Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Annelieke Beckker
Student number	4970314

Studio	
Name / Theme	Urban Forestry, Forest Urbanism	
Main mentor	J.R.T. van der Velde	Landscape Architecture
Second mentor	M.G.F. Overschie	Environmental Technology and Design
Argumentation of choice of the studio	This graduation lab gives me the opportunity to further explore and develop my interest in the design of urban public spaces. How can they improve the physical and social structures of the city? Moreover, I would like to learn more about tree species, how trees can be used in a landscape design and what role urban forests can play in adding more value to the public space. This knowledge, to my opinion, is necessary to become a well-rounded landscape architect.	

Graduation project	
Title of the graduation project	**Reverse** *Reimagining inverse town planning to stimulate an improved human-nature connection.*
Goal	
Location:	The neighbourhood "Haagse Beemden" within the city of Breda, the Netherlands
The posed problem,	Ever since the process of urbanization started and agriculture and other technological changes were introduced, humans became more and more disconnected from the natural world as they became less dependent of nature. This progression can also be explained by the "three natures theory" that states that nature progressed from an untouched and divine nature, to a cultural landscape and ending in a aesthetic human made landscape.

According to Richard Louv, the fact that urban inhabitants are losing their connection to nature leads to what he calls a ''Nature-deficit disorder'', especially among children. A number of studies show how this impacts the development of children. It diminishes the use of the senses, it leads to a higher chance of obesity, attention disorders and both physical and emotional illnesses. Moreover it can lead to a weaker ecological literacy and stewardship of the natural world (Louv 2005).

The ''Haagse Beemden'' in Breda, a city in the Netherlands, is a neighbourhood that is designed according to the ideas of the ''inverse town planning''. This was a response to the "post war town planning" with its dominant roads and high rise buildings. The inverse town planning was more designed towards the human scale and the form of the neighbourhood followed the form of the landscape. In the case of the Haagse Beemden this means that the residential areas are built around an old estate zone, giving the neighbourhood a rich cultural history that is kept alive and a "natural area" where people can experience the feeling of being out of the city. The structure of the residential areas also leave space for a lot of public green and green cycle paths that are separated from the main roads (L.J.M. Tummers & J.M. Tummers-Zuurmond, 1997).

However the urban design is originally created to enlarge the connection between the inhabitants and the landscape, the neighbourhood nowadays suffers some social and spatial challenges. The inhabitants experience a feeling of unsafety in the public space and have a negative self-image of their neighbourhood. The

	public green is monotonous and often inaccessible and not well maintained. The estate zone could potentially function as a green centre that connects the different parts of the neighbourhoods, but instead is often perceived as a blind spot and obstacle to most inhabitants (gemeente Breda, 2007). Knowledge in the field of Urban Forestry provides insights in how city forests and urban trees can strengthen the connection between the inhabitants and nature and natural processes, and how this connection can improve the health and well-being of both children and adults. It also provides insights in how the relationship between people and forests has changed over time and thus how people have used forestry, and can use it in the future as urban forests can contribute to place making, building stronger local communities and mitigating climate change. Moreover, forests have played an important role in the development of the city of Breda in the past and therefore it is interesting to look at how urban forestry could be used to further develop the Haagse Beemden in the future.
research questions and	How could the urban structure of the "inverse town planning" be further developed using urban forestry to create a spatial design for the Haagse Beemden in Breda that stimulates a better nature-connectedness in the inhabitants? Sub questions: - What characterizes inverse town planning and how can urban forestry

	contribute to this structure? - What are the current environmental design question in the Haagse Beemden and what causes them? - What are nature-connectedness theories and how can they be applied onto urban forests and inverse town planning?
design assignment in which these result.	Creating a design for the Haagse Beemden in which the inverse town planning is further developed with knowledge of urban forestry that answers to the current spatial problems and stimulates a better human-nature connection. A design on the city scale will show how the neighbourhood and its estate zone are connected to the city and the other estates and forests. A design on the neighbourhood scale shows the structures and accessibility to green spaces, and how the "inverted town planning" is further developed. These designs are followed by a couple of designs on the street level which show more in detail how exactly a better human-nature connection is stimulated.

[This should be formulated in such a way that the graduation project can answer these questions.
The definition of the problem has to be significant to a clearly defined area of research and design.]

