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Structuring the landscape in Iron Age and Roman Period (500 BC – AD 250): the multi-period site Oss-Horzak

Richard Jansen and Stijn van As

During the Iron Age and the Early and Middle Roman Period the cover-sand plateau of the micro-region Oss (North-Brabant, the Netherlands) became densely settled. Extensive excavations enable us to see how in this period farmers transformed the natural forested environment into a vastly structured so-called cultural landscape. Based on the results of the recently excavated multi-period site of Oss-Horzak we want to discuss how in the Late Iron Age and Roman Period (500 BC – AD 250) the (local) landscape in the Oss-region becomes increasingly structured.

The initial and ‘gradual’ transformations in the (Late) Iron Age and Early Roman Period are interrupted at the end of the 1th century cal AD when the structuring of the landscape seems to accelerate, encouraged by the Roman administration. Large parts of the landscape are (re-)structured in such a way that we can call it an orchestrated land consolidation or reparcelling. This development took place in large parts of the Meuse-Demer-Scheldt-area as well as in the Central River Area and the Western Netherlands.

1 OSS-HORZAK: EXCAVATING THE ‘LOCAL’ LANDSCAPE

1.1 The research area Oss

The site of Oss-Horzak is situated at the northern edge of a large cover-sand plateau, close to the clay area of the Maaskant, which lies in the north-eastern corner of the province of North-Brabant (fig. 1). Nowadays the river Meuse runs a few kilometres north of Horzak, though in the Iron Age and Roman Period the river flowed further to the south, approximately 800 m north of Horzak. A remnant of this fossil river course is still present in the landscape (fig 1: Ossemeer).

The Oss-region is an area with an extensive history of archaeological research. Since the first rescue excavations were carried out in 1974 at Oss-IJsselstraat (Wesselingh 1993), this region was ‘adopted’ by archaeologists from Leiden University when the excavations became integrated into the Maaskant Project (Van der Sanden 1988; Fokkens 1996). From the start the project focused on the long-term developments of farming economy, social structures and hierarchies, ideology and burial ritual, settlement systems and, later on, the perception of the (cultural) landscape. All are studied diachronically from the Late Neolithic through

the Roman Period, both within the study area and in relation to the wider region of the Southern Netherlands and Northern Belgium (Fokkens 1996; Wesselingh 2000, 3-7).

Due to continuous estate developments hitherto almost 70 hectares have been excavated, including settlements, burial sites, cult places, field systems and activity-areas, dating from the late Neolithic until the Middle Ages (fig. 1). More than three decades of research (1976-2008) by the Faculty of Archaeology of Leiden University makes this area one of the most intensively researched regions in the Netherlands, providing a sound basis for models about, in this case, the way in which farming communities structured the (local) landscape in Late Prehistory and Roman Period.

1.2 Habitation history of Oss-Horzak

The excavations in the research area Oss-Horzak lasted from 1998 until 2008, during which an area of c. 12 ha was excavated, bringing to light traces of settlements, cemeteries, activity areas and field systems dating between the Early Bronze Age and the Middle Ages (Jansen and Fokkens 2002; Jansen in prep.).

The oldest features date to the Early Bronze Age (2000-1800 BC): two small pits with Early Bronze Age pottery and a ring ditch that can be associated with one of the pits. From the Middle Bronze Age period (1800-1050 BC), a cluster of postholes and pits and some dispersed pits were found. For the Late Bronze Age (1050-800 BC), again a few pits and a house plan are known (fig. 2). It is likely that these features formed the first gradual but persistent reclamation of the sandy soils of the cover sand area north of Oss (Bakels 2002; Jansen and Arnoldussen 2007). From this point onwards, the habitation and exploitation of the region would intensify.

Dozens of house plans from the Iron Age have been revealed at Oss-Horzak (800-19 BC). Because the excavated area forms only a small part of a much larger (probably) continuously habituated territory, the plans represent contemporaneous or successive ‘snapshots’ of the discontinuous Bronze and Iron Age habitation history of the researched area. In addition to the house plans, dozens of other elements known from Bronze and Iron Age settlements were found: pits, small granaries, wells and ditches. A remarkable system



Figure 1 Location of the Oss-region in the Netherlands and an overview of all excavations carried out in Oss until 2008 (Faculty of Archaeology Leiden University, graphics S. van As).

of two parallel ditches with significant measurements dates to the Late Iron Age. The roughly linear ditches ‘cut’ through the landscape from east to west over a length of *c.* 380 m (Van As 2008). At the same time, besides solitary farmsteads, a small nucleation of Late Iron Age farmhouses occurs south of the ditches (Van As 2008; Jansen in prep.).

The Early and Middle Roman Period is noticeably the most prominent period, represented by a cemetery and dozens of houses including a rectangular enclosed settlement. In this period the settlement develops from loosely structured farmhouses, surrounded by a large irregular ditch system, to a smaller rectangular enclosed settlement. The rectangular ditch system appears to have been laid out in the second half of the first century AD without giving much attention to the previously existing structured landscape (Pruysen 2007; Jansen in prep.). To the west of the enclosed settlement lay similar orientated ditches belonging to a field system. At the end of the 2nd / beginning of the 3rd century AD the settlement was abandoned, like most known settlements in the Southern Netherlands (Wesselingh 2000; Heeren 2009).

Only centuries later does the Horzak-area becomes inhabited once again. At least two farmsteads dating to 13th-15th century AD were excavated, situated along one of the arterial roads of the nearby medieval city of Oss.

Besides a long-term analysis of farmstead and settlement, the excavation of Oss-Horzak provides ample opportunities for an analysis of what is here referred to as the *local landscape*, the environment within the ‘direct’ surroundings of farmstead(s) and/or settlement(s), assumingly the location of daily activities, including associated structures. In this article we will discuss, based on the results of Oss-Horzak, the structuring of farmyard, settlement and (local) landscape between *c.* 500 BC – AD 250, starting with the Middle Iron Age.

2 STRUCTURING THE LANDSCAPE IN THE IRON AGE

2.1 Middle Iron Age

The Iron Age is generally characterized by a dynamic settlement system in which one or more individual farmsteads were regularly relocated within a settlement territory. Farms

