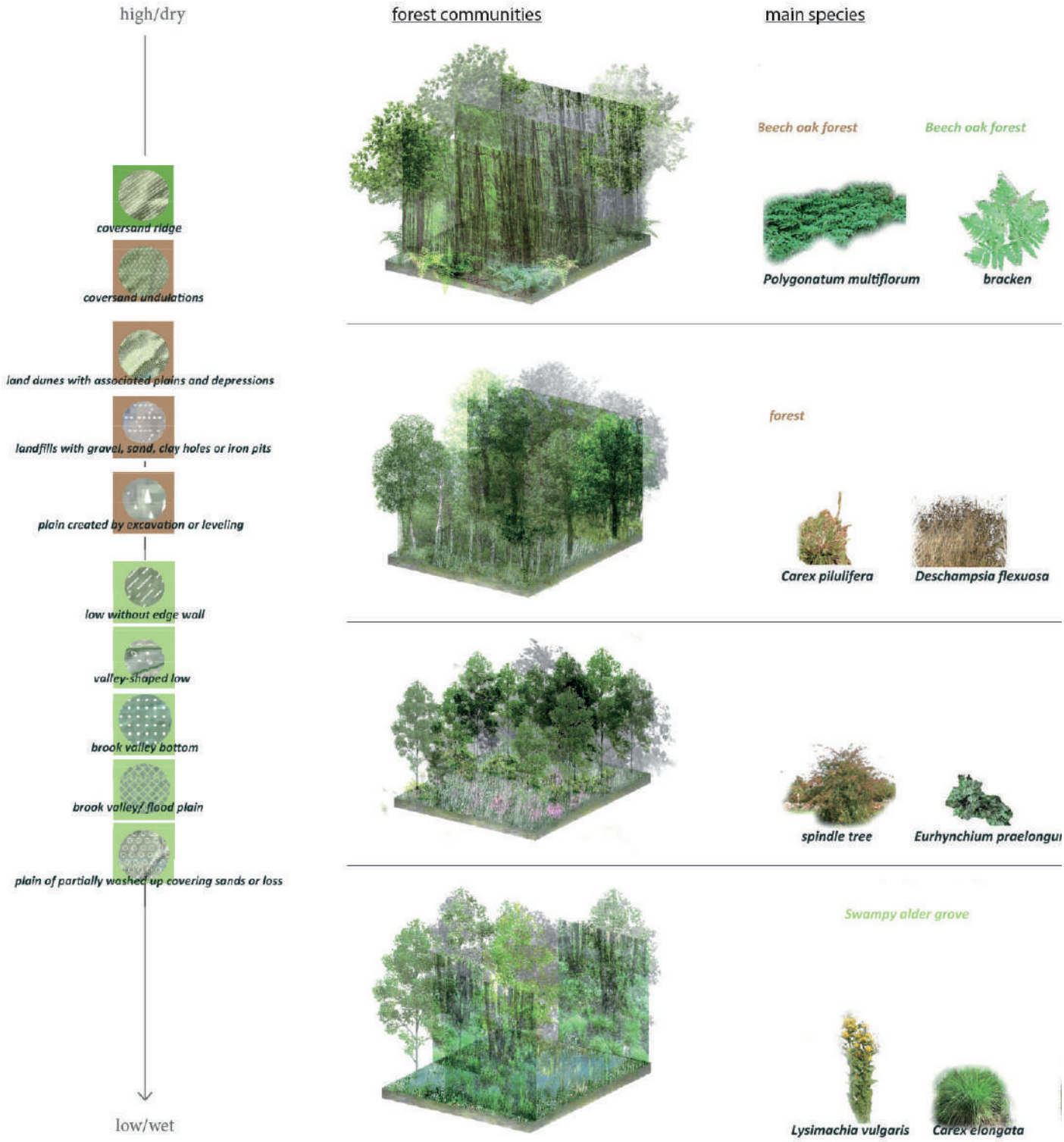
summer

fall

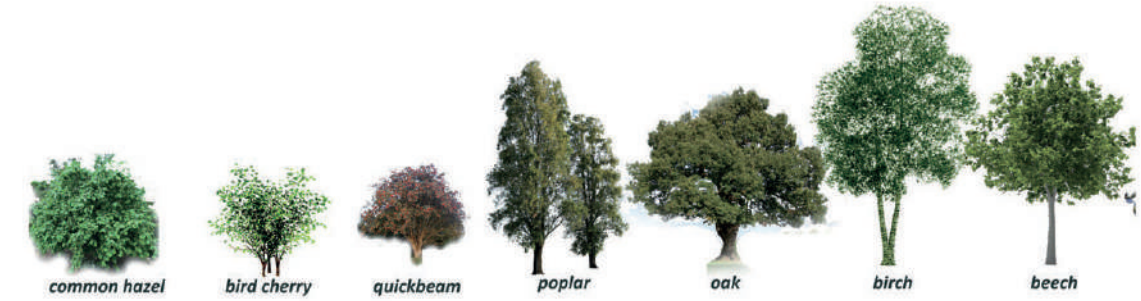
winter

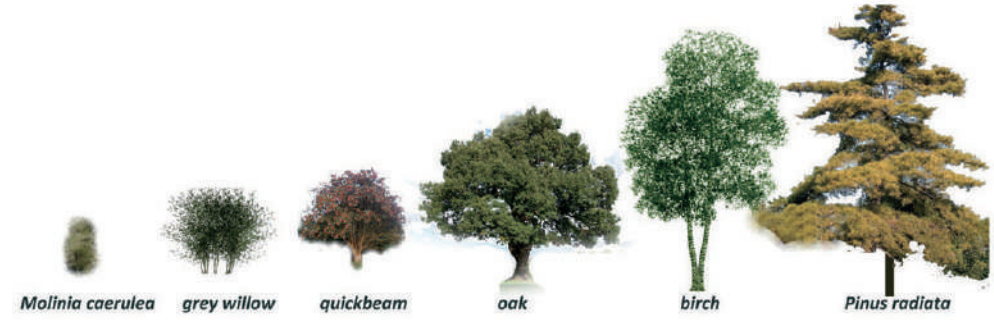
Illustrating seasonal differentiation
Plan for the transformation of the cemetery of Ohlsdorf into a park, showing how the use of green public space changes over the seasons.

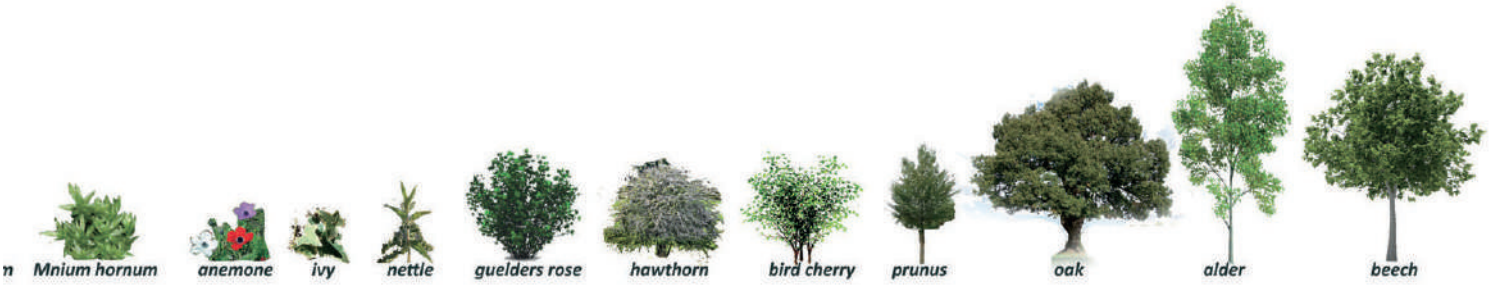
Two drawings that show the desired ambiance of the design
Impression of the urban garden (1) and the rural meadow (2) in which mowing patterns can enable various types of use (project: 'IJsselmonde regional park').

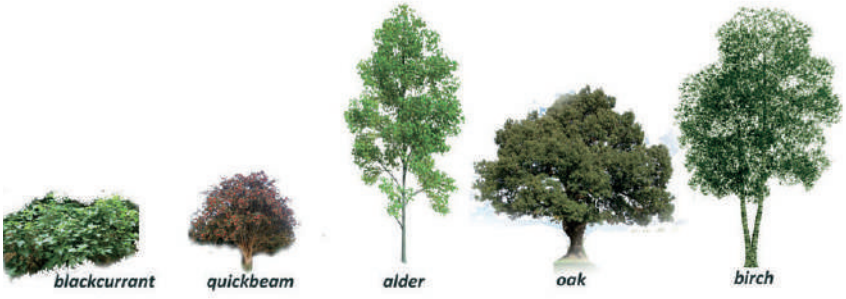


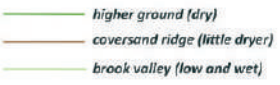
Flowscapes studio, Gardens of Gelderland
Lab, Yanjiao Wang, 2019/20





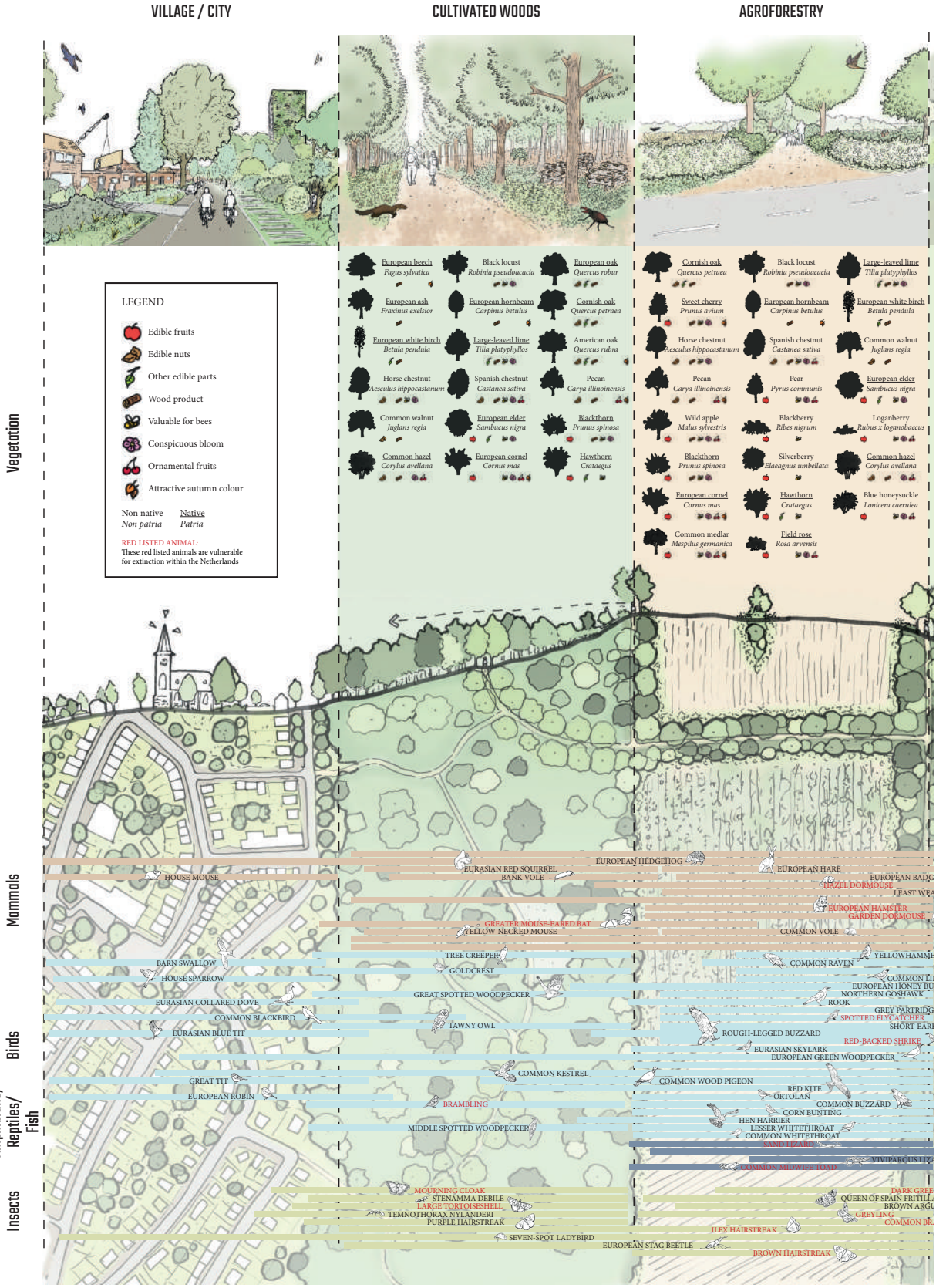




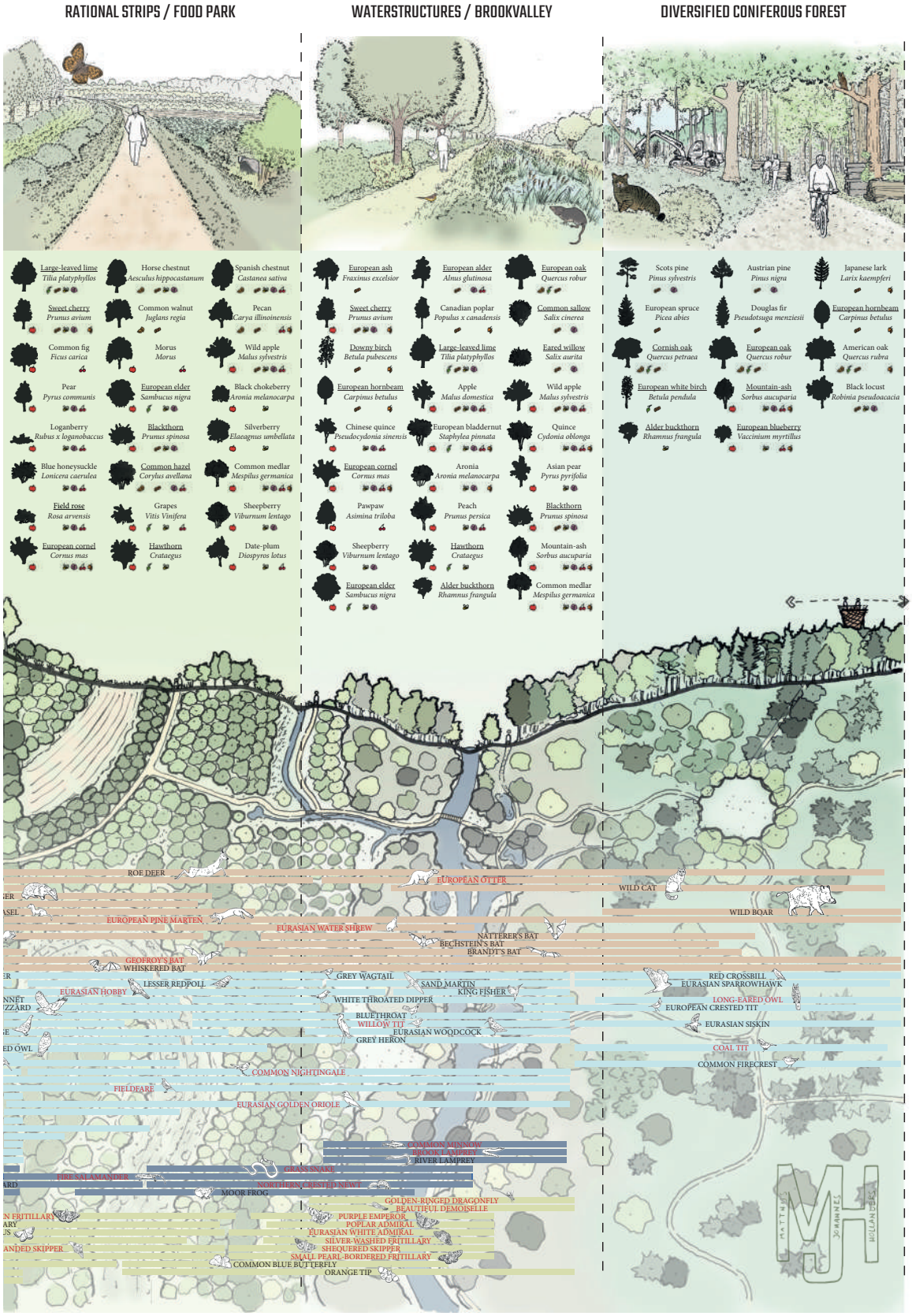


Forest communities species are based on description from Leuschner, C., & Ellenberg, H. (2017).

Images of landscape components
Study on forest communities as design tool (project: 'Forest landscape restoration for climate-adaptive estates in the Baakse Beek region in Gelderland').



Flowscapes studio, Urban Ecology Lab, Matthijs Hollanders, 2019/20



Landscape ecological analysis
Detailed overview of the tree-animal relations at specific sites (project: 'Productive Symbiosis').

Atmospheric collage with mixed media
Image expressing several kinds of connectivity (project: 'Breaking the dike, Holwerd at Sea').

Perceiving space

Perceptual experience – which includes sensory elements, memory, knowledge and the conditioning and habits of the body – affects the range as well as the character of any environment.[1] Whether or not people are aware of the sounds or smells that surround them, or of the quality of the light, these are part of their habitat and enter into their perceptual experience. They are constantly filtering the sensory input they receive, translating it into information and constructing meaning.

That is why in landscape and landscape architecture, space is not conceived as an abstraction or the emptiness defined by a series of surfaces, but as "a habitat in which the sky and what is underground engage in multiple relationships defined by the nature of each of them."[2] Perceived space consists of physical as well as ephemeral and structural components. It concerns the shape, dimensions and proportions of the space, and the materiality, the plasticity of topography, planting and buildings, as well as their appearance in terms of colour, texture and light, which includes dynamic aspects such as weather and seasonal changes. This involves not just the visual components of landscape but "the way the whole body senses and feels the environment [including] our feelings of rhythm, of hard and soft edges, of huge and tiny elements, of openings and closures, and a myriad of landmarks and directions"[3]. It also addresses spatial relationships in structural organization and organizing principles. When analysing and designing landscapes through the perspective of perceiving space, the focus is on the landscape as experienced 'from the inside' by an observer moving through space. The perceivable form can be considered as the 'container' which holds and evokes the 'content': intended and unexpected meaning(s), both planned and undefined programmes, uses, activities, and well-researched and not (yet) understood social and ecological processes.

Landscape is an ambiguous notion and cannot be truly understood when looked at from a single perspective. Each landscape transformation therefore needs to be viewed and conceived from different angles. Perceiving space is one of the four complementary perspectives underlying all courses of the Delft Landscape Architecture Master track: palimpsest, perception, process and scale continuum. The Delft interpretation of these widely accepted perspectives is that the interrelations between them are an expression of the site-specificity of design and of the interdependence of analysis and design.

SdW

1. Arnold Berleant, *Living in the Landscape* (Kansas: University Press of Kansas, 1997).
2. Sébastien Marot, "The Reclaiming of Sites," in *Recovering Landscape: Essays in Contemporary Landscape Architecture*, ed. James Corner (Princeton Architectural Press, 1999), 51.
3. Kent C. Bloomer and Charles W. Moore, *Body, Memory and Architecture* (Yale University Press, 1977), 34–36, 44.

Place

The word ‘place’ in landscape architecture means a specific location with defining characteristics that distinguish it from its surroundings and that can be perceived as a whole. It is a moment in space. However, as much as it is unique, a place is also determined by its surroundings. It does not exist in isolation. Place can be described as the “personality of the location,” as the inherent qualities of the landscape itself, “the combination of natural and man-made elements that comprises, at any given time, the essential character of a place.”[1]

But the notion of place cannot be solely assigned to the physical characteristics of landscapes. It also includes the affective bond between people and location, a relational concept concerning the personal history of the individual with place and community based on social relationships, personal knowledge and sensitivities, and on past experiences.[2] What feels as a place to one person can be meaningless to another. It is not a neutral container, but an active receptacle of shapes, powers, feelings, memories and meanings, organizing the qualities within it, enabling and evoking experience.

The qualities of place only become meaningful if they can be experienced; the interrelated and interdependent union of people and landscape that exists in places is one of experience. People read places by engaging all the senses, sight as well as sound, smell, taste, balance and touch; knowledge of place is a fact of sensory perception.[3] Form, that which can be perceived by our senses, is one of the most obvious attributes of a place. It is substantial and capable of being described. A place is a ‘perceptual unity’. Its characteristics make it perceivable as a coherent ensemble.

In order to be perceived as a unity, there is a limit to size. One can see over large distances, but not hear, smell and touch. The perception of place is related to the human body as the measure of direction, location, distance and movement, and one can identify more easily with a place close to the human body.[4]

Place cannot be created, but it can be made expressive. It is rare that the character of a location is already contained in a clearly discernible form that lends itself to creating a mental image of the place that one can identify with. In order to expose the essence of place, landscape architectural design is instrumental in defining the form that makes the qualities perceivable as a spatial, visual and sensorial unity. It brings specific landscape characteristics – which often have become hidden by metropolitan developments – to the surface.

When students are asked to make a site analysis, the aim is to diagnose not the problems, but the qualities of the place as the starting point for design. The landscape is considered as a catalogue of situations in which the *genius loci*, the identity of the place, is recorded and secured: the manifest properties of the place as well as its inherent, hidden qualities. The role of design is to expose what is already there, to make it accessible, visible, and perceptible, and to make it possible for people to connect to it. Plato tells us that to grasp the nature of place, “we must try to express and make manifest a form obscure and dim.”[5]

SdW

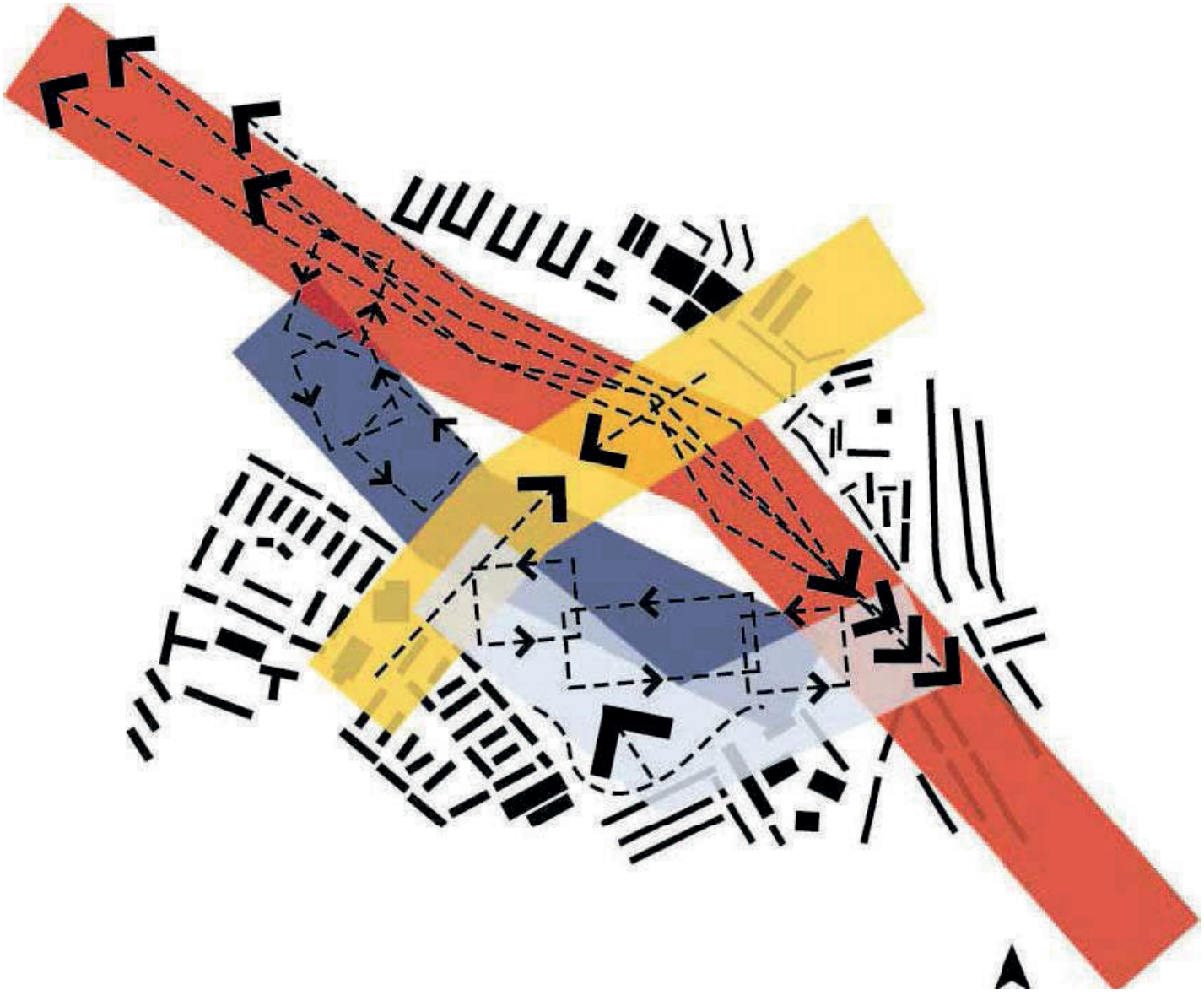
1. Dolores Hayden, *The Power of Place: Urban Landscapes as Public History* (Cambridge, MA: The MIT Press, 1995), 16.

2. Ibid., 15–18.

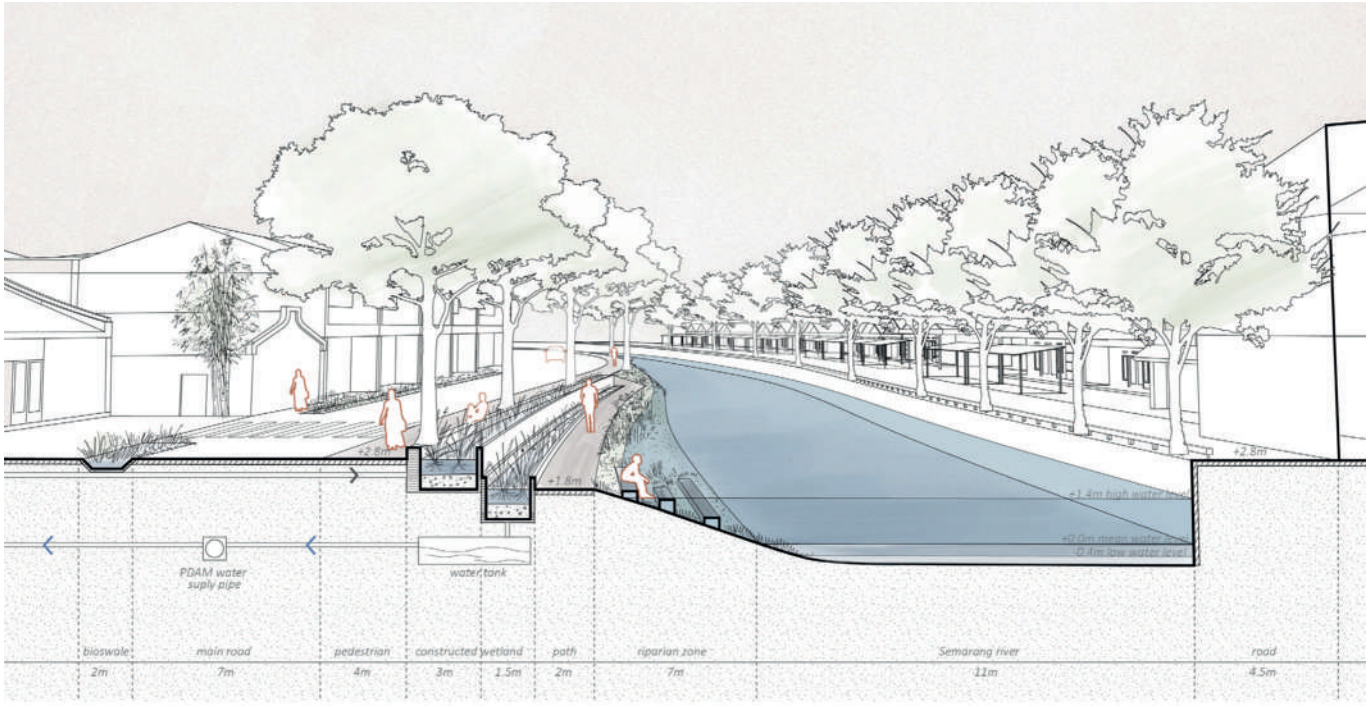
3. Malcolm Quantrill, *The Environmental Memory* (New York: Schocken Books, 1987), 46.

4. Saskia de Wit, *Hidden Landscapes: The Metropolitan Garden as a Multi-sensory Expression of Place* (Amsterdam: Architectura & Natura, 2018), 399–400.

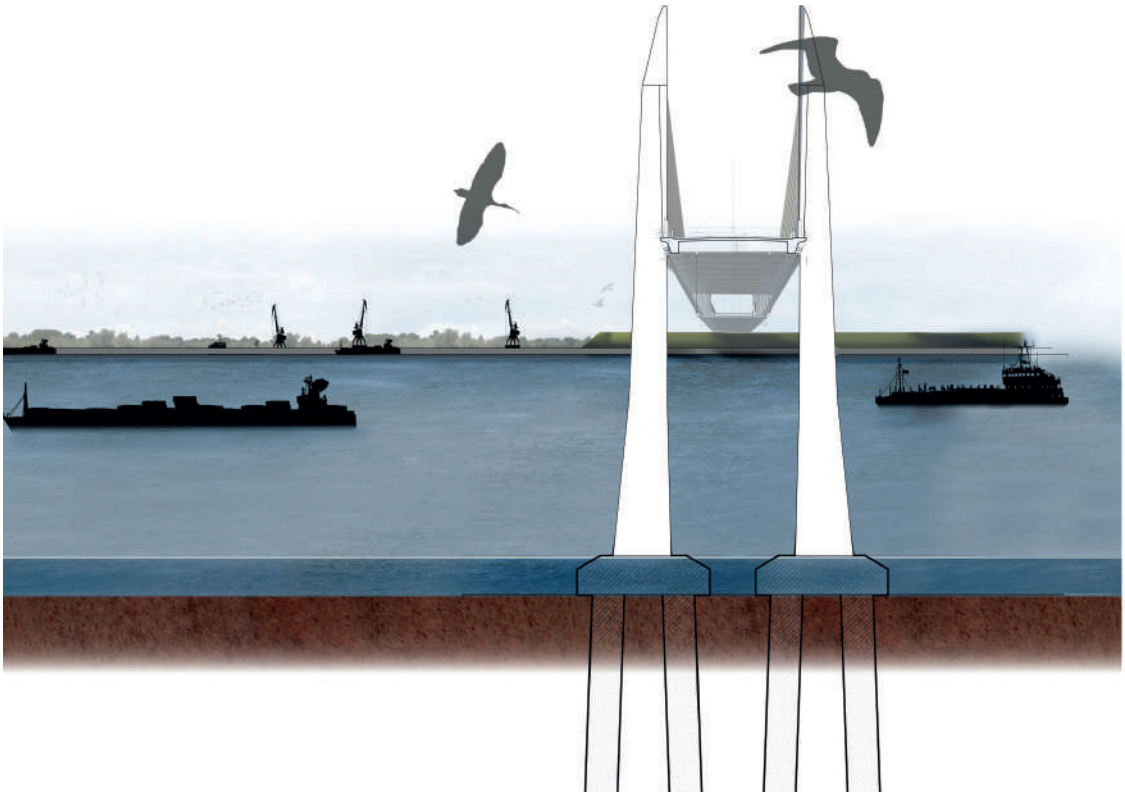
5. Edward Casey, *The Fate of Place: A Philosophical History* (Berkeley, Los Angeles: University of California Press, 1998).

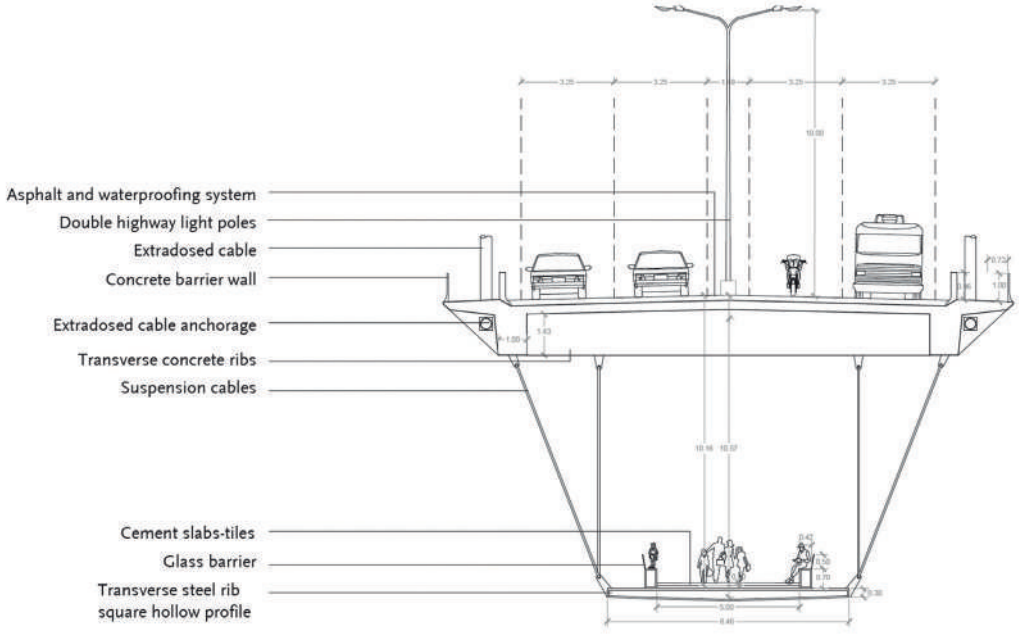


Analytical drawing of movement
Map showing directions and intensities of connections between neighborhoods through an urban forest (project: 'Schoterbos Haarlem').

