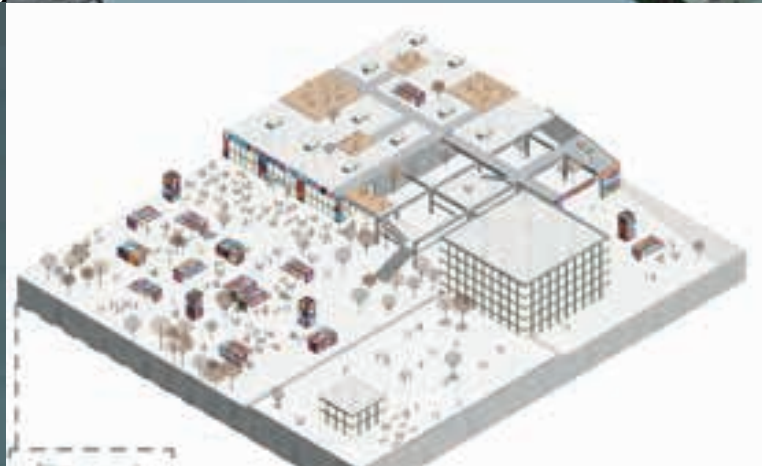
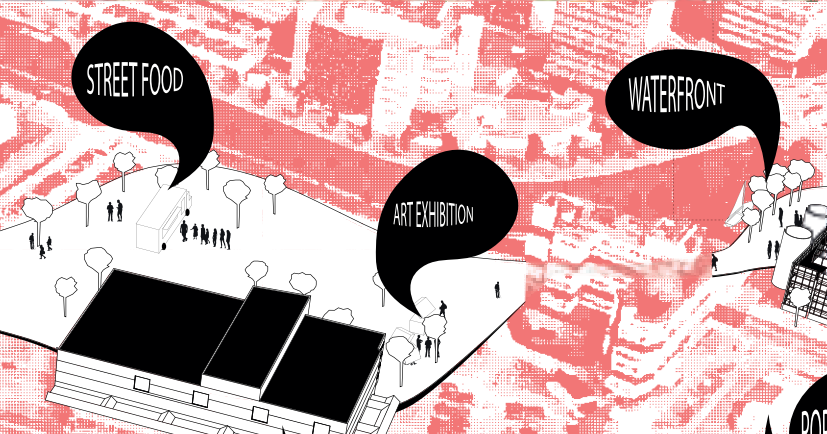




Lines

to the landscape



Design proposals for the transition of Spoordok
and Hegewarren (Leeuwarden/Fryslân) towards future
social and spacial qualities

Hege Warren

Lund University - Sweden
februari 2020





Healthy Hospital

randwijk

verschoven Bikgaard

voordeur achterom

spoordok

potmarge

welcome to the village

dogma island

energy now!

the end of the city!

Hegswaaren

INTRODUCTION

Lines to the landscape, in search for a rural urbanism

It becomes more and more necessary to connect the rural countryside to the urbanised area's around. In Fryslân a relatively low densified part of the Netherlands, the 11 cities have always been well connected to the surrounding landscape but this system is under pressure due to new transitions in both the countryside and the urban area's. The challenge is to connect these different systems and find new ways to synthesize them in times where we are in need of new energy-sources, new ways of living and other ways of transportation. In Fryslân, land behind the dike, people have always dealt with the presence of water and now with the climate changes ahead, this creates the overall challenge of dealing with it in creative ways, using the water for transportation, floating villages and innovative agricultural landscaping.

Between the old polder 'Hegewarren' and the

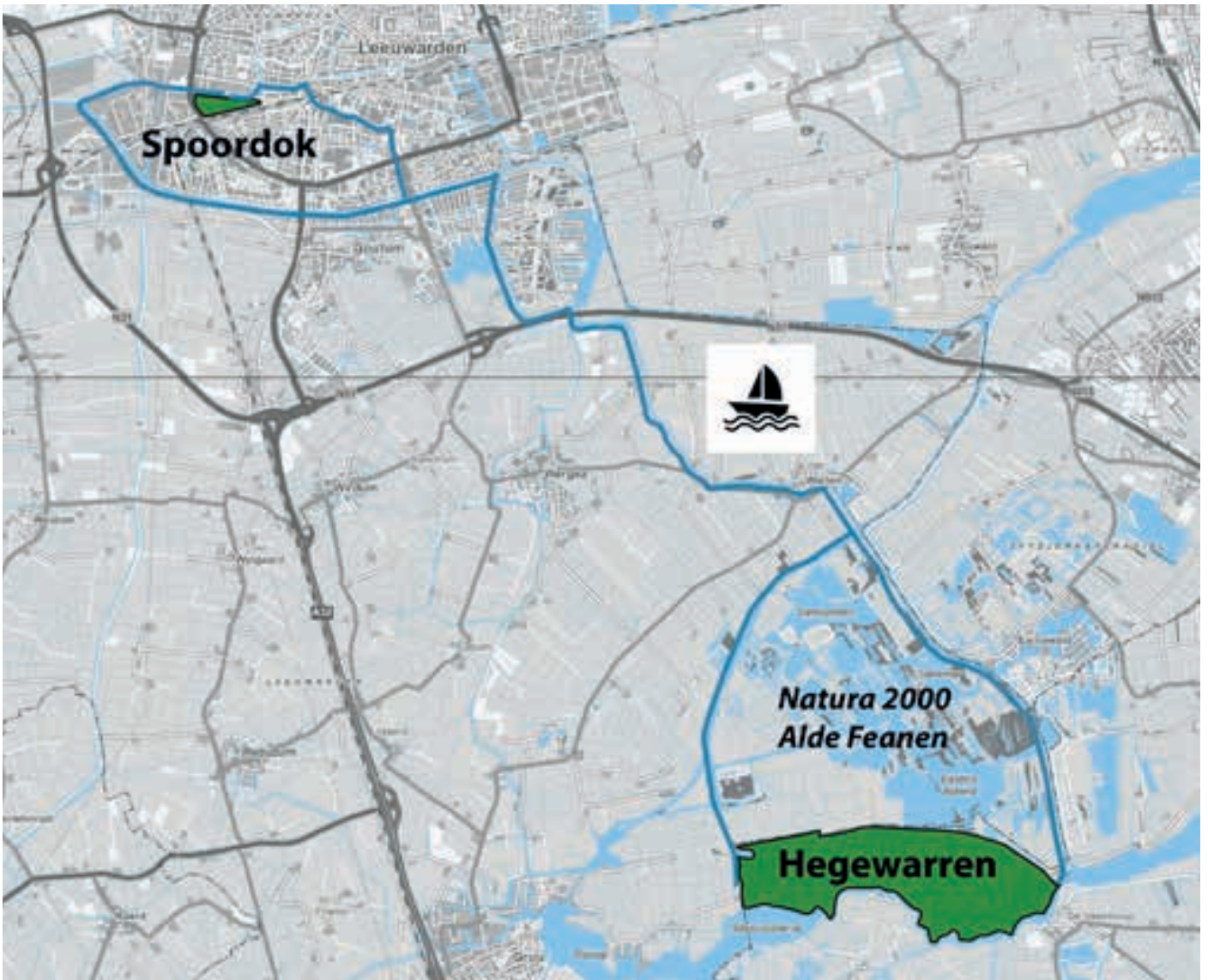
'Spoordok' in the centre of Leeuwarden we will draw a 'first line to the landscape' in a series of coming 'expeditions' in the area. Working simultaneously on both the tasks in the countryside and the in the city centre, we will search for concepts that includes both worlds, both in physical and physical ways. Together the expeditions will create content for the development of what we call the 'Blue Delta', where water in all its presence conceptualises a 'fluid world' of countryside metropolis.

Alex van de Beld
March 9th 2020



Foto left page: image of the "Blue Delta" and sketch lines to the landscape Leeuwarden - Hegewarren [NOON]



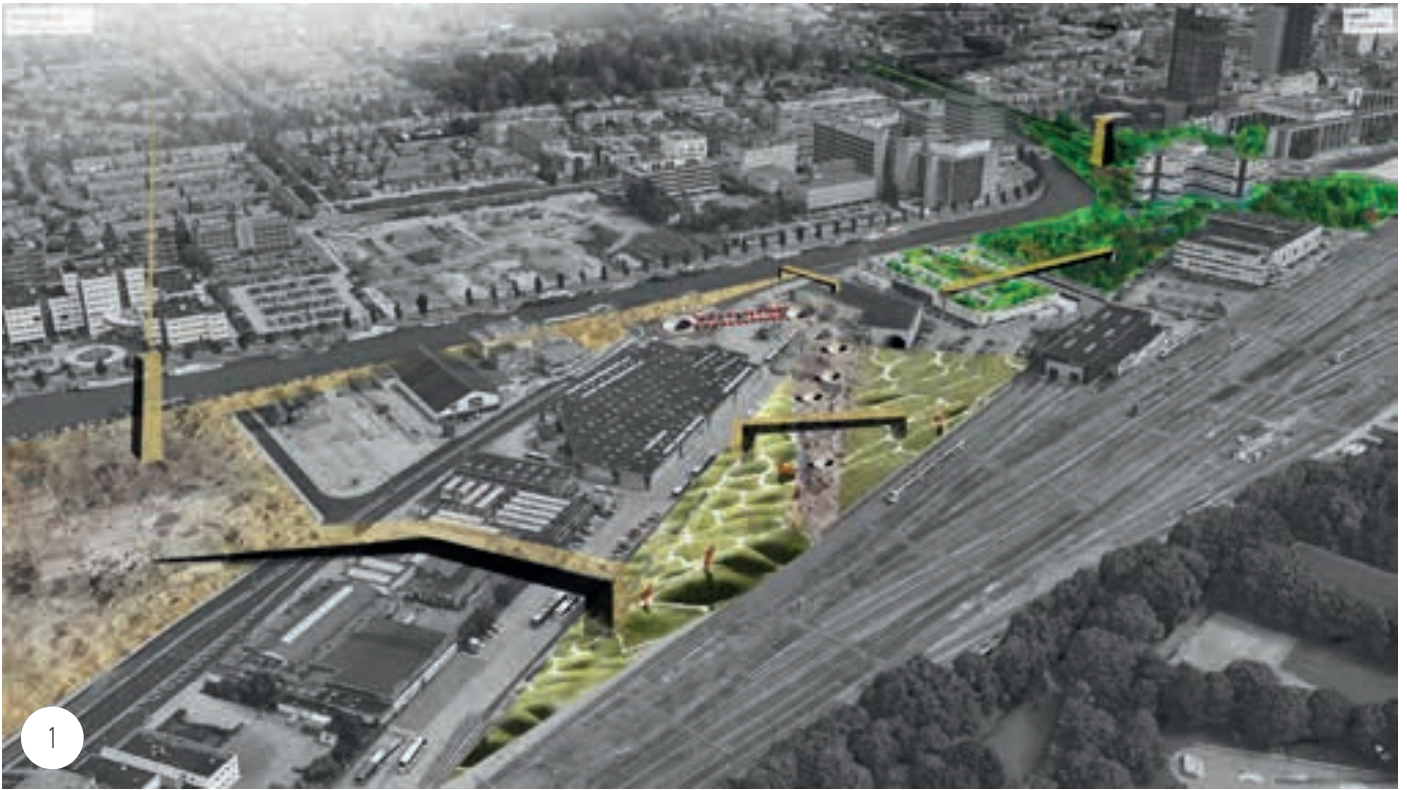


Spatial relation between the two study areas

Spoordok

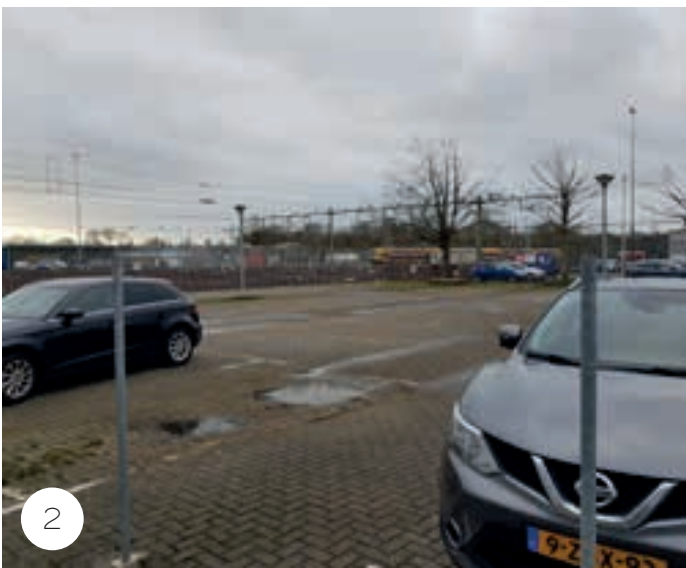
We start our expedition at the Spoordok-area, next to the central station, in the capital of Fryslân; Leeuwarden. This area will undergo large transformations in the future. On the one hand the city needs to give space to more housing in a higher density, on the other hand the first concepts provide a more open relation to the surroundings towards the south, where the landscape does no longer stop at the boundaries of the city, but can continue inwards, as being a window towards the city. The challenge is how to find new concepts and places where this idea could create an initial 'sense of place' in the city, that can in time evolve in a kind of 'slow urbanism'.

In 4 different areas we will create different prototypes of 'unknown living', where people do not only live in the city, but simultaneously in the landscape. At the same time the area could undergo initial and temporal use by cultural place making, both in existing buildings and in outdoor areas.



