P5 PRESENTATION

STUDENT Hanneke Wander

FIRST MENTOR Laura Cipriani

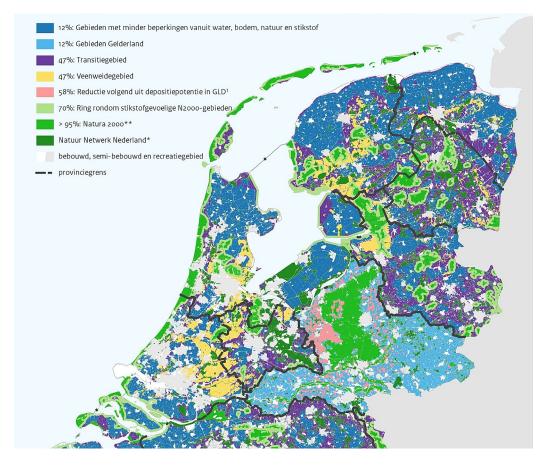
SECOND MENTOR Luisa Calabrese

EXAMINATION COMMITTEE Jurjen Zeinstra

Academic Year 2021-22 3 November 2022 TU DELFT

Architecture and the Built Environment Department of Urbanism Section of Landscape Architecture





Guiding emission reduction targets per area.' Map: Rijksoverheid, 2022.

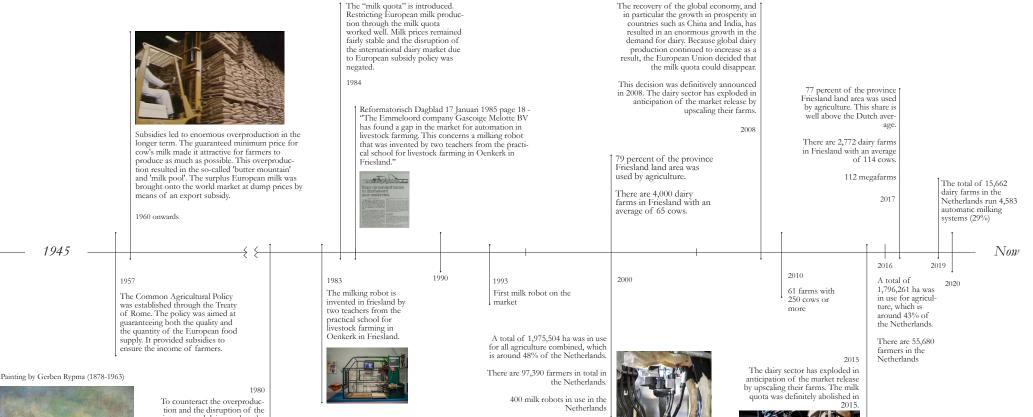


A farmer protest in Friesland Photo: Suzanne Lampe, 2022.

Land and Farmers Equilibrium

Restoring the balance between land and humans in Northern Friesland

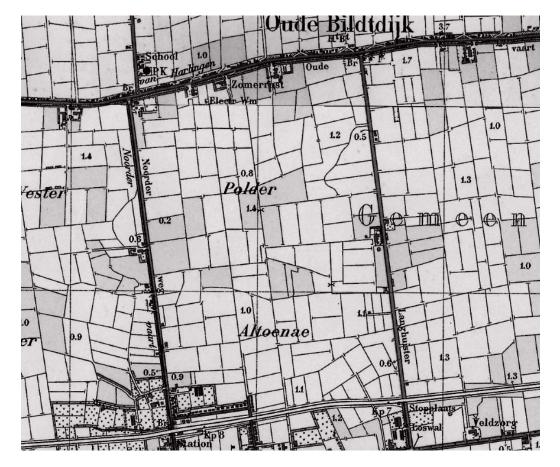






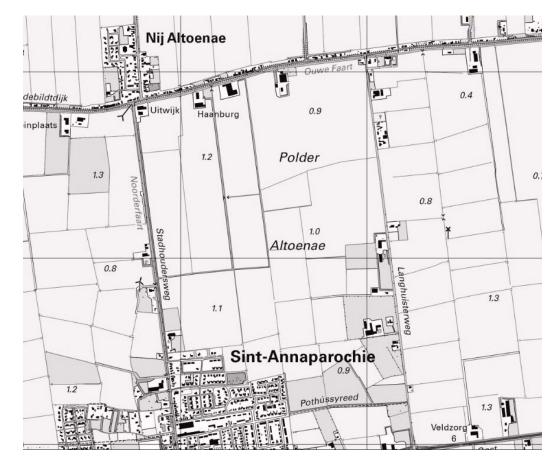
To counteract the overproduction and the disruption of the international dairy market, the European Community proposed production restrictions in the early 1980s.

Agricultural timeline after World War II



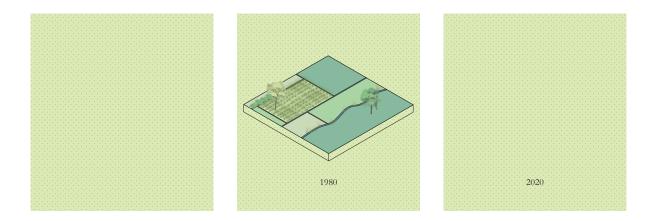
Allotment structure in Friesland in 1932

Map: Topotijdreis.



Allotment structure in Friesland in 2020

Map: Topotijdreis.



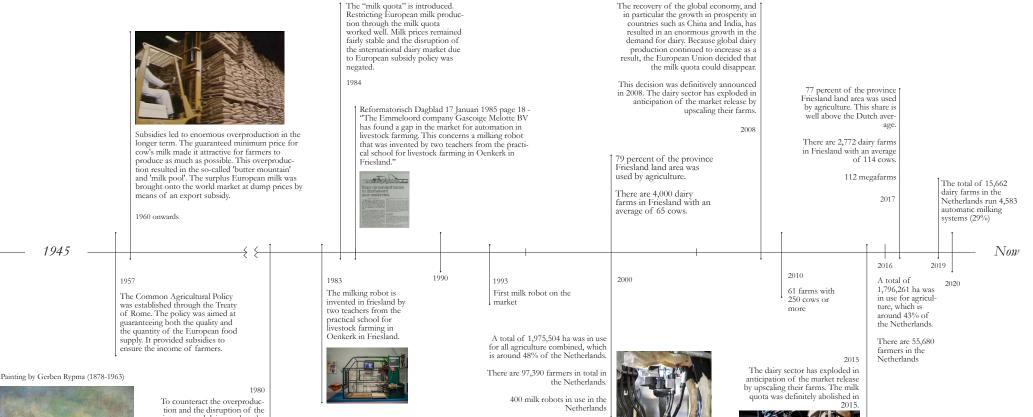
Loss of diverse landscape elements



Kop-hals-romp farm, (>1600), mostly present in clay areas Photo: Rijksdienst voor het Cultureel Erfgoed, z.d.



The barn at Hans Kroodsma's farm Photo: Author, 2022.





To counteract the overproduction and the disruption of the international dairy market, the European Community proposed production restrictions in the early 1980s.

Agricultural timeline after World War II

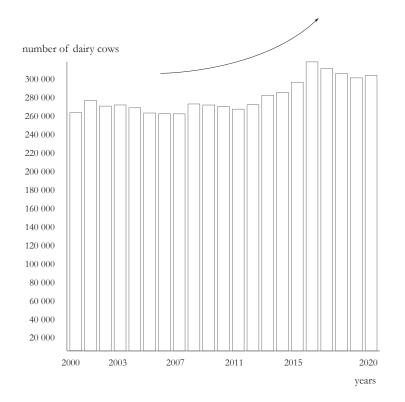


Surplus milk stored as butter in cold store in Beverwijk. Photo: Rob. C. Croes, 1986.

