



FRONTIERS OF THE ROMAN EMPIRE – THE LOWER GERMAN LINES

NOMINATION FILE FOR INSCRIPTION ON THE UNESCO WORLD HERITAGE LIST

PART II A - ANNEX 1 | CATALOGUE OF COMPONENT PARTS | NETHERLANDS



CLUSTER 1

VALKENBURG-CENTRUM

Auxiliary fort

No	State Party	Province	Municipality
1	Netherlands	Zuid-Holland	Katwijk

Brief description

The Valkenburg fort measured c. 120 x 160 m (1.7 ha) at its greatest extent, and was built on the western bank of the Roman Rhine close to its estuary, immediately bordering the river channel. The fort belongs to the reduced 'delta type', with two ranges of internal buildings instead of three. The fort was probably founded in AD 40 and evacuated in the second or third quarter of the 3rd century. The fort was initially built in earth-and-timber. In the late 1st or early 2nd century the headquarters were rebuilt in stone, and in the late 2nd century the defensive wall with its gates and intermediate towers were rebuilt in stone also. The northeast corner was eroded by the Rhine in the Middle Ages.

The plans of the successive forts have many common characteristics. In the last building phase the fort was surrounded by three ditches and a wall with four gates and corner towers. The rear part of the fort interior was occupied by the headquarters building, with barracks on each side of it. The front part included additional barracks and a series of other buildings, probably including some storage buildings. The earlier building phases had a broadly similar lay-out, notable differences being the absence of a rear gate, the occurrence of interval towers in the rampart in some phases, the presence of a large commander's house in the front part during the first building phase and less but larger barracks in phase 2/3.

Some finds from the Late Roman period suggest some activity in the period AD 270-450, but there are no known defensive structures from that phase. Tree-ring dates apparently confirming the continued presence of military structures in the Late Roman period have recently been proved erroneous, probably due to the lack of regional reference chronologies at the time when the dates were established.

Attributes and values

The Valkenburg fort is part of a screen of military posts in the delta that was built to protect a supply line to the Roman troops in Britain after the invasion of AD 43. It is the best known example of the 'delta type', which was specifically adapted to the primary task of observing and securing river traffic. The succession of at least six building phases, two of which lasted for a few years only, eminently illustrates both the vulnerability to erosion and the strategic importance of forts built on the edge of a river in a dynamic delta environment. In the lower delta downstream from Bunnik-Vechten ►16, Valkenburg is the only fort with cavalry attested, alongside Utrecht-Domplein ►15.

The fort is internationally renowned for the high quality preservation of timber remains, providing unique details of military engineering. Timber walls from the first building phase are preserved to a height of 0.5 m, which is extremely rare. The ramparts of the successive building phases demonstrate different designs, which may be due to different ethnic backgrounds of the garrisons or to changes in the availability of

building material. Although more than half of the fort has been excavated, the remaining parts are of immense value for the knowledge of Roman military timber building techniques. The preserved timber allows very precise dating of the building phases through application of the still developing technique of dendrochronology, which uses tree-ring patterns to determine age.

Integrity

Wholeness	Fair. The northeast corner of the fort was eroded in the Middle Ages and a considerable part of the fort interior was excavated in the 1940s and 1950s. Nearly all unexcavated parts have been included in the nominated property.
Intactness	Very good. Excavations have demonstrated that in places lower parts of stone walls may still be standing, while some large parts of stone walls have fallen into the inner ditch. Timber remains from all construction phases have been very well preserved as a result of the high groundwater table.
Exposure to threats	Minor. The nominated property is located in the town centre, but most of it is public space and in possession of the municipality.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains from the successive building phases are entirely authentic and the timber component is very well preserved as a result of the high groundwater table, providing a rare level of authenticity.
Location and setting	Fair. The highest point of the fort site offers a view to the present course of the Rhine, which is quite similar to the Roman course here.

Buffer zone

The very large buffer zone has been defined so as to encompass the known remains of the extended military complex including:

- The excavated parts of the fort, with some remains possibly preserved at the deepest excavation level; such possible remains are not threatened by most developments, and cannot be protected under national law.
- Parts of the defensive ditches which are less well preserved than those included in the component parts and/or which cannot be sustainably protected.
- The north-eastern corner of the fort, which was eroded by the Rhine, and has been included to define the extent of the fort.
- To the north and west of the fort: areas with projected remains of the civil settlement and one or more cemeteries, as indicated by incidental observations during construction works.
- To the south of the fort: possible remains of a bathhouse or temple and some minor military installations, parts of the civil settlement and a cemetery, stretches of the bank of the Roman Rhine and

some small tributaries with possible rubbish deposits, stretches of roads. The presence of these elements is indicated by incidental observations and by large-scale excavations to the southwest of (and excluded from) the buffer zone. Their character, distribution and preservation have been insufficiently attested.

Southward, the buffer zone extends as far as the northern component part of Valkenburg-De Woerd ►2a.

Valkenburg is one of the military complexes where only the military installation has been included in the nominated property. A considerable proportion of the associated structures – civil settlement, cemeteries, infrastructure – have been excavated, but the character and state of preservation of the remaining parts of these elements have not been satisfactorily established. For that reason these parts have been included in a buffer zone, but not in the nominated property. A representative selection of military *vici* and other associated elements has been included in component parts elsewhere, where the development pressure is not as high as at Valkenburg.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minor	With the exception of the Centrum component part (1b), development is unlikely. Within the mentioned part, several areas are designated for social, residential and commercial purposes in the land-use plan. In these areas development is allowed, but any intervention will have to comply with the heritage protection law.

Presentation

The ground plan of the southern gate of the fort has been marked with contrasting paving stones on the Castellumplein. The contours of the entire fort are indicated with large bronze nails showing an image of *Pretorium Agrippine* as indicated on the Peutinger Map (cf. below, Ancient sources). The Castellumplein is further adorned with an artwork partly inspired by the horses of the Roman cavalry and the near-by presence of the river Rhine. On the south-western side of the square, the Torenmuseum is housed in the rebuilt church tower. This museum provides a permanent exhibition about the Roman history of Valkenburg.

In the buffer zone, a section through the road has been reconstructed in concrete, where the modern road Leiden-Valkenburg (N206) cuts the Limes road south of the fort. A 25 m long fence in the form of a row of Roman shields has been placed along a road leading to a small ferry across the Rhine, symbolizing the relationship between the Roman fort and the river.

To accompany all this, a digital application has been developed which offers a virtual tour experience in and around the Roman fort of Valkenburg-Centrum. The app *Time Travel Valkenburg* is available for Android and Apple devices.

Community involvement

The Torenmuseum is tended by volunteers of the local society *Vereniging Oud Valkenburg*.

Ancient sources

It is uncertain whether it is the fort of Valkenburg-Centrum or the *vicus* of Valkenburg-De Woerd which is to be identified with *Praetorium Agrippinae* on the Tabula Peutingeriana (Segm. II.2), a medieval copy of a Roman road map. Latin *praetorium* is used for the quarters of a high officer, and may refer to the palace of a provincial governor (who was the commander of the provincial army), to the headquarters of a temporary camp, to the residence of an army commander in a more permanent camp or to a rest-house for travelling magistrates. *Agrippina (maior, the Elder)* was the name of the mother of the emperor Caligula and of her youngest daughter (*minor, the Younger*), who became the fourth wife of the emperor Claudius (*minor, the Younger*). In view of the generally accepted foundation date of AD 40 for the fort, during the reign of Caligula, the association may be with Agrippina the Elder. On the other hand, the Roman colony of Köln was named after Agrippina the Younger, who had been born there. Either way, and irrespective of its link with the fort or the *vicus*, *Praetorium Agrippinae* provides a direct historical connection between Valkenburg and the imperial house.

A wine barrel excavated within the fort was branded with the text C CAES AVG GER, short for Caius Caesar Augustus Germanicus, the official name of the emperor Caligula. The barrel must have been part of the supplies travelling with the emperor when he came to the North Sea coast in AD 40 with the aim of crossing to Britain, an attempt which was eventually aborted. The barrel constitutes a link with a major event in the military history of the Rhineland. The same stamp is known from Bunnik-Vechten ►16.

FURTHER DETAILS

main building phases

- 1 40-42 (timber)
- 1a 42-47 (timber)
- 2/3 47-69 (timber)
- 4 70-100/117 (timber)
- 5 100/117-180 (timber)
- 6 180-230+ (stone)

main research activities

- 1941-1954 fort, large-scale
- 1962-1980 fort, minor

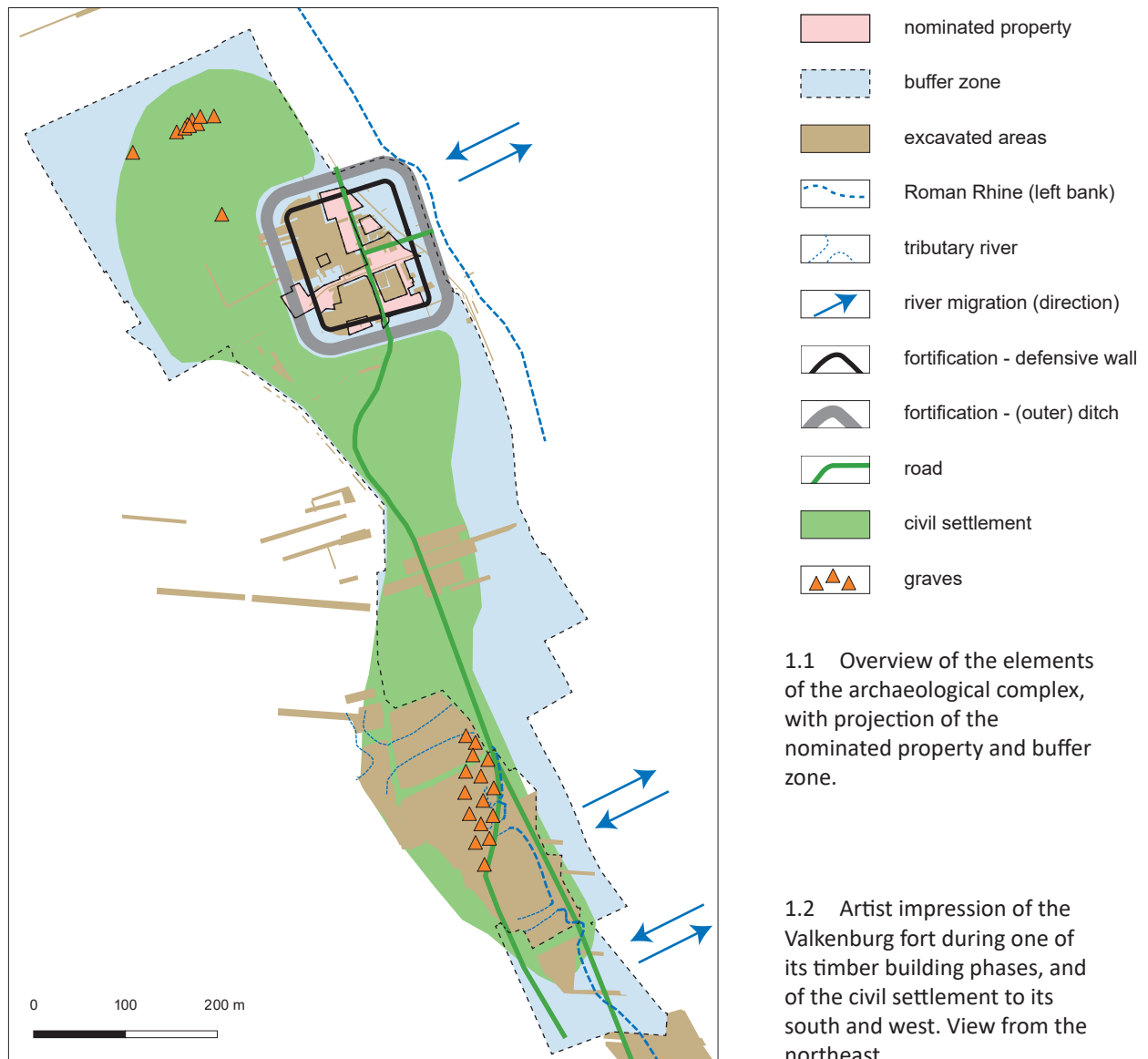
garrisons

- cohors III Gallorum (part): c. 40-42
- cohors IIII Thracum: c. 70-158+

literature

- Bogaers / Rüger 1974, 40-43; Van Giffen 1940-1944; 1948-1953; Glasbergen 1972; Van Beek/ Groenman-van Waateringe / Van Beek 1988.

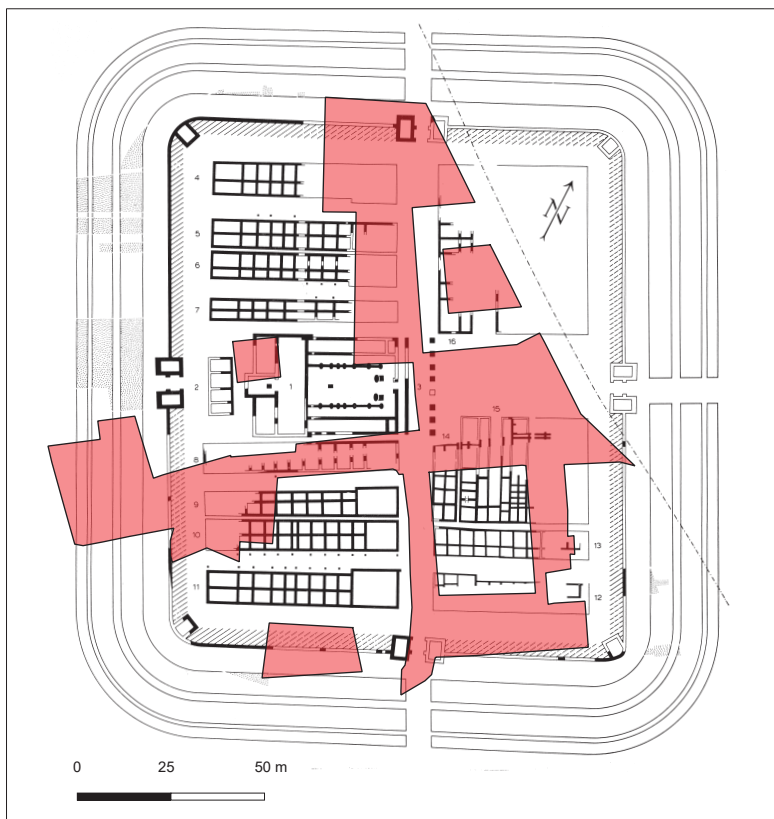
1 Valkenburg-Centrum



1 Valkenburg-Centrum



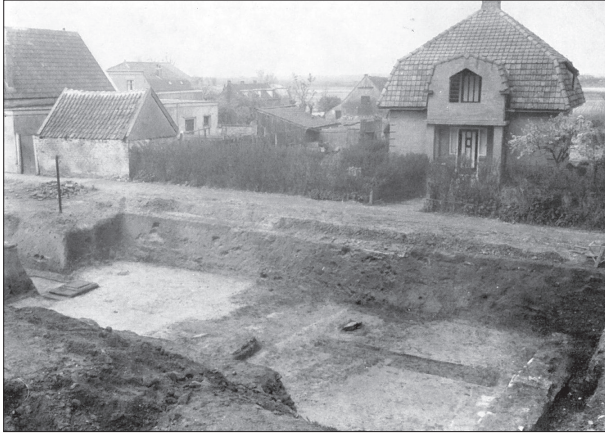
1.3 Contours of a gate tower of the stone fort, marked out in the pavement of the Castellumplein. View from the south.



1.4 Plan of the stone fort of period 6, with projection of the component parts.

1 Valkenburg-Centrum

1a Valkenburg-Centrum | Kerkweg



1.a View of the excavations in 1941, with the building in the background marking the location of the Kerkweg component part. View from the east.

1b Valkenburg-Centrum | Centrum



1.b View of the excavations in 1948, with a large part of the southern defensive wall of the stone fort collapsed into a defensive ditch. View from the west.

1d Valkenburg-Centrum | Kerkhof



1.d View of the excavations in 1948, with the southwest corner of the fort's defensive walls and ditches from successive timber building phases, immediately west of the Kerkhof component part. View from the west.

COMPONENT PART 1A

VALKENBURG-CENTRUM | KERKWEG

Auxiliary fort

No	State Party	Province	Municipality	Coordinates central point
1a	Netherlands	Zuid-Holland	Katwijk	E 597944.887 N 5782106.379

	Area in ha	Ownership
Component part	0.01	private
Buffer zone	20.12 (shared)	

Protection		
National law	Erfgoedwet	Designated: 1982
Other laws and instruments	Land-use plans (Bestemmingsplan Archeologie gemeente Katwijk, 29-10-2009; Valkenburg Dorp, 29-11-2012) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Kerkweg' includes the unexcavated northwest corner of the headquarters. This main building was situated in the same location within the fort throughout all the building phases. The rooms in this part of the headquarters building were probably used by pay and records clerks.</p> <p>The component part is isolated from the other parts of the fort because its immediate surroundings have been completely excavated.</p>

Attributes and values
<p>The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Fair. The component part is only a minor part of the interior of the fort, but contains a significant and valuable part of the headquarters building, the rest of which was excavated in the 1940s and 1950s.
Intactness	Very good. The component part is largely built over, but excavation of the opposite corner of the rear of the headquarters, which was equally built over, has demonstrated that this has not significantly affected the buried remains. The stone walls of the building were largely robbed out in the Middle Ages, but their timber pile foundations are still intact. Earlier timber building phases are very well preserved as a result of the high groundwater table.
Exposure to threats	Minimal. The component part is located in the town centre and private property, but adequately protected by the national heritage law.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design of the remaining parts of the headquarters building are fully authentic.
Materials and substance	Unaffected. The surviving remains from the successive building phases are entirely authentic and the timber component is very well preserved as a result of the high groundwater table, providing a rare level of authenticity.
Location and setting	Affected. The component part is largely built over and its relationship with the other parts of the fort is not self-evident.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The component part is designated as a residential area and garden in the land-use plan, with very limited possibilities for extension outside the current building. Any alteration of the current situation has to conform to the heritage protection law.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 1B VALKENBURG-CENTRUM | CENTRUM

Auxiliary fort

No	State Party	Province	Municipality	Coordinates central point
1b	Netherlands	Zuid-Holland	Katwijk	E 597981.918 N 5782062.260

	Area in ha	Ownership
Component part	0.63	municipality, private
Buffer zone	20.12 (shared)	

Protection		
National law	Erfgoedwet	Designated: 1982; exp. 2020
Other laws and instruments	Land-use plans (Bestemmingsplan Archeologie gemeente Katwijk, 29-10-2009; Valkenburg Dorp, 29-11-2012) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Centrum' includes various parts of the fort. Firstly, it includes most of the two main roads within the fort, the northwest part of the headquarters building and sections of the defensive structures throughout all the building phases. Secondly, it holds parts of the commander's quarters from the earliest phase, situated in the south-east corner of the fort. It also includes parts of infantry and cavalry barracks from the earliest phase, parts of cavalry barracks from subsequent phases 1a and 2/3, and parts of infantry as well as cavalry barracks from the later phases 4-6.</p>

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. The component part encompasses only a part of the interior of the fort, but the remains are significant in that they represent the various elements of a fort. The area bordering the northeast of the component part was eroded by the river Rhine in the Middle Ages.
Intactness	Very good. Approximately half of the component part is built over, but past excavations have demonstrated that damage is generally limited to cellars and (former) wells, which have not touched the early levels of the fort. The stone walls of the building were largely robbed out in the Middle Ages, but the lower courses are preserved in places and their timber pile foundations have normally survived. Earlier timber building phases are very well preserved as a result of the high groundwater table.
Exposure to threats	Minor. The component part is located in the town centre. Substantial parts are owned by the municipality. Privately owned plots, where some development is possible, are adequately protected by the heritage law.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains from the successive building phases are entirely authentic and the timber components are very well preserved as a result of the high groundwater table, providing a rare level of authenticity.
Location and setting	Fair. The highest point of the fort site offers a view to the present course of the Rhine, which is not far from the Roman course here.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minor	In the land-use plan the area has mixed designations. Part is designated as green area or for traffic, with limited risk for development. The remainder is designated for social, residential and commercial purposes. In these areas development is allowed,

(iii) flooding and river erosion	minimal	but any intervention will have to comply with the heritage protection law.
		The component part is partly located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 1C

VALKENBURG-CENTRUM | RAADHUIS

Auxiliary fort

No	State Party	Province	Municipality	Coordinates central point
1c	Netherlands	Zuid-Holland	Katwijk	E 597990.540 N 5782106.379

	Area in ha	Ownership
Component part	0.03	municipality, private
Buffer zone	20.12 (shared)	

Protection		
National law	Erfgodewet	Designated: 1982
Other laws and instruments	Land-use plans (Bestemmingsplan Archeologie gemeente Katwijk, 29-10-2009; Valkenburg Dorp, 29-11-2012) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Raadhuis' is situated in the northeast corner of the fort. In the excavated area surrounding this component part, traces of large but otherwise unidentified buildings dated to phases 2/3 and 5-6 have been uncovered. In the earliest building phase cavalry barracks were situated here, providing room for the soldiers, their horses and equipment.</p> <p>The component part is isolated from the other parts of the fort because its immediate surroundings have been almost completely excavated.</p>

Attributes and values
<p>The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Fair. The component part is only a minor part of the interior of the fort, but contains partial remains of significant and valuable internal buildings excavated in the 1940s and 1950s. The area to the east of the component part was eroded by the river Rhine in the Middle Ages.
Intactness	Good. The component part is largely built over, but excavation of other built-over areas has demonstrated that this has not significantly affected the buried remains. The higher levels have suffered from post-Roman erosion by the Rhine, but earlier timber building phases are very well preserved as a result of the high groundwater table.
Exposure to threats	Minimal. The component part is located in the town centre and private property. However, the former village hall occupying most of the area is a municipal (built) monument.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains from the successive building phases are entirely authentic and the timber components are very well preserved as a result of the high groundwater table, providing a rare level of authenticity.
Location and setting	Affected. The component part is largely built over and its relationship with the other parts of the fort is not self-evident.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The component part is designated as a residential area and garden in the land-use plan, with very limited possibilities for extension. It is occupied by the former village hall, which is a municipal monument. Any intervention must conform to the heritage protection law.

(iii) flooding and river erosion minimal

The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 1D

VALKENBURG-CENTRUM | KERKHOF

Auxiliary fort

No	State Party	Province	Municipality	Coordinates central point
1d	Netherlands	Zuid-Holland	Katwijk	E 597989.849 N 5781996.767

	Area in ha	Ownership
Component part	0.03	other
Buffer zone	20.12 (shared)	

Protection		
National law	Erfgodwet	Designated: 1982
Other laws and instruments	Land-use plans (Bestemmingsplan Archeologie gemeente Katwijk, 29-10-2009; Valkenburg Dorp, 29-11-2012) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
For a general description see the text concerning the cluster.
The component part 'Kerkhof' is situated in the south-western corner of the fort. It includes a section across the defensive structures of the fort. Initially these consisted of an earth-and-timber wall surrounded by three ditches. In building phase 6 the wall was rebuilt in stone.
The component part is separated from the other parts of the fort by completely excavated areas.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. The component part is only a minor part of the defences of the fort, but it contains a significant section across the defensive works of all building phases.
Intactness	Very good. The component part has never been built over, but has been used as a cemetery since the Early Middle Ages. An adjacent excavation has demonstrated that this use has not harmed the Roman remains, and that several courses of the stone defensive wall from the last building phase are still in place, which is quite rare in the delta. The preceding timber building phases are very well preserved as a result of the high groundwater table.
Exposure to threats	Minimal. Situated beneath the church yard south of the Hervormde Protestante Kerk, the remains of the fort's defensive structures are not significantly exposed to threats.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains from the successive building phases are entirely authentic and the timber components are very well preserved as a result of the high groundwater table, providing a rare level of authenticity.
Location and setting	Affected. The component part is now a church yard, and its relationship with the other parts of the fort is not self-evident.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The component part is located in the southern part of the church yard. Any development here is unlikely.

Presentation
See the text concerning the cluster.

Community involvement
See the text concerning the cluster.

Ancient sources
See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

CLUSTER 2

VALKENBURG-DE WOERD

Civil settlement, Limes road, quays

No	State Party	Province	Municipality
2	Netherlands	Zuid-Holland	Katwijk

Brief description

The civil settlement of Valkenburg-De Woerd was situated c. 1 km south of the fort in Valkenburg-Centrum ►1, close to the Roman Rhine, from which it was separated by the Limes road which followed the river bank. Its relationship with the fort at Valkenburg-Centrum is not clear. Built on an artificially raised platform, necessitated by the wet conditions near the estuary of the Rhine, the settlement consisted of a series of strip houses facing the Limes road and attested over a distance of c. 170 m.

The river bank was lined with rows of posts, while parallel series of heavy posts indicate the presence of quays and storage buildings. The layout and finds assemblage justify the interpretation of the site as a military *vicus*, but the long distance to the fort of Valkenburg-Centrum is peculiar. The two sites are separated by various civil and military buildings and a large cemetery, which were extensively excavated in the 1980s; any remaining parts of that complex are included in the buffer zone of Valkenburg-Centrum.

The Limes road was constructed on an embankment lined with heavy posts, and there are strong indications that the road was repositioned at some point, possibly due to flooding, as has been recorded further to the north. The road has been attested over 200 m, but the two component parts are likely to include a further 250 m. Habitation at Valkenburg-De Woerd started around AD 50 and lasted until the middle of the 3rd century.

Attributes and values

Valkenburg-De Woerd is the best known example of a military *vicus* in the Rhine delta, but its location at a considerable distance from the fort of Valkenburg-Centrum ►1 is peculiar. Paradoxically, excavations immediately outside other forts in the delta have so far failed to produce clear layouts of extra-mural settlements, which adds to the value of the remains here.

Before the strip houses were built, the area was raised to make it suitable for habitation. Relatively small plots of land were enclosed by rows of posts; the enclosed sections were then filled with cut sods. The careful preparation of the site was clearly a response to the wet conditions in the delta – an excellent illustration of a key value of the nominated property. The same can be said of the rows of posts lining the Limes road, the quays and the river bank.

Integrity	
Wholeness	Fair. Part of the civil settlement, which developed along the Limes road, has been excavated. Unexcavated parts where the presence of further remains may be projected on account of the layout of the settlement, supported by a coring survey, have been included in the nominated property.
Intactness	Very good. Excavations have demonstrated that the timber posts lining the Limes road on both sides are in a good condition and that well-preserved timber and organic remains are present at lower levels of the settlement area.
Exposure to threats	Moderate. Most of the nominated property is in agricultural use (greenhouse farming), and designated for that purpose in the land-use plan. The area is expected to be developed as a business park in the near future, but any plans have to comply with the regulations of the heritage protection law.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. Timber remains of the civil settlement and the Limes road are projected to be well preserved.
Location and setting	Affected. The area is largely built over by greenhouses and is bordered by a road of regional importance. The river Rhine has moved c. 300 m away from the settlement, and cannot be seen from the site at present.

Buffer zone
<p>The large buffer zone connects the two components parts and extends further to their west and south. The northern part is additionally protected to its north by the buffer zone of Valkenburg-Centrum ►1. The area east of the component parts – encompassing the silted-up Roman course of the Rhine and the medieval habitation on top of it – was completely excavated in the 1980s.</p> <p>The part of the buffer zone lying between the two component parts was excavated in the 1970s. The excavation documentation indicates that some features at the deepest excavation level were occasionally left in place, but these cannot be protected under national law. Recent corings and trial trenches in the western part of the buffer zone have produced only a few Roman features and finds. Their character and association with the <i>vicus</i> are uncertain.</p> <p>The southern part of the buffer zone has been delineated to include a possible further continuation of the settlement to the south, which could not be properly attested in a coring survey. Further south the former river bank suffered much from clay extraction.</p>

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) industrial development	moderate	The expected development of Valkenburg-De Woerd as a business park has been addressed under the heading of 'Integrity' (see above).
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation
Not applicable.

Community involvement
Not applicable.

Ancient sources
<p>It is uncertain whether it is the fort of Valkenburg-Centrum or the <i>vicus</i> of Valkenburg-De Woerd which is to be identified with <i>Praetorium Agrippinae</i> on the Tabula Peutingeriana (Segm. II.2), a medieval copy of a Roman road map. Latin <i>praetorium</i> is used for the quarters of a high officer, and may refer to the palace of a provincial governor (who was the commander of the provincial army), to the headquarters of a temporary camp, to the residence of an army commander in a more permanent camp or to a rest-house for travelling magistrates. <i>Agrippina (maior, the Elder)</i> was the name of the mother of the emperor Caligula and of her youngest daughter (<i>minor, the Younger</i>), who became the fourth wife of the emperor Claudius (<i>minor, the Younger</i>). In view of the generally accepted foundation date of AD 40 for the fort, during the reign of Caligula, the association may be with Agrippina the Elder. On the other hand, the Roman colony of Köln was named after Agrippina the Younger, who was born there. Either way, and irrespective of its link with the fort or the <i>vicus</i>, <i>Praetorium Agrippinae</i> provides a direct historical connection between Valkenburg and the imperial house.</p>

FURTHER DETAILS

main building phases

I	50-80 (timber)
II	80-90 (timber)
III	90-120 (timber)
IV	120-190 (timber)
VI	190-200/210 (timber)
VI	200/210-250 (timber)

main research activities

1922, 1927	trenches
1947-1948	trenches
1972	excavation

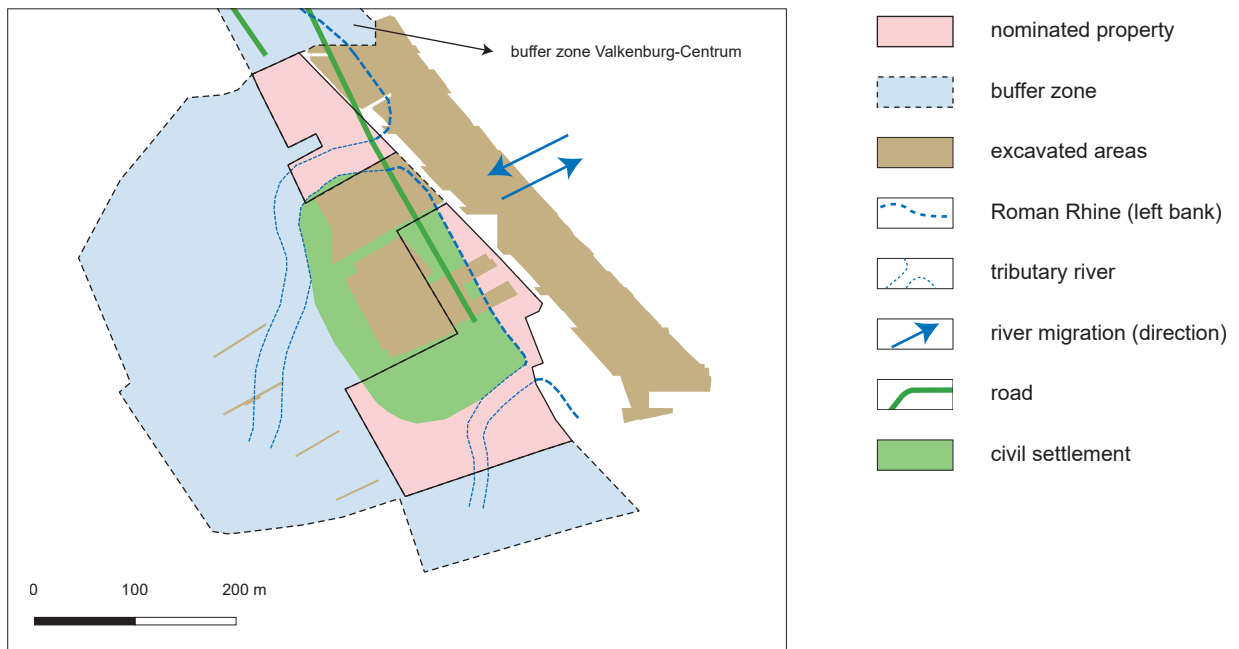
garrisons

n.a.

literature

Van Dierendonck et al. 1993; Vos / Van der Linden 2011.

2 Valkenburg-De Woerd



2.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



2.2 Timber revetments collapsed into the northern tributary of the Rhine. View from the ##.

2 Valkenburg-De Woerd



2.3 Two parallel rows of posts lining the Limes road, excavated in 2019 immediately north of De Woerd. View from the south.



2.4 Schematic overview of the Limes road and adjacent civil settlement c. AD 120-190, as excavated in 1972 between the two component parts.



2.5 Artist impression of the Limes road and adjacent civil settlement. View from the south.

COMPONENT PART 2A

VALKENBURG-DE WOERD | NORTH

Civil settlement, Limes road.

No	State Party	Province	Municipality	Coordinates central point
2a	Netherlands	Zuid-Holland	Katwijk	E 598348.377 N 5781179.677

	Area in ha	Ownership
Component part	0.97	municipality?, private
Buffer zone	12.18 (shared)	

Protection		
National law	Erfgodwet	Designated: 1982
Other laws and instruments	Land-use plans (Landelijk Gebied 1994, 18-10-1995; Bestemmingsplan Archeologie gemeente Katwijk, 29-10-2009) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
For a general description see the text concerning the cluster.
In this northern component part there is evidence for a westward bend in the Limes road, probably a result of its earlier straight course being washed away by the river, as has been attested during excavations further north. Quays and storage buildings are therefore not to be expected here. Just south of the bend in the road, part of a channel connected to the Roman Rhine has been discovered. A bridge or ford would have been needed here to continue the direct line of the Limes road. A similar situation is encountered in the southern component part of this nominated property ►2b.

Attributes and values
The attributes and values are common to both component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. Part of the civil settlement along the Limes road has been excavated. Unexcavated areas where the presence of further remains may be projected on account of the layout of the settlement, supported by a coring survey, have been included in the nominated property.
Intactness	Very good. Excavations have demonstrated that the timber posts lining the Limes road on both sides are in a good condition and that well-preserved timber and organic remains are present at lower levels in the settlement area.
Exposure to threats	Moderate. Most of the nominated property is in agricultural use (greenhouse farming), and designated for that purpose in the land-use plan. The area is expected to be developed as a business park in the near future, but any plans have to comply with the regulations of the heritage protection law.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. Timber remains of the civil settlement and the Limes road are projected to be well preserved.
Location and setting	Affected. The area is largely built over by greenhouses and is bordered by a road of regional importance. The river Rhine has moved c. 300 m away from the settlement, and cannot be seen from the site at present.

Buffer zone
The buffer zone is shared by both component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) industrial development	moderate	The expected development of Valkenburg-De Woerd as a business park has been addressed under the heading of 'Integrity' (see above).
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

Not applicable.

