



Forum for Architecture and
Urban Planning in Amersfoort

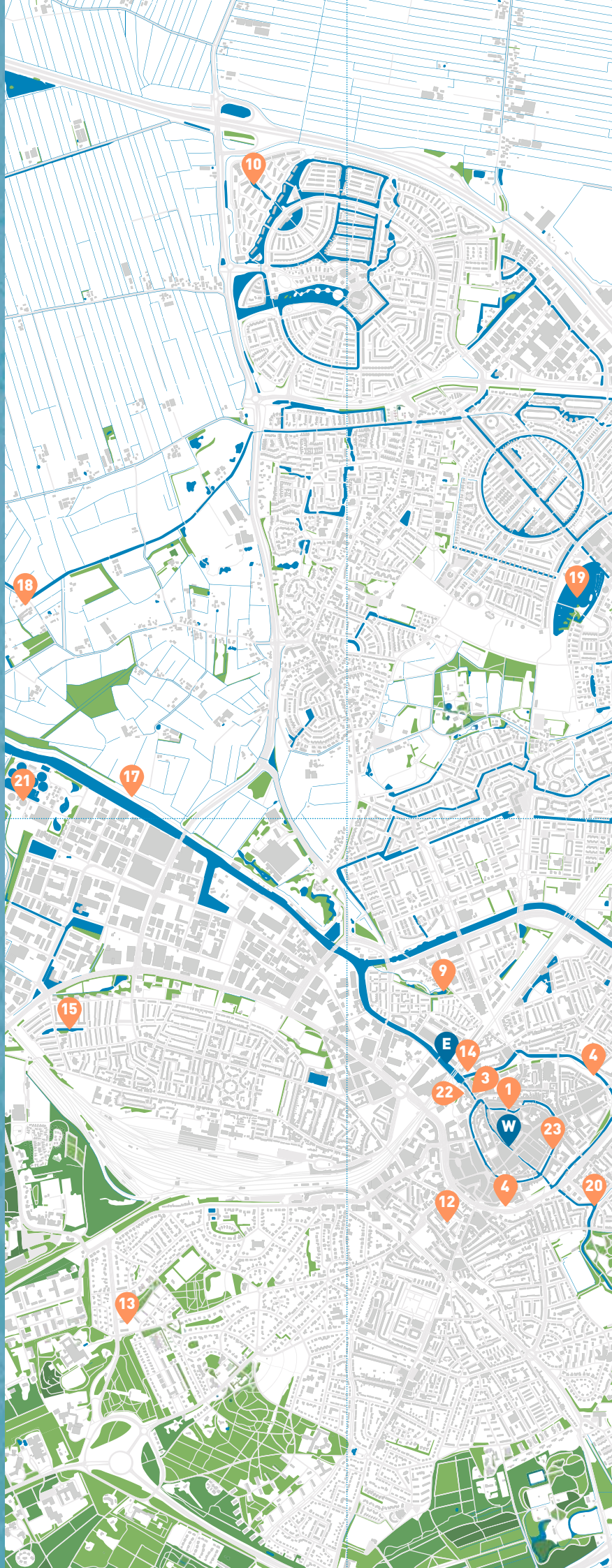


Watermap of Amersfoort

Without water no city and without canals no Amersfoort. The city originates from the spot where three brooks (the 'Barneveldse Beek', the 'Hoevenlakense Beek' and the 'Heiligenbergerbeek') come together. River 'De Eem' starts at the point where the brooks leave the city via the canals. This is at the Koppelpoort. Amersfoort owes its name and structure to its location between the brooks and 'De Eem'. Even the water in the soil that is not directly visible makes the city what it is today.

With this water map, FASaDE illustrates how inseparable water and the city are. Water plays diverse parts in our lives: water for drinking and for transport, water for enjoyment and for quick discharge, water as a military defence but also as an enemy in itself. Water as a source of life and water as a sustainable source of energy.