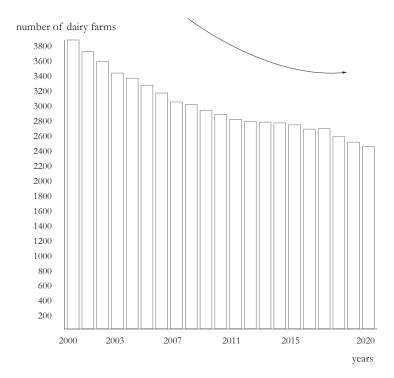
Protest against the milk quotum in 1984. Photo: collectic Anefo, 1984.

JEW

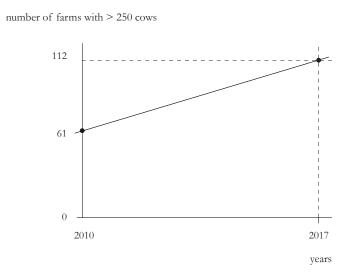
BEDRUVEN KAPO



Number of dairy cows in Friesland Data: CBS, 2020.



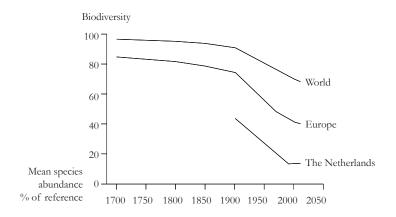
Number of dairy farms in Friesland Data: CBS, 2020.



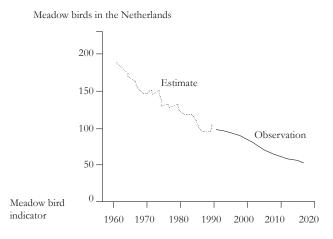
Growth of 'mega' farms in Friesland Photo: CBS, 2020



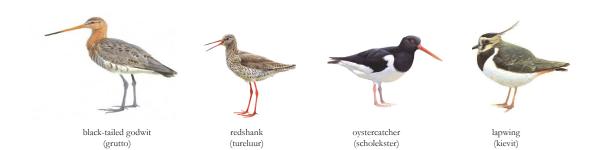
Mega' farm in Winsum, Friesland Photo: Dagblad van het Noorden, 2020



Biodiversity decline Data: Compendium voor de Leefomgeving, 2020.



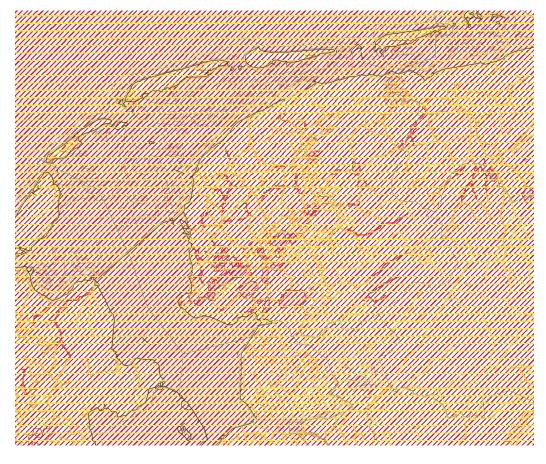
Meadow birds population in the Netherlands Data: Compendium voor de Leefomgeving, 2020.



Target species of meadow birds in Friesland

WELKOM THUIS GRUTTO

A 'Welcome home black-tailed godwit' banner is put up Photo: It Fryske Gea, z.d.

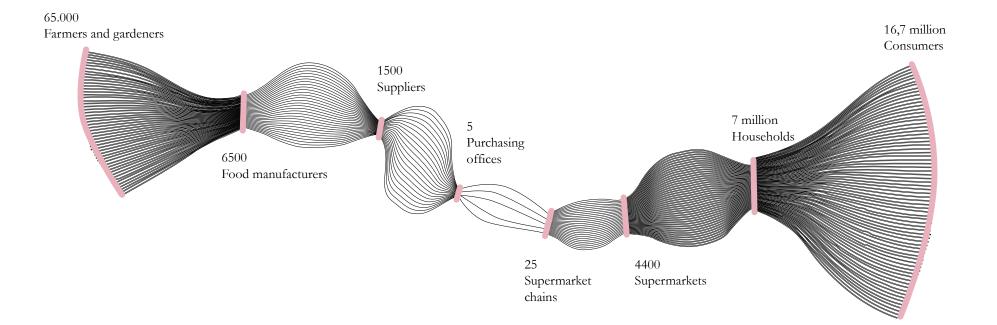


Ecological surface water quality





Blue-green algae in Friesland. Photo: Leeuwarder Courant, 2018.



The distance between consumers and farmers

Image: Planbureau Leefomgeving, 2012. Edited by author.



Protest at a bank Photo: unknown, 2021.



Hans Kroodsma Photo: Agrarisch Collectief Waadrâne, z.d.





Existing green structures Data: Nationaal Georegister, z.d.

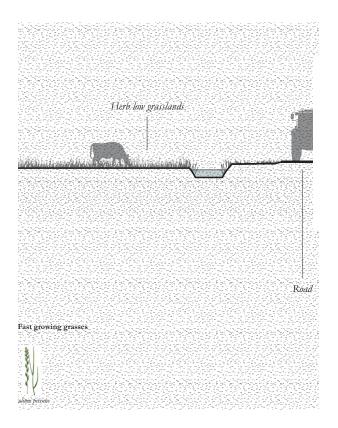
 \bigcirc Main water bodies Natura 2000 Waddensea Natura 2000 and Dutch Nature Network Sandy nature area Forest nature area Wet nature area

Ν

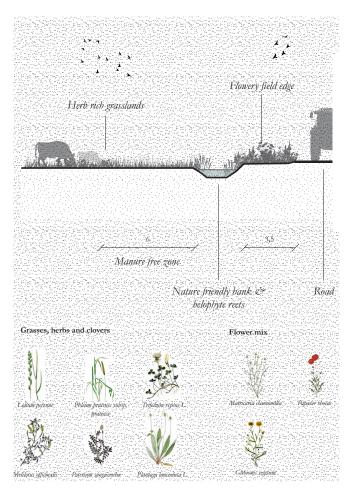
 $\langle | \rangle$

0 10 km

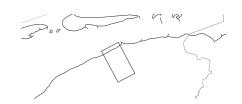
50 km



Existing agricultural field edges



Agricultural field edges in 2030



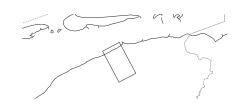


Agricultural nature network

Ś

	Flowery field edges	\bigcirc	Terps	\bigcirc
	Stepping stones		Build environment	\bigcirc
	Lifestock farming	\bigcirc	Trees	
)	Crop production	\bigcirc	Waterways	\bigcirc

