Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

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

Personal information	
Name	Francesca Mazza
Student number	4831497

Studio		
Name / Theme	Urban Ecology & Eco-cities Lab	
Main mentor	Nico Tillie	Department of Landscape Architecture
Second mentor	Arjan van Timmeren	Environmental Technology & Design - Department of Urbanism
Argumentation of choice of the studio	I have decided to choose the lab "Urban Ecology & Eco-cities" for many reasons. First of all, I am willing to dive more into important topics such as the relationship between the urban design and the environment, biodiversity and the management of plants and trees in a sustainable way. Secondly, in the Q4, by working on site on TU Delft Campus, I have seen and understood the importance of how a small ecological design intervention can bring positive outcomes regarding the improvement of the quality of people and species' lives even in a small area. This year, I would like to continue proposing new ecological design, at multiple scales (district, city, region) in the city of Rotterdam.	

Graduation project	
Title of the graduation project	**Building up new Eco-Wastescapes in Rotterdam:** Reuse and Regeneration of neglected urban fragments into ecological hotspots
Goal	
Location:	Rotterdam-in particular: Southern area between Pernisserpark, Waalhaven, Zuiderpark and Maashaven
The posed problem,	What is the future of the Wastescapes in the city of Rotterdam? Due to an economic process of "urban pressure" undergoing in the city, the majority of the old industrial, harbour areas or buildings are demolished and replaced by new structures with different functions and forms 'erasing' the memory of the past urban structures. Some lands instead are used and then abandoned or even never used and left uncultivated. These, usually covered by wild vegetation, can host a high range of biodiversity, especially in not polluted soils.

research questions and	What spatial framework can guide the transition of Wastescapes in Rotterdam into ecological valuable spaces which can foster biodiversity, and improve the quality of people and species' life aspects on small, large scale (district/region)? Subquestions: - Which exact kind of Wastescapes can be considered within the design framwork? - What particular reuse of "Wastescapes" can represent the best efficient, sustainable and flexible eco-solutions against climate change, urban fragmentation and loss of biodiversity? - Which green design solution can help to overcome the urban and social fragmentations of the southern districts of the city? - How can the wastescapes and the existing green areas be combined in order to create new ecological corridors at large scale? - Which is the best ecological way to depollute the brownfields improving the quality of the soil, increasing the biodiversity in the city?
design assignment in which these result.	The graduation project proposes the regeneration and reuse of remnant wasted structures, lands in Rotterdam into future ecological hotspots to foster biodiversity, improve the quality of people and species' lives. A special focus is given to the Southern area between Pernisserpark, Waalhaven, Zuiderpark and Maashaven. Here, the new Eco-design framework offers particular opportunities: - **Regeneration, Integration of remnant wasted structures into a resilient, circular, efficient and sustainable green design system** - Improvement of accessibility towards the water by redesign of river bank, walkways on the waterfront - Reduction of social, urban fragmentation by improvement of green connections (at large and small scale) - Creation of more places to walk/sit/stand along the water and enjoy the waterfront - Reduction of unpleasant sensory experiences (due to physical agents or urban design). - Reducing social and spatial fragmentations in a city, especially within Southern districts, in order to bring a better connection between separated spaces and people.

Process

Method description

For my graduation project I am going to adopt the following methods and techniques of research and design:

- **Literature**: Reading of texts (essays, articles, reports etc. ...) of different authors.
In particular, I have categorized them in three main topics: Wastescapes (marginal spaces), Reuse of harbour-industrial areas, Urban Ecology (General and related to Rotterdam)
- **Discussions with experts** about Wastescapes and relation with Ecology.
- **Bike Excursions** around the city and in the project area (Waalhaven)
- **Analysis of Case studies** of Wastescapes (Findings, Benefits, Possible Outcomes or failures)
- **Systematic Mapping** of current wastescapes in/around Rotterdam on regional scale, medium (city) and small one (district). Here, focus on project area (Waalhaven and surroundings)
- **Mapping** of pre-existing ecological corridors, proposal of potential new ones
- **Research by Design** in many phases -> Setting of a Design Framework
- > **Creation of a new Design Toolbox** (Design Principles):
Different flexible typologies of design eco-intervention on wasted space (structures or lands): different interventions, same goals (Sustainability, Circularity, etc ...)
For example:
- Brownfields -> Community gardens
- Unused building or terrain -> Water Storage Structure
- Unused railway -> Boardwalk
- > **Creation a Wastemap for the city of Rotterdam**

Literature and general practical preference

Amenta, L., & de Martino, P. (2018). *Wastescapes in port cities. Naples and Rotterdam: a spatial and institutional comparison on the role of ports as promoters of circular economy.* Università degli Studi di Napoli Federico II, 18(2), 159-181.