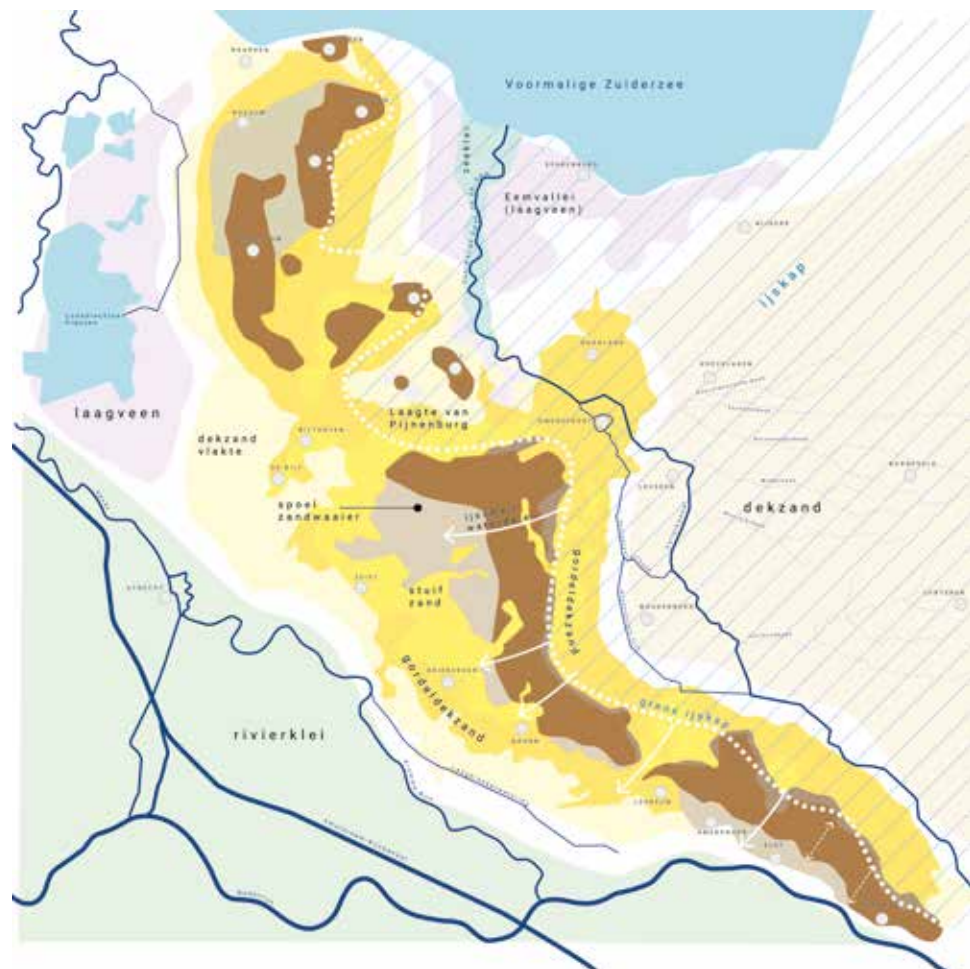
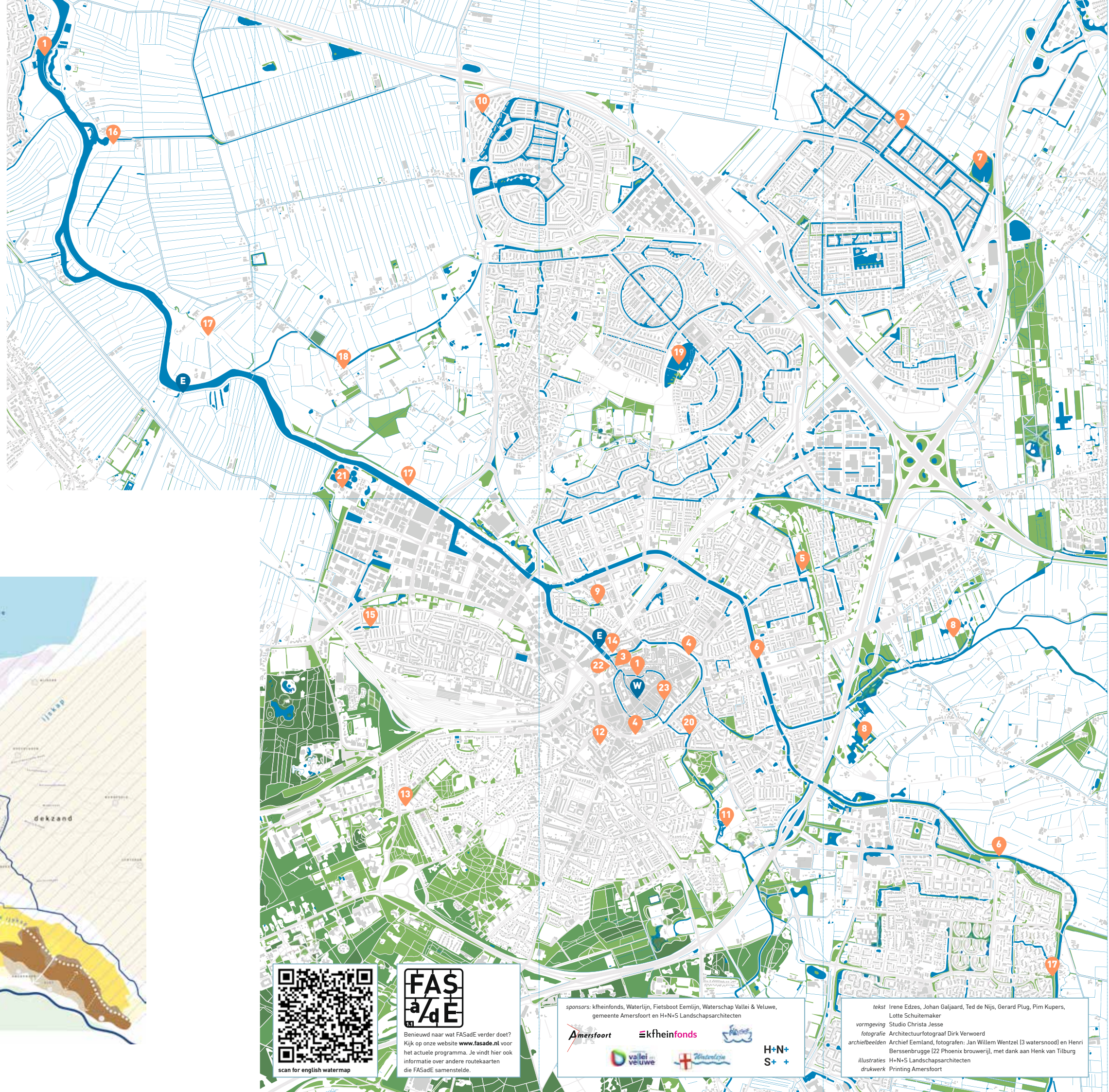
In the context of climate change, the relationship between the city and water only seems to be getting closer. Dehydration of soil, impoverishment of biodiversity, reduction of water quality and peak rainwater loads are urgent challenges. Cities are looking for ways to retain water longer or to keep it out. This presents great opportunities to make a virtue of necessity. The spatial quality that water can offer us needs little explanation. Water is close to our hearts, as is shown to us by the various Amersfoort citizen initiatives to (re)introduce water in places. Dealing with water will continue to change the city's appearance. And hopefully 'Amersfoort by the Sea' will remain just a concept in the process.