Process

Method description

To come to a result for the proposed design assignment answers should be found for the sub research questions. The methods used to answer these questions will be elaborated per sub research question.

1. What characterizes inverse town planning and how can urban forestry contribute to this structure?

Literature study on both inverse town planning and urban forestry is needed to

provide the knowledge and understanding behind this question. The main source of information on inverse town planning is the book "Het Land in de Stad" which describes this method and mentions precedent cases that were designed along similar ideas. These precedents will be analysed according to "form, meaning and use" to discover how these urban environments work and what their strengths and weaknesses are.

Different possible uses of urban forestry are elaborated in among others the book "The Forest and the City". Out of the different types of urban forests, the forest of fear, the fruitful forest and the powerful forest/the forest as a work of art are important chapters that lead to design guidelines for new ''urban forestry natures'' typologies. These typologies are inspired by the "Three natures theory" that divides nature into three categories: the untouched and divine nature, the cultural landscape and the aesthetic human made landscape.

These new typologies will be projected on the Haagse Beemden with its "inverse town planning" to answer this research question.

2. What are the current environmental design question in the Haagse Beemden and what causes them?

To answer this question a better understanding of the neighbourhood is needed. A spatial study using maps via QGIS will provide more knowledge on the spatial structure of the neighbourhood and the spatial problems.

Next to analysing the "space" it is also of importance to analyse the "place" that is called the Haagse Beemden. What kind of people live here and how do they perceive and use the area? Amongst others the municipality and previous analysis and questionnaires held in the past by others deliver a sufficient amount of information to indicate what the current problems and opportunities are in the Haagse Beemden.

To receive a more profound idea of the human nature relation perceived by children, a visit is planned to a primary school in the neighbourhood. Children are asked to produce mental maps of how they currently view their neighbourhood. This leads to an insight into their affordances.

The collective information, both deductive and inductive, will be compared to draw conclusions on what the design questions are in the neighbourhood and what causes them.

3. What are nature-connectedness theories and how can they be applied onto urban forests and inverse town planning?

Literature study is used to understand different nature-connectedness theories. Summarizing them and comparing them to the already produced knowledge on urban forestry and inverse town planning will show if these theories could be useful in the case of the Haagse Beemden. These theories are tested on the elements of urban forestry that could be useful for the inverse town planning as resulted from sub research question 1.

All knowledge gathered for these sub research questions should be enough input to start creating the designs proposed in the design assignment. The spatial and social analysis and knowledge on the cultural history are needed to create the design that

shows the connections between the neighbourhood and the other forests and estates of the city.

The knowledge on inverse town planning and urban forestry will give input to the design for the neighbourhood structure. The knowledge on human-nature connectedness will lead to the small scale design that highlight the human-nature connection.

Timeline:

Before P1:

Basic knowledge and understanding of the relevant topics is gathered. First spatial analysis done and helpful sources documented. Interest is narrowed down to specific topic of choice.

Before p2:

