REFLECTING ON A NATURAL ELEMENTS ANALYSIS
And how it can identify problems in the green areas of Amsterdam

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I INTRODUCTION

Research, the process of understanding the world “in a verifiable and consistent manner” (Lucas, 2015, p. 8), can take up a big part of the every day work as an architect. Research enables an architect to for example make well-argumented design decisions. As any other profession, architecture has its mostly used methods of researching. To become a better researcher, one can of course become familiar with these research methods. However, an architect can learn even more by looking at the bigger research picture: becoming aware and analysing the different research methods that are applied in one research. By doing so, one could understand the logic behind what methods to use in a certain situation and how they could work. This research methodology could highlight which methods were successful in a research, and which ones were perhaps less so (Lucas, 2015, p. 45). The question of ‘why’ is of course important to add to that. The methodology could in this sense also give insight into which methods could solve certain problems and therefor offer heuristics. By being more aware of research methodologies, an architect could research in a more productive, efficient and well thought-out way, in order to reach its goals.

The first lecture of the Research Methods course had already awakened my research-methodological awareness. Not only became I aware of the previously mentioned bigger picture, I also became aware of some of my unconscious choices for certain research methods. I learned that I preferred some methods over others, because I was more familiar or comfortable with them. To become more aware of my research methods and choices, I decided to create a logbook from the very beginning of the graduation project. The logbook contains for example all the research findings, applied methods, the feedback I got and key moments in the overall process. It proved to be very useful for writing this position paper, as well as vital for the online communication with tutors during the corona crisis. The different research methods that were presented during the lectures, gave me furthermore inspiration and ideas of applying them in my own thesis research. The ‘investigating territorial scales’ lecture by Fransje Hooijmeijer for example gave me the idea of analysing the site of my graduation project by drawing (and analysing) maps. Hooijmeijer also emphasized that sustainable buildings could only be sustainable if they are fitted well within their specific location. This opinion inspired me to research the location, in which my project and thesis are situated, from a certain perspective.

This position paper is developed in relation to the research thesis that is part of my graduation project within the aE (architectural engineering) studio. The integration of technology in architecture is the core of this studio (Asselbergs, 2020, p. 2). The approach within this aE studio is to first define a technical fascination that could then be researched in the graduation thesis. This thesis forms input for an architectural design within one of the four aE studio assignments. My graduation project is part of the ‘valuable neighbourhoods’ assignment, which is about the contribution of circular design strategies to the ecological value of sustainable and inclusive neighbourhoods.

The technical fascination for my research thesis revolves around the use of the wind, water, air and light in passive design techniques. The ‘valuable neighbourhood’ of my project is a natural area in Amsterdam-West, called the Lange Bretten. My research thesis is about the improvement of the natural quality of this area, while also using the mentioned natural elements for a form of positive footprint housing. The thesis researches the following question: How can the natural elements, that are present in the Lange Bretten of Amsterdam, contribute to positive footprint housing that improves the natural quality of the area as well? The thesis starts with a natural elements analysis, which reveals the problems and possibilities of the natural area. To improve these elements and use them for positive footprint housing, the thesis continues with discussing four existing architectural projects. These projects have applied passive techniques that can improve the natural quality of their surrounding, while also reducing the footprint of a house.

For this position paper, I would like to reflect on the way the first part of the thesis research is done and how the applied research methods have helped me to understand the problems and qualities of the Lange Bretten. The following question will be researched: How can a natural elements analysis contribute to identifying the (lack of) quality of the green areas in Amsterdam?
II RESEARCH-METHODOLOGICAL DISCUSSION
Overall, the context has taken the lead in the research thesis. The context-led approach is also visible in the earlier mentioned research question of my thesis. The word ‘context’ describes the research subject, its location and boundaries (Lucas, 2015, p. 12). In my case, the context is a defined location: the natural Lange Bretten area in Amsterdam-West. Its boundaries are literally made up of the infrastructure lines around the area. The Lange Bretten is part of one of the eight extensive green areas of Amsterdam. Despite the importance of these areas for the quality of life in Amsterdam, the areas are unknown to many city residents and lack in natural and recreational qualities. By examining the Lange Bretten area, I can provide an example for the conditions that could be found in the other green areas. By treating the natural area as a ‘valuable neighbourhood’ for the city of Amsterdam, I focused on its current ecological and sustainable value. I analysed this value by researching the characteristics, qualities and opportunities of the four natural elements that are present in this area: the earth, water, air and light.

