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Abstract

Rāmṭek and its landscape: An archaeological approach to the study of the Eastern Vākāṭaka kingdom in central India

Harriet Ruth Lacey

This thesis investigates the development of the landscape surrounding the Eastern Vākāṭaka ritual centre of Rāmṭek in central India. The research aims to contextualise the site of Rāmṭek through the use of landscape archaeology, to explore its relationship to rural settlement and thus go beyond the existing preoccupation with the isolated study of its monumental remains. The results of the survey are used to construct a hypothetical case study for the development of the Early Historic landscape in this region. This narrative of landscape development is connected to the region's socio-economic development under the Vākāṭakas, which will be related to the wider context of Early Historic to Early Medieval change in India. The survey develops existing methodologies to suit the environment encountered on fieldwork and subsequently a preliminary approach to data analysis is presented.

Through landscape survey and ceramic seriation, broad phases of development can be determined. Based on a significant increase in material evidence from the Early Historic period, it is argued that this phase witnessed changes in religious, political and socio-economic spheres. Whilst these developments are only securely related to the over-arching Early Historic period, there is evidence to suggest that the Vākāṭakas influenced development following their establishment of the ritual site and occupation of the area as a dynastic centre. The survey results demonstrate a prosperous local economy as opposed to deurbanisation and economic decline, which is popularly associated with the period of Vākāṭaka rule. The Eastern Vākāṭaka data is then referred to the wider context of the nature of Early Historic to Early Medieval urbanism in the Indian subcontinent. It is argued that 'urbanism' may have been expressed differently in this period resulting in low-density networks of productive settlements or conurbations.

Rāmṭek and its landscape: An archaeological approach to the study of the Eastern Vākāṭaka kingdom in central India

Harriet Ruth Lacey

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List of Abbreviations

ASI	Archaeological Survey of India
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
B&R	Black and Red ware
DEM	Digital Elevation Model
GIS	Geographic Information System(s)
GPS	Global Positioning System(s)
IAR	Indian Archaeology - A review
KML	Keyhole Markup Language
Masl	Metres above sea level
MNS	Mansar Survey
NBPW	Northern Black Polished Ware
RPW	Red Polished Ware
SRTM	Shuttle Radar Topography Mission
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VMS	Vijayanagara Metropolitan Survey
WGS	World Geodetic System

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Chapter 1. Introduction

1.1. Introduction

This thesis is concerned with an archaeological investigation of the core territory of the Eastern branch of the Vākāṭaka dynasty, who ruled in Vidarbha in central India from the mid-3rd century to the end of the 5th century AD. The Eastern Vākāṭakas administered their territory in Vidarbha from two political centres in the landscape of the Rāmṭek temple complex. Rāmṭek was a regional ritual centre of the Eastern Vākāṭakas from at least the 5th century AD and is notable for its temple remains. The site's significance at this time is clearly recognised from epigraphic and art-historical evidence, yet research has faced difficulties when attempting to establish its socio-political or economic context. The fundamental aim of this research is to contextualise the religious centre of Rāmṭek in its landscape, with the aim of enhancing our understanding of the broader socio-political, economic and religious developments occurring across Early Historic India, specifically in the 4th to 5th centuries AD.

This research uses surface survey methods to evaluate the landscape around the site of Rāmṭek in order to address the central hypothesis, which seeks to challenge the historical narrative of Eastern Vākāṭaka expansion by looking for pre-existing Early Historic populations. This study considers the Eastern Vākāṭakas' economic and ritual activity in the immediate landscape at Rāmṭek, in order to assess their impact on this area.

The Vākāṭakas are often considered to have been a powerful kingdom in central India during the 5th century AD, second only to the Guptas, and are assumed to have operated from a state level. However, the nature of their organisation and kingship is not well established archaeologically, and it is not known how the polity operated through the landscape (Kulke, 2004:3; Smith, 2003). Landscapes are central in understanding cultural and political systems as they can be considered the arena through which social structures are "communicated, reproduced, experienced and explored" (Duncan, 1990:17). The Eastern Vākāṭakas moved to the Rāmṭek area to establish a new centre for ritual and royal authority and to execute their religious and

political systems in a developing landscape. Therefore the Rāmṭek landscape is key for understanding the nature of Vākāṭaka kingship and polity. This thesis aims to examine the ritual site and its hinterland as an expression of Eastern Vākāṭaka authority and ideology.

Available evidence suggests that the 3rd to 5th centuries AD witnessed crucial changes in secular and religious spheres, which has been linked to the spread of a shared ideology across large areas of India. The Guptas are perceived to have led the expansion of shared ideals, however the Vākāṭakas appear to have been instrumental in the spread of this ideology across the region under their control (Misra, 1987:643). The transformations at hand include the revitalisation of Brahmanism evidenced by the widespread and swift re-adoption of Sanskrit across large areas of India as the language of political discourse, scientific and ritual texts and literature (Goyal, 2006:28). Religious iconographies became increasingly standardised and were supported by vibrant artistic visualisation. Gupta sculpture is considered to represent the zenith of ancient Indian art and a vivid flourishing of art also occurred in central India under the Vākāṭakas (Goyal, 2006:27). At this time, the building of temples intensified, Buddhism, Hinduism and Jainism gained permanent endowments and religious centres appear to have developed as socio-economic institutions (Altekar, 1960:199). Economic transformations during the period of Vākāṭaka rule include the widespread use of permanent land-grants and the establishment of village settlements (Bakker, 2010:472; Goyal, 2009:30). The striking conformity to a set of ideals in land-grants across different dynasties indicates mutual legal systems and organisational apparatus alongside the shared ideology visible in the prevailing religious and ritual systems across India. Willis believes that this consistency could be construed as a form of political unity, which saw socio-economic and political relationships structured by ritualism (Willis, 2009).

Surprisingly little is understood about the socio-political, religious and economic transformations witnessed in the Vākāṭaka period. There is a lack of information about the situation in Eastern Vidarbha preceding the Vākāṭaka rise to power and the factors that led to their dominance (Majumdar & Altekar, 1967). Therefore, there is currently little evidence to suggest whether these developments in central India were borne from Vākāṭaka influence or whether the impetus for change pre-dates this period. Significant questions exist concerning the nature of kingship and state

formation at this time, and how organisational networks were used to navigate and formulate relationships between the ritual and political polity and the landscape, local population and production.

The Vākāṭaka ritual centre of Rāmṭek was established during this transformative time in Indian history. Rāmṭek and its environs provide an opportunity to study the *longue durée* of a central Indian landscape and to investigate the impact that the establishment of such a major religious site would have had on its surroundings. Rāmṭek forms the centre of the survey universe in an attempt to explore the organisation and development of the Eastern Vākāṭaka dynasty, given that the site is representative of royal investment and monumentality. Surface survey is aimed at assessing the impact of monumental investment in the landscape and the nature of the relationship between the ritual site and its hinterland. Power is connected to landscapes as they both reflect and direct the nature of state organisation, perceptions of authority and the establishment and legitimisation of political, economic and ritual systems. Despite their prominence in central Indian history, the Eastern Vākāṭakas appear to have been contained within a small territory in a traditionally remote area. Rāmṭek is considered a case study for landscape development under the Eastern Vākāṭaka polity, and it is hoped that survey data may be linked to concepts of kingship and the ideology held by the elite and general population.

This research originated with the British Museum's project "Politics, Ritual and Religion: State formation in early India", which aims to assess the impact of the Gupta dynasty and its extended networks on India. This project is directed towards reuniting the study of the Guptas and their partner kingdoms, following a history of separate study due to disciplinary divides and regional constraints in Indian research. Research by Hans Bakker at Rāmṭek-Mansar and by Michael Willis at Udayagiri under the British Museum, has so far attempted to broaden our understanding of royal centres of ritual and the developments of temples as socio-economic institutions under the Guptas and Vākāṭakas. The research at the Gupta site of Udayagiri can be viewed in light of Shaw's Sanchi survey and archaeological research at Vidisha, which provided evidence for the chronological development of the region and therefore the wider context necessary for considering Udayagiri as part of socio-economic development in the area. This thesis is aimed at applying this concept of

improving understanding of a religious site through explorations of the landscape to Rāmṭek, in attempts to understand its economic and ritual function.

1.2. Research questions

In order to attempt to evaluate Eastern Vākāṭakas' political investment in the landscape of Rāmṭek, the survey is aimed at achieving data which can help to characterise the nature of settlement and ritual activity in the rural hinterland. In order to establish the relationship between Rāmṭek and its surrounding landscape and to test the central hypothesis directing this study, the following research questions emerged:

1. What was the nature of ritual and economic activity across the landscape prior to the major recorded period of *c.*4th to 5th centuries AD and is it possible to trace the landscape's habitational development over the *longue durée*?
2. What is the relationship between the nascent political and ritual centre of Rāmṭek and the surrounding landscape? How did Vākāṭaka rule and the establishment of the ritual site alter or impact on the nature of settlement?
3. Does data indicate that the developments witnessed in the 5th century were an independent phenomenon generated by the arrival of the Vākāṭakas after high investment in the landscape, or did they involve the continuation of existing socio-economic/religious patterns?
4. How does Vākāṭaka investment in the landscape compare to that of the Post-Vākāṭaka periods?

In order to attempt to address the research questions throughout the course of the research, the following three components were initially defined for exploration:

1. Archaeological evidence concerning the nature of the three key sites in area; Rāmṭek, Mansar and Nagardhan.
2. Surface survey data pertaining to the spatial and temporal spread of non-urban communities.

3. Evidence related to the possible economic and ritual investment of the Vākāṭakas in the landscape, such as ceramic and habitation remains, sculpture and architecture.

1.3. Statement of research area and methodology

There is great potential for the application of landscape techniques to Indian historical archaeology and the focused survey of an area not only assists researchers in improving understanding of a specific locale, but may also inform about regional socio-political organisation. This research is concerned with the archaeological investigation of Rāmṭek and the surrounding landscape primarily through field survey, producing data which can be used to create an archaeological map of the area's development to be considered against what is known of the Vākāṭaka Kingdom from wider scholarship.

Initially published information was appraised to synthesise existing research and studies concerning the different categories of evidence related to Rāmṭek and the Eastern Vākāṭakas. By establishing the regional geographical and archaeological setting of Rāmṭek, I hope to contextualise the site and the archaeological data obtained in the immediate survey area. Chapter two will provide an overview of the Vākāṭaka polity and the current state of the art to establish prominent trends in research and ascertain the position of the current study in the context of existing scholarship. Chapter three will then provide a brief overview of the geographical and anthropogenic context of the survey region followed by a summary of archaeological inquiry at the sites of Rāmṭek, Mansar and Nagardhan.

The connection between landscapes, monumentality and power will be introduced in chapter four to demonstrate how landscape archaeology can aid our understanding of political processes of expansion, integration, and control. Furthermore, as this current study follows a long history of landscape archaeological research across the Indian subcontinent, Chapter four will briefly comment on the main methodological approaches previously undertaken. This will lead into a discussion of the methodology used in this research. The research design will be outlined in chapter five, which includes both the overview of the field seasons of pedestrian survey and

the analysis of the ceramics. One method of data collection and analysis for the study of the ceramic assemblage is presented here and this represents an initial attempt to approach the landscape and characterise the resulting material remains in the absence of previous research in the hinterland of the central site.

The fieldwork involved archaeological survey investigating the nature of rural settlement within a 10km radius from Rāmṭek hill. This thesis focuses on a defined geographical area in order to characterise the landscape of a key site in central India and reflect on the regional development of one dynasty, which may then be related to broader trends of state expansion and governance. The basic methodology was pedestrian survey which involved the collection of archaeological remains, recording of sites, features and sculpture, and use of GPS and GIS technology. Sculptural and architectural findings were recorded and the ceramic assemblage collected to provide evidence relating to economic and religious activity in the landscape. This survey provided the primary data to compare with published research in order to establish to the extent of Vākāṭaka impact on the landscape.

Chapter six evaluates the success of the methodology and the general overview of the results, referring to the different datasets utilised and the approaches employed. This chapter also introduces the working chronology of the project prior to a more in-depth consideration of the major categories of remains identified during survey. The potential for land-scape survey to characterise development in an area is demonstrated by the successful collection of archaeological data related to rural activity. Chapter seven focuses on the results of the ceramic analysis, which provides the basis for discussions of the economic nature of the landscape. Following the collection of data, remains were considered spatially and temporally to indicate the Vākāṭaka impact on the landscape compared to other periods. Chapters eight and nine focus on the economic and ritual landscape respectively in order to inform us about the scope of Eastern Vākāṭaka polity. These two spheres of activity are interconnected, particularly as religious ideology is said to have structured the political and economic relationships of the Gupta Vākāṭaka age (Willis, 2009:9). However, separate discussions are utilised to ascertain the level of investment by the Vākāṭakas given the quantity of findings.

Chapter ten will synthesise the evidence regarding the economic and ritual function of the site of Rāmṭek and its hinterland in order to theorise about the extent of Vākāṭaka influence on the landscape. This chapter will compare the fieldwork data to wider concerns, such as the nature of state formation and organisation and kingship, to achieve a more holistic view of the Vākāṭakas and their activity in the Rāmṭek area. This will conclude with a comment on the original hypothesis of this research and test the historical narrative of Vākāṭaka expansion.

1.4. Conclusion and outline of thesis structure

In this study, it is argued that there was great Early Historic development around Rāmṭek compared to the previous periods. The evidence at the key sites and the pattern of rural habitation seem to imply an agricultural economy focused on royal and ritual activities. Despite being the central area of an important dynasty there does not appear to have been a highly urbanised and centralised core, and it is possible that the Eastern Vākāṭaka dynasty was organised loosely to exploit the landscape. This could be akin to a 'node and network' state organisation or a 'kingly reading' of landscape, which establishes a political ideology and legitimates authority alongside enabling flexibility in territorial control.

The evidence from the survey is limited by the constraints of the project, and although it may be used to reflect on our questions surrounding the Vākāṭakas and Early Historic central India, the conclusions presented here are necessarily preliminary and conjectural. It should be acknowledged that our understanding of the period is still limited and there remains considerable scope for further research; the study presented here acts as the necessary foundation for more in-depth research and I welcome challenges or additions to the conclusions presented here.

Chapter 2. The history of research and state of the art: The Eastern Vākāṭaka dynasty

2.1. Introduction

The following chapter seeks to provide background to this research by summarising the general historical development of Vidarbha in central India, to enable comparisons between the results of the current research and the regional archaeological context. Firstly, this chapter presents a broad historical framework of Vidarbha leading up to the establishment of the Vākāṭaka polity. The Vidarbha region (Lat. 19 21'N and Long. 76 80' 30'' E) is located towards the east of Maharashtra and is one of five 'geo-cultural units' which form the large state, alongside Konkan, Desh (Western Maharashtra), Marathwada and Khandesh (Dikshit, 1986:152). Vidarbha's natural resources and strategic location in central India appear to have supported its prehistoric and historical development and a long history of occupation is known from the regional archaeological research. Vidarbha's location between north and south India seems to have exposure the region different political and cultural influences while its separation from the Indo-Gangetic plain by hills and jungle added to an environment enabling the development of a distinct regional character (Raychaudhuri, 1960:12).

The majority of this chapter is dedicated to a historical narrative of the Vākāṭaka dynastic history (For further details see Bakker (1997)). This will establish what is known about the socio-political and economic structure of the Vākāṭaka dynasty in order to contextualise the discussion of the specific archaeological remains found around Rāmṭek in the following chapter. This also serves to introduce what is known from the Vākāṭaka polity in terms of political administration and kingship, as this research seeks to broaden our understanding of the Eastern Vākāṭaka state and the function of the site of Rāmṭek. Finally, a brief summary is presented to reflect on the works of the key scholars connected to the study of the Eastern Vākāṭakas in particular. This aims to establish the current state of the art, which informs our

understanding of the Gupta-Vākāṭaka period in central India, and aids in situating the current study in the history of research.

2.2. Regional historical development of Vidarbha

2.2.1. Vidarbha prior to the Vākāṭaka period

Archaeological investigations have demonstrated a long and varied history of human occupation in Vidarbha, currently demonstrated as originating with Stone Age sites located primarily in the fertile river basins (Nath, 1991:93). Vidarbha's regional development is particularly notable in the presence of a transitional Mesolithic to Chalcolithic phase, followed by a distinctive Chalcolithic tradition leading up to the beginning of the Iron Age (c. 2000 to 1000 BC) (Nath, 1991:93). "Sub-regional" Chalcolithic traditions have been identified across Maharashtra and the Vidarbha Chalcolithic displays distinctive cultural assemblages, including an atypical painted pottery tradition as demonstrated at the sites of Adam and Arambha (Dikshit, 1986:14; Nath, 1991:93; 1992b:71). Despite this regionality, Vidarbha Chalcolithic sites reveal a pattern of emergent developments, which appear to be precursors to Iron Age social and economic systems (c. 8-7th to 4th century BC) (Shinde & Deshpande, 2015:45). Remains of structures, copper work, weaponry and tools at Chalcolithic sites suggest some level of sedentary settlement supported by diverse subsistence strategies, including developing cultivation, pastoralism and hunting and gathering (Dikshit, 1986:14). The size and complexity of settlements has also led scholars to suggest that communities were socially differentiated and that the presence of 'chiefdoms' can be construed from the material evidence (Dhavalikar, 1988; Morrison, 1995:207).

Agricultural settlements are suggested to have emerged as early as the 8th century BC, and a clear Iron Age tradition existed which followed on from, and occasionally overlapped with, Chalcolithic remains (Chakrabarti & Lahiri, 1994:23; Parashar-Sen, 1999:163). The Megalithic tradition - the use of specialised burial monuments associated with a common ideology - developed alongside Iron Age society from the early first millennium BC, persisting up to the Early Historic period (Park & Shinde, 2013:3823). The earliest emergence of Megaliths occurred in South India

contemporary with Neolithic traditions, with a later spread into Vidarbha. 86 out of a known 91 Megalithic habitation sites in Maharashtra were located in Vidarbha (Mohanty & Walimbe, 1993). The higher numbers of Megaliths towards the East of Vidarbha, compared to more limited evidence in the Western Deccan, has been suggested to be associated with the area's rich natural resources (Gullapalli, 2009:443; Parashar-Sen, 1999:163; Thakuria, 2014:652). A rise in site number during the Vidarbha Iron Age indicates there was an increasing population and recent research into Iron Age/Megalithic habitations has identified a complex and varied economy. Iron Age communities appear have practised both agricultural and hunter-gathering activities, and were engaged in developed goods production (Mohanty & Joshi, 1996).

Archaeozoological and archaeobotanical evidence indicates that there was an increasing level of animal husbandry and cultivation at certain sites, including Adam and Bhagimohari, which contain evidence of domesticated barley, wheat, lentil and rice (Kajale, 1989; Mohanty & Walimbe, 1993). Suggestions of a developing agricultural economy are supported by finds of iron implements and agricultural tools, such as quern stones. The wide range of artefactual evidence connected to the Iron Age demonstrates that there were clear advances in metal work, lapidary and ceramics, which suggests the existence of specialised craftsmen (Deo, 1985). There are indications that some sites were centres for specific production; for example, specialist bead manufacture at Mahurjhari (Deo, 1973). Exchange would have been facilitated by the increased production and surplus which arose with the intensification of agriculture, craft specialisation and the development of iron technology. Trade is indicated by finds of non-local material such as gold, and marine shell artefacts at inland sites (Mahapatra, 1995:50; Sankalia & Dikshit, 1952). Suggestions of local exchange between sites are supported by the presence of artefacts such as iron implements at Mahurjhari, Khapa, Gangapur and Borgaon, which were found to have originated from an iron-smelting furnace at Naikund (Gogte, 1982; Gogte, *et al.*, 1984). Evidence of local and long distance exchange suggests a need for social coordination and administration. Material remains connected to Iron Age socio-political organisation in Vidarbha are found in the identification of ramparts at larger sites, such as Adam and Pauni, and the large-scale presence of iron weapons (Deo & Joshi, 1972; Nath, 1992a). It has been theorised

that, on a local level, communities began to restructure into differentiated settlements leading to a hierarchy of habitation sites.

The size of several major settlements, such as Adam, viewed alongside the archaeological evidence of relatively advanced agriculture, craft specialisation, defence strategies and long distance trade, may indicate that the beginnings of early state formation and urbanisation emerged prior to the Early Historic period (Morrison, 1995:208). The process of Early Historic urban growth across India is connected to the political consolidation and economic change associated with the formation of kingdoms known as *janapadas* in the first half of the first millennium BC (Agrawala, 1953; Thapar, 1990). *Janapadas* developed to have more defined boundaries as local chiefs became more akin to territorial monarchs in competition for territory (Ghosh, 1973:32). In North India around the 6th to 4th centuries BC some of the *janapadas* developed into larger, organised polities called *mahajanapadas*. On the Gangetic plain during this period, one of the largest *mahajanapadas,* Magadha, appears to have become dominant and brought large areas of North India under the control of the Mauryan Dynasty (c. 320 to 180 BC) (Banerji, 1933). Magadha appears to have been "agriculturally rich" and supported by a high population density, and its initial spread of power and control across neighbouring areas was achieved through conquest and annexation (Thapar, 2000b:467).

The Early Historic period is defined by important political and socio-economic changes, which include the inception of written records, the emergence of urban centres often with defensive structures, increased use of materials such as brick, metal currency, the appearance of characteristic ceramics (notably Northern Black Polished Ware (NBPW)) and institutionalised religion (Morrison, 1995:206). Central Indian polities appear to have developed later than those in the Gangetic plain and it is often suggested that historic developments were transmitted to the central region from the North due to archaeological evidence of contact; long-distance contact and exchange with the North is supported by the presence of NBPW, Brahmi script, characteristic artefacts, punch-marked coins and Buddhist structures in Vidarbha (Morrison, 1995:204). Vidarbha bears evidence of intensified trade and the spread of Buddhism across the Peninsula, but there is no evidence to suggest that the Mauryan Empire wielded direct control over this region (Thapar, 2000a:428-430). Rather, archaeological evidence at sites in central India suggests that local state organisation

operated independently. Mauryan contact with central India may have been related to attempts to access raw materials and control the major trade routes through the Peninsula, such as the Dakṣiṇāpatha (Thapar, 2000b:474). Comprehensive studies of the 54 sites with Mauryan Aśokan edicts across India demonstrate that their extent is not analogous with the territory and control of the Mauryan Empire (Fussman, 1988). Rather, it seems that as well as being declarations of Buddhist values, the Aśokan edicts were monumental symbols of authority linked to state-level interactions and attempts by the Mauryan Empire to integrate diverse communities (Falk, 2006).

Both the Chalcolithic to Iron Age transition and the Iron Age/Megalithic to Early Historic transition display a great deal of continuity. As the central Indian Early Historic does not appear to represent a complete transformation from previous Megalithic society, it should be explored within the context of existing social complexity (Morrison, 1995:207-208). According to the excavators at Adam, the pre-Early Historic periods presented brick structures, tiles, ring/brick wells and a public drainage system, while at Bhon there were also extensive structural activities, including a brick canal and an early stupa thought to date to the 3rd century BC (Deotare, *et al.*, 2007:184; Mahapatra, 1994:63; Mahapatra, 1995:45). However, there was an expansion of settlement in Vidarbha during the Early Historic period and archaeological evidence reveals an increasing number of features which suggest the evolution of "unambiguously" urban sites for the first time (Chattopadhyaya, 2003b:28; Parashar-Sen, 2008:329). Archaeological, numismatic and epigraphic evidence suggests that throughout the overarching 'Mauryan' period dominant local powers ruled Vidarbha, thus suggesting a form of local administration was responsible for coordinating exchange and construction.

Following the collapse of the Mauryans, several powerful ruling families emerged across the subcontinent during the first centuries AD (Ray, 1987:97). Within central India and Vidarbha, the Sātavāhanas appear to have risen from a local power base to form a significant polity from the mid to second half of the 1st century BC until the early 3rd century AD (Morrison, 1995:209). The Sātavāhana period was the first time that indisputable evidence of large urban sites, state authority and established religious practice can be extended to central India (Morrison, 1995:210). Much is still unknown about Sātavāhana administration, economy, territorial extent and chronology. Further archaeological research is necessary for a better understanding of

the political and socio-economic developments which occurred across peninsular India during this period, however evidence does demonstrate that "political unity" under the Sātavāhanas resulted in greater uniformity of material culture.

Sub-regional economies seem to have become increasingly based on the expansion of trade, production and agriculture (Parashar-Sen, 2008:328; Sinopoli, 2006:332). Archaeologists have identified a change in settlement pattern at this time, as sites appear to have shifted from upland areas towards the river valleys of the Wainganga. This has been connected to the expansion of an agrarian economy and archaeological evidence of urban sites in regional networks (Sinopoli, 2001:173). In Vidarbha, 'urban' life has been demonstrated at this time at sites such as Brahmapuri, Paunar, Pauni and Kaundinyapura (Margabandhu, 1985). Sites in central India developed at key trading points along routes and there is significant evidence of short and long-distance trade, both inter-regionally across the subcontinent and with the Mediterranean (Ray, 1986:31; 1987:94). A highly monetised economy is clearly demonstrated by the huge quantity of coins found at Sātavāhana sites and would have fed into this trade system (Ray, 1985:28).

It is clear that there was a significant relationship between Buddhist monastic sites and major routes of movement and trade; Buddhism appears to have been highly integrated into the Sātavāhana economic system and was involved in social and institutional change (Ray, 1986:87). Under the Sātavāhanas, the spread of both Brahmanism and Buddhism promoted new types of worship and burial practices, and it is thought that at this point that the Megalithic tradition declined (Ray, 1999:203). Despite Sātavāhana allegiance and patronage to Brahmanism, Buddhism prospered during their reign through the donation of non-permanent land-grants to religious beneficiaries, leading to a great increase in the number of monastic sites (Sinopoli, 2001:171). Political, social and economic motivations have been suggested for the state support of Buddhism, in particular connected to the creation and strengthening of regional identities and a shared ideology (Morrison, 1995:210). Land-grants to Buddhist institutions may have aided in the expansion of trade, intensification of agriculture and legitimisation of Sātavāhana rule (Ray, 1999:203; Sinopoli, 2001:172). Sātavāhana patronage to Buddhism is more visible in western Maharashtra than in Vidarbha, and it is in the West that there were more numerous pre- or early Sātavāhana Buddhist sites (Parashar-Sen, 1999:169). Evidence of

Hinayana Buddhism in Vidarbha from around 3rd to 1st century BC is known from sites such as Pauni (Deo & Joshi, 1972). Yet despite the clear Buddhist affiliation of some sites no Sātavāhana inscriptions have been identified in Vidarbha, in contrast to the numerous epigraphic records found in the Western Deccan (Deo & Joshi, 1972; Meister, *et al.*, 1988).

Despite the Sātavāhana dynasty claiming hegemony over the Vidarbha region, as demonstrated in records of their territory in inscriptions, it is unclear as to what extent the Sātavāhanas had control and directly influenced development in the region. The large number of Sātavāhana coins found in Vidarbha is not sufficient to corroborate claims of active or direct authority over this region. Furthermore, numismatic evidence, which refers to local ruling families such as the 'Mitras' and 'Bhadras', occurs in the same stratified contexts as Sātavāhana coins. Therefore, it seems that smaller local powers continued to have some authority after the Sātavāhanas came to rule (Chattopadhyaya, 2003b:30). The extent to which pre-existing urban elements were furthered by Sātavāhana activity is also debatable. A developed form of urbanism in Vidarbha under the Sātavāhanas has only been determined at a limited number of sites, such as Adam and Pauni, and few others show significant evidence of long-distance or maritime trade (Sawant, 2012:152). Within Vidarbha, it may be that Sātavāhana rule was too short-lived to promote any significant socio-political or economic change from the preceding period, or that the Sātavāhanas exploited the resources of the region but did not directly develop Vidarbha as a part of their empire (a similar proposition to the potential relationship between the Mauryans and central India) (Sinopoli, 2006:331; Sugandhi, 2008).

The chronology and organisation of the Sātavāhana dynasty is still contentious and epigraphic evidence suggests the picture of their rule was complex with different members of the family maintaining contemporary rule over "provincial centres" (Falk, 2009). Numismatic evidence suggests that at least three rulers of the Sātavāhana dynasty reigned within Vidarbha after c. 225 AD when Sātavāhana dominance in other regions collapsed (Shastri, 1987:43). Following the decline of the Sātavāhana state, local rulers again grew in power, leading to a complex of fluctuating "political entities" prior to the rise of the Vākāṭaka dynasty (Majumdar & Altekar, 1967:94; Smith, 2001b:19). Limited archaeological data is available to elucidate the socio-economic and political position in Vidarbha prior to Vākāṭaka

rule, leading to little understanding of the conditions which led to their rise to power (Sharma, 1987:179-182).

2.2.2. The Gupta-Vākāṭaka Period

The Vākāṭakas were the dominant power in central India from the mid-3rd to the end of the 5th century AD and were the first central authority to rule over and develop Vidarbha as a 'core' dynastic seat. The Vākāṭakas were the key partner kingdom of the Gupta Empire, which was gaining power in the Gangetic plain to the north during the same period (Bakker, 1989b:467-468). The Gupta-Vākāṭaka period is characterised by state formation and imperial and regional development. Great socio-economic and political transformations occurred alongside agricultural expansion, investment in structural religious architecture and "Brahmanisation" of peripheral areas (Kapur, 2006:14). However, research is still debating the nature and character of state formation during this period, including that of the most powerful dynasty, the Guptas. Virkus has suggested that the Gupta Empire was "loosely structured", rather than an expansive, tightly centralised imperial power. This decentralised structure is suggested to have been a "deliberate policy" to extend indirect control over a wide area rather than being connected to instability (Virkus, 1992:255). The success of the Gupta Empire in maintaining this control was connected to a system of great "political and administrative uniformity" so that regional socio-economic and political structures were subsumed within a strong state apparatus of institutions directed by the Gupta kings (Virkus, 1992). The inscriptions of the Guptas and their partner kingdoms suggest that the subordinate kings operated autonomously, implementing their own state apparatuses, but generally were restricted to governing smaller territories. The nature of the relationship between the Vākāṭakas and the Guptas has been a source of ongoing debate; certainly, the Vākāṭakas, Guptas and other contemporary dynasties including the Kadambas of Karnataka and the Viṣṇukuṇḍins of Andhra Pradesh were tied by matrimonial relations (Kulke, 2004:1).

The Vākāṭakas are referred to in Purāṇic evidence as the 'Vindhyaka' dynasty, founded by Vindhyaśakti I, which has led scholars to generally believe that they originated from the Vindhyan region of Madhya Pradesh (Shastri, 1997). While details of the Vākāṭaka genealogy are fairly well known from epigraphic evidence,

our understanding of the broader political context of the Vākāṭaka kingdom prior to their establishment in Vidarbha is not as developed. The Vākāṭakas are thought to have expanded southwards from around the mid to late 3rd century AD, with their initial move from their dynastic origin suggested to relate to the expansion of the Guptas to the north (Bakker, 1997:10; Shastri, 1997:221).

Following the rule of Pravarasena I (c. 275-335 AD), son of Vindhyaśakti I, it appears that the dynasty split into several branches, of which two are known. For this research they are referred to as the Eastern and Western Vākāṭakas, after Bakker (1997). This split has been suggested to relate to territorial expansion, with Pravarasena appointing his sons to rule different provinces, which then became independent following his death (Altekar, 1960:163). The territory of the Eastern Vākāṭakas extended across Eastern Vidarbha with a centre at Rāmṭek-Mansar, while the Western Vākāṭakas controlled Southern Vidarbha, parts of Marathwada, Khandesh and perhaps northern Karnataka and the Konkan, from a capital at Washim/Vatsagulma. Despite the two ruling branches having distinct identities, they were connected throughout their political and cultural history (Bakker, 1997:3). There are various theories regarding the organisation of the Vākāṭaka kingdom; it has been claimed that one branch was consistently dominant, that each periodically suppressed the other and that the branches operated independently (Kulke, 2004:2). There is little evidence to suggest that either branch actively sought supremacy, but neither do inscriptions explicitly portray a “united dynasty” (Kulke, 2004:2). At various points in time, changing factors may have favoured the superiority of one or other of the branches. Based on archaeological and epigraphic evidence, the Eastern Vākāṭakas appear to have been more prominent in the first half of the 5th century, but sometime in the mid to late 5th century the Western Vākāṭakas came to prominence under King Hariṣeṇa (Bakker, 1997). Despite uncertainty as to whether the Vākāṭaka kingdom existed as a single unit, it is clear the branches had separate centres of activity, distinct artistic and cultural influences and differing religious patronage and political affiliations (Misra, 1992:171).

The different availability and quality of evidence for the Western and Eastern polities has partly directed our current understanding of each branch, and there are few comparative studies beyond those attempting to construct king lists and the overall dynastic chronology. Studies on the Western Vākāṭakas provide less information

about their administration and attention is mostly drawn to their artistic prowess at Ajanta, while economic studies are almost exclusively focused on the Eastern Vākāṭakas due to the higher numbers of copper-plate inscriptions. Alongside a lack of understanding of Eastern and Western Vākāṭaka relations, fairly little is known about the relationship between the Vākāṭakas and other regional powers, but inscriptions do not suggest any rivals existed in Vidarbha (Bakker, 1997:14; Shastri, 1997:221).

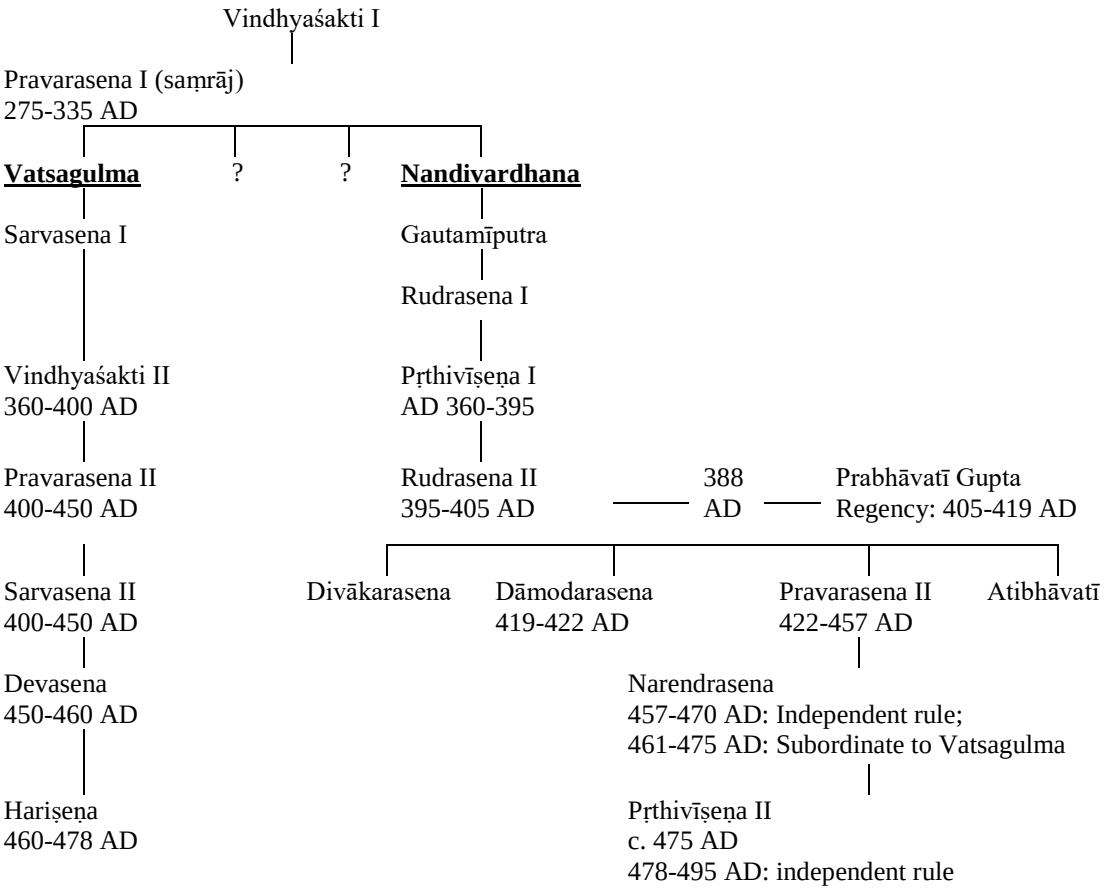


Figure 2-1. Genealogy of the Vākāṭaka dynasty with key dates, after Bakker (1997).

2.2.2.1. The Western Vākāṭakas

Sarvasena I was the founder of the Western Branch based at Vatsagulma in District Akola of Vidarbha. Vatsagulma appears to have been the only state capital and was a pre-existing site for pilgrimage (Shastri, 1997:197). Mirashi notes that under the

Vākāṭakas, the site was elevated to become a "great centre of learning and culture" as well as one of religious significance (Mirashi, 1963:xxix). This area of Vidarbha formed an important link between the North and the South of India, and the vital trade routes passing through would have brought traders with Buddhist interests (Meister, *et al.*, 1988:62). The Western Vākāṭakas appear to have practised religious tolerance and did not restrict patronage within their kingdom so that merchants and officials were able to fund Buddhist monasteries (Bakker, 1997:45). Furthermore, the Śaivite king Hariṣeṇa has been accredited with the development of the famous Buddhist caves at Ajanta (Meister, *et al.*, 1988). However, no structural temples attributed to the Western Vākāṭakas has been conclusively identified (Meister, *et al.*, 1988:75).

Based on the quality and quantity of archaeological and epigraphic remains it seems that the Western branch was less influential or subordinate to the Eastern branch of the Vākāṭakas until around the middle of the 5th century AD (Bakker, 1997:15). The epigraphic evidence related to the Western Vākāṭakas is particularly limited. A set of plates were issued by Vindhyaśakti II from his capital at Vatsagulma and record the donation of a village, Nanded, in Maharashtra (Mirashi, 1963:xxix). However, the only evidence for the successors to his throne can be gleaned from genealogical portions from an inscription of Devasena (Bakker, 1997:31). Devasena issued the Bidar plates which record a land-grant and reveal the Western Vākāṭakas' "growing importance and self-confidence" later in their dynastic history (Bakker, 1997:33). Devasena was also responsible for the Hisse-Borala inscription which is particularly significant in providing the sole chronological reference which can be related to known periodisation (Bakker, 1997:32). Dated to 380 of the Śaka Era, around 457-8 AD, the inscription records the construction of a water storage area called Sudarśana (Shastri, 1992a). The increasing prosperity of the Western Vākāṭakas around this time is recorded in the Ajanta cave inscription of Varāhadeva, which notes the dedication of a cave to the Buddhist Sangha (Bakker, 1997:34). Interesting information has been gleaned from the Ajanta inscription as it is claimed that Devasena entrusted the governance of his kingdom to officials (Mirashi, 1963). Western Vākāṭaka texts are dissimilar to the Eastern Vākāṭaka inscriptions as they tend not to extol the kings' leadership but rather indicate that courtiers and ministers managed day-to-day government so that the king led a more leisurely life (Bakker, 1997:44).

Devasena was succeeded by Hariṣeṇa (c. 460 AD) who is the last known king of the Western Vākāṭakas. Hariṣeṇa practised a policy of expansion and his only inscription demonstrates a tonal change to praise of the king's military prowess and his ability to conquer the surrounding lands (Bakker, 1997:34). Hariṣeṇa's expansion allowed him to take control of the North-South caravan route and to increase the Western Vākāṭaka wealth by "plundering" rich territories (Bakker, 1997:45). Furthermore, his authority appears to have been extended over the agricultural and resource-rich areas of the Eastern Vākāṭaka kingdom, where king Narendrasena is theorised to have lost his sovereignty (Spink, 2005:7). The period of Hariṣeṇa's reign is when the Western Vākāṭakas are particularly known for their religious and artistic investments through the excavation of caves at Ghatotkacha, Bagh and Ajanta. Several scholars have claimed that the Mahayana developments at these sites were stylistically comparable and therefore contemporaneous (Meister, *et al.*, 1988:74). Bakker theorises that after the loss of power in the Eastern kingdom, artisans sought new patronage and may have migrated towards Vatsagulma, where they contributed to the development of the Ajanta caves (Bakker, 2008c). There are similarities between the temple decoration and iconography at Rāmṭek and Ajanta (Bakker, 1997:41; Meister, *et al.*, 1988:75). Unfortunately, the success of the Western Vākāṭakas was not to last and they appear to have weakened under pressure from the growing power of the Aśmakas. With the collapse of Hariṣeṇa and Western Vākāṭaka authority, the Eastern Vākāṭakas once more became preeminent.

2.2.2.2. The Eastern Vākātakas

In the East of Vidarbha, Gautamīputra predeceased Pravarasena I, and so the first king of the Eastern branch was Rudrasena I, around 330 AD (Mirashi, 1963:xxi). The Vākāṭakas took control of former Sātavāhana territory having moved to south of the Narmada River following potential Gupta pressure in the Vindhya region. The Eastern Vākāṭakas founded an administrative centre at Padmapura, the location of which is still debated but is possibly Paunar in District Wardha (Shastri, 1997:218). A copper-plate charter of Rudrasena II identified at Mandhal shows that the area around Mandhal, Pauni and Deotek was an important centre in this early Vākāṭaka period.

The Mandhal temples are also the earliest identified to date, as stratigraphy indicates occupation from the last quarter of the 4th century AD (Bakker, 1997:17).

Pṛthivīṣeṇa I succeeded his father around 360 AD and was gloriously eulogised in the land-grant tradition, which appears to have gained importance at this point. Pṛthivīṣeṇa I is praised for his various qualities such as courage, compassion, truthfulness, charity, integrity, wisdom and political acumen, and is recorded as being a pious devotee of Maheśvara (Bakker, 1997:14). Pṛthivīṣeṇa's apparent policy of peace is shown in Vākāṭaka texts which refer to him as having had "a supply of treasure and army which had been accumulating for a hundred years" (Mirashi, 1963:xxi). Pṛthivīṣeṇa appears to have established peace with the Gupta king Candragupta II following a period of conflict within the imperial territory (Bakker, 1997:15).

The Eastern Vākāṭakas' status as a regional kingdom is thought to have been raised by the marriage of Candragupta's daughter Prabhāvatī Gupta to Rudrasena II. Prabhāvatī Gupta later became the regent of the Eastern Vākāṭaka kingdom following Rudrasena's death (c.405AD to c.419AD) and continued to rule alongside her son Pravarasena II until approximately 20 years into his reign (Kulke 2004:8). During this period, scholars present the Eastern Vākāṭaka and Gupta relationship as generally amicable despite the balance of power resting with the Guptas; Bakker believes that a cordial relationship "contributed enormously to the material and cultural flourishing" of the Eastern Vākāṭakas (1997:15). As Prabhāvatī Gupta was the daughter of Candragupta and a princess of the Nāga dynasty, this marital relationship created political ties between the Vākāṭaka kingdom in Vidarbha, the Guptas in the north and the previous territory of the Nāgas around Udayagiri-Vidisha (Bakker, 2010:465). Kulke has proposed that Gupta influence encouraged key developments within the Vākāṭaka kingdom, such as the increased use of copper-plate inscriptions and the foundation of Rāmṭek as a state sanctuary. Bakker has suggested that Prabhāvatī Gupta was influenced by the Gupta reshaping of Udayagiri into a holy place under Candragupta II, and sought to construct her own "holy mountain" on Rāmṭek hill (Bakker, 2002:3; Willis, 2009).

It is unknown how long Padmapura remained capital, but in the 13th year of Prabhāvatī Gupta's regency, inscriptions point to a new capital at Nandivardhana,

identified with modern Nagardhan close to the central religious site of Rāmṭek. Despite their initial prominence, the Eastern Vākāṭakas established their new state capital at Rāmṭek in, what is often considered, a newly-developing, inland and 'peripheral' location, away from the long-standing established sites located along river systems and trade routes which previously formed the centre of Sātavāhana control. The nature of this move within the Eastern Vākāṭaka kingdom is not known, but it has been speculated to be connected to the economic changes occurring under their rule. Nandivardhana remained the capital until at least the 11th year of the reign of Pravarasena II, when the charters began to be issued from nearby Pravarapura. The majority of inscriptions are known from Pravarasena II and seem to attest to a period of peace and prosperity, as evidenced by royal investment into the monumental constructions on Mansar hill. Bakker suggests that the source of the Eastern Vākāṭaka prosperity came from their exploitation of the land around Nagpur and the Wainganga plain where their territory was focused (Bakker, 1997:23).

This period of peace appears to have ended contemporary with Skandagupta's war of succession in the North and alongside shifts in power across the regional dynasties. The Rāmṭek inscription accounts event where Pravarasena II ventured across the Narmada to forcibly return his sister, Atibhāvatī, to her dynastic home following the death of her husband, Ghatotkacagupta, a rival to Skandagupta. Prior to this expedition to the North, Pravarasena seems to have attempted to secure his realm through developing an alliance with the ruler of Kuntala, an enemy of Vatsagulma (Bakker, 1997:27). Shortly after, Pravarasena II was succeeded by his son Narendrasena, who appears to have followed a more forceful and expansionist policy. The Balaghat inscription of his son Pṛthivīṣeṇa II claims that Narendrasena "subjugated the enemies" and gained areas of eastern Malwa, which had previously been under Gupta administration (Mirashi, 1963:xxv). At the beginning of his reign, Narendrasena seems to have been taking advantage of the advances of previous rulers and the breakdown of Gupta relations, however according to the Mandhal Inscription of Pṛthivīṣeṇa II, "the royal fortune of Narendrasena's house was taken away by a kinsman" (Mirashi, 1963:xxv). This is assumed to refer to Devasena and later Hariṣeṇa of the Western branch. Archaeological and architectural evidence goes some way to support this loss of power as following high levels of visible earlier material in

the Eastern kingdom, there was a swift reduction in remains concurrent with Narendrasena's reign (Bakker, 1997:40).

Under Pṛthivīṣeṇa II, the Eastern Vākāṭakas experienced a re-establishment of power. This king is described as the "resurrector of the sunken family" and increased references to military ventures occur in epigraphic records (Bakker, 1997:50). Pṛthivīṣeṇa II appears to have reasserted Eastern Vākāṭaka authority at Nandivardhana towards the end of the 470s (between 478 and 492 AD) and again began to re-issue charters from Rāmṭek.

2.2.3. Evidence of the socio-economic and political system of the Vākāṭaka dynasty

It is generally assumed that the place of issue of a Vākāṭaka copper-plate charter denotes the capital at the time of the inscription. If this is an accurate supposition, the Eastern Vākāṭakas, for whom we have the majority of inscriptions, seem to have shifted capital frequently (Shastri, 1997:213). The possible geopolitical reasons behind the shifting of capitals can only be conjectured. It may be that the Vākāṭakas' attitude towards territory, expansion and movement was more akin to a node-and-network approach as opposed to attempts to maintain a stationary, centralised state (Smith, 2007). The traditional view of states as being defined by delineated frontiers may risk concealing the complexities of state formation, including relationships with other powers, access to raw materials, changing population, and the relationship between centres and peripheries (Smith, 2007:28). In a node-and-network system, territory consists of flexible networks of "resource-rich nodes" which would have been linked by "corridors" of access. Thus, the boundaries of a polity may have been defined by a number of different factors and subject to change as they were moulded by the area of "unutilised" land and fluctuating episodes of competition with other regional polities (Smith, 2007:28).

During the 4th and 5th centuries AD, copper-plate land-grants occurred in significant numbers as part of a land donation process (Ali, 2004). Formal land-grants were not a new phenomenon; they existed in both the Mauryan and Sātavāhana periods, and there are references to very early grants which may have involved a pre-existing

system of palm leaves/birch bark (Maity, 1970:62). However, land-grants became a major trend under the Guptas and Vākāṭakas. This apparent phenomenon may partly be a result of visibility, as land-grants became permanent and standardised and thus are more easily identifiable than those which may have perished in the archaeological record. There are known cases of copper-plate charters being issued to replace earlier ones written on materials such as palm leaves, which had become damaged or destroyed, such as the Yavatmal plates of Pravarasena II (year 26) (Shastri, 1997:96). The donation of land or villages, primarily to Brahmanas, appears to have served a political function as well as being part of a developed system of religious patronage (Bakker, 2010:472). Evidence from land-grants and copper-plate inscriptions has enabled researchers to ascertain political and economic administrative information for the Vākāṭakas. However, the majority of the copper-plate land-grants discovered to date belong to the Eastern Vākāṭakas and so much of this information is specific to one branch of the dynasty. Furthermore, the nature of the co-existence between the kings of the various branches and their separate economies and forms of governance has not yet been ascertained.

Early studies of the Vākāṭakas frequently referred to their great imperial status based on epigraphical rhetoric which applauded the virtues of the kings and the kingdom's successes (Bakker 1997:14). However, it would be wrong to make assumptions about the extent and power of the Vākāṭaka kings using this information alone and in reality the available evidence supporting such a proposition is relatively limited (Misra, 1987:644). If the sites where inscriptions were found are an indicator of the extent of the kingdom occupied by Eastern Vākāṭakas then it appears that their reach was fairly contained within the fertile land of the Wainganga plain, which underpinned their economy (Bakker, 1997:23).

It has been established that the dynastic king led the government, and that the Vākāṭakas followed a hereditary right to kingship (Altekar, 1960; Ghoshal, 1954). The Vākāṭakas appear to have followed the guidance of the Arthaśāstra, which encouraged the king to "adopt the customs, dress and language of the region he rules", respect the local rituals and deities and then grant land, benefits and exemptions to learned and pious men (Willis, 2009:159). Copper-plate inscriptions are informative about political administration as they mention various categories of officials, but there are scarcely any references to the local or regional administration

process. Accordingly scholars have often focused on unravelling the Vākāṭakas' administrative framework, given the absence of detailed information on their wider economic or political impact. It appears that particularly during the rule of Pravarasena II, the Vākāṭaka kingdom had an effective administration, if the inscriptional references to officers equate to a representative sample (Kulke, 2004).

Etymology suggests that the Vākāṭakas founded village settlements in the Eastern territory on a fairly large scale which may have resulted in a rise in agricultural production (Misra, 1987:645). The attention paid to record-keeping and the delineation of village boundaries in the copper-plate charters suggests the importance of land and territory (Maity, 1970:45). Researchers have established that the Vākāṭakas had at least a basic system of land measurement (the *nivartana*) and a means of "territorial administration" and revenue collection (Misra, 1987:644). There has been much discussion attempting to determine settlement hierarchy based on size as inferred from the various suffixes on place names in the inscriptions. A schema has been loosely identified as the charters suggest a territory was divided into *rāshtras* (divisions) then *vishayas* (districts), which were subdivided into *āhāras* or *bhogas* (cities, towns and villages). Cities and towns generally ended with *-nagara* or *–pura* while villages were primarily *-grama* (Mirashi, 1963:xxxv). However, there has been difficulty identifying sites and relating epigraphy to archaeological evidence (Misra, 1987:643).

There is little information about village administration in Vākāṭaka records and few references to local people within the settlements beyond the identification of cultivators (Altekar, 1960:194). The mention of *śūdra* cultivators indicates that agriculture was the primary economic activity of those villages mentioned in inscriptions, while some of the village names indicate production (Misra, 1987:645). It has been suggested that the villages in the inscriptions match Kauṭilya's vision for villages to be engaged in production for cities (Misra, 1987). Some idea of revenue is suggested from inscriptions due to the privileges and exemptions granted to the donees of the copper-plates; it appears that agriculture and animal husbandry were the main economic activities in the Vākāṭaka villages, which were inhabited by Brahmanas and cultivators (Misra, 1987:645). Many charters expressly laid down specific conditions under which the land-grants were maintained for the Brahmana donees. While residents were given the right to areas such as village pastures, the

Poona and the Riddhapur plates of Prabhāvatī Gupta and the Siwani and Chammak copper-plates of Pravarasena II imply that mines, mineral wealth and reserve forests were reserved for the state (Altekar, 1960:196; Maity, 1970:132). Both the Siwani and Chammak plates refer to exemption from forced labour along with the endowment of the land (Maity, 1970:197). Forced labour is frequently referred to in Gupta period inscriptions and appears to have been a fairly common source of state income or taxation.

The nature of 'urbanism' is not well understood during the period of Vākāṭaka rule and it appears that fundamental changes occurred within the economy. An astonishing paucity of coins in the archaeological record originally led scholars to consider that the Vākāṭakas did not mint their own coinage; a claim bolstered by the absence of references to currency in contemporary land-grants. Shrimali has suggested that the proliferation of grants indicate that land was the foundation of the economy and revenue took the place of monetary taxes (Shrimali, 1987:6; 1992; Sircar, 1969:33). Shrimali believes that the land-grants would have resulted in the increase of small-scale agricultural village settlements and a comparatively non-urban economy (1992:103). Archaeological data appears to demonstrate a relatively low number of coins in circulation towards the end of the Early Historic onwards, and a steep decline in the deposition of low denomination coinage around the $4^{th}/5^{th}$ century (Kennet, 2013:343). There is speculation that the Vākāṭakas used the coins of contemporary or preceding rulers (Goyal, 1998:176; Shrimali, 1992:103). However, the proposition that a monetised economy was absent seems unlikely given the Vākāṭakas' standing as a powerful dynasty in central India, their apparent prosperity and their interaction with the Guptas (Raven, 2004:19). Gupta numismatic evidence is well documented, and subordinate local powers issued their own coinage (Shastri, 1992b:256).

Raven has posited that "regional monetary traditions" can influence the decisions of a new dominating kingdom wishing to introduce its own currency to legitimate their authority. Thus, the Vākāṭakas may have issued coins closely resembling the lead, copper and potin coins that already existed in the Sātavāhana territory they inherited (Raven, 2004:20). Shastri has suggested that lightweight, base metal coins were used in routine 'day-to-day market transactions' and may have supplemented a cowrie currency as used in the Gupta Empire. Shastri opined that base metal coinage may in

fact represent "deep penetration" of a monetary economy and large-scale use of coins (Shastri, 1992:291). However, as yet there is no evidence of precious metal coins, which would be necessary in higher trade, and the relative scarcity of Vākāṭaka coins in archaeological contexts remains unexplained. Shrimali has noted that it is possible that the Western Vākāṭakas inherited trade links while the Eastern Branch needed to adapt to their more peripheral location and construct a rural economy. It has been suggested that trade was declining in Eastern Vidarbha around the 5th century AD and trade is not mentioned in the available inscriptions (Raven, 2004:19; Shrimali, 1992:108). This is contrary to the earlier Buddhist phenomenon where the expansion of Buddhist centres in West and Central India was "intimately linked" to a developed trade and patronage system. Few sites under the Eastern Vākāṭakas have been recorded as displaying distinctly urban traits and alongside the shift in settlement pattern to more rural areas, there is a strong case for the "promotion of a small-scale agrarian village economy" (Shrimali, 1992:107). Bakker has suggested that the Eastern Vākāṭakas had a rural economy without much emphasis on long distance trade as economic surplus would have been channelled into supporting royal and religious activities (Bakker, 1997:23).

Bakker believes the Eastern Vākāṭaka policy of donating land to Brahmanas was instrumental in the revitalisation of the Brahmanical tradition and the spread of Vedic/Śāstric rituals in the region under their control**.** The land-grants clearly demonstrate a developed system of religious patronage and the instillation of a "devotional ethos" (Bakker 2010:472). The intensification of temple-building on a large scale during this period is connected to economic and political changes and the Brahmanical revival. The cult of the temple became increasingly popular and temples began to be constructed in durable materials (Altekar, 1960:199). Buddhism, Hinduism and Jainism began to accumulate permanent endowments at this time and religious and political elites emerged as advocates and protectors of the new temple-centred order. Concurrent with the peak of temple architecture and patronage, extensive networks of religious interaction appear to have developed across the country. However, the relationships between the dominant Brahmanical tradition, Buddhism, Jainism, and periphery "tribal" (now *Adivāsi)* communities are not well understood.

Under the Guptas and Vākāṭakas, the Brahmanical iconography developed, resulting in the worship of Gods and Goddesses which are identifiable in modern Hinduism. As religious iconographies were standardised, they were supported by vibrant artistic visualisation and Gupta art and sculpture in particular is considered to represent the zenith of ancient Indian art (Goyal, 2006:27). This artistic peak is reflected in the vivid flourishing of art which occurred in central India under the Vākāṭakas. Vākāṭaka sculpture bears close similarity to the northern Gupta tradition but with certain nuances specific to the region of their control (Bajpai, 1989:103). It is this artistic "efflorescence" in sculpture, architecture and literature, which often leads to the portrayal of the Gupta-Vākāṭaka period as a Classical or 'Golden Age' in Indian history (Thapar, 1966:136).

While the architectural and sculptural development of monumental sites such as Rāmṭek Hill, and Ajanta in the Western kingdom, indicates the affluence of the Vākāṭaka kingdom, a declining urban economy has often been proposed due to the use of land-grants, the establishment of village settlements and the lack of coinage in the archaeological record (Goyal, 2009:30). However, it is contradictory to suggest the Vākāṭaka period was a Golden Age of culture and artistic achievement, and a time during which political and economic life was destabilised (Kennet, 2004b). Both scenarios may have roots in Nationalist narratives as the term 'Golden Age' label was coined to describe the distinctly indigenous and 'Hindu' appearance of the cultural efflorescence in art and architecture, while theories of a weakened state could be purported to account for the subsequent Islamic invasions and suzerainty of the Delhi Sultanate (*c.* 12th to 13th centuries AD) (Ali, 2012:7).

Sharma's urban decay theory (1987b) has been influential in the interpretation of Vākāṭaka remains as the first stage of a twofold process of decline was theorised to encompass their reign, with the second following their collapse. Sharma originally interpreted the absence or degeneration of urban attributes in Early Historic contexts as demonstrative of socio-cultural deterioration and the desertion of sites (Sharma, 1987b). To support this theory, the period of decline was proposed to coincide with descriptions of the breakdown of social order during the tumultuous 'Kali Age' in ancient literary sources, such as the Purāṇas (Jha, 2000; Sharma, 1987a; 1987b:139). Considerable emphasis has been placed on the reduction of international trade with

the Mediterranean after the 3rd century AD, which is theorised to have resulted in restricted income for Indian urban centres (Kennet, 2013:337).

Several scholars have suggested that this focus on the external influence of dwindling international trade undervalues the strength of the indigenous Indian economy and the extent of inter-regional trade (Kennet, 2013; Smith, 2002a; Thakur, 1993:98). Recent archaeological evidence suggests that trade with Western Asia and the Gulf did not suffer during the period in question and that the regional trade apparatus persisted (Kennet, 2013:349; Nandi, 2000:19; Smith, 1999). Furthermore, rather than decline and demonetisation, a change in coin minting, use and deposition could simply reflect a different form of monetisation or may be more related to coin availability and methodological and interpretative inadequacies (Bhandare, 2015:198; Kennet, 2013:345). It is also possible that denominisation during the Sātavāhana period may have flooded the market with base metal coins, and thus a residual presence of Sātavāhana coins in later stratigraphic layers may have resulted in the inaccurate dating of Gupta/post-Gupta phases as earlier and the subsequent erroneous periodisation of artefacts (Hawkes, 2014b:212; Kennet, 2004b:13).

A proposed gap in occupation around the 5th-15th centuries AD is frequently based on the absence of artefacts between preceding or succeeding habitation layers, which have been dated by the presence of 'distinctive' ceramics. However, there are considerable uncertainties regarding the dating of ceramic sequences (Hawkes, 2014b:213; Jamkhedkar, 2010:5-6). Earlier excavation reports often relied on the identification of key 'type fossils', many of which have not been independently or scientifically dated but rather have been associated with coins (Kennet, 2004b:3). Early Medieval ceramics are not well defined and there are few well-established assemblages, with the notable exception of Sanjan (Nanji, 2011). Recent re-evaluations of excavation assemblages from sites including Brahmagiri (Morrison, 2005) and Nagara (Hawkes, 2014b), have indicated artefacts may have been misidentified or misdated, and the resulting reclassification of ceramics challenges the established theory of desertion at these sites (Hawkes, 2014c:75). Furthermore, the traditional use of vertical excavations at sites has been known to miss phases of occupation if settlement shifted over time, and surface survey was not frequently employed to mediate this limitation (Hawkes, 2014b:212; Kennet, 2013:340). Reports of the desertion of sites, such as Maheshwar and Nevasa, in excavations often refers

to a lack of visible habitation remains, even if continuity of occupation is suggested by textual, sculptural and architectural evidence (Sankalia, *et al.*, 1960; Sankalia, *et al.*, 1958:22-23). Mate's study of Early Medieval sites in western Maharashtra, Vidarbha and Marathwada highlighted this trend of extant monuments juxtaposed with a lack of noticeable habitation deposits (Mate, 1990:247).

The urban decay argument has been consistently interlinked with a wider debate on economic feudalisation (Hawkes, 2014c:56; Jha, 2000:6; Kennet, 2013:333). Feudalism is generally considered to encompass agricultural economies featuring landlords and a subordinate peasant class (Heitzman, 1997:14; Sharma, 1984:17; Sircar, 1969:32-33). The concept of Indian Feudalism was connected to the broader political attempts of post-independence Marxists to fit India's development into Marx's European paradigm and thus disengage it from previous ideologies of the Asiatic or 'despotic' mode of production (Chattopadhyaya, 2003a:193). 'Indian feudalism' includes features such as the transfer of royal powers to landed subordinate rulers, forced labour (*visti*) and subjugation of peasants (Chattopadhyaya, 2003a:186; Jha, 2000:4). The feudalisation theory suggests that the land-grants of the 5th century eroded the king's sovereignty as rights over the land were relinquished through donations (Sharma, 1991:340). It has been suggested that village economies subsequently became closed, resulting in the decline of towns in the Vākāṭaka kingdom and a reduction in artisanal production and exchange (Ali, 2012:8). As self-sufficient villages expanded and the urban sector contracted, it has often been claimed that Brahmanas and skilled workers/artisans migrated to rural areas, which finds support in the grants of rural villages to Brahmanas and temples (Chattopadhyaya, 2003a:183; Sharma, 1987b:155).

The concept of 'Indian feudalism' is now normally considered to be discredited as some of the defining proceesses, such as agricultural expansion, are not considered to be inextricably associated with economic decline (Chattopadhyaya, 2003a:193). Rather, scholarly attention has started to view the king's relationship with Brahmanas as a powerful mechanism of extending royal authority (Nandi, 2000:19; Verardi, 2011:198). It is unclear what socio-political or economic climate promoted the production of land-grants and key assumptions about their meaning can be challenged; for example, it could be suggested that rather than eroding the King's land rights, the conditions and privileges attached to the grants imply maintenance of

power and a strong royal hold over the remaining territory (Kapur, 2006:31). There is little to suggest that land-grants undermined political or royal authority, particularly as the majority recorded donations to religious institutions (Heitzman, 1997:14). This tradition was employed by dynasties across the subcontinent during the Gupta and post-Gupta period, which would have been counterintuitive if the practice worked to destabilise a state's political and economic basis (Sahu, 2012:154). Furthermore, the land-grants generally involved small areas of land used by communities to maintain institutions and a relatively limited number of inscriptions have come to light despite the size of the kingdoms and their long duration of reign. As opposed to being a substantial economic investment, the land-grants may have represented a high level transaction, which would not have significantly diminished state resources (Singh, 2009:167). As markers of social and economic change the importance of the grants may have been overstated, but unfortunately we have no basis for comparison in order to establish the social value of such transactions.

It has commonly been assumed that land-grants were assigned to peripheral areas in need of subjugation in order to extend the reach of agrarian society and bring land under the plough (Chattopadhyaya, 2003a:191). However, recent research into the distribution and content of land-grants suggests that the majority were donated in areas which were already settled and cultivated. For example, the Chammak copper-plate of Pravarasena II donated land to one thousand Brahmanas in an area with an established settlement (Maity, 1970; Singh, 2009:164). Rather than generating new agricultural areas, grants to large groups of Brahmanas may have been made to consolidate or stabilise state power, encourage the maintenance of an existing agricultural zone and integrate local groups into Brahmanical society (Kapur, 2006:29; Kulke, 1978:133; 1993:5; Lubin, 2005:97). The land-grants supported the permanent foundation of religious institutions, which would legitimise royal authority and connect rural areas to regional networks (Sahu, 2001:14; Sharma, 1991:342). The distribution of discovered Vākāṭaka copper-plate charters indicates that the majority were geographically localised within dynastical core areas; for example, Pravarasena II did not issue any grants beyond Vidarbha, which suggests a process of territorial integration and legitimation during Vākāṭaka state formation (Kapur, 2006:21). The introduction of Brahmanas into existing local social and economic structures would have altered the structure of the village community, as the Brahmanas were clearly

economically dominant and socially superior due to royal patronage and assistance (Singh, 2009:167-168). Therefore the spread of Brahmanas related to the reinforcement of the religious and social order which underpinned the authority of the Eastern Vākāṭaka kings (Bakker, 1997:24).

2.2.4. The Decline of the Vākāṭakas and the subsequent Early Medieval to Medieval development of Vidarbha

The Vākāṭakas reached their zenith around 510 AD, but then swiftly disappeared within about 40 years. No successors are known following Hariṣeṇa of the Western Vākāṭakas or Pṛthivīṣeṇa II of the Eastern Vākāṭakas (Altekar, 1960:191). In the east, it appears that Pṛthivīṣeṇa II came under attack from the Nalas and sought support from the Viṣṇukuṇḍins during this conflict, but his reign does not appear to have persisted long after this event (Bakker, 1997:56). The circumstances of the Western Vākāṭaka decline are not well understood, although a weak rule by Hariṣeṇa is often cited as being responsible. As noted above, following the collapse of Vākāṭaka rule, the traditional model of development in the region outlines the abandonment of sites and overall decline. Archaeological reports from a number of Early Historic sites, including Adam, Kaundinyapura, Mandhal and Pauni, suggest a gap in occupation until the Medieval period. However, our archaeological understanding of the regional Early Historic to Early Medieval transition period in this region is fraught with uncertainty and it is unsure whether a lack of evidence is a true reflection of past activity.

Historically, authority in Vidarbha following the end of Vākāṭaka rule fell first to the Viṣṇukuṇḍins and the Rāṣṭrakūṭa kings (c. 750 AD), before the Cālukyas took over in 973 AD (Bakker, 1990:62). By the second half of the 12th century, the Cālukya kingdom was subject to increasing pressure from the Kalacuri family and by the 8th decade of the 12th century the kingdom had collapsed (Bakker, 1990:64). It is likely that a complex of local powers ruled in the absence of a central authority but there is limited supporting archaeological evidence. On the contrary, archaeological evidence of the succeeding power, the Yādavas, is common across the region. The Yādavas were originally feudatories of the Cālukyas, and took over in the mid-12th century, with their state encompassing parts of the Konkan, Desh and Vidarbha (Sahu,

2012:148). The Yādavas reinvigorated structural temple architecture in the region and invested significant patronage into temple construction (Jamkhedkar, 1985-1986:25).

The end of Yādava rule came under increasing pressure and incursions by Islamic armies from Delhi and the dynasty appears to have succumbed to the Islamic powers by 1294 AD (Bakker, 1990:75; Sohoni, 2011:51). Along with their collapse, Hindu temple construction was abandoned and it appears that often the temples were disassembled, with the occasional incorporation of architectural pieces into Islamic buildings (Sohoni, 2011:51). Islamic rule in Maharashtra was challenged by a cultural and religious group of "Hindu elites" called the Marāṭhās, who had ambitions to reclaim Maharashtra and whose power intensified over the first half of the 18th century (Sohoni, 2011:51). The Marāṭhās expanded to occupy a territory roughly covering Maharashtra state, and under their influence Hindu architecture was rejuvenated, incorporating clear aesthetic influences from the Islamic tradition (Bakker, 1990:62; Sohoni, 1998:21). Vidarbha initially appears to have remained slightly isolated from the dominant centres of Marāṭhā power, possibly due to its geographical separation, but was brought under their authority by the Bhonsle family (Dikshit & Singh, 1971:732). Nagpur became the centre of the Bhonsle dynasty and attention was drawn to Rāmṭek and the development of the religious site on the hill (Bakker, 1990:63). The Bhonsle territories were prosperous and so liberal patronage was devoted to temple construction, resulting in a developed local architectural tradition (Sohoni, 1998:145). Nagpur remained out of British control for slightly longer than the rest of Maharashtra, but around 1857 AD indigenous rule was brought to a close (Sohoni, 1998:39).

2.3. Approaches to the study of the Vākāṭakas

Despite certain lacunas in our understanding of the Vākāṭakas, scholars are generally agreed that the dynasty played a 'pivotal role' in the politico-cultural history of the Deccan (Shastri 1997:213). As can be inferred from the established history of the Vākāṭaka dynasty, there has been varying degrees of research into the epigraphic, art-historical, numismatic and archaeological evidence. The majority of research displays a fundamental dependence on written sources and notable works have been produced which translate and interpret the epigraphic records of the dynasty. Additionally, art-

historical research has been relatively abundant due to the exceptional nature of the sculptural and architectural remains. Archaeological investigations provide indispensable contextual information for epigraphic and art-historical sources. However, archaeological investigations concerning the Vākāṭakas have been subject to a number of limitations in interpretation and scope, which means there is still great potential for archaeology to contribute new information. Moreover, there are further opportunities for scholarship to synthesise the available evidence, and for researchers to continue conducting collaborative archaeological and historical research.

2.3.1. Epigraphic research

Epigraphic evidence was the earliest known source of information about the Vākāṭakas following the discovery of a copper-plate grant of king Pravarasena II in Siwani (1836). Since then, around 41 inscriptions have come to light, mostly in the form of copper-plate grants with occasional stone inscriptions at key sites. The wealth of evidence contained within the inscriptions has attracted plentiful research. Some of the most active scholars researching the Vākāṭakas have primarily focused on the translation and interpretation of epigraphic sources with reference to other written records, such as the literary works of Kālidāsa or ancient chronicles such as the Purāṇas, to complement their research. The Vākāṭaka dynasty did not find mention in early texts on the history of India as they were originally believed to be of Yavana or Greek origin, despite the early decipherment of genealogical portions of the Ajanta Cave XVI inscription in 1862 (Mirashi, 1963:I). Once their indigenous origin was realised, scholarly attention was drawn to establishing their dynastical history, genealogy and chronology (Altekar, 1960; Majumdar & Altekar, 1967). An early reading of the Siwani plates the text was published in 1836 by Prinsep (1836) and the text was again translated by Fleet, alongside the Chammak and Nachna plates (1888). In 1914, V.A. Smith published an article on the Poona Plates of Prabhāvatī Gupta (discovered in 1912), also translated by K.B. Pathak and K.N. Dikshit (Pathak & Dikshit, 1925; Smith, 1914).

Following these early translations, the study of the Vākāṭakas was brought into the sphere of general research by the work of scholars such as K.P. Jayaswal (Jayaswal, 1933) and Mirashi, whose 1939 his translation of the Basim Grant of Vindhyaśakti II

demonstrated the existence of the Eastern and Western Vākāṭakas (Mirashi, 1963:ii; Mirashi & Mahajan, 1952). Mirashi later published a hugely influential volume of translations and interpretations of 27 Vākāṭaka epigraphs (1963). In addition to these significant readings of the texts aimed at reconstructing the Vākāṭakas' political history, administrative details and chronology, Mirashi proposed the identification of Rāmṭek with the literary place of the Rāmagiri, memorialised in Kālidāsa's epic poem, the Meghadūta (*c.* 5th century AD). The mythological entity the Rāmagiri is considered to reflect a historical site; its identifications at Rāmṭek was largely based on its geographical position, topographical descriptions and inscriptional evidence and has fed into ongoing debates concerning the Vākāṭaka relationship with the Gupta Empire (Bajpai, 1992:85; Mirashi, 1964:137-139). Further important 20th century publications of the Vākāṭakas, primarily outlining their history and chronology are works by Majumdar & Pusalker (1954) and Majumdar & Altekar (1967).

Since Mirashi's 1967 volume, Shastri has been responsible for the interpretation and publication of a number of inscriptions. Shastri's publications on the political history of the Vākāṭakas have encouraged a holistic view of the dynasty incorporating interdisciplinary scholarship on archaeology, numismatics and iconography in conjunction with inscriptional evidence. Shastri's seminal volumes on the Vākāṭakas provide a comprehensive historical outline and a re-appraisal of earlier evidence and research (Shastri, 1992a; 1997). These texts should be referred to during research into the historical narrative and known socio-political development of the dynasty.

As a source of historical data, the inscriptions remain a focus of modern Indologists who have published a number of revised interpretations (Bakker, 2011; Bakker & Isaacson, 1993). Bakker has been particularly focused on the inscriptions related to the key sites of Rāmṭek and Mansar at the centre of the Eastern Vākāṭaka territory. A significant development in epigraph research has been the use of inscriptional data in considerations of broader aspects of Vākāṭaka rule, such as religious history (Bisschop, 2010). There is no doubt that epigraphic records are a rich source of information about aspects of society that normally cannot be extracted from pure archaeology, such as royal genealogy, administrative hierarchies, ideology and royal patronage (Kulke, 2004:1; Pal, 2014:185).

Despite the economic nature of the vast majority of the copper-plate inscriptions, the nature and meaning of the land-grants and their significance within the Vākāṭaka economy remains inconclusive. This lacuna in existing studies was recognised by Shrimali who attempted to elucidate the Eastern Vākāṭaka economy through a study of their copper-plate land-grants (1992:102). Shrimali's research represents an important development in Vākāṭaka epigraphic research, as it demonstrates a move towards systematic and contextualised analysis of the available evidence. Shrimali's research reflects on the landscape of the Vākāṭakas and considers the significance of the inscriptions as geographical and material evidence, rather than simply in terms of their content. Preliminary work is being carried out at the British Museum to map inscription find-spots and their content (Willis, *et al.*, 2012). Through such methods it may be possible to consider how the two Vākāṭaka branches and other dynasties compare in their production of epigraphic evidence, and relate the copper-plates to their context. Further research has begun to explore the archaeological contexts of copper-plate charters by locating their find spots across Vidarbha in order to subject them to archaeological survey (Hawkes, proprietary and forthcoming).

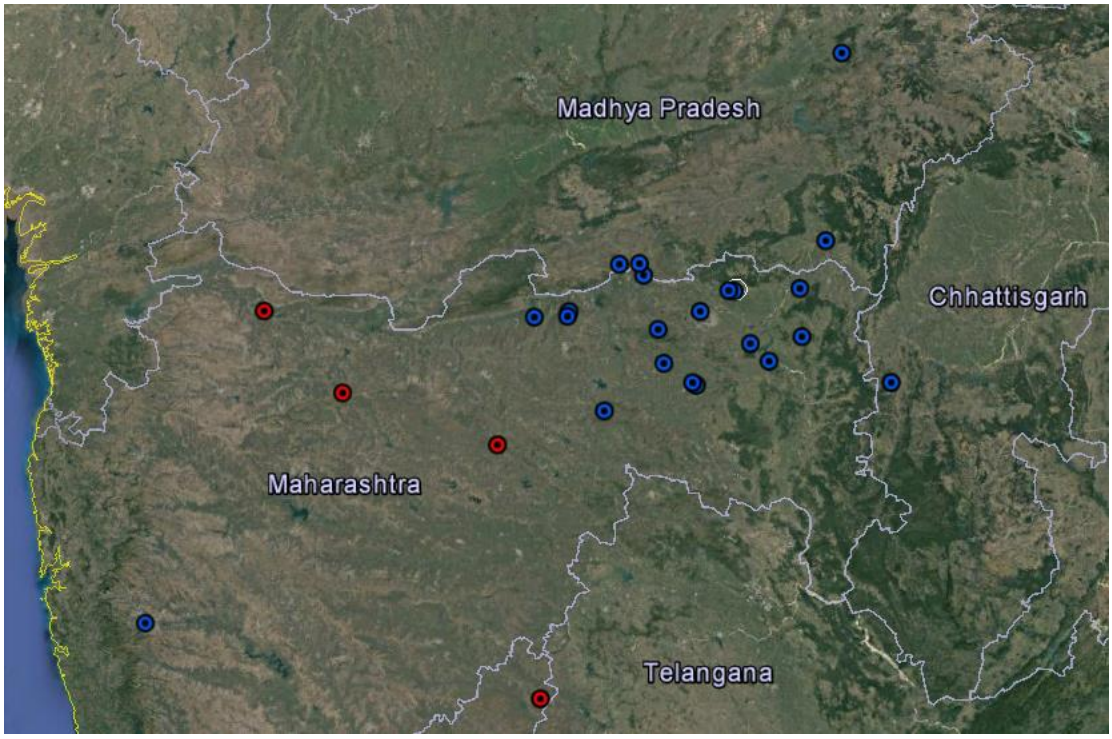


Figure 2-2. General map of the find-spots of the Vākāṭaka inscriptions. The red markers correspond to the inscriptions of the Western branch while blue refers to the Eastern branch. (See the British Museum project for further details. Upcoming publications contain proprietary information http://www.britishmuseum.org/research/research_projects/all_current_projects/beyond_boundaries/inscriptions_and_sites.aspx)

It is important to recognise the biases that may be present in historical sources; there are general uncertainties related to provenance, intended impact and the nature of texts (Shastri, 1997:149). The overwhelming majority of inscriptions belong to the Eastern Vākāṭakas, which tend to result in deeper focus on the political organisation and economic structure of this branch. Studies of the economy almost exclusively deal with the Eastern Vākāṭakas, while epigraphic studies of the Western Vākāṭakas mainly focus on donative inscriptions and the patronage and chronology of the Ajanta caves. Bias towards the Eastern Vākāṭakas in epigraphic records may be responsible for a tendency to over-emphasise their power and importance. The majority of inscriptions are attributed to Rudrasena II, queen Prabhāvatī Gupta or Pravarasena II (*c.* 398-455 AD) of the Eastern Vākāṭakas, which limits our understanding of chronology (Kulke, 2004:4). A further issue arises in that the Vākāṭaka inscriptions refer to regnal years and lack irrefutable palaeographic evidence to indicate a more accurate date (Majumdar & Altekar, 1967). The Purāṇic texts have been used to date the dynastic origins, and subsequent episodes in Vākāṭaka history have been based on postulations concerning lengths of reign (Shastri, 1997:163). Currently, the backbone of the Eastern Vākāṭaka chronology is currently found in references to the marriage of the king Rudrasena II to Prabhāvatī Gupta, daughter of Chandragupta II (*c.* 376-412 AD), as Gupta records are based on a relatable timescale (Goyal, 1992:298). Without a dependable chronology, many theories concerning the meaning and consequences of conjectured political events, relations to other dynasties and potential power struggles remain indeterminate (Shastri, 1997:178).

Finally, despite their original purpose as records of economic systems and political history, the inscriptions often do not include specific references to concepts such as monetary systems, territorial boundaries or the nature of central government. Studies of inscriptions are inevitably dominated by reconstruction of aspects of state administration. However, isolated references to state officials, administrative terms or categories of site may not be sufficient to allow reconstruction of the nature of state formation, as is occasionally attempted in the literature (Mahajan, 1992; Shastri, 1992c). As such, attempts to reconstruct Vākāṭaka political and economic systems often rely on conjecture and challenges in interpretation have resulted in protracted debate**.** There are issues with the variety and depth of the information available in

inscriptions; it may be that there is simply not enough detail in the inscriptions alone for effective discussion about certain aspects of Vākāṭaka rule.

2.3.2. Numismatic research

There has been comparatively little numismatic research regarding Vākāṭaka coinage given that for a long time no coins had been incontrovertibly discovered. All early scholarly accounts suggested that the dynasty did not mint coins and often opined that the Vākāṭakas allowed other currency to circulate in their kingdom. K.P. Jayaswal was initially the only key historian to suggest coins had been discovered bearing Vākāṭaka legends, but these claims were refuted by Altekar and Mirashi (Jayaswal, 1933; Majumdar & Altekar, 1967; Mirashi, 1963). Rather, attention was more typically drawn to the currency of the Guptas and the growing collection of their precious metal coinage.

Since the earlier claims that the Vākāṭakas did not issue their own coins, Shastri has published several base metal/copper coins from Wardha which he attributed to the dynasty. These coins, held in private collections, are described as "minute… irregular… and light-weight" (Shastri, 1990; 1992b:256). Chandrashekhar Gupta also believes that Vākāṭaka coins have been found in Vidarbha, including at the site of Paunar, but were not accurately identified due to the absence of a legend and were therefore determined to be 'Viṣṇukuṇḍin type' coins (Gupta, 1992:143-144). Kulkarni has followed Shastri in publishing further details of base-metal coins attributed to the Vākāṭakas (Kulkarni, 2003). There have been other claims of coins, apparently with complete legends, but these have not been verified (Meshram, 2010; Pathak & Thakur, 2005). Raven has produced a thorough overview of the current state of affairs and has discussed the possibility that the Vākāṭakas issued coins which resembled the lead, copper and potin coins that already existed in the Sātavāhana territory which they inherited (Raven, 2004:20).

Goyal has continued to criticise descriptions of Vākāṭaka coinage for their interpretations of the coin legends and for describing coins based on photographs from coin collections. He remains of the opinion that limited numbers of copper coins cannot be representative of Vākāṭaka currency (Goyal, 2007:5). Researchers are still

divided over Vākāṭaka coinage and scant evidence has been uncovered to aid interpretation. The question of Vākāṭaka coinage also exists within the broader context of research which suggests that India was demonetised during the Gupta and Post-Gupta period. Deyell (1990) published an influential response to this arguing that north India continued to be heavily monetised and that Post-Gupta coinage increased in amount, albeit in a debased form and more limited in type (Ali, 2012:9). However, subsequent scholars have noted that Deyell's quantification still implies a change in monetisation and the numismatic history of the Gupta-Vākāṭaka period is still not well understood (Kennet, 2004b:13).

Numismatic research is hindered by a number of methodological issues with the study of Early Historic coinage, including qualitative issues of incorrect attribution and misunderstandings of "numismatic phenomena", such as the popularity of certain coins leading to subsequent similarities in types, issues of quantification, unclear values and unknown numbers of coins in collections (Bhandare, 2015:182-183).

2.3.3. Art-historical research and the study of iconography

For a number of scholars, the defining characteristic of the Vākāṭaka period is the artistically refined and intricate sculptures and temples, thus iconographic and art-historical research is fairly extensive. The period of Vākāṭaka rule is often considered a classical era, which produced distinctive and "progressive" sculpture (Brown, 2004:60; Misra, 1992:173). Analysis of sculpture and architecture principally furthers our understanding of the more intangible aspects of the Vākāṭaka period; that of religion, ideology and theology. Monumental architecture and sculptural art can also be indicative of the prosperity of a kingdom, patronage and religion, as well as active attempts by regimes to legitimise their authority over the landscape.

Art-historical studies have tended to be specialist as the art of the Eastern and Western Vākāṭakas is considered to have been moulded by their different socio-political backgrounds and religious affiliations. The Eastern Vākāṭaka rulers were followers of Śaivism and Vaiṣṇavism, as reflected in the religious architecture and sculpture at sites such as Rāmṭek, Mansar and Mandhal (Bakker, 1997:58; Deva & Sharma, 2009; Thapar, 1979:36). Vākāṭaka art has often been referenced by scholars

when discussing Gupta sculpture and architecture (Harle, 1974; Harle, 1991). Williams has considered the artistic offerings of both the Western and Eastern Vākāṭakas, as despite their different socio-economic and religious influences, they do share common qualities (Williams, 1982; Williams, 1983). The Western Vākāṭakas gave liberal patronage to Buddhism, despite no indication that they themselves were devotees, and the impressive Buddhist remains at Ajanta were developed under their auspices (Spink, 2005). There is significant art-historical research on the Western branch and their cave temples and architecture (Fergusson & Burgess, 1880:280-295; Meister, *et al.*, 1988; Yazdani, 1930-1955). Spink is a prolific scholar on the caves of Ajanta, and has published numerous volumes on the architecture, imagery, chronology, political background and patronage of the caves (Spink, 2005; 2014). Additionally, while not tightly connected to wider archaeological data. Spink has begun to associate the developments at Ajanta to the history of the Western Vākāṭaka dynasty and theories of socio-economic growth and political power.

With regard to the Eastern Vākāṭakas, Krishna Deva produced a catalogue of the sculptures excavated from Mansar, which demonstrates the characteristic style of the sculptural tradition (Deva & Sharma, 2009). Jamkhedkar's detailed discussion of the sculpture and architecture of the major Eastern Vākāṭaka sites, including Rāmṭek, demonstrates the typical iconographic traditions and architectural remains of the period (Jamkhedkar, 1985-1986; 1991a; 1991b). Alongside numerous journal contributions, Bakker has provided an extensive overview of the Hindu iconography of the Eastern Vākāṭakas with a detailed catalogue of the known sculpture, and has outlined a comprehensive history of the Vākāṭaka kingdom (Bakker, 1997:2). Bakker's 1997 study on the development of Vākāṭaka Hindu iconology attempts to use art in conjunction with texts and archaeological evidence to establish the "social and cultural context" in which art is formed (Bakker, 1997:3). This study aims to take a further step in scholarship towards holistic consideration of the available evidence to establish the broader context of art-historical research (along with Willis (2009), who draws on landscape archaeology, iconography, epigraphy and ethnography in his study of Udayagiri). Additionally, Bakker has produced edited volumes bringing together various scholars to combine discussion of iconography, epigraphy and archaeological evidence (Bakker, 2004; 2008c).

2.3.4. Archaeological research

Archaeological research into the Vākāṭakas refers to both excavations and regional explorations. Prior to the recognition that the Vākāṭakas were an independent Indian dynasty, early surveys were carried out at sites now known to be connected to the Vākāṭakas (Beglar, 1878; Cousens, 1887; Cunningham, 1878; Cunningham, 1972 (1866)). One of the first surveys directed towards establishing the nature of known Vākāṭaka sites was carried out by Wellsted in 1933, focusing mainly on Mansar and Nandpur (Wellsted, 1934). The findings of this survey have since been corroborated by a short survey in 2006 led by Bakker. The primary archaeological work on Vākāṭaka sites conducted across the second half of the 20th century has been by the Maharashtra state department, the ASI, and several university departments. These institutions have carried out a number of explorations and small test excavations at Vākāṭaka sites or sites with contemporary remains and thus the potential for Vākāṭaka horizons. Explorations at sites reported in IAR include those conducted at Adam, Arambha, Bhokardhan, Brahmapuri, Hamlapuri, Kaundinyapura, Mandhal, Mansar, Mulchera, Nagara, Nagardhan, Naikund, Pachkheri, Paithan, Paunar and Pauni.

Past archaeological studies of Vākāṭaka sites have tended to have a tight site-focus or have involved the isolated study of major ritual or urban centres. Therefore, there is much scope for the investigation of rural or transient remains to achieve a regional perspective and situate sites in a broader archaeological and landscape context. An appreciation of the wider perspective supports development of our understanding of vital concepts such as chronology, socio-economic organisation and the process of urbanisation. Landscape archaeology is advancing in Vākāṭaka studies and research at Rāmṭek would benefit from consideration of its wider political and socio-economic setting. Landscape archaeology contributes considerably towards our understanding of the impact and significance of major urban or religious centres, and can connect sites to evidence of state formation processes, the regional growth of kingdoms and networks of change.

Excavated sites containing remains contemporary to the Vākāṭaka period are fairly numerous, but fewer sites have been identified as having material culture that is categorically attributable to the Vākāṭakas. It is commonly theorised that earlier settlements were abandoned alongside the establishment of new ones and so

Vākāṭaka sites are often reported as having been 'single culture' (see overviews of Mansar, Nagara Nagardhan-Hamlapuri and Washim (Deotare, *et al.*, 2013)). Within the Vākāṭaka territory as described by Bakker (1997) are nine fully published Early Historic/Early Medieval sites: Bhokardhan, Brahmapuri (Kohlapur), Kaundinyapura, Nasik, Nevasa, Maheshwar and Navdatoli, Paunar, Pauni and Prakash (Kennet, 2004b:11).

Table 2-1. The excavated sites within Maharashtra which display Vākāṭaka period remains. Nine Early Historic/Early Medieval excavations are fully published while others are mentioned in review articles. See Sali (1998) and Sawant (2008-2009) for an overview of further explored sites reported to have Vākāṭaka period remains.

Site	Year	Remains identified	Full/Test excavation	Publication details
Adam, Dist. Nagpur	1988-1992	Mesolithic to Medieval habitation remains	Test excavation	(Joshi, 1993b; Mahapatra, 1995; Singh, 1996)
Ajanta, Dist. Aurangabad	1999-2001	Historical remains	Test excavation	(Rajeev, 2005; Rajeev, 2006)
Arambha, Dist. Wardha	1991-1992	Chalcolithic to Medieval habitation (Vākāṭaka P.IV)	Test excavation	(Nath, 1992b; Singh, 1996)
Bhokardhan, Dist. Aurangabad	1973	*c.* 2nd to 3rd century BC to *c.* 3rd century AD onwards	Full excavation (published)	(Deo & Gupte, 1974)
Bhon, Dist. Buldana	2002	Pre-Sātavāhana c. 3rd century BC to Muslim period c. 17th century AD. Break in occupation following Sātavāhanas	Series of test excavations	(Deotare, 2007; Deotare, *et al.*, 2007)
Brahmapuri, Dist. Kolhapur	1945-1946	Pre-Sātavāhana to Bahmani periods. Break in occupation following Sātavāhanas	Full excavation (published)	(Sankalia & Dikshit, 1952)
Chaul, Dist. Raigad	2002-2006	Mauryan to Muslim period (c.300 BC-1700AD) with a break in occupation following Sātavāhanas	Test excavation	(Gogte, 2006)
Hamlapuri, Dist. Nagpur	1982	Vākāṭaka period habitation remains	Test excavation	(Sali, 1998)
Junnar, Dist. Pune	1984	Sātavāhana to Muslim-Maratha period	Test excavation	(Jadhav, 2006)
Kahali-Brahmapuri, Dist. Chandrapur	2001-2002	Early Iron Age to Vākāṭaka period	Test excavation	(Walimbe, 2003)
Kaundinyapura, Dist. Amravati	1962	Iron Age to Medieval remains	Full excavation (published)	(Dikshit, 1968; Smith, 2000)

Maheshwar & Navdatoli, Madhya Pradesh	1952-1953	Complete sequence from prehistoric to Muslim-Mārāṭha	Full excavation (published)	(Sankalia, *et al.*, 1958)
Mandhal, Dist. Nagpur	1978	Gupta-Vākāṭaka temple remains, sculpture and copper-plates	Test excavation	(Shastri, 1975-1976; Thapar, 1979; 1980a)
Mansar, Dist. Nagpur	1994-1995; 1997-2000	Early Historic monumental structures	Full excavation (awaiting publication)	(Joshi & Sharma, 2000; 2005; Manjhi, *et al.*, 2000)
Mulchera, Dist. Gadchiroli	1987-1988	Sātavāhana and early Vākāṭaka temple remains	Test excavation	(Joshi, 1993a; 1993b)
Nagara, Dist. Gondia	1985	Vākāṭaka brick temple	Full excavation (awaiting publication)	(Jamkhedkar, 1985-1986; Mitra, 1983a; 1983b; Mitra, 1983c)
Nagardhan, Dist. Nagpur	1982	Vākāṭaka period habitation and sculptural remains	Test excavation	(Mitra, 1983c)
Nasik, Dist. Nasik	1950-1951	Complete sequence from prehistoric to Muslim-Mārāṭha	Full excavation (published)	(Sankalia & Deo, 1955)
Nevasa, Dist. Ahmednagar	1954-1956	Complete sequence from Palaeolithic through to Medieval	Full excavation (published)	(Sankalia, *et al.*, 1960)
Paithan, Dist. Aurangabad	1999	Sequence from P.I (300 BC to 100AD) to P.IV (1200 to 1800 AD)	Full excavated (awaiting publication)	(Mani, *et al.*, 2003; Menon, 2002)
Paunar, Dist. Wardha	1966-1967	Chalcolithic to Early Historic (Vākāṭaka P.III)	Full excavation (published)	(Deo & Dhavalikar, 1968)
Pauni, Dist. Bhandara	1968-1970 1993-1994	Chalcolithic to Early Historic (Vākāṭaka, P.IV)	Full excavation (published)	(Deo & Joshi, 1972; Nath, 1998)
Prakash, Dist. Dhule	1955	Chalcolithic to Early Historic (to end of 6th century AD)	Full excavation (published)	(Thapar, 1964-65)
Rāmṭek, Dist. Nagpur	1981	Vākāṭaka period temples	Test excavation	(Jamkhedkar, 1985-1986)
Shrikhanda, Dist. Nagpur	1991	Vākāṭaka temple remains	Test excavation	(Bisht, *et al.*, 2000; Sali, 1998)
Vivekanandpur, Dist. Chandrapur	1987-88	Early Historic brick and ceramic remains	Test excavation	(Sali, 1998)
Washim, Dist. Akola	1990-92	Early Historic habitation and temple remains	Test excavation	(Sali, 1998)

While several sites such as Pauni, Paunar and Kaundinyapura have been fully published, others lack a complete site report. Small-scale excavations, surface explorations and interim reports are often published in the Indian Archaeology Review (IAR), and Sali has published a review article (1998). The published evidence to data demonstrates that Vākāṭaka structural remains tend to be temples or religious edifices, as at Mandhal and Mansar, and few town-sites have been fully excavated or identified. Commonly site reports mention evidence of Post-Sātavāhana activity, but these remains are either not conclusively Vākāṭaka or are described in limited detail. Even at the major site of Pauni, the Vākāṭaka period settlement remains are described as low quality structures made from re-used building materials with a paucity of associated ceramic evidence (Nath, 1998:14). Paunar is one of the few excavated and published settlement sites with Vākāṭaka habitation remains which were described as being more numerous, "varied… and rich in conception" than the remains of other periods (Deo & Dhavalikar, 1968:114).

Past archaeological investigations into the Early Historic to Early Medieval transition have been heavily influenced by models such as Sharma's 'Urban Decay' theory of economic decline (1987b). Published excavation data has often been interpreted through the lens of urban decline, and so the critical exploration of processes relating to the Vākāṭakas, such as political administration and economy, has not been the focus of research. Archaeologically there is still much to learn about the formation, development and influence of the Vākāṭaka kingdom and the political and socio-economic landscape of Vidarbha (Kapur, 2006:13). Furthermore, there is still great potential for a complementary archaeological perspective to connect the extensive epigraphic, architectural and art-historical evidence to the economic, political and ideological history of the Vākāṭakas.

2.4. Conclusion: Modelling the Rāmṭek landscape

There have been excellent studies connected with the Vākāṭakas, and certain aspects of their history have received thorough academic attention. The majority of information has been gleaned from epigraphical sources and the numerous inscriptions of the Eastern Vākāṭaka kings in particular have been used in attempts to unravel the dynastical history and chronology. However, the overall period is not well

understood for various reasons. Uncertainties throughout academic discussions of the Vākāṭaka period are partially a consequence of a lack of interaction between disciplines or studies of different categories of evidence and of insufficient evidence in general.

There is clear potential for archaeological research to further contribute to the debates. In particular, there is a dearth of information relating to socio-economic aspects of the Vākāṭaka dynasty and their impact on central India. Archaeological excavations have taken place at key sites however the archaeological understanding of the landscape and the relationship between sites and communities under the Vākāṭakas is less established. The transition from specialist studies to a holistic approach is currently underway in studies such as Bakker's, which acknowledges the need to extend study beyond an iconographical and epigraphic focus (Bakker, 1997). The following research aims to further this goal by incorporating a consideration of existing sources of information into an archaeological framework, which hopes to provide further primary data pertaining to the rural settlement of Rāmṭek.

As the centre of the Eastern Vākāṭaka kingdom, Rāmṭek and its nearby dynastic 'capitals' are considered to present an archaeological case study for peripheral landscape development. It is hoped that any patterns on the specific development of this area emerging from the survey data, may be related to larger debates across India on the expansion of settlement and agriculture, used to comment on the possible nature of Eastern Vākāṭaka polity and kingship and compared to the evidence for contemporary developments to the west. The overall development of the Rāmṭek landscape based on existing evidence usually presents regional prehistoric settlement followed by limited initial Early Historic activity in the specific area, outside of the purported Buddhist investments at Mansar. Sātavāhana and Buddhist activity appears to have been primarily drawn to areas south of Rāmṭek near the major river systems. It is frequently inferred that the arrival of the Vākāṭakas at Rāmṭek stimulated the area, and the establishment of the religious centre and capital cities, altered the structure of rural settlement and encouraged a burgeoning agrarian economy to support a growing population.

After a period of political, socio-economic and religious expansion during Vākāṭaka rule, it is often proposed that there was a hiatus in high-level social activity following

the collapse of the Vākāṭaka dynasty, until much later when the area was under Yādava control from the 12th century onwards the renewal of building activity and investment in the landscape. In reality, the regional development may have been far more complex and archaeological survey is aimed at enabling us to investigate the expected model of development. A holistic landscape archaeology approach may be able to identify further evidence of pre-Vākāṭaka settlement activity. Landscape survey supports investigations into the nature of settlement and attempts to identify Early Historic habitation and religious evidence in order to contextualise the proposed transformations under Eastern Vākāṭaka rule.

Chapter 3. Consideration of the physical and archaeological context of the survey region

3.1. Introduction

Having considered the regional historical development of Vidarbha, this chapter will initially consider the geographical setting of the survey area by summarising the physical environment of Maharashtra, with particular attention to Vidarbha, where Rāmṭek is located. A brief synopsis is presented here, primarily compiled from the works of Deshpande (1971) and Dikshit (1986); the reader is referred to these texts for a more complete overview. A summary of the expected contemporary cultural situation and anthropogenic landscape, as a result of the historical and geographical context, will be noted as the modern setting presents specific challenges which inform the fieldwork methodology. An understanding of the current landscape is appropriate for a more complete consideration of the past.

The second part of this chapter provides a summary of the known archaeological, sculptural, numismatic and epigraphic remains at the three sites of great significance within the defined survey area; Rāmṭek, Mansar and Nagardhan. The archaeological study of these sites has varied in intensity, with Mansar attracting the most archaeological attention in recent years due to its monumental religious and secular constructions. Additionally, the known archaeology of the rural hinterland will be introduced as a number of small sites have been reported from explorations in District Nagpur, with some falling within Rāmṭek Tehsil. These details from the local archaeological context of the survey area provide context for the later survey findings and begin to indicate how the landscape has been interpreted to show the relationship with the ruling dynasty.

This chapter concludes with a comment on the expected nature of the archaeological landscape of Rāmṭek tied to the historical narrative being tested in this study. Once this has been established, it is possible to theorise how this model would be manifested on the ground and how landscape archaeology techniques may be employed to explore this.

3.2. The physical geography of the survey area, Vidarbha, Maharashtra

This survey focuses on the landscape in the immediate vicinity of the site of Rāmṭek (around 21°23’56N and 79°17’51E), which is located in the Nagpur District of the Vidarbha region of Maharashtra. The state of Maharashtra extends over an area of *c.* 307,713 km² in central India and displays great physical, economic and cultural diversity (Deshpande, 1971:3; Rajaguru & Joshi, 2013:31). The Vidarbha region (Lat. 19 21’N and Long. 76 80’ 30’’ E) is located towards the east of Maharashtra. While Western Vidarbha is physically characterised by high plains and hills surrounding the central Purna Valley, Eastern Vidarbha is predominantly of low elevation with occasional hills. The eastern portion of Vidarbha largely encompasses the Wardha-Wainganga basin and includes the Rāmṭek Upland on the northeast side of the Nagpur plain, formed by the Kanhan River (Dikshit, 1986:187). As it is enclosed by hills on three sides, the Wardha-Wainganga basin appears to have developed as a “distinct regional entity” within Maharashtra (Dikshit & Singh, 1971:732).

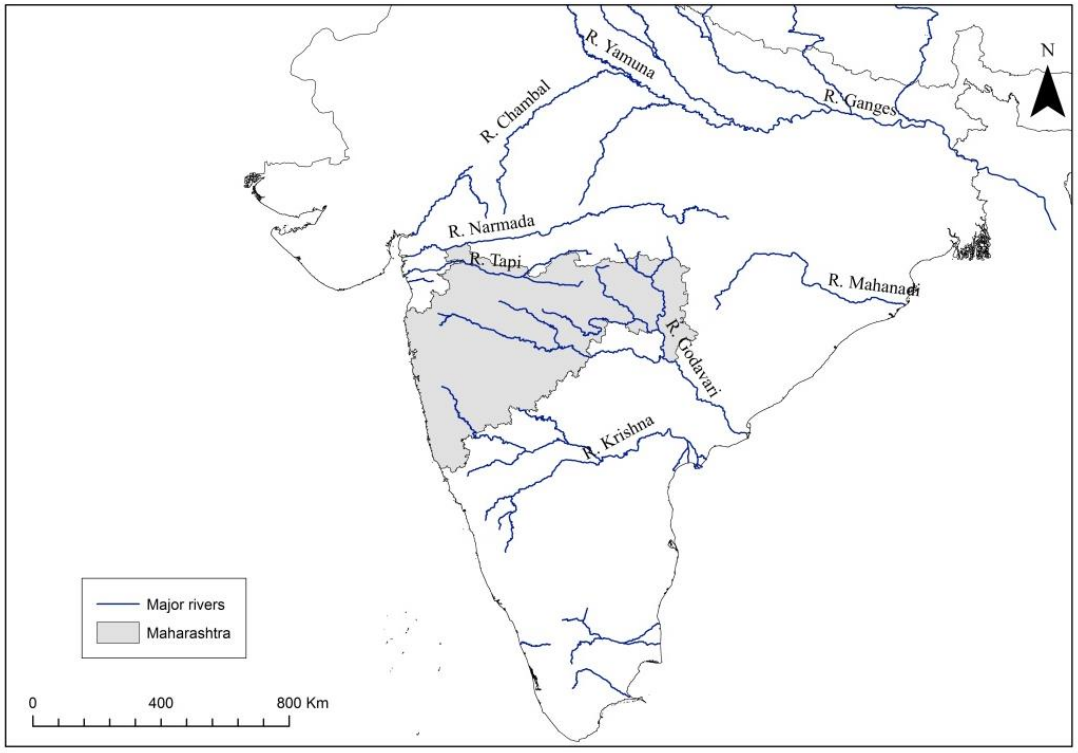


Figure 3-1. The location of Maharashtra state in India.

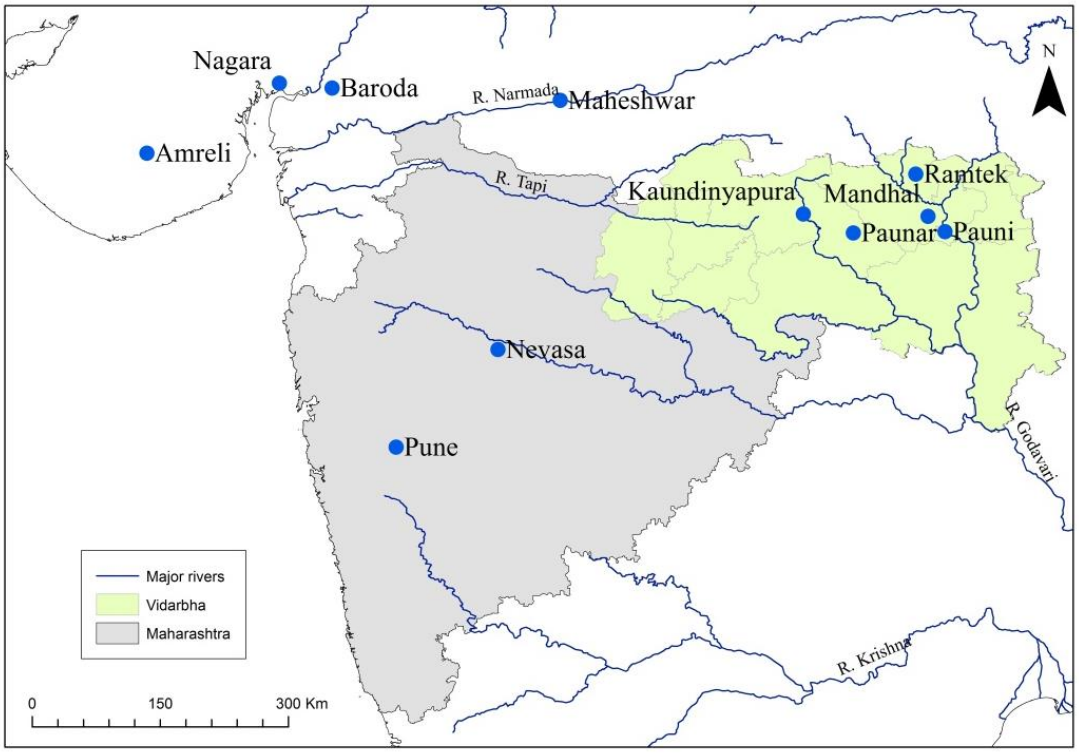


Figure 3-2. The position of Vidarbha within the state of Maharashtra. The locations of Rāmṭek and other major archaeological sites are indicated.

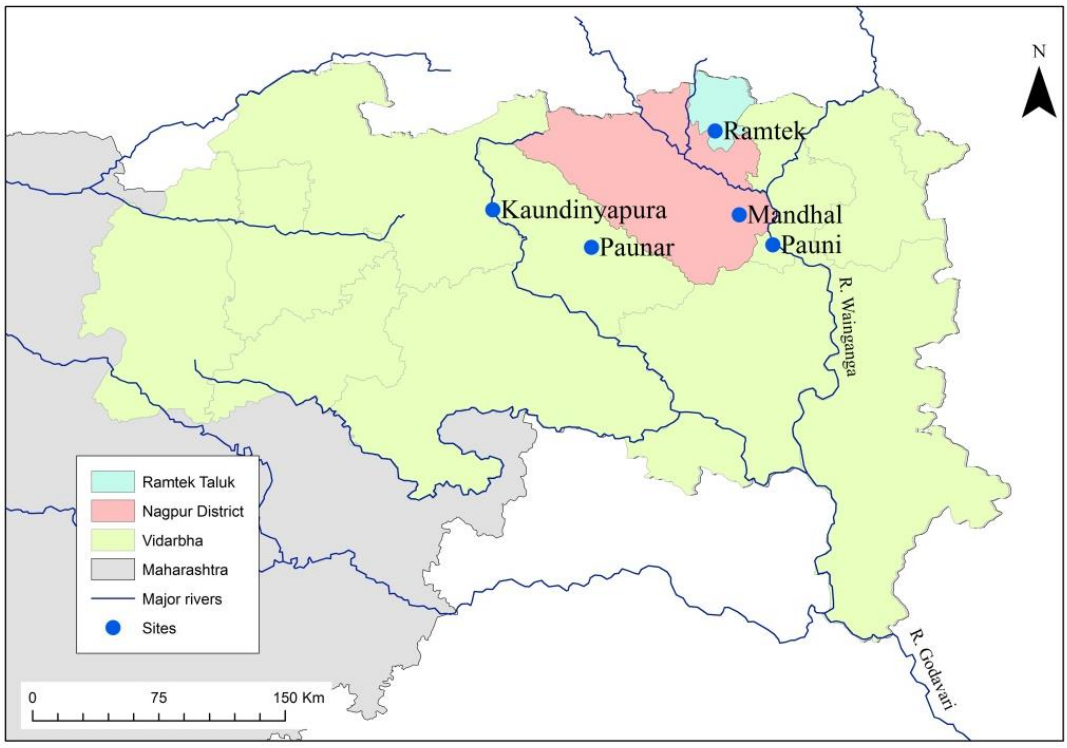


Figure 3-3. Location of Rāmṭek in Nagpur District of Eastern Vidarbha.

3.2.1. Topography and geology

Geologically, Maharashtra is a part of the 'shield' of Peninsular India which is created from ancient complexes of granites and gneisses (Krishnan, 1982:1). Across nearly nine-tenths of Maharashtra, later sediments, such as the 'Deccan Trap', lie over the ancient rock creating a distinctive basaltic plateau, characterised by flat-topped hills and low-lying plain (Dikshit & Singh, 1971:698; Krishnan, 1982:1; Spate & Learmonth, 1967:16). However, Eastern Vidarbha is lithologically atypical within Maharashtra as the underlying crystalline rock is exposed and has weathered under a wet climate to create uneven, rugged hills (Deshpande, 1971:202; Dikshit, 1986:24). The average height above sea level is much lower than in Western Maharashtra but there are occasional "residual hills" across the cultivated valleys, such as the granite outcrops at Rāmṭek and Mansar (400masl and 285masl respectively) (Deshpande, 1971:16; Dikshit, 1986:24; Joshi & Sharma, 2005:1).