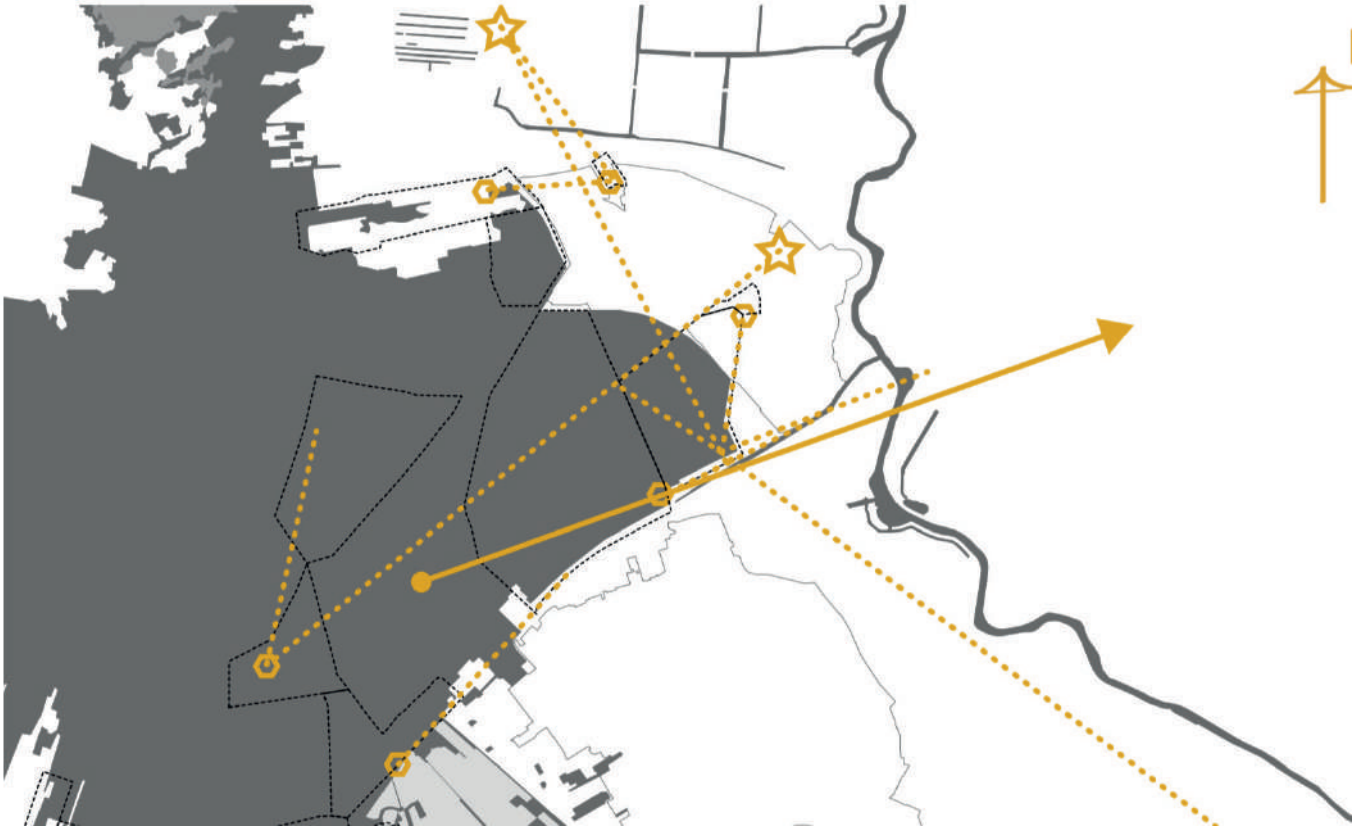


Section of design proposal
Technical profile of public garden waterfront (project: 'Living with the waste').

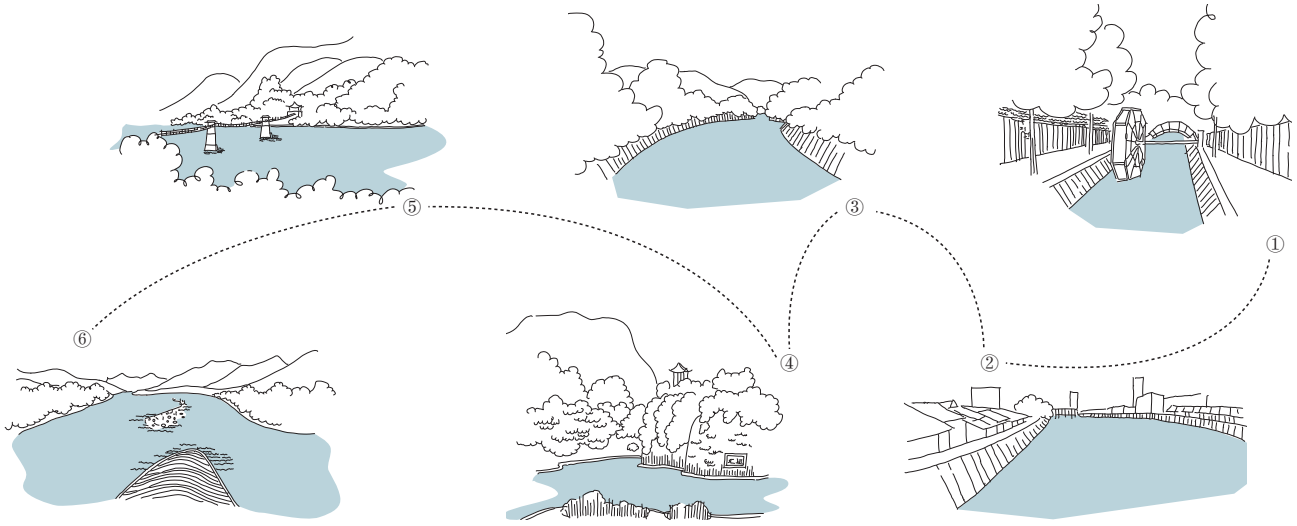


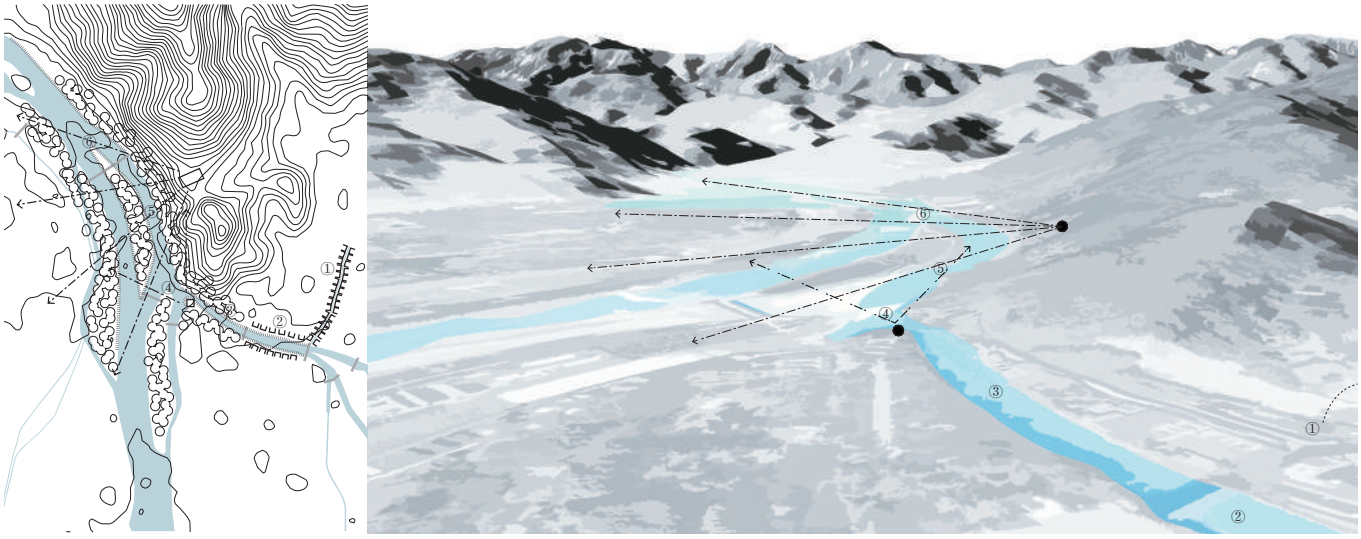


Technical drawings of an infrastructural artifact
Two floor bridge that provides a safe crossing (project: Concrete dynamics').

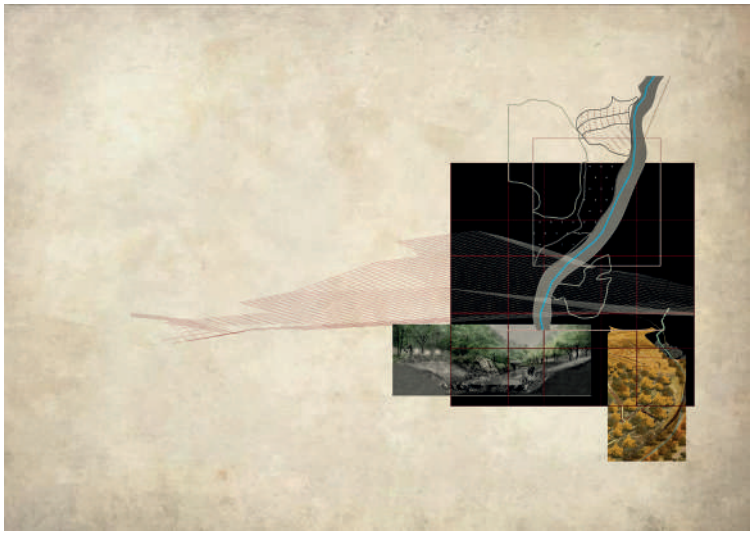


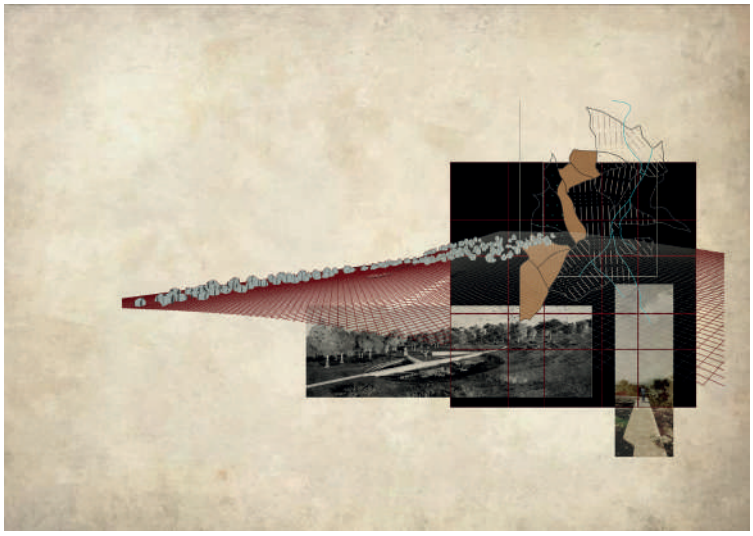
Map with indication of vistas
Original views from country houses next to the former Wijker Lake, as a conceptual foundation for the design.



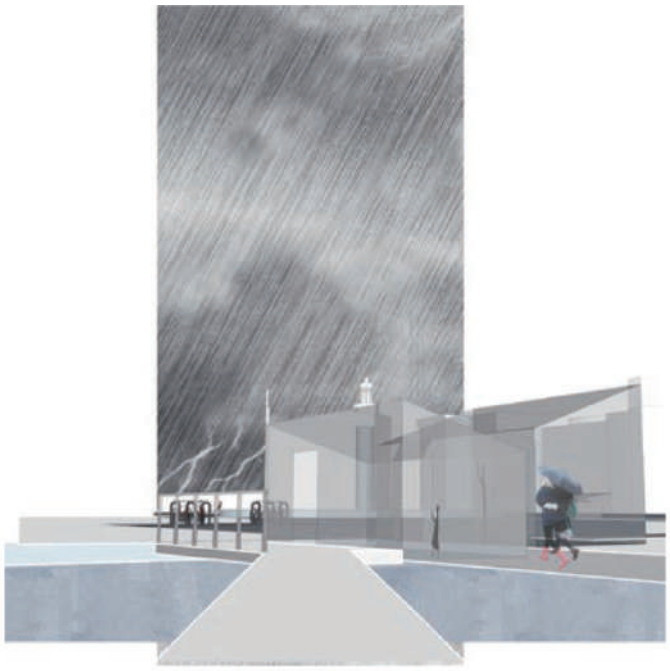


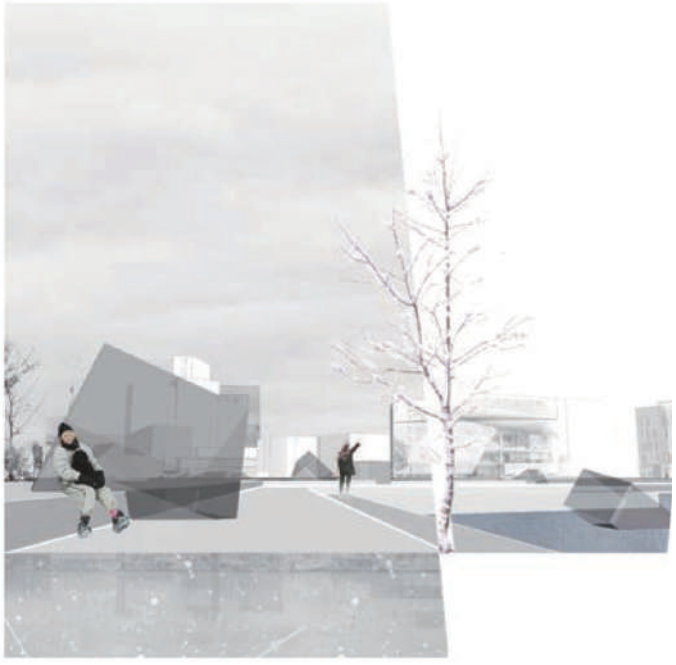
Analytical drawings to assess the spatial form of a river landscape
Old temples were positioned in a strategic way to overlook a river landscape in China; six different types of spaces are identified.

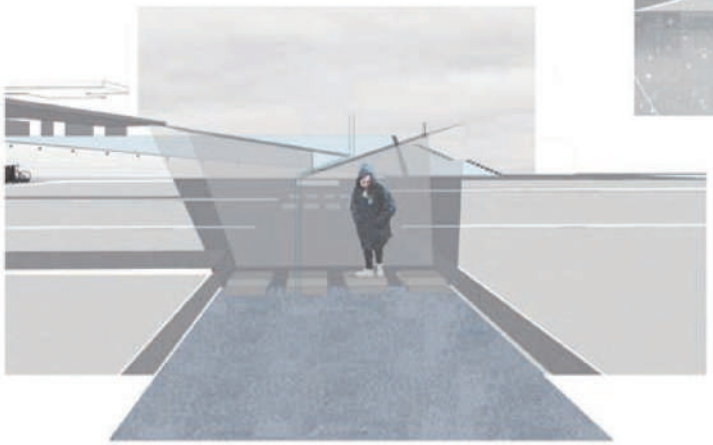




Conceptual collages with mixed media
Three images capture the specific qualities and challenges of the landscape (project: 'The landscape in the gradient').





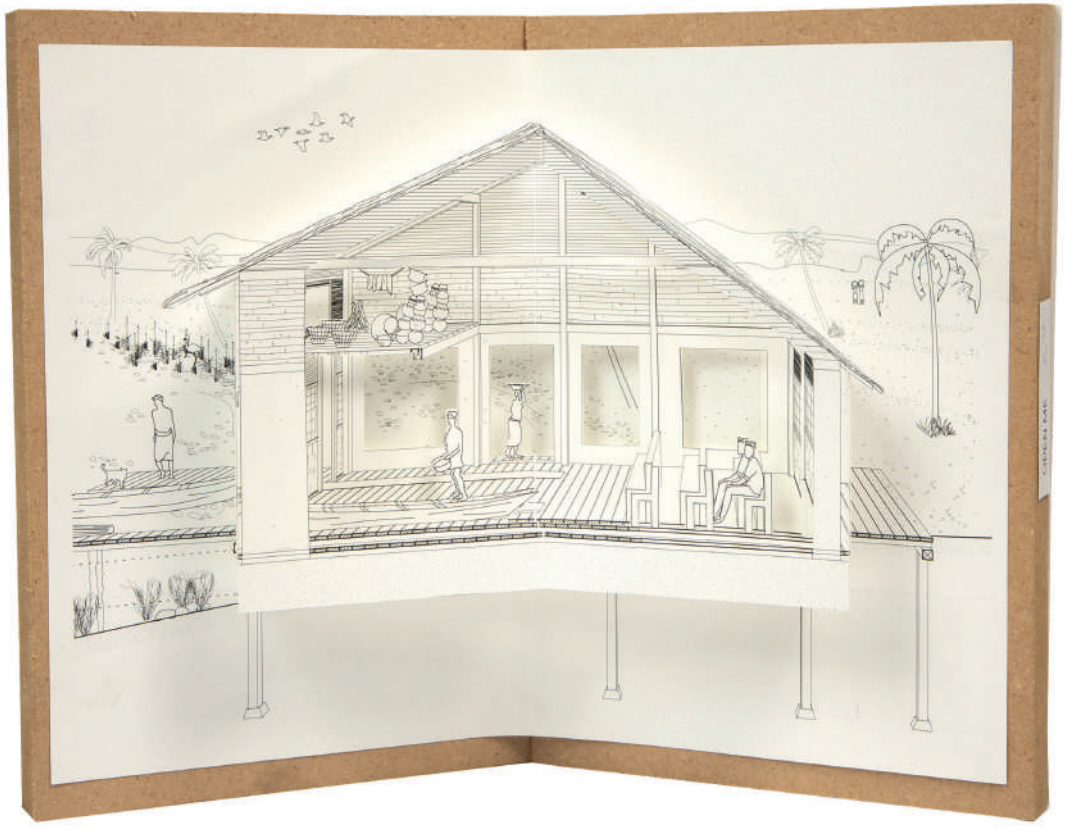


Street views to illustrate the impact of the design
The proposed interventions provide shelter and at the same time enhance the experience of harsh weather conditions (project: 'Minimal intervention, an attempt reading the ultimate, Oslo, Norway').



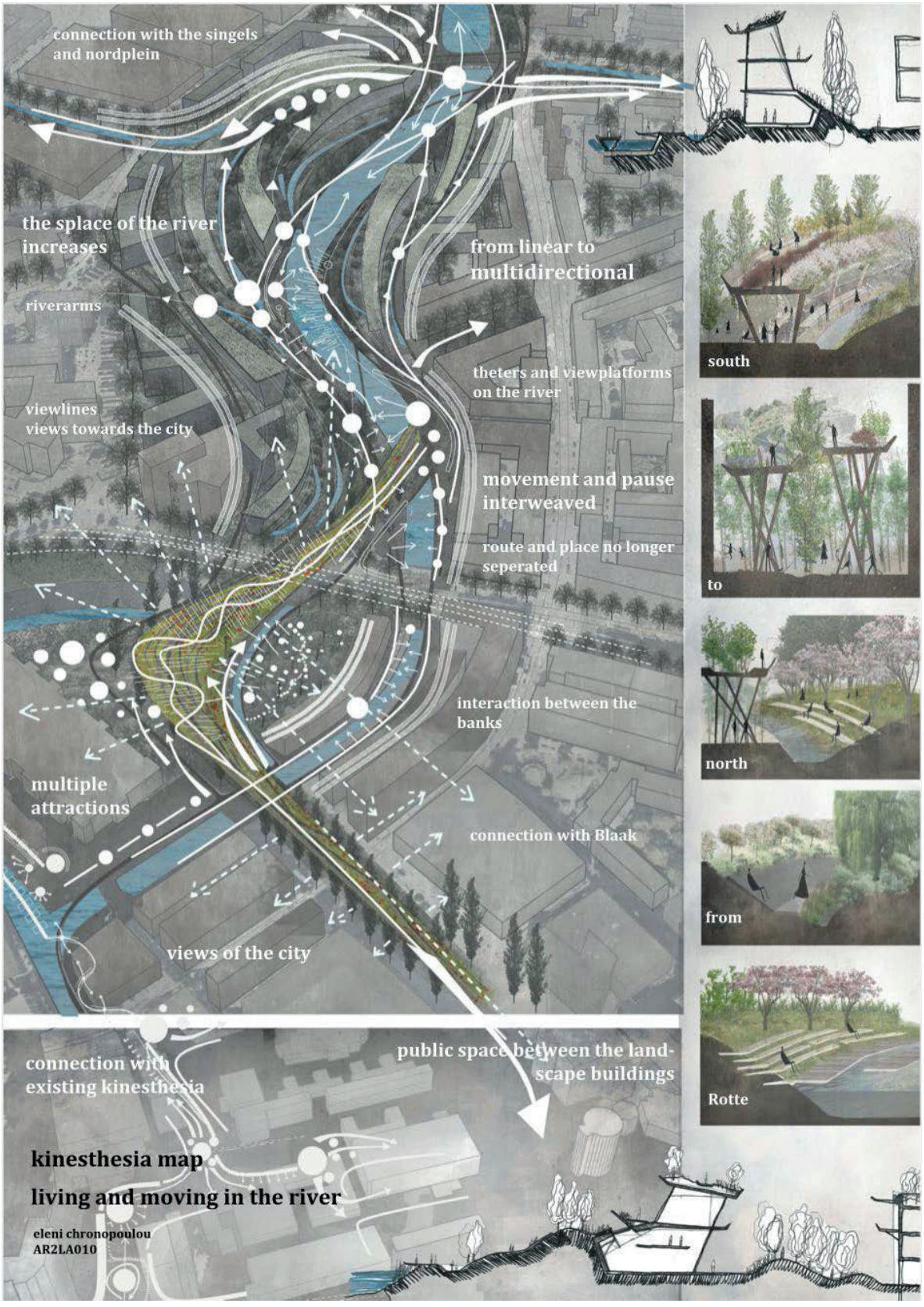



Landscape images using indigenous drawing techniques
Drawings that present the design proposal which supports traditional farming (project: 'The Honduran production valleys').

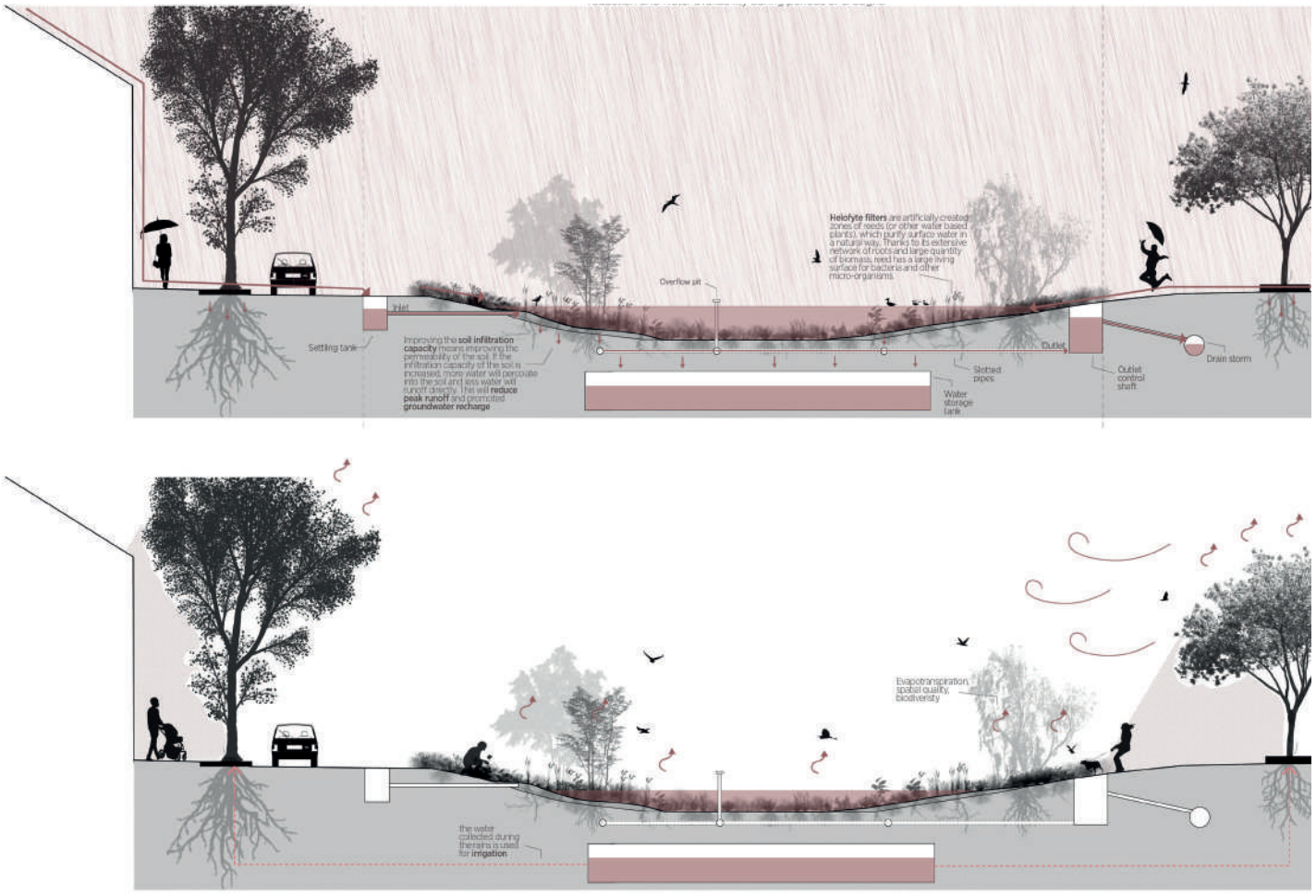


Pop-up paper model
The delicate drawing in the box brings the viewer into the scene (project: 'Erosion for Betterment').

Perspectives of a flow-landscape
The design of the elevated park evolves around the former peat river Rotte. A diverse pallet of trees enhances the flow shape of the river and its banks, the surrounding streets, and the park.



Kinesthetic map of an elevated park
Design for an elevated park in Rotterdam that communicates with the flow-shaped course of the Rotte. The map and sections represent the experience of the park and the former peat river and its surroundings (project: 'Green-blue landscape for Rotterdam').



Technical sections illustrating water retention
Detail of urban wetland and water storage during the rain and drought season (project: 'Revealing Rome's water-based culture').

Flowscapes studio, Circular Water Stories Lab, Camilla di Nicola, 2019/20

Process

The act of designing a landscape is a process of manipulating time, as J.B. Jackson wrote.[1] For landscape architects, understanding and working with processes is an integral part of the discipline, since the primary 'material' of landscape grows, erodes, weathers, etc. Every landscape can be said to be a dynamic, continuous process of becoming, and can be understood as an expression of the dynamic interaction between ecological, social and economic processes. These various processes are continually altering the landscape, making the dynamics of transformation a key issue in research and design.

Growing populations and the speed of technological developments have increased the dynamics of landscape systems and make it almost impossible to forecast the near future. Instead, we need to be able to tolerate, incorporate and invite uncertainties. Any landscape architectural design is essentially open-ended: the landscape architect reads a location as a living and dynamic organism and prepares it for an unforeseen future. As designs need time to evolve, the focus must be future-based instead of responding rigidly to today's needs. Designing in this way means accepting that the landscape is unfinished and incomplete; instead of building a definitive solution, seeds are sown, residents mobilized, questions asked and potentialities structured.

Construction and maintenance are essential tools for incorporating natural and social processes in the design. These processes can be emphasized by incorporating the stages of implementation and the measures needed to support or develop the project. Landscape architecture, as a transformation of the existing landscape, must somehow relate to the changeability of its materials, either by integrating changeability or by opposing it. The materiality – the appearance of the landscape architectural design – is closely related to how natural and social processes are handled and translated into processes of construction and cultivation: the process of making determines the image and the intended image determines the process of making; cultivation is a response to the changeability of the material and, as a result, the changeability of space. Time is the determining factor here. The 'loving care' that characterizes cultivation is the gardener's way of thinking, grounded within the present while always looking to the future.

Landscape is an ambiguous notion and cannot be truly understood when looked at from a single perspective. Each landscape transformation must therefore be viewed and conceived from different angles. Process thinking is one of the four complementary perspectives underlying all courses of the Delft Landscape Architecture Master track: palimpsest, perception, process and scale continuum. The Delft interpretation of these widely accepted perspectives is that the interrelations between them are an expression of the site-specificity of design and of the interdependence of analysis and design.

SdW

1. John Brinckerhoff Jackson, *Discovering the Vernacular Landscape* (New Haven, London: Yale University Press, 1984).

Repertoire

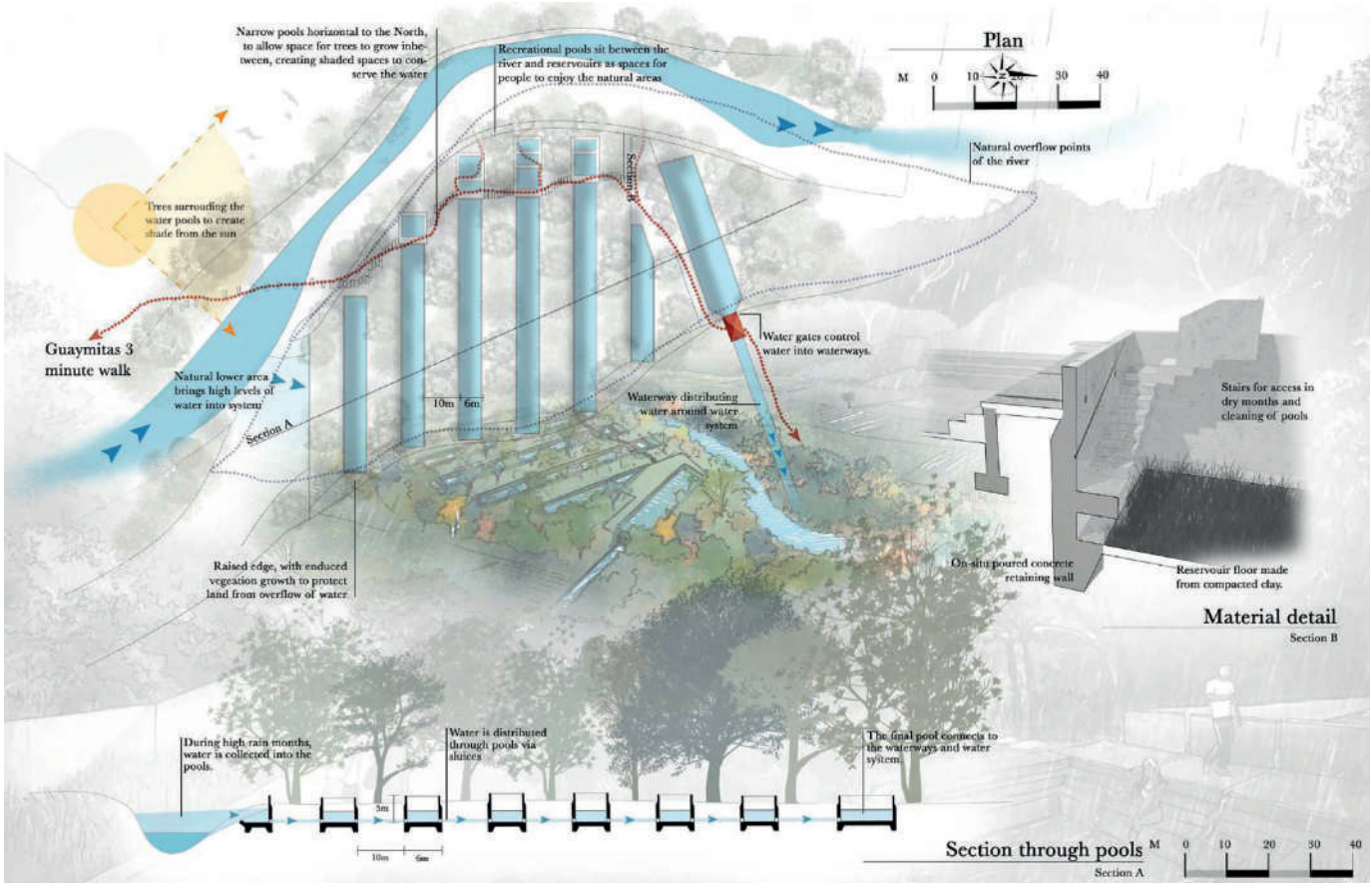
If we consider landscape architecture to be a discipline (and at TU Delft we do!), it can be defined as a specific and distinctive combination of shared knowledge, skills, approaches and behaviour. A crucial component of this sense of academic and professional kinship is repertoire. Whisky brewers, car designers, painters, psychologists, singer-songwriters, civil engineers, cooks, no matter what craft or trade people are involved in, all are aware of and relate to the iconic insights and results their predecessors managed to produce.

Therefore, the notion of repertoire and the obligation to at least be able to recognize and historically position a substantial part of the disciplinary precedents is of great significance to the young landscape architect. Although spatial design in general and landscape architecture in particular can be defined as the act of visualizing a three-dimensional place or space that does not yet exist in real life, it can also be argued that all design derives from impressions of the past, conscious or subconscious – as Susan and Geoffrey Jellicoe did in *The Landscape of Man*.[1] This design familiarity can be of a more stylistic, constructive or programmatic nature and might be deliberately or unintentionally achieved. In other words: just as there is no such thing as a *tabula rasa* in the landscape itself, neither is there a *tabula rasa* in the discipline.