Literature study almost finished and written about in the thesis. Spatial and social analysis executed and start of design experiments. Specific research questions are formulated and graduation plan made.
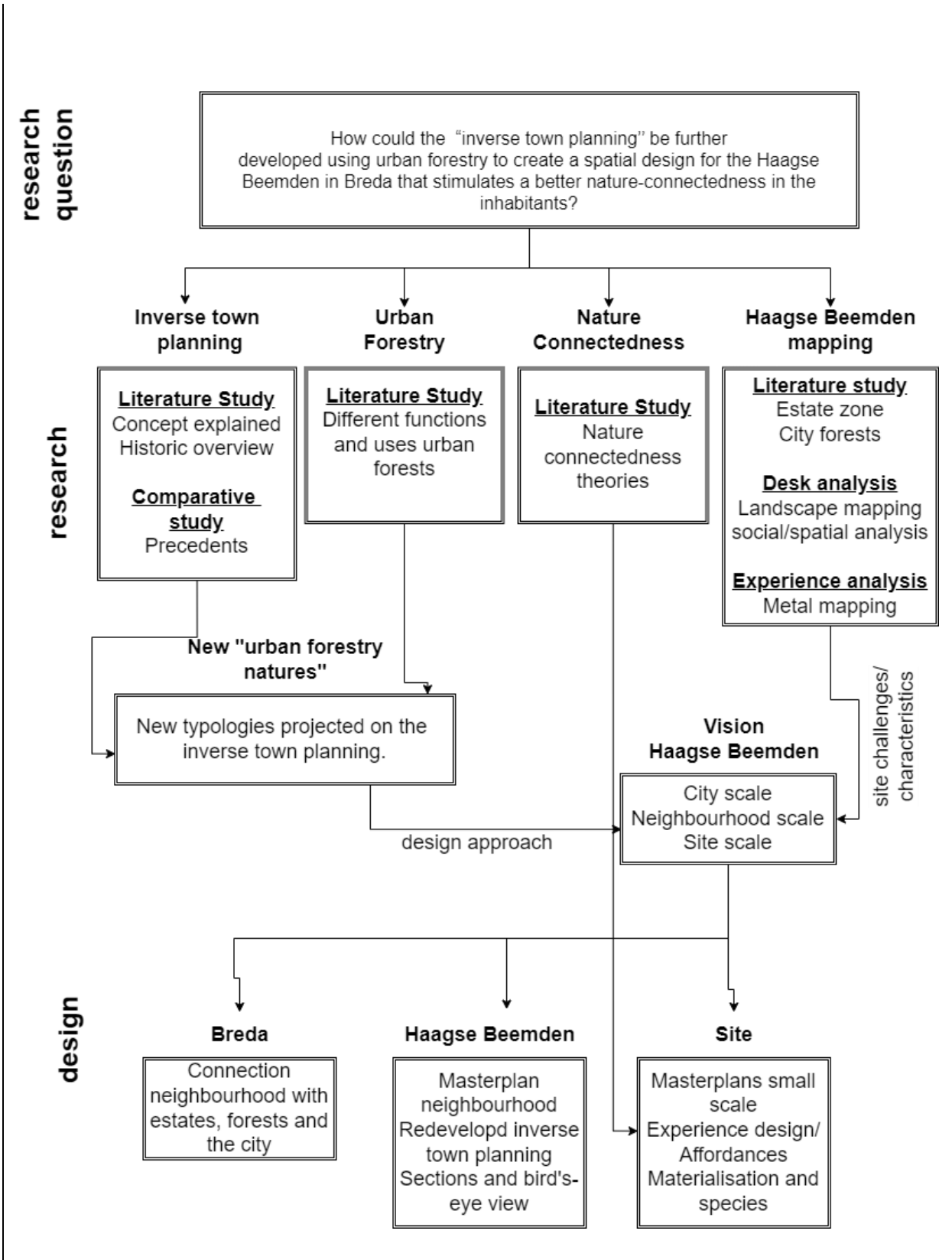
Before p3:

More emphasis on design studies and writing chapters in the thesis. Draft of answers on the sub research questions. Analysis maps finalised.

Before p4:

Work is mostly done. Designs made following up on the research and design studies. First conclusions are produced. Prepare for presentation.

Before p5:

Public presentation. All design visuals finalised.

research question

How could the "inverse town planning" be further
developed using urban forestry to create a spatial design for the Haagse
Beemden in Breda that stimulates a better nature-connectedness in the
inhabitants?

research

Inverse town planning

Literature Study
Concept explained
Historic overview

Comparative study
Precedents

Urban Forestry

Literature Study
Different functions
and uses urban
forests

Nature Connectedness

Literature Study
Nature
connectedness
theories

Haagse Beemden mapping

Literature study
Estate zone
City forests

Desk analysis
Landscape mapping
social/spatial analysis

Experience analysis
Metal mapping

New "urban forestry natures"

New typologies projected on the
inverse town planning.

design approach

Vision Haagse Beemden

City scale
Neighbourhood scale
Site scale

site challenges/
characteristics

design

Breda

Connection
neighbourhood with
estates, forests and
the city

Haagse Beemden

Masterplan
neighbourhood
Redevelopd inverse
town planning
Sections and bird's-
eye view

Site

Masterplans small
scale
Experience design/
Affordances
Materialisation and
species