1

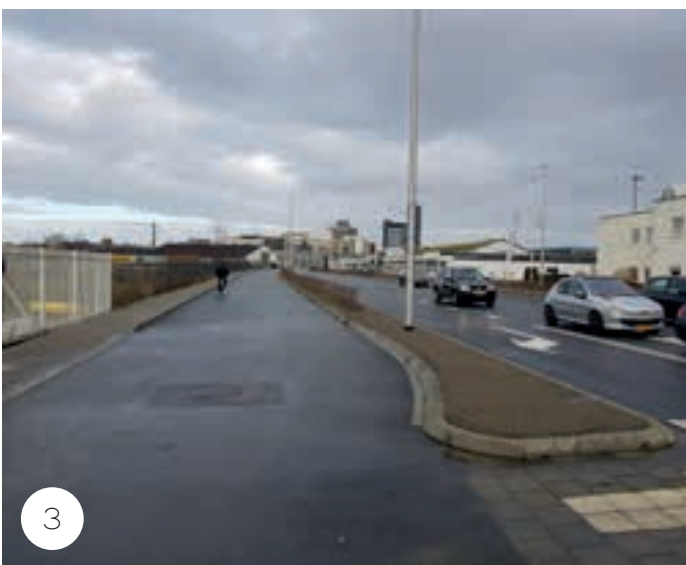
1: Impression possible development for temporary landscapes (NOON)
 2-4: photos of the Spoordok-area which shows the deterioration of this area in the nearby of the city centre and railway station of Leeuwarden



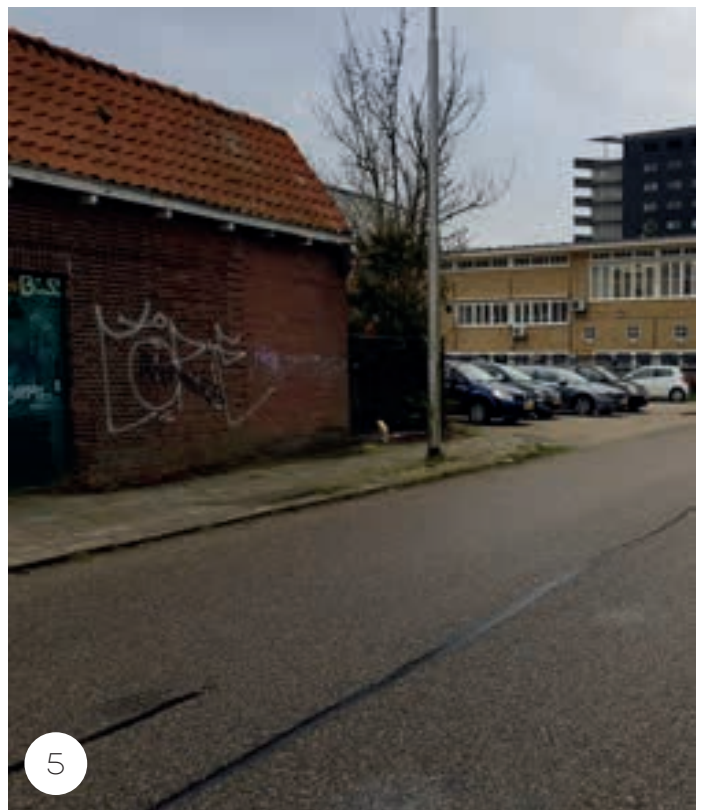
2



4



3



5



Hegewarren

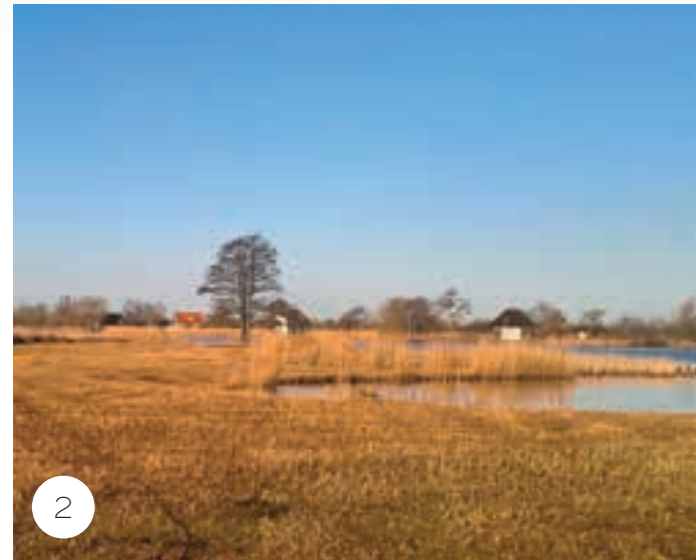
We end the expedition in the Hegewarren a polder (400 ha.) close to Leeuwarden where farming will disappear because of high costs of watermanagement and sinking grounds. It would be more practical to let the water in again between the low dikes that surrounds the polder and create a combination of new programme's.

An area of 36000 m², roughly the area of the disappearing farms, could be used for new ways of living, but there is also a need for new ways of energy-production such as solarscapes (approx. 200 ha.) and new ways for production land (new farming concepts) or

other land-use forms.

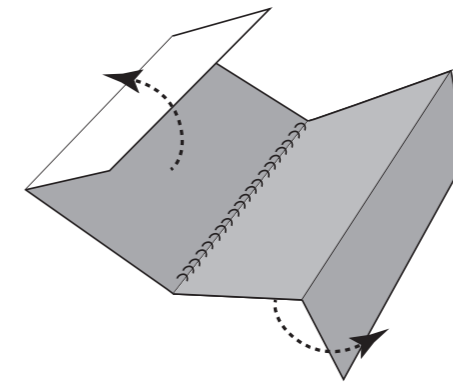
The area is well connected to the recreational landscape of the Alde Feanen, which means it could support a recreational function too.

All these new functions should be considered in a circular concept where small houses and ways of transport benefit from the presence of waterways and nature and the other way around. How can we imagine new landscapes where production and recreation is in close proximity to the cities?



1: The existing polderstructure of the Hegewarren 2: Reedland of the Natura 2000 area "Alde Feanen" 3: Main road and adjacent farm 4: Polderdike and meadowland of the Hegewarren 5: designprogramm for the Hegewarren

Folding instruction design results



Results from the design expedition

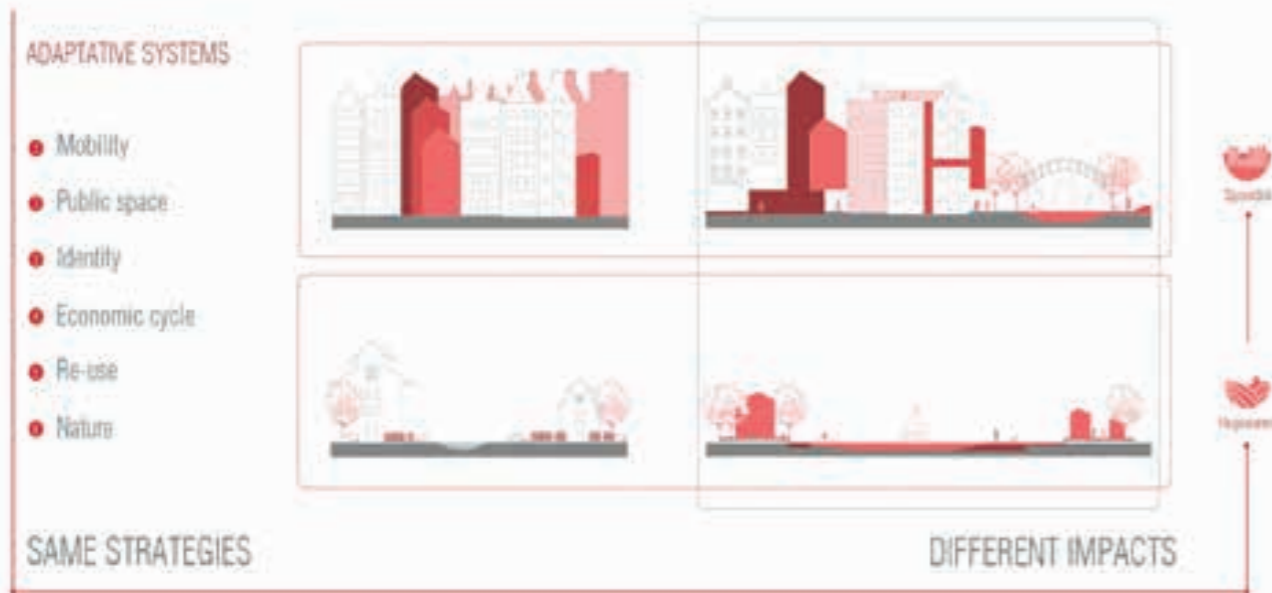
Lunds university 2020

The next pages show the design results of the expedition. Each group has made a spread of 4 pages in which their results and solutions are presented.

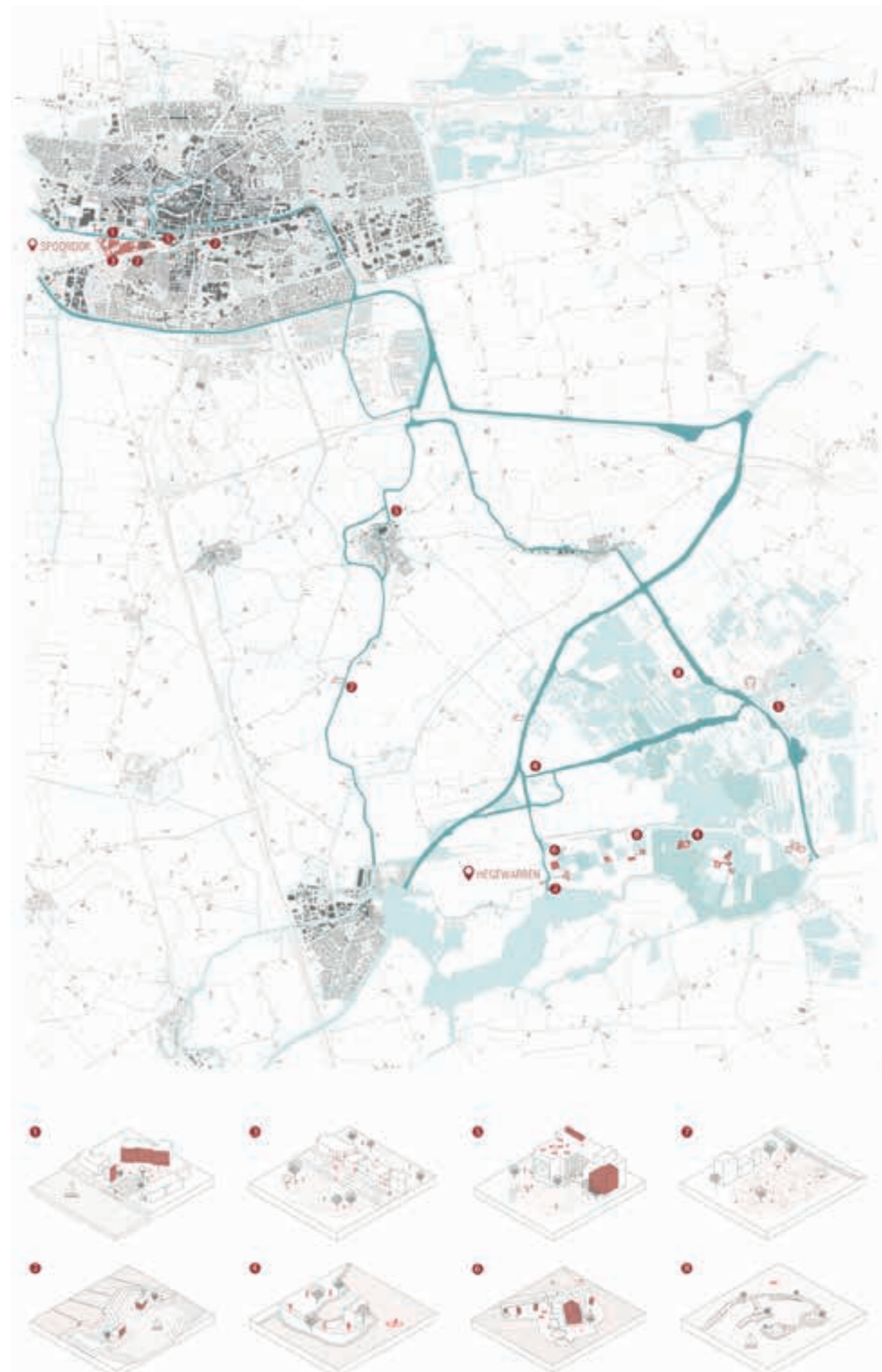
- Group 1 **Re-thinking densification** - Victoria Restrepo, Valentina Rapuano, David Rindler, Parto Jahangiri
- Group 2 **Aquatuin** - Viktor Borg, Anna Ridder, Jihyun Lee, Soojin Yoon, Arvin Nadimi
- Group 3 **Soft City** - Lina Blomqvist, Tyra Blichfeldt, Line Rydén, Therese Skevik, Josefina Widerström
- Group 4 **The line** - Oli Geir Kristjansson, Martin Blivik, Karola Schæfermeier, Jenny Lindberg, Matt Bryan
- Group 5 **Aquapuncture** - Nicholas Hartman, Zhihao Han, Katarzyna Starczewska, Hana Shibu, Egil Ljungkvist
- Group 6 **The New Countryside** - Linnea Lujak, Jelena Delic, Stephanie Harudd, Amanda Kaplan
- Group 7 **Counterpoint** - Erik Odqvist, Johan Gullers, Minda Son, Viktor Högberg, Yuchen Liu
- Group 8 **Submerge** - Nina Allberg, Kate Heywood, Sacha Clark, Marjorie Yeo
- Group 9 **Blue Urban Landscapes** - Anastasiia Berg, Brendan Cooney, Daniel Rosengren, Simon Myklebust Sivertsen, Tobias Lundström
- Group 10 **Nourish To Flourish** - Catalina Vazquez, Felix Dokonal, Linnea Olsson, Minh Do Quang

RE-THINKING DENSIFICATION

PARALLEL STRATEGIES

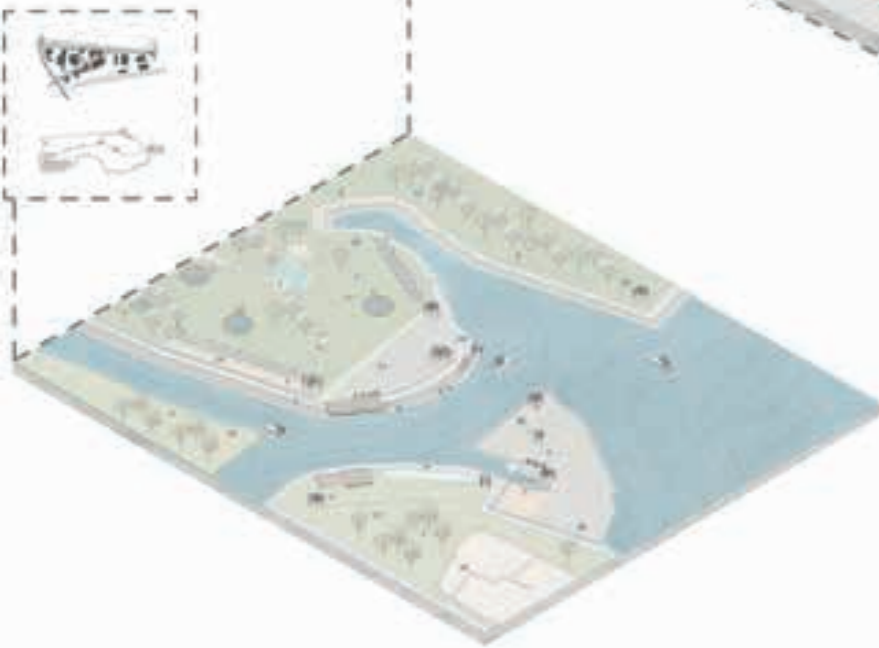


When thinking of renewing a district of a city the term **DENSIFICATION** is a keyword. It is often used as a synonym of an increasing of buildings in an interested area. During our research we thought about this word and its meaning. But what if densification is more than that? In our proposal we tried to rethink the expression densification to create a new definition of it. Therefore, we layered different strategies and combined their advantages. The strategies can be used and adapted in the city district Spoordok and the countryside Hegewarren. The layers of densification are culture, connection, landscape and community. This project should be for the inhabitants to improve their current situation. Therefore, and also because the process will be under the factor of temporality, they should be involved in the process of changing their city, to be able to fully enjoy it.



CULTURE

Culture can be a catalyst to boost the image of an area. By creating a culture district in the city and bringing some satellite stations in the countryside an attraction can be established, which will not only be used by the inhabitants but can intrigue external tourists, too. This can happen by planting libraries, museums, workshops, stores and much more in already existing and unused structures in the city and the countryside.