The east of Vidarbha, including Nagpur District, has prospered due to the large and small-scale mining industries supported by the mineral rich environment with access to coalfields, iron ore, mica and clay deposits (Chakravorty, 2001:7; Chari, *et al.*, 1975:249; Deshpande, 1971:45). There are several large manganese mines (M.O.I.L. Nagpur) across the Rāmṭek area, with the most extensive site located on the peripheries of Mansar (Krishnan, 1982:153). Active and abandoned mines within the survey area can be found in Beldongri, Nagardhan, Lohadongri, Kachurwahi, Waregaon, Khandala, Bhandarbodi, Mandri, Manegaon, Borda-Kumhari, Bhodewada, Musewadi and Kandri (Chari, *et al.*, 1975:221-228). Brick manufacture results in extensive digging for clay, and there is further extraction of 'Murrum' (soils formed from weathered rock), which is commonly used as a foundation material (Ketkar, 1970; Muley, *et al.*, 2010:4896). Extensive mining in the survey area has caused large amounts of disturbance and has restricted access to sections of the Rāmṭek landscape. It is unclear how long small-scale mining has been occurring but archaeological reports from the area demonstrate the use of mica in ceramics (see chapter seven) and often refer to the use of local clay in production. Production sites and material remains in the region demonstrate the use of local resources in the past, such as sandstone in monumental constructions (Smith, 2001b:80), and the inter-site exchange of resources such as iron (Mitra, 1983a; Thapar, 1980b).

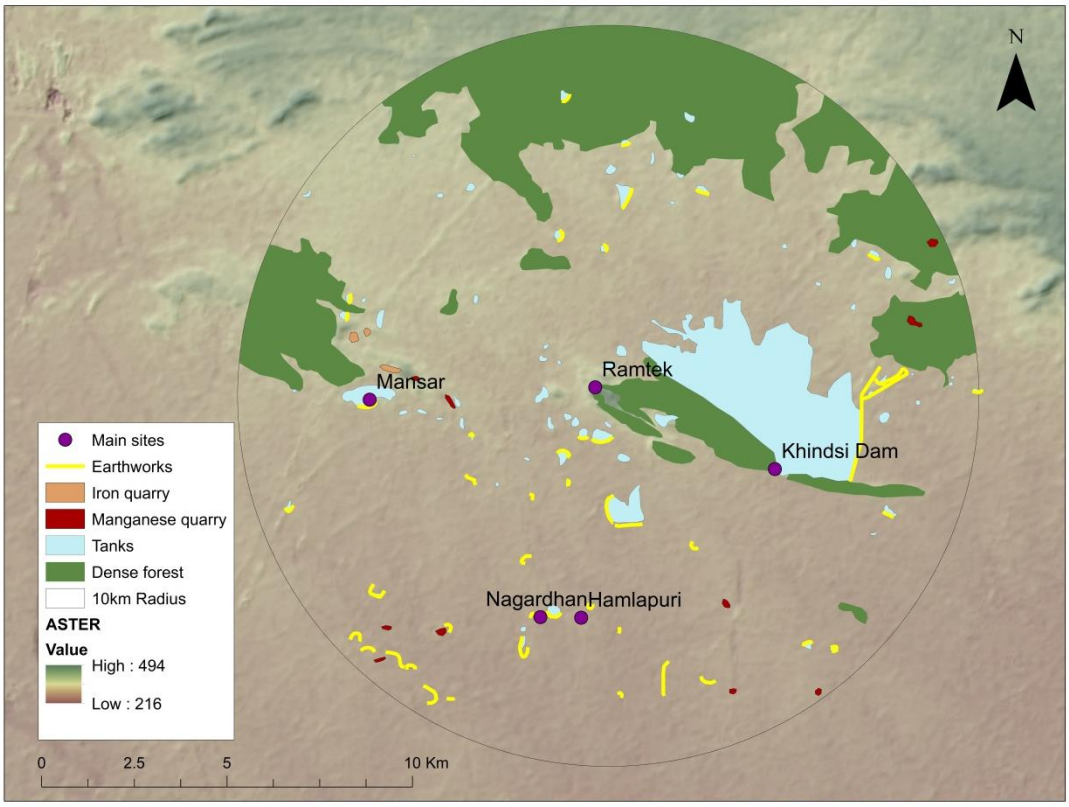


Figure 3-4. Map of the survey area indicating the mines, land-use, earthworks and tanks that appear on topographic maps of the area. A number of the mines indicated appear to have expanded since the topographic map was produced. All land outside of the forest cover is simply designated as 'open scrub' and in practice is largely agricultural land or areas of culturable waste.



Figure 3-5. Images showing the extent of quarrying and manufacturing activities in the survey area: a) Satak manganese mine. b) Brick manufacturing north of Rāmṭek

3.2.2. Climate, flora and the management of agriculture and water

Historical sources describe the geographical area of Maharashtra as having been covered in rich forest, but increasing population over time has resulted in the encroachment of agricultural and grazing land on natural flora (Deshpande, 1971:35; Dikshit, 1986:43). Still, half of the total state forest is situated in east of Vidarbha with approximately 20% coverage of the land in Nagpur district. Rāmṭek has teak plantations and fairly dense mixed dry deciduous forest on areas of higher elevation (Dikshit, 1986:43; 2002b:131). Habitation is generally focused in cultivatable and accessible areas and so agriculture is prioritised into occupying the best land with forests now restricted to areas less suitable for cultivation (Dikshit, 1986:43; 2002b:124). Rich natural vegetation has been promoted by a combination of topography, geology and high rainfall (Deshpande, 1971:32; Dikshit & Singh, 1971:732). Vidarbha has a typical 'tropical monsoonal' weather system but is the only region in Maharashtra affected by both the northeast and southwest monsoons, resulting in the comparatively high total annual precipitation (between 1200mm and 1400mm) (Deshpande, 1971:27; Dikshit, 1986:31).

Subsistence-based agriculture, with limited cultivation of cash crops, is the primary occupation of nearly two thirds of the working population in Maharashtra (Datye & Dhorde, 2002:166; Deshpande, 1971:35, 97). The dominant soils across Eastern Vidarbha are loams, which are susceptible to poor fertility and drainage issues; they are primarily suited to rice cultivation and 60% of the cultivated land in the Wardha-Wainganga valley is rice paddy (Dikshit, 2002a:111; Dikshit & Singh, 1971:714). (see Dikshit (1986) for a classification system of the soils of Maharashtra). Two main growing seasons dominate Indian agriculture and double cropping is prevalent across Rāmṭek and Eastern Vidarbha (Deshpande, 1971:105). '*Kharif*' (summer) crops are sown at the onset of the monsoons, and harvested before winter (September/October); the chief *kharif* crop in Vidarbha is the rice paddy, supplemented by pulses (Dikshit, 1986:60). '*Rabi'* (winter) crops are sown after the rains around October/November and harvested in February/March; Wheat and chickpeas are the primary *rabi* crops and are often sown on the same land as the *kharif* crop following the first harvest (Spate & Learmonth, 1967:229). Accordingly, the periods of lowest vegetation cover around Rāmṭek are expected to be

October/November and February to June. Oilseeds are an important *rabi* crop in Nagpur district and several commercial crops such as cotton and sugarcane are produced around Rāmṭek, creating year-round vegetation coverage in some areas (Datye & Dhorde, 2002:172; Dikshit, 1986:58). There are a number of crop-processing and textile factories across the survey area, related to the agricultural base of the local economy.

In the survey area, agricultural access to water is dominated by the modern canal network from Khindsi reservoir, built on the River Sur, which supports the agricultural landscape south of Rāmṭek hill (Dikshit, 1986:187). In addition, there is a tradition of smaller tanks, both modern and historical, and wells are prominent features in villages (Sutcliffe*, et al.,* 2011:784). Tributaries of the Wainganga, Pench and Dawanthari rivers flow around the Rāmṭek hills and this creates an appropriate environment for effective water management (Dikshit, 1986:187).

3.2.3. The modern landscape

The modern anthropogenic landscape has been moulded by the physical environment and the historical development of Vidarbha. Vidarbha's position in central India ensured there was a mix of cultural influences through the interaction of different groups of people from surrounding regions (Dikshit, 1986:104). Marāṭhā culture has in particular infused into Vidarbha from the west, and there has been significant contact with Hindi-speaking people to the north in Madhya Pradesh (Dikshit & Singh, 1971:732). The current culture, which has resulted from this history of interaction and exchange, is popularly known as "Varhadi" culture (Sawant, 2012:14). The religious affiliation of the modern population reflects the historical development as it is dominated by Hinduism (Dikshit, 1986:105). Almost the entire population of Buddhists around the Nagpur area are 'Neo-Buddhists'; as followers of the late Babasaheb Ambedkar, Neo-Buddhists are distinguished from the original followers of Buddhism and are akin to Hindus in their social organisation and moral codes (Dikshit, 1986:105). A little over 5% of the population consists of *Adivāsis*, distinguished by their beliefs, customs, dialects, and absence of firm adherence to institutionalised religions (Dikshit, 1986:109). The most recent census (Deol, 2011)

showed that Maharashtra is the second most populous state and is growing at a faster rate than the national average. Across Vidarbha, the majority of the population lives in small villages in regular, close spacing. The spatial distribution of villages may be connected to the relatively easy access to water and fertile land in this region, and the focus on labour-intensive rice cultivation which requires close management of the agricultural land (Deshpande, 1971:35, 97; Dikshit, 1986:137). The wider state of Maharashtra has a burgeoning urban population and within Nagpur District urban development is concentrated at Nagpur and Kamptee which have direct rail and road links to Rāmṭek (Deshpande, 1971:201). Rāmṭek is a developing area in terms of infrastructure and industry and is well connected for trade (Deshpande, 1971:149; Diddee & Wakhare, 2002:213).

Eastern Vidarbha's position is as important today as it appears to have been in the past, with its central location being the focus for various communication and movement routes. The Rāmṭek area is located on the Jabalpur Highway (Route National No.7), which is a major connection between Vidarbha and the Ganga plain and has been suggested to reflect the ancient route connecting these two cultural areas (Meister, *et al.*, 1988:62; Shastri, 1997:219). In addition to the Nagpur-Jabalpur highway passing through the region, a major East-West route (Highway 6) also enables cross-regional connections.

Based on the physical and cultural environment of Vidarbha, the archaeological survey in this fieldwork was developed with the understanding that the study area would be largely rural with a primarily village-based, agricultural society. Rāmṭek town supports expanding large and small-scale industry and there is significant exploitation of the rich natural resources, which can limit access to some areas of the landscape or impact on the preservation and visibility of remains.

3.3. The archaeological study of sites in the survey area

The known archaeological, sculptural and epigraphic evidence from Rāmṭek, Mansar and Nagardhan, and the rural archaeological material known from within the defined survey area, forms the basis of this project. The impetus for broader landscape

investigations was prompted by research by Bakker at Mansar and Rāmṭek in particular. In order to test the historical narrative of the development of Rāmṭek and the Eastern Vākāṭaka polity and the hypothesis that Vākāṭaka investment was fairly limited to the monumental centre, survey of the rural landscape is necessary to establish the *longue durée* of the site's hinterland. Prior to this, the known picture of the site can be constructed from a synthesis of the published evidence.

3.3.1. The Rāmṭek temple complex

The history of research at the Rāmṭek temple complex has primarily focused on epigraphy or the art-historical study of the Vākāṭaka temples, with comparatively limited archaeological enquiry around the site. Seven Vākāṭaka shrines and temples lie on the Rāmṭek hilltop and side, in addition to a water tank thought to originally date from the Vākāṭaka period. The temples are those of Varāha, Trivikrama, Kevala-Narasiṃha, Rudra-Narasiṃha, Bhogarāma, Guptarāma (the cave temple) and a cave-reclusory; four of the temples still contain the original idol (Bakker, 1989b:467). (Bakker, 1991:30). Early recording of the architecture and sculpture at Rāmṭek was conducted by Beglar in 1873-4, followed by Cousens (1887), but both were denied access to the inner temples and did not recognise the antiquity of the Vākāṭaka constructions (Jamkhedkar, 1992:155). Further early notes may be found in Hiralal's Visit to Rāmṭek (Hiralal, 1908), the Nagpur Gazetteer. Mirashi made references to Rāmṭek in the Corpus Inscriptionum Indicarum (Vol. V; See also Meghadūta meṃ Rāmagiri arthāt Rāmṭek, 1959) and was the first scholar to identify the Gupta-Vākāṭaka period origin of the Trivikrama temple.

The leading scholars working on Rāmṭek's architectural remains, who have informed this research, are Jamkhedkar and Bakker. Jamkhedkar has studied the architecture (e.g. Meister, *et al.*, 1988) and chronological development of the temples, with limited archaeological test excavations, while Bakker has primarily focused on iconographic and architectural research. Jamkhedkar is credited with identifying the true antiquity of the Vākāṭaka temples, which established the date of the emergence of structural temple architecture at Rāmṭek around 600 years earlier than previously thought (Bakker, 1997:2; Jamkhedkar, 1985-1986:26; Jamkhedkar, 1987:217). Prior to this, academic interest was drawn to the architectural developments of the Imperial

Yādavas (12th to 14th century AD), who were thought to have been the initiators of structural temple construction in Maharashtra (as in Deglurkar, 1974:108). The Vākāṭaka developments at Rāmṭek reflect the early spread of free-standing temple architecture, which was particularly patronised by the Gupta dynasty across northern India from the 4th century AD. The tradition of free-standing architecture, as opposed to rock-cut architecture which occasionally persisted alongside free-standing constructions (for example at Udayagiri), expanded the use of permanent building materials such as brick and stone (Blurton, 1992:52). Regional architectural styles developed on the periphery of the Gupta Empire. Accordingly the Vākāṭaka temples at Rāmṭek combine distinctive regional traits, such as the preferential use of local red sandstone for plinths and walls and decorative features (as opposed to the heavy basalt used in load-bearing pillars), with aesthetic parallels to Gupta constructions (Jamkhedkar, 1985-1986:26; Meister, *et al.*, 1988:63; Sohoni, 1998:147).

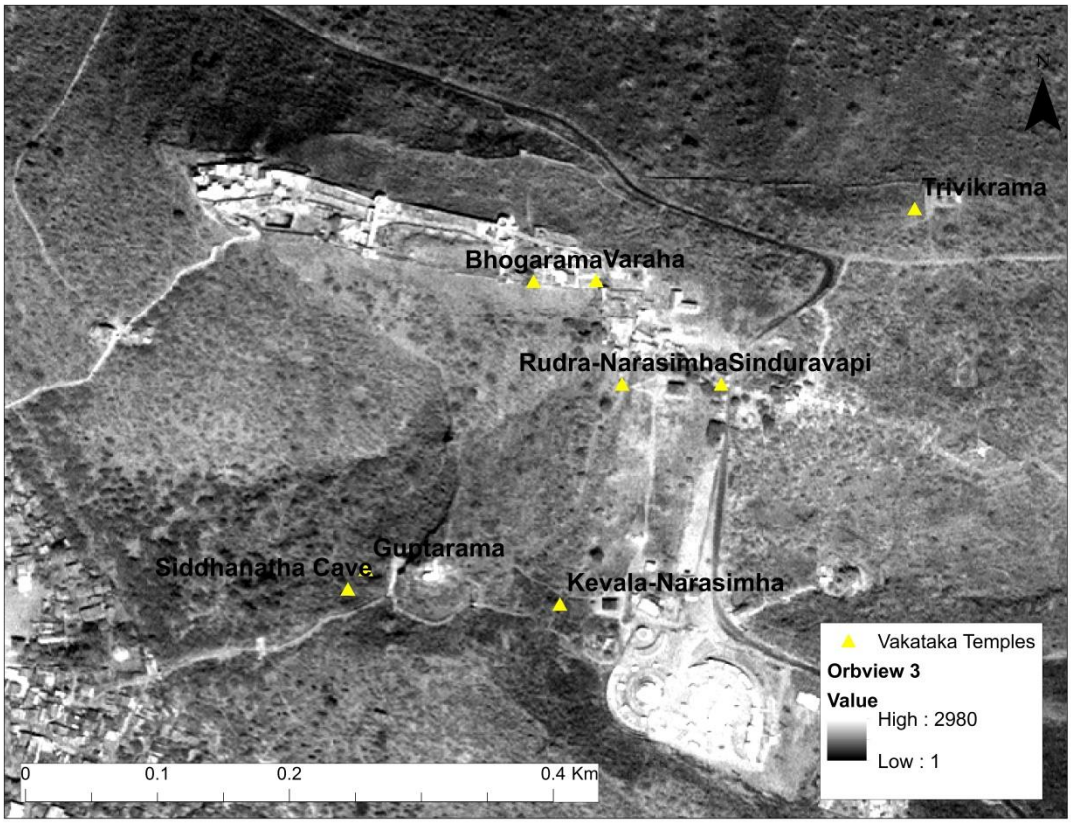


Figure 3-6. The hill-top site of Rāmṭek with the seven Vākāṭaka period temples indicated.

Both Jamkhedkar and Bakker have published sequences for the architectural development of Rāmṭek (please see Jamkhedkar (1985-1986) and Bakker (1997) for a complete overview) and concur that the Vākāṭaka constructions originate from a limited period of religious construction on the hill. Jamkhedkar identified a tentative architectural progression supported by inscriptional evidence, and proposed that the temples were constructed between 400-450 AD (1985-1986:26). Similarly, Bakker has proposed a 5th century date for the monuments based on the identification of characteristic 5th century AD iconography, decorative motifs and architectural plans, and the palaeography and genealogical content of the 'Rāmṭek Kevala-Narasiṃha inscription' (Bakker, 1990:66; Bakker & Isaacson, 1993:64).

Bakker sees the east-facing Bhogarāma temple, the west-facing Trivikrama temple and the three oldest sanctuaries of Varāha and Narasiṃha, oriented west in a north-south line, as one of three areas which constituted the full Vākāṭaka religious complex spread over Rāmṭek hill. This area is located c. 350m east of the main promontory of the hill and has been suggested to represent a memorial compound with temples built to "transfer merit" to the dead (Bakker, 2007b:19).

3.3.1.1. Varāha Temple

Both Jamkhedkar and Bakker assign the earliest date to the Varāha temple, with Bakker considering the structure to date to the first quarter of the 5th century AD (Bakker, 1992a:10). The Varāha temple is simple, square and open, and is constructed from a four-pillared *maṇḍapa* resting on a restored platform. The four square *rucaka* pillars have plain bracket capitals and are decorated by lotus reliefs supporting a roof over a large theriomorphic Varāha sculpture (Bakker, 1990:66). The current ceiling of the structure consists of intersected squares apparently dating from the Bhonsle period, however the original ceiling appears to have once had a lotus medallion rather than a crowning *āmalaka* (Meister, *et al.*, 1988:65)

The large basalt Varāha is completely theriomorphic, bearing similarities to the sculpture at Khajuraho, and could be the earliest example of this form of the deity. The Rāmṭek Varāha features no decoration and does not have the later iconographic trait of a hump on the back of the figure. The remains of a female deity are visible on

one tusk, which is said to represent the Earth goddess (Bakker, 1997:138). As such, the choice of Varāha could be connected to symbolism of royal glory as this deity rescued the Earth by lifting her up from the sea. This positioning of Varāha as a central icon of worship is significant in comparison to trends in the Gupta Empire, as a large figure of a boar-headed Varāha is carved in relief in Cave 5 of Udayagiri (Willis, 2009:41). In addition to being completely theriomorphic, the Rāmṭek Varāha differs from the Udayagiri image in the absence of an anthropomorphic Nāga king at his feet, which has been interpreted as a metaphorical display of power against the Nāga dynasty in the Gupta kingdom (Bakker, 2002). Instead, at Rāmṭek the Varāha rests upon sculpted coils belonging to the 'cosmic serpent', which is perhaps more appropriate given Bakker's association of Rāmṭek hill with Prabhāvatī Gupta, who bore matrilineal ties to the Nāga dynasty (Bakker, 1997).



Figure 3-7. Square pavilion temple containing the Varāha sculpture on Rāmṭek hill

3.3.1.2. The Narasiṃha temples

The two strikingly similar Narasiṃha shrines to the south-east of the Varāha temple are considered to be the subsequent developments on the hilltop and have been identified as memorial shrines (Bakker, 1992a:12). Both temples are red sandstone flat-roofed structures, containing large anthropomorphic images of Narasiṃha with a

lion's head (Bakker, 1990:66). The simpler of the two temples, the Rudra-Narasiṃha temple, has plain basalt pillars and no windows or decoration save for lotus flower motifs on the interior red sandstone pillars. The Rudra-Narasiṃha temple appears to have been constructed earlier due to these plain stylistic traits and is suggested to have been built in commemoration of king Rudrasena at the same time as or just after the Varāha temple around the first quarter of the 5th century AD (Bakker, 1992a:10). An interesting feature of the temple is that it is surrounded on three sides by projections and structures, which according to Bakker resemble fire-pits (kuṇḍa) (Bakker, 1997). Jamkhedkar notes that it is uncertain whether the ten projections on the exterior of the temple, with what he describes as the remains of eight cisterns below the platform, are original. It is apparent that much of the temple wall and the platform is reconstructed from debris of the original temple (Meister, *et al.*, 1988:67).

The second Kevala-Narasiṃha temple resembles the first, as it is also a closed-walled structure on a reconstructed foundation. However, the building lacks the surrounding pits of the Rudra-Narasiṃha temple and instead it is more extensively decorated with floral reliefs on the exterior, two small latticed window and images of *gaṇas*. (Bakker, 1990:66). The *gaṇas* which decorate the temple are considered to be 'guardians of wealth' and around the doorway they are shown to be showering coins. This is a particularly interesting feature given the absence of numismatic evidence for the dynasty (Bakker, 1997:147). There are weight-bearing basalt pillars within the temple but two decorative sandstone pillars separate the *maṇḍapa* and the *garbhagṛha* (Meister, *et al.*, 1988:66). The higher level of workmanship of the Kevala-Narasiṃha temple suggests a slightly later construction around the second quarter to middle of the 5th century AD (Bakker, 1992a:10).



Figure 3-8. Decorative details on the Narasiṃha temples: a) Decorative frieze on the exterior of the Kevala-Narasiṃha temple. b) Lotus pattern on the columns of the Rudra-Narasiṃha temple.

The Narasiṃha temples demonstrate that the Bhāgavata religion prospered in the 5th century AD (Bakker, 1990:67-69). The two large basalt Narasiṃha sculptures are almost identical, although the Rudra-Narasiṃha is slightly smaller. They depict the deity in an unusual *Mahārājalīlāsana* (a dignified royal and kingly pose), with a lotus cap and a *cakra* in hand as a symbol of sovereignty (Bakker, 1997:141). The representation of the deity alone (*Kevala)* rather than killing the demon Hiraṇyakaśipu conveys a calm authority and has slightly later parallels at Deogarh and Garhdhanora (Bakker, 1997). A semi-anthropomorphic Narasiṃha is also carved in relief at Udayagiri (Bakker, 2002). A 5th century Naga sculpture is still associated with the Kevala-Narasiṃha temple and is conjectured to have served a "protective" function (Bakker, 2007b:38).

3.3.1.3. The Kevala-Narasiṃha temple inscription

A stone slab inscription is situated on the interior south wall of the Kevala-Narasiṃha temple, which was identified during restoration work in 1981, and interpreted by several scholars (Bakker, 2013; Bakker & Isaacson, 1993; Jamkhedkar, 1987; Meister, *et al.*, 1988:66). Bakker believes that this inscription would originally have been located in the Trivikrama temple and may have been re-situated in the Kevala-Narasiṃha temple when it was reconstructed in the Bhonsle

period (18th century). It is possible that the adjacent ruins of the Trivikrama Temple could have provided material for the reconstruction (Bakker, 2013:169).

The content of the 15 line epigraph appears to support this supposition. The inscription records the return of Prabhāvatī Gupta's daughter Atibhāvatī to Rāmṭek and her subsequent pious acts, such as the construction of the Sudarśana reservoir. This inscription makes reference to the village Kadalīvāṭaka, which was connected to the building activity, and where an image of a God was established (Bakker, 1997:29). Significantly, the inscription records the erection of a temple in commemoration of Prabhāvatī Gupta and Bakker's interpretation indicated that this temple was dedicated to Viṣṇu Trivikrama (Bakker, 2013:175).



Figure 3-9. The 'Kevala-Narasiṃha' inscription, thought to originally have been located in the Trivikrama temple.

3.3.1.4. The Viṣṇu Trivikrama Temple

The Viṣṇu Trivikrama temple, to the north-east of the first three structures, is placed slightly later in construction than the Kevala-Narasiṃha temple, around the second half of the 5th century AD (Bakker, 1992a:11). Today only parts of the *maṇḍapa* are still standing on the foundation block and the structure has a Bhonsle period flat roof. The temple remains feature dwarf pillars holding the beams of the *maṇḍapa* and simple moulding decorates the temple walls with recessed niches and pilasters, floral

patterns and *gaṇas* (Meister, *et al.*, 1988:66). Jamkhedkar used the similarities between the exterior decorations on the Trivikrama temple and the Kevala-Narasiṃha temple, including its a frieze of *gaṇas*, to support a similar date of construction for both (Jamkhedkar, 1985-1986:26). Bakker believes that the specific style of the Trivikrama temple's ornamentation and its location outside the main complex are evidence of its later date. Furthermore, the pillars are comparable to examples from Nachna and Deogarh in the late 5th and early 6th centuries AD (Bakker, 2013:169; Williams, 1983). As the Trivikrama temple is thought to be the original home of the Kevala-Narasiṃha inscription, this text indicates that the temple's construction would most likely have been between 453 and 457 AD (Bakker, 2013:175).

The badly damaged image of Viṣṇu is no longer housed by the remaining temple, although it appears to be in its original location where the missing *garbhagṛha* would have been and is orientated to face west (Bakker, 2013:169; Meister, *et al.*, 1988:66). This red sandstone sculpture depicts Viṣṇu striding through the universe and would originally have had eight arms, but all are now broken off. The base of the sculpture is significant as there is an important relief, which although worn, appears to depict King Bali under the right leg of Trivikrama with a smaller figure supposed to represent Bali's wife. Bakker has compared the iconography with a lintel from Pawaya which depicts "Bali's sacrifice". It is this myth which has been identified in the dedicatory verse of the Kevala-Narasiṃha inscription and lends support to the proposition of the Trivikrama temple being the original location of this text (Bakker, 2013:173)



Figure 3-10. a) The Trivikrama sculpture, which is located on Rāmṭek hill but is no longer housed in the remaining temple structure. b) Part of the original Trivikrama temple which has been partly reconstructed.

3.3.1.5. Bhogarāma Temple

The Bhogarāma Temple is a further red sandstone, flat-roofed rectangular temple southwest of the Varāha temple. It is constructed directly on the rock as opposed to a having a built foundation and features two shrines facing east. According to Jamkhedkar it reflects a further development in temple plan as Bhogarāma displays two *garbhagṛhas* with a common vestibule and an open pillared porch (Jamkhedkar, 1985-1986:26). The Bhogarāma temple has been compared to Udayagiri Temple I (Bakker, 2002). The exterior of the structure is decorated with floral motifs and there is a complete set of mouldings (Meister, *et al.*, 1988:70). Although there are pedestals on the back wall, the temple almost certainly does not contain the original idols and those presented there currently have been suggested to be post-Yādava in date. The name of the temple, 'Bhogarāma', does suggest a connection with bhoga meaning coil, hood or snake, which potentially indicates that Bhogarāma stands for Balarāma the serpent deity (Bakker, 1997:64).



Figure 3-11. Decorative elements on the exterior of the Bhogarāma' temple

3.3.1.6. Guptarāma and the Siddhanātha cave

A second area identified by Bakker is the location of the Guptarāma temple and a reclusory cave, c. 250m south of the promontory of the hill and lower on the hill side (Bakker, 1997:86). These two Vākāṭaka structures are said to attest to the continuing tradition of cave architecture in the area (Jamkhedkar, 1985-1986:26). Guptarāma is particularly significant in that it is a 'cave-cum-structural' temple (Jamkhedkar, 1985-1986:26). The Guptarāma temple is partly carved into a natural cave in the rock-side and integrated with a structural pillared portico (Bakker, 1990:68). The temple currently contains a *liṅga* and a Nandi but these are not the original idols (Meister, *et al.*, 1988:70). A badly damaged four-armed Viṣṇu image was discovered nearby and is thought possibly to represent the original sculpture which would have been housed in this temple (Bakker, 1997:87). Approximately 200m away from Guptarāma is the reclusory cave of Siddhanātha. This cave features two rock cut rooms and the ceiling of the cave is decorated with pseudo pillar capitals of a simple 'cross bracket' type, resembling those of the Vākāṭaka temples (Bakker, 1990:68). (Bakker, 1997:42; Meister, *et al.*, 1988:70).

Bakker has connected the presence of rock-cut caves at Rāmṭek to the suggestion that development of the ritual site was influenced by Prabhāvatī Gupta's knowledge of the religious monuments in the Gupta Empire, specifically the Udayagiri. Bakker has

suggested that these sites represent two attempts to excavate temples on the hill side, before the decision was made to build structural temples (Bakker, 2002:3). The tradition of rock-cut architecture may also have been continued at Mansar, which according to Deo featured rock cut caves which have since been in-filled (1975-76, 275). The large brick Śiva temple (MNS III) features brick lined and plastered caves with approaches on the northern and southern sides of the structure, which were used as shrines (Joshi & Sharma, 2000:129).



Figure 3-12. Side view of the Guptarāma temple on Rāmṭek hill

3.3.1.7. The main temple complex

Bakker proposes that the main sanctuary of the full Vākāṭaka complex would have been located on the most prominent western point of the hill, which is now occupied by Yādava temples. Given this location's prominence and the peripheral formation of the remaining Vākāṭaka temples, it would have been the logical location for the main sanctuary, identified as the 'Rāmagiristhāna' in the 'Rāmṭek inscription' (Bakker, 1992a:11; Bakker, 1997:86). There is no evidence of the main sanctuary due to the later overlays, but Bakker has theorised that it may have been dedicated to Rāmacandra (Viṣṇu) with Viṣṇu's footprints as a likely icon (Bakker, 1990:69). The name Rāmṭek ('Rāmagiri' in the Meghadūta) implies that the chief 5th century temple would have been associated with Rāma. Mirashi notes that inscriptions of Prabhāvatī Gupta indicate her worship of the footprints of Rāmachandra and several

grants were issued from Rāmagiri-svāmin indicating a temple on the hill (Mirashi, 1963:xxiii). The 13th century Yādava inscription in the Lakṣmaṇa temple on Rāmṭek hill also refers to the feet of Rāma (Bakker, 1991:29; 1997:64-65). This proposition originates from deduction, however a small sculpted sandstone piece portraying a pair of footprints in bas-relief, was found around Nagardhan (Bakker, 1991:30). This has been dated to the 5th century through its association with other sculptures of Vākāṭaka provenance and has been postulated to be an imitation of the original icon on the hill (Bakker, 1991:30). The production of replicas of main deities for personal worship is known in the area, as shown by the discovery of several small Narasiṃhas mimicking the pose of those in the two Rāmṭek Narasiṃha temples (Bakker, 1991:31; Joshi & Sharma, 2005:14). There is no known evidence for the first millennium worship of Rāmacandra, but Bakker has suggested that Rāma could have been accepted as an incarnation of Viṣṇu during the Gupta age, without necessarily being the object of an independent cult (Bakker, 1991:30).

The citadel now on the promontory of Rāmṭek hill results from later periods of building from the Yādava period onwards. The Yādavas developed the promontory of Rāmṭek hill with temples and water tanks, and the walled temple complex which incorporates Bhogarāma and Varāha temples continued to be elaborated during the Vijayanagara period (15th to 16th centuries) and from the Mārāṭha period onwards (Post-18th century) (Bakker, 1989b:467). The later constructions make it difficult to assess the level of immediately post-Vākāṭaka Rāṣṭrakūṭa or Cālukya period activity between the 5th and 12th centuries (Bakker, 1990:70).

The known constructions of the Yādava period on Rāmṭek hill include the Sindūravāpī and the Siteei Nhānī (Sītāsnānasthala) tanks and three main temples dedicated to Hanumat, Lakṣmaṇa and Rāma (Bakker, 1990:71). The Yādava temples do not resemble the earlier Vākāṭaka shrines, as they are constructed from different stone and lack sculptural decoration (Bakker, 1989a:94). They are influenced by a Northern style of temple architecture, which largely correspond to the Phamsana and Bhumija type of the Nagara tradition (Bakker, 1989a:97; Sohoni, 1998:48). The stone Sindūravāpī tank appears to be the earliest post-Vākāṭaka structure on the hill and has cloisters which appear pre-Yādava as the pillars are reminiscent of the Vākāṭaka tradition (Bakker, 1989a:93; 1989b:475). Sītecī Nhāṇī tank on Rāmṭek hill is conjectured to be an ancient structure which has been reconstructed over time and

has Vijayanagara period design elements, and a gate and *chhatra* which appear to be Mārāṭha period additions (Bakker, 1989b:476).



Figure 3-13. The Sindūravāpī tank on Rāmṭek hill, which displays columns similar to those in Vākāṭaka constructions.

A brief test excavation between the two Narasiṃha temples was conducted by Jamkhedkar (1981) to investigate the past activity on Rāmṭek hill, but little was recovered and the excavation was not continued. No structures from this intervening period are visible on the hill and in the immediate area only the Kālikā Devi temple in Rāmṭek town has been tentatively identified as a 7th/8th century Cālukya construction (Jamkhedkar, 1985-1986:26). Architecturally this temple displays a relatively plain vaulted roof, suggestive of a southern style of architecture (Meister & Dhaky, 1986). The Devi temple's roof is supported by pillars which appear to have some continuity with the earlier Vākāṭaka constructions on the hill. Bakker believes that the "barrel-vaulted roof" featuring caitya windows is reminiscent of 8th century architectural traditions (Bakker, 1989a:93). However, Willis believes the simple moulding and decoration could be indicative of a slightly later date for construction (pers. Comm). Fragments of early sculpture can be found on a platform outside the temple and an image of Ganesh has stylistic qualities which could make it comparable to *gaṇa* images found at Mansar (Bakker, 1989a:94).



Figure 3-14. Vaulted roof of the Kālikā Devi temple in Rāmṭek town.

Situated on the lower north side of Rāmṭek hill is a temple characteristic of the 13th century Hemādpanti style, which demonstrates religious activity towards the end of the Yādava period; Karpūravāpī (site 92) consists of a temple and a stone tank with arcades on four sides (Bakker, 1989b:475; 1990:71). On the western side of the temple are three *śikharas* topped with large *āmalakas.* The stones of the *śikharas* are slotted together with no use of mortar. The largest central tower has curved sides while the two smaller towers appear to have a 'pyramidal' shape (Bakker, 1989a:96).



Figure 3-15. Karpūravāpī at the base of Rāmṭek hill on the north side.

Ambālā Lake, at the east end of Rāmṭek hill, has a small ruined temple (Ambikanatha) on the south-eastern side, which appears to be of the early Yādava period and shows some affinity with the Kālikā Devi temple (Bakker, 1989a:95). This structure may be that referred to in the Rāmṭek stone inscription of the Yādava king Ramachandra (last quarter of 13th century AD) (Bakker, 1989b:474). Bakker reports that the temple housed an image of Balarama, carved in red sandstone and styled so as to suggest an early date. He theorises this could represent one of the original images of the Bhogarāma temple on the hill (Bakker, 1989a:96). When the Mārāṭha Bhonsle chiefs established their capital at Nagpur in the 18th century, Rāmṭek underwent development as a key ritual centre in their territory, resulting in the renovation of old temples and building of numerous new structures on and nearby Rāmṭek hill (Bakker, 1989a:98). The majority of the temples around Ambālā Lake appear to originate from the Mārāṭha period as demonstrated by the Islamic influence in their design (Sohoni, 1998:149). Bakker notes that although clearly much later than the hill temples, those around Ambālā combine Indo-Islamic elements with a "remarkable continuity" in aspects of style, such as the use of plain square pillars topped with a cross bracket (Bakker, 1989a:99).



Figure 3-16. A group of Medieval temples situated on the south west side of Ambālā Lake.

3.3.1.8. Sudarśana Reservoir

Archaeological study at Rāmṭek has primarily focused on the monumental religious architecture rather than the settlement history of the site. However, a 2006 short exploratory field season, led by Bakker, attempted to extend archaeological investigations along Rāmṭek hill to explore one final structure considered to be of Vākāṭaka origin; the ancient Sudarśana Reservoir. A modern irrigation dam across the cleft in the Rāmṭek hill range, which creates Khindsi Lake, is considered to be the location of an ancient structure. Khindsi Lake is considered to be the "modern successor" of the ancient Sudarśana Reservoir, known from the 'Rāmṭek Kevala-Narasiṃha' inscription and dated to around 550 AD (Bakker & Isaacson, 1993:70). It is conjectured to be named after a reservoir of the same name in Junagarh, and thought to have served a similar purpose, which was as a water source for a "nearby capital" (Bakker & Isaacson, 1993:70). During the 2006 fieldwork, the dam site at Khindsi was investigated but no physical remains were visible (Sutcliffe, 2007:1). Despite this, Sutcliffe attempted to make estimates on the hydrological potential of the Rāmṭek reservoir and concluded that, given estimated areas, rainfall and water inflow, the volume of water could have supported a large population in the landscape and potentially a major centre (Sutcliffe, *et al.*, 2011:785). Despite the presence of a substantial water management structure, the ritual centre and two suppositional ancient capitals, comparatively little archaeological work has been conducted across Rāmṭek to relate the central sites to the landscape and population.

3.3.2. Nandivardhana: The Vākāṭaka capital at Nagardhan.

Roughly 6km south of Rāmṭek is the village of Nagardhan, which has been identified as Nandivardhana, the capital or 'residence' of King Pravarasena II. Nandivardhana is the second known capital of the Eastern Vākāṭakas following Padmapura. The site is first mentioned in the Pune copper-plates of Prabhāvatī Gupta (Year 13 of her regency) and the charters of Pravarasena II were issued from Nandivardhana until the Belora plates of the 11th year of his reign. At some point before the 16th year of Pravarasena II's reign, the capital is thought to have shifted to the new state sanctuary at Pravarapura, from where most of the subsequent charters were issued.

Several scholars, such as Hiralal and Mirashi, connected the ancient place name of Nandivardhana with the modern village of Nagardhan or 'Nandardhan' in Rāmṭek Tehsil (Mirashi, 1963:7). The area has rich archaeological potential and findings of 5th century AD remains have been taken to support the site's etymology and epigraphic evidence (Bakker, 1991:29). The standing remains which dominate Nagardhan today are post-Vākāṭaka and include a large Bhonsle period fort (18th century) on the southern outskirts of the village, which has seen extensive renovation by the State Archaeology Department. It has been suggested that the Medieval structure was raised at the site of an ancient fort, but there is a lack of extant structural or architectural remains for any Vākāṭaka 'residence' (Bakker, 1997:84).

Early assessments of Nagardhan were carried out by Wellsted during his 1933 survey of Mansar and its surroundings. Wellsted did not agree with tentative identifications of the site as Nandivardhana stating that while brick remains were present, none appeared to be sufficiently large to be identified as 'Gupta' type bricks. In a note, Wellsted remarks that the Nagardhan bricks are almost exactly half the size of average 'Gupta bricks', leading to their misidentification as fragmentary Gupta period brick (Wellsted, 1934:161, Note 2). Wellsted considered there to be stronger grounds for identifying Nandivardhana at the more northerly site of Nandpur (in the Pench wildlife reserve), based on its perceived strategic position and remains of brick fortification (Wellsted, 1934:160). During the 2006 short survey by Bakker and Cork, no archaeological evidence was located around the location of Nandpur. Cork concluded that while Nagardhan and Nandpur may have been contemporary, Nagardhan was most likely the main settlement site attached to Rāmṭek and Mansar, and thus the ancient site of Nandivardhana (Cork, 2006). The site of Nandpur has not been subjected to sufficient archaeological investigation to fully evaluate Wellsted's claims that it was a large Vākāṭaka site and unfortunately, the site was inaccessible during the current research.

Rāmṭek is thought to have been approximately at the centre of the Eastern Vākāṭaka 'sphere of influence' and a site of significant religious importance, so it would be expected that the Vākāṭaka capitals would be located in its immediate vicinity (Wellsted, 1934:166). It is proposed that Nagardhan may have been the royal 'residence' attached to the state sanctuary at Rāmṭek (Rāmagiristhāna) (Bakker, 1992b:83). Rāmṭek is a prominent landscape feature clearly visible from Nagardhan

and furthermore would have been situated within the agricultural zone south of the hill. Sutcliffe suggested that the Khindsi reservoir could have supported a maximum cultivatable area of 100km² (Sutcliffe, 2007; Sutcliffe, *et al.*, 2011:785). Mirashi supported the identification of Nagardhan with Nandivardhana and noted that it too occupied a beneficial location in the wider landscape as the royal capital would have been surrounded by "strongly fortified" sites such as Ghughusgadh and Bhivgadh (22km north west of Nagardhan in the Pench reserve) (Mirashi, 1963:xxiii).

The ancient site of Nandivardhana is generally considered to have included the area now occupied by the adjacent village of Hamlapuri; if so it would have stretched across a distance of 3km (Shastri, 1997:219). Finds that support Nagardhan's identification as a Vākāṭaka settlement have been reported over years of preliminary survey. The Department of Archaeology and Museums noted that the modern village of Nagardhan is clearly situated on top of a mounded habitation site and reported pottery, architectural fragments and sculptures alongside multiple brick structures and sections of a brick fortification wall measuring 10.5m wide in places (Sali, 1998:13). In connection to this, IAR reports that Chandrashekhar Gupta identified several sculptures from Nagardhan in the early 1980s, which he assigned to the Vākāṭaka period (Mitra, 1983c:49-50). The sculptures included images of Ganapati and Lajjā Gaurī. Agarwal and Nath explored Nagardhan under the Archaeological Survey of India and recorded various Early Historic finds including terracotta figurines, a stone pestle, a spindle-whorl and ceramic sherds of incurved bowls, carinated handis and miniature pots with "mica dusting" (Mitra, 1983c:96).

The 2006 exploration by Bakker included a visit to the Nagardhan area and a number of potential mounds were reported as being visible in the fields to the northwest of the main village. However, the one chosen for investigation yielded no archaeological remains and focus was drawn to nearby Hamlapuri (Cork, 2006). Finally, the site was recently re-explored during PhD research conducted by Bhaisare, who has reiterated that the extant fort was built on the remains of the Vākāṭaka 'durg' (Bhaisare, 2012). To complement these reports, further archaeological evidence is needed to more intensively explore, and excavate the Nagardhan area. Further investigations may corroborate the conjectured identification of Nagardhan as Nandivardhana and increase our understanding of the nature of the ancient site; it is unknown whether a 'capital', assumed on the basis of

epigraphic places of issue, encompassed major settlement areas or whether the focus of settlement in the Rāmṭek landscape was elsewhere.

3.3.3. Pravarapura: The second capital at Mansar

Mansar (21°24'N and 79°17'E) lies six km west of Rāmṭek and was identified as Pravarapura following extensive archaeological research over the last decade. Mansar was known to have archaeological remains in the early 20t-h century and there were reports of Gupta-type bricks and ruins assumed to be part of a Buddhist monastery (Wellsted, 1934:161). Notes in the appendix of the Nagpur Gazetteer of 1908 state that the village was known due to its tank, called Manisar ('jewel tank'), which attracted pilgrims to the site (Russell, 1908). These early reports mention the presence of brick bats on the low hills by Mansar village and state that exposed building material from the foundations of brick buildings was being re-used by villagers (Joshi & Sharma, 2005:2). The first full exploration of the area was carried out by Wellsted in 1933 who recorded extensive stone facing on Mansar tank and architectural fragments displaying 5th century AD characters (Wellsted, 1934:162). The site was dated through the identification of large 'Gupta-type' brick remains, supported by sculptural and epigraphic evidence, and Wellsted recorded traces of an "extensive town-site" to the east and south of Mansar tank (Wellsted, 1934:161).

Wellsted recorded the presence of significant remains of a 'monastery site', the remains of "numerous temples" and extensive surface finds of diverse sandstone sculptures at 'Hill B' (Hidimba Tekdi) to the east of Mansar tank (Wellsted, 1934:161). The raised ground of the 'Monastery site' was estimated to be 11 acres in extent with a large central mounded area. Wellsted initially considered the remains to resemble a ruined Buddhist stupa but close examination revealed a rectangular building c. 150ft by 885ft, which was identified as a 'Vihara', or a secular building with surrounding courts (Wellsted, 1934:162). In addition to these areas of significant mounded remains, Wellsted made two noteworthy findings at the manganese mine to the north of Mansar. The first was the site of a brick-lined 'altar' containing various artefacts, including hundreds of pot pieces, horse bones, charred wood and earth (Wellsted, 1934:163). The second site ('Site T') was described as a square shaft constructed from large-sized bricks. Beneath a false floor were several

finds including a small soapstone snake image and a large pot containing ashes, leading to the conclusion that this site was a burial shaft (Wellsted, 1934:164). Wellsted's collection is now housed at the British Museum (Willis, 2008). Bakker has proposed that the burial shaft was a funereal monument to Prabhāvatī Gupta given her Nāga descent.



Figure 3-17. a) The small soapstone snake in the Wellsted Collection of the British Museum, b) A selection of the ceramic vessels in the Wellsted Collection

In the 1930s, Wellsted stated that the decay and notable level of destruction from brick quarrying at Mansar was already so advanced that excavation would be unfruitful, with the possible exception of the 'monastery' site and Hill B (Wellsted, 1934:164). This suggests that some of the remains may not be locatable through modern survey - a predicament encountered in Bakker's 2006 exploratory field season which attempted to corroborate Wellsted's findings at Mansar and evaluate the impact of modern development over the intervening 70 years. The team explored the area around the hill and tank, largely confirming the major observations by Wellsted. Brick remains were found to be scattered over the hills surrounding Mansar were scattered with brick remains, which suggests there were dispersed buildings around the Mansar hills. However, no substantial remains were discovered which would be indicative of a large settlement site and there is no longer evidence for brick walls at the area identified as settlements to the east of Mansar hill (Cork, 2006:2). The estimated GPS location of 'Site T' and the altar site were explored, but

these features appear to have been totally destroyed by mining activity (Cork, 2006:2). Sutcliffe confirmed the major details of Wellsted's original map of Mansar tank as the rough masonry facing is still present, although there is less than reported in 1934, and the embankment was confirmed to be man-made (Sutcliffe, 2007). Three projections from the embankment were recorded rather than two as in the original map and modern sluices were identified on the east and western end of the tank (Sutcliffe, 2007:5). Based on the size of the tank, and estimated inflows of water and rainfall, it was concluded that the lake was likely to have been ornamental, although it may have been useful as a "domestic" water source (Sutcliffe, 2007).

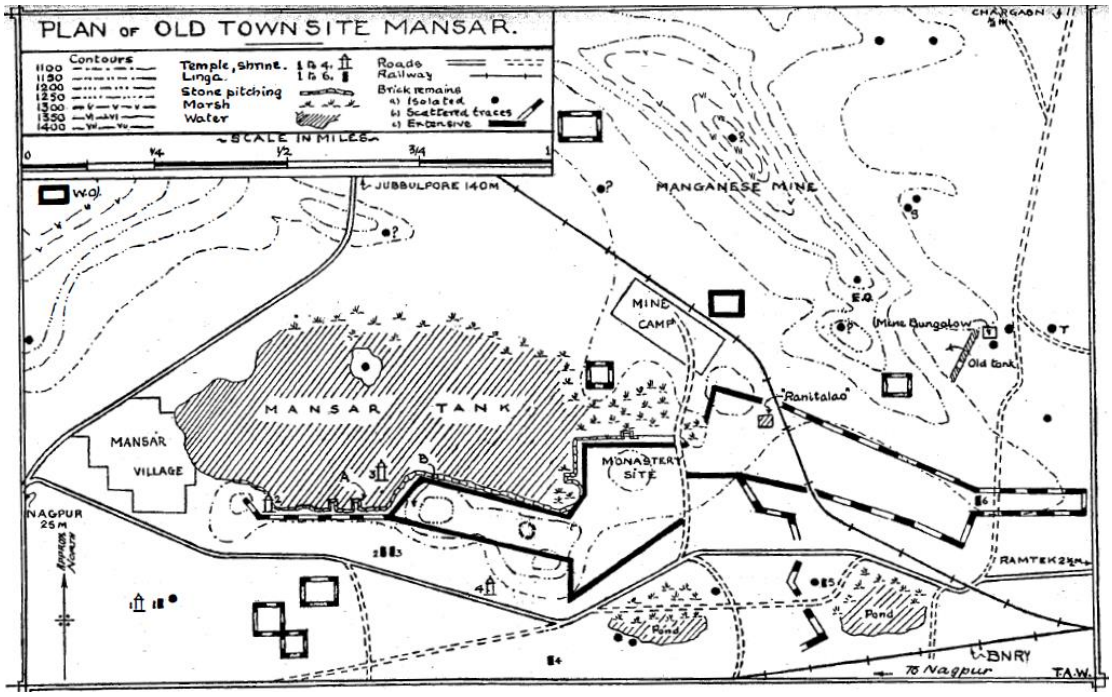


Figure 3-18. Wellsted's map of Mansar tank and hill, showing the presence of buried monumental constructions (1934).

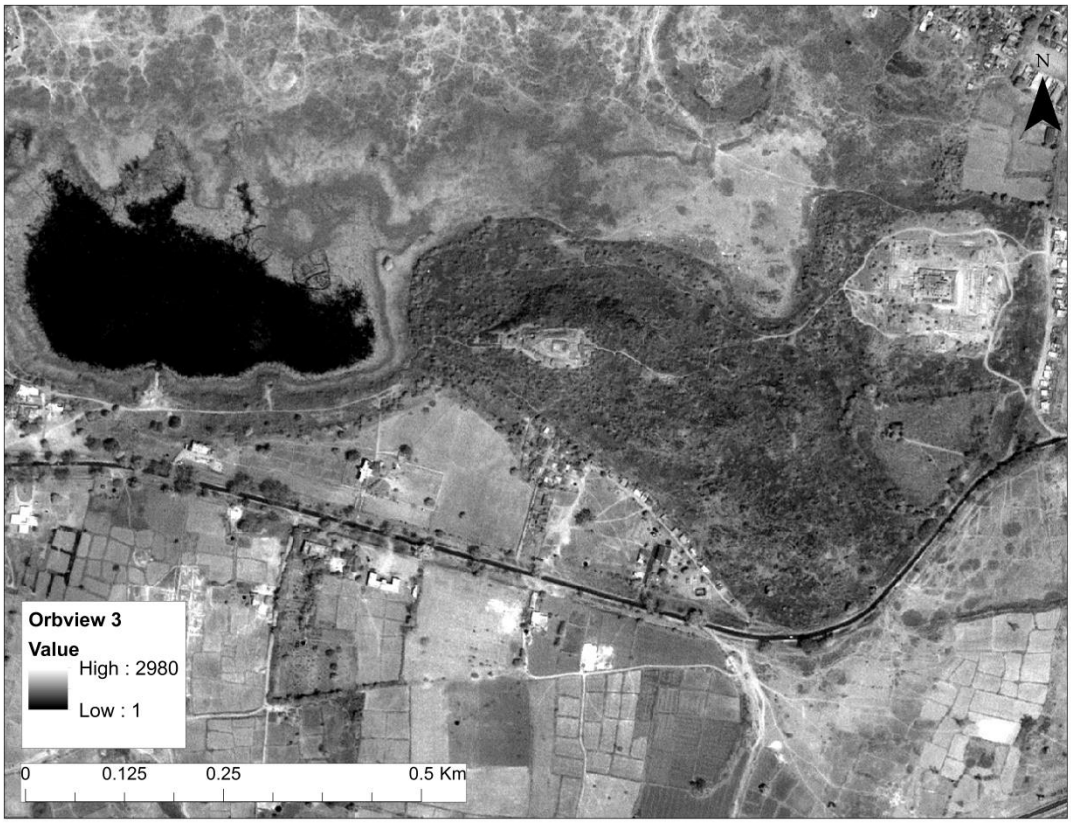


Figure 3-19. Mansar hill as it stands today with several of the larger sites exposed by excavation and reconstructed.

In-depth archaeological investigations have been carried out at Mansar since Wellsted's explorations, prompted by the discovery of promising finds, including the impressive sculpture of the 'Mansar Śiva' found at Hidimba Tekdi in 1972 (Joshi & Sharma, 2005:13). Variously identified as Śiva, Jambhala, Kubera or a Gaṇa, this sculpture is of exquisite quality and has been used to suggest royal patronage of the site. The sculpture is dated on stylistic grounds to the second quarter of the 5th century AD, and is reminiscent of other Śaiva images recovered from the Vākāṭaka site of Mandhal, as well as the Yakshas and Bodhisattvas of Ajanta (Bakker, 1997:78; Bisschop, 2008; Deshpande, 1975:pl.XLII B; Nagata, 2008).

Another important find from Mansar was a set of Vākāṭaka copper plates (the Rāmṭek Plate of Pravarasena II), of which one has been published by Mirashi (1963). A Vākāṭaka copper-plate inscription usually consists of five plates and it was reported that all five were originally recovered from the manganese mine, but only one was recovered from the contractors. In a typical copper-plate, the first two plates

contain the genealogical information and the donor's name; the third plate has the details of the land-grant including boundaries and the recipient of the land; The fourth plate contains the conditions, privileges and immunities of the grant; finally the fifth plate states the regnal year of the charter and the benedictory verses. The Mansar plate is the fourth and shows that the donation was made for the "religious merit, life, strength and prosperity" of the donor (Mirashi, 1963:73). While not definitively attributable to a king, its palaeography is thought to be consistent with those of Pravarasena II (Mirashi, 1963).



Figure 3-20. The Mansar Śiva at Delhi National Museum, labelled as Śiva Vamana (Śiva in the form of a dwarf) and measured at 84cm in height, 65cm wide, and 37cm deep.

An initial sounding was excavated at Mansar by Nagpur University, but few details are available regarding this test excavation, and the mounds have since been extensively excavated and the structures partly renovated (Sali, 1998:8). Nath led the first excavation in 1994 under the Archaeological Survey, which focused on Wellsted's 'Monastery site' in order to ascertain the extent, layout and nature of the remains and to provide further context for the sculptural finds (Manjhi, *et al.*, 2000:55). Excavations on the western side of the mound revealed part of a large burnt-brick structure with mud masonry, and three phases of structural activity were tentatively identified. In the first phase, Nath identified a core area with a moulded *adhiṣṭhāna* built over a "knoll". In the second phase the *adhiṣṭhāna* appears to have been enlarged without making any significant alterations in ground plan however the

exterior was decorated with pilaster mouldings. Finally in the third phase walls were raised around the *adhiṣṭhāna* and filled with brick bats, topped with a porch and "subsidiary shrines". On the west side of the structure the main stairs were sealed and filled in and the original core area of the structure was supported by the construction of "ramp-walls". The excavators noted that a thick burnt deposit suggested large-scale burning. Sculptural remains at the site, including Uma-Maheśvara, Lajjā Gaurī and a plaque with footprints, are reported as indicating the Brahmanical religious affinity of the site (Manjhi, *et al.*, 2000:56). Other finds included ceramics, several coins, clay figurines, beads, ornaments and iron objects, and the site was dated to between 300 and 650 AD on the basis of the numismatic evidence, primarily attributed to the Kshatrapas and Vākāṭakas (Manjhi, *et al.*, 2000:57). The ceramic types were said to be characterised by medium fabric red ware, coarse gritty micaceous red ware and fine polished red ware in a range of shapes including vases with flared rims and carinated handis (Manjhi, *et al.*, 2000:56).

Extensive excavations were carried out from 1997 by the ASI, under the supervision of the Buddhist organisation who owns the land (Joshi & Sharma, 2000; 2005; Mani, *et al.*, 2003). Nath and Wellsted's 'monastery' site was renamed MNS II and re-identified as a secular building; the 'palace'. Wellsted's 'Hill B' was excavated (MNS III) and further brick constructions across the hill were subject to smaller scale investigations.

Table 3-1. Main sites investigated during the excavations at Mansar

Site Name (Joshi & Sharma, 2005)	Previous Name	Description
MNS I		The site of the Nagpur University excavations. Flat area of the site with brick structures
MNS II	The Monastery Site (Wellsted, 1934)	The 'palace site': Identified as 'Pravarapura', the state sanctuary
MNS III	Hidimba Tekdi, 'Hill B'	Large Vākāṭaka Siva temple: Pravareśvara
MNS IV		Small 'residential' building
MNS V		Stellate-plan liṅga temple
MNS VI		Stellate-plan liṅga temple

Joshi and Sharma's findings differed to those of Nath and resulted in the proposition of a long chronology for Mansar. Prehistoric evidence has been obtained during

explorations in the area, including stone tools and a large rock formation determined to be an anthropomorphic figure, taken to be representative of religious development at the site by early man (Joshi & Sharma, 2005:4). Megalithic cairns were also reported along the bank of Mansar tank (Joshi & Sharma, 2005:127). The chronology of structural sites on Mansar hill has been dated from the Mauryan-Sunga period onwards with great development under the Sātavāhanas, followed by occupation by the Vākāṭakas.

Table 3-2. The periodisation outlined for the structural remains at Mansar following excavation (Joshi & Sharma, 2005)

Phase	**Period**	**Date**
Period I	Maurya-Sunga	300 - 200 BC
Period II	Sātavāhana	200 BC - 250 AD
Period III	Vākāṭaka	275 - 550 AD
Period IV	Viṣṇukuṇḍin (Mahavihara Period)	Post 550 AD

Mansar has exceptional archaeological remains and the two main structures (MNS II and III) are important examples of a limited number of brick terraced structures dating to the Gupta-Vākāṭaka period. The excavators have also reported that the two star-shaped temples at the site were constructed at least as far back as the 2nd century AD under the Sātavāhanas, which would make them possibly the earliest known temples with this plan in India (Sharma, 2008). Early stellate temples are known from Tala (c. 500 AD) and the Mansar temples are particularly similar in plan to the Rāma temple in Sirpur and the Dhobinī temple near Damakheda (Bakker, 2008b). Unfortunately, the original details of the architectural plan have been obscured by modern reconstruction.



Figure 3-21. Stellate-plan liṅga temple on Mansar hill (site 10: MNS V).

The excavators assigned the construction of the original 'palace' site (MNS II) to Period II under the Sātavāhanas, with an enlargement under the Vākāṭakas in Period III. It is hypothesised that when the Vākāṭaka king Pravarasena II moved his capital from Nandivardhana to Pravarapura, an abandoned Sātavāhana palace was re-occupied and subject to additions and enlargements to the original plan (Joshi & Sharma, 2005:22). The excavators at Mansar believe that the only change under the Vākāṭakas at MNS II was the enlargement of the *adhiṣṭhāna* and a change to the overall plan by the addition of four "bastion like square projections" to the corners of the platform (Joshi & Sharma, 2005:20). MNS II is described as standing on a solid brick platform of 51m (east-west) by 44m (north-south), with the 'palace' itself comprising a large complex of rooms approached from the west by a flight of wide steps (Joshi & Sharma, 2005:8). The palace was surrounded by wide brick fortification walls on all sides, parts of which still exist to a height of 5m. The area within the fortification walls is estimated to be 124m east to west and 110m north to south, containing areas of courtyards, veranda and rooms with a forty-two pillared *maṇḍapa* dated to the Sātavāhana period (Joshi & Sharma, 2005:9).

MNS III has a stone foundation and a brick superstructure with carved red sandstone architectural pieces, the construction of which has been assigned by the excavators to around 340 AD (Joshi & Sharma, 2005:14). Maurya-Sunga origins were identified by the excavators at MNS III, and the published articles report the remains of

Buddhist structures including two brick built stupas and a chaitya, which are no longer visible (Joshi & Sharma, 2005:128). The excavators suggest that a pre-existing structure at MNS III was later developed into a large Vākāṭaka temple in early Period IIIA (the second quarter of the 4th century AD), with a second phase of construction in Period IIIB (Joshi & Sharma, 2005:14). A further significant find at MNS III was the so-called 'Man of Mansar', described as a more than life-size lime figure of a man with a crushed head, on a sacrificial altar made of bricks (Joshi & Sharma, 2000). Associated with the figure were an iron snake and several pots. This has been described as a substitute for a human sacrifice (*Puruṣamedha)* made for the construction of the building in order to spiritually protect and safeguard it (Bakker, 2007a:8).

The Vākāṭaka temple features elaborate architectural designs and incorporates several brick-lined caves (Joshi & Sharma, 2005:15). The southern side of the temple presents a profusion of Śiva shrines formed from shaped and moulded brick: the elaborate curved design have been described as resembling lotus buds or as an attempt to reflect the mountainous surroundings (Joshi & Sharma, 2005:129; Raven, 2008:7). Baked clay sealings found at the site display the name 'Pravareśvarasya' in 5th century box-headed Brahmi, indicating that the temple was 'Pravareśvara', a Śaiva temple named after the king Pravarasena II (Bakker, 2008d). The Pravareśvara temple would have therefore been the state sanctuary for Pravarasena II's new residence, Pravarapura (MNS II) (Joshi & Sharma, 2005:19).



Figure 3-22. South side of MNS III, the Pravareśvara temple, with its elaborate brick shrines

Mansar is a difficult site to interpret due to the complexity of the architectural features with different phases of historical construction, and modern renovation and consolidation. Following the excavation, the proposed chronology at MNS II and III has been challenged by Bakker and Raven based on their later assessments of the structures. The excavators identified phases of building at the monumental structures largely based on brick size and quality of construction, to indicate a long history of phasing at the site from pre-Mauryan origins to post-Vākāṭaka. However, the published brick dimensions stated to be of Sātavāhana origin at MNS II do not differ substantially from those classified as 'Gupta-Vākāṭaka', and the range of sizes may be representative of expected variation due to manufacture or building requirements.

At MNS II there does appear to have been at least three phases of construction (initial structure, a period of enlargement, and further modification and enlargement) but Bakker suggests these took place over a limited period of time under the Vākāṭakas and that the modification was due to instability of the monument. The later phases of building appear to be primarily ballasts and extensions to support collapsing portions of the building. Raven has compared the alterations at MNS II to those observed in building phases at Pawaya and Ahichhatra. At both sites the platform was modified and refurbished to reflect later fashions in *pañcāyatana* plan (Raven, 2008:8). Other similarities between the sites are observed in the construction

of the *adhiṣṭhānas* from "receding courses of bricks", the use of foundation boxes filled with brick-bats and barricades or retaining walls. Bakker has stated that while the original basement construction appears to have been enlarged, he finds there to be no significant difference in decoration and architectural style between phases (Bakker, 2002:8; 2008b). The identical appearance of the pilaster mouldings, lime-plastering and painted decoration of the two proposed phases of construction at MNS II have been explained by excavators as Vākāṭaka attempts to imitate the original Sātavāhana structure. Bakker has also noted that the temple friezes on the temples at Rāmṭek display similar ornamental pilasters and recesses (Bakker, 2008b). Similar decorations are known from the remains of a large brick temple uncovered at Nagara, located towards the edge of the Eastern Vākāṭaka territory, which is (inconclusively) dated by Jamkhedkar to the end of the 5th century AD (Bakker, 2008b). Raven and Bakker have supported the proposition that MNS II was originally a Vākāṭaka construction, referring to Nath's 1994-95 excavation report in which the structures and ceramics identified were dated to c.300-650 AD rather than an earlier origin (Bakker, 2002:7; Manjhi, *et al.*, 2000; Raven, 2008:9). Raven also notes that no material, numismatic or inscriptional evidence is mentioned from Nath's excavation of MNS II which would verify a pre-Vākāṭaka phase (Raven, 2008:7).

Furthermore, Bakker disputes the early dating for MNS III and assigns its construction to the 5th century AD. Maurya-Sunga origins were proposed based on the reported remains of Buddhist structures however Bakker has been unable to identify these remains and rather considers Mansar to be a complex of Hindu temples, similar to the 5th century constructions at Ahichhatra and Pawaya (Bakker, 2002:11; Raven, 2008). Also noted is the similarity between the carved brick designs and architectural motifs at MNS III and MNS II, which indicates a similar date of construction. Unfortunately there are no plans or photographs related to the Buddhist structural remains and the Vākāṭaka monument has been reconstructed, so these cannot be assessed in the current research. The excavators refer to artefactual evidence of Buddhist activity at the site in the form of a sealing with a Buddhist text common in Gupta and post-Gupta times. This sealing is dated to the 6th or 7th centuries AD on palaeographic grounds but its provenance has been questioned by secondary scholars (Kropman, 2008:5). The proposition of earlier structures by the excavators is significant for the aims of this thesis which hopes to examine the

historical narrative for development around Rāmṭek. The excavation evidence suggests that the Vākāṭakas inherited an area which had already undergone previous economic and religious developments. This may have significance regarding the level of Vākāṭaka influence and impact in the landscape and it is intriguing to investigate the surrounding area for further economic or ritual activity to test this theory.



Figure 3-23. MNS II, the 'Palace' site

Following the Vākāṭaka occupation at the site, the excavators identified Viṣṇukuṇḍin (Mahavihara) period remains. A Buddhist stupa was discovered over the debris of the Pravareśvara temple alongside a Viṣṇukuṇḍin copper coin belonging to Mahendravarman II (470-580 AD) (Joshi & Sharma, 2005:23; Mani, *et al.*, 2003:133). It has been proposed that following the destruction of the Vākāṭaka palace, the entire complex was converted into a Mahavihara under the influence of the Viṣṇukuṇḍins, and a stupa was erected at the 'palace site' (Joshi & Sharma, 2005:23-24). Furthermore, a building described as a vihara was built adjacent to the Pravareśvara temple although this identification is also challenged by Bakker who has been unable to determine Buddhist features in the building's layout. Rather he conjectures that the structure may have been a secular building connected to the royal residence (Bakker, 2008c). The excavators were unable to establish how long a Mahavihara may have been operational, but assert that Mansar became a "great centre of Buddhist learning" in the 6th century AD (Joshi & Sharma, 2005:25).

Despite the reported architectural evidence, only a few artefacts of Buddhist origin were discovered and there were no finds of Buddhist sculpture leading to suggestions that the antiquities at the site have been plundered prior to the excavations (Joshi & Sharma, 2005:25).



Figure 3-24. MNS IV (site 9) described as a Buddhist vihara by the excavators of Mansar.

The full site report and the finds and ceramic catalogue from Mansar are awaited. Limited photographs are available from visitors to the site and the report of Bakker's exploratory 2006 survey notes the state and extent of the structures as they were revealed (Cork, 2006). Following the fieldwork by Bakker, a colloquium was held at the British Museum in 2008 to discuss the site and consider it against the wider context of the Vākāṭaka dynasty. Scholars had access to some of the sculptures, architectural pieces and inscriptions and produced an e-book which primarily discussed the iconography, art-history and architecture, with new research into the excavated artefacts and inscriptions (Kropman, 2008:1).

3.3.4. Archaeological investigations of the rural hinterland

Following the extensive surveys of the ASI in the 19th century and early 20th century brief archaeological explorations have been conducted across the rural landscape of Rāmṭek and Nagpur District. Wellsted's survey in 1933 recorded visible archaeological remains in the vicinity of Rāmṭek and Mansar and was focused on one

site of particular interest. This site, thought to be a ruined brick and rough-stone 'fort', is situated on the hilltop immediately west of the Khindsi dam site and 300ft above the plain (Wellsted, 1934:159). Wellsted also identified the remains of a settlement on the north side of the hill, of unknown extent, which at the time was stated to be normally submerged by the reservoir (Wellsted, 1934:159). Preliminary village-to-village survey has been carried out across Rāmṭek Tehsil and the neighbouring districts, and the Directorate of Archaeology and Museums in particular have identified several sites noted as having potential Vākāṭaka archaeological remains within the research area (Sali, 1998:5).

Hamlapuri, roughly 2km east of Nagardhan, is perhaps the best-known rural site in the Rāmṭek landscape and has been subjected to several preliminary investigations. Due to reports of archaeological remains extending between the two sites, Hamlapuri is frequently identified as an extension of the ancient capital at Nagardhan (Bakker, 1997:84). Pieces of red sandstone sculpture were discovered during brief explorations under the Nagpur Central Museum, and by Gupta during explorations of Hamlapuri and neighbouring Nandpuri in 1981 (Mitra, 1983c:49-50; Rao, 1985:137). The State Department has reported pottery sherds, architectural fragments and Vākāṭaka sculptures, alongside a 'Vākāṭaka fort', but no accompanying details were provided (Sali, 1998:12). A few test trenches were excavated in 1982 to establish the potential of the site, and uncovered the remains of structures and associated artefacts (Sali, 1998:9). Again, limited published details are available but clearly potential for discovery of religious and habitational remains in the hinterland of Rāmṭek.

Hamlapuri has been identified as an "active religious centre" due to the number of Vākāṭaka sculptures identified at the site, which include images of Ganesh, Mahiṣamardinī, Viṣṇu and Lajjā Gaurī, but there are no structural remains clearly identifiable as a temple or monastery (Jamkhedkar, 1985:18). An isolated find of three bronze Buddha images was discovered near to Hamlapuri, two of which appear to be local while one is considered to reflect the Gupta style from Mathura (Jamkhedkar, 1991a:87-88; Rao, 1985:131). The bronzes have been dated to around the 6th century AD (Rao, 1985:131) and are cited as evidence to support continuing Buddhist activity in the area alongside the Hindu Vākāṭakas (Joshi & Sharma, 2005:25).

The 2006 survey by Bakker identified that the agricultural area surrounding the Ganesh shrine has been dug down through the original ground surface exposing pottery and brick fragments in the field banks (Cork, 2006:3). At the time it was noted that Hamlapuri's archaeological potential had been mostly destroyed, but in comparison to Mansar there was a high number of surface ceramics visible (Cork, 2006:3). The most recent exploration at Hamlapuri was conducted by Bhaisare (2012), who states that this site is invaluable in attempts to establish diagnostic Vākāṭaka material remains as past excavations revealed it to be 'single culture'. Bhaisare's publication of surface ceramics at Hamlapuri states that the majority of identified are micaceous red or micaceous black ware and generally display continuity from the Sātavāhana period in "degraded" forms and coarser fabric. The ceramics are used to reiterate that the site is single culture, meaning that the assemblage should be reliably datable to the Vākāṭaka period (Bhaisare, 2010-2011:105)



Figure 3-25. Remains of the site at Hamlapuri (photograph taken during the first season of fieldwork). The paddy field banks and the 'island' with the trees represent the original height of the ground. Ceramic and brick remains are found throughout the sections and across the surface of the fields.

In addition to Hamlapuri is another site of interest within the survey area, Kelapur, 2km north of Rāmṭek on the edge of the Khindsi tank. This area is known due to its identification in the Kevala-Narasiṃha inscription as the village of Kadlīvātaka involved in the construction of the Sudarśana water reservoir and Khindsi dam

(Bakker, 2013:175; Bakker & Isaacson, 1993:69). There has been little exploration at Kelapur but the site is reported as having few remains, due perhaps to its location in the basin of the River Sur, which regularly floods (Bakker & Isaacson, 1993:69).



Figure 3-26. Temple at the site of Kelapur in an area often flooded by Khindsi tank. Surrounding the temple are surface finds of ceramic sherds

Reconnaissance surveys have recorded archaeological remains around villages in the wider Rāmṭek Tehsil, including material which is potentially identifiable as 5th century in origin. However, only a few details are published in IAR and most sites feature simply in a review article (Sali, 1998). Bopardikar identified middle Stone Age tools at Nawegaon, Dhamangaon, Maroli and Bhamiwara in Rāmṭek Tehsil (Ghosh, 1964:101). In 1988 to 1989, Nath explored the area along the Sur River and identified two sites of interest including a small mound with microliths at Kodamedhi and a mound with Black and Red ware, micaceous red ware, an iron point, hopscotches and microliths at Shrikhanda (Joshi, 1993b:49). As Rāmṭek is a populated and cultivated area, which has undoubtedly suffered site degradation, it is likely that there will be difficulties in attempts to utilise the already limited published information to assess the location or nature of some of the reported features.

Table 3-3. Villages reported as having been explored within Rāmṭek tehsil.

Site	Location	Agency	Findings	Reference
Kunwara Bhimsen	c.15km from Mansar	Dept. of Archaeology	Village with three cave sites containing images of Viṣṇu	Sali, 1998
Pandharbodi	c.15km from Nagardhan	Dept. of Archaeology	Site extending over roughly six acres, with red sandstone sculpture, Kshatrapa coins, beads, terracotta figures and pottery in a ten metre thick deposit	Sali, 1998
Savner		Dept. of Archaeology	Narasiṃha images, Kshatrapa coins and some structural remains	Sali, 1998
Sumera	Near Mansar	Dept. of Archaeology	The ancient site was identified as spread over 2-3 acres	Sali, 1998
Tilorakhedi	12 km from Mansar	Dept. of Archaeology	An ancient habitation site spread over 3 acres	Sali, 1998
Shrikhanda		University of Nagpur	Vākāṭaka remains in the vicinity of two Early Historic sites at Morgaon and Wagholi: extensive mound (c. 5 acres) with ceramic scatters and brick remains	IAR (1989-90; 1991-92; 1993-94)

3.4. Conclusion: Current understanding of Vākāṭaka activity at Rāmṭek.

In the previous chapter, it was established that historically the Eastern Vākāṭakas are thought to have inherited a region associated with Early Historic Sātavāhana activity, but that they subsequently moved and established a dynastic centre in the 'peripheral area of Rāmṭek-Mansar. The archaeological information contained within this chapter regarding the two known monumental Vākāṭaka sites in the survey region demonstrates the high investment in these areas during the 5th century AD. Although contested, the published evidence does imply pre-existing Sātavāhana and Buddhist investment at the site of Mansar and could be taken to support the picture of the Eastern Vākāṭakas imposing their ritual and ideology at sites. Buddhist finds have also been recorded from Hamlapuri which further suggests organised religious activity was present around Rāmṭek, both prior to the construction of the Hindu temples on Rāmṭek hill and contemporary with Vākāṭaka authority. It remains unclear as to what extent the Vākāṭakas inherited a landscape with socio-economic

and ritual development and to what extent they developed the landscape. It is hoped that new archaeological data will improve our understanding of the Vākāṭaka impact on this area.

The major sites in the Rāmṭek landscape are not currently known to demonstrate significant religious or settlement activity between the end of Vākāṭaka rule and later Yādava occupation, but it is unclear whether the apparent absence of activity is a true phenomenon or due to a lack of evidence. If the level of activity did reduce following the Vākāṭakas, the survey would be expected to uncover relatively short-lived Early Historic sites and few remains from the intermediate period. The accepted model of development, after the introduction of Yādava control in the region, suggests that we would expect to find evidence of renewed architectural development, expansion of towns and village areas and investment in infrastructure, such as irrigation facilities. The extant evidence at Rāmṭek and Nagardhan demonstrates Yādava through to Mārāṭha period activity, particularly evidenced by religious structures. It is likely that there will be further small temples and sculptural pieces in the village areas. Many of the standing remains are likely to be of the Mārāṭha period, following the heavy influence of the Mārāṭhas in Nagpur District.

There is clear potential for archaeological survey to explore the landscape and establish how this expected model relates to evidence on the ground. However, it should be noted that disturbance of sites and re-use of archaeological material in the area was already reported prior to 1934, and it is likely that the situation has deteriorated. Alongside a swiftly developing local environment, this provides a further argument for recording of the current visible archaeological features. Given the potential for survey to increase our understanding of the period of Vākāṭaka rule in central India, the following chapter will move on to outline the development of landscape archaeology and its potential to contribute to the study of the Early Historic period.

Chapter 4. Landscape archaeology and archaeological survey in India

4.1. Introduction

A long-standing tradition of landscape archaeology exists in the Indian subcontinent and there has been a great number of surveys carried out by Indian, foreign and collaborative projects. While there is an extremely robust body of large-scale, multidisciplinary landscape studies addressing archaeological questions of prehistoric society, Erdosy opined that the abundance of textual evidence in India dominated the study of historical material remains, and it was only in the late 20th century that landscape survey expanded to tackle questions related to Early Historic India (Erdosy, 1988:4). Researchers now benefit from the results of a number of long-running collaborative projects directed towards the investigation of historic sites and their landscapes. Practically, the archaeological remains of historical contexts, such as settlement mounds, religious structures, sculpture and ceramics, are suited to investigation by landscape survey. Theoretically, there is great potential for survey to answer historical questions about early complex societies and to delve into the nature of intangible subjects such as processes of state formation, the building and legitimation of authority. Through investigations of the relationship between past people and the land, landscape archaeology is able to investigate the infrastructure and polity of urban sites and hinterlands, regional settlement patterns and intra-site patterns (Menon, 2008:28).

As a study aimed at using surface survey to situate the Eastern Vākāṭaka site of Rāmṭek in its landscape and evaluate the impact and nature of the governing polity, this research looks towards projects which have successfully investigated centre-hinterland dynamics. This chapter summarises the ways in which archaeologists in South Asia have targeted questions of long-term regional development though investigations of the landscape, and highlights the value of archaeological survey in answering questions we might have about the social, political and religious organisation and development of an area. This overview proves the potential and successes of Indian survey, however the practical limitations of this project must also

be addressed when formulating an appropriate methodology. The chapter goes on to consider the various issues which may be faced by researchers working in India, where the environment is commonly cited as a factor affecting methodology and results in research projects. Finally, a brief comment is provided on the utilisation of satellite imagery and GIS, before concluding with a summary of the potential for landscape research in South Asia.

4.2. Landscape Archaeology and survey

Landscape archaeology has been defined as the study of the land and the relationship between people and their environment. Landscape archaeology questions how the land has been ordered and changed for "economic, social, religious, symbolic or cultural processes", and how in turn it has influenced human thought and action (Wilkinson, 2004:334). It has developed both theoretically and methodologically to become a significant and multifaceted sub-discipline within archaeology, which can encompass a combination of techniques and different categories of evidence for a holistic assessment of the land (Wilkinson, 2004:335). Landscape archaeology and field survey is employed to study the spatial and temporal distribution of sites, with the aim of producing data related to social, political, economic and religious models of the landscape (Wilkinson, 2004). Archaeological questions of a regional nature, which can be addressed through landscape archaeology, are necessary for the contextualisation of sites, the understanding of site relationships and investigation of the social, political, economic or religious aspects of past landscapes.

While archaeological research has always had an inherent interest in the landscape through studies of space, the treatment and perception of 'landscape' has significantly altered (Knapp & Ashmore, 1999:1). The concept of 'landscape' is complex and changeable, which keeps it consistently relevant to disciplines such as archaeology, geography, history and anthropology (Gosden & Head, 1994:115-116). Initially, the landscape was viewed as a 'backdrop' for material culture (Knapp & Ashmore, 1999:1). However, shifting theoretical mind-sets have encouraged the consideration of different aspects of the landscape, and prompted the emergence of several methodological approaches. The growing concern with a regional perspective led away from the isolated site focus of early studies, and rather than being viewed as

a passive backdrop to human activity the landscape is considered to be involved in diverse aspects of life including symbolism, ritualism, political and social organisation and the development of states. The current trend in landscape research reflects its evolution over the 19th and 20th centuries, so that research projects tend to be directed towards integration of 'scientific', systematic approaches with a consideration of symbolic concerns and social meaning (Gkiasta, 2008:39).

Traditionally, survey was perceived as a basic tool to aid in the location of sites or to prepare for excavation (Ammerman, 1981:63). However, as a result of increasing interest in landscape studies, the use and development of archaeological survey has accelerated and it now forms the foundation of regional research. In terms of practicality and logistics, survey offers great benefits over excavation; it is non-destructive, requires lower fiscal investment, fewer resources and man-power, and offers flexibility to account for project limitations. Although unable to provide the total history of an individual site without the combined use of excavation, survey has the ability to cover wide areas of land and produce primary data directed towards a regional perspective (Dunnell & Dancey, 1983:271; Schiffer, *et al.*, 1978:1). In current archaeological practice, there is a plethora of survey projects being carried out across the world, incurring on-going methodological and theoretical development and making significant contributions to the course of archaeological inquiry.

When much of the world's archaeology was unknown, early landscape investigations primarily took the form of general reconnaissance surveys. These extensive and unsystematic surveys were aimed at maximising coverage of the landscape and recording sites for the production of gazetteers and monuments records and resulted in the abundant discovery of sites (Ammerman, 1981:65). From the beginning of the 20th century, the number of landscape surveys increased worldwide following methodological developments, such as the use of distribution maps in Europe (Crawford, 1912; 1922). As techniques evolved, surveys became progressively systematic and more survey projects were conducted (Ammerman, 1981:65). The innovation of regional settlement pattern research during the late 1940s and early 1950s heightened interest in the regional context of sites (Ammerman, 1981:65). (Anschuetz, *et al.*, 2001:168). Mesoamerican and Near Eastern surveys are often cited as archetypal examples of settlement pattern studies focusing on creating

typologies, documenting and classifying sites (Adams, 1965; Adams, 1981; Braidwood & Howe, 1960; Willey, 1953).

With the emergence of New/Processual archaeology in the 1960s and 1970s, promoted by scholars such as Clarke (1968) and Binford (1962; 1965), the use of scientific methodologies flourished. New Archaeology aimed to objectively and scientifically study the landscape drawing heavily from ecology, and its central tenets of statistical and geographical reasoning have had a lasting impact on research into settlement history and spatial analysis (Bintliff, 1996:246). The term 'Processual Archaeology' arose from the concept that cultures and change could be viewed as processes under an evolutionary perspective (Gkiasta, 2008:22). A subsequent Post-Processual movement occurred from the 1980s, borne out of archaeologists' dissatisfaction with the ability of Processual frameworks to satisfactorily explain culture change and the diversity of past human behaviour (Anschuetz, *et al.*, 2001:162; Fleming, 2006:268; Hodder, 1982; Hodder & Hutson, 1986). Post-Processualism was aimed at recapturing more symbolic concerns, such as sensory experience and viewed the pursuit of objectivity as futile, given that interpretation is inexorably subjective (Bender, 1993:2; 1998; Erickson & Murphy, 2008:125; Thomas, 1993b). The landscape began to be viewed as having been culturally constructed over time and interest was renewed in an Annalist approach due to the concern with explaining long-term historical structures (the *longue durée*) (Bintliff, 1996:250; Braudel, 1949). Phenomenological approaches developed to focus on past people's perception and experience of the material world (1994; 2004). (Basak, 2005; Boivin, *et al.*, 2007:289; Boivin, *et al.*, 2002). However, aside from 'concept' phenomenological studies, it seems that the majority of practical survey projects tend to aim for systematic and multi-disciplinary research to achieve the required level of accuracy, accountability and reproducibility for reliable data analysis. Modern survey is aided by the wider availability of scientific techniques, such as geophysical prospection and satellite imagery, and methodological advances such as statistical sampling which are suited to the nature of the residual archaeological record (Stark, 2006:408).

4.3. Landscape archaeology and the political landscape

Landscape archaeology is a particularly powerful tool in helping researchers to answer questions of past political processes such as territorial expansion, integration, and communication of power and control. This research aims to investigate relationship between the landscape and Rāmṭek as a political and ritual centre, in order to comment on the nature of the Eastern Vākāṭaka state and speculate how power may have been communicated. The study of political landscapes and their construction, both literally and symbolically, can reveal information related to how authority is created, maintained and communicated. Political landscapes are particularly meaningful for discussion of polities such as the Vākāṭaka kingdom. Early complex societies are often fairly short-term and "contested configurations" with ongoing processes of establishment and legitimation of authority so their landscapes are "always in the making" (Glatz, 2014:110).

The political landscape is effectively an embodiment of the relationships between land, political powers and the population (Smith, 2003:8, 169). In addition to being physically organised by regimes, political landscapes can be perceived in different ways and can in turn shape the movement and activities of the population (Smith, 2003:8). They should be considered "social spaces" generated by intertwined influences such as physical geography, cultural practice, individual action and thought. In this way they are not static, but rather may be considered as constantly undergoing processes of creation and transformation due to different levels of social interaction (Glatz, 2014:110).

Bourdieu's theory of habitus (1977) and Giddens' Structuration theory (1979) have been very influential within landscape archaeology in this context, as they emphasise the active role of humans as agents in creating the space around them. By considering how past people actively shaped and experienced their social world, both theories recognise the mutual dependency between people and their systems, material culture and landscapes (Fisher, 2014:355). Studies of the relationship between ritual/political centres and their landscapes require consideration of both the general population and that of the elite. Elite agency may be determined through the archaeological remains of ritual and economic investment as monumental

constructions and control over land-use shapes the landscape. These built landscapes can structure cultural systems and be used as symbols for ideologies, authority and the meaning of space (Fisher, 2014:358).

Practices like monument construction are the result of having enough resources, social mobility and authority to invest in the land (Glatz, 2014). Monumentality is often viewed by archaeologists as a proxy for social complexity and attempts by the elite to control the population and perpetuate political power (Osborne, 2014:5). However, the reception of monuments by the population is as important as the physical constructions; monumentality is created by the association of the structure or object with particular meanings, which occurs through people's interaction with it (Osborne, 2014:8). Relationships between people and landscapes and monuments are formed through "experience, perception and imagination" (Caraher, 2014:43; Smith, 2003:169). As at Rāmṭek, monuments are visible and permanent constructions but rather than simply being "commemorative symbols of hegemony", monuments are active in conferring power and ideology to a particular audience (Glatz, 2014:112; Kolb, 2014:154).

As a result of the complex interaction between different people, polities may be viewed as negotiated entities formed from various "configurations of political practice" (Smith, 2003). As landscapes, cities and constructions reflect the nature of authority and kingship, they assist in the process of legitimation (Duncan, 1990:6). Authorities may change over time and so landscapes may involve heterarchies, created through different levels of understanding, building and imagining of space (Smith, 2003:10). Therefore the concept of temporality in landscapes is important and landscapes may be created from palimpsests featuring structures of multiple periods, re-used space, different levels of cultural activity and the influence of local or regional powers. Landscape is a "synthesis of spatiality and temporality", shifting in response to human and natural influences (Smith, 2003:10).

4.4. Changing theory and the progression of landscape archaeology in South Asia

The following section considers the principal survey projects carried out in the Indian subcontinent and is intended to reflect on developments which have particular relevance to the context of this research, rather than presenting an exhaustive history of the theoretical progression of landscape archaeology (Boivin & Fuller, 2002). The current study hopes to contribute to the expansive body of survey projects in India and is grounded in the tradition of landscape research and past survey approaches.

4.4.1. Early landscape studies and general reconnaissance to extensive regional survey

Early landscape studies in India reflected broad trends elsewhere and had clear comparisons with exploratory surveys in countries such as Greece and Italy (Cherry, 1982). Formal surveys in India began in the 19th century under the first director Alexander Cunningham of the Archaeological Survey of India (ASI, formed in 1861), who believed that the "careful and systematic" exploration and recording of India's monuments was a "moral obligation" of the colonial government (Cunningham, 1972 (1866):iii; Trautmann & Sinopoli, 2002:497). Archaeological observations were frequently documented in geographic exploration, which accompanied the spread of colonial activity, and prehistoric archaeology benefited from the explorations of the Geological Survey of India (Banning, 2002:2; Paddayya, 2002:131). The main aim of early surveys was to identify major urban and ritual centres described in historical sources and so much of the ASI's attention was directed towards seeking out key Buddhist centres mentioned in the accounts of the Chinese pilgrims, Faxian and Xuanzang (5th and 7th century AD respectively) (Trautmann & Sinopoli, 2002:499). The ASI reconnaissance surveys were a great accomplishment which contributed vast amounts of information, but were limited by a fundamental reliance on historical texts (Trautmann & Sinopoli, 2002:500). The primary focus on historical archaeological material, in conjunction with South Asia's rich textual record, resulted in a strong historiographical tradition where texts often underpin the interpretation and chronological understanding of archaeological data

(Trautmann & Sinopoli, 2002:515). Accordingly, a 'culture-historical' emphasis long featured in archaeology, which attempted to equate material culture with ethnicity or the influence of particular elite groups (Erdosy, 1988:7; Trautmann & Sinopoli, 2002:499). It is widely recognised now that political, economic and social changes are not necessarily reflected by shifts in material culture and that this approach simplifies past human interactions and processes of change. Developments away from a culture historical approach are important to keep in mind in a study such as this one where the material culture of a polity is not well understood.

Indian settlement pattern studies of the 1960s and 1970s directed archaeological enquiry towards establishing the location of sites in the landscape and the physical factors influencing settlement location (for example, see Fairservis' research in Baluchistan (1956; 1959) which strove to relate aspects of Harappan civilisation to ecological adaptation). The integrated investigation of sites in the landscape was an important development within Indian archaeology, resulting in large-scale research into regional distribution data, environmental contexts and inter-site relationships. Theoretical approaches in Indian landscape archaeology, advocated by scholars such as Malik, were rooted in a similar background to Processualism and stressed the importance of pursuing a "holistic anthropological approach" (1973:7). Sankalia's influential assessment of New archaeology created wider discussion of theoretical developments among Indian archaeologists as regional settlement distribution studies were becoming integral to South Asian landscape archaeology across the late 1970s to 1980s (Lal, 1984a:2; Paddayya, 1995:136).

Regional settlement distribution studies focused enquiry on the interrelationship of people and sites with the environment through an ecological perspective. The surveys conducted were large-scale, extensive projects over vast areas of land, which promoted documentation of settlement distributions, site size hierarchies and function. Early examples of regional settlement distribution studies are Ghosh's 1950-1952 research in the Ghaggar belt (Ghosh, 1952; 1953) and Rao's (1954-1958) fieldwork in Saurashtra (Rao, 1963; 1973). The work of Possehl and Mughal exemplifies the extensive survey projects of the late 20th century; Mughal's regional surveys in Cholistan over the 1970s investigated the hinterlands of large urban sites, highlighting the ecological and environmental factors which might have affected population growth (Mughal, 1993; Mughal, 1997). Possehl's 1980 survey in

Saurashtra focused on the ecological structuring of settlement patterns, testing a predicted association between Harappan settlements and water sources (Possehl, 1980:8). Extensive regional studies, driven by research questions concerning settlement archaeology, subsistence ecology and the economy include the site catchment analysis undertaken at Inamgaon (Panja, 2002:270), Paddayya's investigation of Acheulean sites in Karnataka (Paddayya, 1989; 1993; 2007) and Shinde's research in the Tapi Basin in Maharashtra (Shinde, 1989; 1991). Prehistoric contexts have particularly benefited from settlement pattern studies incorporating extensive archaeological surveys, laboratory analyses, satellite imagery and ethnoarchaeological research (Bhan & Schaffer, 1978; Chattopadhyaya, 1996; Chitalwala, 1979; Flam, 1976; Hooja, 1988; Lal, 1984b; Pappu & Deo, 1994; Pappu, 1996:1).

4.4.1.1. Village-to-Village Survey

Although settlement distribution patterns continued to be the focus of research, the advent of Village-to-village survey shifted the point of reference to modern habitation sites as known bases from which to extend survey (Shaw, 2007:64). This technique was devised in order to account for various environmental and cultural factors prevalent in Indian contexts, which can make modern villages a sensible base for initial investigations. This includes the recorded tendency for habitation areas to perpetuate over time and the frequent movement of archaeological material from find-spots to be re-established in villages as objects of worship (Shaw, 2007:65). The key proponents of the village-to-village technique were Lal (1984a) and Erdosy (1988). Lal's survey focused on intensive exploration of Kanpur District (*c.* 5100 km²) in the Ganga-Yamuna Doab to investigate the regional distributions, densities and spatial and temporal patterning of sites (Lal, 1984a:144). Lal employed a village-to-village approach as a complete systematic survey was not feasible, but the survey still covered a large area similar to the regional settlement pattern studies. Erdosy undertook unsystematic survey and transect-based field-walking from modern villages in the Ganges, focusing on establishing distribution models and inter-site relationships. Erdosy's investigation of urban hinterlands was aimed at establishing the origins and functions of cities in order to contextualise the urban nature of larger sites through comparisons with related smaller, rural sites (Erdosy, 1988:22).

Village-to-village survey evolved to incorporate cultural and environmental differences of the Indian landscape and has remained a common technique due to the focus on visible sites and mounds. Village-to-village surveys were widely undertaken in the later 20th century by the ASI, and their relative simplicity has also resulted in their continued use by individual researchers and universities with limited resources (Negi, 1988; Rajan, 1994; Selvakumar, 1996; Singh, 1991). The ASI's village-to-village surveys have recorded significant numbers of sites and resulted in a basic picture of the archaeological potential of large parts of India. However, despite the quantity of published data suggesting a relatively high number of site findings, the published information has limited details (Lahiri, *et al.*, 2002:108). The use of village-to-village surveys is not limited to small-scale unsystematic landscape research, as larger projects sometimes utilise this method during the exploratory 'reconnaissance' stage, given its ability to maximise site recovery in a short period of time and assess an area's archaeological potential (Bhan, 1986; Blinkhorn, *et al.*, 2010:2; Hegde & Sonawane, 1986; Panja, 1996).

Both extensive and village-to-village surveys have achieved invaluable data to characterise the archaeology of large swathes of India however the resolution of results is low due to the large areas of land involved. Village-to-village surveys are also criticised for being biased towards the identification of prominent sites, while potentially omitting transient or less visible remains. village-to-village and extensive surveys reflect a continuing focus on habitation sites and settlement patterns, rather than a holistic view of the landscape (Shaw, 2007:64). However, notable inter-regional studies have been conducted which have looked beyond the traditional site focus of extensive surveys to address wider concerns, such as networks of long-distance trade routes and routes of movement (Bhardwaj, 1973; Chakrabarti, 2001; Chakrabarti, *et al.*, 2003; Chakrabarti, *et al.*, 2002; Chattopadhyaya, 1984).

In a development from the traditional village-to-village surveys, Lahiri and Shaw have encouraged the development of "regionally specific" survey projects, which incorporate local knowledge into the research design (Shaw, 2007:66). Lahiri's survey in Faridabad (1996) explored the physical sacred geography within roughly 700 km², recording both spatial information and local histories of sites (Lahiri, 1996:244). Lahiri's comparison of textual and material evidence drew attention to an absence of key elements of the physical sacred landscape in texts, such as the

numerous rural village shrines, and revealed the complexity of the sacred landscape (Lahiri, 1996:245).

Shaw's research in Sanchi aimed to consciously adapt survey approaches to suit the environment and to improve the village-to-village approach, creating an 'integrated' survey methodology (Shaw, 2007:65). The Sanchi survey extended archaeological investigation to the landscape surrounding Sanchi Hill, covering a relatively small area within a 10-15 km radius from the major Buddhist complex (Shaw, 2007:72). Shaw combined village-to-village survey and landscape archaeology with art-historical and textual study, documentation of the modern cultural landscape and interaction with communities to be sympathetic towards the local context (Shaw, 2007:67, 72). Shaw drew on the theory of 'historical phenomenology' within landscape archaeology which accounts for memory, social meaning and historical sources within investigations of the landscape (Thomas, 1991). In addition to monuments and settlement sites, Shaw documented transient remains, ritual sites and "natural cult spots", and suggested that purely systematic surveys may not have the same success in identifying certain site categories (Blinkhorn, *et al.*, 2010; Shaw, 2007:64).

In India, there is a growing recognition of the importance of space as 'place' and how people's perception of the landscape as structured by memory and assignment of special meaning (Gkiasta, 2008:36; Knapp & Ashmore, 1999:2). The recognition that apparent disparate activities or concepts may be interconnected has led to a re-evaluation of traditional dichotomies such as space/place, structure/agency, and sacred/profane (Knapp & Ashmore, 1999:1; Thomas, 1993a; Thomas, 1999). This has consequences for the investigation of relationships between the economy and temple-building and land donations (Kulke, 1993; Ray, 1986) and the political significance of ritual and practices such as pilgrimage (Bakker, 1992b; Lane, 1986:181; Van de Veer, 1988). Within landscape archaeology in India, there has been a shift from primarily ecological, economic and demographic concerns to questions of the past which incorporate ideology, symbolism and social relationships. A number of studies aim to unite the study of the architecture and sculpture with landscape and historical data to contextualise religious sites in their landscapes and establish their role as socio-political and economic entities (Hawkes, 2010:134; Willis, 2009). There are increasing numbers of survey projects investigating the

broader cultural and physical environment of religious sites (For example, see Fritz's (1986) research into the symbolic layout of Vijayanagara). This survey is centred on Rāmṭek as a ritual site but does aim to elucidate the wider socio-political and economic context of the hinterland in order to assess Rāmṭek's integration into, and effect on, the landscape. This aim develops out of studies such as Schopen's study of the material evidence of Buddhism (1997), Hawkes' survey at Bharhut (Hawkes, 2006; 2008; 2009; 2010) establishing the relationship between Buddhism and society in central India (*c.* 400 BC to 1200 AD), and Fogelin's intensive survey of the monastic centre of Thotlakonda in Andhra Pradesh aimed at establishing the spatial and temporal connections between the site and its archaeological setting (Fogelin, 2003).

4.4.2. Intensive and systematic surveys

Within Indian landscape archaeology an interest in settlement distribution patterns and the use of village-to-village survey has persisted however methodologies are becoming increasingly systematic. Publications consistently stress the bias of unsystematic survey and the preferential use of systematic survey to obtain reliable data, which can be successfully manipulated to formulate conclusions about the past (Shipton, *et al.,* 2010:24). In a comparison of unsystematic and systematic approaches, Shipton *et al.* concluded that systematic survey provides the unbiased evidence necessary to determine the spatial distribution of archaeological evidence, as it identifies areas with an absence of evidence as well as those displaying evidence of human activity (2010:32). However, this type of research usually entails high investment, and only with sufficient time, capital and resources can surveys provide as high a coverage as those noted above, which are long-running and well-resourced ventures associated with established institutions.

Alongside the increased use of systematic methodologies has been the aim of undertaking intensive systematic survey through urban hinterlands to contextualise sites in their social, political and economic landscape. The study of urban/monumental remains and elite activities has traditionally dominated Indian historical archaeology but holistic intensive, systematic surveys consider rural communities through the recording of rural sites, transient remains and surface artefacts as well as monumental architecture and large settlement mounds

(Trautmann & Sinopoli, 2002:515). Intensive investigations of the landscapes around past urban centres have resulted in the development of collaborative, multi-disciplinary approaches to the landscape utilising excavations, field survey, reconnaissance geo-archaeological investigations, as in the Beas River Survey (Schuldenrein, *et al.*, 2004:779) and the Land, Water and Settlement Project (Petrie & Singh, 2008; Singh, *et al.*, 2012; Singh, *et al.*, 2008; Singh, *et al.*, 2010a:94).

The Vijayanagara Metropolitan Survey (VMS, 1987 to 1997) demonstrates the ability of thorough systematic survey to determine rural activity and settlement patterns in an urban hinterland. The VMS investigated the political economy of the Medieval imperial city, and related the findings to theoretical models of South Asian state formation; an approach influenced by anthropological concerns for the social and religious organisation of the landscape (Trautmann & Sinopoli, 2002:514). Extensive survey was carried out across the wider area and archaeological remains outside of the urban centre were successfully recorded to investigate the economic infrastructure which underpinned the development of the urban centre (Johansen, 2009:18; Morrison, 2009; Trautmann & Sinopoli, 2002:515). The Kurnool District Archaeological Project is a key landscape project which systematically surveyed part of Andhra Pradesh and prompted a number of inter-disciplinary publications (Blinkhorn, *et al.*, 2010; Haslam, *et al.*, 2010; Petraglia, *et al.*, 2003; Shipton, *et al.*, 2010; Taçon, *et al.*, 2010). Monica Smith is another proponent of systematic survey and at Sisupalgarh focused on the urban centre's hinterland to identify sites and trading networks within the larger regional context (Smith, 2002b; 2005).

The potential of large systematic surveys is further demonstrated by influential surveys across the Subcontinent, such as the Anuradhapura Hinterland Survey, which modelled development in the rural hinterland of the ancient city to assess the impact of urbanisation on the non-urban communities and landscape (Coningham, *et al.*, 2006). This survey is significant in having published excavation sequences from the urban centre, enabling the city and its hinterland to be connected through artefactual and structural chronologies (Coningham, *et al.*, 2006:55). Coningham's multi-disciplinary project involved archaeologists, geoarchaeologists and archaeological scientists, and successfully combined systematic probabilistic and non-probabilistic methodologies to provide regional data (Coningham, *et al.*, 2007:1). Fletcher's research at Angkor Wat (Fletcher, *et al.*, 2003; Fletcher, *et al.*, 2008) is another

interdisciplinary project of note, particularly focused on combining systematic regional survey with remote sensing to obtain a high level of detail and interdisciplinary analysis (Evans & Fletcher, 2015; Evans, *et al.*, 2007).

4.5. Archaeological theory and practice: Progress in the field and the Rāmṭek survey

As seen from the above overview of notable landscape projects, there is an impressive body of large interdisciplinary projects, which are able to achieve the reliable results through intensive systematic survey. Without the structured approach of a systematic survey, the landscape may be unevenly investigated and a comprehensive picture may not be achieved. However, survey methodology is ultimately dependent on the research aims combined with environmental or practical limitations. The aim within this project is to contextualise the religious site of Rāmṭek in its landscape through the exploration of its hinterland. In particular, investigation into the presence of pre-existing economic and ritual activity in the landscape may challenge or support the historical narrative for the development of the centre of Eastern Vākāṭaka control. The limits of this research project have meant that village-to-village survey techniques were chosen as the primary methodology.

This research is most influenced by more recent applications of this technique by Lahiri, *et al.* (1996), Shaw (2007), Smith (2001a) and Hawkes (2009). The continued use of village-to-village techniques, even with an 'integrated' methodology to acquire information which enables a range of sites to be discovered, may be taken to suggest a lack of 'progression' in archaeological practice. The village-to-village technique is seen as dated when compared to landscape studies elsewhere in the world, and unsystematic methodologies have encountered much criticism with regard to archaeological ethics and correct practice. 'Integrated' approaches do have greater potential for bias than systematic methodologies due to the uncertainties introduced by a reliance on local information for site identification; local perceptions of the archaeological landscape may differ to those of the archaeologist and relevant knowledge may not be divulged if villagers are not aware of remains or do not consider them significant. Such research designs may be more susceptible to the

effects of "unknown variables", including vegetation, dating issues and less archaeologically visible remains (Coningham, 2001:224). Yet, Shaw's Sanchi survey has demonstrated that integrated methodologies continue to be invaluable to small-scale projects by enabling a relatively high yield of data in difficult environments despite limited resources.

There are considerable areas of land not yet explored in South Asia, which may support the continued relevance of extensive survey. In some areas it may be more appropriate to work towards establishing wide patterns before concentrating on intensive investigations (Shaw, 2007:65). Village-to-village survey is a standard PhD methodology for students in India and those in small archaeological projects with restrictions such as permission and institutional support, strict time frames and resources. It is important to consider the benefits of survey projects such as this one, and whether the end result justifies a less advanced approach. The resulting data must be evaluated in light of the methodologies employed and contextualised in wider research to ensure its usefulness. This research concerns a period and region which is not well understood. Preliminary data can be achieved through 'informed' survey and reconnaissance, which is preferable to a complete lack of data. It is recognised that the survey results cannot form a totalising narrative and methodological limitations mean that the data must be considered with a degree of caution.

4.6. Factors affecting the success of archaeological survey in South Asia

Scholars have highlighted attributes of the Indian environment which may affect the success of survey and support the need for flexible approaches to archaeological surveys. The following section provides a brief overview of some of the limitations previously encountered by landscape archaeologists, which may impact on the approach to survey in the Rāmṭek landscape.

4.6.1. Methodology and the nature of the archaeological remains

The nature and period of the archaeological material in a study area should be a leading consideration when designing landscape surveys, given the diversity and complexity of archaeological remains across regions and the potential for different timescales and trajectories of development (Paddayya, 2002:139). The nature of the archaeological remains and the factors involved in site formation in particular regions of India may require adaptation of research designs rather than the uncritical application of methodologies and theoretical approaches. It may also be that a "judicious combination of extensive and intensive survey strategies" is more suited to investigate some archaeological research questions (Cherry, 1982:16).

Continuity of settlement is a common phenomenon in India and so later cultural deposits and modern occupation may limit access or visibility and hinder excavation or the use of random sampling (Hooja, 1988:20). Shifting centres of habitation across a mound over time may result in entire phases being overlooked if vertical excavation is employed. Conversely, parts of India display dispersed settlement patterns due to changes in habitation over time, and so a wider regional perspective would be required to interpret the phases of habitation.

A lack of understanding of material change is another factor affecting the success of landscape survey. It has often been assumed that political change resulted in a change in ceramic types or brick size, but research has demonstrated that these incidences are not synonymous. It has been highlighted that in the Early Historic period, there may have been few changes in material apparatus across different periods of rule and it is not appropriate or possible to categorise assemblages as belonging to different dynasties (Menon, 2008:29-30). Uncertainties in studies of material culture can complicate the identification of surface material and attempts to establish a chronology may be hindered by a lack of understanding of diagnostic remains or insufficient comparison material (Menon, 2008:30).

Traditional exploration in Indian landscape archaeology was focused around prominent sites. A monumental bias is not unique to India (e.g. the 'tyranny of the tell' (Wilkinson, 2003:100)), but it is prevalent, and in the past there was a reduced focus on rural research (Dayal, 2005). Through evaluation of the body of landscape

research, researchers are aware of addressing the potential for a lack of integration between method and theory, which in the past appears to have hampered the development of approaches such as non-site based archaeology (Gkiasta, 2008:36; Shaw, 2007:60; Stark, 2006:422). As rural archaeology has sometimes not been a focus of research, landscape archaeology has not produced substantial data on Gupta and post-Gupta rural settlement distributions compared to prehistoric and protohistoric research (Chattopadhyaya, 1990:19). All excavations of Early Medieval sites to date have been of 'urban' sites rather than rural habitations, despite historical sources demonstrating that settlement at the time was more focused around villages (Hawkes, 2014c:66). Furthermore, major religious and urban sites were frequently considered separately from settlement patterns, economy and routes of movement resulting in decontextualized sites and inadequate understanding of inter-site relationships (Coningham, *et al.*, 2006:55; Shaw, 2007:62). Excavated historical cities, such as Pauni, often lack an accompanying hinterland survey, unlike Harappan cities (see Possehl (2002) for an overview of landscape archaeology relating to the Harappan civilisation alone) (Lahiri, *et al.*, 2002:110). However, there is an increasingly strong body of modern projects aimed at establishing the context of many historical sites and most of the current foreign projects conducted across the subcontinent are surveys (Bauer, *et al.*, 2007; Johansen, 2009; Smith, 2000; 2002b; Suvrathan, 2013).

Up to recently, the concept of decline underpinned the academic understanding of Early Historic and Early Medieval urbanism and accordingly the perceived trend of deurbanisation across the subcontinent has not been rigorously tested (Chattopadhyaya, 1986:14; Hawkes, 2014b:210). A lack of archaeological research may be partly responsible for previous claims that Late Early Historic and Early Medieval activity or settlements was absent or diminished in some regions (Dayal, 2005:61). Chattopadhyaya has been influential in demonstrating that the urban decline model may not be universally appropriate across the subcontinent, particularly in peninsular India (Jamkhedkar, 2010:5). The archaeological evidence suggests that some earlier towns in core areas were subject to change or decline but that this occurred alongside the simultaneous emergence of new sites (Jha 2000). A number of sites which yielded evidence of Early Medieval occupation during surface surveys have not been excavated, such as Pandharpur and Arambha. There are also

prominent examples of large sites where no excavation has taken place to achieve a better understanding of the Early Medieval material, such as Kalyana, which is proposed to have been the capital of the Cālukyas and the Kalacuris (Dayal, 2005:62). Epigraphic evidence challenges the picture of "economically isolated" villages and implies that there was a large number of Early Medieval rural settlements (Ali, 2012:9; Dayal, 2005:61). There is growing awareness of the possibility for a great number and density of Early Medieval settlements in some parts of India; for example, recent investigations in Maharashtra, such as Khaladkar's survey in Sholapur district, and Kulkarni's research in Osmanabad District, demonstrate the presence of Early Historic sites and substantial Early Medieval and Medieval settlements (Jamkhedkar, 2010:5).