1 Amer Voorde - De Eem

Amersfoort originated at a ford ('voorde') in the river 'De Eem'. Water flows from the high-situated areas of the 'Utrechtse Heuvelrug' and 'Veluwe' via several streams to the low-situated 'Valleikanaal' and 'Heiligenbergerbeek' in Amersfoort. The Eem springs from the point where the 'Barneveldse Beek' (with its tributaries 'Modderbeek' and 'Hoevelakense Beek') met the 'Lunterse Beek' (now called 'Heiligenbergerbeek'). The river starts at the Koppelpoort and ends at 'Eemmeer' near Bunschoten-Spakenburg. 'Eem' or 'Amer' is a water name, which appears in many topographical designations, for example in the name Amersfoort.

As a transportroute, 'De Eem' was important for the city. Transport by water used to be very common and had great advantages. It was cheaper, because a ship could carry a lot of cargo. Moreover, you ran less risk of being robbed on the water than on the road. The clear water from the streams entered the city via the canals, where it was used by breweries and by the cotton and cloth industries. Products found their way via 'De Eem' towards the sea ('Zuiderzee') and thus to a large market. Even today, De Eem is still used by commercial shipping to transport sand and gravel. Water Authority 'Waterschap Vallei en Veluwe' ensures that 'De Eem' drains the excess rain in the nearby 'Gelderse Vallei' and 'Eemland' to 'Eemmeer'.