3 km

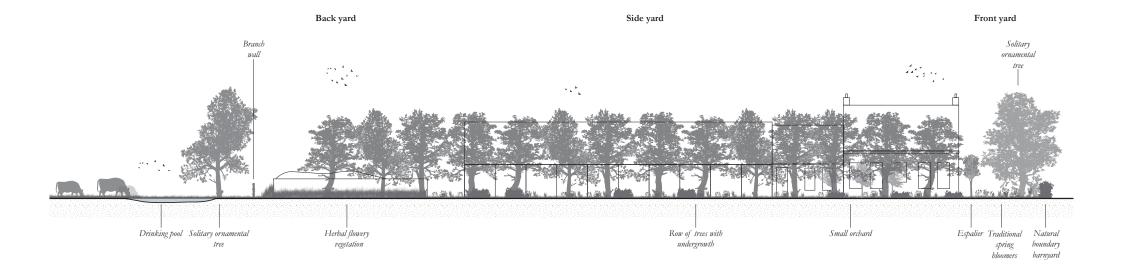




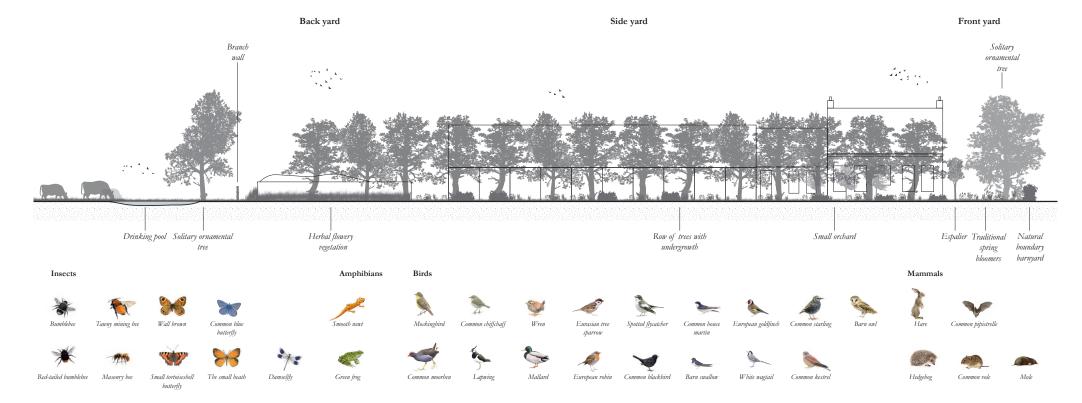
Agricultural nature network

	Flowery field edges	\bigcirc	Terps	\bigcirc
	Stepping stones	۲	Build environment	\odot
2 -	Lifestock farming	\bigcirc	Trees	
\sim	Crop production	\bigcirc	Waterways	9

3 km



The farm as a stepping stone



The farm as a stepping stone



Farmers nature network





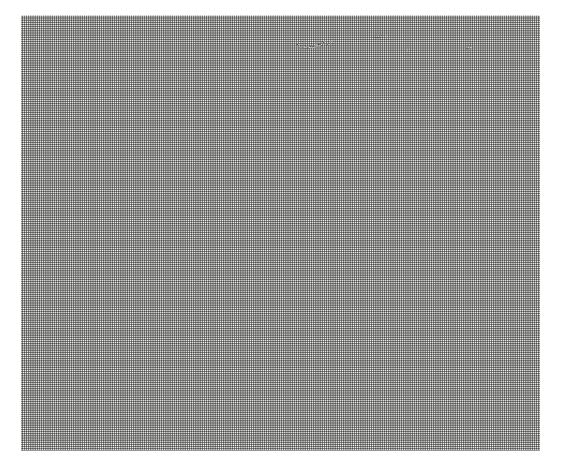
2750 B.C

0 10 km 50 km	Sea Lakes & rivers Salt marshes and river plains Mudflats	U U



800 A.C

			Land
			Sea Lakes & rivers
10 km	50 km	Ň	Salt marshes and river plains Mudflats
		\bigcirc	Mudhats



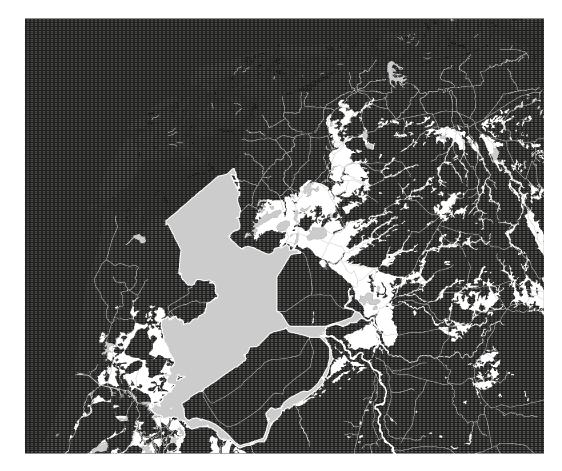
1500 A.C

10 km

0

Sait marshes and river plains Mudflats	50 km	Land Sea Lakes & rivers Salt marshes and river plains Mudfars
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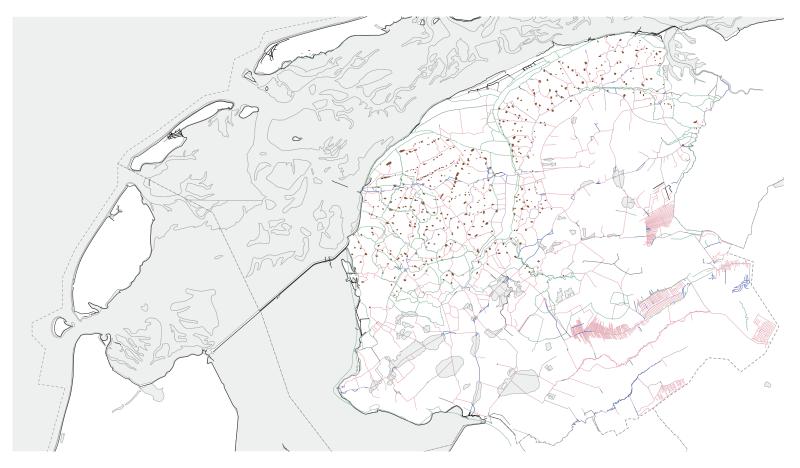


Nowadays

	Land	
	Sea	•
Ν	Lakes & rivers	D .
	Salt marshes and river plains	
(Mudflats	

0 10 km

50 km



Water cultural heritage Data: Provincie Friesland, z.d.

10 km

0

Т

50 km

Terps	
Dikes built after the 17th century	—
Dikes created in the 17th century and before	—
Waterways created between 1900 - 2000	—
Waterways created between 1800 - 1900	—
Waterways created before 1800	—

Ň



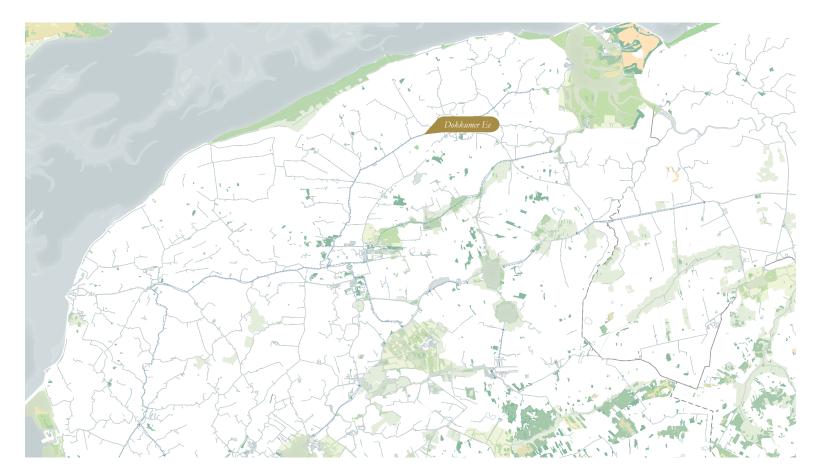


Canal through the Frisian landscape Photo: Google Maps, 2021.