Additional potential barriers to overcome are related to the sheer size of India and the wealth of material remains across the country. The imposition of modern state divisions within India does not necessarily reflect regional networks of activity in the past, and regionalisation and linguistic differences can foster a lack of inter-regional comparisons in archaeological research (Willis, *et al.*, 2012). Furthermore, while a number of state archaeological departments are very active, others have completed less archaeological work, which increases the likelihood that differences in site distributions may be more reflective of coverage and intensity of research.

4.6.2. The natural landscape

Variable environmental conditions are a commonly-stressed obstacle to Indian landscape archaeology and may undermine the effectiveness of some techniques (Shaw, 2007:63). India's diverse topography may affect the applicability of survey methodologies and several publications report that modification of the research design or the course of the survey was necessitated by factors such as high and variable vegetation, challenging topography, low ground visibility and access (Blinkhorn, *et al.*, 2010:5; Shipton, *et al.*, 2010; Smith, 2000; Suvrathan, 2013). Visibility and the success of surface survey depend largely on vegetation, which in turn is strongly affected by seasonal variation and the monsoon climate. The dry, hot season is most appropriate for visibility as very little vegetation remains, but is often not contended with due to the difficulties of working in the field in such high

temperatures. Site visibility, recovery or survival in India can also be affected by factors such as high sedimentation rates or changing river courses.

Although vegetation cover and terrain can cause difficulties in systematic survey, these variables do not necessarily render such methodologies impossible. Challenging and inconsistent environmental contexts are not unique to India as shown by the use of intensive systematic survey in Thailand (Pryce, *et al.*, 2011) and other diverse, global environments (see Kowalewski (2008) for an overview). By applying "modified" intensive survey in tropical environments, it was concluded that survey is feasible in most areas, except for extremely mountainous or jungle conditions (Pryce, *et al.*, 2011:63). This indicates that the environment alone may not be prohibitive to systematic methodologies, and that obstacles in India could be overcome. However, there must be sufficient resources available to counteract limiting factors and certain methodologies may not be feasible in small-scale projects. For example, within the scope of Smith's survey of Mahasthangarh, systematic transect survey was impossible due to irrigation and agriculture, and so pedestrian/cycle survey was used throughout. This method was cost-effective and appropriate to an environment with year-round low visibility and seasonal flooding, and it was sufficient to gain a broad cross section of the archaeological landscape (Smith, 2001a:63).

4.6.3. Modern land-use and site preservation

The modern anthropogenic landscape and the preservation and visibility of sites, is another challenge to effective survey. The modern use and representation of archaeological material, such as the continued use of religious sites or the re-installation of sculpture and artefacts in villages, affects the ways in which archaeologists must think about site recovery during landscape survey (Shaw, 2007:75). The 'village shrine' is a rural phenomenon noted during surveys by Shaw (2007) and Lahiri (1996), and architectural and sculptural material is particularly found on small village platforms or *cabūtrās.* The movement of archaeological material to predictable places, such as village *cabūtrās*, supports the use of village explorations to identify parts of the archaeological record, which relates to the sacred landscape.

Parts of India are highly agricultural and a large amount of its archaeology is situated within the ploughzone (Jhaldiyal, 1997:19). As seen in ploughzones elsewhere, agriculture can result in the exposure of archaeological material, but traditional ploughing in India is shallow and there is the potential for earlier material to remain buried. Traditional farming methods are still widely used and involve non-mechanical ox-drawn ploughs that typically only reach a depth of about 15cm (Paddayya, 1996:78). As the plough furrows may not be deep enough to penetrate the topsoil and expose certain artefacts, results of surface collection must be tempered with the understanding that absences in the available evidence may be a result of visibility or the under-representation of earlier periods. This is in contrast to the situation witnessed in Europe, for example, as deep ploughing was a key factor in uncovering archaeological remains and prompting enormous survey projects from the 1960s. The depth of deposition and a lack of deep ploughing in India can affect the likelihood of locating small or transient sites. This may have influenced how researchers have perceived settlement patterns given that few examples of dispersed settlement are known from South Asia and therefore have not been thoroughly investigated.



Figure 4-1. Traditional ploughing of fields around Rāmṭek.



Figure 4-2. A traditional plough used by farmers around Rāmṭek, with short farrows which would not penetrate deep into the ground.

Modern use of the landscape can affect the success of survey in a number of ways as irrigation and farming activities can alter the context and character of archaeological sites. Site destruction through land modification for agriculture is common as ancient material may be used along with soil to create field banks and archaeological deposits may be levelled for cultivation (Paddayya, 1996:82). Sites have been "erased" by intensive agriculture and reclamation of land for cultivation, alongside the escalating use of mechanical farming machinery, land-levelling and irrigation projects (Paddayya, 1990:55). Diverse agriculture, coupled with often irregular and complicated land divisions, exacerbates difficulties in site identification on the ground and from aerial imagery (Terrenato, 2000:24). Intensive cropping and dual cropping systems limit the time and area available for field-walking. Industrial and commercial activities pose a threat to the survival of past remains, as sites may be cut through to quarry natural resources (Mohan, 1996; Rajan, 2003:41). In some cases the archaeological material itself may be quarried, as noticed by Paddayya in Karnataka where filling material for construction was excavated from Neolithic ashmounds (Paddayya, 1996:81). Survey should be crucial as if archaeological sites are not protected by the government, they are either in danger of being covered by modern infrastructure or disassembled for the re-use of archaeological building materials (1999:425).

Landscape surveys in India must be undertaken with an understanding of modern conditions, as demonstrated by Smith's research in Mahasthangarh, where high population growth results in the destruction or burying of sites by modern habitation (2001a:63). Another effect of modern occupation at village mounds can be the common use of pottery, which results in modern interference with the archaeological dataset (Dayal, 2005:62). Even in 1988, Hooja stated that archaeological questions should be prioritised as modernisation and development was obliterating much of the evidence (Hooja, 1988:5). The expansion of industry and infrastructure, and the encroachment of urban settlement on rural areas have intensified since then. Destruction of sites compounds difficulties in the evaluation of the period, nature, extent and potential of archaeological material and sites (Mohan, 1996:71). Although modern land-use and development is a significant challenge, archaeological investigation is often possible and productive, and survey is essential for the documentation of disappearing features in areas affected by modern activity (Rowland & Phillipps, 2012:93).

4.6.4. Access to data and its dissemination

Small-scale explorations are widely carried out by universities and are actively encouraged for students as part of doctoral research in order to fill the lacunas in the archaeological record (Possehl, 2002:8). However, difficulties can arise from the proliferation of small projects which one should be aware of when embarking on a similar project. The resulting information may not see a full publication unless the research is undertaken through a larger project and it can be difficult for external researchers to determine the number of existing survey projects published in journals (e.g. Panja, 1996; Venkata Subbaiah, 1989). The Land, Water, Settlement Project has noted that while valuable data is achieved from student surveys, it can be complicated to consolidate, appraise and compare the information. Results can vary with the use of different methodologies and the site densities of intensely surveyed areas are difficult to compare to that of the wider landscape (Singh, *et al.*, 2010b:45). Moreover, inaccuracies in existing data have been noted during dissemination by recent landscape projects. In a survey of the Rakhigarhi hinterland, Singh *et al.* identified several errors in existing site registers and publications, both in site

location and in general omissions of information. Such inconsistencies affect the ability of researchers to study site distributions and relationships efficiently (Singh, *et al.*, 2010b:38).

A lack of methodological details in published survey data can be problematic; researchers occasionally use the terms 'intensive' or 'systematic' for survey without providing details on the precise approach undertaken or to describe methodologies that may not reflect such nomenclature in the way they are currently understood (Chakrabarti & Lahiri, 1988; Negi, 1988). The data from ASI surveys is often only reported as brief summaries in IAR and so can be difficult to use in consideration of settlement patterns, relationships between archaeological remains, and chronological phasing (Lahiri, *et al.*, 2002:109). Alcock and Cherry observed that in the Mediterranean, diverse survey datasets result from factors including delays in publication, limited access to data and "healthy experimentation" with methodology (2004:4). This is equally valid to India, but there is still scope to develop comparative regional studies which successfully synthesise different datasets (Alcock & Cherry, 2004:4).

Additionally, it can be difficult to contextualise survey research if a particular region has few published excavation sequences and comparative survey data. This can affect research design as it may compromise the worth of intensive sampling of surface assemblages and attempts to read a site's chronology in the field (Shaw, 2007:65). Survey locations may be chosen in regions with more extensive archaeological work for comparison so the irregular distribution of research and underrepresentation of some areas can be understandable. Furthermore, while significant archaeological work is conducted by the ASI and state departments, funding limitations often mean that areas already subjected to brief reconnaissance are not a priority for re-exploration (Hooja, 1988:17).

4.6.5. Availability of resources

Restrictions on certain activities may prohibit intensive or systematic practice, and may be particularly encountered by independent researchers or small research bodies. Lack of permission can hinder the use of techniques such as aerial survey, which can

aid in the establishment of site distribution patterns (Hooja, 1988:17). Researchers can be limited to exploration rather than excavation, and strict control is often retained over resources such as aerial photography and maps (Hooja, 1988:17). When looking to overcome restricted access to maps, limited finances, access to software programs or data and a lack of available training has previously hindered the use of satellite imagery in small projects. However, it is now far more commonplace alongside the incorporation of GIS into projects and the use of equipment such as the handheld GPS. Such resources enable the integration of various data strands and support more sophisticated interpretation. Satellite imagery is an invaluable resource when access to topographic maps is limited or when exploration on foot is difficult. It has the potential to improve research into site detection, assessment of regional patterns, studies of landscape change and the effects of modernisation (Beck, *et al.*, 2007:161).

Advanced satellite imagery has been incorporated successfully in research projects across South Asia, and has shown great potential in various applications. The study of river systems and palaeochannels is one route of research which made extensive and early use of satellite imagery (see Bhadra, *et al.*, 2009; Ghose, *et al.*, 1979; Gupta, *et al.*, 2004; Singh, *et al.*, 2008; Yashpal, *et al.*, 1980). Satellite imagery has been evaluated in survey projects for its ability to aid in the detection and mapping of sites as a means of prospection (Beck, *et al.*, 2007), and to detect buried features (Rajani, *et al.*, 2011). Satellite imagery has been applied to spatial studies of religious landscapes and in the mapping of known archaeological monuments (Balaji, *et al.*, 1996:63; Ray, 2010; Ray & Ravindranath, 2007). An awareness of site destruction and modern landscape transformations has encouraged the use of satellite and historical aerial imagery across Central Asia (Alizadeh & Ur, 2007; Rondelli, *et al.*, 2013; Ur, 2003) and this concept is gaining recognition in South Asia.

As a free resource, GoogleEarth has great potential for small-scale projects or those conducted in developing areas (Beck, 2006; Thakuria, *et al.*, 2013:20). GoogleEarth, launched in 2005, is an accessible, open resource whose availability means it can be used in the field in conjunction with ground-survey. GoogleEarth is not as refined as other satellite imagery for use in a GIS, but is freely available and has worldwide coverage, which can help in overcoming project budget restrictions (Britt Bousman, 2006; Déodat & Lecocq, 2012; Madry, 2007; Ur, 2006). GoogleEarth enables broad

remote survey over large areas, whereas the same coverage may be prohibitively expensive with other satellite imagery, and therefore it can encourage cross-regional research and collaboration (Britt Bousman, 2006:34). The potential of GoogleEarth imagery in India has been demonstrated at Sisupalgarh, where it was used to identify walled settlements and assess their spatial distribution (Thakuria, *et al.*, 2013:22).

GIS has become an essential part of landscape archaeology as it enables comparison between various types of evidence, including satellite imagery, modern and historical maps, survey data and published information, which is crucial in India where there is a wealth of different sources. The potential of GIS to organise and manipulate data has been demonstrated in a number of projects; GIS has been used to assess trade routes and their relationship to Buddhist sites in the Western Ghats (Rees, 2011) and to study the regional landscape context of Chanderi (Fussman, *et al.*, 2003). Recently, the North Gujarat Archaeological Project has used a GIS to bring together environmental, archaeological, and ethnoarchaeological evidence (Madella, *et al.*, 2010). The proceedings of the Third International Conference on Remote Sensing in Archaeology (Tamil Nadu, 2009) demonstrate the increasing number of current projects using this resource in the subcontinent (Campana, *et al.*, 2010): Data from cartographic maps, satellite imagery, surface surveys and excavations have been contained in a GIS in landscape research at Pattanam (Cherian, 2010), Chitradurga in Karnataka (Nalini & Rajani, 2010), Ahicchatra (Pillai, *et al.*, 2010; Tare, *et al.*, 2010), Kausambi region (Rai, 2010) and Agra (Dayalan, 2010).

4.7. Conclusion: Landscape archaeology and its potential in the study of Early Historic India

The long history of landscape archaeology in India shows a progression towards large, multi-disciplinary systematic projects, particularly directed towards establishing the regional development of areas to relate to concepts such as relationships between people and the land and state formation. Alongside this is the continuing use of small scale projects to provide preliminary data in what is a vast country with a wealth of data. There is great potential for diverse theoretical and methodological approaches to cope with the long archaeological record and distinct cultures and environments encountered in India (Paddayya, 1990:45; 1995:139).

The number of survey projects in India is increasing but the full potential of the data remains to be fully exploited (Lal, 1984b:61). In an observation in South-East Asian archaeology, which is equally valid for South Asia, Stark noted that there is a particular need for survey in combination with excavations to form regional ceramic typologies (Stark, 2006:423). An absence of landscape data can hinder contextualisation of the excavation data, which cannot then be efficiently compared to regional patterns. Surprisingly little is known about the nature and development of Early Historic settlement and the relationship between urban/religious centres and their surroundings, and so landscape survey has great potential to contribute data related to spatial and temporal patterns of change. Historical models are limited by invisible periods in excavations and so landscape archaeology may be employed to establish more data and comparison material. Within historical archaeology there is further scope for collaboration between archaeological landscape research, and other sources of evidence such as art-history, history and epigraphy (Stark, 2006:423). Many of the traditional issues that initially hindered the development of landscape archaeology in India are being addressed, although there is still a need for more research. There are many opportunities to carry out survey as only basic data has been achieved for large areas of the country, which is insufficient for tackling important archaeological questions of settlement, economy and subsistence patterns.

Some scholars advocate an 'integrated' approach to landscape archaeology so that different methodologies may be developed to reflect the area's unique cultural and historical environment and combine local knowledge with external theoretical and technical developments (Shaw, 2007:66; Terrenato, 2000:21). Although regionally specific methodologies create variability in survey projects, possibly resulting in a less consistent country-wide data-set, they can be better suited to the diverse environments encountered. Issues from inconsistent datasets could largely be overcome by detailed and transparent publications to strengthen comparability between research. Shaw's argument for regionally specific and adaptive methodologies has been particularly influential in this research project. The next chapter will outline the research design of this project, which developed out of the various theoretical and methodological concerns highlighted here. Erdosy wrote that village-to-village surveys will always be popular with small-scale projects in India, as even basic information makes a significant contribution to areas and periods with

a dearth of research. However, there should be a clear discussion and rationalisation of the chosen approach and larger projects should aim for "more sophisticated" methodologies (Erdosy, 1985:68). While biases exist in this methodology, its effects may be mediated by awareness of the potential for bias, either inherent in the research design or in the evidence itself (Plog, *et al.*, 1978:384). This study strives to take a holistic approach, operating within the means of the project to investigate the *longue durée* of an Early Historic landscape.

Chapter 5. The Rāmṭek survey: Research design and fieldwork methodology

5.1. Introduction

The following chapter concerns the research design and fieldwork methodology of the multi-period survey employed at Rāmṭek, as informed by existing landscape research in India. This research's methodology was constrained by the scope of the research but the applicability of previous approaches was kept in mind and considered in relation to the project scope and the specific landscape. The research design was organised to maximise the success of identifying sites in the landscape and the amount of meaningful information gathered within the project logistics. This study contributes to the large body of landscape research in India and strives to demonstrate the potential for survey projects with limited resources to contribute useful data. It has been argued that in a large area such as India, student research is best directed towards investigation of specific locations to expand our understanding of the wider landscape (Lahiri, *et al.*, 1996; Shaw, 2007; Suvrathan, 2013). This study is aimed at investigating the regional development of the Eastern Vākāṭakas to expand our understanding of the function of Rāmṭek at the centre of the dynasty. Investigation of a tightly-focused area was aimed at gathering more information to add to existing evidence from past archaeological explorations to build a picture of Rāmṭek's development as a case study for Eastern Vākāṭaka development.

This project uses a number of datasets to achieve the overall aim of the research, which is to construct a holistic archaeological view of the landscape, testing the narrative of Eastern Vākāṭaka expansion by establishing the longue durée of the Rāmṭek area. The primary dataset is the survey evidence collected from three seasons of fieldwork; a preliminary reconnaissance, a second principal survey season and a supplementary third season to refine the survey data and carry out data analysis. The survey data provides specific details of the archaeological evidence around Rāmṭek and was directed towards documenting evidence related to the religious and settlement development of the area. It was hoped that details of concepts such as

political or religious authority, social organisation and rural economy could be inferred from the data and related to broader developments across India. This chapter will first discuss the different datasets which contributed to research in the overall project, and will then present the fieldwork methodology which contributed to the primary dataset. Finally, this chapter outlines the approach to the study of the ceramic assemblage, which is the largest category of evidence obtained through field survey.

5.2. Survey data and fieldwork methodology

Research design involves a balance between project aims and practical limitations such as time, availability of resources, funding and team size (Gallant, 1986:405). The project aims directed the survey in that in order to test the hypothesis regarding Vākāṭaka investment across the landscape, economic and ritual activity in rural areas was to be investigated. Certain approaches employed in the fieldwork methodology were necessitated by project logistics and the research design had to incorporate limitations such as manpower, time and funding. Furthermore, additional restrictions encountered within India had to be accounted for, including permissions and personal transportation. The fieldwork methodology evolved over the course of the first two field seasons to adapt to increased understanding of the survey area and limitations encountered in the field.

The survey was intended to work from a tiered sampling strategy with a variety of intensive and extensive investigations, designed to efficiently use the time available and explore different types of data:

- Level 1: Desk-based regional investigation and remote survey.
- Level 2: Unsystematic survey in the region and the local area.
- Level 3: Informant-based village-to-village survey in the study area.
- Level 4: Systematic survey in the study area.

Level 1.

At the broadest level, research primarily involved collation of existing published evidence from local and regional archaeological excavations and explorations, and remote survey from resources such as satellite imagery and topographic maps (discussed as a dataset below). The resulting dataset improved understanding of the regional archaeological profile and was used to contextualise the survey data. Initially, the use of remote sensing data and published material aided in the identification of sites but the Level 1 survey was carried out both throughout the course of the fieldwork to support interpretation of the primary survey data.

Level 2

Level 2 survey encompassed wide unsystematic field survey primarily focused within the defined survey area, alongside explorations within the local region. This was based within the data gleaned from the Level 1 survey of published reports and remote sensing imagery. Site visits were conducted to areas in Rāmṭek Tehsil with published evidence of Vākāṭaka remains, while field visits to key regional sites were conducted to assess their current state and gather information to complement the published research. If a site was identified on satellite imagery or was already published then the Level 2 survey on the ground was aimed at confirming the recorded details and assessing any changes since publication. Level 2 survey also had the benefit of identifying previously unpublished sites through unsystematic survey. The unsystematic survey helped to characterise the local landscape in terms of modern land-use and settlement. Reference to local maps supported travel around the survey area and region and the use of satellite imagery was maintained at this level to complement initial investigations on the ground.

Level 3

The ‘informed’ village-to-village survey was the main focus of the fieldwork and was primarily restricted to the defined survey area. Modern village-to-village surveys focus on manageable areas of land to enable more intensive coverage. While Erdosy’s survey (1988) worked within a 10km radius of each village in an entire

region, this survey area is contained within a 10km radius from Rāmṭek and includes numerous, closely-spaced villages used as bases for exploration.

A complete systematic survey was impractical and agricultural activity/access made intensive field-walking problematic so the pedestrian survey was essential. This survey depended on local information to target sites around Rāmṭek followed by speculative survey throughout villages and their surroundings. Village-to-village survey was considered more likely to return usable data under the practical limitations of the project. This methodology combines traditional village-to-village techniques with greater levels of conscious interaction with local communities to aid identification of sites. The 'informed' approach is intended to access information that might not be accessible within systematic surveys, which may not involve close engagement with local inhabitants.

Level 4

A portion of the second field season was dedicated to more intensive methods of investigation within the survey area and tested basic systematic sampling strategies. The original decision to extend the systematic investigations out from the survey area was made due to the aim of seeking pre-existing Early Historic activity in order to probe the historical narrative of Eastern Vākāṭaka development. It was theorised that there may have been a topographic influence on the location of earlier sites due to the proposed shift of the Eastern Vākāṭakas inland to more peripheral areas. Given the attempt to understand Rāmṭek in its regional perspective the systematic survey was directed towards understanding the effect of the local topography on site location or type. However, time did not permit these wider investigations to be carried out and the primary function of the Level 4 survey became to test the patterns emerging in the data achieved during Level 3 survey. Hence focus was initially directed to sampling within the survey region.

In practice, the different types of survey outlined above were found to interact and the use of Level 1 survey was maintained throughout the period of research. Sites could be identified through various types of survey. It was decided that if a site was initially identified on remote sensing imagery then it was recorded as a Level 1 finding before being confirmed through Level 2 field explorations. If a site already

identified through remote survey was highlighted during discussions with informants on the Level 3 survey, then it was recorded as both visible on satellite imagery and known locally.

5.3. Use of comparative datasets in Level 1 research

5.3.1. Field and site reports

Published excavation and survey reports were referred to during this research to provide a broader context for the Rāmṭek survey data. The published reports were initially used to inform the Level 2 and 3 surveys and to establish the regional archaeological and anthropogenic context. Furthermore, published reports were used throughout the research in interpretation of the field data, and in comparison of the results with known evidence. Focus was particularly paid to the reports of excavated Vākāṭaka sites in the region, such as Pauni (Deo & Joshi, 1972; Nath, 1998), Paunar (Deo & Dhavalikar, 1968), and Mansar (Joshi & Sharma, 2000; 2005). Reports of relevant explorations recorded in the Indian Archaeological Review and Sali's overview of archaeological explorations of Vākāṭaka sites (1998) were useful sources providing brief descriptions of a number of villages in the wider Rāmṭek Tehsil with evidence of Early Historic activity.

5.3.2. Cartographic data

Local maps and cartographic data are a significant dataset, providing information relating to known sites and features, and locational data for modern villages. Topographic maps provide a basic land-use profile to digitize and use as a background for the survey data. A Survey of India topographic map of Rāmṭek district (Narain, 1975) was used as a guide to village names and locations, temples and irrigation facilities. This increased familiarity with the survey area to anticipate land use, identify villages and compare to exploration data. The maps used here do not provide the most up to date information (Sheet no. 55 0/7; 1:50,000; First edition, 1975) but more recent maps could not be obtained within the scope of this survey. As such, the digitised land-use information was kept simple and compared to satellite

images from GoogleEarth. The map scan was entered into a GIS and geo-rectified based on secure latitudes and longitudes so that map features could be digitised by creating polygons/shapefiles of sites and features of interest.

5.3.3. Remote sensing data

Satellite imagery can be particularly useful in identifying patterns in site data, which may emerge from a wider perspective as opposed to observation on the ground. An additional strength in aerial or satellite imagery is the ability to visualise changes in the landscape over recent history, and assess degradation of sites. This was a principal concern in this research as clear evidence of site disturbance was documented during the survey. Remote sensing data was used as a visual tool and source of aerial information. The data was incorporated into a GIS to provide a basemap for the survey data input into the GIS, and to convey information such as elevation and topography. Satellite imagery was used in the Level 1 survey to detect sites and for the aerial examination of sites located by field survey. As a supplementary dataset in this research, remote sensing data was also assessed for its use in this particular landscape and projects of this scope.

Table 5-1. The types of imagery utilised in this study. Given the financial restrictions of the project, use was made of free satellite imagery.

Imagery	Acquisition Date	Resolution (metres)	Properties	Coverage
ASTER	Released 2009	15-90 metres	Multi Spectral, Panchromatic	Full
SRTM	2000	90 metres		Full
Landsat	2014	15-80 metres	Multispectral, Panchromatic	Full
GoogleEarth	2002-2015	Variable	Multispectral, Panchromatic	Full with varying resolution
Orbview 3	2005	Roughly 4 metres	Panchromatic	Majority of survey area

Aster and SRTM data are low resolution imagery which were used to provide DEMs (Digital Elevation Models) for the GIS. A DEM allows observation of topographic

variation and the imagery simplifies the landscape so it is more appropriate for quantitative interpretation. Aster and SRTM data are freely accessible from http://earthexplorer.usgs.gov/. ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer) data originated from images taken from the Terra Satellite launched in 1999, and was made available from 2009 as a Global DEM (Abrams, *et al.*, 2002). ASTER imagery has relatively high spatial resolution, up to 15m (http://asterweb.jpl.nasa.gov/). The SRTM (Shuttle Radar Topography Mission) project was carried out in 2000 by NASA, the National geospatial-intelligence agency and the German and Italian space agencies (See Farr, *et al.* (2007) for an overview; available at http://srtm.csi.cgiar.org). SRTM created topographic data which is freely available at a resolution of 90m, which is sufficiently detailed for the detection of larger features (Galiatsatos, *et al.*, 2009:5-6). Landsat imagery was also downloaded for use from EarthExplorer via http://landsat.usgs.gov/. (Landsat programme information, USGS 2003). For coordinated use of the remote sensing data in a GIS, all imagery must be geo-corrected to the same base co-ordinate system. The WGS 1984 datum and the Universal Transverse Mercator (UTM) projection system were used in this project. This handheld GPS was configured to this system, so that the survey data was compatible and could be integrated into the GIS. The imagery was re-projected in ArcGIS, which was the software used to generate the GIS.

Given budget restrictions, GoogleEarth was the main resource used in planning the fieldwork, both in identification of potential sites, and in assessment of the nature of the landscape. GoogleEarth can be a valuable source of current land-use information which can be transferred to the GIS and compared to other data sources. As GoogleEarth is universally available, it could be accessed in India for aerial assessment of sites located on the ground, although due to connection limitations it was not available in the field itself. GoogleEarth was used alongside other remote-sensing data later in the research as a comparative source for other levels of survey. In GoogleEarth, the entire planet is covered by medium resolution, simulated, true-colour imagery, which has been derived from Landsat data (Ur, 2006:35). As in other satellite imagery one relies on visual interpretation to identify features, which become apparent through their difference to the surrounding landscape. True-colour imagery is helpful in the identification of possible sites in the landscape, as variations

in vegetation and soil colour may be recognised. If features are identified online in GoogleEarth, they can be digitised for incorporation into the main GIS by creating KML (Keyhole Markup Language) files.

Orbview 3 imagery was also used at the fieldwork planning stage and Level 1 survey to initially scan the landscape for potential sites. Orbview imagery is freely available online and is at a higher resolution than GoogleEarth, but is in black and white. When a potential site is located, aerial imagery is useful in assessing its form and shape, its boundaries, the nature and topography of its landscape surroundings and its relationship to associated remains such as nearby hydrological features or other sites. Shading differences in the landscape can indicate the presence of archaeological remains, as past activity can alter the soil composition. Shadows could indicate differences in elevation from accumulated deposits. The methodology for identification of sites using remote sensing data relies largely on recognising changes in elevation or visual anomalies in factors such as soil colour. It is not immediately known whether the identified anomaly is archaeological or caused by another process; soil differences may be geological or caused by factors such as drainage, agricultural activities and varied land-use. Around Rāmṭek the general appearance of the ground is affected by the subdivision of fields into areas of different crops. Changes in elevation may also be connected to natural undulating topography rather than anthropogenic activity. It is therefore important to verify remote findings by field visits to confirm the archaeological origin and nature of a site.

Satellite imagery is particularly useful in identifying mound sites and thick scatters of brick, as well as old tank bunds which can often be seen to correspond to those recorded on cartographic maps. Mounds can be easily identifiable, although low elevation can pose a problem if no shadow is evident. Conversely, apparent changes in elevation visible on satellite imagery may also not be as prominent in reality; the conditions under which imagery is taken and the methods used in its acquisition will affect the visibility of sites on the resulting data. Visibility of sites on imagery relies on a complex combination of factors including the type of imagery, the resolution, geology, topography, environmental conditions and the nature of remains. The relationship between ground remains and remote sensing data, and sites and their visibility on imagery, is generally not well understood and there is limited information from India. As it is unsure why sites appear on imagery, it is difficult to

define sites which will relate to evidence in the field (Galiatsatos, 2004). Remote-sensing data may also be at too low a resolution for identifying specific types of site. Field visits enable the collection of artefactual remains, and the recording of categories of sites which may not be manifested on remote sensing imagery, such as small religious sites and scatters of artefacts.

5.3.4. GIS database and visualisation of the recorded evidence

The introduction of Geographic Information Systems (GIS) has been one of the most innovative developments in landscape archaeology since the 1990s, and has considerably increased the analytical potential of archaeological data due to the ability to integrate different types of information, such as survey data, environmental parameters and remote sensing data (Gkiasta, 2008:20). GIS are primarily a methodological tool used to emphasise the spatial relevance of environmental and cultural systems. GIS can store, manipulate and analyse data, and can create map visualisations of different datasets which are spatially related. As an analytical tool a GIS can answer questions of spatial and temporal patterning and aid in the reconstruction of past landscapes (Llobera, 2007). However, GIS are subject to the restrictions of the data they use and the questions asked by researchers (Gkiasta, 2008:23).

During the fieldwork, data was stored in Excel spreadsheets, which recorded the GPS numbers, feature and sculpture numbers, photograph list and information related to the ceramic and finds collection. The assignment of site numbers to recorded features was completed in retrospect and sites were given a unique identifying number. Following completion of the fieldwork the Excel data was transferred into an Access 2010 Database in order to facilitate analysis and enable querying of the information. Access databases have the advantage over Excel of permitting the linking of data through shared attributes. The database was designed to be as simple as possible, while still providing enough detail to allow comparisons and interpretations of the data.

In this project the GIS was generated through ESRI ArcGIS and connected to the Access database in order to combine the remote-sensing imagery, site and ceramic data and topographic maps. ArcGIS allows the mapping of spatial data, while the Access database stores the attribute data for the GIS. The spatial data from survey can be displayed on the base maps from remote-sensing imagery, and features on different imagery can be digitized using points and shapefiles. A GIS is a powerful tool which allows researchers to query data and produce visual explanations to display information relating to the site density and type, spatial and chronological distributions and inter-site relationships. GIS can be used in more sophisticated analysis, but in this research it was primarily used as a visual aid for interpretation of the survey data.

5.4. Ground survey conducted during the three field seasons

5.4.1. Scale and Survey area

The first consideration of the research design was the scale of the project and the definition of the survey area. Scale refers to the size of the area to be surveyed; large-scale surveys are appropriate for regional investigations but require relatively high investment, while small-scale surveys are more feasible for limited projects and may be justified by research aims, such as the desire to create a nuanced map of a specific area. The survey region should be appropriate to the fieldwork's empirical issues but in practice is also shaped by additional factors, such as accessibility and feasible land coverage.

The original survey area was designed to provide a tight focus on Rāmṭek, in order to answer questions about the specific local environment. The boundaries of a survey are typically delineated by natural, cultural or arbitrary attributes of the area (Plog, *et al.*, 1978:384). The survey area defined within this project took all of these factors into consideration: A 10km radius was taken from the central religious complex on Rāmṭek Hill for the preliminary field season, with the possibility of altering the size or shape of survey area in future seasons. A 10km radius was considered manageable for the time and resources available, being small enough to maximise land coverage,

but sufficiently large to reveal patterns in the data to relate to regional trends. During the second season it became apparent that although settlement mounds were being identified there was an absence of ancient temples, and so it was considered that if a dispersed pattern of temples was present in the past that this may not be shown under the restricted survey area. The potential for wider patterns of settlement and ritual activity partly led to the original design of Level 4 transect survey and positioning of transects to be discussed below. Archaeologically and ethnographically, there is some justification for the delineation of a 10km survey zone. The large Vākāṭaka period water reservoir is situated towards the centre of the survey area and so the surrounding area would have been part of the cultivatable zone and sites would have been directly related to the Vākāṭaka economic investment into the landscape. Furthermore, 10km is thought to constitute two hours walking distance in site catchment analysis; studies in India have estimated that agricultural Chalcolithic communities in the Deccan would require an area of around 5km to support their needs and 10km would be the maximum daily distance for farmers utilising bullock carts (Pappu, 1988; Pappu & Deo, 1994; Pappu & Shinde, 1990), while in Sri Lanka, a maximum of 15km a day was estimated as a possible daily travelling distance (Coningham & Gunawardhana, 2013). Furthermore, this survey area incorporated the Vākāṭaka capitals at Mansar and Nagardhan, which enabled thorough exploration of these sites for comparison to the rural landscape. Physically, the size of the radius was confined by the fringe of densely forested hills demarcating the northern part of the Rāmṭek area and leading up to Pench national park.

By omitting the larger area of forested hills it is possible that the archaeological traces of different types of communities may be missed. Areas of forests have been potential areas of habitations for communities in ancient times and archaeological research and epigraphic records demonstrate that forest groups would have co-existed and interacted with settled agricultural communities. Forest people have also been "integrated" into influential political structures through exchange of products or gifting and tribute owed to kings (Hecht, *et al.*, 2014; Morrison & Junker, 2002). While part of the northern hills is included within the survey area it must be noted that omitting large parts of this environmental zone risks undervaluing the complexities of human occupation in the region. However, given the lack of understanding of the immediate hinterland of the Eastern Vākāṭaka centre, it was

decided to focus on the socio-economic interaction with the agricultural communities more directly related to the political centre.

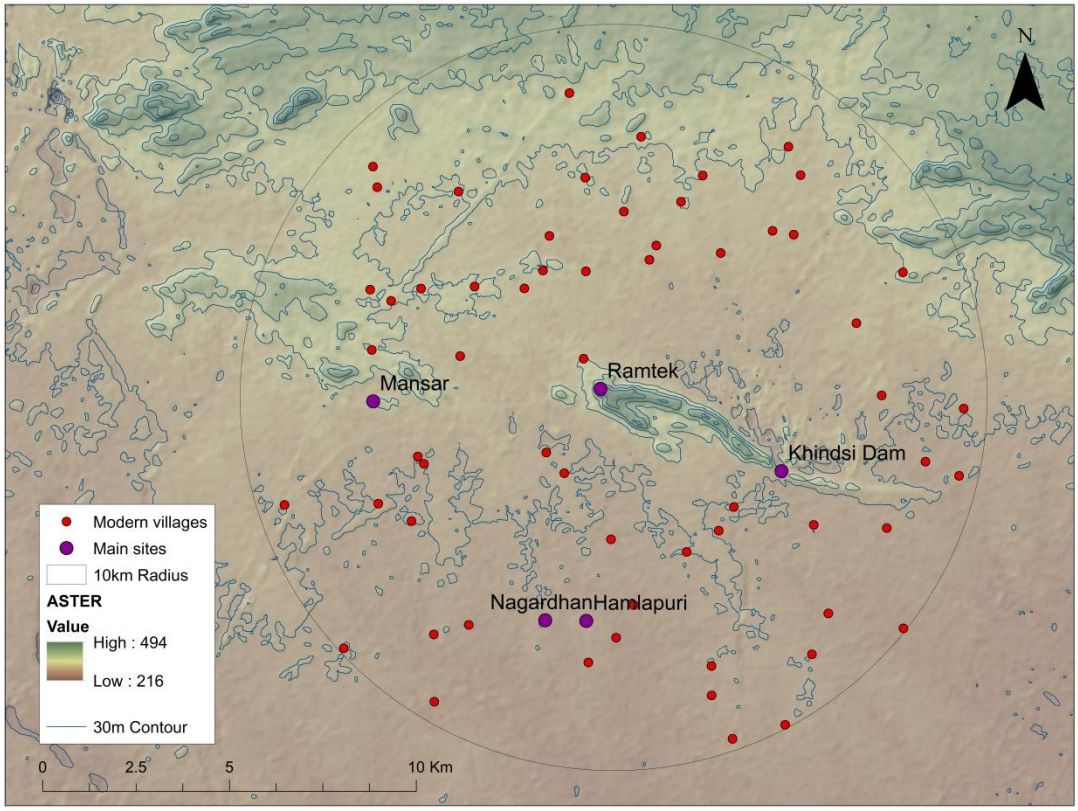


Figure 5-1. The 10km survey area surrounding Rāmṭek displaying the main, known sites and the spread of modern villages.

5.4.2. Transport during the field surveys

A combination of public transport, private transport and walking was used in the first reconnaissance season, while independent transport was available for the second and third field seasons. Initially, the fieldwork timetable in the first season was adjusted to account for travel limitations so that accessible areas were surveyed during the week and travelled to by public transport, and more remote areas were surveyed at the weekend when there was access to a motorbike. The motorbike was suitable for off-road areas and narrow lanes, and provided a faster method of travelling across the 10km survey area, although field exploration was carried out on foot. This method of transportation is local and familiar, and therefore cheap and discreet. During the

second season a motorbike was available for the entire period, which comparatively improved the efficiency of the survey and reduced costs. However, the use of a motorbike does insert additional biases into the survey by raising the chances of the survey becoming unintentionally limited to more accessible areas or roadways. In attempts to mediate this, the handheld GPS could be used to monitor daily routes and show land coverage. The survey area was divided into manageable zones designated for survey according to a schedule to structure travel across the landscape. It is still necessary to keep in mind biases of coverage when discussing results and the patterns of findings.

5.4.3. Team size

Over the course of the fieldwork, the team size was restricted to two individuals, consisting of myself and a partner. During the first season, Dr K. Bhaisare, a local archaeology research postgraduate from Deccan College, accompanied me in the field. Mr Mustafa Ahmad assisted in the first three weeks of the second season, and while he is not local, he is experienced in archaeological exploration and the identification of sites. Mr Nivesh Sarjare assisted over the remaining field periods, and was local to the area with fieldwork experience. It was invaluable to be accompanied by an Indian partner, particularly due to language difficulties in a Marathi-speaking area and the suspicion generated by being a foreign woman in a rural area. Archaeological training for the field assistant was not found to substantially affect the success of the fieldwork but other criteria such as gender, age and personality were influential, as noted by Shaw in Sanchi (2007:67). When accompanied by a male, attempts to engage groups of villagers (often groups of men) in relaxed conversation were more successful and there was less reluctance for them to divulge information on potential archaeological evidence. In addition to a field assistant, local informants were often identified in each village through connections made in Rāmṭek. This method provided a starting point for engaging with the local inhabitants and removed some of the suspicion associated with our work.

5.4.4. Definition and types of 'Site'

The definition of what constitutes a 'site', and the extent to which 'off-site' features are recorded, is a long-standing issue in archaeological research and a fundamental decision in survey design. A project's definition of 'site' relates to the aims and research questions, and has wider implications including comparability to other projects (Plog, *et al.*, 1978:386). The concept of 'sites' varies between researchers and projects, but a basic definition by Plog *et al.* takes 'site' to mean a "discrete and potentially interpretable locus of material", with sufficient cultural material to enable inferences to be made about past human behaviour (1978:389). The question of 'site' is particularly important when utilising a number of datasets or methods, as each may enable the identification of different categories of 'site'. For example, there can be some disparity between the types of site identifiable on the ground versus what is visible on satellite imagery. The basic definition of 'site' as an area where artefacts are found is particularly ingrained in archaeological practice; it is used as an organisational tool for identifying discrete assemblages within a data-set and as the base of quantitative analysis (Dunnell & Dancey, 1983:271). However, the distribution of archaeological material across habitation areas and areas of transient remains can be complex. The space between discrete 'sites' may contain extensive cultural material, and a continuous low density spread of artefacts demonstrates that human activity was not site-restricted (Dunnell & Dancey, 1983:272). Focus on high-density areas may therefore exclude evidence related to more ephemeral activity (Gkiasta, 2008:16). In an attempt to look beyond the traditional discrete 'site', 'non-site' and 'off-site' methodologies have been developed, which take artefacts or features as the unit of investigation (Bintliff & Snodgrass, 1988:61; Cherry, *et al.*, 1988; Dunnell & Dancey, 1983; Foley, 1981; Thomas, 1975). The idea of 'non-site' features has particular relevance to India as it brings attention to all parts of the landscape including significant natural places and ephemeral remains (Shaw, 2007:62).

Some scholars have advocated the removal of the concept of 'sites' altogether (Thomas, 1975), but it can be difficult to operate without this term when discussing fieldwork results and the temporal and spatial spread of human activity. In practice, sites may be identifiable by greater density of material remains, representative of

focal points of human activity, as opposed to background material (Dunnell & Dancey, 1983:271). In this research sites were identified as areas with higher levels of artefact density in comparison to the overall regional distribution. 'Sites' were mainly identified via qualitative judgement rather than rigidly and quantitatively structuring site identification. 'Sites' such as brick/ceramic scatters were defined as constituting a locus with a minimum of ten artefacts per metre² following a method similar to that employed by Coningham, *et al.* (2007). Low density scatter was recorded for posterity but not necessarily deemed a 'site'. Throughout the survey, a range of other features were recorded as sites, including standing architecture and architectural fragments, water management structures such as tanks and wells, habitation mounds and sculpture. An important site category in this survey was low mounds, which typically comprise the basic remains of ancient rural habitation in India. As in Shaw (2007), an attempt was made to record modern ethnographic sites such as local shrines, given that modern cult spots may suggest past significance of 'place' and aid understanding of land-use and current activity.

5.4.5. Season length and identification of sites

This research included three seasons, which varied in length due to project and budget restrictions and the methodologies planned for each stage of the survey.

5.4.5.1. Season 1: Reconnaissance survey (January to March 2012)

The first field season was intended as a general reconnaissance survey to establish the nature of the landscape and the extent, availability and visibility of archaeological remains. This season drew from Level 1 research and was a combination of Level 2 unsystematic investigations in the local region followed by Level 3 'informed' village-to-village survey in the defined study area. The results of the first season were intended to enable focused preparation for the second in-depth field season. The methodology was preliminary and flexible, with the potential for modification in the field if adaptation was necessary due to unforeseen difficulties in the previously unvisited area.

The time scale of the first season was three months, as dictated by the season in India and the demands of the research project in the UK. The first survey period around Rāmṭek coincided with the middle to end of the dry winter season in India, which was appropriate due to the cooler weather and relative ease of working in the field. The general environment presented low vegetation across the hills and areas outside of agricultural fields, with fairly dense forest on the higher elevation hill range to the North. The rice harvest prior to the survey resulted in a high proportion of bare, unploughed or shallow ploughed paddy fields. Standing crops of wheat, planted following the rice harvest, were present at the beginning of the fieldwork period and harvested by mid-February. Other crops, such as chickpeas and chillies, were grown on a smaller scale and harvested in the middle of the field season. The fieldwork season was not the most vegetation-free period, however the hot summer months increase the difficulty of conducting fieldwork.

During the first month of reconnaissance fieldwork, regional site visits were made as part of the Level 2 unsystematic survey. Two weeks were spent familiarising myself with the region and visiting sites of the Eastern and Western Vākāṭakas and contemporary dynasties, such as Udayagiri and Ajanta. A further week was spent attending key Vākāṭaka sites within Nagpur district and viewing artefact collections from excavations with other members of the project and archaeologists from the region, including Dr Michael Willis, Prof Hans Bakker, Dr Riza Abbas of the Nashik Institute and Dr Chandrashekhar Gupta. The sculptural evidence in the Nagpur University and Central Museum collections, and artefact collections from various excavations at Vākāṭaka sites, formed a useful reference for the later survey. The sites visited included the nearby major Vākāṭaka sites of Pauni, Paunar, and Mandhal, which provided a broader regional context to the survey. The main known sites in the survey area (Rāmṭek, Nagardhan, Mansar and Hamlapuri) were also visited to follow on from the short survey carried out in 2006 by Bakker. The remaining 9 weeks were dedicated to Level 2 and 3 surveys within the defined survey area.

During the first season of reconnaissance, survey was directed towards areas of high potential for different types of archaeological remains to maximise returns in a short period of time and to characterise the potential archaeology of the area. The first season initially targeted the different environments within the survey area to form a

representative view of the landscape and ensure that location-specific activity was not overlooked. The unsystematic Level 2 survey was directed towards hilltops, forest, tanks, river banks and agricultural stretches while the initial Level 3 village-to-village survey was conducted around a selection of village which had been prioritised. A week was then spent on the each of the environments noted above with 3 weeks of village survey and exploration directed by information. A week was absorbed by logistics and organisation of the fieldwork once in India.

The different environments were identified through the use of topographic maps and GoogleEarth prior to the commencement of the fieldwork. Excluding the northern fringe of large forested hills, there are few areas of high elevation in the survey area and so all minor hills were investigated for archaeological evidence. In particular this was directed towards the identification of religious remains due in part to the historical association of Buddhist sites with hilltops and connected to the project aims of investigating pre-Vākāṭaka activity. The northern fringe of hills was also subject to preliminary exploration so as to ascertain whether traces of past less-settled human activity were visible. These hills have a lack of paths and were walked into from the roads. Most of the hills, particularly those to the north, were difficult to access and navigate due to the lack of roads and the forest coverage and had poor ground visibility due to leaf and shrub cover.

Areas with access to water resources were also given particular attention in the first field season. The land around the Kanhan River was subject to speculative survey to ascertain whether types of settlement were drawn to the riverine areas, perhaps to benefit settled agriculture. While the river location may have shifted slightly over time, this represents a water source which would have been present in the past. This area was revisited through Level 3 survey in a later season due to the location of villages along the river but in the first season targeted unsystematic surveys were conducted. Additionally, water storage tanks were identified from the topographic maps and GoogleEarth imagery in order to test the association between tanks and settlement sites. Past research has also shown the connection between water and religious activity (Shaw, 2005/2006). The tanks were assessed to see if there were any visible indication of ancient origins and the surrounding areas were surveyed for related archaeological material.

Following the targeted surveys, speculative survey was undertaken by travelling the road networks and pathways throughout the area in order to look for prominent features or mounds. This method is clearly biased towards larger sites, but was successful in maximising the returns of the survey in a short period.

Key villages were prioritised for Level 3 research in the first season, based on factors such as appearance, accessibility and location, in the knowledge that all villages would be surveyed in the second fieldwork period. An apparently mounded shape on satellite imagery was used to select targeted villages, as it was theorised the mounds could relate to the continuity of settlements over time. The villages were investigated by pedestrian survey, paying particular attention to house foundations, areas of digging and sections for archaeological evidence. This was followed by engagement with the local community to inquire about archaeological remains or religious sites in the area, which may otherwise have remained undetected, leading to further exploration around the settlement and cultivation areas.

5.4.5.2. Season 2: The full survey (October 2012 to March 2013)

The primary methodology of the second field season continued to be the use of Level 3 'informed' survey, but a short systematic element (Level 4 survey) was also introduced. Following assessment of the data collected during the reconnaissance survey, the methodology of the 'informed' village-to-village technique was adjusted to counteract some of the limitations first encountered. The 10km radius of the first season was found to be manageable and provided a specific focus for the fieldwork. As there was a large area still to cover within that defined radius, and it was still appropriate to the aims and needs of the project, the boundaries of the survey universe remained the same during the second 'informed' survey. Occasional explorations were made beyond the 10km radius based on information regarding areas with high potential for sites, but were kept within Rāmṭek Tehsil.

The beginning of the second field season coincided with the rice harvest and the ploughing of the fields around Rāmṭek. The second season extended the time in the field to different months to allow a comparison of visibility and included the period following the monsoon. The later months of the field season were the same as the

previous year, which was previously found to be practical in terms of heat, ease of working and vegetation cover. Unfortunately, the start of the field season was affected by unexpectedly high vegetation cover until early December. The high vegetation was a consequence of late rains, resulting in a late rice harvest and extended growth of natural flora. Consequently, the ceramic sorting originally scheduled for the end of the fieldwork period was moved forwards and initial Level 3 investigations began within and around villages while the fields were less accessible. In total, 4 weeks were spent on pottery sorting and analysis at the Nasik Institute, 14 weeks were spent conducting Level 3 village-to-village survey and 3 weeks were dedicated to the Level 4 transect-based survey.

Although much of the first season was dedicated to investigating different environments in the survey region, there were few significant findings. Re-visits to general areas were common, as variables such as crops and vegetation, ploughing and weather can impact on visibility and site recognition, and previously identified sites were also re-visited to assess any changes across the two seasons (Schiffer, *et al.*, 1978:7). The area to the south-east around the Kanhan River was explored again during the survey leading out from villages. No sites were identified on the lower hills, and so these areas were not a priority for re-exploration in the second season. Rather, any investigation into the hill areas simply formed part of the pedestrian survey extending out from the informed village-to-village survey. The aim of the second season was to identify a range of archaeological remains and increase the number of sites documented, as a relatively small number of sites were recorded in the first season. The data from the first season was used to highlight deficiencies in the understanding of emerging patterns in the data, which could then be targeted during the second season. For example, settlement mounds were generally found to be slightly removed from modern villages and at somewhat regular spacing, which indicated that sites could potentially be expected in areas which had not yet been investigated. Additionally, the first season was more successful in the identification of extant temple architecture and religious sites than settlement evidence, and so conversations with local inhabitants were approached differently during the second season in order to open discussion to a wider variety of sites.

The results of the first season indicated that the land coverage by pedestrian survey had been more limited than expected. The small team size and lack of permanent

private transport resulted in a tendency to investigate compact areas of land around villages and along road systems. Therefore, a conscious effort was made to extend explorations further into the agricultural areas and to continually record the routes taken via GPS so coverage could be assessed. It was found that exploration out from the villages was extended for an average of a 1km radius and so further explorations were needed by travelling to under-investigated areas. Overall, the 'informed' survey followed the same methodology as the previous season, but the increased time available and familiarity with the technique and landscape resulted in a higher percentage of land coverage.

5.4.5.3. Season 3: Ceramic analysis (January to April 2014)

The ceramic and finds analysis was the primary focus of the third season (methodology discussed below). The third season also incorporated an additional short field period to refine aspects of the data collection. This was planned for late March 2014 to minimise vegetation cover following difficulties with seasonality and weather during the second season.

5.4.6. Recording Techniques

Recording of sites in the field was carried out free-hand in a field diary, which minimised the amount of equipment and was more manageable than loose recording sheets. However guidelines for data collection were formulated to ensure comparable results. Sites and features were recorded with brief descriptions and rough measurements.

All sites were recorded using a handheld GPS (Garmin Etrex 30; GPS accuracy is 15m or less) and the relevant features were photographed. Features were initially assigned a temporary loci number which could be reorganised at a later date, given that the nature of the archaeological landscape was unknown. Site boundaries were visually estimated with their extent being primarily determined on the basis of sherd density and related features. The size of sites was based on the presence of brick remains or the density of ceramic material (10 sherds per metre2) and the scatters of

archaeological material constituting a site were surveyed to ascertain their nature and extent. For larger scatters the perimeter was recorded with the GPS, whereas small discrete features, such as pottery scatters or small shrines, were recorded by a single GPS reading taken from the rough centre point. Larger features, such as mounds and earthworks, could be circumnavigated with the GPS to estimate the area and rough boundaries of sites while the height of mounds and earthworks were judged by sight. The time spent walking and investigating the extent of sites was variable according to site size and the necessary recording of features however the collection of ceramic remains was limited to two hours.

Isolated sculptures and those contained within temples were recorded *in situ* with GPS, photographed and described to record their size, material and preservation. Occasionally, access to temples or close proximity to sculptures was not permitted, which restricted the ability to measure sculptures. Where possible a 5 or 10cm scale or a half metre measuring pole was used in images but unfortunately a limitation of the results is that not all sculptures were measured in the field. The information relating to each sculpture was kept in an index so that individual pieces could be identified when assessed for iconographical details and chronology. Most of the modern shrines offered no obvious archaeological remains and while their location was recorded, collections of stones and clearly modern sculpture were not. At temple, notes were made on architectural features for comparison to published examples. This involved attempts to identify the material used in construction, the details of architectural decoration, construction and column types and possible modern adaptations to designs.

Details about the surrounding environment were recorded, such as modern land-use and site disturbance, soil type and vegetation cover, in order to assess visibility. Visibility impacts on the recognition of sites and is a central issue in archaeological survey during both data collection and the subsequent analysis and interpretation (Terrenato & Ammerman, 1996:92). This may refer to the effect of the survey environment on site recognition or the obtrusiveness of certain categories of finds, and it is particularly important in the recovery of low-density surface archaeological material (Schiffer, 1988:475). The Rāmṭek landscape is generally agricultural or forested, and so it was necessary to construct a methodology to maximise site identification and take into account the potential effects of vegetation on site

recovery. Visibility can vary over the course of a single survey project due to factors such as seasonal vegetation growth or changing land-use, and this was apparent during the Rāmṭek survey (Ammerman, 2004:178). The same month over consecutive years presented different levels of vegetation cover as a result of annual climatic variation, and modern activities. Exposure of archaeological deposits may also be influenced by agricultural practice (Gallant, 1986:416). There have been numerous studies into the effect of agriculture on surface assemblages, particularly those which consider the effects of ploughing on the formation, visibility and recovery of surface assemblages and the subsequent interpretation of such assemblages (Ammerman, 1981; 2004; Francovich, *et al.*, 2000; Haselgrove, *et al.*, 1985). While there is the potential for high disturbance from ploughing, there is a tendency for shallow ploughing in India, as mentioned in the previous chapter. The majority of farmers observed around Rāmṭek utilised traditional non-mechanical ploughs and so artificial cuts and sections were deliberately sought out as a means of testing the differences between buried and surface assemblages.

5.4.6.1. Finds and ceramics collection

Portable small finds were recorded by GPS, photographed, assigned a finds number and often collected if loose on the ground. Few portable finds were identified during the two survey seasons, including worked stones and ceramic artefacts such as spindle whorls and figurine fragments. The finds were recorded, photographed and described.

Collection of surface ceramics is necessary to determine the chronological phasing of site occupation. Isolated ceramic scatters or agglomerated scatters near features were recorded by GPS and photographed, before a proportion of the sherds were collected. Pottery sherds scattered across archaeological sites were bagged according to feature number, while dispersed sherds collected during field-walking were related to a general area. The collection of sherds in this survey was primarily judgement based and utilised the “grab sample”, which is a basic and frequently used collection strategy. The use of judgment-based versus quantitative methods of sherd collection has been debated in archaeological literature and various sampling theories have

been adopted from statistics in order to enable quantitative evaluation of the evidence (Ammerman, 1981:78; Nance, 1983). 'Grab sampling' involves the collection of artefacts from a site in a designated period of time. It is subject to selection biases as larger, prominent artefacts can be overrepresented and is not specific in terms of collection areas or exact artefact provenance. However, it is kept in use by its ease and speed of application (Plog, *et al.*, 1978:406). Judgement-based samples are less quantifiable but can maximise the likelihood of achieving a useful assemblage for analysis in a limited time (Mattingly, 2000:9). The sherds at sites with a small and clearly defined area under 2 m^2 were collected in total, while larger sites were subjected to a timed collection following recording of the site features (one hour to two hours dependent on estimated size) by walking the determined extent of the site and picking up visible ceramics. Although larger diagnostic sherds tended to be more visible for selection, an effort was made to collect a sample representative of the wider assemblage (Mattingly, 2000:7).

Judgment sampling was an effective technique given the range of limitations encountered, such as low visibility, disturbance and issues of access. Most of the ceramics were located in areas still in use today and the few sites no longer in use were invariably disturbed from previous agricultural or industrial activity. In some cases quick recording was necessary due to limited access, which affected the consistency of sampling techniques across the field period. Due to modern disturbance or land-use, the area surrounding sites often had only low-density archaeological material and the ceramic sherds were often fragmentary and eroded. Therefore, full or extensive collections at sites were thought to be questionable in terms of use and importance, as the majority of surface finds were of limited use and only diagnostic material contributes towards an assessment of chronology and site usage.

Over the course of the first two field seasons, the majority of sherds were recovered from the surface and sections of habitation mounds, with further remains collected from low density surface ceramic scatter or cuts in modern agricultural and settlement areas. The ceramics and small finds were stored at the Nashik Institute, before being subjected to detailed recording in season three.

5.4.7. Systematic Survey

Systematic surveys have been very successfully applied in South Asia and are generally considered more accountable than unsystematic surveys given the production of data from which it is easier to glean statistically meaningful results. The main concern with a village-to-village methodology is that the fundamental reliance on local information increases the likelihood of omitting certain types of data and makes it difficult to assess how representative the data is. It becomes almost impossible to apply any meaningful statistics to the results of unsystematic survey as one cannot be sure of the absences identified. The decision not to utilise systematic survey for the entirety of the research was directed by limited resources and attempts to minimise the risk of collecting significantly less data than would be achieved through more flexible survey methodologies. However, an element of targeted systematic survey was included in the second fieldwork season to create an integrated survey methodology and to enable comparison of the unsystematic and systematic methodologies. Over the course of the second field season, three weeks were dedicated to the systematic survey, which accounted for around 14% of the time.

The systematic survey was not intended to be a full-coverage exercise as it was not feasible to systematically cover the entire survey environment. Rather, a sample-based systematic survey was appropriate for the needs and means of this project. The relative benefits and disadvantages of sample-based versus full coverage surveys have been widely discussed in literature (Fish & Kowalewski, 1990; Kowalewski, 2008; Terrenato, 2004). A key issue is that of intensity, which refers to the level of detail in examining the landscape, and may relate to the spacing of archaeologists in systematic survey or the percentage of land coverage (Plog, *et al.*, 1978:389). Lower intensity projects require less investment and time while high intensity projects are typically more expensive. It is generally felt that a higher percentage of sites will be located with a greater level of intensity and a higher intensity of survey may be required to identify less prominent sites (Plog, *et al.*, 1978:394). A random selection of sample areas in systematic survey is intended to remove the tendency to seek sites in areas of high probability, which is an issue in the ‘informed’ survey.

Firstly the systematic survey worked towards moderating any bias from the 'informed' survey and was aimed at increasing confidence in the findings from the informed survey by substantiating or refuting the inferences made from unsystematic data collection. It was hoped that the results would either support the original findings and absences, or indicate that the unsystematic techniques were less able to identify certain categories or patterns of site.

Secondly, due to the research aim of attempting to situate Rāmṭek in its landscape related to the historical narrative, the decision was made to extend the systematic field-walking outside of the original survey region and across the topography of Rāmṭek district. This was theoretically directed towards testing the connection between past settlement or religious activity and topography. A long transect measuring 5 by 30 kms was partly laid across the original survey area, extending from the hills in the north of Rāmṭek through to the Kanhan River to the south. Given enough time, the intention was to explore outside the original survey area to look for changes in the distribution, number and size of settlements across different environmental conditions. Through the placement of the transect across the topography, it was hoped that patterns would be discernible which could test the suggestion that Vākāṭaka sites shifted inland in hillier regions, while earlier settlements tended to be distributed closer to major rivers.

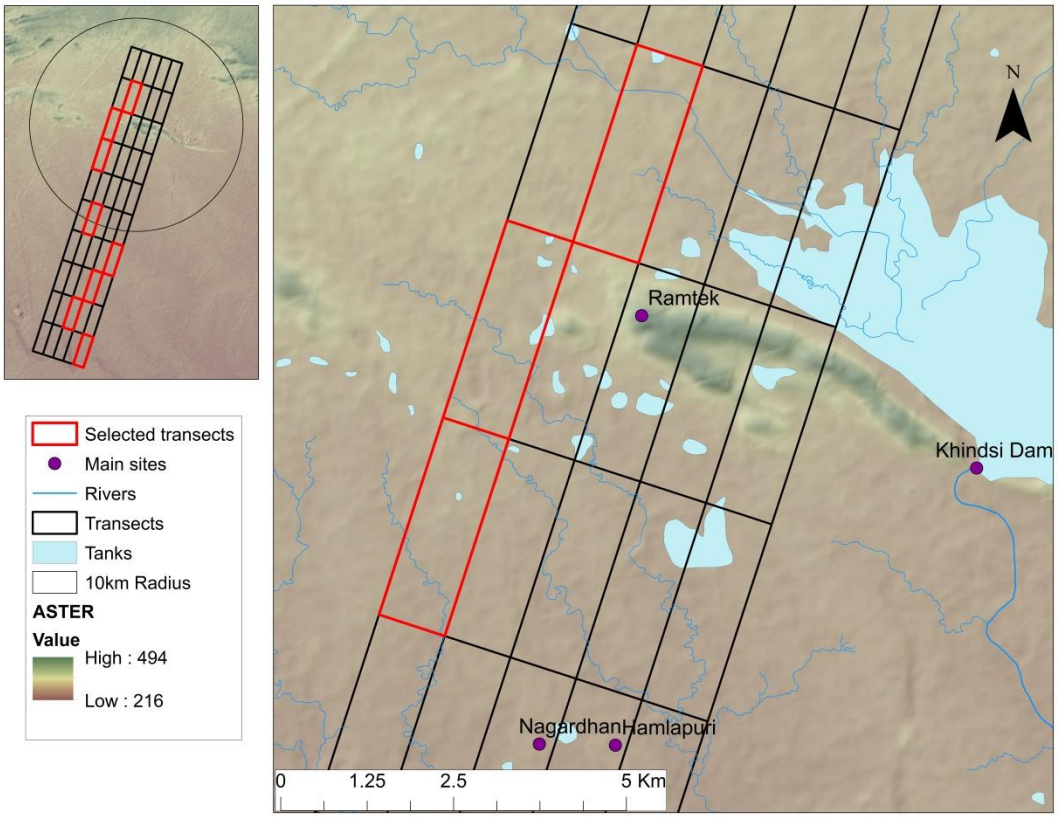


Figure 5-2. The randomly generated transects across the 10km survey area.

A large cross-topography transect was divided into fifty 1 by 3 km transects, of which eight (16% of the overall area) were selected for field-walking using the random sampling function of Geospatial Modelling Environment. Unfortunately, due to the limited time available and difficulties in accessing the unfamiliar and highly vegetated southern areas of the large sample area, priority was given to the three randomly selected transects which fell within the original survey. This enabled systematic samples to be retrieved from locations directly related to the original areas covered under the 'informed' survey and focus to be returned to the first aim of testing the pattern of remains from unsystematic explorations. The further five transects could then be addressed in a later season if time permitted. Given the twenty-five complete transects overlying the original survey radius, the three covered by field-walking represent a random sample of 12%. While the initial intention for the configuration of transects appeared sound in terms of looking for pre-Vākāṭaka remains across the landscape from Rāmṭek, this became logistically too ambitious. The retrospective methodology would be to focus within the survey area given time

restrictions. Creating random horizontal and vertical strip transects across Rāmṭek itself would have been more appropriate and should be carried forward into further research. Regional investigation could then be reserved for a later study with a broader scope.

Walking long transects was found to be impractical due to the extensive restrictions on access and the highly agricultural landscape. Moreover, wide spacing would have been necessary to cover the transects in the time available and would have been impractical with only one GPS and two researchers. Initially, modern field divisions were considered for the unit for systematic field-walking (as in Carreté, *et al.* (1995) in Tarragona, Spain), but the Rāmṭek field systems were judged to be too complex and irregular to efficiently carry out this method. Therefore, a regular grid of quadrats was imposed within the transects to structure the systematic survey. Alongside regulating the field-walking, this technique has a further benefit in reducing the work required to digitize field boundaries in the GIS (Mattingly, 2000:8).

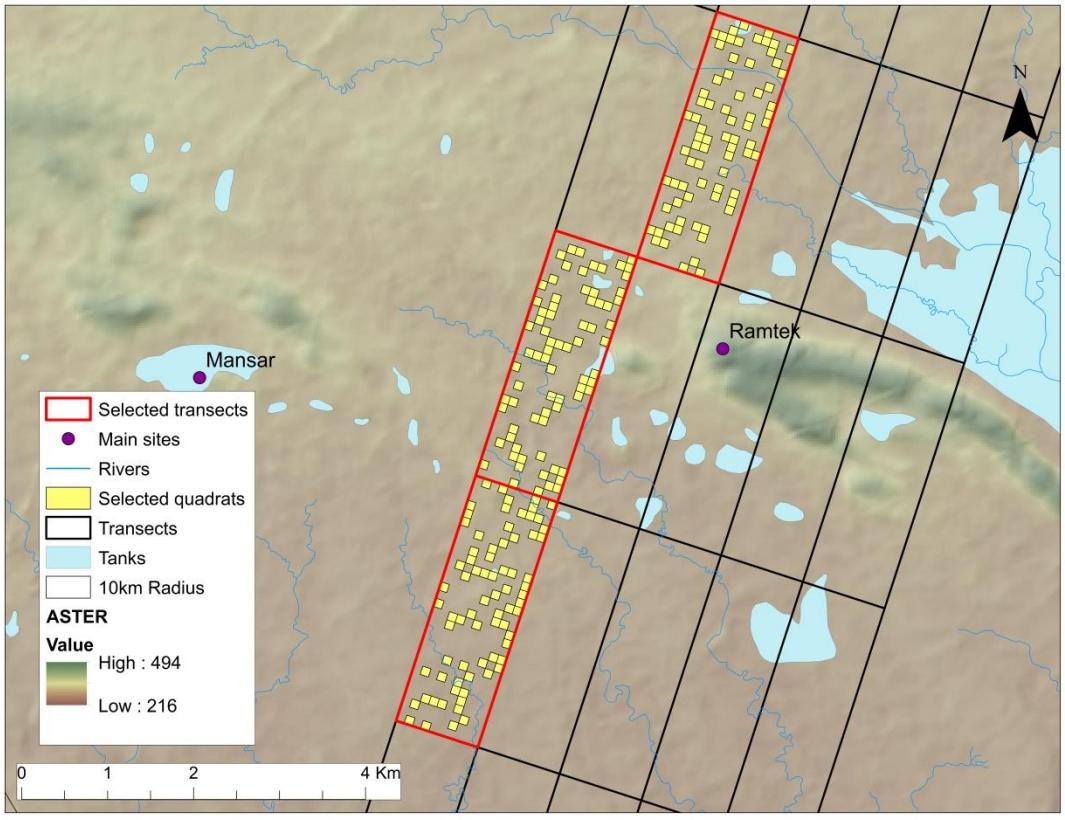


Figure 5-3. The randomly selected quadrats within the transects across the original 10km survey area

Quadrats have been successfully used in survey projects (See Mueller, 1974; Pryce, *et al.*, 2011), but transects are frequently argued to reduce distortion in site distribution, more clearly display relationships between sites, and result in a higher rate of site discovery (Plog, 1976; Plog, *et al.*, 1978:401). In reality, there may not a superlative unit size or shape as the effectiveness and applicability of sample units relies on a multitude of factors, including the nature and distribution of archaeological remains, practical considerations and the intended project aims (Schiffer, *et al.*, 1978:11). The decision to use quadrats was based on manageability and appropriateness; following observations made by Gallant (1986), quadrats can be easily located and delimited, and are easily covered by a small team, leaving less room for error. Quadrats are flexible and the selection can be shifted to a neighbouring or nearby area if there are issues of access or visibility. The selected transects were divided into 100m² quadrats, of which a random sample of 25% (75 quadrats) were selected for intensive field-walking. The sample of quadrats used in this study was considered to be a manageable area of terrain given the project constraints, and it provides a sufficiently large sample for inference. The randomly sampled quadrats and the background transect grid were loaded onto a handheld GPS allowing quick and accurate navigation to the sample units. A different GPS model was used during the second field season, which allowed the upload of custom maps (Garmin Etrex Legend H; the resolution and error margin is consistent across both models). The discovery probability of sites has been shown to increase as the walking interval decreases, and so this interval was kept to a practical minimum (Schiffer, 1988:475). The quadrats were walked at intervals of 5 metres, which was easy to navigate and structure, and ensured careful and systematic coverage with minimum deviation.

Data was recorded per quadrat, relating to ground visibility, land-use and relevant attributes such as hydrology or settlement development. Stratified sampling is common in systematic survey which allows the effective assessment of visibility, but stratifying the survey area on the basis of different land-use and vegetation was not beneficial as transects mostly crossed areas under cultivation. Therefore, the methodology used followed that of Gallant (1986), where a system was introduced to rank the quadrats in terms of percentage of ground visibility. The scale ran from 0 to 10 with 0 representing 0% visibility and 10 being indicative of 100% ground

visibility (Gallant, 1986:406). Some quadrats fell across areas of forest or high crop coverage, but these were walked if possible to avoid skewing the distribution of random samples. If quadrats fell over inaccessible private land or across bodies of water the nearest accessible quadrat was walked, with the change marked for later reference. Surface artefacts were collected per quadrat to indicate patterns in artefact density and any 'sites' were flagged for recording after the quadrat was completed. This field-walking process was loosely timed in order to structure each day, and ensure the targeted quadrats were covered in a timely fashion. Given the 5 metre spacing of field walking within the quadrats, each of the two researchers had to walk 10 strips intensively. Each strip was limited to 10 minutes of walking so that each quadrat was initially walked within two hours with further time then given if sites of interest were located. A total collection of visible remains were carried out regardless of the preservation of surface material and quantities of sherds were recorded per quadrat. The total quantity for each quadrat could then be compared to visibility to assess any possible correlation.

5.5. Methodology of ceramic classification

The following section outlines the approach to the study of the ceramic assemblage identified during the village-to-village and systematic survey discussed above. With no existing typology to work from, the initial ceramic analysis focused on development of the classification schema to identify fabric wares and vessel shape types, followed by seriation of the ceramics to construct a feasible relative phasing.

5.5.1. Sherd numbering

The first stage of sherd sorting was carried out at the end of each fieldwork day in Rāmṭek, when collected sherds were washed, dried and numbered. The sherds were assigned ascending numbers with the prefix 'R' and marked using black waterproof ink. As the sherds were numbered they were initially catalogued into an excel spreadsheet to record the following basic details:

- Sherd number
- GPS location
- Site name/number
- Date of collection
- Type of sherd (rim body, base etc.)
- Quantity of sherds (if the sherds were broken from the same piece).
- Decoration details
- Additional comments

No attempt at outlining the wares was made at this stage, but the material was subdivided into three major categories; micaceous, red and grey wares.

5.5.2. Ware division

Following collection of the entire assemblage, sherds were categorised and divided into 'wares' on the basis of fabric, surface treatment, inclusions, colour, and indications of firing and method of manufacture. A ware may be thought of as a group of pottery with a consistently similar appearance, composition and method of production, taken to indicate an origin from the same tradition, historical period, region or in some cases from the same location – although such precision is rarely possible. The fabric refers to the physical material of the ceramic (the clay, temper and other inclusions) and its properties, and observable variations in quality, inclusions and temper may relate to differences in production or raw materials. An 'intuitive' methodology of ware classification was attempted; this involved visual examination of the material in order to discern groups, which could be later linked to published wares and classes as possible (Sinopoli, 1991:49). This is a common, quick and often effective method suitable for basic analysis and for familiarising oneself with a new assemblage, but it is relatively subjective (Sinopoli, 1991:51). Initial attempts at 'intuitive' sorting encountered difficulties due to the large amount of minor and apparently irregular variation across the red and micaceous wares and the apparently continuous scale of size and frequency of mica within the micaceous

wares. Given this, a two-stage approach was employed to increase understanding of the ceramic assemblage.

Firstly, the numbered sherds were recorded individually, which was possible due to the relatively small yield of pottery. At this stage, simple techniques were used to assess individual qualitative attributes (the main characteristics recorded can be found below). When describing fabric and slip colour, use of a Munsell soil colour chart is ideal to ensure standardisation and comparability to other studies. However, in this assemblage a large degree of colour variation was observed within and across wares. Consequently, colour was used as a helpful descriptive tool but was not treated as a defining feature, as in Smith (2000), and use of a Munsell chart was not considered worthwhile at this stage. Individual recording was employed to ensure that each sherd was adequately described so that in the event no distinct ware divisions emerged during 'intuitive' sorting, more defined wares may become apparent in the data. This method had the additional benefit of familiarising the author with the assemblage. During this stage all sherds were photographed bar extremely fragmentary or eroded pieces. Sherds were returned to broad ware groups prior to the second stage of 'intuitive' sorting.

Table 5-2. Outline of the characteristics recorded for each sherd during the first stage of individual sherd analysis.

Category	Explanation
Sherd	Sherd number
Final ware	This field was entered later following the 'intuitive' sorting, and gives the final ware code for each sherd e.g. ORM4.RS
Preliminary ware	Original ware description used in individual recording of sherds, e.g. Orange Micaceous, Red, Grey
Sub-ware	Original sub-ware description used in individual recording of sherds, related to slip e.g. Red slipped, Black slipped
Sherd type	Sherd type code, e.g. body, base, rim
Quantity	Quantity of sherds broken from the same piece
Slip type	Thin; thick; no visible slip
Slip mica	Qualitative description of the amount of mica present in the slip: None; trace; small; medium
Surface treatment	None; burnished; highly burnished; mica wash; burnished mica wash

Exterior slip/surface colour	Colour of the unslipped ceramic surface or the slip (subjective judgment using simple terms), e.g. Grey; dark brown; orange-red
Interior surface treatment?	Completed if a specific surface treatment was visible on the vessel interior, e.g. black slipped; burnished black slipped; mica wash. Otherwise left blank.
Core Colour	Core colour (subjective judgment using simple terms), e.g. Grey; black with brown margin
Fabric	Medium-fine; medium; coarse; very coarse
Feel	Smooth; rough; gritty; powdery/soapy
Inclusions	No obvious inclusions; grits; sand; vegetable temper etc.
Fabric Mica Size	Size range of the mica included in the ceramic fabric based on rough size divisions (in mm), e.g. None; trace; and between small and very large.
Fabric Mica Amount	Fabric mica amount on a scale from 0 to 4, based on estimated percentage
Thickness (mm)	Example thickness of sherd body taken using digital callipers
Manufacture	Method of manufacture, usually 'wheel'
Decoration	Brief description of decoration, e.g. horizontal lines; stamped
Notes	Any further relevant details related to the sherd fabric or appearance, e.g. blackened; large quantity of grit, traces of slip
Photos	Yes or No

The 'intuitive' sorting of specific wares was carried out in the third season of fieldwork. The decision to use 'intuitive' sorting of wares was based on the overwhelming quantity of fairly utilitarian red and micaceous ceramics, which tend to be very loosely described or overlooked in publications. Furthermore, there are few published sequences related to the period and region in question. Within the ceramic assemblage many of the 'well known' types of pottery, which are more deeply established in archaeological reports, appeared to be absent. It was also clear that published reports often referred fairly generally to broad groupings which did not account for the degree of variety presented by this data. Therefore the three main groups of micaceous, red and grey fabric sherds were subdivided into wares by arranging them by attribute. Inclusions were taken as a defining feature of wares alongside core colour and surface treatment, and were identified from visual observation of the cross section of the clay. Inclusions vary across the wares but commonly include small grits, mica and vegetable temper. Red or micaceous sherds were initially arranged in terms of having a uniformly coloured interior, or a grey/black core, and then by inclusions and fabric appearance or coarseness. The

variation in core colour was taken to be representative of differences in firing method. The presence of a black core in the ceramics is indicative of reduction firing or fast firing resulting in a lack of oxygen. Micaceous wares were considered to contain mica as a deliberate inclusion, as opposed to red wares which may contain small quantities of mica as an inherent component of the parent clay. To establish boundaries between micaceous wares, it was necessary to organise the sherds on a scale of mica size and frequency, with these values varying independently of each other. The grey ware sherds displayed much less variation, and were sub-divided by inclusions and fabric quality.

The rim sherds were the initial focus of attention as they tended to be larger and there was a manageable quantity for detailed analysis. Once the main ware divisions were established, body sherds were matched to the example rims. If a new ware was encountered within the body sherds, example pieces were placed on the table for reference. Occasionally sherds could not be ascribed to a particular ware, leading to a small proportion being classed as ‘over-fired’ or ‘non-ID’. Once all the sherds were divided into ware bags, the sherd numbers were recorded against an abbreviated ware code. Several ware classes contain slipped and unslipped varieties of comparable fabrics, which were bagged separately, and a suffix was added for slipped sub-groups. For example, the ware name ‘orange micaceous ware’ (ORM) would refer to unslipped sherds, with the slipped sub-group being labelled ‘red-slipped orange micaceous ware’ (ORM.RS). Broader grouping of fabrics, which share key defining characteristics but were dissimilar enough to be separate wares, were brought together under ‘ware families’. This created another level of sorting with which to work within the assemblage, and later aided in assessing broader patterns of ware association.

Once the fabric categorisation was complete, a ware description was written and example sherds were photographed. The average colour range of each ceramic ware established through comparing characteristic sherds to a Munsell colour chart (1994). During this stage sherds were marked as ‘missing’ if they had been misplaced, or damaged in transport to the point where their number was not legible. This constituted 19 sherds of the total assemblage, creating a negligible error margin of 19 out of 5962 (0.32%).

The wares identified during the ceramic categorisation were compared to published ceramics to suggest chronological affiliations and usages. The chronology of available ceramic sequences has primarily been established using relative dating methods resulting in comparatively little firmly dated ceramic material for this region. Early Historic sites have been excavated in Vidarbha and central India, but the number of fully published sequences relevant to this study is low and they are often quite dated. The published comparative data in this present study primarily originates from within the general region, with particular use being made of the Pauni and Paunar excavation reports. The closest comparison material would be from the excavations at Mansar, Hamlapuri and Mandhal, but these are not yet published. Other sequences from across Maharashtra have been used, such as those from Brahmapuri, Bhokardhan, Kaundinyapura, Nevasa and Nasik, but due to the limited number of local comparisons, reference has been made to sites in Gujarat and Madhya Pradesh. The relevance of published examples from sites so far from Rāmṭek may be questioned, and depends on the parallel development of style and technology over quite large distances. There is obviously a risk of making false comparisons. In addition to the use of published sequences, ceramic wares and types may be identified through reference to ceramic material held in collections. The ceramic assemblage from the Mansar excavations within the survey area is stratigraphically related to the periods of interest, but was inaccessible. A few photographs are available in an online depository (http://mansar.eldoc.ub.rug.nl/), and the British Museum Wellsted collection contains a small selection of well-preserved, complete vessels from an *in situ* 5th century location at Mansar. Limited Early Historic ceramics were viewed at Deccan College and Nagpur University, but overall the ability to compare the Rāmṭek ceramics with physical related material from the region was restricted.

5.5.3. Shape Typology

A shape typology can aid the construction of a chronological sequence, as distinctive shapes related to specific periods may break down some of the larger ware types with broad chronological ranges. Given this, no attempts were made to seriate the ceramics until both ware and type were recorded. A vessel shape typology was

developed in the next stage of the ceramic analysis. Broad vessel types are usually related to function and include bowls, dishes, jars, basins and cooking vessels. As such, consideration of different vessel shapes and function may indicate the nature of activities carried out at sites. The divisions between these types are typically based on the proportions of the vessel, for example jars are 'restricted' vessels with an opening narrower than their maximum diameter reflecting their use in storage, while bowls have 'unrestricted', wide openings for serving (Rice, 1987:212). Shape typologies tend to follow country-specific conventions, which take into account typical vessel types in the cultural context. In India a number of characteristic vessel shapes are defined in published sequences, such as the '*handi'* which is a type of deep, restricted cooking vessel. The basis for creating typologies is usually the assessment of pottery dimensions (Miller, 1985:49). With surface assemblages with no contextual information, 'stylistic analysis' and assessments of how far different forms fit a "model of variability", may be all that is possible through comparison to established sequences (Miller, 1985:199).

Shape type is primarily denoted on the basis of rim form, and so diagnostic rims were separated from the main assemblage to be intuitively sorted into groups with similar profiles. The shapes were sorted by first associating them with a general typology such as that in Miller (1985), which separates out bowl, globular pot and jar forms. The rims and sherds were then compared to seek out groupings with similar dimensions of rims, necks and vessel bodies. The dimensions under consideration are often not directly comparable and show much variety regarding particular orientations, heights and alignment (Sinopoli, 1991:45). A great degree of variation is possible with Indian ceramics and there is a large variety of different types. Form variability is often assumed to reflect functional differences but differences can also be attributed to factors such as different potters, material, "heterogeneity of the social context" and interpretation (Miller, 1985:51, 202). Despite great variation, a number of fairly well-defined types and more common shapes emerged. If the overall form of the vessel was sufficiently similar to suggest an intended shape, minor variations were attributed to the imprecision of manual production and the rims assigned to one type. However, if coherent groups of rim variation were noted across similar shapes, these were divided into separate but related types. Once types were assigned to the

ceramic rims, these could be compared to vessel shapes in published reports in order to consider chronology and purpose.

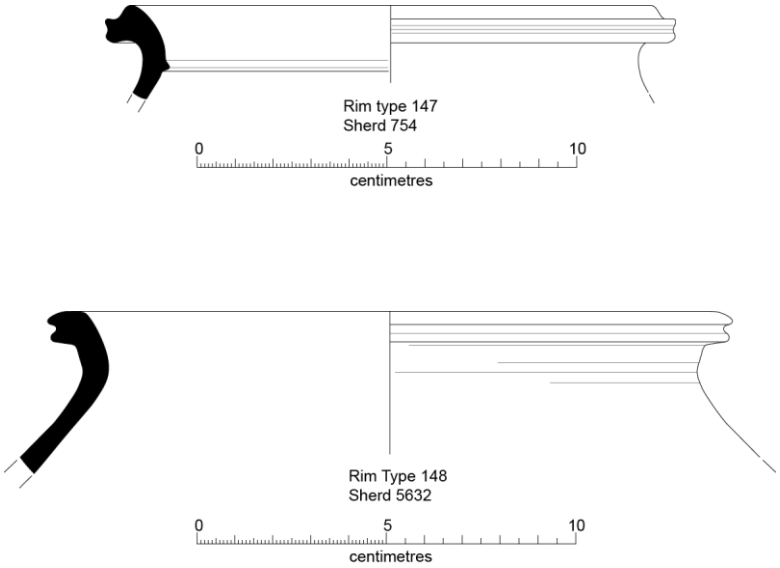


Figure 5-4. Rim types 147 and 148, which display a similar overall vessel shape of a double lipped rim, but were split into two types based on coherent groupings of variation.

Base pieces can carry distinctive attributes to contribute to a shape typology but those collected during the Rāmṭek survey primarily belonged to one broad type. Nearly all base sherds appeared to be from a simple bowl form with a string cut base (Type 11), occurring in coarse red or micaceous wares. Rims considered too fragmentary or degraded for an exact type classification were recorded as ‘eroded’. Once all rims were divided by shape, the sherd numbers were allocated a type number. Numerous unique types were identified and were assigned a type number, but noted as being ‘unique’. Drawings were made of characteristic examples of each rim type, unique pieces, example bases/handles, sherds displaying distinctive decoration, and forms such as ‘sprinklers’ or spouts. The author completed 279 illustrations, with a further 55 drawn by Ben Saunders (Cambridge Archaeology). The illustrations were digitised by Vicky Herring (Cambridge Archaeology), which enabled quick comparison of the rim profiles with those in published excavation reports to find parallels and identify any chronologically distinct types.



Figure 5-5. A typical string cut base, commonly seen on type 11 within the ceramic assemblage. The vast majority of bases identified were of this type.

The ceramic data was recorded in Microsoft Excel and later imported into an Access database. The tables contain information relating to sherd location, the basic visual characteristics identified during individual sherd analysis, the final wares following the 'intuitive' sorting and the type numbers and attributes.

5.5.4. Potential limitations of the ceramic data

The ceramic remains recovered during survey are invaluable for investigating settlement activity, given the dearth of other archaeological evidence. However, the study of this data is impaired by significant limitations, which stem from the nature of ceramics themselves, the context of this project, the state of regional research and the quality of reference material.

It is important to compare the ceramics obtained on survey to published sequences due to the limitations associated with surface assemblages. No excavation was permitted during the project but as far as possible artificial cuts and sections were investigated with the aim of gaining insight into sub-surface ceramic associations and the nature of the archaeological deposits. However, the majority of the ceramic

remains still lack a secure context. Aside from uncertainties related to site formation and post-depositional processes, it is not certain that visible surface ceramics reflect the complete subsurface picture as shallow ploughing may expose only the latest ceramics present at sites (Millett, 2000:53). Surface ceramics lack associations with datable stratigraphy or chronological indicators, and so other methods must be sought to date the ceramics. These may include scientific methods, seriation or comparison to published sequences (Millett, 2000:53). Absolute dating can be carried out using techniques such as Thermoluminescence dating, but there was no permission or funds to attempt scientific dating in the present study. Under such circumstances ceramic sequences are usually constructed through comparison to published stratified sequences from excavated contexts. Thus the quality of ceramic dating will be reliant on the quality of the comparison data, and to an extent the experience of the researcher (Millett, 2000:54). The accuracy of ceramic chronologies can be reduced by subjective judgment, particularly if categorisation of the ceramics is made difficult by sherd condition (Millett, 2000:54). Surface sherds such as those in this assemblage are more likely to be fragmentary and eroded due to agricultural processes and general exposure on the ground.

The objective of the ceramic classification was to intuitively define the wares are types as the quality of reporting of excavated assemblages can limit attempts to establish parallels between them and surface assemblages. Vessel types and wares may be only imprecisely described, which complicates comparisons (Khare, 1969:28). Older reports often do not consider residuality of ceramics and the dating may be questioned if no information is provided on the prevalence of types or whether all types were reported. Therefore, while ‘period-specific’ types may be outlined, it may not be clear to what extent these types persisted. Culture-historical approaches, which treat ceramic change as a proxy for cultural, economic and political change, tend to focus ‘distinctive’ ceramics assumed to be representative of certain cultures, often to the exclusion of common, everyday pottery. Issues with ware classification can even extend to ‘distinct’ ceramics considered to be characteristic of specific periods, as a range of similar ceramics can be amalgamated under general terms (Smith, 2002a:142). Well-known ‘pan-Indian’ types such as NBPW, considered to be highly distinctive Early Historic ceramic, have now been shown to display internal or local variability and a wide distribution across different

chronological contexts. Moreover, as utilitarian ceramics are generally overlooked in considerations of chronology as they are assumed to have remained unchanged over long periods of time (Shete, 2009:69).

A common difficulty in the definition of chronological sequences is the duration of wares. Study of ceramics may insinuate distinct breaks in material culture when the archaeological evidence may display greater complexity, incorporating regional differences and overlapping phases. Certain ceramic types are known to be long-lived, and pottery may enter the archaeological record at any point in its life history (Skibo, 1999:7). Stylistic change is important as it is a relative factor and changes may be identifiable over time, however in India ceramic traditions have a long duration and similarities in form are recognisable in ceramic production today (Miller, 1985:199). It is often challenging to determine the factors driving change in ceramic wares and types, and the speed of the process. Change may occur not only over time, but in relation to space, and it is possible for ceramic variation to reflect indigenous materials, local production methods and functional differences across and within sites. Traditionally, broad periods were determined through the assumption that new technology indicates a new period. However, developments emerged at different times across the subcontinent, which exacerbates the determination of characteristic ceramics for chronological phases (Pinto-Orton, 2013:196). A particular issue exists with the broad Early Historic period, which can be identified in publications as anything between 600 BC to 700 AD across different locations (Pinto-Orton, 2013:197). In this region, the Early Historic is generally defined as 3rd century BC to 6th century AD, but it is difficult to refine or sub-divide the large overarching periods when ceramic typologies are not well established. Additionally, early reports focused heavily on ceramics relating to a restricted period of interest to the exclusion of others, and later wares are particularly underrepresented.

Early Historic contexts and the general relationship between remains are poorly understood, and uncertainty is increased by the reliance on artefact association to date ceramics, particularly in potentially disturbed contexts. Vākāṭaka period material remains are generally not well understood, and the contemporary ceramics have not been fully characterised. Although the Paunar excavation report contains a useful discussion of Vākāṭaka period ceramics, those from other known Vākāṭaka sites are not published. Changes in ceramic wares and types over time are dated by

their association in stratified contexts with other, more inherently datable artefacts, such as coins; a general rarity of Vākāṭaka coins has hindered the identification of this period's representative ceramics. Coins can only provide a *terminus post quem* for deposits, but it seems likely that the overabundance and residuality of the preceding Sātavāhana coins, alongside a lack of Vākāṭaka coins, may have resulted in stratified layers being misidentified. Existing published sequences were influenced by prevalent contemporary theoretical movements, notably that of Early Historic/Early Medieval deurbanisation which presupposed decline or a lack of Vākāṭaka activity. Hence, the Vākāṭaka and Post-Vākāṭaka phase is often disregarded in excavations as being absent or constituting re-used or degenerated material. At Pauni, the post-Sātavāhana period V (i.e. Vākāṭaka, 3rd to 6th century AD) is described as disturbed, represented only by buildings of re-used material rather than ceramic remains, and containing artefacts of mixed chronology (Nath, 1998:9, 14).

Therefore, alongside the complications associated with unstratified surface ceramics, there are deeper issues related to poor quantity and quality of excavation sequences, evidence of regionality and local production, a lack of distinctive wares and reduced understanding of ceramic change and duration (Morrison, 1995:211). Despite the problems outlined above, this research aims to begin the process of elucidating the data and construct a useable relative chronology.

5.6. Conclusion

The methodology outlined in this chapter attempts to enable an integrated approach to research. The survey itself is the primary focus of the study but is supported by other datasets in order to consider the available evidence. The methodology has several limitations due to the nature of the project, but it is hoped that the scope of the survey is appropriate to achieving the aims of the thesis and expanding our understanding of the rural landscape around Rāmṭek in the context of comparatively little research. Through the surface survey, I also aim to lay the foundation for further study through demonstrating the potential for landscape archaeology to contribute new data across the rural landscape. This is not an ideal methodology and reflection on certain aspects of the research design will inform future research in

terms of appropriate methodologies. However, this research has contributed primary data related to the economic and ritual activity of the Rāmṭek landscape, which will be presented in the coming chapters. The following chapter will present the overall results of the survey and the desk based research, and begins to evaluate the methodology discussed here.

In addition, this chapter has outlined a methodology for preliminary attempts to establish a possible typology and relative phasing for the ceramic assemblage identified during the pedestrian survey. There are significant difficulties in working with ceramics from the period and region with which this research is concerned and access to published material was limited. However, one method for approaching ceramic study in this specific context is proposed in order to demonstrate the potentials and difficulties of working with a poor dataset. Ceramic remains form the foundation for much of the discussion of the economic landscape development which is to be discussed in chapter eight.

Chapter 6. The results of the Rāmṭek survey: An overview of the fieldwork methodology and broad findings.

6.1. Introduction

During the three field seasons, numerous categories of sites and archaeological remains were recorded and so the field survey achieved its objective of exploring the rural hinterland around the major known sites at Mansar, Nagardhan and Rāmṭek in order to increase our knowledge of the archaeological landscape. A key result has been the documentation of unrecorded sites of past settlement activity and a number of smaller or more transient sites. This chapter will summarise and evaluate the overall findings of the fieldwork, prior to a more in-depth discussion of the archaeological evidence pertaining to the economic and religious landscape in the following two chapters.

Firstly, the fieldwork methodology will be appraised, and the applicability and relative successes of the 'informed' versus systematic approaches to archaeological surveys will be considered. This will lay the foundations for subsequent discussions of the fieldwork results, which must be interpreted with an awareness of limitations and biases inherent in their methodologies. Secondly, this chapter will summarise of the number and type of sites encountered, after which it will present the working chronological framework for the project. The broad chronological divisions used in this research relate to the data collected and are comparable to those in previous archaeological work from the region. This working chronology provides the structural framework for future discussion of the proposed development of the landscape in this region.

6.2. Overview of the survey methodology: Limitations and issues for interpretation

The initial preparations for fieldwork, conducted through the use of the Level 1, desk-based research, successfully established the state of the art, contextualised the study

and supported preliminary explorations into the nature of the Rāmṭek landscape. Survey using satellite imagery has not been published for this specific area and so the data was used to assess the extent of its usefulness in interpreting the archaeological landscape in this kind of research. Overall, the satellite imagery was useful as a tool for supporting survey, but it required ongoing comparison with data achieved in the field, as it was difficult to remotely identify sites. Few potential sites were identified in advance, perhaps disguised by the complexity of the agricultural landscape, although several mounds were clearly visible which were later found to have habitation remains. Mounds and earthworks were unexpectedly challenging to recognise on satellite imagery, which is perhaps due to the undulating plain and their relatively low profile, being elevated only a few metres above the plain. The shapes of field-systems or villages were also not particularly reliable at indicating the presence of an archaeological site. As noted by Thakuria, *et al.* (2013), ground-'truthing' is required to reasonably assess the features of any potential site identified remotely.

It was common for potential features or anomalies to not relate to archaeological remains on the ground; a key difficulty in the interpretation of features seems to be vegetation across the survey region. Frequently potential sites were in actuality the remnants of modern activities, particularly that of small-scale mining for resources and production of bricks. Further research is required into the degree of agreement between imagery and field data. However, there are advantages to incorporating remote survey in projects such as this one as shown in the discovery of limited sites, the practicality of being able to refer to satellite imagery and its use as a general tool for viewing and interpreting the wider landscape. Incorporation of satellite imagery into a GIS served the dual function of enabling remote exploration of the landscape prior to the survey and between episodes of fieldwork, and to display the data that was achieved. A particular benefit of using very recent imagery, freely available through GoogleEarth, is the indication of current land-use, which is incredibly valuable in an area subject to extensive quarrying like Rāmṭek.

There is a case for further research to investigate modern damage to sites by reviewing historical satellite imagery, such as Corona. A review of Corona imagery may aid in estimations of the previous extent of sites which have been damaged or mostly destroyed through modern activity (Philip, *et al.*, 2002:115). Additionally, it

may be possible to identify other potential sites on the imagery in areas where no sites exist now, indicative of site destruction. However, it must be clear that there is no evidence to support identification of features as archaeological sites without ground survey.

While Level 1 remote survey may have been more limited as an independent means of investigating the archaeological landscape, it was found to be useful in assessing the broad landscape and supporting the Level 2 and 3 surveys. The continued reference to satellite imagery throughout the field seasons resulted in the identification of several archaeological signatures on satellite imagery following recording of these sites on the ground. For example, site 262 is a very low mound which has been significantly disturbed by farming, but has high density brick scatter. When the coloured satellite imagery is reviewed this is displayed as an area of ground with an orange tone, initially not recognised against the variable ground cover of the surrounding fields. This discovery led to a second review of the imagery, which resulted in the discovery of one site (276), identifiable by a circle of lighter coloured soil. This was not visible on GoogleEarth, which instead shows the extent of ploughing, but panchromatic Orbview 3 data displays the variation clearly. This demonstrates the benefit of using different satellite imagery in combination as resolutions vary and a comparison of black and white to colour imagery may more clearly indicate whether there is a feature or whether the anomaly is more likely to be an artefact of the photographic/weather conditions at the time. Variations in soil colour, such as in this example, may be a result of anthropogenic activity but this feature is not entirely consistent; in some cases, areas of the landscape display a similar anomaly due to modern differences in land-use. Further survey of the satellite imagery did not reveal potential areas of habitation outside of those recorded on the ground through Level 3 survey. This may be interpreted as supporting the patterns observed during the ‘informed’ survey or it may be related to low visibility or survival of archaeological remains. It is probable that with higher resolution imagery, the success of remotely identifying potential sites would be increased.



Figure 6-1. GoogleEarth colour imagery of the low mound at site 262. No shadow is cast from the mound which has been flattened by agriculture but the surface brick scatter is visible as orange colouration of the ground.



Figure 6-2. Site 276 as seen on GoogleEarth colour imagery. The ploughing of the field is visible and obscures the shape and tone of the mounded area. See in comparison to Figure 6-3.



Figure 6-3. Site 276 identified during survey of the Orbview 3 imagery; the shape of the mound is more clearly visible than on the colour imagery and the variation is soil colour is recognised.

The Level 2 unsystematic explorations were successful in themselves, given that visits to regional sites encouraged a more secure understanding of the potential archaeological remains in light of the frequent absence of detailed excavation reports. The Level 2 explorations also noted the effect of the degradation of sites following previous investigation and publication. This is relevant for the results of the Rāmṭek survey as disturbance of sites was common and so survival and visibility of sites must be taken into account during interpretations of the patterns of data. The vast majority of archaeological data was achieved during the Level 3 'informed' village-to-village survey, either through direct information from local inhabitants or speculative survey. The 'informed' survey was directed towards a high return of sites and identified a wider range of archaeological material. This approach was found to be appropriate to the project limitations and more successful than the trial systematic quadrat survey employed in the second season (Level 4 survey). However, the apparent success of the unsystematic 'informed' survey must be tempered against the biases that it introduces into the data set, and the limited scope of the systematic survey. The

reliance on local information in 'informed' surveys was found to be occasionally limiting, as modern cult spots were consistently mentioned, rather than less obvious sites of archaeological interest. As the survey progressed and it was established how archaeological remains were viewed by local inhabitants, it became easier to target questions and access relevant information. Example ceramic and brick pieces were useful in directing discussion towards certain categories of artefacts. Reflecting the modern perception of sites noted during Lahiri's survey of Ballabgarh, the rural inhabitants around Rāmṭek had experienced the movement and abandonment of villages over the modern period, and understood mounds to be the remains of former settlements (Lahiri & Singh, 1999:184). Around Rāmṭek, the mound sites were referred to locally as 'empty or abandoned villages' (*rithi gau).*

As noted in the previous chapter, the 'informed' survey can result in restricted coverage due to the reliance on local information, and the inspection of places with high potential for sites. By using a handheld GPS to track the routes travelled, it was noticed that the survey tended not to venture into fields further removed from villages and roads, and the use of a motorbike could have exacerbated this bias towards accessible areas. Partially, this could be rectified through monitoring progress in the field and explorations on foot to move into the agricultural or forested areas away from paths. However, time restrictions and difficulties with access/visibility were further issues to overcome.

Low surface visibility was common, and the fieldwork was particularly affected by unpredictable seasonal weather over the three years of the project. In the last two field seasons, variable rainfall increased the amount of natural vegetation and delayed the crop growing seasons and harvests to the extent that sites easily visible during January 2012 were covered by vegetation in April 2014. Both the Level 3 and Level 4 surveys were affected by variables in the field, including visibility, access to private land and modern activities, but under these conditions, 'informed' survey appears to have been more successful. This is due to the removal of the random element which can lead researchers directly to areas of high find concentration. There is a clear bias involved in this method of data collection and so this must be taken into account when discussing patterns of findings.

The effectiveness of both Level 3 and Level 4 survey methods varied according to the general environment across the research area. On average, the 'informed' survey was easier to implement across the entire survey area, as it is flexible and can be targeted to maximise returns. The cultivated land south of Rāmṭek was generally easy to traverse with average visibility, but occasionally there were access issues and areas heavily disturbed by digging. Within Rāmṭek town, archaeological remains are potentially obscured by modern infrastructure and the surrounding area consists of wasteland cleared for building projects. The northern part of the survey area is hilly and less uniformly cultivated, and thus less manageable in terms of visibility and access. Areas of high vegetation and forest reduced the effectiveness of 'informed' survey and some areas were impassable due to activities such as brick manufacture. With increased resources and time this area may have been explored more profitably, but under the constraints of the project the northern hills proved particularly difficult to traverse. The lack of sites and finds in the north may reflect a true pattern of evidence, or may be a product of the landscape conditions and methodology. It should be recognised that certain categories of site, particularly those subject to low visibility due to their ephemeral nature, could be over-looked.

The systematic field-walking itself was fairly easy to organise limited manpower and resources, due to the use of random quadrats within transects. The sample areas were easy to manage and navigate due to their size and shape, and the spacing of the field-walking could be monitored closely with the GPS. Systematic transect survey tend to more accurately characterise archaeological landscapes and identify a wide range of remains than unsystematic reconnaissance survey (Blinkhorn, *et al.*, 2010:8). However, given the limited time available, the systematic (Level 4) survey did not result in a higher quality and quantity of findings and was not widespread enough to facilitate a comprehensive modelling of the local archaeology. The key function of the limited systematic (Level 4) survey was to act as a control to the results of the informed (Level 3) survey. Therefore, despite low levels of findings, its inclusion is still considered important for promoting greater confidence in the findings from the 'informed' survey and it was successful in demonstrating patterns of artefact absences. Although few large sites were identified through quadrat survey, several areas of higher density ceramic scatter were noted. Ceramic material did not appear to be widespread over the areas surveyed, but background scatter was visible. The

fragmentary and abraded nature of the surface sherds and the difficulty in identifying background scatter highlights that it is possible this was overlooked in less intensive explorations. Due to the condition of the remains, the material collected during quadrat walking is of little use in a temporal study of the landscape. Taking into account issues of visibility and the small sample size, the returns of the systematic survey still appear to be low. The general lack of findings supports the indication that there is little surface evidence outside of discrete mound areas, which are well known to villagers. The results of the short period of systematic survey indicate that in order to achieve data comparable to that of the 'informed' survey, complete coverage of the landscape may be required, which was well beyond the scope of the project. It is likely that with higher investment a fully systematic survey would produce data of higher resolution, but the practicality of the 'informed' survey in this context is clear.

6.3. Overall results of the survey

A total of 444 sites were recorded during the Rāmṭek survey; this includes 47 'sites' already known in publications and several outside of the survey area which were recorded for posterity, such as the location of the Mandhal excavations (recorded as Level 1 survey findings). The majority of the sites were identified during the Level 3 'informed' survey or the subsequent speculative explorations, while 12 sites were located during the Level 4 survey of quadrat walking.

Table 6-1. The number of sites recorded during the 'Informed' survey versus the systematic quadrat walking, with mention of an additional 47 sites which were previously known to researchers.

Type of survey	Count of site
'Informed' survey (Level 3)	385
Known sites ('Level 2')	47
Systematic (Quadrat walking – Level 4)	12
Total	**444**

The recorded sites may be classified into broad feature groups such as religious sites, habitation sites, environmental features, scatters and isolated features. 'Isolated' sculpture and architectural pieces have been categorised separately from general

religious sites as the original find-spots of these remains are not known. Rather, it often seems likely that they have been re-installed in villages or moved given their lack of associated remains. On the other hand, religious sites primarily constitute structural temples and *cabūtrās*, which are more permanent manifestations of the religious significance of an area. Environmental features encompass the structural modifications of the landscape for control of water such as wells and tanks. While related to habitation activity, these are often found to be isolated features throughout agricultural areas and so have been categorised independently. A separate site category has been formed for areas featuring a temple and tank in clear association with one another, as they are viewed as one complex. Structural remains refer to discrete brick or stone constructions with a secular or unclear function. A lack of associated ceramics or remains of habitation debris results in this category being separated from 'habitation' sites for ease of analysis. Habitation sites refer to extensive remains of settled activity and were always recorded when identified. This includes clear mounds, disturbed or partially destroyed mounds and abandoned modern villages. Low-density habitation remains refers to ceramic or brick scatters with no visible mound and smaller ceramic assemblages or low-density remains in cuts. Low density habitations remains were distinguished from mounds as while both relate to habitation activity, they have formed in different ways or have been subject to significantly different post-depositional factors. The 'locally known area' category relates to locations repeatedly referred to by local inhabitants, but which did not display any substantial evidence of past remains.

Table 6-2. The broad site categories, to which the 444 recorded sites were assigned.

Broad site category	Count of site type
Religious sites	288
Environmental feature	47
Low density habitation remains	38
Settled habitation sites	34
Structural remains	12
Religious sites with environmental feature	10
Isolated sculpture	7

Locally known area	4
Isolated architectural remains	3
Fort	1
Total	**444**

It is important to note that a number of the religious structures, sculpture and environmental features are modern. The sites presented here do not represent an exhaustive recording of these features, as it is possible that some of the copious modern temples and wells in particular were not recorded. Modern temples were recorded when encountered, in order to show the spread of religious activity, but will not be discussed in depth. When modern structures or sites had ambiguous or potentially ancient origins, or were related to other archaeological evidence, they were recorded for later assessment (the detailed site catalogue is presented in appendix one).

6.3.1. 'Informed' survey

The 'informed' village-to-village survey resulted in the discovery of 385 sites related to occupation of the rural landscape. Temples and shrines (smaller religious structures) were the most common feature types and will be discussed in chapter eight, but the majority of these religious sites appear to be modern. Of the sites containing habitation remains, the most common feature was mounded sites, associated with high density ceramic remains and large quantities of brick. Environmental features were frequently encountered, usually in connection with villages and their neighbouring agricultural land. Ceramic sherds were the most common category of find during survey, occurring in transient scatters and artificial cuts as well as in high concentrations at mounds. Brick debris was the second most common type of archaeological remains encountered.

Table 6-3. The number of each feature type identified over the course of the 'informed' survey.

Feature type	Count identified in 'informed' survey
Temple (Modern)	96
Temple	67
Shrine (Modern)	57
Mound	25
Well	20
Tank	16
Ceramic scatter	13
Cabūtrā	11
Ceramic / brick scatter	9
Ceramic remains in cut	8
Sculpture	7
Brick Scatter	5
Chhatri	5
Disturbed mound	5
Temple (Modern) / embankment	4
Abandoned village	3
Abandoned village (modern)	3
Architectural remains	3
Shrine	3
Temple / embankment	3
Tombs	3
Baori	2
Cabūtrā (Modern)	2
Ceramic / brick remains in cut	2
Embankment	2
Structural remains	2
Temple Group	2
Ceramic / brick scatter in cut	1
Mosque	1
Re-used Brick	1
Step well	1
Temple (Modern) / Well	1
Temple / Tank	1
Temple remains	1
Grand Total	**385**

Table 6-4. The relevant information for each settlement mound site identified during the 'informed' survey.

Site No.	Area (ha)	Description	Ceramics Y/N	Potential Phase
46	N/A	Mounded area around fort.	Primarily Mica2	I-V?
59	21	Mound underneath modern Nagardhan- extensive brick and pottery remains in sections	Red and Mica1 wares	II-IV
71	3	Mound on southwest side of Nagardhan –cut back to expand paddy fields. Brick and ceramic remains on surface and in sections	Primarily Mica1	II-III (Up to V on surface)
72	2	Ploughed mound, further to the south of Nagardhan - possibly a continuation of the previous linear arrangement	Red and Mica1 wares	II-III (Up to V on surface)
73	7	Destroyed mound– a large amount of ceramics and brick and the remains of a ring well.	Red and Mica1 wares	II-III (Up to V on surface)
76	20	Mound to the west of the fort, which has been cut through	Red and Mica wares	I-V
78	1	Small, ploughed mound west of Nagardhan with a large quantity of brick	Primarily Mica1	II-IV
79	4	Destroyed mound at Hamlapuri - the fields are cut through the original ground surface	Red and Mica1 wares	II-III (Up to V on surface)
122	2	Southern outskirts of Rāmṭek - the area has been cut into the original ground surface. Pottery is abundant in the section indicating that under the modern occupation there may be further evidence.	Primarily Red Burnished ware	II-VI
154	4	Mounded settlement on the north side of Rāmṭek (Kawadak). Brick and ceramic remains continue across the fields north of this area	Range of Mica wares	II-III (Up to V on surface)
197	1	Ploughed mound on the west side of Hivra- on higher ground than the surrounding village to the east	Red and Mica2 wares	I-II (Up to V on surface)
202	<1	Village of Hivri – mounded with ceramic and brick remains	Mica2 to grey/buff wares	II-V?
210	1	Mounded fields with brick remains and ceramic scatter.	Mica2 to grey/buff wares	II-VI?