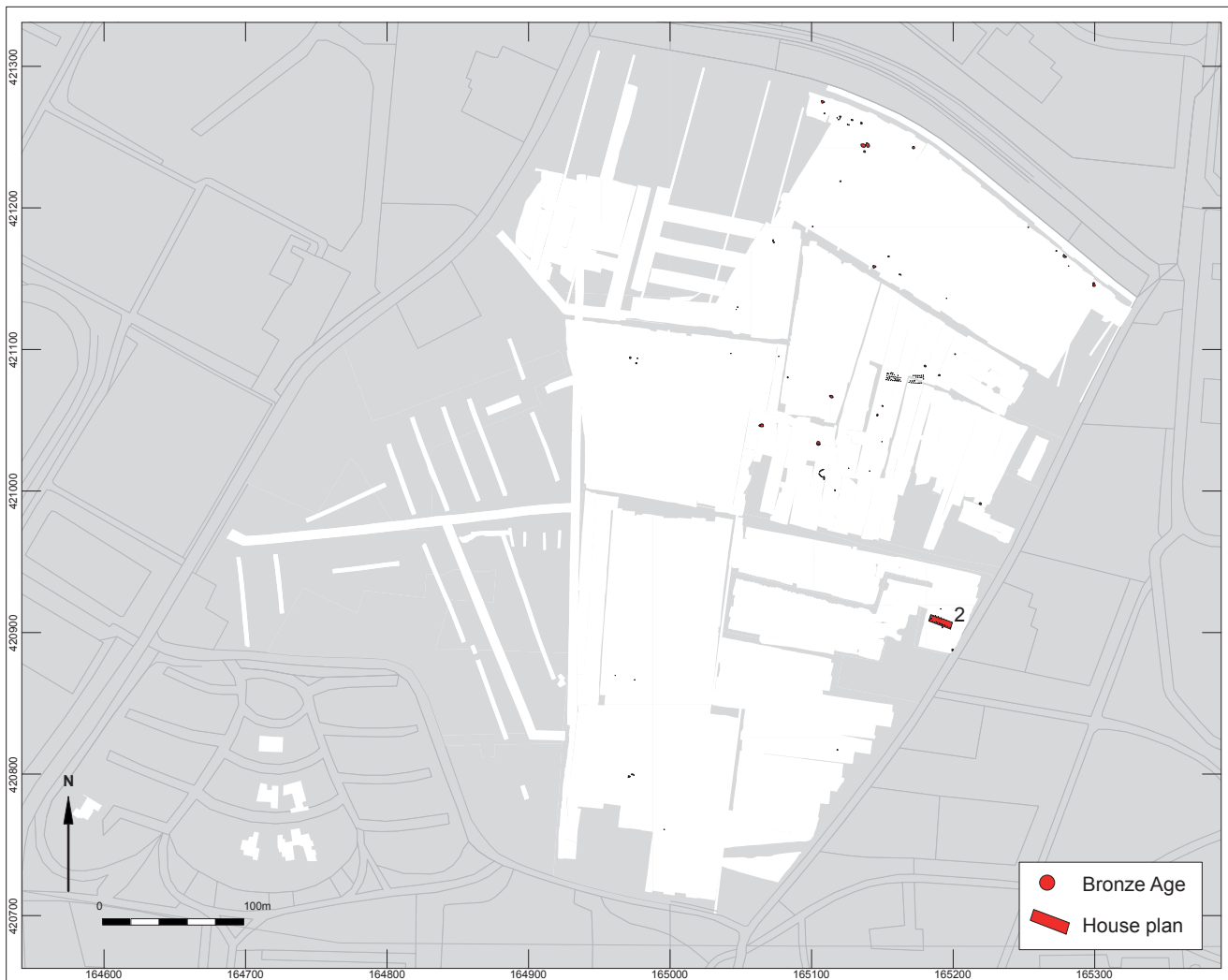


Figure 2 Oss-Horzak; features from the Early, Middle and Late Bronze Ages (2000-800 BC). 1 Possible structure Early Bronze Age, 2 House plan Late Bronze Age (Faculty of Archaeology Leiden University, graphics S. van As).

appear to have been built on the same yard only incidentally and therefore settlements comprise of a loose aggregation of a small group of such farms (Schinkel 1998, 25-27).¹

The Horzak site shows a similar picture. During the first five centuries of the Iron Age habitation, the dispersed farmsteads and settlements do not seem to have clear (physical) boundaries (fig. 3). In general, due to its dynamics, both seem to have an open character, gradually ‘flowing’ into the environment.

The structuring of the local landscape in the Early and Middle Iron Age seems to be minimal as well. At Horzak, but also in other excavations in Oss, indicators like fences, pits and/or ditches are scarce. Drinking pools seem to be the most frequent element in the surroundings of the settlement, with

the earliest examples dating to the Middle Bronze Age (Oss-Mettegeupel: Jansen *et al.* in prep.). Occasionally, and in some cases connected with drinking pools, lightly founded fences were found. They probably had multiple functions within the settlement and (local) landscape, like the alignments which are frequently found at Bronze Age settlements in the Dutch river area (Arnoldussen 2008, 251-252).

A Middle Iron Age non-settlement relict found at Oss-Horzak is an activity area with granaries, clusters of pits, the functions of which so far are unknown, and a corral where livestock could drink from a pool, enclosed by ditches (fig. 4). A more rectangular ditch system was constructed just outside the corral’s boundary, arranging a larger area. To the north lay some contemporary granaries, emphasizing the

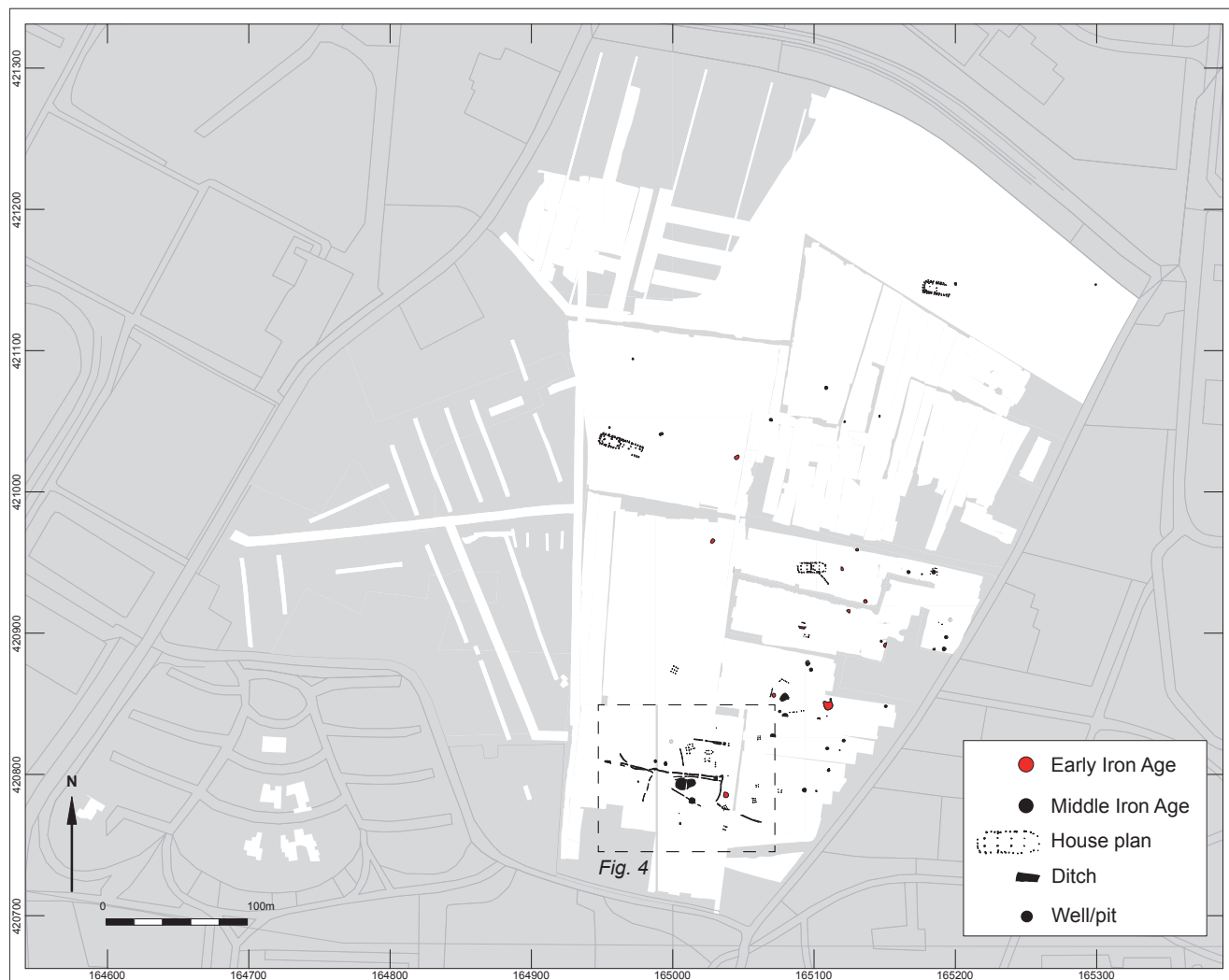


Figure 3 Oss-Horzak; structures from the Early and Middle Iron Ages (800-250 BC) (Faculty of Archaeology Leiden University, graphics S. van As).

functional structuring of the area (Van der Linde 2007, 62-68; Van As 2010, 89). Although no contemporary houses were recognized in the excavated area, it is assumed here that this structured local landscape lies in the direct vicinity of one or more farmsteads. Structures like these are scarce. A possible parallel was found in Loon op Zand-Kraanvensche Heide. Here an enclosed area with ditches, directly north of a few Early Iron Age house plans, is interpreted as a corral, although an interpretation as cult place is not excluded (Roymans and Hiddink 1991).