CONNECTIONS

In the city we tried to create new connections by creating passages and relations between the interested quarters. In the countryside the connection is formed between the surrounding and the area. So the inhabitants are able to reach from the city and the different near standing villages Hegewarren. But the connection is not just physical. The correlation should be created in the heads of the inhabitants to see the bigger connection of the zones and to see them as a unit. The mindset should start from space and end into culture.

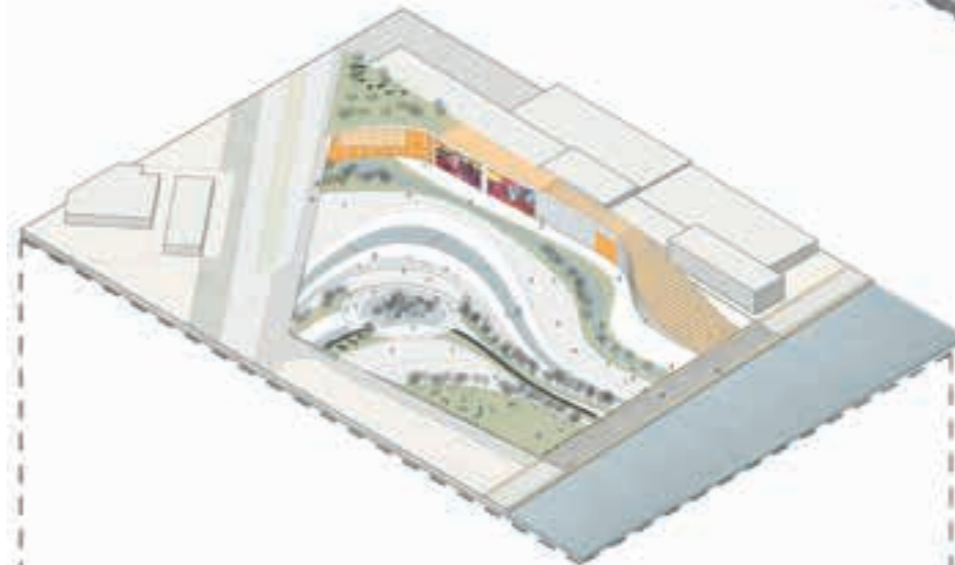
COMMUNITY

The most important factor are the people and therefore the community is a crucial part of the project. Just by changing the mindset of the locals it is possible to truly connect the city to the countryside. Therefore, both in Spoordok as Hegewarren new meeting points, cafés and spaces to exhibit are created to give people the opportunity to meet and feel part of the area.



LANDSCAPE

The idea of creating and letting landscape evolve comes with the idea of letting water in, because it has become our reality to work with water instead of against it. In the city this happens by creating a recreational area, a waterpark, which if needed can act as a waterscape to retain water. In Hegewarren the water is let in to avoid the high costs of pumping the water out of this sinking zone. Through that a water exhibition is created which is a mixture between water channels, dryer islands and wetland.



• aqua
- tu in •



Activating the blue line

Spoordok is today an industrial area with close connections to the inner city of Leeuwarden. Despite its central location it is experienced as a detached area of the city, mainly because of its strong borders. The main ones are the railway, the canal and the car road. The area is also somewhat unavailable within because of the dominance of the car and the lack of sense of place.

The starting point of developing Spoordok is to create a series of public blue/green areas towards the waterfront. By focusing on designing intimate and inviting outdoor rooms, the area can be appealing for both the area itself and the city at large. The strategy of activating the existing blue lines in the city and the countryside

can further be applied in the future development of the city of Leeuwarden and its surroundings. The blue lines constitute a continuity in the landscape and can enhance the relationship between urban and rural areas.

Along the blue lines stretches a continuous recreational park. The green pockets have different characteristics and functions that do not need equipment or money. A mix-use program is applied to activate the area over a longer period over the day and to reach more user groups. The bottom floors contain commercial and cultural functions to open up the buildings. The upper levels contain offices and apartments.

A project by Viktor Boag, Anna Ridder, Jihyun Lee, Soojin Yoon, Arvin Nadimi



1. Geographical park 2. Main Square Park
3. Swampy Park 4. Commercial/residential buildings

GROUP 2



A1



A2



A3



A4



A5



- 1 Harbor
- 2 Riverside Seat
- 3 Harbour Plaza
- 4 Harbor Service/ Commercial (Renovation)
- 5 River Taxi Station
- 6 Floating Narrow Trail

- 7 Residential/ Commercial
- 8 Office/ Commercial
- 9 Swampy Park
- 10 Residential/ Commercial
- 11 Residential/ Commercial
- 12 Frontyard

- 13 Residential/ Commercial
- 14 Watersports Deck
- 15 Hilly Park
- 16 Greenhouses
- 17 Courtyard
- 18 Residential

- 19 Residential
- 20 Residential/ Commercial
- 21 Residential/ Commercial
- 22 Residential/ Commercial
- 23 Residential/ Commercial
- 24 Geographical Park

- 25 Residential/ Commercial
- 26 Residential/ Commercial
- 27 Residential/ Commercial
- 28 Restaurant
- 29 Restaurant
- 30 Residential/ Commercial

- 31 Swimming Pool
- 32 Main Square Park
- 33 Cafe / Greenhouses
- 34 Residential/ Commercial
- 35 Office/ Commercial
- 36 Office/ Commercial (Renovation)

- 37 Office/ Commercial
- 38 Cultural (Renovation)
- 39 Office/ Commercial
- 40 River Taxi Station
- 41 Waterplay Park
- 42 Bridge
- 43 Welcome Park



SOFT CITY

Lisa Wang, Jan Richert, Line Søren
Thomas Jørgensen and the team

Families, elderly and couples all have different reasons to prefer life in the countryside over the city. Nevertheless, transportation and distances in everyday life tend to gravitate these people to the convenience of city life. The concept of Soft City aim to bring the qualities of the countryside into the city of Leeuwarden in order to allow a countryside lifestyle in an urban setting. The needs and wants of a fictional family of seven has helped identify desired countryside qualities.

Soft City is based in Spoorblok, today an industrial area situated next to the city centre of Leeuwarden. The area is located next to the central station and can therefore be considered the "first entrance" to the heart of the city.

Hence, it is a place where great care needs to be taken. What is done here can serve as an example for the development of the rest of the region.

The Spoorblok area mostly consists of private properties and large stretches of unused ground. It is physically close to the city centre, nevertheless it is poorly connected to it and isolated by the canal and the railway that stretches along the site and creates a boundary to the residential area and greenery on the other side. At first glance Spoorblok might seem grey but a closer look reveals a lot of opportunities.

The waterfront has great potential if made more accessible. The large open spaces can serve the city with greenery instead

of asphalt and the close relationship to the city centre can be enhanced by fairly simple means.

Soft City visions how Spoorblok could turn into the flourishing urban area filled with the provincial qualities that the family imagine. It takes on a naive approach in order to enhance a conceptual idea of "soft values" and cast light on a broader discussion of how we think of urban development. Inspired by the Swedish concept of "right to common", focus has been put on social borders, as well as, accessibility to greenery and water recreation.

Rather than bringing in heavy structures the area has been shaped through acupuncture of six interventions of different scale. The interventions are countryside qualities modeled to be applicable in an urban setting. They include green structures, blue systems, energy efficiency, transportation, seating and light. The interventions are used as tools to propose a conceptual strategy for the development of the Spoorblok area.

SOFT CITY



GARDEN

In the countryside there is a lot of open green space and each house is connected to a horizontal garden. In the Soft City we give each apartment its own green space by constructing a wide gallery functioning as an elevated garden.



DIKES

The dikes facilitate the stormwater in the countryside. This also enriches the landscape with biodiversity, both among vegetation and animals. In the Soft City, the landscape is exposed with much denser circulation, therefore the main walking paths are elevated to protect and to keep the untouched feel of the vegetation. The paths are placed next to the dikes to make the water present throughout the walk.



ENERGY

Many single households have self-sufficient energy systems, using local natural resource in the countryside. Today's technology enables an even more efficient energy system. In the Soft City buildings are using solar panels to gain heat and water to transport it. Multiple residential buildings can use one energy system and thanks to water storage all produced energy will always be used.



SEATING

A private pocket space in the countryside often consists of a bench towards a wall, that enables one to sit in the sun and at the same time be sheltered from the wind. In the Soft City, this quality is interpreted as a wind-protecting bench. The bench can be rotated and are therefore easily adapted to shelter against the wind from all directions.



DECK

The boatlife is important at the countryside and the boat is often placed within a walking distance from the front door. In the Soft City, the residential buildings are connected to the water through a common deck. The deck functioning as a boat stop as well as a bathing facility. A public boat allows everyone to take part of the boatlife and it also introduces a new way of transport in the city.

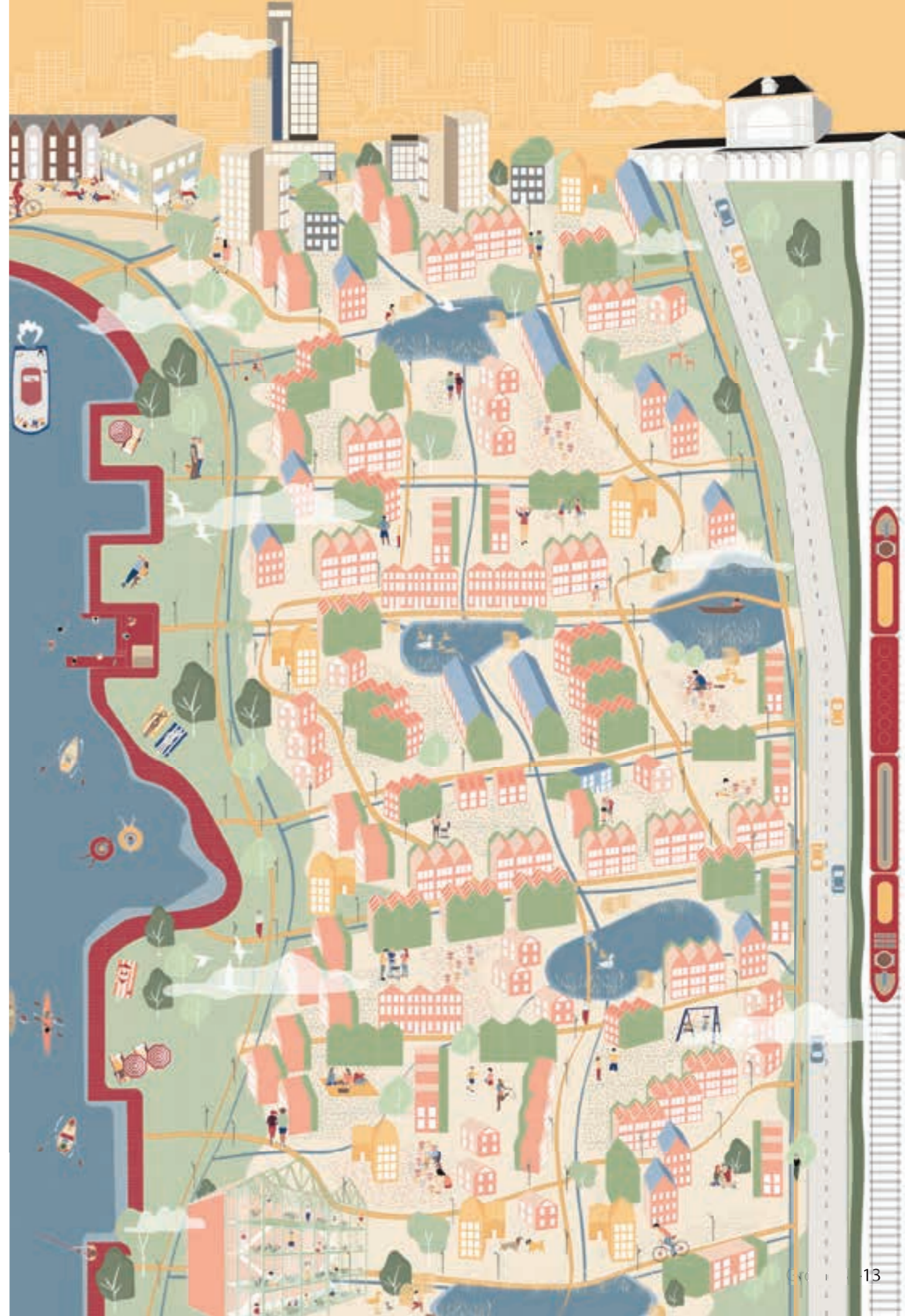


LIGHT

A walk in the forest is orientated by the trees and the amount of light varies throughout the day. The same feeling is represented in the Soft City, the street lights have a design language reminiscent from the nature. The lower light is constantly lighting up the paths as a "moonlight", and the upper lights is controlled by sensors and are therefore mostly off during the night. The energy is coming from solar panels, that the pillar can store, this provides a possibility to charge devices for people passing by.

SOFT CITY

GROUP 3



THE LINE

A BOTTOM-UP DEVELOPMENT IN THE MEANTIME

Jenny Lindberg, Karolä Schaefermeier, Martin Blivik, Matthew Patrick Bryan and Oli Gie Kristjansson
Lund University, 2020.

"I am able to take wherever I can reach the countryside in 15 minutes, boat that."

"The city center of Leeuwarden is really charming but I am looking forward to what will happen in the Spoordok area!"

"To be able to eat food that is locally produced are a huge advantage for you and the climate!"

"The possibility to ride my boat from the city where I live out in the landscape is amazing!"

"You can see the sun turn into energy and crops growing in close proximity to where you live, that adds a certain quality to life."

"With the new incubator in the Spoordok area interesting ideas are exchanged every day."

2h with train to Amsterdam

To unlock the potential of the Spoordok area, we want to draw a line – the Line – connecting its various disjunct parts and making it entirely accessible for pedestrians and cyclists. By enabling people to safely cross the railway, we open up the city to the suburbs and to the rural landscape and vice versa. The Line itself begins as a modest endeavor – as simple as a 3-meter-wide strip of paint on the asphalt – and necessarily so, for costs and budget are the primary challenge in getting this project off the ground (literally). The Line is to be painted by the people, perhaps as one solid color but preferably as a conglomeration of illustrations, messages and symbols. It is possible – and we believe likely – that the Line will soon manifest three-dimensionally as

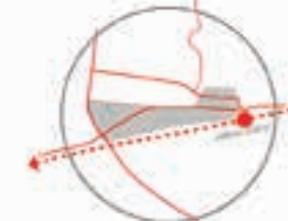
sculpture and structure, perhaps bridge and even tunnel. We encourage this. As important as the Line itself are its surroundings; We have identified a handful of buildings that should be reprogrammed to capture new public energy created by the Line, including a youth activities center and a start-up incubator. Increasingly vacant parking lots will transform to host festivals and food-markets. For Spoordok to absorb and embody the cultural identity of Leeuwarden, we must invite the people to take part in the process, to make Spoordok their own. Our approach is low-cost and high-impact – a series of grassroots, bottom-up initiatives. Small steps will bring Spoordok to great heights.