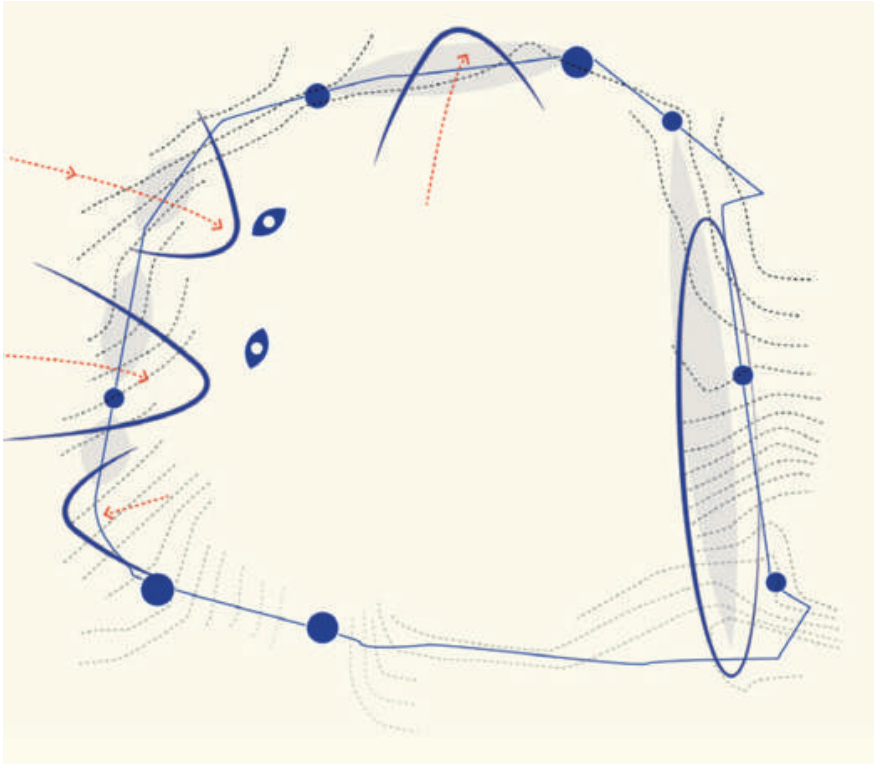
It is essential that landscape architecture education provides and discusses abundant relevant precedents to allow students to understand the significance of earlier works as a collective reference. This knowledge will make them aware that we stand on the shoulders of giants and that it requires an almost extra-terrestrial talent to add an undisputedly true innovation in landscape design.

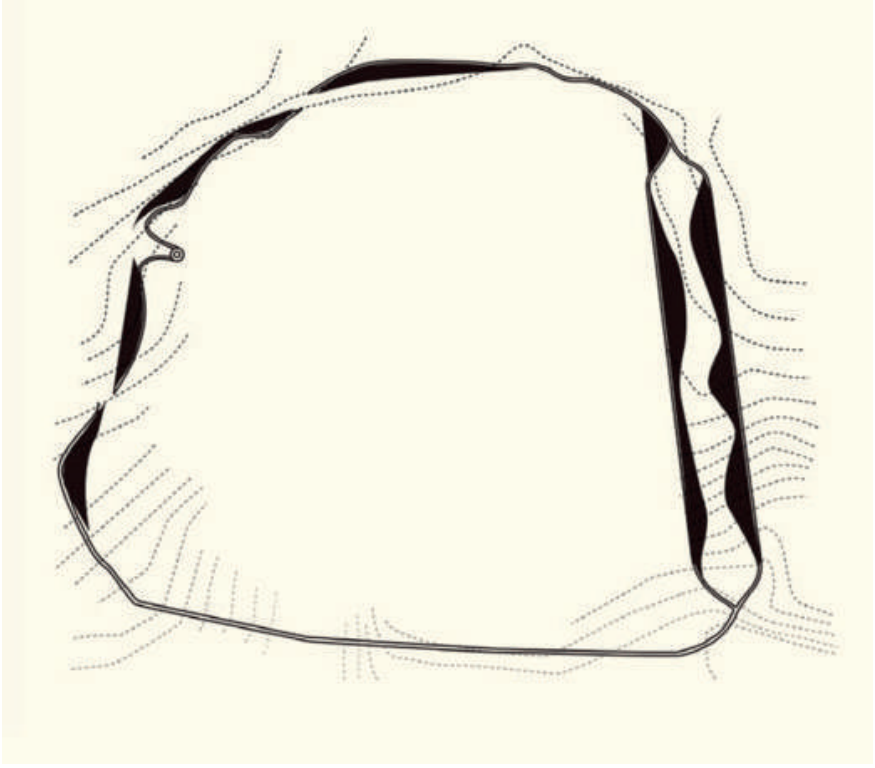
EL

1. Geoffrey Jellicoe and Susan Jellicoe, *The Landscape of Man: Shaping the Environment from Prehistory to the Present Day* (London: Thames and Hudson, 1975).

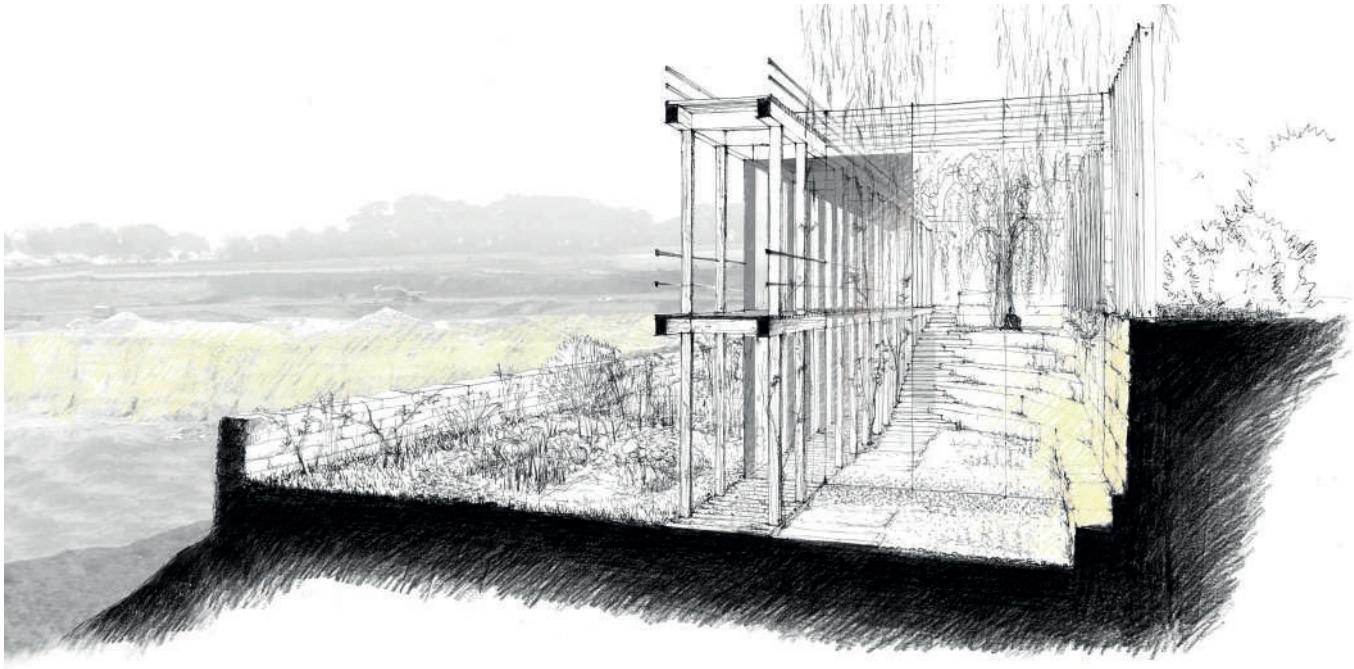


Bird's eye view and collage of hydro-technical approach
Water basins to catch, store and release water if the fields need to be rinsed (project: 'The Honduran production valleys').

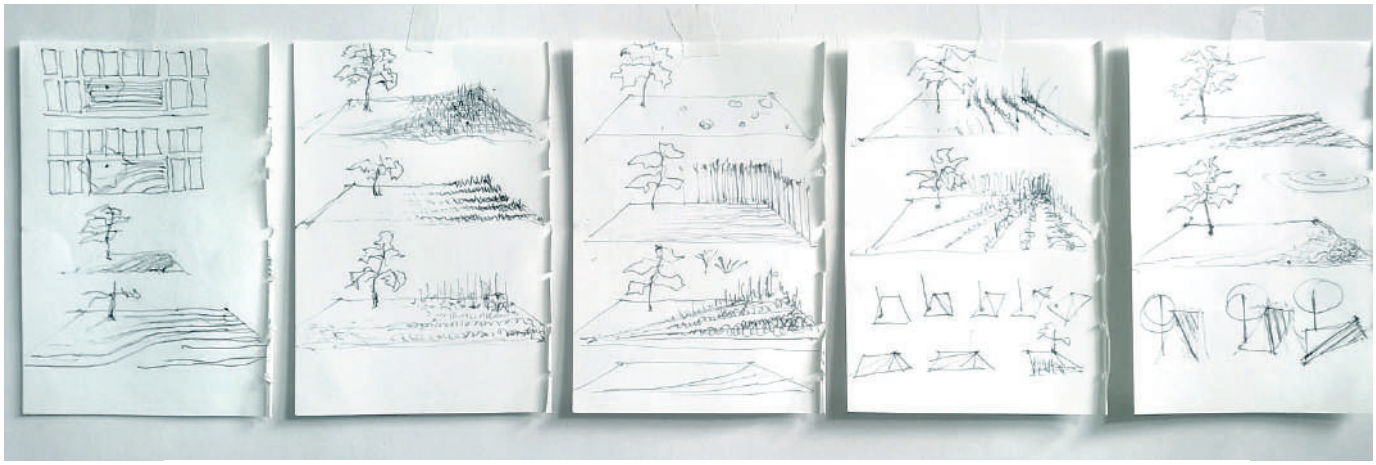


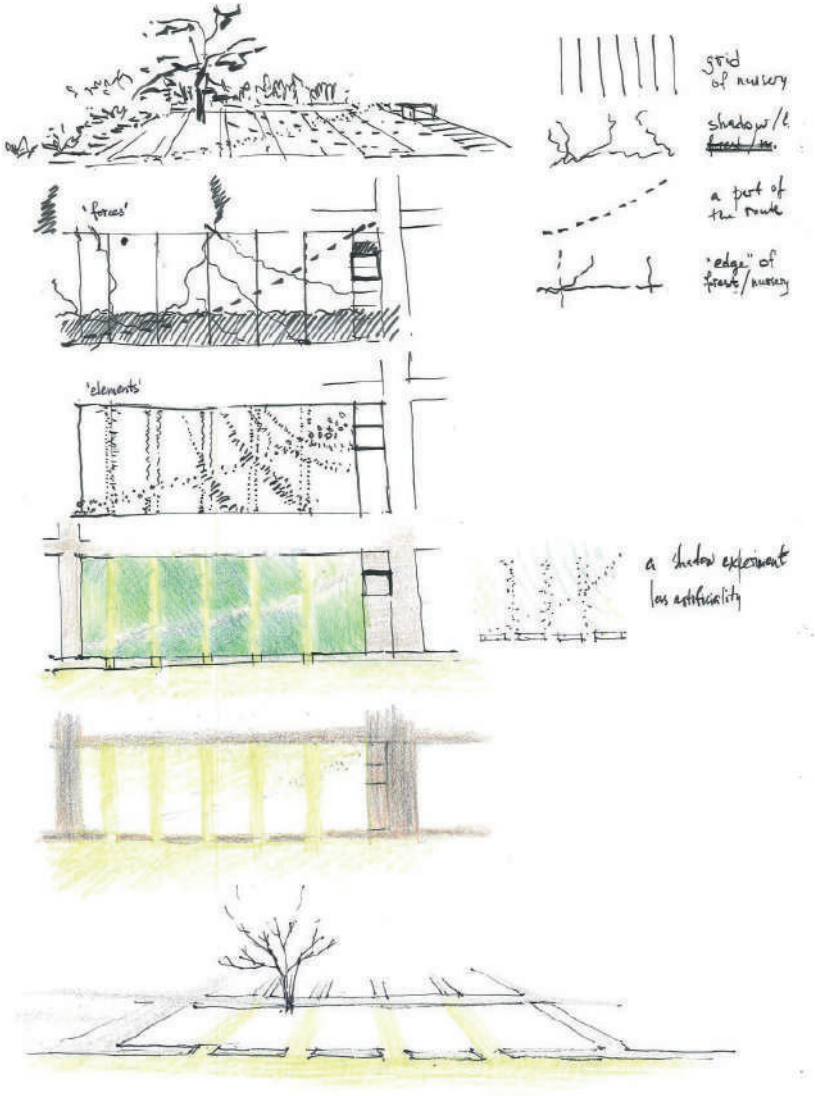


Conceptual diagrams focusing on border conditions
Drawings depicting boundaries as spatial, social and ecological interface between the estate Mariendaal and the Veluwe landscape (project: 'Betweenness').



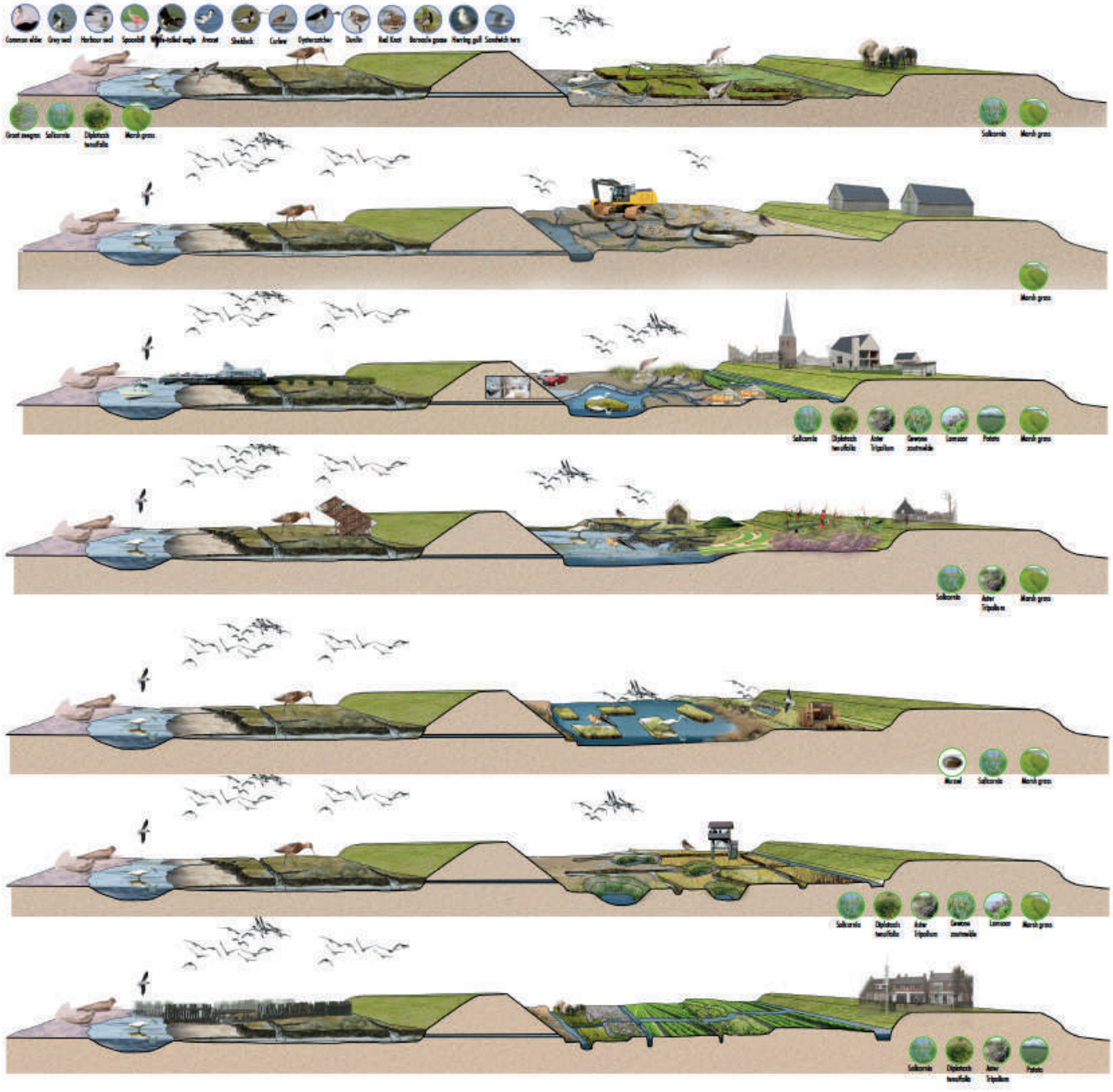
Perspective drawing showing constructive elements
Section of arcade, as the edge that expresses the dialogue between designed intervention and existing landscape in abandoned quarry 't Rooth.



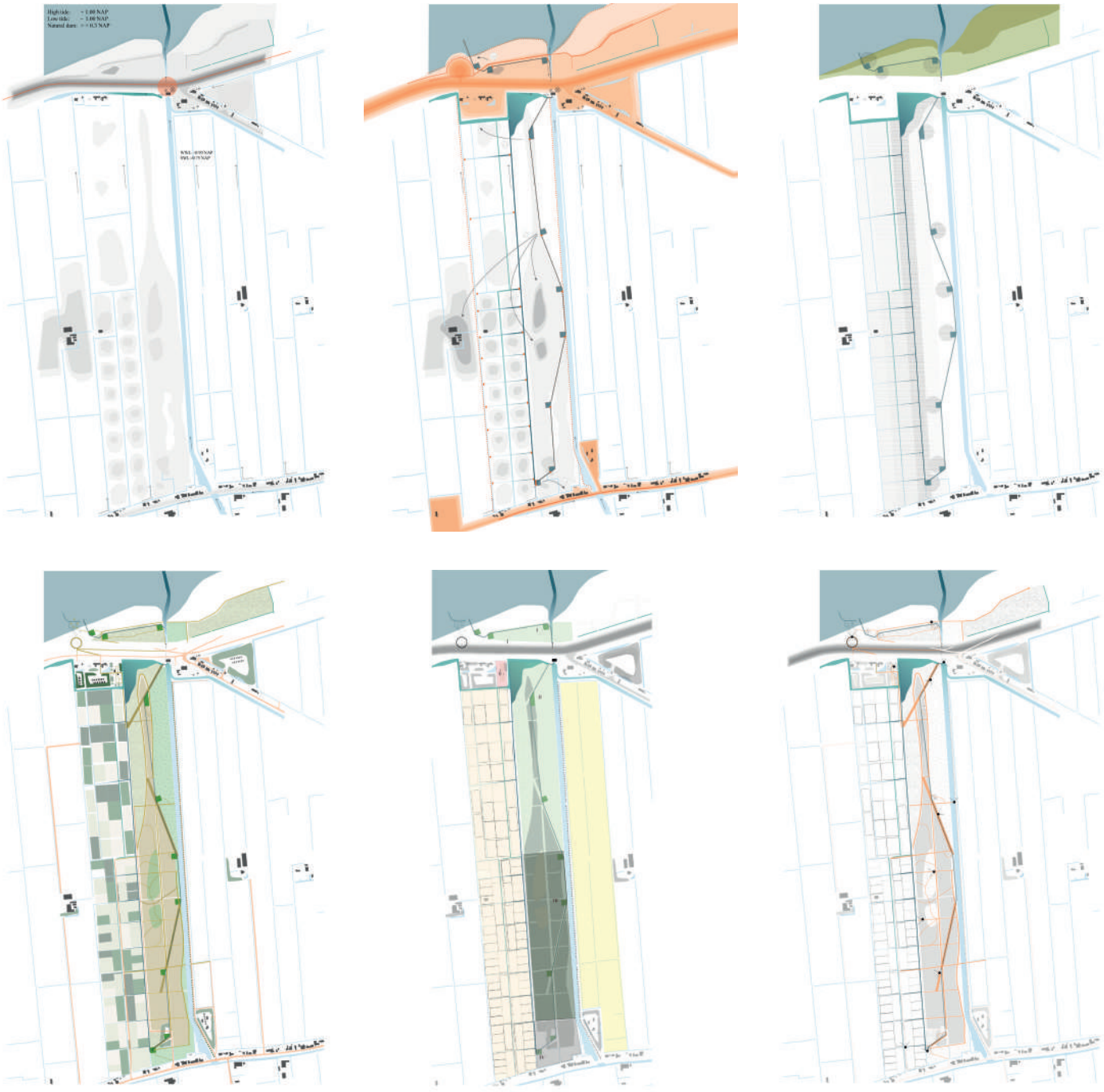


Hand drawings for a garden design
Sketches of the proposed planting arrangements at the gardens of Mien Ruys, Netherlands.

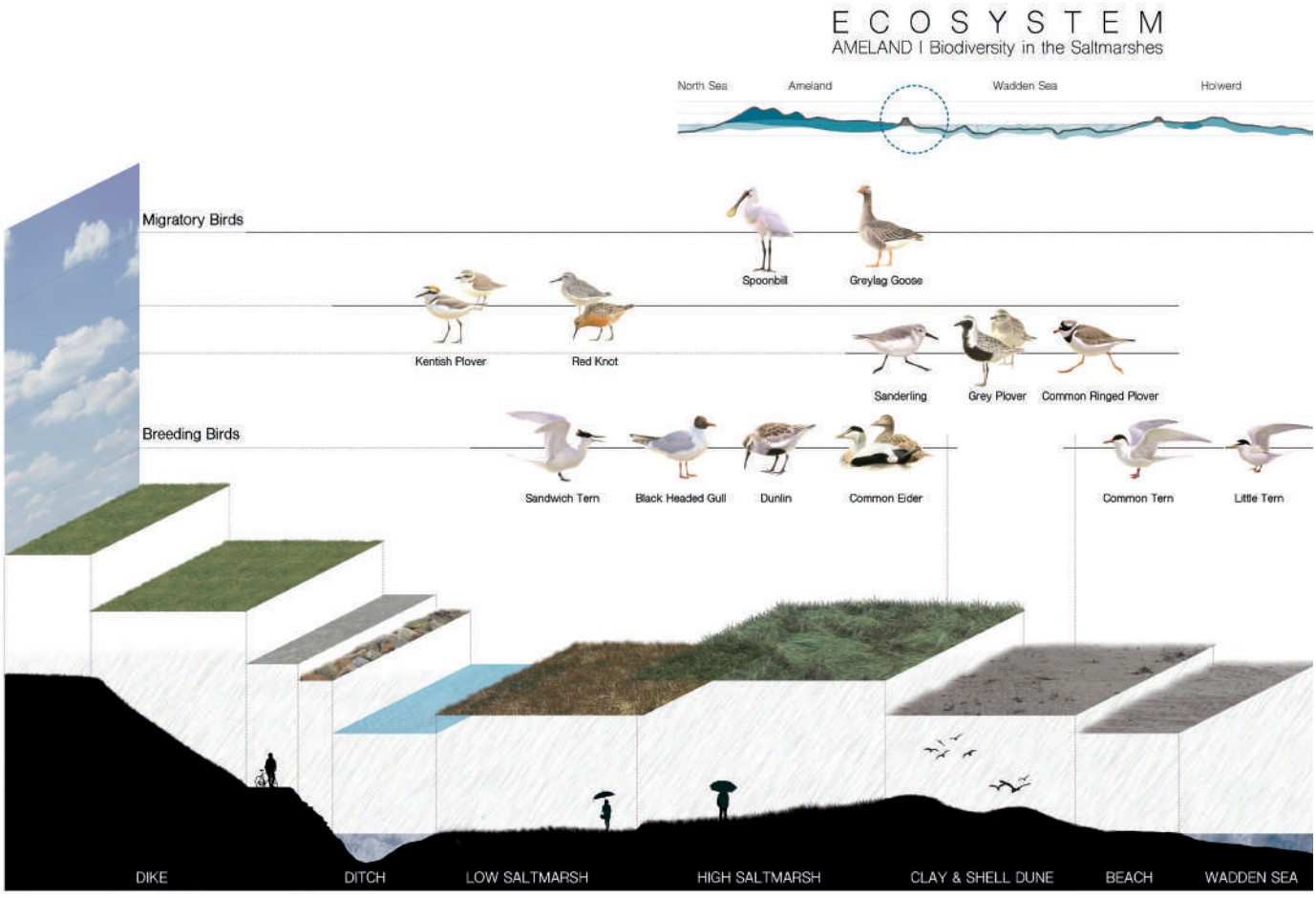
Students at work
Garden construction at the gardens of Mien Ruys, Netherlands; realization of the selected design.



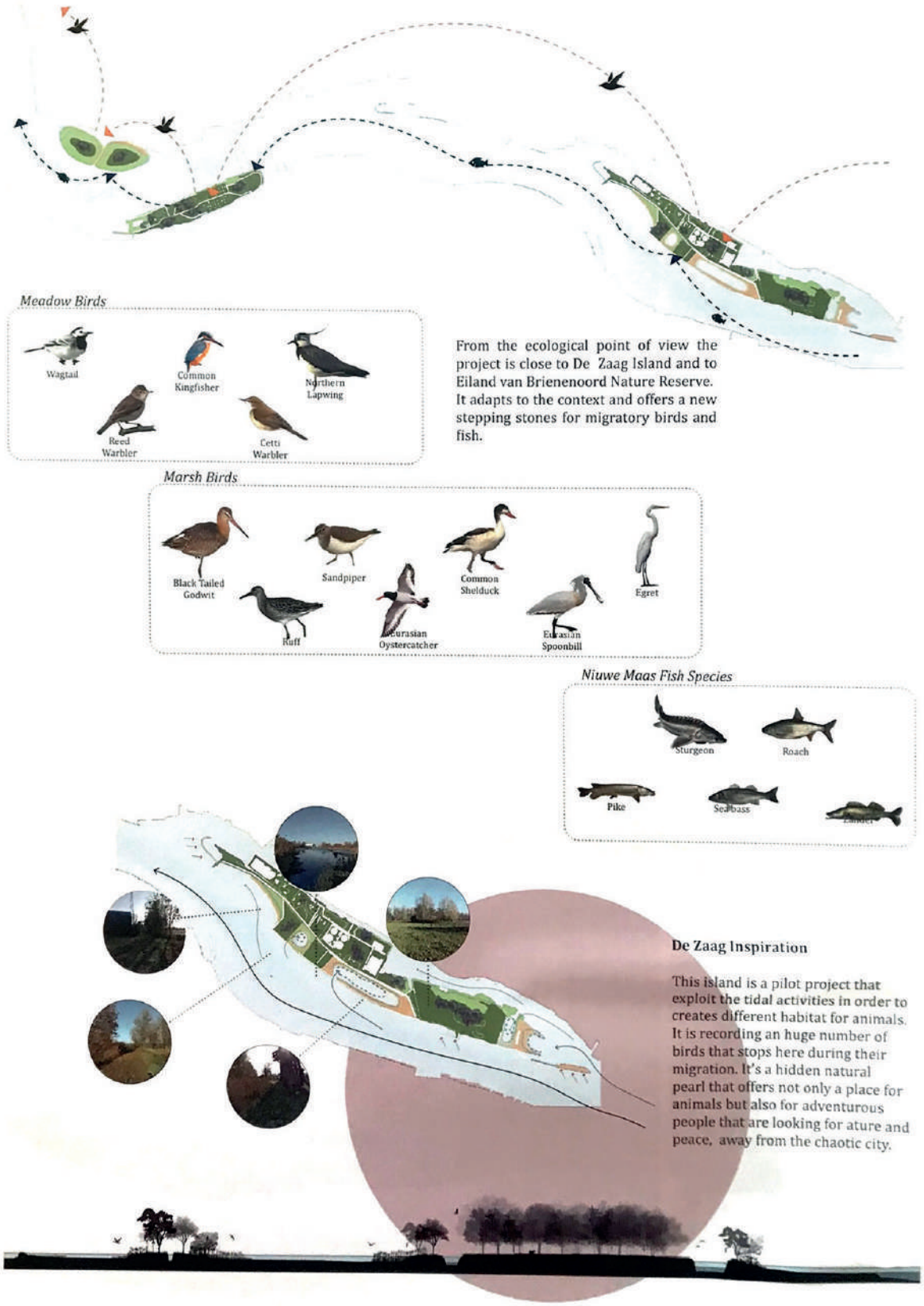
Series of sections illustrating different landscape strategies
Drawings to show the effect of different types of interventions at the Wadden Sea coast (project: 'Tidal laboratory at the Wadden Sea, Netherlands').



Drawings that present five alternatives to create a garden
Spatial concept of various landscape design approaches: the cut-out garden, the open garden, the enclosed garden, the gatering garden and the agricultural garden at the 'Zwarte Haan' (project: 'Borderscape').



Landscape management and ecological qualities
Analysis of gradients, habitat and bird species along the shore of Ameland in the Wadden Sea, Netherlands.



Elaborating the notion of ecological stepping-stones
Design of different habitats which provide good living conditions for birds and fish, along the river Maas.

Model and miniature panorama
A multi-species world: a look through the eyes of non-human species (project: '(not) Our Forest').

Flowscapes studio, Urban Forest Places lab, Lotte Oppenhuis, 2020/21

Scale continuum

No site exists in isolation – it is influenced by and influences both its context and its components. Any landscape architectural design is not only determined by the quality of the location itself, but always also by what lies next to it and further afield, in a telescopic succession of spaces stretching out to the horizon. This thinking across scales involves the physical situation, its underlying geological and hydrological conditions, and the social, political and ecological context.

When we move and perceive as an observing subject we seem to be at the centre of a continuously changing spatial reality that surrounds us. Geographer Johannes Granö (1929) called this *Fernsicht* [distant view]: the part of the landscape we mainly experience by vision, determined by the horizon. As a complement to *Fernsicht* he identified *Nahsicht* [proximity] as a second realm of perception: the environment we can experience with all our senses.[1] Bernard Lassus (1998) consistently makes the distinction between the visual scale and the tactile scale, a difference in many respects corresponding to the distinction between landscape and garden.[2] Proximity makes one attentive to the material reality of earth, plants and water, like mass, grain, fragility or suppleness. Visual experience on the other hand, distances us from tactile experience, it dematerializes the world, and in return we gain an understanding of relations. So, in order to design we need to read landscapes both from afar and from close by.

An understanding of scales also refers to the landscape system: in many ways a site is linked to larger systems that themselves operate at multiple scales. Every intervention is influenced by external influences, has consequences beyond the boundary of the intervention itself, and touches upon the interests of stakeholders beyond the site, making it necessary to look beyond the boundaries of the design site. The landscape is a relational structure that connects scales with spatial, ecological, functional and social qualities. At a specific location, systems that are larger and more abstract than the site itself can become visible and tangible. Each realized design creates new forces within the site and changes and influences systems that transcend the site.

This interrelation between sites and context is explained by distinguishing three domains: that of intervention, influence and effect.[3] The first corresponds to the formal (ownership) boundaries of a design location, the location that a designer receives from a client with an associated design query. The domain of influence addresses the various systems and forces that act on the location, even if they do not take place within its boundaries, such as groundwater levels or infrastructure. The design intervention often introduces elements whose influence goes beyond the location itself, thereby determining the domain of effect. This is the area outside the location that is influenced by the intervention, such as changing ecosystems or rising house prices due to the construction of a new park.

Design assignments of the Landscape Architecture Master track typically focus on a specific scale, not so much providing a defined boundary, but rather as a focal point from which to explore the other scales – both larger and smaller. To encourage scale thinking, didactics do not move from the larger to the smaller scaler, but oscillate between scales, with several possible starting points.

Landscape is an ambiguous notion and cannot be truly understood when looked at from a single perspective. Each landscape transformation must therefore be viewed and conceived from different angles. Scale continuum thinking is one of the four complementary perspectives underlying all courses of the Delft Landscape Architecture Master track: palimpsest, perception, process and scale continuum. The Delft interpretation of these widely accepted perspectives is that the interrelations between them are an expression of the site-specificity of design and of the interdependance of analysis and design.

SdW

1. Johannes G. Granö, *Pure Geography*, ed. Olavi Granö and Anssi Paassi, trans. Malcolm Hicks (Baltimore and London: The John Hopkins University Press, 1997).

2. Bernard Lassus, "The Obligation of Invention," in *The Landscape Approach* (Philadelphia: University of Pennsylvania Press, 1998).

3. Carol Burns and Andrea Kahn, *Site Matters: Design Concepts, Histories, and Strategies* (Routledge, 2005), xii.

Spatial imagination

Spatial imagination – or the way we think about, envision and represent the environment around us – is crucial to rethinking and reshaping our world. The vital role played by spatial imagination is increasingly recognized and researched, not only by architects such as Tschumi and by other design professionals, but also by an increasingly diverse range of scholars, including sociologists such as Appadurai, geographers such as Gregory and Harvey, cultural theorists such as Said, and literary scholars such as Bulson and Tally.[1]

This heightened research interest in spatial imagination transcends the analytic: scholars from various disciplines now agree that dominant spatial epistemologies – and thus the prevalent spatial imaginaries – need to be challenged.[2] The catalyst for this shift is the complex set of problematics facing global populations and the ensuing environmental, social, economic and cultural difficulties. The ability to accommodate spatial complexity in an era of scarce resources, when space itself is at a premium, implies the need to rethink the landscape in terms of multiplicity, heterogeneity and hybridity, and to view it as a dynamic layering of different historical moments with important regenerative qualities.[3]

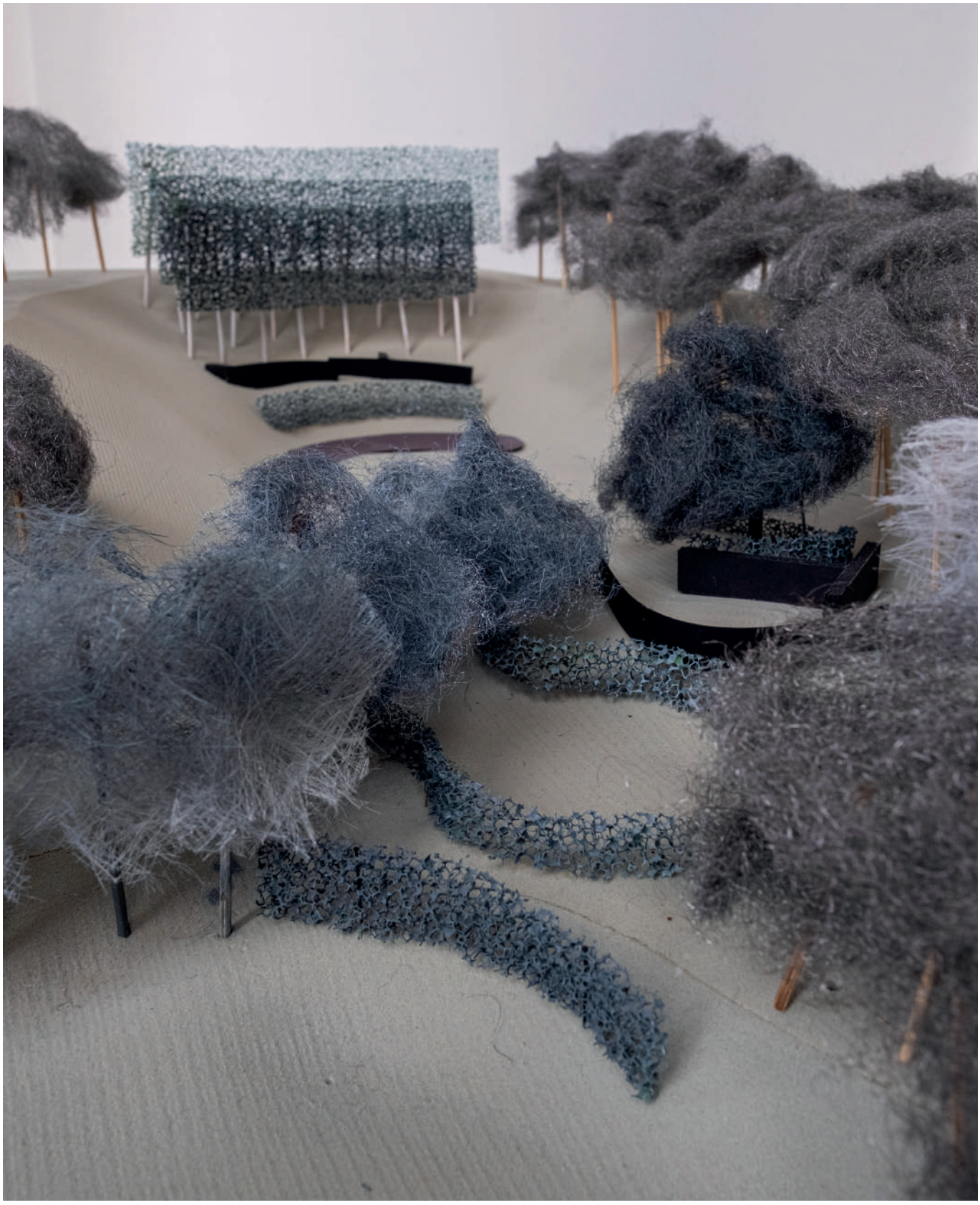
In view of this, exploring divergent spatial imaginaries and experimenting with novel ways of imagining space is gaining importance within the MSc Landscape Architecture curriculum.