The structuring of the supra-local landscape in the Iron Age in the Oss-region shows a segregated location of settlements and cemeteries. At Oss-Ussen for centuries a large area was exclusively used as a burial and ritual ground

(Van der Sanden 1998) (fig. 5). All Iron Age farmsteads lay outside this ancestral barrow landscape, implying that it was respected for a long time, even until the Early Roman Period. A comparable structuring of the landscape with a static cemetery and a dynamic settlement system has also been established elsewhere in the Southern Netherlands, for instance Someren-Waterdael and Breda, and can also be expected in the Oss-Horzak region (Someren: Kortlang 1999; Breda: Berkvens and Kooistra 2004).

2.2 Late Iron Age

In the first half of the Late Iron Age little has changed. Still hardly any differentiation can be perceived in the house plans that have been found at Oss-Horzak. From approximately

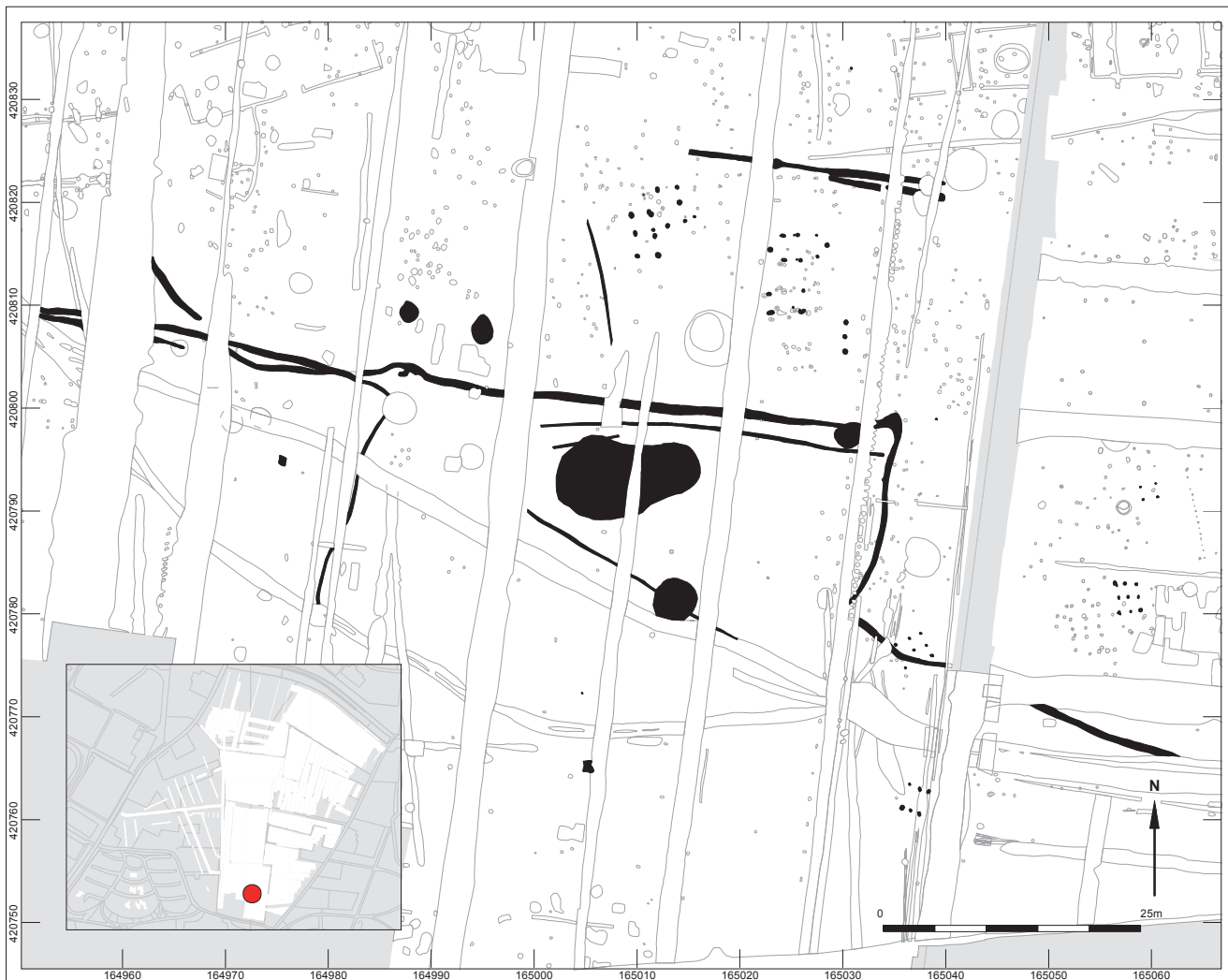


Figure 4 Oss-Horzak; structuring of the local landscape in the Middle Iron Age with a corral surrounded by ditches, granaries and clusters of pits. Red dot indicates location of features (Faculty of Archaeology Leiden University, graphics S. van As).

150 BC on differences become apparent with the rebuilding of houses on the same yard and the clustering of houses (Jansen in prep.; Van As 2010) (fig. 6).

Differences in size and layout are visible between the different Late Iron Age settlements of Oss. At Oss-Schalkskamp and -Almstein (parts of) ditches were found bounding the settlement (Almstein: Fokkens *et al.* in prep. a; Schalkskamp: Wesselingh 2000, 172-182). The nucleation of Late Iron Age settlements occurs in large parts of the southern Netherlands (Gerritsen 2003; Arnoldussen and Jansen 2011), with other examples at for instance Haps (Verwers 1972) and Beegden (Roymans 1988).

At the same time the structuring of the local landscape also increases in the Late Iron Age. A remarkable feature has

been found at Oss-Horzak (Van As 2010; Jansen in prep.): two 380 m long rectilinear, parallel and profound ditches appear 'within' the Late Iron Age landscape.² The orientation is slightly east-north-east – west-south-west, with no obvious split ups, no major curves and no entrances found so far. At the western end the ditches end abruptly, closing in at each other with a large pit in the remaining opening (Pruysen and Van As 2012). Between both ditches, with an average distance of 4 to 5 m, a bank could have been erected. At different locations in the ditches, large complexes of sherds have been found dating to the Late Iron Age, phase I-K (c. 250 - 75 BC) (fig. 7).³

Although the function is so far unknown, it is obvious that the digging of the ditches required a lot of time and energy