Anderson, K. M. (2009). *Marginal Nature: Urban Wastelands and the Geography of Nature.* The University of Texas at Austin, December 2009.
Retrieved from https://repositories.lib.utexas.edu/handle/2152/ETD-UT-2009-12-604

Braae, E. M., & Diedrich, L. B. (2012). *Site specificity in contemporary large-scale harbour transformation projects.* Journal of Landscape Architecture, 7(1), 20-33

Furlan, C. (2015). *Representation and Recycle. Disclosing the geography of waste in the European context.* Retrieved from
https://www.researchgate.net/publication/289479281_Representation_and_Recycle_Disclosing_the_geography_of_waste_in_the_European_context

Gandy, M. (2013). *Marginalia: Aesthetics, Ecology, and Urban Wastelands.* Annals of the Association of American Geographers. 103:6, 1301-1316, DOI:10.1080/00045608.2013.832105

Hall. C. M. (2011). *The Ecological and Environmental Significance of Urban Wastelands and Drosscapes.*

Hough, M. (1990) *Principles for Regional Design* in *Swaffield S.* (ed. 2002) *Theory in Landscape Architecture: A Reader.* Philadelphia, Pennsylvania: University of Pennsylvania Press, pp. 209-213

Municipality of Rotterdam, Rotterdam STRUCTURAL VISION on "Plan Stadhavens" (adopted in 2011)

Riesto, S. (2018). *Biography of an Industrial Landscape.* Retrieved from
https://www.researchgate.net/publication/32254 9245_Biography_of_an_Industrial_Landscape

Ruff, A. W. (1982) *An Ecological Approach* in *Swaffield S.* (ed. 2002) *Theory in Landscape Architecture: A Reader*. Philadelphia, Pennsylvania: University of Pennsylvania Press, pp. 175-177
Spirn A.W. (2014) *Ecological Urbanism: A Framework for the Design of Resilient Cities*. In: Ndubisi F.O. (eds) The Ecological Design and Planning Reader. Island Press, Washington, DC.
https://doi.org/10.5822/978-1-61091-491-8_50

Tillie, N. (2020), *From Urban Green Structure to Tidal River in Rotterdam: Testing Grounds for Urban Ecology.* Retrieved from
https://www.researchgate.net/publication/336263598_From_Urban_Green_Structure_to_Tidal_River_in_Rotterdam_Testing_Grounds_for_Urban_Ecology

Timmeren, A. V., Amenta, L., (2018), *Beyond Wastescapes: Towards Circular Landscapes. Addressing the Spatial Dimension of Circularity through the Regeneration of Wastescapes* from
https://www.researchgate.net/publication/336918336_Beyond_Wastescapes_Towards_Circular_Landscapes_Addressing_the_Spatial_Dimension_of_Circularity_through_the_Regeneration_of_Wastescapes

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)?

My graduation project topic is linked to that of the studio as it represents a design example where the cooperation of urban planning and landscape architecture show how the quality of the environment, of the life of people and species can be improved by Urban Ecology.
In the project intervention, the regeneration of wasted spaces in Rotterdam leads to the creation of new Eco-hotspots can become attractive meeting points for people to interact between each other and reconnect with nature.

The project work shows the application of various principles that belong to the master track of LA, such as the understanding of the spirit of a place (*genius loci*), the enhancement of its spatial qualities and environmental potential. The regeneration of wasted spaces by innovative, sustainable techniques requalifies the urban place, also influencing the citizens' perceptions towards it.

The intervention acts on the urban landscape together with other important factors: Scale, Time and Process. These, together with the Design, will determine the appearance, duration and physical extension of the urban redevelopment project.

The graduation work allows me to implement the knowledge, skills belonging to the master programme (Msc AUBS): for example, management of a project under different aspects (urban/landscape), capacity of tackling a problem by flexible design solutions, usage of notions, practice to build up an efficient design proposal.

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

My graduation work is relevant as it is an invitation to the people of Rotterdam to start appreciating and giving importance to the abandoned spaces of the city. In fact, nowadays many of them are isolated, left out of the rest of the city. Citizens should therefore understand that the reuse, regeneration of those places can offer great potential for urban biodiversity.
As Hall (2011) states in his text "The Ecological and Environmental Significance of Urban Wastelands and Drosscapes", the importance of wild, wasted urban spaces is also given by the number of species present in them, higher than the rural ones.

Hall also affirms that "Wasteland is not a waste!" which means that people should stop avoiding abandoned urban areas, considering them dangerous and ugly. On the contrary, they should feel encouraged to explore and integrate them better into the rest of the city. My design intervention takes up and further develops this concept, applying it in the city of Rotterdam.

Furthermore, I believe that if a space has been used before and now abandoned, people have to reconnect to it, rediscovering their own past, culture linked to that.
On the other hand, if a space has never been used before, the inhabitants should understand that the profitability of a land must not influence its use and future experience.

Therefore, through my intervention, I would like to offer the citizens of Rotterdam a resilient, efficient, sustainable project proposal that can adequately show the potential of Wastescapes in the city. These can be redefined as flexible urban elements capable of promoting biodiversity, addressing climate change, improving citizens' quality of life over time.

To conclude, on a large scale, the Eco-design intervention can then help to reduce the existing contrasts between the North-South sides of the city, on small one it can ease the urban fragmentations within the Southern districts.