BC

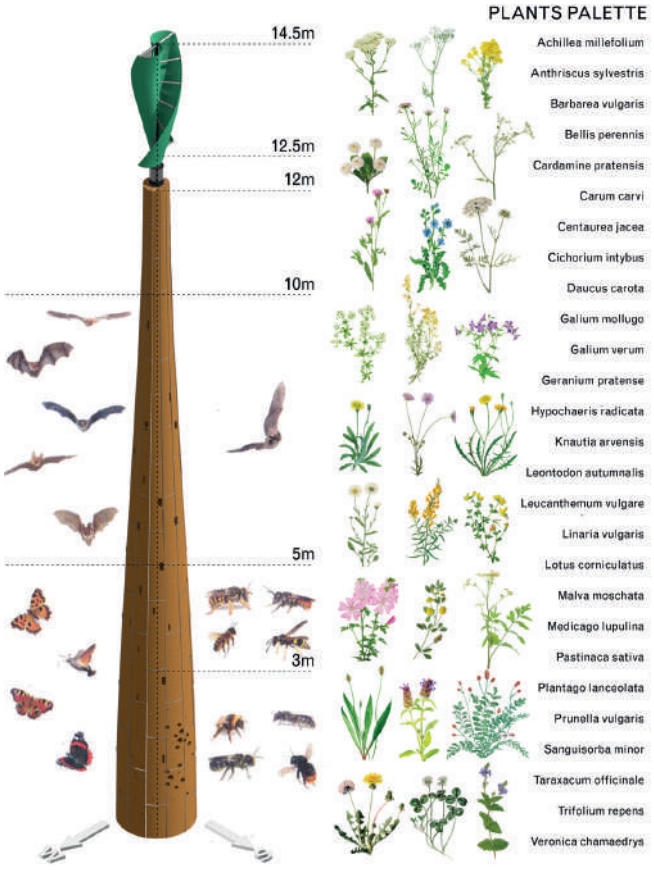
1. Arjun, Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis: University of Minnesota Press, 1996); Eric Bulson, *Novels, Maps, Modernity: The Spatial Imagination, 1850–2000* (New York: Routledge, 2007); Derek Gregory, *Geographical Imaginations* (Malden MA: Wiley-Blackwell, 1994); David Harvey, *Social Justice and the City* (Baltimore: Johns Hopkins University Press, 1973); Edward W. Said, *Orientalism* (New York: Pantheon Books, 1978); Robert T. Tally, *Spatiality* (New York, London: Routledge, 2013); Bernard Tschumi, "Importing the City into Architecture," interview by A. Eisenschmidt in New York, 13 July 2011, *Architectural Design* 82, no 5 (2012).

2. Neil Brenner, ed., *Implosions | Explosions: Towards a Study of Planetary Urbanization* (Berlin: Jovis, 2014).

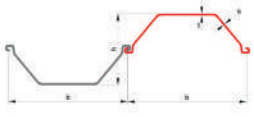
3. Neil Brenner and Christian Schmidt, "Planetary Urbanization," in *Urban Constellations*, ed. Matthew Gandy (Berlin: Jovis, 2011); Bieke Cattoor, "Designerly Mapping Practices at the Crossroads of Cartography and Urbanism: A Processual Account of Three Re-cartographies of Southwest Flanders," *Environment and Planning A* 47, no 6 (2015); Bieke Cattoor and Chris Perkins, "Re-cartographies of Landscape: New Narratives in Architectural Atlases," *The Cartographic Journal* 51, no 2 (2014); Bernard Tschumi, "Importing the City into Architecture".



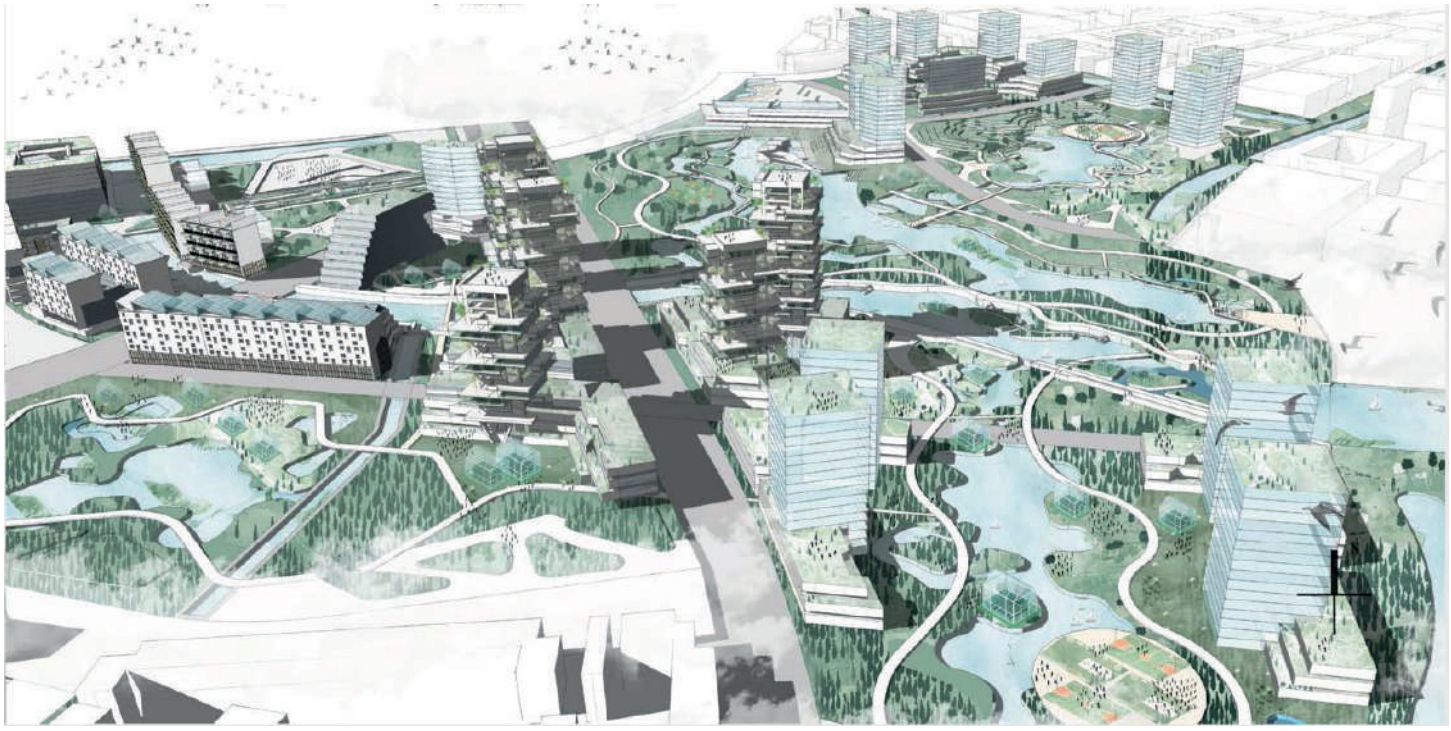
Monochrome model
Design for a villa and a garden in a quarry (project: 'Hortus Oculus').



Model and drawing of an intervention that supports biodiversity
The image shows a newly developed insect-rich meadow that produces wind energy; the design enriches the character of this specific landscape (project: 'Mosaic Energyscapes).

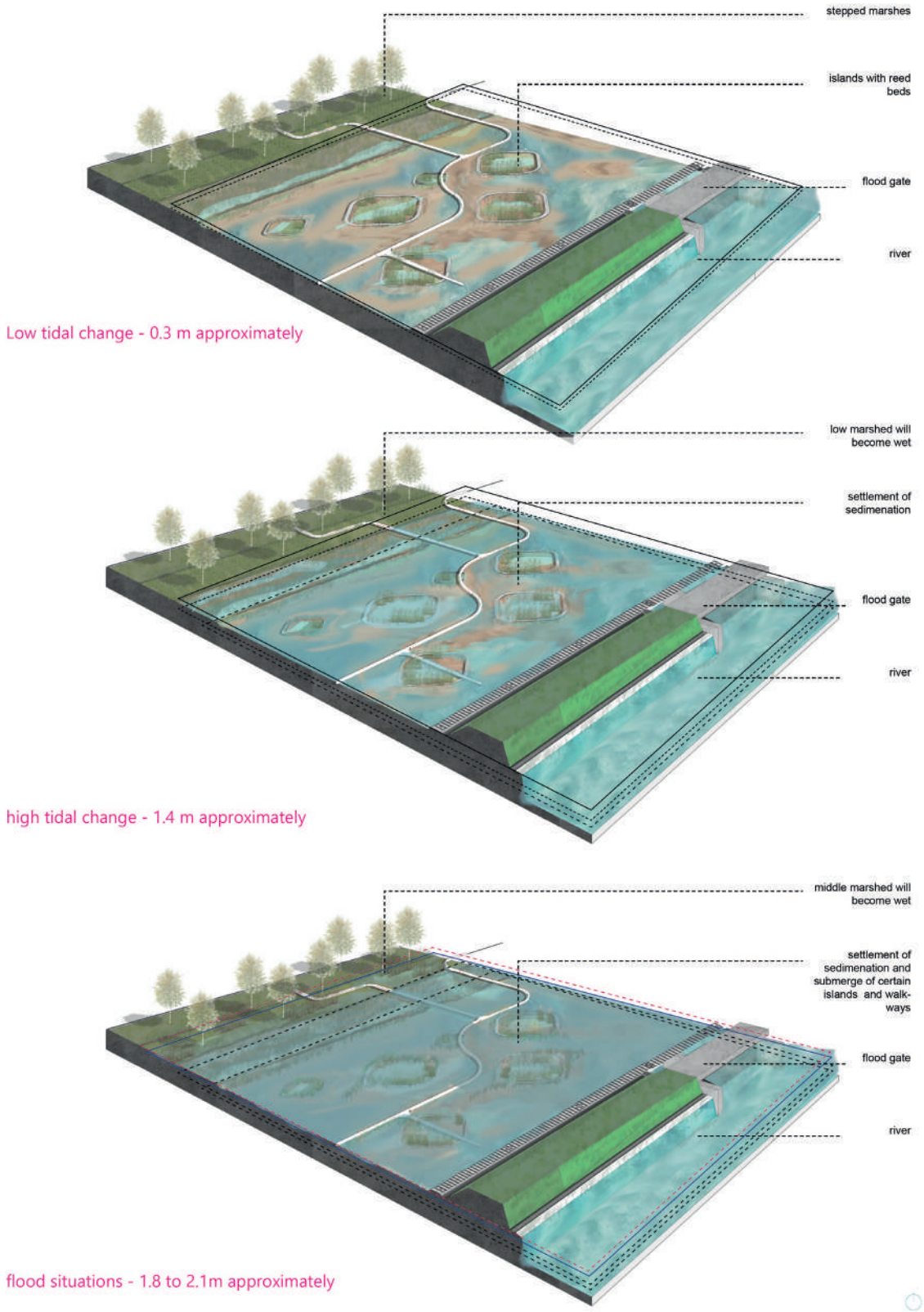


Prototype and test of landscape furniture
Experiments with sheet pilings are designed, made and tested on site (project: 'New Bridge Keepers').

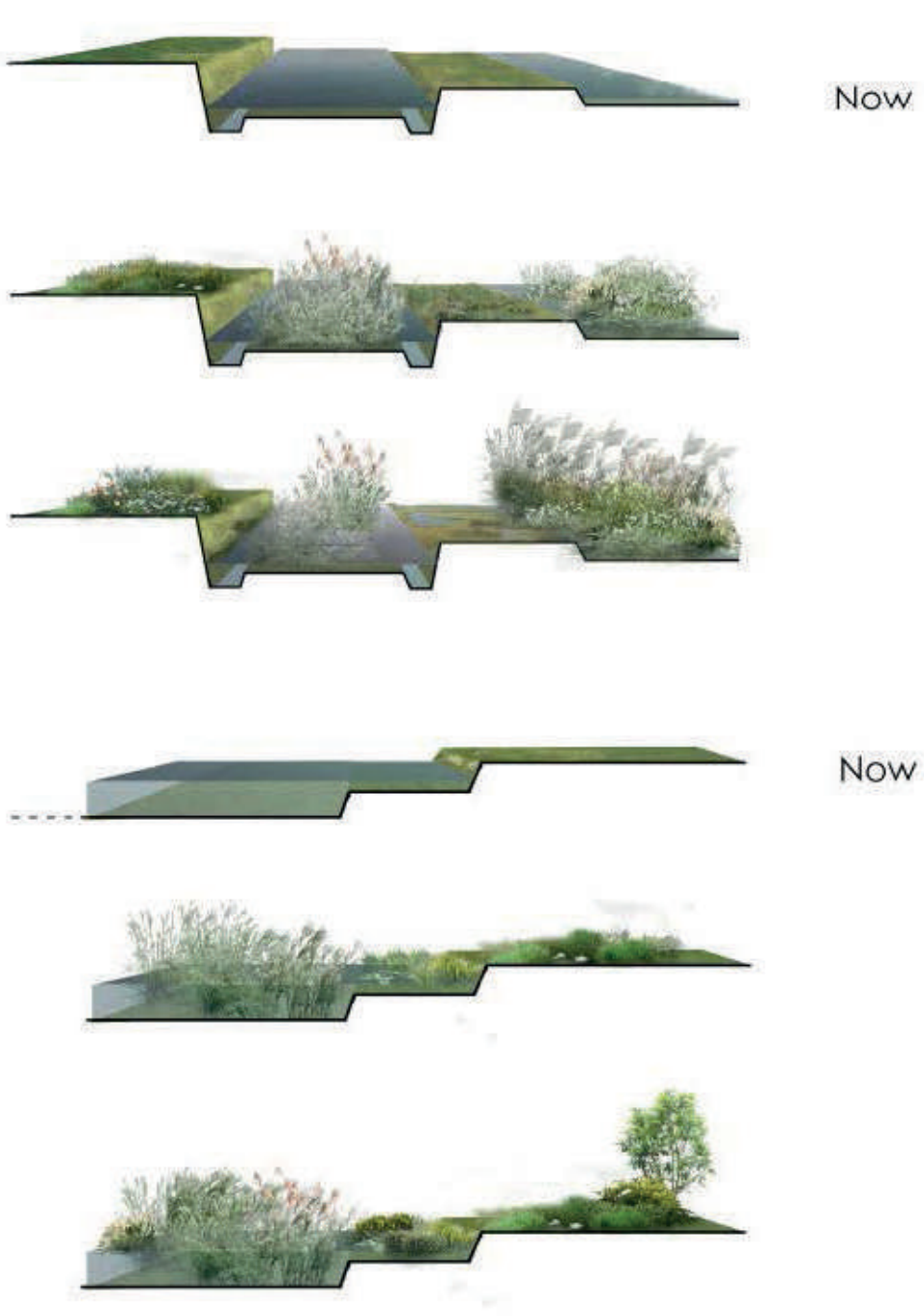


Bird's eye view of an urban landscape
Design for a highly transformed cityscape along the Rotte river in Rotterdam; the blue-green networks flourish by changing the dense low-rise in a high-rise neighborhood (project: 'New synergy').

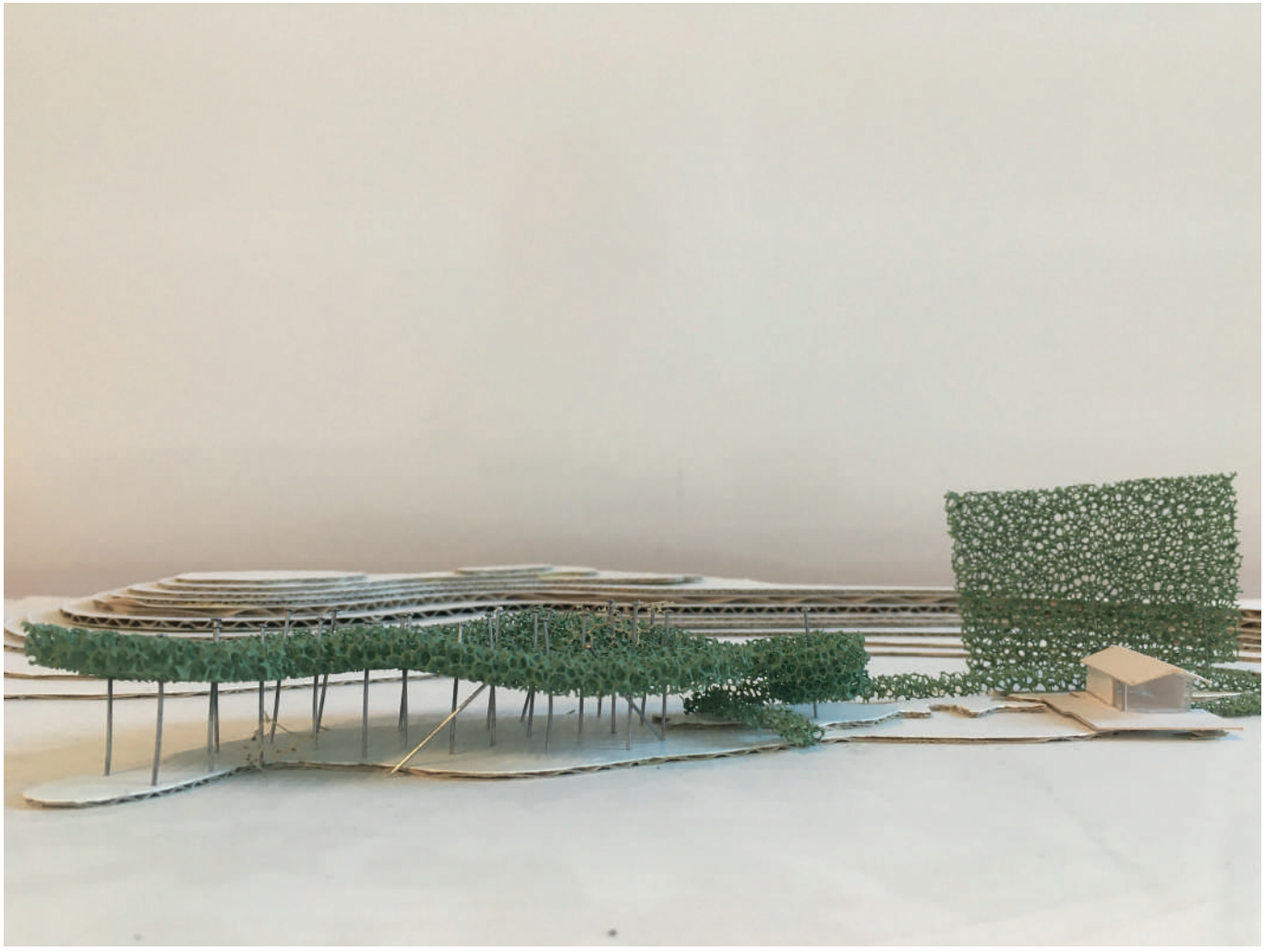
Eye level panoramic overview
The lifted ground level creates a so-called biophilic city (project: '(Up)lifting the ground level').



Design of a tidal leisure landscape
Illustration of tidal influence over time with consequences for sedimentation dynamic and reduced accessibility in the landscape.



Sections to illustrate vegetative succession
Two examples of a gradient between land and water in which different profiles have different effects on water quality and plant growth.



Investigative landscape model
Form study of the embedding of a small holiday home in an existing landscape with four carefully placed green elements: a high green wall, a green roof, a hedge and a solitary tree.

Team effort

The landscape architecture education we provide trains our students to become independent, skilful spatial designers with an academic attitude and a verifiable approach. Skilfulness in spatial design, we believe, is about working at different scales at the same time, about addressing and mobilizing different contexts, conditions and processes that direct or enhance landscape formation, and about producing spatial design proposals that fit the characteristics of the place. We teach our students to translate conceptual findings into understandable and inspirational sketches or models, and to make use of storytelling when envisaging the future requires more than just a drawing.

The above skillset may be considered as a set of loosely defined disciplinary rules and tools for good landscape architecture. However, following this set of loosely defined rules and tools by no means guarantees a high-quality design outcome. As a consequence, teaching students how to interpret and apply these rules is only one part of their education; equally important is mentoring students on developing a design personality. This is the core challenge of many design studios: how to convey the accepted professional paradigms, dogmas and know-how while at the same time stimulating the authenticity of the student designer? We believe that openness, safety and respect are the key values in making this challenge a fruitful driver of design education.

Mutual respect and curiosity between both teachers and students and a willingness to understand each other's motivations create an atmosphere in which teacher and student push each other forward. The studio then becomes a place of fun and freedom, a place to experiment and explore, sometimes even to create a chaotic but pleasant environment, but in the end always to provide clarity to all participants. However, strong motivations and drives can lead to clashes and rising emotions, which could derail this process. At times both parties may fail, and it takes courage to acknowledge and repair those situations. Here too, open-mindedness helps to build mutual trust and self-confidence, both of which are highly beneficial to students in developing a personal design signature. For teachers, it presents an opportunity to develop and constantly review their vision on the profession and on what good design education can be.

FvL

Trees

Although related on many levels, there are important differences between landscape architecture and its namesake architecture, such as the palette of materials used in designing spaces and places. Of these, plants probably are the most notable deviation. How plants are used, however, does reflect the meaning of the term *architecture* included in the discipline's binomial. Alongside ecological and environmental purposing, the landscape architect works with plants in a similar way to how architects use walls and floors and ceilings to shape spaces. But creating spaces with plants involves the complexities of landscape experience and the role of plants and vegetation in this experience. A central concept in landscape experience therefore, is *phenomenology*: conscious experience as a product of perception, emotion and judgement. From the perspective of plants themselves, shaping spaces with vegetation is also very different to shaping spaces with walls and ceilings, as plants are living organisms, which by nature change and grow continuously.

The centrality of planting design in the shaping of landscape space and experience means that understanding and working with plants and vegetation is a crucial part of the curriculum in Delft. The focus in the programme is on the largest and most spatial component of the plant kingdom: trees. Understanding and working with trees begins with getting to know the organism itself. Students study the shape of canopies, the structure of trunks and branches and the character of foliage. 'Tree architecture' is a central concept in these exercises, an idiom originating from forest ecology research into the morphogenetic structure of arborescent plants in tropical forests.[1] This up-close-and-personal study of trees also teaches students to be able to identify many different tree species commonly used in design projects, an essential knowledge base of a landscape architect. Research in the urban forestry group, which forms part of the section, explores this theme further in studies into tree architecture in relation to urban microclimates and larger themes such as bioresilience. A graduation lab called Urban Forest Places is also offered annually in the Landscape Architecture track, in which students take part in research projects run by the Urban Forestry group while developing their own design project.

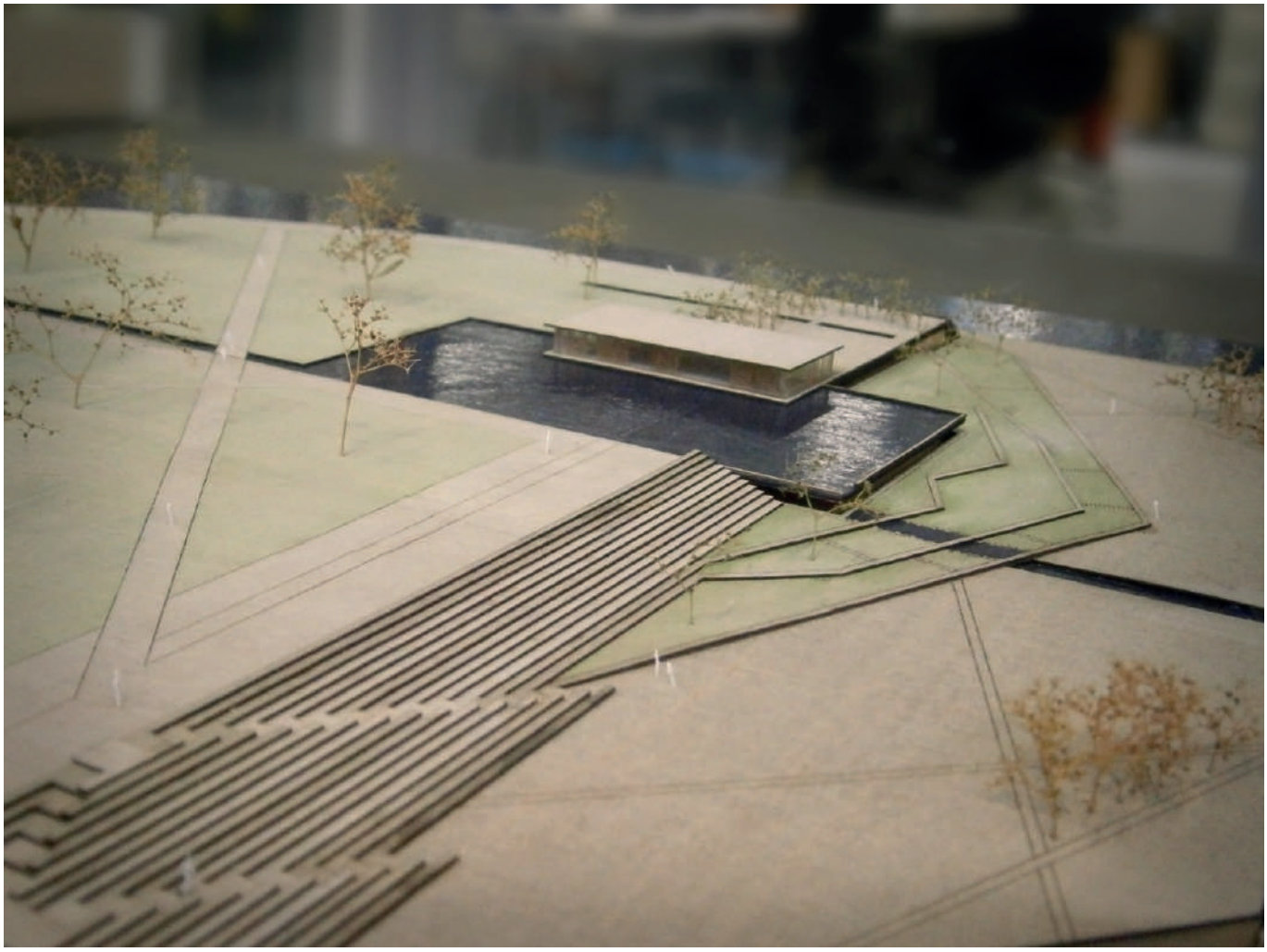
The attention given to trees in the programme mirrors the growing societal interest in the natural world and greenspace, a development that is in turn reflected in disciplinary developments in landscape architecture. How trees shape and influence the world around us has become increasingly prominent in landscape architecture in the second half of the twentieth century, pioneered by the work of designers such as James Rose and Dan Kiley. This work triggered a new focus on the spatial form and experience of arrangements such as tree lines, alléés, groves and plantations and their role in shaping the experience of gardens, parks, infrastructure and other urban and rural landscapes. More recently, the ecological and environmental importance of trees and forests has been recognized, in particular in relation to challenges such as climate change and biodiversity loss. Forest-driven water and energy cycles provide the foundations for carbon storage, cooling terrestrial surfaces and distributing water resources.[2] And alongside the importance of natural forests for biodiversity conservation, planted forests have also been established as valuable in providing complementary habitats, buffering edge effects and increasing connectivity.[3]

RvdV

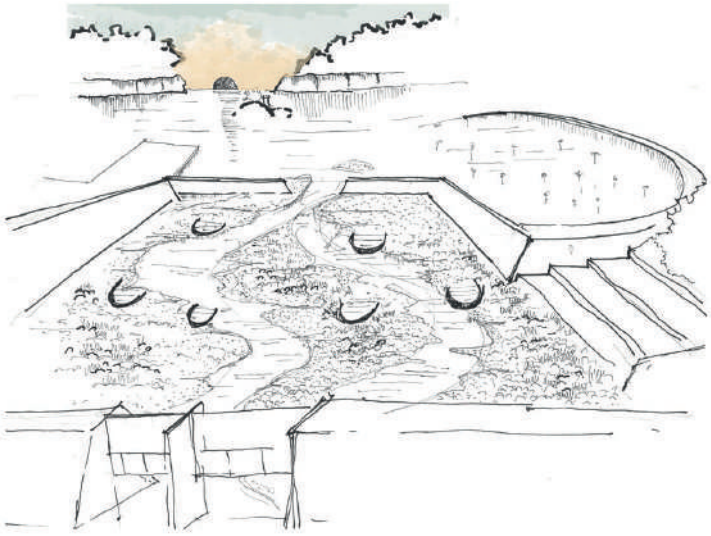
1. Francis Hallé et al., *Tropical Trees and Forests: An Architectural Analysis* (New York: Springer-Verlag, 1978).

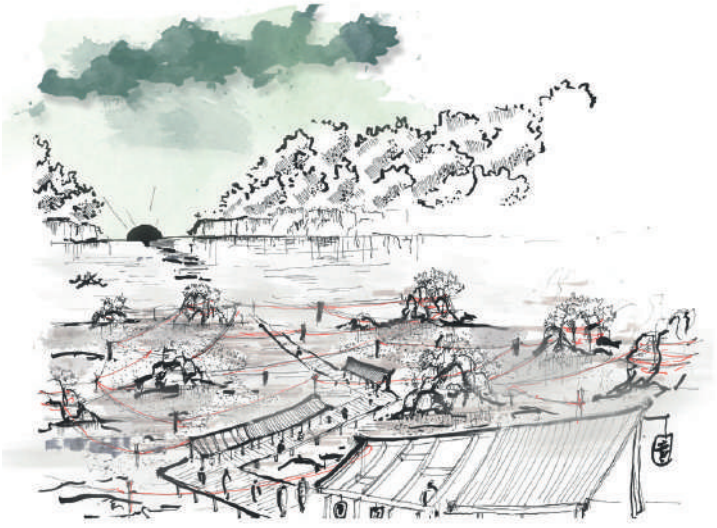
2. David Ellison et al., "Trees, Forests and Water: Cool Insights for a hot World," *Global Environmental Change* 43 (2017), 51–61.

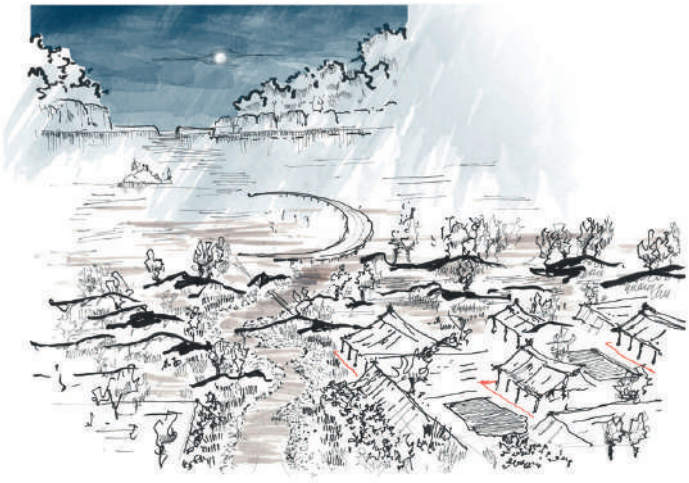
3. Eckehard G. Brockerhoff et al., "Plantation Forests and Biodiversity: Oxymoron or Opportunity?" *Biodiversity and Conservation* 17, no 5 (2008), 925–951.



Combined architectural and landscape model
Model of the Tisa Shore park (project: 'Re-thinking the flows, Novi Sad, Serbia').