The Peazens, a former marsh gully Photo: Landschapsbiografie van Noardeast-Fryslân, 2021.



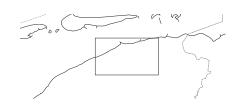


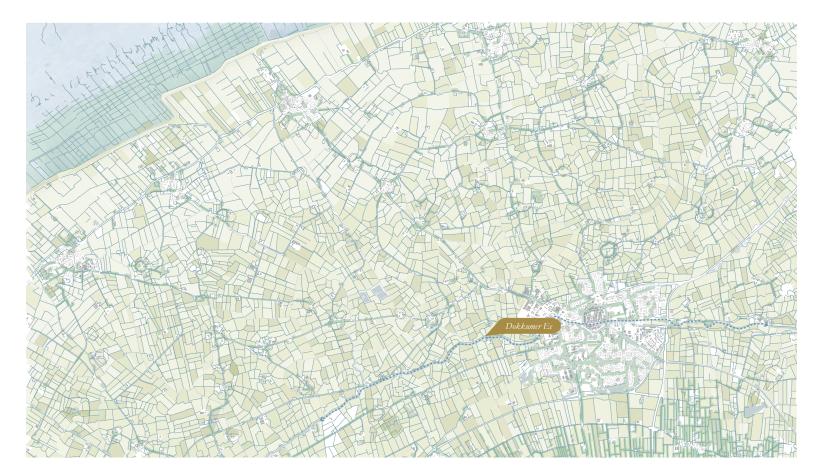
Main ecological corridors

50 km

10 km

Main ecological watercorridors	\odot
Main water bodies	\oslash
Natura 2000 Waddensea	
Natura 2000 and Dutch Nature Network	
Sandy nature area	
Forest nature area	
Wet nature area	
	Main water bodies Natura 2000 Waddensea Natura 2000 and Dutch Nature Network Sandy nature area Forest nature area





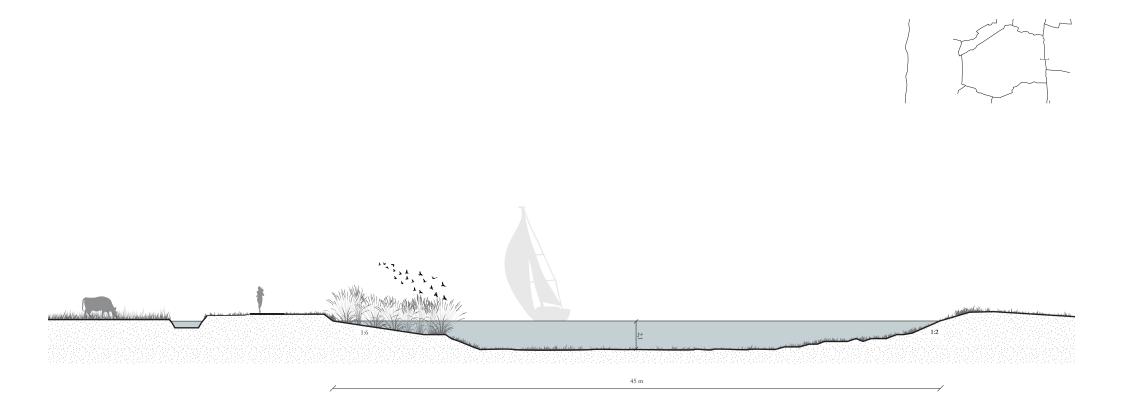
Ecological corridor the Dokkumer Ee

	Main and secondary ecological water corridors	\odot
	Trees	\bigcirc
	Lifestock farming	\bigcirc
	Crop production	\bigcirc
N	Build environment	\bigcirc
$\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{$	Terps	\bigcirc

