



Part 2: Creation, habitation and current situation of Lonnekerland

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3 Habitation history and landscape

3.1 until 1850; potstal

The government-owned land of the former Twente airbase is located on the flank of the lateral moraine of Lonnekerberg. The soil there consists mainly of coarse sandy soil. In elevation the area descends westerly and is intersected by various brooks. The landscape of the airbase and surroundings consists of cleared heathland. The flanks of the lateral moraine were probably used as fields already before the Middle Ages [30].

The sandy lands, originally wooded, were part of the potstal system in the Middle Ages, i.e. mixed farming system characterised by small fields and extensive areas of common farming. This agricultural system was built on three entities: the open field (a communal complex of fields for food production) or enclosed fields (small and individual fields), the brook valley or grub (for livestock grazing) and barren land (mainly heath) where livestock grazed and sods were cut. The farms were clustered mainly around the open fields or were scattered in the landscape, coupled to enclosed fields or one-man open fields.

This agricultural system revolved entirely around the shortage of nutrients for arable farming and horticulture. Essentially, it boiled down to the natural soil fertility of a large acreage (heath, barren land) being concentrated in a small acreage (the open field). This agricultural system made it possible to feed a larger population and thus formed the basis for the first urban development on sandy soil.

The landscape that was the product of this agricultural system was characterised at the end of the 19th century by a great degree of openness. The largest acreage of the landscape was taken up by heaths and barren land, which were virtually treeless

because of intensive grazing. The heath to the west of Lonnekerberg probably represented the largest open space in the Twente landscape [30], with views far into the distance.

Zuidkamp and Kamp Overmaat form part of a different type of landscape that is characteristic of the lower sandy soil. This is referred to as an enclosed field landscape, with scattered small enclosed fields or one-man fields, brook valleys a small distance away and smaller plots of barren land. These elements are interspersed with lanes and small woods, which has created a park-like look and feel. As late as in the 19th century, there were still small heathlands to the south of Kamp Overmaat, and they were not cleared until the 20th century. In the south of Vaneker there were plots of barren land for a long time [30]. (III 3.1)

3.2 Seizing the emptiness

Around 1850 the textile industry developed in Twente and Twente towns grew rapidly. The expansion of Enschede and Hengelo and the prosperity of a small social upper-class put a considerable squeeze on the surrounding open area. When large plots of land quickly became available in the late 19th century and early 20th century, all kinds of urban functions found a place on the once barren lands north of Enschede.

The centuries-old potstal system was turned upside down in the 19th century during the industrial revolution by the advent of fertiliser and agricultural competition from overseas. This resulted in a more efficient and less sizeable method for keeping soil fertility up to standard.

The introduction of the Marke Act of 1886 hastened the dividing up and clearing of communal barren lands. In the Dutch sandy areas this meant that an enormous acreage of land became available for other functions. Parts of the barren lands were

wooded, while others were turned into agricultural land. The large-scale clearance of heaths was characterised by a rational structure with long straight lines in the sandy landscape. Therefore, the airbase landscape is still relatively young.

The textile barons built country estates or expanded existing ones to be able to live rurally yet still close to the town ('t Holthuis, Oosterveld) and put up forests on the barren land for the production of wood and for hunting. For the drinking water supply of Enschede, a water extraction area was developed with reservoirs, the current Vitens site. These new types of land usage acted like an enclave. Enclaves in this context are understood to be non-agricultural entities that in several respects stood out from their surroundings and usually had an urban origin. Roughly speaking the enclaves differ in four ways from their surroundings: spatially, functionally, administratively and/or in terms of accessibility [10].

In 1921 a few Twente businessmen took the initiative to create a field for recreational aviation. Ten years later it was expanded into a commercial airport. In the 1930s there was a daily air service to Amsterdam's Schiphol Airport. Towards the end of the summer of 1940, the Germans began a large-scale enlargement of the airport to create Fliegerhorst. The area was enlarged from 64 to 1800 ha. At the end of the war bombing raids destroyed large parts of the airbase. Reconstruction began immediately after the Second World War, the Ministry of Defence became the airport's owner and it was greatly reduced in size to less than 500 ha. Plots of land were being redeveloped and buildings were being added all the way through to the 1990s. The final aircraft departed from the Twente military airbase in 2007 [30].

Today the airport forms the largest enclave on the former barren lands to the north of Enschede. (III. 3.2)

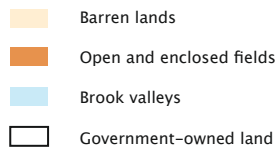


Illustration 3.1: Historical map showing barren land and branches of brooks

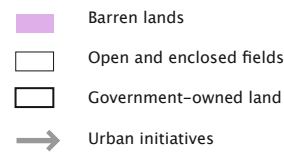


Illustration 3.2: Urban development exerts pressure on large-scale heath developments

3.3 Retention of large scale

The airport was able to develop at this location thanks to the great degree of openness of the landscape. Conversely, on account of its function as an airport, the area remained open in the 20th century, with impressive panoramic views up to a distance of approximately 4 km. This gives the area a large and dramatic contrast with its small-scale surroundings and also with the rest of Twente. Elsewhere in Twente this large scale has disappeared because of urbanisation and forestation of the former barren lands. The monumental openness of the planning area is an important quality [30]. The airport is the last remaining open location in Twente and can be regarded as a monument for all the former heathlands. The landscape of Zuidkamp, part of the enclosed field landscape, has retained its small-scale character because of the

military function. The Twenthe airbase thus assured the retention of most of the original open nature, while the landscape in the surroundings has changed markedly in the past decades.