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2 Vathorst and De Laak

'De Laak' is a broad historical brook originating in the hinterland of the peat landscape around Nijkerk and Barneveld. Ditches and brooks were dug here to drain plots of land for peat extraction. Sods were cut for peat and dried. The sods were then transported to the towns on flatboats via the ditches and streams. As a water element, 'De Laak' is now an important part of the Vathorst district, designed by urban planners Ashok Bhalotra and Adriaan Geuze. It forms a link with the adjacent Arkenheempolder. A cycle path along 'De Laak' makes it possible to reach the adjoining polder from Vathorst. A lock allows a connection on the water to Spakenburg. To make the water of 'De Laak' more suitable for recreation, it has been widened and deepened.



5 Park Waterwingebied (water catchment area)

Between the neighborhoods 'Liendert' and 'Rustenburg' lies a surprising green strip. In this water extraction area, Amersfoort's drinking water was extracted between 1913 and 2003. Dozens of pumping installations, which you can still see, pumped up groundwater from a depth of up to 200 metres. To combat soil dehydration, no more water has been extracted here since 2003. Amersfoort's drinking water now mainly comes from Flevoland. Because of water extraction and because the area was part of 'De Grebbelinie', this zone has never been built on. In the 1970s, various landscape architects transformed the original peat meadow area into the park it is today, introducing a now popular nature playground.



3 Amersfoort by the Sea (then and now)

The term 'Amersfoort by the Sea' is regularly mentioned in relation to climate issues. If the sea level rises, the dikes along the North Sea can no longer protect us and the water could reach Amersfoort. Once, Amersfoort really was situated by the sea: 'De Zuiderzee'. River 'De Eem' connected the port to 'De Zuiderzee'. Small ships sailed to and from the Koppelpoort to the transshipment point a few miles away, where seaworthy ships could reach. The location of Amersfoort by the sea generated trade, but also regularly caused flooding. Northwest storms could push seawater into 'De Eem'. But water could also enter the city uninvited from other directions: during extremely heavy rainfall, water from the 'Veluwe River' flowed into the area of the 'Gelderse Vallei', and from the dug-out peat polders in the south, abundant water flowed through the city towards 'De Zuiderzee'. During the flood disaster of 1916, the dykes broke and water from 'De Zuiderzee' flowed into the canals. After the construction of the Afsluitdijk in 1932, the salty water no longer reached the city.



6 Het Valleikanaal (1935-1941)

When 'De Valleikanaal' was constructed it greatly improved drainage in the north and east of Amersfoort ('Gelderse Vallei'). Being part of the Grebbelinie, it also served a military function. The canal was designed by the infamous Anton Mussert, who, besides being an NSB leader, was also a waterworks engineer. On some stretches, the canal follows the stream fields of old brooks such as 'De Luntersebeek' near Woudenberg. Barrages were installed in the canal at seven places to regulate the water level properly. A pilot project with a micro-hydroelectric power station started in 2018 at one of these barrages (Asschat in Leusden). A hydroelectric power station uses the existing difference in height of water to generate energy in a sustainable way. It is an interesting way to power remote houses, for example.

To improve the transition of nature from 'De Gelderse Vallei' to the basin of 'De Eem' and 'de Randmeren', nature-friendly banks, pools and fish ladders have been constructed along the canal. With this Ecological Connection Zone, the habitat of small mammals, amphibians and reptiles has been improved. Also the canal has gained quality of experience. For canoes and rowing boats, the canal is navigable. Due to poor water quality, the water is not suitable for swimming.



4 Zocherplantsoen (1840)

Public green space as we know it emerged during the 19th century. At that time, most recreational green space was privately owned by wealthy citizens. With the rapid growth of cities, more attention came to greenery as a means of making the city more liveable. When the Fortification Act in 1874 stipulated that obsolete military systems could be cleared away, many cities made way for park areas. This was also the case in Amersfoort. At the site of the former city walls, the (garden) architects Van Lunteren and Zocher jr. designed a park with a canal in the English landscape style. The defense moat was preserved and transformed into a winding river in the park. The difference in height of the city walls was used to make the 'citizens' walking route' more exciting.