FIGURE GROUND



BLUE AND GREEN

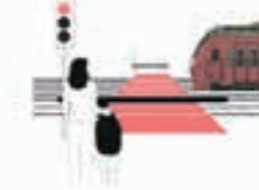
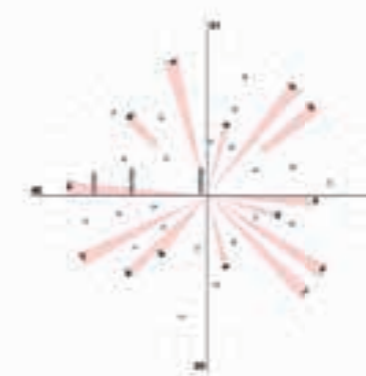


NETWORK

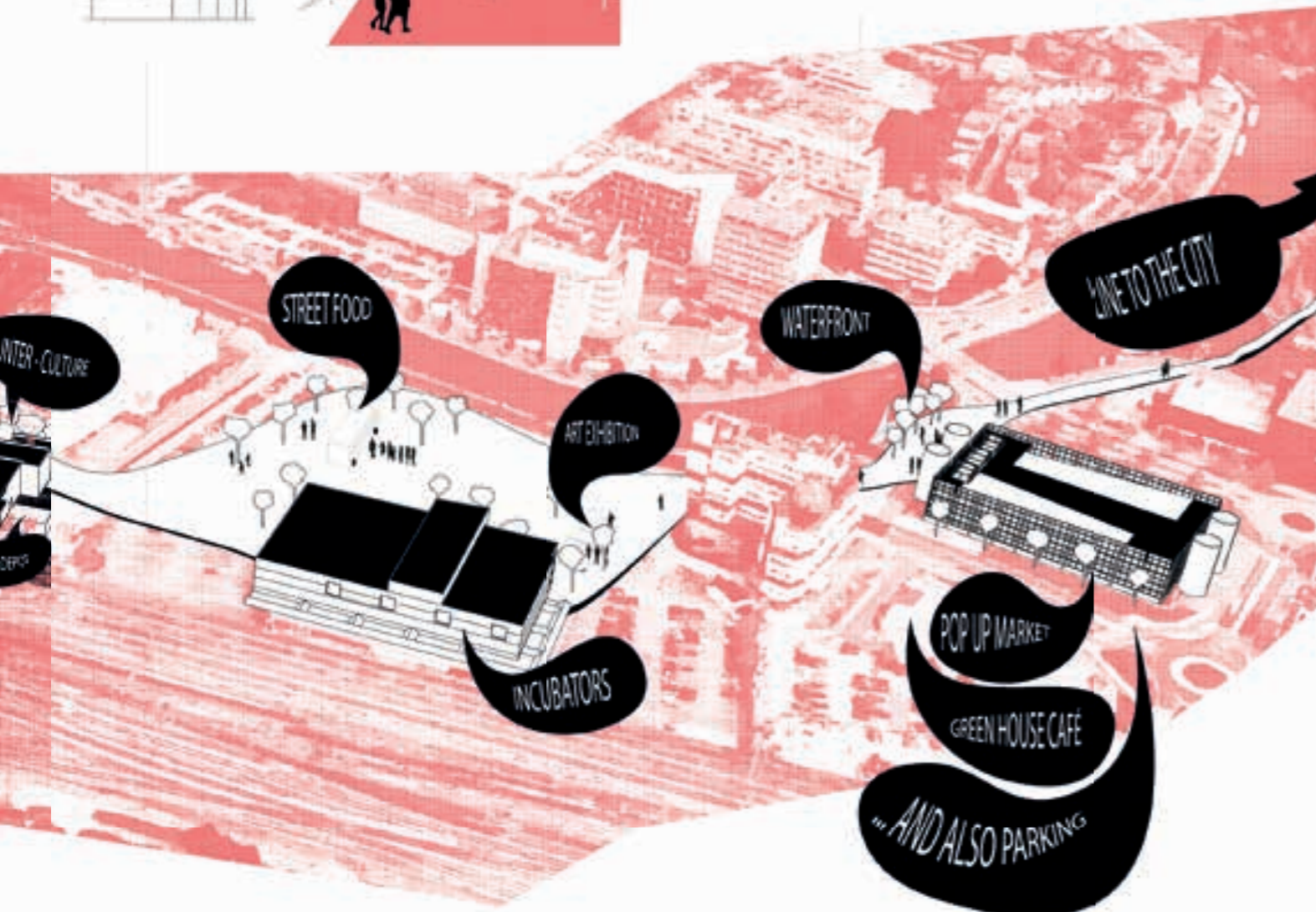
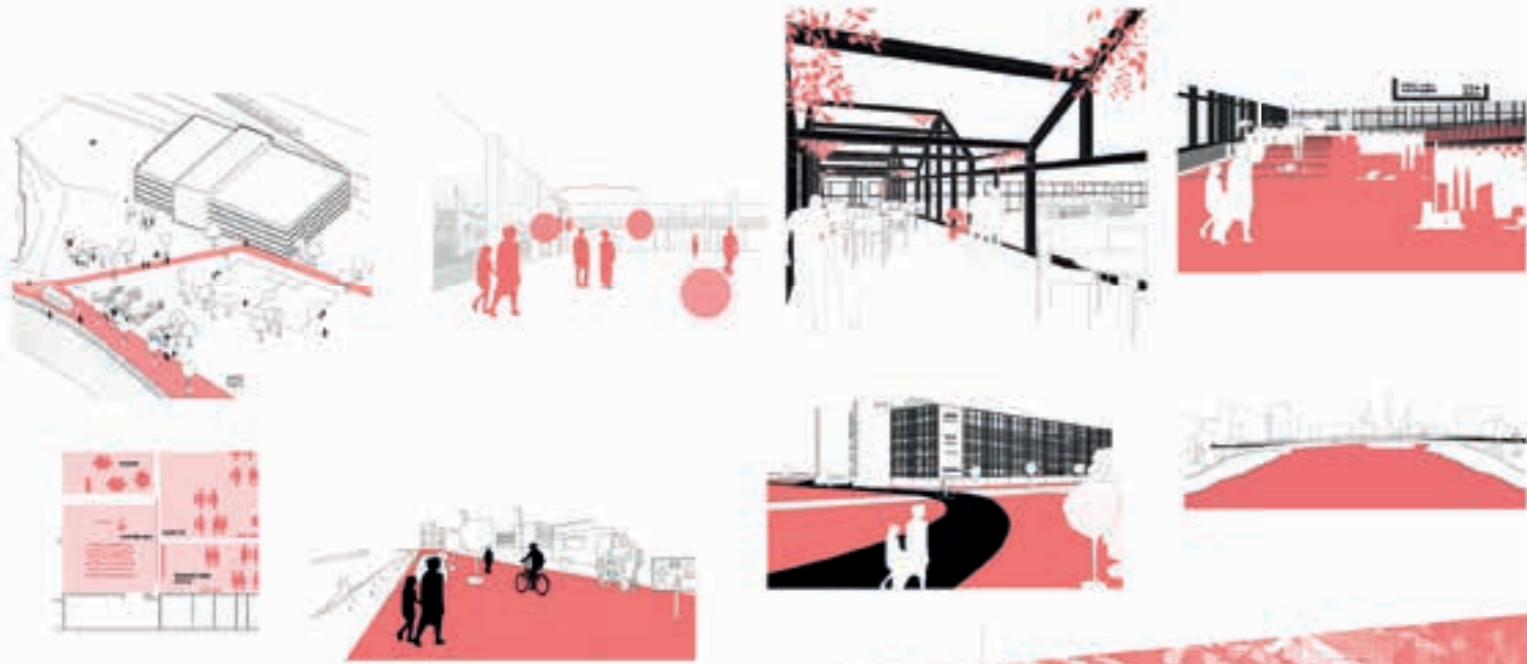


VUE

residential / school / parking
residential / school / parking
park / recreation



GROUP 4



Just south of the proposed track crossing, the former Sporthal Nijlan building is an artifact of recent history, once a lively public sporting complex but today only a vacant monument. Its bones are still good, and its graffiti-covered shell is an appreciable contribution to the landscape. Our intention is to manipulate mostly the building's interiors, restoring them to usable condition for youth sports and activities and thereby venerating the building's present exterior. In addition to its existing entrance on the east side, we envision a large public entrance on the building's west side. This way, one is encouraged to enter the building – from the Line – through the original east entrance, circulate within the building, and spill out through the west entrance onto a spacious public lawn. From here, vitality is transmitted further along the Line to the southwest as one moves away from the city center and into a series of increasingly rural park experiences.

1. SPORTHALL

We identified three important crossings along the Line which are currently absent but necessary in order to achieve continuity: north-south across the train tracks, Waterfront postal delivery location (Snekerrekweg), and across the canal into the city center. In order to connect the neighbourhood of Huizum – as well as Sportpark Nylän – to the northern part of Spoordok, we introduce a pedestrian and bicycle crosswalk across the railway. Movement is made safe and easy, and is encouraged in both directions. We see high importance in changing the traffic situation along the canal to open up the square for possible uses and get rid of the traffic barrier. To complete the 'Line', a more direct connection from Spoordok to the historic centre of Leeuwarden should be introduced by a pedestrian bridge behind the parking garage.



2. CROSSING



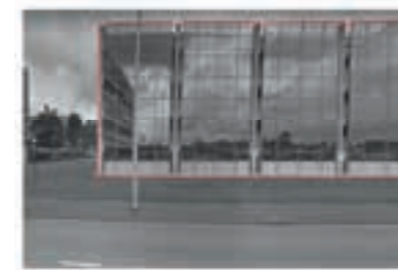
At the north end of the proposed track crossing is the Stadler depot building, a semi-active facility which serves train cars as they pass into and out of Leeuwarden. In consideration of newly proposed additions to the building – which lengthen the north façade and therefore increase the building's imposition on its immediate context – we suggest a responsive intervention. Recognizing the building's north-side zone as a potential plaza for Spoordok (partially walled in by two more neighboring buildings), we should enhance its qualities as a public space by taking a handful of low cost, high-impact steps: removing some pavement and supplementing it with street trees and other designed greenery, articulating a clear public path for circulation and promenade, and – finally – inviting the artist community of Leeuwarden to paint the depot's north wall, transforming it into a collective mural emblematic of Spoordok and the city. The result is to be a lively public plaza, and a grassroots manifestation of Spoordok's cultural identity.

3. STADLER

The former postal delivery location has been inactive as such since October 2018. We see a great potential in the structure; its concrete grid allows a wide variety of uses and is therefore easy to adapt. Keeping the building in its current form, we make use of the two main halls. The ground floor becomes a public pavilion in which art installations and events can take place. The top floor, a series of versatile office spaces, is to be leased as a start-up incubator, inviting young people and fresh ideas to the area. We expect that the square in front of the building (approximately 12,000sqm.) will be built on in future. Therefore, we suggest removing the fence and vehicles in order to open up the space for new purposes. Afterwards, short-term interventions should be implemented, including movable trees, a painted sports field and a food market to sell local products from the agricultural lands around Leeuwarden. Lastly, to enable a connection to the water, we propose to slow down the traffic along the street directly north, and to establish a shared surface on which pedestrians, cyclists and cars may circulate safely and efficiently.



4. POSTHUS



Our site analysis tells us that this facility is greatly underutilized. With the enormous amount of parked cars in the Spoordok area, we see no reason why this facility should not be at or near capacity most of the time. However, due to its prime location, there are opportunities for it to become something other than parking. On certain weekends, the ground floor could and should be transformed into a pop-up market for all types of goods and people. Additionally, with its great view over Leeuwarden, we suggest that a part of the roof becomes a permanent greenhouse-café and bar, so long as the drinks are reasonably priced.

5. PARKING HOUSE

Aquapuncture

Placemaking and mobile living along the waterways

Historically the rivers of The Netherlands served as a vital means of transport and general movement through the landscape. However, the dominance of road and rail as the preferred modes of transport in modern times has largely side-lined water as an effective and efficient means for transportation. Faced with the prospect of rising sea levels, effective water management must now form a key component of future planning for all areas of The Netherlands. In Friesland, a province where 40% of the total surface area is water, we propose working with the growing blue landscape and reclaiming the rivers as a dynamic living and working space: a network of floating communities.



Maud, Andreas and their two children recently moved their houseboat from the countryside to Spoorhoek as the new semester starts in school for their children. Andreas works with his photography and Maud works from home while the kids are at school. All the comfortable benefits of the city make life easier - plus everything they need is close by. When the semester ends, they will take their houseboat out on adventures again.



Dine, Floris and Owen are three students and friends who live together collectively in a mobile floating house. When they are not occupied by their studies, they enjoy cooking together and socialising with the people from the local community where their houseboat is situated. These young friends move their houseboat into the city for a change of scenery every other two weeks.



Alisa and Felix are a young couple who live and work in the floating market. They own a floating house connected to the market which provides a home and enough space to run a small arts and crafts shop. In the evening, the couple go out to explore the market and try out new food from different cuisines around the world.

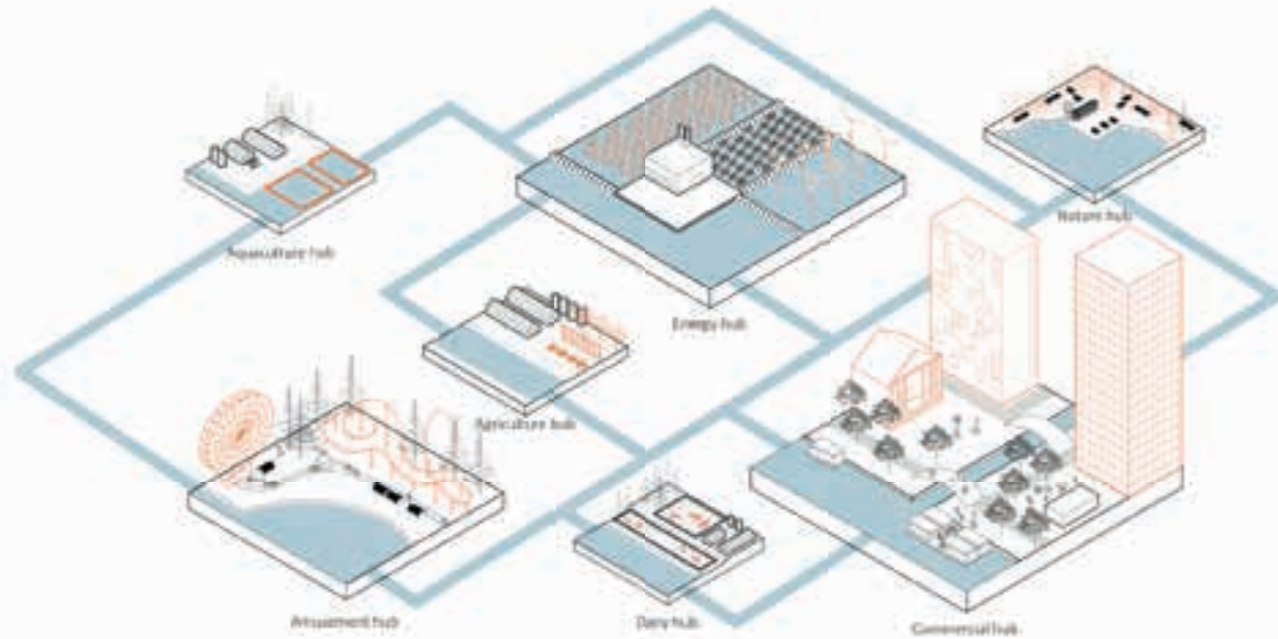


Farmer Alex spends his day working in an eco-agricultural community. When he finishes his work in the evening, it is only a short walk to his houseboat where he spends the rest of his day working on his artistry. During the weekend, he takes his houseboat to the floating market nearby, where he buys groceries and new clothes.