3.4 Twenthe airbase as an estate

Compared with the surrounding country estates, the airport had a strong internal organisation and was closed off by fences from the surroundings. The site was levelled to create a flat embedding for the runways. There were also far-reaching interventions in the original water system. On account of drainage requirements, the area was drained intensively and the original system of brooks disappeared. (Ill. 3.3)

Het Oversticht (a centre of excellence for spatial quality and spatial heritage) has produced a cultural heritage valuation for the Twenthe airbase [30]. The organisation mentions four historical layers for this 'estate', which have had their effect on the internal arrangement of the area:

- 1 Old Landscape, to 1940
- 1. Old War, 1940-1945
- 2. Cold War, 1945-1989
- 3. New Airport 1989-2004

The Old Landscape of the Twenthe airbase is characterised by its great degree of openness. The founders of the first airport utilised this great openness and the availability of barren land that had fallen into disuse. The Old War is characterised by the use of camouflage, particularly from the air, by means of urban development and architectural measures.

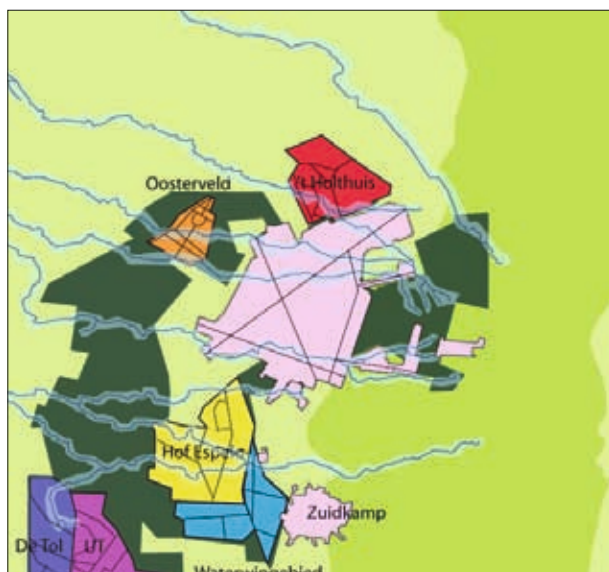


Illustration 3.3: internal organisation of the airbase and surrounding estates

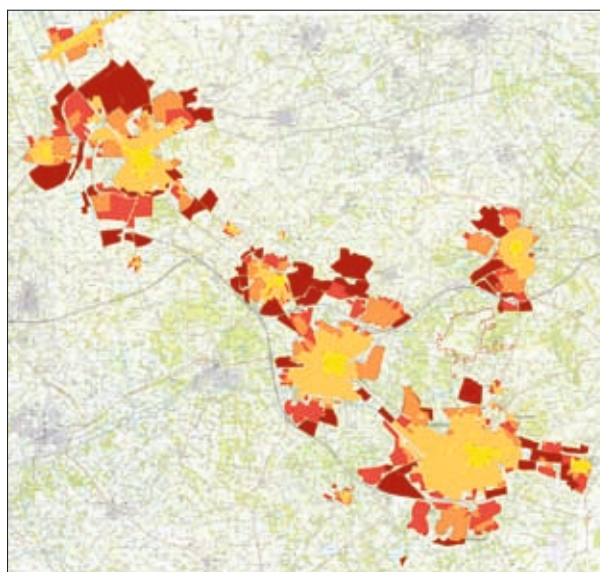


Illustration 3.4: Urban development timeline [47]

The buildings on Fliegerhorst were divided into small enclosed fields that were designed to look like agricultural settlements from the air. The architecture of the military buildings was based on traditional countryside architecture, as is easily recognisable in Zuidkamp. Camouflage was used differently during the Cold War, namely by covering bunkers and shelters with earth and vegetation. The buildings were modified to meet the needs of a stationed army, with more 'ordinary' operational buildings.

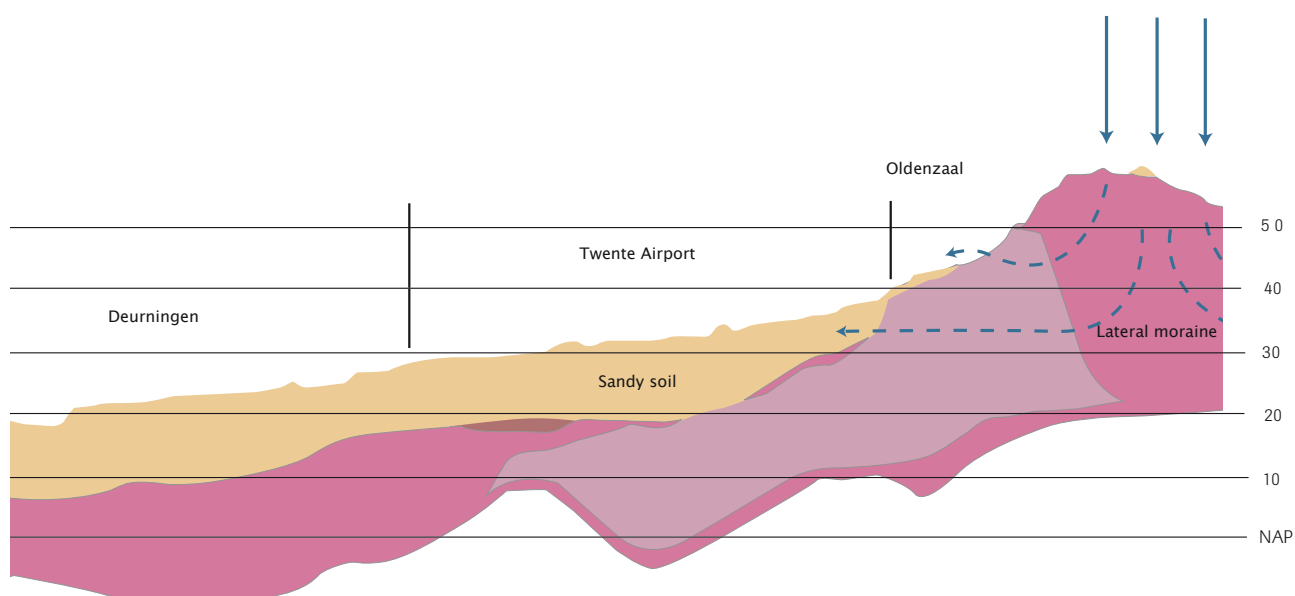
In the 'New Airport' period, there was expansion mainly in the southeast corner of the airbase for the purpose of civil aviation. Camouflage was no longer a dominant theme.