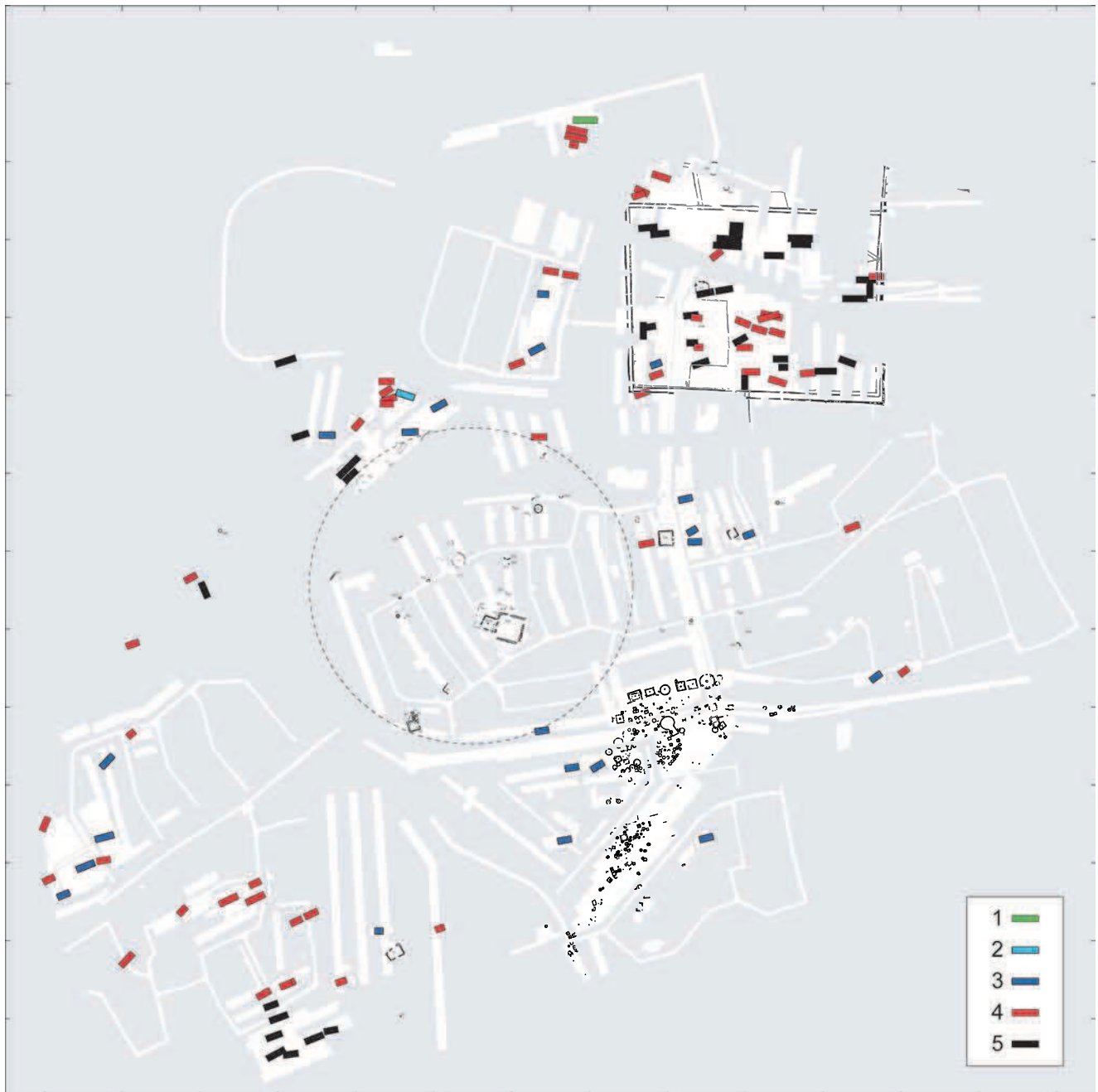


Figure 5 Oss-Ussen; an Early and Middle Iron Age cemetery and ritual area as a focal point in the Iron Age and even the Early Roman period landscape. 1 Bronze Age; 2 Early Iron Age; 3 Middle Iron Age; 4 Late Iron Age; 5 Roman Period (Faculty of Archaeology Leiden University, after Schinkel 1998).

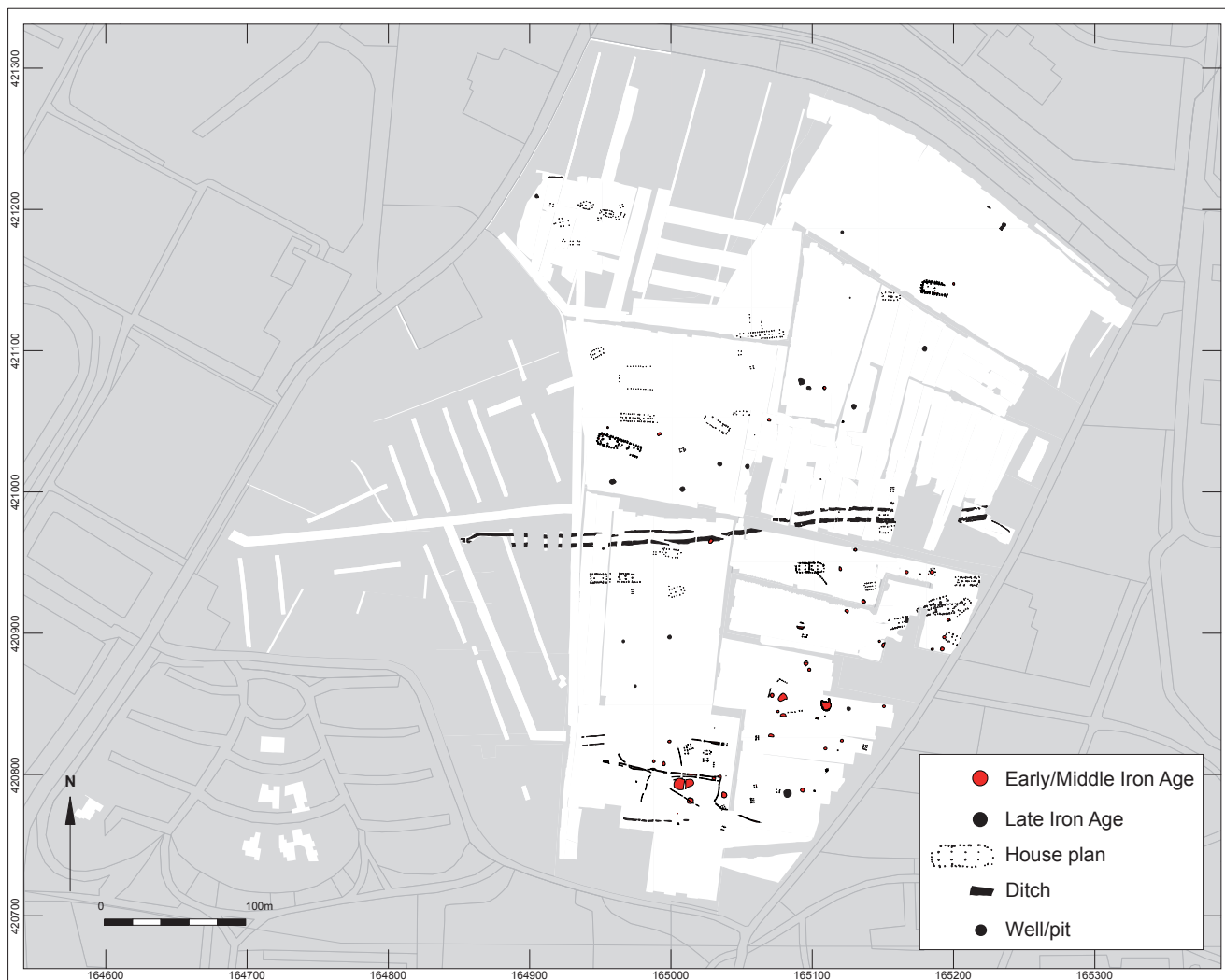


Figure 6 Oss-Horzak; structures from the Late Iron Age (250-19 BC) (Faculty of Archaeology Leiden University, graphics S. van As).