As Amersfoort grew and traffic increased, a wide road for car traffic was made at the cost of some of this parkarea. The western and southern parts of the canal were filled in between 1956 and 1958. Since then, there have been several citizen initiatives to bring back the water. Due to current climate issues time is ripe for an Amersfoort citizen initiative like 'From Ring to Park'. This plan aims to reduce the space for cars and redesign the City Ring with more space for social encounters, for water and greenery. In the process, the 'Singel' will be restored to its former glory. The city can gain a lot of quality of public space and scenery by linking tasks such as water storage and the enhancement of biodiversity to social tasks, such as more space for meetings places and slow traffic.



7 't Hammetje

't Hammetje' is originally a de-sanding lake that was dug to enable the construction of the A28 around 1960. On the opposite side of the A28, the 'Overbos' recreation park was also created for sand extraction. "'t Hammetje' and 'Overbos' are popular swimming spots on the outskirts of Amersfoort. The striking folly (1988) on the waterfront of 't Hammetje' was built by Willem Ham, the lake's namesake, from sewage pipes, rubble and boulders as a fortress against encroaching Amersfoort. The area has since been embraced by the city as a recreational area. The folly is now owned by the municipality.



8

Bloeidaal (2007) and De Schammer (2011)

The eastern edge of Amersfoort recently gained two special nature areas: 'Bloeidaal' and 'De Schammer'. The agricultural area has been transformed into nature with sparse grassland, reed swamps, woodlands and pools. In fact, the landscape has been transformed to what it once was before: the catchment area of old brooks like 'De Barneveldsebeek' and 'Heiligenbergerbeek'. Now that rugged nature is given plenty of space, the area is a paradise for various animal species, including many birds. Water storage during extreme weather conditions has been taken into account in the redesign of the nature areas. 'De Schammer' can be flooded if necessary, allowing the city of Amersfoort to keep its feet dry.



11

Elizabeth groen and Het Beekdal (since 2000)

The construction of a new hospital on the outskirts of Amersfoort left the Elisabeth site in valley of 'De Heiligenbergerbeek' available for other functions. Concerned citizens fought to preserve, restore and promote the natural and cultural values in this area. They set up a foundation and managed to convince the municipality. The area was designated as a park area and consultancy firm Haver Droeze, together with local residents, stakeholders and the municipality, designed the layout. The wet part near the stream and the drier part to the east were made more visible in the landscape. The brook was given more space and was provided with gentle banks, a few steep edges, islands and bushes. Two new pools have also been dug, which are not connected to the stream. Because the pools are fed only by groundwater and rainwater, they provide a place with nutrient-poor, stagnant water that warms up quickly due to its shallow depth. As a result, the water quality is different from that in the brook, attracting different plants and animals.



9

Koppel / The old Eem

'De oude Eem' is a former course of 'De Eem', which was also called the 'Crooked Eem'. It was probably the original waterconnection to 'De Zuiderzee'. The current remnant lies as a marshland along the Hooglandsedijk and was once part of a forward defence line of the Dutch Water Line based on inundation, called 'De Grebbelinie'. 'De oude Eem' flows into 'De Eem', right next to the mouth of 'De Valleikanaal', and ran towards the city parallel to the current 'De Eem'. Remains of the shoring were excavated behind the Grote Koppel 5 property in 1996. The beginning of the Old Eem is still visible in the form of an opening in the quay wall of 'Het Havik'.



12

The Zonnehof (redevelopment 2017)

While 'De Zonnehof' had long been a stony car park, it is now an urban park at the intercession of concerned citizens. Landscape architecture firm G84 designed the layout. In the climate-proof redesign, the municipality ensured that rainwater can be better retained at this spot. Much paving has been removed and the paving that has been applied allows water to pass through via the gutters. Water-storing foundations are present under all paving and six deep infiltration wells have been installed below ground level. The wells are 28 metres deep and 30 cm in diameter. Two infiltration fields have also been constructed in the green area. These are bowl-shaped areas where excess rainwater can collect to then infiltrate into the soil. By combining all these measures in one square, rainwater from a heavy downpour can be stored.