3.5 Urbanisation

From individual towns, the string of Twente towns of Almelo, Borne, Hengelo and Enschede have developed over the past century into a substantial conurbation in which they have almost merged into each other. Illustration 3.4 shows this development over the years. Geographically, Oldenzaal remains separated from the aforementioned towns. Together, the towns form part of a networked city. Between Enschede, Hengelo and Oldenzaal there is something akin to twinning. The middle area between the towns of Enschede, Hengelo and Oldenzaal has remained relatively open, partly because of the location and the noise contours of the Twente military airbase. The growth of Hengelo and Enschede developed along large infrastructural lines such as the national motorways A35 and A1.

The towns are expected to converge still further in the years ahead and urbanisation will gradually squeeze the triangle between Enschede, Hengelo and Oldenzaal. This development is already visible. Hengelo is expanding to the north and east, while Oldenzaal is developing to the west. Simultaneously, Enschede is developing a residential area called 't Vaneker to the north. (Ill. 3.4)

Illustration 4.1: Soil, relief and lateral moraine



4 Description of present situation

4.1 Soil & relief

By Dutch standards the planning area has a substantial variation in elevation. The area is located at the transition of Lonnekerberg (maximum 56 meters +NAP) to the flatter and lower-lying terrace. NAP is the Amsterdam Ordnance Datum. From east to west the elevation of the planning area decreases from a maximum of 40 m +NAP to 30 m +NAP; see illustration 4.1.

As a result of the pushing of layers of earth, Lonnekerberg has a very varied soil composition (including sand and tertiary clay). Tertiary clay occurs on the surface of the high eastern flank of the planning area. To the west of Lonnekerberg, fluvial-glacial sand has settled over a width of approximately 500 m. The rest of the area lies on a post-glacial alluvium or low terrace consisting of layered fine sands with clay banks and peat islands and here and there coarser and finer shingle. The soil consists of gleyic podsol with low-loam and slightly loamy fine sand.

4.2 Archaeology

The municipality of Enschede conducted archaeological desk research for the entire site of the Twenthe airbase in 2007 [8].

The planning area has a predominantly low archaeological expectation on the archaeological expectations map of the municipality of Enschede. As regards the finding of archaeological treasures from the hunters/collectors period, there is a medium expectation in at least part of the site, on account of a fossil brook branch. However, the airfield was severely damaged on several occasions during the war. In all probability these hostilities were accompanied by soil disruptions. The earth on the airfield was also ploughed up a few times in order to

restore the natural condition of nutrition. As archaeological treasures from the hunters/collectors period are usually located just below the surface, the likelihood of intact treasures from this period still being found is fairly small.

4.3 Soil contamination and munitions

A soil quality map was produced for the airbase in spring 2008 [24]. The map shows where there are serious soil contaminations that must be remediated by law. They are located in concentrated areas to the north of the runway and in Oostkamp. There is additionally scattered contamination for which the necessity of remediation will depend on the intended use of the land. The survey does not cover the entire area of the airbase. Soil remediation measures depend on the degree of contamination and on the function that the contaminated parts of the former airbase will fulfil in the future.

The likelihood of the presence of munitions on the airbase was identified. There is a great likelihood of munitions on the western side and around the runway [24].

Similarly, there are a few cases of soil contamination here and there in Zuidkamp and there is also a small likelihood of finding munitions [24]. Prins Bernhardpark and Overmaat have no appreciable cases requiring remediation and both locations are suspect with regard to the presence of explosives to a limited extent. (III. 4.2, 4.3)

4.4 Water system

Lonnekerberg is part of the Twente lateral moraine complex, where several brooks originate. On account of the thin aquifer on the lateral moraine, the brook system naturally responds very quickly: shortly after a shower the brooks are full of water, after which they return to their original level very

quickly. The brooks in the planning area belong to the upper courses and for that reason they are relatively narrow.

Lonnekerberg is the source region of Jufferbeek in the north and Leutinkbeek in the south. It was originally the source of two other brooks: Hesbeek and Blankenbellingsbeek. In the 19th century, gullies (ditches) were made on Lonnekerberg to allow forestation, thus accelerating the drainage of water from the hill. Intensive drainage of the airfield greatly changed the water management at the airbase and Hesbeek and Blankenbellingsbeek were 'cut off' and sunk. They are fed from drainpipes of the airfield. Further downstream to the west the water system has been changed through human intervention and Hesbeek, Blankenbellingsbeek and Leutinkbeek have been routed around Hengelo via Koppelleiding to the Twente Canal. Jufferbeek, which becomes Deurningerbeek, still has the most naturally meandering nature.

To the north of Zuidkamp runs Eschbeek, with a fairly natural look and meandering nature. A small distance south of Zuidkamp there is Vanekerbeek that runs along the suburban area of Enschede. This is a deeply sunken brook. (III. 4.4)

4.5 Flora and fauna

The airbase has rich flora and fauna with various species on the red list [36]. The combination of nutrient-restored grasslands with relatively young deciduous woods, coniferous woods and scrubs and the differences in groundwater and soil composition have resulted in a varied spectrum of flora and fauna. Among other things it is one of the most butterfly-rich places in the Netherlands. It has birds such as the skylark, wheatear, yellowhammer and quail that hardly exist any more on the arable land outside the airbase. Scattered across

the airbase and Zuidkamp there are pools that are important to amphibians like frogs, the great crested newt and the smooth newt. Bats have made their home in some bunkers on the airbase. At Zuidkamp there is also a variety of bat species. At valuable locations on the map there are exceptional vegetations that are coupled to the thin, open and wet growing conditions or thin heathland vegetations.