Elja is a full-time employee and consultant at the solar farm located in Hageweeren. Her work requires that she lives in the local community in Hageweeren and needs to be available at all times in case there should be any problems with the solar farm. Every morning Elja takes her boat out in the solar farms in order to make her daily routine check and maintenance.





Making the places:

Developing small communities, each built around specific interests or a set activity, would allow each community's inhabitants to be more engaged in their immediate area of expertise. Housing in each community would be primarily made up of movable floating structures which could also serve as places for work and small-scale craft production. The connection with the water in these communities would allow for connection, movement and the exchange of ideas and goods between these hubs. Living as part of this nomadic system would give inhabitants the freedom to choose their own context and surrounding based on their interests, needs and evolving circumstances.

Growth Strategy

- Finding suitable places connected to the water-system.
- Analysing the character and strength.
- Engage in placemaking and communal growth.
- Connecting different communities by movement along the water.



Aquapuncture example 1: Spoordok

- ✕ Restaurants, cafes
- 🌳 Marrying the city with the countryside
- 🏡 Healthy work-life balance
- 🏭 Sustainable industrial developments
- 🏠 Social and economic hubs



Spoordok is situated on the outskirts of Leeuwarden inhabited by large industrial buildings with highway roads. Lack of nature and human-scale makes it an unattractive place with no reason to visit. The water is present but unfortunately unapproachable.

The large warehouses have a potential to become new flexible, multipurpose buildings providing workshops for sustainable industrial development. Sinking parts of the city and adding wetland would echo the countryside fusing rural and urban spaces allowing for a more dynamic way of living.

Aquapuncture example 2: Hegewarren

- 🏠 Tourism
- 🌳 Expanding nature parks
- ☀️ Renewable energy production such as floating solar panels, wind turbines, algae for biofuel production
- 🐄 Animal farming such as dairy and meat
- 👤 Educating public on energy production. Transparent way of living



Hegewarren is currently inhabited by 7 farms on the verge of flooding. 400 000 Euros is spent each year on pumping out the water and maintaining the dykes. The close proximity to the 12000 nature park and the potential to serve as an energy production hub are two of the strengths in the Hegewarren area.

Using energy production as a design tool to create new 'communities', a dynamic flow reflective of everyday life including businesses, agriculture, energy production and mobile housing. A more transparent way of living.



The New Countryside

Renewed living inspired by blue zones

Amanda Kaplan, Jelena Delic, Stephanie Harudd & Linnea Lujak

The province of Friesland faces many challenges in the future. One is that the area is becoming too wet for agricultural activities and another one is the growing demand for flexible and temporary housing. This project suggests a solution for these two problems.

Currently, the cost to maintain the many dikes in Friesland is too high and it's only a matter of time before the pumps will have to be opened in some areas. Hegewarren, which is 400 hectares of farmland southeast of Leeuwarden, is one area that will be completely flooded when the pumps are no longer in use. Unfortunately, there is no salvation for the existing farming here. However, there can be a solution for the countryside. Today, the Netherlands has a large stock of cows. This has a negative impact on the environment, since cows release the strong greenhouse gas methane.

Animal breeding is also inefficient as it requires large land areas, which could provide food to many more people. In this project we present a new green lifestyle in the countryside, with hydroponic farming. The focus is on organic and locally produced crops together with small-scale farming. It's a floating and flexible project, where both housing and farming floats on hexagonal platforms. Renewable energy sources are of course used, so that the countryside can be self-sufficient and sustainable. The aim is to make Hegewarren to a unique and attractive place in its own way, and to make it a destination you want to visit and learn from. This project want to renew the countryside.

The coming water may look like a disadvantage, but it can instead be turned into an asset.



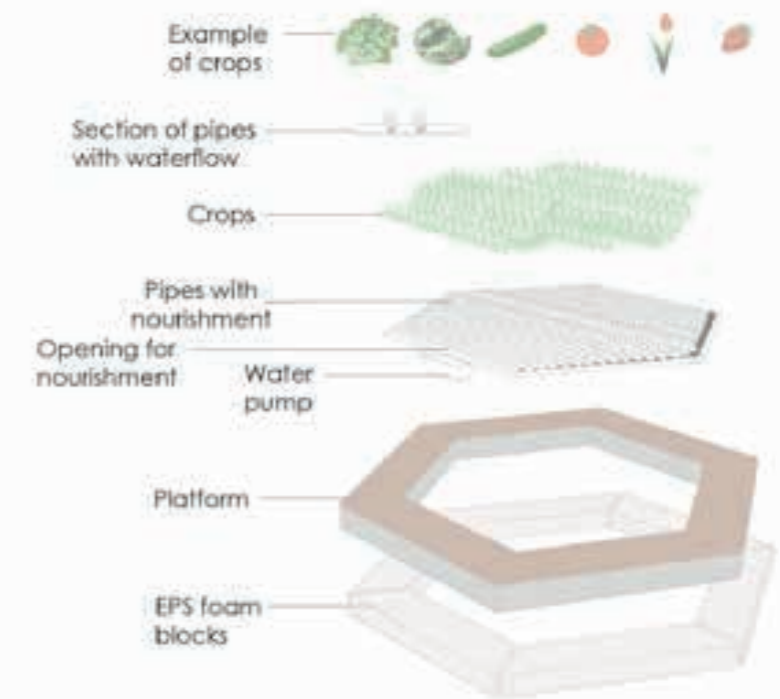
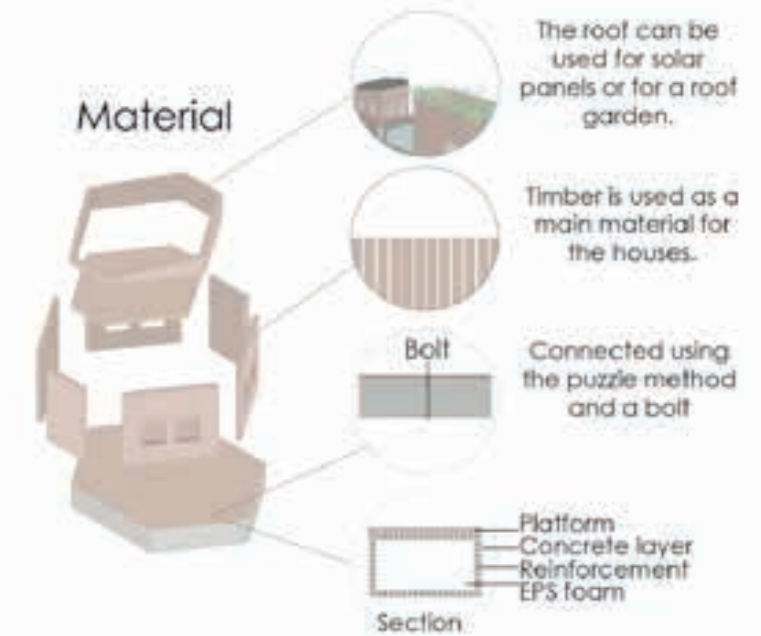
Platforms

Platforms with houses can be purchased as permanent housing. For the permanent houses, several platforms can be purchased to get a desired size of a house. One platform with a house can also be rented together with cultivation lots, for those who only wish to have a seasonal allotment.

Education is both for those who live and grow crops in Hegewarren and need help learning about the new way of growing, but also for visitors who come to Hegewarren.

Some roofs have solar panels and other roofs are green with terraces. It's important that the whole system with platforms produces enough energy to be self-sufficient.

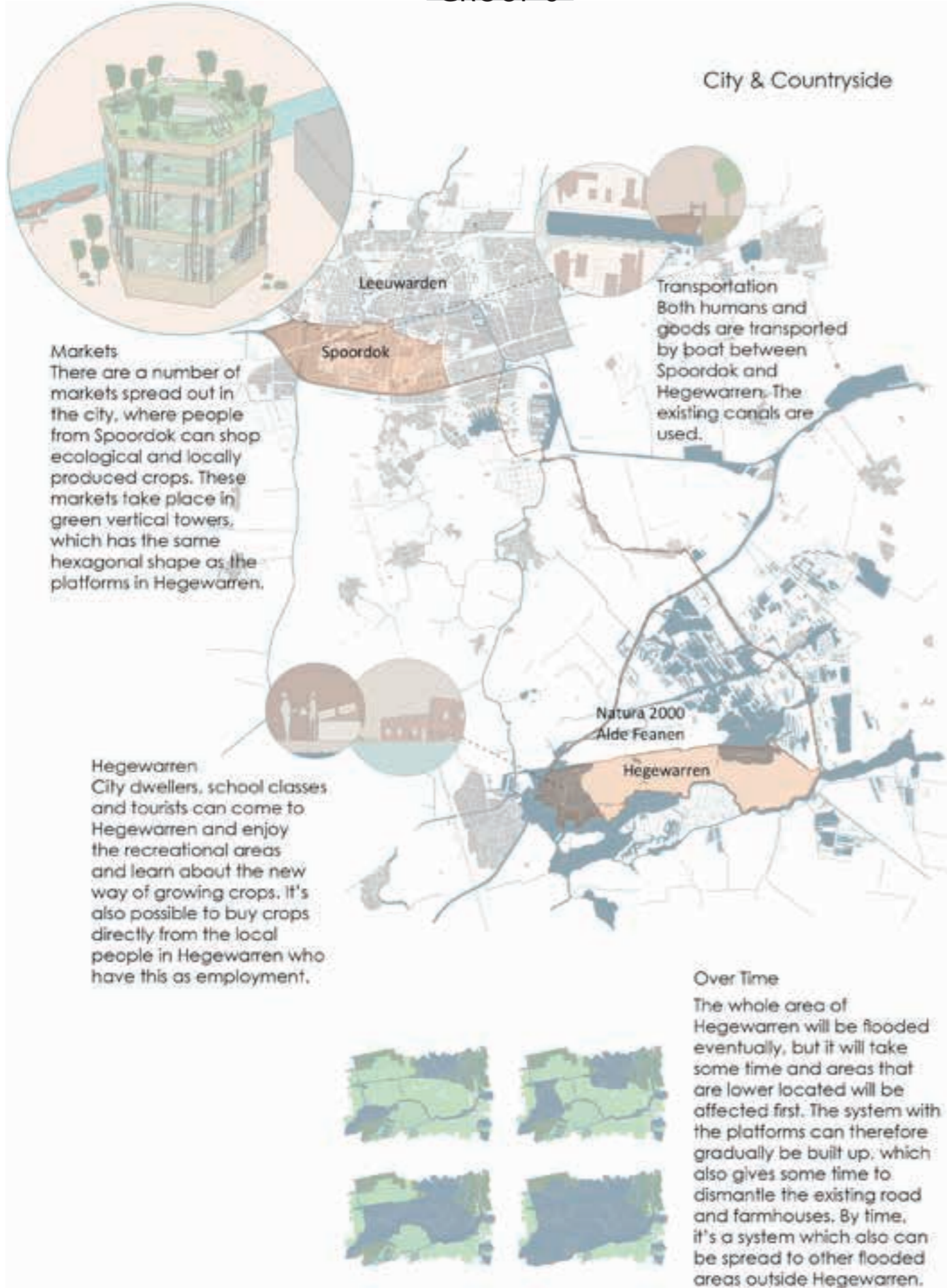
Each platform is 50 square meters. Some platforms have greenhouses, so that the farming can continue during all seasons.



Hydroponic farming with NFT (Nutrient Film Technique)

Hydroponic farming means that you cultivate without soil. The advantage with this way of growing is that crops grow faster in water, because the plants don't need to look for nutrition and oxygen. This can, for example, be cultivated with hydroponic farming: lettuce, cabbage, spices, flowers, green beans, tomatoes, cucumber, chili, strawberries, aubergine and other fruit bearing plants.

City & Countryside



COUNTERPOINT

Erik Odqvist, Johan Gullers,
Minda Son, Viktor Högberg, Yuchen Liu

CONTEMPORARY RUINS
GROUND TILES

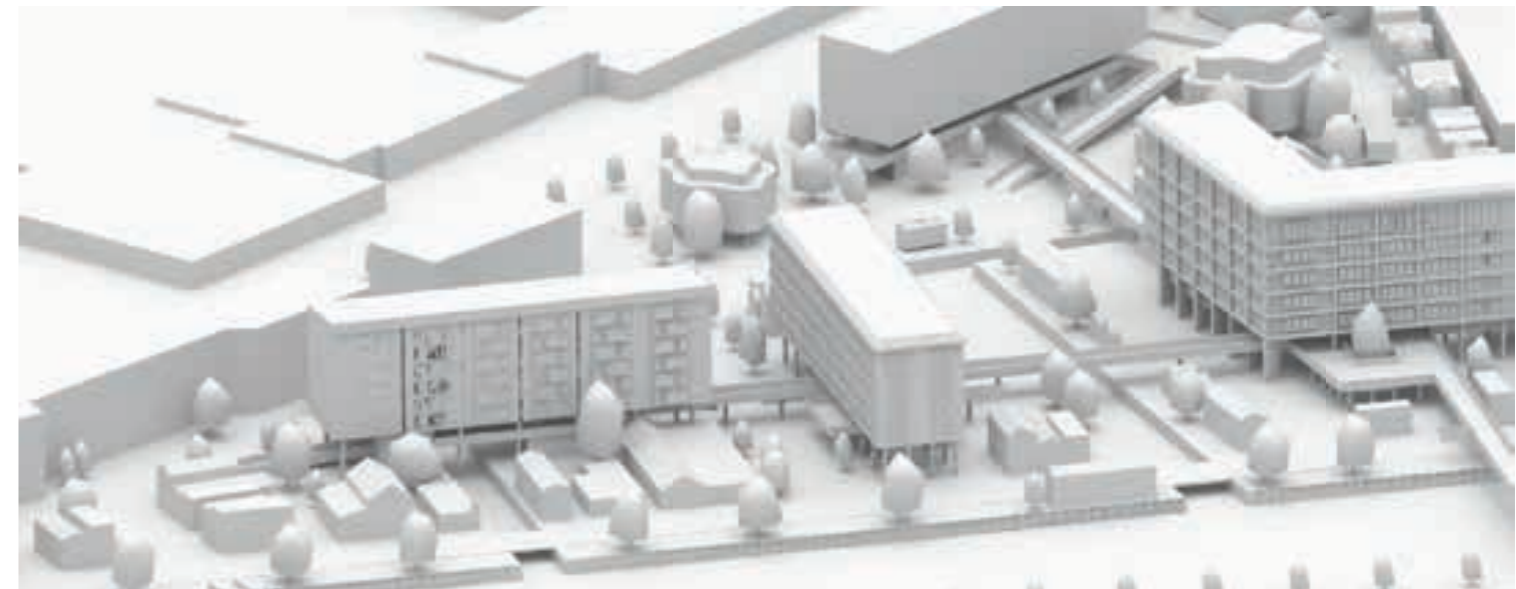
Spoordok is an old industrial area situated as a wedge in the city of Leeuwarden. Cramped between large roads, the railway and the canal it is cut off from the three neighbouring areas. These make up a triangle in which Spoordok could be developed as central link. We suggest a development that is planned concentrically and is integrated with the city. Not only conditioning itself through its radial relation to the city center. Creating bridges across the canal and over the railway establishes necessary connections. It's not about going from point A to point B for an activity or to stay for a while. It's about passing by, staying, living, observing. We are preserving small walls and ground tiles as a layer of history and

as a part of a temporal transformation. Working by adding layers the aim is to build a lively new neighbourhood. As the ground soil has been polluted over the years it will need to be cleaned. Phytoremediation, a process of using plants to get rid of contaminants, will be used to clean the soil. An idea borrowed from Café de Ceutel in Amsterdam. Still bringing use of the land for the city we want Spoordok to be an area that restores the earth, handles daywater and restores natural qualities.