236	1	Mound with a section cut away along the western side – previous extent unknown	Primarily Mica2	II-V
237	1	A second mound to the west of site 236:: Ceramic and brick scatter	Red and Mica wares	II-IV
238	1	Third mound near to site 236: Brick remains are scattered across the top of the mound	Red and Mica2 wares	II-IV
242	1	Mound at Beldongri: The village is built around the northern and western edge. Extensive brick remains	Red wares	II/III
248	1	Area of high ground across the river from Banpuri: Extensive brick evidence	Range of wares	II-VI?
262	1	Mounded fields with high density brick scatter	Red and Mica wares	I-IV?
265	1	Destroyed mound (as at Hamlapuri): pottery and large brick remains are visible on the ground and in sections	Primarily red and mica1 wares	I-IV
276	1	Mounded fields with brick fragments and medium density ceramic scatter	Mica wares to grey/buff wares	II/III-V?
289	1	Mounded fields with surface ceramics and fragmentary bricks.	Primarily Mica2	II-IV (V on surface)
318	2	Mounded ploughed field with fragmentary brick and medium density pottery scatter	Primarily Mica2	II-V
325	3	Small mound in ploughed fields	Mixed red wares	I-V
331	Unknown	Location of 'mound' excavated by ASI - completely over-grown and forested	N/A	Phasing Unknown
348	2	Mound which is partly ploughed and cultivated. Medium density ceramic scatter	Primarily grey/buff wares	II-V
352	2	Clear mound near to Khindsi tank	Primarily grey/buff wares	II-V
356	2	Mounded fields (mixed ploughed and cotton cultivation) with ceramic scatter	Primarily grey/buff wares	II-V
363	1	Ploughed mound with clear surface remains of pottery and brick. A stone tool was also found in this location	Primarily red wares	II-III (Up to V on surface)
364	1	Destroyed mound (Naharwani) with extensive pottery remains in the spoil heaps and sections	Mixed mica wares	II-V

386	2	Ploughed low mound with medium density pottery scatter.	Primarily grey/buff wares	II-VI
400	2	Cultivated mound near to Bhilewada – ceramic and brick remains still visible despite crop cover	Red, Mica1, grey/buff wares	II-V

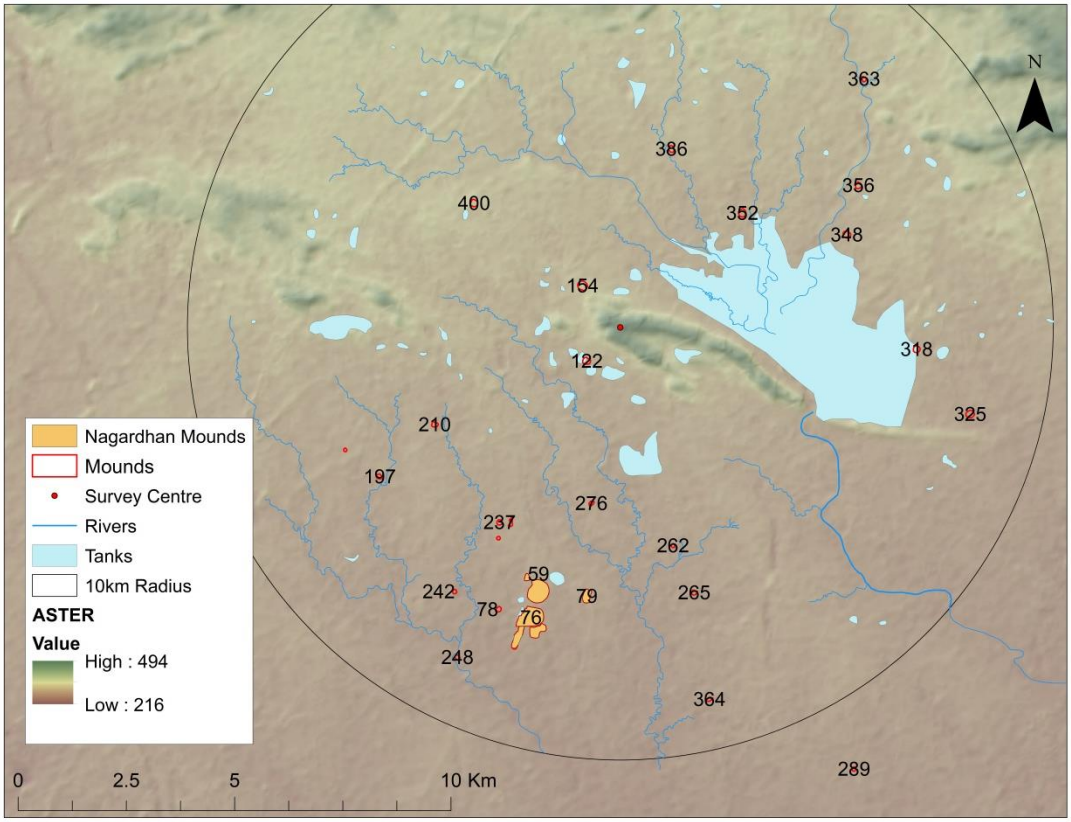


Figure 6-4. The identified mound sites in the survey area featuring brick and ceramic remains.

Aside from pottery and brick remains, the artefacts encountered included tile fragments, architectural pieces, sculpture and a low number of portable small finds. A large amount of sculpture was identified and notable pieces will be discussed in chapter eight. The small finds included fragmentary figurines, agricultural artefacts such as grinders, and worked stone tools (see appendix three and discussion in chapter eight). A number of small, rounded ceramic balls and smoothed pottery discs were identified. Their purpose is inconclusive however similar rounded pottery sherds have been found at sites such as Nevasa (periods II to VI) and have been interpreted as play pieces or gaming counters (Sankalia, *et al.*, 1960:384). Spindle whorls formed

from ceramics with a hole through the centre were also identified and could relate to evidence of weaving (Gupta, 1992:134). No other categories of small finds, such as beads or metal slag were identified. The absence of material related to production activities, particularly slag, is striking and it is unclear whether this is primarily related to issues of visibility or an absence in the archaeological record. Metal slag was found in only low quantities at Kaundinyapura during survey and it was suggested that iron was not produced in certain areas of the site (Smith, 2001:87). It could be conjectured that there were centralised areas of specialised production which then distributed material to the local area (Gogte, 1982). However, given the ubiquity of metal working slag in excavation reports, the total absence here does suggest that visibility or inexperience in detection has led to this material not being recognised. The locally known material 'Murrum' was found across the survey area and was initially mistaken for metal slag given its distinct similarities. It is possible this has obscured the archaeological material.

Furthermore, no inscriptions or numismatic evidence were located during the survey. While the lack of Vākāṭaka coins is a well-known phenomenon of the archaeological record relating to the Early Historic economy, in the context of survey it is not necessarily significant, as their absence may be a result of survival or visibility in the archaeological record, and coins are in any case only rarely found in survey.

6.3.2. Systematic Quadrat Survey

During the systematic survey, a random selection of quadrats was walked across the three transects contained within the study area. Transects one and three largely covered stretches of agricultural or waste land, while transect two had reduced visibility as it fell partially over Rāmṭek town and the surrounding area, much of which is cleared to undergo development. There was a range of environmental settings in the quadrats surveyed and even when quadrats fell across solely agricultural areas, conditions ranged from being ploughed, fallow or recently planted. On the whole, visibility within each quadrat was found to have low correlation with sherd density; quadrats with no obvious sherds for collection often displayed high visibility, but equally the quadrats containing the highest number of sherds in each transect were of average or high visibility. In the agricultural areas, significantly low

visibility due to water from canals and the planting of new crops could be theorised to reduce success in collections. For example, transect three did not yield many ceramic sherds despite its location in the south of the survey area where a greater number of sites were recorded during 'informed' survey. This area experiences a higher rate of double cropping and so reduced visibility due to ongoing cultivation may be responsible. Alternatively, the different distribution of remains may relate to diverse past activities across the various environments of the survey area.

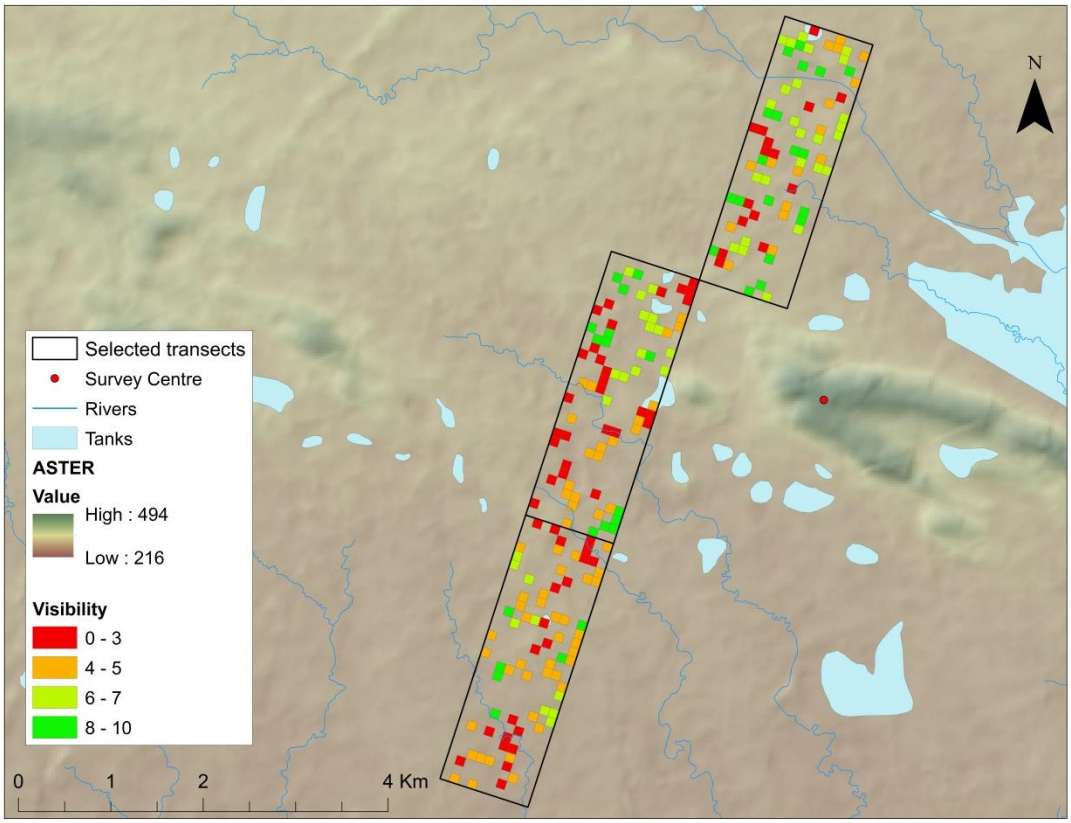


Figure 6-5. Map giving the visibility across sampled quadrats in the three transects surveyed during systematic field-walking.

Twelve religious sites or environmental features were discovered during the transect survey. The small rural shrines, temples and wells which were discovered in the fields suggest that it is likely further examples of this type of site could be found in agricultural areas which were not explored in depth. This highlights the bias of the village-to-village informed survey and its unsystematic coverage as there is the potential for further sites to exist. However, no mounded areas indicative of ancient habitation were discovered in proximity to these structures.

Table 6-5. The types of site identified during systematic quadrat walking.

Site categories	Count of site type
Religious	**7**
Shrine (Modern)	6
Cabūtrā	1
Environmental feature	**4**
Well	3
Baori	1
Religious with environmental feature	**1**
Temple (Modern) / Well	1
Total	**12**

The average yield of ceramic sherds per quadrat was 4.36 per 100m2 in transect one, 0.4 sherds per 100m2 in transect two and 1.21 per 100m2 in transect three. The majority of quadrats yielded no sherds, although a lack of visible finds does not necessarily equate to an absence of artefacts in the past and low density surface scatter is found across other quadrats (Gallant, 1986:406). The average yield of sherds per quadrat is higher for transect one due to the presence of medium density ceramic scatters in occasional quadrats. These hotspots were typically related to habitation sites previously identified during the unsystematic investigations, but systematic survey enabled the collection of ceramics from a wider radius. The quadrats with the highest quantity of sherds in transect one were located next to site 154 (Kawadak), which was identified during speculative survey around Rāmṭek. The previously recorded ceramic scatter was found to extend further into the ploughed fields and settlement area across the road from the main mound. Similarly, the quadrats around site 169 revealed medium density surface scatter in connection to the site, which had not been previously recorded. This demonstrates that more complete information could be achieved from intensive field-walking. Additionally, systematic walking of quadrats revealed low density scatters of ceramic sherds where no sites were previously recorded. There were no any other noticeable features, such as a raised ground profile indicative of a settlement mound, and so such areas may be classed as ceramic scatters perhaps suggestive of more transient human activity. Significantly, this implies that less obtrusive sites, or those not known by local

inhabitants, could be missed during 'Informed' survey and so the systematic survey has fulfilled its purpose in this respect. It should be emphasised that care should be taken when suggesting a lack of habitation in certain areas as other forms of human occupation and rural economic activity could have been present in the past but are simply hard to determine in the modern landscape.

Table 6-6. The count of ceramic sherds per quadrat for transect one, and the number of quadrats in which that quantity of sherds was collected.

Transect 1	
Count of ceramic sherds per quadrat	**Count of quadrats**
0	50
1	3
2	3
3	2
4	5
5	1
7	1
8	2
9	1
10	1
20	1
23	1
30	1
41	1
54	1
77	1

Table 6-7. The count of ceramic sherds per quadrat for transect two, and the number of quadrats in which that quantity of sherds was collected.

Transect 2	
Count of ceramic sherds per quadrat	**Count of quadrats**
0	56
1	1
2	6
3	3
4	1
5	2
6	1
7	2

11	1
12	2

Table 6-8. The count of ceramic sherds per quadrat for transect three, and the number of quadrats in which that quantity of sherds was collected.

Transect 3	
Count of ceramic sherds per quadrat	**Count of quadrats**
0	56
1	1
2	6
3	3
4	1
5	2
6	1
7	2
11	1
12	2

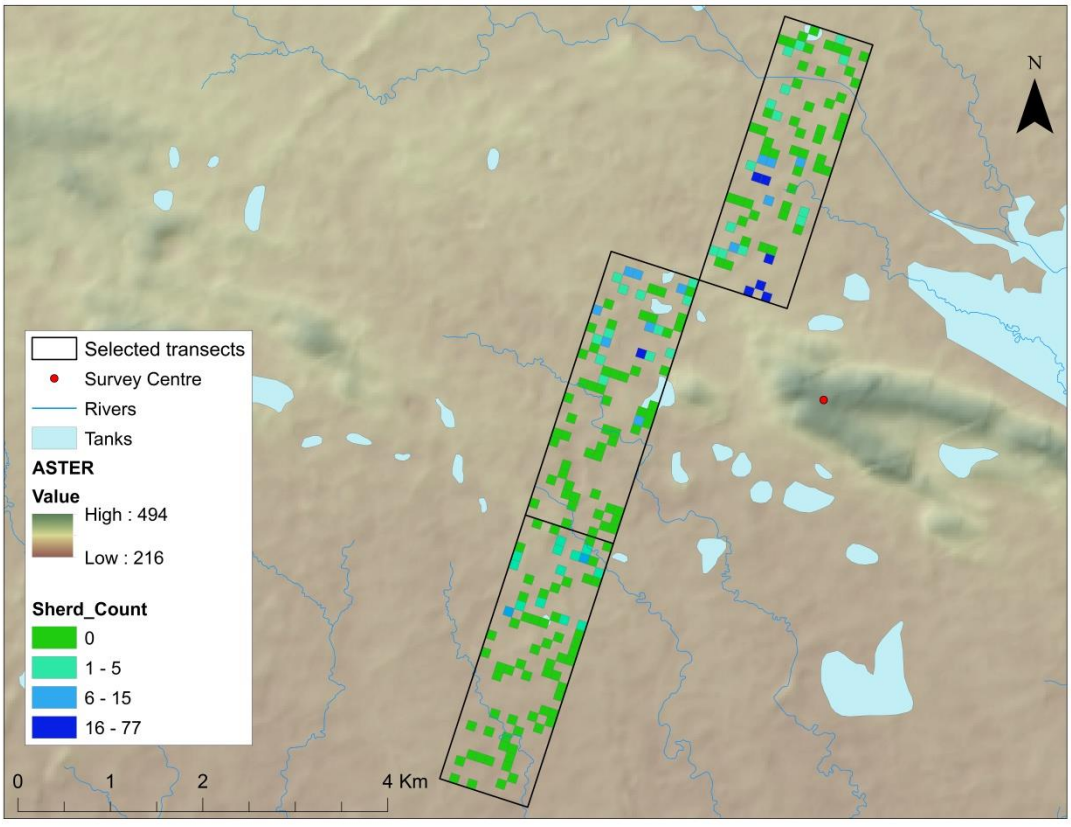


Figure 6-6. Map displaying the sherd density per sampled quadrat with clear low levels of findings across the majority of quadrats.

Theoretically, the sample from the systematic 'Level 4' survey could be incorporated into statistical analyses and be used to extrapolate data regarding the rest of the survey area. However, within the scope of this study, the results of the systematic approach were intended to assess the findings of the Level 3 'Informed survey'. Therefore, it is again reiterated that the Level 4 survey did suggest a background level of human activity across the survey area, perhaps related to low-density rural agriculture. The survey also failed to identify any unknown large sites indicating past settled habitation, which strengthens the argument that the Level 3 survey is capable of recognising such remains. What has been achieved with the systematic survey is sufficient to enable the prediction that a similar frequency of sherds would be found across the area, if this methodology were repeated on a wider scale (Barker, 1996). However, all such findings must only remain hypotheses that need to be tested and confirmed with future work.

6.4. Destruction of archaeological remains

Ongoing degradation and destruction of sites was noted during the course of the Rāmṭek survey, and reflects observations by multiple scholars that the archaeological potential of rural India should be a priority for research. Existing damage to sites was recorded at the start of the survey, and during the three fieldwork seasons there was progressive disturbance from changing land-use. As discussed in chapter three, damage to the archaeological remains around Mansar was conspicuous during Wellsted's explorations in the 1930s. Wellsted's reports of habitation remains around Mansar Hill could not be confirmed as it appears the archaeology already severely damaged by 1934 has now been completely obliterated. Bakker *et al.*'s 2006 reconnaissance detected that the site of Hamlapuri (site 79) was the remains of a destroyed mound; these observations were confirmed in this survey and another site was identified in the same condition (site 265, Bada). All of the habitation mounds identified during survey have suffered damage from the encroachment of agriculture and digging activities. The surfaces of low mounds have been ploughed and cultivated, and others have been damaged more extensively. At the large site of Dudhala (site 236), the mound has been cut away along one side, and at Beldongri (site 242) curious villagers have cut away the corner of the brick mound to reveal the

interior. The artificial cuts in both of these examples allowed access to sections, which can reveal more information about artefact associations and the nature of buried remains, but the damage also alters the extent of sites and may affect the remains of different periods unequally.

The habitation site of Naharwani (site 364) presents one of the starkest examples of the swift destruction at archaeological sites. A complete settlement mound is visible on 2002 GoogleEarth imagery and 2003 Orbview 3 imagery, but has now been completely destroyed. On 2009 GoogleEarth imagery it is clear that a small area on the southwest corner of the mound had experienced limited exploratory digging, but by 2012 it had been entirely excavated during extraction of Murrum, leaving only scattered brick and ceramic remains in the spoil.



Figure 6-7. The progression of modern damage at the site (364) of Naharwani from top left as shown in (a) 2002 GoogleEarth imagery, (b) 2009 GoogleEarth imagery, (c) 2014 GoogleEarth imagery (d) A photograph of the site during survey (2012).

Even more drastically, an area of cultivated land (site 73) south of the Bhonsle fort in Nagardhan, which displayed limited ceramic surface scatter in the first field season, was found to be dug away to a depth of around three metres by the end of season two,

revealing copious archaeological remains. With the area's proximity to the Medieval fort, and given the known Early Historic potential of Nagardhan, it is unfortunate that the work was unmonitored. Official development and renovation work at the fort itself has caused damage to the archaeological remains as digging has cut through sequences of brick and ceramics, which were discarded in the spoil. A large section of the western wall of the fort collapsed in 2014, revealing archaeological remains of seemingly mixed antiquity inside the wall.



Figure 6-8. From left: Modern digging activities south of the fort. Site 73 is shown as (a) cultivated land on 2012 GoogleEarth imagery and (b) following excavation on 2014 imagery.



Figure 6-9. Photographs show (a) the extent of the disturbance south of the fort at site 73 during the second field season in 2013, and (b) the collapsed section of wall at the Bhonsle Fort.

Large areas of the Rāmṭek landscape are clearly damaged by past and current quarrying, small-scale mining activities and brick manufacture. It is unknown whether some were eradicated before this survey commenced. Furthermore, the past extent of damaged sites, such as the mound at Hamlapuri, is unknown. The situation witnessed in the Rāmṭek landscape highlights a need for even basic reconnaissance and recording of sites, such as that attempted in this project. It is important to note that disturbance of sites may affect the resulting patterns of remains identified during survey. While destruction of sites can reveal buried ceramics and remains, it is also unknown how many sites have been destroyed and the land reclaimed for other uses. Unknown visibility or survival of sites must be taken into account in later discussion of the patterns evident in the archaeological remains, as it may be that the survey has not achieved a representative picture of the past landscape.

6.5. Working project chronology

Several types of archaeological remains identified during the Rāmṭek survey have relevance to a consideration of chronology and the temporal patterning of sites in the landscape. The phases of interest in this study are structured by the aims of the survey, the nature of remains and the published comparison material. The chronological parameters of this research reflect the questions we have about the landscape and its development; the fieldwork aimed to elucidate the *longue durée* development of the landscape, and questioned whether pre- and post-Vākāṭaka activity could be identified in order to ascertain the extent of the Vākāṭaka impact on the landscape. The chronological framework remains broad and the nature of the archaeological remains did not enable assignment to very precise time periods. Therefore, the chronology follows the dating set out in publications of excavated sites and material from the region. Many of the broad phases referred to are quite loosely defined and not always easily linked to recognised historical periods.

As no numismatic or epigraphic material was identified, the primary dateable material is the ceramics. Possible dates can be established through the construction of typologies, comparison with published ceramic material and ceramic seriation, but many difficulties have to be faced when attempting to establish a more precise and nuanced chronology. Limitations include a lack of reliably-dated comparative

material and established typologies, a lack of standardised terminology and the use of loose and imprecise descriptions in publications which make comparisons difficult. Architecture, carved architectural fragments and sculpture have the potential to be dated fairly accurately if they are well preserved and display recognisable stylistic indicators. However, early architectural remains are rare, and much of the sculpture was difficult to identify. Past habitation sites in the survey area could only be dated by reference to ceramic and brick remains, as there was usually no association with sculpture or architecture. Brick remains are impossible to date accurately in the absence of scientific techniques, but may be dated in association with other artefacts. Past research has used typologies of ancient brick dimensions to suggest periods of manufacture, using the key principle that brick size diminished over time and certain brick dimensions were common to particular periods. Early Historic bricks are considered to have been large, and published brick dimensions vary between roughly 30 and 50cm in length by approximately 20-30 cm in width, and 7-10 cm in depth with a range of variation (Mishra, 1997). Large-sized bricks with similar 'Early Historic' dimensions were common around Rāmṭek, and more complete pieces were measured for comparison to those in archaeological reports and known structures in the area.

Various studies have demonstrated that brick dimensions are a poor indicator of chronology brick size, as the amount of regional variation means that the trend of diminishing size does not hold up to scrutiny, but this method has been commonly employed across the subcontinent in the absence of other dating methods (Verardi, 2002). Bricks may be used cautiously as broad indicators of chronology when associated with ceramics, and can provide support for Early Historic occupation. By considering brick dimensions it may be possible to demonstrate that there are ancient bricks across the survey region, which are consistently similar in size to published 'Gupta-type' bricks. Bricks and ceramics are also associated with tiles in the survey area, which are found with Early Historic materials in excavated contexts. Tiles have been used for dating in other projects (Suvrathan, 2013), but could not be used here as the pieces were too fragmentary.

Despite there being little scope to refine the working project chronology, it does nonetheless provide enough of a framework to engage with the periods of interest in this research. In South Asian archaeology, terms such as 'Early Historic', 'Early

Medieval' and 'Medieval' are invariably relied upon, and this project remains in keeping with past research by referring to these broad phases. In this study, the Early Historic and Early Medieval phases have been related to the ruling dynasties, based on the research aim of identifying differences in activity as a consequence of periods of rule. Chronological discussions in India often rely on dynastic phasing despite the risk of simplifying the history of development by implying there were distinct cultural breaks. However, historical divisions can still be useful for structuring broad developmental periods if the process of change is taken into account. The chronological framework presented here will be referred to in the later chapters to structure the dating of the ceramics, sculpture and architecture.

Table 6-9. The working project chronology, which gives both the broad period and the project phasing from I – VI.

Broad time frame	Project phase	Rough chronology	Identification	Expected diagnostic remains
Prehistoric	I	Pre-3rd century BC	Prehistoric and Protohistoric activity	Worked stone tools, ceramics, Megalithic evidence
Early Historic	II	3rd century BC to 3rd century AD	Pre-Vākāṭaka Early Historic, including period of Sātavāhana dynasty	Possible megalithic evidence, ceramics, brick/tile, characteristic artefacts, evidence of Buddhism
	III	4th to 6th century AD	Period of Vākāṭaka rule	Ceramics, brick/tile, characteristic architectural and sculptural pieces
Early Medieval	IV A	7th century to 11th century AD	Intermediate period post-Vākāṭaka and prior to Yādava rule.	Architecture, sculpture. Possible ceramics
	IV B	11th to 14th century AD	Includes period of renewed activity under the Yādavas	Yādava period architecture, sculpture. Possible ceramics
Late Medieval	V	14th to end of 18th century AD (end of Mārāṭha rule)	Medieval period including the Vijayanagara period around 15th to 16th centuries AD and later Mārāṭha influence	Ceramics, later architecture and sculpture displaying Vijayanagara or Mārāṭha influence
Modern	VI	19th century AD onwards	Modern structures and occupation	Modern settlement areas, temples and sculpture

The first phase (I) in the project chronology has been termed 'Prehistoric' and 'Protohistoric', and relates to the general period prior to the beginning of the Early Historic. Phase I activity was expected to be most visible in finds of stone tools, characteristic ceramics or megalithic re-working of the landscape. Although megalithic structures would be expected for Phase I, as shown previously they have been found to extend into the Sātavāhana period in Vidarbha and could therefore relate to Phase II in the project chronology. An even later date for megalithic tombs, up to the 4th century AD, has been reported in north-western Tamil Nadu based on ceramic, numismatic and C-14 dating (Ramachandran, 1980). Although transitional phases between the Megalithic and Early Historic periods have been identified at some sites in Maharashtra such as Khairwada, often terminal dates for the Megalithic remains are not conclusive and the relationship with the succeeding Early Historic period is still subject to investigation (Mitra, 1983c:51). According to the majority of regional publications, they appear to have gone out of use by Phase III at the latest. As it was, while ceramics and stone tools were encountered during survey and can be assigned to Phase I activity, there was no evidence of structural remains.

Phases II and III can be broadly referred to as the 'Early Historic' period. This period has been divided into two phases based on the known development of the Rāmṭek landscape, and the importance of separate phases in relation to the project research questions. Certain types of remains were expected to be distinct between Phases II and III, for example the earlier pre-Vākāṭaka phase (II) may have left traces of Buddhist remains related to the corresponding socio-political and religious context, while Brahmanical evidence would have emerged in the later Vākāṭaka phase (III). For other categories of evidence, such as Early Historic ceramics, it was not certain that the different phases within the overarching period could be determined, as they are not well established.

Phase IV refers to the Early Medieval period and has been split into IV A and IV B; Phase IV A relates to the unknown intermediate period in the Rāmṭek landscape prior to the establishment of Yādava rule around the 11th century AD. Phase IV B refers to the second phase of the Early Medieval, which witnessed more obvious landscape development under the Yādava kings. Early Medieval ceramics have not been adequately defined and so sculpture and architecture becomes particularly important for identification of this period. Structures originating from these phases may be

distinguishable due to their different architectural influences, but the same resolution was not expected in other remains. As it was not certain that precise developments could be determined, or that a nuanced picture of Early Medieval settlement could be established, the two periods A and B were kept under the umbrella of Phase IV.

Phase V relates to the Later Medieval to Mārāṭha period, after the collapse of the Yādava dynasty and up to the end of the 18th century. Medieval ceramics are better established that those of the Early Medieval, and the material culture is distinct from the Early Historic. Ceramics would be expected to be key indicators of settlement. The earlier part of Phase V correlates with the Vijayanagara period, of which there is little known evidence in the Rāmṭek landscape. Mārāṭha influence on architectural remains is known around the 18th century and it was expected that this phase would be more visible across the survey area. Following the 18th century, from the period of British rule, developments in the landscape are considered to be Modern, and are simply designated as such. As the chronological phases may be represented by different categories of evidence – earlier periods are more likely to be represented by ceramics and brick remains compared to the Medieval periods which would seem to have greater quantities of architectural remains - there may be some difficulties in directly comparing phases of development and evaluating the extent of activity.

6.6. Conclusion

The introduction to the overall fieldwork results provided in this chapter leads into an in-depth consideration of the different categories of evidence over the next two chapters. The survey was successful in recording a range of sites relating to multi-period settlement and religious activity, and has increased our understanding of Rāmṭek's rural landscape through the assessment of previously unrecorded sites. Both the 'informed' survey and the quadrat-walking encountered methodological difficulties but achieved their intended objectives. Given the project limitations, the 'informed' survey was found to be easier to implement, and more advantageous than the trial systematic survey in terms of the amount of information that it yielded. The 'informed' survey enabled the recording of hundreds of sites in a strict time frame with limited resources. The systematic survey did not result in a high number of new

sites or ceramic remains, but it has demonstrated that low level ceramic scatter can be identified. The results of the systematic survey indicate that transient and small-scale sites may in some cases have been overlooked by the 'informed' survey, alongside ubiquitous sites such as modern shrines and water resources. This must be noted as transient remains could refer to categories of human activity significant to the rural landscape and engagement with the Eastern Vākāṭakas.

The fieldwork has revealed the effect of modern activity on archaeological sites and supports the argument for further landscape surveys in India. Despite having undergone ASI village-to-village reconnaissance, the Rāmṭek area contains a wealth of unreported sites, including a number of habitation mounds, which can impart important information about occupation of the landscape. Landscape survey is particularly important for this region, given that the nature of settlement and activity during the Early Historic and Early Medieval periods is barely understood. The working project chronology presented in this chapter will provide the framework for discussions of the archaeological remains over the following two sections of the thesis. The next chapter will focus on ceramic classification, and the resulting relative seriation, which forms a major part of discussions on the phasing of sites.

Chapter 7. Classification and seriation of the ceramic assemblage

7.1. Introduction

Ceramic sherds were the most comprehensive category of evidence encountered during the Rāmṭek survey and are one of the most frequently recovered archaeological remains, due to the ubiquity of their past use and their durability once broken into sherds (Skibo, 1999:1). Ceramics are able to convey information about the past activity of non-elite communities and the development of rural settlement, which relates to the major research aim of attempting to establish Rāmṭek's landscape context. Ceramics may also be indicative of the past economic and socio-political environment, connected to exchange and the spread of material culture. As well as enabling researchers to analyse spatial patterns of activity, ceramic assemblages can provide invaluable dating evidence, particularly in research projects where few other archaeological remains are traced. As a basic understanding of chronology is necessary in order to hypothesise about the history and development of a region, the proposed phasing of sites in this survey has been established through study of the ceramic assemblage, supplemented by information from dateable sculpture and architecture.

The following chapter is dedicated to the categorisation of the ceramic assemblage, as it forms the foundation for the proposed narrative of the economic landscape presented in chapter eight. This chapter contains an overview of intuitive identification of wares and types, which have been related to published excavation reports to establish potential periods of use (see the appendices for further details concerning individual sherds and descriptions of wares and types). Ultimately, there are overriding issues regarding chronology, and while published excavation sequences have been drawn upon during discussions of typology, ceramic seriation was also employed. The final section of this chapter presents the seriation

methodology used in attempts to construct a meaningful relative phasing for the Rāmṭek ceramics.

7.2. Wares and types in the ceramic assemblage

The broad details of the ceramic assemblage will be presented below, and the complete tables may be referred to in appendix four. 5,962 sherds were collected across the 314 km² of the survey area, with a total of 5,943 available for study. Of this complete assemblage, the majority were fragmentary body sherds, which were assigned a ware but were undiagnostic for the shape typology.

Table 7-1. Type codes for the ceramic sherds in the Rāmṭek assemblage, and the count of each type.

Sherd Type Code	Sherd Type	Count of Sherd Type
S	Body sherd	3102
R	Rim	2549
B	Base	248
H	Handle	16
Lp	Lamp	13
Non-ID	Non-identifiable	7
B-R	Base to Rim piece	5
Ld	Lid	6
Sp	Spout	4
Fl	Flange	3
Sprink	Sprinkler	3
Pipe	Pipe	3
Com	Complete	3
Total		**5962**

In all, 74 wares were identified during intuitive sorting; a number of wares are particularly common in the assemblage but only GW.BLS represents more than 10% of the overall assemblage. A further 28 wares each constitute over 1% of the overall assemblage, and the remaining 46 wares each make up less than 1%.

Table 7-2. Outline of the ware types identified during ceramic analysis.

Ware code	Ware name	Count	% of total
GW.BLS	Black Slipped Grey ware	796	13.39%
RBC2.RS	Red Slipped Red ware with Black Core 2	356	5.99%
BAG.BLS	Black Slipped Brown and Grey ware	300	5.05%
BOM2.RS	Red Slipped Black and Orange Micaceous ware 2	251	4.22%
RED2	Red ware 2	228	3.84%
GW	Grey ware	192	3.23%
BOM1.RS	Red Slipped Black and Orange Micaceous ware 1	166	2.79%
RBC3	Red ware with Black Core 3	165	2.78%
ORM3	Orange Micaceous ware 3	150	2.52%
TORRS	Thin Orange Red Slipped ware	148	2.49%
BOM5	Black and Orange Micaceous ware 5	144	2.42%
RBC1.RS	Red Slipped Red ware with Black Core 1	138	2.32%
DARM	Dark Micaceous ware	133	2.24%
BOM3.RS	Red Slipped Black and Orange Micaceous ware 3	118	1.99%
BOM6	Black and Orange Micaceous ware 6	115	1.94%
BOM5.RS	Red Slipped Black and Orange Micaceous ware 5	105	1.77%
DARM.RS	Red Slipped Dark Micaceous ware	104	1.75%
PATCHY	Patchy Black and Orange Micaceous ware	103	1.73%
ORM6	Orange Micaceous ware 6	100	1.68%
ORM2	Orange Micaceous ware 2	96	1.62%
BOM2	Black and Orange Micaceous ware 2	89	1.50%
RED3	Red ware 3	87	1.46%
BOM1	Black and Orange Micaceous ware 1	86	1.45%
BUG.BRSL	Brown Slipped Buff and Grey ware	85	1.43%
ROM	Rough Orange Micaceous ware	82	1.38%
BOM4	Black and Orange Micaceous ware 4	75	1.26%
ORM5	Orange Micaceous ware 5	75	1.26%
GROMIT2	Gritty Micaceous ware 2	71	1.19%
RBC3.RS	Red Slipped Red ware with Black Core 3	63	1.06%
RED4	Red ware 4	63	1.06%
RED1.RS	Red Slipped Red ware 1	58	0.98%
TOR	Thin Orange ware	58	0.98%
VORBL	Vegetable Tempered Orange and Black Micaceous ware	52	0.87%
GROMIT3	Gritty Micaceous ware 3	51	0.86%
RED.OF	Over-fired Red ware	49	0.82%
ORM4.RS	Red Slipped Orange Micaceous ware 4	48	0.81%
GOW1	Grey and Orange ware 1	47	0.79%
ORM4	Orange Micaceous ware 4	47	0.79%

RED.BLS	Black Slipped Red ware	47	0.79%
RED2.RS	Red Slipped Red ware 2	46	0.77%
FIDAM	Fine Dark Micaceous ware	43	0.72%
RBC4	Red ware with Black Core 4	41	0.69%
BUG	Buff and Grey ware	40	0.67%
ORM1	Orange Micaceous ware 1	40	0.67%
GOW2	Grey and Orange ware 2	37	0.62%
ORM1.RS	Red Slipped Orange Micaceous ware 1	35	0.59%
BOM3	Black and Orange Micaceous ware 3	33	0.56%
GROMIT2.RS	Red Slipped Gritty Micaceous ware 2	31	0.52%
NON-ID	Non-identifiable	31	0.52%
GOWM	Grey and Orange Micaceous ware	28	0.47%
BAR	Black and Red ware	27	0.45%
GROMIT1	Gritty Micaceous ware 1	26	0.44%
TIG	Thin Grey ware	26	0.44%
COM	Coppery Micaceous ware	25	0.42%
ORM5.RS	Red Slipped Orange Micaceous ware 5	25	0.42%
GROMIT1.RS	Red Slipped Gritty Micaceous ware 1	24	0.40%
HRBC	Heavy Red ware with Black Core ware	22	0.37%
GOW1.RS	Red Slipped Grey and Orange ware 1	21	0.35%
TOW	Thick Orange ware	21	0.35%
GRW1.RS	Red Slipped Gritty Red ware 1	20	0.34%
RED5.RS	Red Slipped Red ware 5	19	0.32%
GRW1	Gritty Red ware 1	18	0.30%
LAST	Large Storage Jar ware	18	0.30%
VORM	Vegetable Tempered Orange Micaceous ware	15	0.25%
F.BAR	Fine Black and Red ware	14	0.24%
RED3.RS	Red Slipped Red ware 3	14	0.24%
BOM6.RS	Red Slipped Black and Orange Micaceous ware 6	11	0.19%
GROMIT3.RS	Red Slipped Gritty Micaceous ware 3	10	0.17%
BLARB	Black/Red Burnt and Burnished ware	7	0.12%
GROMIT4	Gritty Micaceous ware 4	7	0.12%
RED4.RS	Red Slipped Red ware 4	7	0.12%
GOW2.RS	Red Slipped Grey and Orange ware 2	6	0.10%
HRBC.RS	Red Slipped Heavy Red ware with Black Core	5	0.08%
VORBL.RS	Red Slipped Vegetable Tempered Orange and Black Micaceous ware	4	0.07%
RED5	Red ware 5	3	0.05%
TORM	Thick Orange Micaceous ware	2	0.03%
Total		**5943**	

Several general statements can be made about the nature of the Rāmṭek assemblage based on the ceramic wares. The sherds mostly indicate that ceramic vessels were wheel thrown, which is in keeping with archaeological reports of Early Historic material culture (Ray, 1954:552). The fabric quality was described using terms such as 'coarse' and 'medium'; 'coarse' describes less compact material with many inclusions, while medium fabrics were more compact with fewer inclusions. All of the ceramics loosely fell within these categories and appear to be fairly utilitarian, with few appearing medium-fine outside of the varieties of Black and Red (B&R) ware. A range of firing is demonstrated by core colour, particularly across the red and micaceous wares, and it is common for sherds to display a black/grey core representative of unoxidised firing. The closest comparison material from the survey area – the ceramic assemblage from the 5th century monuments at Mansar - has not been fully published. However some reports suggest that the majority of ceramics found in the excavations could be assigned to medium fabric red ware, unoxidized dull red wares of a similar fabric, coarse and gritty micaceous red wares and fine polished red wares (Manjhi, *et al.*, 2000:56). Ceramics of the Gupta-Vākāṭaka period are thought to have had a long duration with a range of minor variations. It has been traditionally thought that by the Gupta-Vākāṭaka period, Sunga grey wares and typical 'Mauryan' types disappeared from assemblages and were replaced by a range of red wares (Ray, 1954).

The most common surface treatment for ceramics in the Rāmṭek assemblage was smoothing and flattening of the surface, and the application of a slip, with burnishing being common. Burnishing involves rubbing the ceramic surface with a smooth, hard object to give a shiny finish, but results in a more irregular shine than polishing (Rice, 1987:138; Sinopoli, 1991:25-26). The Rāmṭek red and micaceous wares usually display various shades of red slip, which is similar to those reported from contemporary sites, which are also noted to have a polished appearance (Ray, 1954). The addition of mica to the clay and surface treatments has often been stated to give a lustrous finish, and thus is typically equated to special vessel types. The Grey/Buff wares in the Rāmṭek assemblage principally display black slips.

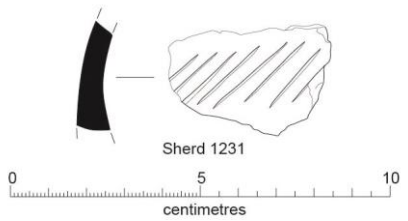
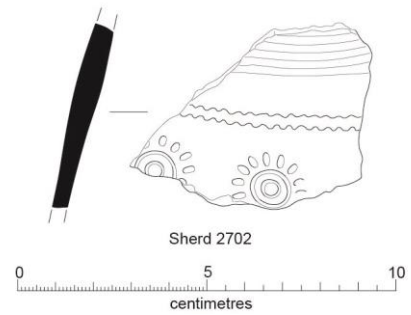
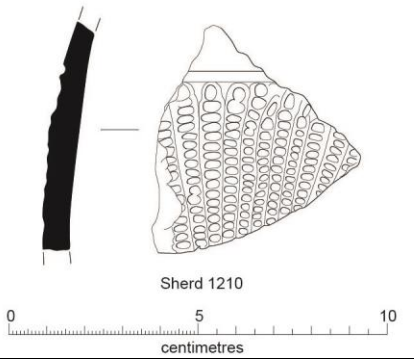
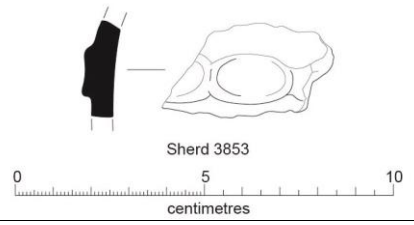
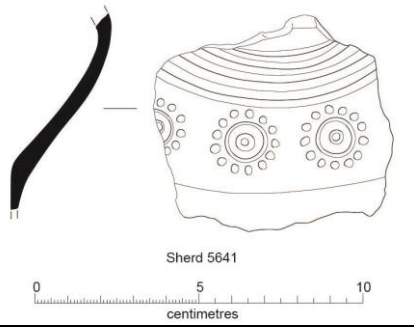
Ceramics of the Gupta-Vākāṭaka period are seen to display various forms of decoration such as stamped rosettes, geometrical designs, line work, "vegetal

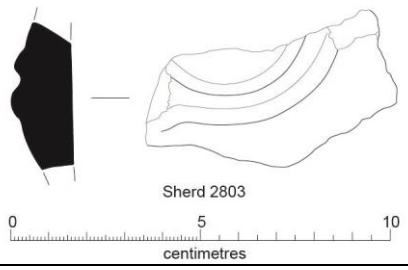
patterns" and zig-zags, created through incisions, notching, imprinting or stamps (Ray, 1954:552). A narrow range of decorative designs and techniques are identified in the Rāmṭek assemblage, and there are strong associations between decoration and ware type. The most common form of decoration is incised, with more limited use of stamped, impressed or appliqué designs, but no painted decoration was identified. Incised horizontal lines around the shoulder of the vessel occur most frequently but in the published literature incised horizontal lines are a common feature across a number of wares and types in a number of periods. As in the Mansar assemblage, obliquely slashed lines and notches were common in the Rāmṭek assemblage, particularly in red and micaceous wares (Manjhi, *et al.*, 2000:56). More distinct are the stamped rosettes or flower/sun patterns frequently associated with Gupta period ceramics onwards. For example, similar designs have been found in period VI pottery of Maheshwar and Navdatoli (2nd to 5th century AD) alongside concentric incised lines (Sankalia, *et al.*, 1958:172) and stamped floral motifs were identified on ceramics recovered from the 5th century structures at Mansar (Manjhi, *et al.*, 2000:56). A particular style of decoration, apparent on red and micaceous wares, is one resembling maize or basketry. In published sequences this decoration is said to be incised, and similar designs are seen on ceramic sherds from Early Historic Brahmapuri/Kolhapur (Type 5, Plate XVIII) (Sankalia & Dikshit, 1952). Sherd 22 from period IV deposits (1st century BC to 3rd century AD) in Pauni is described as having a design of strings of beads, while the red micaceous ware Sherd 15 is incised with similar dotted lines (Nath, 1998:46). At Devnimori, a piece of stamped incised pot (T.80) with similar designs is described as having oblique incisions in vertical lines (3rd to 7th centuries AD) (Mehta & Chowdary, 1966:79).

Pottery with scalloped or thumb impressed applique designs similar to those in the Rāmṭek assemblage have been found unstratified at Brahmapuri/Kolhapur (T.95) (Sankalia & Dikshit, 1952). At Pauni, applique 'roundels' were described on storage jars in Period IV (Nath, 1998:46) and at Nevasa decorated sherds of thick storage jars also featured applique bands with fingertip/rope designs (Sankalia, *et al.*, 1960:273). The applique flanges and pinched designs familiar to the black slipped wares is similar to the descriptions of raised bands with fingertip impressions and beaded rims on burnished black storage wares at Dwarka, Period III (7th to 8th century AD), and

the ledged carination and applique wavy lines on burnished black ware in period IV (10th century AD to the Medieval period) (Ansari & Mate, 1966:79).

Table 7-3. The major categories of ceramic decoration encountered in the Rāmṭek assemblage; further illustrated examples are available in appendix seven.

Decoration type	Designs	Illustrated Example
Incised	The most variable decoration type, formed by cutting into the surface of the vessel with a pointed or shaped implement. Most commonly includes: • horizontal straight bands around vessel shoulder and neck • short oblique lines • horizontal wavy lines • triangular or round notches Often used in combination with each other, or with stamped designs.	 
Incised/ Impressed	Either incised to resemble maize-work or basketry, or basket-impressed.	
Impressed	Bands of thumb impressions giving a scalloped appearance (‘Cordon’ decoration) are most commonly seen	
Stamped	Formed using a tool or die which stamps a recurrent motif; the stamped pattern resembles a floral or sun design.	

Appliqué	Most commonly involves a pinched appliqué element below the rim of a vessel. A few pieces have shaped designs added to the sherd surface as in the example. Appliqué flanges are also found.	

Of the 2,549 rim sherds, 1,750 (69%) were successfully categorised into 128 rim types, with these types represented by two or more examples within the diagnostic rims. A further 75 rim sherds were identified as unique shapes, and 740 rims (29%) were recorded as 'eroded', and could not be reliably attributed a type. Published parallels tend to be easier to find for type than ware given the more detailed descriptions and images, but parallels cannot always be found. Of the 203 total rim types (including uniques), 94 were found to resemble parallel types closely in published assemblages (see appendix six). By identifying broad time frames from published parallels and assessing the occurrence of particular vessel types within wares, it may be possible to use vessel shapes as chronological indicators and gain a clearer understanding of the date and life span of some of the wares. This may be particularly useful when considering the more common and nondescript fabrics, such as in the red wares, which appear to have a long period of use (Miller, 1985). The early excavations at Mansar indicated that common types could be identified in the red and micaceous wares, including vases with flared and out-turned rims, vessels with globular bodies, carinated *handis* with short necks and out-curved rims and sprinklers (Manjhi, *et al.*, 2000:56). If the lengthy Early Historic time frame remained difficult to sub-divide and the Vākāṭaka ceramics were difficult to define, it was hoped that types may be identified as uniquely pre- or post-Vākāṭaka in order to construct a relative chronology.

Several factors support the absence of imported wares to suggest that the Rāmṭek ceramics are locally produced; a large degree of minor variation is observed in fabric and vessel shape and there is a high quantity of wares and types in a small assemblage. The inclusion of mica fragments in the majority of ceramic sherds may further demonstrate local production as mica is prolific in the area and easily incorporated into the parent clay. The large range of fabrics and types at individual

sites, and an occasional association between particular wares/types and certain sites also supports suggestions of localised production and use. The local production of the most common wares is supported by the types of vessels present (such as water jars, and cooking pots), which would have been expensive to transport due to their bulk, weight and low value. Despite this, many of the vessel shapes are comparable to published parallels; similar to the ceramics from Smith's study at Kaundinyapura, the Rāmṭek assemblage demonstrates the existence of a "wider shared material culture" at least across the Vidarbha region (Smith, 2001b:75). Numerous parallels were also found within published Gujarati sequences which may have further implications in terms of ceramic production and shared material culture.

The proportions of different vessel types are often used in publications to indicate types of activity and functional differences between and throughout sites. This assemblage is dominated by functional vessel types intended for cooking and storage, usually with a general mix of both across sites. This suggests a primarily residential or domestic situation across the survey area. An in-depth study of functional differences based on vessel or ware type is not undertaken here; questions of varying function or status across sites may be addressed following future research when the ceramics of this region and period are more solidly established and understood. Currently, the focus of this ceramic study is to attempt to formulate a relative chronology, in order to elucidate phases of activity at sites. However, it may be briefly noted that all ceramics appear to be locally produced and utilised. There is an absence of fine or traded wares and vessel types, which may usually be connected to implications of trade or social stratification. It is worth noting that the small proportion of large storage jar rims, occurring in particular storage jar wares, do show some correlation with certain sites and this pattern gives the clearest indication of some functional differences. It is noted that the 'palace' site at Mansar (site 7) has a relatively high percentage of storage vessel sherds, which may be related to its elite role and the receipt of produce from other sites. Similarly, areas around Nagardhan have higher percentages of storage jars; this is the largest site in the area and may also be connected to a chain of production in the landscape (to be discussed in chapter ten). Site 78, a small mound near to Nagardhan with copious brick remains but relatively few ceramics, also displays a large proportion of storage vessel fragments. This may support suggestions that the mound is not the result of a build-up of

habitation activity, but rather may represent a structure or other category of site, which again was in receipt of surplus from the surrounding population. Mention may also be made of the correlation between certain vessel types and wares, either due to a functional or preferential difference. This will be discussed with reference to each ware type below.

Table 7-4. Sites with the highest proportion of storage wares.

Site	% of Storage wares present	Total sherd count of assemblage
78	26.92%	26
7	18.92%	111
73	15.38%	26
71	14.52%	62
196	12.12%	33
72	11.72%	128
265	9.76%	82
316	9.30%	43
241	8.64%	81
363	8.15%	135

7.3. Ware families

Given the large number of wares overall, ware families were introduced to create broad groups of wares and add another level of analysis. Thirteen ware families were outlined with similar characteristics and occurrences. This section will introduce briefly the characteristics of the ware families and their most common vessel types, and consider them against published ceramics. In the case of the black and red wares and the grey/buff wares, the family groupings were fairly cohesive and straightforward, while the red and micaceous wares were split across different ware families. A great deal of variation is observed across the red and micaceous wares in particular and clear divides between wares were hard to define. Moreover, the red and micaceous wares are largely observed to occur together in varying quantities.

Table 7-5. The broad ware family groupings in the Rāmṭek assemblage, with their corresponding specific ware types.

Ware family	Ware types
Black and Red (BAR)	1. BAR 2. F.BAR
Dark Mica	1. DARM 2. DARM.RS 3. FIDAM 4. COM
Grey/Buff	1. BAG.BLS 2. BUG 3. BUG.BRSL 4. GW 5. GW.BLS 6. TIG
Grey/Orange	1. GOW1 2. GOW1.RS 3. GOW2 4. GOW2.RS 5. GOWM
Gritty	1. GROMIT1 2. GROMIT1.RS 3. GROMIT2 4. GROMIT2.RS 5. GROMIT3 6. GROMIT3.RS 7. GROMIT4 8. GRW1 9. GRW1.RS
Mica1	1. ORM1 2. ORM2 3. ORM3 4. ORM4 5. ORM4.RS 6. ORM5 7. ORM5.RS 8. ORM6 9. ROM
Mica2	1. BOM1 2. BOM1.RS 3. BOM2 4. BOM2.RS 5. BOM3 6. BOM3.RS 7. BOM4 8. BOM5

	9. BOM5.RS 10. BOM6 11. BOM6.RS 12. ORM1.RS
Other Mica	1. PATCHY
Red	1. RBC3 2. RBC3.RS 3. RBC4 4. RED2 5. RED2.RS 6. RED3 7. RED3.RS 8. RED4 9. RED4.RS 10. RED5 11. RED5.RS 12. TOR
Red BLS	1. RED.BLS
Red Burnished	1. RBC1.RS 2. RBC2.RS 3. RED1.RS 4. TORRS
Storage	1. HRBC 2. HRBC.RS 3. LAST 4. TORM 5. TOW 6. VORBL 7. VORBL.RS 8. VORM
Unknown	1. BLARB 2. NON-ID 3. RED.OF

Table 7-6. The count of sherds falling within each ware family in the Rāmṭek assemblage

Ware family	Count	%
Grey/Buff	1439	24.2
Mica2	1228	20.7
Red	794	13.4
Red Burnished	700	11.8
Mica1	663	11.2
Dark Mica	305	5.1

Gritty	258	4.3
Storage	139	2.3
Grey/Orange	139	2.3
Other Mica	103	1.7
Unknown	87	1.5
Red BLS	47	0.8
BAR	41	0.7
Total	**5943**	**100**

7.3.1. Black and Red (BAR) wares

Due to their distinctiveness from the rest of the ceramic assemblage, the black and red ware family consists of only BAR and F.BAR. This ware family is represented by 41 sherds, and was found at a limited number of sites. Compared to other ceramics identified, Black and Red (B&R) ware is well-established in the published literature. It has a characteristic colouring produced by an inverted firing technique, which results in a reduced black interior and an oxidised red exterior, or an exterior which is red around the vessel base and black towards the top. B&R ware is described as being fine and well-levigated with a polished surface, but publications describe a range of fabric. It appears that regional varieties have been identified, and Subbarao identified a wide range of coarse and fine wares consistently occurring in shallow bowl forms when classifying B&R wares from a number of sites (Subbarao, 1958). There is a question over whether B&R ware can be considered part of a "single cultural complex irrespective of time and space", or whether the different 'varieties' are simply the result of similar production methods rather than a chronological and cultural connection (Srivastava, 1971:375).

B&R ware is usually deemed to be characteristic of the South Indian Megalithic, and as such is often dated between the 10th and 3rd centuries BC. The ceramic is prolific across the Vidarbha region alongside extensive Megalithic evidence, but sherds have been recovered from Early Historic contexts, indicating that it continued in use in some form throughout the early centuries AD (Subbarao, 1958:173). The occurrence of B&R ware in the Early Historic period seems particularly common across central India, including at sites in Maharashtra (Singh, 1969:70; Subbarao, 1958:176). In Vidarbha, B&R ware was discovered in Period IV (500-150 BC) at Adam (Nath, 1992a:74), and at Paunar B&R ware was found in larger quantities in Period IIA (4th -

3rd century BC) than in earlier periods (Deo & Dhavalikar, 1968:29). At Nevasa, the limited quantity of B&R ware in Early Historic Period V (50 BC to 200 AD) presented a narrower range of vessel shapes, so it has been suggested that it remained in sparing use perhaps for specific purposes (Sankalia, *et al.*, 1960:276). While B&R ware evidently had a long history of use, published sequences seem to demonstrate that it disappears from sites by the end of the 3rd century AD.

The Early Historic variety of B&R ware is often described as being comparatively rare, degraded and coarser in fabric; the Early Historic B&R ware at Maheshwar and Navdatoli (400-100 BC) is described as containing impurities with an increasingly "porous, gritty and dull" core (Sankalia, *et al.*, 1958:134). Similarly, while B&R ware persisted at Timbarva up to about 300 AD, it is described as "crude" from Period II (*c.*50 AD) (Mehta & Patel, 1967:17). Other studies of B&R ware have attempted to connect increasing thickness to a later date, for example, thin B&R ware was recorded in Period I at Paunar (*c.*1000-800 BC) followed by a thick variety in Period II (up to 3rd century AD) (Deo & Dhavalikar, 1968:6). Ultimately, neither pattern has been demonstrated in a robust fashion, nor has a means for determining between Megalithic and Early Historic B&R ware been realised.

This characteristic ware name is used in this study, but it is important to note that the Rāmṭek Black and Red wares (BAR) are not typical, given their coarseness; it cannot be determined whether the fabric quality indicates an Early Historic date or is due to local production, and there are two few examples to discern any potential pattern. What can be stated is that this is the earliest known ceramic collected during survey, and relates to the earliest phase of identifiable activity. Based on published parallels, this ware family corresponds to Phase I or II in the chronological scheme outlined in chapter 6, and can comfortably be described as pre-Vākāṭaka.

Table 7-7. Count of ceramic sherds within each ware type in the Black and Red ware family.

Ware code	Count
BAR	27
F.BAR	14
Total	**41**

All Black and Red ware sherds were rim pieces corresponding to two distinctive shallow bowl forms, which are shallow bowls with either a featureless or slightly extended round rim, and do not occur in any other ceramic fabric. The appearance of the fabric and vessel shapes is mostly consistent with published descriptions. Both types 1 and 2 have distinct parallels with shallow bowls/dishes reported from Nevasa Period IV/V (150 BC to 200 AD), pre-Mauryan to Sātavāhana Kaundinyapura, Jorwe and Malwa phases at Tuljapur Garhi and Paunar Phase I (1000 to 800 BC) (Bopardikar, 1996; Deo & Dhavalikar, 1968; Sankalia, *et al.*, 1960; Smith, 2000). The types therefore lend support to a prehistoric to Early Historic time range for the Black and Red wares.

Table 7-8. Table displaying the two vessel types present in the Black and Red ware family, and the count of each within the specific Black and Red wares.

	Count of Type		
	Type 1	**Type 2**	**Total**
BAR	5	3	8
F.BAR	5	1	6
Total	**10**	**4**	**14**

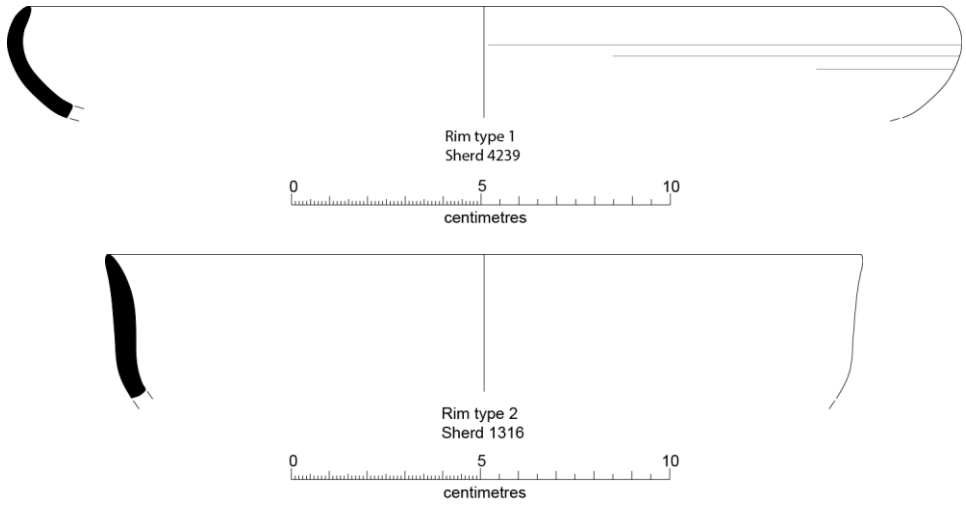


Figure 7-1. The two types of Black and Red ware rims encountered in the Rāmṭek assemblage.

7.3.2. Micaceous Wares

Micaceous wares make up 38.7% of the ceramic assemblage (2,299 of 5,943 sherds) and contribute to the largest overall type of ceramic based on their defining characteristic; the quantity of fabric mica. However, given the large amount of variety across the micaceous wares they are split into four families; 'Mica1', 'Mica2', 'Dark Mica' and 'Other Mica'. Attempts to establish phasing between the numerous micaceous wares is difficult as the ware associations at sites frequently indicates a broad mix of co-occurrences, but the ware family divisions outlined below emerge from visual characteristics and the most common co-associations.

Table 7-9. Count of ceramic sherds within each of the four different micaceous ware families.

Ware family	Count
Mica2	1228
Mica1	663
Dark Mica	305
Other Mica	103
Total	**2299**

Within these groups are both slipped and unslipped varieties of ceramics, and mica occurs in the fabric and surface treatment; a coloured slip may contain mica powder or small flakes, or the exterior and/or interior surface of vessels may be coated with a thin silvery wash of powdered mica. The micaceous wash may be smoothed or burnished to give a fine sparkly finish. Inclusion of mica may be related to aesthetic or practical concerns, or indeed both. It has been suggested that mica is an effective flux used to reduce the rate of firing (Rice, 1987:94; Shaw, 2007:108). In this study, fabric mica defined the micaceous wares, but in publications the term 'micaceous ware' can refer to those with little fabric mica but treated with micaceous slips. Micaceous ceramics are sometimes described as being luxury wares; "special type" vessels were described as being mica-dusted to give a "metallic" lustre at Ahichhatra (from 350 AD) (Ghosh & Panigrahi, 1946:41), and at Devnimori, micaceous red wares are theorised to be "costlier and less used" (Mehta & Chowdary, 1966:77). Shaw describes the micaceous wares from Sanchi as "deluxe" with a 'sparkly' appearance and smooth texture (Shaw, 2007:108). Surface mica is likely to have been

an aesthetic addition, given the attractive sheen produced by micaceous treatments, but smooth, well-finished and medium-fine micaceous wares are comparatively rare in the Rāmṭek assemblage. The majority of the micaceous wares are medium to coarse and utilitarian in appearance. They display very little decoration, with only occasional incised lines or notches, and the vessel type occurrences indicate a particularly large number of rim sherds from basic bowls, cooking vessels, and carinated or globular pots.

The useful qualities of mica coupled with its availability, may mean that mica is present in ceramics across different periods, and its use is more related to functionality than chronological distinctions. Micaceous wares have been identified in different chronological contexts including the Megalithic and Early Historic, for example, mica is recorded as a degraissant in early period ceramics at Kausambi (Period III: 9th to 6th century BC) (Misra, 1969:206). Dikshit also notes that ceramics with large amounts of mica used as a degraissant increased in number from the late Sātavāhana period at Kaundinyapura (Dikshit, 1968:33). Some studies have attempted to indicate that mica flakes were larger in Megalithic ceramics and decrease in size in the Early Historic period, but the ware descriptions are vague and there is no clear justification for this observation. A study of Bronze Age and Early Historic micaceous red wares in Gujarat refutes this suggestion, as the historic micaceous wares contain huge quantities of large mica flakes to act as a temper (Herman & Krishnan, 1994:227). Micaceous wares in Early Historic contexts at Kaundinyapura resembled Iron Age examples due to their large mica flakes, fragile fabric, and typical vessel shapes, but were more abundant, which rather suggests their increased popularity over this later period (Shete, 2009:75-76).

Although published micaceous wares are diverse and invariably loosely defined, there are similarities between the micaceous fabrics and types described in Early Historic contexts in this region and those in this assemblage. Both Hamlapuri and Mandhal are described as ‘single culture’ Vākāṭaka sites with ceramic assemblages dominated by micaceous red and black wares (Bhaisare, 2010-2011:104). A large number of micaceous wares were assigned to the Early Historic period in Smith’s survey of Kaundinyapura, and described as being of coarse, pale red clay with up to 40% fabric mica. The presence of micaceous wares was used to suggest regional trade and a preference for this aesthetic, as mica is not local to Kaundinyapura and the closest

source is around 70km to the east, towards the Nagpur district (Smith, 2002a:145). At Pauni, coarse micaceous red wares with small mica flakes as a 'degraissant', were most common in the later Sātavāhana period (Deo & Joshi, 1972:65). Similarly at Paunar, coarse red micaceous wares occur in larger quantities from Periods IIA and IIB **(**4th/3rd century BC to 2nd/3rd century AD) (Deo & Dhavalikar, 1968:29). Further afield, micaceous wares were found from Period II (*c.*50 AD onwards) at Shamalaji (Mehta & Patel, 1967:18), and Period VI (200 to 500 AD) at Maheshwar and Navdatoli (Sankalia, *et al.*, 1958:159).

Table 7-10. Vessel types which are exclusively found in the micaceous ware families and their proposed phase based on published parallels.

Type	Vessel shape	Proposed phase
44	Dish	II/III
47	Carinated handi	II/III
49	Carinated handi	III/IV
51	Carinated pot	
54	Globular pot	II/III
57	Globular pot	II/III
134	Globular pot	
139	Globular pot	
187	Flanged pot	I/II

Some indication of chronology may be ascertained from vessel shape; a number of types are exclusively represented across the micaceous wares, and mostly correspond to published parallels from Early Historic contexts. The large amount of micaceous ware reported from Paunar Period III particularly occurs in distinctive shapes, such as the carinated handi and globular pots (Deo & Dhavalikar, 1968:50), while similar mica-dusted handi and wide-mouthed carinated vessels are reported from Devnimori (Mehta & Chowdary, 1966:69). Micaceous wares, often *handis*, are reported in excavations from Arabia and are presumed to have been traded from ports in the Gujarat and Maharashtra area (Kervran, 1996:42). In the ceramic assemblage at Sanchi, Shaw also notes that the micaceous wares are often found in the form of carinated cooking vessels (Shaw, 2007:108).

The most common type (44) identified in the Micaceous wares has parallels with published examples from Pauni period IV (1st century BC to 3rd century AD), Nevasa period V (50 BC to 200 AD), Vaisali period IV (200 to 600 AD) and Sanchi (3rd to 2nd century BC) which supports a generally Early Historic chronological range. The second most common type (47) also related to Pauni period IV and to period III at Paunar (3rd to 8th century AD).

7.3.2.1. Mica1 ware family

The Mica1 ware family broadly encompasses the fabrics described as 'orange micaceous wares', which are frequently found together in significant numbers and tend to be coarse, uniformly orange in colour with minimal surface treatment.

Table 7-11. Individual ware types contained within the Mica1 ware family, and the count of sherds within each type.

Ware type	Count
ORM1	40
ORM2	96
ORM3	150
ORM4	47
ORM4.RS	48
ORM5	75
ORM5.RS	25
ORM6	100
ROM	82
Total	**663**

There is a large range of vessel types across this ware family. There are 41 defined types, 24 of which are only represented by one example in this ware, and there are 5 unique shapes. The types primarily represent a range of simple bowls, lid-cum-bowls, globular pots, and long necked jars with the most common types being carinated *handis*. Types 18 (small bowl with bifacial rim) and 48 (carinated cooking vessel) are exclusive to this ware family. A number of the Mica1 types show some correlation with other wares, particularly other micaceous wares as in types 47 and 49, or both micaceous and red wares (e.g. types 11, 37, 55 and 74).

Table 7-12. The main vessel types identified within the Mica1 ware family, and the count of examples per type. The vessel types displayed here have over 3 examples in this ware family.

Vessel type	General shape	Count
55	Carinated handi	40
49	Carinated handi	20
11	Bowl	17
37	Lid-cum-bowl	6
48	Carinated pot	6
47	Handi	5
74	Jar/vase	5
100	Pot	5



Figure 7-2. The most common vessel shape present in the Mica1 ware family.

In terms of the proposed chronology, a number of the more utilitarian vessel shapes are found across different chronological phases in published reports, but the most commonly occurring types have published parallels dated to the Early Historic period. Type 55 is the most common rim in the Mica1 ware family and has parallels to carinated handis in micaceous wares at Bhokardhan (Period IA, 2nd to 3rd century BC) (Deo & Gupte, 1974). Type 49 is one of the most common vessel shapes in micaceous ware in the assemblage and has parallels to micaceous carinated vessels at Maheshwar and Navdatoli (period VI, 200 to 500 AD) but also resembles rims from 7th century AD Sanjan (Nanji, 2011; Sankalia, *et al.*, 1958). Type 48 is another form of carinated pot with published parallels from Nevasa period IV (150 to 50 BC), Pauni period II (300 to 100 BC) and Timbarva period I (400 BC to 0 AD). Type 37 has similarities to lids from period III of Baroda (600 to 1000 AD). Type 74 is recognisable in shapes from Pauni period II (4th to 2nd century BC), Baroda period II and Devnimori, while type 100 can be compared to sherds from period II at Timbarva (0 to 300 AD) and Late Sātavāhana Kaundinyapura (references as before). The

majority of published types correspond to Phases II/III in the project's working chronology however a number are seen to extend beyond the limits of the Vākāṭaka period, into what would be deemed the Early Medieval. The Mica1 wares generally have no obvious decoration but some sherds display a simple decorative range of incised horizontal lines and slashes and small notches similar to those described at Mansar (c. 5th century AD) (Manjhi, *et al.*, 2000:56). There are also rare examples of the 'basket'-impressed or incised ware.

7.3.2.2. Mica2 ware family

The Mica2 family is the largest group of micaceous wares, and second only to grey/buff wares in the overall assemblage. This group includes the harder, more compact micaceous fabrics with a black core. These ceramics are less orange in colour than those in Mica1, and have been generally subjected to more surface treatment such as thicker red slips.

Table 7-13. Individual ware types contained within the Mica2 ware family and the count of sherds within each type.

Ware type	Count
BOM1	86
BOM1.RS	166
BOM2	89
BOM2.RS	251
BOM3	33
BOM3.RS	118
BOM4	75
BOM5	144
BOM5.RS	105
BOM6	115
BOM6.RS	11
ORM1.RS	35
Total	**1228**

This ware family has a very large range of vessel shapes, covering 76 types and a further 18 unique types. Of the 76 defined types, 21 are represented by only one example. A number of types exclusively occur in Mica2 wares (types 15, 17, 45, 50,

52, 118, 128 and 186) and these include simple bowls, carinated vessels and globular pots. As with the Mica1 ware family, the most common type (47) is a carinated handi and a number of the frequently occurring types are shared across the two micaceous ware families. There is a particular association of types with other micaceous wares, and some of the vessel shapes common to Mica2 wares are also present in meaningful amounts in red and red burnished wares (e.g. types 53 and 58). A number of the types appearing more commonly in Mica2 wares than Mica1 wares have a range of comparable published shapes dated to the Early Historic to Early Medieval period. For example, type 75 is similar to a red ware vase dated to 2nd century BC to 6th century AD at Sanchi (Shaw, 2007) as well as rims from Early Historic (Sātavāhana) Kaundinyapura, Baroda period II (100 to 600 AD), Timbarva period I (400 BC to 0 AD), Paunar period III (3rd to 8th century AD) and Bhokardhan period IA (2nd to 3rd century BC). In terms of decoration, the Mica2 wares generally feature incised horizontal lines and small notches as in the Mica1 wares. There are also occasional examples of the stamped floral motif, typically associated with Gupta period ceramics onwards.

Table 7-14. The main vessel types identified within the MICA2 ware family, and the count of examples per type. The vessel types displayed here have over 4 examples in this ware family.

Vessel type	General shape	Count
47	Handi	29
146	Pot	25
100	Pot	23
49	Carinated handi	21
151	Jar	16
24	Bowl	14
150	Jar	13
75	Jar	11
26	Bowl	10
152	Jar	10
53	Pot	8
58	Pot	8
148	Jar	8
11	Bowl	7
143	Jar	7
155	Jar	7
73	Jar/vase	6
45	Carinated dish	5
99	Lidded jar	5

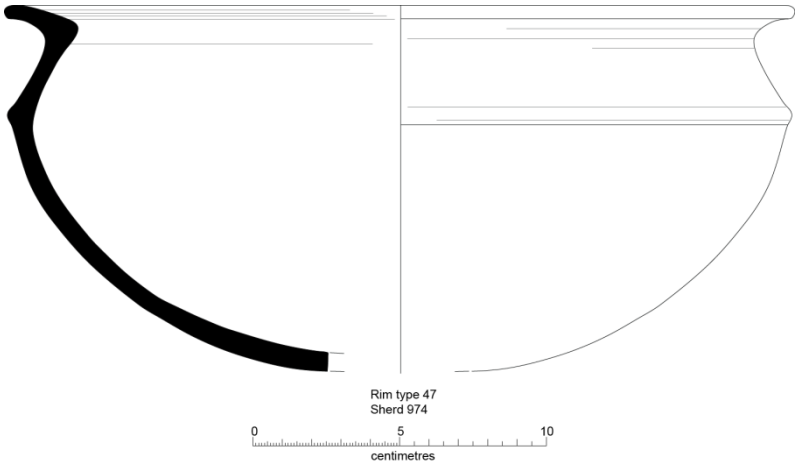


Figure 7-3. The most common vessel shape in the Mica2 ware family

The most common vessel types do appear to have published parallels which usually correspond to phases II and III in the project chronology. Type 146, a globular pot with a split rim, is particularly interesting as an example was found at the 5th century remains at Mansar, which may strengthen the association of this ware and type with Vākāṭaka activity. However, the types present in Mica2 often show a wide distribution across other wares and can have published parallels extending into later phases (IV). For example, Type 150 has a wide range of parallels in publications covering Early Historic to Medieval phases, however has only been found to be comparable to published vessels in very different fabrics (Deo & Dhavalikar, 1968; Nanji, 2011; Subbarao, 1953) This highlights the potential for certain forms to have long periods of use for particular functions.

7.3.2.3. Dark Mica ware family

Dark micaceous wares are relatively rare in comparison to other micaceous wares and tend to appear at the same sites as Mica2 ceramics in particular. The four wares included in this family are differentiated from other micaceous wares by their fabric colour, which varies from grey to dark brown. Published reports make little reference to dark micaceous wares, although ‘micaceous black wares’ were reported from the excavations at the Vākāṭaka sites of Hamlapuri and Mandhal (Bhaisare, 2010-2011:104).

Table 7-15. Individual ware types contained within the Dark Mica ware family and the count of sherds within each type.

Ware types	Count
COM	25
DARM	133
DARM.RS	104
FIDAM	43
Total	**305**

There are 42 vessel types and 8 unique shapes within this ware family, but the vast majority are only represented by one or two examples. As seen in other micaceous wares, carinated handis are most common and other broad types include globular pots and lid-cum-bowls. All of the most common types presented below relate to the most common shapes in the micaceous wares already discussed. The types present in Dark Mica ware show a wide distribution across other wares, but primarily match those in other micaceous fabrics. Published parallel types have a broad chronological range, relating to phases II-V in this project. Furthermore, the decoration on Dark Mica wares mostly does not differ to the red micaceous ceramics as it is dominated by oblique notches or incised horizontal lines with occasional wavy lines.

Table 7-16. The main vessel types identified within the Dark Mica ware family, and the count of examples per type. The vessel types displayed here have over 2 examples in this ware family.

Vessel Type	Vessel shape	Count
49	Carinated handi	12
47	Handi	6
153	Pot	6
37	Lid-cum-bowl	4
152	Jar	4
24	Bowl	3
53	Pot	3
58	Pot	3
104	Jar	3
146	Pot	3

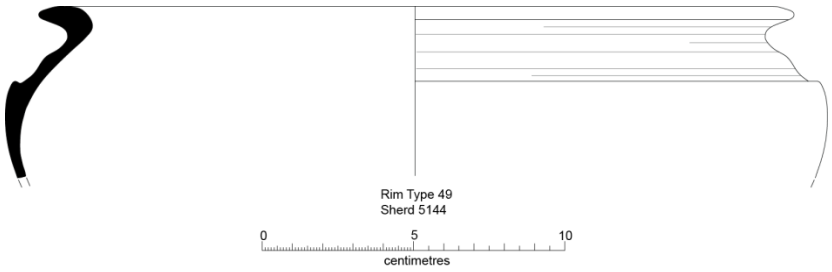


Figure 7-4. The most common vessel shape in the Dark Mica ware family.

7.3.2.4. Other Micaceous ware family

This ware family only contains the Patchy micaceous fabric, which is considered on its own due to its distinct appearance and limited distribution. The majority of sherds were collected from a discrete scatter at one site (49), and all sherds were of a single type (11, plain bowl), which is ubiquitous across all phases of published sequences. This bowl type features no decoration and is formed with the commonly identified string cut base. A specific production and use is implied for this ware, as it was considered to skew the results if included in the other micaceous families.

Table 7-17. The count of sherds within the ware type 'PATCHY', which constitutes the 'Other Mica' ware family.

Ware type	Count
PATCHY	103

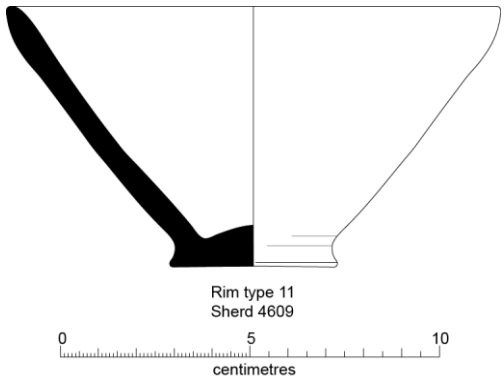


Figure 7-5. Type 11, which is the only vessel shape identified in the Patchy micaceous ware.

7.3.3. Red Ware family

Red wares are the third most common ceramic family in the assemblage, and are represented by 794 sherds across 76 sites. Two broad sub-groups were originally defined, consisting of those with a solid red/orange core and those with a black/grey core. There were also slipped and unslipped varieties, and mica is occasionally found added into the red slip, similar to the red slipped wares described at Pauni (Deo & Joshi, 1972:65). Regardless of core colour and surface treatment, all the red wares grouped here appear to behave in a similar fashion and mostly co-exist.

Table 7-18. Count of ceramic sherds within each ware type in the Red ware family.

Ware type	Count
RBC3	165
RBC3.RS	63
RBC4	41
RED2	228
RED2.RS	46
RED3	87
RED3.RS	14
RED4	63
RED4.RS	7
RED5	3
RED5.RS	19
TOR	58
Total	**794**

The red wares are mostly generic, medium to coarse ceramics with little decoration. There are difficulties in comparing this group to published reports as local, plain red wares can be ubiquitous across sites and periods, and are invariably loosely described (Nanji, 2011:67). Coarse red wares persist throughout all periods at Timbarva (*c.*400 BC to 1000 AD) (Mehta, 1955:6), and are the most common group of wares present across all phases at Pauni (Nath, 1998:27-37). Publications do seem to indicate that the quantity of red wares in excavated assemblages changes over time. Red wares are often cited as becoming more common in the Early Historic, with a particular predominance from the Sātavāhana period onwards. At Pauni, red ware is the primary Sātavāhana period ceramic (Nath, 1998:37), and red wares dominate Period III at

Paunar (*c.* 3rd to 8th century AD), occurring in high necked jars and carinated handis, which were absent in earlier periods (Deo & Dhavalikar, 1968:50, 115). An abundance of red wares in Early Historic contexts is noted in Period V (150 BC – 250 AD) at Adam (Nath, 1992a:76), and Period II (100 to 600 AD) of Baroda (Subbarao, 1953:36). Red wares with a red wash were abundant in Periods IV and V at Nevasa (*c.* 150 BC - 200 AD) in a wide range of utilitarian shapes (Sankalia, *et al.*, 1960:277). The quantity of red ware is suggested to decrease across the Medieval period, as suggested at Brahmapuri where red ware is limited in the Bahmani layers but present in large quantities in the 'Late Sātavāhana' period (4th to 9th century AD) (Sankalia & Dikshit, 1952:62).

Occasional studies have attempted to distinguish between earlier and later red wares based on decreasing quality of firing and ceramic fabric. This has little support and such suggestions may have been influenced by prevalent theories concerning urban decline. A range of firing quality is observed across the red wares in the Rāmṭek assemblage, but this does not seem to correlate with phasing. There is a long tradition of red wares in India, which may not have changed substantially, as publications often note similarities between Early Historic and Medieval red wares (Nanji, 2011:68). For example, coarse red ware is present in all historical phases at Nevasa, and many shapes and fabrics continue across Periods V and VI despite an 800 year break in occupation (Sankalia, *et al.*, 1960:277). Vessel types are more likely to indicate chronological change, but due to the functional nature of many red wares, generic vessel types can be ubiquitous.

The red ware rims occur in 48 types, with 30 of these represented by one or two examples. There is an additional 14 unique rim shapes, but no vessel types were exclusive to red wares. The most common type is 11, a plain bowl which primarily occurs in red and micaceous wares. Other common vessel shapes include various high-necked jars/vases, globular pots and lid-cum-bowls. A number of the common red ware types are regularly found in micaceous wares, while others show a broader range across other ware families, such as grey/orange or red burnished wares.

Table 7-19. The main vessel types identified within the Red ware family, and the count of examples per type. The vessel types displayed here have over 4 examples in this ware family.

Vessel type	Vessel shape	Count
11	Bowl	38
76	Jar/vase	16
86	Jar	9
24	Bowl	8
64	Jar	8
74	Jar/vase	7
37	Lid-cum-bowl	6
73	Jar/vase	6
100	Pot	6
93	Jar	5
121	Jar	5

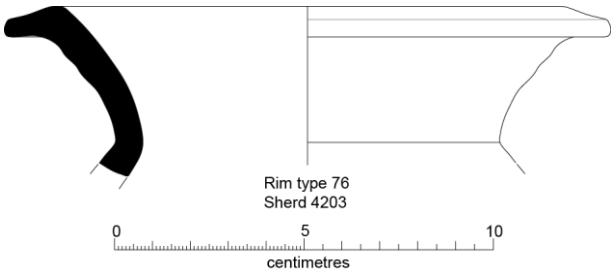


Figure 7-6. A common jar form in the Red ware family.

Aside from type 11, the most common shape (Type 76) shows distinct similarities with red ware sherds from Pauni period IV (1st century BC to 3rd century AD), Baroda period II (100 to 600 AD), Timbarva period 1 (400 BC to 0 AD) and Vaisali period IV (200 to 600 AD). Type 64 is comparable to a red ware high necked vessel from period IV at Nevasa (150 to 50 BC) and Mauryan period Kaundinyapura. However, a range of dates is demonstrated by types such as 37 which is comparable to a sherd from period III at Baroda (600 to 1000 AD), and type 93 which has published parallels at Pauni, Timbarva and Paunar which span from 1000 BC to 3rd century AD. Simple red wares are common, probably locally produced and are likely to have existed in some form across a range of time. While the most common types do find parallels in published reports from Phase II/III in the project chronology,

many of the vessel shapes are similar to published examples common across Phase I to IV.

There is often no decoration on the Red ware sherds however when it occurs it is similar in range to that typically found in the micaceous wares. Most common are incised horizontal lines and oblique notches while limited sherds display the stamped floral motif or pinched applique bands. The incised or impressed decoration resembling 'basketry' is most common in the Red ware family and as mentioned appears to be a characteristic style of the Early Historic period (for example, 1st century BC to 3rd century AD at Pauni (Nath, 1998)).

The 'sprinkler' (a specialised type of spout) is one form which is noted in published reports as being particularly characteristic of Early Historic ceramics; examples of which were found in plain red ware during this survey at Nagardhan Fort (site 45) and Kawadak (site 154). Sprinklers are often found in Red Polished ware (RPW), and consequently are associated with Early Historic activity, particularly during the Sātavāhana period (Subbarao, 1958:47). Red ware sprinklers have been described at the Vākāṭaka sites of Hamlapuri and Mandhal; they are considered to have persisted with little change in form from the preceding Sātavāhana period, albeit in a coarser fabric, but are not a post-Vākāṭaka ceramic (Bhaisare, 2010-2011:105). Red ware sprinklers are also noted from the 5th century monuments at Mansar (Manjhi, *et al.*, 2000:56).

Table 7-20. Sites which have reported 'sprinklers' during excavations and the relevant phasing in which this sherd type was encountered.

Site	Period	Reference
Brahmapuri	Sātavāhana	(Sankalia & Dikshit, 1952:82)
Devnimori	c. 2nd-4th century to 7th/8th century AD	(Mehta & Chowdary, 1966:78)
Kaundinyapura	Sātavāhana period	(Dikshit 1968)
Maheshwar & Navdatoli	Period VI (200-500 AD)	(Sankalia, *et al.*, 1958:162)
Mansar	Stratigraphy at the site reported to be dated to 300 to 600 AD, and the monuments are seen to be 5th century	(Manjhi, *et al.*, 2000)
Nasik	Sātavāhana, Period III (1st to 3rd century AD)	(Sankalia & Deo, 1955:7)
Nevasa	Period V (50 BC to 200 AD)	(Sankalia, *et al.*, 1960:308)
Vaisali	Period III (200 BC to 200 AD)	(Sinha & Roy, 1969:92)

7.3.4. Red Burnished Red Ware family

Red Burnished red wares are separated from the plain red ware family, due to their distinctive material characteristics and a comparatively weak correlation with other red wares. Red Burnished red wares contain few inclusions and very little mica, and have a hard, compact fabric with a thick bright or dark red slip with a burnished lustre. Red Burnished red wares are difficult to distinguish in the consulted published excavation reports; burnished red wares are often noted alongside other red wares as in the Shamalaji report (Mehta & Patel, 1967:23), although there is occasional mention of similar wares, such as the red ware with bright red slip common in Period III (600 to 1000 AD) at Baroda (Subbarao, 1953:41). Burnished red wares have been described as one of the two basic types of Indian Medieval ceramic, alongside burnished black ware (Mehta, 1979:42). However, Medieval ceramics are often overlooked in publications of Early Historic sites, and so there may be a lack of information about these wares if they relate to a later period.

Table 7-21. Count of ceramic sherds within each ware type in the Red Burnished Red ware family.

Ware type	Count
RBC1.RS	138
RBC2.RS	356
RED1.RS	58
TORRS	148
Total	**700**

A number of the types represented by red burnished red wares support the theory that they are distinct to plain red wares. There is a large range of vessel shapes with 60 defined types and 11 unique shapes. 40 of the 60 vessel types are represented by only one or two examples, and types 31, 160 and 163 exclusively occur in this family. A number of the vessel shapes are also common in plain red wares and micaceous wares, but a meaningful similarity to the grey/buff wares may be inferred from the majority of types. Common types in Red Burnished ware (such as 24, 148, 149, 152, 159 and 184) are most numerous in Grey/Buff wares, and others such as type 43 occur primarily in Red Burnished wares but have limited examples exclusively in

grey/buff wares. Common forms include varieties of globular pot with a split rim, shallow bowls and dishes. Based on published parallels, several types relate to Phases IV and V in the project chronology, while others are common vessel shapes with earlier parallels from the Early Historic.

Table 7-22. The main vessel types identified within the Red Burnished Red ware family, and the count of examples per type. The vessel types displayed here have over 4 examples in this ware family.

Vessel type	Vessel shape	Count
148	Jar	56
24	Bowl	23
151	Jar	10
43	Dish	9
150	Jar	9
143	Jar	7
149	Jar	6
152	Jar	6
64	Jar	5
159	Jar	5

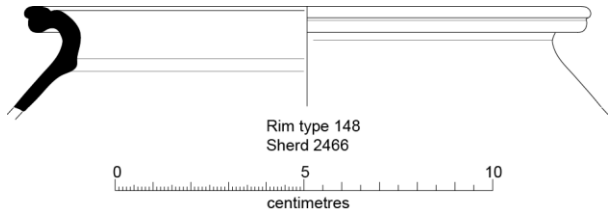


Figure 7-7. The most common type present in the Red Burnished Red ware family.

The most frequently identified types have already been noted in the Mica2 ware family. Aside from these vessel shapes, Type 43 bears similarities to a red ware dish from period VI at Baroda with the late dating of the 19th century AD. Type 149 may be comparable to grey or burnished black jars found at Pauni period III (1st century BC to 3rd century AD), Maheshwar and Navdatoli period VI (200 to 500 AD). Such early data ranges stand in contrast to the chronology of other vessel shapes such as Type 159, which has been related to a globular jar in a drab black ware at Paunar (period IV, 10th to 16th century AD). This demonstrates the possibility of a broad chronology for certain types. In terms of decoration, the Red Burnished wares are primarily plain but the most commonly found feature are simply horizontal lines

running around the shoulder of vessels. This type of decoration is more common in Red Burnished wares than in the red and micaceous wares already described. Occasional sherds have incised lines or notches and there are a few examples of the stamped floral motif.

7.3.5. Grey/Buff ware family

The Grey/Buff ware family is the most common ceramic group in the Rāmṭek assemblage, and contains the most numerous individual ware (GW.BLS). This family has a distinct fabric, and displays a different range of types. Grey/Buff wares are hard-fired with a medium to coarse, fairly compact fabric, which is usually uniformly light grey. The wares contain small grits as inclusions and mica is very rare in the ceramic fabric. Occasionally mica is present in the slip, which is usually black or greyish-brown in colour and burnished.

Table 7-23. Count of ceramic sherds within each ware type in the Grey/Buff ware family.

Ware type	Count
BAG.BLS	300
BUG	40
BUG.BRSL	85
GW	192
GW.BLS	796
TIG	26
Total	**1439**

The black slipped grey wares included in this family are not comparable to early black slipped wares mentioned in excavation reports as being present in Prehistoric and Early Historic contexts. The fabrics and shapes here are more akin to much later grey wares; Medieval plain and burnished black wares are described as being gritty, fired in a reduced atmosphere, and occurring in a range of utilitarian shapes such as cooking vessels, bowls, dishes and pots (Mehta, 1979:42). At both Pauni and Paunar coarse and burnished grey wares are recorded as Medieval ceramics (Deo & Dhavalikar, 1968:70; Deo & Joshi, 1972:57). Burnished and coarse black slipped

grey wares were recorded at Medieval Sanjan (Nanji, 2011:69), and are found in Period VII (Muslim-Maratha) at Maheshwar and Navdatoli (Sankalia, *et al.*, 1958). At Timbarva and Baroda, black burnished wares are considered to become prevalent from around 600-1000 AD (Mehta, 1955:6; Subbarao, 1953:41). Further afield, Indian black slipped and burnished wares with a lack of fabric mica, were reported by Kennet as present at Ras al-Khaimah around the 7th or 8th century AD (Kennet, 2004a:89). Publications seem to suggest that black slipped wares became common from this period alongside a reduction in red wares, as at Brahmapuri (Sankalia & Dikshit, 1952:55).

An increased amount of decoration is characteristic of the Grey/Buff ceramic sherds in this assemblage. Many sherds display simple incised horizontal lines around the shoulder and neck portions, and stamped floral/sun motifs are almost exclusive to this ware family. Extensively decorated rims are considered a feature of Medieval ceramics, for example grey ware vessels with "elaborate grooved rims" were found during survey at Talapada and compared to those in Medieval layers at sites such as Golbai Sasan and Manikapatana in Odisha (Mohanty, *et al.*, 2014:59). Common to the Grey/Buff wares in the Rāmṭek assemblage are distinct globular pots with in-turned rims and often an ornate flange. Within the 52 vessel types and 8 unique shapes are a number of distinct shapes which are unique to this ware family (types 23, 32, 42, 108, 124, 170; various shallow bowls and globular pots). The most common types in Grey/Buff wares tend to occur in Red Burnished wares or red ware with a black slip (examples include types 24, 148, 149, 152, 156, 158, 159, 180, 183, 184 and 185), which may suggest that these ware families are closer in date that others; the grey/buff ware vessel types have the least amount of overlap with the Red and Mica1 ware families, and the different range of types is likely connected to a chronological separation.

Many of the most frequently identified shape types in the Grey/Buff ware family are either common to previously discussed wares, such as Mica2, or currently find no parallel in the available published literature. However, several of the globular pots are comparable to vessels from later levels of sites, such as Medieval Sanchi or period IV at Dwarka (10th century AD to Medieval period). The most distinctive element of the Grey/Buff is the common decoration of applique flanges or ledged carinations. Other

forms of decoration include a range of wavy or straight incised horizontal lines and more common occurrences of the stamped floral motif.

Table 7-24. The main vessel types identified within the Grey/Buff ware family, and the count of examples per type. The vessel types displayed here have at least 10 examples in this ware family.

Vessel type	Vessel shape	Count
24	Bowl	77
148	Jar	69
40	Shallow dish	47
159	Jar	47
152	Jar	34
183	Pot	34
149	Jar	23
184	Flanged bowl	17
169	Jar	16
158	Jar	13
111	Pot	12
155	Jar	11
180	Pot	11
156	Jar	10
168	Pot	10

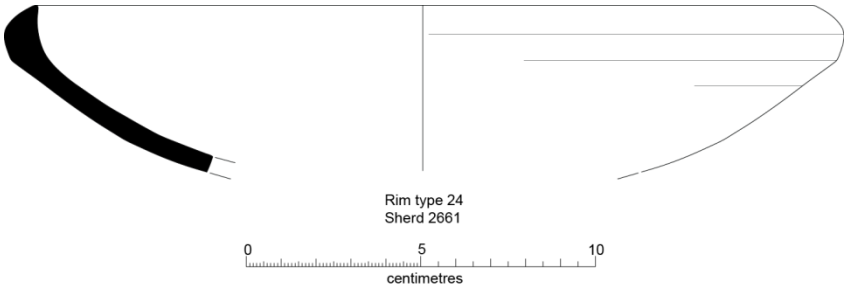


Figure 7-8. The most common type present in the Grey/Buff ware family.

Grey/Buff sherds were almost entirely surface finds, most commonly associated with modern villages and their surroundings. This, alongside the phasing indicated by the published parallels for ceramic fabric and vessel shape, seems to suggest that they are late, post-Early Historic ceramics. It is difficult to establish an exact date range given

that there is often a lack of published information about Early Medieval and Medieval ceramics, and consequently a number of the vessel shapes do not have a parallel in the consulted reports. However, it can be stated confidently that this is the latest group of ceramics in the Rāmṭek assemblage.

7.3.6. Less common ware families

7.3.6.1. Gritty ware family

Gritty wares are defined by the great quantity and size of grits present in the ceramic fabric, and their hard-fired, heavy and stony qualities. These ceramics have little surface treatment beyond occasional slips, and all except two varieties (GRW and GRW.RS) contain large pieces of mica or micaceous stone in the ceramic fabric. Gritty wares are found at a limited number of sites, including those with Black and Red ware, and are generally associated with red and micaceous wares. Gritty wares very rarely occur at sites dominated by red burnished or grey/buff wares, both of which are considered to be later in the relative chronology. These associations may suggest a prehistoric or Early Historic phasing: In reports, gritty wares are mentioned in Period IV (2nd half of 1st century BC to 3rd century AD) of Pauni (Nath, 1998:37), and Period II (0-300 AD) at Timbarva (Mehta, 1955:6).

Table 7-25. Count of ceramic sherds within each ware type in the Gritty ware family.

Ware type	Count
GROMIT1	26
GROMIT1.RS	24
GROMIT2	71
GROMIT2.RS	31
GROMIT3	51
GROMIT3.RS	10
GROMIT4	7
GRW1	18
GRW1.RS	20
Total	**258**

The gritty ware rims can be assigned to 22 types and 5 unique shapes, with most types only represented by a couple of sherds. The most common type (65), and types 67, 87 137 and 173, are primarily represented by this ware family, with occasional micaceous or red ware examples. The most common types in this ware family are heavy storage jars or jars with long flaring rims which seem suited for pouring, and may imply a functional reason behind the high grit content of these wares. No sherds display decoration which may support the identification of the sherds as part of utilitarian vessels. The vessel shapes are quite common but a number are similar to vases with out-flaring rims said to be common at Megalithic sites (Shete, 2009:74).

Types 65 and 87 find parallels in gritty red ware vessels from Early Historic Kaundinyapura, with 87 also being comparable to sherds from period I at Dwarka (1st to 2nd century BC), Pauni period IV (1st century BC to 3rd century AD), Timbarva period I (400 BC to 0 AD) and Paunar period III (3rd to 8th century AD). Type 67 also supports a fairly early date range for these ceramics as it bears similarities to sherds from Pauni period II (3rd to 1st century BC). The remaining, most common shapes in the gritty ware all correspond to date Early Historic data ranges. This supports a relatively early phasing for this ware, from perhaps the late prehistoric to Early Historic periods.

Table 7-26. The main vessel types identified within the Gritty ware family, and the count of examples per type. The vessel types displayed here have over 2 examples in this ware family.

Vessel type	Vessel shape	Count
65	Jar/vase	19
87	Jar/vase	14
67	Jar	10
11	Bowl	9
60	Jar	9
179	Heavy pot	4
137	Jar	3
173	Pot	3

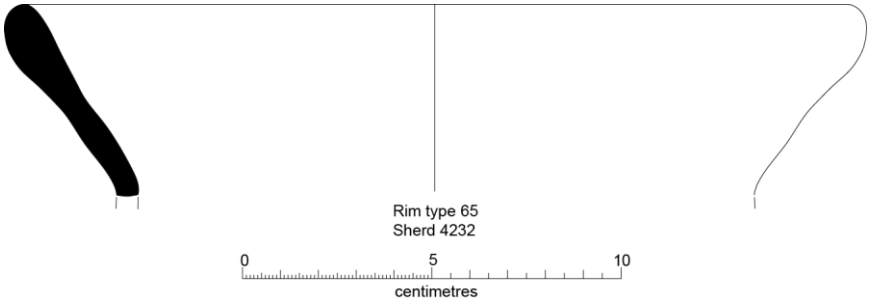


Figure 7-9. The most common type found in the Gritty ware family.

7.3.6.2. Storage wares

The storage jar wares have been separated out due to their low quantity in the assemblage and their specific intended function. Compared to standard red and micaceous wares, these ceramic fabrics are thicker and heavier with large rims, and are particularly coarse with little surface treatment and a higher degree of vegetable temper. The functionality and limited number of the storage jar sherds reduces their usefulness in ceramic seriation, as they are utilitarian, lacking in distinctive features and common across phases in publications. However, their presence at sites may indicate specific activities and the storage of goods. The most common types (179 and 192) are both large storage jar rims, and other vessels represented are large globular pots or thick jars. A number of the common types in this ware family are also represented by red and micaceous wares. Type 172 displays similarities to coarse red storage jars from period IA at Bhokardhan and type 136 has parallels to storage jars from around 3rd century BC to 3rd century AD at Pauni and Bhokardhan.

Table 7-27. Count of ceramic sherds within each ware type in the Storage ware family.

Ware type	Count
HRBC	22
HRBC.RS	5
LAST	18
TORM	2
TOW	21
VORBL	52
VORBL.RS	4
VORM	15
Total	**139**

Table 7-28. All vessel types identified within the Storage ware family, and the count of examples per type.

Vessel type	Vessel shape	Count
192	Heavy pot	11
179	Heavy pot	7
73	Jar/vase	1
76	Jar/vase	1
112	Jar	1
133	Pot	1
136	Pot	1
172	Pot	1
189	Jar	1
190	Jar	1
191	Jar	1

7.3.6.3. Grey/Orange ware family

The grey/orange wares are distinct in appearance, with a uniform light grey interior and orange exterior. Most grey/orange wares do not contain mica and have few inclusions overall, although a micaceous variety is present, and some are treated with a thin orange-red slip. They are rare in the assemblage and are difficult to find parallels for in published literature. They are perhaps considered to be a variety of red ware in publications but without access to assemblages, I am unable to identify this more closely.

Table 7-29. Count of ceramic sherds within each ware type in the Grey/Orange ware family.

Ware type	Count
GOW1	47
GOW1.RS	21
GOW2	37
GOW2.RS	6
GOWM	28
Total	**139**

Grey/orange ware rims display 22 types and 2 unique shapes, but all are simply represented by one or two examples. Type 69, which is a variety of long necked jar, is exclusive to this ware family. One sprinkler was found in this ware, which may suggest an Early Historic date, as in the red wares. It is further noted that grey/orange wares are particularly found associated with red wares. This may corroborate the suggestion that this ware could be absorbed within broader red ware groupings in publications.

7.3.6.4. Black slipped red ware family (Red BLS)

Black slipped red ware is rare within the assemblage as 47 sherds were collected. While not numerous, as with other less commonly identified sherds, its distribution may be indicative of aspects of occupation patterns or activity in the landscape. It is visually distinct, and does not fit the pattern of the red ware family; black slipped red ware is more similar in occurrence and type to the red burnished red wares and grey/buff wares. A similar ware is mentioned as occurring across most of the occupation sequence at Sanjan, with the highest concentration being in layer 5 (from 7th or 8th century AD) (Nanji, 2011:76). At Brahmapuri, black slipped red wares become common in the late or post-Sātavāhana period through to the Bahmani period, alongside other black slipped wares (*c.* 4th to 16th century AD) (Sankalia & Dikshit, 1952:55).

Table 7-30. All vessel types identified within the Red BLS ware family, and the count of examples per -type.

Vessel type	Vessel shape	Count
159	Jar	4
148	Jar	3
24	Bowl	1
100	Pot	1
111	Pot	1
156	Jar	1
184	Flanged bowl	1

Examples of 7 rim types in RED.BLS were collected; the most common of these types are primarily represented by grey/buff wares, and type 148 is also numerous in red burnished wares. Type 100 is the exception as it is a common vessel across all ware families. Where published parallels have been found for the types present in RED.BLS, they seem to indicate a Phase IV or V date for this ware.

7.3.6.5. 'Unknown' wares

The 'unknown' ware family contains over-fired red wares, ceramic fabrics which could not be classified and BLARB, which is a rare burnt ceramic fabric not identifiable to its original ware group (almost certainly a red ware, but charring precludes an exact ware definition). The 'unknown' ware family only incorporates 87 sherds and is not used in the ceramic seriation, given that it is a broad grouping of largely dissimilar and unclassified fabrics. For example, the NON-ID category contains unique micaceous wares, including one with a golden micaceous slip, as well as various red wares.

Table 7-31. Count of ceramic sherds within each ware type in the Unknown ware family.

Ware type	Count
BLARB	7
NON-ID	31
RED.OF	49
Total	**87**



Figure 7-10. Two sherds included in the ware group NON-ID: a) Sherd 3317 with a golden micaceous slip, b) Sherd 4221 which is also micaceous but has a light pink fabric and a friable texture.

7.4. Ceramic Seriation

Some suggestion of chronology is provided by the published parallels for ceramic wares and types, and it is both difficult to stray too far from published schemes and useful to keep the ceramic typology comparable to other collections, in order to have meaningful discussion about different assemblages. The resolution of ceramic dating based on comparisons is not nuanced enough to refine the chronological divisions (I-V and modern) outlined in chapter six. A particular issue is the potential to identify pre-Vākāṭaka, Vākāṭaka and post-Vākāṭaka ceramics in order to sub-divide the overall Early Historic and Early Medieval periods (II-IV). The intermediate phase of the Early Historic to Medieval transition period is notoriously difficult to determine with surface assemblages alone, given the issues related to the excavation of Early Medieval sites and interpretation of remains. Attempts to establish a relative phasing are important for surface ceramic assemblages, in order to be able to make statements about changes in ceramic distribution, which may relate to periods of occupation at sites. It was hoped that more nuanced phases could be recognised within the broadly defined Early Historic red and micaceous wares. To achieve this, ceramic seriation was used to identify ware and type associations and investigate relationships between wares; those which commonly co-occur, and those which consistently do not co-exist (an overview is provided here, while full charts can be found in appendix 5). With regard to the possibility of Early Medieval remains, it is only feasible to postulate on apparent patterns and associations within this assemblage, and it is acknowledged that definitive categorisation of ceramics to this period is not possible without excavation.

In order to demonstrate the ware associations the data was queried on different levels within Microsoft Access, and manipulated in Microsoft Excel using pivot tables. When all 74 wares were taken into account, the sheer number was difficult to organise in order to identify meaningful patterns in site assemblages. Equally the similarities between some of the ceramic wares can obscure distributions, which is particularly true of the micaceous and red wares that co-occur at many sites in different quantities. To simplify the process, attention was focused on the major sites identified during survey (i.e. those with the largest ceramic assemblages). Discrete sites which yielded over 0.5% of the total assemblage were considered, as opposed to

areas of low density ceramic scatter in transects. This comprised 49 sites and included the major mounded sites with comparatively dense surface scatters.

Table 7-32. Sites used during the initial ceramic seriation

Site	Site area	Sherd count	Sherd %
45	Fort interior	449	8.20%
29	Cut, Rāmṭek hill	230	4.20%
79	Hamlapuri destroyed mound	225	4.11%
348	Old Mandri mound	202	3.69%
197	Hivra mound	180	3.29%
236	Dudhala mound	171	3.12%
49	Scatter, Pushpa Karni	162	2.96%
210	Old Bhijewada mound	159	2.90%
325	Panchala Khurd mound	158	2.89%
289	Old Khodgaon mound	156	2.85%
364	Naharwani destroyed mound	156	2.85%
155	Kawadak mound dig	148	2.70%
318	Panchala mound	147	2.68%
363	Umri mound	135	2.47%
72	SW of fort, mound	128	2.34%
7	Mansar Palace	111	2.03%
353	Kelapur	110	2.01%
262	Chichala mound	107	1.95%
386	Sonpur mound	97	1.77%
352	Old Mangli mound	96	1.75%
122	Dig, Rāmṭek town	91	1.66%
213	Satak tank	89	1.63%
276	Udapur mound	89	1.63%
400	Bhilewada mound	87	1.59%
46	Fort trench	82	1.50%
265	Bada destroyed mound	82	1.50%
241	Fields near Nagardhan	81	1.48%
107	Dig 2, Rāmṭek	80	1.46%
76	West of Fort, mound section	74	1.35%
350	Old Mandri, section	74	1.35%
349	Scatter near Old Mandri	68	1.24%
47	Scatter East of Fort	66	1.21%
71	Dig, SW of fort	62	1.13%
275	Devada rithi, mound	62	1.13%
351	Scatter near Kelapur	56	1.02%
106	Dig 3, Rāmṭek	52	0.95%
94	Scatter, near Kapur Baori	47	0.86%

20	Trivikrama scatter	44	0.80%
316	Lohara mound	43	0.79%
356	Musewadi mound	43	0.79%
116	Dig 4, Rāmṭek	40	0.73%
48	Pushpa Karni	39	0.71%
312	Bori, South	38	0.69%
202	Hivri village	37	0.68%
21	Kevala-Narasiṃha	36	0.66%
59	Mound section, Nagardhan town (West)	36	0.66%
92	Kapur Baori	35	0.64%
196	Hivra, north side	33	0.60%
75	Mound top, west of Fort	29	0.53%

Furthermore, only key wares were considered, which were defined as the most numerously occurring (over 1% of assemblage). This again results in a more manageable and meaningful dataset, and while there is still a large number of sites and wares to work with, clearer patterns of association can be discerned. Using a crosstab query in Access and pivot tables in Excel, sites can be displayed against ware to show relative concentrations of ceramics across the sites. The cells were conditionally formatted to be colour coded based on the percentages of wares. This method may also be carried out using types against wares or sites. At this stage, the ware family groupings could be tested to ascertain how reliably the ware families could be defined; the Black and Red, Red burnished and Grey/Buff wares in particular appear to be coherent. Conversely, the similar behaviour of many of the micaceous and red wares creates difficulties in breaking down this large conglomeration of ceramic fabrics but while there is overlap the broad groupings appear to be supported. In particular the Mica1 wares occur together frequently, while Mica2 wares appear to display a different pattern of association.

The ware families more clearly indicate the interaction between broad ceramic types and patterns of association and change, and so the previous method of seriation was repeated to view ware families against the major sites. The table was conditionally formatted by colour to relate to the lower, middle and upper percentiles of ware family occurrences, and the site data was manually rearranged based on comparative ceramic assemblages. While some sites display a broad range of ware families, several relative phases appear to emerge. Firstly, the Red and Mica1 ware families

frequently co-exist in various quantities, but Mica2 appears to be a distinct group. There appears to be a progression across three phases as follows, from red wares to Mica2 wares with some degree of overlap:

1. A phase with predominantly red wares
2. A phase where red wares overlap with Mica1 wares
3. A phase with predominantly Mica2 wares

It may be suggested that there were different periods of dominant wares, and while these phases are not dated, they can be proposed to be related to historical developments in chapter nine. Such proposed phasings can be further demonstrated by re-arranging seriation tables based on the percentages of sherds from the major ware family (BAR, Red, Mica1, Mica2, Red Burnished and Grey/Buff wares). For example, by organising the sites based on the highest percentages of red wares, it is possible to identify a point where the sherds of a different ware family become more significant in quantity.

Table 7-33. Example table which gives the distribution of red and micaceous wares in sites with over 100 sherds. The data is sorted by quantity of red ware from largest to smallest. This clearly demonstrates the proposed different phasing of the Red ware family and Mica2, with overlap occurring between Red and Mica1 wares. See appendix eight for the full seriation table.