Zuidkamp, Overmaat and Prins Bernhardpark are ecologically less valuable than the airbase, despite the small variation on the site. This is due to the limited size and the location amidst nature-devoid and agriculturally intensively managed land. (Ill. 4.5)

4.6 Country estates

Around the airfield there is a belt of old and 19th-century country estates, including Lonnekerberg, 't Holthuis, Oosterveld, Oosterhof, Het Leutink and Hof Espelo.

The Landschap Overijssel Foundation has purchased a number of the country estates. Oosterveld is privately owned and open to the public under the Nature Conservation Act. Characteristic features of the country estates include a park-like layout, a contrast of curved and straight lines and the presence of exceptional types of shrubs and trees like rhododendron, the red beech, the bald cypress and other varieties and species. (Ill. 4.6)

4.7 Infrastructure

The airfield is located near the main infrastructure. North of the airbase there is the A1 motorway (Amsterdam-Berlin). Running parallel to this north of the motorway is the N342 road (Hengelosestraat). Running parallel to the south of the A1 is the Amsterdam – Berlin railway line.

From the A1, Vliegvelddweg/Weerseloseweg (N737) is the westerly access road along the airbase to Enschede-North. Kamp Overmaat and Zuidkamp are located on Vargershuizenweg and Braakweg that run to the east of this. On the eastern side of the airbase there is the N733 (Oldenzaalsestraat), on which Prins Bernhardpark is situated. At right angles to the N733 there are two roads: Noordergrensweg and Oude Deventerweg. These roads lead to the airbase on the eastern side [30]

The airbase site itself has a runway of 3 km long, a system of taxiways, a ring road and other road infrastructure that forms part of the military base. Within Zuidkamp there is a finely-meshed set of roads, with Zuidkampweg as the principal road. (Ill. 4.7)

4.8 Recreational network

Important elements for recreation and tourism are the route structures and the connections between the rural and urban areas in the triangle of Enschede, Hengelo and Oldenzaal. Around the airbase there is a finely-meshed network of cycle paths, footpaths and bridle paths. This network was designed partly by Twente Region, which means that longer routes are possible through the outlying area. The town edges form an important recreational area, with an emphasis on enjoying nature and the countryside in combination with manifestations of art and culture. This is combined as much as possible with playing fields, flower picking meadows, picnic spots and barbecue spots. The 'Enschede tour' is a good example of how this works, because it uses existing recreational routes through the area.

The airbase itself is surrounded by fences and is not accessible to the public. Opportunities can be created for new recreational routes in the area if the fences (or some of them) are removed. In the

current situation, the airbase is used for recreational air traffic (power planes, model aircraft and hang-gliders). (Ill. 4.8)

4.9 Buildings

The land of the former Twenthe airbase and the camps are located in a cultivated landscape with agricultural buildings, characterised by its openness. On the government-owned lands of the former Twenthe airbase there is a diverse spectrum of buildings in low densities, dating from different periods of time.

Airbase

Around the open heart of the airbase, i.e. the runway, there are several clusters of buildings, built between 1940 and 2000. In total there is approximately 70,000 m² of gross floor space. We have made a distinction between:

1. Noordzijde (North side)

This includes the 'bunch of grapes' consisting of shelters (covered parking areas for aircraft), a few hangars and operational buildings.

2. De Strip

On the flank of Lonnekerberg there are buildings that include the control tower, fire station, command bunker, a few other bunkers and a number of relatively new buildings.

3. Oostkamp

This area includes a few large hangars and the 'munitions street', i.e. a series of munitions bunkers and operational buildings.

4. Zuidzijde (South side)

This includes the terminal building for civil aviation and, adjacent to this (outside the planning area), the military buildings.

Scattered across the airbase site there are distinctive personal shelters, i.e. small concrete shelters for military personnel.

Illustration 4.2: Soil quality at the airbase [24]