Community involvement

Not applicable.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 2B

VALKENBURG-DE WOERD | SOUTH

Civil settlement, Limes road, quays

No	State Party	Province	Municipality	Coordinates central point
2b	Netherlands	Zuid-Holland	Katwijk	E 598497.511 N 5780943.914

	Area in ha	Ownership
Component part	3.25	municipality, private
Buffer zone	12.18 (shared)	

Protection		
National law	Erfgoedwet	Designated: 1982; exp. 2020
Other laws and instruments	Land-use plans (Landelijk Gebied 1994, 18-10-1995; Bestemmingsplan Archeologie gemeente Katwijk, 29-10-2009) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>In this southern component part excavations have revealed the presence of rows of posts, quays and storage buildings on the river bank. The Limes road continues in a straight line on which the strip houses were orientated. About halfway through this component part, the course of the road crosses a channel connected to the Roman Rhine, similar to the situation in the northern component part ►2a. It has been shown that the road in this area had at least two phases, with the latest phase dated to AD 123/125.</p>

Attributes and values
<p>The attributes and values are common to both component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Fair. Part of the civil settlement along the Limes road has been excavated. Unexcavated areas where the presence of further remains may be projected on account of the layout of the settlement, supported by a coring survey, have been included in the nominated property.
Intactness	Very good. Excavations have demonstrated that the timber posts lining the Limes road on both sides are in a good condition and that well-preserved timber and organic remains are present at lower levels in the settlement area.
Exposure to threats	Moderate. Most of the nominated property is in agricultural use (greenhouse farming), and designated for that purpose in the land-use plan. The area is expected to be developed as a business park in the near future, but any plans have to comply with the regulations of the heritage protection law.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. Timber remains of the civil settlement and the Limes road are projected to be well preserved.
Location and setting	Affected. The area is largely built over by greenhouses and is bordered by a road of regional importance. The river Rhine has moved c. 300 m away from the settlement, and cannot be seen from the site at present.

Buffer zone
The buffer zone is shared by both component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) industrial development	moderate	The expected development of Valkenburg-De Woerd as a business park has been addressed under the heading of 'Integrity' (see above).
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation
Not applicable.

Community involvement
Not applicable.

Ancient sources
See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 3 VOORBURG-ARENTSBURG

Town, harbour

No	State Party	Province	Municipality	Coordinates central point
3	Netherlands	Zuid-Holland	Leidschendam-Voorburg	E 592545.604 N 5768560.770

	Area in ha	Ownership
Component part	11.88	municipality, private
Buffer zone	6.45	

Protection		
National law	Erfgoedwet	Designated: 1998
Other laws and instruments	Land-use plans (Rotterdamsebaan, 12-11-2013; Voorburg West/Park Leeuwenbergh, 11-10-2016) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>Although there appears to have been a civil settlement already in the late 1st century, the attested names of <i>Forum Hadriani</i> and <i>Municipium Aelium Cananefatium</i> demonstrate that the town owed its existence largely to the emperor Publius Aelius Hadrianus (AD 117-138). It was therefore a very late creation in the frontier zone, intended to serve as the administrative centre of the tribal area of the Cananefates.</p> <p>The built-up area of the town was divided into rectangular building blocks (<i>insulae</i> or 'islands') of irregular size and shape. Most were subdivided in elongated strips with houses at one end, revealing an initial ribbon development atypical for a Roman town. The town houses and other buildings were mainly timber built, but in the centre of the town stood stone buildings, including a large bathhouse. At some point the town was surrounded with a stone wall and a double ditch, enclosing an area of around 9-14 ha in different phases of its existence. The orientation of the town wall differs from that of the building blocks.</p> <p>The overall finds assemblage of the town has some particular military characteristics, pointing to the town's contribution to the supply of the regional military infrastructure. In AD 160 a natural channel within the town area was transformed into a harbour by the construction of timber revetments and quays. The harbour was connected to Corbulo's canal ►4, allowing transport to the Rhine frontier in the north as well as to the estuary of the Meuse and the Waal to the south, and that of the Scheldt still further south, a major port for trade with Britain. In the early 3rd century AD repairs were made to the harbour quays. The very limited</p>

number of finds from the Late Roman period cannot be taken as proof that the town was still in existence in the 4th century.

Attributes and values

Towns in the Lower German frontier zone developed very slowly. The development of this regional capital was vigorously promoted by the emperor Hadrian, making it the latest known urban creation in the Rhineland. There are several indications that the Roman army was involved in the construction of public buildings, underlining the lack of any regional basis for an urban centre.

Some time after its creation *Forum Hadriani* seems to have played a part in the supply of the military infrastructure in the region. Its harbour and the connection to Corbulo's canal ►4 facilitated transport in different directions.

The discovery of timber quays and revetments of the town harbour and many wells lined with wooden barrels or frames provides evidence that conditions for the preservation of organic remains are favourable. Excavations in the early 19th century demonstrated that the lower courses of stone walls and stone cellars are preserved, which is quite rare in this area.

Integrity

Wholeness	Good. Large parts of the town and the unexcavated parts of its harbour are included in the nominated property.
Intactness	Good/very good. Good: Remains of the latest stone building phase are still present in many places, but the walls have generally been robbed out. Very good: Timber remains and wooden objects are well preserved as a result of the high groundwater table. Some standing stone walls are known from a cellar.
Exposure to threats	Minor. The nominated property is located in an urban area, but a large part of it is a public park and there are only a few buildings, mostly in earlier excavated areas. The hospital in the eastern part of (but largely outside) the nominated property is expected to make way for new developments, but any building project will have to comply with the regulations of the heritage protection law.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. All remaining materials are authentic. Excavations have shown that parts of stone buildings have survived and that timber remains have been preserved, especially of deep constructions such as wells, gutters and pile foundations of stone walls.

Location and setting	Fair. The association of the town with Corbulo's canal can still be read from the presence of the modern Vliet (or Rijn-Schiekanaal), a medieval waterway which runs parallel to a large part of Corbulo's canal ►4 and borders the component part.
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Buffer zone

The buffer zone includes the excavated northwest corner and the supposed northeast corner of the town.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minor	A large part is situated within the confines of a public park, which is designated as green area or garden in the land-use plans. A small strip in the north is designated as a residential area. In the centre an area 3 ha large is designated for communal gardens, with very strict regulations for building. To the east, an area 5 ha large is designated for social purposes connected with the hospital which was spared out from the component part. The hospital is expected to make place for new developments. Any intervention within the component part will have to comply with the heritage protection law.
(iii) flooding and river erosion	minimal	A small part of the component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

A commemorative column and six so-called 'city beacons' have been placed in the public park in the centre of the Roman town to inform the public about *Forum Hadriani*. In two of the 'beacons', fragments of Roman pottery are on display. In the adjacent residential area the course of the city wall is marked out in the pavement.

Community involvement

The local horticultural society takes pride in knowing that their gardens are located within the core zone of the ancient Roman city. On occasion members of the local amateur archaeological group *Archeologische Werkgroep Leidschendam-Voorburg* conduct tours through and around the public Park Arentsburg. Outside

the buffer zone, the story of *Forum Hadriani* is told in the nearby Museum Swaensteyn, which is largely run by volunteers.

Ancient sources

The Roman settlement is known by two names which seem to have been in use simultaneously, at least for some time. On the Peutinger map, a medieval copy of an ancient Roman map, one can discern the name *Foro Adriani*, roughly there where one would situate modern-day Voorburg (Segm. II.2). The name *Forum Hadriani* is also mentioned in a funerary inscription found in Hungary, which commemorates a woman originating from '*Forum Hadrianensis* in the province of *Germania Inferior*' (CIL III 4279). This inscription has been dated to c. AD 170-250.

Around AD 150 the emperor Hadrian granted the Roman settlement privileges and it became a *municipium* (town with a legal status). As demonstrated by the text inscribed on two Roman milestones found in the coastal region west of the Roman settlement, it was henceforth (also) known as *Municipium Aelium Cananefatium*. The names appear as the abbreviation *MAC* on a milestone found in Den Haag-Wateringse Veld (AE 2003, 1229) dated to AD 150-151, and as *MAEC* on a milestone found in Naaldwijk-Monster (CIL XIII 9165), which has been dated to AD 162.

FURTHER DETAILS

main building phases

x	c. 15-85
I	c. 85-121/122
II	c. 121/122-175
III	c. 175-275
IV	c. 275-400?

main research activities

1827-1834	excavations
1908-1915	excavations
1984-1988	excavations
2005-2008	excavations

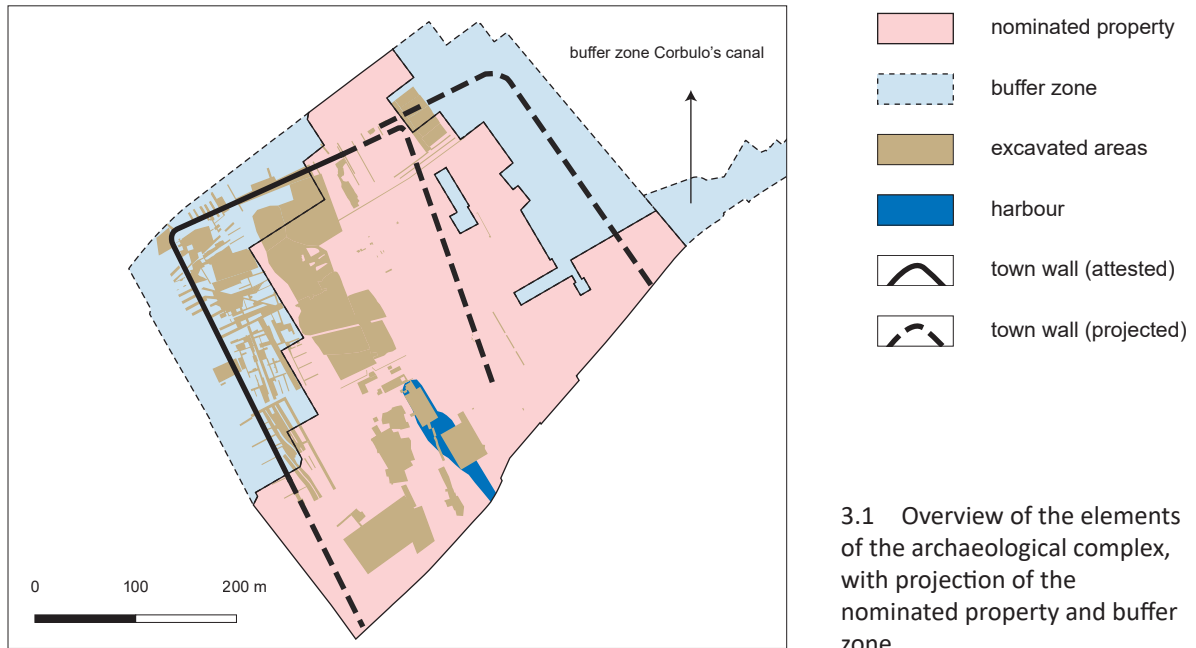
garrisons

n.a.

literature

De Jonge et al. 2006; Bink / Franzen 2009; Buijtendorp 2010; Driessen / Besselsen 2014.

3 Voorburg-Arentsburg

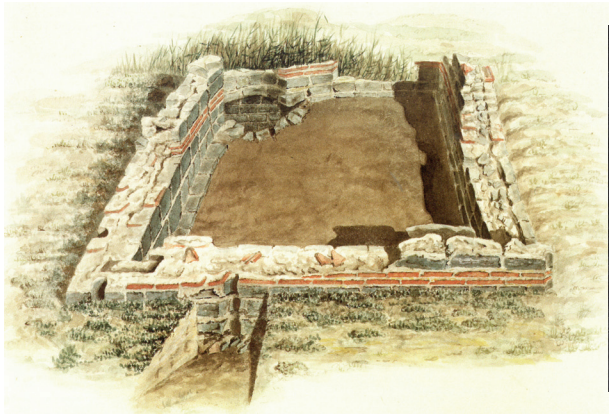


3.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



3.2 Plan of Forum Hadriani after the supposed extension of the town to the east.

3 Voorburg-Arentsburg



3.3 Drawing of the excavation of a cellar in 1827.



3.4 Re-excavation of the cellar of fig. 3.3 in 1988.



3.5 View of the excavations in 2008, with heavy posts lining the harbour. View from the south.



3.6 One of the 'city beacons' exhibiting pottery finds from Forum Hadriani.

CLUSTER 4

CORBULO'S CANAL

Canal

No	State Party	Province	Municipality
4	Netherlands	Zuid-Holland	Leidschendam-Voorburg / Voorschoten

Brief description

According to the historian Tacitus, a canal connecting the Rhine to the Meuse was dug in AD 47 under supervision of the Roman army commander Corbulo. The reported length of the canal is 23 Roman miles (c. 34 km), which agrees very well with the present distance, as the crow flies, between the Rhine (Oude Rijn) near Leiden-Roomburg ►5 and the outlet of the river Meuse (Nieuwe Waterweg) southwest of Naaldwijk. The existence of a man-made canal on this route was first established in 1989. The canal is an artificial connection between two natural channels which discharged into the Rhine and Meuse.

The man-made canal has so far been attested over a distance of 11 km. Excavations have shown that it was on average c. 12-14 m wide and c. 1.5-2.0 m deep. Along most of its length one or both sides of the canal had been consolidated with rows of timber posts. In some cases the posts were made of softwood, in others of oak. Tree-ring patterns have provided consistent felling dates of spring AD 50. This means either that the construction of the canal took several years, if construction started in AD 47, or that the posts were added later.

The canal was dug in an area where natural creeks and streams existed in the pre-Roman period. In some areas coring surveys have indicated additional water courses parallel to the man-made canal. These may represent pre-existing streams, although it is not impossible that one or more of these water courses may represent local by-passes resulting from a retracing of silted-up sections of the canal. Such possible by-passes have been included in the buffer zone.

In view of the dense habitation of much of the area crossed by the canal it is impossible to bring the entire canal under the protection of the national heritage law, and thus to include it in the nomination. The six component parts (4a-f) constitute a substantial representation, amounting to more than 2 km, with excellently preserved remains and the best prospects for sustainable protection.

Attributes and values

Man-made canals are extremely rare in the record of the Roman Empire, and this is not only one of the few surviving examples, but also a very well preserved one. It is an outstanding demonstration of the pains taken by the Roman military engineers to adapt the river landscape to the strategic purposes of the army. The excellent state of preservation of the rows of wooden posts lining the canal permit very precise dating of its construction.

Located just behind the coastal barriers, Corbulo's canal made it possible to travel directly from the Rhine to the Meuse 'to avoid the dangers of the sea', as Tacitus explains. This was of vital importance for the provisioning of the army.

Integrity

Wholeness	Good. The cluster comprises six sections of the canal. The separate sections are connected by a buffer zone, which has been extended to the north and south of the nominated component parts. In total, an area with a length of about 11 km is covered.
Intactness	Very good. In all excavated sections the artificial character of the canal can be read very clearly from its flat bottom and the sharp transition to the sides. Large numbers of posts of oak and softwood lining the canal have been preserved, providing felling dates in the spring of AD 50.
Exposure to threats	Minor. The component parts are divided over urban and rural areas. Those in urban areas are almost entirely located in public parks, with minimal risks of development, and were spared in recent building projects. In the rural areas, the remains of the canal are located at depths which are not touched by normal agricultural activities, but the development pressure is high, as demonstrated by the conversion of the Vlietvoorde component part (4d) into a residential area. Parts of several component parts are designated as embankments, with very strict regulations.

Authenticity

Form and design	Unaffected. The canal appears to have gone out of use during the Roman period. A post-Roman successor of the canal is located further to the southeast (the modern Vliet or Rijn-Schiekanaal).
Materials and substance	Unaffected. The remains of the canal are entirely authentic, including both its fill and the attested rows of posts lining its sides in many places.
Location and setting	Fair. The canal as such is no longer visible at the surface, but its course can be explained very easily. It is more or less reflected by the waterway known as Vliet (or Rijn-Schiekanaal) which was dug in the Middle Ages a short distance of the Roman canal.

Buffer zone

The component parts and the buffer zone cover the entire man-made part of the connection between the Rhine and the Meuse over a length of c. 11 km. The buffer zone links the six component parts containing attested remains of the canal. The south-western boundary of the buffer zone borders the nominated property Voorburg-Arentsburg ►3. The north-eastern boundary of the buffer zone marks the location where

the man-made canal probably met a natural channel flowing into the Rhine near the fort at Leiden-Roomburg ►5.

Within the buffer zone the precise course of the canal has not been adequately established. The component parts and buffer zone have a width of at least 50 m. The delineated area is often wider than 50 m because cadastral or visible boundaries have been followed, variations in the course of the canal have been taken into account or secondary watercourses have been included. In the central part of the property especially, the buffer zone has been extended to the southeast to include a possible 'bypass'; a renewal or adjustment of the canal's course. This bypass could be earlier or later than the main course of the canal as attested in the component parts. The western side of the buffer zone frequently runs parallel to the edge of the coastal barrier, which constitutes a natural limit to the area available for the construction of the canal.

Relevant factors affecting the property and risk management

See the texts concerning the individual component parts.

Presentation

Adjacent to component part 4f, known as 'Romeinsepel' in the Rietvink area, a bridge crossing a newly dug imitation of the ancient canal signals the presence of the remains of Corbulo's canal. About 400 m south-west of component part 4e, two boat-shaped pieces of children's play equipment are a reminder of the vessels that may once have travelled along Corbulo's canal. They are decorated with Roman-inspired scenes, including a portrait of army commander Corbulo. The assumed course of the canal through this part of the buffer zone is marked out in green. An information panel provides additional information.

Community involvement

Not applicable.

Ancient sources

The Roman historian Tacitus describes how the army commander Corbulo ordered his soldiers to dig a canal (*fossa*) twenty-three miles in length between the rivers Rhine and Meuse. It kept the idle soldiers busy, and its completion would allow vessels to avoid the perils of the open sea (Tac. *Hist.* 11.20).

FURTHER DETAILS

main building phases

AD 47-50

main research activities

1989-present intermittent coring surveys and trial trenches

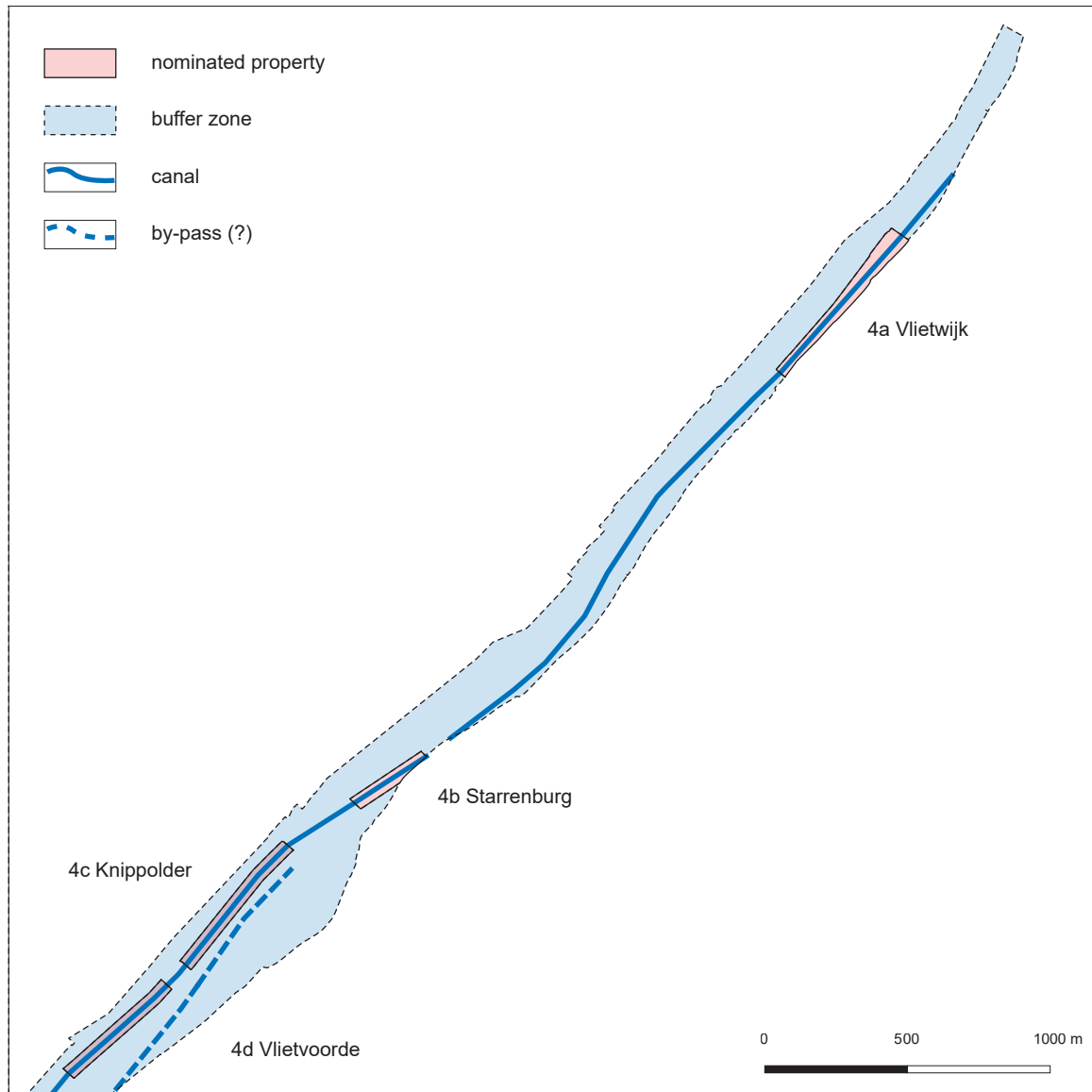
garrisons

n.a.

literature

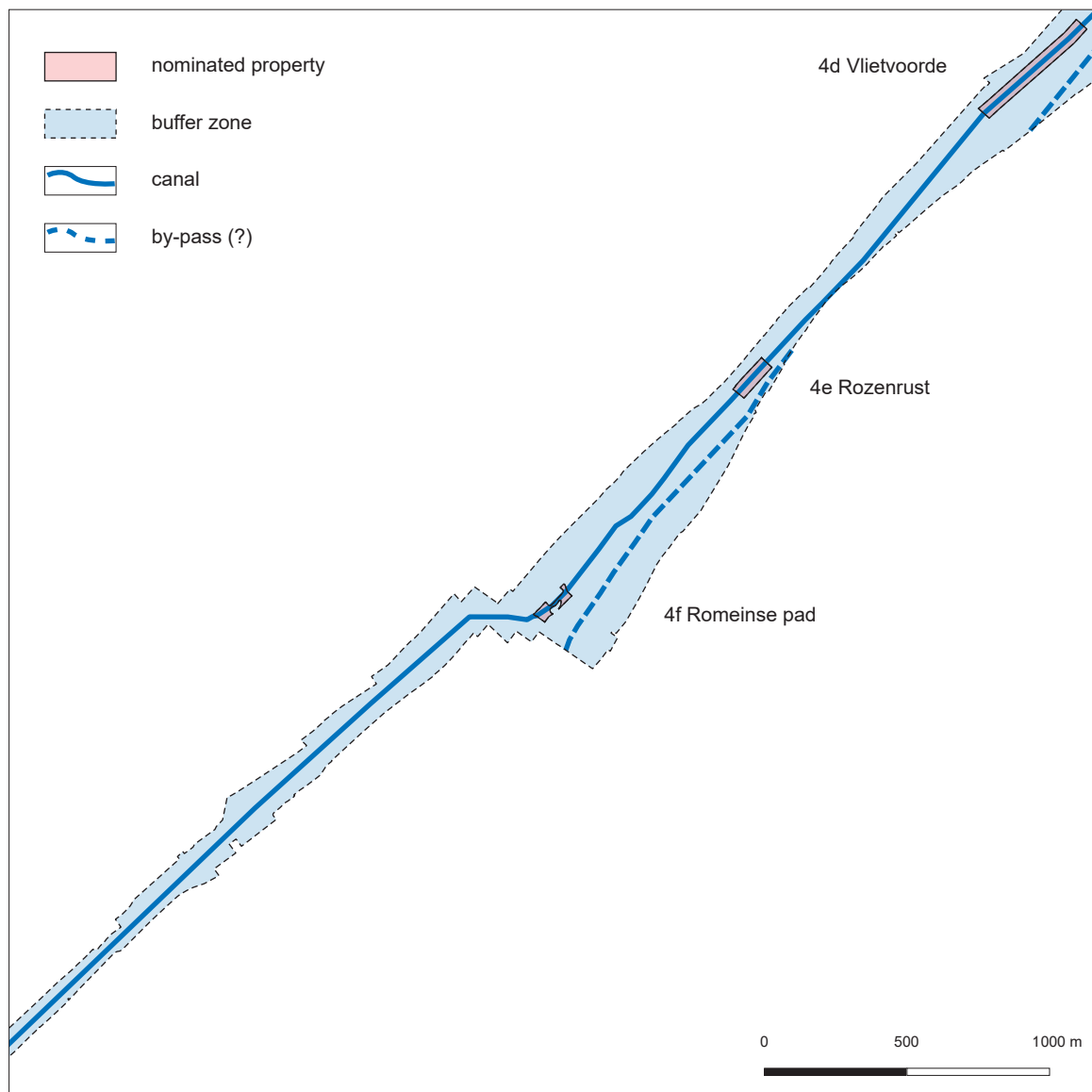
Hessing / Schrijvers 2018; Hessing / Eimermann 2019.

4 Corbulo's canal



4.1 Overview of the elements of the archaeological complex, with projection of the nominated property (4a-4d) and buffer zone.

4 Corbulo's canal



4.2 Overview of the elements of the archaeological complex, with projection of the nominated property (4d-4f) and buffer zone.

4 Corbulo's canal



4.3 Section through the canal in component part Starrenburg (4b).



4.4 Section through the canal in component part Vlietvoorde (4d).



4.5 Row of oak posts lining the canal between component parts Rozendrust (4e) and Romeinsepel (4f).

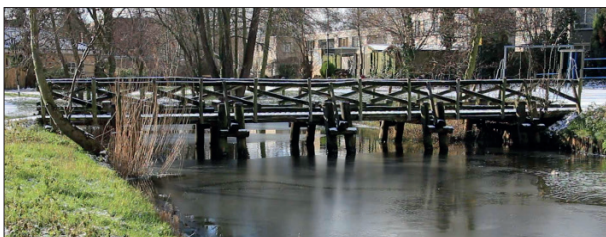
4 Corbulo's canal



4.6 Section through the canal near component part Romeinsepad (4d), with post lining one of the sides of the canal.



4.7 Playing objects referring to Roman boats, with reference to the Roman general Corbulo.



4.8 Reconstruction of the canal, with a bridge, at the component part Romeinsepad (4f).

COMPONENT PART 4A

CORBULO'S CANAL | VLIETWIJK

Canal

No	State Party	Province	Municipality	Coordinates central point
4a	Netherlands	Zuid-Holland	Voorschoten	E 599945.546 N 5775905.596

	Area in ha	Ownership
Component part	3.31	municipality, other
Buffer zone	167.10 (shared)	

Protection		
National law	Erfgoodwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (Voorschoten Oost, 16-5-2012; Reconstructie Vlietwijk, 1-10-2014) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
For a general description see the text concerning the cluster.
The component part 'Vlietwijk' is the most northerly of the six component parts covering the 11 km stretch along which the canal has been attested. At Vlietwijk, the canal seems to have been dug through a natural tidal channel which had largely silted up. A row of posts lining the canal has been attested on the west side; it is unknown whether this was also the case on the east side.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. The component part is one of six nominated sections of the canal. Each includes a complete section of the canal, over its entire width of 12-14 m including the rows of posts lining each side.
Intactness	Very good. In all excavated sections the artificial character of the canal can be read very clearly from its flat bottom and the sharp transition to the sides. Large numbers of posts of oak and softwood lining the canal have been preserved, providing felling dates in the spring of AD 50.
Exposure to threats	Minimal. The component part 'Vlietwijk' is almost entirely located in a public park. The canal was spared during development of the surrounding residential area, which was preceded by a significant raising of the building level. Any future building projects will have to comply with the regulations of the heritage protection law.

Authenticity	
Form and design	Unaffected. The canal appears to have gone out of use during the Roman period. A post-Roman successor of the canal is located further to the southeast, cutting it only in the Knippolder component part (4c).
Materials and substance	Unaffected. The remains of the canal are entirely authentic, including both its fill and the attested rows of posts lining one of its sides.
Location and setting	Fair. The canal as such is no longer visible at the surface, but its course can be explained very easily. It is more or less mirrored by the waterway known as Vliet (or Rijn-Schiekanaal) which was dug in the Middle Ages a short distance from the Roman canal.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The remains of the canal are almost completely located within the confines of a public park, which is designated as a green area in the land-use plan. Only the northeastern end of the component part is designated for culture and recreation, with some buildings housing communal facilities. A zone 20 m

<p>(iii) flooding and river erosion</p> <p>minimal</p>	<p>wide bordering the Vliet is additionally designated as embankment, with very strict regulations.</p> <p>The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.</p>
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Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 4B

CORBULO'S CANAL | STARRENBURG

Canal

No	State Party	Province	Municipality	Coordinates central point
4b	Netherlands	Zuid-Holland	Voorschoten	E 598383.859 N 5774145.254

	Area in ha	Ownership
Component part	1.31	private
Buffer zone	167.10 (shared)	

Protection		
National law	Erfgodwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (Buitengebied (2010), 13-6-2012) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
For a general description see the text concerning the cluster.
The component part 'Starrenburg' is the northerly of three component parts (4b, 4c, 4d) in which the course of the canal has been established through excavation. In this section the canal was dug through peat. Both sides were reinforced with wooden revetments, sometimes including wattle. In some places the banks of the canal seem to have been strengthened with clay sods.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. The component part is one of six nominated sections of the canal. Each includes a complete section of the canal, over its entire width of 12-14 m including

	rows of posts lining each side. Towards the north the canal is cut off by the modern Vliet, a medieval waterway which runs more or less parallel to the Roman canal.
Intactness	Very good. In all excavated sections the artificial character of the canal can be read very clearly from its flat bottom and the sharp transition to the sides. Large numbers of posts of oak and softwood lining the canal have been preserved, providing felling dates in the spring of AD 50.
Exposure to threats	Minor. The component part 'Starrenburg' lies in a rural area, but in a region with a high development pressure. The remains of the canal are located at a depth which is not affected by normal agricultural activities.

Authenticity	
Form and design	Unaffected. The canal appears to have gone out of use during the Roman period. A post-Roman successor of the canal is located further to the southeast, cutting it only in the Knippolder component part (4c).
Materials and substance	Unaffected. The remains of the canal are entirely authentic, both its fill and the rows of posts lining it on both sides.
Location and setting	Fair. The canal as such is no longer visible at the surface, but its course can be explained very easily. It is more or less mirrored by the waterway known as Vliet (or Rijn-Schiekanaal) which was dug in the Middle Ages a short distance away from the Roman canal.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minor	The area is designated for agrarian use in the land-use plan, but it is located in an area with a high development pressure. A zone 20 m wide bordering the Vliet is additionally designated as embankment, with very strict regulations.
(i) agriculture	minimal	The fields are appointed mainly as grassland and therefore not subjected to the risks of deep ploughing or heavy manuring.

(iii) flooding and river erosion minimal

The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 4C

CORBULO'S CANAL | KNIPPOLDER

Canal

No	State Party	Province	Municipality	Coordinates central point
4c	Netherlands	Zuid-Holland	Voorschoten	E 597868.525 N 5773700.775

	Area in ha	Ownership
Component part	2.76	private
Buffer zone	167.10 (shared)	

Protection		
National law	Erfgodwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (Buitengebied (2010), 13-6-2012) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Knippolder' is the middle of three component parts (4b, 4c, 4d) in which the course of the canal has been established through excavation. Here the canal has been dug through peat. Rows of posts lining the canal have not yet been attested here. At Knippolder, natural channels have been discovered next to the canal. The canal seems to have taken a turn inland here.</p>

Attributes and values
<p>The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Good. The component part is one of six nominated sections of the canal. Each includes a complete section of the canal, over its entire width of 12-14 m including rows of posts lining each side.
Intactness	Very good. In all excavated sections the artificial character of the canal can be read very clearly from its flat bottom and the sharp transition to the sides. Large numbers of posts of oak and softwood lining the canal have been preserved, providing felling dates in the spring of AD 50.
Exposure to threats	Minor. The component part 'Knippolder' lies in a rural area, but in a region with a high development pressure. The remains of the canal are located at a depth which is not touched by normal agricultural activities.

Authenticity	
Form and design	Unaffected. The canal appears to have gone out of use during the Roman period. A post-Roman successor of the canal is located further to the southeast, cutting it only in the Knippolder component part (4c).
Materials and substance	Unaffected. The remains of the canal are entirely authentic.
Location and setting	Fair. The canal as such is no longer visible at the surface, but its course can be explained very easily. It is more or less mirrored by the waterway known as Vliet (or Rijn-Schiekanaal) which was dug in the Middle Ages a short distance away from the Roman canal.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The area is designated for agrarian use in the land-use plan, but it is located in an area with a high development pressure. Most of the area is additionally designated as embankment, with very strict regulations.

(i) agriculture	minimal	The fields are appointed mainly as grassland and therefore not subjected to the risks of deep ploughing or heavy manuring.
(iii) flooding and river erosion	minimal	The component part is partly located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 4D

CORBULO'S CANAL | VLIETVOORDE

Canal

No	State Party	Province	Municipality	Coordinates central point
4d	Netherlands	Zuid-Holland	Leidschendam-Voorburg	E 597472.633 N 5773248.607

	Area in ha	Ownership
Component part	2.30	municipality, private, other
Buffer zone	167.10 (shared)	

Protection		
National law	Erfgoedwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (Duivenvoordecorridor, 5-9-2007) Management ordinance (Beheersverordening 2017 Leidschendam-Voorburg, 30-5-2017) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Vlietvoorde' is the southerly of three component parts (4b, 4c, 4d) in which the course of the canal has been established through excavation. Here the canal has been dug through peat. Rows of posts have been attested along both sides. At Vlietvoorde, the course of the canal may have shifted in a second phase. On the eastern side there are traces of an earlier, natural channel.</p>

Attributes and values
<p>The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Good. The component part is one of six nominated sections of the canal. Each includes a complete section of the canal, over its entire width of 12-14 m including rows of posts lining each side.
Intactness	Very good. In all excavated sections the artificial character of the canal can be read very clearly from its flat bottom and the sharp transition to the sides. Several posts of oak and softwood lining the canal have been preserved.
Exposure to threats	Minor. The component part 'Vlietvoorde' lies in a rural area which is being developed into a residential area, but the course of the canal will remain free from building in the new situation. Prior to the residential development the surface will be raised by 1.0-1.2 m, providing extra protection of the buried remains. Any development will have to comply with the regulations of the heritage protection law.

Authenticity	
Form and design	Unaffected. The canal appears to have gone out of use during the Roman period. A post-Roman successor of the canal is located further to the southeast, cutting it only in the Knippolder component part (4c).
Materials and substance	Unaffected. The remains of the canal are entirely authentic, both its fill and the rows of posts lining it on both sides.
Location and setting	Fair. The canal as such is no longer visible at the surface, but its course can be explained very easily. It is more or less mirrored by the waterway known as Vliet (or Rijn-Schiekanaal) which was dug in the Middle Ages a short distance away from the Roman canal.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	Once the area is developed into a residential area, in which the remains of the canal are spared, the risk of further development will be minimal.
(iii) flooding and river erosion	minimal	The component part is partly located in an area protected against high water levels with an annual

probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 4E

CORBULO'S CANAL | ROZENRUST

Canal

No	State Party	Province	Municipality	Coordinates central point
4e	Netherlands	Zuid-Holland	Leidschendam-Voorburg	E 596522.911 N 5772134.180

	Area in ha	Ownership
Component part	0.75	municipality, private
Buffer zone	167.10 (shared)	

Protection		
National law	Erfgoedwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (Veursestraatweg 2007, 2-10-2007) Management ordinance (Beheersverordening 2017 Leidschendam-Voorburg, 30-5-2017) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>Rows of posts have not been attested for this section, but they occurred in a trial trench at a location nearby. In the component part 'Rozenrust' traces of a second, possibly natural creek next to the canal course have been identified.</p>

Attributes and values
<p>The attributes and values are common to both component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Good. The component part is one of six nominated sections of the canal. Each includes a complete section of the canal, over its entire width of 12-14 m.
Intactness	Very good. In all excavated sections the artificial character of the canal can be read very clearly from its flat bottom and the sharp transition to the sides.
Exposure to threats	Minimal. The component part 'Rozenrust' is located in a public park. The canal was spared in recent building projects, and any future building projects will have to comply with the regulations of the heritage protection law.