10 km

0

 $50 \mathrm{km}$







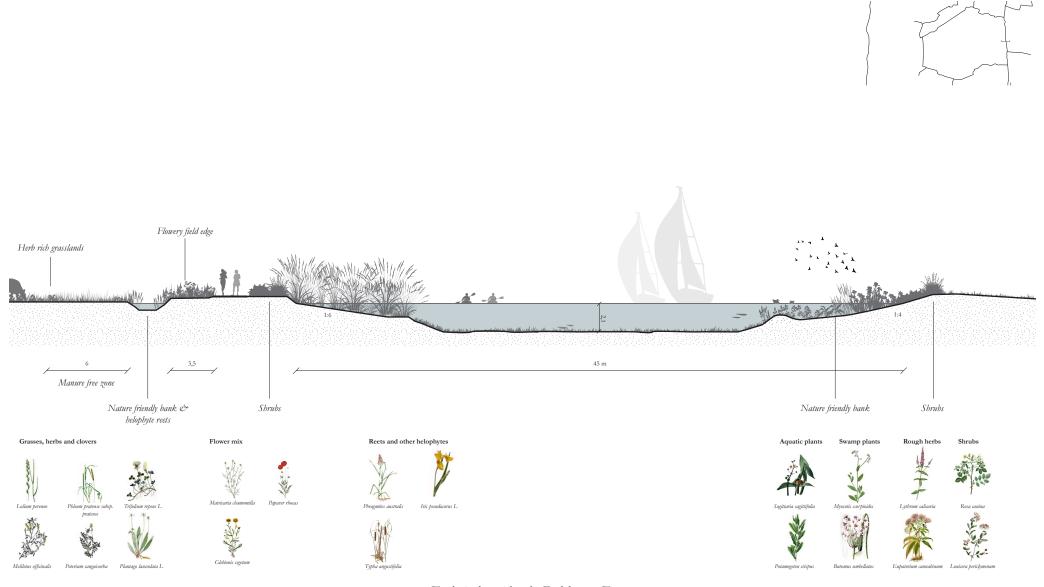


Reets

Ecological corridor the Dokkumer Ee

2022

0 2 m 10 m

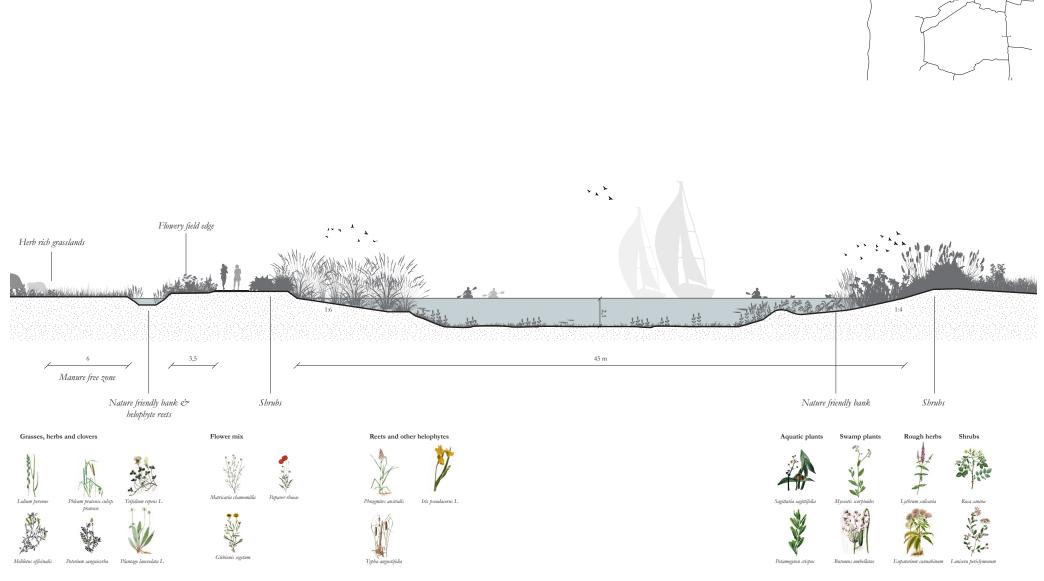


Ecological corridor the Dokkumer Ee

0

2 m

10 m

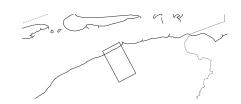


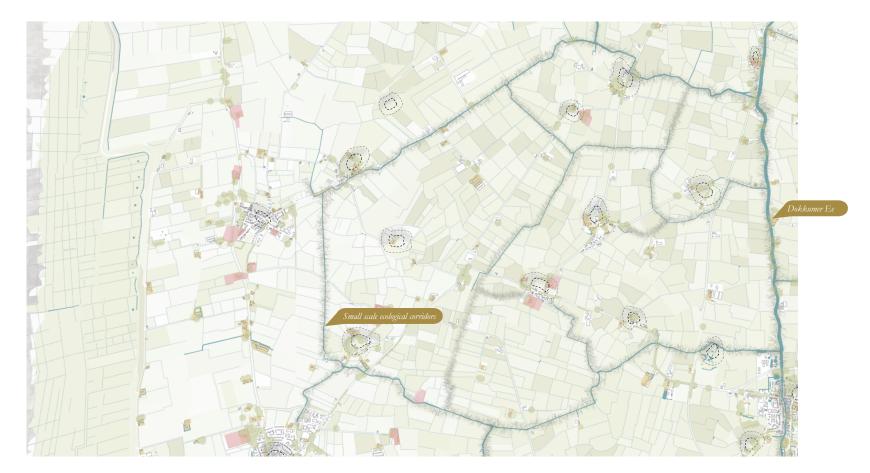
Ecological corridor the Dokkumer Ee

0

2 m

10 m





Secondary ecological corridors

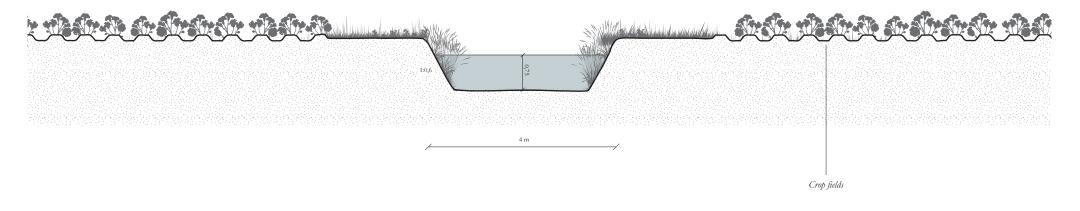
Ś

Enhanced ecological corridors			
Lifestock farming	\bigcirc	Build environment	٢
Crop production	\bigcirc	Trees	
Terps	\bigcirc	Historical farmyards	Ø
Stinzen, stanzen and churches		Waterways	9