Site No.	Red	Mica1	Mica2	Dark mica	Red Burn	Sherd Count
363	51.1%	5.2%	8.9%	0.7%	4.4%	135
262	32.7%	6.5%	16.8%	3.7%	2.8%	107
72	31.3%	23.4%	7.8%	2.3%	6.3%	128
7	28.8%	21.6%	9.0%	0.0%	12.6%	111
29	27.4%	3.9%	6.5%	1.7%	48.3%	230
353	27.3%	0.9%	3.6%	4.5%	5.5%	110
79	26.7%	53.8%	7.6%	1.3%	0.0%	225
197	21.1%	5.0%	20.6%	5.0%	6.1%	180
364	7.1%	23.1%	51.3%	9.6%	3.2%	156
289	6.4%	9.0%	55.8%	8.3%	3.8%	156
45	3.8%	2.9%	22.5%	8.0%	10.7%	449
49	3.1%	16.7%	15.4%	1.9%	1.2%	162
318	2.7%	1.4%	66.7%	18.4%	5.4%	147
348	2.5%	0.5%	5.4%	2.5%	17.3%	202
236	2.3%	4.7%	61.4%	19.3%	4.7%	171
155	2.0%	2.7%	11.5%	5.4%	17.6%	148
210	1.9%	3.8%	43.4%	9.4%	20.8%	159

Another distinction is clear between the red or micaceous wares and the Grey/Buff wares, which are rarely found together, and this is considered to relate to a chronological separation. The Red Burnished Red wares appear to fit in between these different phases, given that they have a meaningful correlation with Grey/Buff wares but also occur at sites with few grey wares but a higher proportion of earlier red and micaceous wares. It can be noted that Mica2 is more likely than Mica1 to occur at sites with these later wares, which perhaps lends more support to suggestions of a different phasing from the Red and Mica1 wares. Based on the associations of the Red Burnished Red wares, it could be inferred that there is a phase where these ceramics occurred without grey wares, as well as a period of overlap. There is a reasonable case for the grey wares to be the latest ceramics in the relative phasing, given their ubiquity as surface remains and their association with modern villages and Medieval structures.

Ceramic seriation is of some use for understanding less significant wares, and generally supports the chronological suggestions from typological comparisons. It is clear in the limited site assemblages with gritty wares that this family is most strongly associated with red wares, and often found at sites with Black and Red ware sherds. These associations place this ware early in the relative ceramic seriation and may strengthen a proposed Early Historic date or an origin in the Protohistoric period. The storage wares and grey/orange wares seem to largely correlate with the Red and Mica1 wares, which shows some diversity in ware production at this point in the phasing. Dark Mica wares most commonly occur with Mica2 wares, which demonstrates that they perhaps fit into the third phase of the ceramic progression.

7.4.1. Example 'Ware Family' seriations by site

To illustrate the proposed ware family seriation, the example sequences of four example sites are shown below. The spread of wares at these sites effectively demonstrates the potential separate phases as well as the proposed overlapping phases.

Table 7-34. Ware family distributions at the sites of Hamlapuri (79), Bhijewada (210), Mandri (348) and Kelapur (353). Counts are shown as a percentage of the assemblage at each site with the total sherd count given in the final column. Ware families with minimal numbers of sherds have been excluded and the table has been conditionally formatted to illustrate the spread of wares.

Site	BAR	Grit	Grey/ Orange	Red	Mica1	Mica2	Dark mica	Red Burn	Grey/ Buff	Total count
353	16.4	10.0	10.0	27.3	0.9	3.6	4.5	5.5	18.2	110
79	0.0	1.3	1.8	26.7	53.8	7.6	1.3	0.0	0.9	225
210	0.0	2.5	2.5	1.9	3.8	43.4	9.4	20.8	12.6	159
348	0.0	0.0	1.0	2.5	0.5	5.4	2.5	17.3	68.8	202

Firstly, Kelapur (site 353) displays an interesting spread of wares, including both the earliest and latest ware families identified in the assemblage. This site is mentioned in a Vākāṭaka inscription as having been in use or known about during the Early Historic period, which may have some significance for the dating of the common red wares in this site's assemblage. The assemblage at Kelapur is interesting given the lack of micaceous wares if they indeed relate to later Early Historic activity (to be further discussed in chapter nine). Hamlapuri (site 79) is regarded as a purely Vākāṭaka site based on trial excavations, and field observations by the author seemed to support this proposition by confirming the uniformity of the archaeological deposit and identifying a relatively narrow range of wares and types. Hamlapuri is considered to be one of the better-known points from which to work within the Rāmṭek assemblage in order to aid the formation of a meaningful seriation; if the site is Vākāṭaka, Hamlapuri may provide a base for our understanding of the characteristic ceramic fabrics and types for this phase of the Early Historic. If typical of an Early Historic site, the Hamlapuri ceramics clearly demonstrate the association between red and micaceous wares. The less common Mica2 wares at Hamlapuri may indicate a slightly different, perhaps later, phasing. The mound at Bhijewada (site 210) clearly demonstrates the proposed different phasing of Mica2, and the range of ceramics is also demonstrative of the occasional co-occurrence of the Mica2 ware family with seemingly later wares. In this case the Bhijewada assemblage, and the presence of Mica2, Red Burnished and Grey/Buff wares, may be indicative of duration of settlement. Finally, the habitation mound at Mandri (site 348) is an example of a site dominated by Grey/Buff wares representative of later occupation, with a smaller quantity of Red Burnished red wares.

7.4.2. The relative chronology

The relative phasing appears to correlate well with the broad dates suggested by published parallels for the ware types and the diagnostic vessel shapes. When referred to the project's working chronology identified in chapter six, the diagnostic pottery for each phase becomes:

Table 7-35. The working project phasing including information from published reports and the ceramic seriation.

Ware Family	Key notes from published literature	Notes from relative seriation	Proposed phase
BAR	Characteristically prehistoric but extends up to 3rd century AD	Rare in the assemblage but occurs at sites with a predominance of red wares	I/II
Red	Common from the Early Historic but red wares have a long duration. They seem to reduce in quantity by the Medieval. Common across phases II to IV	Red wares may occur in large amounts on their own or are often associated with the Mica1 family. Low levels of red wares are found at most sites with a wide range of wares	Primarily II/III
Mica 1	Micaceous wares appear across general Early Historic phases in excavations. Major types relate to phases II and III	Mica1 is found at sites with red wares and is also frequently present alongside Mica2 wares. Little association with Grey/Buff wares	II/III
Mica 2	Ceramic fabric relates to broadly Early Historic wares. The wide range of types find published parallels between Phases II to IV	Associated with other micaceous wares, less commonly associated with red wares. Appears to be a second phase of micaceous ceramics	II-IV
Red Burn	Few published parallels for fabric, but a wide range of types, primarily related to phases III to V	Most strongly associated with Grey/Buff wares, and occasionally occurs at sites with Mica2 wares. This possibly indicates an intermediate phasing or a long duration of use.	III-V
Grey/ Buff	Medieval ceramic wares with late vessel types	Generally occurs at different sites to red and micaceous wares, but if present it is suggested to indicate duration of settlement, given the proposed chronological separation. Some association with Red Burnished wares, but Grey/Buff wares can also dominate assemblages	V

7.5. Conclusion

The results of the ceramic categorisation in the Rāmṭek survey should not be overstated as there are clear limitations, but a proposed seriation has been constructed. This provides a floating relative phasing based on ware associations. Alongside comparison of ware types with published ceramics and the incorporation of dateable parallels for vessel shape, this has resulted in broad chronological phasing in line with that presented in chapter six. The chronological information is basic, but does reliably demonstrate the earliest and latest wares present in the assemblage, and provides a suggested phasing for the intermediate wares families. A better understanding of the wares and types present and the relationships between different types of ceramics has been achieved; given the lack of firm chronological markers, seriation has produced a reasonable case for ceramic phasing, which can now be tentatively linked to historical developments in the landscape in the next chapter. This theoretical overview leaves much scope for further research as a nuanced phasing of ceramics remains elusive. In particular, it remains challenging to subdivide the expansive Early Historic and Early Medieval periods using this dataset. The assemblage is relatively small and composed of numerous, local wares that can individually be represented by a small quantity of sherds, which makes statistical work very difficult. Comparison to published types to establish potential dates for the ceramics was challenging due to the large degree of variation encountered, and the utilitarian nature of the majority of wares. While the broad phasing can be quite confidently presented, it is fully expected that it will be challenged by further research. It is hoped that more data will be gathered in order to test the theories being proposed in this preliminary study, and continue attempts to establish a reliable phasing of material remains.

Wide-ranging periods of time and broad discussions of spatial and chronological change are still valuable in furthering our understanding of activity and development in the Rāmṭek landscape, given the lack of research in this area. Specific chronological changes may not be reliably stated from this assemblage, but general trends of settlement change can be deduced due to the clear divide between the broadly Prehistoric, Early Historic and Medieval material. The ceramic distributions and phasing at sites make it possible to analyse the spatial spread of ceramic wares in

the Rāmṭek landscape and hypothesise about periods of activity at sites. This becomes particularly important in the next chapter, when the economic development of the landscape is considered.

Chapter 8. The Economic Landscape: Settlement and production in the hinterland of Rāmṭek

8.1. Introduction

Having discussed the overall results of the survey in terms of general findings and the ceramics collection, this chapter will begin to interpret the data to consider the Eastern Vākāṭaka economic investment into the Rāmṭek landscape. One of the thesis aims is to contextualise Rāmṭek in its landscape in order to enhance our understanding of economic change in the 4th to 5th centuries AD. This contributes to our understanding of the Eastern Vākāṭakas' investment in the area and their organisation of production, agriculture and settlement. It is hoped that this will contribute to a deeper understanding of the Eastern Vākāṭakas as a political entity and help to establish the extent of their influence. The evidence presented here primarily concerns settlement and production in the hinterland of the political and religious centre, in order to explore the theory that there was a growth of agrarian settlement under the Eastern Vākāṭakas. The historical narrative suggests that the Eastern Vākāṭakas asserted their dominance over an underpopulated peripheral area, which presented an opportunity for the establishment of a new dynastic centre, and so this chapter seeks to investigate the relationship between this newly established political and ritual centre and the hinterland

This chapter will address three issues focused around the Eastern Vākāṭakas as a political entity impacting on the landscape: the nature of settlement in landscape prior to Eastern Vākāṭaka influence; any visible change under the Eastern Vākāṭakas; and comparison of Early Historic investment in the landscape to later medieval occupation. The ceramic seriation from the previous chapter will be assessed spatially and integrated with other evidence of economic investment into the landscape, including environmental constructions for water management and other features or finds related to agricultural production. The assessment of habitation remains helps to elucidate the rural settlement pattern and indicate changes in the level of past activity across the landscape over time. The survey was fairly successful in identifying

mounds which are important features in the Indian landscape created through the persistence of settlements and a build-up of cultural material. They are often seen as the base of rural archaeology related to settled human life. However, the possibility exists for transient remains to be related to other subsistence strategies, which still form an important aspect of the past landscape economy yet are difficult to locate. This chapter will reflect on what cannot be ascertained about the past landscape from the identified evidence and the potential absences in the data set.

Irrigation systems and tanks form an important part of the Indian landscape as water management strategies have been used since ancient times to increase the availability of water across seasons with variable rainfall (Bauer & Morrison, 2008:2207). Ancient exploitation of water resources in South Asia, and the spatial distribution of water management structures, appears to have been essentially directed by natural patterns of rainfall, runoff and the topography. Given this, it may be suggested that a modern pattern of environmental structures would not be expected to differ substantially from the past (Sutcliffe, *et al.*, 2011:781). Extant water reservoirs around Mansar and Rāmṭek are consistent with archaeological and epigraphical evidence of Vākāṭaka-period constructions, and further water management systems in the hinterland may be indicators of widespread economic investment across the landscape.

The development of ancient water management is closely connected to political and socio-economic change and the spread of urbanisation (Sutcliffe, *et al.*, 2011:783). Evidence of water management strategies may be indicative of factors such as authority of a ruling dynasty, central organisation and mobilisation of the population, size of the rural community and agricultural production (Morrison, 1993:134). Water management systems were also linked to the development of religious landscapes and patronage, which must be considered around Rāmṭek. Shaw and Sutcliffe have discussed the spatial relationship between dams and Buddhist sites in Sanchi, and the pattern of water management systems, which involved landowners, agriculturalists and the Buddhist sangha (Shaw & Sutcliffe, 2003; 2005). By the Gupta period, this arrangement appears to have operated in a Brahmanical system as temples were established as land-holding institutions and were often situated near dams (Shaw, *et al.*, 2007:171). Although secular and religious spheres of activity were in most

likelihood intimately linked, in this current chapter, emphasis is placed on the economic landscape to first establish the economic function of sites. This leads into chapter nine, which considers the religious investments in the landscape, before the evidence is combined to relate to questions concerning the character of Eastern Vākāṭaka polity and kingship.

8.2. Pre-Vākāṭaka settlement and activity

As outlined in chapter two, it is long held that the Eastern Vākāṭakas shifted their capital, and the centre of their sphere of influence, to a relatively underpopulated and marginal area. Initially it was believed that the Vākāṭakas extended the limits of agricultural society and transformed the Rāmṭek landscape. However, the spatial distribution of land-grants and regional archaeological material now suggests that the Eastern Vākāṭaka dynasty was fairly localised within a region with pre-existing populations. Regional archaeology demonstrates a long history of development across Vidarbha, with a degree of influence by the previous centralised authority of the Sātavāhanas. This is particularly meaningful given suggestions that the Sātavāhanas developed Mansar and that the Vākāṭakas capitalised on an area with pre-existing structures and social patterns. It has been theorised that the Vākāṭakas attempted to engage communities through economic and ritual means but little is known about the extent of their actual investment into the landscape. As our understanding of the prehistoric, protohistoric and pre-Vākāṭaka Early Historic landscape of Rāmṭek is limited, it was hoped that survey would identify either a presence or absence of archaeological remains to give a preliminary indication of the level of past pre-Vākāṭaka activity. This was aimed at ascertaining the extent of Vākāṭaka impact on the landscape. It was hypothesised that having asserted their influence at Rāmṭek, the Eastern Vākāṭakas and brought this ‘peripheral’ location into networks of regional production in order to support the prosperity of their kingdom.

The earliest phase of landscape development around Rāmṭek remains elusive after the field survey. It seems likely that Rāmṭek saw at least limited or transient activity given that prehistoric occupation is well attested in the region. No stone tools were identified at Mansar during survey, unlike the findings of the excavations (Joshi &

Sharma, 2005:6). However, a number of worked stone tools were identified from other sites, two of which may be considered genuinely prehistoric while others are of less secure origin, which prohibits a definitive chronological attribution. The first prehistoric stone tool appears to be a Middle Palaeolithic oval flake (Abbas, pers. comm.) and was collected from a low mound near Umri, to the north of Rāmṭek (site 363). The flake was found on the surface of ploughed agricultural fields, in association with brick remains and predominantly Early Historic ceramics. It is not certain that this flake was found in its original location, but it may be taken as evidence of prehistoric activity in the general area. The second worked stone is a core, found approximately 2.5 metres below the top of a section in Dudhala mound, near Nagardhan (site 236). No other material remains were found in the same context, although the layer did contain ashy deposits, and later ceramic and brick remains were confined to the top 50 cm to 1 m of the mound. Again, this contributes to the suggestion of some movement of prehistoric people through the landscape.



Figure 8-1. Section in the mound at Dudhala (site 236) displaying the ashy layer, with the location of find 20 indicated.

The remaining four microlith/flakes and a core were collected from site 265 (‘Bada’), in the vicinity of what appears to be the remains of an Early Historic occupation mound yielding bricks and ceramics. Of these worked stone pieces, two flakes appear to be Upper Palaeolithic in origin, while the others are of an unknown date. Flake

tools are commonly reported across Vidarbha in early, often aceramic, deposits such as Period I at Adam (c. 3rd to 2nd millennium BC) (Dikshit, 1986:12; Nath, 1991:93). However, microliths are known to have continued in use throughout the Early Historic period (Deo & Dhavalikar, 1968; Nath, 1998). Several of the microliths identified during survey may originate from a later period as they are associated with Early Historic material and lack defining prehistoric features. The limited number of worked stone artefacts recovered may be due to the survey methodology and low visibility across the agricultural landscape, as well as an untrained eye for this category of artefacts. However, they are not negligible findings as despite the absence of the remains of prehistoric production activity or sites displaying prehistoric modification of the landscape (as seen elsewhere in the region, such as at Junapani), the presence of stone tools support transient prehistoric activity across the Rāmṭek area.

A lack of visible Megalithic sites and limited prehistoric pottery in the survey data may suggest that the settled Iron Age presence at Rāmṭek landscape was low in comparison to other areas in the region. Iron Age/Megalithic remains would not be unexpected given the strong tradition of Megalithic activity in Nagpur District and reports of Megalithic cairns along the bank of Mansar Lake (Joshi & Sharma, 2000:127). However, no standing remains were identified during this survey; this may be due to site survival or visibility in the agricultural zone or may be a result of the small survey area, which could potentially miss wider patterns of megalithic occupation in the region. The more transient prehistoric occupation of Rāmṭek may have been localised given its more peripheral location and distance from larger rivers.

Black and Red ware is certainly pre-Vākāṭaka, and while it cannot be definitively assigned to the Iron Age, it does suggest occupation of the landscape prior to the establishment of the Eastern Vākāṭaka state. The spatial distribution of sites with Black and Red ware demonstrates that a number are found in the plain south of Rāmṭek hill, but the two sites with the highest quantity of sherds are found north of Rāmṭek hill. The sites are all situated in low-lying areas with close proximity to small rivers or water sources, which may suggest a concern with being located in plain areas suitable for cultivation. The most northerly site of Kelapur (353) has the highest number of sherds and is closely related to the tributaries leading into Khindsi reservoir. The evidence of earlier ceramics at Kelapur is noteworthy as there is

Vākāṭaka literary evidence connecting this village to the construction of Khindsi tank. It could be suggested that this site was established prior to Vākāṭaka rule in the area, either in the Prehistoric or towards the beginning of the Early Historic. This supports the suggestion that the Eastern Vākāṭakas exploited previous investments in the area. Even more striking is the presence of Black and Red ware sherds at Nagardhan, which suggest a long history of use at the site, with probable occupation prior to the establishment of a major Vākāṭaka centre.

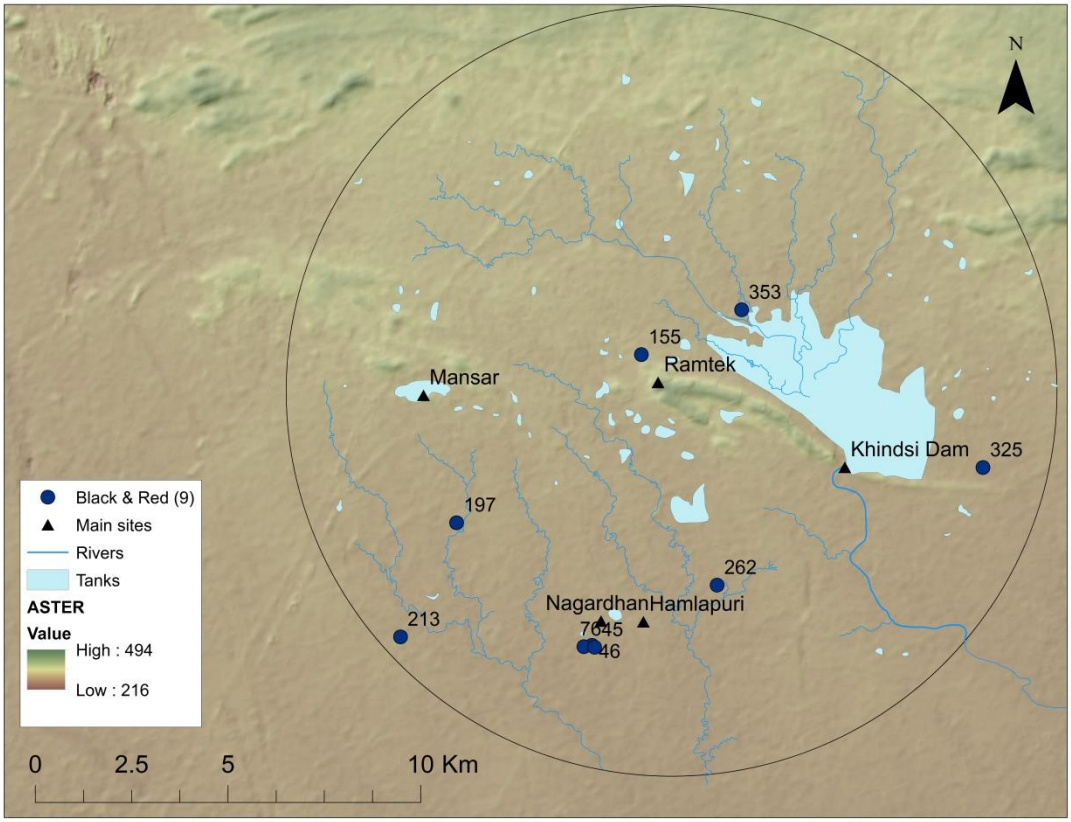


Figure 8-2. Map of the survey region displaying the sites with the presence of Black and Red ware sherds.

Table 8-1. The sites from where Black and Red ware sherds were collected during survey.

Site number	Site name	Count of BAR
353	Kelapur	18
325	Panchala Khurd, mound	9
197	Hivra mound	4
262	Chichala mound	3
45	Fort interior	2
76	Mound section, West Nagardhan	2
155	Kawadak	1
213	Satak tank	1
46	Trench, Fort	1
	Total	**41**

Table 8-2. The ceramic assemblages of each site with Black and Red ware sherds. The table displays the major ware families and the quantities of each appearing at the sites. The ware group 'Patchy' has been omitted as only two sherds were present at Site 213 (Satak).

Site	BAR	Grit	Grey/ Oran	Red	Mica1	Mica2	Dark mica	Red Burn	Grey/ Buff	Total Count
353	16.4	10.0	10.0	27.3	0.9	3.6	4.5	5.5	18.2	110
325	5.7	47.5	3.8	12.0	1.3	8.9	0.6	14.6	3.2	158
197	2.2	22.2	9.4	21.1	5.0	20.6	5.0	6.1	0.6	180
262	2.8	16.8	8.4	32.7	6.5	16.8	3.7	2.8	2.8	107
45	0.4	0.4	0.7	3.8	2.9	22.5	8.0	10.7	47.9	449
76	2.7	2.7	0.0	20.3	17.6	36.5	4.1	6.8	5.4	74
46	1.2	0.0	0.0	2.4	4.9	70.7	13.4	2.4	3.7	82
155	0.7	0.0	0.0	2.0	2.7	11.5	5.4	17.6	58.1	148
213	1.1	16.9	9.0	11.2	22.5	19.1	6.7	3.4	1.1	89

Black and Red ware is typically found at sites with assemblages containing significant amounts of red or micaceous wares, which are considered to be broadly Early Historic (table 8.2). Correlation of the Black and Red sherds with these Early Historic ware groups may demonstrate the prehistoric foundation of sites followed by continuation of settlement into the Early Historic. Alternatively, as the associated archaeological material and site contexts lean towards Early Historic activity, Black and Red ware may have been in limited contemporary use with Early Historic wares, as seen in regional Early Historic contexts.

Low levels of early ceramic evidence may be connected to visibility or preservation, as sherds are less likely to be present on the surface. However, most sites were disturbed, resulting in exposed sections which might be expected to yield earlier archaeological remains if they were indeed present. Furthermore, early ceramic evidence is clearly visible on the ground at prehistoric sites in the region, such as Junapani and Mahurjhari, and so the absence of certain ceramic wares around Rāmṭek appears striking. It is feasible that the area was occupied by groups of people who were not necessarily settled, or who followed a social and economic pattern requiring little ceramic material. If the type of amount of occupation in the landscape did not result in detectable archaeological remains, evidence of past activity may be untraceable through surface survey alone prior to fully settled life and economic change during the Early Historic.

An absence of Pan-Indian potteries and characteristic ceramic wares of the Vidarbha Chalcolithic could also support suggestions that communities within this landscape were transhumant or less engaged with wider production and distribution networks, either due to their peripheral location or social pattern. An absence of early painted wares has been recorded at other sites in this region, such as in Period II A of Paunar ($4^{th}/3^{rd}$ century BC to 1^{st} century BC) (Deo & Dhavalikar, 1968:29). Rāmṭek could reflect the situation at Kaundinyapura where Smith concluded that sites post-dated the Chalcolithic as the vast majority of remains were dated to the Early Historic, with scarce painted wares or Megalithic material (Smith, 2000). Transhumance, seasonal movement and pastoral mobility are known across the Indian subcontinent throughout prehistoric and historical periods and are important adaptive strategies allowing exploitation of the landscape and supporting population. Variations in subsistence strategies are well known from prehistoric contexts across Vidarbha (see chapter two) so it is likely that the Rāmṭek area was home to transhumant groups who are known to have interacted with settled communities (Coningham & Young, 2015:44). The existence of transhumance would therefore have significance for our understanding of the pre-Vākāṭaka landscape as if the Rāmṭek area was not involved in wider systems or networks of production, the comparatively abundant Early Historic evidence signifies substantial changes to the socio-economic nature of people's relationship with the land.

8.3. Early Historic activity and the Eastern Vākāṭakas

The Vākāṭaka arrival (in Phase III of the project chronology) is often assumed to have prompted development of a thriving agrarian economy. This section presents the survey findings related to Early Historic development in order to ascertain whether economic and agricultural developments predated this proposed state-level influence and to consider the extent of the Eastern Vākāṭaka impact on the area. If red and micaceous ceramics are primarily indicative of Early Historic activity then the survey results indicate a clear expansion in settlement size and number alongside a vast increase in the quantity and variety of ceramic fabrics and vessel types at some point in the Early Historic. This implies some socio-economic change resulting in higher requirement, production and usage of ceramics.

The lack of RPW and other distinct pre-Vākāṭaka Early Historic ceramics leads to questions about the nature of settled life during this period of Rāmṭek's development. However, plain red wares and micaceous wares are prolific across sites in the survey area, and bear similarities to the local, everyday wares described in published reports as indicative of the Early Historic period and Sātavāhana activity at regional sites. The relative phasing established during ceramic seriation suggests a higher rate of occurrence between Red wares and the early Black and Red ware which may support hypotheses that the Red ware family contains ceramics representative of pre-Vākāṭaka Early Historic activity. Unfortunately, these ceramics have ambiguous phasing and cannot conclusively be identified as pre-Vākāṭaka wares, resulting in an inability to state definitively at which point in the Early Historic settlements and the economic landscape developed. Red wares are often considered to have no "diagnostic value" because of the duration of this ceramic tradition (Shete, 2009:68). While published parallels are often described as originating from the Sātavāhana period, it is possible that these vessel types and ceramic fabrics persisted throughout the Vākāṭaka phase of development.

The spatial distribution of Red ware sites shows a significant expansion of settlements, both in terms of site number and their geographical spread across the landscape. Red wares are represented at 72 sites, compared to the 9 sites which displayed Black and Red ware. Many of these yield a limited number of sherds but there is a clear increase in the number of sites with significant ceramic assemblages

and several are substantial mounds demonstrating evidence of settled life. The Red ware sites are primarily spread across the low-lying areas south and just north of Rāmṭek hill. This may demonstrate a preference for plain areas which can be theorised to be connected to increasingly settled occupation and perhaps agricultural expansion. The Nagardhan area shows a conglomeration of sherds and a number of small mounds in close proximity, while Mansar and Rāmṭek demonstrate high quantities of Red ware primarily around the monumental centres. Kelapur (site 353) becomes a medium-sized site which again may be related to the inscriptional evidence connecting the site to Early Historic activity. Many smaller sites are found near to small rivers, such as Sonpur (site 386), the area around Old Mandri (Sites 60 and 61), and Bhilewada (site 400). There is an outlying site (Umri, site 363) which shows that sites were not exclusively situated in the more accessible plain, although the site is located on the bank of the small river leading to the Khindsi reservoir, which supports the proposed preference for proximity to water sources.

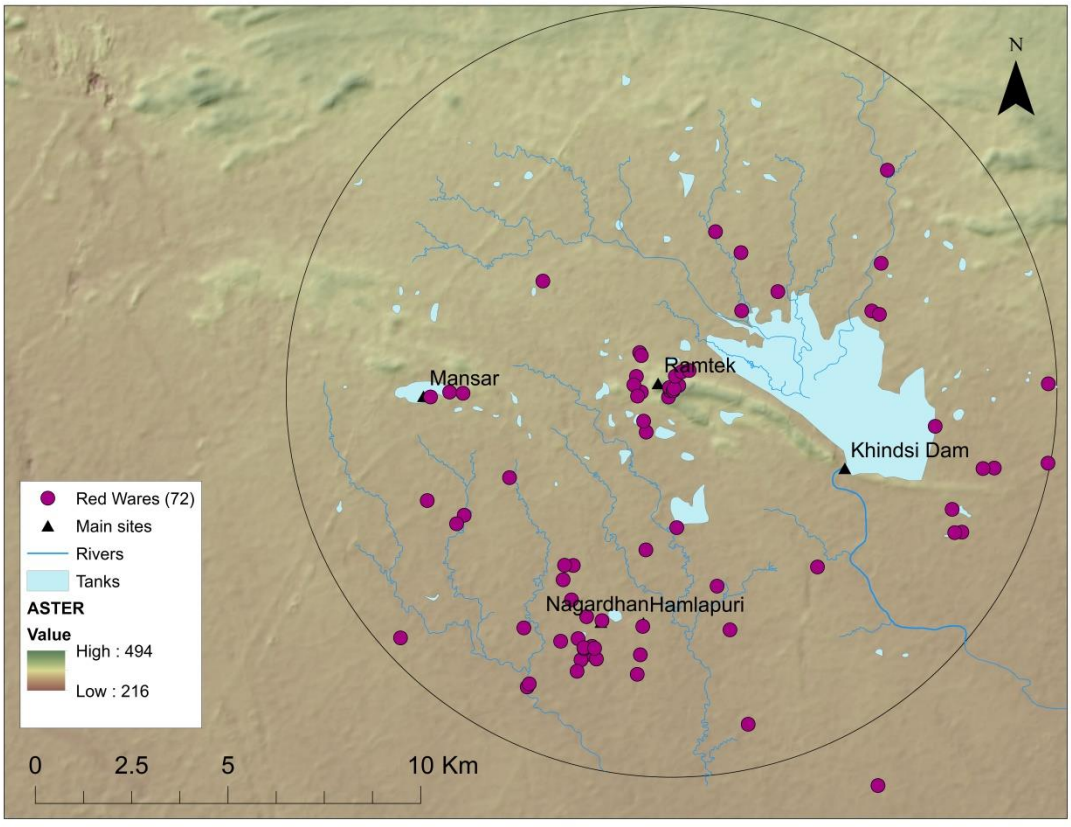


Figure 8-3. Map of the survey region displaying the sites with the presence of Red ware sherds.

Table 8-3. Examples ceramic sequences from the known Vākāṭaka sites in the survey area

Site	Storage	Red	Mica1	Mica2	Dark mica	Red Burn	Grey/ Buff	Total count
29	0.4	27.4	3.9	6.5	1.7	48.3	8.3	230
7	18.9	28.8	21.6	9.0	0.0	12.6	1.8	111
79	3.1	26.7	53.8	7.6	1.3	0.0	0.9	225
72	11.7	31.3	23.4	7.8	2.3	6.3	0.8	128
46	0.0	2.4	4.9	70.7	13.4	2.4	3.7	82

Specific identification of earlier Phase II foundations at Phase III sites may not be possible through ground survey due to material culture continuity or the quality of the data and comparison material. However, the ceramic seriation seems to indicate a phase of sites with an Early Historic Red ware presence but few Mica1 wares - taken to be representative of Vākāṭaka activity – which highlights the potential for a number of settlements to have origins in the Phase II Early Historic. Pre-Vākāṭaka Early Historic (Phase II) occupation represented by Red wares could have encompassed seasonal populations and more settled groups in an expanding agricultural area, upon which the Vākāṭakas imposed their new social and religious order. The association of Red wares with Mica1 wares at other sites may suggest a continuation of settlement into the Vākāṭaka period, indicating that Phase III activity was part of an ongoing development with roots in pre-existing local social change. The arrival of the Vākāṭakas to Rāmṭek may have resulted in the expansion of settlement, an increased number of sites, and the promotion of agricultural and social developments, but these transformations could have been built on earlier foundations.

Given the ambiguity of the Red wares, it could be equally valid to argue that the Phase III saw the highest level of Early Historic investment in the landscape and that the Eastern Vākāṭakas engaged the Rāmṭek area with wider networks of production, prompting the political and socio-economic transformations of the 5th century AD. Red wares are clearly represented at the major sites connected to 5th century Vākāṭaka activity and an association with Mica1 wares seems to be characteristic of the assemblages at known Vākāṭaka sites. The ceramic assemblage at Hamlapuri (site 79) is similar to that around the 5th century monuments on Mansar and Rāmṭek hill and displays prolific red wares alongside Mica1 wares. Despite the wares and types having published parallels comparable to pre-Vākāṭaka Early Historic activity, this

site is considered to be purely Vākāṭaka from test excavations. Similarities between the Hamlapuri 'Vākāṭaka' ceramics and published pre-Vākāṭaka examples may indicate that ceramics of both phases have been grouped in older excavation reports. It may be that there is little distinguishable change across material culture in the broader Early Historic phase and that the Eastern Vākāṭakas arrived at Rāmṭek with a cultural package physically indistinguishable from archaeological remains reported from Sātavāhana contexts. A long duration of wares and the potential for chronologically indistinguishable Early Historic types has implications for our ability to identify particular sub-phases of ceramic production. A comparison of shape types occurring in Red wares across sites does not reveal any reliable vessel shape changes over the phases to aid with assigning a more specific Early Historic date. It seems that with the current dataset it is not possible to determine whether red ware sites were established during Phase II or III.

Supporting evidence for significant Vākāṭaka economic activity comes in the form of monumental remains and inscriptional evidence whereas there is a lack of non-ceramic evidence for significant pre-Vākāṭaka activity. The monumental constructions would logically require support from the rural population, and presumably led to an expansion or intensification of settlement and agrarian activity. If the assemblages at Hamlapuri and Mansar can be used as a point of reference for Vākāṭaka ceramics, then the similar assemblages found at a number of mounds and surface scatters across the survey area could be seen as signifiers of economic activity related to Eastern Vākāṭaka authority. It is interesting to briefly note that the Hamlapuri ceramics collected during survey differ from those described in previous archaeological investigations at the site. While the types are broadly similar and correspond to Early Historic vessel shapes, the majority of ceramic fabrics are plain red wares or coarse micaceous wares, as opposed to the 'Imitated' RPW and fine micaceous wares recorded by Bhaisare (2010-2011:104). Furthermore, contrary to Bhaisare's findings, no black-washed or black-burnished wares corresponding to Early Historic activity were identified, although micaceous black ware ('Dark Micaceous' here) is recorded in small numbers.

Table 8-4. Sites in the survey area with significant quantities of Red and Mica1 wares, as at Hamlapuri and Mansar (included within the table).

Site	Site name	Red count	Mica1 count
363	Umri	69	7
29	Cut, Rāmṭek hill	63	9
79	Hamlapuri	60	121
265	Bada	48	21
72	Mound SW of fort	40	30
197	Hivra mound	38	9
262	Chichala	35	7
7	Mansar	32	24
353	Kelapur	30	1
241	Nagardhan Outskirts	28	24
325	Panchala Khurd	19	2
45	Fort interior	17	13
59	Mound section, West Nagardhan town	17	11
400	Bhilewada	16	10
196	Hivra	16	1
76	Mound section, West Nagardhan	15	13
316	Lohara	15	8
364	Naharwani	11	36
213	Satak	10	20
289	Old Khodgaon	10	14
71	Mound, west of fort	7	32
94	Scatter, North of Rāmṭek Hill	7	26
20	Trivikrama	7	18
49	Scatter, Pushpa Karni	5	27
48	Pushpa Karni	4	25

The distribution of Mica1 sites is very similar to Red ware sites; 52 loci display both ware groups and the similar site distribution strengthens the argument that both ware families relate to an Early Historic spread of settlements. The generally lower numbers of Mica1 sherds might support a suggestion that they represent a tradition of micaceous utilitarian wares employed alongside the red wares. The more significant concentrations of Mica1 wares at the three key sites of Vākāṭaka activity may imply a preference for the production of micaceous wares at larger Vākāṭaka sites, while red wares may have been more common across rural sites. This could be connected to Smith's observation at Kaundinyapura that even utilitarian materials and local ceramics, such as Mica1, may have some other aesthetic or symbolic value and so may have been differentiated in the past (Smith, 2002a:146).

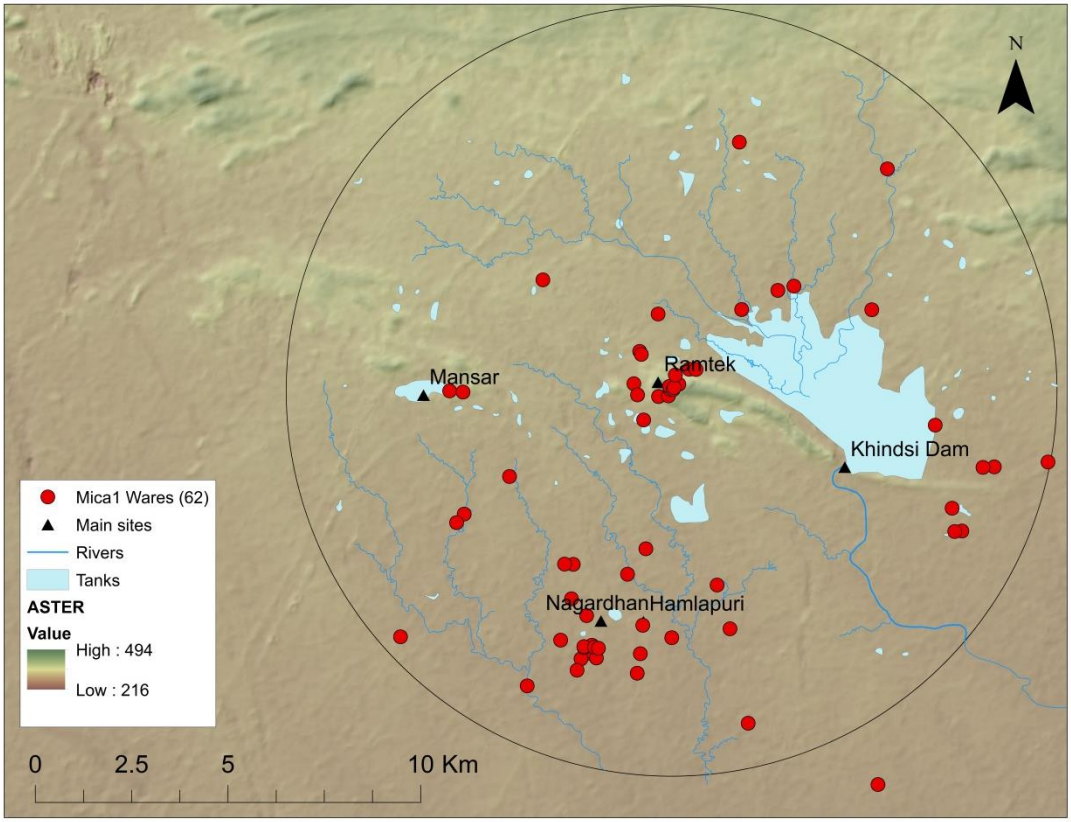


Figure 8-4. Map of the survey region displaying the sites with the presence of Mica1 sherds.

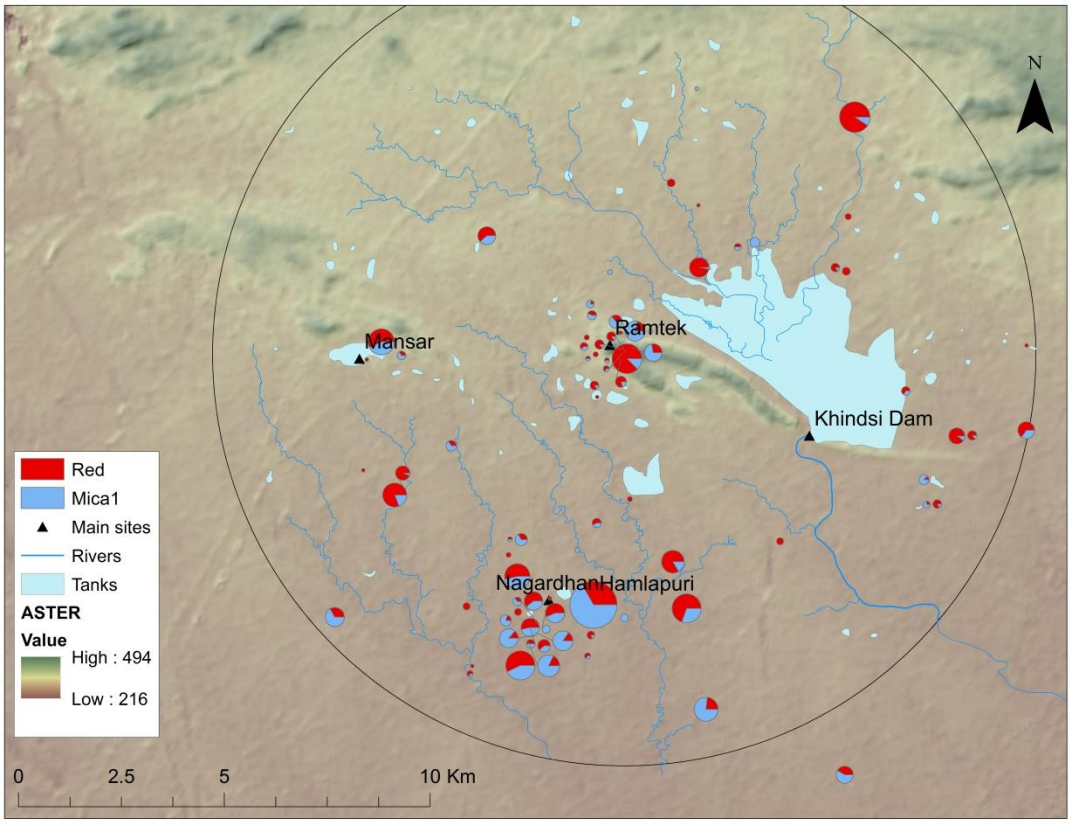


Figure 8-5. Map showing the relative proportions of Red and Mica1 wares at sites in the survey area

As discussed in chapter three, Nagardhan's association with the first Vākāṭaka capital of Nandivardhana in publications has not been as solidly evidenced as the identification of Pravarapura at Mansar. This survey confirms that the modern settlement, the Bhonsle fort and fields surrounding the fort at Nagardhan village are situated on extensive habitation mounds, and demonstrates that Nagardhan represents the most comprehensive evidence for a large settlement site in the immediate Rāmṭek landscape. Abundant red and micaceous wares are associated with Early Historic bricks and the most significant quantity of pottery in the survey area was collected from Nagardhan. This provides further archaeological support for its proposed identification as the ancient Vākāṭaka capital however excavation would be required to assess the true nature of the archaeological remains.

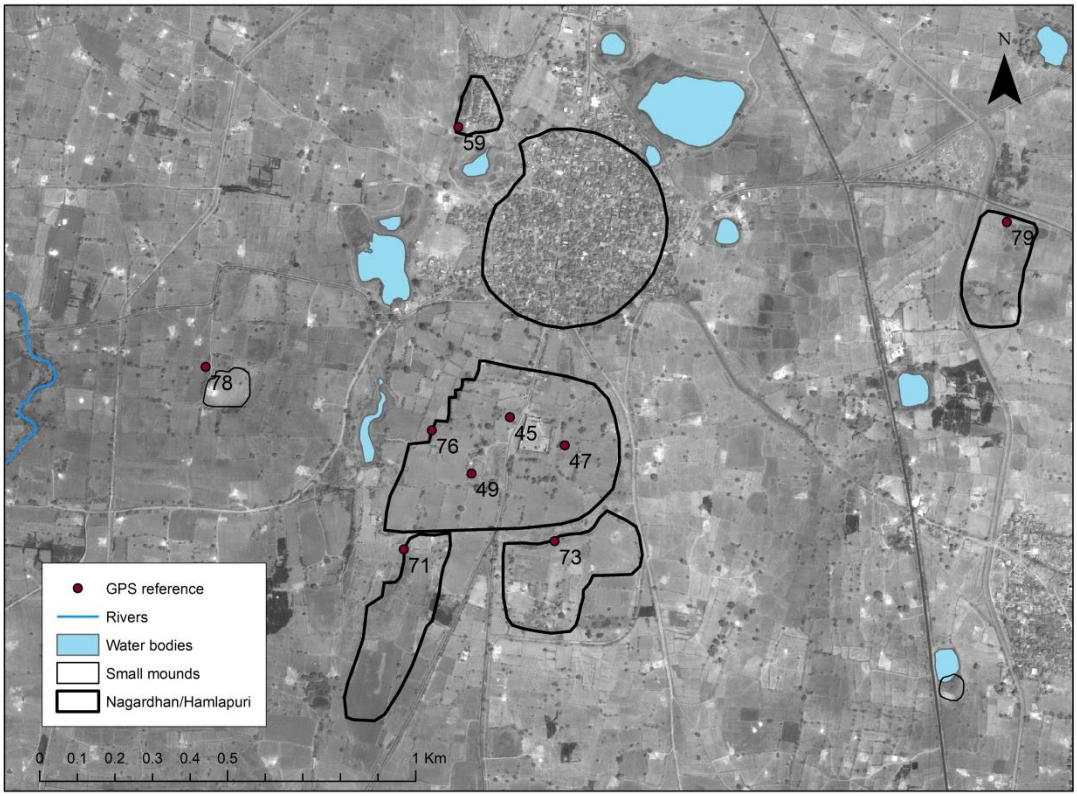


Figure 8-6. The mound configuration around Nagardhan on Orbview 3 imagery

The total area of mounded land indicating ancient habitation at Nagardhan is roughly 50 ha, which is significantly larger than the other settlement mounds identified during survey (each averaging around 2 ha). It is difficult to ascertain the past extent of the site and whether the mounded areas are continuous, as the mounds are irregular in shape and damaged by modern settlement. The mounded land southwest of the fort

may be a part of the fortification wall identified by previous researchers as it seems fairly linear and contains extensive brick remains. However, severe degradation from agricultural encroachment means that this cannot be confirmed. Much of the archaeological potential of the site is obscured by modern settlement but the western side of both main mounds has been cut away. Brick remains and ceramics are abundant in sections around Nagardhan and in the digging around the 18th century fort. Throughout the highly disturbed area south of the fort were large amounts of brick and ceramics, including whole vessels. Brick remains were measured and were found to be consistently large, contrary to Wellsted's observations, which loosely supports an Early Historic date (Wellsted, 1934:161).

Areas of Nagardhan display a similar range of broad ceramic wares and vessel shapes to Hamlapuri and Mansar, but it is clear that the assemblages are not entirely consistent across these known Vākāṭaka sites. Hamlapuri contains a range of largely homogeneous and coarse fabrics while Nagardhan displays a greater variety of forms and fabrics. At different locales across Nagardhan itself, assemblages are either dominated by an assortment of Red and Mica1 wares or a prevalence of Mica2 wares. There is over twice the amount of Mica2 compared to Mica1 sherds at Nagardhan. It is possible that the Mica2 ware family represents a different category of contemporaneous micaceous wares, perhaps related to a functional difference given that Mica2 wares are less coarse than Mica1 and may have been the product of localised manufacture at certain sites. The large quantity of Mica2 sherds at the Vākāṭaka capital at Nagardhan and nearby larger village mounds may be related to some form of site hierarchy within the rural hinterland; Dudhala mound (site 236) has an assemblage dominated by Mica2 wares and appears to be the remains of a fairly substantial settlement area with a small water tank in close proximity. Sites such as this one may represent a tier of slightly larger settlement sites interspersed across the plain. Coarser wares at sites such as Hamlapuri may be due to the settlements' rural nature or small size.

Nagardhan appears to have been an important site throughout the Early Historic period and existed alongside a pattern of smaller sites in regular spacing across the plain. The current investigations do not support the published view that Hamlapuri and Nagardhan form a continuous ancient site as no archaeological remains were

traced between them. Hamlapuri appeared to be self-contained, displaying a ceramic assemblage notably different from that at Nagardhan. It is tentatively suggested that, although potentially contemporaneous to Nagardhan, Hamlapuri is more likely to have been a smaller satellite settlement or outpost on the outskirts of the town. The discrete dispersal of ceramics at a number of mounded sites, rather than a spread of ceramics across the landscape, and the small size and number of mounds, does not imply that this was a large urban landscape. It is suggested here that the medium-sized mounds represent a rural settlement pattern of dispersed agricultural villages. This evidence builds on a suggestion by Cork following the 2006 reconnaissance survey that a dispersed settlement pattern, as opposed to a "densely nucleated" urban landscape, could be suggested by the presence of small mound sites such as Hamlapuri (Cork, 2006).

It may be possible that a chronological difference could explain the relationship between the Mica 2 wares and the Red and Mica1 wares, rather than the previously proposed socio-economic hypothesis. As Red and Mica1 wares are particularly well associated with Vākāṭaka sites, they may be representative of Phase III activity while the Mica2 ceramics may represent a progression from the underlying utilitarian tradition of Mica1 during the latter Vākāṭaka period through to the post-Vākāṭaka phase. Additionally, it may that the arrangement of mounds at Nagardhan reflects moving centres of the settlement, which were occupied during different periods (Lacey, 2014). Red and Mica1 ware ceramics are found more extensively in the lower portions of mound sections whereas higher proportions of Mica2 seem to be found in shallower deposits in the section revealed by digging at the 18th century fort. Comparable ceramic assemblages of Red and Mica1 wares were found in sections on both the northwest and southern side of Nagardhan, which may suggest contemporary activity across a large portion of the site. However, the large amounts of Mica2 at Nagardhan Fort may represent a later contraction of the site to focus around this area, where there appears to have been Early Historic brick constructions. An alternative suggestion is that Mica2 wares are spread across the mound but are not accessible due to modern occupation.

Table 8-5. Areas of sherd collection around Nagardhan town giving the relative amounts of Red, Mica1 and Mica2 sherds.

Site	Site name	Red	Mica1	Mica2	Total
45	Fort interior	17	13	101	131
72	Mound south west of fort	40	30	10	80
46	Trench, Fort	2	4	58	64
76	Mound section, Nagardhan west	15	13	27	55
71	SW of fort	7	32	2	41
47	Fields east of fort	0	5	32	37
59	Section, West Nagardhan town	17	11	0	28
73	Dig, south of fort	8	5	3	16



Figure 8-7. Section below the Bhonsle fort displaying layers of brick and ceramic

If there is a chronological division between Mica1 and Mica 2, then while the overall number of Mica2 sites is similar to the number of Red and Mica1 ware sites, there is a difference in distribution. This change is not represented spatially as the majority of larger sites with common Mica2 ceramics remain distributed across the agricultural plain. However, the change in distribution primarily concerns the quantities of ceramics which may be related to site size and the expansion of some sites compared to the contraction of others. Based on the quantity of Mica2 wares, the large sites of the preceding phase (sites 79, 241, 265, 353 and 363) appear to reduce in size, while five sites expand (sites 210, 236, 289, 364 and 318). The first four of these are located

in a rough line with Nagardhan, while site 318 (Panchala) has close proximity to the theorised location of the 5th century Sudarśana reservoir (Khindsi). Mica2 wares appear particularly focused around Nagardhan and nearby mounds, at the expense of other sites. Given that there is less Mica2 at several known Vākāṭaka sites including Mansar and Rāmṭek, it may be theorised that as the power structures collapsed towards the end of Vākāṭaka rule, these monumental sites became less important and contracted but the major population centre at Nagardhan persisted as an ongoing settlement supported by its agricultural base.

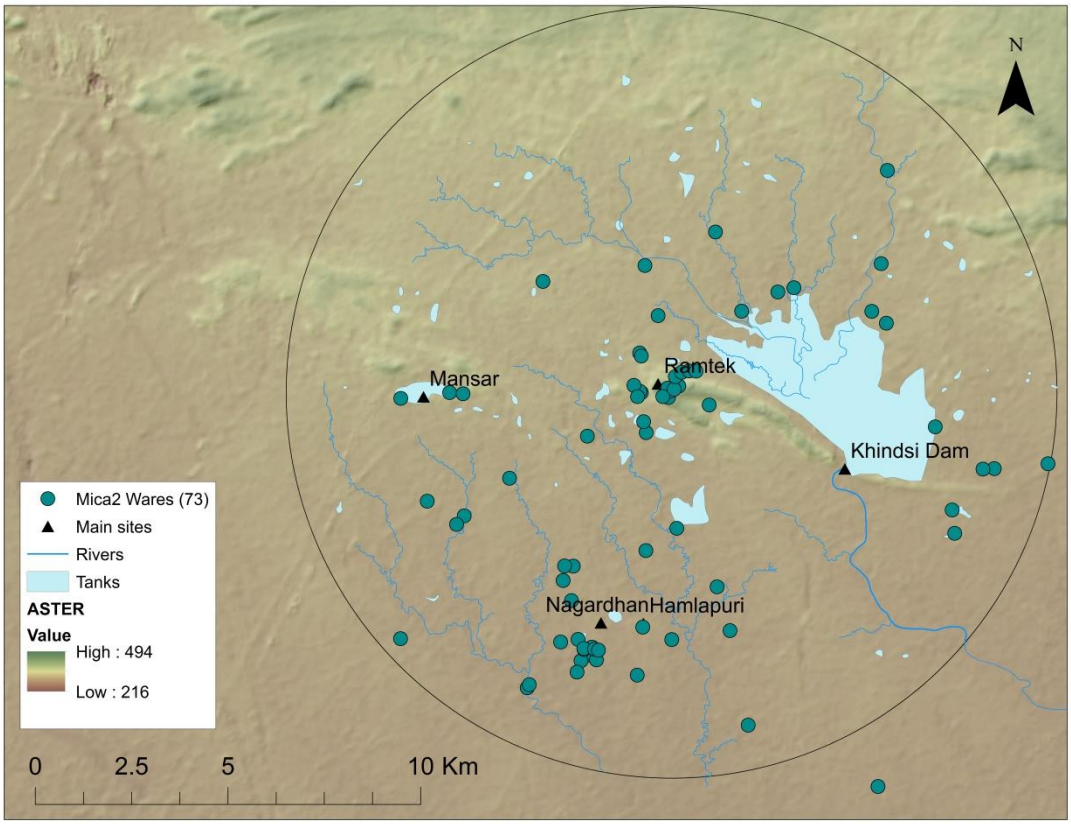


Figure 8-8. Map of sites in the survey area displaying Mica2 sherds.

Table 8-6. Sites with the highest proportion of Mica2 wares, demonstrating the common association with Red and Mica1 wares.

Site	Site name	Red	Mica1	Mica2
236	Dudhala mound	4	8	105
45	Fort interior	17	13	101
318	Panchala mound	4	2	98
289	Old Khodgaon	10	14	87
364	Naharwani	11	36	80

210	Old Bhijewada	3	6	69
46	Fort trench	2	4	58
351	Old Mangli	0	8	41
197	Hivra mound	38	9	37
47	East of Fort	0	5	32
76	Mound section, West Nagardhan	15	13	27
49	Scatter, Pushpa Karni	5	27	25
400	Bhilewada	16	10	21

Table 8-7. Sites which are not represented by all three ceramic types, but which have more than 10 sherds of at least one type.

Site	Site name	Red	Mica1	Mica2
59	Mound section, Nagardhan town	17	11	0
202	Hivri mound	1	0	11
351	Old Mangli, mound	0	8	41

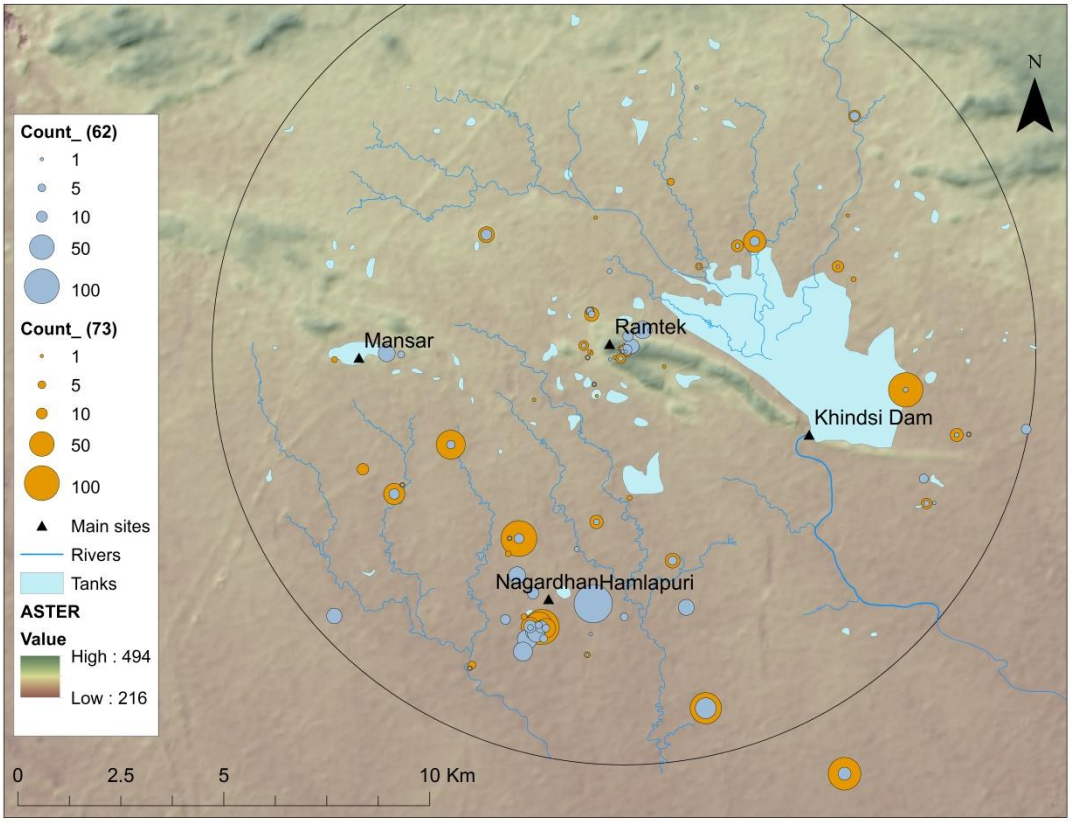


Figure 8-9. Difference in site distribution between those with Mica1 wares and those with Mica2 wares. A number of sites are represented by both types, however the distribution of ceramics changes across the two ware phases.

There is some ceramic evidence for Early Historic activity on the northern outskirts of Rāmṭek, at Kawadak mound (site 154). However, the density of modern settlement makes it challenging to trace archaeological remains and ceramic assemblages tend to consist of late wares, even in areas of digging. Where Mansar and Nagardhan are concerned, dissimilar archaeological situations were revealed during survey at these two 'capitals'. Mansar displays monumental structures but no ancient ceramic and brick remains were found outside of the monumental complex. Mansar village is not situated on a habitation mound and no archaeological remains were located in areas of digging in the village or the surrounding mining communities. Wellsted reported the remains of a substantial town-site suggesting dense settlement around Mansar tank, and theorised that the wider area was likely to have been thinly settled (Wellsted, 1934:161). Wellsted also stated that while the settlement does not appear to have been fortified, the surrounding hills may have been occupied by watch-posts (Wellsted, 1934:162). On the ground, there is no evidence of this reported town-site and the remains reported to the east of the monumental structures, are completely untraceable. Fragmentary brick remains were found on the hilltops, but none were substantial enough to indicate the nature or extent of any structures. At Nagardhan, there are widespread brick and ceramic remains attesting to settlement at the site. Furthermore, while it cannot be stated conclusively that monumental constructions such as a royal 'residence' or Vākāṭaka fort existed, brick remains beneath the 18th century fort, suggest that pre-existing structures have been masked by the Medieval developments.

If a large settlement existed at Mansar, it would appear the evidence, which was already greatly damaged by 1928, has since disappeared. Yet, Nagardhan has a similar level of modern habitation to Mansar but substantial remains can still be found. It may be hypothesised that the two sites held different functions despite both being known as state capitals. A 'capital' is assumed to be the place from where copper-plate charters were issued but the survey evidence suggests that a state 'capital' could have served a political function without necessarily having extensive associated settlement for the general population. In this case, the administrative centre and place of issue for copper-plate grants may have shifted but the population seems to have remained focused around the agricultural hinterland of Nandivardhana. Mansar was perhaps intended as a ceremonial and secular centre given its proximity

to Rāmṭek and the line of sight between the two monumental hilltops. These findings correspond with the observation by Bakker & Isaacson (1993) that there is no indication that Nagardhan was abandoned following the supposed move of the capital to Pravarapura given that a charter was issued from Nandivardhana in the last decade of the 5th century, (Bakker & Isaacson, 1993:68). Furthermore, Mansar itself may not have been occupied by the general populace as the Mansar inscription states its maintenance was imposed upon a collection of villages (Meister, *et al.*, 1988:62).

If the term is used in a functional sense then it is proposed that Nagardhan may be considered an 'urban' site in the context of the Rāmṭek landscape. This definition may be warranted by its comparatively large size and the wide variety of ceramic wares and vessel types, which implies a broad range of activities and different modes of production. Smaller mounds tend to have a narrower range of ceramics and evidence suggests localised production. For example, the ceramic assemblage at Hamlapuri is dominated by a particular ware (ROM, mostly occurring in type 55) that does not occur in large numbers at other sites. Despite indications of local manufacture of ceramics, no ceramic production sites were identified - it may be that remains are not visible as sites may have been simple pits – and as yet there is no evidence of commercial activities or other production around Rāmṭek. Production may have been largely carried out in Nagardhan's urban centre, which is now under modern settlement, while rural agricultural communities supported the temples and production centres. The pattern of contemporary sites around Nagardhan suggests that the town may have been a focal point for agricultural development in the landscape. Furthermore, reference may be made to the slightly higher proportion of storage wares and types in the Nagardhan assemblages, which indicates the provision of surplus to the main site or production and storage activities.

The main activities around Rāmṭek appear to have been agricultural, as supported by the artefacts identified during survey, which include quern stones and grinders. Other evidence of economic investment in the landscape during the Early Historic period is found in the potential remains of water management resources. Textual evidence supports that reservoirs, often in the form of stone-faced earthen dams to contain water from natural sources, were particularly common in South Asia from the Early Historic period (Bauer & Morrison, 2008:2210). During survey, embankments of disused tanks were encountered where the water storage area is now used as

agricultural land. These are visible from their earthworks and boundaries through ground inspection, on satellite imagery and occasionally on topographic maps. Small tanks identified during the survey often feature curved earthen embankments and have the potential to have older origins. Dating of reservoirs is difficult as there may not be any chronologically distinct features and the continued use and renovation of reservoirs can exacerbate issues with dating (Hegewald, 2002:77). In order to establish a period of construction, focus tends to be drawn to related epigraphic evidence or scientific analysis (Bauer & Morrison, 2008:2210). Unfortunately the majority of the water storage areas near Rāmṭek lack features to prove their antiquity and there was no association with dateable artefacts. This is unlike the situation recorded by Shaw at Sanchi, where Naga sculptures associated with reservoirs were used to propose an Early Historic origin for their construction. Occasional ceramic sherds and brick remains were found around the embankments at Rāmṭek, but these do not give a solid indication of date. However, as noted, the use of tanks or water storage reservoirs in the landscape is proven by the 5th century construction of Sudarśana, which had the capacity to support the agricultural hinterland. Inscriptional evidence puts the date of Khindsi reservoir slightly later than the rise of the Vākāṭakas and so theoretically its construction may have been related to a subsequent increase in population and intensity of agriculture, which required further water access.

Early wells can be less easily identified than their more structural Medieval counterparts, however ring wells are considered to be common from the Early Historic period. Ring wells were formed from tubes of interlocking stone, terracotta or burned brick rings (Hegewald, 2002:149; Pande, 1966:218). These structures can be difficult to date independently; some scholars have linked ring diameter or height to chronology, but there are also suggestions that variation can be related to geographical differences (Pande, 1966:211). One ring well was identified *in situ* south of Nagardhan fort (site 73), but had been partially destroyed during large-scale digging. The ring well was constructed of large terracotta rings and most closely corresponds to the first of four broad categories of wells identified by Pande, where the bottoms of the upper rings fit into the mouths of the ones below (Pande, 1966:211). The large diameter of the ring well identified at Nagardhan makes it similar to those identified at sites including Pauni and Paunar (Deo & Dhavalikar,

1968; Nath, 1998:17). Archaeological evidence indicates that ring wells were often located in settlement areas, for example at Bhir and Besnagar the ring wells were found within house remains, and at sites such as Nasik, Tripuri, and Nevasa they were located near habitational structures (Pande, 1966:216). The ring well at Nagardhan is situated towards the edge of the visible habitation mound in an area of high brick and pottery remains which suggests the settlement extended across this area. The presence of this buried ring well suggests that further wells may be present underneath the modern village. It appears that there is greater potential for Early Historic water management structures to be present across the Rāmṭek landscape but they may be harder to identify due to visibility or difficult to securely date to the ancient period.



Figure 8-10. Remains of a ring well in a large area of digging south of Nagardhan fort (site 73).

When viewed together, the archaeological evidence pertaining to the general Early Historic period indicates an increase in settlement sites and ceramics, which supports the hypothesis that at some point the area became engaged with wider networks, pottery production and use of brick. Furthermore, Nagardhan appears to represent the development of a stand-out urban site in comparison to the agricultural plain. Despite overall transformations in the nature of the rural landscape, settled life and the economy and the presence of permanent traces of economic investment across the landscape, Eastern Vākāṭaka economic investments appear to have been fairly

localised. It may be argued that beyond the redirection of resources there was little royal investment in the rural communities themselves.

8.4. . Later levels of investment in the landscape

The history of landscape development remains elusive following the collapse of unified Vākāṭaka rule. Historical studies assume that during the intermediate phase of the post-Vākāṭaka Early Medieval period the area declined and Early Historic sites were abandoned. Regional excavations tend to record a break in occupation until the Medieval period and it is often assumed that there were very low levels of activity in the Rāmṭek area prior to the rule of the Yādava kings from around the 12th century AD (Phase IV A). The only evidence for the intervening period is the tentative identification of religious architecture at Rāmṭek and the reports of extensive Viṣṇukuṇḍin and Buddhist activity from the Mansar excavations. The Mansar evidence would indicate the continuity of activity in the area, and a resource base would have been required to support such an institution. However, the current survey uncovered no additional evidence to support a large Buddhist presence around Rāmṭek and uncovered limited and inconclusive settlement evidence.

Early Medieval ceramics are not well established and the material is often absent in excavation reports, but rough red ware, micaceous red ware and black slipped ware are reported to relate to the Late Vākāṭaka to *Mahavihara* period at Mansar (Joshi & Sharma, 2005:25). If these ceramics are a reliable sample of cultural material from the *Mahavihara* period then the first two wares demonstrate similarities to the Early Historic ceramics discussed here. Previous research has stated that there are no "standard ceramic markers" for the Early Medieval period in the Deccan and there may be a similar situation in this region. Without more detailed descriptions of the fabrics and types, it is not possible to identify how the ceramics might differ across the Early Historic to Early Medieval periods and a fundamental lack of understanding of ceramic change does limit our ability to establish the length of occupation at sites.

The survey evidence could be interpreted as tentatively suggesting the Early Historic sites were fairly short-lived and fell out of use sometime following Phase III and prior to the Later Medieval period (Phase V) when there was generally a shift in site

location. However, abandonment of sites may not necessarily have occurred immediately following the decline of the Vākāṭakas; it is not inconceivable that rural sites should have persisted or that successful agricultural villages could have drawn in the local population. The Rāmṭek landscape could reflect trends elsewhere, where the nature of Early Medieval settlements makes them difficult to identify. For example, the Early Medieval settlements encountered during surveys by Khaladkar and Kulkarni in Maharashtra were invariably small in size (*c.* 1-3 ha) and larger sites (2-4 ha) appear to have become less important (Khaladkar, 2007-2008). The Rāmṭek data highlights the uncertainty over the abandonment of Early Historic sites as, although inconclusive, the survey evidence could be interpreted as indicating the continuation of a number of post-Vākāṭaka settlements after the collapse of strong, centralised rule.

Phase IVB in the project chronology relates to the period of Yādava influence and activity in the area towards the end of the Early Medieval period, which is primarily evidenced by the extensive constructions on and around Rāmṭek hill. Within the working relative chronology it has been tentatively theorised that the Red Burnished wares may be representative of Early Medieval or Medieval activity. The Red Burnished wares were typically obtained from shallow cuts as opposed to deep sections or surface scatter, placing them stratigraphically in sections above Red and Micaceous wares but below Grey/Buff wares. Red burnished wares are most typically found at major sites with later remains, such as Nagardhan and Rāmṭek and the relatively low quantity of this ware may be due to the remains being buried under modern occupation. The sites with larger quantities of Red Burnished ware tend to have a high occurrence of Grey/Buff wares suggesting contemporary usage and a later phasing for the Red Burnished ceramics, or continuity of settlement from some point in the Early Medieval phase.

Table 8-8. The sites with the largest quantities of Red Burnished ware in the survey area.

Site	Site name	Mica2	Red Burn	Grey/Buff
29	Cut, Rāmṭek hill	15	111	19
122	Dig, Rāmṭek town	2	64	12
45	Fort interior	101	48	215
348	Old Mandri	11	35	139
210	Old Bhijewada	69	33	20
155	Kawadak	17	26	86

325	Panchala Khurd	14	23	5
276	Udapur mound	15	20	39
107	Dig, Rāmṭek town	8	17	45
7	Mansar	10	14	2

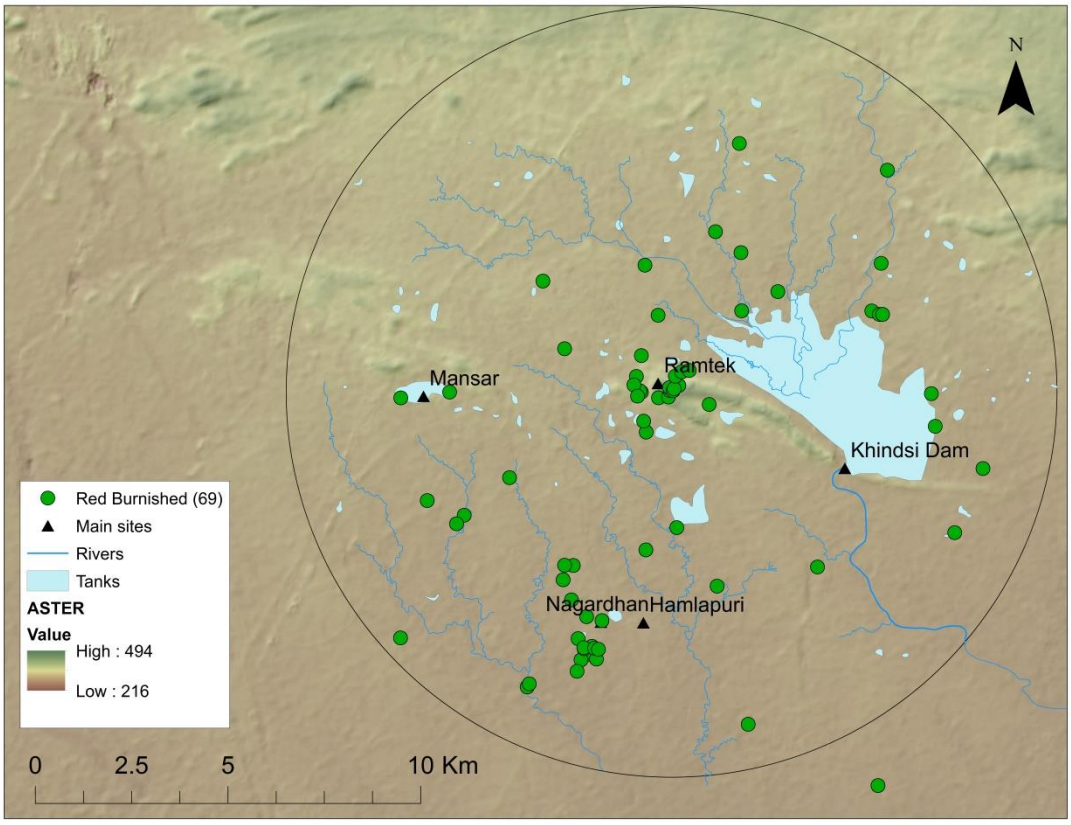


Figure 8-11. Map of sites across the survey area with the presence of Red Burnished wares

The Red Burnished ceramics may tentatively indicate that contrary to the historical narrative, the landscape was not completely abandoned post-Vākāṭaka. Several sites such as Bhijewada (210) display a range of wares, which may demonstrate ongoing occupation from the Early Historic through to the Medieval period. At sites such as Bhijewada, continuation of settlement may be more likely than repeated periods of abandonment and re-settlement, particularly as there appears to a change in settlement pattern before or during the Medieval period. When comparing sites with Red Burnished ware to those with micaceous wares, there seems to be a reduction in the number of sites with significant quantities of ceramics. Several of the mounds to the south of Rāmṭek hill continue to be represented, such as sites 210 and 276, but others such as 197, 289, 236 and 318 often show a reduction in ceramics. The co-occurrence of micaceous and Red Burnished wares at several sites may be suggestive of the

longevity of micaceous wares and continuation of Early Historic sites for an indeterminate length of time or later re-occupation. The largest quantity of Red Burnished wares is found on Rāmṭek hill, where there was extensive development during the Yādava period and potentially earlier. Site 122 in Rāmṭek town displays a high proportion of Red Burnished wares and could indicate an expansion of settlement connected to the architectural investment on the hill, which would have presumably attracted people to the religious centre. Surface remains at Nagardhan Fort do contain Red Burnished ware but the higher quantities at Rāmṭek may demonstrate a shift in focus from the ancient capital to a developing town-site. The Red Burnished ware presence at Rāmṭek and Nagardhan may indicate a contraction of rural settlement to re-focus onto centralised sites which had major settlement and building activity, as opposed to the more dispersed pattern of the Early Historic period.

Evidence of significant investment in the landscape, as opposed to a focus on the 'urban' or ritual centres, becomes truly apparent in the survey material from some point in the Medieval period as witnessed by the great quantity of proposed Medieval ceramics and water management structures. A concentration of wells and environmental features in modern villages and agricultural areas, alongside low density surface scatter of Grey/Buff wares, appears to demonstrate a continuation of settlement across Rāmṭek from at least the 18th century.

During the Early Medieval period, water management strategies advanced and structures often became more architecturally elaborate with more recognisable conventions, such as the presence of stepped tanks close to temples (See Japala (site 393) where the temple is connected to a stepped reservoir) (Dandawate, *et al.*, 2006:3). *Bāvlīs* and wells are particularly common across villages and agricultural land in contrast to the limited or undetectable evidence for Early Historic economic structures outside of the political and religious centres. The nature of water provision may have changed towards the Medieval period so wells became more common than tanks, which cannot be easily dated. The wells identified are typically stone constructions or brick wells with a stone facing, which in some circumstances appear to feature re-use of large ancient bricks. The structural stone wells correspond to a relatively late type of simple Medieval wells which feature a "parapet" wall and pulley apparatus for drawing water (Mehta, 1979:32). The stone wells are primarily

hexagonal or circular, which is reflective of Medieval structures which may be round, square, hexagonal or octagonal (Hegewald, 2002:149). These wells are found throughout agricultural fields and villages which frequently display seemingly Medieval temples, and their spatial distribution demonstrates the wide Medieval activity across the Rāmṭek landscape. As wells were sometimes encountered in agricultural areas, it seems likely that further wells not discovered during survey may exist in these areas.



Figure 8-12. Site 307: Stone well in Bori village with octagonal casing and hooped stones on a parapet for a pulley system.



Figure 8-13. Site 162: Round brick and stone well with a parapet, located in agricultural fields.



Figure 8-14. Site 407: Loose stones near to an old stone well adjacent to a Hanuman temple in Chorkumari village, which show the hole used for a pulley system to fetch water.

Several other categories of later structural wells were identified in the survey area but tended to be restricted to the major towns. *Bāvlīs* are underground wells, which feature steps leading down into a water storage area and subterranean archways. *Bāvlīs* may be constructed of stone or brick and mostly originate from the Medieval period (Sutcliffe, *et al.*, 2011:784). During survey, *bāvlīs* were identified in the larger centres of Rāmṭek and Nagardhan and also to the east of Ambālā Lake, where there is a group of Medieval structures and several *bāvlīs* with systems of underground archways. In Rāmṭek, the temple complex at site 119 featured an excellent example of a *bāvlī* but this has been filled in during renovations since the first fieldwork season. Step wells are another category of well, which are not as common across the Rāmṭek landscape but can be found in Rāmṭek town. Step wells appear to be indigenous to India but continued to be developed under Muslim rule around the 14th and 15th centuries onwards (Hegewald, 2002:156). The recorded distribution of wells identified during survey does not seem to reveal any noticeable pattern and topographic maps of the area indicate the presence of further wells not recorded on survey. The large number of wells pertaining to the later period reflects on greater levels of economic investment in the rural landscape.



Figure 8-15. View of brick and stone *bāvlī* to the east of Ambālā tank. In the left hand side of the picture the long, underground arched *bāvlī* terminates in a round brick and stone well with a parapet.



Figure 8-16. The *bāvlī* in a temple complex in Rāmṭek town (site 119), which has since been filled in and concreted over.



Figure 8-17. Example earthwork in the Rāmṭek landscape. This appears to be an old tank embankment at Manapur village, with a modern shrine situated on the top (site 227).

The Medieval period (Phase V) is proposed to be represented by the Grey/Buff ware family based on their distinct fabric, vessel types and pattern of occurrence. It is not certain when these ceramics developed and became common, but published reports suggest that similar wares came into use from around the 8th century AD. The context of the ceramics and their association with 18th century structures suggests a later date than this around Rāmṭek. The ceramic data resolution is not high enough to identify changes within the broad Medieval period and unfortunately the architectural evidence is only informative about the late stage of Mārāṭha influence. The Grey/Buff wares are generally found on separate mounds to Early Historic ceramics or in low density scatter across the surface of modern settlements and agricultural fields. Several sites with large quantities of Phase V ceramics display a narrow range of pottery types and the lack of other earlier ware families suggests a more recent establishment of these sites. Nagardhan and Rāmṭek clearly remained important sites throughout the Medieval period as there are large quantities of Grey/Buff wares on the ground and in shallow digging at Rāmṭek and within Nagardhan fort (site 45). Kawadak on the north edge Rāmṭek town displays Grey/Buff ceramics which overlay the red and micaceous wares within the eroding section and surrounding ploughed fields.

Table 8-9. Sites with the largest quantities of Grey/Buff wares in the Rāmṭek assemblage

Site	Site name	Grey Buff
45	Fort interior	215
348	Old Mandri	139
155	Kawadak	86
386	Sonpur mound	74
350	Scatter near Old Mandri	67
352	Old Mangli, mound	66
349	Scatter near Old Mandri	57
275	Devada Rithi	51
107	Dig, Rāmṭek town	45
276	Udapur mound	39
106	Dig, Rāmṭek town	38
356	Musewadi mound	32
116	Dig, Rāmṭek town	22

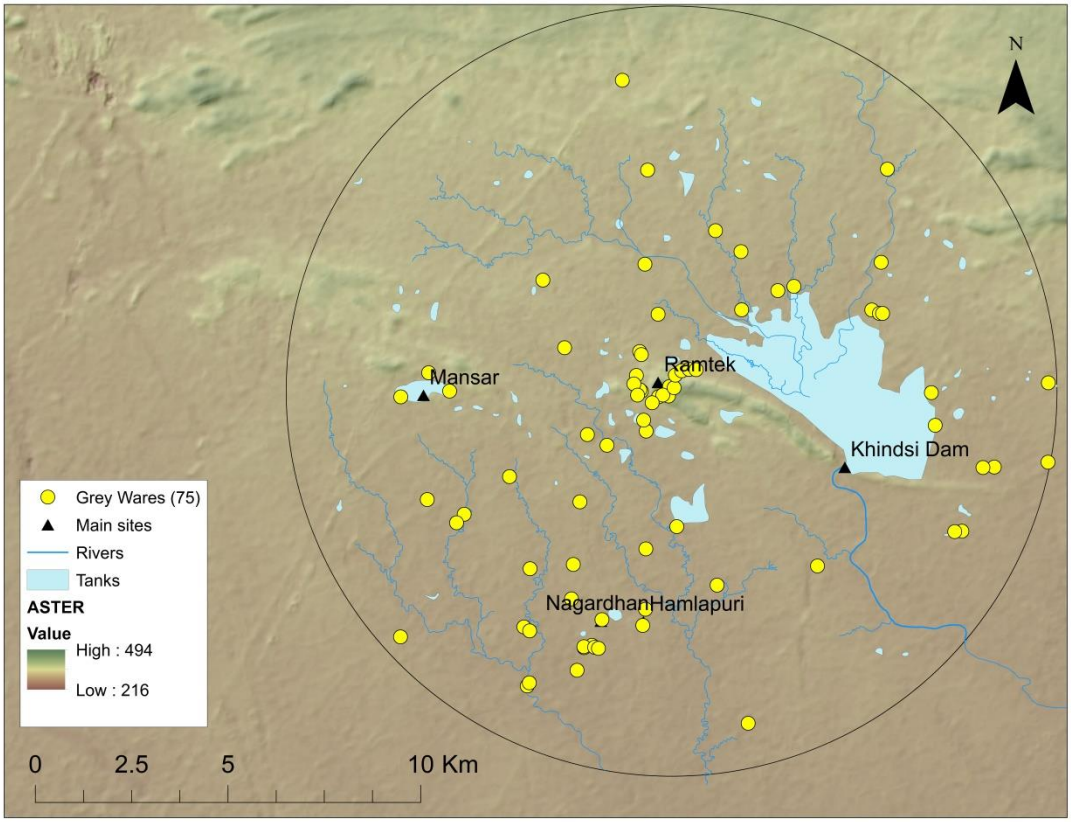


Figure 8-18. Map of sites across the survey area displaying the presence of Grey/Buff wares.

The sites with the most significant numbers of micaceous and red wares tend not to display Grey/Buff wares beyond transient surface scatter. These ancient habitation sites are typically mounded areas located outside of modern villages, whereas the majority of modern villages with Medieval architectural/ceramic remains are not situated on a settlement mound. Obvious mounds at Medieval sites aren't necessarily common as Medieval settlements frequently expanded horizontally and were not as likely to build on the remains of earlier settlements (Mate, 2005:85). A change in settlement pattern is suggested both at abandoned mounds with limited other wares, such as Devada (site 275) and by the presence of Grey/Buff wares as surface scatter throughout late Medieval to Modern villages such as Bori, which do not display an ancient habitation mound but contain Phase V Medieval architecture and wells. Furthermore, a change in settlement pattern appears to be reflected in the spatial distribution of sites, as sites with the highest quantities of Grey/Buff wares (outside of the major towns of Rāmṭek and Nagardhan) are often situated north of Rāmṭek hill, indicating an expansion of sites. Many of these sites display insignificant quantities of earlier ceramics, which would suggest a lack of established settlement prior to the Medieval period. Several smaller sites in the south, which have low numbers of Phase IV ceramics, remain occupied; sites such as Udapur (276) yield fairly significant amounts of Red Burnished wares and Grey/Buff wares which may indicate that there was some continuation or expansion of Early Medieval sites into the Medieval period, alongside the foundation of new sites.

This distribution of sites may indicate increased agricultural and commercial activity in areas which were previously more difficult to cultivate and settle. The expansion of settlement to the north may also be related to the development of Rāmṭek town. Alongside the numerous late temples, the Grey/Buff wares at Rāmṭek suggest a later expansion of the settlement prior to its modern development into a large town. These remains may indicate growing activity around Rāmṭek and increasing importance as an economic centre. However, it is impossible to ascertain the past extent of the town and its settlement activity with survey alone, as the earlier remains could have been concealed or destroyed. Similarly there may be more substantial remains obscured beneath the current infrastructure at the surrounding modern villages with occasional Grey/Buff surface sherds.

8.5. . Conclusion: The economic landscape

Prior to this survey, the excavations at Mansar proposed a long history of potential settlement at the site. However the evidence is not available to be assessed and a number of scholars have expressed doubts about the interpretations of the excavated evidence. It was also unsure how this related to Rāmṭek, Nagardhan and the wider hinterland. The accepted view of landscape development around Rāmṭek was largely constructed from a historical perspective, which proposed that the Vākāṭakas moved their state to a newly developing, peripheral region. It was thus proposed that the period of Vākāṭaka rule resulted in major socio-economic, religious and political developments in the landscape and transformed rural settlement. Evidence was severely lacking for the periods outside of Eastern Vākāṭaka rule in the Rāmṭek landscape and even within the recorded phases the nature of rural settlement was largely unknown. After the decline of the Vākāṭakas, little was known historically about the Early Medieval period prior to the establishment of an organised political authority under the Yādavas.

Therefore, a primary research question of this thesis was to ascertain whether it was possible to adequately explore Rāmṭek to address the lacunas in our understanding of the area's development and assess the extent of Vākāṭaka economic investment in the landscape. The resulting overview of the landscape development is still broad, but hypotheses can be made about the nature of rural settlement and the relationship of the religious centre of Rāmṭek to its landscape. Furthermore, we can hypothesise about whether royal economic investment was localised or expansive.

The picture that emerges is of an area which was clearly a population centre at several points in its history, making Rāmṭek more than simply an Early Historic religious site. Prehistoric activity may have been at a low level resulting in few discernible archaeological traces, or may have been related to seasonal or transhumant populations who had limited interaction with wider networks and left only transient material remains. This scenario is not necessarily at odds with the historical view of the Vākāṭakas moving into a sparsely inhabited, peripheral zone. There is a significant difference in the level of activity from the prehistoric to Early Historic periods, and the survey results go some way towards establishing the nature of Early

Historic rural settlement in the area. The evidence implies that the Early Historic period saw changes in the landscape and the rural economy, but these can only be attributed reliably to the overarching period rather than specifically to Vākāṭaka influence. This narrative highlights the ambiguity of the available evidence and demonstrates that the Vākāṭakas may not have been the sole driving force behind the development of the landscape, despite a compelling case for much of the material evidence to correspond to 5th century activity.

It may be proposed that the religious and urban centres drew on the prosperity of a local rural landscape and agricultural economy. It appears that alongside the high level of culture demonstrated by the sites of Mansar and Rāmṭek, Nagardhan developed into a reasonably sized urban area. Economic development of the rural hinterland however appears low. Outside of the three political/ritual centres, sites are small and feature no visible evidence of construction. It seems that the economic function of the wider landscape was to direct produce into state pursuits and ritual activity.

Following the Early Historic period, the narrative of the landscape development sees two lacunas in evidence, from the 6th to 11th centuries and from the 14th to 17th centuries. Although it was hoped that a nuanced picture of activity in the intermediate periods would be achieved from settlement evidence, the phasing of sites according to ceramics and their possible duration of occupation remains equivocal. While it has been shown that landscape survey can identify areas of past settlement activity, without reference to reliable excavation data the nature of the evidence results in provisional or conjectural conclusions. At some point in the Early Medieval or Medieval period, the wider Rāmṭek landscape saw greater economic investment from the centralised authority. Beyond the known Yādava temple on Rāmṭek hill, only tentative evidence of settlement has been identified and the great change in the landscape seems to have occurred later. The Medieval period witnessed a change in settlement location and the construction of permanent water management resources across the landscape.

Discussion of the survey results must be tempered with recognition that the limitations associated with this type of survey may impact on the types of remains identified. There is clear potential for further research as a detailed understanding of

the landscape is elusive, but it has been possible to address general trends of development which may be related to wider historical considerations. It is clearly necessary to employ a combination of survey and excavation to provide stratified sequences. Before a deeper sense of the relationships between remains and nature of Early Historic and Early Medieval diagnostic artefacts can be achieved, this foundation data must be established.

Chapter 9. Ritual activity in the Rāmṭek landscape: Temple architecture and sculptural remains

9.1. Introduction

Sculptural remains and standing architecture form a large part of the dataset achieved during the Rāmṭek survey. Religious architecture was the most commonly identified site type and includes temples and village/field platform shrines (*cabūtrā*). Study of sculpture and religious architecture can aid understanding of the development of religion in the survey area and suggests the religious affiliation of the population, both past and present. Additionally, the past religious landscape can be linked to the area's political and cultural history based on the role of religious practice, patronage and ideology in political authority. Consideration of the religious evidence may indicate the effect that ritual and ideology had on the development of settlement and the landscape. This chapter investigates the relationship between the religious centre of the Eastern Vākāṭakas with the surrounding landscape and the engagement of the surrounding population through ritual means, following on from the economic focus of the previous chapter.

While there are numerous sculptural/architectural remains around Rāmṭek, the vast majority appear to reflect Late Medieval, Early Modern or Modern activity, and therefore relate to a known period of occupation in the survey area. Despite this, study of the local architecture and sculpture may reveal insights into the level of activity across earlier periods, keeping in mind the potential effect of destruction and modern development on the visibility of earlier sites. Sculptural and architectural remains are considered particularly important in attempts to identify activity in the Early Medieval period following the collapse of Vākāṭaka rule. There are numerous issues with Early Medieval archaeological remains as noted in the previous chapter; ceramics and cultural material are generally found to be lacking in archaeological investigations and the diagnostic cultural material or the amount of change or continuity in material culture is not well established. However, architecture and sculpture may give important clues to some level of activity in the Early Medieval landscape, which otherwise may not be visible in the archaeological record.

In order to evaluate the relative Eastern Vākāṭaka political and religious investment in the landscape, an objective of the Rāmṭek survey was to identify religious activity outside of the Hindu (Brahmanical) mainstream, which was prevalent from the time of the Vākāṭakas through to the modern period. By investigating different religious affiliations, it may be possible to discern whether activity in the landscape increased with the arrival of the Hindu Vākāṭakas, and how closely religion was related to the political-economic development of the area. Hinduism refers mainly to the two major groups of Śaivism and Vaiṣṇavism, which have Śiva and Viṣnu as the main focus of worship respectively, but in reality it may be considered to be a "heterogeneous amalgam of beliefs and practices" which differs according to geographical and chronological factors (Lahiri & Bacus, 2004; Sugandhi & Morrison, 2011:921). The vast majority of temple and sculptural remains around Rāmṭek relate to the dominant 'Hindu' or 'orthodox' Brahmanical tradition, with evidence of both Śaiva and Vaiṣṇava affiliation. However, despite the domination of Brahmanical remains, the religious landscape is complex and there is a variety of evidence relating to the persistence of local shrines and devotions.

In the past, reference has traditionally been made to the division between 'Great or Major' and 'Little' (village/folk-based) traditions (Redfield, 1956; Redfield, 1995) The 'Great' tradition was related to the concept of 'Sanskritic Hinduism', after Srinivas (1952), and is that of the elite and literate population. The 'Little' tradition refers to that of the village communities and is considered to include local forms of Hinduism (Redfield, 1956:72). The term 'Sanskritisation' was coined to describe a process wherein the 'Great' tradition spreads to the 'Little' tradition due to increasing influence (Staal, 1963:263). However, this relationship is shown to be complex as over time mainstream Brahmanism appears to have appropriated local deities (Sugandhi & Morrison, 2011:923). Furthermore, scholars have suggested that often the 'Great' tradition has roots in 'little' traditions, so rather than a process of assimilation or displacement, traditions co-exist through the exchange of features (Eschmann, 1978:82; Singh, 1993:287; Staal, 1963:269). Moving away from this division recognises that folk traditions were coeval with Brahmanism and it is important to recognise that the landscape can reveal ritual heterarchies and temporalities of worship and investment in religious traditions.

The dating of temples and shrines can be problematic as these structures often have long histories of use, and may represent different phases of construction and modification. Nearly all of the temples identified in the survey area are still active religious sites involved in daily worship and modern superstructures or additions potentially obscure original features or constructions. Temples are often modified by the infilling of archways or plastering and whitewashing during renovations. None of the temples newly recorded on the survey, which are primarily small village structures, have inscriptions to aid with dating. Without independent evidence for dating, structures can only be assigned broad phasing based on diagnostic architectural features, which can be compared to art historical typologies established by specialist scholars (Hardy, 1995; Hardy, 2007). Broad art historical dating can assign date ranges which allow the reconstruction of a sequence of architectural development, which may give an indication of the level of activity across major periods. However, the evolution of architectural style does not necessarily account for long periods of use for structures and even their re-affiliation for worship by different groups of people (Shaw, 2007:75). Temples are usually classified into phases broadly definable in terms of dynastic associations, based on the general assumption that architectural styles developed and changed over time resulting in characteristic traits which relate to specific periods of rule, for example Vākāṭaka (3-5th century AD), Cālukya (6-8th?), Yādava (12th to 14th century AD) and Mārāṭha or later (18th century onwards). There are difficulties with such schemes, as common architectural motifs and styles may have remained popular across different periods and dynastic periodisation can create gaps in the known history of the landscape. Unfortunately, the nature of the architectural evidence and the non-specialist approach of this researcher do not permit more nuanced dating, but the broad overview of religious practice is still useful.

Sculpture can be particularly useful in illuminating the cultic affiliations of religious sites in the region. However they are subject to a number of difficulties in identification and dating; in particular the large body of regional ‘folk’ iconography is not well understood. Sculptures of the gods for worship (*mūrtis*) became common in India during the Early Historic period. Iconographical traditions are used to date sculptural fragments loosely, and so features were identified through discussion with scholars and comparisons were made to published examples. The dates of sculptural

pieces are again usually broadly referred to in terms of major dynasties but there can be distinct local variations and traditions under regional powers (Shaw, 2004:8). The Gupta dynasty produced a characteristic style of sculptural art and a sophisticated iconographic tradition (Harle, 1974:8). The Vākāṭaka style on the periphery of the Gupta Empire shares traits and decorative features with the Gupta tradition (Harle, 1974:24). Sculptures identified at Mandhal, which were locally produced, reflect the character of Gupta art and display analogous depictions of physical characteristics, clothing and ornamentation (Jamkhedkar, 1991a:87). Despite mutual aesthetic principles and iconography, Vākāṭaka art demonstrates regional originalities which do not have clear Gupta parallels (Bajpai, 1989:103). The excavated Mansar sculptures embody the spirit of the Eastern Vākāṭaka sculptural tradition and are said to be defined by their "refined elegance and expressiveness" (Deva & Sharma, 2009:21). A large amount of sculpture was identified during survey, but the vast majority appeared to be late Medieval or modern (see appendix nine for catalogue). There are difficulties dating the potentially older sculptures due to their condition as they are often badly preserved and ongoing worship can result in features being obscured by layers of *sindūr* or worn by regular liquid offerings (Blurton, 1992:72).

Here, as in the previous chapter, three overall phases are considered focused around the 5th century investments by the Eastern Vākāṭaka dynasty. The survey looked for evidence for pre-existing ritual development in the landscape followed by evidence of a transformation or formalisation of ritual activity with the arrival of the Vākāṭakas, in order to infer about the nature of their authority and engagement with the landscape. Finally, a comparison is made to the post-Vākāṭaka period in order to establish the relative levels of investment and again reflect on the character of the Eastern Vākāṭaka state.

9.2. Evidence of Pre-Vākāṭaka ritual activity in the Rāmṭek landscape

It would not be unexpected for pre-Vākāṭaka settlement or Buddhist remains to be present in the Rāmṭek landscape, as there is evidence of both at regional sites. For example, Pauni displays evidence of Hinayana Buddhism between 3rd to 1st centuries BC and Paunar has a sandstone Buddha revealing possible contacts with Mathura around the 3rd century AD (Meister, *et al.*, 1988:61). Within the survey area, pre-

Vākāṭaka Buddhist remains dated to the Mauryan and Sātavāhana periods have been claimed at Mansar (Joshi & Sharma, 2005:7). The reports of the excavation go as far as describing Mansar as "virtually the capital or sub-capital" for the Sātavāhanas in the area (Joshi & Sharma, 2005:8).

The proposed Buddhist evidence at Mansar is unfortunately no longer visible due to the extent of excavation and modification; the sites of the stupas and chaityas were not recognisable during this survey and no architectural elements or Buddhist structures could be traced. This does not preclude the presence of other evidence relating to pre-Brahmanical religious traditions across the survey area. However, attempts to locate any potential evidence were unsuccessful. No past Buddhist remains were identified, including archaeological material which would suggest the presence of early structures or stupas on hilltops. The low hills appear to be entirely free from archaeological remains and so presumably were never developed, and there is an absence of large hilltops except Rāmṭek itself, where any Buddhist structures would be obscured by later overlays. The lack of hilltop sites is a striking absence when compared to regional surveys such as Julia Shaw's study of Sanchi, which clearly demonstrated a tendency for Buddhist sites to focus on elevated areas and the persistence of this trend throughout the subsequent Hindu periods (Shaw, 2007). The absence of this pattern around Rāmṭek suggests that the Vākāṭaka hilltop constructions at Mansar and Rāmṭek hill were initiated under the Brahmanical tradition, as opposed to adopting a pre-Hindu or earlier Buddhist example in the immediate area. It could be suggested that the hill-top shrine tradition originated from an external influence such as the Gupta hilltop sanctuary at Udayagiri (Willis, 2009). Alternatively, it may be that the Mandhal temples in the previous core area of the Eastern Vākāṭaka dynasty were a precursor to the configuration at Rāmṭek and Mansar, and were potentially influenced by the proximity to Buddhist sites (Thapar, 1979:36; 1980a:39).

It is theoretically possible that a lack of Buddhist sites is related to the purported presence of a dominant Buddhist centre at Mansar, but within a 10km radius it seems likely that there would be scope for other sites, given the number of sites in an equivalent area around Sanchi. When the results of other regional surveys are considered, Buddhist evidence might have been expected from the Rāmṭek survey as regionally, and across the subcontinent, Buddhist developments are often identified

prior to Brahmanical expansion. This is the case in the surveys at Sanchi (Shaw, 2007), Badoh-Patari (Casile, 2009) and Banavasi (Suvrathan, 2013). Similarly, no trend of Buddhist sites was identified across the plain in the survey zone. Ancient and abandoned stupas tend to be identifiable by their regular, circular mounds containing evidence of a solid brick construction. The mound encountered at site 242 (Beldongri) was initially considered to resemble an ancient stupa, but on closer inspection appears perhaps to be a later secular or religious construction. One further mound, site 237, possibly resembles a stupa, but insubstantial evidence is detectable to support or refute this identification. While the site has a high mounded profile, it is entirely overgrown and it is currently not possible to tell whether this is an ancient brick structure or whether it served a different purpose.



Figure 9-1. From left a) 2014 GoogleEarth imagery of Beldongri mound (site 242) and b) 2013 GoogleEarth imagery of the second mound at Dudhala to the west of the main mound which is partially cut away.

In addition to a lack of structural remains there is an absence of other evidence to support the notion of a strong Buddhist presence at Rāmṭek. The survey did not identify any inscriptional evidence, chronologically distinct artefacts, Buddhist architecture or sculpture despite known remains in the region. Based on the lack of clear markers for Sātavāhana period activity, there is little to suggest that the Rāmṭek landscape was developed in the pre-Vākāṭaka Early Historic. As Buddhism was actively patronised during the Early Historic period and was connected to major political authorities, this may imply indicate an absence of any direct administration or influence from the Mauryan or Sātavāhana empires. This is in line with the proposed development based on historical evidence, which suggests that the Rāmṭek

area did not come under a significant, unified political authority until the establishment of Eastern Vākāṭaka rule. An absence of any clear major sites in this phase is also in keeping with the historical view of the period which dictates that major centres tended to be situated along rivers rather than in inland, 'peripheral' locations (Nath, 1998).

It is difficult to confirm whether non-Buddhist Pre-Hindu religious activity or local traditions existed across the survey region. The study of folk traditions can be difficult as iconography is less standardised and there may be reduced survival of archaeological remains if shrines were constructed from non-permanent materials (Elgood, 2004:327). Furthermore, there is a lack of textual evidence to support interpretation of rural or 'tribal' traditions, unlike for mainstream Brahminism (Elgood, 2004:327). In the absence of formalised religious activity, it has been suggested that Rāmṭek hill may have been the focus of "local cult" significance prior to the Vākāṭaka arrival (Bakker, 1989a:80). A lack of established religious activity prior to Eastern Vākāṭaka rule can be compared to the apparently low levels of economic investment in the Rāmṭek landscape in order to suggest that any groups of people were less engaged in regional activity. An absence of formalised religious sites does not necessarily equate to a lack of Pre-Vākāṭaka Early Historic occupation but does perhaps have implications of overarching ritual influence and patronage of sites. The evidence here suggests that the influence of institutionalised religion was felt with the arrival of the Eastern Vākāṭaka polity.

9.3. Vākāṭaka period investments

The earliest known ritual structures in the survey area that are still visible today are the Vākāṭaka constructions on Rāmṭek and Mansar hills, which demonstrate a change in worship in the landscape from some point around the 5th century AD. This is seen in the expansion of Śaivism and Vaiṣṇavism alongside more formalised support of local cults, which attests to the multi-religious investments of the Eastern Vākāṭakas.

Only relevant comments will be made here regarding the structures at Mansar based on observations made during fieldwork, and there is scope for further evaluation by a specialist in ancient architecture. The discussion here focuses on the evidence for

different phases of construction related to occupation of the landscape. As discussed in chapter three, the Mansar excavators identified three phases of construction at MNS II - Sātavāhana, Vākāṭaka and Viṣṇukuṇḍin (*Mahavihara*) – based on stratigraphy, decreasing brick size and quality, and different masonry (Joshi & Sharma, 2005:9). Scholars such as Bakker have suggested that the excavators' chronological phasing of the structures at Mansar cannot be substantiated, and following re-evaluation during survey, no further evidence could be found to lend support to the long chronology. The amount of renovation makes it incredibly difficult to assess the structure however it was noted that the constructions assigned to the Sātavāhana period appear identical in style and form to the proposed Vākāṭaka additions.



Figure 9-2. The inner and outer phases of the pilaster mouldings on MNS II.

To investigate the chronological situation further, bricks were measured from the exterior walls of MNS II and III and compared to those used in the interior of the brick constructions, which was accessible due to heavy rain damage in 2014. Despite the supposition that the interior of MNS II should represent earlier phases of building, no significant difference in brick size was found and there does not appear to be any meaningful difference in quality between the building materials. Bricks identified as being from different chronological phases overlap in size and, as can be seen in table 9.1, the 'Vākāṭaka' bricks are comparable in size to those considered to have originated from the earlier 'Maurya-Śuṅga' period. The bricks measured on survey (table 9.2) demonstrate that associated bricks *in situ* can vary substantially in size,

and so these differences in brick dimensions may reasonably be considered to be related to needs of construction or manufacture. Published ancient brick dimensions demonstrate that while Gupta period bricks tends to be large, variation in brick size is clear within time periods (see Mishra (1997) for tables of brick measurements). Although it is common to find scholars arguing that bricks reduced in size over time, this method of dating is not reliable on its own (Dhavalikar, 1999:163).



Figure 9-3. Damage caused by rains to the southern side of MNS II. Inner courses of brick have been revealed across this structure and at MNS III.

Table 9-1. Brick dimensions referred to in reports of the Mansar excavations (Joshi & Sharma, 2000; 2005).

Brick length (cm)	Brick width (cm)	Brick height (cm)	Location at Mansar	Proposed phasing by excavators	Publication date
46	22	7	MNS III, early 'stupa'	Maurya-Śuṅga	2005
48	25	8	MNS III, early 'stupa'	Maurya-Śuṅga	2000
42	22	7	MNS III, second 'stupa'	Maurya-Śuṅga	2000
42	22	8	MNS III, second 'stupa'	Maurya-Śuṅga	2005
44	25	8	MNS II, Palace	Sātavāhana	2005
44	21(22)	7	Fortification wall	Sātavāhana	2005
42	26	8	Pillared *mandapa*	Sātavāhana	2005
46	24	8	Pillared *mandapa*	Vākāṭaka	2005
46	27	7	MNS III, brick temple	Vākāṭaka	2000
44	22	7	MNS III	Vākāṭaka	2005
46	24	8	MNS II, Palace	Vākāṭaka	2005
46	22	7	MNS II, Palace	Vākāṭaka	2005
36	23	7	Pillared *mandapa*	Mahavihara	2005
32	20	7	MNS III, late 'stupa'	Mahavihara	2005
28	28	7	MNS III, late 'stupa'	Mahavihara	2005
30	22	7	'Vihara'	Mahavihara	2005

Table 9-2. Dimensions of bricks from MNS II (the 'Palace' site) at Mansar measured during survey. All pieces are proposed to be Vākāṭaka bricks and demonstrate the range of sizes in bricks associated with Vākāṭaka structures. It is noted that some of the complete bricks are comparable to brick sizes noted in Table 8.1 which have been assigned different dates by the excavators.

Brick length (cm)	Brick width (cm)	Brick height (cm)	Location at site	Incomplete/ complete brick
39.5	22	8	Loose brick around structure	Appears complete
45	22	7.5	Loose brick around structure	Appears complete
47	23	8	Loose brick revealed by damage to wall	Appears complete
45	23	8	Loose brick revealed by damage to wall	Appears complete
41	?	9	*In situ* in the interior of the structure revealed by rain damage	Width unknown as brick extends into structure
?	23	12	*In situ* in the interior of the structure revealed by rain damage	Length unknown as brick extends into structure
46	23	8	*In situ* in the foundation/base of the structure revealed by rain damage	Appears complete
?	23	8	*In situ* in the foundation/base of the structure revealed by rain damage	Length unknown as brick extends into structure

The Vākāṭaka period architectural pieces at Mansar and Rāmṭek display a preference for red sandstone, and have detailed carving, frequently with floral motifs. At Mansar, the architectural pieces largely lie around MNS III, and it would appear that they were used to decorate the brick temple construction. The architectural fragments show striking similarities to the 5th century pieces on the Rāmṭek temples. While Vākāṭaka period architectural fragments can be found around Rāmṭek and Mansar hill, no similar pieces were identified in the surrounding village areas during survey. Therefore, aside from the previously published Vākāṭaka constructions, few early remains were conclusively identified. The majority of architectural pieces located across the survey area were carved from yellow sandstone, and can be loosely categorised as 'Post-Vākāṭaka'.



Figure 9-4. Red Sandstone architectural fragments on Mansar hill associated with the stone and brick monumental constructions.

Outside of the known sites, the absence of extant architecture pertaining to this early period of Vākāṭaka construction could be due to destruction of remains related to modern activities or survival of the building materials. Destruction of brick structures has been witnessed elsewhere; for example the Vākāṭaka period temples at Mandhal have been completely obliterated by brick re-use and only scatters were visible during the field visit in 2012. Brick remains were recovered across the survey area, usually related to ceramic evidence, and may indicate the presence of earlier structures, however none related to standing monuments. Several mounds were identified which would appear to represent ancient structures as opposed to ancient habitation sites due to large amounts of brick and comparatively scarce ceramic evidence (for example, site 78 to the west of Nagardhan). These fairly small sites may be small subsidiary temples to those at Rāmṭek and Mansar, or the remains of secular structures such as outposts, possibly related to the urban site at Nagardhan. As there is no clearly associated evidence, it is impossible to assign a religious or secular purpose without excavation.

The mound at Beldongri, site 242, displays substantial remains indicating a buried *in situ* brick structure. As mentioned, on first appearances the mound resembles an ancient stupa, but through ground inspection the mound shape does not appear consistent with the expected distinctive stupa profile. The mound displays two peaks with a flat area in between, rather than a single round profile. Furthermore, at around 65m in diameter, any stupa would be quite large. There is little tile evidence, which is frequently associated with stupa roofing, and a modern cut in the base of the mound has revealed courses of brick, which appear to form a corner. This may be part of a

platform, but it seems more likely that it is part of an angular building. The brick dimensions fall within the range of those typically considered ‘Gupta’-style (Mishra, 1997) and are consistent in size with those from Mansar and Nagardhan, indicating a contemporary brick building probably unrelated to Buddhism.



Figure 9-5. Beldongri mound (site 242) which is a brick construction with large sized bricks comparable to those used in other Gupta period constructions.



Figure 9-6. Section on south west side of Beldongri mound. Courses of *in situ* brick has been reveals indicated an angular construction.