Authenticity	
Form and design	Unaffected. The canal appears to have gone out of use during the Roman period. A post-Roman successor of the canal is located further to the southeast, cutting it only in the Knippolder component part (4c).
Materials and substance	Unaffected. The remains of the canal are entirely authentic.
Location and setting	Fair. The canal as such is no longer visible at the surface, but its course can be explained very easily. It is more or less mirrored by the waterway known as Vliet (or Rijn-Schiekanaal) which was dug in the Middle Ages a short distance away from the Roman canal.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The remains of the canal are almost entirely situated within the confines of a public park, which is designated as a green area in the land-use plan. Only the north-eastern corner is part of the property of a restaurant, but any extension of its facilities will have to comply with the heritage protection law.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 4F

CORBULO'S CANAL | ROMEINSEPAD

Canal

No	State Party	Province	Municipality	Coordinates central point
4f	Netherlands	Zuid-Holland	Leidschendam-Voorburg	E 595848.851 N 5771314.844

	Area in ha	Ownership
Component part	0.44	municipality, private
Buffer zone	167.10 (shared)	

Protection		
National law	Erfgoedwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (De Rietvink 2009, 18-5-2010) Management ordinance (Beheersverordening 2017 Leidschendam-Voorburg, 30-5-2017) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>In the most southerly component part 'Romeinsepad', the width of the canal has been established at 14 m. Rows of posts lining the canal have not yet been attested. Following the course of the canal in the direction of the Meuse, it appears that not far outside the component part the canal bent away to the west, crossing a coastal barrier.</p>

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. The component part is one of six nominated sections of the canal. Each includes a complete section of the canal, over its entire width of 12-14 m.
Intactness	Very good. In all excavated sections the artificial character of the canal can be read very clearly from its flat bottom and the sharp transition to the sides.
Exposure to threats	Minimal. The component part 'Romeinsepel' is located in a public park. The canal was spared in recent building projects, and any future building projects will have to comply with the regulations of the heritage protection law.

Authenticity	
Form and design	Unaffected. The canal appears to have gone out of use during the Roman period. A post-Roman successor of the canal is located further to the southeast, cutting it only in the Knippolder component part (4c).
Materials and substance	Unaffected. The remains of the canal are entirely authentic.
Location and setting	Fair. The canal as such is no longer visible at the surface, but its course can be explained very easily. It is more or less reflected by the waterway known as Vliet (or Rijn-Schiekanaal) which was dug in the Middle Ages a short distance away from the Roman canal.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The remains of the canal are largely situated within the confines of a public park, which is designated as a green area in the land-use plan. In the northeast, a zone 20 m wide is additionally designated as embankment, with very strict regulations. The south-eastern corner is designated as a residential area and garden, but any changes to the present situation will have to comply with the heritage protection law.
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability

of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

CLUSTER 5

LEIDEN-ROOMBURG

Auxiliary fort, civil settlement, harbour installations, riverine waste deposits

No	State Party	Province	Municipality
5	Netherlands	Zuid-Holland	Leiden

Brief description

In its final building phase the fort at Roomburg measured c. 95 x 155 m (1.5 ha). It was built on the western bank of the Roman Rhine, at the junction with a natural channel which was connected to the river Meuse further south by Corbulo's canal ►4. In view of its shape and size the fort belongs to the reduced 'delta type', with two ranges of internal buildings instead of three. The fort was probably founded in the 40s AD and evacuated in the 3rd century.

The defences of the final building phase consisted of a stone wall and apparently only a single ditch. Of its earth-and-timber predecessors only defensive ditches have been attested, on two sides. Nothing is known of the internal buildings of the successive forts: the inner area remains unexcavated, and recent efforts to trace any buildings with non-destructive geophysical methods have failed. A few finds from the Late Roman period suggest some activity in the period AD 270-450, but there are no known defensive structures from that phase.

The nominated property also includes unexcavated parts of the civil settlement (military *vicus*) situated to the west and south of the fort. Its boundaries can be estimated from excavations and the presence of numerous features was attested in a programme of trial trenches, but the precise lay-out is unknown. The *vicus* area must have included roads leading to the west and south, possibly with adjacent burials.

To its east and north the fort bordered on the Rhine (which shifted to the east later on) and on a natural channel (now silted up) discharging into the Rhine. The bank of the Rhine was consolidated with timber posts and, later, a stone wall. The harbour installations of the fort were laid out along the natural channel to the north. Its southern bank was consolidated by rows of heavy posts, which were gradually built out into the receding channel, a process which continued into the 8th century AD. The continuation of this channel to the southwest was constituted by Corbulo's canal ►4, which connected Leiden-Roomburg to the town of Voorburg-*Forum Hadriani* ►3 and to the estuary of the river Meuse, c. 30 km to the south.

The natural channel was used as a dumping site for settlement refuse and demolition debris from the fort. Three minor excavation trenches in this area have produced a wealth of material reflecting everyday life in this military settlement, including very well preserved organic remains and metal objects, with many leather finds as a special asset.

Attributes and values

The component parts contain a fairly complete military complex, encompassing a fort, most of the surrounding civil settlement and probably also parts of the Limes road and one or more cemeteries. River embankments and quays are not confined to the bank of the Rhine, but occur also on both banks of a

natural channel discharging into the Rhine. This channel is the northern, natural, outlet of Corbulo's canal, which provided a safe inland connection between the Rhine and the Meuse and was of great strategic importance.

The fort of Leiden-Roomburg is part of a screen of military posts in the delta that was built to protect a supply line to the Roman troops in Britain after the invasion of AD 43. It belongs to the 'delta type', which was specifically adapted to the primary task of observing and securing river traffic. It is an important asset due to its position at the northern outlet of Corbulo's canal.

The southern bank of the natural channel was consolidated with rows of heavy posts, which were gradually built out. Thanks to their excellent state of preservation, the chronology of the protection of the bank can be established with great precision. The area behind the bank consolidations was backfilled with settlement waste, which provides a wealth of information on life in and around a frontier fort. Finds from this area include fragments of leather tents and shield covers, some with the name and emblem of *cohors XV voluntariorum*, an auxiliary infantry regiment which appears to have provided various specialist services to the military installations in the Rhine delta.

Integrity

Wholeness	Very good. The entire fort and most remains of the <i>vicus</i> are included in the component parts, as well as considerable parts of the mooring facilities and rubbish deposits along the Rhine and the side channel.
Intactness	Good/very good. Good: Remains of the latest stone building phase of the fort are intact, but the walls have been robbed out. The internal area the fort has not been excavated and most of the extra-mural settlement is still untouched. The remains of the internal buildings of the fort may have been disturbed to some extent by a monastery which existed from c. 1460-1575 on the same site; excavations indicate that at least part of the Roman features are still present. Very good: Excavations have demonstrated that timber remains are well preserved, especially along the banks of the channel.
Exposure to threats	Minimal. Although the nominated property is located in an urban area, most of it is covered by a public park which was purposely left open during housing development in the 1990s.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains from the successive building phases are entirely authentic, and the timber components of at least some of the elements have retained their authentic character as a result of the high groundwater table. Well-preserved metal objects and organic remains from the fill of the Rhine river bed and the northern channel add much to the authenticity of materials and substance.

Location and setting	Affected. The Rhine has moved away from its position in the Roman period and cannot be seen from the site today.
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Buffer zone

Most of the elements of the military settlement are included in the nominated property. Only to the north has a buffer zone been defined, including parts of the silted-up natural channel with its rubbish deposits, and some structures on its northern bank attested by excavation. They include a river embankment, a possible dock, a few cremation graves and a horse burial. The precise character and chronology of these features and their spatial extent are unknown, which does not allow their protection under the national heritage law, and prevents their inclusion in the nominated property.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minimal	A large part of the nominated property is in use as a public park, designated for recreation in the land-use plan. The visualization of the fort (cf. below) provides an extra layer of protection. Some smaller parts are designated as residential areas, mostly for mobile homes, which do not pose a threat to the underground remains.

Presentation

Most of the nominated property is covered by a public park which carries the Roman name of the site: *Matilo*. The ramparts and gates of the fort have been visualized by an earthen embankment (rampart) and weathering steel (gates). The outward appearance and the materials used in the visualization clearly indicate that it is not an authentic reconstruction, but an artistic representation. Prior to the construction of this visualization the surface of the site was raised by 50-70 cm, to prevent damage to the Roman remains. The defensive ditches of the fort and a part of the outlet of Corbulo's canal have been excavated superficially into this raised soil. For cyclists and pedestrians the park is a convenient short-cut between the surrounding housing areas, and the visualization constitutes an effective means of communicating the presence of a Roman military settlement to the local community.

A digital application has been developed which offers a virtual tour of the Roman fort of Leiden-Roomburg in the 2nd century AD. The app *Time Travel Leiden Matilo* is available for Android and Apple devices.

Community involvement

The neighbours of public park *Matilo* are actively involved in a wide range of communal activities in the park, including the exploitation of an 'urban vineyard' (producing a 'Chateau Matilo') and of historical gardens and school gardens.

Ancient sources

The military settlement can be identified with *Matilone* ('at *Matilo*') on the Tabula Peutingeriana (Segm. II.2), a medieval copy of a Roman road map, and with *Matellionem* ('to *Matellio*') in the Ravenna Cosmography (IV.24), a medieval description of the inhabited world including thousands of ancient place-names.

FURTHER DETAILS

main building phases

- 1 ?-70 (?)
- 2 70-103/111 (?)
- 3 103/111- 200 (?)
- 4 200-230+

main research activities

- 1962 northern channel
- 1994-1997 *vicus*
- 1999, 2009 defences stone fort
- 2016-2018 geophysical surveys fort interior

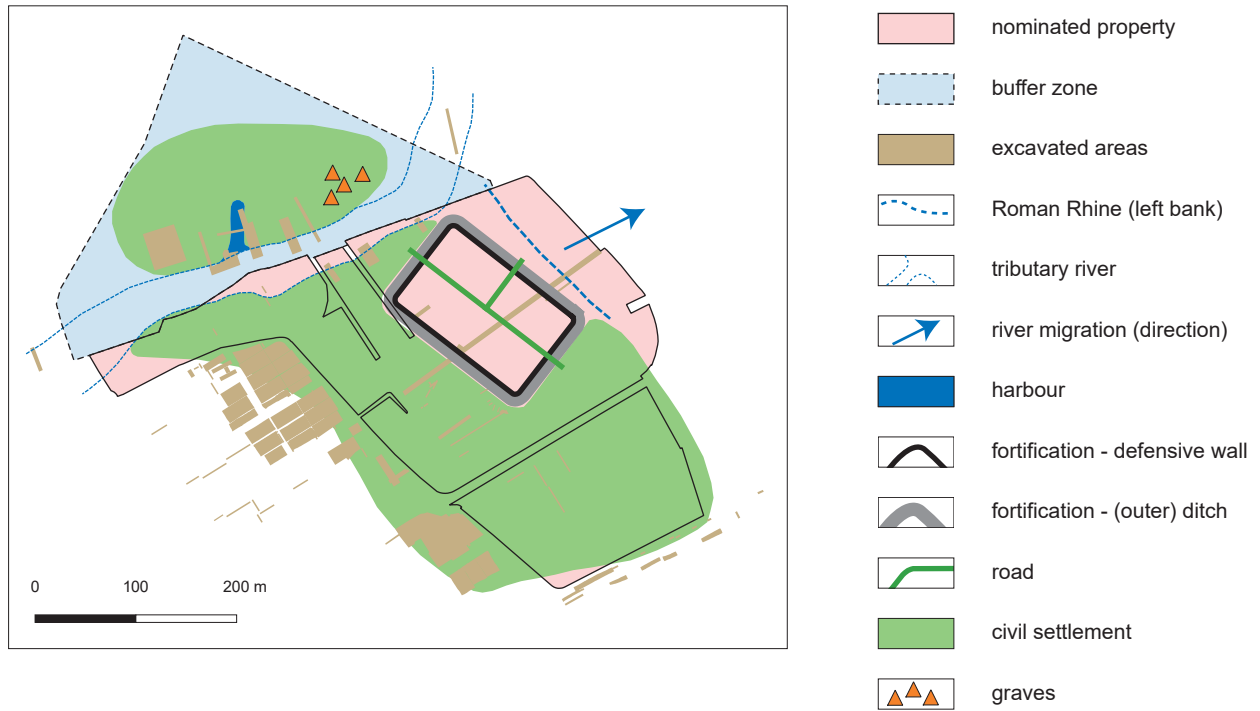
garrisons

cohors XV voluntariorum civium Romanorum: temporarily (?) at some point in 70-120 (in the same period attested at other forts in the western delta), and again around 200
cohors I Lucensium: 70-152+

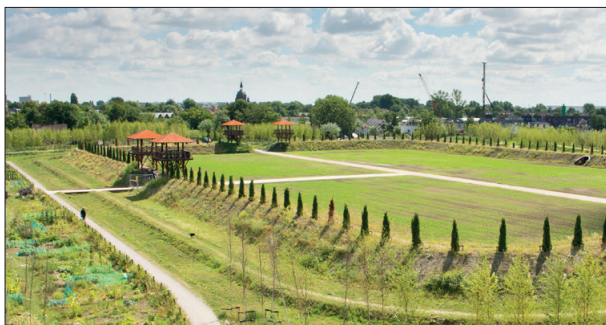
literature

Bogaers / Rüger 1974, 44-46; Van Tent 1973; Oude Rengerink 1994; Hazenberg 2000; Polak et al. 2004; Brandenburgh / De Bruin 2016.

5 Leiden-Roomburg



5.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



5.2 Visualization of the Roman fort with clearly non-authentic materials.

5 Leiden-Roomburg



5.3 View to the north-western entrance of the visualization of the Roman fort in Park Matilo.



5.4 Section through a well lined with a very well preserved wine barrel.

COMPONENT PART 5A

LEIDEN-ROOMBURG | PARK MATILO

Auxiliary fort, civil settlement, harbour installations, riverine waste deposits

No	State Party	Province	Municipality	Coordinates central point
5a	Netherlands	Zuid-Holland	Leiden	E 603807.612 N 5778785.146

	Area in ha	Ownership
Component part	8.16	municipality, private
Buffer zone	6.17	

Protection		
National law	Erfgodwet	Designated: 1978; 2010
Other laws and instruments	Land-use plan (Roomburg, 10-5-2013) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Park Matilo' includes the unexcavated parts of the civil settlement (military <i>vicus</i>) surrounding the fort and extending along the northern channel, of which it includes the southern bank. To the east, part of the bank of the Rhine is included. The extent of the <i>vicus</i> has been attested by corings and trial trenches. Its precise lay-out, however, remains unknown. The <i>vicus</i> area must have included roads leading to the west and south.</p>

Attributes and values
The component part includes all attributes and values common to the cluster. See the text concerning the cluster.

Integrity	
Wholeness	Very good. The entire fort and a large part of the <i>vicus</i> are included in this component part, as well as considerable parts of the mooring facilities and rubbish deposits along the Rhine and the side channel.
Intactness	Good/very good. Good: Remains of the latest stone building phase of the fort are intact, but the walls have been robbed out. The internal area the fort has not been excavated and most of the extra-mural settlement is still untouched. The remains of the internal buildings of the fort may have been disturbed to some extent by a monastery which existed from c. 1460-1575 on the same site; excavations indicate that at least part of the Roman features are intact. Very good: Excavations have demonstrated that timber remains are well preserved, especially along the banks of the channel.
Exposure to threats	Minimal. Although the component part is located in an urban area, most of it is covered by a public park which was purposely left open during housing development in the 1990s.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains from the successive building phases are entirely authentic, and the timber components of at least some of the elements have retained their authentic character as a result of the high groundwater table. Well-preserved metal objects and organic remains from the fill of the Rhine river bed and the northern channel add much to the authenticity of materials and substance.
Location and setting	Affected. The Rhine has moved away from its position in the Roman period and cannot be seen from the site today.

Buffer zone
The buffer zone is limited to the area to the north of this component part. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The component part is almost entirely in use as a public park, designated for recreation in the land-use plan. The visualization of the fort (cf. the text concerning the cluster) provides an extra layer of

protection. Two smaller parts are designated as residential areas; any development plans for these plots have to comply with the heritage protection law.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 5B

LEIDEN-ROOMBURG | BESJESLAAN

Civil settlement

No	State Party	Province	Municipality	Coordinates central point
5b	Netherlands	Zuid-Holland	Leiden	E 603963.331 N 5778627.104

	Area in ha	Ownership
Component part	2.60	municipality, private, other
Buffer zone	n.a.	

Protection		
National law	Erfgodwet	Designated: 1978
Other laws and instruments	Land-use plan (Roomburg, 10-5-2013) Provincial ordinance (Omgevingsverordening Zuid-Holland, 20-4-2019)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Besjeslaan' includes unexcavated parts of the civil settlement (military <i>vicus</i>) to the south of the fort. The extent of the <i>vicus</i> has been attested by corings and trial trenches. Its precise lay-out, however, remains unknown. The component part must include a road leading to the south, possibly lined with burials.</p>

Attributes and values
The parts of the civil settlement included in the component part contribute to understanding of the military complex as a whole, accommodating military families, traders and craftsmen.

Integrity	
Wholeness	Fair. A significant part of the remains of the <i>vicus</i> are included in the component part.

Intactness	Good. Trial trenches have confirmed that the remains in this area are in a good condition. Preservation of stone walls and organic remains has not been attested.
Exposure to threats	Minor. About half of the component part is now occupied by a housing estate developed for caravan dwellers. These mobile homes have no proper foundations, which is beneficial to the buried remains. Moreover, the area was raised prior to construction of the homes.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains are entirely authentic, and the timber component has probably retained its authentic character as a result of the high groundwater table attested during a coring survey.
Location and setting	Affected. The Rhine has moved away from its position in the Roman period and cannot be seen from the site today.

Buffer zone
This component part has no buffer zone, since all attested and projected remains are included within its boundaries.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	About half of the component part is designated for recreation in the land-use plan. The other half is designated as a housing estate for caravan dwellers. The existing mobile homes do not pose a threat to the underground remains. Any development must comply with the heritage protection law.

Presentation
See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 10

WOERDEN-CENTRUM

Auxiliary fort

No	State Party	Province	Municipality	Coordinates central point
10	Netherlands	Utrecht	Woerden	E 629078.651 N 5772252.572

	Area in ha	Ownership
Component part	1.44	municipality, private, other
Buffer zone	5.94	

Protection		
National law	Erfgoedwet	Designated: 2013
Other laws and instruments	Land-use plan (Bestemmingsplan Woerden binnenstad, 6-7-2009) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>The Woerden fort, measuring c. 90 x 140 m (1.3 ha) in its stone building phase, was situated in a bend of the Roman Rhine, on the southern bank. It belongs to the reduced 'delta type', with two ranges of internal buildings instead of three. The fort was founded in the early 40s AD and initially built in earth and timber.</p> <p>The first phase of the fort has an orientation differing from that of the later ones and is very incompletely known. A part of it is buried beneath the rear section of the later forts, and thus included in the nominated property, but a larger part must be located in the buffer zone. Due to insufficient knowledge of its remains and their quality, it cannot be protected as a listed monument and added to the nominated property.</p> <p>The number of defensive ditches varied from one to three during the fort's existence. In period 3 the slopes of the (single) ditch were clad with rectangular alder beams of averagely 8 x 4 cm in section – a so far unique method for the consolidation of ditches. It is likely that the defensive wall was provided with three or four gates – by analogy with other forts in the delta a rear gate may have been absent in the earlier phases – and with corner and interval towers. In the late 2nd century the rampart and some inner buildings were rebuilt in stone. The interiors of the successive forts remain largely unexcavated; only some minor parts of timber buildings and a small section of a stone wall have been attested.</p>

The fort seems to have been evacuated or abandoned in the 3rd century, but the levels from this period are not well preserved. With the exception of a handful of coins there is no evidence for Late Roman activity on the site.

Attributes and values

The Woerden fort is part of a screen of military posts in the delta that was built to protect a supply line to the Roman troops in Britain after the invasion of AD 43. It clearly belongs to the 'delta type', which was specifically adapted to the primary task of observing and securing river traffic. The interiors of the fort are largely untouched by excavations. This limits our knowledge of the military installations, but means that their remains lie largely intact underneath the centre of the modern town. The best preserved remains appear to be those from the timber building phases, dating to the end of the 2nd century. At least at deeper levels the timber is still well preserved, and it may well be that the remains of the inner buildings are of the same rare quality as at Valkenburg-Centrum ►1. The timber lining of one of the ditches is so far unparalleled.

Integrity

Wholeness	Very good. The attested surface area of the fort in building phases 2-4 is entirely included within the nominated property. Our knowledge of the extent of the first building phase is incomplete, but parts of it at least lie within the nominated property.
Intactness	Good/very good. Good: The levels from building phases 2-3 are well preserved, but the condition of those from the final building phase 4 varies. Very good: The surviving remains include well-preserved timber and other organic remains.
Exposure to threats	Minor. Nearly half of the component part is property of a church or public space. Any development plans for the remaining commercial and residential areas must conform to the heritage protection law.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The physical substance of the surviving remains has not been altered. The remains are known to include well-preserved timber from the earlier building phases.
Location and setting	Affected. The topography of the town centre is dominated by the bastions and other town defences built in the 17th century. The course of the Rhine – Roman and post-Roman – is no longer visible in the town centre.

Buffer zone

The nominated property, covering the forts of periods 2-4, is surrounded by an extensive buffer zone. This encompasses, firstly, the projected remains of the earliest fort, which had a different orientation and extends to the southwest of the nominated property. The buffer zone includes, secondly, much of the civil settlement which developed outside the walls of the forts, though its precise extent and lay-out remain unknown. For this reason the area around the fort does not meet the criteria for protection under national law, and thus for inclusion in the nominated property. A representative selection of military *vici* and other associated elements has been included in component parts elsewhere.

To the west and north the Roman Rhine must have constituted the boundary of the settlement; the buffer zone extends to the middle of the silted-up Roman channel of the Rhine, thus encompassing river embankments and mooring facilities, rubbish deposits in the river bed, and possibly one or more ships – several ships have been excavated in this area in the past. Some excavated parts of the civil settlement and the river bank have been included in the buffer zone to delineate their extent.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential and commercial development	minor	The nominated property is situated in the town centre. Nearly half of it is public space or the property of the Petruskerk (church), which dates back to 1672 in its present form. In the land-use plan the remaining part is mainly designated for commercial use (shops, catering etc.) and a small part as a residential area. Any development plans must conform to the heritage protection law.

Presentation

The south-western gate and part of the adjacent rampart are marked out in the pavement with slabs of natural stone, some of which are provided with explanatory text and illustrations; the slabs indicating the fort gate have additional lighting.

In an underground car park (named 'Castellum') immediately southwest of the fort, a 'drive-in museum' has been set up. This is not a regular museum but a collection of display cases, information panels and illustrations which explain the history of the fort and its *vicus*. In one of the cases the stern of a cargo vessel characteristic of the Rhine frontier is displayed.

In the buffer zone, the museum Stadsmuseum Woerden and the regional library offer various exhibitions and presentations about the Roman history of Woerden. The exhibition in the library is linked with an interactive smartphone game called 'Legend of Lucius', referring to the name of an army clerk known from a ceramic flagon.

Community involvement

Stadsmuseum Woerden, which houses a permanent exhibition of finds from the Roman fort and its vicinity, is mainly operated by volunteers.

Ancient sources

The military settlement can be identified with *Lauri* ('at *Laurium*') on the Tabula Peutingeriana (Segm. II.3), a medieval copy of a Roman road map.

FURTHER DETAILS

main building phases

- 1 39/41-47 (timber)
- 2 47-69/70 (timber)
- 3 69/70-150/175 (timber)
- 4 150/175-275 (stone)

main research activities

- 1975-1980 fort, river bank, ship
 1983-1984 *vicus*
 1988 river bank, ships
 1994-1998 fort defences
 1998 river bank, ships
 1999-2004 fort, *vicus*, ship

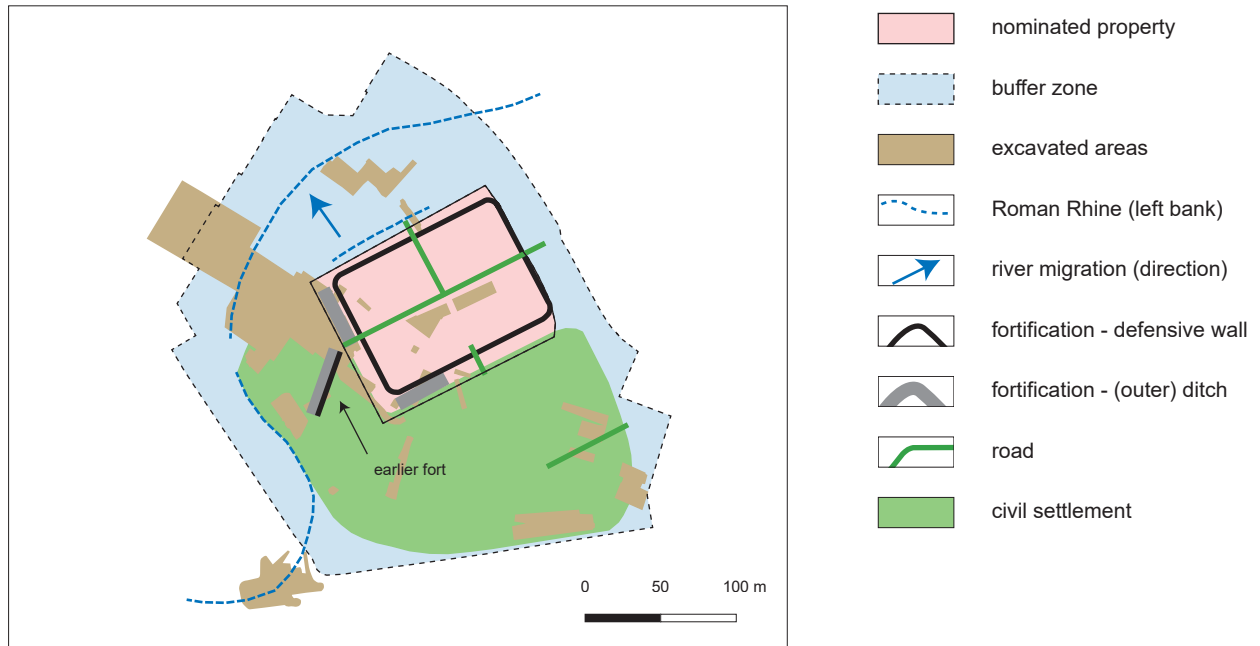
garrisons

cohors XV Voluntariorum: c. 70/89-138/161
 cohors III Breucorum: c. 138/161-275?

literature

Bogaers / Rüger 1974, 53-54; Blom / Vos 2008.

10 Woerden-Centrum



10.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



10.2 Reconstructed plan of the stone building phase of the fort, with largely hypothetical internal layout.

10 Woerden-Centrum



10.3 South-western defensive ditch of building phase 3, lined with alder beams.



10.4 Presentation of the Roman past of the area in the 'drive-in museum' in the underground 'Castellum' car park.

CLUSTER 12

UTRECHT-LIMES ROAD

Limes road, watchtowers

No	State Party	Province	Municipality
12	Netherlands	Utrecht	Utrecht

Brief description

The three component parts of this cluster represent a c. 2.5 km long section of the Limes road to the west of the fort of Utrecht-Hoge Woerd ►13. In this area the road was traced along the southern edge of three large meanders of the Rhine. Initially, from the mid-1st century AD onwards, the river bends were protected by timber watchtowers, two of which have been incompletely preserved. The Limes road was built later, probably in the 80s AD. Like all other known sections of the Limes road in the western delta, it was rebuilt in AD 99/110 and 123/125, probably following personal inspection by the emperors Trajan (98-117) and Hadrian (117-138).

The foundation of the road consisted of an earthen embankment 10 m wide on average, but the road itself appears not to have been wider than c. 5 m. The embankment was immediately or very soon consolidated with rows of timber posts, on the river side of the road in some parts and on either side in others. In some sections these rows of posts were clad with planks on the inner side, to reduce the lateral pressure of the soil. The revetments on either side were occasionally linked with tie beams.

The watchtowers and roads were constantly threatened by erosion caused by the shifting river bends. Particularly vulnerable sections of the river bank were consolidated by revetments, and in one case by the deliberate sinking of a c. 35 m long cargo ship, which is still largely intact underground (12c). Another ship was entirely excavated, and a third may still be untouched (12a). The surrounding ditch of one of the excavated timber watchtowers is still partly intact under the edge of the Limes road (12a), while half of a second tower has been preserved (12c) and two others completely excavated.

Attributes and values

The nominated property represents a stretch of the Limes road which is not only the best researched section along the Lower German Limes, but also the most varied section attested so far. It crossed a particularly dynamic part of the riverine landscape, where a channel of the river Rhine developed several wide meanders. The road brushed the southern outward bends of the river, mainly following the natural levees, but occasionally crossing the flood plain. At De Balijs (12c) a crevasse splay has been located at a right angle to the main channel and the road, which must have required some sort of bridge construction. At some point a ship was sunk to counter further erosion of the road; the remains of more ships are projected to lie in the former river channel.

Collectively, this cluster of component parts is a unique and multifaceted expression of key aspects of road infrastructure and water management in a dynamic riverine landscape. The excellent state of preservation of

the timber remains provides rare insights into the construction of roads, with many carpentry details and a very fine chronology thanks to the dateable tree ring patterns.

Integrity

Wholeness	Good. The component parts include three sections of the Limes road and various water management works, remains of at least one ship and of two watchtowers. The three component parts are connected by a buffer zone.
Intactness	Very good. Most of the elements represented are in an excellent state of preservation.
Exposure to threats	Minimal. The nominated property is located in an urban area, but the component parts are almost entirely located in public parks.

Authenticity

Form and design	Unaffected. The road has not survived the Roman period, and no later roads are known to have followed the same course.
Materials and substance	Unaffected. The surviving remains are entirely authentic. Timber remains of all the represented elements have been preserved in waterlogged conditions.
Location and setting	Affected. The river Rhine has moved away from the Limes road, and there are no views to adjacent stretches of the road or to a landscape which provide reminders of the Roman setting.

Buffer zone

The buffer zone connects the three component parts. Over a stretch of c. 2.5 km it follows the route of the Limes road – securely attested by coring – along the southern edge of three large meanders of the former river channel. In order to include so far unidentified watchtowers and ships, the buffer zone has a width of 60 m, centred on the road axis.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minimal	The three component parts of this cluster are nearly entirely located within public parks, designated as green areas in the land-use plans.
(iii) flooding and river erosion	minimal	The component parts are nearly entirely located in areas protected against high water levels with an

annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

The locations of three excavated watchtowers at Zandweg (12a) and at De Balije (12c) are marked by square plates of weathering steel, engraved with the ground plan of the watchtowers. The four uprights of the towers are visualized through integrated lighting.

Not far from the watchtower at De Balije a scale model of the largely unexcavated ship indicates the presence of the remainder of the ship still underground. An information panel indicates the location of another, fully excavated ship, presented in the site museum at Utrecht-Hoge Woerd ►13.

Through the component parts Zandweg (12a) and De Balije (12c), the course of the Limes road is visualized by a 3 m wide footpath partly surfaced with red gravel. At several locations information panels provide explanatory text. Immediately west of the component part De Balije (12c), the path runs at an angle through two buildings on the edge of a residential area. At an earlier stage, it had been decided to mark out the road on the premises of the municipal waste sorting station by cart tracks moulded into concrete mixed with gravel. This section is situated east of the Zandweg component part, in the buffer zone.

The various visualizations in this part of Utrecht contribute strongly to the visibility of the Limes road and associated structures and their spatial relationships within the contemporary landscape.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS

main building phases (of the road)

- | | |
|---|-------------------|
| 1 | c. 85-99/110 |
| 2 | c. 99/110-123/125 |
| 3 | c. 123/125+ |

main research activities

- | | |
|-----------|----------------------------------|
| 2000 | Limes road (Veldhuizen) |
| 2000-2001 | Limes road, ship (De Balije) |
| 2002 | Limes road, watchtower (Zandweg) |
| 2003 | watchtower (De Balije) |

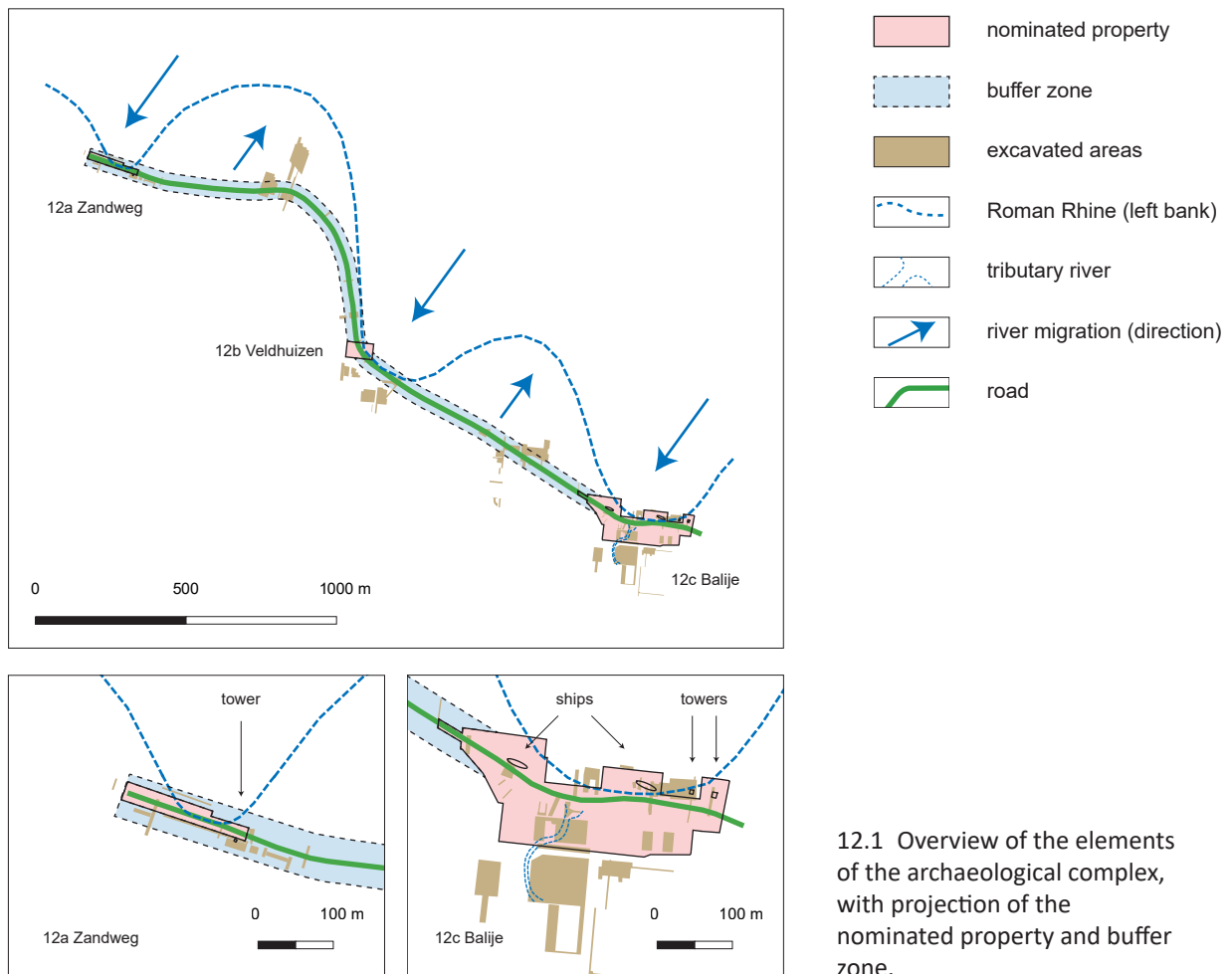
garrisons

The watchtowers were manned by detachments of fort garrisons, probably from the most nearby fort at Utrecht-Hoge Woerd ►13.

literature

Vos / Blom 2003; Van der Kamp 2007; Van der Kamp 2009; Langeveld et al. 2010a; Luksen-IJtsma 2010; Bakker / Vos in press.