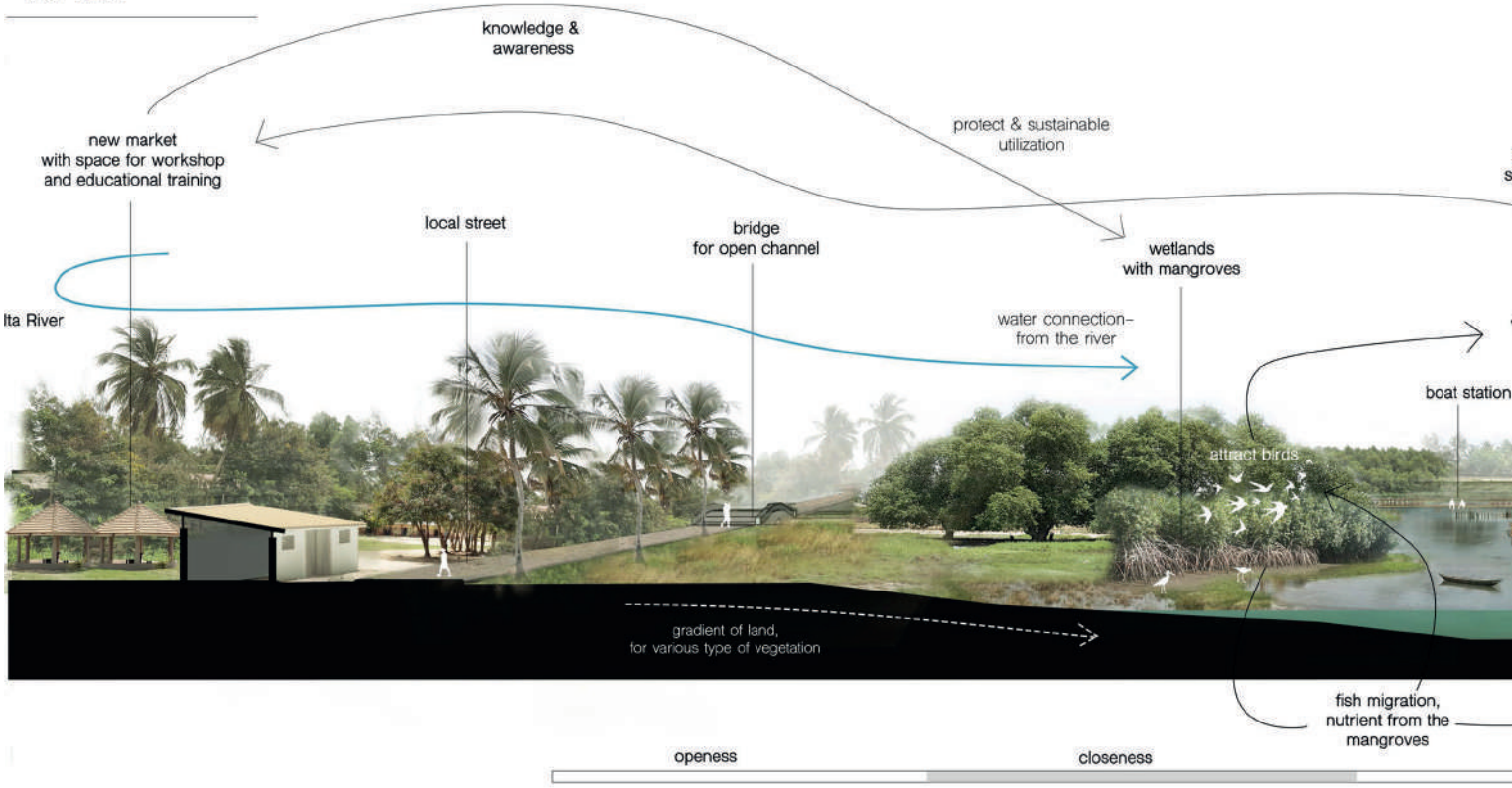


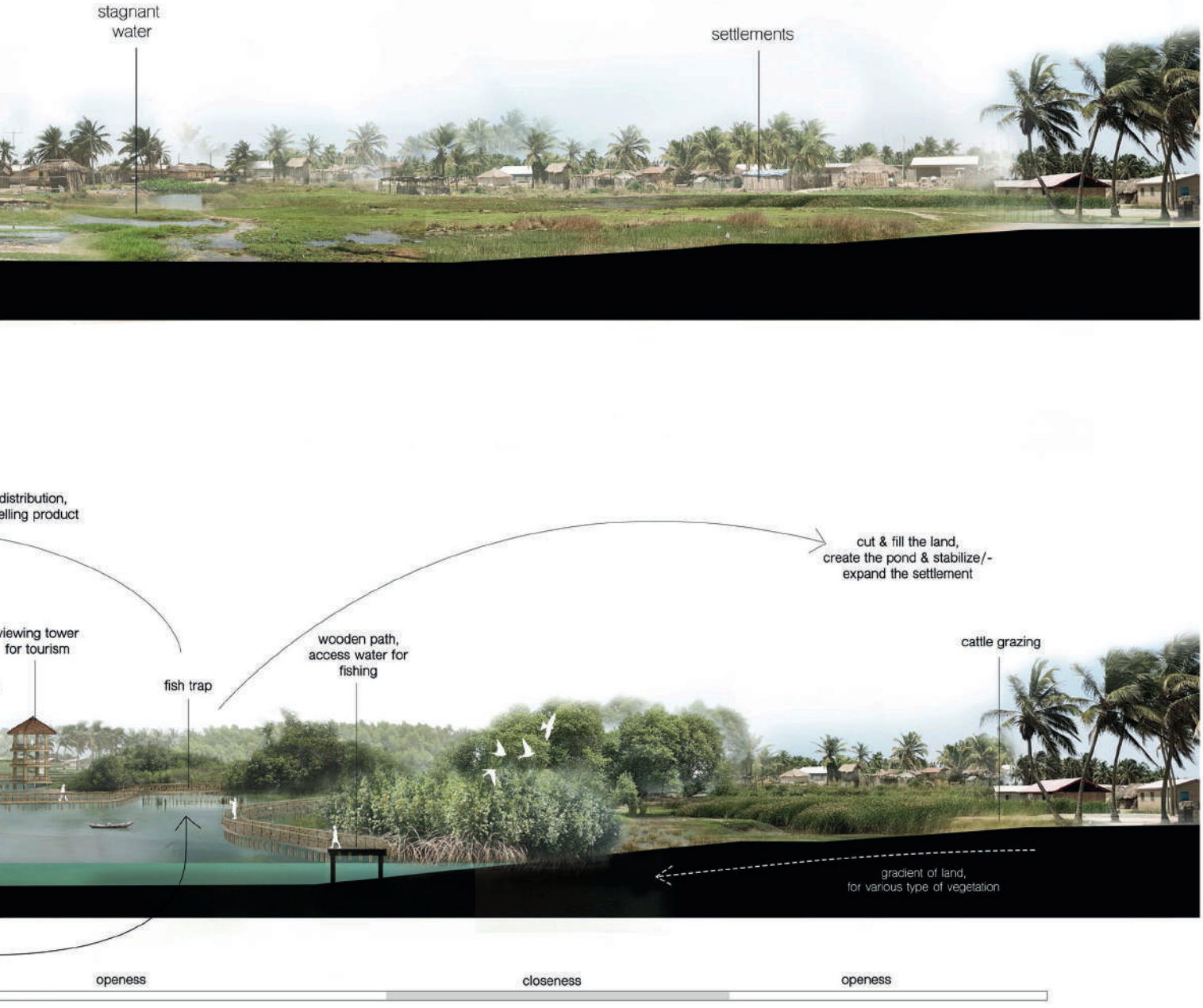
Eye level perspectives and illustrations
Coast protection against storm surge and tsunami today (1), possible solutions by building with nature with temporary use of the space (2) for example elaborated as a fish market (3) (project: 'Stitches').

Drawing on a black and white photograph
Movable water construction used as a fish trap in aboriginal eel aquaculture (project: 'Beyond sand and water').

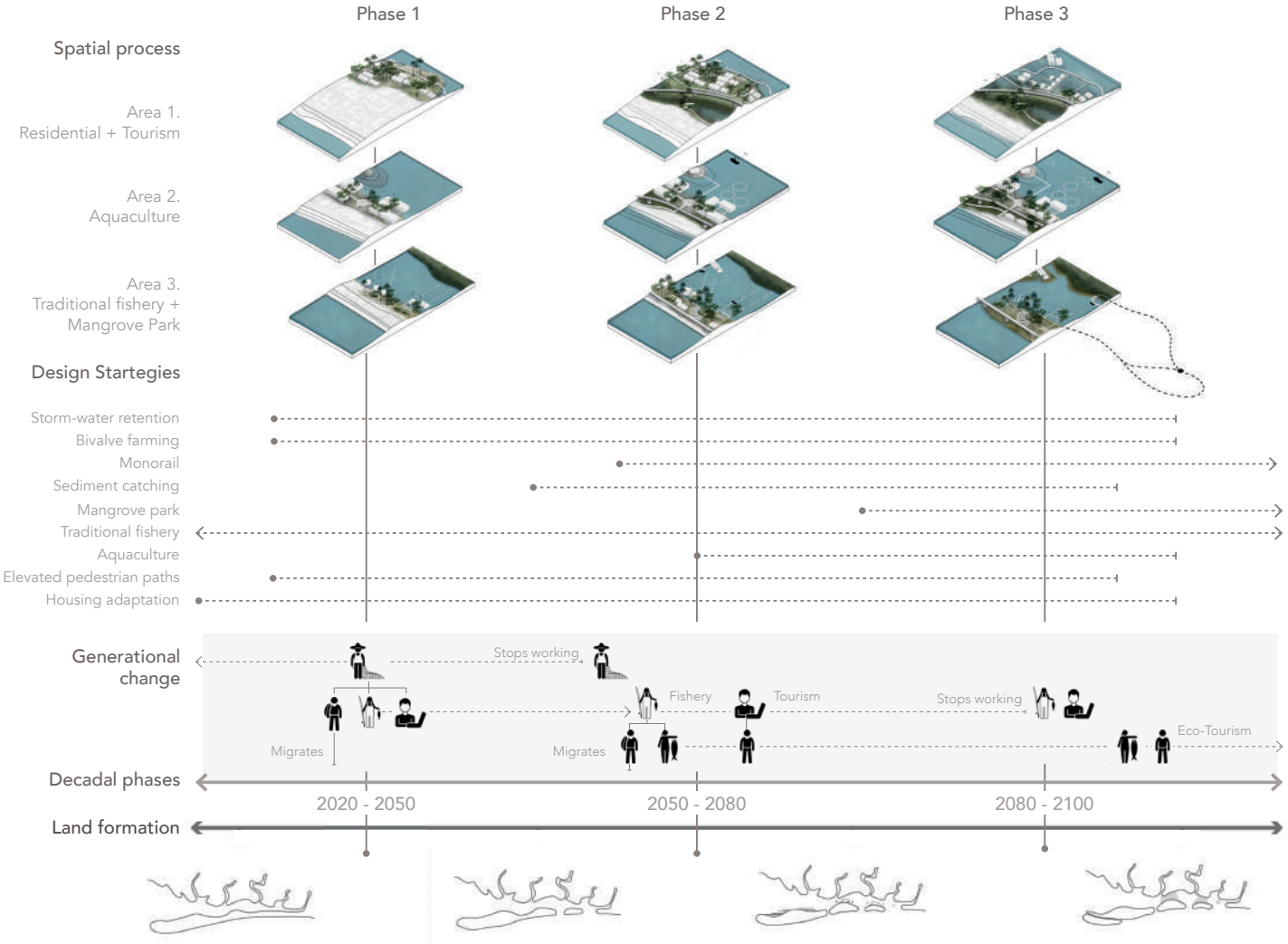
BEFORE

AFTER





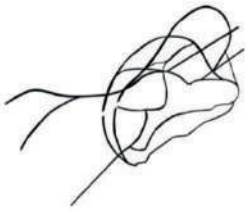
Before and after image of an estuary
Combined section and panoramic view of the intervention in which the arrows show the flows and interdependencies of all landscape elements (project: 'The Living Estuary, Ghana').



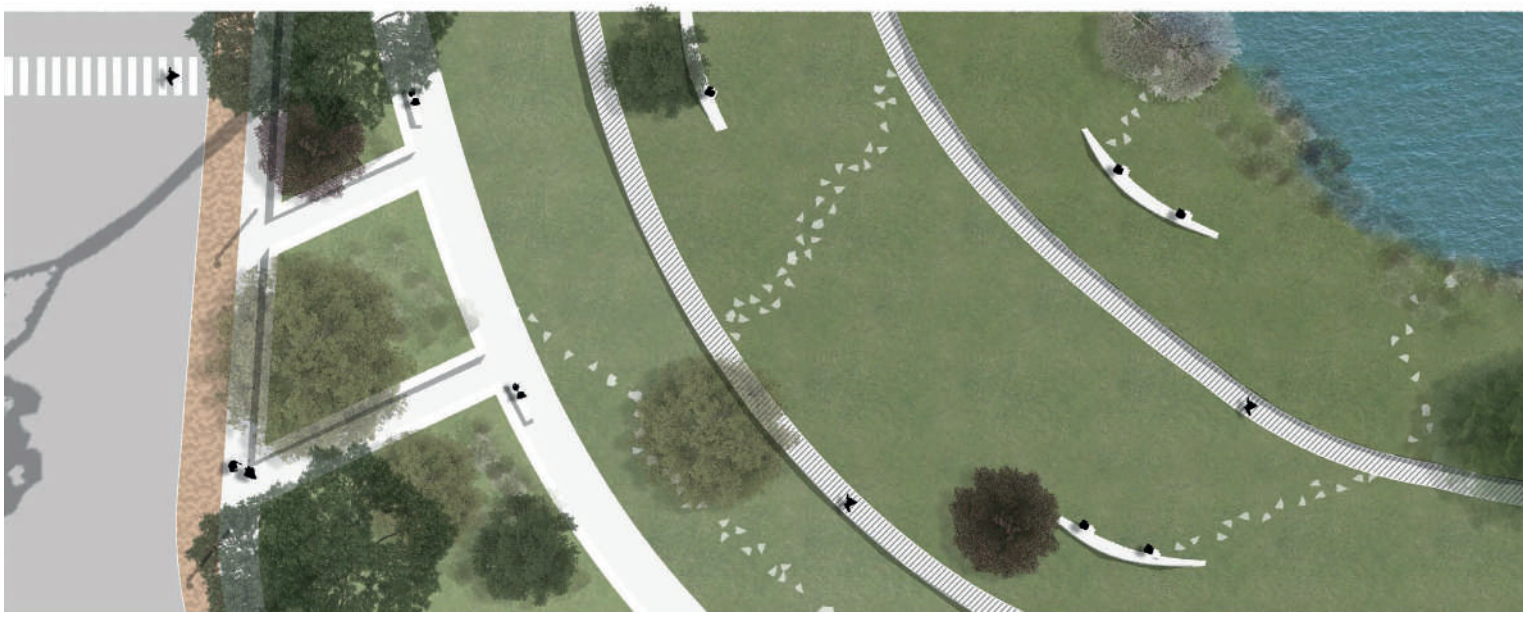
Drawing showing the spatial impact of a design over time
Highlighted is the changing relation between the spatial interventions and the social dynamics (project: 'Beyond sand and water').

Flowscapes studio, Circular Water Stories Lab, María José Zúñiga, 2020/21

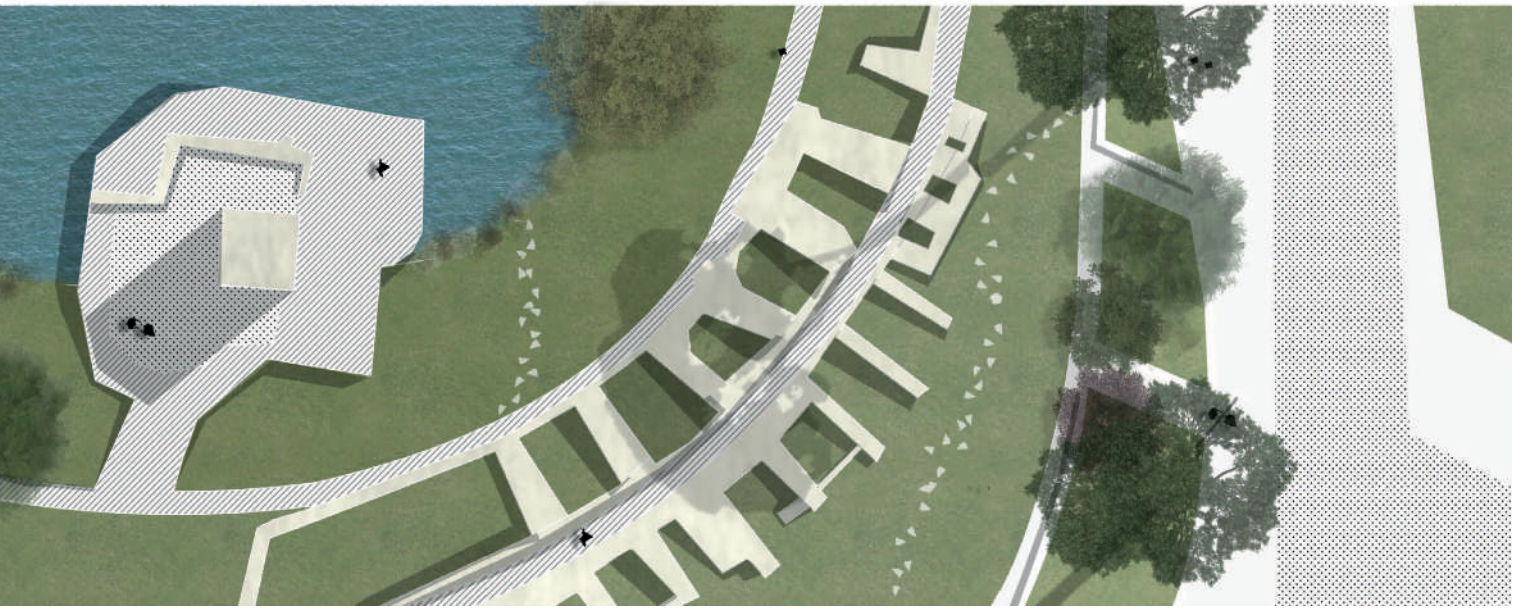
This map shows the paths and row of trees that are remnants of different time periods.



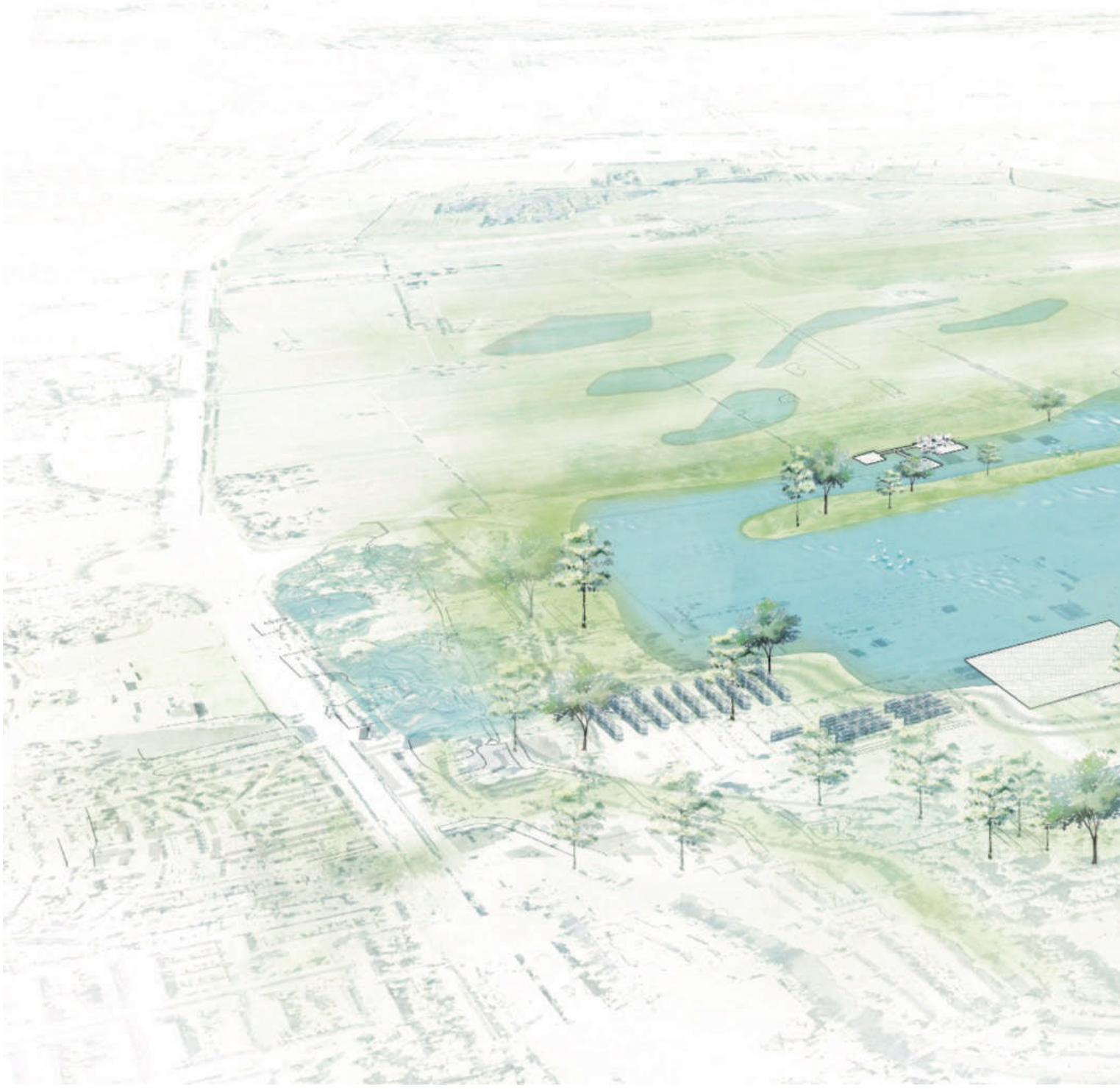
Analytical drawing
Historical analysis of the origin of the path and tree patterns at Soestdijk castle in Baarn, Netherlands.



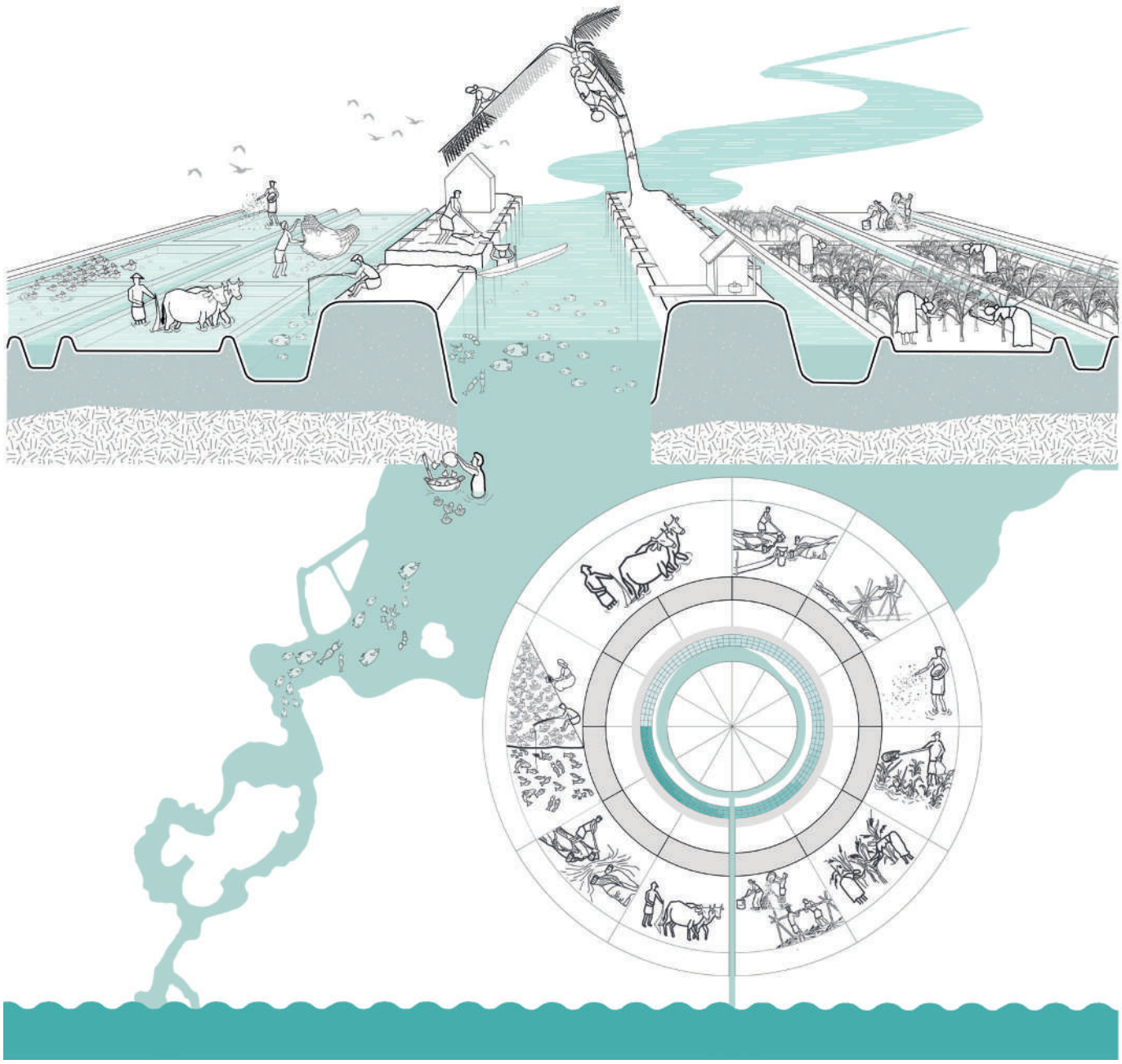
Flowscapes studio, Circular Water Stories Lab, Camilla Di Nicola, 2019/20



Section and isometric design drawing
Proposal for the area around Circus Maximus used as a retention pond (project: 'Revealing Rome's water-based culture').



Bird's eye view of a design proposal
Plan for a circular water neighborhood in the Rotterdam airport area (project: 'Airport living: circular urban ecology').



Circular water diagram
Drawn reconstruction of a traditional irrigation system showing the use of the water for diverse agricultural needs (project: 'Land can sometimes be water').

Vernacular

The vernacular is about taking good care of and belonging to. A vernacular landscape is a cultural landscape that has evolved under the influence of people whose occupancy and activities over time has shaped their surroundings. As people constantly adapt to change, these landscapes embody indigenous knowledge of the potentials and limitations of a specific territory -physical, biological and cultural- acquired over many generations.

Rationalization of the countryside, population growth, material consumption and rapid urbanization are eroding and reducing the quality of traditional cultural landscapes. Nevertheless, there are still cultural landscapes in the world where rural communities set the pace. Moreover, many vernacular architecture and landscapes are on the World Heritage List in recognition of the quality and value of the accumulated tacit knowledge that is hidden in these places.

It is interesting to note that in the last five years, landscape architects, but also architects and other professionals, are once again becoming inspired by the vernacular, just like they were several decades ago when books like *Architecture Without Architects* and *Genius Loci: Towards a Phenomenology of Architecture* were published.[1,2] A whole generation of mainly architects were influenced by them. This time, spatial designers are looking for answers on sustainability, how to be part of the ecological system and how to design for the circular economy.

There are things to learn from the vernacular: how to use local materials to build with, how to understand concepts like 'building with nature', how to grow and produce local material and food and, perhaps most importantly, understanding the value of incorporating the opinions and convictions of local citizens in the transformation of their neighbourhoods, public spaces and parks. In the book *Lo-TEK*, Watson argues that immediately available and equitable solutions to today's challenges already exist in Lo-TEK societies. She defines Lo-TEK as resilient infrastructures developed by indigenous people through traditional ecological knowledge.[3]

Studying and interpreting the past is an important aspect of the Landscape Architecture curriculum at TU Delft. We unravel vernacular landscapes by using the method of landscape biography in the first year of the Master. Together with our international students, we share and discuss the places they know well that are less influenced by the generalizing impact of globalization and which for that reason are interesting study objects for research on the vernacular. In the Circular Water Stories graduation laboratory, students analyse and map traditional water systems that are part of vernacular landscapes.[4]

IB

1. Bernard Rudofsky, *Architecture without Architects: An Introduction to Non-pedigreed Architecture* (New York: Museum of Modern Art, 1964).

2. Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture* (Rizzoli, 1980).

3. Julia Watson, *Lo-TEK, Design by Radical Indigenism* (New York: Taschen, 2019).

4. Inge Bobbink, *Circular Water Stories*, https://circularwaterstories.org

Walking

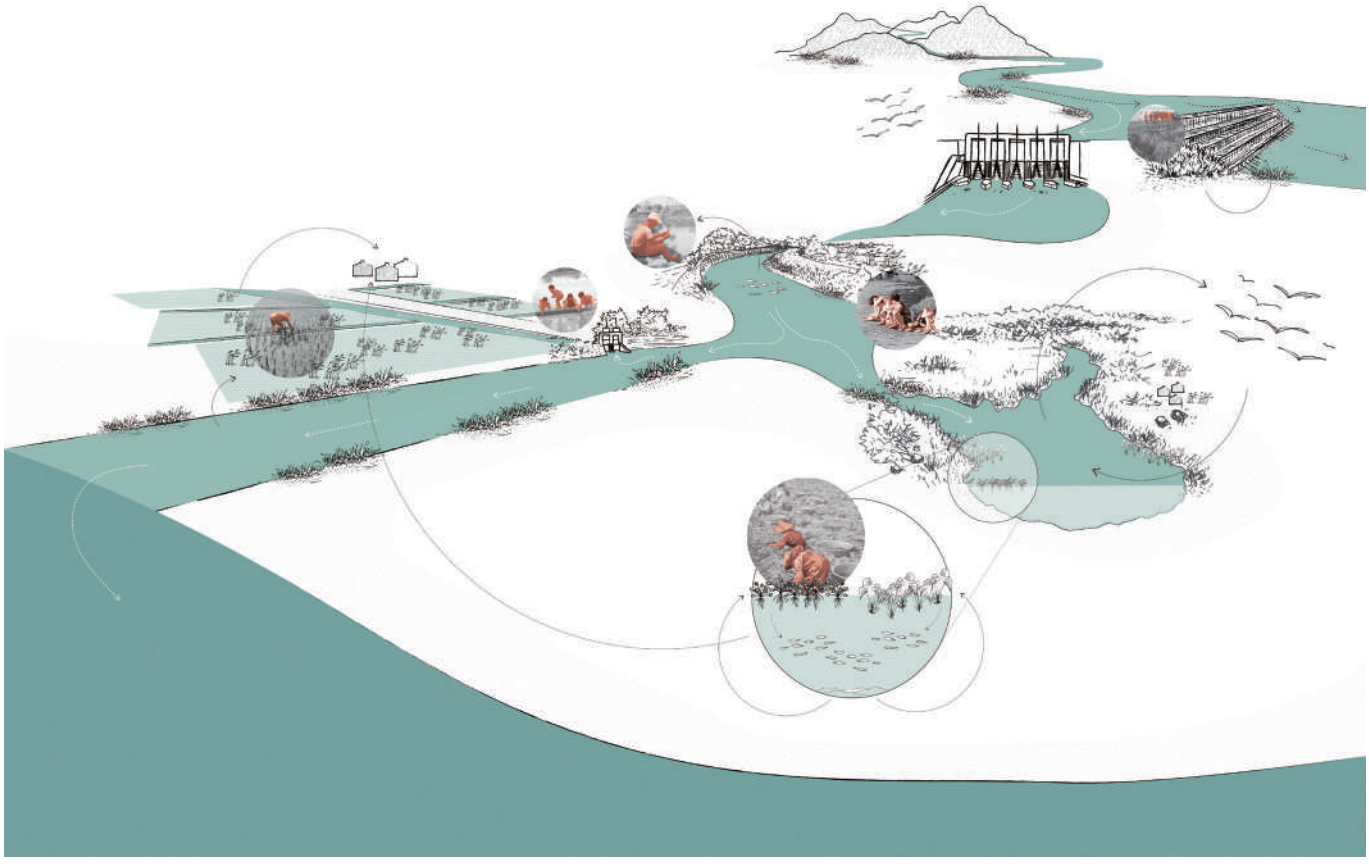
Walking offers direct and interactive encounters with the landscape and its inhabitants. The only way for the body to explore space is by moving through it: "Not only does [locomotion] depend on perception but perception depends on locomotion inasmuch as a moving point of observation is necessary for any adequate acquaintance with the environment. So we must perceive in order to move, but we must also move in order to perceive."[1] Walking as a means to understanding landscape involves observing the landscape as a series of innumerable spatial performances which build up a narrative and a non-hierarchical understanding of the world. The eye-level view of landscape adds a layer to the historical, compositional, programmatic and systemic layers that constitute the complex picture of the environment and its dynamics.

Walking is not only a way of experiencing landscapes, but it is also a means to research and activate landscapes and inform design. "The simple act of walking stimulates the complex, iterative process of landscape design. It supports and integrates engagement (intensively perceiving space), flow (encouraging intuition) and reflection (supporting organization)."[2] As the most direct way to perceive and understand the landscape, walking not only involves visual experience, but also rhythm, kinaesthesia, bodily balance and so on.

Walking is a personal experience. To translate this experience from the 'subjective' properties of the perceiver to the 'objective' qualities of the perceived landscape, we introduce the score as a notation system for landscape qualities – analogous to a musical score – which connects motion and time and combines different threads into one composition. Urban planners like Edmund Bacon[3], Gordon Cullen[4] and Kevin Lynch[5] and landscape architect Lawrence Halprin[6] devised these alternative notation techniques (scores) for analysing and designing (urban) landscapes. By registering the first-hand perspective of the moving subject, scoring does justice to the multisensory and time-based qualities of walking, such as visual sequences, dynamics of spaces, locomotion and surface qualities. Scores do not merely represent visual sequences but are sequences of 'sensations' (in Bacon's words) or 'revelations' (in Cullen's) that bear witness to all kinds of human interaction with space, to periodic occupation and appropriation of space, and to social interaction informed by spatial characteristics. When used well, scores are not so much recordings of the subjective experience of walking, but translate the modes of perception – kinaesthetic, visual, auditory, etc. – into diagrams expressing the qualities of the physical landscape, such as turns in the road, ascending and descending, road crossings, scale and proportion of space, and sound and vision. Scoring enables students to interweave designerly analysis and analytical design, to use personal experience as a tool to understand and create landscapes.