Tentatively, the presence of an eroded sculptural fragment housed in a modern temple next to the mound may support a Phase III (Vākāṭaka) origin for this brick structure and could indicate a religious purpose for the site, although this could not be confirmed without excavation. The fragmentary sculpture (no. 211) appears to be the head, shoulders and torso of an image reminiscent of the larger Narasiṃha sculpture on Rāmṭek hill. Similarities can be seen in the overall posture, shape of the torso with its lean to the left and head shape, which suggests a mane. This sculpture may be part of the trend of replica images seen across Vākāṭaka sites, but in reality, the piece is too badly degraded for any meaningful periodisation.



Figure 9-7. a) Eroded torso of sculpture number 211, which resembles the shape of the large Narasiṃha on Rāmṭek hill; b) Kevala-Narasiṃha sculpture from Rāmṭek hill for comparison (photo credit: Prof Hans Bakker)

An absence of extant religious architecture may suggest that the Rāmṭek religious landscape was dominated by the monumental sites at Rāmṭek and Mansar; major temple complexes may have had administrative and religious authority across the immediate landscape, and so smaller local temples may not have been needed to provide an administrative function. It may be that the Vākāṭaka ritual presence was limited to a few key locales and that the wider landscape received lighter investment. Alternatively the 10km survey area may have been too concentrated on the major religious site of Rāmṭek to show trends of smaller temples, and a wider survey could reveal a greater pattern of dispersed Brahmanical religious sites. Smaller village

traditions would still be expected despite the potential domination of the Rāmṭek and Mansar temples. However, rural temples may not have survived as brick re-use is evident in Nagardhan village. Smaller temples related to a village level of religious activity in the landscape may have been constructed from less permanent materials such as wood, which may have been related to restricted usage of brick or stone in particular (Williams, 1983:226).

The Vākāṭakas showed allegiance to both Vaiṣṇava and Śaiva denominations at different periods of their reign, as shown in the clear Vaiṣṇava affiliation of the Narasiṃha and Varāha sculptures at Rāmṭek and the numerous liṅga shrines connected to the Śaiva cult at Mansar. This trend of multi-religious patronage is demonstrated at regional sites and in the epigraphic records of the dynasty. An allegiance to Śaivism is seen in the land-grants through claimed descent to the Bhāraśivas (Meister, *et al.*, 1988:62). Published sculptural evidence at Mandhal, Mansar and Hamlapuri reveals that the Pāśupata cult was popular and patronised (Meister, *et al.*, 1988:62). Concurrently, the Mandhal inscription refers to one of the three Hindu temples at the site being dedicated to Mondasvāmin (identified with Viṣṇu) and Vaiṣṇava sculptures are clear at Paunar (Bakker, 1997:18; Meister, *et al.*, 1988:62). The Mandhal findings of Vaiṣṇava and Śaiva sculptures side by side is particularly significant in suggesting the cordial co-existence and royal patronage of both the Bhāgavatas and Māheśvaras (Bakker, 2010:469). Rāmṭek developed later than Mandhal, and appears to have been an official state sanctuary to avatars of Viṣṇu. The cult of Rāma has been suggested to link to Prabhāvatī Gupta's influence (Bakker, 1997:21). Furthermore, one piece of sculpture depicting a "folk deity" was identified during the Mansar excavations (M71), which demonstrates an early presence of folk religions alongside Brahmanism (Deva & Sharma, 2009:70).

It would not have been unusual for "religious pluralism" to have been practiced in the Gupta-Vākāṭaka period, given that the development of regional dynasties had diversified the religious landscape and an "assimilationist approach" would be appropriate to encourage allegiance to the kings and state (Narain, 1983:48). The Guptas demonstrated this in their political system where royal authority was legitimised through the development of divine kingship, the use of Vedic ritual and liberality towards religion, despite the dynastic commitment to Brahmanism (Narain, 1983:34). This is reflected in both the Western Vākāṭakas' popular patronage of

Buddhism and the Eastern Vākāṭakas' apparent adoption of locally important deities - Varāha and Narasiṃha - into the Vaiṣṇava pantheon at Rāmṭek (Bakker, 1992a; Bakker, 1992b:14).

The Vākāṭaka worship of Vaiṣṇavism has often been connected to Gupta influence, but it has also been suggested to reflect local development of Vaiṣṇava groups in Vidarbha; for example Kapur has suggested that the Vākāṭaka rulers required religious legitimation at the time when sects such as the Sāttvatis wanted royal patronage (Kapur, 2006:19). Similarly, the shift to Śaivism under Pravarasena II and the development at Mansar may reflect the growing popularity of the Śiva cult in the region (Kapur, 2006:28). Due to the sculptural finds at Mansar, Bakker has suggested that Śiva worship among the Vākāṭaka elite would have been iconic to emphasise their status and aniconic *liṅga* worship would appeal more to rural communities (Kapur, 2006:31).

The most secure iconographical dating of sculptures identified during survey suggests that the earliest relate to the period of Vākāṭaka control given their similarities to sculpture from major Vākāṭaka sites such as Mansar, where the sculptures have been assigned a date from the 5th century (c. 450 AD). Again, it is significant that no sculptural evidence was conclusively identified from non-Brahmanical traditions in the survey area, supporting the previous assumption that the influence of institutionalised religions was only felt from the establishment of Brahmanical worship under the Eastern Vākāṭakas. The discovery of three Buddhist bronzes near Nandivardhana led to suggestions that there was a Buddhist presence in the area, contemporary to the Hindu temples (Meister, *et al.*, 1988:61). It is possible that there was Buddhist activity, but there is a striking absence of any architectural fragments in the remains recorded, unlike at Pauni where decorative railing related to an Early Historic stupa is clearly visible. The lack of Buddhist architectural evidence around Rāmṭek may indicate that there was not a large established site within the survey radius.

The aniconic form of Śiva worship in the form of the *liṅga* is known from the Early Historic period and remains a common form of worship in modern India (Blurton, 1992:78). The Vākāṭaka period *liṅgas* at the Mansar temples are carved from sandstone and have a simple round shaft on a typically square base. They display the

markings of *pārśvasūtra* and *brahmasūtra* which appear around the 5th century AD (Mitterwallner, 1984). Bakker has compared the Mansar *liṅgas* to the style of 'Type E' (examples from early 6th century AD at Deogarh) in the typology by Mitterwallner, which display two vertical lines in the *brahmasūtra* enclosed by a pointed *pārśvasūtra* (Bakker, 2002:13; Mitterwallner, 1984:18). There are also some similarities with 'Type D' (as at Nachna-Kutara, post-Gupta), where the two vertical incisions are close together, similar to those seen in sculpture 40 (figure. 8.34 below). The apparently octagonal base of this *liṅga* is similar to that seen in a 5th century AD example from Uttar Pradesh in Mitterwallner's publication, which displays the incised *pārśvasūtra* and *brahmasūtra* and a lower shaft carved into a octagon which would be embedded in the *pīṭha* (1984:21). Two 5th century *liṅgas* were recorded at Hamlapuri near the Vākāṭaka Ganesh sculpture. These appear to have the *pārśvasūtra* and *brahmasūtra,* and square bases, seen on those at Mansar, and are comparable in size and shape.



Figure 9-8. Sculpture no. 40 and 43: 5th century *liṅgas* with *pārśvasūtra* and *brahmasūtra* at Mansar.

Across the survey area, other *liṅgas* were found which may be early icons; a small sandstone *liṅga* in Nagardhan appears to be particularly old and reminiscent of the smaller *liṅgas* at Mansar. A *liṅga* found in Nagardhan fort (sculpture no. 10) is carved from basalt and displays a square base. This may be from the 5th century or slightly later and has some similarities to the *liṅga* at site 202 in Hivri (sculpture no. 88), which is associated with a settlement mound, ceramic and brick remains. Two

larger *liṅgas*, also carved from Basalt, were found near to Mansar (sculptures 41 and 42). These both feature quite short round shafts on square bases, but have a slightly irregular shape which bulges towards the end. There are no discernible markings to date these *liṅga*s. All of these examples are bipartite in construction with the abstract representation of the main shaft and head of the *liṅga* and a square base which would be embedded in the ground. Finally, a *liṅga* was identified in Nagardhan town, which appears to be exceedingly large (sculpture no. 117); the *liṅga* is mostly buried in the ancient mound but has a circumference of 160cm and is reminiscent of the large *liṅga* from the top of the Śiva temple at Ahicchatra, dated to the early 5th century AD (Mitterwallner, 1984:21).



Figure 9-9: Left to right: Sculpture no. 668: Small sandstone *liṅga* with no discernible markings in Nagardhan town. Sculpture no. 88: *Liṅga* in Hivri village associated with brick and ceramic remains (site 202)

Both Varāha and Narasiṃha seem to have been significant focuses for worship around Rāmṭek and both have been suggested to have entered later Hinduism through tribal/local cultic influence (Blurton, 1992:19). Gupta period sculpture in central India suggests that Varāha was a common god under worship at this time (Blurton, 1992:122). The cult of Narasiṃha has been suggested to have developed in central India under Vākāṭaka patronage (Welankar, 2009:127). The Narasiṃha cult has been connected to tribal worship in the Deccan and its current form appears to be the result of an "amalgamation" of Vaiṣṇava and local religions (Blurton, 1992:125).

Rāmṭek appears to have been a centre of worship for Narasiṃha given the huge sculptures on the hill. The Rāmṭek Narasiṃhas have a distinctive "placatory" pose (Welankar, 2009:113) and the demon Hiranyakasipu, whom Narasiṃha kills in many sculptures, is absent leading to the modern iconographic assignment of *Kevala,* meaning 'only' or 'alone' (Bakker, pers. comm.). Around 9 replicas of the Rāmṭek Narasiṃhas have been found at other sites in the area, which supports the suggestion that the cult was strong during the 5th century AD (Welankar, 2009:123). A small Narasiṃha image (sculpture no. 25) was found at Koteshwar temple in Nagardhan during survey, and it closely resembles the large fifth-century Narasiṃha sculptures at Rāmṭek, with all three being seated in *mahārājalīlāsana* and holding a *cakra* in the right hand (Bakker, 1990:66). The miniature Narasiṃha parallels those found previously at Rāmṭek, Mansar and Nagardhan in both size and form, which all reflect the stance and features of the large Rāmṭek images, and have been dated to the Vākāṭaka period. The miniature measures 25 by 22 cm, and appears to be carved of sandstone but it has been painted with *sindūr*. These replica images are theorised to have been produced regionally for devotees to use in domestic alters (Bakker, 1997:136) As already noted, sculpture number 211 at Beldongri is also theorised to represent a replica of the large images on Rāmṭek hill. However, in this case the sculpture is not a miniature depiction (the remaining section of the torso is 43cm in height) and so may have been the main icon of a subsidiary temple.

Table 9-3. Miniature Narasiṃhas known from the survey area in publications.

Location	Size (cm)	Material	Reference	Image here?
Rāmṭek	Height: 21 Width: 22 Depth: 5	Schist	(Welankar, 2009:123)	See image below (Fig. 8.36) from Nagpur Museum
Nagardhan	Height: 21 Width: 23	Yellow-grey sandstone	(Welankar, 2009:123)	No image.
Mansar	Height: 7.8 Width: 9	Greyish Sandstone	Sculpture M.96 (Deva & Sharma, 2009:85)	

Mansar	Height: 24.5 Width:16 Depth: 8.5	Schist	Sculpture M.97 (Deva & Sharma, 2009:85)	
Mansar	Height: 11 Width: 9 Depth: 2.5	Schist	Sculpture M.98 (Deva & Sharma, 2009:87)	



Figure 9-10. Sculpture no. 25: Small Narasiṃha at Koteshwar temple in Nagardhan.



Figure 9-11. Small Narasiṃha at Nagpur Museum. This sculpture was discovered at Rāmṭek and is dated to the 5th century AD

The large sculpture of Ganesh at Hamlapuri (published by Bakker (1997)) displays stylistic similarities to the Varāha and Narasiṃha sculptures on Rāmṭek hill. The elephant-headed God sits in a relaxed *sukhāsana* pose, which is similar to that of the Śiva sculpture identified at Mansar. Unfortunately the sculpture is damaged and so the possible attributes held in the deity's hands cannot be identified. Images of Ganesh seem to have developed out of "various traditions" around the 4th century AD (Bakker, 1997:129). This image is theorised to have been a "guardian deity" for a temple which contained other sculptures previously found at Hamlapuri, including a head of Viṣṇu and Mahiṣamardinī. In this way the image is comparable to a Ganesh found in Cave VI at Udayagiri, which appears to have been dedicated to Śiva but also contains panels featuring Viṣṇu and Mahiṣamardinī, alongside a figure of Ganesh in a small niche (Willis, 2009:142). The presence of so many Vākāṭaka sculptures at Hamlapuri, all roughly dated to the first half of the 5th century AD and related to large amounts of brick, indicated that there was a ritual complex at this site. Bakker has suggested this was related to the capital of Prabhāvatī Gupta and Pravarasena II at Nagardhan (Bakker, 1997:84).



Figure 9-12. (a) Sculpture no. 21: Ganesh sculpture at Hamlapuri, published in Bakker (1997). (b) Sculpture no. 23: possible 5th century *Liṅga* found in the modern temple alongside the image of Ganesh

Other sculptures reflective of 5th century Brahmanical traditions were identified during survey, which do not appear to have been recorded before, but they are all fragmentary and heavily damaged. Sculpture 534 appears to be the head of boy with a rounded face and full lips. The shape of the face, eyes and style of hair are reminiscent of other Vākāṭaka sculpture previously identified. Similarities can be seen with M44, a boy's head, from Mansar, and M67, which is a female head with "trefoil" hairstyle (Deva & Sharma, 2009:56, 68). Several fragmentary sculpture heads were found around Rāmṭek, which show Brahmanical influence and have similar characteristics to other Vākāṭaka sculpture. Another head found in Rāmṭek (sculpture 295) has an elaborate curled hairstyle, which resembles the "corrugated headdress" on a female head at Mansar (M48) or the headdress and large round bun on M49 (Deva & Sharma, 2009:58-59). A second piece (sculpture 294) resembles a head of Śiva and has matted hair similar to that of an ascetic. Both of these heads have distinctive hairstyles, and feature almond-shaped eyes and a wide nose, which is a typical trait seen in published Vākāṭaka sculpture. They display similarities to those seen in Mansar excavations and those found at Mandhal in the Nagpur university collection.



Figure 9-13. Sculpture no. 534: Fragmentary sculpture of a boy's head, possibly originating from the 5th Century AD.



Figure 9-14. Sculpture no. 295: Fragmentary sculpted head with elaborate curled hairstyle.



Figure 9-15. Sculpture no. 294: Sculpture of a head with matted hair at Rāmṭek

A red sandstone sculpture of a *Gaṇa*-type figure was located at Koteshwar temple in Nagardhan and bears distinct similarities to the 'Nude Śiva *Gaṇa'* discovered at Mansar (M35) and other Vākāṭaka sculptures held at Nagpur Museum (Deva & Sharma, 2009). The stout, pot-bellied sculpture is carved from red sandstone and has the "wide chest, big belly, prominent broad hip" of Eastern Vākāṭaka figures (Deva & Sharma, 2009:21-22). This sculpture is reminiscent of the style of the frieze of *Gaṇas* on the temples at Rāmṭek and is carved in the preferred local stone. The piece is very badly damaged but is one of the most clearly 5th century style piece identified during survey.



Figure 9-16. (a) Sculpture no. 17: *Gaṇa*-type figure at Koteshwar temple in Nagardhan. (b) 5th century corpulent *Gaṇa* type figure at Nagpur Museum.

The Goddess is a common feature in local/rural worship across India (Elgood, 2004:326). Evidence of Goddess worship in the survey area has already been reported based on findings of several depictions of Mahiṣamardinī, a depiction of the Goddess that appears to have been common during the Gupta period (alongside the *Saptamatrikas*) (Wangu, 2003:73). Two broken image of Mahiṣamardinī have been identified during previous explorations at Hamlapuri and are now stored in Nagpur Central museum (Bakker, 1997; 2002; Jamkhedkar, 2004). During the Rāmṭek survey, no further goddesses sculptures dated to the early period were identified, except for several small images of Lajjā Gaurī. Lajjā Gaurī is the name given to a popular figure of a goddess, which appears to have been depicted from at least the 2nd

century BC until 11th century AD (Elgood, 2004:335). Lajjā Gaurī images have been reported from across India but appear to have been particularly significant throughout the central region (Ray & Ravindranath, 2007). Lajjā Gaurī images have so far been identified as being particularly concentrated around Maharashtra with approximately 42 recorded plaques and further fragmentary pieces found in this region out of a total of around 109 known and documented images (Jamkhedkar, 2004:28). Hunter published the first example from Mahurjhari in 1933 and since there have been finds at a number of sites including Bhokardhan, Ter, Sanchi and Nagardhan (Janssen, 1993:464). The greatest numbers have been identified around Nagpur where this survey was focused (Bolon, 1992:5).

Lajjā Gaurī has a wide array of variations but is recognisable by her supine position revealing her genitals, and she is pictured typically as a headless figure (Bolon, 1992:5). Although scholars in the past have interpreted the goddess to be squatting, Lajjā Gaurī is customarily thought to be depicted as lying with her legs drawn up and the feet turned outwards, a pose which is described iconographically as the *uttānapad* position (Janssen, 1993:461; Kramrisch, 1956:259). Despite her popularity, there is little textual or epigraphic evidence to help decipher the role of Lajjā Gaurī beyond her apparent symbolism of fertility (Willis, 2008:5). Lajjā Gaurī figures appear to be considered "auspicious", rather than being connected to a form of eroticism (Bolon, 1992:6). The characteristic *uttānapad* pose has been connected to concepts of divine or human creation and variously interpreted as representing "sexual receptivity" or the act of giving birth (Bolon, 1992:6; Janssen, 1993:459; Mohanty & Deo, 2004:32). Scholars have attempted to date Lajjā Gaurī images through a typology of "major regional/period styles" but the simple forms with local features can be difficult to characterise (Bolon, 1992:12). Jamkhedkar has dated all of the Maharashtra images to between the 3rd to 6th centuries AD (Jamkhedkar, 2004:28). Bolon identified a four-fold classification scheme developing from the most simplistic and "nearly aniconic" representations to a fully human figure and these four forms appear to demonstrate regional and chronological differences (Bolon, 1992:3):

- **Form I** portrays the body of Lajjā Gaurī as a pot with legs
- **Form II** displays a progression by depicting a human torso with breasts but the figure lacks arms and typically has a lotus flower in place of a head

- **Form III** has the addition of arms on a complete torso, usually with a lotus bud in each hand
- **Form IV** is described as fully anthropomorphic (Bolon, 1992:11).

Form II of Lajjā Gaurī is particularly common in Vidarbha region, especially around Nagpur, and most examples have been dated to the 4th-6th centuries AD (Bolon, 1992:12). According to Bolon's scheme, Form II was depicted primarily from the 4th to the 9th century, and several examples have been connected to stratified contexts to support this (Bolon, 1992:18). Form II images are all small (c. 2-5 inches / 5-13 cm on one side), and carved from stone, with rare examples in terracotta. Similar stone images have been found from Ter, Mahurjhari, Paunar, Mandhal, Mandapuri, Hamlapuri, Ramatola, Pauni, Mansar and Alapur in Maharashtra (Bolon, 1992:17) Fourteen other Maharashtrian examples have been reported from Nandapur, Mandapuri, Valad, Nagara, Supala, Buldhana, Chandrapur and Bhambragarh but have not been seen by Bolon or published (Bolon, 1992:18).

Within the survey area, Lajjā Gaurī plaques were previously known from Hamlapuri and Mansar (Gupta, 1987:46). Janssen has also reported five Lajjā Gaurī plaques from Nagardhan, which are kept in Nagpur museum (Janssen, 1993:464). Wellsted's collection in the British museum includes a small stone Lajjā Gaurī plaque from Mansar, measuring 6.6 x 7.6 cm and probably dating to the 4th to 5th century AD (Willis, 2008:4). During this survey, two Lajjā Gaurī plaques were identified at Hamlapuri and it is likely that these are the ones already recorded by Gupta. Both examples are small and simple images most similar to Type II Lajjā Gaurīs, where the arms are absent and sculpture does not feature a head above the breasts. These images are similar in size and design to a number of Lajjā Gaurī plaques found in the region including M46 from the Mansar excavations (Deva & Sharma, 2009:57) and an image from Ter (Sankalia, 1960:115). Bolon has published similar examples including a 4th to 6th century AD piece from Alapur, Aurangabad district (Fig. 22, 4 x 4 inches), a figure from Paunar in Wardha district (Fig. 25, 4¼ x 3 inches) and a 4th to 5th century example from Mansar (Fig. 93, 4 x 3¾ inches) (Bolon, 1992). A Lajjā Gaurī plaque previously recorded from Nagardhan (15 x 16cm) displays anklets which are similar to those found here (Jamkhedkar, 2004). The Hamlapuri Lajjā Gaurīs appear to relate to Phase III, Vākāṭaka period Early Historic, in the survey chronology.



Figure 9-17. Lajjā Gaurī figures identified at Hamlapuri: a) Sculpture no. 69. b) Sculpture no. 70, the second Lajjā Gaurī figure, which has been placed on the *cabūtrā* upside down.

The origin, development and iconography of Lajjā Gaurī is not well understood, although the Goddess has been considered to be a folk/village deity related to agriculturalists (Sonawane, 1988:28). It is often suggested the 'folk' deity of Lajjā Gaurī, who was assimilated into the Brahmanical religion (Bolon, 1992:48). This would not have been unusual as various forms of mother goddesses may have originated within local worship before being incorporated into mainstream Hinduism (Mishra, 2004:56). This is considered to have been a socio-political process, which attempted to legitimise royal authority and integrate local communities through either the patronage of 'tribal' deities or the absorption or acceptance of local deities into the Hindu temple (Bolon, 1992:69). There is a disparity between the typically aniconic focus of 'tribal' traditions and the use of *mūrtis* or anthropomorphic depictions of the gods in Brahmanical temples and it has been suggested that Lajjā Gaurī was 'anthropomorphised' when she was brought under Brahmanical auspices (Bolon, 1992:68).

However, it has also been suggested that Lajjā Gaurī was not necessarily a "minor deity" as she appears to have been widespread, particularly in central India, and images are fairly numerous at Early Historic sites (Willis, 2008:5). Lajjā Gaurī is often found to be associated with Śaivite imagery such as the bull and *liṅga*, and i*n situ* plaques have been located in Śaivite temples. Evidence suggests that by about the 4th century AD Lajjā Gaurī belonged to the Śaiva Hindu pantheon (Bolon, 1992:48). Alongside suggestions of Śaivite association, are tentative indications that a lion head depicted on some of the recorded Lajjā Gaurī plaques may be representative of

Narasiṃha, an important God in the survey region (Mishra, 2004:58; Welankar, 2009:128). It could be that Lajjā Gaurī was considered a "legitimate" representation of the Mother Goddess and may have been part of a significant royal cult, comparable to that of the Viṣṇupadas noted by Bakker (Willis, 2008:8).

A small, yellow sandstone Viṣṇupada has been published from Nagardhan and has been related to the possible worship of Viṣṇu's footprints on Rāmṭek hill. This plaque displays a pair of footprints in relief with engravings of possible railings, a *gada*, and a *śaṅkha* (conch). In the centre an "enigmatic symbol" is engraved, which resembles a tree (Bakker, 1997:136). A number of Viṣnupadas were located during survey, which may have significance as indicators of a local tradition of worship. However, these do not resemble the recorded plaque at Nagardhan. Although carved in sandstone, they simply feature a pair of footprints and a carved border. Their phasing is unknown as all examples are either badly eroded through ongoing libations or are very crudely carved. Examples were located at Rāmṭek and Kawadak just to the north of Rāmṭek town; Manapur, Mandri and Khairi, which are located in close proximity to Rāmṭek and Mansar; and Bori, a village which particularly displays Early Medieval to Medieval remains.



Figure 9-18. Sculpture no. 271: A small sandstone Viṣnupada, typical of those identified in the Rāmṭek survey, at site 159 near Kawadak.

Further evidence of religious pluralism under the Eastern Vākāṭakas is witnessed in the presence of Naga sculptures. Nagas or snake deities have ancient origins and are

commonly found in temples and across villages in rural areas due to their association with agriculture and fertility (Blurton, 1992:68). Nagas can be found in temples with different religious affiliations and in the past, appear to have been associated with both Buddhism and Brahmanism. The "phallic shape" of the Naga creates a clear link with Śaivism (Blurton, 1992:68). Shaw has discussed the Naga's incorporation into Buddhism as a possible method for creating relationships with rural agriculturalists and the close connection often witnessed between Nagas and water may indicate a Buddhist connection to water management through the "appropriation" of a popular ancient deity (Dass, 2006:41; Shaw, 2004:50). Around Sanchi, Shaw recorded numerous anthropomorphic Naginis and Nagas, usually dated from 1st century BC to 5th century AD, in close association with tank embankments. Shaw used the Nagas as a proxy indicator of the date of construction of the water resources (Shaw, 2005/2006:47). Anthropomorphic Nagas are totally absent in the Rāmṭek survey region and the association between Nagas and water is not obvious. Only occasionally are theriomorphic Nagas situated on the side of tanks and their direct association with the water management structures is questionable.

Naga/snake worship is strong around Nagpur and early Nagas are already known from the survey area; a small 5th century Naga, carved from soapstone with a "typical Vākāṭaka flower cap" was found by Wellsted in the burial shaft at Mansar (Bakker, 2008a:85), and a Naga image is found in front of the Kevala-Narasiṃha temple on Rāmṭek hill (Bakker, 2007b:38). Both of these Nagas demonstrate that there was a 5th century tradition of snake worship, but display differences in size, hood number and body shape. Although a large number of Nagas images were identified on survey, their dating is inconclusive and there is great variety obscuring any close parallels to the known 5th century examples. It would not be unexpected if a number of those recorded were early sculptures.



Figure 9-19. Sculpture no. 2: Five-headed Naga from the Kevala-Narasiṃha temple at Rāmṭek.

Another regional trend in the survey area is metal snakes. A metal snake was found during the excavation at Mansar and dated by the excavators to Period I (200 BC to 250 AD) (Joshi & Sharma, 2000:128). However, Bakker disagrees with this dating and believes the metal snake to be Vākāṭaka (Bakker, 2007a). The iron snake was roughly 25cm in length and was discovered at the foot of a lime figure of a man as part of the ritual assemblage for the *Puruṣamedha* (Ali, 2002). The iron snake at Mansar has been compared to one from Kauśāmbi (Pl.43, Fig.8, No. 38: Iron model of a serpent, length 12.1cm) found in layer 1 of a ritual altar (Bakker, 2002:14; 2008-2009; Sharma, 1960:122). It is difficult to know which of the metal snakes around Rāmṭek are ancient and which may be modern based on visual inspection as most have been daubed in *sindūr*, which further obscures any details. Given their level of exposure and lack of associated remains, it may be that at least some of these are modern snakes, but this still supports a continuation of this tradition in the area. The majority of metal snakes were located in Rāmṭek and on roadside shrines at Mansar, and a collection were found in the modern mining areas of Mandri and Kandri just north of Mansar, which could suggest relocation of finds to modern shrines. Occasional metal snakes were located elsewhere, however these were built into modern shrines in villages (Nawergaon, Borda and Chargaon) with little to no evidence of ancient habitation.

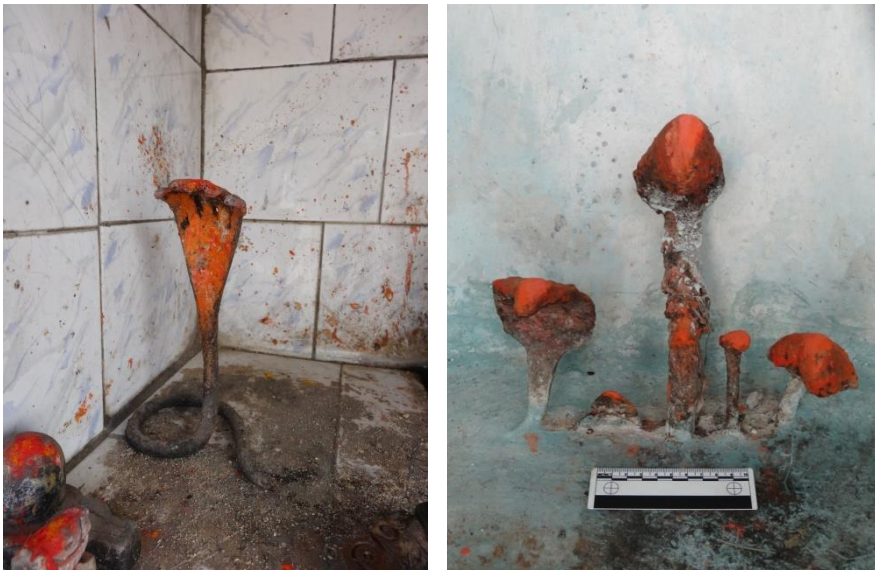


Figure 9-20. (a) Sculpture no.538: 5-hooded metal Naga in a modern shrine in Rāmṭek, (b) Examples of metal Nagas in a small shrine in Mandri (site 340)

The ceramic evidence found during survey, and connected to the economic landscape in the previous chapter, may also be related to ritual activity. Miniature pots discovered during survey may have a votive function, and therefore may be representative of less established or more private forms of worship. Similar miniature pots and jars have been identified at regional sites such as Paunar (Gupta, 1992). Their presence in mound sites may be a reflection on rural worship and an indicator of small scale shrines in the absence of permanent structural religious sites. The fragmentary figurines found in habitation mounds alongside Early Historic pottery may also have been connected to local ritual in the past, such as domestic shrines. Figurines have been reported from Mansar in large quantities and include images of divinities, a tortoise and a human skull (Manjhi, *et al.*, 2000:56). Of the three figurines located during the Rāmṭek survey, two appear to be the heads of bulls and one is a part of a torso. All are made from micaceous clay and were situated in mounded areas with extensive remains of Early Historic ceramics. Finds such as these have significance for considerations of the religious composition of the landscape and the depth of Vākāṭaka investment. Different levels of worship were present under the Vākāṭakas with established, permanent constructions at Rāmṭek and Mansar and indications of more local worship in the surrounding hinterland.

It is interesting to note that all the conclusive 5th century sculpture identified on survey was found in the vicinity of the three major sites of political investment, and Hamlapuri which appears connected to Nagardhan, except for the possible replica of Narasiṃha at site 242 (Beldongri). The finds of fragmentary 5th century sculptures in Rāmṭek town may imply the presence of further religious establishments or village shrines in the area beneath the hill. When characterising Rāmṭek in terms of its religious function to consider the nature and scope of the Eastern Vākāṭaka polity it appears there was fairly localised investment, which contrasts the picture achieved from later remains of religious activity.

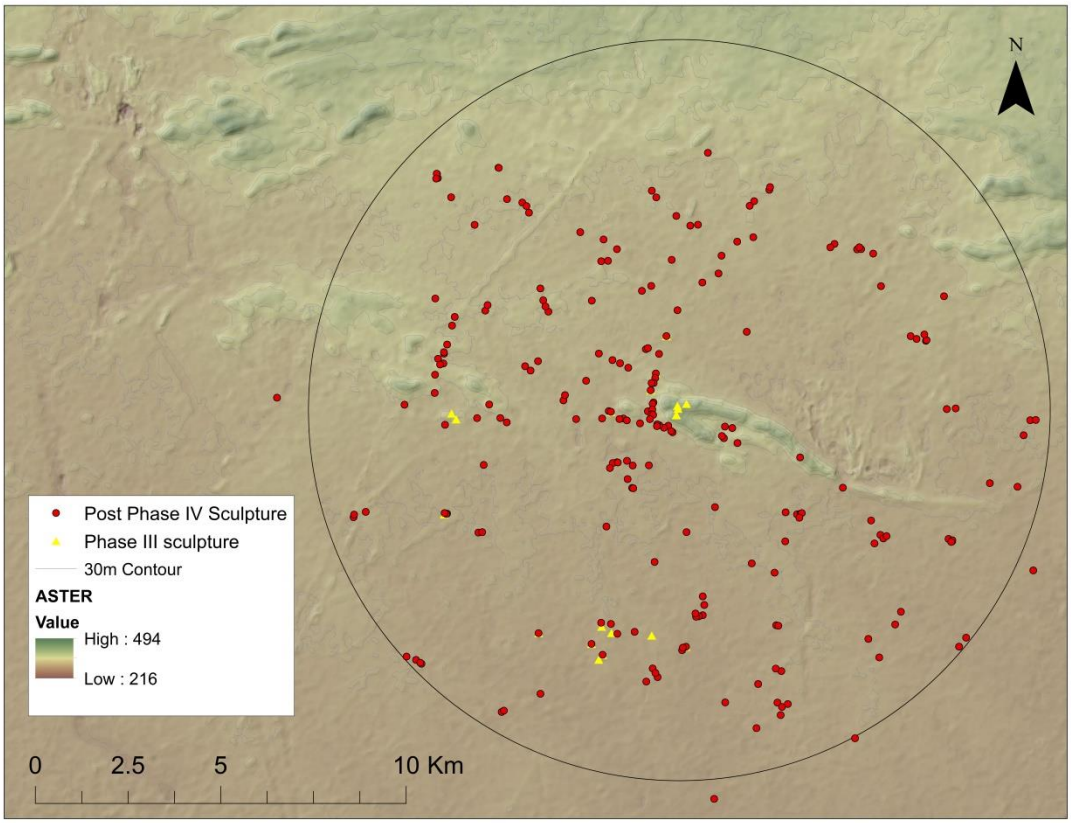


Figure 9-21. Distribution of the sculptural finds potentially related to Vākāṭaka activity (phase III in the project chronology) and sculpture identified as most likely to be post-Vākāṭaka. The 5th century sculptures are clustered primarily at the three major sites of Rāmṭek, Mansar and Nagardhan, with one piece located at the site of a brick building in Beldongri, theorised to be a subsidiary temple to the Narasiṃha temples on Rāmṭek hill.

9.4. The Post-Vākāṭaka religious landscape

In the absence of solid habitation remains pertaining to the Early Medieval period, other evidence such as sculpture, temple architecture and artefacts such as hero stones have become more important (Khaladkar, 2007-2008:27). Temples became common structural features in the Early Medieval period and thus the nature of religious remains is better known (Dayal, 2005:63). Architecturally, the period immediately following Vākāṭaka rule is under-represented in the survey data, and as noted in chapter three, a single structure in Rāmṭek town, the Kālikā Devi temple (site 98), is thought to date to the 7th or 8th century AD based on its distinctive vaulted roof similar to the South Indian style (Kramrisch, 1946a:183). Unfortunately, the purported *Mahavihara* (Viṣṇukuṇḍin) phase at MNS II contemporary to this intermediate period cannot be recognised. During the survey, this picture of the landscape persisted as no previously unrecorded temples displaying similar architectural features pertaining to around the Cālukyan period could be identified. The major period of structural development at Rāmṭek following the Vākāṭakas only appears to have occurred with the spread of the Yādava dynasty around the 12th to 14th centuries AD. Interestingly, no previously unrecorded temples belonging to this period were securely identified within the survey area, and it may again be that larger temples requiring higher investment were restricted to in and around Rāmṭek. However, architectural elements have been found at village shrines which may indicate a greater presence of past structures and suggest that the picture of temple architecture across the survey area is not complete.

Particularly across the south of the survey area, several smaller architectural fragments with common motifs, including floral designs, were identified, but these are mostly badly-preserved sandstone pieces. Architectural fragments are frequently found placed at shrines with other miscellaneous sculpted fragments and are most common at sites such as the fort at Nagardhan, and at villages which have evidence of pre-Modern occupation, such as Chichala. Dating of these architectural fragments is not easy as most are isolated, heavily eroded and fragmentary, so that even those with better preservation can only generally be categorised as ‘Post-Vākāṭaka’ in style. The spread of remains is largely within modern villages, although it is unknown whether they have been moved from their original find-spot or whether they exist in sites of

past religious activity. Similarly, 'Post-Vākāṭaka' sculpture was primarily identified on modern platform shrines rather than areas with the remains of older temples. This suggests that the sculptures are either not in their original location or that the temples have been destroyed or covered



Figure 9-22. Example of a sandstone architectural fragment located on a small mound near Nandpuri (site 91).

During survey a number of *āmalaka* pieces were discovered, which are "cogged" ring-stones (Dass & Willis, 2002:33). These are normally used to crown the tall *śikharas* of North Indian style '*Nagara'* temples, but are not found on South Indian '*Dravida'* temples (Kramrisch, 1946b:348). The earliest known *āmalakas* date to around the 5th century AD at Gupta period sites (Kramrisch, 1946b:348). At Rāmṭek, several large *āmalaka* fragments in red sandstone can be found around the Vākāṭaka period Varāha shrine, which itself is topped by an *āmalaka*. Other examples of fragmentary sandstone *āmalakas* were found during survey, often re-instated as objects of worship in small shrines. Sculpture number 142 is located on a platform shrine north of Rāmṭek and is associated with eroded sculpture. The two other pieces identified (sculptures 418 and 321) are presented on village shrines as rudimentary images of the seven mothers (the *saptamatrikas*). These *āmalakas* are small with slim serrated segments, more similar to later examples found on the body of the *śikharas* of Early Medieval or Medieval temples than the larger crowning examples of the earlier period (Kramrisch, 1946b:348).



Figure 9-23. *Āmalaka* fragments from across the survey area. Left to right, top row: (a) Red sandstone *āmalaka* in the enclosure of the Varāha temple on Rāmṭek hill (b) Sculpture no.142. Left to right, bottom row: (c) Sculpture no.418: An *āmalaka* worshipped as the *saptamatrikas* (d) Sculpture no.321: An *āmalaka* worshipped as the *saptamatrikas*

Two *Siṁha-Vyālas* were identified at modern temple sites (sculptures 58 and 274), both of which also display numerous pieces of post-Vākāṭaka sculpture. *Vyālas* are zoomorphic architectural features found on the gateways or doorways of temples (Michell, 2000:30). They are known to feature in Śuṅga, Kushāṇa-Kshatrapa and Gupta architecture and persisted throughout the Early Medieval to Medieval periods (Dhaky, 1965). A *Siṁha-Vyāla* is a lion-headed version of the *vyāla*, that has been noted to appear on the door jambs of temples in Maharashtra (described as post-11th century in (Deglurkar, 1974:164). The two *Siṁha-Vyālas* are both of yellow sandstone and appear to be in the same style. The *cabūtrā* at site 169, north of Rāmṭek, also includes a piece of post-Vākāṭaka door jamb. The ornate doorjamb piece (sculpture no. 272) features a male figure or attendant, with a female figure seated above. There also appears to be another eroded architectural piece at this site which resembles an elephant. Another doorjamb piece is located at Koteshwar temple

(sculpture no. 16 at site 50) in Nagardhan. This fragment shows a *makara*, and a male figure holding a lotus. These architectural elements all appear to be 'post-Vākāṭaka', and are likely to date from around the Yādava period.



Figure 9-24. (a) Sculpture no. 58: A *vyāla* fragment found at Manapur temple. (b) Sculpture no. 274: A *vyāla* fragment incorporated into a *cabūtrā* north of Rāmṭek (site 169), which features a number of architectural pieces.



Figure 9-25. Doorjamb fragments discovered during survey: a) Sculpture no. 272, part of a doorjamb on a *cabūtrā* north of Rāmṭek (site 169), which features a number of architectural pieces. b) Sculpture no.16, architectural door piece featuring a *Makara* located at Koteshwar temple, Nagardhan (site 50).

These survey findings are similar to those of the Ballabgarh survey as fragmentary architectural remains have potentially been discovered which appear to relate to the 7th to 12th centuries AD, but no extant temple structures can be securely dated prior to the 18th century (Lahiri, *et al.*, 1996:55). The structures themselves may have been replaced by later constructions, modified to the point that they are less recognisable as older temples or destroyed, with a traditional explanation being that earlier temples were ruined following the governance of the Sultanates. It is therefore difficult to make a statement about the amount of activity across the periods immediately post-Vākāṭaka collapse up to the later Medieval period. However, it is also important to note that if the picture of temple architecture is not complete due to preservation or survival, we may question the comprehensiveness of the picture of the ritual landscape across other periods.

As opposed to the absence of early religious constructions outside of those at major sites, later temples are prolific across the survey area. A concentration of Medieval temples and other later constructions in Rāmṭek suggests that the town was enlarged during this period. The higher occurrence of late period temples compared to Early Historic structures may due to rates of survival, as earlier temples could have been disrupted by agriculture and industrial activities. Alternatively, the lack of earlier temple remains and evidence may also be related to the past politico-religious situation. The increase in the number of later temples may reflect the more common use of permanent structural temples across rural sites from the Medieval period, and may suggest higher investment across settlement areas as opposed to the ritual hilltop centre being the sole focus of building activity. This may be due to increased religious activity or a change in the nature of patronage.

Mārāṭha and Islamic influence is clearly visible in the design elements of later temples and structures in the Rāmṭek survey area. In a study of Mārāṭha architecture in Maharashtra, Sohoni identifies a distinct tradition which appears to be the synthesis of Hindu (Yādava) and Islamic (Sultanate and Mughal) architectural conventions (Sohoni, 2011:51). The architectural style around Nagpur is considered to be distinct from the typical 'indigenous' Mārāṭha style as it developed under autonomous Bhonsle rule and remained slightly removed from the rest of Maharashtra (Sohoni, 1998:33). The Bhonsles appear to have favoured local sandstone for construction and their temples tended to be more 'revitalist' in style indicating an attempt to recover

earlier architectural traditions, as opposed to relying on a deeper Islamic influence (Sohoni, 1998:148). Islamic architectural conventions are common in Mārāṭha building practice and are incorporated into their aesthetic principles; the Mārāṭhas made use of "pointed arches, vaults and domes" and their sculptured decoration primarily consists of geometric or floral motifs, reminiscent of mosque ornamentation (Sohoni, 1998:28-29). Around Rāmṭek, temple plinths often display a similar foliate pattern, which is also found at the 18th century Gond fort in Nagardhan. Additionally, the curved, overhanging eaves of the later temple constructions reflect traditional Islamic styles; for example several of the small village temples in Chichala display similar motifs, archways and distinctive eaves (e.g. site 256). Medieval *chatrīs*, appearing to originate from around the 18th century and displaying clear Islamic motifs, were occasionally encountered in villages or in agricultural areas on the outskirts of settlements (such as at site 120 near to Rāmṭek). Nagardhan has several examples of large ornate *chatrīs* with similar design elements to the Fort (for example sites 53 and 54).



Figure 9-26. *Chatrī* located on Nagardhan mound, west of the fort (site 75), displaying a common plinth motif.



Figure 9-27. Architectural details on the platform of a large ornate *chatrī* at Nagardhan (site 53).

The largest number of later Medieval/ Mārāṭha temples in the survey area are to be found throughout Rāmṭek town, which is not surprising given the Mārāṭha influence on the area and the development occurring on the hill and around Ambālā Lake. There are several older temples outside of the main town, with similar decoration and architectural features, which appear to be Mārāṭha period constructions. Site 256 in Nagardhan incorporates several Medieval temples including a relatively large complex used as part of a school, and to the north of Rāmṭek is another example of a large later temple that is situated on the bank of a water reservoir (Japala temple, site 393). Bori village has two older temples, which when viewed alongside other evidence such as old wells, sculptural remains and ceramics, indicate the village was occupied during the Medieval period. Occasionally, temples in village areas have foundations or architectural features which appear to be old but are recently painted and modified, as at site 284 in Lohadongri. Other temples may have early components or foundations, such as the small temple at Kelapur (site 353), but renovations hinder identification of chronologically distinct features. Furthermore, even though temples may appear to relate to a particular period stylistically, the sites may have long histories of use, and so the visible remains at a site may not necessarily be representative indicators of all periods of activity. Difficulty also exists in identifying the ‘tutelary deities’ in individual temples, as it is hard to confirm whether the sculptures housed there now are original and the names of temples and their original affiliation is often lost (Shaw, 2007:75).



Figure 9-28. Examples of Medieval or Maratha period temples in the survey area: a) The temple at Japala (site 393), which also features an associated stepped reservoir. b) A temple at Lohadongri village (site 284), whose superstructure has recently been renovated and painted.

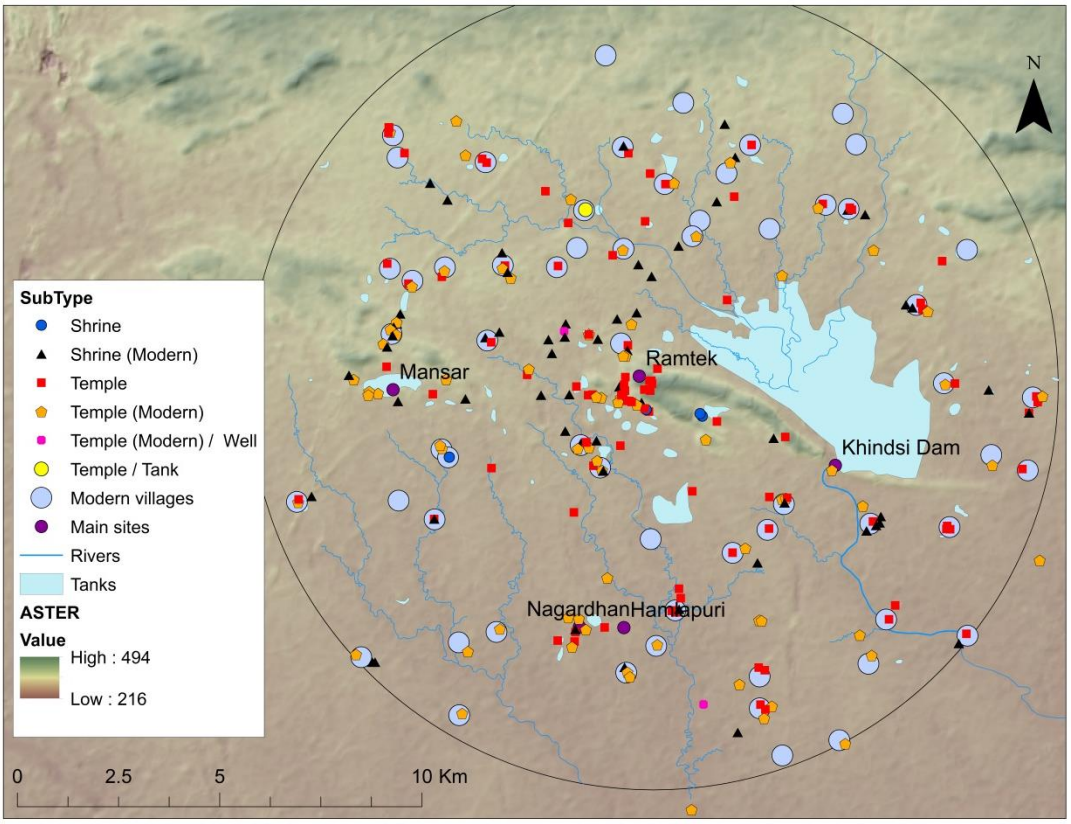


Figure 9-29. The distribution of temples and shrines across the survey area. Modern villages have been indicated on the map and modern temples were most commonly recorded at modern settlement sites. Temples deemed to be older (Post-Vākāṭaka/Medieval) also demonstrate a correlation with some of the modern villages suggesting a continuation of settlement. Shrines and temples are also found throughout the agricultural areas.

Modern temples have been found to house earlier sculpture or be significant in indicating previous religious activity at sites during other surveys and so are worth investigating. Moreover, as mentioned in chapter four, modern religious sites connect to how the local population view the religious landscape and can indicate some pre-existing ritual significance. Modern shrines were found to be variously associated with different deities by villagers and have multiple histories of use. This reflects the trend noted elsewhere of modern redefinitions or dual interpretations of the focus of worship of temples and sculptures (Lahiri, 1996:263). Most of the temples and *cabūtrās* encountered in villages around Rāmṭek were modern and were most commonly simple, concrete constructions with few suggestions of earlier remains, except occasional brick scatter.



Figure 9-30. South facing Hanuman temple with modern exterior in Nagardhan (site 62).

The majority of sculptures identified during survey reflect the evidence from the architectural remains and appear to be Medieval or modern. The dominant religion in the area today is clearly Hinduism and the modern spread of shrines/sculpture is mostly Śaivite. Around Nagpur, temples usually have the same combination of sculptures under worship; temples invariably contain a small *yoni* showing the *liṅga* and *pīṭha* in union, associated with the bull (Śiva-Nandi), Hanuman and a trio of *mūrtis* of Ganesh, the snake (Naga) and Annapurna. The triad of Ganesh, Annapurna and Naga may be depicted on one panel, or may be individual sculptures which are comparable in size and iconography. The examples of this combination of *mūrtis*

appear to be mostly carved from local sandstone or basalt but can be found in metal, and appear to be mostly Late Medieval or modern. A possible explanation for the triad may be the association of the deities with three basic human needs: Ganesh removes obstacles in life; Naga provides protection of the site/house; Annapurna provides food in the house (Bakker, pers. comm.).

The collection of five gods is considered auspicious and known as "*Pañchāyatana*" but there is little research on the significance of this particular combination of icons (Chandrasekhar Gupta, pers. comm.). The high number of snake representations (Naga) may be associated in name with Nagpur but it is unclear how Annapurna has become a common feature of worship. Annapurna represents the Devi and may be considered a popular form of Sri, the goddess of prosperity symbolising plenty, and can be recognised by her seated position and the ladle depicted across her lap (Blurton, 1992:171). This is a common form in central India and in Maharashtra, and the association of Annapurna with other Śaivite images including Ganesh, the *liṅga*, Nandi and the snake in small domestic shrines has been previously published (Blurton, 1992:171).



Figure 9-31. Sculpture no. 266: Example of the *trimūrti* of Ganesh, Annapurna and the Naga which form part of the *Pañchāyatana*.



Figure 9-32. Individual temple niche icon of Annapurna (sculpture 175) located in a Hanuman temple in Lohara (site 315).

The commonly depicted bull, present in the *Pañchāyatana*, is the mount of Śiva, which is widely referred to as 'Nandi' (Blurton, 1992:108). The bull sculptures identified around Rāmṭek fall into several main types; shrines primarily contain a small Nandi associated with a miniature *liṅga* and *pīṭha* but these are usually heavily eroded, sandstone sculptures, which have lost most of their features. Larger Nandi sculptures are also identified, usually carved from basalt, and these display clearer iconography. The larger humped bulls are all seated, with decorative bridles and garlands, often with bells or flowers, and tend to be found in the porch of Medieval temples (Dhaky, 1972)**.** This type is also present around Ambālā Lake, which features extensive Mārāṭha period structures. These iconographic features most closely resemble later sculptural styles and the associated *yonis* also appear to be late in style and manufacture. The *yonis* mostly appear to be relatively late renderings of the *liṅga* and *pīṭha*, featuring a small oval-shaped *pīṭha* with carved run-off lines for liquid libation (Mitterwallner, 1984:26). The Nandis usually display ornamentation over the body and are quite heavily stylised (Dhaky, 1972).



Figure 9-33. Left to right: Sculpture no. 275: Painted Nandi at Japala temple (site 393). Sculpture no. 202 Nandi at a Hanuman temple in Bori village (site 311)



Figure 9-34. Sculpture no. 147, 'Yoni' with small *liṅga* and oval, shallow *pīṭha.*

Hanuman is ubiquitous across the Rāmṭek area and is the most commonly identified deity (122 out of 696 sculptures identified). Hanuman is often situated in the side porch of aniconic Śiva temples, or may be unaccompanied in small village shrines and *cabūtrās.* Alongside clear depictions of Hanuman are numerous rudimentary representations, featuring a stone as the central item of worship. This may be related to Hanuman's role as a guardian deity and protector of agricultural areas (Lutgendorf, 2007:41). Determining the iconography and date of the Hanuman sculptures is particularly difficult as the layers of *sindūr* applied during worship results in "popular" Hanuman images appearing rounded with only their eyes clearly visible (Lutgendorf, 2007:59). Although the iconography is relatively late in date, it is

difficult to identify a specific phase of development. Hanuman had a later religious development and while some scholars identify the free-standing *mūrtis* as having emerged around the 8th/9th century AD, it seems that Hanuman became a significant figure of worship around the 14th century AD (Lutgendorf, 2007:60; Nagar, 1995:106). Hanuman was patronised particularly in the Vijayanagara period in the Deccan and Karnataka and the cult of Hanuman was further popularised around the 16th to 17th century following the *Bhakti* movement and the revitalisation of the cult of Rāma (Aryan & Aryan, 1975:17; Verghese, 2004). Many of the Hanuman sculptures in villages around Rāmṭek seem to be fairly late depictions. There are two common representations of Hanuman in the survey area; firstly, Hanuman is shown standing straight with the *gada* under one arm and his hands held in front of his body in *añjali* posture as a devotee to Rama (Nagar, 1995:110). This form tends to be positioned as a 'guardian' to the entrance of temples and is common from the late Medieval period (Nagar, 1995:111). Alternatively, Hanuman is portrayed in the "heroic" *vīra* pose, standing over a small demon and striding with his tail curled over his head with his left arm raised, occasionally supporting the mountain in his hand (Lutgendorf, 2007:60). This depiction of Hanuman seems to have emerged following the Gupta period, around the 8th to 9th centuries AD (Nagar, 1995:108). The tail curling over Hanuman's head is a distinctive feature of Vijayanagara period depictions.



Figure 9-35. Left to right: Sculpture no. 56: Standing Hanuman with tail curled over his head, hands in front of the body and a *gada* under his left arm; Sculpture no. 203: Striding Hanuman in the "heroic" *vīra* pose.

Within the Hindu tradition across the survey area, there are several small temples dedicated to the Mother Goddess in some form, but the sculptures all appear to be Medieval or later. The goddesses under worship in the survey area were primarily stated to be Mata Mai, Durga, Kali or the *Saptamatrikas*. The sculptures were often quite rudimentary, as noted with the *āmalakas* fashioned into the *Saptamatrikas*, and the majority of 'Mata Mai' shrines contained unhewn stones. The village shrines encountered across the survey largely consist of rough platforms, often under a tree, with stones as the object of worship. The platforms are sometimes obviously modern and formed from concrete, or are occasionally either Medieval themselves or constructed from re-used carved stone blocks. Stones, often painted with *sindūr*, are a common object of worship across rural India, and are considered to be a "permanent" representation of the "presence of a deity" (Kramrisch, 1983:98). During survey, the presence of a shrine with unhewn stones as the object of worship was recorded, however the stones themselves did not receive a unique sculpture number due to a lack of attributes to aid with chronological interpretation.



Figure 9-36. Site 166: Small modern shrine containing stones, located in an agricultural field.

Ubiquitous in the survey area is the presence of local folk or village practices, co-existing with mainstream temples. Provincial sculptural remains may be used to demonstrate the persistence and strength of village traditions and the complexity of the religious landscape. A great number of sculptural pieces which seem to display a

folk or village style were identified during survey but interpretation of these pieces is complex as local iconography is less standardised. Many carved figures display a similar standing posture and features including round faces, large ears and long disproportionate limbs. Several small unusual sculptures were recorded across the survey area, which appear to be local representations of unknown figures.



Figure 9-37. (a) Sculpture no. 282: Unusual folk-style temple alcove piece of unknown figure at Japala temple (site 393) potentially Medieval (Bakker pers. comm) (b) Sculpture no. 77: Sculpture of unknown figure on a *cabūtrā* between Mansar and Rāmṭek, which is said to be Hanuman by villagers (site 174).



Figure 9-38. Sculptures no. 169 and 170: Folk-style depictions of two figures. Similar sculptures are very common across the survey area

Two larger fragments of sculpture at Chichala depicting female figures were noted as being of interest due to the use of the local red sandstone preferentially utilised for the 5th century Vākāṭaka sculptures. These figures are fairly crude in dimension and display strange iconography, with broad shoulders and long arms. Both are holding weapons or attributes but neither is identifiable. As with other figures of a 'provincial' style, the date of these sculptures cannot be determined in the scope of this study.



Figure 9-39. Sculpture no. 449: Red sandstone sculpture of a female torso in a provincial style at Chichala (site 258)

Another common tradition noted across the survey area was the appearance of village shrines devoted to 'Bagh' with small images of tigers carved either in a seated or standing position. Worship of the tiger is known amongst the tribes of Maharashtra, where it may be referred to as 'Vagh', 'Bagh' or 'Wagh' (from the Sanskrit *vyāghra* meaning `tiger') (Singh, 2004). Bagh is said to be a part of the 'lower pantheon' of Gods and is viewed as being either responsible for the protection of cattle or as a force to be placated for general protection (Pillai, 1997:210; Tiwari, 2002:288). Worship of the tiger is particularly known amongst the Gond tribe which is present in Maharashtra and across central to north India (Crooke, 1894:322; Tiwari, 2002:26). Traditional worship of tigers as a totem has also been identified in groups such as the Mavchi, Bhil, Ganda, Basor and Dhanka in Maharashtra (Gajrani, 2004:257; Singh, 2004). These images again represent the variety of forms of local worship but cannot be ascribed a phase.



Figure 9-40. (a) Collection of fragmentary animal sculptures on a village *cabūtrā* including sculpture no. 155 which is said to be a tiger. (b) Sculptures no. 496 and 497: Both described as 'Baghdev' by villagers.

Naga worship became more important and widespread under Bhonsle rule in the area (1730-1816) and these images can be found incorporated into different architecture such as forts, *chatrīs* and *bāvlīs* (Girhe, 2002:546). Numerous Nagas were identified during survey and these images are typically free-standing, theriomorphic forms of the snake, with either one or multiple hoods (three or five). Most of these sculptures appear to be quite late in date, and some are clearly modern, but none have any particularly distinctive characteristics for dating. As mentioned, Nagas are often incorporated into the Hindu Temples dedicated to Śiva and Hanuman, as part of the *Pañchāyatana*. The Naga images are also located on isolated shrines and in collections of fragmentary sculpture and stones.



Figure 9-41. Left to right: (a) Sculpture no. 157: Five-headed Naga at a Hanuman temple in Kandri, north of Mansar (site 426). (b) Sculpture no. 513: Single-headed Naga on village outskirts (site 370)

Stones with carvings of snakes, called Naga-kals, are common in rural India. They can depict single snakes with coiled bodies and usually one or five hoods, or "pairs of intertwined snakes" (Blurton, 1992:108). Naga-kals are particularly common in eastern, central and southern India, often found in association with water sources such as rivers or tanks (Hegewald, 2002:36). The ubiquitous Naga-kals across Rāmṭek vary greatly in size and style but there is no defined iconographical typology to show the chronological development of either the Naga stones or free-standing images. None of the Nagas around Rāmṭek are inscribed, which can assist with dating. Naga iconography is difficult to interpret as the tradition has great antiquity and is very complex with relationships to both Hinduism and Buddhism (Blurton, 1992:107).



Figure 9-42. (a) Sculpture no. 304: Unusual *Nagakal* at site 198 in Hivra village. (b) Sculpture no. 54: Naga stone at the Kālikā Devi temple in Rāmṭek.

Regarding other religious influence on the area, there is frequent Islamic influence on the later architectural elements as mentioned and Late Medieval or Modern Muslim tombs were identified in the larger towns of Mansar, Rāmṭek and Nagardhan. Muslim tombs and platforms often feature re-used bricks, such as at sites 101 and 115, which demonstrates the ongoing local trend for re-use of building materials. Finally, there is a large Jain temple complex in Rāmṭek town, Shri Shantinath Jain Mandir, which is believed to have been constructed under Bhonsle rule (see Sohoni (1998) for a brief discussion of the architecture of the fifteen stone temples in the Jain complex). Mirashi reports that, "a huge and beautiful image of Santinatha about 15 ft. in height"

was recovered around Rāmṭek and installed in the Jain temple (Mirashi, 1966:53; 1968). During survey no sculptural or architectural remains of a clearly Jain origin were found across the Rāmṭek area and so there is currently no known evidence to suggest the presence of a Jain community until the later period. One piece of sculpture was identified in the Bhonsle Jain temple in Rāmṭek town. The original find spot of this piece is unknown but it is likely to be an alcove piece from one of the temples within the complex. This sculpture appears fairly late in date, which does not reveal any earlier trends of Jainism. There is no visible evidence to suggest earlier foundations at the Jain Mandir but the site has been extensively developed and is currently undergoing building works to construct a modern temple and hall.



Figure 9-43. A Jain temple in the complex north of Rāmṭek town (site 99).



Figure 9-44. Sculpture no. 696: Possibly Jain image kept in the Jain Mandir in Rāmṭek.

9.4.1. Memorial/Commemorative Images

A relatively small number of carved stones to memorialise the dead were found around Rāmṭek during survey. Memorial stones are commonly found from the 8th century AD across Maharashtra, and may be represented by hero-stones (*viragals*) or sati stones (*mahasatikal* or *mastikal*) (Jamkhedkar, 1985-1986:35). Hero stones originally memorialised the dead 'heroes' from war and cattle raiding, while sati stones commemorate the immolation of a widow (Khare, 1982:253; Mate, 1982:77).

The hero-stone fragments identified at Rāmṭek were either situated on platform shrines at the entrance of Brahmanical temples or on independent *cabūtrās* with collections of sculpted pieces. In the Banavasi survey, Suvrathan also notes that hero-stones are frequently located at temple entrances (Suvrathan, 2013:135; 2014:225). The hero stone fragments mostly seem to be part of large rectangular stones and display typical iconography including figures engaged in battle, a half moon and a sun (Khare, 1982:253). Given the trend for hero-stones across the region, surprisingly few were actually recorded during survey. Given their association with cattle raiding, the absence of these stones indicates that Rāmṭek was primarily an agricultural area (Bakker, pers. comm.). It is difficult to date hero-stones and those in Maharashtra tend not to bear inscriptions (Sontheimer, 1982:261). However, their great number

and variety, alongside certain common iconographical characteristics, makes them "an urgent case for study" (Sontheimer, 1982:261). Sontheimer identified pre-Yādava hero stones during village surveys in Maharashtra (Dayal, 2005:62). As the hero-stones are badly preserved and the small fragments only displayed sections of imagery, attempts to establish a date or compare them to published examples were not successful but regional evidence would suggest they are post-Vākāṭaka.



Figure 9-45. Left to right: a) Sculpture no. 303: Potential hero stone piece with depiction of the sun and moon. b) Sculpture no. 152: Sandstone hero stone fragment.

The sati stones around Rāmṭek were found to be separate from shrines and temples, which supports their identification as memorial images rather than plaques featuring local deities. Similarly, in Banavasi Suvrathan describes the memorial stones as being "external to Brahmanical worship" or a subject of their own worship given that they are usually situated outside of temples or on their own platform (Suvrathan, 2014:225). The sati-stones tend to be rectangular and display similar iconography; the stones are carved with two standing figures, clearly a man and a woman, who are holding hands and often bear a sword. The two figures may be representative of the husband and wife but unlike in some published examples which feature common symbols of the sun and the moon, no other symbols are carved onto the surrounding of the Rāmṭek stones (Khare, 1982:252). It is common in Maharashtra to find "crude" anthropogenic figures carved onto stone tablets (Mate, 1982:77). The Rāmṭek

memorial stones show some similarities to sati stones identified by Thakuria, which display a standing sati figure with a raised right arm (Thakuria, 2008-2009:185). There are also some similarities to 18th century examples (fig.9.2 and 9.3) identified by Misra, which depict a couple with raised hands (Misra, 2014:164). Sontheimer identified three primary types of sati stone in Maharashtra and often the couple are depicted, associated with symbols such as the liṅga, yoni, sun and moon (Sontheimer, 1982:278-281). The Rāmṭek sati stones do not fit within these defined categories and may be a local expression with its own iconographical tradition. The Rāmṭek memorial stones are most reminiscent of the Sati stones identified at Banavasi, which depict a standing couple against a plain background and are considered to represent a local tradition (Suvrathan, 2014:225). As with the hero-stones, the Sati images would appear to be post-Vākāṭaka.



Figure 9-46. From top left to right: (a) Sculpture no. 232: Memorial stone (b) Sculpture no. 137: Image which may be a memorial stone. (c) Sculpture no. 333: Red sandstone memorial stone. (d) Sculpture no. 342: Memorial stone

9.5. Conclusion

The evidence presented here goes some way to determining the role of the religious landscape around Rāmṭek to lead into discussions of how the ritual site was used by the Eastern Vākāṭakas to engage the population and feed into the state supported ideology.

There are difficulties in attempts to specifically date the architectural and sculptural material due to the history of use and current worship. It must also be noted that there is ambiguity in whether the current spread of remains is representative of activity in the past. No standing temples beyond those already known in Rāmṭek have been assigned to periods outside of the phases of Vākāṭaka, Yādava or Mārāṭha construction. Limited sculptural and architectural evidence may indicate some level of activity, but is mostly in a poor state of preservation and can be only broadly dated. Sculptural remains in particular have highlighted the varied modes of worship across the survey area. However, sculptural fragments and carved images are difficult to date, and some of the local iconographic traditions are not well understood. A limitation with the results of the survey is that there is a large quantity of isolated sculpture or architectural fragments, which cannot be securely connected to temples or religious institutions. Therefore our understanding is restricted when trying to consider the context of these fragments and the actual spatial distribution of religious elements. These categories of archaeological material do however allow some insight into the religious complexity of the past landscape around the major religious centre, and the broad chronological phases identified may be used in conjunction with the ceramic evidence in order to form hypotheses about the occupation of the Rāmṭek hinterland.

The absence of clear ritual practice in the landscape outside of the major Vākāṭaka, Yādava or Mārāṭha construction raises questions about whether this is due to survival or reflects phases of structural building activity related to investment in the landscape by a centralised authority. Based on the disparity between the absence of old temples but the presence of fragmentary, eroded architectural pieces, there could be indications that the currently assessed picture of religious activity in the landscape is

incomplete. Given the unknown survival rate of earlier temples, it is difficult to come up with conclusive hypotheses about the religious development of the area.

In terms of the phased development, no remains of formal religious activity were traceable prior to Eastern Vākāṭaka rule. Forms of local worship may have existed but could be less visible in the rural landscape either due to the durability of remains or the practices involved. Early religious practices prior to Hindu expansion are difficult to assess as local folk cults have not been successfully dated. This is true of even popular and widespread cults such as the Nagas, as they appear to have had highly regional traditions. Following the establishment of the Eastern Vākāṭaka centre, a lack of extensive structural religious evidence in the hinterland suggests that the landscape was dominated by the ritual centre at Rāmṭek and the monumental constructions at Mansar. However, pluralities in the landscape reveal religious tolerance in the Eastern Vākāṭaka kingdom. Lajjā Gaurī seems to have been an important symbol of investment in religious traditions in the landscape, and may reflect on the Eastern Vākāṭaka polity and their modes of engagement with communities to legitimate their authority. The Varāha and Narasiṃha temples convey a similar concern with folk religions, even within the dominant Brahmanical tradition, so this again may suggest the use of ritual as an integrative mechanism. The sculptural remains at Hamlapuri indicate the potential for subsidiary religious sites or complexes in the Rāmṭek landscape, however this area is located in very close proximity to the capital at Nagardhan and could be related to the settlement site. One further site, Beldongri, has the potential for there to be the remains of a 5th century temple but this is inconclusive. It could be that the size of the survey area creates this pattern of dominance by the central sites, as they are within travelable distance and were at the centre of the ritual authority. The immediate landscape may have featured local forms of worship related to the main sites, as perhaps evidenced by the trend of replica images, which may have been used in village shrines.

Small structural temples are not witnessed across the greater landscape until the Medieval period, and modern villages in the survey area often contain a temple with Medieval architectural features. This reflects the economic evidence of wider spread water management structures as noted in chapter eight, and seems to demonstrate greater investment in rural sites at this time. This may reflect on the different

character of the later centralised authority and the focused investments of the Eastern Vākāṭakas at key sites.

Chapter 10. Contextualisation of Rāmṭek in the regional context: Eastern Vākāṭaka kingship and polity

10.1. Introduction

This chapter addresses the original hypothesis of the research by evaluating Eastern Vākāṭaka political investment in the Rāmṭek landscape, in order to challenge the historical narrative of their expansion. It aims to consider both the economic and religious function of the ritual centre to establish the relationship between Rāmṭek and its hinterland. Although the survey data is not sufficiently nuanced to tie to specific historical developments, a sequence of broad changes in the spatial and temporal development of the landscape has been discussed in chapters eight and nine. The survey data gives some indication of the nature of the rural economy and the socio-political and religious transformations which occurred in this central area of Eastern Vākāṭaka control. Early Historic investment in the landscape can be inferred from the survey data, which may be used to speculate on the nature of kingship and the political entity of the Eastern Vākāṭakas in the 5th century AD. The survey results are relevant to a number of topical issues in South Asian archaeology and the key themes highlighted in this chapter are Eastern Vākāṭaka polity and kingship, the nature of their political centre, and the socio-economic role of ritual sites through relationships with the hinterland.

Through postulations concerning the nature of Eastern Vākāṭaka kingship and polity, this chapter will begin to consider the results of the survey data in the context of early Indian state development and will highlight the regionality of the formation of early complex societies. An attempt can be made to consider the coexistence of the Eastern Vākāṭakas with the Western Vākāṭakas and the Gupta dynasty, including the possibility of the Vākāṭaka kingdom having been influenced by the Imperial example. It seems that the co-existing Vākāṭaka branches functioned fairly independently and responded differently to their local environments through socio-economic and political adaptation. The Rāmṭek survey data tentatively supports suggestions that the

influence of pan-Indian ideologies regarding ritual and the representation of authority is evident in the Eastern Vākāṭaka centre.

It is argued here that although the Eastern Vākāṭaka polity could be classified as a state development in the perspective of central Indian history, it was fairly localised and presented a different political character to traditionally extensive regional kingdoms or empires. The Eastern Vākāṭaka polity appeared to have operated through the elite establishment of ritual sites like Rāmṭek in order to serve a ritual function as a focal point of worship in the landscape and to integrate local worship through religious patronage. The ritual centre may also have acted as a socio-economic institution, through the re-direction of produce into elite activities in order to consolidate the immediate territory and legitimate royal authority. The survey data seems to support the theory that the Vākāṭaka presence at Rāmṭek was active in comparison to previous periods, and resulted in changes to the nature of settlement and worship through expansion into a relatively detached and underpopulated area. However, it becomes apparent that physical investment in the landscape was fairly sparse and limited to key sites of more intense political and ritual monumentality. The nascent political centre may have been focused on funnelling production and resources into the prosperity of the kingdom and its monumental expressions in the immediate landscape. Rather than adopting an expansionist policy, it could be that the Eastern Vākāṭakas primarily sought to stabilise their networks of control throughout Vidarbha. The Eastern Vākāṭaka polity may differ from rigid, traditional views of states as it could be inferred that the ruling elite had more fluid interactions with the landscape featuring indirect control over loci situated in a ‘node and network’ system to exploit resources and focus on a ritual and royal ideology to legitimate their authority (Smith, 2007:28).

10.2. Eastern Vākāṭaka presence at Rāmṭek: expansion and investment

As established from the published literature, the Eastern Vākāṭaka polity was traditionally considered to have expanded into ‘peripheral’ zones to stimulate the development of areas less engaged with wider networks. Accordingly, the Eastern Vākāṭakas are historically viewed as the first dynasty to bring the Rāmṭek area under

centralised control and to subjugate existing local communities (Bakker, 1992b:84). Epigraphic sources suggest the Vākāṭakas shifted capital frequently but little is understood about the nature of the capitals and the reason for their peripatetic or impermanent nature (Bakker, 1997). The pattern of shifting capitals is known from previous historical empires, including the Sātavāhana dynasty, and a variety of geopolitical and economic motives have been proposed to account for this movement (Shastri, 1998; Sinopoli, 2001:170). However, the mechanisms of this phenomenon are not clear and within the Eastern Vākāṭaka territory their move to Rāmṭek has been linked consistently to a change from an urban to a rural or semi-rural settlement pattern and the expansion of an agrarian economy.

It is not unlikely that the establishment of sites such as Rāmṭek was a method of extending the Vākāṭaka state presence and strengthening networks of resource exploitation and production. Rather than being related to economic pressure and the abandonment of urban sites to pursue an agrarian economy, the shift in focus of royal/state investment to the 'periphery' may have been aimed at integrating wider areas. Agricultural expansion may have promoted hinterland development in order to support sites of royal investment and a move to Rāmṭek may have been aimed at solidifying their territorial hold if existing major sites were considered to be sufficiently strongly established. This shift may have resulted in an apparent depreciation of earlier sites, which subsequently would have been located further to the boundaries of the Vākāṭaka territory. However epigraphic evidence supports the suggestion that previous capitals remained in use after an official move designated by the epigraphic places of issue; for example, following the shift of the capital to Nandivardhana, the Masod Plates still refer to the first capital of Padmapura in the previous Sātavāhana territory (Bakker & Isaacson, 1993). The ceramic data presented in this study indicates consistency between the cultural apparatus of the pre-Vākāṭaka and Vākāṭaka periods, which implies there may have been continuity of settlement with minimal upheaval or extensive cultural change resulting in Vākāṭaka remains being overlooked at sites thought to have been abandoned.

Regarding the relocation to Rāmṭek and the more visible trend of land-grants in the 5th century AD, the historical narrative has suggested that the Early Historic expansion of agricultural villages could be explained as an attempt to bring new areas under the plough. However the spatial distribution of the inscriptional evidence now

indicates that they may have been part of an attempt to consolidate existing agricultural areas through the establishment of temples to act as centres of engagement. It seems that Rāmṭek would have been roughly the centre of the sphere of influence of the Eastern Vākāṭakas in the 5th century AD, and acted as a focal point of economic and ritual activity itself.

The data acquired on survey pertaining to both economic and ritual remains across the Rāmṭek landscape demonstrates little formalised or settled activity prior to Eastern Vākāṭaka control. Such a suggestion appears conducive with the historical narrative of the Eastern Vākāṭakas 'subjugating' peripheral areas although the landscape may have had complex settlement dynamics which are still largely elusive. The survey has highlighted the possibility of transhumant pastoralism and seasonal occupation in the landscape, and there is ambiguity in the dating of Early Historic ceramics which could support pre-Vākāṭaka settlement. It could be inferred that the Eastern Vākāṭakas' move to Rāmṭek enabled them to impose a centralised authority on pre-existing social structures and agrarian systems. Regional excavations have shown a long history of agriculture in the region and the Vākāṭaka inscriptions suggest this was the mainstay of the population, which is supported by small finds of quern stones. As a case study for the economic position of the Eastern Vākāṭakas, the survey data suggests that the Rāmṭek landscape had a dispersed semi-rural settlement pattern and an agricultural economy. A dispersed pattern of small villages may reflect a need to manage cultivation, and it may be significant that the village mounds identified so far were mostly situated within the cultivatable plain with proximity to water resources, as opposed to the increasingly hilly and forested areas in the north of the survey region.

The most convincing evidence for significant change in settlement and the economy under the Eastern Vākāṭakas is related to the clear monumental investment at Rāmṭek and Mansar, creation of the Sudarśana reservoir and the establishment of the capital at Nagardhan. The main activities in the region appear to have been agricultural and a burgeoning village agrarian economy may have supported a growing population, indicated by the more extensive habitation remains around Nagardhan. Agricultural expansion may be connected to local prosperity which allowed the economic surplus to be directed into channelled into the visible ritual and secular constructions and the maintenance of royal control and state administration. This seems to correspond well

with information contained within the Mansar inscription, which states that the Pravareśvara temple was maintained by a donated group of 26 villages (Meister, *et al.*, 1988:62). The size of the survey area could feasibly encompass the landscape and surrounding villages engaged in this localised investment into Mansar.

It has been suggested that the nature of the Eastern Vākāṭaka relationship with the agricultural area around Rāmṭek could have been an adaptive strategy to engage local communities and legitimise Vākāṭaka authority across Vidarbha. The expansion of state society into peripheral areas is suggested to have created a reciprocal relationship whereby the local area was integrated into wider networks and the state was also "localised" through the incorporation of rural elements (Sahu, 2012:150). The significant rise in ceramics during the Early Historic period and the imposition of the Brahmanical tradition at Rāmṭek supports suggestions of the integration of this area into wider regional networks. Bakker has theorised that the worship of Varāha and Narasiṃha in particular at Rāmṭek, suggests conscious "assimilation of popular cults" in order to incorporate local trends, unify the community in worship, and legitimise Vākāṭaka rule over the rural population (Bakker, 1992a:14). Eastern Vākāṭaka society appears to have been grounded in local interactions and flourished through ritual maintenance of its state system. Both the Western and Eastern Vākāṭakas appear to have employed religious patronage and ritualism to reinforce their authority, although their specific approaches manifested differently perhaps due to adaptation to the local environments.

As the Eastern Vākāṭakas are thought to have consolidated their power through Brahmanism, it seems the Western Vākāṭakas undertook a programme of patronage to Buddhism in order to engage with the local communities and legitimise their rule (Morrison, 1995:210, 214). Whereas the Rāmṭek survey data suggests an absence of formalised religion prior to Eastern Vākāṭaka rule, the Western Vākāṭakas inherited territory previously occupied by the Sātavāhanas, and may have encountered a strong Buddhist presence (Morrison, 1995:210). The proliferation of Buddhist institutions under the Sātavāhanas was part of an economic and religious system connected to long-distance and international trade networks (Morrison, 1995:211; Ray, 1985; Sinopoli, 2001). The Western area is therefore more likely to have developed with this influence and it is probable that some of the economic structures persisted into the Vākāṭaka period.

The development of sites, such as Ajanta would have necessitated a large economic investment and suggests affluence across the Western Vākāṭaka kingdom (after Bakker, 1997). It has been suggested that the Western Vākāṭaka exploits were funded by expansion and control of land or routes, with Buddhist patrons and merchants playing a larger donative role (Bakker, 1997:44-45). The continuing influence of west coast trade on the Western Vākāṭaka economy can be inferred from depictions in the 5th to 6th century AD frescos at Ajanta (Kapur, 2006:18). While prosperity is also demonstrated by the monumental constructions at Mansar and Rāmṭek, the affluence of the Eastern Vākāṭakas is considered to have been rooted in their local system and a small-scale agrarian economy, without significant influence from international trade. This appears connected to the strong tradition of land-grants in the Eastern Vākāṭakas kingdom compared to the Western Vākāṭaka kingdom, which signifies the adoption of a different political and economic response to their territory. There is limited epigraphic evidence and fewer completed excavations to support our understanding of why land-grants did not play a major role in the Western Vākāṭaka kingdom but it may be theorised that this branch adjusted to the environment and social background they encountered in order to successfully engage with existing local communities.

Central to the Eastern Vākāṭaka 'state' formation process appears to be the donation of tax-free land to Brahmins, royal patronage to key ritual/pilgrimage sites and temple building at the centre of the dynastic territory (Kulke, 1993:10). The land-grants have been variously explained as revealing political, social and ideological motives to develop infrastructure, integrate communities, maintain sovereignty and extend the influence of the Brahmanical religion and social order. Sinopoli has suggested that in part the land-grant process may have been associated with "structural weaknesses" of imperial political and economic organisation. Attempts to develop autonomous religious institutions outside of the state may be indicative that dynasties recognised their instability and were trying to guarantee longevity (Sinopoli, 2001:170).

Although there appears to have been mechanisms of integration and consolidation occurring under the Eastern Vākāṭakas, centred on the establishment of a key ritual site at Rāmṭek, the extent to which they invested widely in the landscape is debatable. The survey data suggests that later periods demonstrated a more robust political investment across the wider landscape. It must be considered how this reflects on the

nature of Eastern Vākāṭaka polity and kingship, in light of their deliberate move to Rāmṭek and establishment of the monumental centres. It appears that the focus of the Eastern Vākāṭaka investment in the landscape was the ritual sites as opposed to deep penetration into the rural landscape and creation of urban centralised life, which reflects on their characterisation as a political entity.

10.3. Economic change and a reorganisation of urban life

Kennet has suggested that the Vākāṭaka period witnessed a redirection of the economy and displayed an alternative form of state rule, which may be more difficult to identify in the archaeological record than the traditional urban response and indicators of growing socio-economic complexity (Kennet, 2004b:15). Existing research demonstrates that no incontrovertible evidence for large-scale urban developments has emerged from the nine excavations within the Vākāṭaka territory and known sites tend to reveal temples and religious structures (Thakur, 1997-1998:26; Vajpeyi, 1986:147). Sharma acknowledged that late Gupta or post-Gupta centres displayed extensive religious remains, but these were not considered to be evidence for urbanism despite the relationships between monumental constructions, religious ideology, administration and a site's economic base (Sharma, 1987b:131, 177). It may be that previous investigations were not sufficiently widespread to identify urban remains or that settlement shrinkage and the movement of sites based around shifting centres of power has concealed these habitation remains (Kennet, 2013:348). However, it has also been suggested that Vākāṭaka state rule was not necessarily based on town and cities but may have been focused on key religious sites, such as Rāmṭek (Kennet, 2004b:15). The result of this is that areas such as Rāmṭek may not fit traditional models of urbanism and state formation (Childe, 1950) which involve "nucleation" of settlements but rather witnessed an alternative structuring of polities and the economy, with ritual sites acting as foci for activity alongside a less centralised state administration (Creekmore & Fisher, 2014:3; Fletcher, 2007:189; Varma, 2008:218).

An alternative organisation of the state apparatus, would see ritual centres such as Rāmṭek, performing a number of the functions typically associated with urban centres, which would possibly account for an absence of traditionally defined large

and densely occupied ‘urban sites’ (Kennet, 2004b:15). The survey data lends support to this hypothesis, as rather than yielding remains of a single large urban site, the centre of the Eastern Vākāṭaka kingdom exhibits a trend of small settlement sites focused around a major religious centre, with several connected capitals with arguably different functions. It is difficult to ascertain from survey alone whether Rāmṭek was a flourishing urban settlement site under the Vākāṭakas, or whether the site was primarily a ritual centre until a later period. Mansar appears to have been a monumental expression of royal authority alongside Rāmṭek’s dominant religious significance across the area. Conversely, Nagardhan appears to have drawn in the population as it seems to have been a relatively large settlement site in the agricultural plain, surrounded by fairly evenly spaced villages, and further low-density settlement activity evidenced by ceramic background scatter. These three sites may have created a local network, each contributing to the different mechanisms used for integration of the rural communities.

Rāmṭek, Mansar and Nagardhan are at the centre of the Eastern Vākāṭaka kingdom – the second largest in India at the time – and yet do not constitute a huge urban conglomeration. Recent research has expanded to consider the context of sites in their hinterlands to establish their differentiated functions, and has demonstrated that ‘urban’ sites can encompass an array of economic and political formations outside of compact and developed centres (Coe, 1961:66; Creekmore & Fisher, 2014:7; Fletcher, 2007:188). Functions typically associated with urbanism have been identified at dispersed agrarian settlements, and in particular tropical forest environments sites have been found to demonstrate ‘low-density’ urbanism (Fletcher, 2007:188; Fletcher, 2009:7). This urban form differs to the densely nucleated settlements expected in the Middle East or the ancient Indian subcontinent (Wilkinson, 2014:183). Key examples of tropical forest civilisations have been observed in Mesoamerica (the classic Maya, *c.*300-900 AD) and mainland South-East Asia (the Khmer, 802-1431AD) (Fletcher, 2009:2).

Mesoamerican lowland cities tended to be small city states with smaller territories and dispersed populations (Creekmore & Fisher, 2014:16) (Isendahl & Smith, 2013:132). While there was an apparent lack of traditional ‘cities’, large “ceremonial” monumental centres have been identified which appear to have been supported by the produce and labour of the surrounding villages (Coe, 1961:76; Stark & Ossa,

2007:385). It has been suggested that areas were exploited for resources, and monumental centres were relied on to maintain societal coherence (Dunning, *et al.*, 1999:654; Dunning & Beach, 2011:377; Scarborough & Lucero, 2010). Archaeological surveys at Angkor, Bagan and Anuradhapura have shown that these sites should also be understood in terms of extensive, low-density settlement patterns (see Evans, *et al.* (2007), Hudson, *et al.* (2001) and Coningham & Gunawardhana (2013) respectively). The Classic Khmer settlement pattern consisted of a large royal administrative and cult centre supported by its hinterland of low-density rural villages so that produce was directed towards cult centres (Coe, 1957:410; Evans, *et al.*, 2007:14277). A low-density urban landscape model for Anuradhapura suggests that the dispersed hinterland settlements and population were integrated by focal monasteries (Coningham, *et al.*, 2013:461). Ceramic scatters are proposed to represent small peripatetic villages formed around monasteries subsidiary to those in the monumental sacred centre, which acted as foci to carry out administrative, political and economic functions (Coningham, *et al.*, 2006:63; Coningham, *et al.*, 2013:461; Coningham, *et al.*, 2007). The small size of sites around Anuradhapura means that the settlement pattern is difficult to compare to those of other low-density cities, and so it has been noted that the settlement pattern could be defined as either low-density urbanism or dense small rural settlements depending on the criteria applied (Wilkinson, 2014:193).

Rāmṭek's location in an environmentally challenged area of central India presents a different context to these key examples of dispersed urbanism, however, further sites in South Asia show potential for similar low density urban forms, including those in environments more similar to Rāmṭek, such as Khahajuro (950-1050 AD) (Fletcher, 2009:15). Further landscape survey may find that ritual centres at sites such as Polonnaruva (Sri Lanka), Borobudur and Prambanan (Indonesia), Sukhothai (Thailand), Sambor Prei Kuk and Koh Ker (Cambodia) and My Son (Vietnam) may also be surrounded by a low-density network of settlements (Evans, *et al.*, 2007:14282). As agrarian-based, low density urbanism could create settlements of different sizes and forms, there is a growing awareness of the importance of small-scale settlements within archaeology (Fletcher, 2012:302). Urbanism may be viewed as extending beyond an individual settlement to constitute regional networks and incorporate interdependent sites (Coningham, *et al.*, 2013:469; Fletcher, 2012).

Something akin to low-density agrarian-based urbanism may partly explain the nature of the Rāmṭek landscape, given that the limited survey appears to have demonstrated important centres at Rāmṭek-Mansar-Nagardhan with an interconnected hinterland network of smaller temples and villages. Urbanised places may be considered higher order settlements in a region of interrelated people and settlements, which provide centralised functions, such as political administration or economic distribution (Stark & Ossa, 2007:388). A main point of Coe's tropical forest civilisation theory is that agricultural surplus was directed towards non-agrarian elite activity (1961), which finds parallels in the proposed economic structure of the Eastern Vākāṭaka kingdom. Furthermore, the centres of low-density urban cities seem to have been able to attract the population through "political, social, economic and religious means" (Lucero, *et al.*, 2015:1141).

As the evidence from Nagardhan does not fit the stereotypical model of a compact, developed urban centre, it may be that the Rāmṭek area is better described as a type of conurbation (Coe, 1961:66). There are clear comparisons with Casile's study at Vadovyapattana during the Badoh-Pathari explorations. Vadovyapattana was an important royal centre in central India, where the core area was surrounded by rural settlements. The pattern of archaeological remains did not reflect the traditional dichotomy between 'urban' and 'rural' and so the landscape was described as being "agro-urban" (Casile, 2014:141). Comparison may also be made to Hawke's survey at Bharhut, which revealed only five settlement sites appearing as low mounds with brick and ceramics scatters and no 'urban' centre; the largest site at Patarahata covered 15 ha and had an unknown function (Hawkes, 2014a:359). As at Rāmṭek, Hawkes did not detect any of the "usual archaeological signatures" of urbanism and theorised that the local economy and polity functioned on a relatively small scale (Hawkes, 2014a:360). The larger settlements identified in agricultural areas were theorised to represent small local centres (Hawkes, 2014a:364). This again supports the suggestion that 'local centres' could have been foci in networks, carrying out a variety of 'urban' functions.

10.4. Organisation of the Eastern Vākāṭaka polity

Rather than denoting the breakdown of state structures, Nandi has suggested that the increasingly decentralised formations of regional kingdoms apparent during the Gupta-Vākāṭaka period would not have been an unusual feature of Early Indian state formation (Nandi, 2000:18). There is evidence to suggest that the ancient Indian states, such as the Mauryan and Sātavāhana polities, were not highly centralised state systems as traditionally thought, but were in fact fairly "ephemeral" (Sinopoli, 2001:155). Anthropological models have often been utilised to rationalise this theorised absence of a "centralised bureaucratic structure" in state formation, particularly in the late Early Historic to Early Medieval periods (Ali, 2012:9). Although later than the period of Eastern Vākāṭaka rule at Rāmṭek, we may draw from such alternative models as archaeological, numismatic and epigraphic evidence indicates a similar dispersed state structure. Focus is drawn to the establishment and growth of state systems with different foci and networks, using comparable mechanisms to the Vākāṭakas as a means of spreading ideological control and legitimising political authority, such as religious grants (Heitzman, 1991:25; 2009:214-215; Prasad, 2012:34).

Within Stein's 'Segmentary' model for Cola state formation in South India, the state is considered to have consisted of a core area of centralised power and 'localities' (*nadus*) which fairly autonomously carried out much of the state's political and administrative activity, but were united under the "ritual sovereignty" of the royal authority (Heitzman, 1997:15-16; Stein, 1977; Stein, 1985:394). Heitzman proposed the idea of 'temple urbanism' as a means of state formation, arguing that temples became part of an integrative, administrative system which supported royal control (Heitzman, 1997:107). Chattopadhyaya and Kulke's 'Integrative' model of state formation focuses on the proliferation of rural agrarian settlements and the spread of Brahmanical ideology, which acted as an overarching mechanism to integrate local communities and religions (Shrimali, 1993:27). In Orissa, the early centuries AD appear to have been defined by the development of small kingdoms and Kulke focused on the role of Brahmins in consolidating these territories with land-grants used as a mechanism for creating and strengthening local networks (Heitzman, 1997:14; Kulke, 1978:128; Sinha, 2001:159). Chattopadhyaya proposed that the

formation, reorganisation and transformation of social networks and structures resulted in more settlement and the economy becoming increasingly localised (Chattopadhyaya, 1986; Hawkes, 2014b:210). According to Chattopadhyaya, if 'urban' centres acted as intermediary points in networks of "local exchange", they may have been comparatively small (Chattopadhyaya, 1986:32).

It may be proposed that Rāmṭek formed part of an 'urban' ritual area, which are known to have drawn in the population through acting as centres of pilgrimage and cultural interaction and locations for "economic transactions" (Smith, 2014:311). During research at Kaundinyapura and Sisupalgarh, Monica Smith stressed the importance of the hinterland by noting that the economic growth of Early Historic urban centres may have been based in local exchange and production. Smith has proposed that alternative models of urban success could have existed which focused on different levels of trading networks given that the evidence at Sisupalgarh suggests that Early Historic cities could be "self-sufficient" (Smith, 2005:297). Such research highlights the potential for a complex system of local, regional and long-distance exchange to have existed across the Early Historic subcontinent, where emerging cities were embedded in local networks rather than being connected through regional exchange like the ancient urban sites of the first urbanisation episode in India (Ali, 2012:9). Smith suggested that while towns such as Kaundinyapura may have relied more heavily on regional exchange, cities could have become prosperous through their association with a thriving hinterland (Smith, 2002a:148). The large Early Historic city of Sisupalgarh displayed minimal regional exchange with a local ceramic tradition. On the other hand, the material culture at the town-site of Talapada in its hinterland demonstrates that smaller habitations were active in the regional economy (Mohanty, *et al.*, 2014:53). Similarly, ceramics and other artefacts at the town of Kaundinyapura suggest prosperous local and regional exchange with limited long-distance trade of marine shell alongside a tradition of local rather than traded fine-wares (Smith, 2002a:145). This evidence suggests that central Indian exchange networks could have made use of regional materials but largely involved the local production of domestic artefacts and ceramics (Sinopoli, 2001:174; Smith, 2002a:147). The remains around Nagardhan are reminiscent of those at Sisupalgarh in that they indicate local manufacture of ceramics and a lack of exchanged goods; again the site appears to have been "anchored" in the surrounding hinterland with

local production funnelled into conspicuous consumption and "portable goods" (Smith, 2002a:148; 2005:304).

If urban sites were more reliant on a strong local hinterland than long-distance exchange then agriculture is necessary for urban growth (Smith, 2002a:148). If political organisation was "relatively weak" in the period in which sites such as Sisupalgarh prospered, and regional dynasties experienced fluctuating territorial control, then even small urban areas, as potentially seen around Rāmṭek, may have been the most consistent space in which to focus investment into monumental constructions (Smith, 2002b:111). Sites considered urban appear to have extended their influence within a local "urban conglomeration", which fulfilled a role similar to the regional exchange of other areas (Smith, 2002a:149). Additionally, local trade has been suggested to have been a means of engaging the population through creating a "shared cultural system" (Smith, 2002a:149). The concept of a "local system" is relevant to this context as the Rāmṭek evidence seems to suggest an interconnected network of sites secured in a productive hinterland (Smith, 2005:304).

It has been suggested that kingdoms may have utilised a 'node-and-network' approach to engage with the landscape, where nodes were centres of resource interest connected by corridors of access. In this model, 'urban' centres could be considered "interaction loci" as cities primarily enabled connectivity between points and the maintenance of social networks (Smith, 2007). This may be significant in relation to the survey findings, which suggest a relatively sparse investment by the Eastern Vākāṭakas in the surrounding landscape of Rāmṭek, as evidenced by the absence of Vākāṭaka period economic or ritual constructions outside of the major centres. Rāmṭek and the capitals may have operated as nodes situated in an area of local resources and so the immediate hinterland surveyed in this research may be in too close proximity to the centre to require deeper investment.

If states are understood as existing within networks then state expansion could be comparatively low investment as growth relied on the varying control of nodes and corridors as opposed to delineation of rigid territorial boundaries (Smith, 2007:31). The 'node-and-network' theory allows us to consider a more flexible approach to landscape undertaken by the ruling dynasties (Smith, 2007:29). Kingdoms could have prospered by asserting control over nodes through different strategies such as

"alliance", "coercion" and the rewarding of areas who adhered to the systems of the over-arching authority (Smith, 2007:33). This may have significance for the Eastern Vākāṭaka land-grant tradition and the funding of Brahmana institutions within established habitation areas, as the dynasty may have been creating or securing nodes to act as production centres within more extensive networks. Again this could reflect on a wider climate of potential instability and state dynamics, which kingdoms were able to navigate more successfully by adjusting to the changing socio-economic and political landscape (Smith, 2007:31).

If the Eastern Vākāṭaka polity operated within a flexible hinterland using various networks to obtain resources then this could aid explanation of the apparent mobility of the dynastic centre. The modes of exploitation in the landscape and the flexibility of polity shows attributes similar to that of chiefdoms, which are usually considered to have less permanent and rigid borders than states (Smith, 2007:31). Rāmṭek is the centre of the Eastern Vākāṭaka polity where the strongest investment of expansionist power would logically be expected however this is not the case in the data achieved during the survey. The comparatively low investment of the Eastern Vākāṭakas in the landscape could suggest their polity resembled a specialised chiefdom, although early states seem to have had similar strategies for resource acquisition and control of their territorial limits (Smith, 2007:31). Although seemingly lacked a strongly centralised administration in a clearly defined territory, the Vākāṭaka polity did feature strong sovereigns and the unequal distribution of production and surplus given that the kings controlled the land and channelled production into the centre (Smith, 2003:90-91). The land-grants also suggest systems used to restrict access to resources, obtain labour and collect some form of taxation in order to support consumption by royal and religious spheres, as in a state (Smith, 2003:92). In reality, a strict classification of states and chiefdoms may not acknowledge the "heterogeneity of socio-cultural formations" and the concepts of the 'state' may simply applied to particular combinations of "powerful yet elusive methods" of arranging social systems (Smith, 2003:96). The Eastern Vākāṭaka kingdom may be better considered as an Early Complex Society due to its kingship, social stratification, permanent institutions, resource acquisition and socio-religious ideology (Smith, 2003:103-104).

Questions regarding state formation are relevant even to the imperial Guptas, as Virkus has suggested that while their ideology was pervasive, their state may have

been loosely organised to incorporate diverse polities, site types and local economic or administrative systems (Virkus, 1992). The Eastern Vākāṭaka polity may also have incorporated local networks unified by ritual ideology. A key concept in Early Complex Societies, and indeed traditional states, is that of the creation and perpetuation of power through the legitimation of authority (Smith, 2003:105). In more dispersed networks of sites associated with a ritual or political centre, monumental constructions can be one method of visually demonstrating a particular social order (Coningham, *et al.*, 2007:18; Dunning, *et al.*, 1999). Religious and royal monumental expressions can create authority by communicating the king's power and administrative systems, which affects the population's perception and experience of the landscape (Duncan, 1990; Glatz, 2014:127). Monuments are also able to induce and convey a communal cultural or religious identity and set of values to integrate the people (Duncan, 1990:154; Kolb, 2014:154).

At Rāmṭek and Mansar the monumental state sanctuaries and ritual centre could be viewed as an attempt to legitimise authority and cast a 'kingly reading' over the hinterland. The 'King's reading' refers to the creation of an 'ideal' landscape by a particular model of kingship, which legitimises the king's claim to power; for example, the Aśokan model of kingship centres on the creation of religious structures and public works within the landscape (Duncan, 1990:6). Monuments may be aimed at communicating ideals of "political and religious life", so that the king's reading of the landscape is conveyed and perceived by different members of the population (Duncan, 1990:87).

If the establishment of Rāmṭek as a ritual centre is part of a process of using sites to legitimate control over the landscape, then this is similar to the theorised situation for the Gupta foundation of Udayagiri to the north. The hill of Udayagiri was an existing ritual site before being claimed and restructured under Chandragupta II as part of the "Brahmanical reordering" of the landscape (Shaw, 2007:132; Willis, 2009). Both the Guptas at Udayagiri and the Vākāṭakas at Rāmṭek seem to have been actively attempting to impose their religious and political identity on the landscape. Willis has even considered the iconographic tradition at Udayagiri to symbolically convey legitimacy and the King's dominance over the land. At both Udayagiri and Rāmṭek, Varāha is a prominent deity and may be viewed as demonstrating royal affiliation with the "God who possesses the Earth" (Willis, 2009:165). Furthermore, Udayagiri

is juxtaposed by Vidisha and the Sanchi area, and is described as being part of the "wider suburban sprawl" of the city of Vidisha. Small habitation sites were documented in Udayagiri's environs, and the site is suggested to have served a ritual function in the suburban environment (Shaw, 2007:131). While Nagardhan is not an 'urban' site in the same way as Vidisha, but there may be a similar relationship between its landscape and the ritual centre of Rāmṭek. Agricultural sites in the surrounding 'conurbation' may have created a support network to maintain the ritual site, which acted as a focal point to legitimise Eastern Vākāṭaka authority.

10.5. Regional states and pan-Indian ideologies

The development of economically self-sufficient centres in networks of local production with conspicuous consumption may have been a strategy of ensuring the success of regional kingdoms. However, this complex of independent local/regional networks seems to have been conducive with a pan-Indian spread of ideas and conventions and incorporation into a larger shared ideology (Sahu, 2001:3; Smith, 2005:297). The Guptas' transmission of social values and cultural apparatus across India may have been achieved through various channels including trade, matrimonial alliances and the use of Sanskrit. Consequently, a replication of Gupta trends and ideals might be expected in other areas and it does appear that different regional dynasties developed similar models ritual activity, polity and kingship (Sahu, 2001:13). The mechanisms of this spread are not well understood and it does remain unclear how the various regional dynasties operated in relation to each other, even across the two branches within the Vākāṭaka dynasty.

A connection between the Guptas and Vākāṭakas has been widely theorised in historical research but the available evidence does not conclusively support any direct influence (for a discussion of the evidence see Goyal (1989), Goyal (2006) and Shastri (1992a). The Vākāṭaka inscriptions demonstrate their shared ideals as the Prakrit of early Vākāṭaka records was replaced by Sanskrit from the mid-4th century AD (Pollock, 2006:289; Shastri, 1997:180). Mutual epigraphic conventions in the representation of dynastic power and authority reflects the political ideology and Sanskrit's power in legitimising authority through the spread of Brahmanical culture (Bhattacharya, 2014:25; Bronkhorst, 2011:47; Lubin, 2005:98; Sahu, 2001:14). Willis

has proposed that a "circle of kings" existed where despite regional autonomous kingdoms, there was an overall ideologically coherent polity organised by common values and practices (Willis, 2009:6).

The Guptas and Vākāṭakas seem to have had similar political systems and both followed a model of kingship like that outlined by the Arthaśāstra, in which areas with an opportunity for control were settled and the kings practised tolerance towards local practices to subsequently lead to integration into the Brahmanical system (Willis, 2009:159). The Brahmana settlements not only strengthened the agricultural and economic development of an area but also assisted in compelling the people to accept the new social framework through ritual integration (Willis, 2009:164). Willis sees religious institutions as having been "dynamic" forces in structuring political and economic relationships, driven by those with particular intentions, such as kings priests and the upper echelons of society (Willis, 2009:9).

The Eastern Vākāṭakas and Guptas do seem to have had different economic responses within their territories as the Guptas do not appear to have been frequent donors of land unlike their subordinate kingdoms (Singh, 2008:495; 2009:160). Whereas smaller dynasties may have used land-grants as high-value transactions, the Guptas were heavily monetised and produced a large amount of precious currency (Raven, 2012). It may be that Gupta territory encompassed mostly established Buddhist landscapes with an already developed and inherited land tenure system, meaning that grants of land were unnecessary or impractical. Additionally, the Guptas' imperial presence may have reduced their need to establish power and consolidate territory in their overarching landscape. Conversely, newer or smaller kingdoms may have required the land-grant system to further organise the land and establish boundaries, particularly if they were centralised in areas with interrelated but competing kingdoms.

10.6. Conclusion

This study initially aimed to challenge the historical narrative of Eastern Vākāṭaka expansion, which describes the colonisation of 'peripheral' areas to establish a new social order, and the creation of an agrarian economy. While the data achieved from

the Rāmṭek landscape initially seems to provide independent support for the historical sources, it becomes apparent that the picture of landscape development is more complex. This chapter has considered the evidence surrounding Rāmṭek's function as a socio-economic and religious site in the landscape in order to extrapolate information about Eastern Vākāṭaka polity, administration and period of rule.

It appears that following their move to Rāmṭek, the Eastern Vākāṭakas reorganised the landscape to support their state activities. The ritual function of Rāmṭek may be similar to that at Udayagiri, where the religious centre was involved in the legitimation of authority. Monumental expressions of power and ritual ideology seem to have been used to integrate the local communities and legitimise Eastern Vākāṭaka rule through the creation of shared worship. Furthermore, it appears the site of Rāmṭek may have served an important economic function through the coordination of production in the landscape so that the monumental constructions of the Vākāṭaka kings were supported by a local economic network. The sites of Rāmṭek, Mansar and Nagardhan may theoretically have acted as 'nodes' within local networks of resource exploitation. The evidence from Nagardhan, which is central to the Eastern Vākāṭaka territory, suggests that regional kingdoms may not have had a typical 'urban' response to state formation. The results of the survey add further weight to suggestions that Vākāṭaka rule could have centred on key ritual or political sites, which may not be deemed 'urban' in a traditional sense, but which utilised other mechanisms to integrate the people and consolidate the regime's power.

It is interesting to note that despite there being evidence of royal development at Rāmṭek and Mansar and the spread of settlements in the agricultural hinterland, the extent to which the Eastern Vākāṭakas invested in the wider landscape can be challenged. Formal religious sites and secular or economic structures do not extend past the monumental centres until at least the 12th century AD. This could suggest that local practices and networks persisted while also being integrated into a wider ideological system. Rather than widespread investment and the development of a centralised core territory, it could be that the Eastern Vākāṭakas were concerned with building networks in order to ensure the kingdom's longevity in a potentially mutable landscape. In its close vicinity to the ritual centre of Rāmṭek, the landscape of the survey region may have simply received a 'kingly reading' communicated by the visually powerful and dominating monumental sites.

Chapter 11. Conclusion

11.1. Introduction: Summary of findings

This research began with the aim of contributing survey data towards the study of the Eastern Vākāṭaka dynasty, by attempting to contextualise the ritual centre of Rāmṭek in its surrounding landscape and characterise the nature of past settlement. Small-scale survey was undertaken in an attempt to obtain meaningful data in the face of logistical limitations, in an under-researched area. It was hoped that sufficient data could be achieved to test the hypothesis of challenging the historical narrative of regional landscape development under Eastern Vākāṭaka control. This research therefore aimed to look beyond viewing Rāmṭek as purely a religious site to explore its relationship to the landscape and establish its role in both economic and ritual activity. With the aforementioned study having been concluded, this chapter represents the summary of the main work embodied in chapters two to ten.

11.2. Outline of the research and its significance

This research utilised a variety of approaches and datasets, including the use of topographic maps and satellite imagery, 'informed' unsystematic survey and systematic quadrat-walking to investigate the nature of the rural landscape at Rāmṭek. This study was able to draw upon a number of influential projects conducted across historical sites and their hinterlands, including Hawkes (2010); Lahiri (1996); Morrison (2009); Shaw (2007) and Smith (2001b). The survey of the Rāmṭek landscape enabled the recording of 444 archaeological features, including the remains of ancient habitations and other material related to past settlement and religious activity. Discussion of the resulting survey data focused on three major categories of evidence; ceramics, sculpture and architectural remains. A consideration of these categories of evidence allows the development of the Rāmṭek landscape to be viewed as a case study for socio-economic trends in the Eastern Vākāṭaka kingdom, in order to attempt to infer the nature of the Early Historic polity and regional trajectories of economic or ritual development. Although this thesis outlined a number of problems

which may be faced when working with a complicated dataset, it is hoped that the potential for small-scale research to contribute meaningful data has been emphasised.

Primarily, this thesis has demonstrated that meaningful investigation into the archaeology of the Early Historic Indian landscape, and the subsequent acquisition of data, is both possible and advantageous. A key finding of this project is that data can be collected on rural sites, despite the impact of modern activity in the swiftly changing landscape. The discovery of unrecorded archaeological material deepens our understanding of the nature of settlement and establishes important contextual information, in order to situate the religious site in its hinterland. The rural landscape should be a significant focus in the study of the Vākāṭakas, in order to consider the socio-economic and political development of the region, given the role which rural communities appear to have played in the transformation of the urban economy and configuration of state. Future research should be encouraged as survey has the potential to contribute to our understanding of rural settlement in the Early Historic landscape, and it is a priority to record these archaeological remains while they are still detectable. As the nature of the material culture in this period is not well understood, there is great potential for a variety of research methods to be successful in exploring the landscape. This study has presented one way of approaching the questions we have of the archaeological record and thus makes a small contribution to the expanding body of landscape research conducted in India. Based on the success of this small-scale project in recovering usable data, it seems that greater resolution and quality of data could be achieved with intensive systematic survey and the collaboration of researchers with specialist skills.

This research has met its initial aim of contextualising Rāmṭek, to increase our understanding of the site's relationship to the landscape and consider the Vākāṭaka period in context. This research has provided necessary archaeological data on the settlement history of the Rāmṭek landscape to extend consideration of the site beyond the monumental religious constructions and connect it to regional trends. The importance of regional investigation is clear for elucidating widespread transformation of politics and the economy. However, the ability to form a comparative study with evidence from across India is limited by the lack of evidence for the operation of other dynasties. The Western Vākāṭakas are lacking in studies of their settlement history and economy, which may be addressed in future research.

Their mention in this thesis was brief, but highlighted the potential complexity of regional variation and the varied responses of the different dynasties to their respective environments. Similarly, our socio-economic and political understanding of the Guptas is remarkably limited despite their importance and proposed Imperial presence. A route for further research would be to integrate the findings of regional surveys and to consider other categories of remains, such as the dynastic epigraphic records, as material evidence related to the political and economic functioning of Early Complex Societies.

Discussion of chronology has been a major limitation in this project and will not be resolved without more systematic approaches to archaeological investigation. Although some limitations were certainly inherent to the research design, the ability to refine chronologies and create a nuanced picture of development was hindered by inadequate comparative material and published excavation data. There is great scope for the application of absolute dating and archaeological science, which could target confusions surrounding typologies and rate of change in Early Historic and Early Medieval ceramic assemblages in particular. Ultimately, however, in order to resolve issues faced in studies of this region and time period well-conducted excavation has to be a priority. This project has demonstrated that surface studies can only achieve a limited amount in the absence of reference material. Given the advances in theoretical standpoints and archaeological practice, and a greater understanding of the potential complications in research, the logical step is to undertake excavation and begin to build the foundations of systematic research.