12 Utrecht-Limes road



12 Utrecht-Limes road

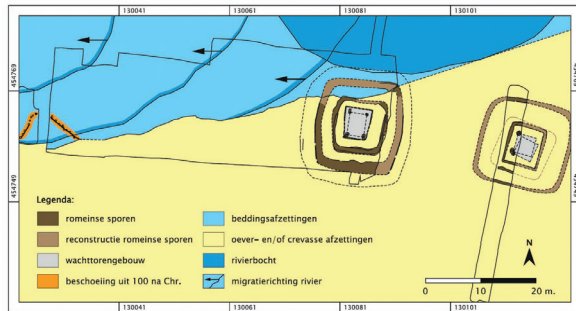


12.2 Limes road with timber revetment lining the road embankment to the north. View from the east.



12.3 Timber corner post of the timber watchtower at the Zandweg component part (12a).

12 Utrecht-Limes road



12.4 Situation of the migrating Rhine channel and of two successive watchtowers at the Balije component part (12c).



12.5 Cargo ship with remains of a deck cabin excavated at the Balije component part (12c).

COMPONENT PART 12A

UTRECHT-LIMES ROAD | ZANDWEG

Limes road, watchtower

No	State Party	Province	Municipality	Coordinates central point
12a	Netherlands	Utrecht	Utrecht	E 636748.819 N 5773056.580

	Area in ha	Ownership
Component part	0.39	municipality
Buffer zone	7.17 (shared with 12b)	

Protection		
National law	Erfgoedwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (Vleuterweide, Vleuten, 12-6-2014; Chw Algemene regels over bouwen en gebruik, 30-11-2017) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>The component part 'Zandweg' occupies the western end of the c. 2.5 km long section of the Limes road west of Utrecht-Hoge Woerd ►13 on the southern bank of the Roman Rhine. At the Zandweg site three phases have been identified in the construction of the Limes road. In the earliest phase the road surface of at least 2.3 m wide rested on a slight elevation, which was itself over 5.5 m wide. In the second phase the road construction was completely renewed with a timber revetment on either side of the embankment. South of the road, at a distance of c. 9 m, a roadside ditch has been unearthed. After the river had destroyed part of the road, probably shortly before AD 123/125, a local diversion was constructed. The 5 m wide road surface rested on an embankment which was braced by rows of posts lined with planks and connected by tie beams. Road ditches seem to be lacking in this third phase.</p> <p>Under the edge of the Limes road the surrounding ditch of one of two excavated timber watchtowers is still partly intact. A geophysical survey has indicated that a Roman ship may be buried in the silted-up Rhine bed to the north of the road.</p>

Attributes and values

The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity

Wholeness	Good. This component part includes a section of the Limes road, various water management works, and the defensive ditch of a watchtower.
Intactness	Very good. Most of the elements represented are in an excellent state of preservation. Only a part of the surrounding ditch of the watchtower is preserved.
Exposure to threats	Minimal. The component part is located in a public park, owned by the municipality.

Authenticity

Form and design	Unaffected. The road has not survived the Roman period, and no later roads are known to have followed the same course.
Materials and substance	Unaffected. The surviving remains are entirely authentic. Timber remains of the Limes road and water management works have been preserved in water-logged conditions.
Location and setting	Affected. The river Rhine has moved away from the Limes road, and there are no views to adjacent stretches of the road or to a landscape which provide reminders of the Roman setting.

Buffer zone

The buffer zone is shared with component part 12b. See the text concerning the cluster.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minimal	The component part is located within a public park, designated in the land-use plan as a green area. Residential development is not to be expected.
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 12B

UTRECHT-LIMES ROAD | VELDHUIZEN

Limes road

No	State Party	Province	Municipality	Coordinates central point
12b	Netherlands	Utrecht	Utrecht	E 637593.817 N 5772460.922

	Area in ha	Ownership
Component part	0.46	municipality
Buffer zone	7.17 (shared with 12a) 5.28 (shared with 12c) 12.46 (total)	

Protection		
National law	Erfgoedwet	Designated: exp. 2020
Other laws and instruments	Land-use plan (Chw Veldhuizen, De Meern, 14-6-2014 ontwerp) Management ordinances (Veldhuizen, 7-6-2012; Veldhuizen (geconsolideerd), 4-12-2014) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
The component part 'Veldhuizen' occupies the central part of the c. 2.5 km long section of the Limes road west of Utrecht-Hoge Woerd ►13 on the southern bank of the Roman Rhine. At the Veldhuizen site excavations have shown that an initial revetment made of alder was replaced after AD 100 by a revetment of oak. This replacement was apparently necessary because of the erosion damage caused by a crevasse (breach in a levee) between AD 91 and 100. Remnants of the oak revetment extend over a stretch of at least 70 m, indicating that this must have been a large-scale water management project.

Attributes and values

The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity

Wholeness	Good. This component part includes a section of the Limes road and various water management works.
Intactness	Very good. Most of the elements represented are in an excellent preservation condition.
Exposure to threats	Minimal. The component part is located in a public park, owned by the municipality.

Authenticity

Form and design	Unaffected. The road has not survived the Roman period, and no later roads are known to have followed the same course.
Materials and substance	Unaffected. The surviving remains are entirely authentic. Timber remains of the Limes road and water management works have been preserved in water-logged conditions.
Location and setting	Affected. The river Rhine has moved away from the Limes road, and there are no views to adjacent stretches of the road or to a landscape which provide reminders of the Roman setting.

Buffer zone

The buffer zone is shared with component parts 12a and 12c. See the text concerning the cluster.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minimal	The component part is located within a public park, designated in the land-use plan as a green area. Residential development is not to be expected.
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 12C

UTRECHT-LIMES ROAD | DE BALIJE

Limes road, watchtower

No	State Party	Province	Municipality	Coordinates central point
12c	Netherlands	Utrecht	Utrecht	E 638536.164 N 5771914.613

	Area in ha	Ownership
Component part	3.32	municipality, private
Buffer zone	5.28 (shared with 12b)	

Protection		
National law	Erfgoedwet	Designated: 2011
Other laws and instruments	Land-use plan (Chw Veldhuizen, De Meern, 14-6-2014 ontwerp) Management ordinances (Veldhuizen, 7-6-2012; Veldhuizen (geconsolideerd), 4-12-2014) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>The component part 'De Balijs' occupies the eastern end of the c. 2.5 km long section of the Limes road west of Utrecht-Hoge Woerd ►13, on the southern bank of the Roman Rhine. The earliest phase of the Limes road was found to post-date the ditch of a watchtower. The road was twice damaged by the Rhine, in spite of its consolidation by timber revetments and basalt blocks. Subsequently, the river bank was protected by the deliberate sinking of a c. 35 m long cargo ship built around AD 100; this ship is still largely intact underground. The earlier of two timber watchtowers, built between AD 55 and 62, is partly preserved.</p>

Attributes and values
<p>The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Good. This component part includes a section of the Limes road, various water management works, and the remains of at least one ship and part of the defensive ditch of a watchtower.
Intactness	Very good. Most of the represented elements are in an excellent state of preservation. Of the watchtower, only part of the surrounding ditch is still intact.
Exposure to threats	Minimal. The component part is nearly entirely included within a public park, owned by the municipality.

Authenticity	
Form and design	Unaffected. The road has not survived the Roman period, and no later roads are known to have followed the same course.
Materials and substance	Unaffected. The surviving remains are entirely authentic. Timber remains of the Limes road and water management works have been preserved in water-logged conditions.
Location and setting	Affected. The river Rhine has moved away from the Limes road, and there are no views to adjacent stretches of the road or to a landscape which provide reminders of the Roman setting.

Buffer zone
The buffer zone is shared with component part 12b. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The component part is largely located within a public park. In the land-use plan most of the area is designated as a green area, and only the eastern extremity as a residential area.
(iii) flooding and river erosion	minimal	The component part is nearly entirely located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains .

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

CLUSTER 13

UTRECHT-HOGE WOERD

Auxiliary fort, civil settlement, cemeteries, riverine waste deposits

No	State Party	Province	Municipality
13	Netherlands	Utrecht	Utrecht

Brief description

The Hoge Woerd fort measured c. 80 x 115 m (0.9 ha) at its greatest extent. It was situated on the bank of the now silted-up Roman Rhine, which followed a north-south course here. The Hoge Woerd fort belongs to the reduced 'delta type', with two ranges of internal buildings instead of three. Founded in the 40s AD, the fort was probably evacuated in the 3rd century AD.

The fort was first built in earth-and -timber and repeatedly rebuilt, in some cases clearly after severe flooding. In the 2nd century the headquarters and defensive wall were rebuilt in stone. The fort appears to have been surrounded by a double defensive ditch. The interiors of the successive forts remain largely unexcavated. Coin finds dating to the Late Roman period suggest some activity in the period AD 270-450, but there are no known defensive structures from that phase.

Traces of an extra-mural settlement (military *vicus*) have been discovered to the north, east and south of the fort. In its early phase several buildings may have been used by the army rather than by civilians. The settlement included a military bathhouse, just outside the northern gate of the fort.

The former river channel, which has shifted away from the settlement, has yielded rich waste deposits and remains of two ships. The fort was connected to the Limes road further south by a side-road which runs through the southern *vicus*. Cemeteries were located to the north, east and south of the civil settlement; those in the north and southeast have been partly preserved.

Attributes and values

The Hoge Woerd site is one of few fairly complete examples of the whole of a military complex, including its riverside rubbish deposits. The fort is part of a screen of military posts in the delta that was built to protect a supply line to the Roman troops in Britain after the invasion of AD 43. It belongs to the 'delta type', which was specifically adapted to the primary task of observing and securing river traffic. The fort was built on the eastern bank of a winding stretch of the Rhine, which has a north-south course here. In the first decades of its existence the fort suffered repeatedly from flooding, but was rebuilt each time on the same spot, demonstrating the overriding importance of its position on the edge of the river channel.

Only a minor part of the complex has been built over or excavated. Excavations in the periphery of the settlement indicate that conditions for preservation of timber and other organic remains are favourable. This is especially the case in the former river channel in front of the fort, which has migrated away from the settlement. This allowed rich and layered deposits of settlement waste to accumulate, constituting treasure-

chests of everyday life on the frontier. Also recovered from the river channel were dislodged planks from two different Roman ships, suggesting that the channel may hide further ship remains.

It is one of the few sites with preserved remains of the military bathhouse and with well-attested remains of cemeteries.

Integrity

Wholeness	Good. The nominated property includes all of the fort, large parts of the civil settlement and at least one of its cemeteries, and sections of a the Roman Rhine river bed and a side road of the Limes road.
Intactness	Good/very good. Good: The remains of the fort include those of its latest building phase, but from that period only the deeper features have generally been preserved. In the surrounding <i>vicus</i> the levels of the 2nd and 3rd centuries are in a better condition. The area of the successive forts is relatively untouched by construction or excavation. Very good: The levels of the early timber building phases of the fort are well preserved. Of the adjacent bathhouse, standing remains of stone walls are still intact.
Exposure to threats	Minimal. The nominated property is located in an urban area, but most of it is included in the public park 'Castellum Hoge Woerd' (see Presentation).

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains of the military settlement are completely authentic. Timber remains of the earlier building phases have been well preserved, and have thus retained much of their original substance.
Location and setting	Affected. The channel of the Rhine in front of the military settlement has silted up, and the modern course of the river cannot be seen from the site.

Buffer zone

The buffer zone is shared by the two component parts. It includes parts of the civil settlement and cemetery which cannot be sustainably protected. The regulations applying to the buffer zone warrant that any developments which cannot be prevented will be preceded by excavations conforming to the highest scientific standards. The buffer zone further encompasses parts of the Roman river bed, especially those where remains are projected, but have not so far been attested, and some parts that have been excavated.

No buffer zone has been defined to the southeast and east. The former area was extensively excavated and trial trenches in the eastern area indicate that the settlement did not extend this far.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minor	The nominated property has been spared out in recent developments. In the land-use plan most of the area is designated for culture or as green areas, but a few small parts are designated as residential areas. Any development plans must conform to the heritage protection law.
(iii) flooding and river erosion	minimal	The eastern half of the nominated property is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.
(v) visitors	minimal	The relatively high number of visitors to the multifunctional building complex on the site of the fort do not endanger the buried archaeological remains. Original substance cannot be entered or accessed.

Presentation
<p>Built right on top of the Roman fort, a park known by the name 'Castellum Hoge Woerd' provides a full-scale contemporary reference to the original fort. The building complex houses various presentations about the history of the site with a clear emphasis on the Roman period, and one of the ships excavated at Utrecht-De Balije ► 12c. Prior to construction of the 'Castellum Hoge Woerd' installation, the ground surface of the site was raised by 60-80 cm, to prevent damage to the Roman remains. The defensive ditches have been marked out by superficial excavation in the raised soil.</p> <p>Outside the walls of the fort, the outline of the bathhouse has been marked out, as has part of the line of the former river channel and of the roads leading to and from the fort. At the ends of these roads, modern interpretations of Roman milestones in the shape of concrete obelisks inscribed with Latin texts imaginatively reference the Roman topography of Hoge Woerd and destinations further east and west of the Roman fort.</p> <p>North of the fort, on the edge of the component part, stands a reconstruction of a timber watchtower, emphasizing the monitoring function of the Limes. A watchtower is not known at this precise location; the reconstruction is based on the 1st-century remains of the watchtower discovered at Utrecht-Zandweg ► 12a. Further details are derived from depictions on Trajan's Column in Rome.</p> <p>In addition to the physical presentations on site, a digital application hosted by izi.TRAVEL offers a guided tour by bike or on foot to eleven locations in the vicinity of the fort where Roman finds have been discovered. The tour starts and ends at Castellum Hoge Woerd.</p>

Community involvement

The extensive visualization of the fort at Hoge Woerd accommodates a site museum, a theatre, a restaurant, an urban farm and various other communal facilities. The park thus has an important function for the surrounding residential areas and communicates the presence of a Roman military complex to the widest of audiences.

The museum at Hoge Woerd is mainly run by volunteers. Some of them welcome visitors at the entrance, others are present in the exhibition rooms to provide help and background information. Guides are trained to show groups around the complex, with special attention to visits from school classes. An innovative and special team of youth guides (aged twelve to fourteen) conduct their own tours once a month.

Ancient sources

On account of its similarity with the name of the former small town of Vleuten, 3 km northwest of the fort, the Roman settlement is identified by some with the *Fletione* ('at *Fletio*') occurring on the Tabula Peutingeriana (Segm. II.3), a medieval copy of a Roman road map. Others consider this as a writing mistake for *Fectione* ('at *Fectio*'), which is firmly attested as the name of the military settlement at Bunnik-Vechten ► 16.

FURTHER DETAILS

main building phases

- I c. 40-69 (timber)
- II 70-late 2nd century (timber)
- III late 2nd century-270? (stone)

main research activities

- 1940 excavations: bathhouse
- 1957 excavations: *vicus*
- 1960 excavations: river channel
- 1973 excavations: fort
- 1970, 1973 geophysical surveys: bathhouse
- 1982-1983 excavations: fort
- 1991-1992 general and coring surveys: *vicus*
- 1992 geophysical survey: fort, bathhouse
- 1994 excavations: river channel, *vicus*
- 1999 geophysical and coring surveys: fort, *vicus*
- 1999-2001 excavations: fort, *vicus*, cemeteries
- 2003-2013 excavations: fort, *vicus*, cemeteries

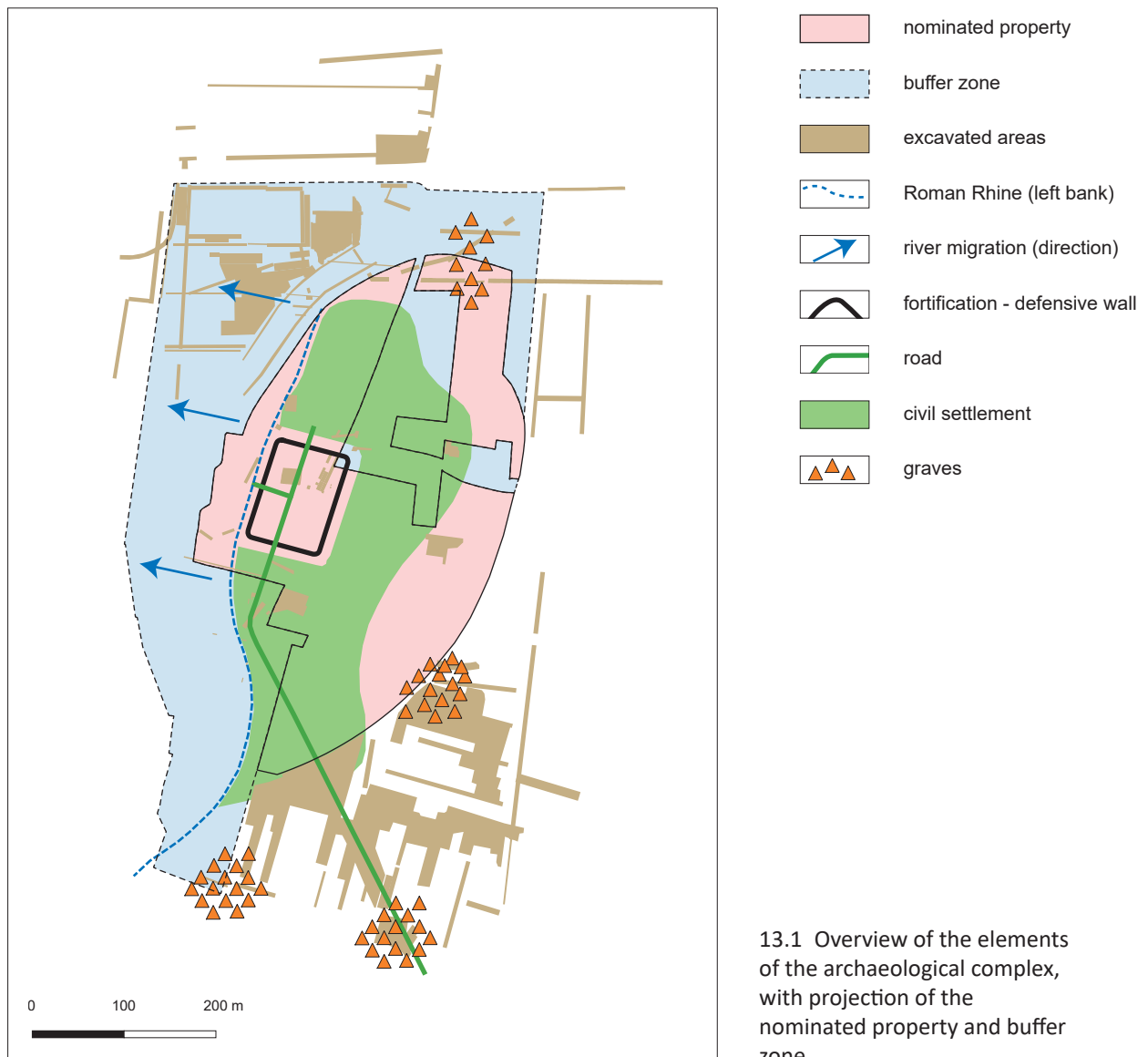
garrisons

- cohors XV voluntariorum civium Romanorum: c. 70-89/96
- cohors I Classica pia fidelis (Domitiana): c. 89/96+

literature

Bogaers / Rüger 1974, 55-57; Van der Gaauw / Van Londen 1992;; Tol / De Kort 2004; Langeveld et al. 2010b; Aarts 2012; Van der Kamp 2019.

13 Utrecht-Hoge Woerd



13.2 View over the visualization of the fort and its surroundings, from the northwest.

13 Utrecht-Hoge Woerd



13.2 Excavation in 1940 of the stone foundations of the bathhouse outside the fort.



13.3 Cremation burial with an intact glass unguent bottle.

COMPONENT PART 13A

UTRECHT-HOGE WOERD | CASTELLUM

Auxiliary fort, civil settlement, cemetery, riverine waste deposits

No	State Party	Province	Municipality	Coordinates central point
13a	Netherlands	Utrecht	Utrecht	E 639939.196 N 5772612.723

	Area in ha	Ownership
Component part	8.85	municipality, private
Buffer zone	14.09 (shared with 13b)	

Protection		
National law	Erfgoedwet	Designated: 1969; 1998; exp. 2020
Other laws and instruments	Land-use plans (Chw Algemene regels over bouwen en gebruik, 30-11-2017; Hoge Woerd, 1e Herziening, 5-7-2018) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Castellum' encompasses nearly the entire fort, a stretch of the river in front of it, large parts of the military <i>vicus</i> surrounding the fort and part of a cemetery located in the south-east. The southern part of the civil settlement is crossed by a side road connecting it to the Limes road.</p>

Attributes and values
The component part contributes to all the attributes and values outlined at the level of the cluster.

Integrity	
Wholeness	Good. The nominated property includes all of the fort, large parts of the civil settlement, a small part of one of its cemeteries, and sections of the Roman Rhine river bed and a side road of the Limes road.
Intactness	Good/very good. Good: The remains of the fort include those of its latest building phase, but from that period only the deeper features have generally been preserved. In the surrounding <i>vicus</i> the levels of the 2nd and 3rd centuries are in better condition. The area of the successive forts is relatively untouched by construction or excavation. Very good: The levels of the early timber building phases of the fort are well preserved. Of the adjacent bathhouse, standing remains of stone walls are still intact.
Exposure to threats	Minimal. The nominated property is located in an urban area, but most of it is included in the public park 'Castellum Hoge Woerd' (see the text concerning the cluster).

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains of the military settlement are completely authentic. Timber remains of the earlier building phases have been well preserved, and have thus retained much of their original substance.
Location and setting	Affected. The channel of the Rhine in front of the military settlement has silted up, and the modern course of the river cannot be seen from the site.

Buffer zone
The buffer zone is shared by the two component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minor	The nominated property has been spared out in recent developments. In the land-use plan most of the area is designated for culture or as green areas, but a few small parts are designated as residential areas. Any development plans must conform to the heritage protection law.

(iii) flooding and river erosion	minimal	The eastern half of the nominated property is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.
(v) visitors	minimal	The relatively high number of visitors to the multifunctional building complex on the site of the fort do not endanger the buried archaeological remains. Original substance cannot be entered or accessed.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 13B

UTRECHT-HOGE WOERD | LANGERAKBAAN

Civil settlement, cemetery

No	State Party	Province	Municipality	Coordinates central point
13b	Netherlands	Utrecht	Utrecht	E 640071.888 N 5772805.891

	Area in ha	Ownership
Component part	1.68	municipality, private
Buffer zone	14.09 (shared with 13a)	

Protection		
National law	Erfgoedwet	Designated: 1969; 1998; exp. 2020
Other laws and instruments	Land-use plans (Chw Algemene regels over bouwen en gebruik, 30-11-2017; Hoge Woerd, 1e Herziening, 5-7-2018) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Langerakbaan' includes traces of the extra-mural settlement (military <i>vicus</i>) to the north and east of the fort. Just outside the civil settlement, in the northern half of the component part, a Roman cemetery is located. This cemetery has been partly preserved. The graves are predominantly from the late 1st century.</p>

Attributes and values
<p>The Hoge Woerd site is one of few fairly complete examples of the whole of a military complex, including its riverside rubbish deposits. The fort is part of a screen of military posts in the delta that was built to protect a supply line to the Roman troops in Britain after the invasion of AD 43. It belongs to the 'delta type', which was specifically adapted to the primary task of observing and securing river traffic. The fort was built on the eastern bank of a winding stretch of the Rhine, which has a north-south course here. In the first decades of</p>

its existence the fort suffered repeatedly from flooding, but was rebuilt each time on the same spot, demonstrating the overriding importance of its position on the edge of the river channel.

Only a minor part of the complex has been built over or excavated. Excavations in the periphery of the settlement indicate that the conditions for preservation of timber and other organic remains are favourable. This is especially the case in the former river channel in front of the fort, which has migrated away from the settlement. This allowed rich and layered deposits of settlement waste to accumulate, constituting treasure-chests of everyday life on the frontier. Also recovered from the river channel were dislodged planks from two different Roman ships, suggesting that the channel may hide further ship remains.

It is one of the military complexes with preserved remains of the military bathhouse and with well-attested remains of cemeteries.

Integrity

Wholeness	Fair. The component part 'Langerakbaan' includes parts of the civil settlement and of one of its cemeteries.
Intactness	Good. In the <i>vicus</i> the levels of the 2nd and 3rd centuries are in good condition. Excavations to the south of the component part suggest that the preservation of timber is limited to wells – reaching relatively deeply – and that of other organic remains varies from fair to good.
Exposure to threats	Minimal. The nominated property is located in an urban area, but most of it is included in the public park 'Castellum Hoge Woerd' (see the text concerning the cluster).

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains of the military settlement are completely authentic. Timber remains of wells have been preserved, and thus retained much of their original substance.
Location and setting	Affected. The channel of the Rhine in front of the military settlement has silted up, and the modern course of the river cannot be seen from the site.

Buffer zone

The buffer zone is shared by the two component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minor	The nominated property has been spared out in recent developments. In the land-use plan most of the area is designated for culture or as green areas, but a few small parts are designated as residential areas. Any development plans must conform to the heritage protection law.
(iii) flooding and river erosion	minimal	The eastern half of the nominated property is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation
See the text concerning the cluster.

Community involvement
See the text concerning the cluster.

Ancient sources
See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 14

UTRECHT-GROOT ZANDVELD

Watchtower

No	State Party	Province	Municipality	Coordinates central point
14	Netherlands	Utrecht	Utrecht	E 640482.313 N 5773568.111

	Area in ha	Ownership
Component part	0.83	municipality
Buffer zone	2.84	

Protection		
National law	Erfgoedwet	Designated: 2011
Other laws and instruments	Land-use plans (Leidsche Rijn Utrecht 1999, 27-2-2002; Het Zand, 27-2-2013; Chw Algemene regels over bouwen en gebruik, 30-11-2017) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>At Utrecht-Groot Zandveld a timber watchtower stood on a sandy ridge c. 1 m high on the south bank of the Roman Rhine. The ground plan, comprising four timber uprights delineating a square of 3 m by at least 2.8 m, was surrounded by at least two ditches, enclosing an area c. 13 m in width. The remains of the watchtower are still largely intact. The installation appears to have been built in the mid-1st century AD, and may have been in use for only 10-20 years.</p> <p>There are indications that the watchtower was succeeded by a somewhat larger military installation, perhaps a fortlet, further to the northwest. In the 3rd century the river migrated rapidly to the northwest. Further finds from the wider environment around the watchtower suggest military use of the site into the 3rd century.</p>

Attributes and values

This site is a rare instance where the remains of an attested timber watchtower are still preserved. Usually, timber watchtowers are only discovered during an excavation, entailing destructive impacts for all or most of the remains. The tower is representative of a series of (excavated) towers which were located along a particularly winding stretch of the Rhine, revealing the critical importance to the Roman military of ensuring close observation of the river channel.

The watchtower at Groot Zandveld has only been explored through a small and very limited test excavation aimed at identifying the character of the site. It produced, amongst other remains, a timber post suitable for tree-ring analysis, indicating that the conditions for preservation of organic remains are favourable.

Integrity

Wholeness	Very good. The nominated property holds the well-preserved remains of a timber watchtower and much of its direct surroundings.
Intactness	Very good. The remains of the timber watchtower are still preserved.
Exposure to threats	Minimal. Although located in an urban area, the nominated property lies within a public park in possession of the municipality.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The surviving remains of the watchtower are completely authentic. The timber construction elements of the watchtower are still intact.
Location and setting	Affected. The course of the Roman Rhine is not visible and the tower site is surrounded by modern buildings.

Buffer zone

The buffer zone surrounds the nominated property, which includes the remains of the watchtower and the suspected larger military installation further to the northwest. The distribution of finds across a wider area suggests that further remains of Roman activity are to be expected here. On the northern side, the banks and silted-up Early and Middle Roman period channels of the river Rhine may contain waste deposits and possibly ship remains. The buffer zone lies within the confines of a public park.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
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(i) residential development	minimal	The Roman remains included in the nominated property are entirely located within a public park, which is designated as a green area in the land-use plan.
(iii) flooding and river erosion	minimal	Part of the component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

The location of the watchtower has been marked by a square plate of weathering steel engraved with the ground plan of the tower. The positions of the four uprights are marked by lighting. The same type of artwork is used to indicate the locations of the excavated watchtowers at Zandweg and De Balije (Utrecht-Limes road ►12a and 12c).

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS

main building phases

- 1 c. 40-60/70 (timber)
- 2 c. 60/70-120? (only finds)
- 3 c. 150-230? (only finds)

main research activities

- 1999 trial trenches
- 2003, 2005 excavation
- 2005 geophysical survey

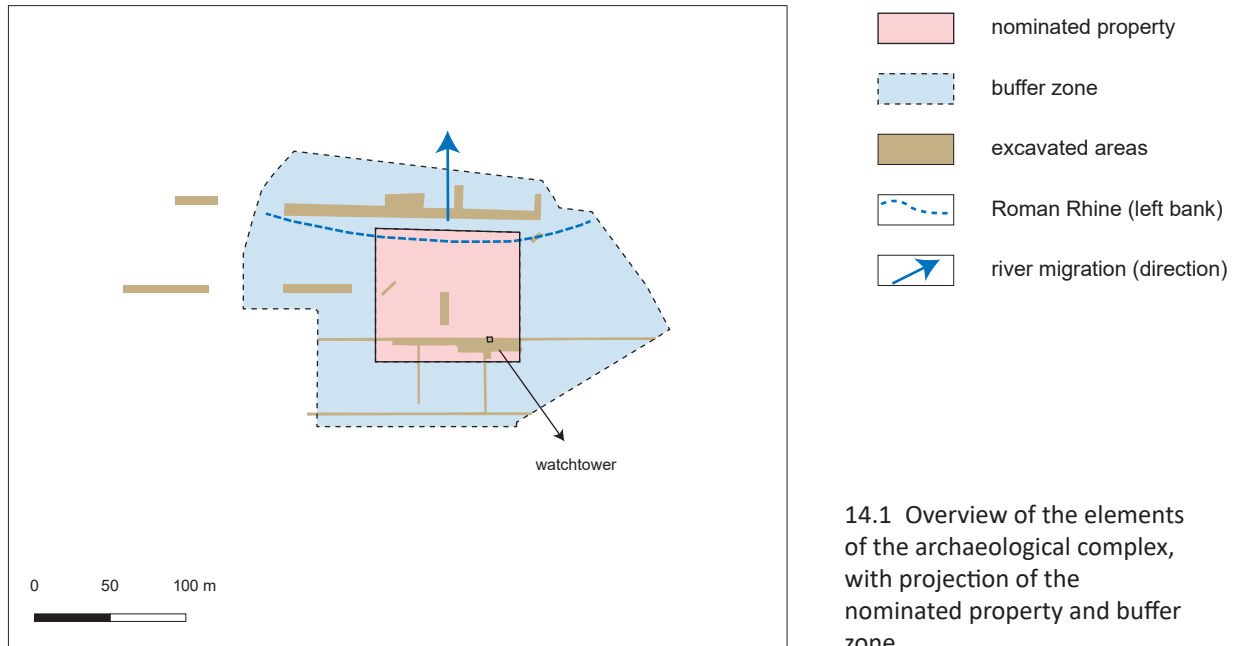
garrisons

unknown, most likely a detachment of the garrison of the Utrecht-Hoge Woerd fort ►13.

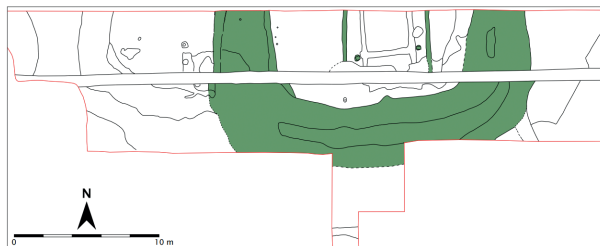
literature

Langeveld / Luksen-IJtsma 2017.

14 Utrecht-Groot Zandveld



14.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



14.2 Plan of the watchtower and surrounding defensive ditch.



14.3 Artistic reference to the watchtower. Square plate of weathering steel engraved with the ground plan of the tower. The positions of the four uprights are marked by lighting.

COMPONENT PART 15

UTRECHT-DOMPLEIN

Auxiliary fort

No	State Party	Province	Municipality	Coordinates central point
15	Netherlands	Utrecht	Utrecht	E 645363.464 N 5773252.930

	Area in ha	Ownership
Component part	2.64	state, municipality, private
Buffer zone	8.96	

Protection		
National law	Erfgoedwet	Designated: 2010
Other laws and instruments	Land-use plans (Binnenstad, 25-1-2012; Chw Algemene regels over bouwen en gebruik, 30-11-2017) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>The Domphein fort measured c. 125 x 150 m (1.9 ha) at its greatest extent, and was built on the southern bank of the Roman Rhine (now silted up), immediately bordering the river channel. The fort belongs to the reduced 'delta type', with two ranges of internal buildings instead of three. The fort was founded in the 40s AD and probably evacuated in the 3rd century. The garrison consisted of an auxiliary infantry unit for most of its existence, but the extension of the fort in the last phase points to the arrival of a partly mounted unit.</p> <p>The fort was defended by at least one ditch, but there may have been more. The defensive wall was provided with four gates in the latest, stone-built phase, but in the earlier timber phases there was no rear gate. Corner towers were present in all phases, but interval towers possibly only in the later history of the fort. Most of the internal buildings are unknown. Parts of the successive headquarters buildings and of some of the surrounding buildings have been uncovered, but none of the latter has been properly identified.</p> <p>Some finds dating from the Late Roman period suggest some activity in the period AD 270-450, but there are no known defensive structures from that phase. The Roman military settlement became the nucleus of a thriving Medieval centre of power.</p>

Attributes and values

The Domplein fort is part of a screen of military posts in the delta that was built to protect a supply line to the Roman troops in Britain after the invasion of AD 43. It belongs to the 'delta type', adapted to the primary task of observing and securing river traffic. In its final building phase it was the largest example of this fort type, geared to the needs of a mixed unit of infantry and cavalry. In the lower delta west of Bunnik-Vechten ►16, cavalry is only attested elsewhere at Valkenburg-Centrum ►1.