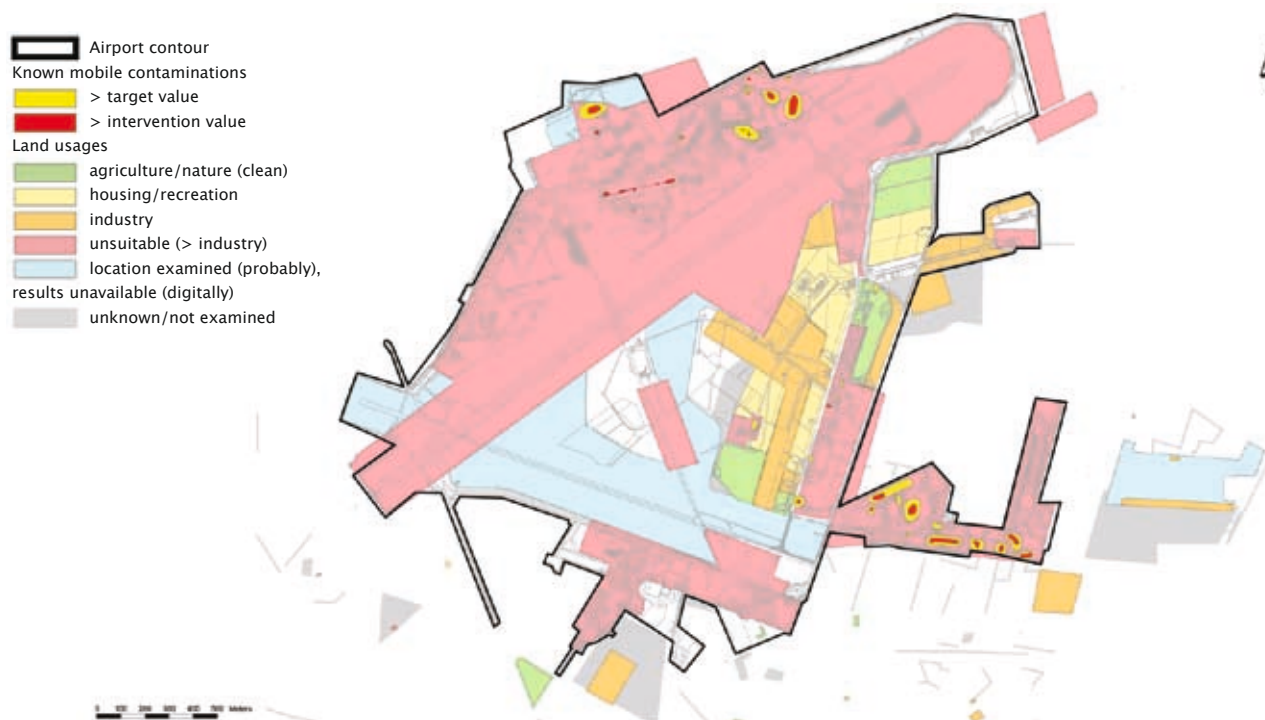


Illustration 4.3: Map showing likely places of explosives based on past research [24]

Prins Bernhardpark

The park includes buildings dating from the German occupation in the Second World War, with distinctive architecture inspired by the regional styles of construction, including the former officers' mess and guardroom building. In total, this area is ca 3,700 m² GFA.

Zuidkamp

Zuidkamp is characterised by buildings from the German occupation, including buildings at the entrance, a former chapel, a training building, an auditorium and a mortuary. There are also a few workshops and living quarters. Zuidkamp further has a relatively new officers' mess and a few sports fields. In total, this area measures ca 36,500 m² GFA.

Kamp Overmaat

In Kamp Overmaat there are a few former German military houses, the former dining room and a kitchen in country manor style, currently used as an office. In total, this area is ca 1,100 m² GFA.

Oversticht has a number of valuable individual buildings, ensembles of buildings, structuring line elements and valuable landscape/park/wood for each of these areas. Refer to [30].

4.10 Military structures and sites to be retained

Scattered across the area there are a few military assets and sites that will be retained. In some cases these are small enclaves, in others large areas on the southern edge of the airbase. The Ministry of Defence will continue to use a total of 19 ha for CIMIC purposes (Civil Military Cooperation), two transmitter complexes and a radar installation. See illustration 4.9. On Zuidkamp the Ministry of Defence will remain the owner of two clusters with a combined surface area of 4.5 ha, where a personnel restaurant and a number of living quarters are situated. (III. 4.9)

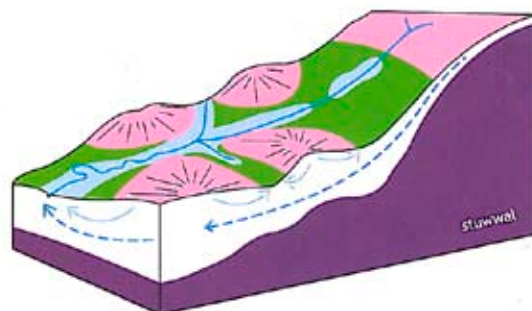
4.11 Spatial limitations

On the airbase there is equipment that imposes restrictions on the height of buildings in the vicinity. The maximum height of buildings will be determined in consultation with the Ministry of Defence. The assets concerned are two LVL/GL radio systems and a MASS radar. Within a radius of 600 meters of the radio systems and within a radius of 500 meters of the radar system there is a maximum permissible building height of 22 meters. Refer to illustration 4.10. The MASS radar imposes building restrictions in a radius of 15 NM (15 nautical miles is approximately 27.8 km); the maximum permissible height of buildings in this area is 45 meters relative to ground level at the position of the radar [37].

From the A1 motorway there is a pipeline along Vliegvelddweg. A number of pipelines run through the area that is subject to the Municipalities (Preferential Rights) Act, including three pipelines to the airbase. The airbase itself falls outside the noise contour of the A1. In the southeast corner of the airbase there is an obstruction zone a buffer around an operational building. (III. 4.9)