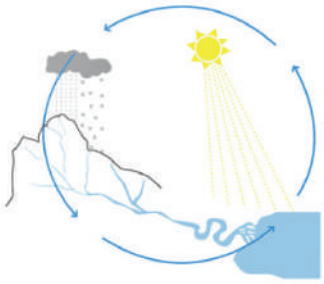
SdW

1. James Gibson, *The Senses Considered as Perceptual Systems* (Boston: Houghton Miffin, 1966), 223.
2. Henrik Schultz, *Landschaften auf den Grund Gehen: Wandern als Erkenntnismethode beim Großräumigen Landschaftsentwerfen* (Berlin: Jovis, 2014), 6.
3. Edmund Bacon, *Design of Cities,* rev. ed. (New York: Viking Press, 1974).
4. Gordon Cullen, *Townscape* (New York: Reinhold Publishing Corporation, 1961).
5. Donald Appleyard, Kevin Lynch and John Myer, *The View from the Road* (Cambridge MA: MIT Press, 1965).
6. Lawrence Halprin, *The RSVP Cycles: Creative Processes in the Human Environment* (New York: George Braziller, 1970).

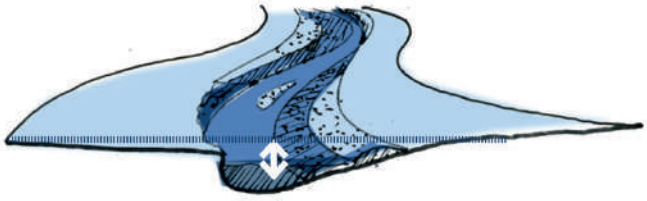


Schematized regional landscape overview
Traditional irrigation system and its use from mountain to sea (project: 'Reveal the Unseen').

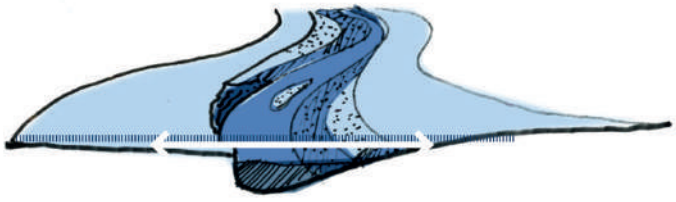
Flowscapes studio, Circular Water Stories Lab, Man-chuan Lin, 2019/20



Temporary flow fluctuations

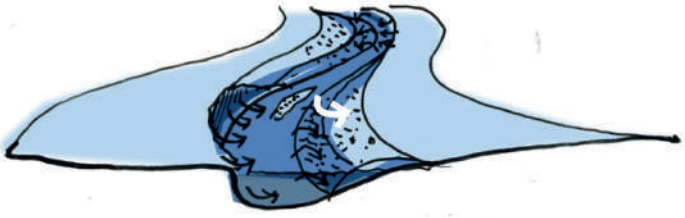


Sub-process 1: Vertical water level fluctuations

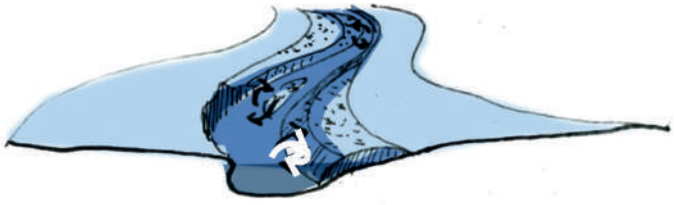


Sub-process 1: lateral spread of the water

Morphodynamic processes

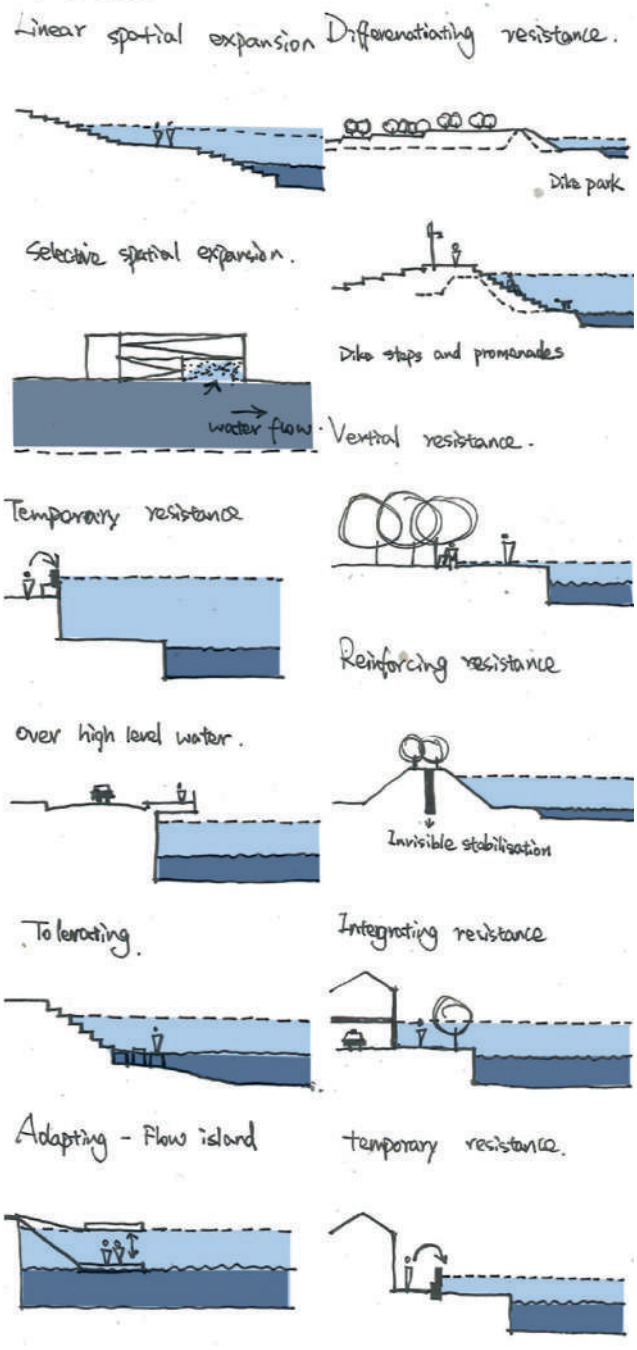


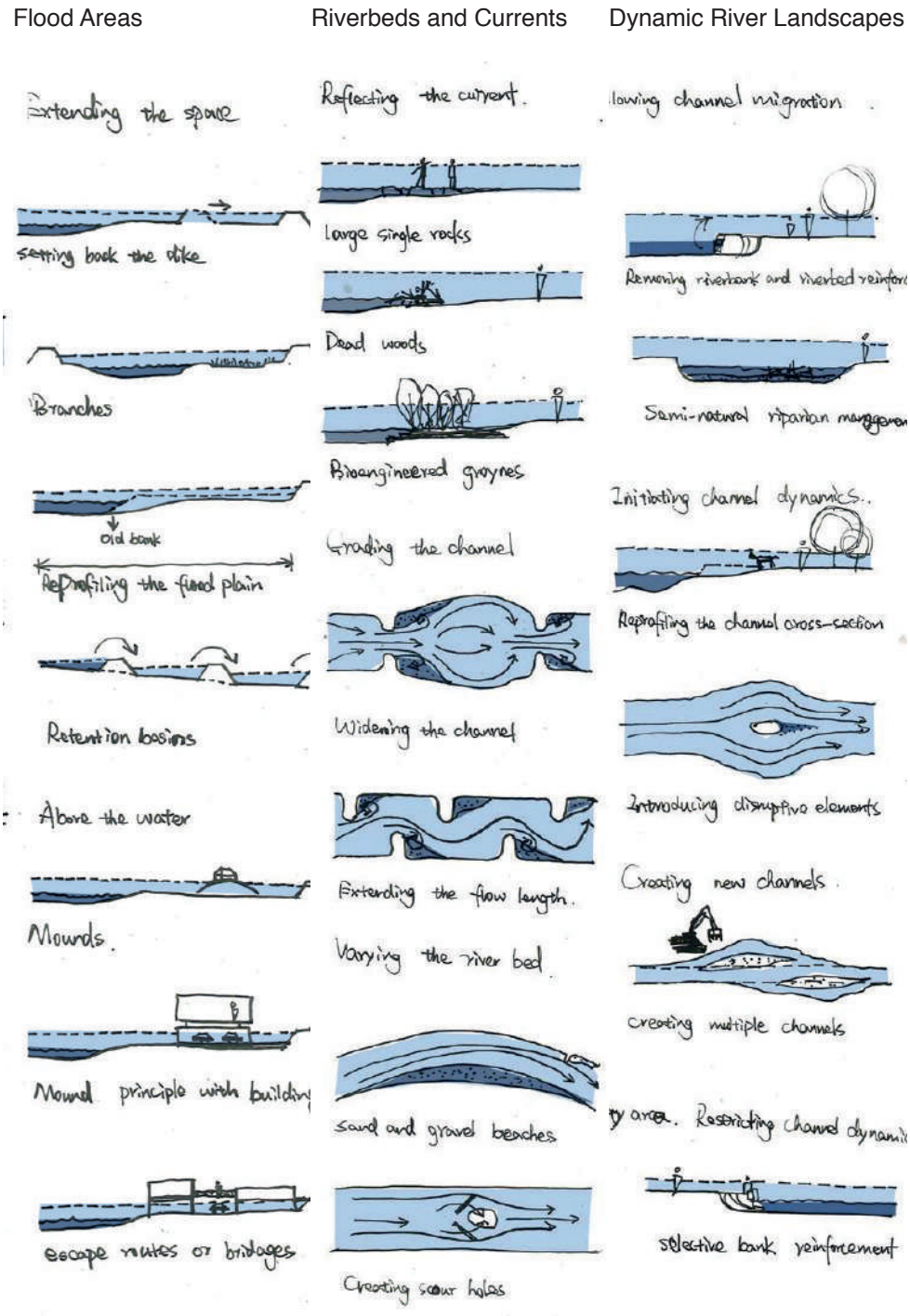
Sub-process 1: Sedimentation shift within the river



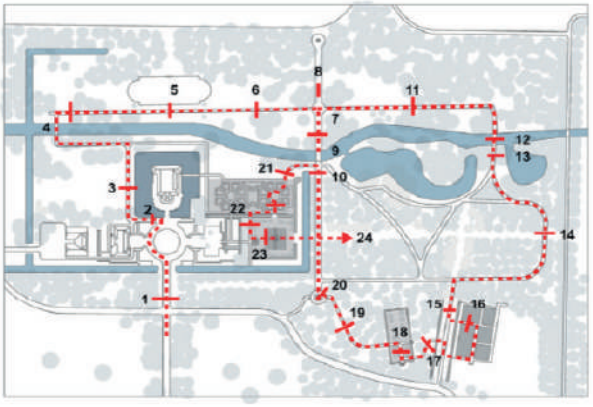
Sub-process 1: self-dynamic river channel development

Embankment Walls and Dikes and Flood Walls Promenades





Design principles for a river landscape
Matrix of possible interventions and their impact on river dynamics (project: 'Flux waterscapes').

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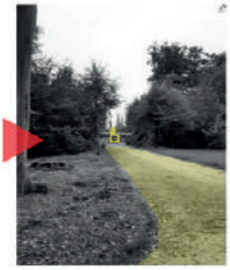
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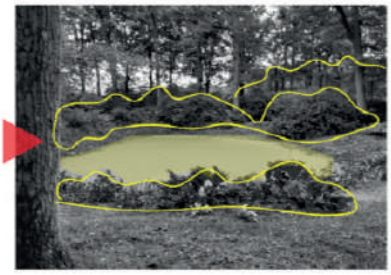
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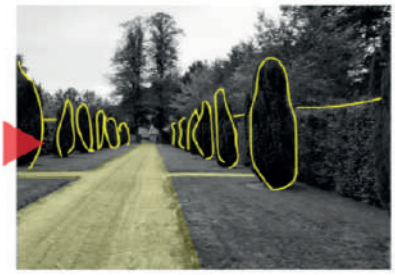
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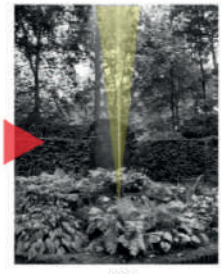
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Flowscapes studio, Garden of Gelderland Lab, Alia Shahed, 2019/20


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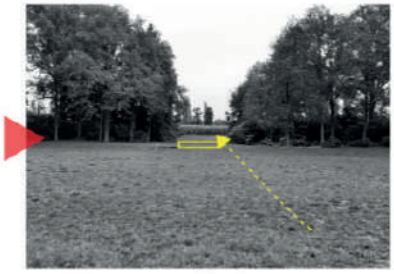
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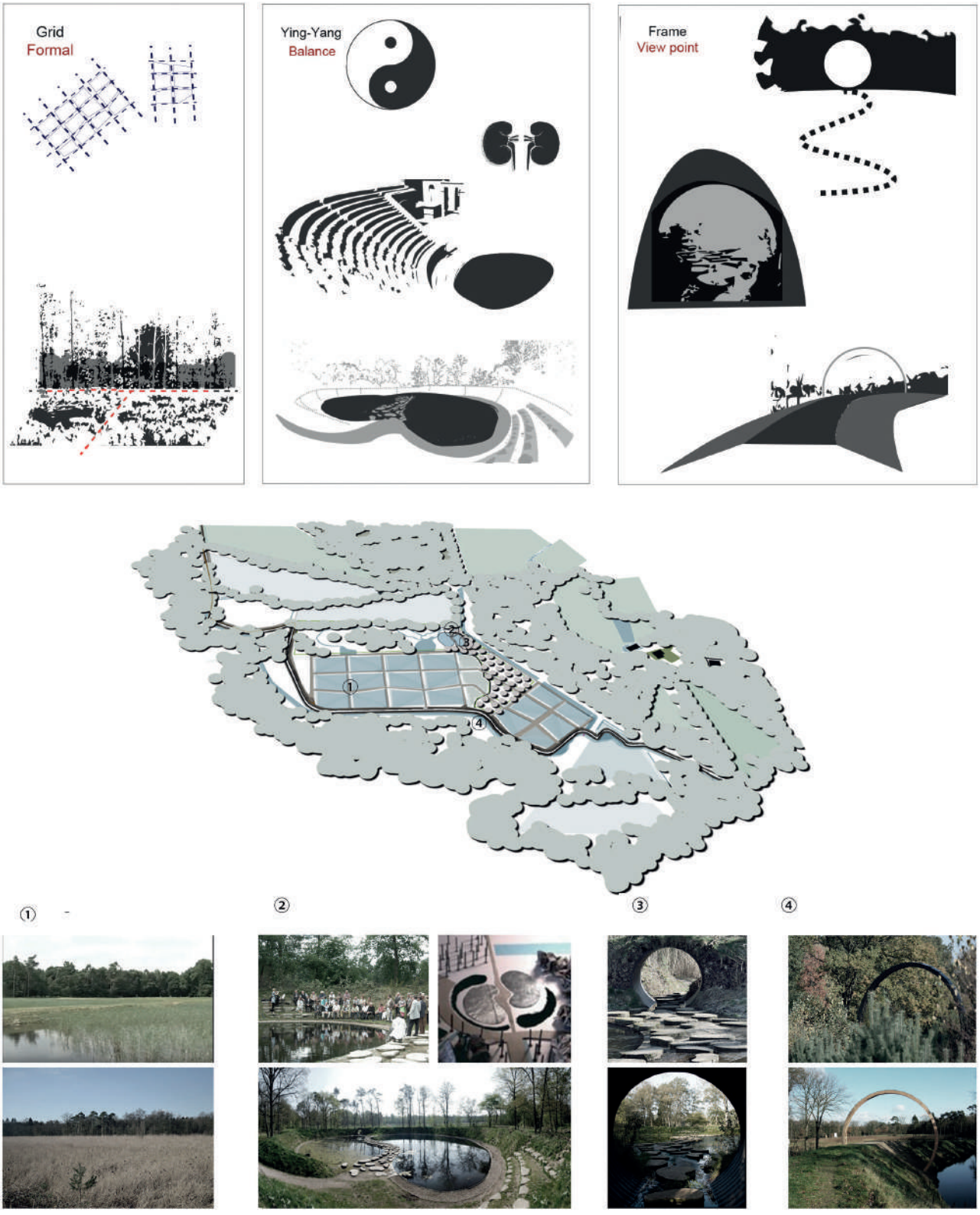
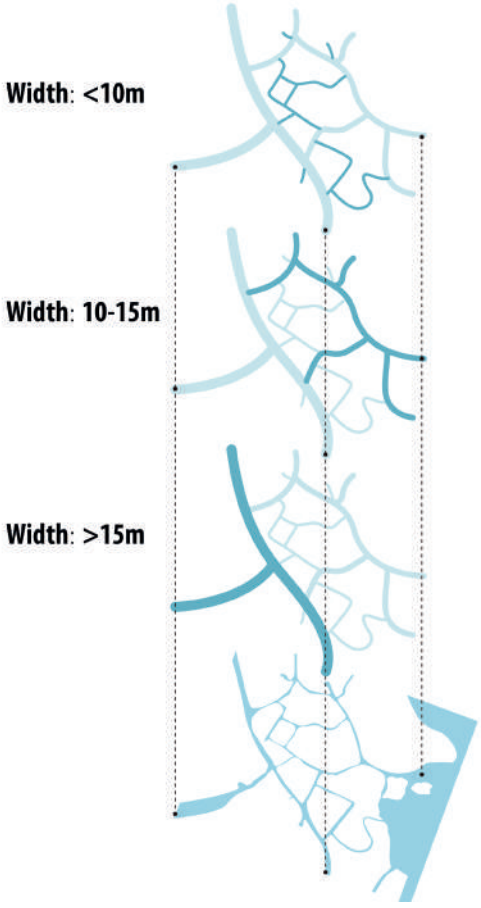
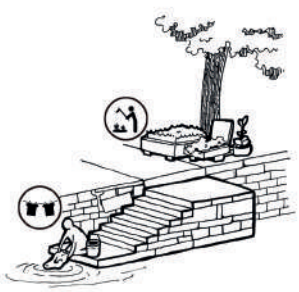
Photographed walk and spatial observations
Analysis of perception and experience while walking through the estate of De Wiersse (project: '(Re)exploring the value of productive landscape and its link to the heritage estates, Netherlands').



Analytical drawings of an estate landscape
The metaphorical images are referring to the natural, cultural and urban layer of the landscape inside and around the grounds of the Lankheet estate in the Netherlands.





Width: <10m

The small river represents the typical life style of people who live in Tongli. All the houses here were built near the river. People live on the water in Tongli. They use the water for washing, irrigation, drinking, etc. Most of them built small stone platforms adjacent to the river; some of them even extended their balcony (on 2nd floor) and used buckets to take the water.

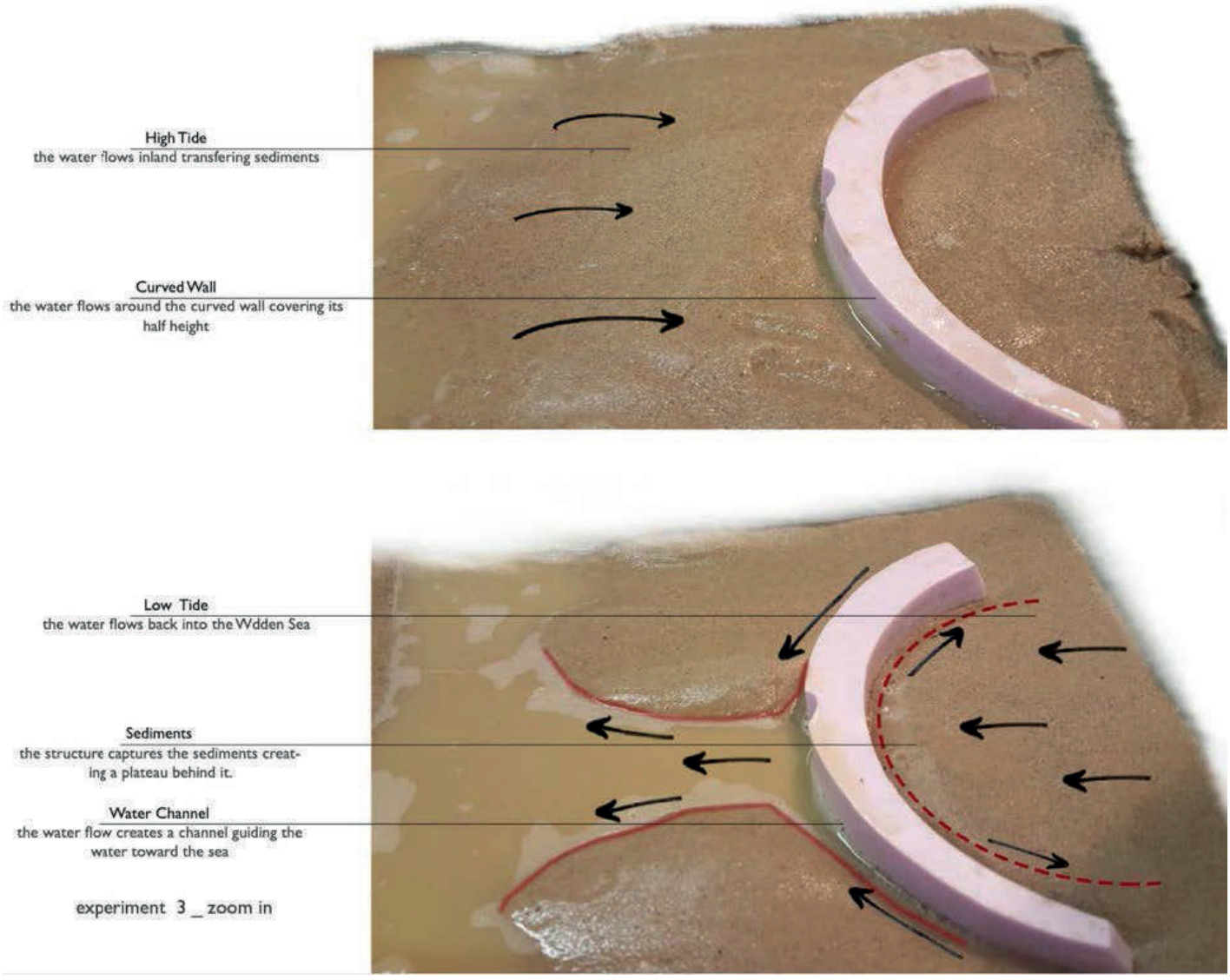
Width: 10-15m

The medium width of river is mainly for recreation (tourism). However, the way of fishing here is different. People train birds for fishing, which is also part of the performance (for tourism).

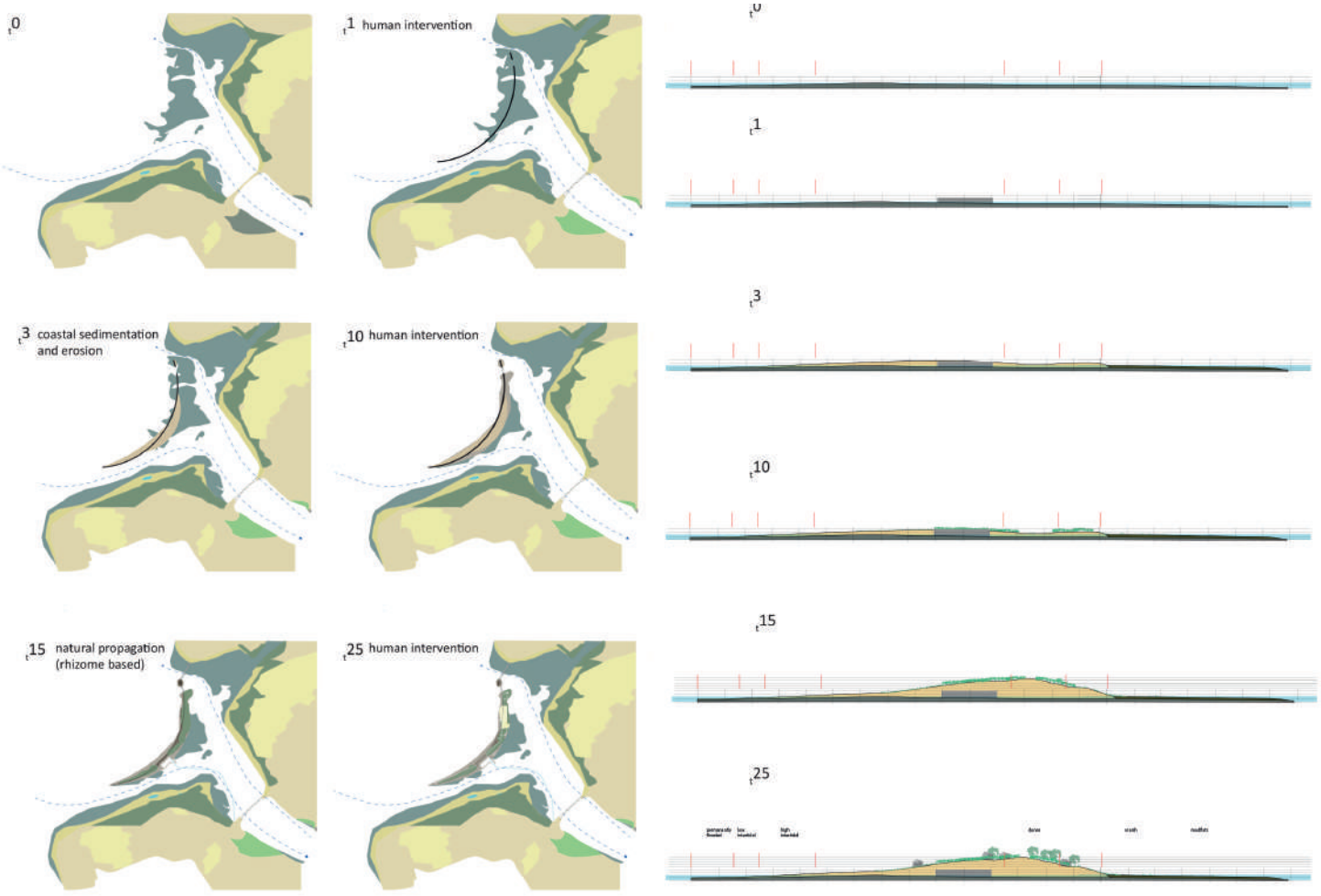
Width: >15m

The wider area is mainly for transportation. Besides recreational functions, it also has commercial usages such as small-scale fish farming.

Morphological landscape analysis
The extension and width of the canals of Tongli (China) express the use and the experience of the landscape.

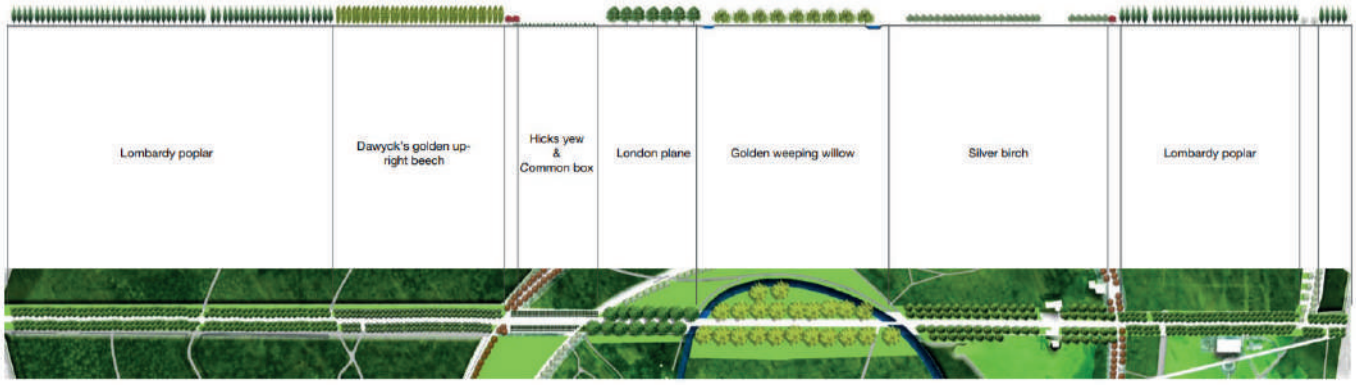


Experimentation in a sand box
Hands-on model to simulate water movement in sandy substrate and curved artifact: new landscape shapes are the result.



Series of drawings to illustrate expected landscape development
The vast intervention stimulates natural processes to create sandy barrier islands in the Rhine branch of the Haringvliet (project: 'Coastal Conditions').

Section and plan of Axis 2



Analysis of a planted avenue
Explanation of the various tree species along one of the avenues of Soestdijk castle, Netherlands.

Water

Water is one of the most basic materials of landscape architecture. There is hardly any design assignment in the Landscape Architecture Master track that does not include water. Water exists in three phases: solid (ice), liquid (water) and gas (water vapour). Designers mainly deal with the fluid form of the material.

Liquid water is shaped by other materials that bound and guide it and takes on different forms and sizes. Water moves, stands still or is dynamic, is salty, fresh or brackish, is of varying quality, takes on different colours and temperatures, and provides habitats for plants, animals and people. These versatile properties make water a fascinating material for designers. But unfortunately, the most significant water bodies on land – rivers, lakes, canals, and ponds – are predominantly shaped and managed by engineers.

A prominent example of how water management shapes the cultural landscape can be found in the low-lying part of the Netherlands: the polder landscape, where the first inhabitants drained the swamps to create dry ground for farming and living. At the same time, digging canals made it possible to travel by boat and connect the country with the rest of the world. The partly natural, but essentially human-made geometric patterns of canals and ditches have shaped the spatial planning of the delta ever since. These watercourses are highly visible in the landscape. Although proud of living safely under sea level, we now realize that we took the management of the water system too far and it has led to the loss of most of the natural qualities of the landscape.

Before the industrial revolution, people tended to live close to the landscape and did not treat water as an everlasting resource like we do today; they did not waste it when it was in short supply. They acted in tune with the dynamics of the water system, the seasonal flooding, the tidal changes and the weather conditions. The water they used, for example for irrigation, they returned to the system without changing its quality too much. In time, however, with the division and specialization of labour and rising population, people disconnected from where they live. According to the UN, one in three people do not have access to safe drinking water. Moreover, the ocean, which provides and regulates our rainwater, drinking water, weather, climate, coastlines, much of our food, and even the oxygen in the air, is under threat because of us.[1]

To change our attitude towards the earth, we need landscape architects who design futures which show possibilities for overcoming this negative spiral. Designing with water is about understanding the water body as part of a system within the watershed, taking account of ecological, social and economic processes, and the site's specificity. By analysing traditional water systems based on a close relationship between humans and the landscape they live in, we can reveal forgotten knowledge and adapt these principles to today's challenges. This kind of research is undertaken in the Circular Water Stories laboratory. The resulting design principles are transformed and developed when applied to the sites of the graduation projects.

In the Netherlands we cannot go back to a previous time as we depend on the engineered system of pumps and sluices to regulate the land situated under sea level. But we can enrich the existing system with ecological and emotional values through design to make the previous focus on safety and agricultural productivity less dominant. This allows the polder landscape to become a more experiential, inclusive, resilient and sustainable landscape. In the Master track, we present and elaborate the polder landscape in the Dutch Landscape course (MSC1/Q2) as a case study on rethinking our relationship with water management and land use on a regional and local scale.

IB

1 United Nations, *Sustainable Development Goals*, www.un.org/sustainabledevelopment.

Design workshops

Sometimes the search for answers is more important than the solution itself. The TU Delft Landscape Architecture section is regularly invited to participate in ongoing transformation processes in landscape design and heritage issues. These collaborations between academia and practice are called living labs, design workshops, student hubs, graduation labs or field labs and they vary in length and intensity. All are forms of spatial research-by-design. We have frequently used the design workshop model during the ten years of the fourth quarter elective on Heritage Landscapes (HL).

A design workshop, design charrette or student hub is a cooperative method of developing creative solutions for a specific design problem in a limited period of time (3–6 days).[1] Design workshops can be thought of as 'pressure cookers' for generating ideas and making quick choices for inspirational purposes.[2] They are of value to both the students and the stakeholders. Students have an opportunity to work in their future field of practice in a multidisciplinary team. For the stakeholders the unbiased student ideas can be refreshing in difficult transformation processes.

The design workshops fall into three main categories, each with its own educational, design and research objectives. The first type of design workshop aims to teach students to design with new concepts or design methods from an academic viewpoint (academic knowledge based workshop).[3] In this type of design workshop, an appointed specialist organizes a masterclass to introduce new concepts, ideas or methods. The main goal for students is to improve their design skills and scientific knowledge in practice-driven research. An example is the *Roodbaards Rijkdom* workshop, which aimed to define a design toolbox based on the drawings of landscape architect L.P. Roodbaard by analysing the legend.

The second type of design workshop aims to define values, definitions and types of solutions in landscape architectural design challenges.[4] Various design proposals are generated by students and then analysed in an open discussion between students and the partners to help establish the main potential project outcomes. These workshops can be useful in putting the design assignment on the political agenda. In the workshop on redesigning the public space of the *DRU factories*, a large industrial area in the eastern part of the Netherlands, three design proposals were made to give local stakeholders new ideas and gain a deeper understanding of site-specific proposals.

The third type of design workshop is organized to initiate an open discussion between local experts, non-experts and students in a 'participatory action plan' (participation-based workshop).[5] In the workshop the participants work together on community planning. The most important step is defining the spatial problem in collaboration with local stakeholders. The *Wall of Mussert* workshop on the NSB (National Socialist Movement in the Netherlands) heritage project, for example, was part of the public debate on how to give contested heritage a new role. The students showed four possibilities based on ideas of the stakeholders. The visualization of these ideas helped them understand what to do with this contested context and formed the basis for debate.[6]

These design workshops stimulate the partners to rethink possibilities and start the public debate. This last aspect may be the main reason why experts should take part in workshops more often – to get inspired and energized to continue working and think freely as part of a process of inclusive designing, rather than only focusing on the outcome.