The inner area of the fort is largely unexcavated. The timber remains of the earlier building phases and other organic material are very well preserved. The Domplein fort is one of the few with some standing remains of the last stone building phase, despite its exploitation as a quarry for several Early Medieval churches. The Roman military settlement was the basis for the medieval development.

Integrity

Wholeness	Very good. The complete surface area of the fort lies within the nominated property. Excavation has been very limited.
Intactness	Very good. The fort is well preserved below the thick medieval levels in the historic town centre. Only the foundations of the churches penetrate the Roman levels. It is one of the few sites where some standing remains of the stone defences have survived, and the preservation conditions for organic remains are favourable.
Exposure to threats	Minimal. Although located in the very heart of the city, large parts of the fort area are in possession of the municipality. The fort area includes over 40 national built monuments, providing an extra layer of protection. The Roman remains are buried deeply below the modern surface.

Authenticity

Form and design	Fair. The similar contours of the Roman forts and the medieval ecclesiastical territories may point to reuse of some parts of the Roman settlement. However, the indications of reuse in excavated areas were very limited.
Materials and substance	Unaffected. The surviving remains of the fort are completely authentic. Several stretches of the stone defensive wall are still in place. Timber remains of the earlier building phases are also well preserved.
Location and setting	Affected. The topography of the area is dominated by medieval churches, and the course of the Roman Rhine is not visible.

Buffer zone

The buffer zone has been defined to encompass the supposed extent of the civil settlement (military *vicus*) which developed both west and east of the fort, and possible burial sites belonging to the fort and *vicus*. The lay-out and chronology of these elements are largely unknown.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minimal	The nominated property includes over 40 national built monuments, reducing the opportunities for development, and the Roman layers are buried deeply below the surface. Large-scale development is not to be expected, and any small-case development plans must conform to the heritage protection law.
(v) visitors	minor	Visitors to the <i>DOMUnder</i> visitor centre can walk past remains of the Roman fort, but only under supervision. So far no damage has been caused by visitors and no damage is to be expected.

Presentation

The juxtaposition of Roman military and medieval religious spheres is presented in the underground visitor attraction *DOMUnder*. This was built in a former excavation trench so as to avoid damage to the remains of the Roman fort. In the presentation, parts of the northern stone defensive wall of the fort and the northern stone wall of the headquarters building (*principia*) are highlighted using audio-visual technology. Some partly preserved sections of the stone defensive wall of the fort are accessible in the cellar of a restaurant (open to the public) and in a small cellar (limited access under guidance).

Where the perimeter of the defensive wall of the stone building phase cuts the modern streets and squares, its course is indicated by a band of weathering steel, into which the outlines of several sections of the Roman frontier have been engraved. When dark at night, light is projected from below this steel band while a fine water spray is projected upwards, the interplay of light and water creating the impression of a vertical line. The paving within the perimeter defined by the steel band is lighter in colour, providing a physical impression of the surface area of the Roman fort.

Visitors who would like to take a virtual look around the Roman fort can choose from two smartphone applications, the *Domplein Tour* app and the *Tijdreis 2000 jaar Domplein* app.

Community involvement

The underground visitor centre *DOMUnder* is mainly operated by volunteers. Under their guidance visitors descend from the aboveground reception desk at the visitor centre to the exhibition area and actual Roman remains below the square.

Ancient sources

The military settlement can be identified with *Traiecto* ('at *Traiectum*') in the *Itinerarium Antonini Augusti* (369.2), a Late Roman list of routes going back to a model from the early 3rd century. The name means 'crossing-place' and obviously indicates that the river Rhine could be crossed here, probably by a ford.

FURTHER DETAILS**main building phases**

I-II: c. AD 40-70 (timber)
III-IV: c. AD 70-210 (timber)
V: c. AD 210-230+ (stone)

main research activities

1929 headquarters
1933-1949 defences, inner buildings

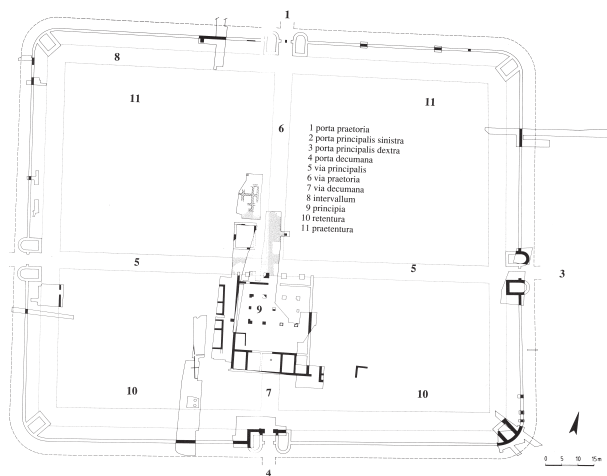
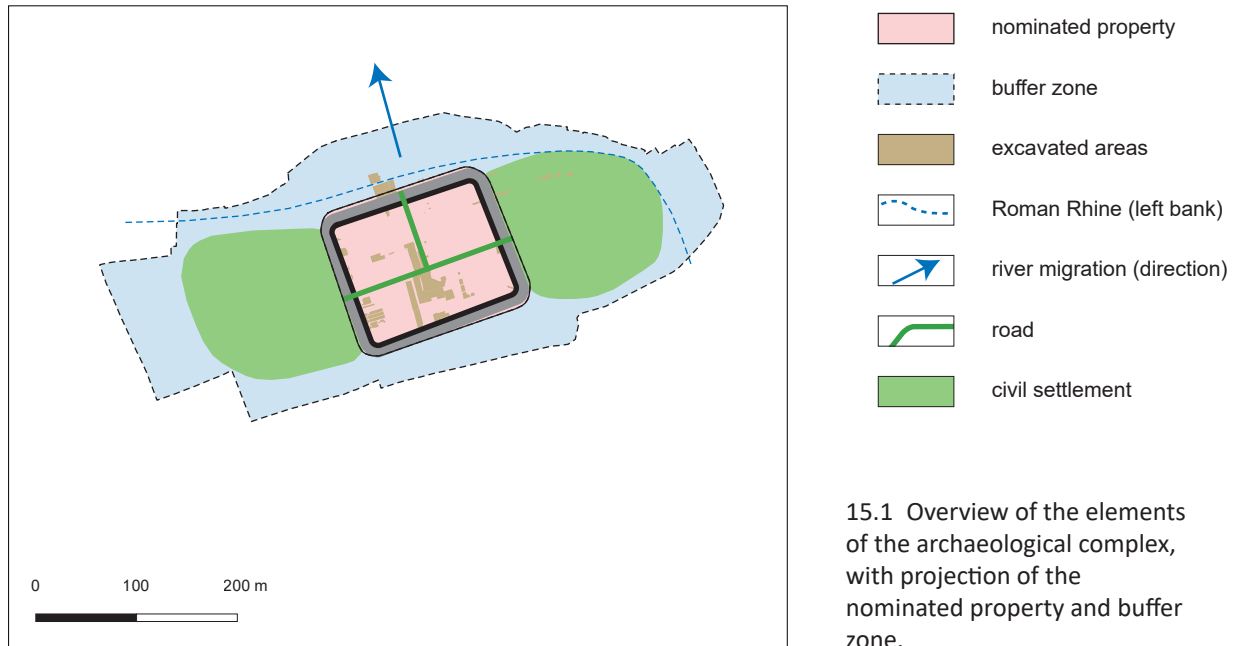
garrisons

cohors II Hispanorum peditata pia fidelis: c. AD 89-152+ (210?)

literature

Bogaers / Rüger 1974, 58-61; Ozinga et al. 1989; Montforts 1995; Chorus 2013.

15 Utrecht-Domplein



15 Utrecht-Domplein



15.4 Stone remains of the Roman fort and an early medieval chapel. In the foreground the base of one of the pillars surrounding the inner court of the headquarters building.



15.5 Visualization of the headquarters building in the underground visitor attraction DOMUnder.

CLUSTER 16

BUNNIK-VECHTEN

Auxiliary fort, civil settlement, cemetery, Limes road, quays, riverine waste deposits

No	State Party	Province	Municipality
16	Netherlands	Utrecht	Bunnik

Brief description

The Vechten fort measured c. 150 x 180 m (2.6 ha) in its final building phase and was located on the south bank of a now silted-up channel of the Rhine. The fort had the standard three ranges of internal buildings, although it shared the orientation of the 'delta type' forts, with the long front facing the river. The final, stone-built fort was preceded by a series of earth-and -timber forts of which the earliest dates back to c. 5 BC.

The stone fort was defended by a single ditch and a wall with four gates, corner towers and interval towers. Of the inner buildings, only the headquarters has been properly attested. Several of the earlier bases seem to have been irregularly shaped, and may well have been larger than the stone fort. From these earlier fortifications some inner buildings are known, including granaries, barracks and a residential building.

Traces of a large civil settlement have been discovered adjacent to the fort, stretching beside the river channel for perhaps as much as 1.5 km. South of the civil settlement graves have been discovered at several locations. They appear to have been part of various cemeteries, probably orientated on the roads leading to and from the vast military complex. On account of an excavation 1 km southeast of the component parts attesting the course of the Limes road in its construction phase of AD 123-125, it may be safely assumed that parts of the Limes road are present in the nominated property as well.

Timber revetments initially protected the river bank against erosion, which is demonstrated by traces of flooding. In the course of the 1st century AD the river channel in front of the fort was cut off by a new meander further north, and gradually silted up. This process was accelerated by use of the remaining channel as a rubbish dump. In order to maintain access to the receding water course the river bank was gradually built out by constructing quays and revetments closer to the channel, backfilling the intermediate space with soil and debris. Excavations have yielded, amongst other remains, very well preserved organic material including parts of leather tents and sandals, and parts of a patrol craft built in a Mediterranean style.

From the early 2nd century onwards, the fort at Vechten housed a cavalry unit and there is evidence for mixed units of infantry and cavalry in earlier phases. Occupation of the fort extends into the 3rd century AD. Finds dating to the Late Roman period suggest some activity in the period AD 270-450, but there are no known defensive structures from that phase.

The Roman military complex of Vechten lies within the area of the New Dutch Water Line, nominated in 2019 as an extension of Defence Line of Amsterdam, inscribed on the World Heritage List in 1996 (Ref: 759). The 19th century fort 'Fort bij Vechten' is situated in the heart of the component part of the Lower German Limes (cf. section Integrity).

Attributes and values

The Vechten site is a fairly complete example of a military complex, with a fort, extra-mural settlement and cemeteries, all connected to the Limes road and to the major waterway of the Rhine. It is the earliest and largest military site in the Rhine delta. Establishment of the first military installation must have been linked with use of the river Vecht, which branched from the Rhine a little downstream from the fort, as an access route into Germanic territory in the age of expansion; this earliest camp is likely to be a large and irregular shaped supply base and dates back to c. 5 BC.

In the stone building phase of the late 2nd century, the fort had a layout which is unique for the area in that it combines the unorthodox orientation of the 'delta type' forts with a third strip of buildings. It is the only fort downstream from Nijmegen known to have housed a full cavalry unit. The stone fort has never been built over.

The river channel that ran in front of the fort gradually silted up in the Roman period. This process was accelerated by the constant dumping of refuse. To maintain access to the receding water course, the bank was increasingly built out using brushwood and platforms, ramming rows of posts at right angles and filling the resulting frames with rubbish and soil. By the middle of the 2nd century these constructions extended at least 60 m from the former river bank. Excavations at various locations have demonstrated that the preservation conditions for organic remains in and along the silted-up Rhine channel are excellent and permit a very detailed reconstruction of the landscape and of the lives of soldiers and non-combatants. Parts of a rare type of military patrol vessel, built using a Mediterranean construction technique, are preserved in the channel and it is possible that other ships are buried here also.

Integrity

Wholeness	Good. The nominated property includes all the known remains of the successive forts, most of the civil settlement and the cemeteries, a significant part of the bed of the Roman Rhine and probably a section of the Limes road. However, a part of the civil settlement and the Roman Rhine are located beneath a motorway and a railway line and could only be included in a buffer zone.
Intactness	Good/very good. Good: Excavations have been limited, especially considering the extent of the nominated property. Construction of the defensive ditch and of some stone buildings of the 19th century 'Fort bij Vechten' has disturbed the Roman levels, but recent excavations have shown that in most areas the remains from the Roman period are fairly intact. A small area outside the later fort was levelled to obtain a free field of fire, but the earliest Roman levels are still preserved here. Very good: Timber and other organic remains are well preserved in the earlier levels of the forts and civil settlement, and exceptionally well in the silted-up river bed.
Exposure to threats	Minimal. Most of the area between the A12 motorway and the Marsdijk (south of and roughly parallel to the motorway) is in public hands. Parts of the nominated area are in agricultural use, but damage to the Roman remains is prevented by the regulations of the heritage protection law. Currently there are no threats posed by operations of the Waterliniemuseum (Water Line Museum) located in the buildings of 'Fort bij Vechten'. This 19th-century fort is a built monument, which provides an extra layer of protection to the underground remains. The whole of the component parts and buffer zones is included within the nominated property of the New Dutch Water Line

(extension of Defence Line of Amsterdam, Ref: 759). Existing plans for the development of recreational facilities extending over the northern component part will have to comply with the heritage protection law.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The physical substance of the various elements of the military complex has not been altered since the Roman period. Timber remains of not only the fort but also the <i>vicus</i> and the mooring facilities are well preserved.
Location and setting	Affected. The river Rhine has moved far from the military settlement, and the general setting is impacted by the presence of a fort of the New Dutch Waterline, a motorway and a railway line.

Buffer zone

The buffer zone surrounds the nominated property on three sides. To the north it includes parts of the former river channel which are either buried beneath the motorway and railway or in which no waste deposits have so far been attested. In the area north of the railway, surface finds indicate that some Roman features may be present, but they have not been properly identified. To the east the buffer zone includes the assumed course of the Limes road, possible deposits in a tributary of the Rhine and perhaps part of a cemetery. Remains of the latter may also be present in the southern part of the buffer zone.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) other development	minimal	The component part Provincialeweg borders a restaurant seeking opportunities to strengthen its economic position by developing recreational facilities. Any such development, however, must comply with the heritage protection law.
(i) traffic	minor	The A12 motorway, wedged between the railway line and the Marsdijk component part, has been extended southward in the 1970s and 1990s. Further southward extension may be unavoidable at some point in the future. Excavation of any damaged areas will be enforced by the regulations of the heritage protection law.

(i) major linear facilities	minor	In case of motorway extension, an existing pipeline for aviation fuel to its south will have to be shifted further south. Excavation of any damaged areas will be enforced by the regulations of the heritage protection law.
(i) agriculture	minimal	The area covered by the Marsdijk component part is partially used for agriculture. The fields are mainly in use as grassland and therefore not subjected to the risks of deep ploughing and heavy manuring. Apart from that, ploughing deeper than the disturbed topsoil is prohibited by the heritage protection law.
(iii) flooding and river erosion	minimal	With the exception of the elevated areas of the Roman fort and of the 19th-century fort the component parts are located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

The defensive wall of the stone fort and its gates are marked with a concrete plinth, which also offers information about the site in the shape of text and graphic reproductions of objects. In the interior, the layout of the headquarters is indicated by concrete slabs and red gravel, while other buildings are indicated by contrasting grass mixtures. Prior to construction of the concrete plinth, the ground surface was raised by 0.50-1.00 m and the line of the defensive ditch traced superficially by excavation into the raised soil. The roads leading from the fort are marked out over distances varying from 40-200 m. Alongside the southern road two plans of *vicus* buildings are marked in concrete; the building plans do not reference any buildings known from Vechten.

Currently a reconstruction of a timber watchtower stands c. 200 m southeast of the stone fort. It is used for re-enactment activities. No tower is known at this location, and its outward appearance is based on outdated reconstructions of towers on the Upper German-Raetian Limes. The tower will not be replaced when it has come to the end of its useful life, which is expected to be within a few years.

Community involvement

Guided tours to the site of the Roman fort are conducted by volunteers connected to the *Waterliniemuseum Fort bij Vechten*, the national museum devoted to the defensive system known as the New Dutch Water Line. This museum, located in the 19th-century fort, also has a separate exhibition focused on the Roman history of the site.

Ancient sources

The name *Fectio* is mentioned as *Fectione* ('at *Fectio*') in an inscription on a votive altar (CIL XIII 8815) found at Bunnik-Vechten. It dates from the 2nd or 3rd century AD. The altar was dedicated to the native goddess Viradecdis by traders from modern-day Tongeren in Belgium, who resided temporarily at Vechten.

The *Fectione* from the above-mentioned votive altar can be identified with the *Fictione* mentioned in the Ravenna Cosmography (IV.24), a medieval description of the inhabited world including thousands of ancient place-names. There is further reason to consider the *Fletione* ('at *Fletio*') occurring on the Tabula Peutingeriana (Segm. II.3), a medieval copy of a Roman road map, as a writing mistake for *Fectione*, though some prefer its identification with the military settlement at Utrecht-Hoge Woerd ►13.

An excavated wine barrel, probably belonging to one of the earlier forts, was branded with the text C CAES AVG GER, short for Caius Caesar Augustus Germanicus, the official name of the emperor Caligula. The barrel must have been part of the supplies travelling with the emperor when he came to the North Sea coast in AD 40 with the aim of crossing to Britain, an enterprise which was eventually aborted. The barrel constitutes a link with a major event in the military history of the Rhineland. The same stamp is known from Valkenburg-Centrum ►1.

FURTHER DETAILS

main building phases

- I.1 c. 5 BC-AD 10 (timber)
- I.2 c. AD 10-37/41 (timber)
- I.3 c. 37/41-50 (timber)
- I.4 c. 50-100? (timber)
- I.5 c. 100?-120/130 (timber)
- II c. 120/130-170 (timber)
- III c. 170-225+ (stone)

main research activities

- 1892-1894 fort
- 1920-1927 fort
- 1931-1937 fort
- 1946-1947 fort
- 1995-1996 *vicus*
- 2007 geophysical survey
- 2009-2010 field survey
- 2011-2013 *vicus*
- 2017 *vicus*: coring survey, trial trench

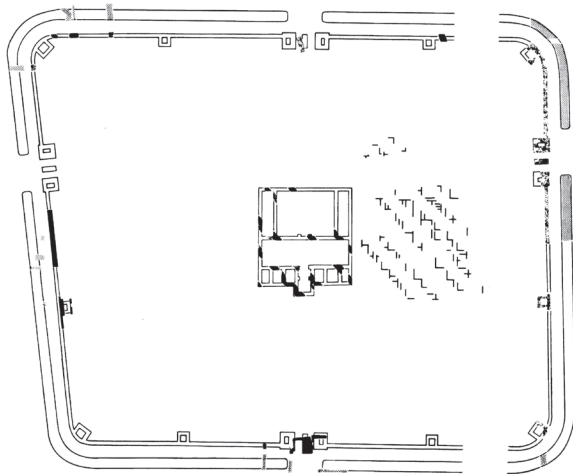
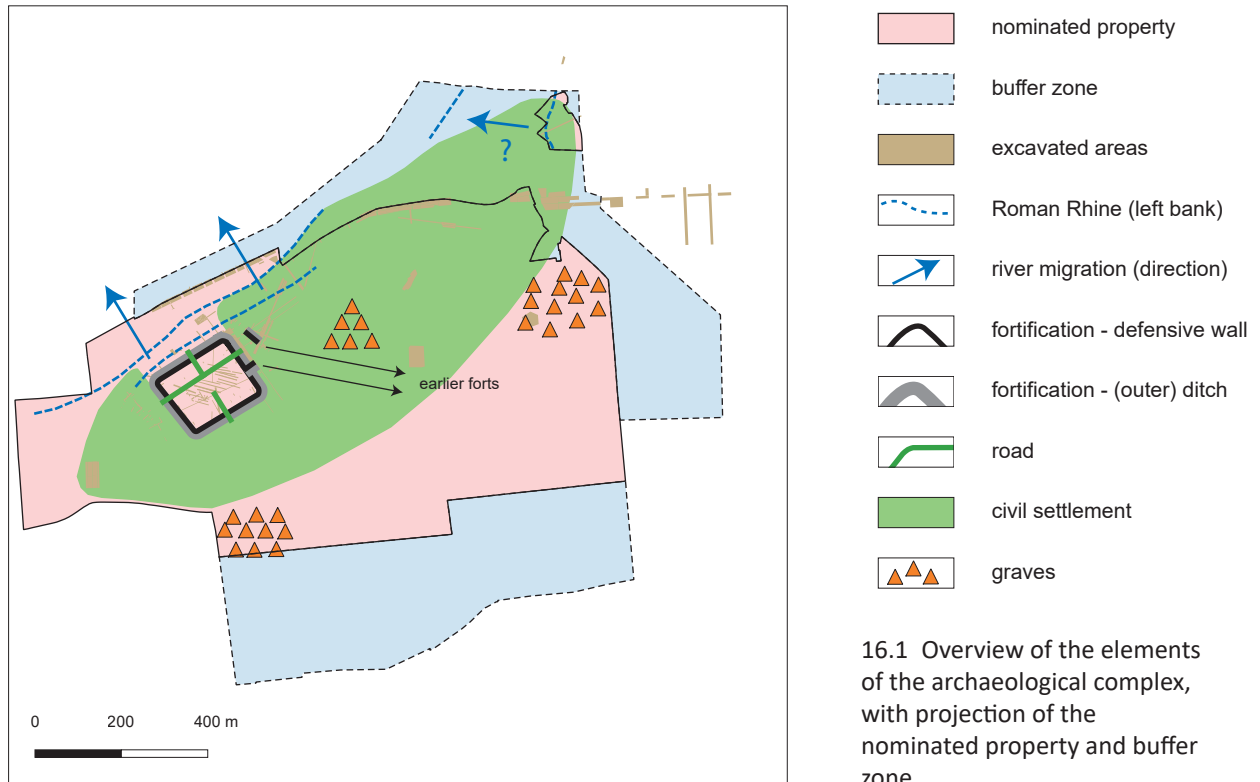
garrisons

fleet? cohorts I Classica?: pre-70
 cohorts I Flavia Hispanorum equitata pia fidelis: c. 70-124/127?
 ala I Thracum: 124/127+

literature

Bogaers / Rüger 1974, 62-65; Polak / Wynia 1991; Hessing et al. 1997; Zandstra / Polak 2012; Polak 2014; Weterings 2017; Jansen / Soldaat 2017; Briels / Jansen 2019.

16 Bunnik-Vechten



16 Bunnik-Vechten



16.3 View of an excavation in 1892. Timber posts and revetments protecting the bank of the Roman Rhine. Seen from the west



16.4 Visualization of the defenses and headquarters building of the stone fort.



16.4 Casts of Roman finds from the fort and its surroundings, in the top of the concrete plinth visualizing the fort.

COMPONENT PART 16A

BUNNIK-VECHTEN | MARSDIJK

Auxiliary fort, civil settlement, cemetery, Limes road, quays, riverine waste deposits

No	State Party	Province	Municipality	Coordinates central point
16a	Netherlands	Utrecht	Bunnik	E 648531.020 N 5769674.007

	Area in ha	Ownership
Component part	80.83	state, province, municipality, private
Buffer zone	51.88 (26.67 shared with 16b)	

Protection		
National law	Erfgoodwet	Designated: 1969
Other laws and instruments	Land-use plans (Buitengebied Bunnik 2011, 24-11-2011; Fort bij Vechten, 2-5-2012; Parapluherziening Buitengebied Bunnik, 1-11-2018) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Marsdijk' includes most of the nominated property. Around the fort traces of a large civil settlement have been discovered. South of the civil settlement graves have been discovered at several locations. They appear to have been part of various cemeteries, probably orientated along the roads leading to and from the vast military complex. It may be assumed that parts of the Limes road are present as well. The river bank was gradually built out by constructing quays and revetments, in order to maintain access to the receding water course. The intermediate space was backfilled with soil and debris. Excavations of these sections have yielded very well preserved organic material amongst other remains.</p>

Attributes and values
<p>The component part includes all attributes and values common to the cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Good. The component part 'Marsdijk' includes all the known remains of the successive forts, most of the civil settlement and the cemeteries, a significant part of the bed of the Roman Rhine and probably a section of the Limes road. However, part of the civil settlement and of the Roman Rhine are located beneath a motorway and a railway line and could only be included in a buffer zone.
Intactness	Good/very good. Good: Excavations have been limited, especially considering the extent of the nominated property. Construction of the defensive ditch and of some stone buildings of the 19th century 'Fort bij Vechten' has disturbed the Roman levels, but recent excavations have shown that in most areas the remains from the Roman period are fairly intact. A small area outside the later fort was levelled to obtain a free field of fire, but the earliest Roman levels are still preserved here. Very good: Timber and other organic remains are well preserved in the earlier levels of the forts and civil settlement, and exceptionally well in the silted-up river bed.
Exposure to threats	Minimal. Most of the area between the A12 motorway and the Marsdijk (south of and roughly parallel to the motorway) is in public hands. Parts of the nominated area are in agricultural use, but damage to the Roman remains is prevented by the regulations of the heritage protection law. Currently there are no threats posed by operations of the Waterliniemuseum (Water Line Museum) located in the buildings of 'Fort bij Vechten'. This 19th-century fort is a built monument, which provides an extra layer of protection to the underground remains. The component part and buffer zone are included within the nominated property of the New Dutch Water Line (extension of Defence Line of Amsterdam, Ref: 759).

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The physical substance of the various elements of the military complex has not been altered since the Roman period. Timber remains of not only the fort but also the <i>vicus</i> and the mooring facilities are well preserved.
Location and setting	Affected. The river Rhine has moved far from the military settlement, and the general setting is impacted by the presence of a fort of the New Dutch Waterline, a motorway and a railway line.

Buffer zone
The northern and eastern parts of the buffer zone are shared by both component parts of this cluster. See the text concerning the cluster.

The southern part of the buffer zone is associated with this component part only. It may include remains of burials, but the extent of the cemeteries is not precisely known.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) traffic	minor	The A12 motorway, wedged between the railway line and the Marsdijk component part, has been extended southward in the 1970s and 1990s. Further southward extension may be unavoidable at some point in the future. Excavation of any damaged areas will be enforced by the regulations of the heritage protection law.
(i) major linear facilities	minor	In case of motorway extension, an existing pipeline for aviation fuel to its south will have to be shifted further south. Excavation of any damaged areas will be enforced by the regulations of the heritage protection law.
(i) agriculture	minimal	The area covered by the Marsdijk component part is partially used for agriculture. The fields are mainly in use as grassland and therefore not subjected to the risks of deep ploughing and heavy manuring. Apart from that, ploughing deeper than the disturbed topsoil is prohibited by the heritage protection law.
(iii) flooding and river erosion	minimal	With the exception of the elevated areas of the Roman fort and of the 19th-century fort the component parts are located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources
See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 16B

BUNNIK-VECHTEN | PROVINCIALEWEG

Civil settlement

No	State Party	Province	Municipality	Coordinates central point
16b	Netherlands	Utrecht	Bunnik	E 649005.246 N 5770294.988

	Area in ha	Ownership
Component part	0.94	private
Buffer zone	26.67 (shared with 16b)	

Protection		
National law	Erfgoodwet	Designated: exp. 2020
Other laws and instruments	Land-use plans (Buitengebied Bunnik 2011, 24-11-2011; Parapluherziening Buitengebied Bunnik, 1-11-2018) Provincial ordinances (Provinciale Ruimtelijke Verordening, geconsolideerd (incl. herijking 2016, correctie 2017 en 2e partiële herziening 2018), 10-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part 'Provincialeweg' takes in a small part of the nominated property, situated c. 1 km to the north-east of the fort, including remains of the civil settlement. This part of the settlement was wedged between two channels of the Rhine, to the east and west. The westerly channel was active in the Roman period, while the easterly one had started silting up. The westerly channel especially may contain well-preserved waste deposits, but these have not so far been properly attested.</p>

Attributes and values
<p>The component part illustrates the vast extent of the military <i>vicus</i>, stretched out along the bank of the river Rhine.</p>

Integrity	
Wholeness	Fair. The component part 'Provincialeweg' includes a small part of the civil settlement.
Intactness	Good. Excavation has been limited to a trial trench of limited depth, in order to minimize any damage to the attested remains. Since the deeper levels were not reached it is not proven that organic remains are well preserved here, but this may nonetheless be assumed on account of the generally good conditions for organic preservation at Vechten.
Exposure to threats	Minimal. Nearly two thirds of the component part are in possession of the owner of an adjacent restaurant, who intends to develop further activities here. Any development, however, will have to comply with the stringent regulations of the heritage protection law. The component part and buffer zone are included within the nominated property of the New Dutch Water Line (extension of Defence Line of Amsterdam, Ref: 759).

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The physical substance of the various elements of the military complex has not been altered since the Roman period.
Location and setting	Affected. The river Rhine has moved far from the military settlement, and the general setting is impacted by the proximity of a regional road and a railway line.

Buffer zone
The northern and eastern parts of the buffer zone are shared by both component parts of this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) other development	minimal	The component part borders a restaurant seeking opportunities to strengthen its economic position by developing recreational facilities. Any such development, however, must comply with the heritage protection law.
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability

of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

Not applicable.

Community involvement

Not applicable.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 18

ARNHEM-MEINERSWIJK

Auxiliary fort, civil settlement

No	State Party	Province	Municipality	Coordinates central point
18	Netherlands	Gelderland	Arnhem	E 697375.914 N 5761758.299

	Area in ha	Ownership
Component part	2.75	state
Buffer zone	4.12	

Protection		
National law	Erfgoedwet	Designated: 1983
Other laws and instruments	Land-use plan (Stadsblokken-Meinerswijk 2015, 28-9-2015) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>At Meinerswijk, the remains of a succession of forts have been discovered, as well as parts of the associated civil settlement. The fort was located on the left bank of the Rhine, just downstream of the junction with the Gelderse IJssel.</p> <p>A considerable part of the military complex has been eroded by the river. The best known remains are those of the headquarters and defences at the rear of the fort, which stem from the stone building phase. The fort was of the reduced 'delta type', with only two ranges of internal buildings instead of three. If the estimated measurements of c. 110 x 180 m (c. 2 ha) are correct, the fort was a large example of this type in its final building phase; earlier phases may have been even larger.</p> <p>The earliest finds from the site have been dated to c. AD 10-20. The chronology of the finds assemblage extends until c. AD 250, with some additional evidence for Late Roman activity. The garrison is not known. Traces of the civil settlement to the south of the fort have been attested by geophysical survey only and are limited to traces of a few unidentified buildings. It is possible that the former river channels that have eroded the fort and the civil settlement still contain Roman remains at great depth.</p>

Attributes and values

The best known remains of the Meinerswijk fort are those of the headquarters building and of the defences at the rear at the fort, both from the stone building phase. They demonstrate that Meinerswijk was of the 'delta type'. In the eastern part of the river area it is so far the only known representative of this type.

A little upstream of the fort, a stream system discharged into the river Rhine from the northeast. There are indications that a canal was dug to connect this stream system to the peat lakes in the north. The precise location of the canal is unclear, but it was certainly used during military campaigns in 12 BC and AD 15, to reach Germanic territories further north and east. The fort at Meinerswijk was located in a strategic position near this canalized access. The earliest finds so far unearthed at Meinerswijk have been dated to c. AD 10-20, justifying its association with at least the latter of these key historical events. Structural remains from this early period have not yet been attested, since the limited excavations hardly touched the earlier layers. Their preservation is likely to be very good, given the high groundwater table.

The considerable extent of erosion of the fort by the Rhine, which may have started in the Late Roman period, illustrates the vulnerability to erosion of military installations located on the very edge of the river.

Integrity

Wholeness	Fair. The nominated property includes the parts of the fort and civil settlement which have survived erosion by the river Rhine. Nearly two thirds of the fort has disappeared, and probably even more of the surrounding military <i>vicus</i> .
Intactness	Good. The remains of the fort include the foundations of stone buildings from the latest period. The earliest levels have not been touched by the limited excavations, and their condition is therefore unknown, but the high groundwater level warrants expectation of good preservation of organic remains.
Exposure to threats	Minimal. The property lies within a large natural park. At high water levels the area can be flooded, but this does not threaten the archaeological remains, as evidenced by the survival of stone remains from the latest building period of the fort.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The physical substance of the various elements of the military complex has not been altered since the Roman period. Water-logged timber posts and stone blocks which constituted the foundations of walls are still in place.
Location and setting	Fair. The channel of the Rhine has migrated over time, but the current river channel lies about 300 m from the component part. The remains of the fort and extra-mural settlement lie in a nature park, with no buildings blocking the view to the river. The strategic position of the Roman fort can still be explained through these views.

Buffer zone

The buffer zone encompasses the eroded parts of the stone fort and parts of the river channels which have eroded the western and eastern sides of the stone fort. Eroded Roman remains may well occur at great depths in these silted-up channels.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) flooding and river erosion	minimal	The nominated property lies within a nature park. This area can be flooded in case of high water, but this would lead to the deposition of a protective layer of sediment rather than to erosion of the buried remains.

Presentation

The contours of the fort's headquarters, the rear gate and the assumed locations of the corners of the defensive wall of the stone building phase have been outlined on the ground surface with gabions. The lower filling of these gabions consists of black concrete, referencing the destruction caused by the Batavian Revolt of AD 69/70. The middle part of the filling comprises the natural stone used for the foundations of the latest building phase. The upper filling of roof tile fragments references this period as well. The gabions are 50 cm in height except at the location of the hall (*basilica*) of the headquarters building (*principia*), where they are higher (1 m) to emphasize the towering height of this part of the building. Four columns of the courtyard have been reconstructed to 2 m in height to add to the 3D effect of the visualization.

The gabions are located within the component part. To enhance this visualization, two frames with see-through panes have been placed in the buffer zone at some distance from the gabions. The panes show reconstruction drawings of the headquarters and the rear gate of the fort. These windows have been designed and positioned in such a way as to give a more spatial and structural impression of what the original buildings may have looked like. The overlay drawings are accompanied by explanatory text.

Community involvement

At 700 m southeast of the fort's location, volunteers of a local horticultural society have created a Roman garden, in which crops typical for the Roman period are cultivated.

Ancient sources

The identification with the *Castra Herculis* ('fortress of Hercules'), to the west of *Noviomagus* (Nijmegen) on the Tabula Peutingeriana (Segm. II.4), a medieval copy of a Roman road map, is subject to debate. *Castra Herculis* is also mentioned by the contemporary historian Ammianus Marcellinus (XVIII 2.4), as one of seven forts and towns along the Rhine recovered in AD 359 by the Emperor Julian (AD 361-363) from Germanic

tribes. In view of the order of the sites in the text, it was located to the west of *Quadriburgium* (generally identified with Qualburg, between Xanten and Nijmegen). At Meinerswijk there is so far no clear evidence of a Late Roman fortification.