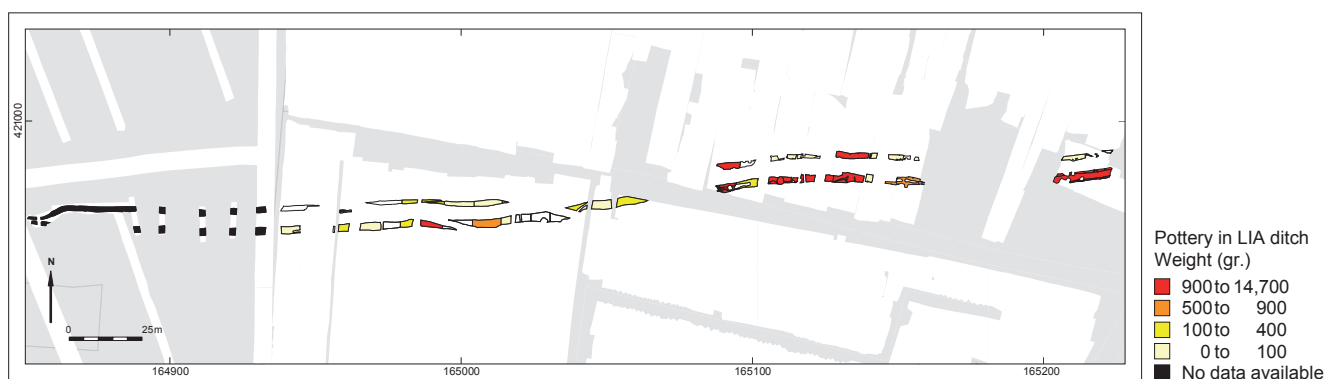


Figure 7 Oss-Horzak; the Late Iron Age ditch system with the distribution of pottery (Faculty of Archaeology Leiden University, graphics S. van As).

irrespective of which function(s) it had. Firstly, forming a physical barrier in the local landscape, it might have functioned as a line of defence and/or boundary. Sling bullets were found spread along the eastern area of the ditch, as well as an iron spearhead. Secondly, the ditches could also have had a symbolic or religious meaning, possibly associated with its function as a boundary. In the northeastern corner of the Late Iron Age ditch at Oss-Schalkskamp *c.* 200 sling bullets were found, together with dozens of loom weights, spindle whorls and sherds and a complete, burned La Tène bracelet (Fokkens *et al.* in prep. b). Also several depositions of pottery complexes were found in the ditch at Horzak.

Another possibility that has been considered is the presence of a road between the ditches where farmers drove their livestock. However, the effort put into the construction of the ditches seems greater than required for herding livestock in a certain direction. Therefore, and also considering the ditch's western ending, this option is not evident. Also the possibility of drainage is unlikely. The fill of the ditches showed no traces of water having run through the ditches. And the orientation would be incorrect, the land slopes towards the river Meuse in the north. The last hypothesis is that the ditches at Horzak constitute a zone between two local communities. North and south of the ditch system contemporary and even equally orientated farmhouses were recovered (fig. 6). A same compartmentalization or zonation of the landscape has been determined at Oss-Mettegeupel. Two, again east-west orientated, shallow ditches divide the (local) landscape here into three zones with in the southern zone an activity area with a pen for cattle and granaries, and farmhouses in the other two zones (Fokkens 1996).

Although the exact function of the ditches at Horzak remains unclear, it is obvious that it formed a prominent and extraordinary relict in the Late Iron Age landscape which indicates that people had started to organize the (local) landscape into a more permanent layout; an arrangement that must have affected several households or even a whole local community.

Also within the supra-local landscape things were changing. There is still a clear spatial distinction between settlements and cemeteries but the cemeteries became smaller and less static and, besides solitary farmsteads, we see the emergence of more static, nucleated settlements or even small 'villages' (see Gerritsen 2003). There are even indications of central places. A Late Iron Age regional central settlement and/or cult place is suspected at Kessel/Lith, not far from the Oss-excavations (Roymans 2004, 144-148).

3 A STRUCTURED LANDSCAPE IN THE ROMAN PERIOD

3.1 Early Roman Period

The Early Roman pre-Flavian habitation of Oss-Horzak is strongly rooted in the Late Iron Age. Houses are frequently rebuilt on the same yard and clusters of houses are apparent

(fig. 8). The settlement still consists of 'traditional' rectangular farmhouses, combining a stable and a living section under one roof. The length of the houses increases however, together with a stronger construction of the poles implying a longer lifespan of the houses (a.o. Van Hoof 2007).

Zooming out, also the differences in size and layout between settlements (slowly) increase. Besides small, 'open' settlements, two examples of enclosed Early Roman Period settlements are known from the Oss-region: Oss-Schalkskamp and the first phases of Oss-Westerveld, strongly differing in size, structure and period of habitation (Schalkskamp: Wesselingh 2000, 172-182; Fokkens *et al.* in prep. b; Westerveld: Wesselingh 2000).

As for the structuring of the local landscape, at some point a large area in the Horzak area is delimited by an extensive ditch system. The ditches have an irregular layout enclosing a large area of *c.* 7 ha. The ditches were dug out or re-dug for maintenance, so they probably functioned during several habitation phases. Within the enclosure houses are concentrated in two clusters, while other areas are undeveloped, possibly functioning as fields or gardens. (Early-)Roman Period features are also lacking outside the ditches, suggesting the enclosure formed a 'real' boundary.

The increasing structuring of the supra-local landscape is nicely illustrated by the Ussen-research and surrounding excavations. Several differing settlements, an open-air cult place, field systems and a large cemetery were excavated here close to each other (fig. 9). The older relict of an Iron Age cemetery seems also included within this structured cultural landscape (see fig. 5).

3.2 Middle Roman Period

With the beginning of the Middle-Roman Period, from 70 cal AD onwards the situation changes considerably. At Horzak there is a noticeable restructuring of the settled area into a renewed rectangular layout. Based on the modest dimensions, it is not likely that the ditches had a defensive function. Rather they display the formation of a strongly structured settlement following a Roman scheme (Wesselingh 2000, 214). With the enclosure the Middle-Roman period settlement of Horzak is visibly separated from the surrounding landscape. At the same time the structured character continued into the surrounding local landscape, which is structured by ditches belonging to a field system and a corral north of the settlement (fig. 10). A radical restructuring of the landscape can be seen at Oss-Brabantstraat, where a cult place was 'overbuilt' with ditches and at Oss-IJsselstraat, where a small settlement was built 'on top of' a Middle Iron Age cemetery (Brabantstraat: De Leeuwe 2011; IJsselstraat: Wesselingh 1993). It is as if the previous structures were purposely denied and replaced by a new