GV

1. Cynthia L. Girling, Ronald Kellet and Shana Johnstone, "Informing Design Charrettes: Tools for Participation in Neighbourhood-Scale Planning," *Integrated Assessment* 6, no. 4 (2006): 109–130; Mary M. Somerville and Zana Howard, "A comparative study of two design charrettes: Implications for codesign and participatory action research," *CoDesign* 10, no. 1 (2004): 46–62.

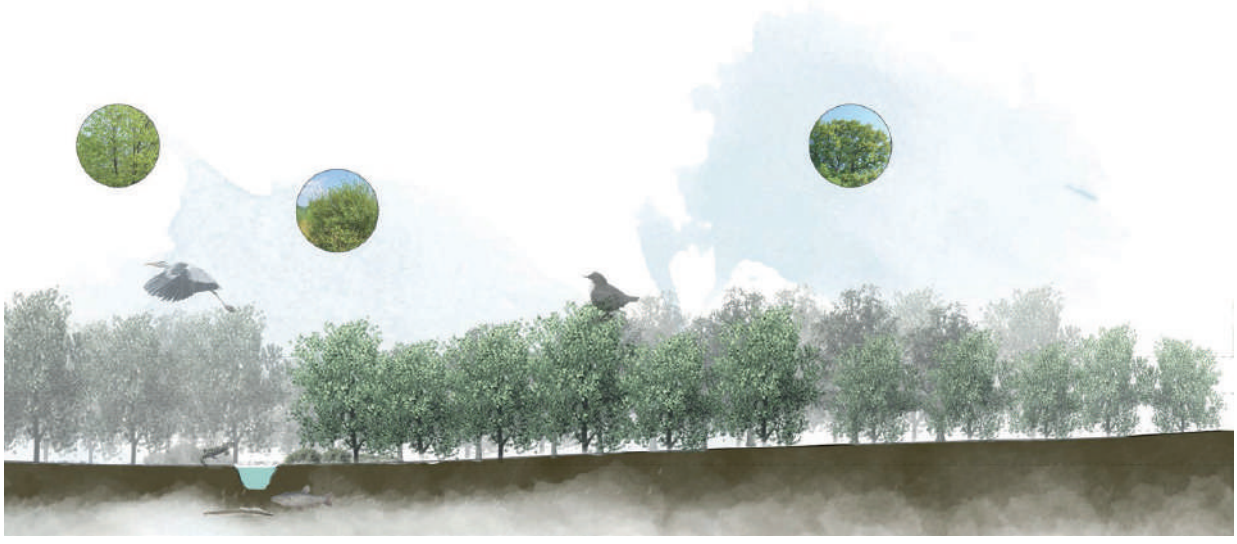
2. Gerdy Verschuure-Stuip, *Nieuwe Stellingnames; erfgoedworkshops als ruimtelijke ontwikkelmethode voor gemeenten en ontwerpopleidingen* (Delft: Delft University of Technology, 2021).

3. Doug Kelbaugh, "Design Charrettes," *Agora* 4 (2010): 19–29.

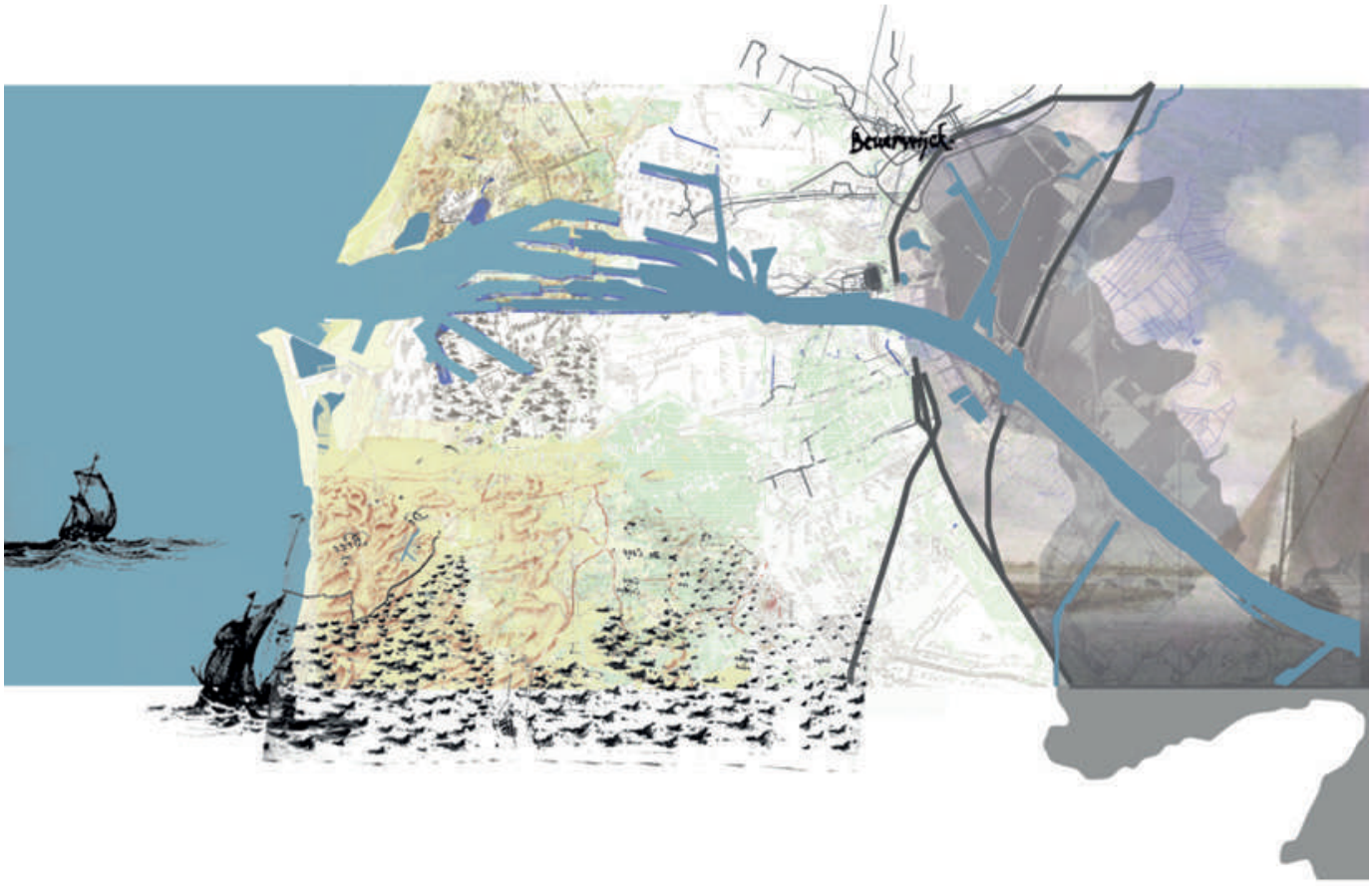
4. William R. Lennertz and Aarin Lutzenhiser, *The charrette handbook. The essential guide for accelerated collaborative community planning* (Chicago: The American Planning Association, 2006); Rob Roggema, *The Design Charrette: Ways to Envision Sustainable Futures* (Dordrecht, Heidelberg, New York, London: Springer, 2014); Mary M. Somerville and Zana Howard, "A comparative study of two design charrettes: Implications for codesign and participatory action research," *CoDesign* 10, no. 1 (2004): 46–62.

5. Cynthia L. Girling, Ronald Kellet and Shana Johnstone, "Informing Design Charrettes: Tools for Participation in Neighbourhood-Scale Planning," *Integrated Assessment* 6, no. 4 (2006): 109–130.

6. Roel During and Rosalie van Dam, *Wat we niet willen weten en ons toch moeten herinneren, toekomstperspectieven voor de Muur van Mussert* (Wageningen: WUR, 2019); Gerdy Verschuure-Stuip, "Mussert's Wall, designing with the narrative of a loaded past," in *Atelier notes in heritage, city and landscape* (Delft: Delft University of Technology, 2017).

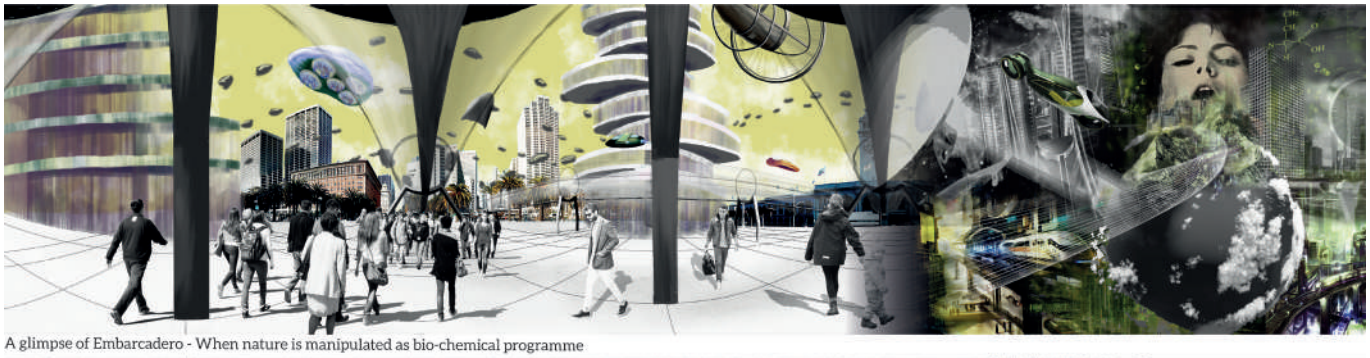


Sections illustrate dominant landscape features
Landscape analysis on the role of the brooks perpendicular to the gradients of the landscape (project: 'Adaptive reuse of landscape heritage').

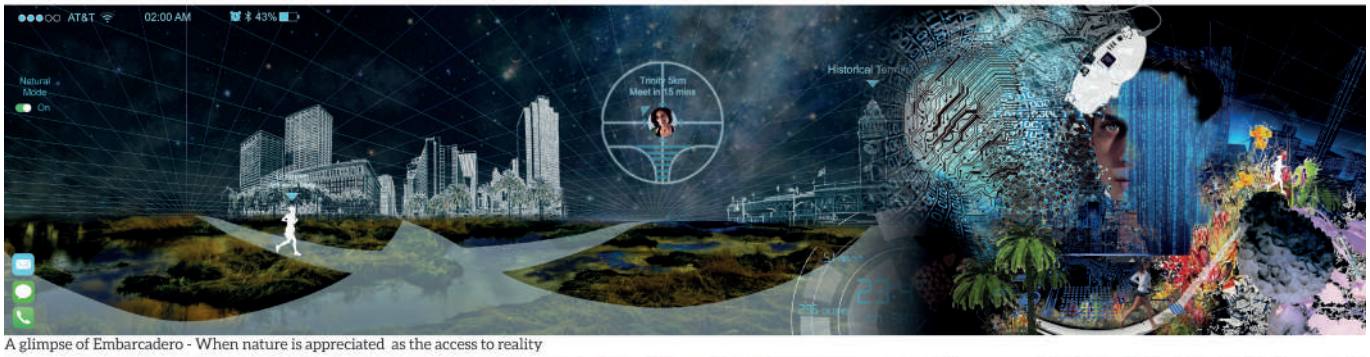


Collage expressing a landscape biography
A narrative image on water in the surroundings of the city of Beverwijk, Netherlands.

Collage of historical images
Picturing the estates of Beeckesteyn and Scheijbeek on the former shore of the Wijker Lake.



A glimpse of Embarcadero - When nature is manipulated as bio-chemical programme



A glimpse of Embarcadero - When nature is appreciated as the access to reality

A glimpse of Embarcadero - When nature is worshiped as the refuge of humanity

Conceptual spatial collages
Different views on nature: manipulated by a bio-chemical program (1), appreciated as access to reality (2) and worshiped as the refuge of humanity (3); (project: 'San Francisco Space Fiction').

Conceptual collages for Rotterdam
Examples of situations meant to fuel energy awareness in public space design; creating energy by the movement of people on the square (1) and in the wind park by wind (2) (project: 'Energy awareness in public space design').

PEOPLE

In alphabetical order

Dr Inge Bobbink is associate professor of Landscape Architecture. She trained as an architect and graduated in Landscape Architecture and Urbanism from the Berlage Institute in 1994. Since the start of the Landscape Architecture Master track in 2010, she has been in charge of the coordination and ongoing development of the programme. In addition, she teaches and supervises Bachelor, Master and PhD students, lectures internationally and is a member of various advisory boards. Her teaching focuses on design, in particular the design of water. Her PhD from TU Delft was on the form and structure of water systems. Current research focuses on the identification of landscape architectonic and sustainable values in traditional water systems worldwide. The aim is to use the knowledge acquired from the research to transform today's water systems into circular systems in such a way that they express site-specificity and inclusiveness. For publications, projects and teaching, see: https://circularwaterstories.org.

"Working with students from all over the world who are eager to learn is exhilarating. Besides discussing and testing spatial concepts, I encourage them to keep asking questions, try to thoroughly understand what they see, read and experience, and challenge them to be creative by letting other professions inspire their work. In the end, a design is about creating and visualizing beautiful futures and comes with responsibilities."

Key publications

Bobbink, I. and S. Loen. 2020. "Visual Water Biography, translating stories in space and time." In *Circular Water Stories*, ed. I. Bobbink, S. Loen and F. Hooimeijer. Spool Vol. 7, no. 2. Delft: TU Delft. https://doi.org/10.7480/spool.2020.2

Bobbink, I. 2009. *Land in Sight, a landscape architectonic investigation of Locus.* Amsterdam/Meppel: SUN.

Bobbink, I. and S. Loen. 2012. *Water in Sight, an exploration into landscape architectonic transformations of polder water.* http://repository.tudelft.nl/view/ir/uuid:e1af985b-7f72-4a55-9c07-2fc0f-4c7e4f1/

Dr Bieke Cattoor is assistant professor in Landscape Analysis, Methods and Imagination. She studied architecture, urbanism and spatial planning at the University of Leuven and Columbia University and obtained her PhD on designerly mapping practices at the University of Leuven. She has held visiting research fellowships at the University of Manchester and ETH Zurich in cartography, cartographic theory and human geography. Her ongoing research programme, Reimagining Landscapes, investigates everyday (sub) urban landscape transformations and new ways of representing landscapes to augment the critical capacity of designers and other stakeholders in rethinking, reimagining and reshaping our world. This research contributes to more sustainable and resilient (sub)urban landscape development in Flanders, Gelderland and the Randstad and has been published in four narrative atlases, peer reviewed journal articles and edited volumes, and presented at regional and international exhibitions. She is associate editor of *Journal of Maps*. Her teaching focuses on landscape theory, methods and analysis.

"Tackling global challenges such as climate change and biodiversity loss will involve major landscape transformations, which entails a risk of technocratic solutions, top-down planning and neo-colonial interventions. How can we approach these global environmental challenges while strengthening culture- and context-specific landscape values, forms and practices, as well as empowering local landscape inhabitants and producers?"

Key publications

Cattoor, B. and B. De Meulder. 2011. *Figures Infrastructures: An Atlas of Roads and Railways*. SUN Academia.

Cattoor, B. and C. Perkins. 2014. "Recartographies of landscape: New narratives in architectural atlases." *In The Cartographic Journal* 51 (2): 166–178. https://doi.org/10.1179/1743277413Y.0000000076

Coomans, T., B. Cattoor and K. De Jonge, eds. 2019. *Mapping Landscapes in Transformation: Multidisciplinary Methods for Historical Analysis.* Leuven University Press. http://library.oapen.org/handle/20.500.12657/25033

Dr Laura Cipriani was appointed assistant professor in Landscape Architecture at TU Delft in 2020. She has previously taught landscape architecture and landscape urbanism at Università Iuav di Venezia (IUAV), Politecnico di Milano, National University Singapore, Venice International University and the University of Padua. She obtained the Italian title of Associate Professorship in 2014 and was an EU Marie Curie researcher (assistant professor level) at the University of Trento. Her interest is currently landscapes of crisis – landscapes which are affected by several climatic, environmental, social and economic states of crisis and which require a holistic approach. She obtained Bachelor and Master degrees in Architecture with honours from IUAV in 2001, a Master in Design Studies with distinction on landscape and urban studies from Harvard University (Graduate School of Design) in 2004, and her PhD in Landscape Urbanism from IUAV in 2008.

"The multiple, planetary and systemic crises we are currently facing – climate-related, environmental, political, social economic and ethical crises – require experts with a holistic knowledge capable of combining the visionary and the pragmatic. The Master in Landscape Architecture allows you to train grounded visionaries who look at past and present to build a harmonious future for man and the natural world."

Key publications

Cipriani, L. 2019. *(Fr)agile terra. Paesaggi di crisi e possibilità. 01 La bassa friulana*. Venice: Università Iuav di Venezia.
Cipriani, L. 2018. *Landscapes of hope. Reclaiming Malacca*. Singapore: National University Singapore NUS.
Cipriani, L. 2017. *Isole di possibilità. Venezia e la città laguna. Islands of possibilities. Venice and the lagoon city*. Rome: Aracne editrice.

Dr Saskia de Wit is landscape architect and assistant professor in Landscape Architecture. She holds a Master's degree from Wageningen University and a PhD from TU Delft. She combines teaching and research with her own landscape architecture practice, Saskia de Wit tuin en landschap. Her research focuses on the garden as a core concept of the field of landscape architecture and as a lens for research into perception of place, sensory landscape qualities, contemporary notions of nature and metropolitan landscapes. These topics are reflected in her books *The Enclosed Garden* (1998, together with Rob Aben) and *Hidden Landscapes* (2018).

"Landscape Architecture is popular. It is increasingly considered to be the answer to finding solutions to large societal and ecological challenges, and students feel the urge to save the world. They dream big. But landscape is not about idealistic or absolute universals. It is immediate, particular and situated. The challenge is to keep finding meaning, form and structure in the site as it is, grounded in the particular and the circumstantial, based on observation, on what is known through experience, on the immediate and on the sensory."

Key publications

De Wit, S. 2018. *Hidden Landscapes – The metropolitan garden as a multisensory expression of place*. Amsterdam: Architectura & Natura.
Aben, R., De Wit, S. 1999. *The Enclosed Garden. History and development of the Hortus Conclusus and its reintroduction into the present-day urban landscape*. Rotterdam: 010 Publishers.
De Wit, S. 2009. *Dutch Lowlands. Morphogenesis of a Cultural Landscape*. Amsterdam: SUN Academia.

Ing. Gabriël Geluk is partner and head of the landscape engineering department at DG Groep. From his time as a student of landscape engineering at Van Hall Larenstein University of Applied Sciences he was always interested in realizing landscape designs as the designer envisioned them. The projects he has overseen as an engineer and project manager include the landscapes of the High-Tech Campus Eindhoven, Nirlon Knowledge Park Mumbai and Erasmus Medical Centre Rotterdam. Themes in engineering these projects are liveability, sustainability, biodiversity, climate proof and costs. Since 2016 he has been teaching civil and landscape engineering. He is currently an adviser to the Landscape Architecture Master track (and occasionally to students taking the Urbanism Master track). His aim is to strengthen the awareness of disciplines like landscape engineering and ecology in the mindset of designers without affecting their creativity and out-of-the-box thinking.

Drs. Sjef Jansen is a biologist with almost forty years' experience in ecology in all its aspects. Sjef has worked at several institutes for ecology and landscape and the Natuurbeschermingsraad (an advisory body on nature conservation to the Dutch government). He was co-founder and co-director of Vista Landscape and Urban design in Amsterdam. In 2006 he launched his own consultancy Planecologie. He headed the team that drew up the Dutch target nature types (used to guide habitat/ecosystem restoration and management projects under Dutch nature policy) and at Vista he published *Dilemma's van het Hollandveen* (2002) about land subsidence in the peaty fen meadow polders in the west of the Netherlands. He contributed to the book about the Room for the River flood risk management and nature restoration programme (2017). He participates in many quality teams and committees and has taught ecology at TU Delft and other universities and academies since 2011. He has great respect for the design process and the contribution of designers. He strives for projects that are ecologically sound and that excel in architecture and sustainability, and tries to pass that on to students as best as he can.

Dr Daniel Jauslin was trained as an architect at ETH Zurich (1997) and worked at West 8 landscape architects before founding DGJ Landscapes in 1999 in Rotterdam, Frankfurt and Zurich. He taught and researched Landscape Architecture at TU Delft from 2008 to 2015, including Landscape Architecture courses in the BSc, the Masterclass 'Bridge design on the Rotte river', the on-site designs at Oerol festival on Terschelling and the Flowscapes Master studio on the Rhine–Danube corridor. He was also a design studio lecturer at Wageningen before returning to Switzerland in 2019 after he obtained his PhD on landscape design strategies in architecture.

"The greatest opportunity for landscape architecture education at TU Delft is to initiate the transformation of our built environment into a sustainable future. Landscape architecture, as the youngest of the spatial design disciplines, connects human aesthetic culture, the future needs of all species and balanced ecosystems inside nature."

Key publications

Jauslin, D. 2011. "Landscape Aesthetics for Sustainable Architecture." In *Aesthetics of Sustainable Architecture*, ed. S. Lee, 109-119. Rotterdam: 010 Publishers.

Nijhuis S., D. Jauslin and F. van der Hoeven, eds. 2015. *Flowscapes: Designing infrastructure as landscape*. RIUS Delft Research in Urbanism Series, Vol. 3. Delft: TU Delft.

Jauslin, D. 2019. *Landscape Strategies in Architecture.* PhD diss., TU Delft.

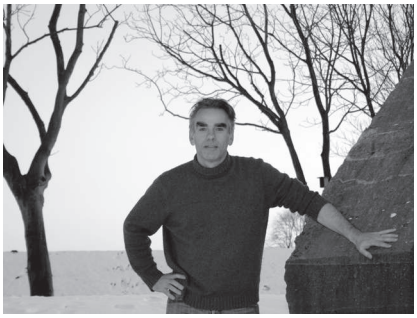
Professor Eric Luiten is a registered landscape architect and part-time full professor and chair of the Landscape Architecture section in the Faculty of Architecture and the Built Environment. From 2005 to 2014 he was part-time professor of the special Belvedere Chair of Heritage and Spatial Design in the same faculty and in 2008 he initiated and curated the international exhibition, congress and summer school 'A Wider View on Cultural Landscape Challenges'. Before taking up his current position at TU Delft he was part-time head of the Master track in Landscape Architecture at the Amsterdam Academy of Architecture. His planning and design experience covers a wide range of topics, mostly at a regional level and for the public sector, concerned with urban pressure on the cultural landscape, heritage redevelopment and water management as a landscape architectural challenge. In September 2009 he was appointed Special Advisor on Spatial Quality to the Provincial Executive of the Province of South-Holland. In July 2012 he was appointed independent Government Advisor on Landscape and Water for a period of four years. In 2018 he was appointed Chief Architect for NS (Dutch Railways), also for a fixed period of four years. He was a co-founder and editor of the Dutch landscape architecture journal *Blauwe Kamer*, the biennial/annual publication *Landscape Architecture and Urban Design in the Netherlands* and the biennial publication *Landscape Architecture Europe*. He also chairs the Amsterdam Advisory Board for Urban Quality, the board of the Dutch Landscape Triennial Foundation and the advisory team for the Dutch National Parks Association.

Key publications

Janssen J., E. Luiten, H. Renes and J. Rouwendal. 2014. "Heritage planning and spatial development in the Netherlands: changing policies and perspectives." In *International Journal of Heritage Studies* 20 (1).

Janssen J., E. Luiten, H. Renes and E. Stegmeijer. 2017. "Heritage as sector, factor and vector: conceptualizing the shifting relationship between heritage management and spatial planning." In *European Planning Studies* 25 (9).

Labuhn B. and E. Luiten. 2017. *Ontwerpen met Erfgoed – Leren van de Belvedere-ervaring* (limited edition, in Dutch). Wageningen: Blauwdruk.



Dr Steffen Nijhuis is an internationally experienced academic, senior designer, project leader and author of award-winning publications. Trained as a gardener and landscape architect, he has extensive expertise in landscape-based regional design, sustainable urban development in coastal areas and deltas, designing with natural processes, designed heritage landscapes and gardens, and digital landscape architecture. He is the research leader for the Department of Urbanism and associate professor of Landscape Architecture, and a partner at OKRA Landscape Architects. He has supervised numerous MSc and PhD students and is involved in research and design projects in Europe, China, the Americas and the Netherlands. For his publications, projects and teaching, see: www.steffen-nijhuis.nl.

"The challenge is to equip future generations of landscape architects with spatial design concepts, approaches and tools that enable them to operate meaningfully in an ever-changing and complex international environment."

Key publications

Nijhuis, S & De Vries, J. 2019. "Design as Research in Landscape Architecture". Landscape Journal 38(1-2); 87-103. https://doi.org/10.3368/lj.38.1-2.87

Nijhuis, S. 2020. "Landscape Authenticity. The Landscape as Living System, History and Spatial Experience". Bulletin KNOB, 119(4), 32-37. https://doi.org/10.48003/knob.119.2020.4.702

Nijhuis, S. 2022 "Landscape-Based Urbanism: Cultivating Urban Landscapes Through Design". In: Roggema, R. (eds) *Design for Regenerative Cities and Landscapes. Contemporary Urban Design Thinking*, 249–277, Springer Nature. https://doi.org/10.1007/978-3-030-97023-9_11

Ir. Denise Piccinini is lecturer in Landscape Architecture, teaching a broad diversity of BSc and MSc analysis and design exercises, as well a 1:1 scale designing and building experimental projects in the landscape, embedded in theories of place and with immersion and learning by doing approaches. She also tutors graduation projects inside the department of Urbanism mostly water/land related, involving coastal and polder landscapes. She graduated as Architecture and Urbanism with a specialization in Urban Design (Federal University of Rio Grande do Sul) and a post-Master on 'Designing the Periphery' (Barcelona School of Architecture). Before starting her academic carrier, she worked as an architect, urban planner and public space designer in Brazil, Spain, Italy and the Netherlands. Her work revolves around her experience of research-by-design across scales, combining knowledge and instruments of different design disciplines in order to tackle current environmental, spatial and cultural issues.

"One of the challenges for the future of the Master in Landscape Architecture seems to be keeping a good balance between two lines of inquiring; the one involving site-specific aesthetic experiences and spatio-cultural values -and a more 'problem solving', regenerative attitude towards environmental issues. Both necessary to create sustainable landscapes."

Key publications

van der Velde, R., M. Pouderoijen, J. van Bergen, I. Bobbink, F. van Loon, D. Piccinini and D. Jauslin. 2021. Building with landscape. On-site experimental installations informing BwN methodology. In book: Building with Nature perspectives. Cross-disciplinary BwN approaches in coastal regions. Edited by: J. van Bergen, S. Nijhuis, N. brand, M. Hertogh. Publisher: Rius (Vol. 7)

Bobbink, I., D. Piccinini and M. Rijkswijk. 2014. Water gardens and roofs. In conference publication: New Urban Configurations. Publisher: IOS Press

Piccinini D. and M.T. Pouderoijen. 2013. Institute of place making: A project by the chair of Landscape Architecture at the TU Delft. Oerol 2013: Sense of place.

Michiel Pouderoijen started his career in architecture, but in 2005 took the position of full-time research and teaching assistant at the Chair of Landscape Architecture. His special interest is cartographic research on a broad range of aspects of landscape architecture in the Netherlands and abroad. He is specialized in the application of GIS methods and techniques and has extensive knowledge of maps and digital spatial data and their applications in spatial research. His research areas include delta (polder and water) landscapes and their development, historic and estate landscapes and urban landscape characterization. He also assists teaching in fourth quarter courses in which a group of students conceive an intervention in a landscape that enhances the experience of a place. Landscape research, design, collaboration and one-to-one scale construction are key elements of the course.

Key publications

Van der Velde, R., R. Fransman, S. Tisma and M. Pouderoijen. 2018. AMS Final Report Project "We Sense".

Pouderoijen, M. T. and D. Piccinini. 2013. Institute of place making: A project by the chair of Landscape Architecture at the TU Delft. Oerol 2013: Sense of place.

Steenbergen, C. M., W. Reh, S. Nijhuis and M.T. Pouderoijen. 2009. *The Polder Atlas of The Netherlands: Pantheon of the Lowlands*. Bussum: Uitgeverij Thoth.

Ir. Dirk Sijmons is one of the founders of H+N+S Landscape Architects, where he was responsible for regional plans and research projects. H+N+S received the Prince Bernard Culture award in 2001. In 2002 Sijmons received the Rotterdam-Maaskant Prize and in 2007 the prestigious Edgar Doncker award in the category 'true Dutch Culture'. His books in English are *Landscape* (2002), *Greetings from Europe* (2008), *Landscape and Energy* (2014), *Moved Movement,* (2015) and *Room for the River* (2017). Sijmons was the first Government Advisor on Landscape to be appointed in the Netherlands (2004–2008). At TU Delft he held the chairs of Environmental Design (2008–2011) and of Landscape Architecture (2011–2015). He was curator of IABR 2014, with the theme *Urban by Nature.* At the World Design summit 2017 in Montreal, he was awarded the IFLA Sir Geoffrey Jellicoe award.

"Successful infusion of more 'landscape thinking' in the Bachelor is good for the faculty and good for producing a rising influx of own breed in the track."

Dr Nico Tillie obtained his PhD in synergetic urban landscape planning from TU Delft and has two MSc degrees from Wageningen University. He was trained in botany and garden planting at the Royal Botanic Gardens, Kew in London. He teaches landscape architecture and leads the Urban Ecology & Ecocities lab. He was vice-president of the World Council on City Data and has worked for the city of Rotterdam on projects ranging from the Museumpark to city wide green, energy, circularity and climate adaptation plans. He has published on these topics and has lectured all over the world. He is a senior research fellow of the Global Cities Institute of the University of Toronto and is the conference chair of the 2022 Ecocity World Summit.

"Landscape architecture plays a crucial role in linking architecture, urbanism, civil engineering and other disciplines to deal with the ecological and environmental challenges of our time. It is key to living up to these expectations."

Key publications

Tillie, N. 2020. "Nature Based Urbanism in Rotterdam from urban green structure to tidal river: testing grounds for an Urban Ecology research agenda at TU Delft." In *Nature Based Urbanism*, ed. R. Roggema. DOI: 10.1007/978-3-030-26717-9, Springer.

Tillie, N. 2018. *Synergetic Urban Landscape Planning in Rotterdam: Liveable Low-Carbon Cities.* Delft University of Technology. DOI: 10.7480/abe.2018.24

Tillie, N., J. Borsboom-van Beurden, D. Doepel and M. Aarts. 2018. "Exploring a Stakeholder Based Urban Densification and Greening Agenda for Rotterdam Inner City – Accelerating the Transition to a Liveable Low Carbon City." In *Sustainability* (Switzerland) 10, no. 6: 1927. DOI: 10.3390/su10061927

Dr René van der Velde is associate professor of Landscape Architecture and Urban Forestry. His central focus and expertise is in green infrastructure and urban forestry. His research includes grant-funded studies for Creative Industries Netherlands to develop metrics and methodologies for urban trees in relation to urban microclimate and climate change, and from the European Forest Institute to develop a research agenda for Biocities of the Future. His other research interests are park design theory and methodology, landscape characterization, integrated infrastructure design and resilience. He was principal investigator for the preparation and accreditation process of the Landscape Architecture Master track and co-founder of the TU Delft inter-faculty initiative on integrated infrastructure design. He teaches in undergraduate and graduate programmes at the Faculty of Architecture and the Built Environment and in the inter-faculty programme on integrated infrastructure design. He supervises PhD and MSc projects in disciplinary settings such as landscape architecture, urban forestry, urbanism and civil engineering. Prior to his academic career he was a practising landscape architect with projects in the Netherlands and Australia, including the award-winning Federation Square in Melbourne. He was educated at the University of Queensland, Brisbane (Dip. App. Sc.,1988), the University of Greenwich, London (BLA 1992), the Academy of Architecture, Amsterdam (MLA, 2000) and obtained his PhD from TU Delft in 2018.

Key publications

Programme Accreditation Proposal Master Track Landscape Architecture TU Delft. 2009.

Van der Velde, R. 2018. Transformation in Composition: Ecdysis of Landscape Architecture through the Brownfield Park Project 1975–2015. PhD diss., TU Delft.

Urban Climate Arboreta: Field labs for research and advocacy on trees & urban microclimate. 2019–2022.

Ir. Frits van Loon is a landscape architect with a passion for spatial design. He has a broad knowledge of the profession and many years' experience in both design and teaching as co-owner of HOSPER Landscape Architecture & Urban Design and teacher of landscape design and theory at Larenstein University of Applied Sciences, Wageningen University and the Academy of Architecture in Amsterdam. He has been a lecturer in Landscape Architecture at TU Delft since 2013 and was elected teacher of the year in the Faculty of Architecture of the Built Environment in 2015. His teaching is infused with his knowledge and experience of a cabaret education he followed from 2008 to 2011, which helps students in their presentation skills. With a curiosity for other fields of practice, people and teaching approaches, he connects with colleagues and students to create innovative landscape architectural design in an open, harmonious and energetic environment. He closely observes the students in an individual approach that challenges them to become the best version of themselves.

"The world is in desperate need of clever minds and kind and merry hearts to deal with the crises we face on a global scale. My wish is for the Landscape section to be able to continue to guide young talented designers so that they know how to turn these challenges into beautiful possibilities that give the world new landscape experiences."

Dr Gerdy Verschuure-Stuip is a trained architect and assistant professor in Landscape Architecture specialized in heritage, identity and landscape biographical approaches. She is a research coordinator for the Leiden-Delft-Erasmus Center for Global Heritage and Development, where she organizes inter-university Master and post-Master research and education on challenge-based projects in cooperation with local stakeholders such as NGOs and provincial and municipal governments. Most projects focus on contested or military heritage, water defence lines, fortified cities and World War II heritage. In her PhD (2019) she argues for the development of large country estates in the Netherlands based on the position and use of the (historic) landscape. She contributed to the TU Delft/ICOMOS Water and Heritage project, which resulted in the publication *Adaptive Strategies for Water Heritage* (2021), and is now editing a book on multidisciplinary research on planted avenues. Her education and coordination tasks have shifted from the Landscape Architecture Bachelors programme (2007–2011) to the Masters tracks in Landscape Architecture and Urbanism and Heritage Management (since 2011). She is a guest lecturer in heritage management at Leiden University. She was a member of the Board of Education of the Faculty of Architecture and the Built Environment (2012–2018) and of the of the Research School Art History (OSK) (2015–2019).