The first researching method for the natural elements analysis included gathering, studying and describing all kinds of existing maps that said anything about the earth, water, air of light characteristics. I studied for example historic maps, a soil type map, the current polder system map, flood maps, heat stress maps, infrastructure noise maps, height maps and many more. The maps contained visualised data that was measured by for example the municipality or active water company. Because the data was already displayed, I could as a researcher try to clarify certain patterns I noticed, think of possible explanations and try to form conclusions (Groat, 2013, p. 249). The colour differences in each map, together with the legenda’s, gave clearance on the data, while the underlayer in every map was the same Lange Bretten area. By studying the visualised data and comparing it to other parts of Amsterdam, I could understand more of the natural qualities and problems. This form of quantitative research can be clear, objective and measurable in some maps, but perhaps leave less room for detail and complexity in others (Lucas, 2015, pp. 36-37).

The second analysing technique for the natural elements analysis included field research. I cycled and walked through the natural Lange Bretten area several times and documented my visit with photos, videos and written notes. I was able to get a much more personal experience with the area, in comparison to the digital maps. This form of qualitative research was of course based on my individual opinion, but it nevertheless enabled me to understand the natural and recreational qualities of the area from a different perspective (Lucas, 2015, p. 36).

I chose to analyse the area through the four natural elements for a couple of reasons. By first researching them, I could think of ways of improving them in the second part of my research. The natural elements analysis secondly formed input for the research into possible passive techniques that could be applied in the final housing form. Each of these techniques uses and improves a natural element, for example the poor water quality of the Lange Bretten. The analysis could thirdly contribute to the design goal of housing residents being more in contact with nature and getting back to the basics (or elements in this sense).

The mentioned research methods are related to the inscriptive practices, which denote the research of graphic work such as maps, notations or pictures (Lucas, 2015, pp. 179-182). The maps, in my case, give the otherwise unclear data a spatial form, and therefor make it more readable. The sense of a territory can also be easily communicated through a map, by a border that includes and excludes certain areas (Lucas, 2015, p. 182). To give more overall clearance in the different maps that were included in the thesis, I added the same rectangular border line of the natural area in each map.

III RESEARCH-METHODOLOGICAL REFLECTION
For the overall analysis of the natural area and its elements, I have been inspired by a nature inclusive research approach. According to landscape architect Maike van Stiphout, the first step of creating a nature inclusive project is to take the perspective of the current biodiversity (Stiphout, 2019, p. 93). A new project can only be realised if it continues and contributes to the existing terrain. It is therefor essential to first identify and understand the current biotopes and research potential biotopes that could be added. Stiphout emphasizes on the benefits this approach can also have on people, as they
become more in contact with nature (Stiphout, 2019, p. 113). Building developments can often be an attack on the existing environment. The negative effects are then recognized and reduced afterwards. I was inspired by Stiphout’s approach of first researching the existing site and its negative aspects, and then try to create a positive contribution to it by means of a building development.

People have for centuries placed themselves above ecology. Buildings and their surrounding landscapes were separated, as well as its functions. This viewpoint is changing, thanks to the growing movement of projects that want to conserve, protect and work side by side with nature and its biodiversity (Stiphout, 2019, p. 21). Today, it is becoming more and more clear that nature inclusive designs can lead to a better quality of life for people, plants and animals (Stiphout, 2019, p. 9). This changing viewpoint has enabled me to look at the natural areas of Amsterdam from a different perspective. I decided to focus on researching its natural qualities and problems. For the second part of my thesis, I researched projects that combined nature and building development.

In design studios, mapping exercises often take place even before students have visited their project area (Langner, 2019, p. 55). The students print a topographic map, read it and regard it as an image, after which they exploratory scan it with a pen. Different maps of the location can also initiate discussions on how to read the specific landscape. The use of maps can contribute to the initial research of getting to know a place or question. The method of map reading can also be important for generating ideas (Langner, 2019, p. 54). This ‘approach from a distance’ is often combined with the ‘approach from close-by’, in which the first important impressions can be explored.