Illustration 4.4: Contour map and water system



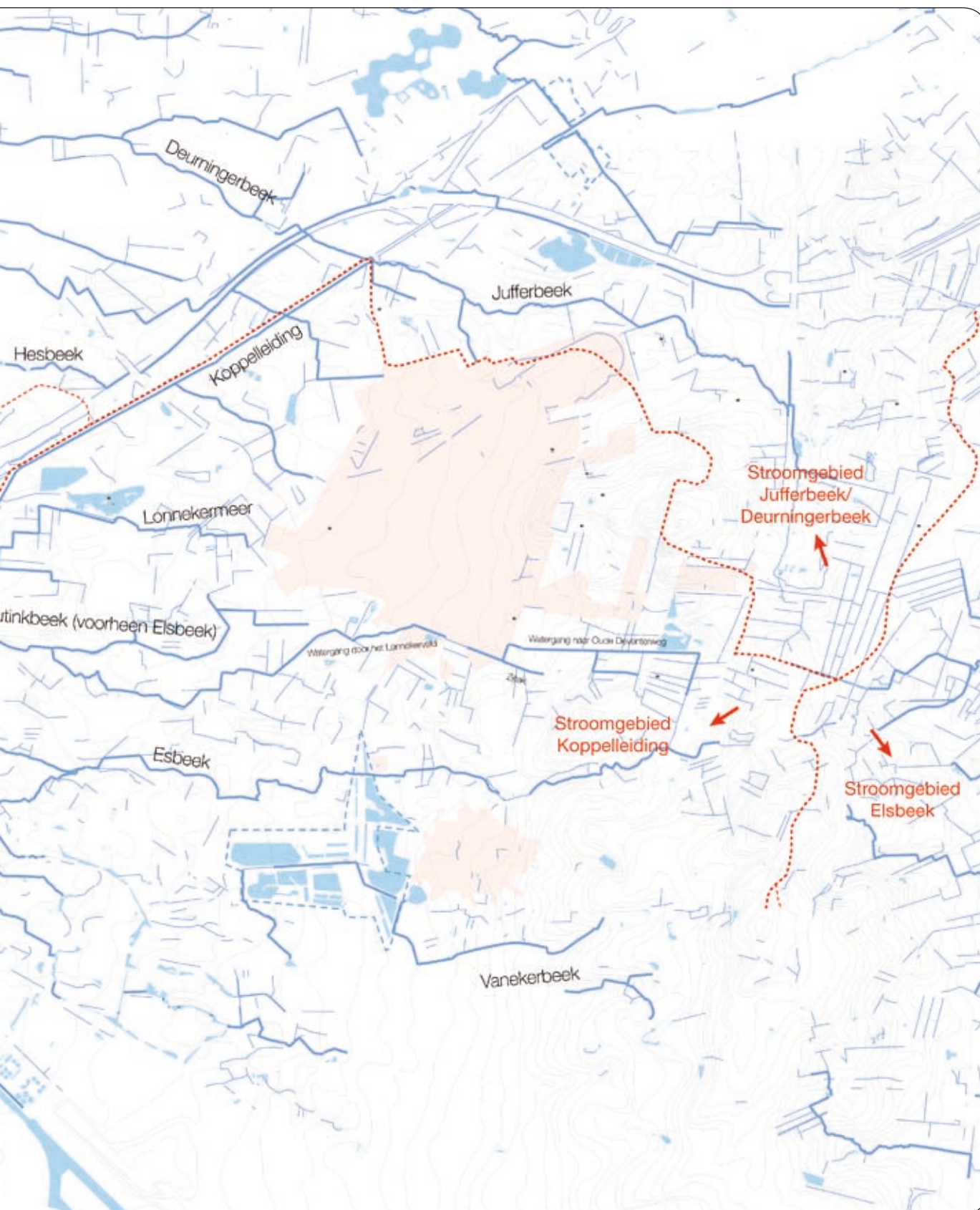


Illustration 4.5: Variety of vegetation types

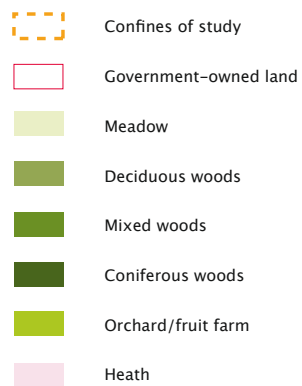