Theories can only be extrapolated from the evidence that was available or visible at the time of the survey and a nuanced view of regional landscape development in the Gupta-Vākāṭaka period remains elusive. I welcome further research to confirm or refute these intimations. Indeed, a key message to be emphasised at the end of this study is the great potential for future research, not only within this region but also across India.

11.3. Eastern Vākāṭaka impact and investment on the Early Historic landscape of Rāmṭek

This study sought to answer four research questions in order to challenge the historical narrative of Eastern Vākāṭaka development and it is now possible to address these, having outlined the results of the landscape survey and discussed the economic and ritual significance of Rāmṭek in its hinterland related to the socio-economic and political character of the Eastern Vākāṭaka dynasty.

The first research question sought to investigate the nature of ritual and economic activity across the landscape prior to the major recorded period of *c.*4th to 5th centuries AD. This research has identified material remains which are likely to relate to prehistoric or emerging Early Historic activity, suggesting that it is possible to identify evidence for past activity outside of the known periods of Vākāṭaka expansion and later Medieval development. However, there is an absence of substantial habitation remains or material related to formalised pre-Brahmanical religious practice. I have argued that the Rāmṭek area, while subject to potentially limited or transient settlement, does not appear to have been engaged in regional networks of production during the prehistoric period. The combination of absences of pan-Indian ceramics, local ceramics and extant habitation remains have been taken to suggest the area potentially experienced a rural economy less reliant on production networks and rooted in local, less-settled activity. A number of factors may be affecting this picture of pre-Vākāṭaka Rāmṭek and there are certainly questions over the visibility and survival of archaeological material; an existing settlement pattern with a developing local economy prior to the Early Historic would not be out of place in regional history, where 'urban' traits are traced back to Chalcolithic and Iron Age developments. Visibility may be adversely affected by shallow ploughing, limiting the ability of surface survey to detect features. Furthermore, even when early remains are discovered, the nature of the evidence itself and of regional comparison material can limit attempts to assign a reliable chronology. However, it does seem that at some point in the Early Historic, the production, use and deposition of ceramics vastly increased and there was a rise in the number and size of settlements, which indicates economic change in the landscape.

This leads us to our next two research questions: one regarding the nature of the relationship between the nascent political and ritual centre of Rāmṭek to the surrounding landscape and the extent of Vākāṭaka impact on settled hinterland; and the other questioning whether the Eastern Vākāṭakas could be credited with the economic transformation of the landscape. These were directed towards testing the traditional narrative that implies the Vākāṭakas greatly invested in the dynastic centre, as evidenced by the monumental constructions at Rāmṭek and Mansar, in order to generate the Pan-Indian socio-economic and religious transformations of the 5th century AD within this region.

Historically, the Vākāṭakas appear to have been the first unified power to directly control the area but it has been unclear to what extent the establishment of the ritual centre and state capitals initiated development in the local settlement, the rural economy and production, as opposed to simply capitalising on existing systems. There remains little conclusive evidence to suggest a previous political or religious authority in the area. However, while the ceramic evidence could be interpreted as indicating some intensification of settlement activity prior to Vākāṭaka rule, it seems much of the rural landscape development did occur under their influence. The Phase III Early Historic period under the Vākāṭakas demonstrates a high level of state investment at the central sites and the first evidence of major institutionalised religion. Furthermore, Nagardhan appears to have expanded to become a relatively large habitation site at the centre of a local conurbation.

However, a key finding was that the royal investment was fairly localised so that production and resource exploitation were subject to the demands of the ritual and political centres and the agricultural landscape was engaged in local production to fulfil domestic needs. Rather than the traditionally held, urban-centric model of state formation, it has been proposed that religious sites could have acted as focal points in the landscape and that other mechanisms were involved in the consolidation of control. The ritual site of Rāmṭek may have been established to integrate the rural landscape into Brahmanical society and legitimate royal authority, through its position as an important node in local production and exchange networks and through the communication of a pervasive shared ideology. It could be suggested that the Eastern Vākāṭaka polity may reflect the proposed situation in the Gupta Empire

where socio-economic and political formations were directed by the ritual ideology of the kings.

Consideration of the final research question highlights this issue further by comparing the levels of economic and ritual investment under the Eastern Vākāṭakas to that of the Post-Vākāṭaka periods. There was clearly a widespread proliferation of permanent religious and economic structures across the landscape at this time. This forces us to reflect on the nature of the Eastern Vākāṭaka state. It seems that the 'state' focus was drawn to incorporating rural and agricultural communities into prosperous local production networks. Such a scenario may be connected to suggestions that the period witnessed general political instability and so dynasties would have attempted to secure their territorial control through investing in smaller cities (Sinopoli, 2001:170). Finally, the seemingly intermittent investment in the dynastic centre of the Rāmṭek hinterland may reflect the Eastern Vākāṭakas' flexible consolidative approach to their landscape. It may be theorised that the efforts of the Eastern Vākāṭaka regime were more focused than expansionist, and directed towards the strengthening of regional networks and maintenance of royal and ritual authority.

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Appendix 1: Site list

Appended here is the list of sites encountered during the survey field seasons (2011-2014). These include known sites such as the Rāmṭek temples and newly identified features. Several sites located just outside of the 10km survey area have been included, as they have featured in the discussion of the local area. Sites are arranged in numerical order with a simple ascending site code. Sites have been categorised according to their primary features, as discussed in the main text, and have been assigned a descriptive sub-type.

The information contained here includes the GPS location of sites, a brief description of the nature of the site and a comment on the material remains present. Religious associations and chronological attributions have been given where possible.

Site No.	GPS No.	Site Type	Site Sub-Type	Description	Brick Y/N	Ceramic range	Find	Sculpture Phase	Proposed Phase of structure	Potential phase of site	Extent (m/km) or area (ha)	Type of survey
1	1	Religious	Temple remains	Remains of the excavation at a 5th century brick temple (BHK-II). Extensive damage due to removal of brick for re-use.	Y	N/A	N/A	N/A	III	III	Damaged mound - extent unclear	Known
2	4	Religious	Temple remains	Remains of the excavation of a 5th century brick temple	Y	N/A	N/A	N/A	III	III		Known

3	6	Religious	Temple remains	Remains of the excavation at MDL-II with associated Nandi sculpture and architectural fragments	Y	N/A	N/A	N/A	III	III		Known
4	7	Religious	Temple (Modern)	Modern temple on site of the Pauni excavation of Buddhist stupa. Buddhist architectural remains present - stupa railings	N	II+	N/A	N/A	II-VI	II-VI	Underlying mound extends across Pauni: extent unclear	Known
5	9	Structural remains	Ramparts	Pauni ramparts: Several cuts have been made into the ramparts, revealing ceramic and brick remains	Y	II/III	N/A	N/A	II/III	II-III	Underlying mound extends across Pauni: extent unclear	Known
6	145	Religious	Temple remains	Remains of a small brick liṅga temple excavated by Nagpur University (MNS I)	Y	N/A	N/A	III	III	III		Known
7	129	Structural remains	Structural remains	The monumental brick 'Palace'/state sanctuary and its surrounding complex, which has been extensively excavated and reconstructed.	Y	II-V+	II/III	N/A	II-V+	II-V+		Known
8	173	Religious	Temple remains	The Pravareśvara Temple (MNS III): A large brick Śiva temple with stone foundations	Y	II/III	N/A	N/A	II/III	II/III		Known

9	167	Religious	Temple remains	Small temple structure outside the Pravareśvara complex, designated as a 'Vihara' during excavations	Y	N/A	N/A	N/A	II-IV?	II-IV?		Known
10	162	Religious	Temple remains	Small, brick stellate-plan liṅga temple - extensively reconstructed	Y	N/A	N/A	III	II/III	II/III		Known
11	16	Religious	Temple remains	Polygonal brick liṅga temple said to be a second star-shaped temple	Y	N/A	N/A	N/A	II/III	II/III		Known
12	161	Religious	Temple remains	Remains of further brick structures/temples: Not fully excavated and badly preserved but appear to be small temples	Y	N/A	N/A	N/A	II/III	II/III		Known
13		Structural remains	Structural remains	Surrounding brick wall of the monumental constructions, partly delineating the hill itself and continuing on to separate the hill from Mansar tank	Y	N/A	N/A	N/A	II/III	II/III		Known
14	17	Structural remains	Structural remains	Potential tower construction along the surrounding wall	Y	N/A	N/A	N/A	II/III	II/III		Known

15		Environmental Feature	Tank	Mansar Tank: modern sluice present at the base of Mansar hill at its eastern end. Three projections along the southern bank.	N	N/A	N/A	N/A	II/III	II/III		Known
16	180	Religious	Temple (Modern)	Modern shrine on the second projection of the embankment: There is the potential for this shrine to have had earlier origins	Y	N/A	N/A	N/A	VI	VI		Known
17	181	Structural remains	Structural remains	Square stone platform on the western-most projection of the embankment into the Mansar tank. The date of construction is not clear	N	N/A	N/A	N/A	Unknown	Phasing Unknown		Known
18	18-21	Structural remains	Structural remains	Older stone wall running up Rāmṭek hill alongside the modern steps from the village. This older wall runs parallel to and then under the modern steps. Potentially a part of the Medieval constructions in the area, leading up to the temple complex.	N	II-V+	N/A	N/A	Unknown	II-V+		Known

19		Religious	Temple Group	Citadel area on the promontory of Rāmṭek hill, containing Early Medieval Yādava temples and later Marāṭhā constructions	N	N/A	N/A	N/A	IV-V	IV-V		Known
20	55	Religious	Temple remains	Remaining portion of the Vākāṭaka temple structure originally around the Trivikrama sculpture, which is no longer under cover. The temple is constructed from red sandstone, and there are portions which have been re-built.	N	II-V+	N/A	III	III	III		Known
21	24	Religious	Temple	The Vākāṭaka period Kevala-Narasiṃha temple. This temple is constructed from red sandstone and houses a large Narasiṃha sculpture.	N	II-V+	N/A	III	III	III		Known
22	29	Religious	Temple	A small Naga House opposite the Kevala-Narasiṃha temple, which now contains a modern piece of sculpture for worship.	N	N/A	N/A	III	III	III		Known

23	33	Religious	Temple	The Vākāṭaka period Rudra-Narasiṃha temple, similar to the Kevala-Narasiṃha temple nearby. It houses an identical large Narasiṃha statue	N	II-IV/V	N/A	III	III	III		Known
24	37	Religious	Temple	The Vākāṭaka Varāha sculpture and temple. A large theriomorphic sculpture of Varāha with an open square mandapa	N	II-V+	N/A	III	III	III		Known
25	41	Religious	Temple	The Vākāṭaka period Bhogarāma Temple. A red sandstone temple with a double porch. This temple does not appear to house the original icon	N	II-IV	N/A	N/A	III	III		Known
26	22	Religious	Cave	Siddhanātha Ascetics Cave next to the Guptarāma temple on Rāmṭek hill	N	N/A	N/A	N/A	III	III		Known
27	23	Religious	Temple	The Guptarāma Temple on Rāmṭek hill: A stone temple incorporating a cave	N	II-V+	N/A	N/A	III	III		Known

28	47	Environmental Feature	Step well	The potentially Vākāṭaka period stone Kund/Step well just outside the main temple complex on Rāmṭek hill	N	II-IV/V	N/A	N/A	III?-V	III?-V		Known
29	59	Low density habitation remains	Ceramic / brick remains in cut	Cut in the bank of the road on Rāmṭek hill with visible ceramic and brick remains.	Y	II-V+	II/III?	N/A	N/A	II-V+	10m cut	Informed (Level 3)
30	71	Environmental Feature	Tank	The stone fronted tank at Ambālā, on the eastern side of Rāmṭek hill. Early Medieval to Medieval construction	N	N/A	N/A	IV+	Unknown	IV+		Informed (Level 3)
31	61	Religious	Shrine	A small stone shrine containing eroded and probably modern sculpture, on the south side of Ambālā tank	N	N/A	N/A	IV-VI	Unknown	IV-VI		Informed (Level 3)
32	573	Religious	Temple	Small temple on the south side of Ambālā tank	N	N/A	N/A	N/A	Unknown	Phasing Unknown		Known
33	63	Religious	Shrine	Small shrine at Ambālā containing a late Nandi sculpture	N	N/A	N/A	IV+	Unknown	IV+		Informed (Level 3)
34	574	Religious	Temple	One of the large Medieval temples around the tank at Ambālā	N	N/A	N/A	Unknown	V?	V?		Known

35	64	Structural remains	Structural remains	Scattered brick and the remains of a ruined stone building at Ambālā: Appears to be Late Medieval or Early Modern	N	N/A	N/A	N/A	V-VI	V-VI		Informed (Level 3)
36	67	Environmental Feature	Well	Stone well just to the east of the ruined building of stone walls. Date of construction appears to be Medieval onwards	N	N/A	N/A	N/A	V+	V+		Informed (Level 3)
37	575	Religious	Temple Group	Group of large stone Medieval temples on the southwestern side of Ambālā tank	N	N/A	N/A	V+	V+	V+		Known
38	577	Religious	Temple	Medieval Temple on the north side of Ambālā tank	N	N/A	N/A	N/A	V?	V?		Known
-39	69	Low density habitation remains	Ceramic scatter	Area of light coloured soil in the modern settlement west of Ambālā. A couple of sherds were discovered here, and it may be purely a modern habitation deposit	N	II-IV/V	N/A	N/A	N/A	II-V	c. 0.5ha in area+W50	Informed (Level 3)

40	70	Isolated sculpture	Sculpture	Nandi sculpture kept on a platform by Ambālā tank: The sculpture was pulled from the tank and appears to be Late Medieval	N	N/A	N/A	IV+	N/A	IV+		Informed (Level 3)
41	578	Structural remains	Structural remains	A possibly Medieval building on the north side of Ambālā tank, displaying similar motifs with Islamic influence as 18th century Chatrīs in the region	N	N/A	N/A	N/A	V?	V?		Known
42	579	Religious	Temple	Medieval stone temple along the Northeast side of Ambālā tank	N	N/A	N/A	N/A	V?	V?		Known
43	217	Religious	Temple	Medieval shrine in fields at the east end of Ambālā tank. This temple contains two pieces of sculpture, one is a small seated Ganesh, and the other appears to be Annapurna. The sculptural pieces are late (possibly Medieval) and the temple is no longer in use	N	N/A	N/A	IV+	V?	IV+		Informed (Level 3)

44	218	Religious	Temple (Modern)	Modern shrine on the top of the hillock south of Ambālā: No evidence of archaeological remains in the surroundings - the temple is modern and under construction.	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
45	86	Fort	Fort	The 18th century Bhonsle Fort at Nagardhan, which contains a small bāvlī and a square well. The stone fort contains ceramic and brick remains exposed through digging activities inside the walls and along the perimeter. Sandstone architectural pieces, early sculpture (5th century), and a liṅga are also lying around the interior. The step well functions as a Mandir to 'Bhuyari Devi'	Y	I-V+	II/III	III-IV+	V	I-V+	Fort lies on mound at Nagardhan - extent has been estimated in parts due to major disturbance and modern development. Fort itself is roughly 90 by 80 m	Known
46	86	Settled habitation	Disturbed mound	Discrete ceramic and brick remains in the trench on the western perimeter of the Fort. A section reveals courses of brick underneath the Bhonsle Fort	Y	I-V+	N/A	N/A	N/A	I-V+	Unclear due to disturbance and modern development	Informed (Level 3)

47		Low density habitation remains	Ceramic / brick scatter	Surface scatter across the fields directly east of Nagardhan Fort. The area was not ploughed during the period of ceramic collection so visibility was low. However, there was still medium density ceramic scatter and brick fragments	Y	II-V+	N/A	N/A	N/A	II-V+	Extent of mound unclear due to vegetation, modern disturbance and undulating ground	Informed (Level 3)
48	97	Religious with Environmental feature	Temple (Modern) / embankment	Pushpa Karni, west of the fort. Embankment and temples - Brick and ceramic remains are found scattered throughout the area of the embankment and one of the modern liṅga shrines indicates re-use of older materials as large stones have been placed as steps leading up to the temple	Y	II-IV/V	N/A	III	VI	II-VI	c.03 ha in area	Informed (Level 3)
49	11	Low density habitation remains	Ceramic / brick scatter	Discrete pottery scatter on the path to the temples by the tank at Pushpa Karni (Patchy micaceous ware)	Y	II-IV/V	N/A	N/A	N/A	II-V	Scatter contained within 2m	Informed (Level 3)

50	103	Religious	Temple	Koteshwar Temple on the edge of the tank on the west side of Nagardhan - contains various pieces of sculpture, including several 5th century pieces. The temple appears to be quite late, possibly 18th century	N	N/A	N/A	III-V+	Unknown	III-V+		Informed (Level 3)
51		Environmental Feature	Tank	Large tank and embankment next to Koteshwar Temple on the west side of Nagardhan	N	N/A	N/A	N/A	Unknown	Phasing Unknown		Informed (Level 3)
52	104	Low density habitation remains	Ceramic scatter	Low density ceramic scatter in disturbed ground at brick manufacturing site near Koteshwar Temple	N	II-IV/V	N/A	N/A	N/A	II-V		Informed (Level 3)
53	338	Religious	Chatrī	Large Chatrī on the northern side of Nagardhan. The structure is made out of sandstone and shows Muslim influence in the style and decorations - Marāṭhā period	N	N/A	N/A	N/A	V?	V?		Informed (Level 3)

54	339	Religious	Chatrī	Small Chatrī structure on the outskirts of Nagardhan town in a small village area. Sandstone construction displaying Marāṭhā influenced decoration. The Chatrī appears to be next to part of an old water storage area, which may originally have been connected to the large tank slightly to the south	N	N/A	N/A	N/A	V?	V?		Informed (Level 3)
55		Environmental Feature	Tank	Large tank on the north east side of Nagardhan. Slightly curved embankment on the south side of the tank, which has been reinforced	N	N/A	N/A	N/A	Unknown	Phasing Unknown		Informed (Level 3)
56	112	Low density habitation remains	Ceramic remains in cut	Ceramic remains in the foundations and soil/building material of a collapsed house in Nagardhan.	N	II-V+	N/A	N/A	N/A	II-V+		Informed (Level 3)
57	114	Structural remains	Re-used Brick	Ancient large-sized bricks re-used in modern house construction near to Nagardhan fort	Y	N/A	N/A	N/A	N/A	III?		Informed (Level 3)

58	288	Isolated sculpture	Sculpture	Very large Shiva liṅga concreted in to the ground so that only the top third or so is exposed. The liṅga is worshipped, although unusually it has been treated with a layer of sindūr and is not identified as Śiva.	N	N/A	N/A	III	N/A	III	This spot find lies within the mound at Nagardhan, estimated to be c.21 ha in this part	Informed (Level 3)
59	289	Settled habitation	Mound	A section on the west side of the Nagardhan mound. Extensive brick and pottery remains in and around the section. This indicates that under the modern settlement there may be further remains	Y	II-IV/V	N/A	N/A	N/A	II-V	c.21 ha in area across the site of modern Nagardhan - estimated through GPS area recording and satellite imagery	Informed (Level 3)
60	289	Environmental Feature	Well	Large stone and brick well partially constructed from large old bricks but appears to be Medieval or later.	Y	N/A	N/A	N/A	V+	V+		Informed (Level 3)
61	563	Religious	Temple (Modern)	South facing Hanuman Temple in Nagardhan with various pieces of late sculpture. The temple exterior appears modern	N	N/A	N/A	V+	VI	V+		Informed (Level 3)

62	564	Religious	Temple (Modern)	Small south facing Hanuman temple in Nagardhan with a modern exterior	N	N/A	N/A	V+	VI	V+		Informed (Level 3)
63	565	Religious	Temple (Modern)	South facing roadside temple/shrine in Nagardhan with a large Hanuman sculpture	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
64	566	Religious	Temple (Modern)	Hanuman temple in Nagardhan with stones outside. The temple is probably modern	N	N/A	N/A	V+	VI	V+		Informed (Level 3)
65	567	Isolated sculpture	Sculpture	Sandstone liṅga propped up by the road in Nagardhan town. The liṅga is relatively small and has no discernible markings but is on a square shaft and appears old	N	N/A	N/A	III	N/A	III		Informed (Level 3)
66	568	Religious	Temple	South facing Hanuman temple in Nagardhan: The temple may be fairly old but the neighbouring temple is clearly modern	N	N/A	N/A	IV-V	IV-V	IV-V		Informed (Level 3)

67	569	Religious	Temple	Two temples in a school yard in Nagardhan: The larger temple is incorporated into a classroom. The temples contain sculpture and the architectural style appears to be Marāṭhā influenced	N	N/A	N/A	V+	V	V+		Informed (Level 3)
68	570	Religious	Shrine (Modern)	Small modern temple/shrine in Nagardhan. There is a large stone inside under worship, and modern architectural fragments	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
69	571	Religious	Temple (Modern)	Temple near to Nagardhan Fort with fragmentary sculpture. The temple appears modern but there are a several pieces of Post-Vākāṭaka sculpture	N	N/A	N/A	IV-VI	VI	IV-VI		Informed (Level 3)
70	572	Environmental Feature	Well	Large round well on the northern outskirts of Nagardhan: The well is made from stone and has a parapet - Appears to be Medieval or later	N	N/A	N/A	N/A	V	V?		Informed (Level 3)

71	340	Settled habitation	Mound	Mound southwest of Nagardhan, past the fort. The mounded areas are overgrown and have been cut back to expand paddy fields. Brick fragments and ceramic sherds can be collected from around and in the sections. On the west side of the mounded area is a large section with ceramic remains in the bottom of the cut and sherds scattered around the ground surface, which is cultivated	Y	II-IV/V	N/A	N/A	N/A	II-V	Around 3 ha despite being cut back to expand paddy fields	Informed (Level 3)
72	341	Settled habitation	Mound	Mounded ploughed fields, south of Nagardhan. This area possibly represents a continuation of the previous linear arrangement. Medium density pottery scatter and brick fragments present on the surface	Y	II-V+	N/A	N/A	N/A	II-V+	c.2ha - this mound has also been partly ploughed away and appears to be a continuation of the previous linear arrangement	Informed (Level 3)

73	363	Settled habitation	Disturbed mound	Large area of digging directly south of the fort. The area has been excavated to a depth of around 3 metres, and in the spoil and sections there are ceramics, including whole vessels, and fragmentary brick. There is also the remains of a ring well, which has been partially cut through	Y	II-IV/V	Unknown	N/A	N/A	II-V	c. 7ha of land with visible archaeological material, height and extent of mound has been destroyed	Informed (Level 3)
74	99	Environmental Feature	Well	Brick lined well surrounded by scattered large stone blocks to the west of fort. May be late Medieval or Early Modern	Y	N/A	N/A	N/A	V+	V+		Informed (Level 3)
75	100	Religious	Chatrī	Late Medieval period (c. 18th century), Marāṭhā influenced Chatrī on top of the mounded area to the west of Nagardhan Fort	N	II-V+	N/A	N/A	V	II-V+ (structure appears to be phase V)		Informed (Level 3)

76	101	Settled habitation	Mound	Large cut running along the west side of the mound west of Nagardhan Fort and Pushpa Karni. The mound has been levelled to provide space for a small cluster of houses and agricultural areas. The section contains brick and ceramic sherds	Y	I-V+	N/A	N/A	NA	I-V+	c. 20 ha: Mound covers the west of the fort and has been cut away. Estimated through on the ground GPS area and satellite imagery	Informed (Level 3)
77	102	Environmental Feature	Well	Well in the fields next to the base of the mound west of Nagardhan fort. Usual stone construction with a small water storage tank and parapet. May be Late Medieval or Modern	N	N/A	N/A	N/A	V+	V+		Informed (Level 3)
78	278	Settled habitation	Mound	Mounded ploughed fields west of Nagardhan: The mound has a small shrine in the centre. Large quantities of fragmentary large bricks across the surface and piled up around the small shrine, but little pottery. There are worked sandstone blocks laying at the perimeter. Modern shrine with no sculpture	Y	II-IV	N/A	N/A	Unknown	II-IV	c. 1 ha walked with GPS. Small ploughed mound west of Nagardhan	Informed (Level 3)

79	12	Settled habitation	Disturbed mound	Area of archaeological remains at Hamlapuri where paddy fields have been cut through the original ground surface leaving sections containing brick and pottery. Several 'islands' remain in the middle of the paddy fields which show that the area would have been mounded. The sections appear to be uniform and the site was described as 'single culture Vākāṭaka' in trial excavations	Y	II-V+	Unknown	N/A	N/A	II-V+	c. 4 ha walked with GPS around area with visible pottery and brick remains - mound is destroyed so true extent unknown	Known
80	12	Religious	Shrine	Large 5th century Ganesh sculpture and two Liṅgas now housed in a modern temple, next to the destroyed mound at Hamlapuri	Y	N/A	N/A	III	VI	III	Unclear whether this area forms part of the original habitation mound due to destruction and modern development.	Known

81		Environmental Feature	Tank	Small tank in agricultural fields north of the Hamlapuri mound and possibly related to these archaeological remains. The water storage area is small and round, surrounded by a low bank. No ceramic or brick remains were recovered	N	V+	N/A	N/A	Unknown	Structure phasing unknown	Fairly circular area of water storage, roughly 1.7ha	Informed (Level 3)
82	246	Low density habitation remains	Ceramic / brick scatter in cut	Ceramic and brick remains in the paddy field banks on the outskirts of Hamlapuri village. Low density pottery and brick scatter across the fields	Y	II-IV	N/A	N/A	N/A	II-IV	Extends across roughly 68 m of the field banks	Informed (Level 3)
83	247	Isolated sculpture	Sculpture	Isolated sculpture kept in a private house shrine in Hamlapuri: The owners reportedly found the stone image and a square red sandstone yoni by the Ganesh Shrine	N	N/A	N/A	Unknown	N/A	Phasing Unknown		Informed (Level 3)

84	351	Religious	Cabūtrā	Small platform shrine in Hamlapuri village, with several pieces of eroded sculpture including two Lajjā Gaurī. In front of the shrine is a fairly modern sculpture said to be Bhairava. An adjacent small modern shrine contains two figures, which appear modern	N	N/A	N/A	III-VI	VI	III-VI		Known
85	491	Religious	Temple (Modern)	Hanuman temple in Hamlapuri - modern with no evidence of an earlier construction at the site.	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)
86	492	Religious	Shrine (Modern)	Small Naga shrine in Nandpuri. The structure itself is concrete and modern, and the sculpture also appears to be modern	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
87	493	Religious	Temple (Modern)	Modern temple in Nandpuri containing a modern Ganesh sculpture and a small Nandi (possibly Late Medieval to Early Modern)	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)

88	350	Low density habitation remains	Brick Scatter	Brick fragments in field banks and harvested paddy fields on the west and north west side of Nandpuri. According to villagers large bricks and ceramic sherds are often found during deep ploughing between Nandpuri and Hamlapuri, however this was not apparent at the time of fieldwork	Y	II/III	N/A	N/A	N/A	II/III	Area roughly 180m by 95m	Informed (Level 3)
89	248	Religious	Temple (Modern)	Modern Hanuman Temple in Nandpuri containing various pieces of sculpture, none of which appear to be particularly old	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
90	249	Locally known area	Site of previous archaeological find	Water tower construction site in Nandpuri where a hoard of coins was found during the time of the Mansar excavations. No visible archaeological evidence in the immediate area but it is overgrown with no artificial cuts to explore. The coins were identified by the Mansar excavators as 'Vākāṭaka'	N	N/A	N/A	N/A	N/A	Phasing Unknown		Known

91	115	Religious	Temple remains	Small mound with sculptural and architectural fragments on the top, including stone pillars and door jamb pieces. These remains are now housed in a modern temple constructed during the third field season. Brick remains are visible around the base of the mound indicating that there was a structure here. There also seems to be a small embankment	Y	II-IV	N/A	IV+	Appears to be multi-period: II-IV?	II-IV+	<1 ha. True extent not known as this area covers only the mounded land left for sculpture to be displayed. Surrounding land has been cultivated. Existing mound only 164m in perimeter	Informed (Level 3)
92	13	Religious	Temple	Kapur Bāvlī, a Yādava period stone temple with tank on the north side of Rāmṭek hill. Very fragmentary brick and ceramic remains are visible on the paths and in artificial cuts around the temple. Low density ceramic scatter exists across the area	Y	II-V+	N/A	N/A	IV	II-V+		Known
93	78	Low density habitation remains	Ceramic remains in cut	Artificial cut approximately 190 metres to the north east of Kapur Bāvlī. Ceramic remains were collected from this area	N	II-V+	N/A	N/A	N/A	II-V+	4m cut	Informed (Level 3)

94	81	Low density habitation remains	Ceramic scatter	Low density ceramic scatter found in the fields north of Rāmṭek hill	N	II-V+	N/A	N/A	N/A	II-V+	Ceramic scatter within 50m radius of GPS	Informed (Level 3)
95	83	Low density habitation remains	Ceramic scatter	Low to medium density ceramic scatter found in the fields north of Rāmṭek hill	N	II-V+	N/A	N/A	N/A	II-V+	Ceramic scatter within 30m radius of GPS	Informed (Level 3)
96	476	Environmental Feature	Well	A stone lined round well in a quadrat area: The well is possibly modern	N	N/A	N/A	N/A	V-VI	VI?		Quadrat
97	478	Religious	Shrine (Modern)	Small roadside shrine with sandstone temple architectural piece: An amalaka made to appear as the seven sisters	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
98	14	Religious	Temple	The Devi Temple on the north side of Rāmṭek: This appears to be a Cālukya period temple, the only known temple of this period. There are several sculptures at the temple complex	N	N/A	N/A	III	IV	III-IV		Known

99		Religious	Temple	Jain Mandir on the north side of Rāmṭek: Large Jain complex containing a number of temples and a very large newly constructed temple hall. The temples date from the Early Medieval to Medieval, and there is no visible evidence of earlier structures due to modern development	N	N/A	N/A	IV+	IV-VI	IV-VI		Known
100	85	Religious	Mosque	Modern mosque on top of the hill to the west of Rāmṭek, with a grave site along the western side: A section underneath the mosque displays no archaeological remains	N	N/A	N/A	N/A	VI	VI?		Informed (Level 3)
101	84	Religious	Tombs	Muslim tombs oriented N-S on the side of the hill west of Rāmṭek: Older brick remains appear to have been re-used in construction	Y	N/A	N/A	N/A	Unknown – Possibly VI	VI?		Informed (Level 3)
102	118	Low density habitation remains	Ceramic remains in cut	Ceramic remains collected from the foundations and filling material of a collapsed house in Rāmṭek town.	N	II-V+	N/A	N/A	N/A	II-V+		Informed (Level 3)

103	119	Low density habitation remains	Ceramic remains in cut	Ceramic remains collected from the foundations and filling material of a collapsed house in Rāmṭek town.	N	II-V+	N/A	N/A	N/A	II-V+		Informed (Level 3)
104	120	Isolated architectural remains	Architectural remains	Isolated stone column piece in Rāmṭek	N	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)
105	121	Religious	Cabūtrā	Modern platform shrine in Rāmṭek with numerous fragments of sculpture and a small modern Hanuman temple. The sculpture is mixed and appears to have been collected and brought to the cabūtrā. The sculpture is badly preserved: some pieces appear to be old, while others could date from the Medieval period	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
106	122	Low density habitation remains	Ceramic remains in cut	Ceramic remains collected from the spoil and sections of a digging site in Rāmṭek	N	II-V+	N/A	N/A	N/A	II-V+	Area explored was 25m by 25m	Informed (Level 3)
107	123	Low density habitation remains	Ceramic remains in cut	Ceramic remains in the sections and spoil heaps of an area of digging in Rāmṭek	N	II-V+	N/A	N/A	N/A	II-V+	Area explored was 75m by 35m	Informed (Level 3)

108	125	Low density habitation remains	Ceramic remains in cut	Pottery sherds visible around the exposed foundations of a collapsed house	N	V+	N/A	N/A	N/A	V+		Informed (Level 3)
109	126	Environmental Feature	Well	An old stone well, possibly medieval, with a large sandstone slab across the top	N	N/A	N/A	N/A	V	V?		Informed (Level 3)
110	127	Religious	Shrine (Modern)	A modern shrine in Rāmṭek with various fragments of sculpture	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
111	128	Environmental Feature	Bāvlī	A large Medieval bāvlī in Rāmṭek.	N	N/A	N/A	N/A	V	V?		Informed (Level 3)
112	415	Environmental Feature	Tank	Large tank west of Rāmṭek with stone facing. The stone facing appears to have been made from reused old carved architectural pieces.	N	N/A	N/A	N/A	Unknown	Phasing Unknown	The length of the embankment is roughly 0.6km	Informed (Level 3)
113	199	Religious	Temple	A small temple on a low hill overlooking the tank. A small Sri Pada is located here and various sculpture. The area is now near to Muslim tombs and new foundations for a mosque. The temple appears to be Late Medieval, perhaps	N	N/A	N/A	V-VI	V	V-VI		Informed (Level 3)

				around the 18th century. It is possible the site has earlier origins								
114	416	Religious	Cabūtrā	Basic modern platform shrine with three pieces of sculpture (including two possibly 5th century heads). There are brick fragments around the platform shrine possibly indicating that there was an older brick structure (temple?) here	N	N/A	N/A	III	VI	III (Phase VI structure)		Informed (Level 3)
115	417	Religious	Tombs	Remains of older bricks reused in the stone and brick platform of Muslim tombs	Y	N/A	N/A	V+	N/A	V+		Informed (Level 3)
116	206	Low density habitation remains	Ceramic remains in cut	Ceramic remains in spoil at a digging site in Rāmṭek town	N	II-V+	N/A	N/A	N/A	II-V+	Area explored was 25m by 33m	Informed (Level 3)
117	580	Religious	Temple (Modern)	A group of two temples and a small well in Rāmṭek: This appears to be an entirely modern construction with modern sculpture	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

118	581	Religious	Temple	Padu Meshwa Temple in Rāmṭek: Potentially Medieval temple containing fragmentary sculpture	N	N/A	N/A	N/A	V	Phasing Unknown		Informed (Level 3)
119	207	Religious	Temple Group	Temple group on outskirts of Rāmṭek town. This area contains several temples and a Medieval bāvlī (now filled in), as well as numerous sculptural fragments	N	N/A	N/A	IV-V	IV-V	IV-V		Informed (Level 3)
120	208	Religious	Chatrī	Late Medieval (18th century?) Chatrī on the outskirts of Rāmṭek, with nearby construction work around a tank. Very low density pottery sherd scatter and no brick fragments. Badly preserved sculptural fragments nearby	N	II-V+	N/A	N/A	V	II-V+ (structure appears to be phase V)	Pottery scatter within 15m of the monument	Informed (Level 3)
121		Environmental Feature	Tank	Large tank with embankment on the south side of Rāmṭek. No obvious associated archaeological evidence such as brick or ceramic remains	N	N/A	N/A	N/A	Unknown	Phasing Unknown		Informed (Level 3)

122	209	Settled habitation	Disturbed mound	Indira Gandhi playing field on the south side of Rāmṭek. The area has been levelled by cutting into the original ground surface leaving a section exposed on the north side. A seemingly modern Śiva shrine also stands in the centre of the playing field on an island which has been left intact. Pottery is abundant in the section indicating that under the modern occupation at Rāmṭek there may be further evidence.	Y	II-V+	N/A	N/A	VI	II-VI	c. 2 ha walked with GPS - mound largely cut away and this covers area with abundant pottery in sections/on the ground	Informed (Level 3)
123	291	Environmental Feature	Well	A round well on the west side of Rāmṭek in a private yard. It has been constructed with large size bricks, which may be re-used from an earlier structure	Y	N/A	N/A	N/A	Unknown	Phasing Unknown		Informed (Level 3)
124	514	Religious	Shrine (Modern)	East facing Naga Shrine in Rāmṭek with 5 Nagas inside, appears to be modern	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
125	515	Religious	Temple (Modern)	East facing Durga Mata temple in Rāmṭek	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

126	516	Religious	Temple (Modern)	East facing (locked) modern temple in Rāmṭek with single Naga inside, which also appears to be modern	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
127	518	Religious	Shrine (Modern)	5 headed Naga and metal snake in small east facing modern shrine in Rāmṭek	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
128	519	Religious	Temple (Modern)	Modern temple in Rāmṭek, containing a Hanuman sculpture and stones under worship	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
129	520	Religious	Temple	Large old temple structure in Rāmṭek but modern sculpture (temple locked)	N	N/A	N/A	N/A	V?	Phasing Unknown (V?)		Informed (Level 3)
130	521	Religious	Shrine	Small north facing shrine to Ganesh with other sculptural pieces positioned to face east and south (Naga, Annapurna and Hanuman)	N	N/A	N/A	VI?	Unknown	VI		Informed (Level 3)
131	522	Religious	Temple	South facing Hanuman temple with east facing Ganesh temple behind: seemingly old exteriors, potentially Medieval and then renovated	N	N/A	N/A	V-VI	V	V-VI		Informed (Level 3)

132	523	Religious	Temple (Modern)	Modern temple in Rāmṭek with sculpture fragments outside including a head	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)
133	524	Religious	Temple	Two old temples in Rāmṭek, south facing Hanuman and east facing Liṅga with associated sculpture	N	N/A	N/A	IV-V	V	IV-V		Informed (Level 3)
134	525	Religious	Temple	Old temple exterior with small south facing Hanuman and east facing liṅga, potentially a Medieval construction which has been renovated	N	N/A	N/A	V+	V	V+		Informed (Level 3)
135	526	Environmental Feature	Step well	Very large kund in Rāmṭek, which appears to be Medieval or Early Modern. Sculpture in the niches of the step well includes a badly preserved Wagh Dev.	N	N/A	N/A	Unknown	V?	V+		Informed (Level 3)
136	527	Religious	Temple	Late Medieval or Early Modern gateway and temple with a hall in Rāmṭek. The site is locked, and so there was no access to any sculpture housed within	N	N/A	N/A	N/A	V-VI?	V-VI?		Informed (Level 3)

137	528	Religious	Temple (Modern)	South facing Hanuman temple in Rāmṭek, the temple appears to be modern	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
138	530	Religious	Temple (Modern)	East facing modern temple in Rāmṭek containing stones but no sculptural pieces	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
139	531	Religious	Temple	Small temple with south facing Hanuman and east facing liṅga and other small sculptures	N	N/A	N/A	V+	V+	V+		Informed (Level 3)
140	532	Religious	Temple	Small south facing temple in Rāmṭek: This appears to be a Medieval structure which is currently being incorporated into a larger modern temple	N	N/A	N/A	VI?	V	V-VI?		Informed (Level 3)
141	533	Religious	Shrine (Modern)	Small modern east facing shrine containing fairly crude folk imagery figures, probably modern	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
142	534	Religious	Shrine (Modern)	5 headed Naga in a small modern temple/shrine at the junction of the Nagardhan-Mansar Road	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

143	538	Religious	Temple	South facing Hanuman temple with a well on its south side: The temple is potentially old (Medieval or Early Modern?)	N	N/A	N/A	VI?	V?	V-VI?		Informed (Level 3)
144	539	Religious	Chatrī	Small south facing Chatrī housing Hanuman, opposite a modern temple: The Chatrī appears to be Medieval with Marāṭhā influence (possibly 18th century)	N	N/A	N/A	V+	V	V+		Informed (Level 3)
145	540	Religious	Temple	A potentially fairly old (Medieval/Early Modern) south-facing temple containing a few fragmentary pieces of sculpture. The temple has been renovated and painted	N	N/A	N/A	V-VI	V	V		Informed (Level 3)
146	541	Religious	Shrine (Modern)	Small east-facing modern shrine temple containing stones and some sculpture, in Rāmṭek	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
147	542	Religious	Temple	Large fairly old east-facing temple with an associated smaller south-facing Hanuman shrine - Comparatively ornate with Marāṭhā influenced decoration	N	N/A	N/A	V+	V	V+		Informed (Level 3)

148	543	Religious	Temple	Fairly old (Medieval or Early Modern) temple locked in a private yard. Similar architectural features to other temples nearby, displaying Marāṭhā influence. The temple has obviously been renovated, plastered and painted	N	N/A	N/A	N/A	V+	V+		Informed (Level 3)
149	544	Religious	Temple	Large fairly old temple with a large hall area. The temple appears to be Medieval or Early Modern with Marāṭhā influence, but the sculpture contained within is modern	N	N/A	N/A	V+	V+	V+		Informed (Level 3)
150	554	Religious	Temple (Modern)	South facing Hanuman temple in Rāmṭek with a modern exterior	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
151	210	Religious	Shrine (Modern)	Small shrine along the path up to Nāgarjun temple on Rāmṭek hill. The shrine/temple, although modern, has steps potentially constructed from older stone slabs	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)

152	211	Religious	Temple	Nāgarjun temple on the top of Rāmṭek hill. The temple may have older foundations and there is some sculpture (possibly modern) but no significant archaeological remains were noted	N	N/A	N/A	Unknown	Unknown	Phasing Unknown		Informed (Level 3)
153		Structural remains	Structural remains	Worked stone blocks and large brick remains on Rāmṭek hill above the Khindsi Dam. May be the site of Wellsted's 'watchtower'. The bricks and stones appear partly in situ but have also been rearranged to create a shrine/temple. No sculptural remains	Y	N/A	N/A	N/A	III?	III?		Informed (Level 3)
154	294	Settled habitation	Mound	Area of settlement on the north side of Rāmṭek, described as 'Kawadak village' despite being continuous from the main town. The area is clearly mounded and there are scattered ceramic and brick remains. Villagers have collected various small finds from around the area. Despite the dense modern occupation the surface archaeological	Y	II/III-V+	N/A	N/A	V-VI	II/III-V+	C.4ha visible and walked with GPS - mounded settlement on undulating hillside at Rāmṭek. Ceramic and brick scatter continues beyond the mounded area	Informed (Level 3)

				remains are more visible and exposed than in the main Rāmṭek town area, as the paths and roads are simply bare earth. The brick and ceramic remains continue over the fields across the road								
155	222	Low density habitation remains	Ceramic / brick remains in cut	Water tower site in Kawadak behind the Devi temple in Rāmṭek: In the cuts and the surrounding spoil there are pottery sherds - Related to Kawadak?	Y	I-V+	N/A	N/A	N/A	I-V+		Informed (Level 3)
156	401	Isolated architectural remains	Architectural remains	Two sandstone architectural pieces kept at a house next to the ploughed fields neighbouring Kawadak. Medium density pottery scatter and fragmentary brick visible around the house and is possibly a further continuation of the ceramic scatter related to Kawadak	Y	II-V+	N/A	N/A	N/A	II-V+		Quadrat
157	393	Environmental Feature	Bāvlī	Stone bāvlī in sampled quadrat	N	N/A	N/A	N/A	V	V		Quadrat

158	394	Religious	Shrine (Modern)	Small liṅga shrine in sampled quadrat	N	N/A	N/A	VI?	VI	VI		Quadrat
159	395	Religious	Cabūtrā	Two stone platforms with loose architectural stones and a small eroded Viṣnupada. The platforms appear to be constructed from old stone blocks, possibly Medieval	N	N/A	N/A	IV+	V?	IV-V		Quadrat
160	396	Religious	Shrine (Modern)	Modern shrine with rudimentary liṅga situated on a slightly mounded or undulating area: Next to the shrine is a worked stone slab - no pottery or brick remains in the area	N	N/A	N/A	N/A	VI	VI		Quadrat
161	406	Religious	Shrine (Modern)	Small modern shrine with Naga in fields by a little tank area with an earth embankment	N	N/A	N/A	Unknown	VI	VI		Quadrat
162	407	Religious with Environmental feature	Temple (Modern) / Well	East facing stone well/bāvlī with modern temple facing it	N	N/A	N/A	N/A	VI	VI		Quadrat
163	408	Religious	Shrine (Modern)	Small shrine in fields containing stones under worship	N	N/A	N/A	N/A	VI	VI		Quadrat

164	409	Environmental Feature	Well	Large hexagonal stone well/bāvlī: the surrounding fields appear to have been cut down into the original ground level. The well may be Late Medieval or Early Modern	N	N/A	N/A	N/A	V+	V+		Quadrat
165	410	Religious	Shrine (Modern)	Small modern shrine with metal snake in fields by a large well. There appears to have been an old tank/water storage area in this section of agricultural fields, which is now cultivated	N	N/A	N/A	Unknown	VI	VI		Quadrat
166	411	Religious	Shrine (Modern)	Small east facing shrine containing stones near fields	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
167	412	Environmental Feature	Well	Large old stone well near to the shrine at GPS 411: The east side of the well has been cut away and the surrounding fields have been levelled from the original ground surface	N	IV/V	N/A	N/A	V+	IV-V+	Low density scatter found within 15m of well	Informed (Level 3)

168	414	Environmental Feature	Well	Round old stone well/bāvlī – the well is covered so it is difficult to assess the construction. No sherds in the area	N	N/A	N/A	N/A	V+	V+		Informed (Level 3)
169	397	Religious	Temple (Modern)	Modern temple with a platform shrine with various architectural pieces and sculptural fragments. Low to medium density pottery and brick scatter is visible in the immediate surroundings and there are large worked stone blocks nearby. The temple itself is modern but may be the site of an older structure	Y	II-V+	N/A	IV+	VI	II-VI	Area with ceramic scatter is roughly 1.1ha	Informed (Level 3)
170	398	Environmental Feature	Well	Huge well in the fields to the west of the modern temple at GPS 397: The well is stone built, and probably fairly modern	N	N/A	N/A	N/A	V-VI	V-VI		Informed (Level 3)
171	307	Religious	Cabūtrā	Platform shrine situated on a small mounded or raised area. Presence of very eroded and fragmentary sculpture, pottery sherds and fragmentary brick	Y	II-V+	N/A	III-IV+	VI?	II-VI	Ceramics visible within c.15m of the shrine	Informed (Level 3)

172	482	Religious	Temple	Hanuman temple between Mansar and Rāmṭek: The temple has several sculptural pieces but appears to be fairly modern	N	N/A	N/A	V+	VI?	V-VI		Informed (Level 3)
173	483	Religious	Temple (Modern)	Large modern temple in the settlement north of the Mansar-Rāmṭek road. The temple contains stones and a seemingly modern sculpture of a goddess with multiple arms	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
174	250	Religious	Temple	Small Hanuman Temple on the Mansar-Rāmṭek Road with various sculptures. The temple may be Medieval or Early Modern and has been renovated	N	N/A	N/A	Unknown	V+	V+		Informed (Level 3)
175	154	Low density habitation remains	Brick Scatter	Brick fragments on the surface of the low hill around Mansar-Moil	Y	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)
176	155	Low density habitation remains	Ceramic / brick scatter	Low density pottery and brick scatter on the outskirts of Mansar-Moil, in the location of Wellsted's reported settlement structures	Y	II-IV	N/A	N/A	N/A	II-IV	Localised, within 22m radius	Informed (Level 3)

177	157	Religious	Temple (Modern)	Modern Shiva temple on the hill east of Mansar-Moil: Some fragmentary brick can be seen on the ground around the temple but there is no evidence of earlier foundations. A fairly old, large stone Liṅga is kept at the temple, which might indicate earlier activity prior to construction of the modern temple	Y	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
178	158	Low density habitation remains	Brick Scatter	Brick remains around the base of the hill and in the path up to the modern Shiva temple on the hill east of Mansar-Moil village	Y	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)
179	160	Isolated sculpture	Sculpture	Discarded broken liṅga lying by the village at the base of the hill by Mansar-Moil. Isolated find, possibly not in original location. No brick or ceramic fragments, or any other archaeological remains, were noted in the immediate vicinity	N	N/A	N/A	Unknown	N/A	Phasing Unknown		Informed (Level 3)

180	183	Structural remains	Structural remains	Stone built platform on the hill north of Mansar town. The platform has an inner and outer level and is made of large dressed blocks. No other archaeological remains, such as bricks or pottery, are present. Part of the platform is now occupied by a Muslim tomb. The original function is unknown and it is difficult to ascertain a potential date of construction	N	N/A	N/A	N/A	V-VI	V-VI		Known
181	192	Low density habitation remains	Ceramic scatter	Low density scattered pottery sherds found on the northern side of Mansar tank amongst modern brick and tile scatter	N	V+	N/A	N/A	N/A	V+		Informed (Level 3)
182	205	Low density habitation remains	Brick Scatter	Brick remains on a prominent part of the hill north of Mansar village, uncertain whether these are pieces of old or modern brick as they are too fragmentary	Y	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)

183	245	Religious	Temple (Modern)	Modern 'Chakra Dhar Svarmi' Temple and rock shrine on the southwestern side of Mansar Tank: There is a modern temple with ongoing construction containing modern sculpture. The main area of worship is a large rock on a small hillock, which has been made into an anthropomorphic figure	N	II-V+	N/A	N/A	VI	II-VI (Structure is VI)		Known
184	535	Religious	Shrine (Modern)	Small south-facing shrine on Mansar Road containing two metal snakes, which could be fairly old or modern but are disguised by Sindūr	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
185	536	Religious	Shrine (Modern)	East facing shrine near to the Mansar excavations - Modern construction containing some badly eroded sculptural fragments	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
186	537	Religious	Temple (Modern)	Large temple complex on Mansar Road: Some elements may be Late Medieval but the complex has been developed and there are modern constructions.	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)

187	467	Religious	Temple	Small Mata Mai temple and platform shrine by the tank at Mansar, containing a metal Naga. The temples may have Medieval or Early Modern elements but there are modern additions	N	N/A	N/A	Unknown	V-VI	V-VI		Informed (Level 3)
188	468	Religious	Temple (Modern)	Small Hanuman temple on the north side of Mansar. The temple appears to be modern	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
189	469	Religious	Shrine (Modern)	Small modern shrine in the old, disused bazaar of Mansar with very eroded sculpture	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
190	349	Locally known area	Abandoned village	Area in cotton fields west of Mansar which is said to be the location of another 'Rithi' village, however there is no obvious evidence for past settlement and no surface archaeological remains. The only feature is a small Hanuman temple with a Naga sculpture outside. This temple does not appear to be very old	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

191	272	Religious	Shrine (Modern)	Small Naga sculpture in a small modern roadside shrine on the way to Amri	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
192		Environmental Feature	Tank	Large tank at Amri village with an earth embankment. There are several small temples around the tank perimeter. There are no obvious archaeological remains or associated sculpture to indicate a date of construction	N	N/A	N/A	N/A	Unknown	Phasing Unknown	c.1.7ha in area	Informed (Level 3)
193	274	Religious	Temple (Modern)	Hanuman Temple next to Amri tank, which contains three small sculptures all said to be Ganesh with a raised trunk (however one is a Naga). The temple appears to be modern but may have older foundations	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
194	275	Religious	Temple	Second small Hanuman Temple in Amri, possibly a Medieval construction. The temple contains small late sculptures	N	N/A	N/A	IV+	V+	IV-V+		Informed (Level 3)

195	263	Religious	Temple (Modern)	Modern Hanuman Temple in Hivra village: The temple contains a few pieces of sculpture	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
196	335	Low density habitation remains	Ceramic / brick scatter	Low density pottery scatter across the surface of a ploughed cultivation area on the northern side of Hivra.	Y	II-V+	N/A	N/A	N/A	II-IV?	c. 1ha of low density scatter	Informed (Level 3)
197	336	Settled habitation	Mound	Area of cultivated and ploughed fields on the west side of Hivra, which is said to be the location of 'Old Hivra'. This area is clearly on higher ground than the surrounding village to the east - it appears the village has shifted slightly and there is an obvious gradient up to this point Pottery sherds and fragmentary brick present	Y	I-V+	N/A	N/A	N/A	I-V+	c. 1 ha - ploughed mound walked with a GPS where rising gradient of land is visible and remains can be located	Informed (Level 3)

198	421	Religious	Temple	Hanuman temple at Hivra with a small well and shrine nearby. The temple has various small eroded sculptures and carved pieces including a hero stone. The temple may be fairly old but has been renovated	N	N/A	N/A	IV-VI	V-VI?	IV-VI?		Informed (Level 3)
199	421	Environmental Feature	Well	Small well to the north east of the large temple in Hivra village	N	N/A	N/A	N/A	V-VI	V-VI		Informed (Level 3)
200	421	Religious	Shrine (Modern)	Small modern shrine near to the well northeast of the large temple in Hivra village	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
201	422	Religious	Cabūtrā	Modern platform shrine with a Naga next to a little temple containing stones in Hivra	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
202	271	Settled habitation	Mound	Ceramic and brick remains on slightly mounded area in Hivri: The area is said to be the 'centre point' of the village, and is marked by an old Śiva Liṅga. May be on the site of an ancient habitation mound – there is a large amount of brick fragments and large bricks can be found	Y	II-V+	N/A	III	N/A	II-V?	<1ha - mounded area	Informed (Level 3)

				re-used in buildings. Some pottery present. The liṅga appears to be old. It is not under worship today - it is viewed simply as a marker of the village centre								
203	583	Religious	Shrine (Modern)	Collection of small modern shrines in Hivri containing various sculptures, none of which appear to be particularly old	Y	N/A	N/A	IV+	VI	VI		Informed (Level 3)
204	584	Religious	Cabūtrā	Platform shrine made of old bricks in Hivri, with a small temple containing a Naga-kal	Y	N/A	N/A	Unknown	Unknown	Phasing Unknown		Informed (Level 3)
205	585	Religious	Temple (Modern)	Hanuman Temple on the outskirts of Hivri with a stone well. The temple is probably modern but contains a few pieces of sculpture, and the well may be Late Medieval or Early Modern.	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
206	418	Religious	Temple (Modern)	Modern Hanuman Temple in Khairi	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)

207	419	Religious	Temple (Modern)	Small fairly modern brick temple in Khairi containing some sculpture	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
208	420	Religious	Shrine (Modern)	Small south facing shrine in Bhijewada	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
209	334	Religious	Temple	Temple next to what appears to be a tank embankment but is now an area of fields and grassland. The temple has some very eroded fragmentary sculpture but there is no evidence of any archaeological remains	N	N/A	N/A	Unknown	VI?	Phasing Unknown		Informed (Level 3)
210	367	Settled habitation	Mound	Clearly mounded cultivated fields. Throughout the fields are brick remains and fairly dense ceramic scatter. Several stone architectural pieces have been uncovered by the farmer. There is a small modern shrine at the base of the mound containing a badly preserved sculpture (?) and stones. This area is likely to be the site of 'old Bhijewada'	Y	II-V+	N/A	N/A	VI	II-VI	c. 1 ha - visibly mounded area	Informed (Level 3)

211	423	Religious	Temple (Modern)	The main temple in the centre of Satak: the temple contains modern sculpture, and a large stone under worship outside. The temple itself appears to be a modern construction, although it may be extensively renovated	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
212	423	Religious	Temple (Modern)	Smaller modern Hanuman temple in Satak	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
213	223	Environmental Feature	Embankment	Small embankment forming a roughly square tank/water storage area on the north side of Satak village: pottery sherds and brick fragments present	Y	I-V+	N/A	N/A	Unknown	Phasing Unknown	Square area of 112m by 141m. Wider scatter contained within 2ha	Informed (Level 3)

214	224	Environmental Feature	Well	A small well apparently built using old large sized bricks on the east side of the tank at Satak. There is also a modern shrine/temple which is disused and contains no sculpture, but appears to use a combination of old and modern bricks. These might suggest that an earlier structure was located in this area	Y	N/A	N/A	N/A	Unknown	Phasing Unknown		Informed (Level 3)
215	277	Isolated sculpture	Sculpture	Location of a small Naga sculpture in Satak - possibly modern	N	N/A	N/A	Unknown	VI	Phasing Unknown		Informed (Level 3)
216	348	Environmental Feature	Tank	Large tank on the east side of Satak, with a new temple being constructed on the southern side. Old stone blocks can be found next to the tank, currently being used as steps to the new temple. No other archaeological remains are obvious	N	N/A	N/A	IV+	Unknown	Phasing Unknown	Roughly 3.6ha in area	Informed (Level 3)
217	348	Religious	Shrine (Modern)	Small modern shrine by a tree with numerous pieces of eroded and fragmentary sculpture	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)

218	365	Religious	Shrine (Modern)	Two small modern shrines on the edge of the tank, containing stones/modern sculpture	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
219	366	Religious	Cabūtrā	Platform shrine on the east side of Satak. The shrine holds various pieces of sculpture, some of which are clearly modern	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
220	292	Religious	Temple	Hanuman temple in Bhojapur	N	V+	N/A	IV+	VI	IV-VI		Informed (Level 3)
221	332	Religious	Shrine (Modern)	Tiny 'temple' next to Bhojapur - very small modern shrine next to an area of flattened land prepared for new building, which is supposedly the site of an old abandoned village. Across this area there was no clear evidence of archaeological remains	N	II-V+	N/A	N/A	VI	Phasing Unknown	Area roughly 180m by 150 m	Informed (Level 3)
222	424	Religious	Shrine (Modern)	Small east-facing shrine in Bhojapur which contains a Naga and an architectural piece. The shrine itself is probably modern	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)

223	425	Religious	Temple (Modern)	Small 'Hanuman' Temple in the fields on the east side of Bhojapur. The temple appears to be modern	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
224	426	Religious	Temple (Modern)	Small north facing Shiv temple in Bhojapur village. Both the temple and sculpture are probably modern	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
225	427	Religious	Temple (Modern)	East facing 'Kali' Temple in Bhojapur containing two sandstone architectural fragments, which are badly preserved	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
226	428	Religious	Shrine (Modern)	Small modern shrine in the fields outside Bhojapur, containing a small standing sculpture in folk style with a large round face	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

227	233	Religious with Environmental feature	Temple / embankment	Temple next to a small tank between Bhojapur and Manapur villages. Within and around the temple are various pieces of sculpture, including some which may be Early Medieval or Medieval. The temple itself has been renovated but may be fairly old	N	N/A	N/A	IV-VI	V+	Phasing Unknown	The curved embankment is roughly 0.4km and the water storage area is c.1.6ha	Informed (Level 3)
228	234	Religious with Environmental feature	Temple (Modern) / embankment	Embankment surrounding fields with a modern shrine, south of Manapur. This could be a small old disused tank but the area within the embankment is now grassland. A rudimentary temple/shrine sits on the embankment, and contains stones dedicated to Bhiwsen Maharaj	N	N/A	N/A	N/A	VI	VI	The embankment was roughly 152 m long but the circular water storage area contained within was measured at 0.8ha	Informed (Level 3)
229	429	Religious	Temple (Modern)	Two small modern temples facing each other in Manapur: The east-facing temple contains a Naga and the west-facing temple contains a small female sculpture which has been covered up	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

230	430	Religious	Shrine (Modern)	Mata Mai Temple in Manapur. The small temple appears to be modern but there are older fragmentary stone pieces, including a piece of amalaka	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
231	433	Religious	Temple	A seemingly Late Medieval/Early Modern Mandir on a platform in Manapur (Marāṭhā style architectural features, possibly 18th century). The temple does not contain sculpture	N	N/A	N/A	N/A	V	V		Informed (Level 3)
232	434	Religious	Temple (Modern)	Modern Hanuman Temple in Manapur containing few seemingly modern sculptures. Outside the main temple is a small platform with a collection of fragmentary sculpture	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

233	435	Religious	Temple	Temple in the fields on the way from Manapur to Rāmṭek. It displays Marāṭhā influenced decoration and motifs - Medieval or Early Modern period. There are several pieces of fragmentary sculpture around but no other archaeological remains	N	N/A	N/A	Unknown	V-VI	V-VI		Informed (Level 3)
234	402	Environmental Feature	Well	Stone well in grassland/field area	N	N/A	N/A	N/A	V+	V+		Quadrat
235	213	Low density habitation remains	Brick Scatter	Brick remains around the path leading to Dudhala mound, by a modern brick manufacturing and mica collection area. Some of the brick fragments in the disturbed earth appear to be old but are mixed with modern brick	Y	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)

236	216	Settled habitation	Mound	Large mound called 'Dudhala' with a section cut away along the western side. The site has been damaged by agricultural encroachment. Pottery and brick is clear in the top 30cm to 1m of the section, in surrounding spoil and on the surface in the surrounding paddy fields. There is a modern temple on the top of Dudhala mound with no indication of older elements or foundations. Brick and ceramic scatter is found across the surface of the base of the mound and across the surrounding ploughed areas	Y	II-V	I-III	N/A	VI	II-V	c. 1 ha Mound has been cut away on the western side so its previous extent is unknown	Informed (Level 3)

237		Settled habitation	Mound	A second mound to the west of the first at Dudhala: Limited ceramic and brick remains are scattered around the ground particularly where the mound has been cut into for cultivation. However, the mound itself is inaccessible due to very high vegetation cover.	Y	II-IV	N/A	N/A	N/A	II-IV	c. 1ha in area, roughly 112m in diameter	Informed (Level 3)
238	404	Settled habitation	Mound	Third mound in the surroundings of Dudhala: the GPS point was taken at the site of a large section through the mound, which reveals no archaeological material. However, brick remains are scattered across the top of the mound and there are a few fragmentary ceramic sherds. Although the mound itself appears to be natural, which would not be unexpected as there is a series of low hills in this area, it may have had a brick structure on the top	Y	II-IV	N/A	N/A	N/A	II-IV	c.05ha in area	Informed (Level 3)

239	269	Low density habitation remains	Ceramic / brick scatter	Brick remains in Kawalapur village. Brick fragments are found scattered on the ground and there is reuse of brick in several structures. Limited pottery was collected but the village is not mounded and the archaeological remains are fairly low density	Y	V+	N/A	N/A	N/A	V+	Extent of surface scatter is roughly 0.7ha in area	Informed (Level 3)
240	356	Locally known area	Abandoned village	Area of cultivated fields and scrub described as being a 'Rithi Gau' to the south west of Kawalapur: the ground surface is slightly uneven and mounded, but there is little to suggest past settlement. Some evidence of brick fragments and building material can be seen scattered around, but this is likely to be modern. The surrounding agricultural area does not yield any ceramics or brick remains	N	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)

241	287	Low density habitation remains	Ceramic / brick scatter	Medium density ceramic scatter in ploughed agricultural fields. The field appears slightly mounded and very fragmentary brick is also visible. There is a drainage ditch neighbouring the fields with ceramics in the sections.	Y	II-V	N/A	N/A	N/A	II-V	Although field is slightly mounded and undulating, the extent is difficult to estimate due to agriculture and the road	Informed (Level 3)
242	279	Structural remains	Mound	Clear mound at Beldongri: The village is built around the northern and western side of the mound, which has been cultivated and has large trees growing on top. There are clear and extensive brick remains, including an area of in situ brick wall visible in a section on the south west side of the mound. The mound is said to be an old 'large house' by villagers. There is very little pottery; instead the mound appears to represent a solid brick construction.	Y	II/III	N/A	N/A	III?	II/III	c. 1ha of visible material. Mound approximately 65 m diameter	Informed (Level 3)

243	347	Religious	Temple (Modern)	Modern Hanuman temple in Beldongri next to the mound. The temple itself is entirely modern but contains some eroded fragmentary sculpture, including a possible Narasiṃha torso. There is a small platform shrine outside of the temple which displays further fragmentary sculpture	N	N/A	N/A	III-VI	VI	III-VI		Informed (Level 3)
244	280	Low density habitation remains	Ceramic / brick scatter	Small mounded areas in fields southeast of Beldongri mound - the original ground surface has been cut away to create paddy fields, and there are brick fragments and ceramic sherds visible in the sections. However, these remains are low density	Y	V+	N/A	N/A	N/A	V+	Intermittent mounded areas in between paddy fields which appear to have been cut through the deposits - extent unknown	Informed (Level 3)
245	281	Religious	Temple (Modern)	Modern temple on a hill in the Beldongri mining colony: The temple is situated on a natural hillock which is a part of the large manganese mining area - no evidence of ancient remains and the temple is modern	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)

246	561	Religious with Environmental feature	Temple / embankment	South facing Hanuman Temple in Banpuri with numerous pieces of sculpture. The temple is situated next to a small water storage area with an earth embankment	N	N/A	N/A	VI?	VI?	VI?		Informed (Level 3)
247	562	Religious	Temple (Modern)	South facing Hanuman temple in Banpuri with two covered figures, a bull and a Liṅga	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
248	283	Settled habitation	Mound	The site of 'Rithi Bhagi' which is an area of high ground across the river from Banpuri. This is said to be the location of an 'old village'. The elevation of the ground on the banks of the river appears to be natural but there is also extensive brick evidence and some surface ceramic remains scattered across the ploughed top of the mound and in cuts on the side leading down to the river. A small Ganpati temple is located on the top - this appears to be modern	Y	II-V+	N/A	IV+	VI	II-VI	c. 1 ha in area	Informed (Level 3)

249	384	Religious	Cabūtrā	Small platform shrine around a tree near to Rithi Bhagi. The platform is modern and has various fragments of sculpture, which also appear modern. Ceramic sherds were collected from the ploughed area around the platform, and brick remains are present	Y	II-V+	N/A	N/A	VI	VI (Structure)	Ceramics localised to area 10m by 20m	Informed (Level 3)
250	342	Religious	Temple (Modern)	Modern Hanuman Temple in Nerla, containing a few pieces of modern sculpture. There are no indications that the temple has earlier foundations	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
251	236	Religious	Temple (Modern)	Modern temple which is situated on an area of high ground in the curve of the river, east of the road to Nagardhan. The area looks mounded however there are no traces of old brick or pottery and the soil appears to be natural.	N	V+	N/A	N/A	VI	V-VI	Only 0.1ha in extent	Informed (Level 3)

252	355	Religious	Temple	Small Hanuman temple located in cultivated fields at the supposed location of an old abandoned village called 'Old Shivni': No pottery was collected and there was no obvious evidence of any past settlement. The temple itself may be Late Medieval or Early Modern	N	N/A	N/A	Unknown	V-VI	V-VI		Informed (Level 3)
253	265	Religious	Temple	A small Hanuman temple by the road heading south to Chichala village. The temple does not appear to be old (possibly Early Modern), and simply contains a broken Nandi head	N	N/A	N/A	IV-V+	V-VI	V-VI		Informed (Level 3)
254	484	Religious	Temple	A small Hanuman temple in Chichala, with a further shrine containing a Naga image. The temple appears to be Late Medieval or Early Modern	N	N/A	N/A	Unknown	V-VI	V-VI		Informed (Level 3)

255	485	Religious	Temple	Brightly painted relatively old (Late Medieval, possibly 18th century with Marāṭhā influence) Hanuman temple in Chichala with a smaller adjoining temple behind, which contains several sculptures of female figures	N	N/A	N/A	VI?	V	V-VI		Informed (Level 3)
256	486	Religious	Temple	Relatively old (Late Medieval, possibly 18th century) south-facing temple in Chichala containing a Hanuman sculpture. The decorated stone blocks and style of eaves on the temple appear to have Marāṭhā influence, although the temple has been renovated, plastered and painted	N	N/A	N/A	V+	V	V		Informed (Level 3)
257	487	Environmental Feature	Well	A hexagonal stone well in Chichala, featuring a well cover and pot stands. Possibly Late Medieval to Early Modern	N	N/A	N/A	N/A	V-VI	V-VI		Informed (Level 3)

258	488	Religious	Cabūtrā	Sati Mata platform shrine in Chichala displaying two broken red sandstone sculptures. One is an oddly shaped female torso with four arms (damaged and missing the head); the other is probably the arms and torso of another figure which is fairly crudely carved.	N	N/A	N/A	Unknown	V-VI	V-VI		Informed (Level 3)
259	239	Religious	Temple	Small brick and wood Ganesh temple in Chichala: The temple has a brick outer construction surrounded by a brick wall, and the sculpture is on an open stone platform with wooden columns supporting a wood and tile roof. The bricks are large and old, and may have been re-used from an earlier structure.	Y	N/A	N/A	N/A	Unknown	Phasing Unknown		Informed (Level 3)
260	262	Religious	Shrine (Modern)	Small modern shrine in Chichala which houses several small sculptures, including a 'terracotta' figure found at GPS 261 (Bada)	N	N/A	N/A	IV+	VI	Modern		Informed (Level 3)

261	266	Religious	Temple	Hanuman Temple with a small Naga in Chichala. Outside the temple is a stone column piece used as a planter, and a there is a large worked stone cattle trough nearby which could be old	N	N/A	N/A	Unknown		V/VI?		Informed (Level 3)
262	352	Settled habitation	Mound	Area in fields to the east of Chichala: The area is slightly mounded but has been ploughed. There is high density brick scatter (visible on coloured satellite imagery due to the orange-red tone of the ground) and piles of fragmentary brick. There is also low density pottery scatter	Y	I-V+	N/A	N/A		I-IV?	c. 1 ha in area	Informed (Level 3)
263	489	Religious	Temple (Modern)	Modern Hanuman temple in Chichala Ki Toli, with modern sculpture. This village is newly founded and does not display any archaeological remains	N	N/A	N/A	VI?	VI	Modern		Informed (Level 3)
264	490	Religious	Temple (Modern)	Modern Durga Mata temple in Chichala Ki Toli, with modern folk sculptures	N	N/A	N/A	Unknown	VI	Modern		Informed (Level 3)

265	261	Settled habitation	Disturbed mound	Area known as 'Bada' - an old habitation mound in the same condition as the Hamlapuri paddy field site. The fields have been cut into the original ground surface. Pottery and large brick remains are visible on the ground and in the field banks. There is also a large fallen tree stump with pottery, brick and microliths in the soil around the exposed roots	Y	II-IV	I/II	N/A	N/A	I-IV	c. 1 ha - true extent is unknown as this mound has been destroyed and the recorded area encompasses the visible ceramic and brick remains	Informed (Level 3)
266	438	Religious	Temple (Modern)	Modern Mata Mai temple in Nawergaon which contains stones and eroded stone pieces. Next to the temple is a red sandstone memorial stone depicting a male and female. This is not viewed as an object of worship	N	N/A	N/A	IV+	VI	VI (Structure)		Informed (Level 3)
267	439	Religious	Temple (Modern)	South facing modern Hanuman temple in Nawergaon	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)

268	440	Religious	Temple	Old east-facing temple next to the main modern Hanuman temple in Nawergaon: the sculpture inside is of two figures as at the Mata Mai temple, and seems to be a memorial stone. The temple could be Late Medieval/Early Modern	N	N/A	N/A	Unknown	V-VI	V-VI		Informed (Level 3)
269	441	Religious	Shrine (Modern)	Small modern shrine in Nawergaon, containing metal snakes and an older architectural piece	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
270	316	Religious	Temple	Hanuman Temple between Nawergaon and Sangrampur	N	N/A	N/A	V+	V-VI	V-VI		Informed (Level 3)
271	317	Religious	Temple	Hanuman Temple at Sangrampur	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
272	320	Religious	Temple	Hanuman temple at Sangrampur Ki Toli	N	N/A	N/A	IV-V+	VI	IV-VI		Informed (Level 3)
273	436	Religious	Shrine (Modern)	Modern Naga temple near Samgrampur Ki Toli	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

274	437	Religious	Temple (Modern)	Two modern east-facing temples next to a large area of Murrum digging at Sangrampur ki Toli. No archaeological remains are obvious	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
275	318	Settled habitation	Abandoned village (modern)	Location of 'Devada Rithi', which is said to be an abandoned village, with an associated temple. This area is now ploughed fields. Pottery and brick remains can be collected. The pottery and brick may be modern. The village is still marked on topographic maps. The temple does not appear to be old and houses fragmentary modern sculpture	Y	II-V+	Unknown	N/A	V-VI	II-VI	Area of cultural material roughly 2ha	Informed (Level 3)
276	368	Settled habitation	Mound	Mounded fields on the way to Udapur with a Hanuman sculpture. Across the surface of the fields there are brick fragments and medium density scatter of pottery sherds	Y	II-V+	N/A	V+	N/A	II/III-V?	c.1ha - where slight mound is visible in fields and brick and ceramic scatter can be seen	Informed (Level 3)

277	237	Settled habitation	Abandoned village (modern)	Series of small mounds which are said to be part of the abandoned modern settlement of Charkurda. There are ceramic/brick remains visible, and also clearly modern buildings and artefact. There is a small ruined brick temple/shrine in the abandoned village area, which is also modern.	Y	II-V+	N/A	N/A	VI	II-VI	Intermittent mounds across an abandoned village - original extent difficult to estimate	Informed (Level 3)
278	238	Religious with Environmental feature	Temple / embankment	Charkurda temple on the southern edge of a large tank. The temple appears to be modern but may have older foundations. It sits on the large earth embankment of the tank, which has remains of stone facing. No obvious brick or ceramic remains	N	N/A	N/A	IV-V+	V-VI	IV-VI	Embankment length: 0.75km	Informed (Level 3)
279	353	Religious	Temple	Hanuman Temple in Hatodi	N	N/A	N/A	VI?	V-VI	V-VI		Informed (Level 3)

280		Environmental Feature	Tank	Large tank with curved earth embankment on the south side of Hatodi. The area was explored and no obvious archaeological remains were identified. The embankment is several metres high and the origin of the tank could be old	N	N/A	N/A	N/A	Unknown	Phasing Unknown	Embankment length: 0.6km	Informed (Level 3)
281	555	Religious	Temple (Modern)	Small south facing Hanuman temple on the west side of Hatodi: The temple is located in an area quarried for Murrum/brick manufacture. The brick remains are modern and no pottery is visible.	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
282	556	Religious	Temple (Modern)	South facing Mata Mai temple in Hatodi	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
283	321	Religious with Environmental feature	Temple (Modern) / Well	Location of a well and small temple in agricultural fields near Lohadongri. The well is next to a large earthen bank but there are no archaeological remains to be found. The small shrine is modern	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

284	557	Religious	Temple	South facing Hanuman temple in Lohadongri. The temple is situated in a school yard, and appears to be old (Some Marāṭhā influence, Late Medieval).	N	N/A	N/A	V+	V	V		Informed (Level 3)
285	558	Religious	Temple (Modern)	East facing modern temple in Lohadongri with fragmentary sculpture including an interesting figure of a squatting male.	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
286	559	Religious	Temple (Modern)	West facing modern temple in Lohadongri containing a one-headed Naga image	N	N/A	N/A	VI	VI	VI		Informed (Level 3)
287	560	Religious	Temple (Modern)	South facing Hanuman temple in Lohadongri, containing a 5 headed Naga, liṅga and Nandi	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
288	373	Religious	Temple (Modern)	Modern temple at Khodgaon which contains some sculpture	N	N/A	N/A	V+	VI	VI		Informed (Level 3)

289	322	Settled habitation	Mound	Mound of 'Old Khodgaon' in agricultural fields. The mound has been cut away to the south and west side. Surface ceramics are particularly noticeable and there are also fragmentary bricks.	Y	II-IV/V	N/A	N/A	N/A	II-IV/V	c.1 ha mounded field with surface ceramics	Informed (Level 3)
290	372	Religious with Environmental feature	Temple (Modern) / embankment	Small temple/shrine next to a tank on the east side of Kachurwahi: There are no obvious archaeological remains. The small tank appears to be a modern water storage area, and the temple is also modern	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
291	551	Religious	Temple (Modern)	Modern Sati Mata temple in Kachurwahi containing two figures. Located behind is a secondary small shrine with stones	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

292		Environmental Feature	Tank	Main tank with earth embankment at Kachurwahi, on the northwest side of the village. This may be an old water storage area although there are no obvious archaeological remains, and no associated finds to indicate chronology	N	N/A	N/A	N/A	Unknown	Phasing Unknown	Water storage area is c.1.6ha with an embankment of 0.4km	Informed (Level 3)
293	354	Locally known area	Abandoned village	Area known as 'Minsi Rithi'. Described as an abandoned village, but there are no obvious archaeological remains. In an area of disturbed ground there are ruined building materials which are modern. It would appear that this is the site of an abandoned village from the Modern period	N	N/A	N/A	V+	VI	V-VI	Roughly 230m by 65m across	Informed (Level 3)
294	354	Religious	Temple (Modern)	South-facing modern Hanuman Temple at 'Minsi Rithi'	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
295	323	Religious	Temple	Hanuman Temple at Khandala	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)

296	552	Religious	Temple	South facing Hanuman Temple in Khandala with two Hanumans and a stone	N	N/A	N/A	V-VI	VI?	V-VI		Informed (Level 3)
297	290	Religious	Temple (Modern)	Small Hanuman Temple in Masala	N	N/A	N/A	IV-V+	VI	VI		Informed (Level 3)
298	550	Religious	Shrine (Modern)	Small south-facing Hanuman shrine in Masala, which appears to be modern. There is a Hanuman sculpture in front of the shrine	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)
299	343	Religious	Temple (Modern)	Hanuman temple in Sirpur	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
300	545	Religious	Shrine (Modern)	East facing shrine on the edge of Sirpur, which contains stones. However nearby is an eroded Nandi and a carved architectural piece	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
301	546	Religious	Shrine (Modern)	Small east facing modern shrine in fields near Sirpur, containing an image of a 5 headed Naga	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
302	547	Religious	Shrine (Modern)	Small east facing shrine near Sirpur with stones inside. The shrine is a modern structure	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)

303	553	Religious	Shrine (Modern)	South of Sirpur: small roadside temple/shrine containing an animal sculpture said to be Waghdev. The shrine itself is modern while the sculpture is of unknown date	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
304	344	Religious	Temple (Modern)	Small modern Hanuman temple in Sirpur Ki Toli: The temple is modern as is the sculpture inside, and the village is an extension of Sirpur indicating a recent foundation	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
305	88	Low density habitation remains	Ceramic scatter	Low density scatter of potsherds in harvested paddy fields to the south of Bori	N	II-V+	N/A	N/A	N/A	II-V+	Scatter visible over roughly 2.5ha	Informed (Level 3)
306	89	Environmental Feature	Embankment	Small embankment surrounding a potentially disused tank north of Bori with low density ceramic scatter across the surface of the surrounding harvested paddy fields	N	II-IV	N/A	N/A	Unknown	Phasing Unknown	Extent unclear but appears to be roughly 0.15ha	Informed (Level 3)
307	91	Environmental Feature	Well	Stone well in Bori, appears Late Medieval or Early Modern	N	N/A	N/A	N/A	V	V		Informed (Level 3)

308	92	Religious	Temple	Old temple on the southern outskirts of Bori, appears to be Medieval (with Marāṭhā influence). There is the possibility of re-use of material or older foundations	N	N/A	N/A	N/A	V	V		Informed (Level 3)
309	94	Environmental Feature	Well	Stone block well in Bori, surrounded by loose stone blocks on a mounded area of soil. The well appears to be Late Medieval or Early Modern	N	N/A	N/A	N/A	V	V		Informed (Level 3)
310	95	Religious	Cabūtrā	Arranged decorated/ worked stone blocks forming a cabūtrā in Bori. On the shrine is a Sri Pada	N	N/A	N/A	IV+	Unknown	IV+		Informed (Level 3)
311	345	Religious	Temple	An old Hanuman temple in the middle of Bori village. The temple contains various pieces of sculpture and probably dates to the Marāṭhā period	N	N/A	N/A	IV-V+	V	IV-V		Informed (Level 3)
312	346	Low density habitation remains	Ceramic scatter	Low density pottery scatter across the ploughed fields to the south of Bori village	N	II-V+	N/A	N/A	N/A	II-V+		Informed (Level 3)

313	548	Religious	Cabūtrā	Small Naga on a modern platform shrine near the central temple in Bori village. The Naga sculpture appears to be fairly modern	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
314	549	Religious	Temple	East facing temple in Bori with a south facing Hanuman sculpture inside and associated sculpture	N	N/A	N/A	V-VI	VI?	V-VI		Informed (Level 3)
315	324	Religious	Temple	Hanuman Temple at Lohara	N	N/A	N/A	V+	VI?	V-VI		Informed (Level 3)
316	325	Low density habitation remains	Ceramic / brick scatter	Ploughed fields with ceramics and very fragmentary brick. This area which may have been mounded but is now extensively ploughed. Medium to low density remains. There are several small temples on the edge of the fields, which do not appear old	Y	II-V+	N/A	N/A	V-VI	II-VI	c.1.2ha in area	Informed (Level 3)
317	364	Religious	Temple (Modern)	Modern group of temples with associated small shrines at the base of Khindsi Dam. Includes a Hanuman temple and Naga shrine, and a larger structure housing many fragmentary images	N	N/A	N/A	IV-V+	VI	IV-VI		Informed (Level 3)

318	357	Settled habitation	Mound	Slightly mounded area in ploughed field by Khindsi Tank, near to the village of Panchala. Despite the low vegetation cover, fragmentary brick and medium density pottery scatter was found. It may be that a larger mounded area has been dug and ploughed away for paddy fields. Ceramic sherds could be seen in the field banks, which would support this suggestion	Y	II-V+	N/A	N/A	N/A	II-V	c.2 ha - mound has been ploughed and extent is not clear	Informed (Level 3)
319	358	Religious	Cabūtrā (Modern)	Small modern platform shrine in Panchala with a Naga sculpture, which also appears to be modern	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
320	498	Religious	Temple (Modern)	East facing Mata Mai temple on the edge of Panchala	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
321	499	Religious	Temple (Modern)	Modern temple in Panchala containing various sculptures including Ganesh and Hanuman. Next to the temple is a round well	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

322		Environmental Feature	Tank	Large tank with curved earth embankment on the south side of Panchala village, east of the modern embankment defining Khindsi tank. There are nearby archaeological remains in the fields, but not specifically around this tank. There are no other features to indicate a potential date for construction	N	N/A	N/A	N/A	Unknown	Phasing Unknown	Embankment length: 300m	Informed (Level 3)
323	230	Environmental Feature	Well	Well, which appears to be Late Medieval, in the fields by the east embankment of Khindsi tank. A few pot sherds were collected surrounding this area but in a very low density scatter	N	IV/V	N/A	N/A	V	V		Informed (Level 3)
324	326	Religious	Temple (Modern)	Seemingly modern temple in the fields near Panchala Khurd. There is no obvious evidence of archaeological remains.	N	II-V+	N/A	Unknown	VI	II-VI		Informed (Level 3)

325	327	Settled habitation	Mound	Small mounded area in ploughed fields near to the village of Panchala Khurd. Pottery sherds are visible in medium density scatter and were collected. Very fragmentary brick is also visible	Y	I-V+	N/A	N/A	N/A	I-V+	c.3 ha - True extent not known due to ploughing and agriculture	Informed (Level 3)
326	311	Religious	Temple (Modern)	Modern temple at the village of Ghoti. There is some sculpture inside the temple that could be older	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
327	251	Religious	Temple	Temple in Bhandarbodi with small Naga sculpture	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
328		Environmental Feature	Tank	Large tank at Bhandarbodi: The tank has a very large earth embankment and is possibly old, but there are no visible archaeological remains in the vicinity and no ceramics or brick were collected from the surrounding fields	N	N/A	N/A	N/A	Unknown	Phasing Unknown	c.3 ha across the water storage area	Informed (Level 3)

329	252	Religious	Shrine (Modern)	Small shrine next to the tank at Bhandarbodi. The small temple appears to be modern and there is no obvious archaeological evidence in the surroundings	N	V+	N/A	N/A	VI	V-VI		Informed (Level 3)
330	253	Religious	Temple	Hanuman Temple in Bhandarbodi	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
331	257	Settled habitation	Mound	Location of one of the sounding points of the ASI archaeological investigations at Bhandarbodi mound. The area is now completely over-grown and forested, and no archaeological evidence is readily visible	N	N/A	N/A	N/A	N/A	Phasing Unknown	Unknown - 'mound' is on hillside and forested.	Known
332	260	Religious	Shrine	A large local shine in the natural hills behind Bhandarbodi mound. The shrine is constructed around a large rock formation identified as 'Kejbaraja' but there is no evidence of archaeological remains.	N	N/A	N/A	N/A	Unknown	Phasing Unknown		Known
333	228	Environmental Feature	Tank	Tank north of Mahadula village, with earth embankment	N	II/III, V+	N/A	N/A	Unknown	Phasing Unknown	Embankment length: 200m	Informed (Level 3)

334	391	Religious	Temple	Bāvlī and Temple on the road south of Mahadula	N	N/A	N/A	N/A	V	V		Informed (Level 3)
335	391	Religious	Shrine (Modern)	Small modern shrine opposite the bāvlī and temple south of Mahadula, containing a small headless figure	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
336	494	Religious	Temple (Modern)	Mata Mai East facing temple in Mahadula	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
337	495	Religious	Temple (Modern)	East facing temple hall in Mahadula with smaller south facing Hanuman shrine inside	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
338	496	Religious	Temple (Modern)	East facing Mata Mai temple in Mahadula	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
339	497	Religious	Shrine (Modern)	Shrine on road between Mahadula and Panchala: stones inside	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
340	328	Religious	Shrine (Modern)	Two small shrines just outside Mandri village containing small pieces of sculpture	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
341	331	Religious	Temple	Hanuman Temple between the villages of Mandri and Mahadula	N	N/A	N/A	V+	V-VI	V-VI		Informed (Level 3)
342	500	Religious	Temple	Small Hanuman temple in Mandri	N	N/A	N/A	Unknown	V-VI	V-VI		Informed (Level 3)

343	501	Religious	Temple	South facing larger Hanuman temple in Mandri	N	N/A	N/A	V+	VI?	V-VI		Informed (Level 3)
344	502	Religious	Temple (Modern)	East facing temple with stone or eroded sculptural fragment, and a small shrine around tree containing a stone, in Mandri	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
345	503	Religious	Shrine (Modern)	East facing modern shrine containing a small metal Naga in Mandri	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
346	504	Religious	Temple (Modern)	East facing temple in Mandri with 2 sculptures and Sri Pada	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
347	390	Environmental Feature	Well	Stone built old well	N	N/A	N/A	N/A	V+	V+		Informed (Level 3)
348	330	Settled habitation	Mound	Mound of 'Old Mandri' - partly ploughed and cultivated. Ceramic sherds can be found in medium density scatter across the surface	Y	II-V+	N/A	N/A	N/A	II-V+	c.2 ha - Mound has been partly ploughed and cultivated so true extent is unknown	Informed (Level 3)

349	106	Low density habitation remains	Ceramic scatter	Centre of a very small mounded area in the plain north of Khindsi Lake. There is a higher concentration of pottery scatter over the surface here and in the surrounding plain area (low to medium density scatter), and several small finds of grinding stones around.	N	II-V+	Unknown	N/A	N/A	II-V+	Ceramic scatter is roughly 60m across (0.3ha)	Informed (Level 3)
350	107	Low density habitation remains	Ceramic / brick scatter	Large earthwork or embankment to the east of the mound at Old Mandri, brick and ceramic fragments are found in the surroundings and particularly in the disturbed ground by the road where there is a cut in the embankment. It is not clear whether this embankment is a modern feature built up from surrounding soil or whether it has older origins	Y	IV/V	N/A	N/A	Unknown	IV/V	Ceramics found along 33m of cut	Informed (Level 3)

351	231	Religious	Temple (Modern)	Modern Hanuman temple near to Kelapur and c 500m from mound of Old Mangli. There is a medium density of pottery sherds around this site, concentrated to the north within 100ft of the temple.	N	II-V+	N/A	N/A	VI	II-VI	c.0.3ha of ceramic scatter	Informed (Level 3)
352	381	Settled habitation	Mound	Clear mound near to Khindsi tank said to be the location of 'Old Mangli': The mound is covered in Thuri and the surrounding area has been ploughed. Pottery sherds can be collected from the ground surface but is quite restricted to the actual mound and the ploughed fields immediately around	N	II-V+	N/A	N/A	N/A	II-V+	c.2ha in area	Informed (Level 3)
353	111	Religious	Temple	Kelapur temple situated on an area of slightly high ground by the edge of Khindsi tank. Medium density surface pottery can be found around the temple. Several grinding stones were also found in this area. The temple itself appears to be Late Medieval.	N	I-V+	Unknown	Unknown	V-VI	I-VI	Ceramic scatter covers roughly a 100m radius from the temple. GPS recorded extent of 2.5ha	Known

354	229	Settled habitation	Abandoned village (modern)	Small hillock at Manegaon with an area of plain at the base where a British period settlement apparently used to be. Some pottery was collected from this area but the fragments of building material were modern. British period coin collected from the fields	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
355	360	Religious	Temple (Modern)	Modern temple over the river near to Musewadi.	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
356	360	Settled habitation	Mound	Mounded area of fields (mixed ploughed and cotton cultivation) near Musewadi. Ceramic sherds can be found scattered over the ground surface in both areas but visibility is significantly reduced. The ceramic scatter is fairly low density	N	II-V+	N/A	N/A	N/A	II-V+	c.2 ha - mound has been ploughed and cultivated and so edges are not distinct	Informed (Level 3)
357	388	Religious	Shrine (Modern)	Small modern Naga shrine on the roadside in Musewadi: The sculpture also may be modern	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

358	389	Religious	Temple (Modern)	Small east facing temple in Musewadi containing two seated sculptures, which appear to be Annapurna. The sculptures may be Medieval	N	N/A	N/A	IV+	VI	IV-VI		Informed (Level 3)
359	505	Religious	Shrine (Modern)	Group of modern shrines outside of Musewadi on private land. All roughly east-facing, containing several sculptural fragments including a striding figure and two Waghdev sculptures.	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
360	506	Religious	Temple	The main temple in Musewadi: A south-facing Hanuman temple, which appears to be fairly old (Medieval or Early Modern)	N	N/A	N/A	IV-V+	V	IV-V+		Informed (Level 3)
361	309	Religious	Temple	Shiv Temple containing a Hanuman sculpture, located in the small village of Gudhegaon	N	N/A	N/A	V+	V?	V		Informed (Level 3)

362	507	Religious	Temple (Modern)	Small modern temple containing a stone and a small Naga, outside Gudhegaon. The Naga appears to be modern as well as the main temple structure	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
363	308	Settled habitation	Mound	Ploughed fields near to Umri village, which are clearly mounded over approximately 2 acres. Obvious surface remains of pottery and brick. A stone tool was also found	Y	II-V+	I	N/A	N/A	II-V+	c. 1ha - ploughed mound meaning extent unclear	Informed (Level 3)
364	198	Settled habitation	Disturbed mound	Location of a destroyed mound near Lohadongri. This area is known as Naharwani, and the mounded area and its surroundings have been dug away. Pottery sherds can be found in the large spoil heaps and in the sections	Y	II-V+	N/A	N/A	N/A	II-V+	c.1 ha - mound has been destroyed so remaining higher ground and areas of extensive pottery in spoil were estimated with GPS	Informed (Level 3)

365	370	Religious	Shrine (Modern)	Several small temples/shrine in the vicinity of the mounded area of 'Naharwani: both are fairly modern, one is dedicated to Maruti/Hanuman temple. Near to the temples is an area of architectural and worked stone blocks. Scattered brick and ceramic remains can be found on the ground surface, presumably from the destroyed mound.	Y	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
366	195	Religious	Shrine (Modern)	A modern shrine on the top of a small hill near to Maharajpur and Futaka Tank: There is an interesting ring of a white stone formation around the temple. This may have been the site for an earlier construction but there are no obvious archaeological remains	N	II-IV/V	N/A	N/A	VI	II-VI		Informed (Level 3)

367	196	Environmental Feature	Tank	Futaka tank with a small earth embankment. A large section through the embankment of the tank revealed a modern pipeline and there is a concrete sluice. According to villagers the tank is dated from the British period	N	N/A	N/A	N/A	VI?	VI?	Embankment length: 400m	Informed (Level 3)
368	511	Religious	Shrine (Modern)	Small modern shrine on the way to Maharajpur containing a tiger image (Waghdev).	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
369	512	Religious	Temple (Modern)	East facing Mata Mai temple in Maharajpur (with stone or a very badly eroded sculpture)	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
370	513	Isolated sculpture	Sculpture	East facing single-headed Naga on the outskirts of Maharajpur, the figure has no temple or platform	N	N/A	N/A	Unknown	N/A	Phasing Unknown		Informed (Level 3)
371	359	Religious	Temple Group	Temple group at Mukanapur. All temples appear to be relatively old (Medieval or Early Modern). Two Hanuman temples and one smaller temple with a stone and bull sculpture	N	N/A	N/A	V-VI	V	V-VI		Informed (Level 3)

372	359	Environmental Feature	Well	Stone well near to the temples at Mukanapur: The well is similar to others seen across the survey area and appears to be Medieval or Early Modern	N	N/A	N/A	N/A	V	V		Informed (Level 3)
373	386	Religious	Temple (Modern)	Hanuman temple near to Nahabi. The temple appears to be modern as does the sculpture inside	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
374	386	Environmental Feature	Well	A stone well/bāvlī next to the Hanuman temple near to Nahabi. The well may be Late Medieval or Early Modern and is similar to the trend of those across the survey area	N	N/A	N/A	N/A	V	V		Informed (Level 3)
375	383	Religious	Shrine (Modern)	Small shrine on the roadside north of Rāmṭek containing the top part of a small sculpture	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
376	387	Religious	Temple	East facing Temple with sculpture inside and stones outside	N	N/A	N/A	Unknown	VI?	VI		Informed (Level 3)
377	385	Religious	Temple (Modern)	Modern temple situated just outside Dongri with eroded sculpture	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

378	508	Religious	Temple (Modern)	South facing Hanuman temple in Dongri, also containing a small liṅga, Nandi and Naga sculpture.	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)
379	293	Religious	Shrine (Modern)	Small modern shrine containing a Naga in Dudhala village, to the north of Rāmṭek.	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
380	405	Religious with Environmental feature	Temple (Modern) / embankment	East facing temple on the east embankment of a small tank, west of Dudhala village. The temple is modern and there are no visible archaeological remains	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
381	479	Religious	Temple (Modern)	Modern Hanuman temple in Dudhala. There is a small platform shrine outside the temple.	N	N/A	N/A	IV-VI	VI	IV-VI		Informed (Level 3)
382	479	Religious	Temple	An older temple opposite the Hanuman temple in Dudhala, containing modern sculpture and two stone pieces inside (architectural and grinding stone?) - Late Medieval or Early Modern	N	N/A	N/A	N/A	V	V		Informed (Level 3)

383	380	Religious	Shrine (Modern)	Small temple/shrine in the fields near Pindkapar	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
384	477	Religious	Temple (Modern)	Modern Hanuman temple in Pindkapar: This is the only temple in the village and is a modern construction containing modern sculpture. There is also no evidence of archaeological remains in the surroundings or throughout the village	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
385	110	Low density habitation remains	Ceramic scatter	Very low density ceramic scatter in ploughed fields near to Pindkapar. Does not appear to indicate any settlement site	N	II-V+	N/A	N/A	N/A	II-V+	Ceramics only found within 0.3ha	Informed (Level 3)
386	305	Settled habitation	Mound	Mounded ploughed fields on the outskirts of the village of Sonpur. The fields are slightly raised and the surface is covered in medium density pottery scatter. Villagers identify this site with the location of 'Old Pindkapar', an abandoned village. There is a small temple/shrine on the mounded agricultural fields. It appears to be relatively modern	Y	II-V+	N/A	V+	VI	II-VI	c. 2 ha - ploughed so that edges are not distinct	Informed (Level 3)

387	378	Religious	Temple	Hanuman temple in Old Soneghat	N	N/A	N/A	VI?	VI?	VI?		Informed (Level 3)
388	193	Low density habitation remains	Ceramic scatter	Low density ceramic scatter across the south side of Chaugon village, on the edge of cultivated fields.	N	II-V+	N/A	N/A	N/A	II-V+	Scatter visible across approximately 0.7ha	Informed (Level 3)
389	379	Religious	Temple (Modern)	Hanuman Temple near Chaugan	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
390	400	Low density habitation remains	Ceramic scatter	House on the eastern outskirts of Chaugan village where the nearby ploughed fields were subject to pedestrian survey. The residents had found carved stone pieces and a small stone object but there was no obvious evidence of archaeological remains	N	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)
391	475	Religious	Temple (Modern)	Modern temples in Chaugan containing various fragmentary sculpture and stones. One of the small shrines contains a large stone painted to look like a large head with a crown	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

392	399	Religious	Shrine (Modern)	Small modern shrine in fields: only stones are present, rather than sculptural fragments	N	N/A	N/A	N/A	VI	VI		Quadrat
393	194	Religious	Temple	Japala temple: A large old temple situated on the east side of a tank with an earth embankment and stone steps leading into the tank. There is a main temple which appears to be Medieval, and several smaller constructions with mixed sculpture	N	N/A	N/A	IV-VI	V	IV-VI	Embankment length: 0.5km	Informed (Level 3)
394	472	Religious	Temple (Modern)	Modern Hanuman temple near Bhondewada in a brick manufacturing area. The sculpture appears modern and there are no archaeological remains surrounding the temple, which is very disturbed from commercial digging.	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)

395	474	Religious	Temple	Temple south of Bhondewada and the brick manufacturing site: The temple may be Late Medieval or Early Modern and contains several pieces of sculpture including a seated female figure resembling Annapurna	N	N/A	N/A	Unknown	V	V-VI		Informed (Level 3)
396	299	Religious with Environmental feature	Temple / Tank	Hanuman temple at Bhondewada. The temple is situated on the north of the village, on the south side of a round tank	N	N/A	N/A	VI?	V	V-VI		Informed (Level 3)
397	300	Religious	Cabūtrā	Small platform shrine near a large brick manufacturing site just outside the village of Bhondewada. The shrine has a single piece of sculpture of two figures propped up on it. The area displays no obvious archaeological surface remains. The platform may be constructed of older stone blocks or originates from the Marāṭhā period based on the carved motifs	N	N/A	N/A	IV+	V	IV-V		Informed (Level 3)

398	473	Religious	Temple (Modern)	Hanuman temple on the road between Bhondewada and Khumari	N	N/A	N/A	VI?	VI?	Modern?		Informed (Level 3)
399	295	Religious	Temple (Modern)	Hanuman Temple at Bhilewada which contains a few other small sculptures	N	N/A	N/A	V-VI	VI	VI		Informed (Level 3)
400	376	Settled habitation	Mound	A large mounded area of fields near to the village of Bhilewada: There is crop cover but pottery is still visible over the ground surface and there are very fragmentary pieces of brick	Y	II-V+	N/A	N/A	N/A	II-V+	c. 2 ha - Mound is cultivated and heavily vegetated towards periphery. True extent unclear	Informed (Level 3)
401	377	Religious	Temple (Modern)	Modern Hanuman Temple near to Bhilewada	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
402	470	Religious	Temple (Modern)	Modern Mata Mai temple in Bhilewada which contains stones	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
403	471	Religious	Shrine (Modern)	Two small modern shrines in Bhilewada, containing images of Waghoba	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

404	241	Religious	Shrine (Modern)	Stone shrine by small hillock north of Bhilewada in an area used for digging Murrum. No archaeological remains and the main object of worship in the area is a stone which has been painted due to its resemblance to a bull	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
405	302	Isolated architectural remains	Architectural remains	Potentially chiselled/worked large sandstone blocks lying in the village of Chorkumari. Throughout the village there is no other evidence of archaeological remains and the area is not mounded	N	N/A	N/A	N/A	N/A	Phasing Unknown		Informed (Level 3)
406	303	Religious	Temple (Modern)	Hanuman temple on the outskirts of the village at Chorkumari	N	V+	N/A	N/A	VI	VI	Localised scatter around 5m by 5m	Informed (Level 3)
407	303	Environmental Feature	Well	Old stone well near to the Hanuman temple at Chorkumari, with scattered hoop stones lying around but no evidence of other archaeological material such as brick/ceramics	N	N/A	N/A	V+	V	V		Informed (Level 3)

408	509	Religious	Shrine (Modern)	Small modern shrine under a tree in Chorkumari with standing female (?) figure	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
409	510	Religious	Temple (Modern)	East facing temple in between Chorkumari and Dongri, containing a 5 headed Naga	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
410	242	Religious	Temple (Modern)	Chota Mahadev: A large modern temple complex containing sculpture which also appears to be fairly modern	N	N/A	N/A	IV-VI	VI	IV-VI		Informed (Level 3)
411	304	Environmental Feature	Tank	Large tank at Chorbahuli, with a tall earthen embankment, and modern concrete construction. No ceramic or brick remains were found in the surroundings. The current tank is a modern construction taking advantage of the river emerging from the hills	N	V+	N/A	N/A	Unknown	Phasing Unknown	Embankment length: c.300m	Informed (Level 3)
412	304	Environmental Feature	Bāvlī	Medieval stone bāvlī at the base of the embankment of the tank at Chorbahuli. The bāvlī features steps leading into an underground arched well. No other remains	N	N/A	N/A	N/A	V	V		Informed (Level 3)

413	451	Religious	Temple	The only temple area in Borda: A main temple dedicated to Hanuman with several smaller shrines to the bull, Liṅga, Naga etc. There is also a small shrine next to the temple with a small sculpture of a figure inside	N	N/A	N/A	VI?	V-VI	V-VI		Informed (Level 3)
414	452	Religious	Shrine (Modern)	A small modern shrine with a metal Naga and trident on the road out of Borda. The metal objects appear modern	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
415	453	Religious	Shrine (Modern)	Small modern Ram Mandir containing a stone, near Borda	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
416	446	Religious	Temple (Modern)	Hanuman Temple with a Naga shrine in Sarakha	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
417	447	Religious	Temple (Modern)	Mata Mai temple in Sarakha	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)
418	448	Religious	Temple (Modern)	Large Hanuman temple with a Naga outside in Sarakha	N	N/A	N/A	V-VI	VI	V-VI		Informed (Level 3)
419	450	Religious	Temple (Modern)	Small Hanuman temple in Sarakha	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)

420	442	Religious	Temple (Modern)	Hanuman temple in Khumari	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
421	443	Religious	Temple (Modern)	Temple just outside Khumari, containing a Naga with a second modern temple containing modern sculpture (Ram Mandir)	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
422	444	Religious	Temple (Modern)	Hanuman temple in Khumari containing two Hanuman sculptures	N	N/A	N/A	V+	VI	V-VI		Informed (Level 3)
423	445	Religious	Cabūtrā (Modern)	Two pieces of sculpture said to represent tigers (Waghdev/Waghoba). One is headless and sat on its haunches the other is quite badly eroded and appears to be lying down	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
424	314	Religious	Temple	Hanuman Mandir in Bondri, just north of Mansar	N	N/A	N/A	IV+	V-VI	IV-VI		Informed (Level 3)
425	243	Religious	Tombs	Muslim tombs on a small hill by Kandri which overlook the Manganese mining behind Mansar hill	N	N/A	N/A	N/A	Unknown	Phasing Unknown (Appears to be V+)		Informed (Level 3)
426	315	Religious	Temple	Hanuman Mandir in Kandri, north of Mansar	N	N/A	N/A	VI?	VI?	VI?		Informed (Level 3)

427	456	Religious	Temple (Modern)	Modern temple in Kandri with stones outside, but an empty and locked main temple	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
428	457	Environmental Feature	Tank	East facing Naga by the side of a small tank in Kandri area: The sculpture is free standing and has no housing. It sits next to the earth embankment of a small tank	N	N/A	N/A	VI?	N/A	VI?	Embankment length: 400m	Informed (Level 3)
429	458	Religious	Shrine (Modern)	Small temple/shrine in Kandri on slightly undulating natural mounded area by the road: The object inside is unknown, it appears to have a face but is shaped like a sword/long and pointed. It could be something that has been made to appear like an object of worship. The shrine and contents are modern	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
430	459	Religious	Shrine (Modern)	Metal Naga with a defined head and hood, in Kandri (modern?)	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)

431	460	Religious	Temple (Modern)	Modern temple in Kandri with stones and very eroded sculpture	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
432	461	Religious	Shrine (Modern)	Small east facing shrine containing a rectangular stone, on the road side in Kandri	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)
433	462	Religious	Temple (Modern)	Modern temple which is locked although it appears to contain stones/very obscured sculpture of Hanuman. Outside is a small shrine with stones	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
434	463	Religious	Temple (Modern)	Small temple being constructed in the mining community along the hill base to the north of Mansar	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
435	464	Religious	Shrine (Modern)	Small Naga shrine/temple in mining community, with a bull and Liṅga, and three figures together on one stone	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
436	465	Religious	Temple (Modern)	Red painted temple in Kandri with a modern liṅga and bull inside	N	N/A	N/A	N/A	VI	VI		Informed (Level 3)

437	466	Religious	Shrine (Modern)	Two modern shrines on the road north of Mansar, one containing a metal Naga and one containing a multi armed female figure (Durga?)	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
438	480	Religious	Shrine (Modern)	Temple/shrine containing sculpture of two figures, in the fields north of Chargaon	N	N/A	N/A	Unknown	VI	VI		Informed (Level 3)
439	481	Religious	Shrine (Modern)	Small modern shrine with trident and Naga on west side of Chargaon village, which has no temple	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
440	296	Religious	Temple (Modern)	Hanuman temple at Chaugaon	N	N/A	N/A	IV+	VI	VI		Informed (Level 3)
441	454	Religious	Temple (Modern)	Hanuman temple in Hivra village to the north of Mansar	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
442	455	Religious	Temple (Modern)	Modern (?) Naga temple in Hivra	N	N/A	N/A	VI?	VI	VI		Informed (Level 3)
443	212	Low density habitation remains	Ceramic scatter	Very low density ceramic scatter in ploughed fields - Only a couple of sherds were collected which does not and no other archaeological material is obvious	N	V+	N/A	N/A	N/A	Phasing Unknown	Area with ceramic remains within 50m radius of the GPS point. Area recorded as 1ha	Informed (Level 3)

444	329	Low density habitation remains	Ceramic scatter	Very low density ceramic scatter in the plain north of Khindsi tank, discovered during speculative survey. No other archaeological remains can be seen and it does not appear this is a significant indicator of settlement activity, rather it is likely to be background scatter	N	II-IV	I/II	N/A	N/A	I-IV	Low density scatter recorded over c.3ha	Informed (Level 3)

Appendix 2: Temple images

This appendix presents selected images of temples, shrines and *cabūtrās* recorded during survey in order to illustrate the typical structures encountered across the Rāmṭek landscape.