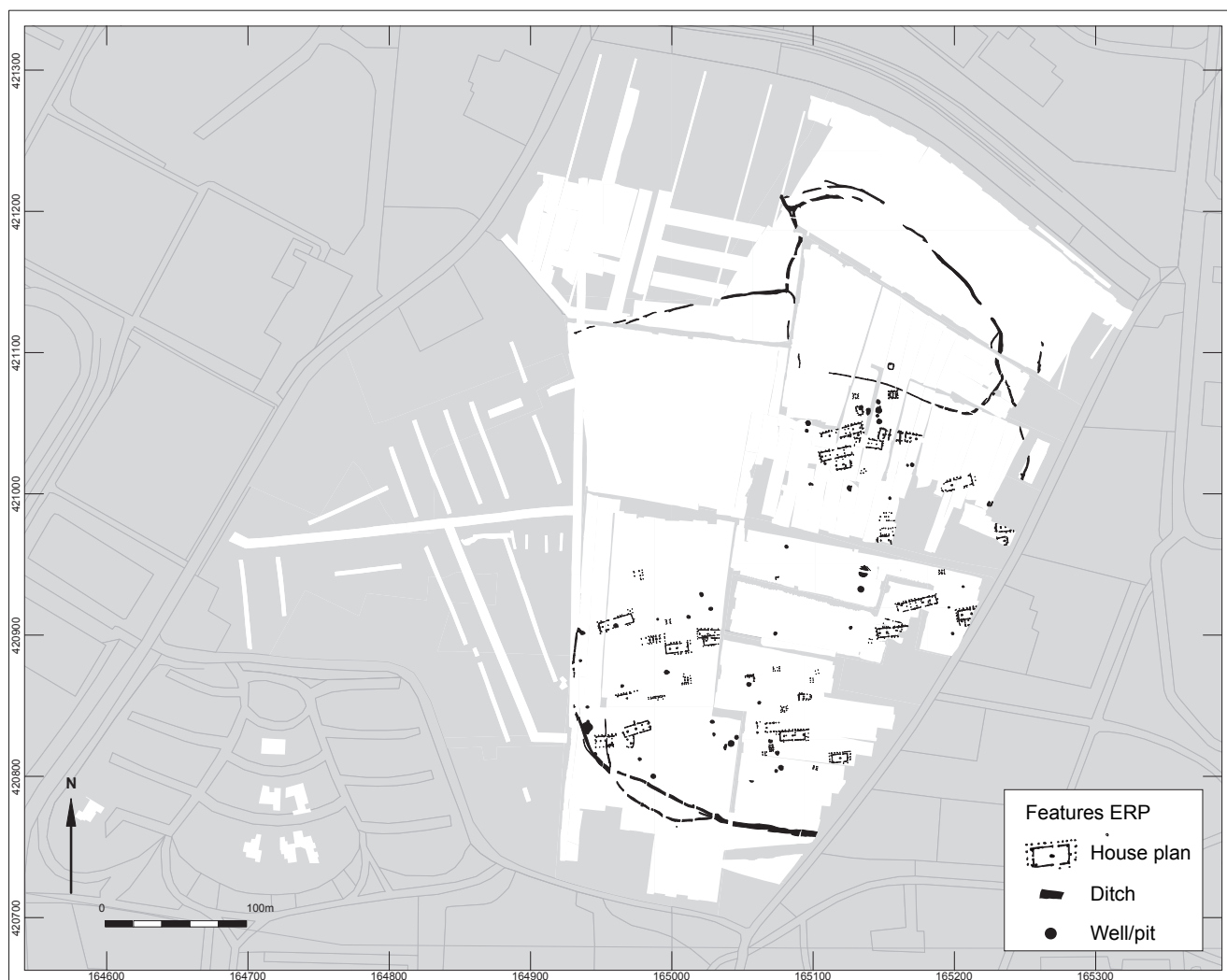


Figure 8 Oss-Horzak; structures from the Early Roman Period (19 BC-70 AD) (Faculty of Archaeology Leiden University, graphics S. van As).

layout of the entire landscape. At Oss-Ussen a large area, including the Iron Age cemetery, was reclaimed whereby dozens of ditches were constructed, overrunning the former burial monuments, while a new cemetery was founded at close distance.

In addition to continued habitation of most of the Early Roman Period settlements new settlements were founded. At Oss-De Geer reclamation farms (*Einzelhöfe*) were erected, reclaiming an area which was unoccupied until then (Jansen and Van Hoof 2003). Extensive studies of the ceramics found at the settlement Nistelrode-Zwarte Molen, located a few kilometres south of the town of Oss, indicate that this settlement was founded around 70 AD (Van Enkevort 2008). The settlement had a very structured character based on

Roman measurements that continued into the surrounding local landscape (Jansen and Van Enkevort 2008).

With the excavation of the Middle Roman Period enclosed settlement at Oss-Horzak it is clear that in this period there are on the cover sand plateau of the micro-region Oss at least two territories (local communities) present with in each territory a central settlement: Oss-Westerveld and, 3 km further east, Oss-Horzak. Other, smaller settlements and solitary farms were situated close to these central places, and each cluster appears to have its own cemetery (Ussen: Hessing 2000, 183-188; Horzak: Jansen and Fokkens 2002; Bruineberg 2004).

The (local) landscape is vastly structured by ditches, corrals and other structures, like at Oss-Ussen. Here the



Figure 9 Oss; settlements, cemetery, cult place and field system in a structured Early Roman Period landscape (Faculty of Archaeology Leiden University-Archol bv, graphics S. van As).

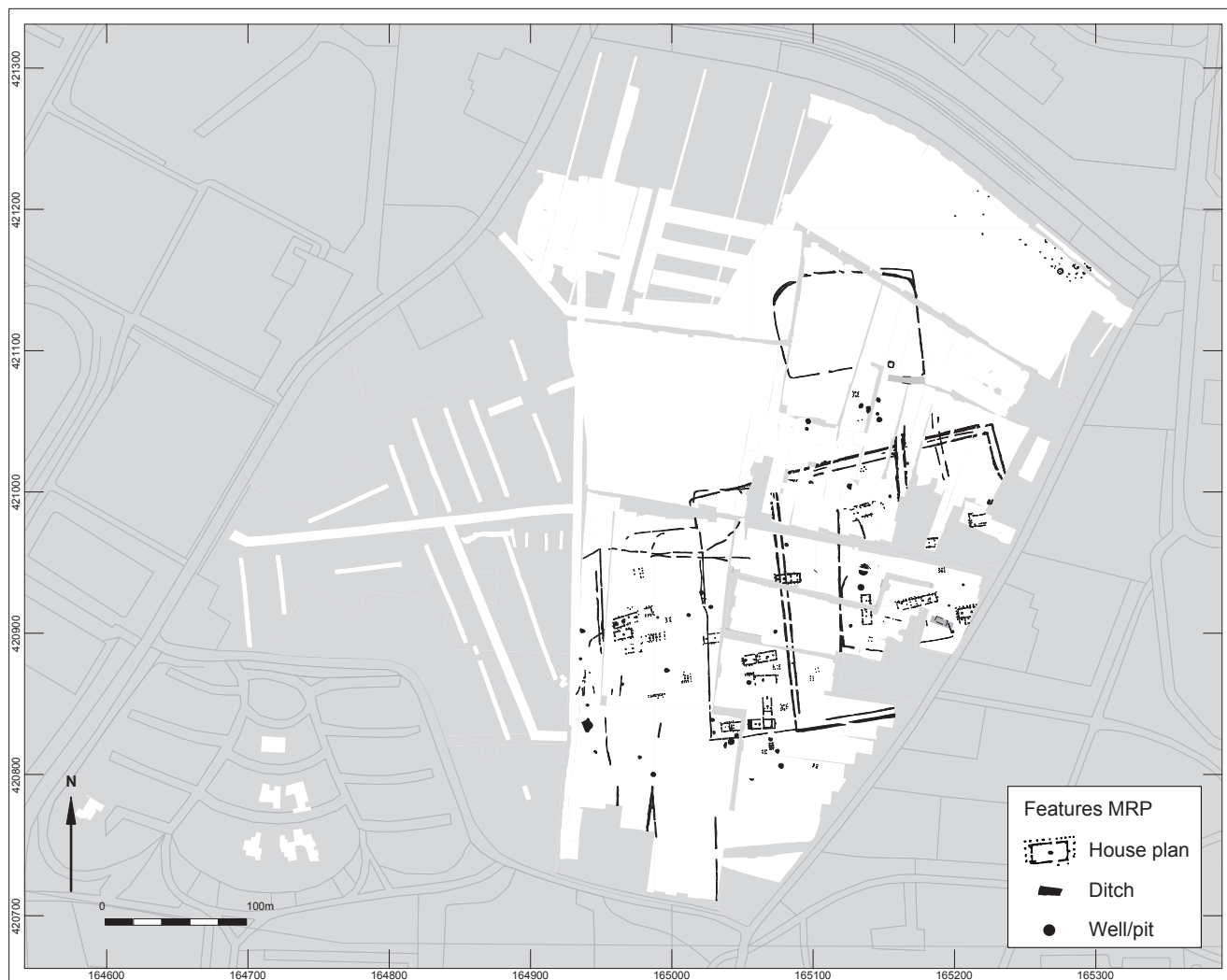


Figure 10 Oss-Horzak; structures from the Middle Roman Period (70-c. 250 AD) (Faculty of Archaeology Leiden University, graphics S. van As).