Illustration 4.6: Country estates around the airbase

-  Government-owned land
-  Country estate



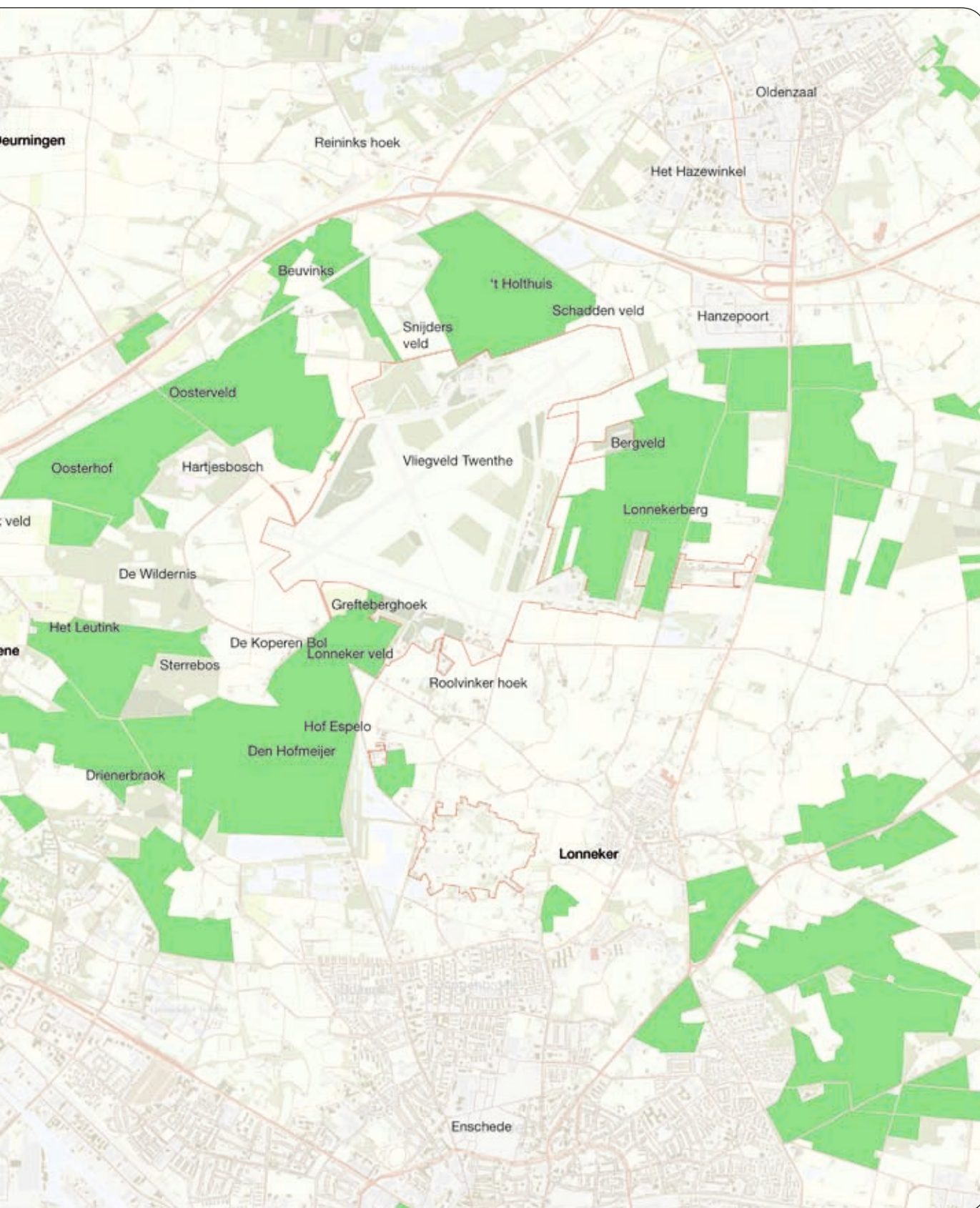
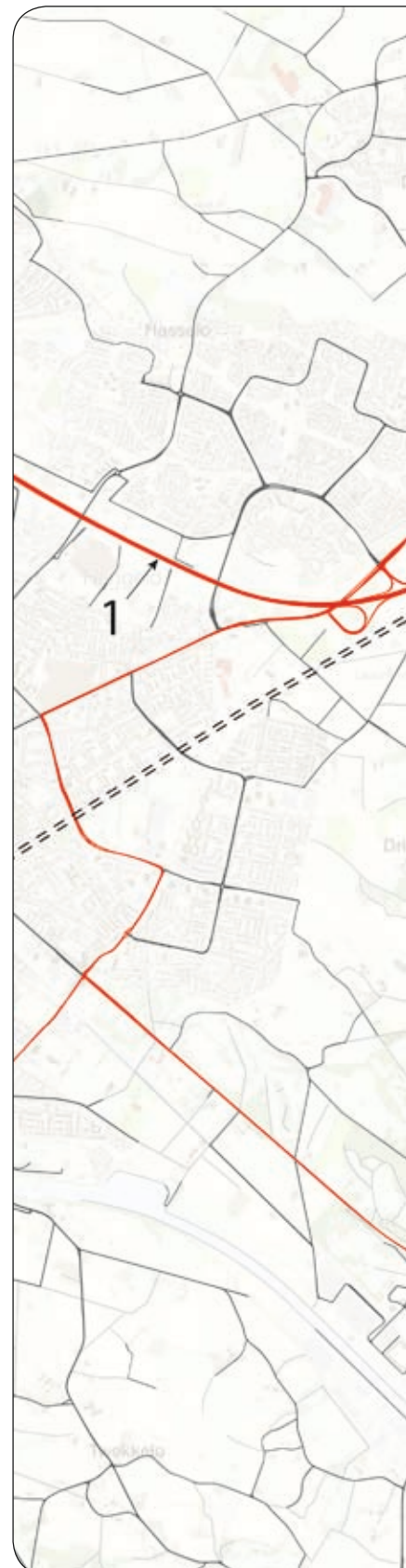


