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.

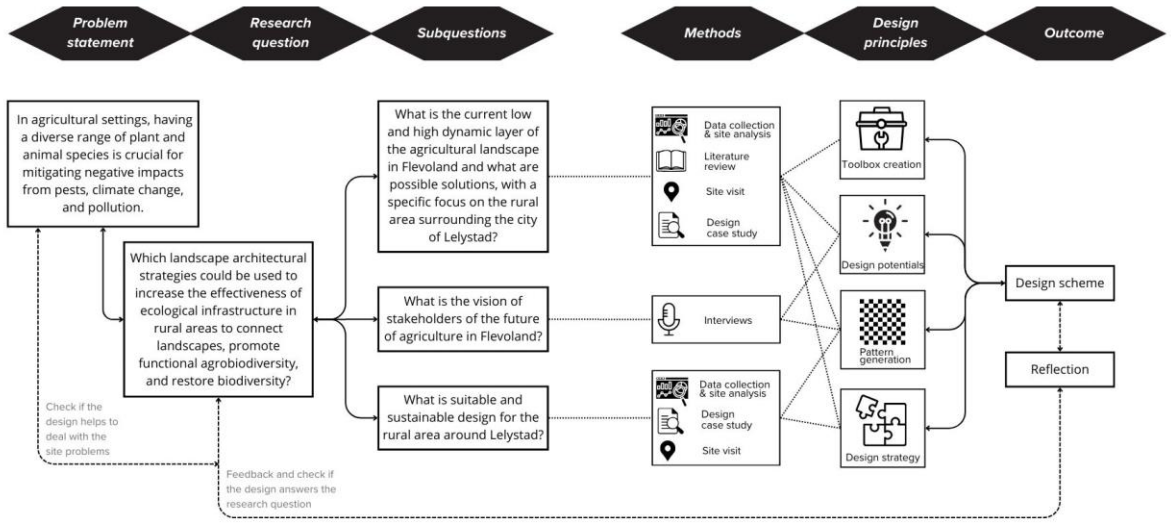
The graduation plan consists of at least the following data/segments:

Personal information	
Name	Pleun te Braake
Student number	4994558

Studio		
Name / Theme	Urban Ecology	
Main mentor	Dr.ir. N.M.J.D. Tillie	Urban ecology, Urban landscape, Integrate planning
Second mentor	Dr. ir. R.M. Rooij	Urbanism, Spatial Planning and Strategy
Argumentation of choice of the studio	Nowadays, farmers are facing more and more challenges. This has become a hot topic in political discussions, with some suggesting that farmers should reduce their operations or even quit their profession altogether. However, a plan that benefits both farmers and other stakeholders has yet to be created and implemented. Coming from a farming family and studying landscape architecture, I strive to create innovative solutions that balance the interests of farmers and the environment, enabling them to progress together into the future.	

Graduation project	
Title of the graduation project	Agriculture's New Frontier: Integrating Nature for a Sustainable Tomorrow
Goal	
Location:	1200ha around Edelhertweg, Boerderij van de Toekomst, Lelystad, Oostelijk Flevoland
The posed problem,	Biodiversity in agriculture has significantly declined over the past few decades due to the intensification and scaling up of agriculture, despite the potential for the two to reinforce each other. To restore this, an area plan is needed that connects the landscape with agriculture/farmer using an ecological infrastructure.
Research questions	Which strategies could be used to maximize the effectiveness of ecological infrastructure in rural areas of Flevoland to connect landscapes, promote functional agrobiodiversity, and restore biodiversity?

	Sub questions: 1. What is the current low and high dynamic layer of the agricultural landscape in Flevoland and what are possible solutions, with a specific focus on the rural area surrounding the city of Lelystad? 1.1. What are the problems in the current landscape? 1.1.1. What are the problems in the low dynamic layer? 1.1.2. What are the problems in the high dynamic layer? 1.2. What are possible solutions for the low dynamic layer? 1.2.1. Land-sharing, land-sparing or a connectivity landscape? 1.2.2. What are possible solutions to increase the ecology and biodiversity? 1.2.3. What are possible solutions for the water problems? 1.3. What are possible solutions for the high dynamic layer? 1.3.1. What are possible solutions to improve the connection of city and country side? 1.3.2. What are possible outcomes to improve the connection between city dweller and farmer? 2. What is the vision of stakeholders of the future of agriculture in Flevoland? 2.1. What are possible design ideas according to the stakeholders? 3. What is suitable and sustainable design for the rural area around Lelystad? 3.1. What is the transition plan for this design?
Design assignment in which these result.	The aim is to establish a robust connection with the environment, allowing the project to expand and encourage nature-friendly agriculture in the surrounding area, thereby enhancing biodiversity on a larger scale. The result of the design assignment can be described as following: - A toolbox for a biodiverse and resilient agricultural landscape and water management. Created by the outcome of the spatializing of low and high dynamic layers. This is formulated by literature reviews and case studies and can be used as an example for other site areas as a general guideline - Scenario based design for the low dynamic layer: Land sharing and/or land sparing. - A concept idea/vision for Oostelijk Flevoland - Interviews and involvement stakeholders, Province, Waterboard, Boerderij van de Toekomst, Farmer, City dweller. - A masterplan for the 1200ha of the Farm of the Future next to Lelystad. - Specific zoom-ins from this masterplan of a chosen areas with a more detailed explanation. - Transition plan
Process	
Method description	



Literature and general practical references

Boerderij van de toekomst (2023). Boerderij Van De Toekomst. Via https://farmofthefuture.nl/

Bokhorst, J. (2017). Oernatuur is overal: Kijk vanuit de bodem en je vindt oorspronkelijke natuur. In goedbodembeheer. Geraadpleegd op 4 oktober 2023, via https://www.goedbodembeheer.nl/Publicatie

Bosch, R.R., Kok, A., De Olde, E., 2020. The land sharing versus land sparing debate: Options to ensure food security while preserving biodiversity. In: The MAGIC Consortium, 2020. The Nexus Times. Bergen: Megaloceros Press.