surroundings of the settlements were arranged on a large scale, predominantly with ditches belonging to roads (?), field systems and corrals (fig. 11). Circa 900 m northwest, in the area of Oss-Mettegeupel, a Roman Period ditch system is interpreted as (extended) arable and grazing grounds (Jansen *et al.* in prep.).⁴ This is equivalent to the surroundings of Horzak, where an identically orientated ditch west of the settlement IJsselstraat, 400 m to the east of Horzak, illustrates the large-scale of the parcellation of the landscape.

Contemporaneous extended ditch systems are also uncovered elsewhere in the southern Netherlands Meuse-Demer-Scheldt-area, and also the Central River Area and Western Netherlands show comparable, structured landscapes (Central River Area: Vos 2009; Western Netherlands: Van Londen 2003).

4 (RE-)STRUCTURING AN 'EMPTY' LANDSCAPE IN THE MIDDLE AGES?

From the Early 3rd century AD onwards there is a strong decline in habitation in large parts of the southern Netherlands (a.o. Heeren 2005). In the Oss-region most settlements, including Horzak, are abandoned. Features and finds from the Late Roman Period and Early Middle Ages are found, but further south on the cover sand plateau, where the current city centre of Oss is situated, and north, in the river area of the Maaskant.

Only with the development of the (medieval) town of Oss were the sandy soils north of Oss once again reclaimed and turned into a rural area. In the north-western corner of Horzak at least two farmsteads have been uncovered, dating to the 13th-14th century AD (fig. 12). Farmhouses, haystacks and



Figure 11 Oss-Ussen; the local landscape between the Roman Period settlements of Oss-Westerveld, Oss-Zomerhof and Oss-Vijver arranged with ditches (Faculty of Archaeology Leiden University, after Schinkel 1998).

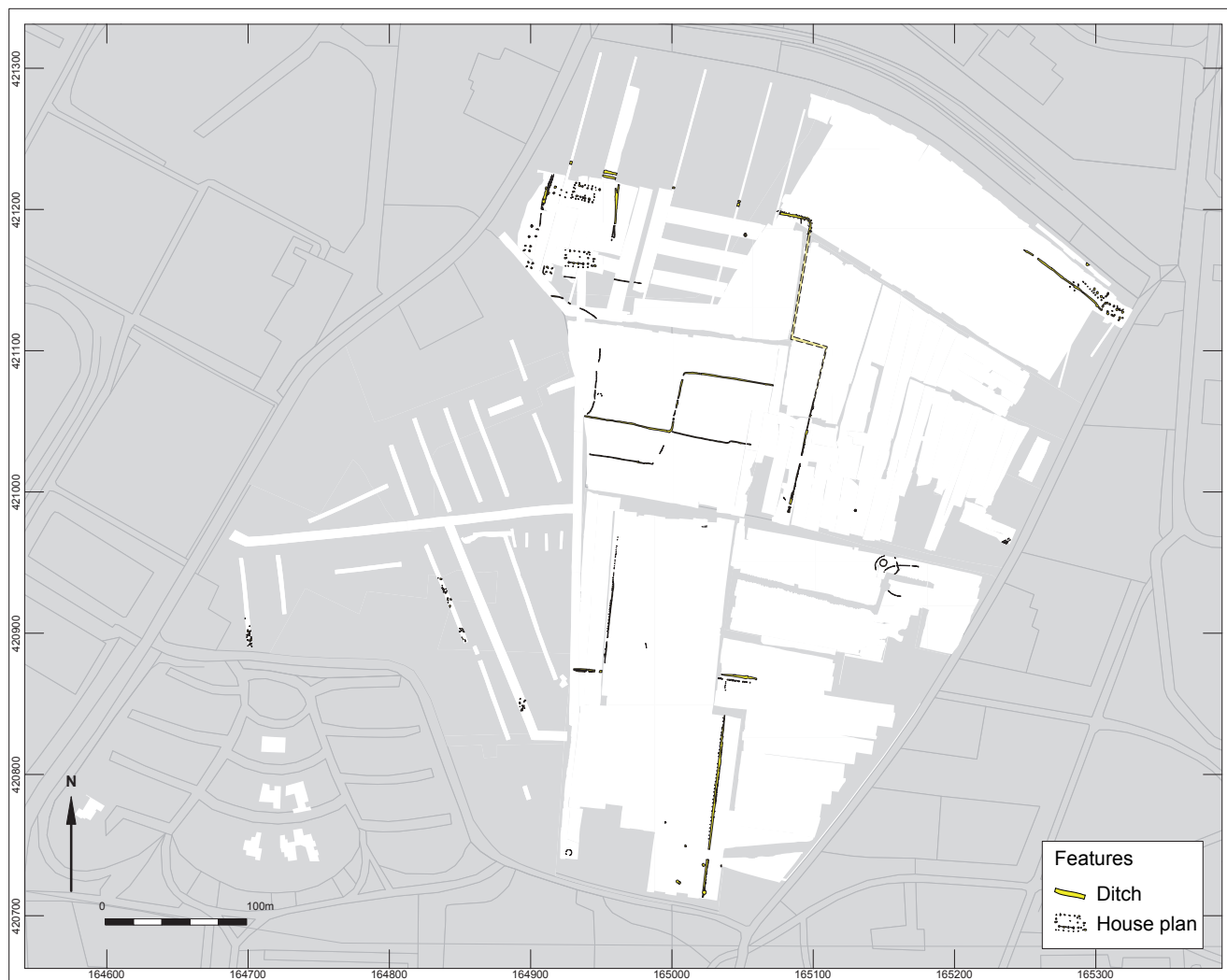


Figure 12 Oss-Horzak; structures from the Late Medieval Period (c. 13th-14th century AD) (Faculty of Archaeology Leiden University, graphics S. van As).

wells were found, and also a ditch system bounding fields. As many centuries have passed since, it is assumed that this was a reclaiming of an ‘empty’ landscape. This seems to be the case for Oss-Horzak, where the orientation of Iron Age and Roman Period ditches does not correspond to ditches on the early 19th century topographical map (fig. 13). But when the (Roman Period) ditch systems of Schalkskamp and Oss-Mettegeupel are pictured on the topographical maps of c. 1830 the similarities in orientation are striking. At Schalkskamp the sub-recent parcelling system, probably based on (Late) Medieval ditches even seems to connect to (the orientation of) Roman Period ditches, laid out more than a millennium earlier. Instead of a structuring of an ‘empty’ landscape in the Middle Ages, it was rather a re-structuring of

landscape still holding traces of the Roman Period landscape organization.

5 CONCLUSION

The multi-period site of Oss-Horzak, excavated between 1998 and 2008, complements the earlier research in the micro-region Oss. Contrary to previous excavations here a contiguous area was excavated providing insight into the structuring of the surroundings of farmsteads and settlements, over a long period. In order to distinguish and understand the developments of landscape organization that occur in the Roman Period, we started in the (Late) Iron Age since the developments in the Roman Period are part of the long-term habitation history of this region.