10

Canyon City Garden (2000), Nieuwland

The City Garden is located on the site of the Nieuwland district's sand depot and was designed by design firm SVP. The sand released when digging the many water features was temporarily deposited here. In the end, the sand was not removed but used to create height differences, which also included the parking garages under the houses. The City Garden has no private gardens but only a communal park area, managed by residents. This park space drains into the 'Canyon', the centrally located water feature that, thanks to the differences in height, cuts deeply into the artificial landscape and has therefore been given unusual banks.



13

Wadis on De Berg (2020)

The soil of 'De Amersfoortse Berg' is getting drier due to climate change. But as a result of the same climate change, peak rainstorms occur more often, whereby the water does not penetrate the drying subsoil. By temporarily collecting the rainwater in a wadi, it can then slowly sink into the soil. A wadi or infiltration field helps prevent sewer overload and flooding during heavy downpours. In the upper Berg neighbourhood, wadi's are therefore part of the renewal of the neighbourhood's sewer system. A separate rainwater sewer near the houses has been constructed in part of the streets.



14 Stoney weir (1910)

The barrage of the 'Stoney' type regulates the flow of water from the 'Oostbuitensingel' to 'De Eem'. For many residents and visitors, this national monument forms the entrance to the historic city centre. The weir is also visible to travellers passing Amersfoort by train. In the late 1980s, some characteristic parts of the weir disappeared. These included the shaft with wheels and gears at the top and the counterweight. In 2011, the Stoney weir was restored. The object is still in function, but the mechanics have been modified.



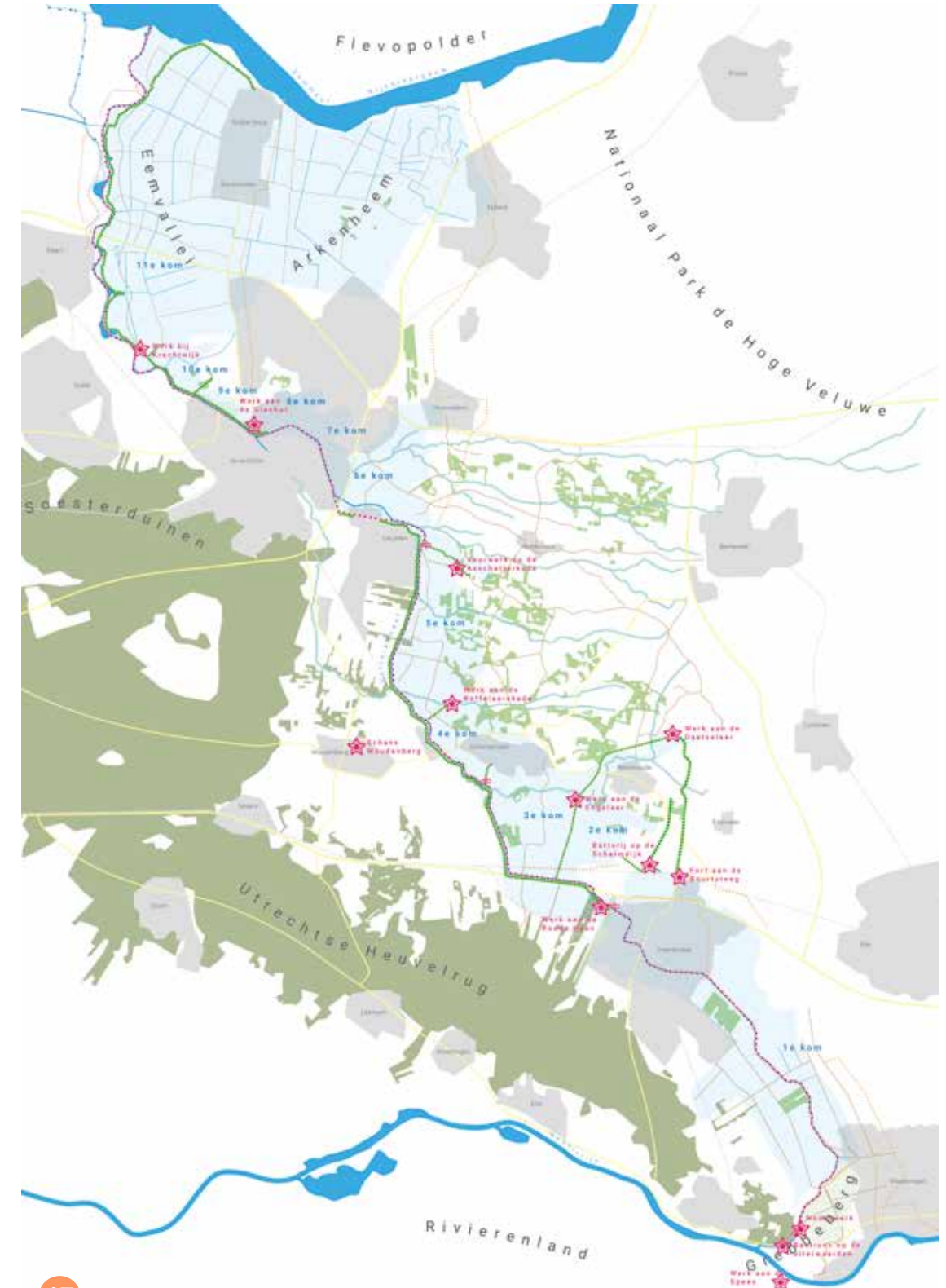
15 Bomenbuurt - De Dreef (1950s)