0 1

3 km







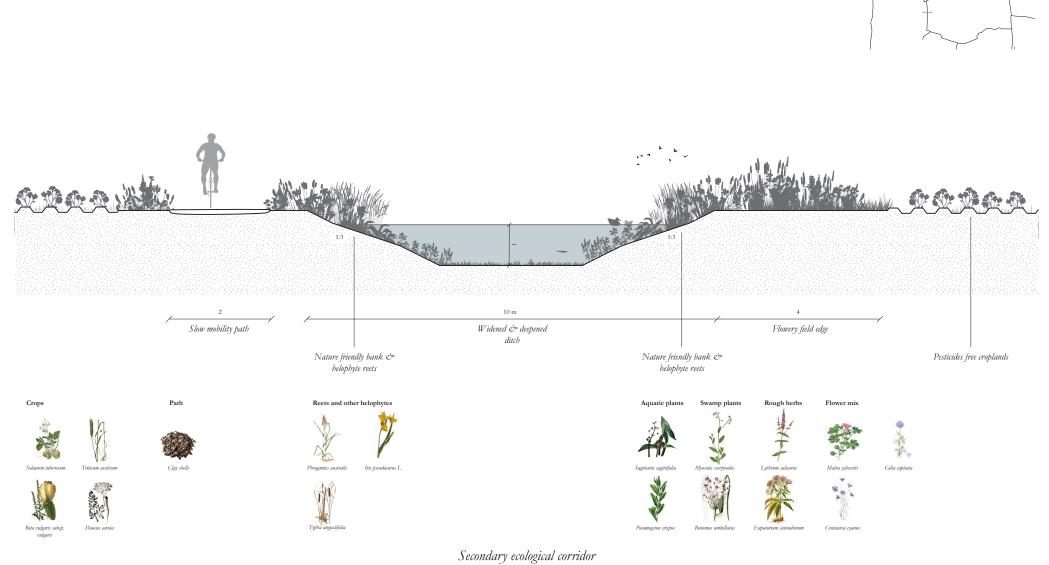


* *

Phragmites australis

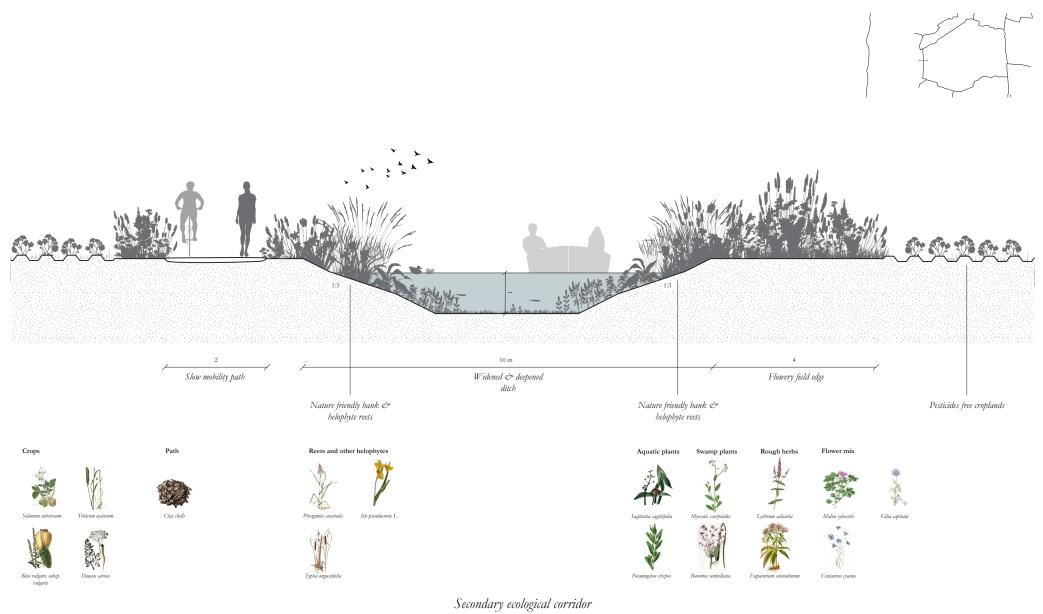
Secondary ecological corridor 2022

2 m 5 m



2030

0 2 m 5 m



0

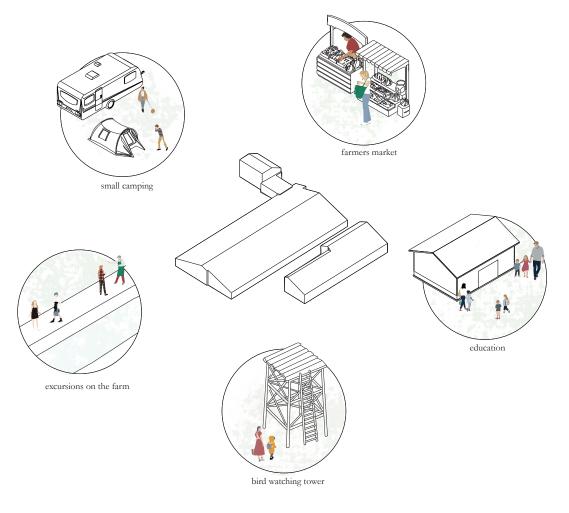
2 m

1

5 m



Ecological corridors

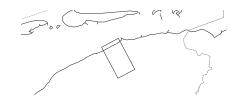


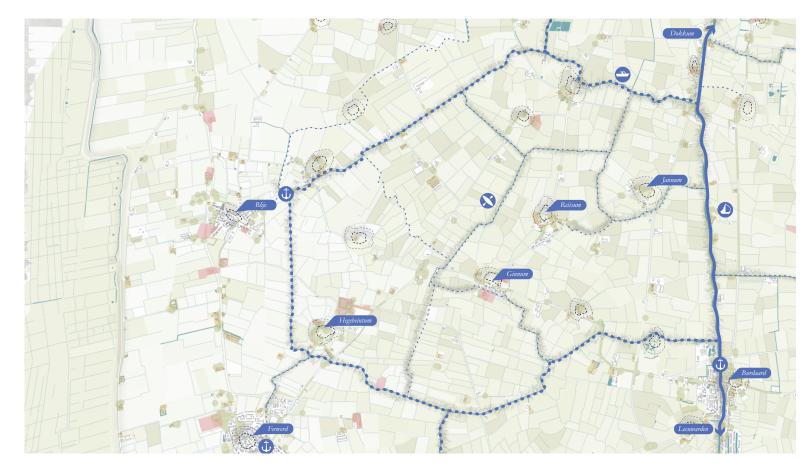
Agrotourism





Inside the small church on terp Jannum Photo: by author, 2022.





Boat routing

Ś

 \bigcirc

Existing boat route	-	Trees	٥
New motorized boats route	-	Historical farmyards	6
New canoe route		Lifestock farming	\bigcirc
Harbours	٩	Crop production	\bigcirc
Enhanced ecological corridors		Terps	\bigcirc
Build environment	\bigcirc	Stinzen, stanzen and churches	•

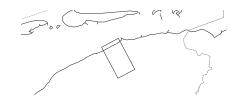
5 km

2

0



Revived water infrastructure Photo: Sloepverhuur Noord-Fryslân, 2022.





Bike routing

 \approx

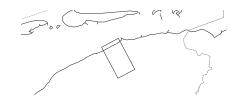
		Trees	2
Existing bike route	-	Historical farmyards	(a)
New bike route	<u>@</u>	Lifestock farming	C
Resting stop	0	Crop production	C
Enhanced ecological corridors		Terps	C
Build environment	\bigcirc	Stinzen, stanzen and churches	

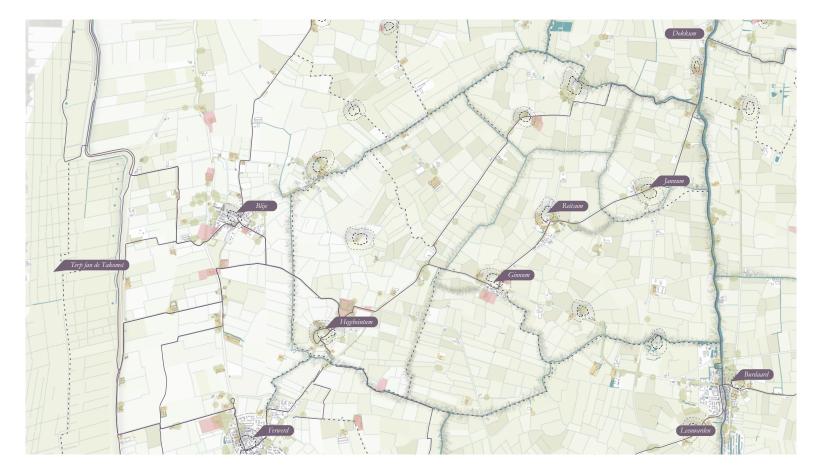
5 km

2



Biking along the seadike Photo: Heather Wong, 2022.





Walk routing

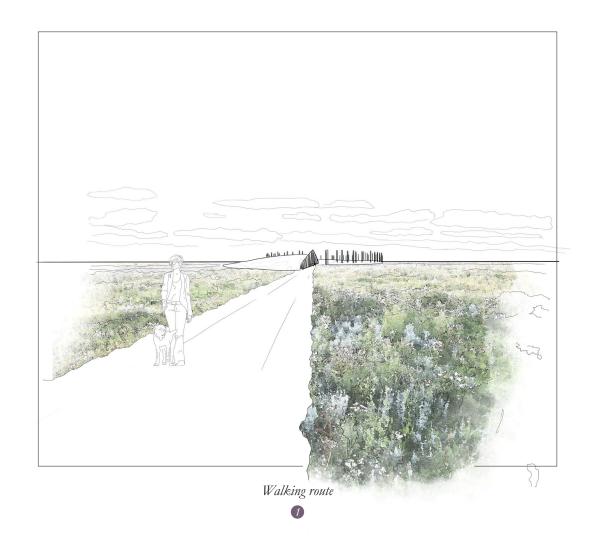
 \approx

		Trees	
Existing walk route		Historical farmyards	6
New walk route		Lifestock farming	\bigcirc
Resting stop	0	Crop production	\bigcirc
Enhanced ecological corridors		Terps	\bigcirc
Build environment	\odot	Stinzen, stanzen and churches	•

5 km

2



















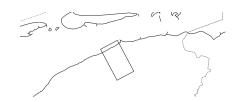


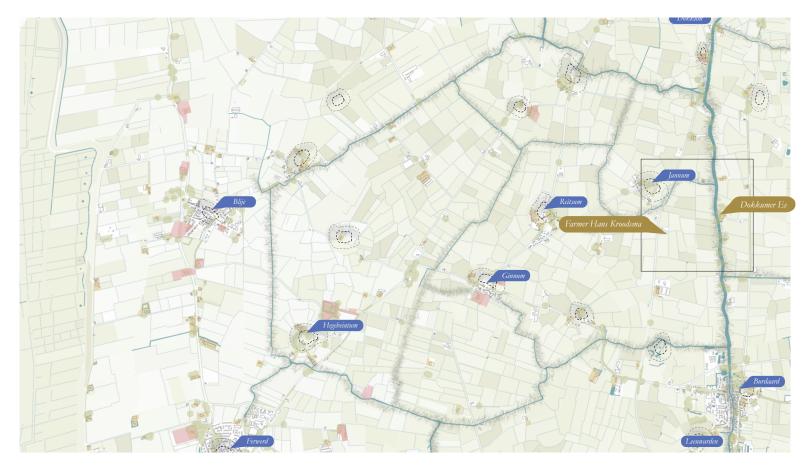












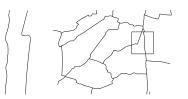
Zooming in

5 km

2

0

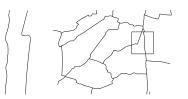
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Route design