Illustration 4.7: Infrastructure network on and around the airbase



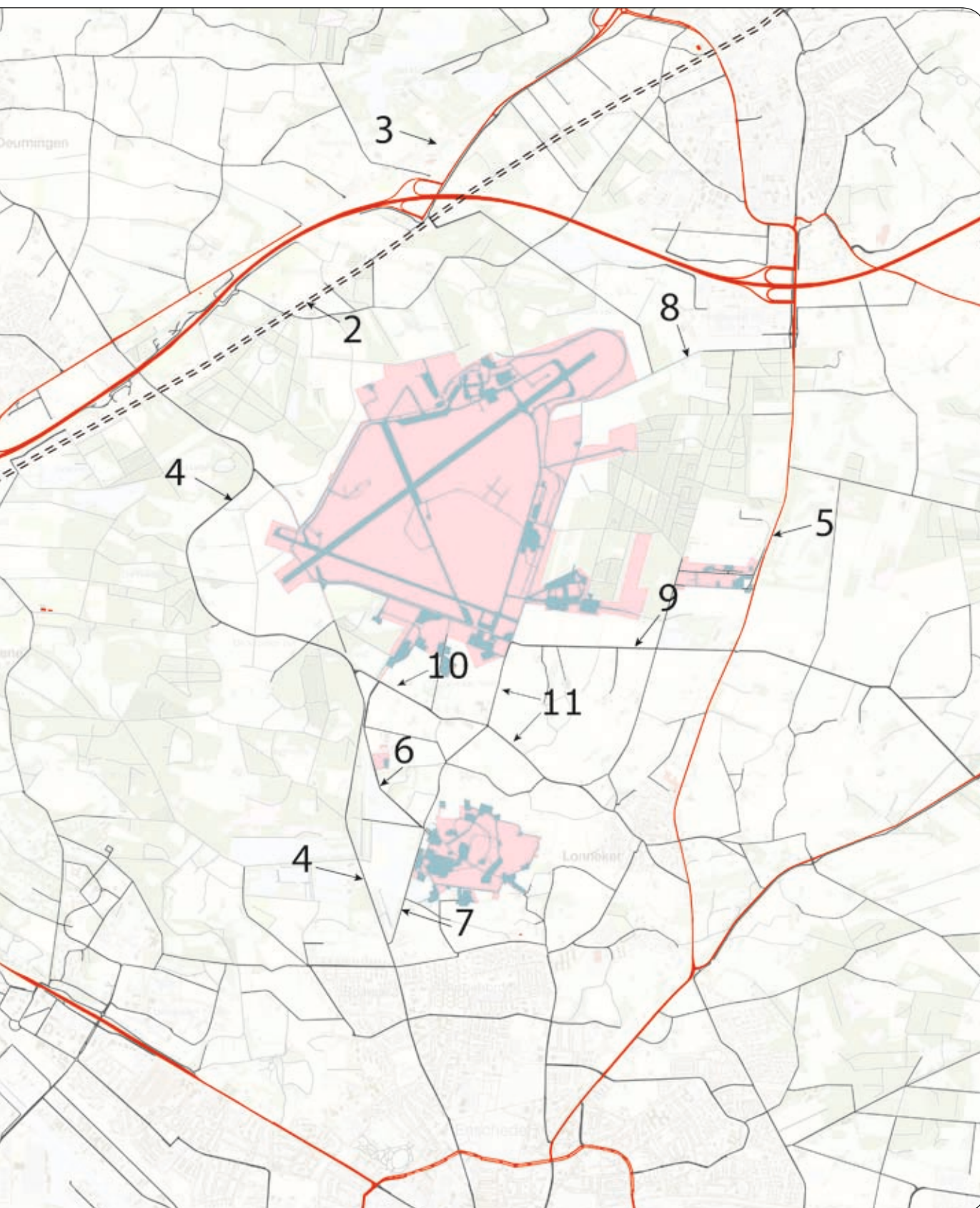










Illustration 4.8: Recreational route network around the airport

-  'Tour of Enschede' (in production)
-  Isolated cycle path
-  Cycleway over local road or parallel road
-  Primary cycle paths (Municipality of Enschede)
-  Secondary cycle paths (Municipality of Enschede)
-  Country estate
-  Government-owned land
-  Twente University



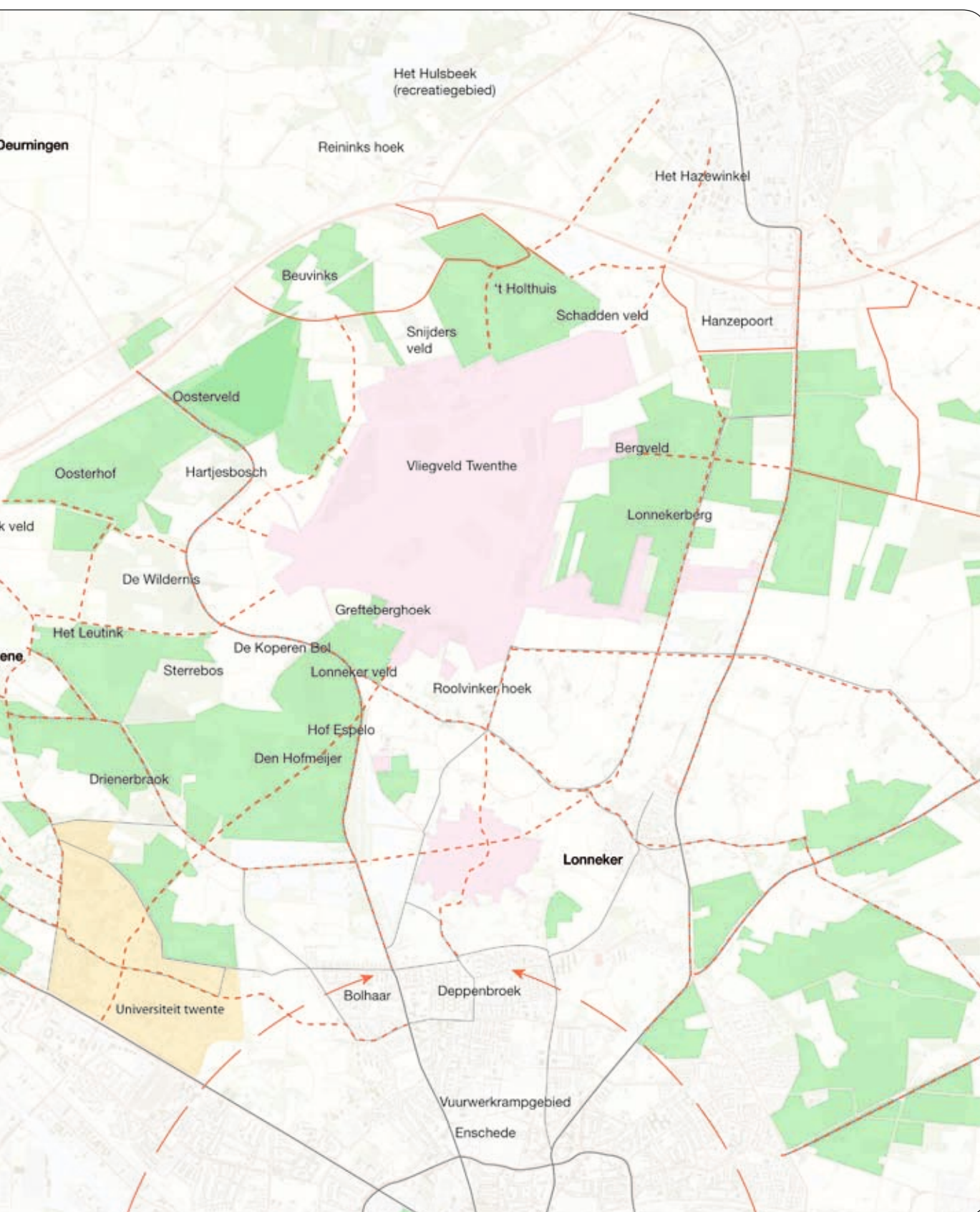







Illustration 4.9: Spatial limitations on and around the airbase

-  Government-owned land
-  Military assets and sites to be retained
-  Obstruction zones/maximum building height
-  Inventory of businesses: other | agricultural
-  Inventory of businesses_buffer
-  Enschede high-voltage line
-  Enschede gas line
-  Dinkelland lines
-  High-voltage line
Regional plan Overijssel 2000+
planning map 4 obstructions
-  Study of A1 motorway noise contour
-  WVG
-  Municipality borders