FURTHER DETAILS

main building phases

- 1 10/20-40? (timber)
- 2 40?-69 (timber)
- 3 70-125 (timber)
- 4 125-200 (timber)
- 5 200- c. 250 (stone)

main research activities

- | | |
|-----------|--------------------|
| 1979 | excavations |
| 1989 | geophysical survey |
| 1991-1992 | excavations |

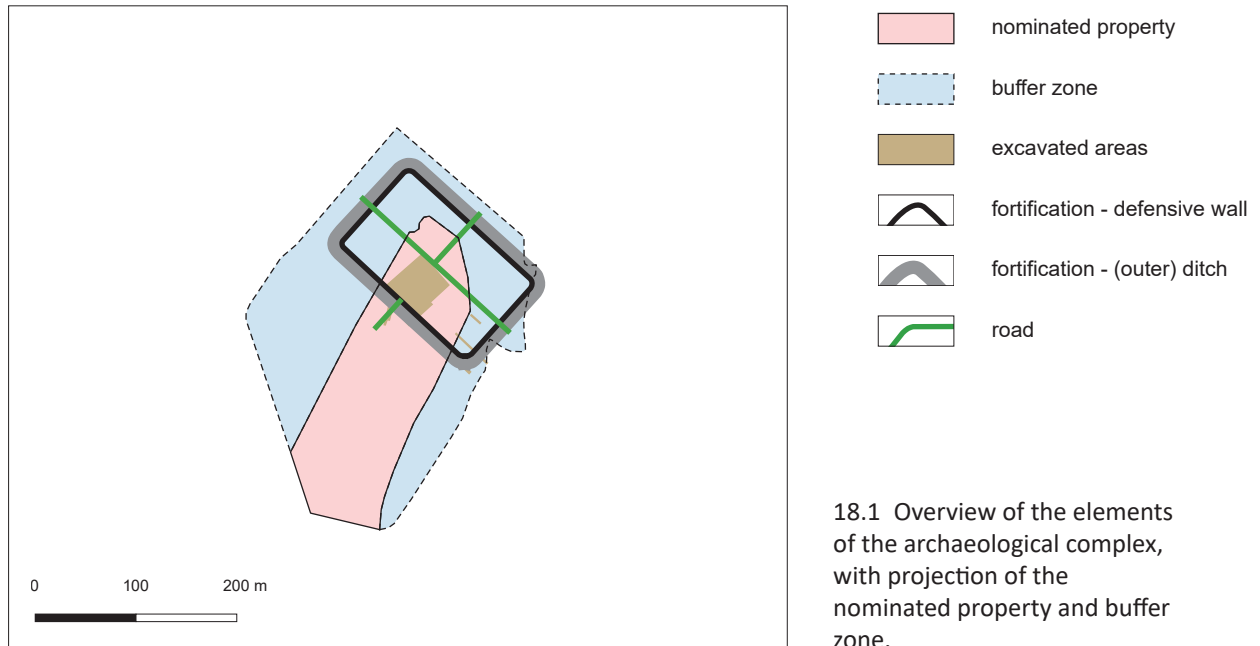
garrisons

unknown

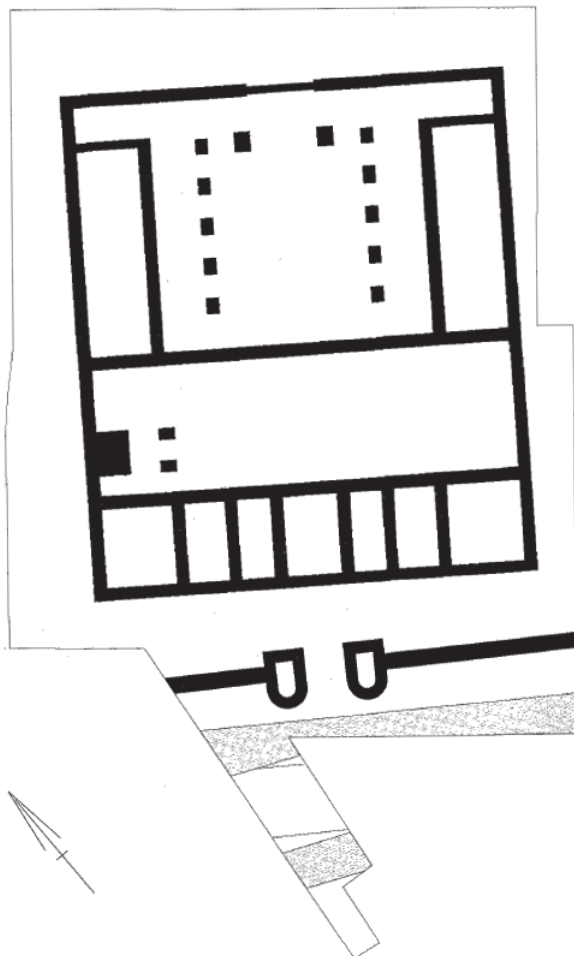
literature

Willems 1986; Van der Gaauw 1989; Hulst 2000-2001.

18 Arnhem-Meinerswijk



18.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



18.2 Plan of the headquarters building and rear gate during the stone building phase of the fort.

18 Arnhem-Meinerswijk



18.3 Visualization by gabions of the known remains of the stone fort.



18.4 Visualization of the fort during high water.

COMPONENT PART 20

ELST-GROTE KERK

Sanctuary

No	State Party	Province	Municipality	Coordinates central point
20	Netherlands	Gelderland	Overbetuwe	E 695939.709 N 5755955.149

	Area in ha	Ownership
Component part	0.39	other
Buffer zone	0.50	

Protection		
National law	Erfgoedwet	Designated: 2011
Other laws and instruments	Land-use plan (Elst, Centrum, 20-10-2015) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>The remains of the temple at Elst are buried below the present Grote Kerk, built in the 15th century, and its Early Medieval predecessors. With its high central building (<i>cella</i>) surrounded by a colonnade (<i>porticus</i>) on all four sides, the final building phase of the temple (temple II) belongs to the so-called Gallo-Roman type, combining Roman elements with elements known only from north of the Alps. Measuring c. 31 x 23 m, it was one of the largest temples of this type in the Gaulish and German provinces. Several small sections of wall at some distance from the temple have been interpreted with due caution as remnants of the <i>temenos</i> wall, demarcating the sacred area around the temple, but neither the dimensions nor the orientation fit well with such an interpretation.</p> <p>The large temple II was built around AD 100, possibly on the occasion of the promotion of the nearby town of <i>Ulpia Noviomagus</i> at Nijmegen, the administrative centre of the Batavian territory, to <i>municipium</i> (town with a legal status). The temple replaced a simple rectangular building of c. 12 x 9 m (temple I), which by c. AD 50 had succeeded a pre-Roman open-air sanctuary. The stone foundation of this building are still present below the walls of the large temple.</p> <p>The temple was part of a civil settlement which had developed on a north-south stream ridge extending from the river Waal in the south to the Rhine in the north. It was probably situated at the crossing of two land routes.</p>

Attributes and values

The replacement of a pre-Roman open-air sanctuary by a Roman temple, though of a hybrid type, is an excellent demonstration of the societal changes that took place following the arrival of the Roman army. The monumentality of temple II, probably part of a wider imperial civil building programme, suggests that the army was involved in its construction. The main deity which is assumed to have been venerated here, Hercules Magusanus, appears to have been especially popular among soldiers and veterans; his name is an example of *interpretation Romana*, the identification of a regional deity with a Roman one. The position of the temple under a succession of Early and Late Medieval churches may point to uninterrupted use as a place of worship.

Integrity

Wholeness	Very good. The foundations and the floor levels of the subsequent building phases of the temple are preserved underneath the present church. Part of the ground plan extends beyond the church building into the church yard.
Intactness	Very good. Not only is the ground plan of the temple well preserved, but also fragments of wall painting, the surface of the ancient floor, and wooden posts on which the walls of the temple rested.
Exposure to threats	Minimal. The nominated area is located within the yard of the Grote Kerk (church) and is not subject to development pressure.

Authenticity

Form and design	Unaffected. Although the presence of later churches may point to an awareness of their roots in the Roman period, the form and design of the Roman temple are fully authentic.
Materials and substance	Unaffected. The physical substance of the various elements of the temple has not been altered since the Roman period. Timber and stone remains of the temple's foundation are very well preserved.
Location and setting	Affected. Although the site is still in use as a ritual place (church), the object of veneration has obviously changed, and the surroundings do not in any way provide reminders of the original setting in a Roman roadside <i>vicus</i> (civil settlement)

Buffer zone

For the sake of clarity the boundary of the nominated property coincides with that of the modern church yard. It is likely that a part of the projected cult area surrounding the temple building is included in the nominated property, particularly on the west side; the remainder has been included in the buffer zone. There is no reason to suppose that there are elements associated with the temple outside the buffer zone.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.
(v) visitors	minimal	Visitors to the <i>Tempel / Kerk Museum</i> can walk past remains of the Roman temples only under supervision. So far no damage has been caused by visitors and no damage is to be expected.

Presentation
The <i>Tempel / Kerk Museum</i> inside the church presents the history of this 2000-year old place of worship. Visitors can descend to see the remains of the Roman temple and the foundations of the Medieval church as part of a guided tour. The remains of the temple extending outside the church building have been marked on the present ground surface using stones and red gravel.

Community involvement
The <i>Tempel / Kerk Museum</i> is predominantly run by volunteers. They conduct the guided tours which are the sole opportunity for visitors to see the remains of the Roman temples beneath the church.

Ancient sources
Not applicable.

FURTHER DETAILS

main building phases

- 1 50-15 BC
- 2 40 BC-AD 50
- 3 50-100 AD temple I
- 4 100-193+ temple II

garrisons

n.a.

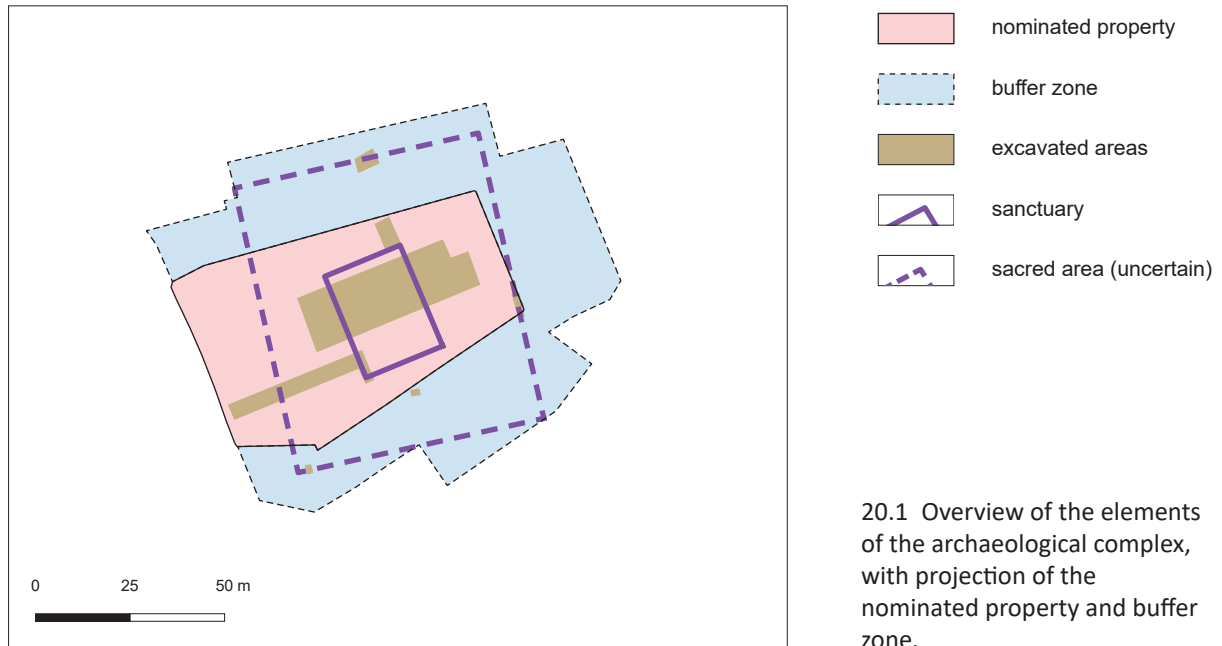
literature

Bogaers 1955; Derks et al. 2008.

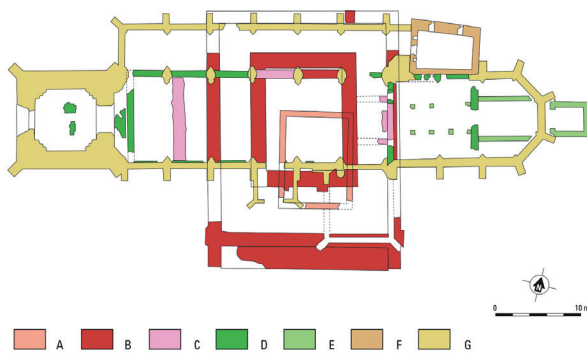
main research activities

- 1947 excavation temples I-II
2002-2003 trenches outside temples

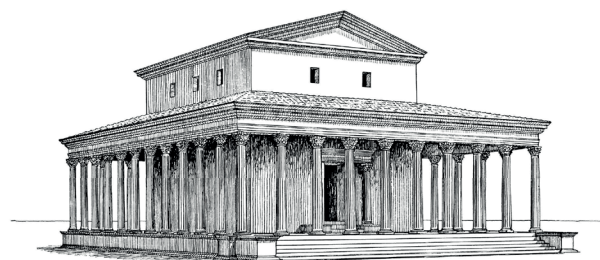
20 Elst-Grote Kerk



20.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



20.2 Plans of the successive Roman temples and medieval and later churches.
A: temple I. B: temple II.



20.3 Reconstruction of temple II., with the high central building surrounded by a colonnade.

20 Elst-Grote Kerk



20.4 View of the excavations inside the church building in 1944, from the west. The L-shaped wall of temple I is wedged between the massive side walls of the central building of temple II.



20.5 Visible wall remains of the Roman temples underneath the modern church. Northern wall of temple I (A) cut by the foundation (B) and east wall (C) of the central building of temple II.



20.6 Outline of temple II marked out with stones and red gravel in the church yard. View from the west.

CLUSTER 22

NIJMEGEN-VALKHOF AREA

Early Roman town, Late Roman fort

No	State Party	Province	Municipality
22	Netherlands	Gelderland	Nijmegen

Brief description

The nominated property encompasses two elements of the frontier infrastructure: an Early Roman town and a Late Roman fort. The town has been identified with *Oppidum Batavorum*, as mentioned by the historian Tacitus, and may have been founded as early as 10 BC. It had a ribbon-like layout, and the nucleus of the settlement must have been at least 10 ha in size. The finds assemblage indicates that the first inhabitants may have been, or included, army veterans. Fragments of wall painting, stone foundations and cellars reveal swiftly increasing prosperity. The early use of stone, the planned layout and the presence of a perimeter ditch are typical urban features. It is assumed that the settlement served as the urban centre of the *civitas Batavorum*, the Roman administrative equivalent of the tribal area of the Batavians. During the Batavian Revolt of AD 69/70 the civil settlement was destroyed.

In the late 3rd century AD a fortification was built on the Valkhof plateau, defended by a stone wall and a double ditch system. The stone wall may have been preceded by an earth-and-timber wall. Coin finds from the fill of the ditches indicate that the fort was established before the reign of Constantine the Great (AD 306-337). The area enclosed by the wall and the inner ditches measured approximately 2.8-4 ha. Two additional ditches surrounded the fort c. 40-90 m to the southwest and west, probably encompassing a vacant area which may have functioned as an additional defensive slope (*glacis*). The occupation of the fort seems to have continued at least into the 5th century. The Roman garrison of the fort, which so far remains unknown, may at that time have been replaced by Frankish soldiers.

A considerable part of the fort was later built over by an Early Medieval power centre, which was succeeded by a palace of Charlemagne (AD 768-814). The remains of the inner area of the fort are hidden beneath those of the palace. The almost complete lack of excavation is the reason we have no information on the state of preservation of the fort's interior or of the remains of the early town underneath it. There is reason to believe that the later buildings incorporated parts of the defensive wall of the Roman fort.

Attributes and values

The Early Roman town known as *Oppidum Batavorum* served as an urban administrative centre. In contrast to the topographically more elevated parts of Celtic Europe, the peoples of the Low Countries and the North German Plain had no urban tradition. In the Roman Empire, however, urban centres were the key elements of the administrative system. Integration of the North into the Roman Empire therefore required the development of an urban infrastructure. Military involvement, especially the presence of army veterans, and

the slow urban development of the settlement reflect the process of early urbanization of the military zone on the left bank of the Rhine.

The Valkhof area is the only site in the Dutch frontier zone with incontestable physical remains of a Late Roman military fortification, the most westerly one attested on the Lower German Limes. The double ditch system is so far without parallel.

Integrity

Wholeness	Fair. The nominated property includes significant parts of the Early Roman town and the Late Roman fort. The extent of the early town is not very well known, but a substantial part of its core area is covered by the nominated property. The extent of the fort is indicated by the outer ditches. The component parts include most of the area within the inner ditches, located on top of the remnants of an ice-pushed moraine, now cut by an artificial valley made for the construction of the Voerweg in the 15th century, which separates the two component parts.
Intactness	Good. It is likely that stretches of the ditches of the Late Roman fort and of the robber trenches of its stone wall are still present. Parts of the northern stone wall may have been incorporated in later walls. The remains of the inner area of the fort are hidden under those of the medieval palace. As a result of a lack of excavation we have no information on the state of the preservation of the fort's interior, or of the early town underneath. Excavations outside the inner ditches of the fort have demonstrated that many remains of the early town are still present there, as well as parts of the outer ditches of the fort.
Exposure to threats	Minimal. The component parts are located in public parks already existing for more than a century. Their designation as parks is anchored in the land-use plan.

Authenticity

Form and design	Fair. Parts of the Late Roman fort may have been re-used in the medieval period, but the excavated parts show no signs of alterations to the layout of the fort.
Materials and substance	Fair. The features of the early civil settlement have remained unaltered, but parts of the Late Roman fort appear to have been reused, resulting in a confusing image of what is Roman and what medieval.
Location and setting	Fair. Important views over the river Waal can still be experienced, especially from the location of the Late Roman fort on the edge of the plateau.

Buffer zone

The best preserved parts of both the civil settlement *Oppidum Batavorum* and the Late Roman fort are included in the nominated property. The buffer zone includes most of the projected remains of the civil settlement and the fort.

The extent of the civil settlement is not well-defined. It was probably larger to the east, where its remains are difficult to identify as a consequence of being built over in the later Roman period. Nevertheless, part of the settlement is likely to be included in the buffer zone as delineated.

The eastern limits of the Late Roman fort on the Valkhof are unclear. Consequently the boundary of the buffer zone follows the course of the modern main road on the eastern side.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
n.a.		

Presentation

In the wall by the entrance to the underground parking facility on the St. Josephhof/Scholenhof, a 'viewing cabinet' has been installed, allowing people to observe the stone foundations of one of the houses of the early urban settlement, rebuilt in their original location following excavation.

The wall and double ditch system of the Late Roman fort are marked out in the pavement of the square in front of the Museum Het Valkhof. The upstanding remains of the medieval palace on the Valkhof plateau contain *spolia* (re-used building materials) from ancient Roman buildings.

The Roman and Medieval history of the Valkhof is visualized through reconstruction drawings in De Bastei, a centre for nature education and cultural history which is located at the foot of the Valkhof hill, partly within component part 22a.

In the Museum Het Valkhof, situated within component part 22b, the history of Roman Nijmegen and the surrounding area is presented in detail. The museum has developed a Layar app that guides the visitor around the Valkhof area on foot, exploring monuments from the past and archaeological finds now on display in the museum.

Community involvement

Not applicable.

Ancient sources

In his account of the Batavian Revolt, which took place in AD 69/70, the Roman historian Tacitus describes how the Batavian leader Julius Civilis set fire to *Oppidum Batavorum*, 'the capital of the Batavians' (Tac. *Hist.* 5.19).

It has been argued that *Castra Herculis* ('fortress of Hercules') located to the west of *Noviomagus* (Nijmegen) on the Tabula Peutingeriana (Segm. II.4), a medieval copy of a Roman road map, is to be identified with the Late Roman fort on the Valkhof. *Castra Herculis* is also mentioned by the historian Ammianus Marcellinus (XVIII 2.4), as one of seven forts and towns recovered in AD 359 by the Emperor Julian (AD 361-363) from

Germanic tribes. It was located to the west of *Quadriburgium* (usually equated with Qualburg, between Xanten and Nijmegen). The Valkhof fort is the only attested Late Roman fortification west of *Quadriburgium*, but the identification would imply that the distance to *Noviomagus* on the Peutinger Map is incorrect, and that Nijmegen changed its name during the Roman period.

FURTHER DETAILS

main building phases (*Oppidum Batavorum*)

- 1 c. 10 BC-AD 14
- 2 c. AD 15-40
- 3 c. AD 41-69/70

main building phases (Late Roman fort)

- 1 late 3rd/early 4th century AD
- 2 first half 4th century AD
- 3 second half 4th century AD
- 4 late 4th century AD
- 5 early 5th century AD
- 6 after early 5th century AD

main research activities (*Oppidum Batavorum*)

- 1947-1952 excavations, small-scale
- 1981-1983 excavations
- 2005-2008 excavations, large-scale

main research activities (Late Roman fort)

- 1910-1911 trenches
- 1946 trenches
- 1979-1983 excavations
- 1996-1997 excavations
- 2015-2016 excavations

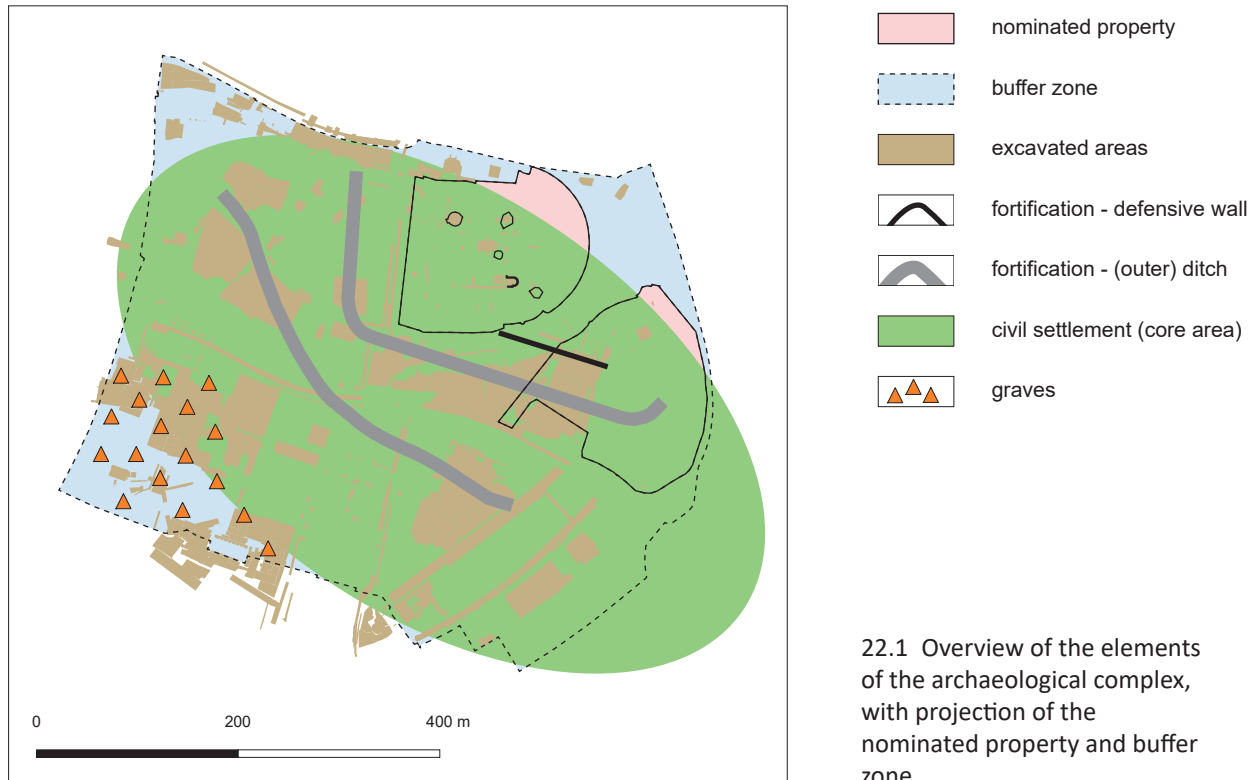
garrisons

unknown

literature

Bogaers / Rüger 1974, 76-80; Willems / Van Enckevort 2009, 27-28, 70-72, 99-103, 137-140 and 145; Van Enckevort / Heirbaut 2010; Peterse et al. 2014, esp. 22-41; Bloemers 2016, 35-100 and 175-231.

22 Nijmegen-Valkhof area



22.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.

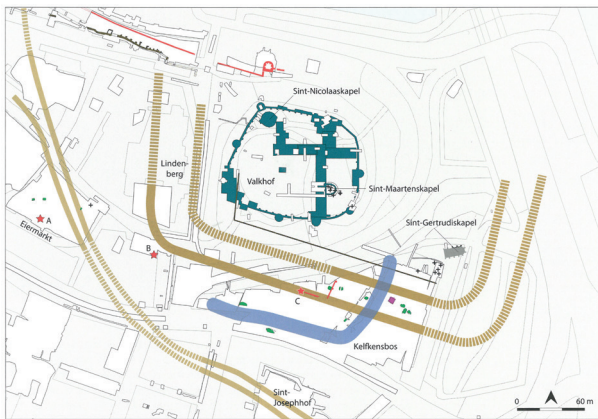


22.2 Schematic overview of the layout of part of the early civil settlement with strip houses (red) with backyards (green), facing one of two parallel roads (grey).

22 Nijmegen-Valkhof area



22.3 Cellar of one of the early town houses, with rare stone walls.



22.4 Overview of the known and presumed defenses of the Late Roman fort, and of the medieval palace (green).



22.5 Section through the outer ditch of the inner ditch system of the Late Roman fort. View from the east.

COMPONENT PART 22A

NIJMEGEN-VALKHOF AREA | VALKHOF PARK

Early Roman town, Late Roman fort

No	State Party	Province	Municipality	Coordinates central point
22a	Netherlands	Gelderland	Nijmegen	E 697692.747 N 5748007.256

	Area in ha	Ownership
Component part	2.43	municipality
Buffer zone	20.64 (shared with 22b)	

Protection		
National law	Erfgoedwet	Designated: 1991
Other laws and instruments	Land-use plans (Nijmegen Centrum - Binnenstad, 28-11-2012; Facetbestemmingsplan Archeologie, 25-6-2014) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster. The component part 'Valkhofpark' lies within the inner ditches of the Late Roman fort and within the core area of the Early Roman town. This unexcavated area is currently in use as a public park.

Attributes and values
The attributes and values are common to both component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. The component part 'Valkhofpark' includes a significant area of the Early Roman town and of the Late Roman fort. The extent of the early town is not well known, but

	a substantial part of its core area is included in the component part. The extent of the fort is indicated by the outer ditches. The component part includes most of the area within the inner ditches, located on top of the remnants of an ice-pushed moraine, now cut by an artificial valley made for the construction of the Voerweg in the 15th century, which separates the 'Valkhofpark' from the other component part.
Intactness	Good. It is likely that stretches of the inner ditch of the Late Roman fort and of the robber trenches of its stone wall are still present. Parts of the northern stone wall may have been incorporated in later walls. The remains of the inner area of the fort are hidden under those of the medieval palace. As a result of a lack of excavation we have no information on the state of preservation of the fort's interior, or of the early town underneath.
Exposure to threats	Minimal. The component part is located in a public park already existing for more than a century. Its designation as a park is anchored in the land-use plan.

Authenticity	
Form and design	Fair. Parts of the Late Roman fort may have been reused in the medieval period, but the excavated areas show no signs of alterations to the layout of the fort.
Materials and substance	Fair. The features of the early civil settlement have remained unaltered, but parts of the Late Roman fort appear to have been reused, resulting in a confusing image of what is Roman and what medieval.
Location and setting	Fair. Important views over the river Waal can still be experienced, especially from the location of the Late Roman fort on the edge of the plateau.

Buffer zone
The buffer zone is shared by both component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
n.a.		

Presentation
See the text concerning the cluster.

Community involvement
Not applicable.

Ancient sources
See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 22B

NIJMEGEN-VALKHOF AREA | HUNNERPARK

Early Roman town, Late Roman fort.

No	State Party	Province	Municipality	Coordinates central point
22b	Netherlands	Gelderland	Nijmegen	E 697834.661 N 5747875.560

	Area in ha	Ownership
Component part	2.37	municipality, other
Buffer zone	20.64 (shared with 22a)	

Protection		
National law	Erfgoedwet	Designated: 1991
Other laws and instruments	Land-use plans (Nijmegen Centrum - Binnenstad, 28-11-2012; Facetbestemmingsplan Archeologie, 25-6-2014) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster.
The component part 'Hunnerpark' lies partly inside, partly outside the inner ditches of the Late Roman fort on the eastern side of the Valkhof area. It may cover part of the additional defensive slope (<i>glacis</i>) delineated in the west and southwest by two outer ditches. The component part is also located within the core area of the Early Roman town. This unexcavated zone is now in use as a public park.

Attributes and values
The attributes and values are common to both component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. The component part 'Hunnerpark' includes a significant part of the Early Roman town and the Late Roman fort. The extent of the fort is indicated by the outer ditches. The component part includes part of the fort's interior and part of what was probably an additional defensive slope between the inner and outer ditches. The extent of the early town is not well known, but a section on the eastern side of its core area is included in the component part. An artificial valley made for the construction of the Voerweg in the 15th century separates the 'Hunnerpark' from the other component part.
Intactness	Good. It is likely that stretches of the ditches of the Late Roman fort and of the robber trenches of its stone wall are still present. Due to lack of excavation we have no information on the state of preservation of the fort's interior, or of the early town underneath. Excavations outside the inner ditches of the fort have demonstrated that extensive remains of the early town are still present there, as well as parts of the outer ditches of the fort.
Exposure to threats	Minimal. The component part is located in a public park already existing for more than a century. Its designation as a park is anchored in the land-use plan.

Authenticity	
Form and design	Fair. Parts of the Late Roman fort may have been re-used in the medieval period, but the excavated parts show no signs of alterations to the layout of the fort.
Materials and substance	Fair. The features of the early civil settlement have remained unaltered, but parts of the Late Roman fort appear to have been reused, resulting in a confusing image of what is Roman and what medieval.
Location and setting	Fair. Important views over the river Waal can still be experienced.

Buffer zone
The buffer zone is shared by both component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
n.a.		

Presentation

See the text concerning the cluster.

Community involvement

Not applicable.

Ancient sources

See the text concerning the cluster.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 23

NIJMEGEN-HUNERBERG

Operational base, legionary fortress, civil settlement

No	State Party	Province	Municipality	Coordinates central point
23	Netherlands	Gelderland	Nijmegen	E 698666.660 N 5747189.502

	Area in ha	Ownership
Component part	33.95 ha	municipality, private, other
Buffer zone	21.12	

Protection		
National law	Erfgoedwet	Designated: 1981 (2.17 ha)
Other laws and instruments	Land-use plans (Nijmegen Oost 26-6-2013; Facetbestemmingsplan Archeologie, 25-6-2014) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>The Hunerberg holds the remains of two large fortifications and of the civil settlement surrounding the later of these. The earlier fortification was a unique operational base which was briefly occupied c. 19-16/12 BC. It had a polygonal layout, covering c. 42 ha, and was defended by a double ditch and an earth-and-timber wall with gates, corner towers and interval towers every 24 m. This is the earliest military base in the Rhineland and may be considered as the cradle of the Lower German frontier. Located in an elevated position overlooking the Rhine valley to the north and east it was established as the springboard for a punitive expedition in Germanic territory across the Rhine. This large base with a capacity of 10-15,000 troops was probably garrisoned by legionary as well as auxiliary soldiers.</p> <p>After the abandonment of this early base, the area remained military territory for several decades. It was re-used after the Batavian Revolt of AD 69/70 to build a regular legionary fortress, measuring c. 350 x 460 m (17 ha). Initially built of earth-and -timber, it was rebuilt in stone in the late 1st or early 2nd century. It was first garrisoned by the Tenth Legion. When this unit was transferred to the Danube c. AD 104, the fortress was occupied by legionary detachments only, until its final abandonment by the mid-2nd century.</p> <p>The fortress of the Tenth Legion was surrounded by a large civil settlement on three sides. Eastwards it extended as far as the by then evacuated fort on the Kops Plateau ►24. Following the departure of the legion</p>

for the Danube region, activities in the extra-mural settlement soon died out, reflecting the close relationship between a garrison and the adjacent civil settlement. The legionary fortress is closely associated with the aqueduct ►25 and the industrial site of De Holdeurn ►26 at Berg en Dal.

Considerable parts of the early operational base remain unexcavated and therefore unknown, but they probably include remnants of the large storage facilities essential to the survival of such a forward base. The later complex of legionary fortress and extra-mural settlement is fairly well preserved as a whole, although little is known about the associated burial areas. About two-thirds of the area occupied by this complex remain unexcavated and some of the earlier excavations (before 1970) were not completely destructive.

Attributes and values

This large fortification, over 40 ha in extent, which served as an operational base in the second decade BC, may be considered to be the cradle of the Lower German Limes. It is the earliest military installation in the North that has left firm archaeological traces. This early base, with its distinctive irregular layout, represents a pivot-point between, on the one hand, a strategy based on a re-active strike force operating from the interior of Gaul, and on the other hand, a preventative strategy involving deployment of a massive permanent garrison along the perimeter.

After the suppression of the Batavian Revolt in AD 70, the area of the Augustan operational base was built over by construction of a regular legionary fortress and its civil settlement. Association of the legionary fortress with the aqueduct ►25 and with the industrial site of De Holdeurn ►26 gives added value to this complex.

Integrity

Wholeness	Good. The nominated property includes almost the entire standard legionary fortress and large parts of its civil settlement and of the preceding operational base. A part of the eastern periphery of the civil settlement is included in component part Nijmegen-Kops Plateau West ►24a.
Intactness	Good. Excavations have demonstrated the survival of remains from the latest, stone building phase of the fortress in many areas, but the stone walls have usually been robbed out. The soil conditions are unfavourable for the preservation of organic remains.
Exposure to threats	Minor. The component part is located in an urban area. In the land-use plan, the main destinations are green areas, residential areas with gardens, and mixed areas (mostly schools and office buildings). The regulations concerning building are very restrictive.

Authenticity

Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
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Materials and substance	Unaffected. The features of the military complex have remained unaltered. Excavations have shown that original Roman stonework of the standard legionary fortress and adjacent civil settlement is still partly in place.
Location and setting	Fair. Buildings and trees obscure the wide views over the river valley that the Romans had from the Hunerberg, but the elevation of the plateau remains visible. Its original strategic position is still very clear when the site is approached from the north.

Buffer zone

The boundary of the buffer zone is defined by the the double ditch of the early operational base. It consists largely of a part of the early operational base and later civil settlement which is located in a densely habited area. To the northeast, an extension of the buffer zone includes excavated and unexcavated parts of the eastern civil settlement, the periphery of which continues in the buffer zone of the Kops Plateau site ►24.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) residential development	minor	Although in the land-use plan large parts have been designated for purposes which allow development, the regulations concerning building are very restrictive, in order to prevent damage to the underground remains. An area of 2.17 ha is protected as a listed archaeological monument.

Presentation

The buffer zone includes several visualizations of elements of the military complex. In the southern part of the early operational base, two wall towers and various segments of the two defensive ditches have been marked out in the pavements of six streets (Vermeerstraat to Frans Halsstraat).

On the eastern side of the Hunerberg (near the Ubbergseveldweg/Beekmandalseweg crossing), the east gates of the early operational base and of the later legionary fortress are marked out: the post holes of the early timber gate are outlined in the pavement with a different type of stone; part of the plan of the stone gate is visualized by low stone walls in the front yard of the nearby apartment building. In the backyard of the same building, the upper part of a large stone-built well has been reconstructed, using the original tuff stone blocks.