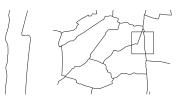
				Existing walk & bike route	1
				New walk & bike route	
0	200	500 m	Ν	Existing boat route	-
			\bigcirc	New canoe route	





Quays

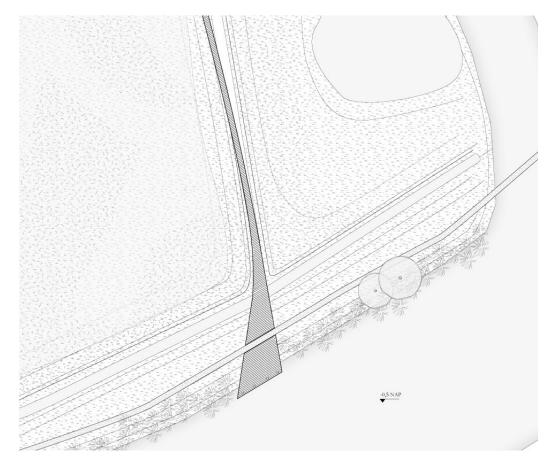
				Existing walk & bike route	7
				New walk & bike route	-
0	200	500 m	Ν	Existing boat route	-
			\bigcirc	New canoe route	



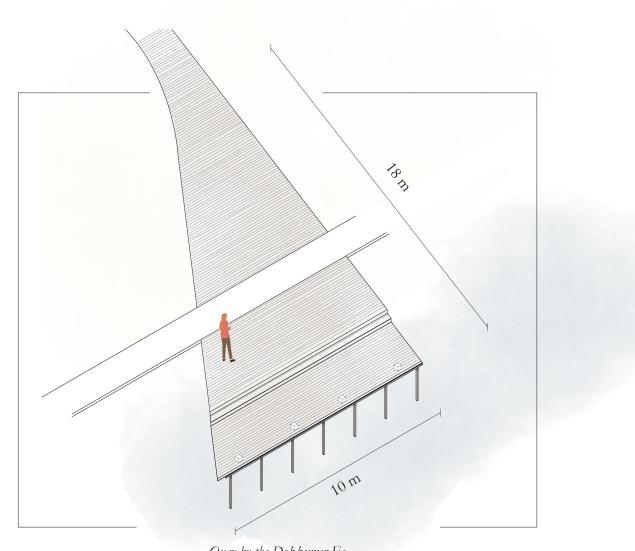


Quays

	Existing walk & bike route 🥣
	New walk & bike route 😑
0 200 500 m	N Existing boat route 👄
	New canoe route

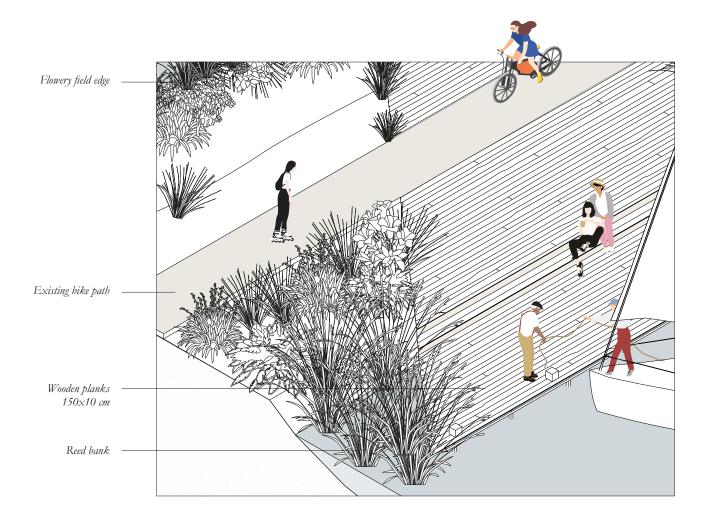


Quay by the Dokkumer Ee



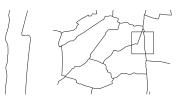
Quay by the Dokkumer Ee







A Marrekrite' docking quay Photo: De marrekrite, z.d.

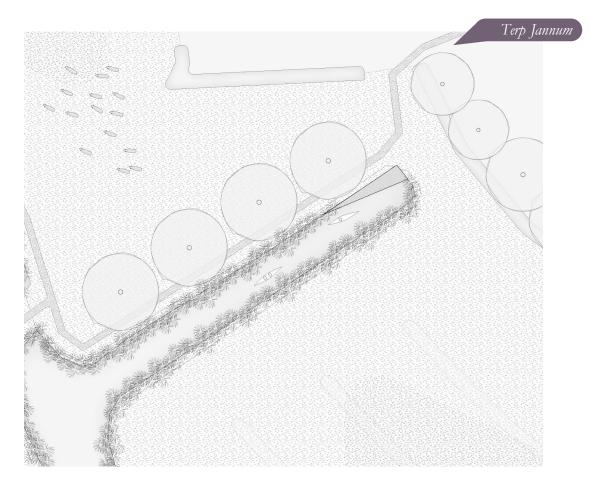




Quay

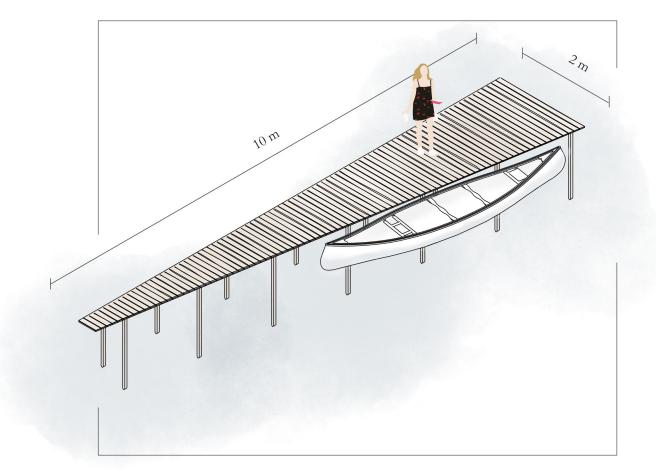
				Existing walk & bike route	C
				New walk & bike route	
0	200	500 m	N	Existing boat route	-
			\bigcirc	New canoe route	-





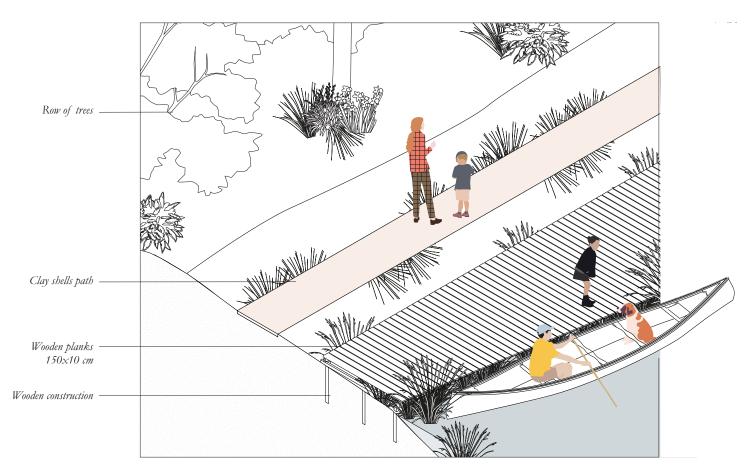
Quay by terp Jannum



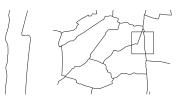


Quay by terp Jannum





Quay by terp Jannum





Zoom-in design site

				Existing walk & bike route	C
				New walk & bike route	-
0	200	500 m	Ν	Existing boat route	-
			\bigcirc	New canoe route	

"This area could be established purely for meadow birds by raising the water level, which means nature conservation and a tool against salinization."