The reading, understanding and usage of maps has changed throughout history. The map has from the sixth to the fourteenth century been used as a one of the main tools for reckoning time (Borderleau & Bresler, 2010, p. 50). Maps could at that time communicate important events that happened in history and therefor act as well-documented records of knowledge. In the past two hundred years, maps have been more equalized by global views and used as tools for political domination, by for example presenting country borders. Over the past few decades, many maps were made and used because of technological developments (Elzakker, 2004, p. 9). Cartographers were much less needed to directly produce maps. Map users became even able to generate their own maps with modern software. The concept of geographic visualization was also introduced, which is about the methods of visualizing and understanding (scientific) information and exploratory data (Elzakker, 2004, p. 11). For architects, mapping has nowadays become one of the preferred documentation tools (Borderleau & Bresler, 2010, p. 45). By delaminating the conditions of a certain site, an architect can obtain a deeper understanding of it. The knowledge against which a development is build, can be revealed and projected by looking at maps (Borderleau & Bresler, 2010, p. 45). The many, different maps that are currently available online, enabled me to create a very detailed image of the natural characteristics of my project area. I believe that the amount of available data, and the geographic visualisation of it, will only grow in the future. The understanding of map visualisations could become even more important for architects in their process of researching a certain location.

IV POSITIONING
In the lecture ‘investigating spatial narratives’, Klaske Havik mentioned the Terristories approach, which can form the connection between architecture and literary researching techniques (Havik & Veldhuisen, Terristories, 2009, p. 70). I was inspired by this approach because it can create environmental awareness of the landscape through a different medium, that of (written) stories. I had thus far mainly focused on researching my Lange Bretten landscape through visual maps and images. The Terristories approach takes the identity of the location into account, formed by the stories and memories of for example local inhabitants (Havik & Veldhuisen, Terristories, 2009, p. 73). During a Terristories summer school, students investigated the site and landscape of Kriva Palanka, Macedonia. They researched the characters of water, earth, light, wood and man. I was in particular amazed by their description techniques, in which they tried to see through the eyes of a natural character, such as light or water (Havik & Veldhuisen, Terristories, 2009, p. 75). Their descriptions of for example different light experiences can form inspiration for my research into the light characteristics of the Lange Bretten. According to Havik, we should not only notice and describe the
arrangements of spaces, materials or textures, but also about how these aspects can influence our perceptions and associations (Havik, Writing atmospheres, 2019, p. 272).

I would like to adopt and implement the position of Maike van Stiphout in my graduation project, as I agree with her approach of first researching and understanding the current biotopes and biodiversity of an area, before adding any new projects. I also agree with her on the idea that a new project can only be realised in an area, if it contributes something to it. I think the natural Lange Bretten area could be improved with this kind of mindset.

Even though gathering, studying and describing all kinds of existing maps can be very beneficial for some researches, we should always stay alert on their accuracy and representation of an area. The large amount of data, that is nowadays available for everyone, can not always be presented in the best way. Researchers should always evaluate their data sources (Papachroni & Lochrie, 2014, p. 75) and compare different datasets and visualised maps, in order to formulate a well considered conclusion.

The research approach within my aE studio was to focus on a technical fascination, which for me was the use of natural elements in passive design techniques. I thought this approach was interesting, because it enabled me, in the first research part, to already look at the technical potentials of the present water, earth, air and light. The natural elements analysis was already influenced by its technical possibilities. Within the aE studio, the ‘valuable neighbourhoods’ assignment focused on the contribution of circular design strategies to the architectural and ecological value of sustainable and inclusive neighbourhoods. I agree with the approach of this assignment because it allows me to see the Lange Bretten as a neighbourhood of which its ecological value is important for the city of Amsterdam and thus needs to be maintained and increased.

This position paper is a self assessment on the way the first part of my thesis research has been done. The following question was researched: How can a natural elements analysis contribute to identifying the (lack of) quality of the green areas in Amsterdam? To start, I chose to examine one of these areas, the Lange Bretten, because it formed a representative example. To investigate and improve its natural qualities, I decided to go back to the basics and analyse the four natural elements of the Lange Bretten. This analysis combined quantitative and qualitative research in the form of two research methods: the study of maps and site visits. By analysing the visualised data on each map, I for example learned more about the heavy noise disturbance in some areas of the Lange Bretten. The site visits often confirmed the maps, but generally gave me a very different and more personal experience with the area. Because of the two methods, I was able to understand the quality and problems of the Lange Bretten from different perspectives. Because of the aE studio research approach on a technical fascination, I had a focus on the technical possibilities of the elements. Looking back, I could have been more aware of the elements during my visits, by for example describing them or try getting into their character. By reflecting on the entire research process, it became clear to me that I followed a context-led research approach. The natural area and the wish to improve it are reflected in the entire thesis research. This way of looking at things says something about me as a future architect. I want to research and design the architecture that can form the bridge between nature development and building development.

REFERENCES (APA)