Central to the Bomenbuurt is a lens-shaped park, called 'De Dreef'. The park contains an elongated pond and makes it a nice place to walk past, sit down or cast a fishing rod. Urban planners Arie Rooimans and David Zuiderhoek were ahead of their time in designing this neighbourhood. Apart from serving as a recreation spot, the water feature serves to collect part of the rainwater, which flows in the valley of 'De Eem' from south to north towards the river. The difference in height is evident in the slightly sloping residential streets and the jumps in the ridges of the sloping roofs of the terraced houses. The streets are situated in a north-south direction (perpendicular to the contour lines) so that drainage is not impeded.



16 Zeldert pumping station (1896)

The monumental Zeldert pumping station used to be a steam pumping station. Before then, there was another pumping station that was washed away by a breach in the dike. The large pool of water (also called a wheel or a fan) in front of the pumping station is a reminder of this. Zeldert pumping station now drains the 'Zeldert' polder, which lies below sea level, using electrically driven pumps. Rainwater that falls in the area of Nieuwland is drained into 'De Eem' via the pumping station. The height of the water level is adapted to the wishes of farmers, residents and nature managers.



17 De Grebbelinie (until 1951)

To the east-west, the waters of the major rivers (Rhine, Meuse, Waal) formed a natural obstacle to an enemy army trying to invade our country from the south. To make attacks from the east more difficult, a system of lines was devised in the 18th century: forts and parts of land that could be deliberately flooded (inundations). This made it more difficult for an army to advance from the east. 'De Grebbelinie' is one such line and ran from Rhenen past Amersfoort to Spakenburg. In the 19th century, this line fell into disrepair and was disbanded as a defence. But when the German war threatened, it was reinforced in 1939-1940. Limited building was allowed near the defence line. When 'De Grebbelinie' was finally disbanded in 1951, this came in handy for later urban extensions, such as the Schuilenburg district. Many open green areas, which we now appreciate so much as a landscape, we owe to the defence lines. Since 2011, 'De Grebbelinie' has been a national monument along which beautiful walking and cycling routes have been set out. H+N+S Landscape Architects launched the idea of making 'De Grebbelinie' - over 60 km long - the longest flower and insect ribbon in the Netherlands.



18 Coelhorst estate and Male Wetering (14th century)

Between 'Eempolder' and Amersfoort lies the centuries-old Coelhorst estate. The beautiful piece of nature covers 82 hectares and is owned by Natuurmonumenten. The water that flows here ('De Male Wetering') was dug in the 13th century to improve the drainage of this area. This was done by landowners who had united (the Malen). Huis Coelhorst was burnt down by the Dutch army at the beginning of World War II to get a clear field of fire from the Eemdijk (part of 'De Grebbelinie'). Many old farms were also demolished for the same reason. The 14th-century chapel remained standing and is now a national monument.



21 RWZI Amersfoort (1999)

At RWZI Amersfoort the water board treats waste water from residents of Amersfoort and the surrounding area. They check if the quality is good enough to discharge into 'De Eem'. At this water purification centre, phosphate is extracted from feces. 900 tonnes of this phosphate are produced on site every year for agriculture and horticulture. A real energy and raw materials factory!