Key publications

Verschuure-Stuip, G.A. (2020). Hold the line. In: C. Hein (eds). *Adaptive Strategies for Water Heritage, Past, Present and Future.* Springer, pp. 250-271.

Verschuure-Stuip, G.A. (2016). Military brownfields, The New Dutch Waterline. In: S. Bagaeen, C. Clark. *Sustainable transformation of military terrains*. Routlegde/ Taylor and Francis: London, New York, pp. 143-158.

Verschuure-Stuip, G., H. Renes (2015). Hollandse buitenplaatsen-landschappen, buitenplaatsen en hun relatie met het landschap (1609-1672). In: Y. Kuiper, B. Olde Meierink. *Buitenplaatsen in de Gouden Eeuw*. De rijkdom van het buitenleven in de Republiek. Verloren: Hilversum. pp. 40-65.

STAFF AND EDUCATION

2010: Master Track Landscape Architecture

Since 1994 — Land in Sight (2009)

Inge Bobbink Composition and systems, circular water stories

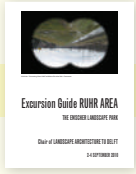
Water in S

2008 - 2015 — **Daniel Jauslin** Landscape Design Strategies — Urban Landscape Infrastructures (2015)

2013 - 2021 — **Frits van Loon** Students, Teamv

2005 - 2014 — **Eric Luiten** Utilitarian and contemporary landscape architecture

Since 2006 — **Steffen Nijhuis** Research-through-design, Landscape approach, GIS — Ur



Since 2010 — **Denise Piccinini** Sense of Place, Immersion, Water — Excursion Guide Ruhr Area (20

Since 2005 — **Michiel Pouderoijen** Polder landscapes, mapping, landscape art — De Polder Nederlan

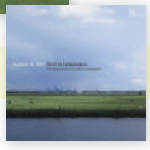
2011 - 2015 — **Dirk Sijmons** Landscape thinking

Since 2009 — **Nico Tillie** Circularity, urban ecology, planting

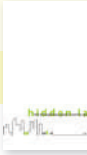
Since 2007 — **René van der Velde** Green infrastructure, Urban Forestry, Biocities

Since 2003 — **Gerdy Verschuure-Stuip** Heritage, Landscape biography, design charrettes/workshops

Gids Landgoederenzone - et al. (2007)



Since 1996 — Dutch Lowlands (2009) — **Saskia de Wit** Trees, sensorial experience, gardens — Hidden Landscapes (2014)



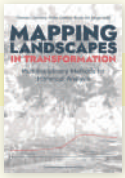
ight (2012)

De Landschapsarchitectuur van het Polder-boezemsysteem (2016)

Gardens of Gelderland - et al. (2020)

Garden of Microclimates (2019)

Mapping Landscapes - et al. (2019)



Since 2018

Bieke Cattoor

Landscape analysis, imagination, and method

Since 2020

Laura Cipriani Landscape as urbanism, simplicity vs complexity, holistic design

Landscape Strategies in Architecture (2019)

Gabriel Geluk Technical detailing

Sjef Jansen Ecology

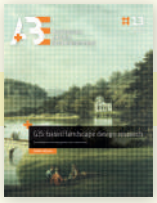
work, Presentation

Sea of Sand (2016)
Teacher of the year award (2015 + 2021)

Since 2018

Karakterschetsen (2013)

Ontwerpen met erfgoed (2017)



banized deltas in transition, Han Meyer (2014)

Flowscapes - et al. (2019)

GIS-based landscape design research (2015)

010)

Institute of Place Making (2013)

kaart van
d - et al. (2013)

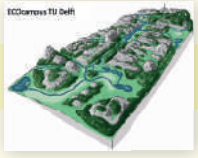
Metropolitane landschapskarakterisering - et al. (2015)

Institute of poldering (2015)

Urban by Nature, International Architecture Biennale Rotterdam (2014)

Synergetic Urban Landscape Planning in Rotterdam (2018)

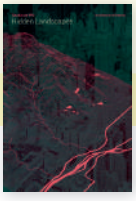
TUDelft Ecocampus (2020)
Ecocity World Summit (2019)



Transformation in Composition (2018)

Climate Arboretum (2020)

Welgelegen (2019)



Hidden Landscapes (2018)

Many thanks to all colleagues who joined us in teaching Landscape Architecture students from all departments, especially from Urbanism and special thanks to colleagues from outside the Faculty of Architecture and the Built Environment for inspiring us, the staff and our students. We hope that our collaboration will continue.
(in alphabetical order)

Rob Aben (Landscape Architect), Ferry Adema (Architect), Ferry Aerts (Urban Planner), Boudewijn Almekinders (Landscape Architect), Ellen Braae (Prof. Landscape Architecture and Planning, University of Copenhagen), Nikki Brand (Historical Geographer), Marlies Brinkhuijsen (Associate Prof. Landscape Architecture and Spatial Planning, Wageningen University & Research), Eelco Dekker (Architect), Lotte Dijkstra (Landscape Architect), Noël van Dooren (Landscape Architect), Roel During (Biologist and Heritage expert), Berrie van Elderen (Landscape Architect), Linde Egberts (Associate prof. Heritage, Vrije Universiteit Amsterdam), Joost Emmerik (Architect and Garden Designer), Irene Fortuyn (Artist and Designer), Mark van der Heide (Urban Designer), Conny den Hollander (Garden expert), Rene Hoonhout (Green and public space maintenance), Richard Jansen (Archaeologist), Erik de Jong (Emeritus prof. Artis Chair Culture Landscape and Nature, University of Amsterdam), Cora Jongsma (Artist), Agate Kalnpure (Landscape Architect), Arjan Karssen (Industrial Designer), Maartje Keijzer (Dramaturge and director outdoor theater Gajes), Azadeh Kermani (Urban Designer), David Kloet (Landscape Architect, Karres en Brands), Paul de Kort (Artist), Bastiaan Kwast (Architect), Beata Labuhn (Architect), Suzanne Loen (Architect and Landscape Heritage expert), John Lonsdale (Architect and Artist), Jip Louwe-Kooijmans (Ornithologist Bird Life Netherlands), Sitong Luo (Landscape Architect), Silvia Lupini (Landscape Architect), Erik de Lyon (Artist en designer), Jan van Maas (Landscape Architect), Jan van Merriënboer (Landscape Architect), Kirstin Miller (Executive Director Ecocity Builders), Anneloes Nillesen (Urbanist, Defacto Urbanism), Steven Poe (Filmmaker), Rob Roggema (Landscape Architect), Paul Roncken (Landscape Architect), Wouter Reh (Landscape Architect), Marco Roos (Biologist Naturalis), Frits Ruyten (Landscape Architect), Jaap van der Salm (Landscape Architect, H+N+S), Bob Ursem (Researcher and director of Botanical Garden in Delft), Saline Verhoeven (Landscape Architect), KlaasJan Wardenaar (Landscape Architect and Ecologist), Marleine van der Werf (Filmmaker).

Moreover, during the first 10 years of the track we invited many interesting lecturers. These talks planted, like the master education seeds that started to grow and blossom.

Jack Ahern (Emeritus professor of landscape architecture and regional planning), Markus Ambach (Artist), Sandra van Assen (Urban designer), Lodewijk Baljon (Landscape architect, Baljon), Pierre Bélanger (Landscape architect and urban designer), Stefan Bendiks (Architect and urban designer, Artgineering Rotterdam/Brussel), Jurgen Bey (Industrial designer), Raoul Bunschoten (Architect), Geert van de Camp (Artist, Observatorium), Alessandra Ciancheta (Architect, AWP), Dilip Da Cunha (Architect and urban designer), Timothy Davis, Marlies van Diest (Landscape architect), Lisa Diedrich (Architect and Urban designer), Erik Dhont (Landscape architect), Bruno Doedens (Landartist, SLeM), Yttje Feddes (Landscape architect), Hilke Floris (Landscape artist, HOSPER), Michael van Gessel (Landscape architect), Adriaan Geuze (Landscape architect, West 8), Olaf Gipser (Architect), Joaõ Gomes da Silva (Architect), Reinier de Graaf (Architect, AMO-OMA), Klaske Havik (Professor Methods of Analysis and Imagination, Faculty of Architecture and the Built Environment, Delft University of Technology), Lizzy Hirsch (Landscape architect), Eelco Hooftman (Landscape architect, Gross. Max), Erik A. de Jong (Emeritus prof. Artis Chair Culture Landscape and Nature, University of Amsterdam), Sylvia Karres (Landscape architect, Karres en Brands Landschapsarchitecten), Bram van de Klundert (Writer), Cecil Konijnendijk (Prof. Urban Forestry), Erik van der Kooij (Urban designer), Salomon Kroonenberg (Geologist), Ron van Lammeren (Associate Professor, Laboratory of Geo-information Science and Remote Sensing), Sang Lee (Editor), Lilli Licka (Professor of landscape architecture), Floris van Manen (Soundscape artist), Katinka Marac (Lighting designer), Anuradha Mathur (Architect and urban designer), Tracy Metz (Journalist), Joop Mulder (Artistic director of Oerol), Bruno Notteboom (Engineer-architect and urban designer), Frits Palmboom (Urban designer), Johan Pas (art Historian), Sebastien Penfornis (Architect), Eric Jan Pleijster (Landscape architect, Lola Landscape Architects), Juval Portugali (Geographer), Michiel Riedijk (Architect), Ronald Rietveld (Artist), Nynke Rixt-Jukema (Architect), Andreas Rumpfhuber (Architect), Tatjana Schneider (Architect), G. Seifert, Matthew Skjonsberg (West 8), Clemens Steenbergen (Professor Landscape Architecture), Berno Strootman (Landscape architect, Strootman Landscape Architects), Andy Thomson (Landscape architect, BCA Landscape), Marc Treib (Emeritus prof. Architecture, University of California), Gabriella Trovato (Architect and landscape architect), Jelle Reumer (Paleontologist), Cees van der Veeken (Landscape architect, Lola Landscape Architects), Frans Vera (Biologist), Elmo Vermijs (Architect and artist), Rik de Visser (Landscape architect, Vista Landscape Architecture and Urbanism), Anouk Vogel (Landscape architect), Marc Volger (Artist), Christian Waldvogel (Artist), SueAnne Ware (University of Newcastle's new Head of School for the School of Architecture and Built Environment),, Richard Weller (Landscape architect), Wilfried van Winden (Architect), Anne Whiston Spirn (Landscape architect).

Tuinen van Mien Ruys Dedemsvaart, Netherlands, July 2014 (1).

Excursion Kopenhagen, Denemarken, April 2017 (2).

Excursion Ruhrgebied, Germany, spring 2013.

'Best lecturer of the year event' Faculty of Architecture, FvL, November 2015 (1).

Excursion Ruhrgebied, Germany, spring 2013 (2).

Excursion Holwerd, winter 2020 (1).

Reception at City hall of Dokkum, winter 2020 (2).

Lunch at the faculty, 2016 (1).

Excursion Ghana, 2017 (2).

Model hall experimenting with sea dynamics, 2017.

Gardening, staff room, 2017 (1).

Lecture hall introduction master track, September 2018 (2).

Excursion Copenhagen, Denmark, April 2017 (1).

Exhibition of graduation work at the faculty, summer 2019 (2).

End of year party at the faculty, 2019 (1).

Opening design studio Q3, February 2018 (2).

Studio pin-up and presentation Q3, 2017 (1).

Exhibition of graduation work at the faculty, summer 2017 (2).

Studio pin-up and presentation Q2, 2018 (1).

Staff excursion, riverlandscape, summer 2019 (2).

Staff excursion, riverlandscape, summer 2019 (1).

Exhibition Circular Water Stories Lab at the faculty, 2019 (2).

On site presentation at the Botanical Garden in Delft, 2019 (1).

Exhibition of graduation work at the faculty, summer 2019 (2).

Exhibition of graduation work at the faculty, summer 2019 (1).

Exhibition Archiprix at the faculty, 2019 (2).

Prize ceremony for best master project presented in the Blauwe Kamer, 2019 (1).

Excursion England, Seatown, April 2015 (2).

England excursion Golden Cap, April 2015 (1).

England excursion Kew Gardens, April 2015 (2).

England excursion The Lost Gardens of Heligan, April 2015 (1).

England excursion, one of these nice parks, April 2015 (2).

Exhibition of graduation work at the faculty, summer 2017.

Exhibition of graduation work at the faculty, summer 2018 (1).

Exhibition Circular Water Stories Lab at the faculty, 2019 (2).

Book tabel as part of an event, 2018 (3).

Terschelling Oerol project, June 2013.

Terschelling Oerol project exercise, 2016 (1).

Terschelling Oerol projectbuilding a polder, 2012 (2).

Terschelling Oerol projectbuilding a polder, 2012 (1).

Excursion with the department of Urbanism in the Maximapark in Utrecht, 2017 (2).

Landscape girls in the snow, winter 2016 (1).

Exhibition of graduation work at the faculty, summer 2016 (2).

Exhibition of graduation work at the faculty, summer 2016.

Terschelling Oerol discussion on project, 2013.

Graduation year	Graduate name		Titel thesis
2012	Zhang	Irene	*Energize vacant land: Landscape regeneration in shrinking Kerkrade West*
	Zhou	Anyi	*Trial back to the landscape: Reactivating the city of Heerlen with a landscape approach*
2013	Allersma	Sanne	*Merwe4 Waterfront Park: The transformation of a post-industrial landscape in the city of Rotterdam*
	Chladová	Erica	*Limburg Dross: Future Spatial Forms of Industrial Productive Landscapes*
	Margaritis	Nikolaos	*The Open Food-production University of Danube: Landscape as educational interface*
	Migliori	Camilla	*Energy awareness in public space design*
	Niekerk, van	Lisanne	*Implementing Metropolitan Agriculture*
	Paalman	Richard	*Steenfabrieken in Dynamiek: Perspectief voor in onbruik geraakte steenfabrieken*
	Rijswijk, van	Mariska	*Re-thinking the flows: Novi Sad, Serbia*
	Spenkelink	Laura	*IJsselmonde regional park: A regional park design as strategy for the development of the fragmented open space at IJsselmonde*
2014	Brink ten	Talya	*Coastal Conditions: Responding to the Partial Opening of the Haringvliet Sluice*
	Chen	Fei	*Flux waterscapes: The transformation of south Bratislava as part of waterscape of Danube*
	Chen	Yingzhen	*Twin City Region: Up with a colorful corridor*
	Hernandez Williamson	Andres	*Rethinking and Transforming Old Belgrade's Riverfront*
	Hoogland	Marij	*Dynamisch Haringvliet: Waar land en water ontmoeten*
	Kounavi	Marina	*Re shaping the edges: The case of Bratislava*
	Loannidou	Anna	*Green flows: Connecting the post-industrial riverfront of Belgrade with the city*
	Pol, van der	Robert	*Terrils Steenbergen Halden: Verwaarloosd erfgoed wordt voortrekker in Energiewende*
	van der Drift	Michiel	*Floodscape*
	Wei	Lin	*Reclaiming open space in New Belgrade: A case study of designing for local demands via means of landscape architecture*
	Wu	Ruohao	*Brown Line Park: Regenerating abandoned industrial transportation infrastructures in the Ruhr area*
2015	Alexandrescu	Maria	*Frame of frames*
	Cubells Guillen	Karen	*Landscape Networks: Integrating Fragmented Urban Landscapes: A proposal for Socio-Territorial Integration*
	Ding	Yingbei	*Energizing industrial landscape: Transformation of underutilized space to landscape integrating renewable energy in Duisburg*
	Gaag van der	Erik	*River DNA*
	Guevara	Juliana	*Riverscape in Basel region*
	Hooijdonk van	Doris	*Water no get Enemy: Contemporary Nomadism as an Alternative for the Dutch Poldermodel: A Utopian Scenario*
	Jiang	Mengting	*Smart net*
	Jingni	Li	*Eventscape: New possibility of developing urban brownfield in Duisburg to achieve its cultural identity*
	Kalnpure	Agate	*Nordbahntrasse: Hybrid open space in Wuppertal*
	Lanting	Wouter	*Kasteelensemble Nederhemert: Erf goed, al goed*
	Leelathipkul	Leela	*Archipelago: A landscape of social spatial opportunities*
	Liu	Xinnan	*Revitalizing New Belgrade through Valuing Rainwater: Strategic Integration of Urban Rainwater System and Urban Public Space in New Belgrade*
	Louw de	Robin	*Forum Romanum in Varna: A landscape-based strategy for the integration of marginalized Roma settlements through a sequence of public spaces*
	Meijerink	Emiel	*A Vital Vein for Asparuhovo*
	Muselaers	Roel	*Horti Danubii*
	Sitong	Luo	*Edible Garden*
	Steegers	Koen	*Eastern Scheldt: From nature - to human reserve*
	Vries, de	Arjan	*Omgaan met fragmentatie: Waterproblematiek Rivierlandschap & Fragmentatie Ruhrgebied*
	Xinlei	Li	*The Dancing Boundary: Towards regional development of the border land between Bratislava and Vienna*
	Zhang	Ran John	*Water sustainable street*
	Zhang	Xinyi	*Dortmund-Ems Landscape Canal: Adjusting the post-navigable canal to the landscape system of Münster*

Graduation year	Graduate name		Titel thesis
2016	Bruens	Caroline	*Urban living with water: Sustainable stormwater management for Liesing in Vienna*
	Chen	Yue	*Green for grey: Green Infrastructure Design in Toronto Which Meet The Needs of Active Aging*
	Haug	Daniela	*Synergy of a blue line: How a problem stream can solve future conditions*
	Koukouvelou	Antonia	*Concrete Dynamics*
	Luijendijk	Pauline	*Rivierbakens: Post-Industrieel Rivierlandschap*
	Lyubimova	Tatiana	*Mending Varna: Authentic Landscape as a Fountainhead and Essential Element of Urban Continuity and Identity*
	Mena Lalama	Estefany	*Re-creating the gullies, re-creating the city: A review towards a new urban green system for Quito*
	Mnif	Amina	*Shelter landscape: A landscape approach to the refugee camp in peri urban areas along the austrian hungarian border*
	Oosten van	Peter	*Shaping the Don River Valley: A design for the Don River Valley to improve the quality of neighbourhoods in Toronto*
	Oskam	Pierre	*New Bridge Keepers*
	Ottevanger	Emma	*People watch, let Nature build*
	Overvoorde	Margot	*Tiengemeten, A Showcase of 3 Design Approaches to Nature Development*
	Prezelj	Barbara	*Unfamiliar Territory*
	Shao	Shan	*From Infrastructure to Flowscape: The Houtribdijk as an operative landscape structure*
	Sun	Xiaolu	*Activate a Green Human-scale city by Cyclescape*
	Sunderland	Sarem	*Tides without waves: The waters of the Vajont*
	Tomassen	Mike	*Confluent spaces for the public: A new connection with the waterfront for Mannheim*
	Trachana	Eirini	*Mixscapes: improving landscape qualities around Boxtel by introducing alternative agricultural functions*
	Zhang	Boya	*Walkscapes: Redefining the path network in Emscher Landscape Park*
2017	Anton	Alexandra	*Shaping the Outside Space through Play Narrative*
	Chen	Leyang	*San Francisco Space Fiction: Notions of nature in a Dataism age*
	Costantini	Gaila	*Intermediate landscapes: public spaces of experimentation*
	Dijkstra	Lotte	*Golden Green: drawing upon lane design principles to design integral sustainable roads*
	Dondras	Marina	*A (New) Future for Miami Beach*
	Fu	Menghan	*From edge to integrated surface*
	Jansen	Sicco	*Harbour in Transition: A landscape design for a harbour beyond oil*
	Kalogeropoulou	Nadia	*Landscape Development in the Border Condition: the borderland as a cultural interface*
	Liu	Dan	*Revealing the Beauty of Biesbosch: Experiencing the Ecological Aesthetics of Dynamic Landscapes through Recreation*
	Mallinath	Milan	*Sandy Rural Landscape and its Water System in times of Climate Change: A case of Baakse Beek Watershed*
	Miao	Yixiong	*Integration by Landscape: Integration by using landscape as infrastructure*
	Potamiali	Maria	*Haringvlietdam, a beautiful operative landscape: towards a slow tranformation*
	Redekop-van der Meulen	Elan	*Kintsugi: Revitalizing the expressway zone of Tokyo*
	Steenhorst	Cem	*Ruimte maken, ruimte geven: De vertaalslag die ontwerp en gebruik samenbrengt*
	Streefkerk	Jelske	*A New Image Between City and Land: Landscape Structures Reconnected in the Urban Fringe of East Utrecht*
	Taroudaki	Kallirroi	*Dynamic Riverscapes: A vision for inhabitable, sustainable floodplains. The case of Huissensche Waard*
	Thyagarajan	Bhavna	*Making Multicultural Places: Canal zone, Brussels*
	Wu	Ruojing	*Foodbanism: Strategy of healthy green future for Rotterdam Zuid*
	Yang	Jie	*Landscape Interface Development*
	Zhai	Xueqian	*Hybrid Highway Landscape: Integrating highway into urban context*

Graduation year	Graduate name		Titel thesis
2018	Akrivou	Maria	*Riverscapes _ A dialogue between Rhine and cityscapes: The case of Arnhem*
	Appleton	Jade	*The Honduran Production Valleys: Finding Balance Between People and Environment*
	Athanasiou	Antonis	*The Landscape in the Gradient: ReEnvisioning the In-between: The Case of Lisbon Metropolis*
	Bharaj	Vanshika	*Rising out of the Wrath: The Post-Disaster Religious Landscape of Kedarnath valley, Uttarakhand, India*
	Chronopoulou	Lela	*The Oppositions of Kifissos: From Static Duality to Dynamic Coexistence*
	Fontijn	Franka	*Streets as Places: Reconnecting Toronto with its waterfront by rediscovering streets as social places*
	Galjaard	Joline	*Ecological Farming Landscape: A spatial solution for agricultural sustainability in the polders around Zoetermeer*
	Gnana	Abhinaya	*Machine made landscapes: Choreographing a dynamic excavation landscape*
	Hong	Ge	*From input to output: Urban Agriculture as a method to Eco-efficient Urban landscape*
	Karampournioti	Alexandra	*The Gardens of Deviation: Intensified cores of affective relationships in Rotterdam*
	Lam	Man Hin	*From leftover spaces to a new connection*
	Lin	Qingyun	*Home in the 'valley': A landscape with belongingness*
	Liu	Wanxin	*Minimal Intervention: An Attempt Reading the Ultimate*
	Liu	Chang	*Bridging the Fast and the Slow: the urban multifunction interface as place for experience of social interaction and inward reflection*
	Lu	Yao	*From history to future, form a sustainable and dynamic cityscape*
	Radhitya Djagiri	Timothy	*Towards Resilient Delta: Integration of natural dynamics as water safety and climate adaptation measures within the urbanised delta city of Dordrecht*
	Sachsamanoglou	Maria	*Dordrecht Floodscapes: Towards the Amphibious City*
	Sanchez	Federica	*Healing Landscapes: A Laboratory of well-being in an ex-psychiatric hospital in Florence*
	Scheltema	Annemette	*The Power of the Narrative: An exploration of landscape narratives as a design methodology in wild natural landscapes*
	Tan	Jiayan	*Incremental Pixlation landscape: sea change|see change, Richmond shipyard Redevelpment project*
	Tasioula	Ilya	*Rethinking Poldervaart: a time-resistant structure connecting the fragmented landscape*
	Tri Prestasia	Ayu	*The Living Estuary: A Study of Developing Landscape Spatial Adaptive Strategies to Integrate the Water, Ecosystem and Anthropo-Dynamics in the Estuary of Volta Delta, Ghana*
	Ventura	Eva	*Erosion for Betterment: Designing with Erosion to improve well-being | a case study of the Volta Delta, Ghana*
	Visser	Malou	*Borderscape: Increasing the level of permeability in between land and sea (in Northern Netherlands)*
	Willemsen	Eva	*(Up)lifting the ground level: Recreational green rooftops as integrated part of the cities green infrastructure*
	Yang	Mingyang	*Harbin thermal park: transforming an abandoned thermal power plant into green infrastructure*
	Yuechen	Liang	*Exploring Bluefields: Designing the Banter See as an operative landscape structure*
	Zhang	Xiaozhu	*Landscape as a sustainable interface: Towards a vibrant boundary area in Shenzhen 'Second Line'*
2019	Sun	Chuanzhi	*Resilience through aqua-agriculture transformation: Towards a multiscale approach for adaptive landscape development in Pear River Delta*
	Athreya Rao	Aditya	*Stitches: Blending landscape fabric through the golden threads of spatial identity in San Riku coastline, Otsuchi, Iwate, Japan*
	Awashti	Purvika	*Bordering Chaos: Reinforcing productive relationships in eroding territories*
	Banfi	Isabella	*Enhancing The Survival Landscape: Spaces of Resilience as Social Catalyst*
	Chang	Guo	*New Natural Landscape: Restoring biodiversity in post-industrial region, Parkstad-Limburg*
	Chen	Shu-Wen	*Safe Lives: Dealing with Earthquakes by open space in Taipei, Taiwan*
	Collens	Florentine	*Death in the city: Integrating funerary places in the urban fabric*
	Deuskar	Jui	*Living with water*
	Gschanes	Sebastian	*Emergent Natures: Interactive Botanical Attraction in Vienna*
	Huang	Cai	*From Boundary to Border: Toward a resilient, dynamic and interactive urban edge of Northwest Miami*
	Janakiraman	Sindhuja	*Informal Natures: Landscape Infrastructure design for resilient, equitable and adaptable socio-ecological systems in Cape town*
	Kim	Boomi	*Mosaic Garden City: redefining the relation between people and nature by structuring water management through landscape infrastructure in an informal settlement*
	Liu	Minna	*English: Garden as a microcosm of city*

Graduation year	Graduate name		Titel thesis
	Liu	Danyan	*Remaking "Nature": An Ecological Transition Towards A Sustainable Landscape*
	Marjan	Melinda	*Re-connecting with water: Creating spatial solutions for water collection and storage in rural areas of Morocco which suffer from water scarcity and loss of social and environmental cohesion*
	Markozani	Elissavet	*Reclaiming the Memory: A memorial scape along Neretva River, Mostar*
	Peng	Shiqi	*Public space as a cohesive force: the landscape intervention in post-conflict city, Mostar*
	Rey Hernandez	Catalina	*Rethinking the Territory of Concepción Chile: A resilient and strategic planning for a vulnerable urban coastal system*
	Saracco	Anna	*Re-connecting Mostar: Rethinking the East-West Axis by using the Neretva's water as natural catalyser*
	Shuai	Shao	*Harvest the MineWater: A sustainable metropolitan landscape in a post-industrial area "Parkstad"*
	Sun	Yajie	*The Green Loop for Active Ageing: The Caring Landscape Design in the Shrinking Parkstad*
	Surajaras	Rapa	*Breathe: Redefining a zone of informal settlements for Ho Chi Minh City*
	Thienvutichai	Krit	*Redefining Bangkok's Inclusive Water-Based Society: Flood Resilience Planning of Adaptive and Performative Hybrid Infrastructure Network*
	Thulin	Andres	*Resilient Urban Landscapes: Landscape as an Evolutionary Socio Ecological System*
	van Driel	Iris	*Biscayne bay: Turn the tide: An integrated landscape approach for coastal restoration in Biscayne Bay through spatial and ecological interventions*
	van Hasselt	Niels	*Paradise lost?: Restoring urban river Radobolja*
	Wang	Yilin	*Return, Keep and Interweave: An adaptive landscape infrastructure system for the low-lying flooding zone in Miami-Dade County*
	Wang	Yueting	*Strategic planning of energy landscape: Synergies and trade-offs in Parkstad Limburg*
	Zhang	Xudong	*From Line to Zone: Transforming the Miami River & Canal into Urban Landscape Infrastructure*
	Zhu	Huadong	*Narrative infrastructure and functional heritage: the renovation of the New Dutch Waterline around Utrecht*
2020	Ali	Naeema	*Land can sometimes be water: Bridging the dichotomy between land and water through amphibious landscapes*
	Amarendra	Barsha	*Curating Experiences: Rethinking the Estate Landscape for Sensorial Affordances*
	Binti Mohamed Rani	Marina	*Exploring New Productive Landscapes: Landscape-based spatial and temporal planning and design of post-industrial areas along Foshan's waterways*
	Chen	Zhaotun	*From isolation to integration: Transforming three estates into an urban landscape*
	Chouairi	Amina	*The Operating Venetian Lagoon - The Agency of Barene: A resilient landscape infrastructure towards ecological, cultural and productive heritage preservation*
	CHU	Lok Yan	*Rethinking Parks In a Shrinking Setting: The Marrying of Social Restoration and Nitrate Remediation for a New Urban Park Model in Parkstad Limburg*
	Corradi	Marcello	*Mosaic Energyscapes: A carbon negative future for Parkstad*
	Di Nicola	Camilla	*Revealing Rome's water-based culture: a resilient, dynamic and interactive layer*
	Fong	Hei Yi	*Kampung Kali: Improving informal settlement living condition along Semarang River by regenerating ecosystem services in urban landscape*
	Ghini	Margherita	*Stitching Lijiao: Towards the reintegration of urban villages in the landscape of the Pearl River Delta*
	Gkratsou	Georgia	*Athens in Flux: Re-envisioning the Third space*
	Gupta	Tanvi	*Landscapes In-Flux: Journey through the dynamic floodplains of holy river Ganga at Prayagraj, India*
	Ho	Pik Lam Theodora	*A Moveable Feast in Semarang: Designing an Urban Vending Network by Creating Conditions and Opportunities in Order to Facilitate and Manage Street Vending Activities*
	Jiang	Ming	*Estate space: exploring the spatial-visual relationships in the estate landscape of Gelders Arcadia*
	Kannekens	Emma	*Urban Forest Movement(s): Movement as design method for experiencing nature and its beneficial effects in the city of Den Haag*
	Kim	Sun Woo	*Re-treat; creating a regional framework for the future of Semarang: Strengthening sustainability with strategies balancing urban development, population increase, climate change and ecology*
	Li	Yijing	*Water resilient industrial transformation*
	Lin	Man Chuan	*Reveal the Unseen- Retrieving Sense of Place by Public Water Space based on the Former Irrigation System, Ksôkong Tsùn, in Kaohsiung, Taiwan*
	Liu	Xuan	*Living with the waste: Creating a better life image by constructing decentralized waste management in Kampung Kranggan, Semarang*
	Liu	Jianing	*Green Bond Amsterdam-Noord: Re-organize urban forest for future garden city*
	Liu	Huiying	*Integrated Nodal Estate Landscape: Reconnecting Baakse Beek Brook Eco-system & Recreation through Estate Landscape Development*

Graduation year	Graduate name		Titel thesis
	Mukkamala	Tapasya	*Mediating Waterscapes: [Re]activating the flood vulnerable kampung communities along the Ciliwung river through "Adaptable landscape and water management strategies and design"*
	Peng	Bo	*Retrofitting Panyu: Adapting green-blue infrastructure to sustain waterlogging and regenerate Panyu by industrial transformation*
	Peng	Yuyu	*Betweenness: Tangible & Intangible boundaries for formulating a complex estate landscape in Gelders Arcadie*
	Popova	Angelina	*The New West Amsterdam NeuroLandscape transformation for stress recovery and well-being*
	Qian	Li	*From the city, into the city, beyond the city: Integrating the historical country estate into the Arnhem city as key components of an urban structure*
	Qu	Linyu	*Redefine the border of water: Exploring the potential of the Grand Canal as a backbone for adaptive and resilient urban development in Tongzhou*
	Sanil	Purvi	*Reviving the degraded: Planning the unplanned spaces in unproductive landscape*
	Shahed	Alia	*Rejuvenating links: Estates & hinterland: (Re)exploring the value of productive cultural landscape and its link to the heritage estates of Baakse Beek area*
	Stroetzel	Jeroen	*Landscape as common ground*
	Tang	Yueqi	*Adaptive reuse of landscape heritage: a promising future for improving elderly people's quality of life in shrinking Parkstad*
	Teli	Rohaan Ashish	*Edible Landscapes: Towards a more resilient and self-sustainable agricultural production system*
	Veras Morais	Mônica	*Watering the Semiarid: Designing a Wetness Retention Landscape in Jaguaribara, Brazil*
	Wang	Yanjiao	*Forest landscape restoration for climate-adaptive estates in the Baakse Beek region, Gelderland*
	Wei	Mengchi	*Arcadia again*
	Wijntje Santamaria	Roberto	*The future of interurban forest structures ?!: A proposal for a new critical approach towards the design of drought adaptive interurban forest structures*
	Wu	Jiajun	*Water resilient and adaptive development of Pazhou island*
	Yuan	Beiqi	*Bridging the Past and the Future: a New Palimpsest Layer for the Heritage Landscape of Hof te Dieren*
	Zaho	Bledar (Bledi)	*The Village of springs: Enhancing landscape values of Tushemisht, Albania: Towards a sustainable recreational and urban development*
	Zhang	Yingjie	*Climate Resilient Estate Landscape in Baakse Beek: Towards a landscape architecture approach for water management, ecology, and spatial experience*
	Zhao	Jiawei	*A New Watery Balance: Redefine The Scenic and Circular Waterscape in The Villages In Wuyuan, China*
	Zhao	Xinyan	*From Segregation to Integration: Planning and Designing for the Enhancement of Socio-spatial and Ecological Integration in Haizhu District, China*
	Zinsmeister	Machteld	*Restorative Urban Forest: Designing a forest park for Amsterdam Sloterdijk that contributes to reducing mental stress*
	Zuniga Blanco	Maria Jose	*Beyond sand and water: Opportunities for the continuous social, structural and morphological transformation of Puntarenas*

Colophon

LA.X records ten years of master education in Landscape Architecture at Delft University of Technology. This book is the result of a joint effort from the staff members of the Landscape Architecture section, supported by student-assistants.

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