We want to provide a place to live. Compartmenting the city so life can expand. The project aims to create a good living environment that follows the

economy of construction in terms of money, ownership and environmental footprint. A city that implements environmental solutions in construction and in layout affecting negative impacts of our way of life.

Spoordok has a long and slow healing process of its land. The larger structures make more permanent presence inhabiting this land. With pathways connecting. Above the ruins of the past. The new city will be layered in a temporal way, not erasing the past even if we do not consider the ruin as an important artifact of the past. It will give the place a narrative quality that is temporal. The presence of time is visible in form.



The small scaled layer consists of three types of buildings. The smallest consists of allotments, huts, patios. Temporary, short term uses, can be reconfigured on this 'fluid' groundlevel. Edible plants can be planted in pallet collars, small green houses. The second part consists of smaller townhouses built as lightweight structures that are placed in order to generate lanes and smaller courts. It provides for small businesses, restaurants, studios, cafes, galleries and shops. The third part consists a set of public buildings it provides for the local community as well as the city at large. Exhibitions, markets, kindergarden, playground. Institutional instances. Inviting people to Spoordok. The small scaled layer aims to generate city life.

The large scaled layer consists of large permanent wooden structures are placed above ground. Structural systems on stilts that accommodates apartments. They increase the density. These units sculpture the landscape. These will dictate the character and atmosphere on a larger scale of the area. It allows for the the public dimension to stretch and flow on ground level. A rational solution to allow softer values outside. These structures generates directions within the plan, shaping movements along the site through squares and courtyards and transversally shifting the rhythm of the border conditions. The large layer generates the image of the city.

The communication layer consists of a network of elevated pathways that are placed above ground connecting the big structures. It is a direct and formal connection internally but also expands and connects to the external. Above the water, above the railway, above the ground. Here you can bike, take a walk as you experience the different spaces and activities within.

The green layer on the ground level accommodates treatment of surface water., vegetation cleans the water and the soil in ponds and open patches in between remaining ground tiles. It provides for a process of regeneration.



ALLOTMENTS



TOWNHOUSES



PUBLIC BUILDINGS



APARTMENT BLOCKS



PROPOSED PLAN



THE BARRIERS GENERATES DISTANCE, A CUT-DE-WE' CONDITION



A WEDGE IN THE CITY



SMALL SCALE



LARGE SCALE



INFRASTRUCTURE FOR COMMUNICATION

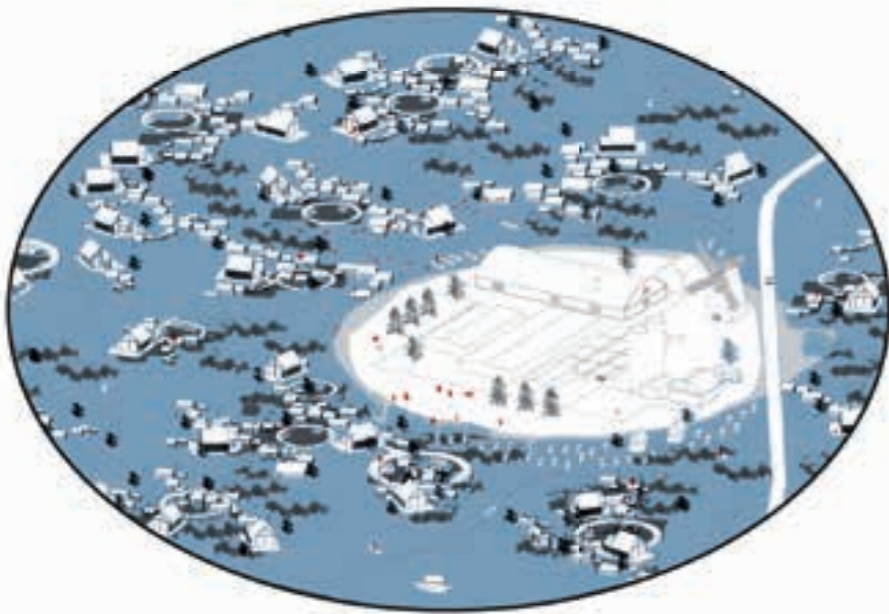


GREEN INFRASTRUCTURE

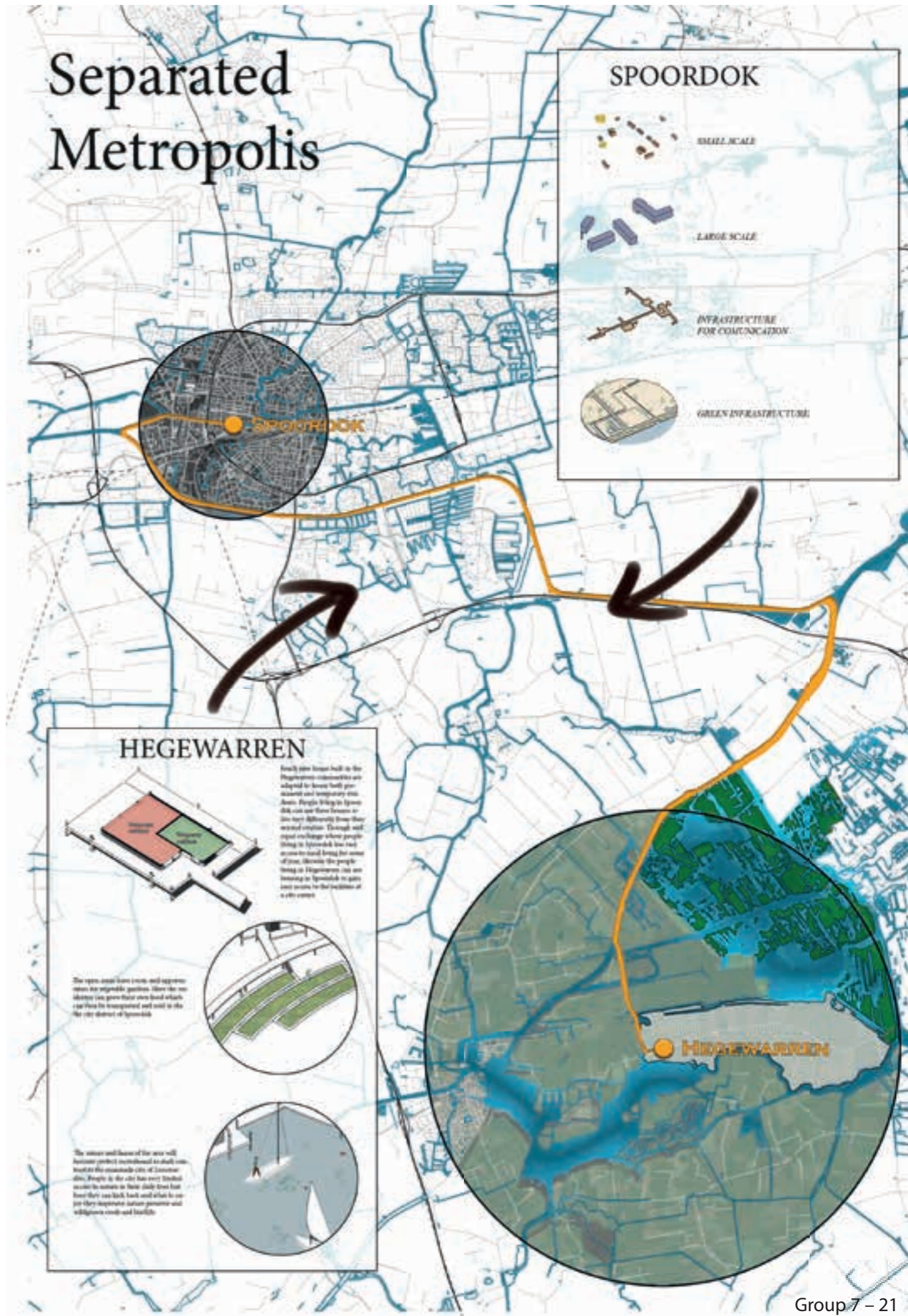


By removing the dikes on the north-eastern part of Hegewarren we transform the landscape. By flooding the old farming fields nature can freely reclaim the open areas. The rich wildlife can spread into the less regulated areas of Hegewarren where humans and nature meet. The western most part of Hegewarren will be turned into a hub for boat travel on the region. This will be the jumping off point for tourists and residents alike that want a more relaxing, slow-

paced way of life. From the old farms we only keep the foundations. These will be the small islands connected by wooden bridges and pathways. As most of the farmland is below the local water level it will for the most part be flooded, allowing boats to travel freely in the area.



Separated Metropolis



SPOORDOK

- SMALL SCALE
- LARGE SCALE
- INFRASTRUCTURE FOR COMMUNICATION
- GREEN INFRASTRUCTURE

HEGEWARREN

Small scale houses built in the Hegewarren community are situated in a beautiful green landscape and temporary one. As the people living in Spoordok can see these houses or the way differently than their own location. Through and equal exchange where people living in Spoordok can find some to build being for some of year. Outside the people living in Hegewarren can see housing in Spoordok and see how the buildings of a city center.

The open area have parks and green spaces are enjoyable gardens. Here the community can grow their own food which can then be transported and used in the city center of Spoordok.

The nature and beauty of the area will become perfect recreational as daily can find in the beautiful site of Hegewarren. People in the city can even benefit from the nature in their daily lives but here they can talk, look and what to see they experience nature parks and villages with and benefits.

SUBMERGE

HEGEWARREN : FRIESLAND

Across the whole of Friesland, the water is coming. The increasing costs of maintaining the dykes, the demand for densification, and the need to keep the peat soils below the water level creates a challenge for the Municipality as a requirement for change becomes inevitable.

Many of these enclosed lands accommodate farms. Whilst dairy and cattle farms undoubtedly contribute to the way of life in Friesland, they are becoming unsustainable due to the large amount of land required, the excessive emissions produced by livestock, and the rising cost of keeping the farms dry. This type of land use simply cannot last.

Our solution seeks to maintain the strong farming culture from the area, whilst adapting the product which is farmed. By submerging the land and letting the water in, this proposal aims to create a new biodiverse habitat for the Hegewarren area. By transforming the farms into wetlands, eelgrass can be planted and harvested to create profitable products which can be used in the building, food and biogas industry. This commodity can be distributed throughout the area, including Leeuwarden and the greater Holland area. Carbon emissions released by the peat and livestock are reduced, and a negative carbon footprint can be created by the growth of the waterweeds, which absorb CO2 when they grow.

Underwater farming is one of the fastest growing industry's in the world due to it's positive effect on the climate. It is also highly profitable, and allows for 'multi-crops' where more than one product can be farmed at once, increasing diversity and wildlife whilst also protecting farmers incomes.