Approximately 200 m east of the gates of the fortifications (Eikstraat), a vividly coloured column nearly 9 m high has been erected at one the locations where two pedestals were found in the middle of a large building. The pedestals have been interpreted as the bases of large statues. The excavated building of c. 135 x 165 m (not surviving) has been interpreted as either a market hall (*forum*) or an exercise hall (*campus*). Its layout has been partially outlined in the pavement. All the visualizations are explained on information panels.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS**main building phases**

- 1 19-16/12 BC (timber)
- 2/3/X ?-? (timber)
- 4 AD 70-89+ (timber)
- 5 AD 89+-104+ (stone)

main research activities

- 1916-1920 operational base, legionary fortress
- 1951-1967 operational base, legionary fortress
- 1973-1981 operational base, legionary fortress, canabae
- 1973-1997 operational base, legionary fortress, canabae
- 1994 operational base, legionary fortress, canabae

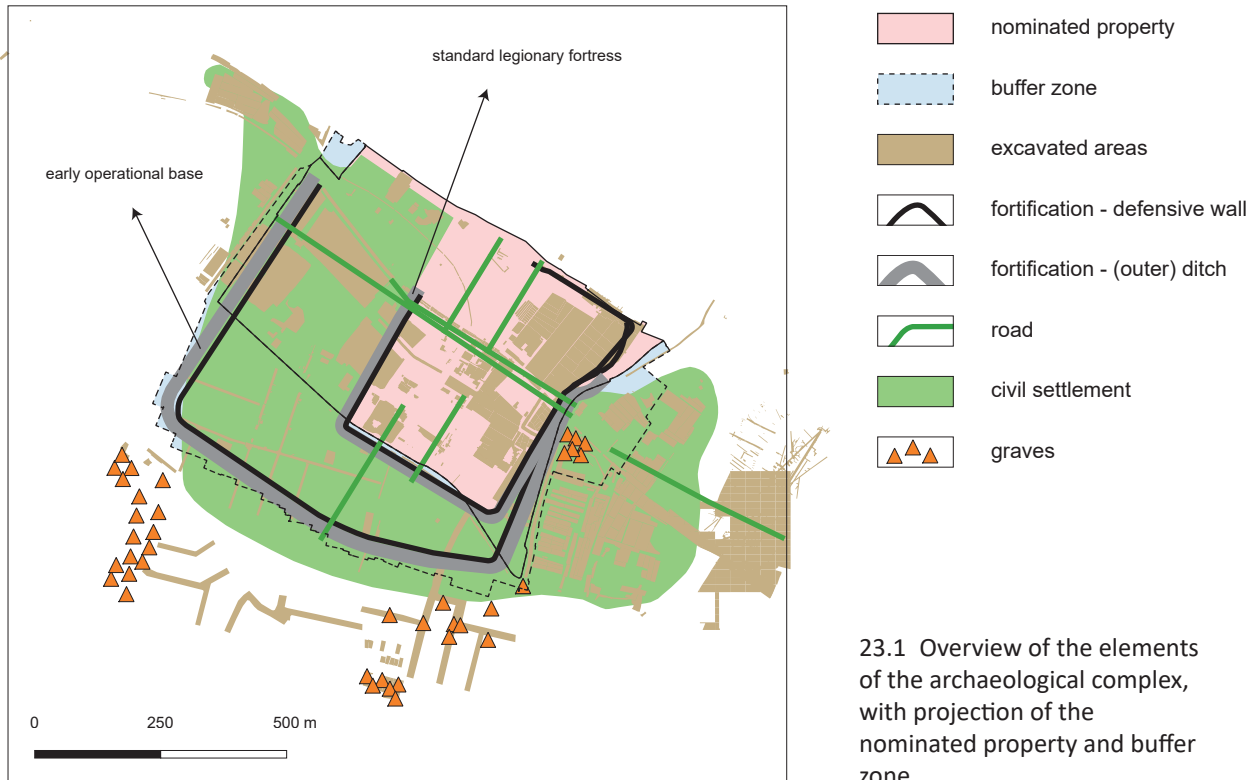
garrisons

unknown: c. 19-16/12 BC
 legio X Gemina: c. AD 70-104
 vexillatio Britannica: c. AD 104+
 legio IX Hispana
 legio XXX Ulpia Victrix (detachment)

literature

Bogaers / Rüger 1974, 76-80; Willems / Van Enckevort 2009, 28-35, 48-57, 59-64, 137-140, 146 and 174-176; Niemeijer 2013, 2015, 2016; Kloosterman et al. 2014.

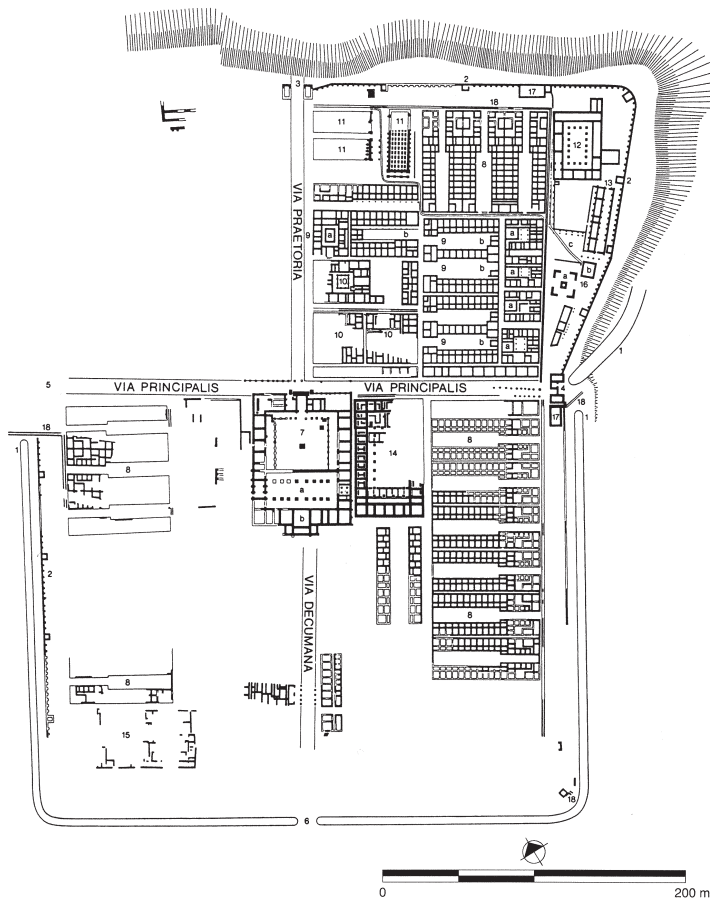
23 Nijmegen-Hunerberg



23 Nijmegen-Hunerberg



23.3 Section through the eastern defensive ditches of the early operational base. View from the south



23.4 Overview of the attested remains of the standard legionary fortress.

23 Nijmegen-Hunerberg



23.5 Stone foundations of a *mansio* (rest station) in the civil settlement, west of the standard legionary fortress.



23.6 Section through a stone-built water channel in the civil settlement, west of the standard legionary fortress.



23.7 Indication of the postholes of the east gate of the early operational base in the pavement.

CLUSTER 24

NIJMEGEN-KOPS PLATEAU

Fort, cemetery, waste deposit, civil settlement

No	State Party	Province	Municipality
24	Netherlands	Gelderland	Nijmegen / Berg en Dal

Brief description

The Kops Plateau, a small elevated plateau along the edge of the ice-pushed moraine of Nijmegen-Kleve, contains the remains of an irregularly shaped Early Roman fortification with several annexes (extra-mural military compounds) and cemeteries. The military settlement was established c. 12 BC and evacuated during the Batavian Revolt of AD 69/70. The size of the fort varied through time, from 3.5 to 4.5 ha.

The fort was defended by one or two ditches in its various phases, and by an earth-and-timber wall with probably four gates. It is the only fortification on the Lower German Limes where annexes - extra-mural military compounds - have been attested. An oversized residential building (not preserved) indicates that the fort was atypical; functions that have been proposed include a command post during the German wars of the emperor Augustus and a training facility for the highly valued Batavian cavalry. Although three-quarters of the fort has been excavated (without preservation of uncovered features), the remaining areas constitute a valuable representation of this unparalleled complex, characterized by elements such as the irregular shape of the fort, an overrepresentation of residential buildings, extra-mural military structures, and a remarkably luxurious finds assemblage. On the northern slope of the ice-pushed moraine an exceptional waste deposit has been attested, where the material culture of the fort's garrison is preserved as a layered history book.

The plateau continued in use after the abandonment of the fort during the Batavian revolt of AD 69/70. The road leaving the eastern gate of the legionary fortress on the Hunerberg ►23 crossed the plateau from west to east, just south of the fort. Graves have been attested at several points along this road and the cemeteries belonging to the earlier fort remained in use. The civil settlement of the legionary fortress (*canabae legionis*) extended over the western periphery of the earlier fort and its western annex.

The complex is situated mainly in the municipality of Nijmegen, but the northern defences and the slope of the plateau with its rubbish deposits belong to the municipality of Berg en Dal. The large-scale excavations took place as a result of a decision of the State Council, at a time when little was known about the nature of the Roman features on the plateau. The results of the excavations provided arguments for enhanced protection of the remaining areas.

Attributes and values

The military settlement on the Kops Plateau is characterised as an unparalleled complex by elements such as the irregular shape of the fortification, an overrepresentation of residential buildings, extra-mural military structures and a strikingly luxurious finds assemblage.

Excavations have further revealed that at least part of the slope of the ice-pushed moraine was used as a rubbish tip, where the exceptional material culture is preserved as a layered history book. In an excavated section several burnt layers have been identified, which may contain carbonized organic material.

Integrity

Wholeness	Fair. Following a judicial decision three quarters of the fortification, two of its annexes and part of the periphery were excavated before the remaining parts could be protected. The unexcavated areas and the rubbish deposits on the northern slope of the ice-pushed moraine were included in the nomination because of their unparalleled character.
Intactness	Good. Excavations have demonstrated that remains from all building phases of the fort are still present, as well as remains of the periphery of the later legionary fortress of Nijmegen-Hunerberg ►23. The fort had no stone building phase, and the soil conditions are unfavourable for the preservation of organic remains.
Exposure to threats	Minimal. The land-use plan does not allow constructional interventions in most of the area. The rubbish deposits on the northern slope of the ice-pushed moraine are prone to some erosion, which is unavoidable. As the deposits have survived two millennia, this threat is not acute.

Authenticity

Form and design	Unaffected. The fort was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Fair. The features of the military complex have remained unaltered, although timber and organics have decayed.
Location and setting	Fair. Although the area has become partially wooded, it is possible to experience the view over the river valley that the Romans had. Its elevation, and hence strategic position, is particularly clear when the plateau is approached from the north, as it is located on the edge of an ice-pushed moraine.

Buffer zone

The buffer zone includes on the one hand the excavated area, to mark the full extent of the archaeological complex, and on the other hand the projected, but currently inadequately attested, remains. Since the area of the fort with its annexes and cemeteries belonged to the periphery of the legionary fortress on the Hunerberg ►23 and its civil settlement, the buffer zone also includes elements of that complex, but the two complexes cannot be separated spatially.

The northern part of the buffer zone is located on the slope of the ice-pushed moraine and serves to include any further rubbish deposits and remains of the northern defensive ditches of the fort and of a possible road leading down from the north gate.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	One component part is located on the slope of the ice-pushed moraine, designated in the land-use plan for the preservation of the relief. Residential development is allowed only in a small area and bound by strict rules. Any development will have to comply with the heritage protection law.
(i) other development	minimal	Four component parts of this cluster are located in areas designated in the land-use plan as green areas. The only development allowed near this area (in the excavated area in the central part of the buffer zone) is the building of an information centre, which might have some impact on the component parts, by an increase of visitor numbers. This would not pose a significant threat to the underground remains.
(i) forestry	minimal	This issue applies only to one of the component parts and will be addressed in the foreseen local management plan.

Presentation
The location and history of the fort and its surroundings are explained in several information panels.

Community involvement
Not applicable.

Ancient sources
Not applicable.

FURTHER DETAILS

main building phases

- 1 c. 10 BC-AD 10 (timber)
- 2 c. 10-40 (timber)
- 3 c. 40-69/70 (timber)

main research activities

1915-1937 minor excavations
 1946-1981 excavations: canabae, cemeteries, waste deposits
 1986-1995 large-scale excavations: fort and annexes
 1992-2010 minor excavations: canabae, cemeteries
 2017-2018 coring survey: waste deposits

garrisons

legio I G(allica?): c. 10 BC-AD 10

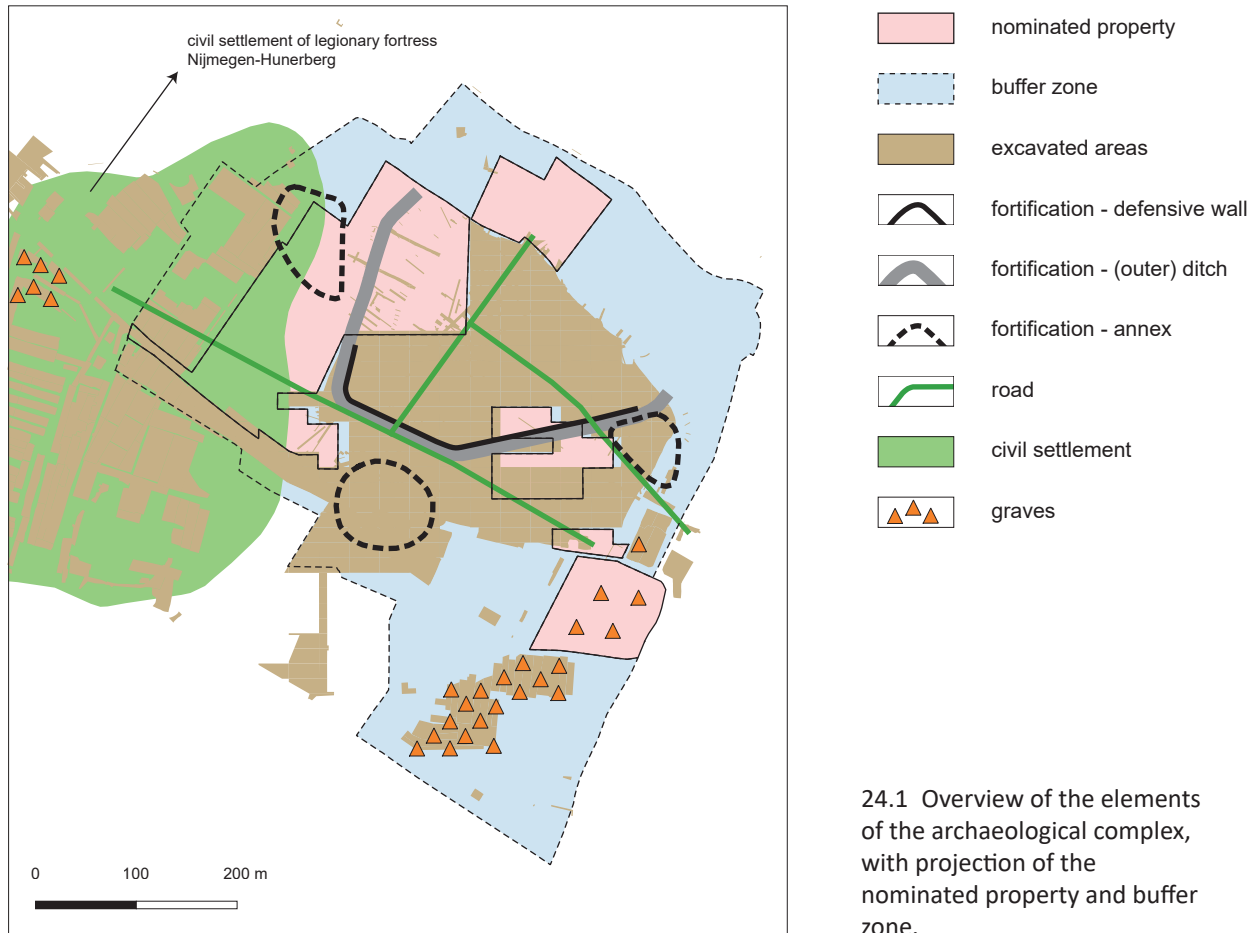
ala (Batavorum?): c. 10?-69/70

legio VIII Augusta (part): c. 69/70

literature

Bogaers / Rüger 1974, 76-80; Bogaers / Haalebos et al. 1975; Willems / Van Enckevort 2009, 35-43, 138-140 and 173-174; Van Enckevort / Heirbaut 2013; Van Enckevort 2014; Boreel 2018.

24 Nijmegen-Kops Plateau



24.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



24.2 View over the river plain from the north-eastern edge of the Kops Plateau.

24 Nijmegen-Kops Plateau



24.3 Defensive ditch (left) and two parallel lines of postholes remaining from the timber facings of the wall revetment.



24.4 Rich contents of a Roman latrine discovered among the remains of the headquarters building.

COMPONENT PART 24A

NIJMEGEN-KOPS PLATEAU | WEST

Fort, cemetery, waste deposit, civil settlement

No	State Party	Province	Municipality	Coordinates central point
24a	Netherlands	Gelderland	Nijmegen	E 699251.087 N 5746956.710

	Area in ha	Ownership
Component part	4.03	private, other
Buffer zone	19.89 (shared)	

Protection		
National law	Erfgoedwet	Designated: 1981
Other laws and instruments	Land-use plans (Nijmegen Oost 26-6-2013; Facetbestemmingsplan Archeologie, 25-6-2014) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster.
The component part 'West' includes an unexcavated segment of the Early Roman fortification, including a substantial part of the defences, most of the remains of the large headquarters building, further inner buildings and most of an extra-mural military compound (annexe). Additionally, it contains remains of the civil settlement of the legionary fortress on the adjacent Hunerberg ►23 and of burial areas.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. Following a judicial decision three quarters of the fortification, two of its annexes and part of the periphery were excavated before the remaining areas could be protected. The unexcavated areas and the rubbish deposits on the northern slope of the ice-pushed moraine were included in the nomination because of their unparalleled character.
Intactness	Good. Excavations in the surrounding areas have demonstrated that remains from all building phases of the fort are still present, as well as remains of the periphery of the later legionary fortress of Nijmegen-Hunerberg ►23. The fort had no stone building phase, and the soil conditions are unfavourable for the preservation of organic remains.
Exposure to threats	Minimal. The area is undeveloped and the municipal land-use plan does not allow any construction.

Authenticity	
Form and design	Unaffected. The fort was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Fair. The features of the military complex have remained unaltered, although timber and organics have decayed.
Location and setting	Fair. Although the area has become partially wooded, it is possible to experience the view over the river valley that the Romans had. Its elevation, and hence strategic position, is particularly clear when the plateau is approached from the north, as it is located on the edge of an ice-pushed moraine.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) other development	minimal	The component part is located in a park which is in private hands, designated in the land-use plan as a green area. The only development allowed near this area (in the excavated area in the central part of the buffer zone) is the building of an information centre, which might have some impact on the component part, by an increase of visitor numbers. This would

not pose a significant threat to the underground remains.

Presentation

See the text concerning the cluster.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 24B

NIJMEGEN-KOPS PLATEAU | NORTH

Fort, waste deposit

No	State Party	Province	Municipality	Coordinates central point
24b	Netherlands	Gelderland	Berg en Dal	E 699453.233 N 5747061.571

	Area in ha	Ownership
Component part	0.86	private
Buffer zone	19.89 (shared)	

Protection		
National law	Erfgoedwet	Designated: exp. 2020
Other laws and instruments	Land-use plan (Stuwwal en beschermd dorpsgezicht Ubbergen, 27-6-2013) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster.
The component part 'North' is situated on the slope of the ice-pushed moraine. It holds an exceptional rubbish deposit, containing a stratified archive of the material culture left by the fort's garrison. Additionally, it includes part of the defensive structures on the northeastern side of the Early Roman fortification.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. Following a judicial decision three quarters of the fortification, two of its annexes and part of the periphery were excavated before the remaining parts could be

	protected. The unexcavated parts and the rubbish deposits on the northern slope of the ice-pushed moraine were included in the nomination because of their unparalleled character.
Intactness	Good. The features of the military complex have remained unaltered, although timber and organics have decayed.
Exposure to threats	Minimal. The rubbish deposits on the northern slope of the ice-pushed moraine are prone to some erosion, which is unavoidable. As the deposits have survived two millennia, this threat is not acute.

Authenticity	
Form and design	Unaffected. The fort was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Fair. The features of the military complex have remained unaltered, although timber and organics have decayed.
Location and setting	Fair. Although the area has become partially wooded, the steep slope of the ice-pushed moraine is a strong reminder of the original setting.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The Roman remains are located on the largely forested slope of the ice-pushed moraine, designated in the land-use plan for the preservation of the relief. Residential development is allowed only in a small area surrounding an existing residence, and bound by strict rules. Any development will have to comply with the heritage protection law.
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

Presentation
See the text concerning the cluster.

Community involvement
Not applicable.

Ancient sources
Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 24C

NIJMEGEN-KOPS PLATEAU | EAST

Fort, cemetery, civil settlement

No	State Party	Province	Municipality	Coordinates central point
24c	Netherlands	Gelderland	Nijmegen	E 699464.876 N 5746815.425

	Area in ha	Ownership
Component part	0.77	private
Buffer zone	19.89 (shared)	

Protection		
National law	Erfgoedwet	Designated: 1981
Other laws and instruments	Land-use plans (Nijmegen Oost 26-6-2013; Facetbestemmingsplan Archeologie, 25-6-2014) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster. The component part 'East' includes a smaller unexcavated area on the south-eastern side of the Early Roman fortification. It includes a section of the fort defences and some probable burials belonging to the later legionary fortress of Nijmegen-Hunerberg ► 23 and its civil settlement.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. Following a judicial decision three quarters of the fortification, two of its annexes and part of the periphery were excavated before the remaining parts could be protected. The unexcavated areas and the rubbish deposits on the northern slope of the ice-pushed moraine were included in the nomination because of their unparalleled character.
Intactness	Good. The excavations have demonstrated that remains from all building phases of the fort are still present, as well as remains of the periphery of the later legionary fortress of Nijmegen-Hunerberg ►23. The fort had no stone building phase, and the soil conditions are unfavourable for the preservation of organic remains.
Exposure to threats	Minimal. The area is undeveloped and the municipal land-use plan does not allow any construction.

Authenticity	
Form and design	Unaffected. The fort was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Fair. The features of the military complex have remained unaltered, although timber and organics have decayed.
Location and setting	Affected. The component part is in an isolated position on the partly wooded plateau and its relationship to the other parts is not self-evident.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) other development	minimal	The component part is located in a park which is in private hands, designated in the land-use plan as a green area. The only development allowed near this area (in the excavated area in the central part of the buffer zone) is the building of an information centre, which might have some impact on the component part, by an increase of visitor numbers. This would not pose a significant threat to the underground remains.

Presentation

See the text concerning the cluster.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 24D

NIJMEGEN-KOPS PLATEAU | KOPSE HOF NORTH

Cemetery

No	State Party	Province	Municipality	Coordinates central point
24d	Netherlands	Gelderland	Nijmegen	E 699510.906 N 5746731.629

	Area in ha	Ownership
Component part	0.16	private
Buffer zone	19.89 (shared)	

Protection		
National law	Erfgodwet	Designated: 1981
Other laws and instruments	Land-use plans (Nijmegen Oost 26-6-2013; Facetbestemmingsplan Archeologie, 25-6-2014) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component parts 'Kopse Hof North' (24d) and 'Kopse Hof South' (24e), separated by a modern-day road (Ubbergseveldweg), cover an unexcavated part of a cemetery primarily associated with the Early Roman military settlement on the Kops Plateau. The earliest graves date from the early 1st century AD. The cemetery continued to be used in the 2nd century AD, probably by occupants of the military settlement on the Hunerberg ►23 and its civil settlement.</p>

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. Following a judicial decision three quarters of the fortification, two of its annexes and part of the periphery were excavated before the remaining parts could be protected. The unexcavated areas and the rubbish deposits on the northern slope of the ice-pushed moraine were included in the nomination because of their unparalleled character.
Intactness	Good. The excavations have demonstrated that remains from all building phases of the fort are still present, as well as those of the periphery of the later legionary fortress of Nijmegen-Hunerberg ►23. The fort had no stone building phase, and the soil conditions are unfavourable for the preservation of organic remains.
Exposure to threats	Minimal. The area is undeveloped and the municipal land-use plan does not allow any construction.

Authenticity	
Form and design	Unaffected. The fort was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Fair. The features of the military complex have remained unaltered, although timber and organics have decayed.
Location and setting	Affected. Although the elevation of the area is a reminder of the original setting, the relationship with the other parts of the complex is not self-evident.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) other development	minimal	The component part is located in a park which is in private hands, designated in the land-use plan as a green area. The only development allowed near this area (in the excavated area in the central part of the buffer zone) is the building of an information centre, which might have some impact on the component part, by an increase of visitor numbers. This would not pose a significant threat to the underground remains.

Presentation

See the text concerning the cluster.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 24E

NIJMEGEN-KOPS PLATEAU | KOPSE HOF SOUTH

Cemetery

No	State Party	Province	Municipality	Coordinates central point
24e	Netherlands	Gelderland	Nijmegen	E 699527.279 N 5746663.981

	Area in ha	Ownership
Component part	0.93	private
Buffer zone	19.89 (shared)	

Protection		
National law	Erfgoedwet	Designated: 1981
Other laws and instruments	Land-use plans (Nijmegen Oost 26-6-2013; Facetbestemmingsplan Archeologie, 25-6-2014) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component parts 'Kopse Hof North' (24d) and 'Kopse Hof South' (24e), separated by a modern-day road (Ubbergseveldweg), include an unexcavated area of a cemetery associated primarily with the Early Roman military settlement on the Kops Plateau. The earliest graves date from the early 1st century AD. The cemetery continued to be used in the 2nd century AD, probably by occupants of the military settlement on the Hunerberg ►23 and its civil settlement.</p>

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. Following a judicial decision three quarters of the fortification, two of its annexes and part of the periphery were excavated before the remaining parts could be protected. The unexcavated parts and the rubbish deposits on the northern slope of the ice-pushed moraine were included in the nomination because of their unparalleled character.
Intactness	Good. The excavations have demonstrated that remains from all building phases of the fort are still present, as well as those of the periphery of the later legionary fortress of Nijmegen-Hunerberg ►23. The fort had no stone building phase, and the soil conditions are unfavourable for the preservation of organic remains.
Exposure to threats	Minimal. The area is undeveloped and the municipal land-use plan does not allow any construction.

Authenticity	
Form and design	Unaffected. The fort was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Fair. The features of the military complex have remained unaltered, although timber and organics have decayed.
Location and setting	Affected. Although the elevation of the area is a reminder of the original setting, the relationship with the other parts of the complex is not self-evident.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) other development	minimal	The component part is designated in the land-use plan as a green area. The only development allowed near this area (in the excavated area in the central part of the buffer zone) is the building of an information centre, which might have some impact on the component part, by an increase of visitor numbers. This would not pose a significant threat to the underground remains.

Presentation

See the text concerning the cluster.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

CLUSTER 25

BERG EN DAL-AQUEDUCT

Aqueduct

No	State Party	Province	Municipality
25	Netherlands	Gelderland	Nijmegen / Berg en Dal

Brief description

The nominated property includes the water sources and earthworks of an aqueduct that supplied the legionary fortress of Nijmegen-Hunerberg ►23 and the surrounding civil settlement with fresh water. The aqueduct was located on the ice-pushed moraine to the southeast of the fortress. It ran over a distance of c. 5.5 km. Although they have suffered from some erosion over the centuries, the earthworks are still largely intact. The water channel would most likely have been made of wood, which has not survived in the sandy subsoil of the ice-pushed moraine.

In order to obtain enough water, two artificial valleys were dug to tap natural springs and aquiferous strata. Some of the water collected was stored in a reservoir. On its way to the fortress the water had to cross three valleys and a low hill. The valleys were bridged by embankments, while a channel was dug across the low hill to a depth of 3 m. The water supply must have been established in the late 1st century AD and is likely to have functioned until the abandonment of the legionary fortress around the mid-2nd century.

The complex is situated largely in the municipality of Berg en Dal, but the earthworks of Mariënboom (25a) and a small part of those of Swartendijk (25b) are located in the municipality of Nijmegen.

Attributes and values

Most known aqueducts supplied water to towns, but several legionary fortresses are also known or are projected to have been serviced by aqueducts. Preserved remains of military aqueducts are rare, however. Projected aqueducts servicing the legionary fortresses of Bonn ►49 and the eroded successor of Xanten-Fürstenberg ►35 have not been properly attested. So far the aqueduct of Berg en Dal / Nijmegen is the only firmly attested military aqueduct on the Lower German Limes. The large earthworks eloquently reflect the immense logistics required to maintain a standing frontier army. At the same time they illustrate the impact of the Roman army on the landscape.

Integrity

Wholeness	Good. The component parts include nearly all the earthworks of the aqueduct, with the exception of the most northern part, where its aboveground remains have vanished. The water channel of the aqueduct has not been attested.
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Intactness	Good. The highest parts of the earthworks are prone to some erosion, but they are still largely intact. At the same time, the eroded material has covered up the lower parts of the earthworks and thus protected them. There are so far no preserved remains of the water channel.
Exposure to threats	Minimal. Most of the earthworks are located in forested areas, and much is in public hands. Parts which have other destinations than nature in the land-use plans are not substantially threatened by development. Several parts are prone to erosion and overgrowth, but these threats are currently under control.

Authenticity	
Form and design	Unaffected. The aqueduct probably lost its function when the legionary fortress of Nijmegen-Hunerberg ►23 was abandoned. The earthworks have not been reused or changed.
Materials and substance	Unaffected. The earthworks have not been altered since the Roman period.
Location and setting	Fair. The elevation and relief of the landscape, which were essential to the functioning of the aqueduct, can still be experienced, but there is no longer a clear connection to the transport of water.

Buffer zone
<p>The buffer zone of the aqueduct serves three purposes:</p> <ul style="list-style-type: none"> – It includes the projected course of the water channel between the major earthworks, a stretch of more than 2.5 km. This element of the aqueduct has not been properly attested and could not be included in the nominated property. – It includes the remains of the most northerly dam, the present Broerdijk. Of this former earthwork, only the lowest parts survive, below and between the houses along the Broerdijk. – Large parts of the buffer zone are included so as to protect (mainly potential) views over the earthworks. Most of the surroundings of the earthworks are forested, and do not permit distant views at present. Any future developments may be used to improve the visibility of the aboveground remains. <p>The cemetery of the Cenakelkerk (church) has been taken out of the buffer zone.</p>

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

(v) visitors	minimal	Visitors of <i>Museumpark Orientalis</i> can walk past the earthworks located in the Louisedal component part ► 25d. So far no damage has been caused by visitors and no damage is to be expected.
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Presentation

Part of the aqueduct runs through Museumpark Orientalis, an open air museum dedicated to the world of Judaism, Christianity and Islam. A dedicated information centre informs visitors about the Roman aqueduct. Further stretches of the aqueduct can be visited under the guidance of a free QR tour. Information is also available through a smartphone application, the *Aqueduct App*. An observation platform with information panels has been built at the upper end of the Kerstendal, drawing attention to the valley below.

Community involvement

Local volunteer guides from *Het Gilde Nijmegen* lead visitors on a guided walk of c. 3.5 hours along the remains of the aqueduct ('the Roman Water Supply Route').

Ancient sources

Not applicable.

FURTHER DETAILS

main building phases

Flavian

main research activities

1994	archaeological supervision
2000-2004	excavations
2008	archaeological supervision; coring survey
2015	archaeological supervision; excavations

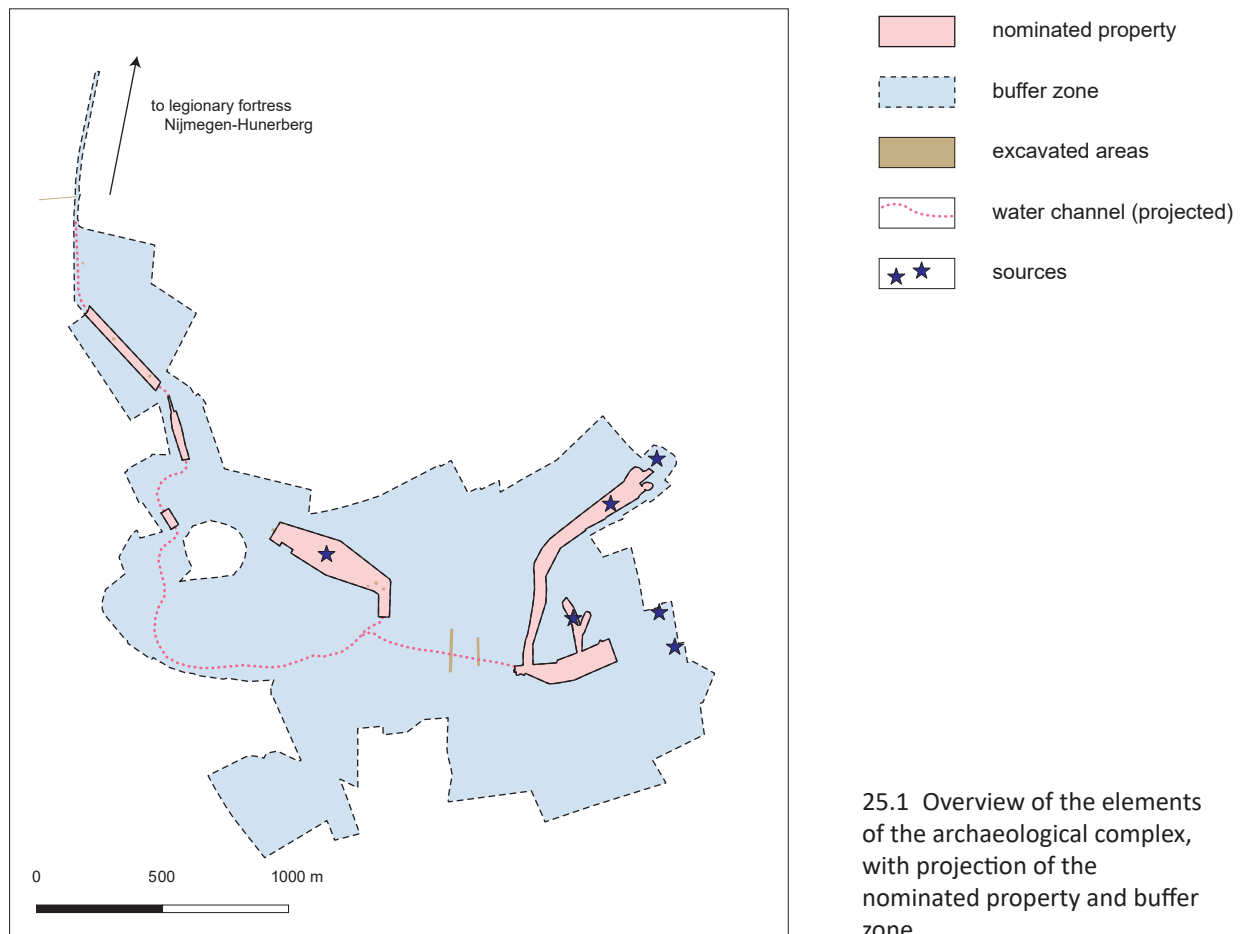
garrisons

n.a.

literature

Brus 1999; Schut 2005; Heirbaut / Van Enkevort 2009, 110 with figs 9.10-11; Magnée-Nentjes / Wildenberg 2010; Schut et al. 2011; Daniël / Van Enkevort 2016; Kessener / Janssens 2017.