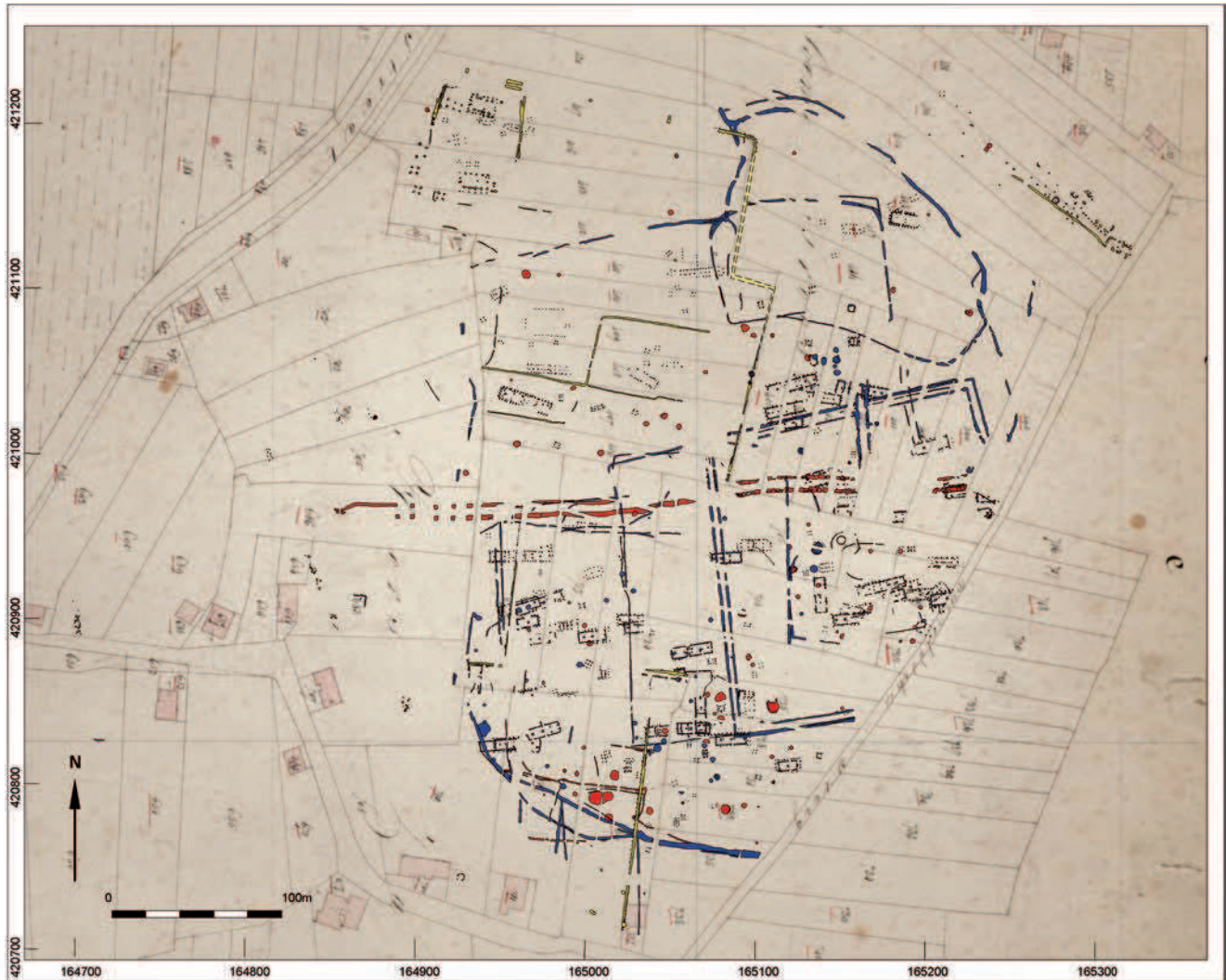


Figure 13 Oss-Horzak; structures and ditches from all periods plotted on the topographical map from c. 1830 (map: WatWasWaar.nl; graphics S. van As.).

With the structuring of Early and Middle Iron Age settlement and (local) landscape as starting point, it is clear that already prior to the end of the Late Iron Age the dynamic Iron Age settlement system is gradually replaced by a more static one with nucleated, sometimes enclosed farmsteads. Houses are rebuilt close to their predecessors on the same yard, enclosures of yards and settlements occur. Farmsteads became stable places in the landscape where consecutive generations built their houses (Gerritsen 2003, 105-108).

The local landscape becomes more structured, with a more permanent layout for different elements like farmstead/settlement, cemetery, cult place and activity area. This process thus started at least a hundred years before the region was officially integrated into the Roman Empire,

indicating that these changes were not the direct result of Roman policy. These changes must be explained from a long-term perspective, as part of two thousand years of occupation history, continuing into the Early Roman Period. The causes for these continuous and gradual changes are difficult to identify and beyond the scope of this article. It is clear that the differences between settlement system and landscape organization in the Iron Age and the Roman Period cannot be ascribed to Roman influences only. The incorporation in the Roman Empire accelerated the developments, resulting in an enlargement of settlements, an increasing hierarchization between and the installation of new settlements, and an increasing reclamation and structuring of the landscape.

From 70 cal AD onwards the rural landscape of the Oss-region underwent an organised reorganization. During this period the settlement system and arrangement of the (local) landscape changed considerably. The differences in size and layout between settlements increase greatly. A few settlements formed the top of the rural settlement hierarchy, which also consisted of dispersed (reclamation-) farms and small (enclosed) clusters of farms (Jansen and Fokkens 2010).

Within this system, under the influence of Roman authorities, one settlement can be seen as the central place and residence of the local elite, possibly veterans of the army or other officials. The settlement of Oss-Horzak, like Oss-Westerveld and Nistelrode-Zwarte Molen, is interpreted as central place within a highly structured local rural landscape. It is remarkable that older relicts and/or orientations within this landscape, either abandoned farmsteads, settlements, cemeteries or cult places, are sometimes denied or even (knowingly) erased. As if the past had no meaning anymore during this re-parcelling.

Instead of the earlier landscape organization by local farming communities, these developments are (greatly) instigated as a result of Roman politics, probably with the aim of pacifying and controlling this part of the Batavian region (e.g. Heeren 2009, ch. 8; Vos 2009). The latter includes the possibility of a function of the ditch systems in the registration of land use, possibly used for the levying of taxes (Heeren 2009, 241-250).

At the end of the first century AD this resulted in an extended and well-structured rural landscape, that changed the character and perception of the landscape considerably and that in some cases even formed the basis for (Late-) Medieval and Modern Period reclamations.

Notes

1 Schinkel introduced the widely supported term ‘wandering’ farmsteads (German: *Wandersiedlung*; Dutch: *Zwervende Erven*) which is now criticized increasingly (see Gerritsen 2003; Arnoldussen 2008).

2 The larger southern ditch has a maximum width of 2.6 m and a depth of more than 1 m. The northern ditch has a maximum width of 1.6 m and is 0.6 m deep. These measurements were originally even larger and deeper, site formation processes have since homogenized the upper layer(s) of the ditches.

3 Dating by P. van den Broeke, see Schamp 2001 and Van As 2010; see also Van den Broeke 1987.

4 Wesselingh mentioned many ditch fragments situated between the settlements of which none could be dated to any period (chapter 6, note 26). Based on the excavations in Oss-Horzak where many ditches could be dated to the Roman Period, we have re-analysed the ditch fragments in Oss-Ussen and concluded that they too date to the Roman Period (Jansen in prep.).

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