- FAST GROWING**
- NATURAL CLEANER**
- IMPROVED WATER**
- NO FERTILISER**
- INCREASES**
- MINIMAL UPLIFT**

AN EXAMPLE OF FUTURE FARMING



POSSIBLE OPTIONS FOR FARMSTOCK



PROFIT THROUGH UNDERWATER FARMING



SMALL SCALE BIO-FUEL SOURCE

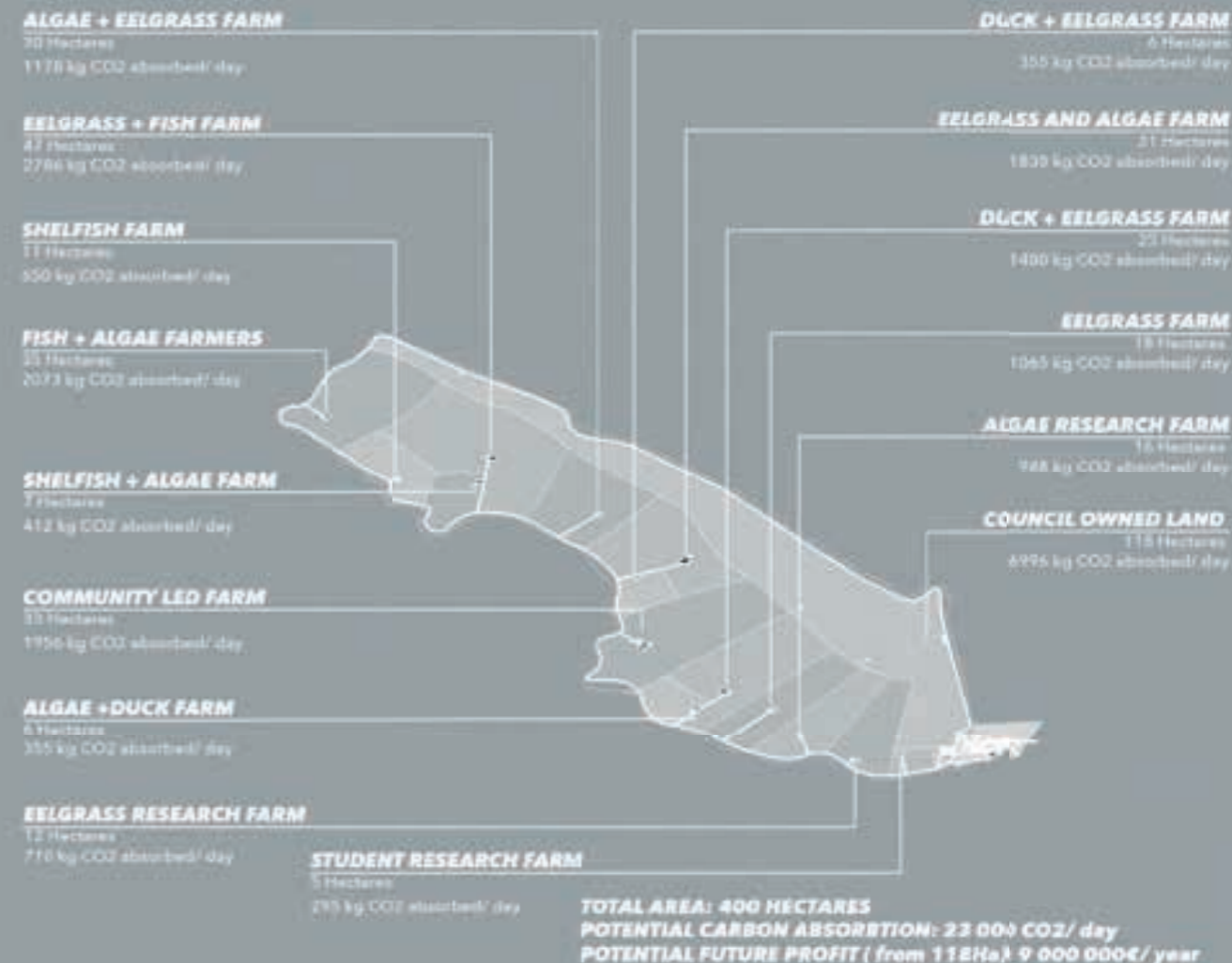


HEGEWARREN TODAY



*Some assumptions have been made in calculating the figures

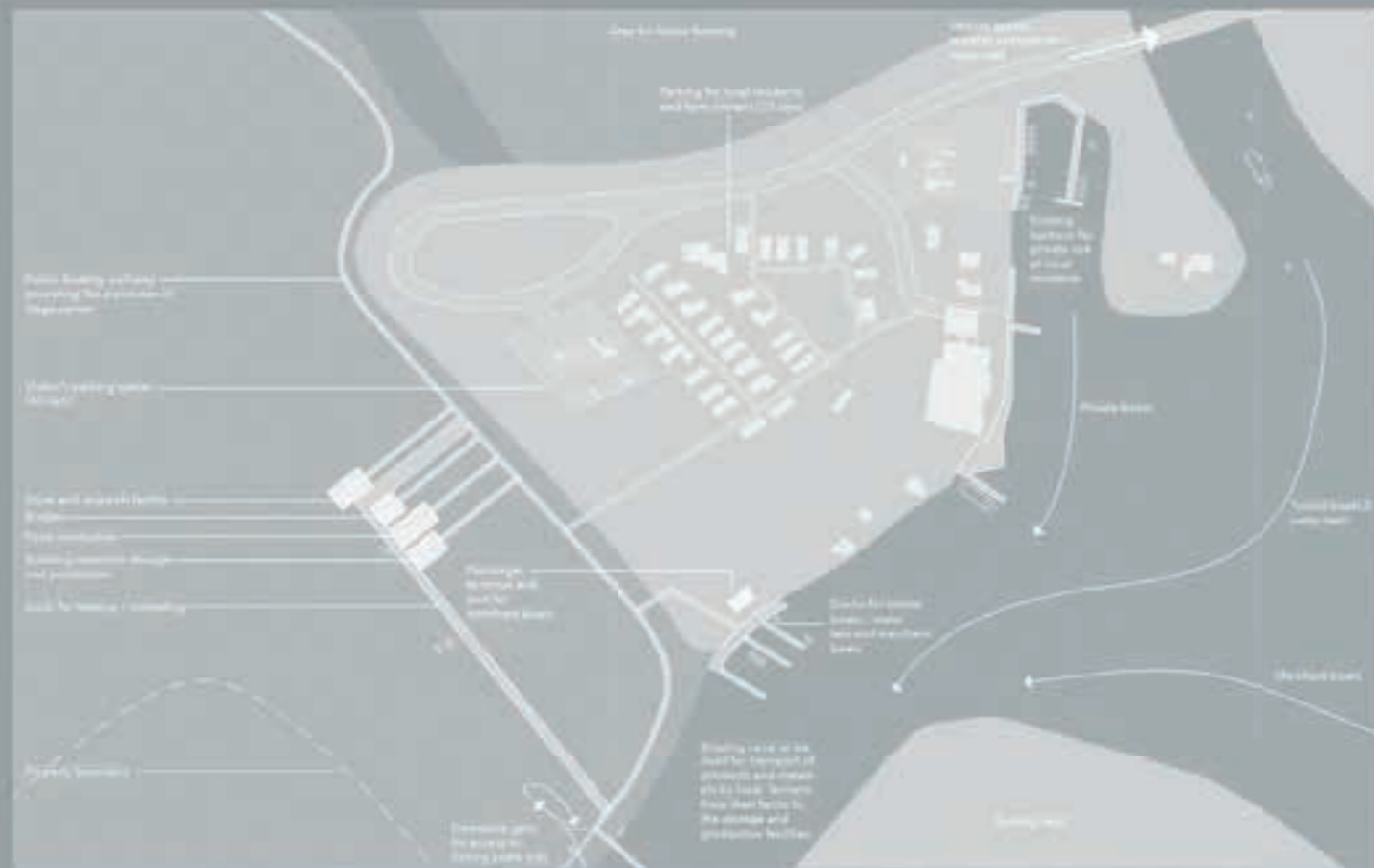
PROPOSED DEVELOPMENT



GROUP 8



THE RESEARCH VILLAGE



A NEW STYLE

CREATING A NEW IMAGE OF THE FRIESLAND AREA

Our proposal aims to densify the land, doubling the number of farms as a result of the low area needed by the fast-growing waterweed crops. The existing road through the site will be removed, and the dykes will slowly decay as the water takes over the land. New infrastructure including transport canals, a walking path, private canals and a parking lot will be introduced to the site, creating adequate facilities for the visitors and residents of the area. A village to the west of the site will house a community store and laboratory, a biogas facility, a food production warehouse and a building materials warehouse which can be utilised by all of the farmers, along with students, scientists, architects and the general public. This village aims to attract visitors from Holland and abroad, drawing people out of the city and into the countryside.

This proposal aims to connect the future Hegewarren site to the Water Campus at Leeuwarden by creating testing facilities in the village, along with council owned test beds of water weeds for research and exploration. The architectural style relayed throughout the Hegewarren area uses materials which are sourced and processed onsite. Eelgrass can be used to create building materials such as insulation, along with internal and external cladding. The processing facility for building materials will be used by scientists and architects to design, test and manufacture future building materials out of the eelgrass which has a negative carbon footprint, proving to be environmentally sustainable. Once these materials have been tried and tested in the Hegewarren area, they can be distributed to Leeuwarden and surrounding villages and will form a new distinct architectural style in the region.



Blue Urban Landscapes

Anastasia Berg, Brendan Cooney, Daniel Rosengren, Simon Myklebust Sivertsen & Tobias Lundström
Lund University - School of Architecture

The Netherlands is one of many nations currently battling the challenges brought on by global climate change and sea level rise. However, within the region of Friesland there are specific complications relating to not only sea level rise, but also to centuries of agriculture and industrial practice. The rural landscape and farmland has reached a tipping point, the management of which has become unsustainable for future generations. This requires a sensitivity to Dutch heritage which is deeply integrated and unified with the surrounding landscape.

Spoordok Hege Warren



New Housing Areas

New housing areas in both Hege Warren and De Burd. We estimate that the areas will accommodate between 150 000 and 200 000 sqm of housing. South of the protected area of De Burd housing is planned as an extension of the city of Grou and linked to Hege Warren by ferry boat. The area is to be comprised of mid to high density housing typologies e.g. multi family homes, apartment buildings and row houses. Development on Hege Warren will be designed as a car free community comprised of lower density housing arranged in five "villages" along a central spine road featuring a wide variety of housing styles, e.g. row houses, stilt houses and micro homes.

The new areas will result in a clear connection both on land and in water between Grou, De Burd, Hege Warren and the area of Alde Feanen National Park. In addition, the harbour area for Grou will become a more robust city center through established blue connections to Leeuwarden, Hege Warren and Draachten.

Shifting landscape

The land is pushed, taking peat, then sand from the lowest part to the higher areas. The higher areas will be formed around the existing



farms, creating new terps for settlement. Parts of the dike is broken, removing the need for pumping in the polder. The fields south of the road is flooded, creating a new body of water through Hege Warren. The entire northern part of the old polder is absorbed into the Alde Feanen National Park.

Spoordok Blue Gateway

The site of the Ferry Link in Leeuwarden at Spoordok will be comprised of an iconic mixed use building which will stand as the blue gateway to both the surrounding region of Friesland and to Leeuwarden.



De Burd

Blue Connections

The shape of the Friesland region is defined largely by how the Dutch have managed water both historically and culturally. Through these systems the Dutch have maintained a cultural heritage that is in large part defined by the control and management of water which has been of great importance for agriculture and local and regional transportation. Today, these canals hold promise of new bonds and connections between city and nature, urban and rural. In an attempt to adopt these possibilities, a network of ferry links utilizing the existing blue connections are proposed inside the new development areas of Spoordok, Grou and Hege Warren.

Hege Warren



Floating solar islands

A system of floating islands was chosen for delicate integration of photovoltaic panels, which allowed to preserve the individuality of the environment. Floating islands surrounding the perimeter of the construction of photovoltaic panels mimic natural wetlands and provide a habitat for the growth of biofilms (the habitat of microscopic bacteria), which perform valuable work in water purification. The design allows the growth of wetland and terrestrial plants, providing a greater variety of plant species to perform important water treatment work.

The environmental impact will be softened by incorporating vegetation and public utility in the form of communal gardens where neighbors will have the opportunity to garden and cultivate seasonal crops.

The projected area can accommodate at least 40,000 PV panels, which corresponds to providing electricity to more than 2500 houses. The water area between the floating solar islands will be an area for recreational boats and small vessel connections.

Spoordok

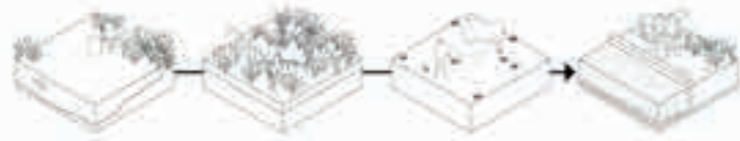
A new ferry link is placed at the intersection between the Spoordok area and the city centre, creating a new blue gateway to the city. This will also act as a strong base for the future development of Spoordok.

Hege Warren

Submerged land will be reclaimed from the polder and used to further build upon areas already above the current water level. These existing terps will be reinforced by new soil through a process of terraforming that pays homage to the centuries old tradition of terp construction seen throughout the Netherlands.



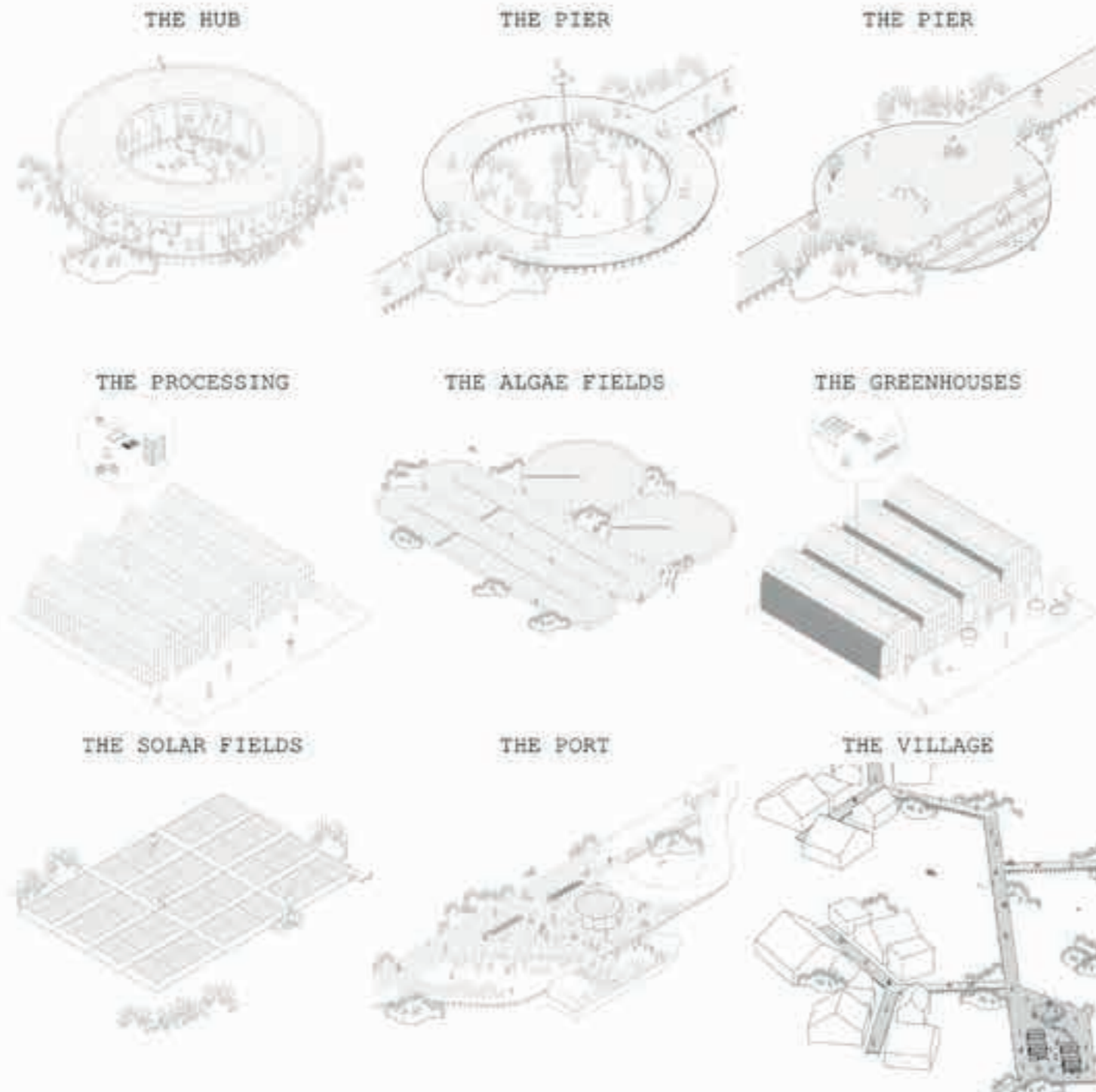
HEGEWARREN



Throughout the centuries different agricultural activities have defined the area. Both fishing and reed cutting has been professions that contribute to this special cultural landscape. Today, dairy farms are the main production in the area. They are surrounded by dykes to keep the land from flooding. However this is a very costly undertaking which can only sustain for so long. Therefore, we suggest that in the future, we keep on farming: But underwater.