25 Berg en Dal-aqueduct



25.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



25.2 Channel up to 3 m deep excavated to allow the water to cross a low hill at the Mariënboom component part (25a).

25 Berg en Dal-aqueduct



25.3 The Louisedal earthwork (25d), excavated to collect water for the aqueduct.



25.4 The Louisedal earthwork (25d), showing the original depth of the excavated channel.

25 Berg en Dal-aqueduct



25.5 Viewing platform at the upper end of the Kerstendal component part (25e).

COMPONENT PART 25A

BERG EN DAL-AQUEDUCT | MARIËNBOOM

Aqueduct.

No	State Party	Province	Municipality	Coordinates central point
25a	Netherlands	Gelderland	Nijmegen	E 699002.614 N 5745588.605

	Area in ha	Ownership
Component part	1.53	municipality
Buffer zone	254.69 (shared)	

Protection		
National law	Erfgoedwet	Designated: 2011
Other laws and instruments	Land-use plans (Facetbestemmingsplan Archeologie, 25-6-2014; Nijmegen Groenewoud Kwakkenberg, 15-2-2017) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster.
In the component part Mariënboom a channel up to 3 m deep was excavated for over 300 m to allow the water to cross a low hill. The channel, flanked by narrow mounds of spoil on either side, is still visible today, though its depth is now reduced to 1-2 m.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. This component part includes a channel required to cross a low hill on the line of the aqueduct. The supposed wooden water channel of the aqueduct has not been attested.
Intactness	Good. Erosion has reduced the depth of the channel from 3 to 1-2 m, but it is still visible today, flanked by narrow mounds. There are so far no preserved remains of the supposed wooden water channel.
Exposure to threats	Minimal. The Mariënboom earthwork is located in a forested area in public hands. The area is designated as forest in the land-use plan. This component part is prone to some erosion and to overgrowth, but these threats are currently under control.

Authenticity	
Form and design	Unaffected. The aqueduct probably lost its function when the legionary fortress of Nijmegen-Hunerberg ►23 was abandoned. The earthworks have not been reused or altered.
Materials and substance	Unaffected. The earthworks have not been altered since the Roman period.
Location and setting	Fair. The elevation and relief of the landscape, which were essential to the functioning of the aqueduct, can still be experienced, but there is no longer a clear connection to the transport of water.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

Presentation
See the text concerning the cluster.

Community involvement
See the text concerning the cluster.

Ancient sources
Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 25B

BERG EN DAL-AQUEDUCT | SWARTENDIJK

Aqueduct

No	State Party	Province	Municipality	Coordinates central point
25b	Netherlands	Gelderland	Berg en Dal / Nijmegen	E 699232.667 N 5745261.662

	Area in ha	Ownership
Component part	0.66	municipality, private
Buffer zone	254.69 (shared)	

Protection		
National law	Erfgodewet	Designated: 2013
Other laws and instruments	Land-use plan (Berg en Dal: Buitengebied Groesbeek, 29-8-2013. Nijmegen: (Facetbestemmingsplan Archeologie, 25-6-2014; Nijmegen Groenewoud Kwakkenberg, 15-2-2017) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster. The component part Swartendijk includes an embankment up to 3.7 m high – originally probably somewhat higher – which was constructed over a distance of c. 250 m to guide the water channel across a shallow dry valley.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. This component part includes an embankment necessary to carry the aqueduct across a shallow dry valley. The supposed wooden water channel of the aqueduct has not been attested.
Intactness	Good. Erosion has probably reduced the height of the dam. There are so far no preserved remains of the supposed wooden water channel.
Exposure to threats	Minimal. The earthwork Swartendijk is located in a forested area, largely in public hands and designated for nature in the land-use plan. This component part is prone to some erosion and overgrowth, but these threats are currently under control.

Authenticity	
Form and design	Unaffected. The aqueduct probably lost its function when the legionary fortress of Nijmegen-Hunerberg ►23 was abandoned. The earthworks have not been reused or altered.
Materials and substance	Unaffected. The earthworks have not been altered since the Roman period.
Location and setting	Fair. The elevation and relief of the landscape, which were essential to the functioning of the aqueduct, can still be experienced, but there is no longer a clear connection to the transport of water.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential development	minimal	The northern and southern extremities of this component part are located in areas designated as residential areas in the land-use plans of the respective municipalities. In practice this poses no serious threat, as the northern part is in municipal hands and the southern part belongs to a large plot with sufficient alternatives. Any development has to comply with the heritage protection law.
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

Presentation

See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 25C

BERG EN DAL-AQUEDUCT | CORTENDIJK

Aqueduct.

No	State Party	Province	Municipality	Coordinates central point
25c	Netherlands	Gelderland	Berg en Dal	E 699209.884 N 5744920.565

	Area in ha	Ownership
Component part	0.26	other
Buffer zone	254.69 (shared)	

Protection		
National law	Erfgoedwet	Designated: 2012
Other laws and instruments	Land-use plan (Buitengebied Groesbeek, 29-8-2013) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster.
The component part Cortendijk includes an embankment up to 4.5 m high – originally probably somewhat higher – constructed over a distance of c. 50 m to carry the water channel across a shallow dry valley.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. This component part includes an embankment required to carry the aqueduct across a shallow dry valley. The supposed wooden water channel of the aqueduct has not been attested.

Intactness	Good. Erosion has probably reduced the height of the embankment. There are so far no preserved remains of the projected wooden water channel.
Exposure to threats	Minimal. The Cortendijk earthwork is located in a forested area. This component part is prone to some erosion and overgrowth, but these threats are currently under control. The land-use plan allows some development, but as the component part is located in a very large area owned by an ecclesiastical foundation there are sufficient alternatives for development.

Authenticity	
Form and design	Unaffected. The aqueduct probably lost its function when the legionary fortress of Nijmegen-Hunerberg ►23 was abandoned. The earthworks have not been reused or altered.
Materials and substance	Unaffected. The earthworks have not been altered since the Roman period.
Location and setting	Fair. The elevation and relief of the landscape, which were essential to the functioning of the aqueduct, can still be experienced, but there is no longer a clear connection to the supply of water.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

Presentation
See the text concerning the cluster.

Community involvement
See the text concerning the cluster.

Ancient sources
Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 25D

BERG EN DAL-AQUEDUCT | LOUISEDAL

Aqueduct

No	State Party	Province	Municipality	Coordinates central point
25d	Netherlands	Gelderland	Berg en Dal	E 699871.858 N 5744773.024

	Area in ha	Ownership
Component part	5.86	other
Buffer zone	254.69 (shared)	

Protection		
National law	Erfgoedwet	Designated: 2012
Other laws and instruments	Land-use plan (Buitengebied Groesbeek, 29-8-2013) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster.
The component part Louisedal is an artificial valley up to 50-60 m wide and 14 m deep, extending over c. 470 m. Today, the mounds of spoil are up to 4 m high. The valley is assumed to have cut aquiferous strata.

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. This component part includes an artificial valley assumed to have cut aquiferous strata.

Intactness	Good. Erosion has probably reduced the height of the mounds of spoil. Eroded material will have been deposited at the bottom of the valley, preserving the lower parts of the earthwork.
Exposure to threats	Minimal. The Louisedal earthwork is located in a forested area, which is partly in <i>Museumpark Orientalis</i> and partly in public hands. This component part is prone to some erosion and overgrowth, but these threats are currently under control. Part of the valley extends into the open air museum <i>Museumpark Orientalis</i> , but as it is part of their exhibition this does not pose a threat. There is sufficient space outside the component part for any future extension of the museum's facilities.

Authenticity	
Form and design	Unaffected. The aqueduct probably lost its function when the legionary fortress of Nijmegen-Hunerberg ►23 was abandoned. The earthworks have not been reused or altered.
Materials and substance	Unaffected. The earthworks have not been altered since the Roman period.
Location and setting	Fair. The elevation and relief of the landscape, which were essential to the functioning of the aqueduct, can still be experienced, but there is no longer a clear connection to the supply of water.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.
(v) visitors	minimal	Visitors of <i>Museumpark Orientalis</i> can walk past the earthworks of the Roman aqueduct. So far no damage has been caused by visitors and no damage is to be expected.

Presentation
See the text concerning the cluster.

Community involvement

See the text concerning the cluster.

Ancient sources

Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 25E

BERG EN DAL-AQUEDUCT | KERSTENDAL

Aqueduct

No	State Party	Province	Municipality	Coordinates central point
25e	Netherlands	Gelderland	Berg en Dal	E 700830.455 N 5744689.605

	Area in ha	Ownership
Component part	9.71	municipality, private
Buffer zone	254.69 (shared)	

Protection		
National law	Erfgoedwet	Designated: 2012
Other laws and instruments	Land-use plans (Berg en Dal, 25-7-2007; Buitengebied Groesbeek, 29-8-2013) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>The component part Kerstendal has two branches. The northern branch is a valley c. 1 km long and up to 35 m wide and 11 m deep. The valley is partly natural and partly artificial, and is assumed to have provided access to springs and aquiferous strata. The southern branch is a small, apparently artificial, lake c. 350 m long and up to 25 m wide, but it is likely to have been larger in the past. It is assumed to have been a reservoir for water from the northern branch, with a dam at its western end.</p>

Attributes and values
The attributes and values are common to all component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Good. This component part consists of a partly natural, partly artificial valley and a small, apparently artificial, lake. Water for the aqueduct was sourced and stored here.
Intactness	Good. The highest parts of the valley in the north are prone to erosion, which has led to some degradation. Eroded material will have been deposited at the bottom of the valley, preserving the lower parts of the earthwork. The small artificial lake in the southern part of the component part was probably larger in the Roman period.
Exposure to threats	Minimal. The Kerstendal earthworks are located in a forested area which is almost entirely part of a private estate. In the land-use plan the area is designated for nature. This component part is prone to some erosion and overgrowth, but these threats are currently under control.

Authenticity	
Form and design	Unaffected. The aqueduct probably lost its function when the legionary fortress of Nijmegen-Hunerberg ►23 was abandoned. The earthworks have not been reused or altered.
Materials and substance	Unaffected. The earthworks have not been altered since the Roman period.
Location and setting	Fair. The elevation and relief of the landscape, which were essential to the functioning of the aqueduct, can still be experienced, but there is no longer a clear connection to supply of water.

Buffer zone
The buffer zone is shared by all component parts belonging to this cluster. See the text concerning the cluster.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

Presentation
See the text concerning the cluster.

Community involvement
See the text concerning the cluster.

Ancient sources
Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

CLUSTER 26

BERG EN DAL-DE HOLDEURN

Military tile and pottery kilns

No	State Party	Province	Municipality
26	Netherlands	Gelderland	Berg en Dal

Brief description

The nominated property of De Holdeurn includes the known and projected remains of an industrial site which produced bricks, tiles and pottery. It was established on both sides of a shallow valley descending from the ice-pushed moraine of Nijmegen-Kleve, at a distance of some 4 km southeast of the legionary fortress of Nijmegen-Hunerberg ►23. The exploitation of outcrops of tertiary clay deposits is evidenced by several loam pits, which were either filled up with production debris or are still visible today. Water was provided by a stream at the bottom of the shallow valley, flanked by kilns and buildings. The surrounding forest provided the massive quantities of fire wood required. Excavations have revealed the existence of at least nine kilns, a drying shed and a large building (c. 46 x 48 m) with industrial and residential functions. Most kilns appear to have been dismantled during excavation, but two kilns were left partly intact, as well as parts of the buildings. Geophysical research has revealed that more kilns and buildings may be present outside the excavated areas and a coring survey has demonstrated the presence of production debris, but the identification and date of the features has not been confirmed.

The industrial site was established in the late 1st century AD by the Tenth Legion then garrisoned at Nijmegen-Hunerberg ►23. Initially, the kiln site merely supplied the nearby legion, as is reflected by the limited distribution of the products in the Nijmegen area. The production of pottery may have been limited to this early period. In the 2nd and 3rd centuries, however, the kilns were operated by detachments of the *Exercitus Germanici Inferioris*, the collective name of the army units of the Lower German Limes. During this later period bricks and tiles produced in the kilns of De Holdeurn were distributed over the entire operational area of the army. Bricks and tiles were stamped mostly with the collective name of the army, but occasionally also with that of individual legions or of the provincial governor, who was at the same time the commander of the Lower German army.

Attributes and values

The industrial site of De Holdeurn is an excellent example of a rare but crucial element in the military infrastructure: the logistical backbone. Although production of building material and pottery in a military context has been attested elsewhere along the Lower German Limes, De Holdeurn was the only kiln site that supplied the whole provincial army. The two other known military production sites for tiles and pottery (Dormagen, Xanten) have been largely destroyed by excavation or other means.

Integrity

Wholeness	Good. Assuming that the distribution of production debris as attested in a coring survey reflects the extent of the production facility, nearly all of it is included in this component part.
Intactness	Good. Most of the uncovered kilns have been dismantled during the 1938-1942 excavations, but parts of two large kilns and other buildings were left intact. Geophysical research indicates that it is likely that more kilns and buildings are present.
Exposure to threats	Minimal. The area is largely covered by forests and open grassland, mainly used for recreational purposes for which maintenance of the 'green' setting is a benefit.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. Excavations have demonstrated that the buried remains have not been altered.
Location and setting	Fair. The rugged landscape of the ice-pushed moraine has not significantly changed. The visible remains of clay extraction pits, essential for the production of tile and pottery, explain the location of the kilns at De Holdeurn.

Buffer zone
The buffer zone extends to the north and south of the nominated property and encompasses areas with possible, but inadequately attested, remains.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential/other development	minimal	The southern component part is partly covered by forest and grassland exploited for recreational purposes (camping, group accommodation, hotel), for which maintenance of the 'green' setting is a benefit. Any further development of the recreational businesses has to conform to the heritage protection law.
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

Presentation

Some of the loam pits used to extract raw material for the production of pottery, bricks and tiles are still visible. Most of the industrial site is now in the grounds of a hotel. Information about the locations of parts of the industrial complex are included in a waymarked walking trail for hotel guests, and a selection of finds is exhibited in the hotel lobby.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS**main building phases**

n.a.

main research activities

1938-1942 excavations
2003 coring survey
2008, 2015 geophysical surveys

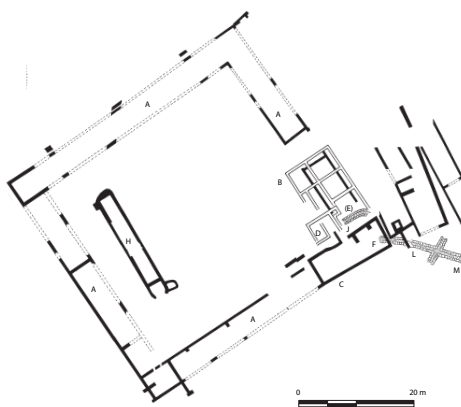
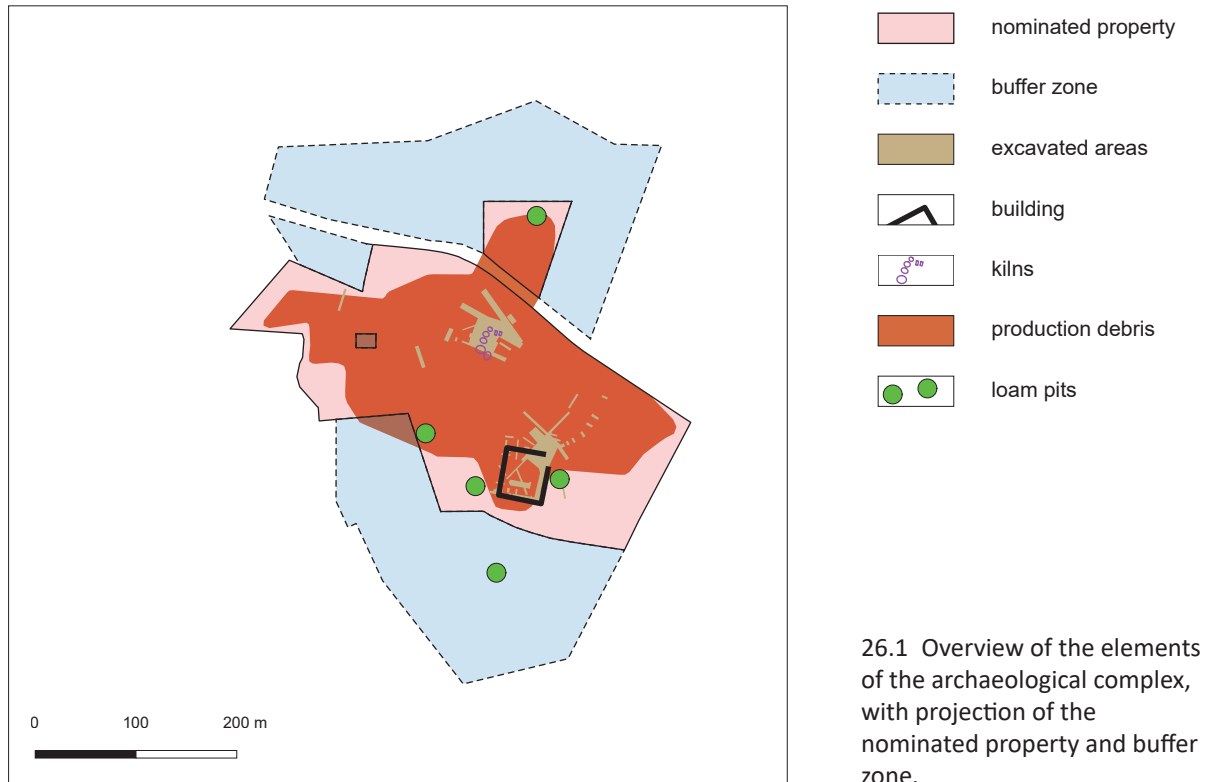
garrisons

legio X Gemina (part): Flavian-Trajanic period
legio XXX Ulpia Victrix (part): late 2nd-early 3rd century AD
legio I Minervia (part): late 2nd-early 3rd century AD
exercitus Germanici Inferioris (part): late 2nd-early 3rd century AD

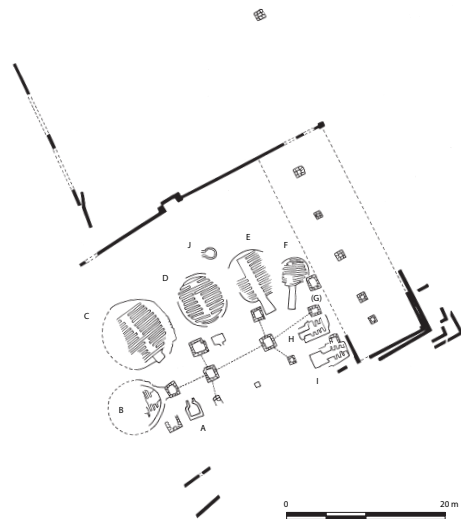
literature

Holwerda / Braat 1946; Weiß-König 2004, 2008; Van Diepen / Polak 2009; Willems / Van Enckevort 2009, 164-167; De Groot et al. 2010.

26 Berg en Dal-Holdeurn



26.2 Remains of a large rectangular building.



26.3 Remains of kilns and a drying shed.

26 Berg en Dal-Holdeurn



26.4 Excavation of several large kilns c. 1940.



26.5 Loam pit within the southern component part (26b).



26.6 Panoramic view of the northern component part (26a), from the southwest.

COMPONENT PART 26A

BERG EN DAL-DE HOLDEURN | NORTH

Military tile and pottery kilns

No	State Party	Province	Municipality	Coordinates central point
26a	Netherlands	Gelderland	Berg en Dal	E 702132.244 N 5744741.214

	Area in ha	Ownership
Component part	0.56	state, private
Buffer zone	3.90	

Protection		
National law	Erfgoodwet	Designated: 1974
Other laws and instruments	Land-use plan (Stuwwal en beschermd dorpsgezicht Ubbergen, 27-6-2013) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
For a general description see the text concerning the cluster.
The component part, situated to the north of the modern road, includes loam pits and areas of production debris.

Attributes and values
The attributes and values are common to both component parts belonging to this cluster. See the text concerning the cluster.

Integrity	
Wholeness	Fair. The component part includes loam pits and areas of production debris.

Intactness	Fair. The remains have only been attested by visual inspection and coring, so the degree of intactness is not very clear.
Exposure to threats	Minimal. The northern component part is covered by forest and designated as a nature area in the land-use plan. The trees do not pose a substantial threat to layers of production debris.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. The loam pits and production debris are the authentic residue of the industrial activities.
Location and setting	Fair. The rugged landscape of the ice-pushed moraine has not significantly changed, but the association with the production of tiles and pottery is not self-evident.

Buffer zone
The buffer zone extends on three sides of the component part and includes areas with possible further remains.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) forestry	minimal	This issue will be addressed in the foreseen local management plan.

Presentation
See the text concerning the cluster.

Community involvement
Not applicable.

Ancient sources
Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 26B

BERG EN DAL-DE HOLDEURN | SOUTH

Military tile and pottery kilns

No	State Party	Province	Municipality	Coordinates central point
26b	Netherlands	Gelderland	Berg en Dal	E 702092.545 N 5744586.840

	Area in ha	Ownership
Component part	7.03	private
Buffer zone	4.12	

Protection		
National law	Erfgoedwet	Designated: 1973
Other laws and instruments	Land-use plan (Buitengebied Groesbeek, 29-8-2013) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>For a general description see the text concerning the cluster.</p> <p>In this component part excavations have demonstrated the existence of at least nine kilns, a drying shed, a large building with industrial and residential functions, loam pits and dumps of production debris. Most of the kilns were dismantled in the course of their excavation, but one large kiln is still largely intact and a considerable part of a second. There is every reason to expect additional kilns and buildings on the basis of geophysical surveys.</p>

Attributes and values
<p>The attributes and values are common to both component parts belonging to this cluster. See the text concerning the cluster.</p>

Integrity	
Wholeness	Good. If the distribution of production debris as attested in a coring survey reflects the extent of the production facility, nearly all of it is included in this component part.
Intactness	Good. Most of the uncovered kilns were dismantled during the 1938-1942 excavations, but parts of two large kilns and other buildings were left intact. Geophysical research indicates that it is likely that more kilns and buildings are present.
Exposure to threats	Minimal. The area is largely covered by forests and open grassland, mainly used for recreational purposes for which maintenance of the 'green' setting is a benefit.

Authenticity	
Form and design	Unaffected. The site was abandoned and not reused after the Roman period, so the form and design are fully authentic.
Materials and substance	Unaffected. Excavations have demonstrated that the buried remains have not been altered.
Location and setting	Fair. The rugged landscape of the ice-pushed moraine has not significantly changed. The visible remains of clay extraction pits evoke the presence of the kilns at De Holdeurn.

Buffer zone
The buffer zone extends to the north and south of the component parts and includes areas with possible, but inadequately attested, remains.

Relevant factors affecting the property and risk management		
Factor	Intensity	Description and protective measures
(i) residential/other development	minimal	The area is largely covered by forest and grassland. Most is designated in the land-use plan as areas with nature and landscape values, with strict regulations for development. Three parts of the area are exploited for recreational purposes (camping, group accommodation, hotel grounds) and designated as such in the land-use plan. Any development of the recreational businesses has to conform to the heritage protection law.

Presentation

See the text concerning the cluster.

Community involvement

Not applicable.

Ancient sources

Not applicable.

FURTHER DETAILS

See the text concerning the cluster.

COMPONENT PART 19

HERWEN-DE BIJLAND

Auxiliary fort, temporary camp

No	State Party	Province	Municipality	Coordinates central point
19	Netherlands	Gelderland	Zevenaer	E 300364.572 N 5751780.398

	Area in ha	Ownership
Component part	2.07	private
Buffer zone	1013.14	

Protection		
National law	Erfgoedwet	Designated: exp. 2020
Other laws and instruments	Land-use plan (Bestemmingsplan Buitengebied 2008, 19-5-2009) Provincial ordinance (Omgevingsverordening Gelderland (december 2018), 19-12-2018)	

Brief description
<p>From the 1920s onwards, eroded remains of a stone fort have been found at great depths during sand extraction, and there are still some remains in the resulting quarry pool known as De Bijland. Most of the dredged finds are dated c. AD 70-260, but there is an earlier inscription making explicit reference to a groyne or dam. This groyne is one of the most famous examples of Roman water management, a barrier built in the river c. 12-9 BC to increase the water volume of the northern branch of the Rhine in the delta. Such a vital regulating element of water management must have been guarded by a fort. The fort at De Bijland must have been positioned in the angle between the two river branches to secure river transport along the Rhine, while river traffic along the Waal was controlled by the nearby fort of Kleve-Keeken ►27.</p> <p>It has long been thought that the entire military settlement had been eroded by post-Roman migration of the river bends, but recently the ditches of at least two military installations have been found c. 250 m northeast of the location of the dredged finds. One of the attested ditches has a very clean fill, which is typical of short-lived, temporary camps. The other was recut several times and contained finds confirming its Roman date. The pottery assemblage and metal objects from the excavated area confirm the military character of the attested features.</p> <p>The camps were probably located to the west of the attested ditches and partly eroded by a meander of the Waal. To the east of the camps a channel of the Rhine has been attested which ceased to be active in the</p>

Late Roman or Early Medieval period; this must have been the river channel which was secured by the camps.

Although the remains at De Bijland are very incomplete examples of military installations, the extraordinary narrative connected with them justifies their inclusion in the nomination.

Attributes and values

The military camps at De Bijland provide testimony to one of the most impressive water management works realized by the Roman army – the groyne that was built under the command of the emperor Augustus' adoptive son Drusus to divert more water into the Rhine. The start of its construction c. 9 BC and its completion c. 55 AD are recorded by the historian Tacitus (cf. Ancient sources), as well as its destruction during the Batavian revolt of AD 69/70, after which it must have been restored.

The groyne itself has not been attested so far, but must be located somewhere between the forts of De Bijland and Kleve-Keeken ►27, in the area covered by the shared buffer zone of these component parts. Its proximity is confirmed by the discovery at De Bijland of a gravestone recording a soldier buried 'at *Carvium* near the groyne' (cf. Ancient sources).

The two ditches attested at De Bijland are very incomplete examples of military installations, but the extraordinary narrative connected with these ditches and to the eroded stone fort whose remains lie at the bottom of the quarry pool justifies their inclusion in the nominated property. They illustrate the pains taken by the Roman military to mould the course of the river to its needs, and the vicissitudes of military installations in this highly dynamic riverine landscape.

Integrity

Wholeness	Fair. The remains of the military installations are far from complete, but they have an important story to tell.
Intactness	Good. The ditches and a variety of associated features are unexpectedly well preserved in this area which was previously considered to have been entirely destroyed by post-Roman river activity. The limited excavations have not produced evidence of the preservation of organic remains.
Exposure to threats	Minimal. The archaeological features occur at 1.5 m or more below the surface. They are located in an arable field, but well out of reach of normal agricultural use.

Authenticity

Form and design	Unaffected. Part of the site fell victim to river erosion, but excavations have demonstrated that the surviving remains are fully authentic.
Materials and substance	Fair. The physical substance of the attested remains is fully authentic, but the condition of organic remains is not certain.

Location and setting	Fair. The proximity of the Rhine and of the quarry pool provide testimony to the former river dynamics.
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Buffer zone

The nominated property is surrounded by an extensive buffer zone (over 1000 ha. The buffer zone is projected to include the bifurcation of the Rhine and Waal rivers in Roman times and any surviving remains of the groyne which was once positioned there. It also encompasses the eroded remains of the stone fort in the quarry pool.

Relevant factors affecting the property and risk management

Factor	Intensity	Description and protective measures
(i) industrial development	minimal	The component part borders on a small industrial area. The component part is protected against transformation of use by the land-use plan.
(i) agriculture	minimal	The archaeological remains are located more than 1.5 m below the surface and are thus not threatened by normal agricultural activities.
(iii) flooding and river erosion	minimal	The component part is located in an area protected against high water levels with an annual probability of 0.3-0.001%, but flooding would not affect the buried remains.

Presentation

On site, the Roman history of De Bijland is illustrated by two interpretive installations. On the Herwensedijk near Herwen a replica of a gravestone of the Roman soldier Marcus Mallius (cf. Ancient sources), found at De Bijland, has been erected together with an information panel. Along the road into De Bijland, a wire mesh image of a Roman soldier with explanatory text draws attention to the nearby remains of the eroded fort.

Community involvement

Not applicable.

Ancient sources

De Bijland may be identified as *Carvium* from the text on a gravestone dredged from a fossil river channel (AE 1939, 107 = 130). The stone records that the deceased, a soldier of the First Legion, was buried *Carvio ad*

molem ('at *Carvium* near the groyne') (Tac. Hist. V 19). The *molem* is most likely the same as that mentioned by the historian Tacitus as *molem a Druso Germanico factam* ('the groyne made by Drusus Germanicus') and as *inchoatum ante tres et sexaginta annos a Druso aggerem coercendo Rheni* ('the dam initiated 63 years earlier by Drusus to control the Rhine') (Tac. Ann. XIII 53). Drusus commanded the Roman troops on the Rhine in 12-9 BC.

FURTHER DETAILS

main building phases

n.a.

main research activities

2017-2018 coring survey, trial trenches

garrisons

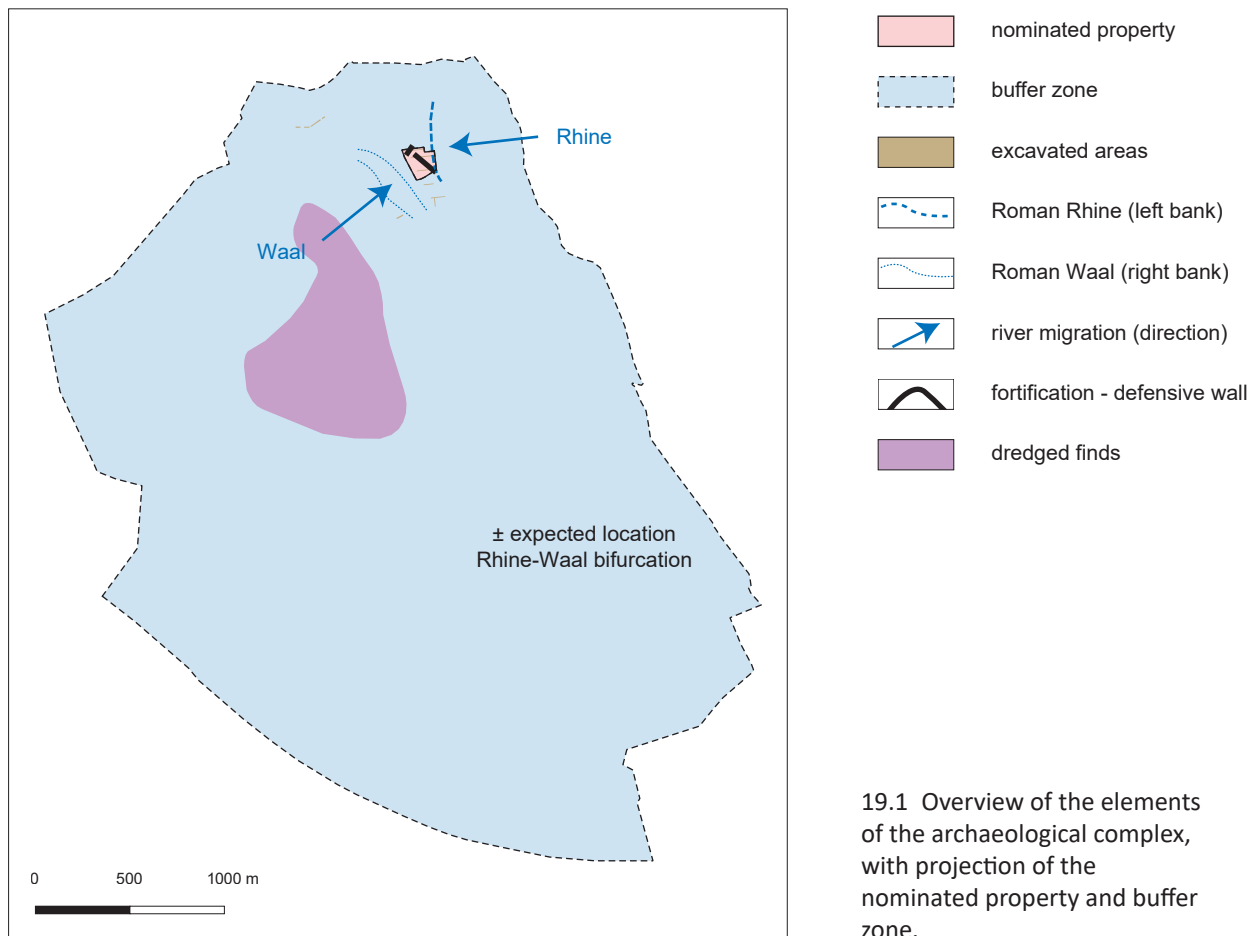
legio I (part)

cohors II equitata civium Romanorum pia fidelis

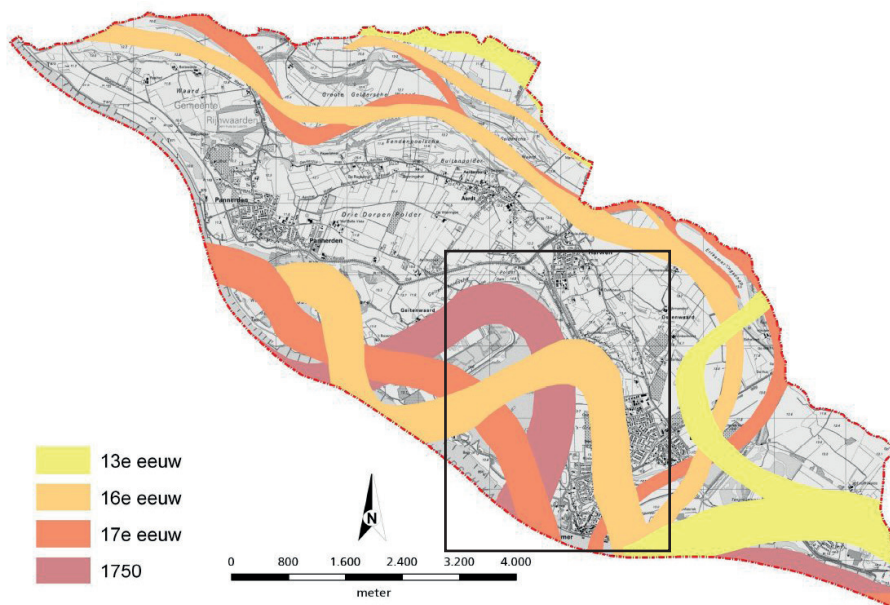
literature

Bogaers / Rüger 1974, 90-91; Van Renswoude / Van Kampen 2018; Van Renswoude / Van Kampen 2019.

19 Herwen-De Bijland



19.1 Overview of the elements of the archaeological complex, with projection of the nominated property and buffer zone.



19.2 Simplified impression of river migration (light > dark) in the Middle Ages.

19 Herwen-De Bijland



19.3 Early Roman gravestone of a legionary soldier from De Bijland, recording that he was buried 'at Carvium, near the groyne' (*Carvio ad molem*).



19.4 Wire mesh image of a Roman soldier, on the edge of the quarry pool.