Literature and general practical reference

Sub question 1:
- 35 icons of Dutch spatial planning. (2012). In *open.overheid.nl*. Ministerie van Infrastructuur. Geraadpleegd op 9 november 2022, van https://open.overheid.nl/repository/ronl-archief-a0559ae0-6613-411f-bd8b-aaf7f1d80a6f/1/pdf/ro-35-icons.pdf
- J. de Voogd. (2017). Zicht op Verschil. In *Kennis openbaar bestuur*. Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. Geraadpleegd op 9 november 2022, van https://kennisopenbaarbestuur.nl/media/255090/zicht-op-verschil.pdf
- Konijnendijk, C. C. (2018). *The Forest and the City: The Cultural Landscape of Urban Woodland*. Springer Publishing.
- L.J.M. Tummers & J.M. Tummers-Zuurmond. (1997). *Het land in de stad*. THOTH Bussum.
- Leenders, K. A. H. W. (1999). *Het Landgoederenlandschap rond Breda*. In Jaarboek De Oranjeboom (52ste editie).

Sub question 2:
- Doff, W. (2020). Haagse Beemden Beweegt. In *www.bovengronds.cc*. het ministerie van Binnenlandse Zaken en Koninkrijksrelaties.
- gemeente Breda. (2007). Bredase jeugd in beeld. In *kennisbanksportenbewegen.nl*. Geraadpleegd op 3 december 2022, van https://www.kennisbanksportenbewegen.nl/?file=512&m=1422882799&action=file.download
- L.R. Vargas Zeppetello, A.E. Raftery & D.S. Battisti. (2022). Probabilistic projections of increased heat stress driven by climate change. In *Communications earth & environment*. Geraadpleegd op 9 november 2022, van https://www.nature.com/articles/s43247-022-00524-4
- Macfarlane, R. (2016). *Landmarks*. Van Haren Publishing.
- Boomregister.nl. (z.d.). *Overzicht van alle bomen van Nederland*. https://boomregister.nl/overzichtskaart-van-de-bomen-in-nederland/
- *Studio 1:1 › gebiedsonderzoek breda*. (z.d.). Studio 1:1. https://studio1op1.nl/work/gebiedsonderzoek-breda/

Sub question 3:
- Beatly, T. (2011). *Biophilic Cities*. Island Press. https://link.springer.com/content/pdf/10.5822/978-1-59726-986-5.pdf
- Heft, H. (2010). Affordances and the perception of landscape: an inquiry into environmental perception and aesthetics. In *researchgate*.
- Louv, R. (2010). *Last Child In & Woods: Saving our Children from Nature-Deficit Disorder* (Main). Adfo Books.
- M. Richardson, R. Lumber & H. Passmore. (2019). Noticing nature. In *Finding nature*. National Trust. Geraadpleegd op 9 november 2022, van https://nt.global.ssl.fastly.net/documents/noticing-nature-report-feb-2020.pdf
- R. Lumber, M. Richardson & D. Sheffield. (2017). Beyond knowing nature: Contact, emotion, compassion, meaning, and beauty are pathways to nature connection. In *Plos One*. Geraadpleegd op 9 november 2022, van https://doi.org/10.1371/journal.pone.0177186
- de Jong, E. A. (2017). *Biophilia: van Vensterbank tot Landschap*. Koninklijke Zoölogische Vereniging Natura Artis Magistra, Amsterdam.

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

   This project researches a new way of designing "cauliflower" neighbourhoods, implementing knowledge of urban forestry to stimulate a better human-nature relationship. The green spaces in the design must focus on quality and on how green is perceived by people (children). In the urban forestry lab, knowledge is provided on biophilia, different forms of urban forestry and nature perception. The proposed design is highly linked to the field of landscape architecture, as perception of landscapes, the design of public spaces and the implementation of green/blue structures are important landscape architecture concepts. But it is also linked to urbanism as the theories on different forms of town planning belong to this field of study.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

   Due to the process of urbanization and rise of technology, people feel less and less connected to nature, resulting in mental and physical health problems, as well as a change in development of children. This problem is relevant for almost all cities in the Netherlands and the world, making it an urgent problem.
   This design research focusses on a neighbourhood with a "cauliflower" structure. In total, 1 million people in the Netherlands live in such a neighbourhood.
   An example of a design that works in the Haagse Beemden could inspire designs for "cauliflower neighbourhoods" elsewhere in the Netherlands. This could lead to a national strategy to transform these kinds of neighbourhoods to stimulate a better human-nature relationship.