Canon van Flevoland. (z.d.). Canon van Nederland. Geraadpleegd op 8 november 2023 via https://www.canonvannederland.nl/nl/flevoland/flevoland

Dawson, A. W., Faber, J., Homs, G. A., Ozinga, W. A., Pacilly, F. C. A., Selin Norén, I. L. M., van Apeldoorn, D. F., Bakker, P. C. C., van Balen, D. J. M., Cuperus, F., Derikx, B., van Leeuwen-Haagsma., W. K., Hartman, S., Huiting, H. F., & Sukkel, W. (2021). Digitale gids Natuurinclusieve akkerbouw. Digitale gids Natuurinclusieve akkerbouw. Geraadpleegd op 4 oktober 2023, van https://www.natuurinclusieve-akkerbouw.nl/

Defacto Stedenbouw. (2021). Versnelde zeespiegelstijging IJsselmeergebied: Verslag gebiedssessie Kennisprogramma Zeespiegelstijging IJsselmeergebied, 1 juni 2021. In Nationaal Deltaprogramma

Dudley, N., & Alexander, S. (2017). Agriculture and biodiversity: a review. Biodiversity, 18(2–3), 45–49. https://doi.org/10.1080/14888386.2017.1351892

Flevoland's history. (z.d.). Nationaal Park Nieuw Land. https://www.nationaalparknieuwland.nl/en/the-park/flevolands-history

Graß, I., Loos, J., Baensch, S., Batáry, P., Librán-Embid, F., Ficiciyan, A., Klaus, F., Riechers, M., Rosa, J., Tiede, J., Udy, K., Westphal, C., Wurz, A., & Tscharntke, T. (2019). Land-sharing/-sparing connectivity landscapes for ecosystem services and biodiversity conservation. People and Nature, 1(2), 262–272. https://doi.org/10.1002/pan3.21

Kerkstra, K., & Vrijlandt, P. (1988). Het landschap van de zandgebieden; Probleemverkenning en oplossingsrichting (No. 8). Directie Bos-en Landschapsbouw.

Lanz, B., Dietz, S., & Swanson, T. (2018). The Expansion of Modern Agriculture and Global Biodiversity Decline: An Integrated assessment. Ecological Economics, 144, 260–277. https://doi.org/10.1016/j.ecolecon.2017.07.018

Opdam, P., & Vos, C. (2023). Hoeveel groenblauwe dooradering is nodig?: Onderbouwing van het Aanvalsplan Landschap voor herstel van biodiversiteit en landschapsdiensten. Landschap, 2, ISSN 01696300. https://www.landschap.nl/archief/jaargang-40-2023/

Oude Essink, G., de Louw, P., van Vliet, M., van Baaren, E., Goes, B., Prevo, C., Sergi, F., Marconi, V., Vos, P., & Post, V. (2008). Zoet-zout studie Provincie Flevoland (092.79146). TNO Bouw en Ondergrond. Geraadpleegd op 9 november 2023, van https://geo.flevoland.nl/DOC_bodematlas/Zoetzout_Flevoland.pdf

Provincie Flevoland. (z.d.). Waterprogramma: Watersysteemblijvend op orde! In Flevoland. Geraadpleegd op 4 oktober 2023, van https://www.flevoland.nl/wat-doen-we/water

Rijksoverheid. Geraadpleegd op 7 december 2023, van https://www.deltaprogramma.nl/binaries/deltacommissaris/documenten/publicaties/2021/09/01/verslag-gebiedssessie-kennisprogramma-zeespiegelstijging-ijsselmeergebied/20210901+KP+ZSS_Verslag+IJsselmeergebied_kennisvragen_versie2_Defacto_webversie.pd

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)?

In my view, the relationship between agriculture and landscaping carries considerable significance. I've opted to explore this connection by delving into a topic that demonstrates its relevance. While a farmer's main focus is on food production, they also bear responsibility for nurturing the environment uniquely. Meanwhile, landscaping involves creating sustainable and aesthetically pleasing solutions to environmental issues. Through thoughtful design, landscape architects can help address various agricultural challenges. Collaboration between the two is paramount, as farmers must understand and maintain the design to reap its benefits. That's why I believe landscape architects play a vital mediating role,

ensuring that everyone involved is well-informed about the issues at hand and how best to tackle them together so that humans and nature support each other.

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

Flevoland stands out as a truly distinctive province, entirely constructed by humans back in 1985. Its primary purpose has been to produce food and shield the Netherlands from sea-related disasters, especially after the devastating floods and World Wars. As a result, Flevoland's layout is highly organized and practical, with clear boundaries separating nature and other functions. This thesis delves into the interplay between agriculture and nature, taking into account critical water issues like salinization, drought, and flooding. To benefit not just the Farm of the Future's 1200 hectares, but the entire province and even regions beyond, we're developing a toolbox to aid areas grappling with similar challenges as Flevoland.

The scientific framework links various theories and establishes a correlation between high and low dynamic layers. This comprehensive framework resolves several pertinent issues, including the optimal approach between land-sparing and land-sharing, as well as the involvement of relevant stakeholders. Ultimately, the framework produces a detailed design that encompasses a transition plan. In the end, a reflection is needed to make better choices in the design process.