Hans Kroodsma, 2022

Photo: Google Earth, 2022.



Constructed wetland

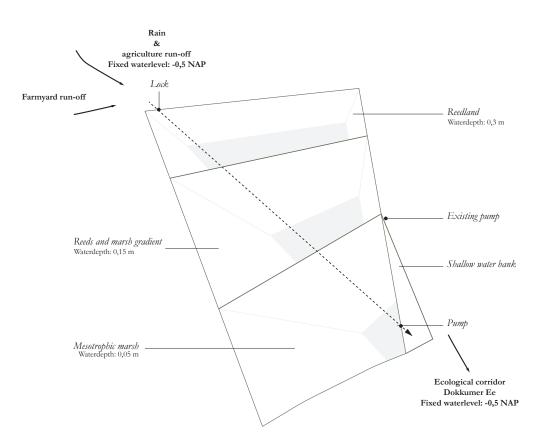
v	Walking path	
	Marshland helophytes	ŏ
	Reeds and marshland	
	Reeds helophytes	•
	Grasslands	
N	Ecological watercorridor	
(1)	Biodiverse field edges	

500 m

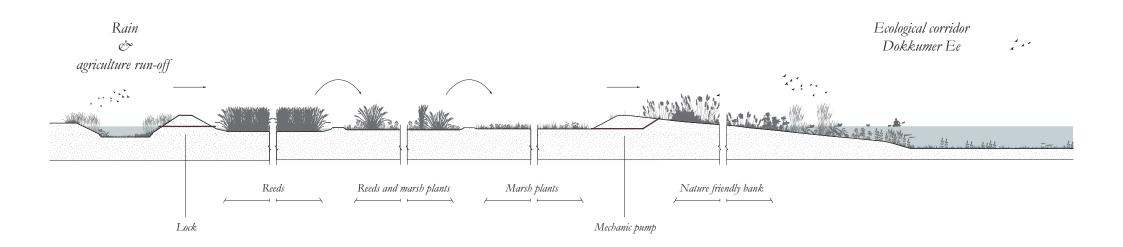
0

1

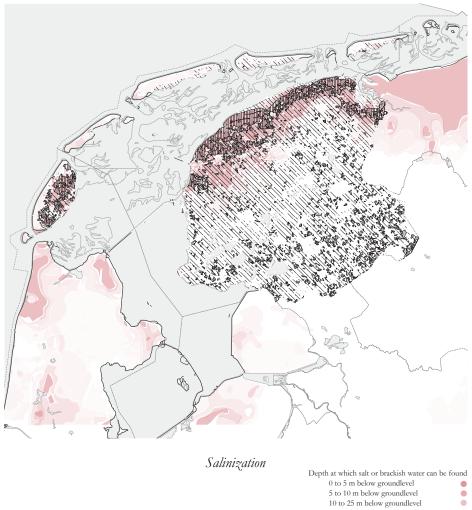
200



Workings constructed wetland



Section 2050 wetland



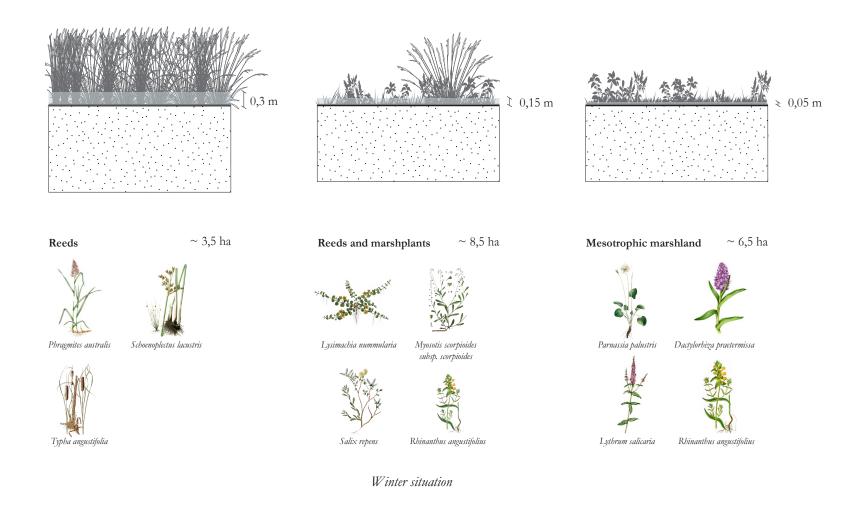
50 km

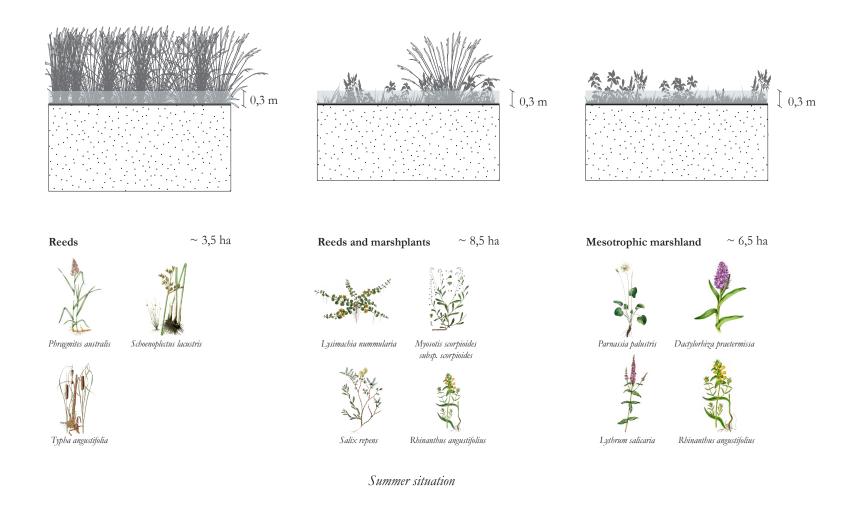
10 km

0

	5 to 10 m below groundlevel	
	10 to 25 m below groundlevel	
	25 to 50 m below groundlevel	•
	50 to 100 m below groundlevel	
	> 100 m below groundlevel	0
Ν	Agricultural	landuse
	Crop cultivation	19
()	Grasslands for agriculture use	A

Ð **O**

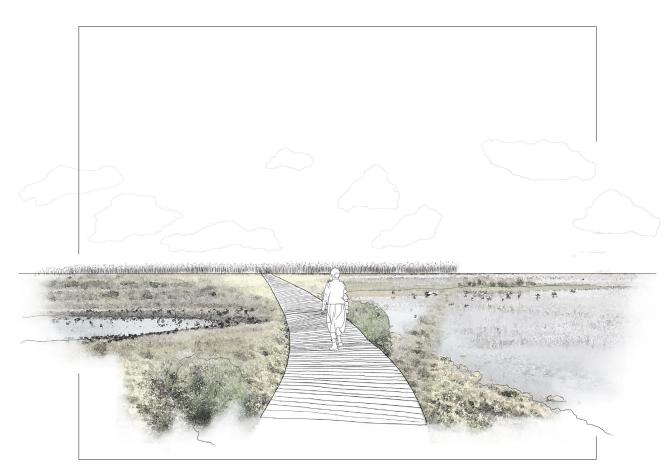














Wooden boardwalk















Land and Farmers Equilibrium Restoring the balance between land and humans in Northern Friesland



Land and Farmers Equilibrium Restoring the balance between land and humans in Northern Friesland