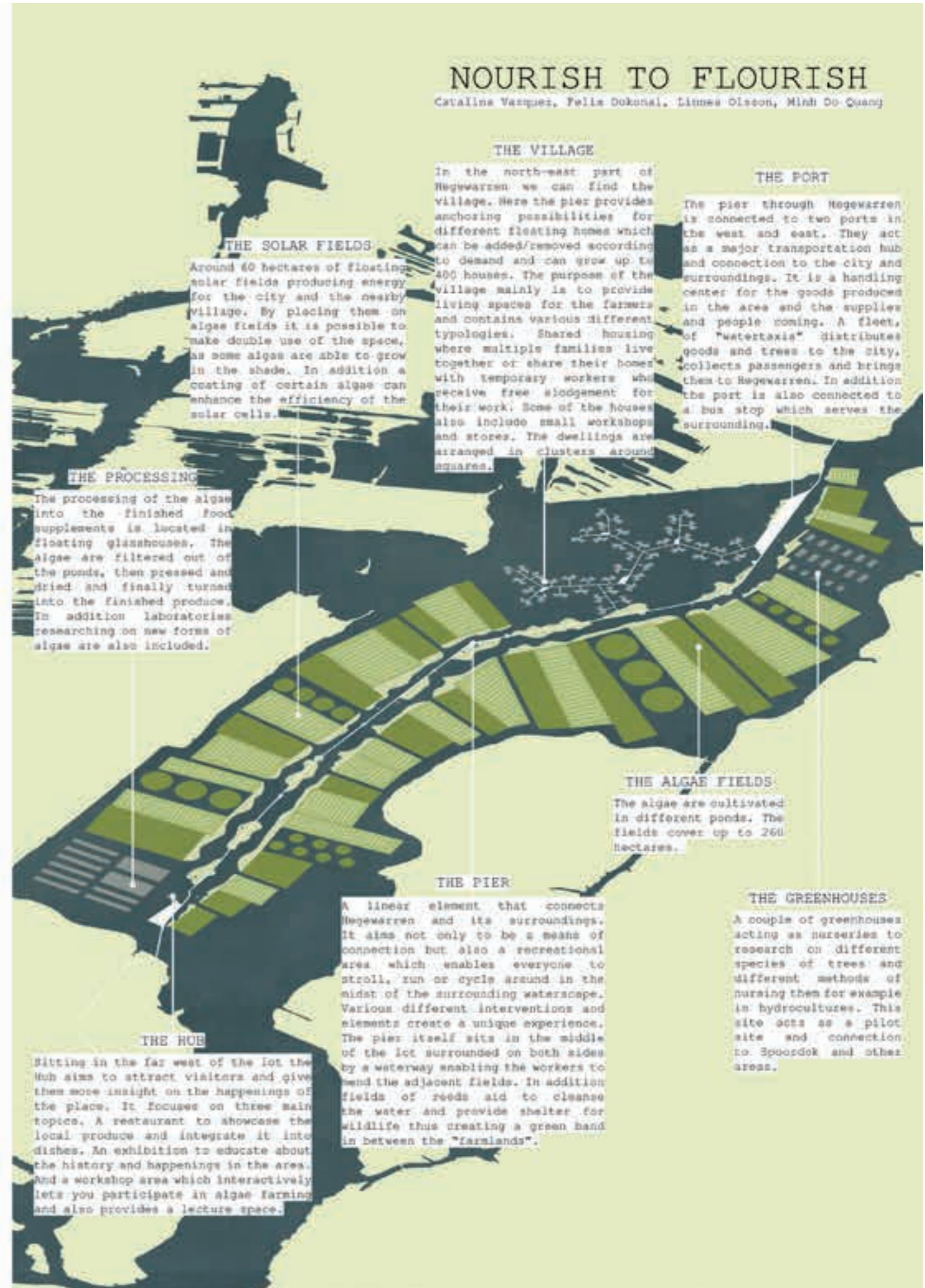
The dykes are broken down and a whole new marine farmland of several hectares of algae ponds emerge. The production of algae proves to have several advantages: algae are full of vitamins and proteins, as a coating they enhance the efficiency of pv cells, if fed to cows they can even reduce their methane production dramatically and so on.

This form of farming calls for new ways of transportation, recreation and dwelling in this waterscape. A series of "watertaxis" act as a connection to the city and help transport the local produce and people.



NOURISH TO FLOURISH

Catalina Vasquez, Felis Dokonal, Linnea Olsson, Minh Do-Quang



THE VILLAGE

In the north-east part of Hegewarren we can find the village. Here the pier provides anchoring possibilities for different floating homes which can be added/removed according to demand and can grow up to 400 houses. The purpose of the village mainly is to provide living spaces for the farmers and contains various different typologies. Shared housing where multiple families live together or share their homes with temporary workers who receive free lodgement for their work. Some of the houses also include small workshops and stores. The dwellings are arranged in clusters around squares.

THE PORT

The pier through Hegewarren is connected to two ports in the west and east. They act as a major transportation hub and connection to the city and surroundings. It is a handling center for the goods produced in the area and the supplier and people coming. A fleet of "watertaxis" distributes goods and trees to the city, collects passengers and brings them to Hegewarren. In addition the port is also connected to a bus stop which serves the surrounding.

THE SOLAR FIELDS

Around 60 hectares of floating solar fields producing energy for the city and the nearby village. By placing them on algae fields it is possible to make double use of the space, as some algae are able to grow in the shade. In addition a coating of certain algae can enhance the efficiency of the solar cells.

THE PROCESSING

The processing of the algae into the finished food supplements is located in floating glasshouses. The algae are filtered out of the ponds, then pressed and dried and finally turned into the finished product. In addition laboratories researching on new forms of algae are also included.

THE ALGAE FIELDS

The algae are cultivated in different ponds. The fields cover up to 260 hectares.

THE PIER

A linear element that connects Hegewarren and its surroundings. It aims not only to be a means of connection but also a recreational area which enables everyone to stroll, run or cycle around in the midst of the surrounding waterscape. Various different interventions and elements create a unique experience. The pier itself sits in the middle of the lot surrounded on both sides by a waterway enabling the workers to tend the adjacent fields. In addition fields of reeds aid to cleanse the water and provide shelter for wildlife thus creating a green band in between the "farmlands".

THE GREENHOUSES

A couple of greenhouses acting as nurseries to research on different species of trees and different methods of nursing them for example in hydrocultures. This site acts as a pilot site and connection to Sporsdok and other areas.

THE HUB

Sitting in the far west of the lot the Hub aims to attract visitors and give them more insight on the happenings of the place. It focuses on three main topics. A restaurant to showcase the local produce and integrate it into dishes. An exhibition to educate about the history and happenings in the area. And a workshop area which interactively lets you participate in algae farming and also provides a lecture space.

SPOORDOK

GROUP 10

The area of Spoordok is a very industrial and productive one. Nonetheless it contains a lot of underdeveloped or simply unused sites. We propose a strategy of keeping this theme of productivity by taking use of these abandoned or empty sites. However our vision of productivity is a green one because we are producing trees. Like the algae in Hegewarren, trees prove to be a great advantage for the cities due to their various climatic, healing and also aesthetic abilities. In three pilot sites we propose three different ways of integrating tree nurseries into the city. By creating new and nourishing existing common spaces, they will upgrade the surroundings and thus attract more people, letting the area flourish.



HEALING PARK MATERIAL PARK MARKET PARK



The proposed system of a symbioses between productive cityscape and productive rurality can be seen as a pilot site . It can be adapted to the circumstances of the relative area, i.e. salt water and sandy ground as opposed to fresh water and peat soil in Hegewarren. Therefore this system can be fit to all of the cities in Friesland thus creating an even bigger network of productivity and nourishment.

MATERIAL PARK
European Oak - *Quercus robur*



- absorbs gaseous pollutants
- supports high Biodiversity of insect and herbivores
- planted for forestry and produces a long-lasting and durable heartwood, much in demand for interior and furniture work.
- grow 20-30 m in height with diameters ranging from 0.4-0.8 m.

HEALING PARK
White Willow - *Salix Alba*



- phytoremediation use: their roots have demonstrated viability, accumulating lower levels of heavy metals than Brassicaceae, and they deal with Cd, Ni and Pb, and work even in mixed heavy metals like diesel fuel polluted sites.
- roots can hinder Erosion caused by flooding.
- in youth stage up to 2m growth per year in total 0.45m per year.
- grows up to 35m.

MARKET PARK
European Beech - *Fagus sylvatica*



- capable of reaching heights of up to 50 m tall and 3 m trunk diameter
- more typically 25-35 m tall and up to 1.5 m trunk diameter.
- in open locations, it will become much shorter (typically 15-24 m) and more massive
- 10-year-old sapling will stand about 4 m tall.
- lifespan of 150-300 years.
- recreational - timber
- growth around 0.7 m per year.

MATERIAL PARK

The material park is located next to the train tracks. Its aim is to provide construction wood for the area and at the same time integrating an amphitheatre.



In the first stage the existing flooring is removed and the soil is set free. Saplings from out of town nurseries arrive by boat to a nearby landing site. From there they arrive by truck and are then gradually put in place.



With the earlier removed stone tiles an amphitheatre is built. It is the perfect space for open air theatres, performances and cinematic screenings. Surrounded by ever growing trees it gives the perfect atmosphere. As the trees grow and are in need of more space some of them can be moved to start another material park.



Once the trees have reached the perfect size for construction they are chopped down and can be used for new constructions in the area. Whilst this is happening the cycle starts again and new saplings are being planted. This cycle can continue until a further development for the site is decided but it can also be integrated into the new planning.

HEALING PARK

The healing park is, as the name suggests, used to clean the soil from pollutants, which had been emitted by the factory building previously occupying the lot. The remains or ruins of the factory in combination with the trees create an almost romantic seeming recreational park. It also suggests to be a place for new temporary structures and pavilions.

PHASE I



The healing park starts of similar to the material park with the difference that not the whole flooring and existing ruins are removed. They remain and get surrounded by the newly planted saplings.

PHASE II



The healing park starts of similar to the material park with the difference that not the whole flooring and existing ruins are removed. They remain and get surrounded by the newly planted saplings.

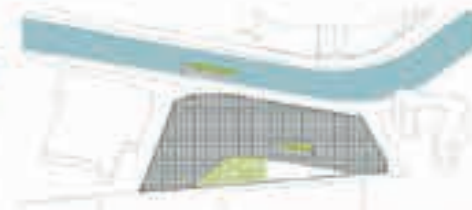
PHASE III



The ruins in the middle of the park prove as the perfect location for temporary structures and pavilions.

MARKET PARK

The market park gives a recreational park that contains a market square in its heart.



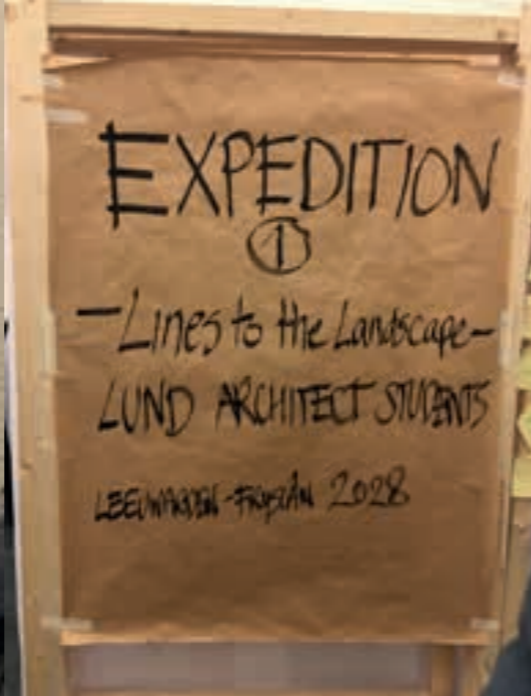
A temporary solution would be placing the trees with their pot directly on the already existing square. This way is a very cheap and quick alternative to digging the trees in directly.



However over time it could be favourable to dig the trees in more permanently as it gives them more space to flourish.



As the requirements of the lot change it is even easier to relocate the portable trees.



Impression of the field visits, the expert meetings and the design market at Leeuwarden during the visit of the Lund students (2-6 december 2019) and the final presentation - attended by the project-team - at Lund University (14-15 january 2020)



Findings and conclusions of the project team

The connection of Spoordok over the railway track relates a series of spaces and existing buildings creating an interesting and lively "line". As a result, Spoordok is suddenly located in the "center" (**The Line**). This is made accessible by a "cultural place making" consisting of cultural programs in and around 4 existing buildings. The line connects the city center via the Spoordok to the landscape towards Hegewarren, creating a first step in the future development of the area.

The transformation of Hegewarren provides a completely detailed strategy and architecture for a new form of "underwater farming", where eelgrass forms new food but also a new local building material. Research facilities and a visitors centre are planned in the area. **Submerge** is a proposal that includes a connection with Spoordok and Leeuwarden (water campus) through research and marketing of food products in the form of a floating food market.

Blue Urban landscapes: "Reversing" the physical approach of Hegewarren from the existing road from the east, by linking Hegewarren to the development of Grou. An interesting living climate is presented in the landscape from the perspective of the water town of Grou, in which living, recreation, energy production and nature development are convincingly combined around a new water space. By intensifying water as a transport medium the proposal creates a clear statement for a future typology of buildings in the city.

The introduction of a toolbox with 'soft' green/blue building blocks, which makes the area of Spoordok a kind of garden city after 'Swedish model', with a 'common space' inspired by the *allemanrätt* (**Soft City**) and a convincing impetus for an urban manual, with on the one hand a clear vision but on the other hand leaving enough room for a more flexible elaboration.

By involving the development of Spoordok in the larger network of green/blue veins and areas in the city (Prinsentuin/Potmarge), a public water zone will be created along the Spoordok. A spatial staging provides for clear zoning of a high density along the redirected access to the station into a public and hospitable water park (**Aqua-tuin**). The plan builds further on the landscape lines that are already present in the city.

Rethinking densification is a strategy which developed to be applied both in the city and in the countryside. It is based on a layered structure consisting of cultural connections and communities in the landscape. It demonstrates how in a substantive analogy with the SDG's (Sustainable Development Goals) spatial quality can be integrated with social and economic factors.

Aquapuncture is an approach to claim the water in all its possibilities by various users as a living space for working and dwelling. Water as a crucial part of the landscape becomes the connector between city and countryside presented as multiple lines into the landscape. through a strategy of activating the use of water by being punctured in strategic places it becomes a 'living landscape' on which people live in the future. Hegewarren turns into a test-site and a laboratory for the acceleration of experiments for a 'flowing future'.

In **Nourish to flourish** a new agricultural use is created as an accelerator for the transformation of the future landscape. Hegewarren becomes a kind of urban nursery in order to create a circular system where cities are depending on the surrounding countryside for health, food and wellbeing of their inhabitants. The proposal uses the aspect of time to grow qualities within the city while it makes a contribution to the experience of Spoordok and create an educational layer in the very interesting well concept for seaweed farming in the Hegewarren.

In **Counterpoint** the relation between city and countryside is not so clearly developed. The approach for Spoordok is one that takes the existing situation as a quality by adding new layers, both in scale and use to the city. The attempt is to visualize a more organic transformation of this industrial part of the city. The location in Hegewarren is as a counterpoint to this, designed as a new masterplan for floating communities, where living and agriculture can be combined in high density.

The new countryside is based on a radical transformation of the landscape due to the changing waterlevel. It creates the opportunity to innovative food production through floating farming. The flexible modules which are based on the knowledge tested in Wageningen University, creates a floating archipelago of small communities that inhabit the landscape. A green tower serves as a representative function within the city of Leeuwarden, where people can buy the harvest of the new countryside.

"Lines to the landscape" is part of the upcoming programme for Panorama 2028. The pilot expedition between Leeuwarden and Hegewarren is a collaboration between Lund University, the city of Leeuwarden and the province of Fryslân.

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