19 Pond of Emiclaer (1989)

Urban planner Ashok Bhalotra made Amersfoort famous in the 1990's with the colourful urban extension called 'Kattenbroek'. The heart of the neighbourhood is formed by the large oval pond, which borders the Emiclaer shopping centre and park Schothorst. The pond was dug for sand extraction and was then given a recreational and ecological function in the new neighbourhood. People fish, cycle and walk along the water's edge and sail, surf and skate on it. In the past, pond concerts were held on the floating stage near the amphitheatre steps. The stage had to be removed due to structural defects. The three offshoots in the pond were created to give more chance to nature. There are many herbaceous species on the pieces of land and reeds grow between them, among which young fish can hide well.



22 Strong Water

For centuries beer was brewed from the clear water from 'De Heiligenbergerbeek'. The water reached various breweries in the city centre via the canals. Amersfoort's 'Hoppenbier' was in great demand and found a market throughout the Netherlands via 'De Eem' and 'De Zuiderzee'. Over time, the quality of the canal water (on which waste water was also discharged) deteriorated. In the second half of the nineteenth century, when it was technically possible, many brewers had deep wells with a large capacity drilled in order to have good and abundant brewing water. Of the many Amersfoort breweries, few eventually remained. Brewery 'De Drie Ringen' started in 1989 as the first 'Craft Beer' brewery in the Province of Utrecht.



20 Heiligenbergerbeek spring monument (2015)

Residents of the neighborhoods 'Luiwaard' and 'Kattekampen' have had a work of art created as a token of their mutual friendship. This playfully moving artwork was created by artist Frank van Westendorp. It is attached to an artesian well* in 'De Heiligenbergerbeek', centrally located between the neighbourhoods. The spring water makes the artwork move as if it were waving hands.

*Natural water sources - Artesian water

The water that fell as rain centuries ago in the 'Veluwe Massif' and the 'Utrechtse Heuvelrug' collected under an impenetrable layer of clay in the soil. That clay layer puts pressure on the water, so that if you make a hole in the clay layer, the water sprays up by itself. This phenomenon, water rising under pressure, is called Artesian water. Artesian wells (springs) are found in many places in downtown Amersfoort. By piercing through the clay layer with a pipe, the water can be tapped and thus the house pump could be supplied with pure water. Pumps in the Water catchment area also collected Artesian water in this way. The word Artesian is derived from the French town of Artois, where the first European well is said to have been drilled to bring deep water to the surface.

The Waterline (since 1996)

The Waterline Foundation is an organisation run entirely by volunteers. The foundation has seven boats, ranging in size from 12 to 44 passengers. Four different boating routes are plotted through the historic city centre. There are also several themed cruises focusing on children, nature and culture. The embarkation point and shop are located at Krommestraat 3. More information at www.amersfoort-rondvaarten.nl.



23 The city canals (13th century)

Around 1200, a bend in 'De Eem' was cut off with the construction of Kortegracht and Langegracht. Amersfoort's first buildings arose in the area between these canals and the river, and this is also where the medieval harbour ('The Havik') was located. Via the canals, water drainage from the wet area was faster and the settlement was easier to defend. After Amersfoort acquired city rights in 1259, a city wall was built with two water gates. On the outside of the wall, a double moat was dug with a strip of land in between (a 'cingel'), so that the enemy could not cross at once with a boat. Around 1380, the first city wall with moat was replaced by a second one. The moat is unique because it runs along the pretty back gardens of the properties on the Muurhuizen. The quay walls along these gardens are also privately owned and have to be maintained by the residents themselves. Every year in autumn, the water level of the canal is lowered so that the quays can be inspected and repaired if necessary. The combination of the city canals and the green park strip with canal around the city centre produces a wide variety of urban wildlife.

Cycle boat Eemlijn

From mid-April to mid-October, the bicycle boat Eemlijn sails between Amersfoort and Spakenburg/Huizen. From the water of the Eem you have a beautiful view of the Eem Valley and at the embarkation points you can transfer to the bike to further explore Eemland and 't Gooi. The bike boat is run by a team of 50 enthusiastic volunteers. Boarding point in Amersfoort is: Grote Koppel opposite number 18, between Koppelpoort and Brabantsestraat. More information at www.eemlijn.nl.