		
Site no. 9	Site no.16	Site no.34
		
Site no.38	Site no.42	Site no.43

		
Site no.44	Site no.62	Site no.63
		
Site no.66	Site no.67	Site no.68
		
Site no.69	Site no.87	Site no.97

		
Site no.113	Site no.117	Site no.118
 		
Site no.119	Site no.129	Site no.132
		
Site no.133	Site no.134	Site no.137

		
Site no.138	Site no.140	Site no.143
		
Site no.145	Site no.146	Site no.147
		
Site no.148	Site no.149	Site no.150

		
Site no.158	Site no.161	Site no.163
		
Site no.165	Site no.166	Site no.169
		
Site no.172	Site no.187	Site no.188

		
Site no.189	Site no.198	Site no.203
		
Site no.207	Site no.208	Site no.217
		
Site no.218	Site no.221	Site no.223

		
Site no.225	Site no.227	Site no.228
		
Site no.229	Site no.230	Site no.231
		
Site no.232	Site no.233	Site no.243

		
Site no.248	Site no.250	Site no.251
		
Site no.253	Site no.254	Site no.255
		
Site no.256	Site no.259	Site no.263

		
Site no.266	Site no.267	Site no.268
		
Site no.270	Site no.274	Site no.278
		
Site no.281	Site no.283	Site no.284

		
Site no.285	Site no.286	Site no.287
	 	
Site no.288	Site no.290	Site no.291
		
Site no.295	Site no.296	Site no.298

		
Site no.300	Site no.301	Site no.302
		
Site no.303	Site no.304	Site no.308
 		
Site no.311	Site no.315	Site no.317

 		
Site no.320	Site no.321	Site no.326
		
Site no.329	Site no.334	Site no.336
		
Site no.337	Site no.338	Site no.339

		
Site no.340	Site no.341	Site no.342
		
Site no.343	Site no.344	Site no.345
		
Site no.346	Site no.253	Site no.357

		
Site no.358	Site no.359	Site no.360
		
Site no.361	Site no.362	Site no.365
		
Site no.366	Site no.268	Site no.371

		
Site no.373	Site no.376	Site no.377
		
Site no.378	Site no.380	Site no.381
	 	
Site no.383	Site no.387	Site no.389

		
Site no.391	Site no.393	Site no.394
		
Site no.395	Site no.401	Site no.402
		
Site no.403	Site no.404	Site no.406

		
Site no.408	Site no.409	Site no.414
		
Site no.415	Site no.416	Site no.419
		
Site no.421	Site no.422	Site no.424

		
Site no.427	Site no.436	Site no.437
		
Site no.438	Site no.441	

Appendix 3: List of small finds

Find Number	Site Number	GPS Number	Find Type	Material	Dimensions (cm)	Description	Suggested Phase	Additional Comments
1	29	53	Figurine	Ceramic	Height: 8 cm Width (across head): 7cm Neck circumference: 15cm	Fragmentary figurine of an animal's head; perhaps a bull given the visible bridle detail and marks where horns may have originally been. Made from micaceous clay, with an orange exterior and solid grey interior. The outside has been given a micaceous wash. Relatively heavy.	II/III?	
2	29	60	Ceramic object	Ceramic	Height: 4cm Length: 7.8cm Width: 4.2cm	Half of a hollow round ceramic object with a flattened top and bottom, and a hole through the middle. Wheel-turned (visible manufacture lines inside). One base is thicker than the other. Made of red ware with occasional mica dust and the odd grit inclusion. Light and not very sturdy, possibly a spindle whorl	Unknown	Associations with Phase II/III ceramics
3	45	86	Figurine	Ceramic	Height: 3cm Circumference: 12cm	Part of ceramic figurine; the upper torso of a human figure, with what appears to be a necklace. Made of a dark micaceous ware, black in colour with some evidence of a thin black slip.	Unknown	

4	349	105	Grinding stone	Stone	Length: 5.7 cm Width: 7cm Depth: 5cm	End piece of a quern-stone or grinder. This has a rounded top with a flat bottom possibly from grinding. It is a fairly heavy stone with porous appearance, and the outside has been smoothed.	Unknown	
5	349	105	Stone object	Stone	Length across the break: 6.7cm Width: 4.8cm Depth: 3cm	Rounded stone piece, which could be a body rubber or a gaming disc. Porous stone, dark grey in colour, with a rough feel. It is broken roughly in half and is shaped approximately like a semicircle.	Unknown	
6	353	111	Grinding stone	Stone	Length: 5.5cm Circumference: 15.8cm	Small, heavy grey stone block, which could have been a quern-stone or a pestle used for grinding. It is possible that it could even be part of a small squared-off *liṅga*.	Unknown	
7	236	215	Grinding stone	Stone	Length: 14cm Circumference: 22cm	A gritty sandstone piece which could be a heavy grinding stone or quern/pestle. It has a rough surface all over.	Unknown	
8	236	215	Stone object	Stone	Length: 6cm Width: 5.8cm Depth: 5.7cm Half circumference:12 cm	Very smooth, mottled pink and grey stone with shiny quartz inclusions. The surface has been smoothed and polished but it is broken at both ends. One side of the stone piece has a smooth, flat bottom, which is slightly concave, so that the cross-section of the object is a semicircle. The purpose is unknown; perhaps part of a grinding stone or part of a carved sculpture.	Unknown	Associated with Phase II to IV ceramics and Gupta-size bricks

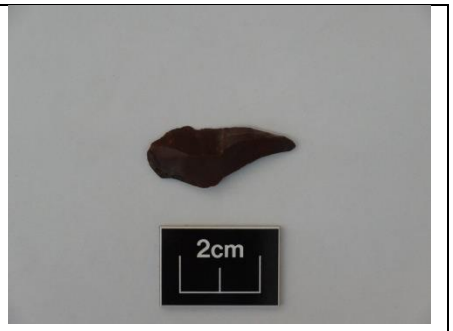
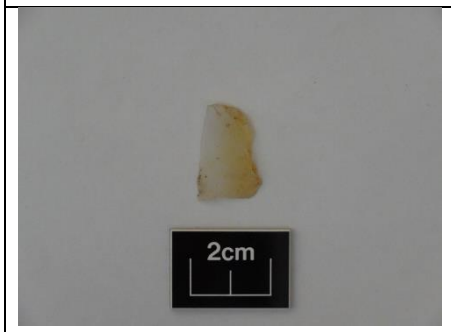
9	7	129	Plaster	Plaster		A sample of plaster from the Mansar 'Palace' building.	II/III	
10	265	261	Worked stone	Stone	Width: 2.5cm Circumference: 7.7cm	White, pyramidal chert, which has been worked and appears to be a small core from which flakes have been struck. Parallel flakes scars; several broken surfaces and points of contact	I/II	Discussion with Dr R. Abbas
11	265	261	Worked stone	Stone	Length: 3.5cm Width: 2.5cm	Opaque pinkish-white worked stone/flake. May have been a small tool as sharp edges and evidence of being struck	I/II	
12	265	261	Worked stone	Stone	Length: 3.6cm Width: 1.6cm	Opaque reddish-brown worked stone microlith/flake. Shaped into a sharp point	I/II	
13	265	261	Worked stone	Stone	Length: 2.3cm Width: 1.6cm	Half of a translucent worked stone microlith/flake. Strike marks clearly visible to form sharp edges. Possibly Upper Palaeolithic	I	Discussion with Dr R. Abbas
14	265	261	Worked stone	Stone	Length: 2.9cm Width: 1.7cm	Translucent worked stone microlith/flake with a pinkish-brown edge. Clearly worked to form a sharp edge. Possibly Upper Palaeolithic	I	Discussion with Dr R. Abbas
15	265	261	Ceramic object	Ceramic	Length: 8.2cm Widest circumference:10 cm	Appears to be part of a ceramic pipe made from an orange/red ware with a black core, similar to RBC2. Ceramic contains rare mica dust and occasional grit inclusions.	Unknown	

16	363	308	Worked stone	Stone	Length: 7.6cm Width: 6.1cm	A large stone tool; an oval flake made from a hard dark brown stone. Appears to be a Middle Palaeolithic flake with prominent bulb portion and two bidirectional flake scars. The edges also show unintentional breaking	I	Discussion with Dr R. Abbas
17	444	329	Worked stone	Stone	Length: 4.2cm Width: 1.9cm	Possible microlith/flake: Opaque brown colour, sharp edges, appears to have been worked.	I/II	
18	275	318	Ceramic object	Ceramic	Length: 2.7cm Circumference: 5.7cm	Appears to be part of a small ceramic pipe, broken at both ends. Made from a hard-fired red ceramic with few inclusions.	Unknown	
19	236	216	Figurine	Ceramic	Height: 4cm Length (nose to neck): 9cm Width: 5cm	Part of a ceramic figurine; the head of an animal, which appears to be a bull. The face is long and seems to have had horns. A bridle is visible, and there is a small raised lump on top of the head. Made from a micaceous ceramic, with mica on the exterior and traces of a dark red slip.	II/III?	

20	236	216	Worked stone	Stone	Length: 5cm Width: 3.5cm Circumference: 11cm	Worked flint-like stone/ Bifacial unidirectional core. Seems to be a core on a nodule (river pebble) with clear evidence where small flakes have been taken off. Two generations of flaking, the tool has been reused. The flaking on the smoother side of the core is glossy, while the second side shows a later episode of flaking (or it could be that one surface was exposed and became polished). The core seems to have been sharpened to a point so could have been used as a tool itself.	I	Discussion with Dr R. Abbas
21	79	124	Ceramic object	Ceramic	Width: 1.3cm Circumference: 3.2	Small clay ball, which has no obvious hole and so doesn't appear to be a bead. Perhaps a piece for gaming.	Unknown	
22	45		Ceramic object	Ceramic	Length: 6.5cm Widest circumference: 14cm	Part of a large decorated pipe or the spout of a vessel. Made from a red ware with few inclusions but treated with a dark red slip (similar to RED2.RS).	II/III	
23	73	361	Stone object	Stone	Height: 1.4cm Width: 2.1 Circumference: 7	Just over half of a sandstone ball, no perforations and so it doesn't appear to be a bead. Could be a gaming piece.	Unknown	

24	Quadrat	T1.62	Ceramic object	Ceramic	Length: 10.5cm Widest circumference:17.5	Large ceramic spout from a vessel, Orange-red exterior fabric and black interior; the ware is similar to RBC2. Wheel-turned (visible manufacture lines), surfaces have been smoothed but it still has a fairly rough feel. No evidence of surface treatment or decoration.	II/III	Similar to the spouts of the 'Roman imitation' vessels found at Kolhapur (Dhavalikar, 1999:139)
25	29	60	Ceramic object	Ceramic	Radius: 2.6cm Width: 1cm	Broken, small ceramic weight or whorl. Rounded ceramic object with a hold through the middle. Made from a red ware, rough with no surface treatment.	Unknown	
26	236	216	Ceramic object	Ceramic	Length: 9cm Rim diameter: 7cm	Small cup or vessel made from a heavy gritty micaceous ware (Similar material to GROMIT4 and found with large pieces of another vessel). Irregular in shape, appears hand formed, narrow interior which would not hold much liquid.	III	

			
Find number: 1	2	3	4
			
5	6	7	8

			
9	10	11	12
			
Find number: 13	14	15	16

			
17	18	19	20
			
21	22	23	24

	
Find number: 25	26

Appendix 4: Ceramic sherd count

This appendix contains the sherd count of the ceramics assemblage with the final ware and type designation of each rim sherd.

Sherd Number	Site No.	GPS. No.	Ware	Sherd Type	Rim Type
3	21	24	RBC2.RS	R	33
4	21	24	BAG.BLS	R	148
9	20	54	ORM4	R	187
10	20	54	ORM4.RS	R	142
15	92	13	RBC2.RS	R	148
18	92	13	RED.BLS	R	159
24	79	12	ROM	R	55
25	79	12	RED2	R	76
26	79	12	RED3.RS	R	55
27	79	12	ROM	R	49
28	79	12	ROM	R	55
30	49	11	ORM5	R	49
31	49	11	BOM5	R	49
32	49	11	BOM1	R	11
51	49	11	ORM6	R	11
56	45		RBC1.RS	R	150
59	45		RBC1.RS	R	151
60	45		RBC2.RS	R	43
62	45		BOM2.RS	R	111
67	7	129	RBC1.RS	R	143
70	7	129	RED2.RS	R	11
73	7	129	RED2	R	150
81	7	129	ORM5	R	49
134	45		GW.BLS	R	184
135	45		BOM2.RS	R	47
138	45		BOM2.RS	R	151
156	45		ORM2	R	47
158	45		GW.BLS	R	148
161	45		ORM3	R	85
190	49	11	PATCHY	R	11
199	49	11	ORM6	R	75

205	49	11	PATCHY	R	11
207	49	11	PATCHY	R	11
217	49	11	PATCHY	R	11
218	49	11	PATCHY	R	11
230	49	11	PATCHY	R	11
234	49	11	PATCHY	R	11
258	49	11	BOM2	R	11
286	29	53	RBC2.RS	R	148
291	29	53	GW.BLS	R	158
296	29	53	RBC2.RS	R	112
297	24	37	RBC2.RS	R	109
301	24	37	RED5.RS	R	152
302	24	37	RED2	R	11
305	24	37	RBC2.RS	R	180
317	24	37	BOM2.RS	R	187
325	28	47	RBC2.RS	R	148
331	28	47	RBC3	R	24
333	28	47	RBC2.RS	R	24
334	28	47	RBC2.RS	R	148
340	23	33	RBC3	R	26
341	23	33	BOM5.RS	R	44
353	23	33	RBC2.RS	R	184
357	20	55	FIDAM	R	47
375	20	55	BOM6	R	75
381	20	55	ORM4	R	187
398	29	59	RED2	Lamp	202
400	29	59	GW.BLS	R	148
405	29	59	RBC3.RS	R	24
416	29	59	RBC1.RS	R	148
420	29	59	RBC2.RS	R	24
424	29	59	RBC1.RS	R	148
429	29	59	RBC2.RS	R	24
442	29	59	RBC2.RS	R	40
447	29	59	RBC2.RS	R	148
452	29	59	RED1.RS	R	58
453	29	59	RED2	R	100
459	29	59	RBC2.RS	R	148
464	29	59	RBC2.RS	R	38
477	29	59	RED.BLS	R	148

482	29	59	RBC3	R	8
493	29	59	RBC2.RS	R	148
513	29	59	RED1.RS	R	100
518	29	59	RBC3.RS	R	148
539	92	13	RBC1.RS	R	160
541	92	13	ORM4	R	143
542	92	13	ORM4	R	143
547	92	13	BAG.BLS	R	167
550	92	13	RBC2.RS	R	113
583	45		GW.BLS	R	112
585	45		GW.BLS	R	159
587	45		GW.BLS	R	150
588	45		BUG.BRSL	R	24
590	45		GW.BLS	R	111
592	45		BAG.BLS	R	184
598	45		BAG.BLS	R	27
599	45		BUG.BRSL	R	159
612	45		DARM	R	148
613	45		DARM	R	104
617	45		RBC2.RS	R	24
618	45		BUG.BRSL	R	112
620	45		GW.BLS	R	149
622	45		GW.BLS	R	159
623	45		GW.BLS	R	24
624	45		BAG.BLS	R	40
625	45		BAG.BLS	R	149
628	45		GW.BLS	R	24
630	45		BAG.BLS	R	148
631	45		GW.BLS	R	148
632	45		GW	R	159
633	45		GW	R	159
634	45		GW	R	184
635	45		DARM	R	79
636	45		BAG.BLS	R	184
637	45		BAG.BLS	R	152
638	45		BAG.BLS	R	153
640	45		BAG.BLS	R	153
642	45		GW.BLS	R	184
644	45		BAG.BLS	R	152

646	45		BAG.BLS	R	148
648	45		BAG.BLS	R	184
649	45		BAG.BLS	R	149
650	45		GW.BLS	R	40
651	45		BOM1.RS	R	148
652	45		BOM2.RS	R	193
654	45		BUG.BRSL	R	159
658	45		GW	R	149
659	45		BUG.BRSL	R	152
660	45		GW	R	148
661	45		GW.BLS	R	151
662	45		DARM	R	47
663	45		COM	R	37
664	45		BOM3.RS	R	25
665	45		DARM	R	132
667	45		BAG.BLS	R	159
668	45		BUG.BRSL	R	183
672	45		GW.BLS	R	159
674	45		GW	R	159
675	45		BAG.BLS	R	159
676	45		GW.BLS	R	184
677	45		GW.BLS	R	151
678	45		GW.BLS	R	159
680	45		GW.BLS	R	32
681	45		BAG.BLS	R	148
682	45		GW.BLS	R	24
683	45		BAG.BLS	R	149
684	45		GW.BLS	R	111
685	45		GW.BLS	R	159
686	45		BAG.BLS	R	159
687	45		RED.BLS	R	148
688	45		DARM.RS	R	152
689	45		BAG.BLS	R	159
690	45		GW.BLS	R	159
691	45		GW.BLS	R	40
692	45		BAG.BLS	R	161
693	45		GW.BLS	R	197
695	45		BAG.BLS	R	111
696	45		BAG.BLS	R	159

697	45		BAG.BLS	R	152
698	45		RED.BLS	R	100
699	45		GW.BLS	R	148
700	45		BAG.BLS	R	148
701	45		GW.BLS	R	152
702	45		GW.BLS	R	24
703	45		GW.BLS	R	109
704	45		BAG.BLS	R	24
706	45		RED.OF	R	88
710	45		BOM2.RS	R	107
712	45		GW.BLS	R	159
713	45		GW.BLS	R	40
714	45		RBC2.RS	R	143
719	45		BOM2.RS	R	128
720	45		RED.BLS	R	111
724	45		GW.BLS	R	109
725	45		ORM1.RS	R	47
726	45		RBC1.RS	R	24
727	45		GW.BLS	R	159
730	45		DARM.RS	R	26
732	45		BOM5.RS	R	100
733	45		RBC1.RS	R	43
737	45		BOM2	R	146
739	45		RBC2.RS	R	121
740	45		BOM2.RS	R	186
741	45		BOM6	R	58
742	45		BOM3.RS	R	58
744	45		GOWM	R	143
745	45		BOM1.RS	R	101
746	45		RBC2.RS	R	159
748	45		BOM2.RS	R	39
749	45		RBC1.RS	R	151
750	45		RBC2.RS	R	159
753	45		RBC4	R	162
754	45		RBC2.RS	R	147
756	45		RED.OF	R	152
757	45		RBC2.RS	R	150
759	45		BOM2.RS	R	142
760	45		BOM3.RS	R	187

764	45		BOM2.RS	R	24
765	45		GOW1.RS	R	69
766	45		BOM2.RS	R	24
767	45		RBC2.RS	R	148
770	45		RED2	R	11
771	45		BOM3.RS	R	100
772	45		BOM2.RS	R	143
773	45		ORM1.RS	R	47
775	45		BOM2.RS	R	143
777	45		RBC2.RS	R	143
782	45		BOM2.RS	R	100
785	45		BOM2.RS	R	58
787	45		ORM5.RS	R	100
788	45		RBC1.RS	R	151
789	45		RBC3.RS	R	99
790	45		RBC2.RS	R	143
791	45		RBC2.RS	R	24
792	45		BOM2.RS	R	26
793	45		BOM2.RS	R	143
794	45		RBC3.RS	R	111
797	45		GW.BLS	R	40
802	45		DARM	R	59
807	45		BOM3.RS	R	24
811	45		GW.BLS	R	156
815	45		DARM	R	11
816	45		BOM2.RS	R	143
830	45		GW.BLS	R	159
832	45		RED2	R	100
839	45		DARM	R	5
840	45		DARM.RS	R	78
841	45		ORM4	R	139
844	45		BUG.BRSL	R	100
848	45		RBC2.RS	R	148
850	45		RED2	R	150
851	45		BOM2.RS	R	155
864	45		BOM3.RS	R	100
870	45		DARM.RS	R	75
881	45		ORM4.RS	R	100
894	45		BOM2.RS	R	24

907	45		BOM2.RS	R	152
915	45		BOM1.RS	R	181
917	45		BOM1.RS	R	47
925	45		BOM3.RS	R	58
932	45		RBC2.RS	R	109
933	45		BOM2.RS	R	154
950	45		BOM3.RS	R	25
958	45		BOM1	R	47
961	45		COM	R	49
970	46	86	BOM1.RS	R	47
972	46	86	BOM1.RS	R	47
973	46	86	BOM1.RS	R	47
974	46	86	BOM1.RS	R	47
977	46	86	BOM2.RS	R	143
978	46	86	BOM1.RS	R	151
980	46	86	BOM1.RS	R	193
982	46	86	BOM1.RS	R	27
983	46	86	RBC1.RS	R	77
984	46	86	DARM	R	110
985	46	86	BOM3.RS	R	100
986	46	86	BOM2.RS	R	27
987	46	86	ORM1.RS	R	151
988	46	86	BOM3.RS	R	141
989	46	86	BOM2.RS	R	111
990	46	86	BOM1.RS	R	47
992	46	86	DARM	Lid	39
993	46	86	DARM	R	150
995	46	86	RBC3.RS	R	113
998	93	78	BOM3.RS	R	12
1001	25	41	BOM2.RS	R	26
1003	93	78	BUG.BRSL	R	159
1004	93	78	BAG.BLS	R	159
1006	46	86	BOM1.RS	R	47
1009	18	18	RBC2.RS	R	151
1012	94	79	BOM1.RS	R	38
1014	94	79	ORM4	R	24
1017	94	79	ORM1	R	47
1018	94	79	RED2	R	146
1023	94	81	GW	R	149

1029	94	81	BOM6	R	4
1030	94	81	ORM5	R	173
1036	94	81	ORM5	R	150
1059	46	86	BOM1.RS	R	100
1060	46	86	ORM1.RS	R	47
1061	46	86	DARM	R	44
1062	46	86	ORM1.RS	R	47
1063	46	86	BOM1.RS	R	47
1065	46	86	BUG.BRSL	R	142
1066	46	86	BOM2.RS	R	29
1069	46	86	BOM2.RS	R	155
1070	46	86	RBC2.RS	R	143
1071	46	86	ORM1	Lamp	204
1074	46	86	BOM1.RS	R	58
1075	46	86	BAG.BLS	R	142
1077	46	86	BOM1.RS	R	47
1080	46	86	BOM3.RS	R	100
1081	46	86	BOM2.RS	R	151
1082	46	86	BOM2.RS	R	143
1085	46	86	ORM1.RS	R	47
1086	46	86	BOM2.RS	R	100
1087	46	86	BOM2.RS	R	113
1100	95	83	GW.BLS	R	5
1144	305	88	RED2	R	11
1153	49	11	PATCHY	R	11
1154	49	11	PATCHY	R	11
1155	49	11	ORM3	R	11
1160	49	11	PATCHY	R	11
1161	49	11	PATCHY	R	11
1162	49	11	PATCHY	R	11
1167	49	11	BOM2	R	11
1168	49	11	PATCHY	R	11
1174	49	11	PATCHY	R	11
1176	49	11	PATCHY	R	11
1179	49	11	PATCHY	R	11
1182	49	11	PATCHY	R	11
1185	49	11	PATCHY	R	11
1188	49	11	PATCHY	R	11
1190	49	11	PATCHY	R	11

1191	49	11	PATCHY	R	11
1192	49	11	PATCHY	R	11
1193	49	11	PATCHY	R	11
1194	48	98	ORM2	R	48
1196	48	98	ORM2	R	48
1198	48	98	ORM2	R	48
1199	48	98	ORM2	R	48
1202	48	98	ORM5	R	48
1203	48	98	ORM2	R	48
1215	48	98	ORM3	Lamp	201
1219	48	98	RED2	R	11
1242	52	104	RBC3	R	11
1244	75	100	RBC2.RS	R	99
1245	75	100	BOM1.RS	R	146
1246	75	100	BOM1.RS	R	146
1248	75	100	GW	R	183
1258	349	106	GW.BLS	R	110
1259	349	106	GW.BLS	R	24
1264	349	106	GW	R	180
1271	75	100	GW.BLS	R	183
1294	76	101	BOM2.RS	Lid	39
1295	76	101	BOM1.RS	R	196
1296	76	101	ORM2	R	120
1299	76	101	BOM4	R	57
1301	76	101	RBC2.RS	R	151
1303	76	101	RBC3	R	73
1308	76	101	BOM2.RS	R	116
1309	76	101	BOM2.RS	R	99
1310	76	101	ORM1.RS	R	146
1312	76	101	BOM2	R	52
1314	76	101	RBC3.RS	R	73
1316	76	101	BAR	R	2
1317	76	101	BOM1.RS	R	178
1318	76	101	RED2	R	11
1322	76	101	NON-ID	R	14
1324	76	101	BOM2.RS	R	150
1325	76	101	BOM1.RS	R	151
1327	76	101	BOM1.RS	R	24
1336	76	101	BOM1.RS	R	11

1337	76	101	ORM3	R	11
1339	76	101	ORM2	R	55
1342	76	101	RED5	R	121
1344	76	101	RED5.RS	R	11
1345	76	101	ORM4.RS	R	136
1346	76	101	BOM1.RS	R	24
1347	76	101	BOM1	Lamp	201
1349	76	101	GW.BLS	R	32
1353	76	101	DARM	R	6
1355	76	101	BOM2.RS	R	81
1360	76	101	ORM3	R	115
1362	76	101	BOM2.RS	R	14
1363	76	101	RED2.RS	R	100
1364	76	101	BOM1.RS	R	151
1374	349	105	RED.OF	R	126
1375	349	105	GW.BLS	R	183
1383	349	105	RED2	R	24
1388	349	105	GW.BLS	R	148
1392	349	105	GW.BLS	R	169
1403	349	105	GW.BLS	R	24
1410	349	105	GW.BLS	R	24
1411	349	105	GW	R	172
1425	350	107	GW.BLS	R	40
1426	350	107	BAG.BLS	R	148
1428	350	107	GW.BLS	R	155
1429	350	107	GW	R	152
1431	350	107	RBC1.RS	R	149
1447	350	107	GW.BLS	R	133
1451	350	107	GW	R	24
1452	350	107	GW.BLS	R	158
1454	350	107	BAG.BLS	R	155
1464	350	107	GW.BLS	R	148
1467	350	107	BAG.BLS	R	24
1470	353	111	GROMIT2	R	179
1472	353	111	GW.BLS	R	27
1473	353	111	GW	R	180
1474	353	111	BAR	R	1
1477	353	111	BAR	R	1
1479	353	111	GROMIT2	R	137

1488	353	111	F.BAR	R	1
1493	353	111	F.BAR	R	2
1498	353	111	BAR	R	2
1506	353	111	GW	R	149
1510	353	111	GOW1	R	138
1514	353	111	TOW	R	192
1520	353	111	GW.BLS	R	155
1527	353	111	RED2	Lamp	202
1542	353	111	GROMIT2	R	173
1548	353	111	GW	R	67
1555	353	111	GROMIT2	R	87
1563	353	111	GOW1	R	11
1564	353	111	RED2	R	11
1566	353	111	RED3	R	11
1574	353	111	RBC3	R	64
1577	353	111	RBC3	R	11
1579	102	118	GW.BLS	R	152
1580	102	118	RBC1.RS	R	156
1581	102	118	GW.BLS	R	183
1582	102	118	BAG.BLS	R	103
1585	102	118	RBC3	R	5
1590	102	118	GW.BLS	R	75
1593	102	118	BAG.BLS	R	40
1596	102	118	GW.BLS	R	24
1600	102	118	RBC3.RS	R	183
1602	47		BAG.BLS	R	124
1603	47		ORM3	R	112
1604	47		DARM.RS	R	146
1610	47		BOM1.RS	R	146
1611	47		BOM1.RS	R	150
1612	47		BOM2	R	100
1613	47		BAG.BLS	R	105
1615	47		BOM2.RS	R	146
1618	47		GW.BLS	R	168
1620	47		DARM.RS	R	146
1622	47		DARM.RS	R	95
1624	47		ORM4.RS	R	146
1625	47		BOM3.RS	R	146
1633	47		BOM2.RS	R	146

1637	47		BOM2	R	150
1638	47		RBC2.RS	R	173
1639	47		RBC1.RS	R	152
1653	47		DARM.RS	R	153
1655	47		BOM1.RS	R	146
1656	47		BOM2	R	146
1663	47		ORM1.RS	R	146
1668	106	122	GW.BLS	R	183
1669	106	122	GW.BLS	R	111
1671	106	122	RBC2.RS	R	112
1672	106	122	RBC3	R	24
1673	106	122	BAG.BLS	R	148
1674	106	122	BAG.BLS	R	24
1675	106	122	BAG.BLS	R	149
1676	106	122	BAG.BLS	R	40
1677	106	122	BAG.BLS	R	149
1679	106	122	RED.BLS	R	159
1680	106	122	RBC2.RS	R	24
1684	106	122	RED2	R	100
1685	106	122	BAG.BLS	R	149
1688	106	122	RBC2.RS	R	102
1690	106	122	BAG.BLS	R	174
1693	106	122	GW.BLS	R	103
1694	106	122	RED.OF	B-R	11
1695	106	122	GW.BLS	R	152
1696	106	122	RBC1.RS	R	113
1697	106	122	BAG.BLS	R	154
1700	106	122	BAG.BLS	R	148
1701	106	122	RBC2.RS	R	149
1705	106	122	BAG.BLS	R	24
1710	106	122	RBC1.RS	R	148
1712	106	122	RBC2.RS	R	43
1719	106	122	BAG.BLS	R	149
1721	56	112	GW.BLS	R	156
1726	56	112	BAG.BLS	R	24
1733	103	119	RBC2.RS	R	148
1749	107	123	GW.BLS	R	24
1758	102	118	GW.BLS	R	152
1759	102	118	BAG.BLS	R	24

1760	102	118	BAG.BLS	R	24
1761	102	118	BAG.BLS	R	184
1762	107	123	RBC2.RS	R	24
1766	107	123	RBC2.RS	R	38
1769	91	115	BOM1	R	92
1778	107	123	BAG.BLS	R	159
1779	107	123	BAG.BLS	R	152
1784	107	123	RBC2.RS	R	38
1785	107	123	BAG.BLS	R	152
1796	107	123	BOM3.RS	R	118
1797	107	123	BAG.BLS	R	154
1799	107	123	ORM5	R	109
1803	107	123	BAG.BLS	R	148
1805	107	123	GW.BLS	R	149
1808	107	123	BAG.BLS	R	157
1810	107	123	BOM5	R	38
1812	107	123	BOM5.RS	R	82
1815	107	123	GW.BLS	R	42
1816	107	123	BOM3.RS	R	151
1817	107	123	GW	R	159
1818	107	123	GW.BLS	R	42
1820	107	123	GW.BLS	R	159
1825	107	123	RBC2.RS	R	150
1829	107	123	RBC2.RS	R	173
1832	107	123	BAG.BLS	R	24
1837	79	124	RED2	Lamp	205
1838	79	124	ORM3	R	93
1842	79	124	NON-ID	R	87
1848	79	124	ORM3	R	37
1854	79	124	ORM6	R	55
1856	79	124	ORM3	R	11
1858	79	124	RBC4	R	11
1859	79	124	ROM	R	55
1862	79	124	ROM	R	55
1864	79	124	ROM	R	55
1865	79	124	ROM	R	55
1871	79	124	ROM	R	55
1876	79	124	ROM	R	55
1877	79	124	RBC4	R	11

1878	79	124	ROM	R	55
1882	79	124	ROM	R	55
1883	79	124	ORM3	R	11
1886	79	124	RBC3	R	37
1887	79	124	ROM	R	55
1888	79	124	RED2	R	74
1890	79	124	ROM	R	55
1897	79	124	RBC4	R	11
1898	79	124	RBC4	R	11
1934	108	125	GW.BLS	R	169
1935	108	125	BAG.BLS	R	170
1939	108	125	GW.BLS	R	168
1940	108	125	GW.BLS	R	143
1941	79	12	ORM1	R	49
1944	79	12	ROM	R	58
1945	79	12	RED2	R	198
1948	79	12	ROM	R	55
1950	79	12	RED2	R	76
1951	79	12	ROM	R	55
1952	79	12	RED2	R	77
1953	79	12	RED2	R	11
1960	79	12	ORM3	R	49
1964	79	12	ROM	R	49
1965	79	12	ROM	R	55
1967	79	12	BOM1	R	58
1970	79	12	ROM	R	55
1974	79	12	ORM3	R	11
1975	79	12	ORM6	R	74
1979	79	12	RED3	R	93
1983	79	12	DARM	R	55
2011	79	12	ORM3	R	49
2031	79	12	RED2	R	11
2050	79	12	ORM3	R	11
2054	350	107	GW.BLS	R	148
2055	350	107	GW.BLS	R	148
2056	350	107	GW.BLS	R	159
2057	350	107	BAG.BLS	R	24
2060	350	107	BAG.BLS	R	24
2062	350	107	BAG.BLS	R	40

2063	350	107	BAG.BLS	R	158
2068	350	107	GW.BLS	R	24
2072	350	107	GW.BLS	R	40
2077	350	107	DARM	R	37
2103	7	129	RED3	R	11
2121	7	129	RBC3	R	11
2168	366	195	ORM4	R	24
2177	364	198	DARM	R	153
2178	364	198	ORM2	R	49
2180	364	198	BOM1.RS	R	186
2184	364	198	ORM2	R	37
2206	364	198	BOM5	R	49
2210	364	198	BOM1	R	153
2213	364	198	BOM2	R	73
2235	364	198	ORM5	R	100
2245	364	198	BOM1.RS	R	152
2248	364	198	BOM4	R	60
2250	364	198	RED2	R	85
2262	364	198	BOM2	R	100
2270	364	198	BOM3.RS	R	131
2272	364	198	BOM2	R	146
2281	364	198	RBC4	R	76
2314	176	155	ROM	R	37
2317	116	206	GW.BLS	R	174
2318	116	206	GW.BLS	R	24
2319	116	206	RBC4	R	164
2320	116	206	BAG.BLS	R	40
2321	116	206	BAG.BLS	R	148
2322	116	206	BAG.BLS	R	159
2323	116	206	RBC2.RS	R	148
2325	116	206	GW.BLS	R	159
2326	116	206	RED1.RS	R	105
2327	116	206	GW.BLS	R	174
2328	116	206	GW.BLS	R	159
2331	116	206	RBC2.RS	R	184
2333	116	206	RED1.RS	R	163
2335	116	206	RBC1.RS	R	159
2340	116	206	GW.BLS	R	159
2341	116	206	GW.BLS	R	183

2343	116	206	GW.BLS	R	37
2344	116	206	RBC2.RS	R	159
2346	116	206	GW.BLS	R	78
2347	116	206	RBC1.RS	R	25
2348	116	206	GW.BLS	R	159
2349	116	206	GW.BLS	R	40
2350	116	206	GW.BLS	R	154
2351	116	206	GW.BLS	R	103
2352	116	206	RBC2.RS	R	148
2353	116	206	RBC2.RS	R	43
2355	116	206	BUG	R	180
2356	116	206	RBC1.RS	R	111
2357	122	209	RED1.RS	R	31
2358	122	209	RED1.RS	R	148
2360	122	209	RBC1.RS	R	148
2369	122	209	RBC2.RS	R	24
2371	122	209	RED1.RS	R	172
2375	122	209	RED1.RS	R	31
2395	122	209	RED1.RS	R	141
2396	122	209	RED.BLS	R	148
2398	122	209	RBC2.RS	R	24
2399	122	209	RED1.RS	R	172
2404	122	209	RBC1.RS	R	111
2405	122	209	RED1.RS	R	29
2410	122	209	RED2	R	76
2411	122	209	RBC1.RS	R	148
2413	122	209	BUG.BRSL	R	111
2414	122	209	GW.BLS	R	149
2429	122	209	RED1.RS	R	150
2432	122	209	RED1.RS	R	150
2433	122	209	RED1.RS	R	111
2439	122	209	RED1.RS	R	150
2440	122	209	RBC2.RS	R	24
2443	122	209	RED1.RS	R	148
2444	122	209	RBC2.RS	R	152
2447	122	209	RED1.RS	R	43
2448	120	208	BAG.BLS	R	152
2449	120	208	RBC1.RS	R	168
2453	443	212	GW.BLS	R	168

2456	236	215	BOM4	R	47
2457	236	215	BOM1.RS	R	146
2459	236	215	BOM1.RS	R	100
2463	236	215	BOM1.RS	R	47
2464	236	215	BOM2.RS	R	51
2466	237	Tr16	BOM3	R	148
2470	237	Tr16	BOM1	R	187
2474	236	215	BOM1.RS	R	146
2477	236	215	GW.BLS	R	111
2481	236	215	DARM.RS	R	155
2483	236	215	ORM2	R	47
2485	236	215	DARM	R	10
2488	236	215	DARM.RS	R	139
2489	236	215	BOM1	R	151
2491	236	215	BOM1	R	153
2494	236	215	ORM3	R	150
2496	236	215	DARM	R	103
2498	236	215	BOM1.RS	R	100
2500	236	215	BOM1	R	151
2504	236	215	DARM.RS	R	26
2520	236	215	BOM1.RS	R	24
2529	236	216	DARM	R	153
2539	236	216	BOM1.RS	R	47
2545	236	216	BOM1.RS	R	155
2554	236	216	COM	R	49
2555	236	216	BOM2.RS	R	128
2558	236	216	BOM1.RS	R	104
2559	236	216	BOM2.RS	R	152
2565	236	216	BOM5	R	150
2566	236	216	BOM1	R	100
2568	236	216	BOM2.RS	R	151
2573	236	216	BOM2.RS	R	99
2576	236	216	BUG	R	193
2578	236	216	BOM5	R	11
2580	236	216	DARM	R	153
2581	236	216	COM	R	58
2585	236	216	COM	R	60
2587	236	216	ORM1.RS	R	47
2590	236	216	BOM1.RS	R	100

2591	236	216	RED2	R	25
2596	236	216	BOM5.RS	R	102
2598	236	216	BOM1	R	100
2599	236	216	BOM4	R	60
2602	236	216	RED2	R	26
2603	236	216	BOM1.RS	B-R	100
2604	155	222	BUG.BRSL	R	169
2605	155	222	BAG.BLS	R	103
2606	155	222	GW.BLS	R	152
2607	155	222	GW.BLS	R	152
2608	155	222	BUG.BRSL	R	148
2610	155	222	GW.BLS	R	155
2611	155	222	BAG.BLS	R	152
2612	155	222	GW.BLS	R	152
2613	155	222	GW.BLS	R	148
2614	155	222	DARM.RS	R	49
2615	155	222	GW	R	148
2616	155	222	GW.BLS	R	27
2617	155	222	GW.BLS	R	159
2621	155	222	GW.BLS	R	183
2622	155	222	GW.BLS	R	152
2624	155	222	BAG.BLS	R	183
2625	155	222	GW.BLS	R	143
2627	155	222	BAG.BLS	R	151
2628	155	222	GW.BLS	R	152
2629	155	222	GW.BLS	R	148
2630	155	222	BAG.BLS	R	143
2631	155	222	GW.BLS	R	169
2632	155	222	GW.BLS	R	27
2633	155	222	FIDAM	R	47
2635	155	222	BUG.BRSL	R	24
2636	155	222	BAG.BLS	R	150
2637	155	222	GW.BLS	R	158
2638	155	222	GW.BLS	R	40
2639	155	222	BUG.BRSL	R	149
2640	155	222	BAG.BLS	R	159
2641	155	222	GW.BLS	R	27
2642	155	222	BUG.BRSL	R	24
2643	155	222	BAG.BLS	R	143

2644	155	222	GW.BLS	R	152
2645	155	222	ORM2	R	53
2646	155	222	GW.BLS	R	24
2647	155	222	GW.BLS	R	152
2648	155	222	GW.BLS	R	108
2649	155	222	RED1.RS	R	148
2650	155	222	GW.BLS	R	24
2652	155	222	GW.BLS	R	24
2655	155	222	RED1.RS	R	43
2656	155	222	GW.BLS	R	183
2657	155	222	GW.BLS	R	146
2658	155	222	GW.BLS	R	158
2659	155	222	FIDAM	R	49
2660	155	222	GW.BLS	R	183
2661	155	222	BUG.BRSL	R	24
2668	155	222	RBC1.RS	R	148
2669	155	222	RBC2.RS	R	99
2673	155	222	RBC2.RS	R	145
2674	155	222	BAG.BLS	R	154
2675	155	222	ORM1.RS	R	18
2676	155	222	RBC1.RS	R	163
2678	155	222	RBC2.RS	R	148
2679	155	222	RBC2.RS	R	148
2682	155	222	RBC3.RS	R	76
2683	155	222	GW.BLS	R	169
2684	155	222	RBC2.RS	R	24
2685	155	222	BAG.BLS	R	24
2686	155	222	BOM5.RS	R	24
2687	155	222	GW.BLS	R	27
2689	155	222	RBC1.RS	R	149
2691	155	222	BUG.BRSL	R	108
2693	155	222	BAG.BLS	R	148
2695	155	222	RBC1.RS	R	149
2696	155	222	GW.BLS	R	148
2697	155	222	BAG.BLS	R	27
2699	155	222	BOM6	Lamp	202
2700	155	222	BAG.BLS	R	24
2701	155	222	GW.BLS	R	103
2703	155	222	ORM4.RS	R	193

2705	155	222	GW.BLS	R	43
2706	155	222	BOM5.RS	R	140
2707	155	222	ORM5.RS	R	134
2710	155	222	RED.BLS	R	24
2711	155	222	DARM	R	47
2715	49	11	RBC2.RS	R	14
2717	49	11	BOM2.RS	R	151
2718	49	11	BOM1.RS	R	99
2722	49	11	ORM4.RS	R	146
2727	45		GW.BLS	R	159
2728	45		GROMIT2	R	11
2729	45		RED.BLS	R	159
2730	45		RBC2.RS	R	176
2733	45		ORM2	R	49
2734	45		BOM2.RS	R	151
2737	45		GW.BLS	R	112
2740	45		DARM.RS	R	111
2741	45		BOM1	R	47
2742	45		RBC2.RS	R	33
2745	45		GW.BLS	R	185
2748	45		BOM2.RS	R	24
2749	45		DARM.RS	Lamp	203
2750	45		GW	R	172
2766	316	256	BOM6	R	24
2774	265	261	RED2	R	11
2775	265	261	RED2	R	11
2785	265	261	RED3	R	11
2786	265	261	RED3	R	11
2790	265	261	TORM	R	189
2802	265	261	ROM	R	49
2806	265	261	RED2	R	11
2807	265	261	ROM	R	37
2813	265	261	NON-ID	R	55
2824	265	261	RED4	R	14
2827	265	261	RED3	R	11
2831	265	261	RED4	R	11
2838	239	269	BAG.BLS	R	181
2839	239	269	GW.BLS	R	148
2840	239	269	BAG.BLS	R	181

2842	239	269	BAG.BLS	R	181
2844	202	271	BAG.BLS	R	40
2856	202	271	BAG.BLS	R	169
2862	202	271	BAG.BLS	R	24
2868	242	279	DARM.RS	R	152
2874	242	279	RED2.RS	R	151
2879	244	280	DARM	R	151
2880	248	283	RBC3	R	24
2888	248	283	RBC1.RS	R	151
2890	248	283	GW.BLS	R	170
2894	248	283	GW.BLS	R	40
2898	248	283	RBC1.RS	R	168
2899	27	22	GW	R	159
2906	241	287	RED3	R	74
2916	241	287	ORM2	R	55
2921	241	287	ORM3	R	169
2922	241	287	ORM2	R	55
2926	241	287	RBC3.RS	R	63
2930	241	287	ORM6	R	11
2936	241	287	ORM2	R	49
2937	241	287	ORM6	R	74
2942	241	287	GROMIT2	R	37
2950	241	287	RED3	R	87
2956	241	287	BOM1	R	49
2967	241	287	DARM	R	11
2968	241	287	RED5.RS	R	86
2978	241	287	ROM	R	55
2981	241	287	RED2	R	37
2983	241	287	ROM	R	49
2989	59	289	RED5.RS	R	74
2990	59	289	ROM	R	55
2994	59	289	RED2	R	37
3009	59	289	ORM3	R	89
3019	59	289	TOW	R	172
3025	220	292	GW	R	169
3026	154	294	BOM5	R	146
3028	154	294	DARM	R	101
3030	154	294	COM	R	159
3037	154	294	BOM5	R	49

3043	406	303	BAG.BLS	R	168
3048	386	305	GW.BLS	R	23
3049	386	305	GW.BLS	R	181
3051	386	305	GW	R	184
3056	386	305	GW.BLS	R	148
3058	386	305	GW.BLS	R	37
3059	386	305	GW.BLS	R	109
3060	386	305	GW.BLS	R	124
3062	386	305	GW.BLS	R	183
3063	386	305	GW.BLS	R	24
3064	386	305	RBC2.RS	R	173
3065	386	305	GW	R	180
3071	386	305	GW.BLS	R	24
3072	386	305	GW.BLS	R	183
3077	386	305	GW.BLS	R	24
3078	386	305	GW.BLS	R	158
3079	386	305	GW.BLS	R	148
3080	386	305	GW.BLS	R	152
3081	386	305	GW	R	180
3085	386	305	GW	R	112
3086	386	305	GW.BLS	R	180
3088	386	305	GW.BLS	R	155
3089	386	305	RBC2.RS	R	100
3092	386	305	GW.BLS	R	24
3093	386	305	RBC3.RS	R	33
3097	386	305	GW.BLS	R	152
3100	386	305	GW.BLS	R	184
3101	386	305	GW	R	180
3108	386	305	BUG.BRSL	R	24
3109	386	305	RBC3.RS	R	148
3111	386	305	GW.BLS	R	40
3112	386	305	GW	R	143
3113	386	305	BUG.BRSL	R	24
3116	386	305	BAG.BLS	R	148
3119	386	305	GW.BLS	R	24
3122	386	305	RBC3.RS	R	148
3126	386	305	RBC2.RS	R	58
3129	386	305	GW.BLS	R	5
3130	386	305	RBC2.RS	R	68

3140	386	305	GW.BLS	R	24
3141	386	305	GW.BLS	R	148
3145	171	307	ORM6	R	11
3147	363	308	HRBC	R	192
3148	363	308	TORM	R	179
3150	363	308	RBC1.RS	R	160
3151	363	308	ORM2	R	49
3152	363	308	RBC3	R	172
3154	363	308	BOM5.RS	R	49
3155	363	308	ORM5	R	49
3157	363	308	TOW	R	191
3158	363	308	BOM4	R	49
3159	363	308	RBC3	R	73
3162	363	308	RBC3	R	74
3164	363	308	RED.OF	R	126
3167	363	308	RED2	R	113
3171	363	308	GOW2	R	179
3176	363	308	RED2	R	75
3179	363	308	NON-ID	R	7
3182	363	308	RED.OF	R	93
3183	363	308	GOW1	R	74
3185	363	308	GOW2	R	86
3186	363	308	LAST	R	179
3190	363	308	RED2	R	91
3195	363	308	HRBC	R	192
3196	363	308	RBC3	R	175
3201	363	308	ORM1.RS	R	57
3206	363	308	RED2	R	37
3208	363	308	RED2.RS	R	76
3211	363	308	NON-ID	R	57
3213	363	308	RBC3	R	11
3215	363	308	RBC3	R	76
3216	363	308	RED2	R	133
3221	363	308	ORM4.RS	R	133
3223	363	308	RBC3	R	133
3224	363	308	RED.OF	R	66
3225	363	308	BUG	R	133
3245	363	308	RED2.RS	R	133
3246	363	308	RED.OF	R	133

3248	363	308	RBC2.RS	R	133
3255	363	308	BOM4	R	49
3259	363	308	LAST	R	179
3262	363	308	NON-ID	R	11
3267	363	308	HRBC	R	192
3273	363	308	RED4	R	76
3281	363	308	BOM4	R	49
3285	275	318	BUG.BRSL	R	169
3288	275	318	NON-ID	R	192
3289	275	318	RED2	R	24
3291	275	318	BAG.BLS	R	24
3298	275	318	RBC2.RS	R	58
3301	275	318	GW.BLS	R	184
3303	275	318	GW.BLS	R	40
3304	275	318	BAG.BLS	R	24
3305	275	318	RBC1.RS	R	148
3306	275	318	GW.BLS	R	5
3309	275	318	GW.BLS	R	150
3310	275	318	GW.BLS	R	148
3311	275	318	GW	R	148
3312	275	318	BAG.BLS	R	24
3316	275	318	BUG.BRSL	R	40
3318	289	322	BOM2.RS	R	17
3321	289	322	BOM3.RS	R	24
3322	289	322	BOM2	R	71
3325	289	322	ORM1.RS	R	100
3327	289	322	RBC3.RS	R	86
3328	289	322	NON-ID	B-R	194
3336	289	322	RBC2.RS	R	39
3337	289	322	ORM2	R	49
3343	289	322	BOM5	R	49
3345	289	322	BOM2.RS	R	75
3356	289	322	BOM2.RS	R	76
3359	289	322	BOM4	R	54
3364	289	322	ORM1.RS	R	75
3367	289	322	RED2.RS	R	99
3368	289	322	GOW1.RS	R	75
3371	289	322	RBC3.RS	R	75
3373	289	322	ORM1.RS	R	75

3374	289	322	BOM5	R	49
3375	289	322	BOM5	R	49
3380	289	322	BOM4	R	58
3389	289	322	BOM6.RS	R	75
3427	316	325	RBC4	R	94
3428	316	325	GOW1.RS	R	73
3433	316	325	RBC3	R	64
3434	316	325	GW.BLS	R	156
3437	316	325	ORM5	R	57
3438	316	325	HRBC	R	192
3444	324	326	BOM2	R	75
3445	324	326	GRW1	R	11
3448	324	326	GOW1	R	11
3458	348	330	GW.BLS	R	40
3460	348	330	GW.BLS	R	75
3462	348	330	BAG.BLS	R	169
3465	348	330	RBC2.RS	R	158
3467	348	330	BAG.BLS	R	40
3469	348	330	BUG.BRSL	R	40
3470	348	330	BUG.BRSL	R	149
3471	348	330	BOM6	R	75
3475	348	330	GW.BLS	R	24
3479	348	330	GW.BLS	R	152
3484	348	330	DARM	R	90
3490	348	330	GW.BLS	R	148
3491	348	330	GW.BLS	R	155
3492	348	330	BAG.BLS	R	180
3493	348	330	GW.BLS	R	143
3496	348	330	GW.BLS	R	40
3498	348	330	RED.BLS	R	159
3499	348	330	GW.BLS	R	159
3502	348	330	GW	R	148
3505	348	330	GW.BLS	R	24
3506	348	330	GW.BLS	R	24
3507	348	330	BAG.BLS	R	40
3514	348	330	GW.BLS	R	183
3516	348	330	GW	R	24
3517	348	330	RBC2.RS	R	148
3522	348	330	GW.BLS	R	24

3523	348	330	BUG.BRSL	R	133
3529	348	330	GW.BLS	R	148
3530	348	330	GW	R	185
3531	348	330	RBC2.RS	R	31
3539	348	330	GW.BLS	R	24
3540	348	330	RBC2.RS	R	148
3545	348	330	BOM2.RS	R	114
3546	348	330	RBC2.RS	R	148
3547	348	330	GW.BLS	R	40
3551	348	330	GW.BLS	R	111
3552	348	330	GW.BLS	R	40
3554	348	330	RBC2.RS	R	148
3555	348	330	GW.BLS	R	43
3559	348	330	GW	R	148
3561	348	330	GW	R	180
3564	348	330	GW.BLS	R	24
3565	348	330	GW.BLS	R	40
3566	348	330	GW.BLS	R	154
3568	348	330	GW.BLS	R	24
3571	348	330	GW	R	155
3572	348	330	GW.BLS	R	169
3574	348	330	GW.BLS	R	24
3577	348	330	RBC1.RS	R	150
3582	348	330	RBC2.RS	R	24
3583	348	330	GW.BLS	R	152
3584	348	330	GW.BLS	R	24
3585	348	330	GW.BLS	R	169
3590	348	330	BOM5.RS	R	151
3591	348	330	BUG.BRSL	R	183
3592	348	330	GW.BLS	R	170
3593	348	330	RBC2.RS	R	148
3594	348	330	RED1.RS	R	75
3597	348	330	GW.BLS	R	170
3599	348	330	GW.BLS	R	159
3600	348	330	GW	R	152
3603	348	330	RBC2.RS	R	148
3604	348	330	GW	R	43
3608	348	330	BAG.BLS	R	32
3610	348	330	GW	R	40

3612	348	330	GW.BLS	R	183
3613	348	330	GW.BLS	R	179
3615	348	330	RBC2.RS	R	158
3620	348	330	RBC2.RS	R	152
3621	348	330	BOM6	R	146
3622	348	330	RBC2.RS	R	152
3623	348	330	GW	R	148
3625	348	330	BOM5	R	159
3626	348	330	RBC2.RS	R	148
3628	348	330	GW.BLS	R	148
3629	348	330	GW.BLS	R	158
3630	348	330	GW	R	40
3633	348	330	GW.BLS	R	24
3635	348	330	RBC2.RS	R	148
3636	348	330	RBC2.RS	R	24
3638	348	330	BAG.BLS	R	148
3640	348	330	GW.BLS	R	170
3641	348	330	RBC2.RS	R	148
3642	348	330	RBC2.RS	R	53
3644	348	330	GW.BLS	R	40
3645	348	330	GW	R	183
3648	348	330	RBC2.RS	R	148
3649	348	330	GW.BLS	R	183
3650	348	330	RBC2.RS	R	152
3652	348	330	BAG.BLS	R	111
3654	348	330	GW.BLS	R	40
3655	348	330	BUG	R	159
3656	348	330	BUG.BRSL	R	40
3657	348	330	GW.BLS	R	148
3658	348	330	GW.BLS	R	40
3659	348	330	GW.BLS	R	183
3662	348	330	BAG.BLS	R	40
3666	325	327	GRW1.RS	R	65
3667	325	327	GROMIT2	R	65
3670	325	327	GRW1.RS	R	11
3671	325	327	RBC2.RS	R	24
3672	325	327	RBC1.RS	R	64
3673	325	327	GROMIT2.RS	R	65
3674	325	327	F.BAR	R	1

3676	325	327	GRW1.RS	R	65
3677	325	327	BOM5	R	194
3678	325	327	GROMIT2	R	65
3679	325	327	GRW1.RS	R	11
3681	325	327	GRW1.RS	R	65
3682	325	327	GRW1.RS	R	65
3685	325	327	GRW1.RS	R	11
3688	325	327	GROMIT1	R	28
3693	325	327	RBC3.RS	R	24
3695	325	327	GRW1	R	173
3696	325	327	GROMIT1.RS	R	60
3701	325	327	RBC3	R	173
3703	325	327	BAR	R	1
3704	325	327	GROMIT1.RS	R	65
3705	325	327	RBC3.RS	R	37
3707	325	327	GROMIT1	R	194
3708	325	327	BAR	R	1
3711	325	327	RBC3	R	64
3713	325	327	GROMIT1	R	173
3717	325	327	RBC2.RS	R	65
3718	325	327	GRW1.RS	R	65
3719	325	327	GRW1	R	67
3721	325	327	RBC2.RS	R	64
3724	325	327	GROMIT2.RS	R	67
3726	325	327	RBC2.RS	R	87
3727	325	327	GOW1.RS	R	64
3728	325	327	RBC2.RS	R	177
3729	325	327	RBC2.RS	R	64
3732	325	327	GROMIT1.RS	R	67
3733	325	327	GROMIT1.RS	R	60
3737	325	327	RBC3.RS	R	65
3739	325	327	GRW1.RS	R	65
3740	325	327	BOM6	R	136
3741	325	327	GRW1.RS	R	65
3742	325	327	GROMIT2	R	67
3744	325	327	RBC3	R	127
3745	325	327	RBC3	R	16
3747	325	327	GRW1	R	11
3748	325	327	GRW1.RS	R	194

3749	325	327	GRW1	R	65
3752	325	327	F.BAR	R	1
3754	325	327	RBC3	R	11
3755	325	327	GROMIT1.RS	R	60
3756	325	327	GOW2.RS	R	67
3759	325	327	GROMIT2	R	65
3760	325	327	RBC2.RS	R	64
3762	325	327	GOW1.RS	R	87
3764	325	327	GOW2	R	40
3765	325	327	GROMIT1.RS	R	60
3766	325	327	RBC3	R	64
3767	325	327	RBC2.RS	R	64
3770	325	327	BAR	R	1
3772	325	327	GROMIT1	R	35
3774	325	327	RBC2.RS	R	65
3775	325	327	GROMIT1	R	60
3779	325	327	BUG.BRSL	R	24
3781	325	327	RBC3	R	64
3783	325	327	RBC4	R	64
3786	325	327	BAG.BLS	R	151
3787	325	327	RED.OF	R	11
3789	325	327	GROMIT1.RS	R	60
3792	325	327	GROMIT2.RS	R	60
3793	325	327	GROMIT1.RS	R	60
3794	325	327	GRW1.RS	R	67
3796	325	327	RBC2.RS	R	11
3798	325	327	GRW1	R	65
3802	325	327	GOW1	R	64
3805	325	327	BOM5	R	194
3808	325	327	GRW1	R	67
3815	325	327	GROMIT1.RS	R	64
3816	325	327	GRW1.RS	R	65
3818	325	327	GROMIT1.RS	R	65
3820	325	327	GRW1.RS	R	11
3825	221	332	BAG.BLS	R	168
3827	221	332	GW.BLS	R	169
3828	221	332	GW.BLS	R	183
3831	196	335	HRBC.RS	R	179
3832	196	335	RBC3	R	120

3835	196	335	RBC3	R	133
3840	196	335	RED5.RS	R	4
3841	196	335	HRBC.RS	R	133
3842	196	335	TOW	R	112
3849	196	335	BOM6	R	168
3851	196	335	RED4	R	11
3861	196	335	BOM4	R	49
3867	197	336	RED2	R	11
3879	197	336	RED2	R	70
3885	197	336	RBC3	R	68
3886	197	336	RBC2.RS	R	137
3887	197	336	RBC3	R	11
3892	197	336	RBC3.RS	R	121
3894	197	336	GROMIT2.RS	R	123
3897	197	336	RBC3.RS	R	67
3898	197	336	RBC1.RS	R	74
3899	197	336	BOM4	R	57
3907	197	336	BOM1.RS	R	152
3912	197	336	ORM4.RS	R	76
3916	197	336	GOW1	R	68
3918	197	336	GOW1.RS	R	111
3923	197	336	GROMIT2.RS	R	172
3929	197	336	RBC1.RS	R	168
3931	197	336	RBC3	R	73
3937	197	336	RBC4	R	67
3959	71	340	RBC1.RS	R	94
3960	71	340	ORM5	R	59
3961	71	340	ORM3	R	11
3962	71	340	ORM3	R	64
3978	71	340	ORM5.RS	R	61
3979	71	340	ORM3	R	11
3980	71	340	ORM5.RS	R	55
3983	71	340	ORM3	R	11
3984	71	340	ORM3	R	11
3986	72	341	RBC2.RS	R	76
3987	72	341	ORM2	R	55
3989	72	341	RED3	R	86
3993	72	341	GOW1	R	86
3994	72	341	GROMIT3	R	192

3998	72	341	RED5.RS	R	76
4000	72	341	RBC2.RS	Complete	199
4001	72	341	BUG.BRSL	R	159
4002	72	341	RBC2.RS	R	74
4007	72	341	COM	R	49
4010	72	341	ORM5.RS	R	55
4014	72	341	RED5.RS	R	76
4015	72	341	RED2.RS	R	77
4017	72	341	ORM6	R	11
4018	72	341	RBC1.RS	R	193
4023	72	341	COM	R	49
4028	72	341	VORBL	R	192
4030	72	341	ORM2	R	49
4033	72	341	ORM2	R	55
4035	72	341	RED2.RS	R	74
4036	72	341	GOW1	R	93
4038	72	341	RED2	Lamp	201
4040	72	341	BOM2	R	76
4046	72	341	ORM2	R	55
4049	72	341	ORM5.RS	R	55
4053	72	341	RBC3	R	73
4061	72	341	RED2	R	74
4063	72	341	DARM.RS	R	49
4067	72	341	ORM6	R	11
4068	72	341	RED5	R	86
4070	72	341	BOM4	R	55
4071	72	341	ORM2	R	49
4072	72	341	ORM6	R	74
4073	72	341	GOW1.RS	R	74
4075	72	341	RBC3	R	84
4076	72	341	RED4	R	73
4079	72	341	VORBL	R	192
4082	72	341	RED3	R	93
4085	72	341	RED2	R	74
4086	72	341	ROM	R	55
4088	72	341	RBC3.RS	R	86
4090	72	341	ORM5.RS	R	55
4091	72	341	BOM4	R	55
4092	72	341	RED5.RS	R	72

4093	72	341	BOM5.RS	R	55
4094	72	341	RBC3.RS	R	76
4099	72	341	BOM2.RS	R	21
4100	72	341	VORBL	R	192
4104	72	341	RED2.RS	R	86
4106	72	341	RBC2.RS	R	76
4109	72	341	GROMIT2.RS	R	55
4110	72	341	RED2.RS	R	86
4113	72	341	BOM4	R	37
4115	312	346	GW.BLS	R	148
4117	312	346	GW	R	183
4119	312	346	RBC1.RS	R	143
4120	312	346	GW.BLS	R	183
4121	312	346	BOM6	R	146
4123	312	346	BOM5.RS	R	150
4125	312	346	BAG.BLS	R	24
4126	312	346	BOM2.RS	R	72
4130	312	346	ORM6	R	73
4132	312	346	BUG	R	75
4133	312	346	ORM2	R	37
4134	312	346	BOM4	R	49
4135	312	346	GW.BLS	R	148
4136	312	346	GW.BLS	R	109
4137	312	346	GW.BLS	R	148
4141	312	346	BAG.BLS	R	169
4146	312	346	GW.BLS	R	148
4148	312	346	GOWM	R	69
4152	312	346	GW	R	148
4153	202	271	BOM2.RS	R	152
4158	202	271	BAG.BLS	R	149
4159	202	271	BOM2.RS	R	56
4162	202	271	RBC2.RS	R	24
4165	236	216	BOM1.RS	R	134
4166	236	216	BOM1.RS	B-R	39
4169	236	216	BOM2	R	148
4173	236	216	BOM4	R	47
4175	236	216	BOM2.RS	R	150
4176	236	216	BOM2.RS	R	100
4178	236	216	DARM.RS	R	153

4179	236	216	BOM2.RS	R	100
4181	236	216	DARM	R	153
4184	236	216	BOM4	R	47
4185	236	216	DARM	R	104
4186	236	216	BOM5.RS	R	47
4189	236	216	BOM1.RS	R	47
4190	236	216	DARM.RS	R	47
4194	265	261	ORM5	R	55
4195	265	261	RED2	R	76
4196	265	261	RBC4	R	76
4199	265	261	RBC4	R	64
4203	265	261	RED2	R	76
4207	265	261	GROMIT1	R	55
4214	262	352	GRW1.RS	R	60
4216	262	352	RBC3	R	65
4219	262	352	GROMIT2.RS	R	87
4220	262	352	RED3.RS	R	86
4226	262	352	RBC3	R	78
4228	262	352	RED5.RS	R	93
4229	262	352	FIDAM	R	49
4230	262	352	GRW1.RS	R	67
4232	262	352	GRW1	R	65
4239	262	352	F.BAR	R	1
4243	262	352	RED4.RS	R	75
4246	262	352	BOM3.RS	R	25
4252	262	352	ORM5	R	49
4255	262	352	BOM5	R	34
4257	262	352	RBC3.RS	R	64
4259	262	352	GOW1	R	76
4269	262	352	RED4	R	11
4270	262	352	RED2	R	11
4273	262	352	RED2	R	11
4277	262	352	GW	R	40
4287	262	352	GROMIT2.RS	R	87
4289	262	352	GW	R	64
4292	262	352	GRW1	R	65
4295	262	352	BOM4	R	179
4300	262	352	BOM4	R	59
4307	262	352	GROMIT2	R	67

4308	262	352	F.BAR	R	1
4309	262	352	RED4	R	179
4311	262	352	RED4	R	11
4314	262	352	GROMIT2	R	67
4319	242	279	RED2.RS	R	111
4321	78	278	ORM2	R	9
4329	78	278	ROM	R	55
4331	78	278	BOM5	R	173
4335	78	278	DARM	R	37
4343	88	350	RED3	R	76
4351	79	12	ROM	R	55
4352	79	12	ROM	R	55
4353	79	12	ROM	R	55
4354	79	12	RED3	R	55
4356	79	12	ROM	R	55
4357	79	12	ROM	R	55
4359	79	12	ROM	R	55
4360	356	360	GW.BLS	R	159
4363	356	360	GW	R	111
4370	356	360	BUG	R	159
4371	356	360	RBC2.RS	R	148
4376	356	360	BUG.BRSL	R	184
4382	356	360	GW	R	159
4386	356	360	GW	R	180
4388	356	360	GW.BLS	R	148
4389	356	360	GW	R	172
4392	356	360	GW	R	188
4394	356	360	GW.BLS	R	148
4395	356	360	GRW1	R	174
4396	356	360	BUG	R	43
4397	356	360	BUG.BRSL	R	172
4398	356	360	GW	R	148
4403	356	360	RBC2.RS	R	24
4432	318	357	BOM2.RS	R	155
4443	318	357	RBC3.RS	R	155
4446	318	357	GW.BLS	R	24
4453	318	357	BOM2.RS	R	152
4459	318	357	BOM6.RS	R	139
4468	318	357	BOM5.RS	R	100

4470	318	357	DARM.RS	R	24
4471	318	357	DARM.RS	R	129
4473	318	357	DARM.RS	R	134
4475	318	357	DARM	R	53
4478	318	357	BOM2.RS	R	26
4480	318	357	RBC3.RS	R	68
4483	318	357	ORM1.RS	R	100
4484	318	357	BOM5.RS	R	155
4488	318	357	DARM	R	134
4490	318	357	BOM5	R	150
4493	318	357	BOM3.RS	R	146
4499	318	357	BOM2.RS	R	150
4500	318	357	DARM.RS	R	24
4502	318	357	DARM.RS	R	155
4504	318	357	BOM2.RS	R	134
4506	318	357	BOM5.RS	R	99
4508	318	357	DARM.RS	R	152
4510	318	357	DARM	R	37
4511	318	357	DARM	R	100
4512	318	357	RBC1.RS	R	152
4514	318	357	BOM5.RS	R	150
4518	318	357	GOWM	R	193
4519	318	357	BOM5.RS	R	47
4520	318	357	DARM	R	152
4522	318	357	BOM3.RS	R	155
4525	318	357	ORM4.RS	R	39
4527	318	357	DARM.RS	R	146
4529	318	357	BOM4	R	45
4531	318	357	BOM3.RS	R	154
4533	318	357	BOM2.RS	R	24
4534	318	357	BOM4	R	45
4535	318	357	BOM3.RS	R	134
4536	318	357	DARM	R	24
4537	318	357	RED4.RS	R	148
4538	318	357	BOM5.RS	R	146
4541	318	357	RBC1.RS	R	144
4546	318	357	BOM4	R	45
4547	318	357	BOM5.RS	R	148
4549	318	357	BOM5	R	146

4550	318	357	COM	R	139
4551	318	357	DARM	R	104
4552	71	361	ORM6	B-R	11
4553	71	362	ORM4.RS	R	74
4555	71	362	NON-ID	R	192
4556	71	362	ORM2	R	60
4569	71	362	ORM3	R	74
4570	71	362	VORBL	R	192
4574	71	362	ORM3	R	49
4577	71	362	ORM3	R	86
4578	71	362	BOM4	R	54
4586	71	362	ORM2	R	55
4587	71	362	RED3.RS	R	76
4595	73	363	RED4.RS	R	93
4596	73	363	ORM4.RS	R	11
4606	73	363	RED2	Lamp	201
4609	73	363	RBC4	Complete	11
4610	73	363	VORBL	R	179
4618	73	363	VORBL	R	192
4621	275	318	BAG.BLS	R	24
4623	275	318	BAG.BLS	R	148
4624	275	318	GW.BLS	R	40
4626	275	318	GW.BLS	R	24
4627	275	318	GW.BLS	R	149
4631	275	318	GW.BLS	R	148
4634	275	318	GW.BLS	R	148
4636	275	318	BAG.BLS	R	24
4637	275	318	GW.BLS	R	170
4641	275	318	GW.BLS	R	148
4644	275	318	BAG.BLS	R	183
4645	275	318	RBC2.RS	R	148
4647	202	271	GW.BLS	R	149
4653	197	336	BOM2.RS	R	44
4654	197	336	GROMIT2.RS	R	87
4655	197	336	ORM4.RS	R	121
4658	197	336	RED.OF	R	123
4661	197	336	GROMIT2.RS	R	137
4663	197	336	GROMIT2.RS	R	64
4664	197	336	RED2.RS	R	93

4665	197	336	RED5.RS	R	171
4666	197	336	GROMIT2.RS	R	87
4668	197	336	TOW	R	190
4673	197	336	GROMIT2.RS	R	87
4677	197	336	RED2.RS	R	86
4679	197	336	ORM2	R	127
4681	197	336	GOW1.RS	R	21
4682	197	336	RBC2.RS	R	121
4686	197	336	RBC1.RS	R	24
4691	197	336	GROMIT2	R	87
4693	197	336	GOW2	R	19
4694	197	336	BOM2.RS	R	136
4695	197	336	GROMIT2.RS	R	87
4697	197	336	GROMIT2.RS	R	172
4698	197	336	GROMIT2	R	65
4701	197	336	HRBC.RS	R	192
4703	197	336	GROMIT2.RS	R	87
4710	197	336	GROMIT2.RS	R	137
4711	197	336	RBC3.RS	R	121
4714	197	336	GROMIT2.RS	R	136
4717	197	336	GROMIT2	R	122
4718	197	336	GROMIT2	R	87
4721	197	336	RBC4	R	121
4723	197	336	GOWM	R	36
4724	197	336	GROMIT2.RS	R	120
4733	197	336	RBC2.RS	R	133
4737	197	336	GROMIT1	R	87
4738	197	336	GROMIT2	R	122
4741	197	336	GROMIT2.RS	R	87
4742	197	336	GROMIT2.RS	R	87
4747	197	336	DARM.RS	R	179
4749	197	336	HRBC.RS	R	179
4753	197	336	GROMIT2	R	179
4756	197	336	GROMIT2.RS	R	119
4757	213	223	RED4	R	98
4763	276	368	GW	R	43
4766	276	368	RBC2.RS	R	148
4769	276	368	GW.BLS	R	149
4771	276	368	RBC2.RS	R	148

4774	276	368	GW.BLS	R	148
4775	276	368	DARM.RS	R	149
4782	276	368	RBC2.RS	R	148
4785	276	368	GW.BLS	R	148
4786	276	368	BOM3.RS	R	148
4790	276	368	GW.BLS	R	24
4793	276	368	GW.BLS	R	148
4795	276	368	RBC3.RS	R	33
4799	276	368	BAG.BLS	R	159
4800	276	368	GW.BLS	R	148
4805	276	368	RBC2.RS	R	159
4806	276	368	RED.BLS	R	184
4808	276	368	BAG.BLS	R	148
4809	276	368	BAG.BLS	R	184
4814	276	368	GW	R	148
4816	276	368	GW.BLS	R	148
4818	276	368	GW.BLS	R	148
4821	276	368	RBC2.RS	R	25
4828	276	368	RED.OF	R	148
4830	276	368	RBC1.RS	R	148
4831	276	368	RBC2.RS	R	148
4838	276	368	BAG.BLS	R	112
4842	276	368	DARM.RS	R	159
4843	276	368	BUG.BRSL	R	148
4844	276	368	GW.BLS	R	40
4845	276	368	RBC2.RS	R	184
4846	276	368	RBC2.RS	R	6
4849	276	368	GW.BLS	R	143
4850	276	368	RBC2.RS	R	125
4851	276	368	BAG.BLS	R	40
4852	277	369	GW.BLS	R	183
4855	277	369	BAG.BLS	R	24
4856	277	369	GW.BLS	R	159
4858	364	198	BOM4	R	45
4861	364	198	BOM3.RS	R	26
4862	364	198	BOM1.RS	R	193
4864	364	198	ORM2	R	47
4867	364	198	BOM1.RS	R	193
4870	364	198	BOM1	R	13

4874	364	198	BOM5	R	14
4883	364	198	RBC2.RS	Complete	200
4884	400	376	ORM5	R	47
4887	400	376	BOM5	R	155
4893	400	376	ORM4	R	150
4895	400	376	BOM6	R	150
4897	400	376	GW	R	24
4900	400	376	BOM5	R	25
4901	400	376	GW	R	168
4905	400	376	BAG.BLS	R	149
4911	400	376	GW.BLS	R	24
4912	400	376	DARM	R	58
4914	400	376	BOM6	R	150
4917	400	376	GOW2	R	24
4928	400	376	GW	R	174
4929	400	376	BUG	R	40
4930	400	376	RBC3	R	151
4933	400	376	TOW	R	179
4934	400	376	RBC4	R	33
4935	400	376	ORM1	R	57
4939	400	376	COM	R	136
4940	400	376	TOW	R	136
4941	400	376	RED2	R	11
4942	400	376	BOM2	R	15
4944	400	376	BOM5	R	173
4945	400	376	BOM5.RS	R	142
4946	400	376	DARM	R	195
4952	400	376	DARM	R	49
4956	400	376	GROMIT2	R	20
4958	400	376	GOW1	R	75
4959	400	376	ROM	R	60
4960	400	376	FIDAM	R	141
4961	400	376	RED.OF	R	141
4965	400	376	RED.OF	R	149
4972	352	381	RBC2.RS	R	149
4976	352	381	GW.BLS	R	169
4979	352	381	GW.BLS	R	183
4980	352	381	BAG.BLS	R	148
4981	352	381	GW.BLS	R	156

4982	352	381	BUG.BRSL	R	24
4983	352	381	GW.BLS	R	152
4985	352	381	GW.BLS	R	155
4986	352	381	BOM5	R	49
4992	352	381	BUG.BRSL	R	75
4997	352	381	GW.BLS	R	170
4999	352	381	RBC2.RS	R	149
5000	352	381	GOW2	R	148
5001	352	381	GW.BLS	R	148
5004	352	381	DARM	R	49
5009	352	381	GW.BLS	R	148
5011	352	381	BUG.BRSL	R	180
5012	352	381	BAG.BLS	R	158
5016	352	381	GW.BLS	R	158
5022	352	381	GW.BLS	R	152
5028	352	381	BUG.BRSL	R	24
5029	352	381	GW	R	183
5030	352	381	GW.BLS	R	165
5034	352	381	GW.BLS	R	148
5035	352	381	GW	R	183
5040	352	381	GW.BLS	R	152
5041	352	381	GW.BLS	R	170
5045	352	381	RED1.RS	R	97
5046	352	381	GW	R	183
5049	352	381	GW.BLS	R	158
5051	352	381	BUG.BRSL	R	40
5054	352	381	BUG.BRSL	R	156
5059	352	381	GW.BLS	R	28
5064	352	381	RBC2.RS	R	24
5068	249	384	RBC2.RS	R	148
5069	249	384	RBC2.RS	R	148
5071	249	384	RBC2.RS	R	24
5076	249	384	RBC3.RS	R	111
5077	249	384	RBC2.RS	R	184
5081	249	384	RBC2.RS	R	28
5083	249	384	RED.OF	R	148
5087	249	384	BUG	R	148
5090		Transect 1.2	RBC3	R	14
5093		Transect 1.2	GW.BLS	R	24

5095		Transect 1.4	RBC1.RS	R	99
5105		Transect 1.19	BUG.BRSL	R	148
5110		Transect 1.19	BAG.BLS	R	24
5119		Transect 1.25	BAG.BLS	R	158
5120		Transect 1.31	BOM5	R	65
5125		Transect 1.31	ORM6	R	73
5131		Transect 1.31	GROMIT2	R	41
5142		Transect 1.31	BOM1.RS	R	73
5144		Transect 1.32	COM	R	49
5145		Transect 1.32	ORM5	R	73
5146		Transect 1.32	BOM4	R	49
5147		Transect 1.32	DARM.RS	R	53
5148		Transect 1.32	BOM5.RS	R	53
5152		Transect 1.32	BOM6	Lamp	202
5154		Transect 1.32	GW.BLS	R	183
5157		Transect 1.32	BOM3.RS	R	73
5159		Transect 1.32	RBC1.RS	R	181
5161		Transect 1.32	BOM5.RS	R	53
5167		Transect 1.32	ORM4.RS	R	100
5172		Transect 1.32	BOM5.RS	R	17
5174		Transect 1.32	BOM5.RS	R	99
5179		Transect 1.32	BOM6.RS	R	17
5182		Transect 1.32	BOM5	R	75
5183		Transect 1.32	BOM2.RS	R	73
5189		Transect 1.32	BOM2.RS	R	15
5191		Transect 1.32	ORM2	R	53
5192		Transect 1.32	BOM5.RS	R	5
5193		Transect 1.32	BOM1	R	194
5195		Transect 1.32	BOM6	R	75
5198		Transect 1.32	BOM4	R	45
5199		Transect 1.32	BOM2.RS	R	53
5202		Transect 1.32	BOM2.RS	R	53
5204		Transect 1.32	BOM5	R	46
5205		Transect 1.32	BOM4	R	49
5213		Transect 1.32	COM	R	49
5217		Transect 1.32	BOM1.RS	R	50
5244		Transect 1.33	BOM3.RS	R	135
5249		Transect 1.33	BOM3.RS	R	3
5250		Transect 1.33	BOM5	R	49

5251		Transect 1.33	BOM4	R	49
5254		Transect 1.33	BOM5.RS	R	134
5264		Transect 1.33	BOM5.RS	R	53
5270		Transect 1.33	BOM5.RS	R	151
5273		Transect 1.33	BOM5	R	26
5274		Transect 1.37	RBC1.RS	R	106
5279		Transect 1.37	BOM5	R	11
5288		Transect 1.38	RBC2.RS	R	37
5289		Transect 1.38	BAG.BLS	R	168
5292		Transect 1.41	GW	R	183
5293		Transect 1.41	GW.BLS	R	40
5302		Transect 1.51	RBC4	Lamp	202
5308		Transect 1.54	RBC3.RS	R	22
5313		Transect 1.56	RED2	R	24
5318		Transect 1.58	BUG.BRSL	R	152
5319		Transect 1.58	BAG.BLS	R	159
5329		Transect 1.58	RBC1.RS	R	148
5330		Transect 1.58	GW.BLS	R	111
5332		Transect 1.58	FIDAM	R	4
5336		Transect 1.59	BUG.BRSL	R	117
5337		Transect 1.59	GW	R	159
5341		Transect 1.59	GW.BLS	R	158
5342		Transect 1.59	GW	R	184
5343		Transect 1.59	BOM3.RS	R	159
5347		Transect 1.59	RBC2.RS	R	181
5348		Transect 1.59	GW.BLS	R	170
5349		Transect 1.59	GW	R	174
5351		Transect 1.59	RBC1.RS	R	148
5353		Transect 1.59	RBC1.RS	R	80
5354		Transect 1.59	GW	R	40
5366		Transect 1.60	GW	R	156
5367		Transect 1.60	GW	R	156
5373		Transect 1.61	BOM5	R	152
5374		Transect 1.61	RBC2.RS	R	24
5376		Transect 1.62	GW.BLS	R	183
5377		Transect 1.62	GW.BLS	R	40
5378		Transect 1.62	BAG.BLS	R	24
5379		Transect 1.62	GW.BLS	R	184
5380		Transect 1.62	BOM2.RS	R	118

5384		Transect 1.62	GW.BLS	R	24
5389		Transect 1.62	DARM.RS	R	53
5391		Transect 1.62	BAG.BLS	R	152
5397		Transect 1.62	RBC2.RS	R	100
5400		Transect 1.62	BOM5.RS	R	100
5401		Transect 1.62	GW.BLS	R	24
5402		Transect 1.62	GW.BLS	R	149
5403		Transect 1.62	GW.BLS	R	184
5405		Transect 1.62	BAG.BLS	R	40
5413		Transect 1.62	BAG.BLS	R	183
5416		Transect 1.62	GW.BLS	R	183
5417		Transect 2.1	BUG.BRSL	R	181
5425		Transect 2.3	BAG.BLS	R	40
5430		Transect 2.4	GW.BLS	R	168
5434		Transect 2.6	RED.BLS	R	156
5438		Transect 2.9	GW.BLS	R	152
5439		Transect 2.10	BAG.BLS	R	181
5447		Transect 2.17	GW.BLS	R	24
5459		Transect 2.18	GW.BLS	R	158
5463		Transect 2.18	BAG.BLS	R	24
5465		Transect 2.18	GW.BLS	R	40
5469		Transect 2.23	RBC2.RS	R	148
5471		Transect 2.24	GW.BLS	R	24
5476		Transect 2.26	GW	R	174
5480		Transect 2.26	RBC1.RS	R	148
5482		Transect 2.26	RBC3.RS	R	113
5489		Transect 2.27	RBC2.RS	R	169
5490		Transect 2.27	BAG.BLS	R	169
5506		Transect 2.46	GW	R	152
5515	238	403	RBC2.RS	R	185
5517	238	403	BOM2	R	40
5522		Transect 3.13	GW.BLS	R	168
5525		Transect 3.14	ROM	R	37
5528		Transect 3.24	GW.BLS	R	168
5532		Transect 3.27	GW	R	111
5536		Transect 3.28	RBC3.RS	R	168
5537		Transect 3.28	RED.OF	R	182
5545		Transect 3.28	GW	R	156
5546		Transect 3.28	RBC2.RS	R	148

5554	210	367	BOM1.RS	R	50
5555	210	367	RBC2.RS	R	151
5556	210	367	RBC2.RS	R	148
5558	210	367	RBC2.RS	R	148
5559	210	367	BOM1	R	152
5561	210	367	DARM.RS	R	75
5565	210	367	BOM1.RS	R	130
5566	210	367	BOM3.RS	R	143
5567	210	367	DARM.RS	R	33
5569	210	367	RBC2.RS	R	102
5570	210	367	BOM1.RS	R	148
5571	210	367	BOM1.RS	R	186
5572	210	367	GW.BLS	R	23
5575	210	367	GW.BLS	R	148
5582	210	367	BOM5.RS	R	113
5584	210	367	RBC1.RS	R	43
5586	210	367	BOM2.RS	R	28
5587	210	367	BOM5.RS	R	58
5588	210	367	RED1.RS	R	151
5589	210	367	BOM1.RS	R	150
5591	210	367	RBC2.RS	R	99
5595	210	367	BOM1	Lamp	201
5596	210	367	BAG.BLS	R	62
5598	210	367	BOM2.RS	R	53
5601	210	367	RBC2.RS	R	148
5603	210	367	BOM5.RS	R	11
5604	210	367	BOM6	R	52
5608	210	367	DARM.RS	R	111
5609	210	367	BOM1.RS	R	146
5614	210	367	GW.BLS	R	149
5615	210	367	ORM4.RS	R	100
5616	210	367	GW	R	111
5617	210	367	RBC1.RS	R	43
5618	210	367	RBC2.RS	R	62
5619	210	367	BUG.BRSL	R	24
5622	210	367	BOM2.RS	R	151
5631	210	367	RBC1.RS	R	150
5632	210	367	RBC1.RS	R	148
5635	210	367	RBC1.RS	R	150

5642	210	367	BOM3.RS	R	26
5645	210	367	RED.OF	R	151
5649	210	367	RBC2.RS	R	151
5652	210	367	RBC2.RS	R	100
5653	210	367	BOM1.RS	R	83
5655	210	367	BOM5	R	16
5656	210	367	GW.BLS	R	184
5657	210	367	RBC3	R	100
5659	210	367	COM	R	58
5660	210	367	BOM2.RS	R	152
5663	210	367	RBC1.RS	R	148
5669	210	367	BOM2.RS	R	139
5670	210	367	RBC1.RS	R	24
5671	210	367	BOM4	R	47
5673	210	367	RED2	R	100
5675	210	367	BOM2.RS	R	56
5676	210	367	BOM2.RS	R	113
5682	210	367	BOM1.RS	R	47
5683	210	367	BAG.BLS	R	154
5684	210	367	BOM5.RS	R	146
5687	210	367	RBC2.RS	R	38
5688	210	367	BAG.BLS	R	40
5689	210	367	GW	R	172
5691	210	367	BOM4	R	49
5697	210	367	BOM2.RS	R	53
5701	210	367	BOM1.RS	R	150
5706	210	367	ORM4.RS	R	113
5712	289	322	GROMIT1	R	46
5722	289	322	BOM5.RS	R	14
5725	289	322	BOM2	R	73
5727	289	322	ORM2	R	60
5731	289	322	GROMIT2.RS	R	56
5732	289	322	RED2.RS	R	75
5735	289	322	BOM2	R	93
5737	289	322	RED1.RS	R	71
5741	289	322	COM	R	54
5743	289	322	BOM2.RS	R	73
5745	289	322	BOM5.RS	R	75
5746	289	322	BOM5	R	59

5750	289	322	BOM4	R	49
5752	289	322	BOM4	R	55
5754	289	322	BOM2.RS	R	75
5756	289	322	DARM.RS	R	51
5760	289	322	ORM2	R	55
5762	289	322	BOM2.RS	R	96
5765	289	322	BOM5.RS	R	49
5778	289	322	ORM1	R	49
5780	289	322	DARM	R	59
5781	289	322	BOM2.RS	R	146
5784	155	222	BAG.BLS	R	43
5785	155	222	BUG.BRSL	R	40
5788	155	222	BOM1	R	100
5790	155	222	RBC2.RS	R	102
5794	155	222	RED1.RS	R	143
5795	155	222	BOM5.RS	R	47
5796	155	222	GW.BLS	R	159
5797	155	222	BOM3.RS	R	24
5798	155	222	RBC1.RS	R	148
5799	155	222	BOM1.RS	R	152
5800	155	222	BOM1.RS	R	39
5801	155	222	ORM1.RS	R	18
5802	155	222	RED2	R	166
5803	155	222	GW.BLS	R	24
5804	155	222	GW.BLS	R	150
5805	155	222	RBC2.RS	R	43
5807	155	222	COM	R	47
5808	155	222	GW.BLS	R	169
5809	155	222	RBC2.RS	R	146
5810	155	222	BAG.BLS	R	152
5813	155	222	RBC2.RS	R	148
5815	155	222	BOM5.RS	R	142
5816	155	222	GW.BLS	R	155
5817	155	222	GW.BLS	R	149
5818	155	222	GW.BLS	R	159
5822	213	223	GROMIT4	R	179
5828	213	223	GROMIT2	R	11
5839	213	223	RBC3	R	11
5840	213	223	GROMIT2	R	87

5843	213	223	GROMIT2	R	11
5845	213	223	GROMIT4	R	179
5847	213	223	DARM	R	36
5862	213	223	RBC3.RS	R	121
5863	213	223	TOW	R	73
5864	213	223	DARM.RS	R	148
5882	213	223	BOM5	R	57
5883	213	223	TOW	R	76
5887	213	223	GROMIT2.RS	R	67
5898	213	223	BAR	R	2
5902	213	223	GOW1.RS	R	24
5905	351	231	BOM5	R	148
5906	351	231	BOM6	R	146
5915	351	231	BOM5	R	24
5918	351	231	BOM5.RS	R	53
5946	351	231	BOM5	R	151
5947	351	231	BOM5	R	26
5948	351	231	BOM6	R	26
5952	351	231	BOM6	R	26
5954	351	231	BOM6	R	26
5956	351	231	GOW1	R	148
5960	353	232	BOM3	R	148
5964	333	228	BAG.BLS	R	152
5969	333	228	GW.BLS	R	155
5971	333	228	GW	R	156
5972	333	228	GW.BLS	R	155
5974	333	228	GW	R	156
5976	277	237	GW.BLS	R	29

Appendix 5: Ceramics ware descriptions

Name	Black Slipped Brown and Grey Ware 
Code	BAG.BLS
Distinguishing features	A grey inner fabric sandwiched between outer brown fabrics with a black slip, generally burnished on one or two surfaces.
Surface treatment	Surfaces flattened and smoothed, and then the external surface is treated with a thin black slip, which is usually burnished. The interior surface is also occasionally black slipped and burnished, or treated with a thin mica wash.
Decoration	Commonly, the shoulder is decorated with incised lines running horizontally around the vessel, with occasional additional decoration such as oblique notches or wavy lines. Stamped floral/sun designs are common on body sherds, usually at the shoulder. Some rims feature a pinched applique design
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Black shiny outer slip. 7.5YR 5/6 strong brown outer fabrics with a 7.5YR 6/1 grey core.
Fracture	Rough but regular and generally perpendicular to surfaces. Occasionally the fracture is inward facing
Inclusions	Occasional sub-angular mica fragments (<2mm) and mica dust, more on surfaces. Addition of mica usually does not seem deliberate but perhaps due to the parent clay. Roughly sorted sub-angular sand, occasional long, thin vegetal voids in fabric and rare small sub-angular clear grits (2-3mm)
Thickness	Generally between 4mm and 7mm body thickness, but some sherds are up to 10mm thick.
General description	A hard-fired, medium-thick brown and grey ware usually with a thin shiny black slip, and occasionally a thick slip. Surfaces appear to have been burnished. The fabric is brown with grey core, and similar in feel to the grey ware (GW), but often not as lightweight. This ware appears to be found mainly in restricted jar forms.

Name	Black and Red Ware 
Code	BAR
Distinguishing features	Black and red ware with distinctive colouring indicative of inverse firing. Coarser fabric that usually associated with this ware, but still highly burnished on both surfaces.
Surface treatment	Surfaces smoothed and flattened. Both surfaces slipped and then burnished.
Decoration	None – One sherd shows two incised lines running horizontally beneath the rim
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Both surfaces are black burnished. Bottoms of exterior surfaces are 5YR 6/6 reddish yellow
Fracture	Slightly rough but fairly regular and perpendicular to the surfaces
Inclusions	Roughly sorted sub-rounded sand grains (1mm), rare mica dust, very rare sub-angular clear grits (<2mm)
Thickness	Body ranges from 4mm up to 8mm. Usually 6 or 7mm in thickness
General description	A hard-fired, relatively fine fabric Black and Red Ware with a smooth hard feel to the surfaces, which have been slipped and highly burnished. Characteristic surface colouration from the inverse firing technique, and a uniform black or dark grey core. Occurs in limited types of shallow carinated bowl forms. The fabric is less fine than is typically associated with the characteristic Black and Red Ware (See F.BAR) – BAR sherds are usually slightly thicker and less smooth than F.BAR with some grit inclusions. **Similar wares:** Shaw 2007 'Crude Black and Red Ware' – Medium thickness fabric, poorly levigated. **Possible date range:** 2nd century BC to 2nd century AD (Ansari & Dhavalikar, 1975; Mehta & Chowdary, 1966; Shaw, 2007)

Name	Black/Red Burnt and Burnished Ware 
Code	BLARB
Distinguishing features	A red/orange fabric with a black/dark brown slip on one or two surfaces. Slight burnishing on one surface and burnt deposits on the other.
Surface treatment	Surfaces appear smoothed and flattened with slip on one or both sides. On one side is burnished, usually the exterior but it is the interior surface on two occasions
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Mostly blackish grey, with occasional patches of 7.5YR 6/4 light brown.
Fracture	Fairly smooth and regular; Perpendicular to the surfaces
Inclusions	Rare to occasional small sub-angular mica fragments or mica dust. Fairly well sorted sand grains (<1mm)
Thickness	Sherds in the range of 3.3mm to 6.5mm
General description	A hard fired, medium ware with rare/occasional mica dust which is mostly on surfaces, and well sorted sand with no other evident inclusions. The sherd surfaces feel smooth and hard and have been smoothed and slipped, with one surface burnished. Burnt deposits are apparent on one side of the sherds.

Name	Black and Orange Micaceous Ware 1 
Code	BOM1
Distinguishing features	A red/brown/orange outer fabric sandwiching a dark grey/black inner fabric. Large and small mica fragments throughout, common on surfaces and within fabric.
Surface treatment	Surfaces smoothed and flattened. Occasionally treated with a light micaceous wash
Decoration	Generally none, although some sherds show evidence of faint horizontal incised lines
Manufacture	Wheel-turned
Firing	Medium - Hard
Colour (Munsell)	Patchy with areas approximating to 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown or 5YR 6/6 Reddish Yellow on surfaces with a dark grey/blackish core.
Fracture	Rough irregular fracture, but generally perpendicular to the surfaces. Occasionally forms laminations due to high mica content
Inclusions	Dense small to medium-sized mica fragments (1-4mm), roughly sorted occasional sand grains (1mm), occasional poorly sorted, angular clear grits (2-3mm), occasional poorly sorted rounded brown grits (2-3mm)
Thickness	3.5mm to 7mm with some larger sherds up to 12mm
General description	A rough, medium sandy-brown to orange-brown fabric with a dark grey/blackish core. Despite dense mica fragments of small to medium size, the fabric is still relatively hard-fired and compact. Mica appears on the surfaces and throughout; other inclusions are grits and sand but the mica is the dominant and characteristic inclusions. The surfaces have been smoothed and flattened but there is no slip visible.

Name	Red Slipped Black and Orange Micaceous Ware 1 
Code	BOM1.RS
Distinguishing features	A red/brown/orange outer fabric sandwiching a dark grey/black inner fabric. Large and small mica fragments throughout, common on surfaces and within fabric. Red slipped.
Surface treatment	Surfaces smoothed and flattened. Exterior surface treated with a red slip, which is generally thin. Slip usually has mica mixed in, or can be coupled with a thin micaceous wash.
Decoration	Generally none, occasional incised horizontal lines and one sherd which features incised triangular notches
Manufacture	Wheel-Turned
Firing	Medium - Hard
Colour (Munsell)	Patchy with areas approximating to 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown or 5YR 6/6 Reddish Yellow on surfaces with a dark grey/blackish core. The slip is usually 2.5YR 4/6 dark red.
Fracture	Rough irregular fracture but generally perpendicular to the surfaces, Occasionally forms laminations due to high mica content
Inclusions	Dense small to medium sized mica fragments (1-4mm), roughly sorted occasional sand grains (1mm), occasional poorly sorted, angular clear grits (2-3mm), occasional poorly sorted rounded brown grits (2-3mm)
Thickness	Generally 4mm to 7mm – a few sherds in the range of 8mm to 10mm thickness.
General description	Fabric similar to BOM1 but distinguished by a red slip. Rough, medium sandy-brown to orange-brown fabric with a dark grey/blackish core. Densely micaceous which causes a fairly irregular fracture, but the fabric is still relatively hard-fired and compact. Mica appears on the surfaces and throughout; other inclusions are grits and sand but the mica is the dominant and characteristic inclusions. The surfaces have been smoothed and flattened, and then slipped. The red slip is usually quite thin and dark red in colour, and often has the addition of mica fragments. Carinated vessels dominate in this ware, with evidence of cooking/smoke.

Name	Black and Orange Micaceous Ware 2 
Code	BOM2
Distinguishing features	A red/brown/orange outer fabric sandwiching a dark grey/black inner fabric. Large and small mica fragments throughout fabric and on surfaces, but less common than in BOM1.
Surface treatment	Smoothed and flattened, occasional traces of micaceous wash
Decoration	Generally none, occasional incised horizontal lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core.
Fracture	Rough fracture but generally perpendicular to the edges
Inclusions	Frequent small to medium angular mica fragments (1-4mm), poorly sorted sub-angular clear grits and rounded brown grits (c. 2mm), occasional long thin vegetal voids, fairly well sorted sand grains
Thickness	Generally 4-7mm but some sherds are in the range of 8-13mm thickness
General description	Rough, medium sandy-brown to reddish-brown fabric with grey or black core. Frequent to moderate mica fragments throughout fabric and on surfaces. Mica content is less dense than in BOM1 and less visible on surfaces. This ware is hard-fired and compact despite the mica content. Fracture is rough but does not delaminate.

Name	Red Slipped Black and Orange Micaceous Ware 2 
Code	BOM2.RS
Distinguishing features	A red/brown/orange outer fabric sandwiching a dark grey/black inner fabric. Large and small mica fragments throughout fabric and on surfaces but less common than in BOM1. Red slipped.
Surface treatment	Surfaces smoothed and flattened and exterior surface has a red slip. Interior occasionally has a red slip or is treated with a micaceous wash
Decoration	Usually none but occasional incised lines and notches
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core. Slip is 2.5YR 4/6 dark red
Fracture	Rough fracture, perpendicular to the edge
Inclusions	Frequent to moderate small to medium (1 – 4mm) sub-angular and angular mica fragments. Poorly sorted sub-angular clear and rounded brown grits (2mm), occasional long vegetal voids, fairly well sorted sand grains.
Thickness	Body sherds usually between 3 to 7mm but some sherds are in the range of 8 to 13mm thickness.
General description	Rough, medium sandy-brown to reddish-brown fabric with grey or black core. Frequent to moderate mica fragments throughout fabric and on surfaces. Mica content is less dense than in BOM1 and less visible on surfaces. This ware is hard-fired and compact despite the mica content. Fracture is rough due to inclusions but generally perpendicular to the surfaces and does not delaminate. Use of a thin red slip distinguishes this ware from BOM2: Slip is usually dark red with some appearing more brownish-red or orange-red. Mica is often added to the slip, and occasionally there is evidence of treatment with a thin micaceous wash.

Name	Black and Orange Micaceous Ware 3 
Code	BOM3
Distinguishing features	Similar to BOM2 - A red/brown/orange outer fabric sandwiching a dark grey/black inner fabric. Small mica fragments occasionally throughout, less common that BOM2, more on surfaces.
Surface treatment	Surfaces smoothed and flattened, no other surface treatment except possible traces of a micaceous wash on the exterior of some sherds
Decoration	Usually none, one sherd with impressed decoration, and one with stamped floral motif
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core
Fracture	Rough fracture, perpendicular to the edges
Inclusions	Moderate to occasional small to medium sized sub-angular mica fragments (1-4mm) with more small fragments than large. Roughly sorted small sand grains, occasional small angular clear grits (2-3mm) Occasional vegetable temper visible on surfaces.
Thickness	Generally between 4 and 7mm, a few sherds are between 8 and 11mm in thickness
General description	Rough feel medium fabric with sandy-brown or reddish-brown exterior and a dark grey or black core. Similar to BOM2, this is a hard fired wheel-turned ware with moderate mica content. The mica is throughout the fabric and on surfaces but tends to be smaller in size and less frequent than in BOM2. Fabric is quite hard and compact and mica does not influence fracture or cause laminations.

Name	Red Slipped Black and Orange Micaceous Ware 3 
Code	BOM3.RS
Distinguishing features	Similar to BOM2 - A red/brown/orange outer fabric sandwiching a dark grey/black inner fabric. Small mica fragments occasionally throughout, less common that BOM2, more on surfaces. Red slipped.
Surface treatment	Smoothed and then flattened. Exterior surface treated with a thin dark red slip. Occasionally a further micaceous wash is added to the slip.
Decoration	Usually none, occasional incised lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core. Slip is 2.5YR 4/6 dark red
Fracture	Rough fracture, perpendicular to the edges
Inclusions	Moderate to occasional sub-angular fragments, mostly small (<2mm) but also medium in size (up to 4mm). Roughly sorted small sand grains, occasional small angular clear grits (2-3mm)
Thickness	Sherds usually between 4 and 7 mm, occasional sherds between 8 and 11mm with one at 25mm thickness
General description	Red slipped version of BOM3: Rough feel medium fabric with sandy-brown or reddish-brown exterior and a dark grey or black core. Mica is less frequent and smaller than in BOM2, but there are visible mica inclusions in fabric and on the surface. This ware is compact, hard-fired and wheel thrown. The surfaces have been smoothed and flattened and a red slip has been applied, usually on the exterior surface only. The thin slip is usually a dark red, but occasionally more orange-red in colour, and mica fragments have been mixed into the slip. No other surface treatment is visible except occasional evidence of a micaceous wash.

Name	Black and Orange Micaceous Ware 4 
Code	BOM4
Distinguishing features	An orange outer fabric sandwiching a dark grey/black inner fabric with very common small mica dust/fragments throughout and on surfaces. Smooth burnished appearance and patchy surface colour
Surface treatment	Surface smoothed, flattened and treated with a micaceous wash before being possibly burnished. Interior surface has also been smoothed and treated with a micaceous wash. Surface treatment gives a silvery/shiny appearance
Decoration	Usually none, two sherds with incised oblique lines/notches on carination
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces: Core 5YR 3/1 very dark grey to 10YR 4/1 Dark grey
Fracture	Rough irregular fracture with some laminations from mica inclusions. Generally perpendicular to the surfaces but sometimes outwards or inwards facing fracture
Inclusions	Dense small to medium (1 - 4mm) angular and sub-angular mica fragments, and dense mica dust. Poorly sorted occasional sub-angular and angular small clear grits (2-3mm)
Thickness	Sherds generally between 4 and 8mm in thickness but occasional sherds in the range of 8 to 14mm thickness
General description	This ware is a hard fired, wheel thrown ware with a densely micaceous fabric. The outer surface appears in a range of colours. This ware's appearance and mica content is similar to ORM2, but the orange fabric has a grey core. The fabric mica occurs as small to medium sized fragments or dust, with smaller fragments being dominant. The fabric is fairly hard and compact despite mica inclusions. Other inclusions are not obvious but occasional. The surface treatment appears to be smoothing and flattening with a micaceous wash. This wash seems to have been smoothed again or burnished lending a smooth finish with a silvery sheen from the fine mica. This ware often occurs in carinated vessel forms.

Name	Black and Orange Micaceous Ware 5 
Code	BOM5
Distinguishing features	An orange outer fabric sandwiching a dark grey/black inner fabric with frequent small mica dust/fragments throughout but more common on surfaces.
Surface treatment	Surfaces smoothed and flattened, and no other visible surface treatment on most sherds. Occasional treatment with a micaceous wash, usually on exterior but sometimes on interior.
Decoration	Usually none, two sherds feature incised lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core.
Fracture	Rough and irregular fracture but generally perpendicular to the surfaces
Inclusions	Frequent small (<2mm) sub-angular mica fragments and frequent to dense mica dust throughout. Occasional vegetal voids on surfaces, well sorted sub-angular sand grains and rare sub-angular small clear grits (<2mm).
Thickness	Sherds usually within the range of 4 to 7mm thickness. A few sherds are between 8 and 14mm
General description	A hard, compact fabric with an orange exterior and a grey core, finer than BOM1 and BOM2. The mica content is frequent to dense but the fragments and dust are small throughout unlike in previous BOM wares. Mica is more apparent on surfaces than in fabric due to small size. The surfaces have been smoothed and flattened but there is no other visible surface treatment and sherds still feel rough

Name	Red Slipped Black and Orange Micaceous Ware 5 
Code	BOM5.RS
Distinguishing features	An orange outer fabric sandwiching a dark grey/black inner fabric with moderately common small mica dust/fragments throughout, but more common on surfaces. Red slipped
Surface treatment	Surface smoothed and flattened and then red slipped. Occasional evidence of additional mica wash on exterior. Interior surface very occasionally has evidence of a micaceous wash.
Decoration	Usually none, but some sherds display incised lines, notches and notched applique (beading impression)
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core. Slip is 2.5YR 4/6 dark red
Fracture	Rough and irregular fracture but generally perpendicular to the surfaces
Inclusions	Frequent small (<2mm) sub-angular mica fragments and frequent to dense mica dust throughout. Occasional vegetal voids on surfaces, well sorted sub-angular sand grains and rare sub angular small clear grits (<2mm). Very rare sub-rounded brown grits (<2mm)
Thickness	Usually between 4 and 7 mm, with occasional sherds in the range of 8 to 10mm
General description	Same fabric as BOM5 but treated with a red slip - A hard, compact fabric with an orange exterior and a grey core, finer than BOM1 and BOM2. The mica content is frequent to dense but the fragments and dust are small throughout unlike in previous BOM wares. Mica is more apparent on surfaces than in fabric due to small size. The surfaces have been smoothed and flattened and treated with a thin red slip. The slip is usually a dark red but can be more orange-red in colour. Mica is often added to the red slip

Name	Black and Orange Micaceous Ware 6 
Code	BOM6
Distinguishing features	An orange outer fabric sandwiching a dark grey/black inner fabric with occasional small mica dust/fragments throughout but more common on surfaces. Can resemble a red ware due to small amount of mica
Surface treatment	Surfaces flattened, no other visible surface treatment, except occasional traces of a micaceous wash, usually on exterior
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core.
Fracture	Rough fracture but generally perpendicular to the edges
Inclusions	Moderate small (<2mm) sub-angular mica fragments and frequent mica dust. Common roughly sorted sand grains and occasional thin long vegetal voids on surfaces. Occasional poorly sorted sub-rounded and sub-angular clear grits (2-3mm)
Thickness	Most sherds are between 4 and 7mm in thickness. Occasional sherds in a larger size range of 8 to 12mm
General description	A general fabric category with variation across the ware but generally can be described as a hard fired and wheel-turned fabric with a dull brownish-red surface and grey/black core. Sherds are lacking in surface treatment and often eroded. Moderate mica content, usually dust and very small fragments, with mica more common on surfaces. Similar to a medium red ware but mica inclusions appear intentional and too frequent for this fabric to be classed as a red ware. Fabric feels sandy and rough, but still hard and compact so no material comes away if the surface is rubbed

Name	Red Slipped Black and Orange Micaceous Ware 6 
Code	BOM6.RS
Distinguishing features	An orange outer fabric sandwiching a dark grey/black inner fabric with occasional small mica dust/fragments throughout but more common on surfaces. Can resemble a red ware due to small amount of mica. Red slipped and less common than BOM6
Surface treatment	Surfaces flattened and smoothed and treated with a thin red slip. Occasionally an additional mica wash is added to the exterior
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core. Slip is 2.5YR 4/6 dark red
Fracture	Rough and irregular but generally perpendicular to the surfaces
Inclusions	Moderate small (<2mm) sub-angular mica fragments and frequent mica dust. Common roughly sorted sand grains and occasional thin long vegetal voids on surfaces. Occasional poorly sorted sub-rounded and sub-angular clear grits (2-3mm), and occasional rounded brown grits (<3mm)
Thickness	Sherds all between 4 and 6.5mm in thickness, except one outlier at 9.4mm
General description	A general fabric category similar to BOM6 with variation across the ware but generally can be described as a hard fired and wheel-turned fabric with a dull brownish-red surface, grey/black core and a red slip. Moderate mica content, usually dust and very small fragments, with mica more common on surfaces. Similar to a medium red ware but mica inclusions appear intentional and too frequent for this fabric to be classed as a red ware. Fabric feels sandy and rough, but still hard and compact so no material comes away if the surface is rubbed. Slips mostly dark red but occasionally more orange-red. Small mica fragments visible in slip

Name	Black and Orange Micaceous Ware 7 
Code	BOM7
Distinguishing features	A rough orange outer fabric sandwiching a dark grey/black inner fabric with occasional small mica fragments throughout but more common on surfaces. Grit and vegetable inclusions
Surface treatment	Surfaces flattened, no other visible surface treatment
Decoration	Usually none, one sherd with incised oblique lines
Manufacture	Wheel-turned
Firing	Medium to Hard
Colour (Munsell)	Patchy with areas approximating to 5YR 5/1 grey, 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown on surfaces with a dark grey/blackish core
Fracture	Rough fracture but perpendicular to the edges
Inclusions	Moderate to frequent small (<2mm) sub-angular mica fragments and mica dust. Common sand grains and occasional poorly sorted sub-angular clear grits or rounded brown grits (2-4mm). Rare large sub-angular clear grits (>4mm), long thin vegetal voids particularly within fabric but occasionally on surfaces
Thickness	Most sherds are between 4 and 7mm in thickness. Occasional sherds in a larger size range of 8 to 10mm
General description	Wheel thrown, medium to hard fired, coarse fabric, with an orange exterior and a grey/black core. Rough, gritty feel and fabric is lacking in surface treatment - Utilitarian in appearance. Numerous types of inclusion with mica and sand being the most prominent

Name	Brown Slipped Buff and Grey Ware 
Code	BUG.BRSL
Distinguishing features	A buff/grey ware with brown slip, usually burnished on one or two surfaces. Occasional small sand grains in fabric
Surface treatment	Surfaces flattened and smoothed then treated with a thin or thick brown slip on exterior. Slip is often burnished and does not usually contain mica (if mica is visible it is only trace amounts). Interior is occasionally slipped in brown or black and burnished, or may have a micaceous wash
Decoration	Occasional incised horizontal lines running around shoulder of vessels, sometimes with additional wavy line, occasional incised notches or stamped floral/sun motifs
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	2.5YR 5/1 dark reddish grey fabric with 7.5YR 6/3 light brown surfaces and 7.5YR 3/2 dark brown slip
Fracture	Rough and fairly irregular, roughly perpendicular to the surfaces
Inclusions	Very rare small (<2mm) sub-angular mica fragments and rare mica dust in fabric. Occasional roughly sorted sub-angular sand grains and very rare sub-angular clear or opaque white grits (2-3mm)
-Thickness	Between 5 and 8mm in thickness, occasional sherds up to 10mm in thickness
General description	A hard-fired wheel-turned ware with medium grey or buff fabric and a brown or brownish-grey slip. Surfaces are usually burnished and often decorated, particularly with stamped floral/sun motifs. Mica is rare and probably not a deliberate inclusion but part of the original clay. Roughly sorted sand and few grits.

Name	Buff and Grey Ware 
Code	BUG
Distinguishing features	A buff/grey ware with occasional small sub-angular sand grains in fabric.
Surface treatment	Surfaces flattened and smoothed but usually no visible surface treatment. Occasional mica wash on interior.
Decoration	Usually none visible, one sherd with incised horizontal lines, and one rim with applique detail
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	10YR 6/3 pale brown fabric with a 10YR 5/1 grey core.
Fracture	Rough and fairly irregular, roughly perpendicular to the surfaces but sometimes with an inwards facing break
Inclusions	Very rare small (<2mm) sub-angular mica fragments and rare mica dust. Common roughly sorted sub-angular sand grains, occasional poorly sorted small sub angular/angular clear or opaque white grits (2-4mm)
Thickness	Sherds usually 4-7mm in thickness. Occasional sherds up to 12mm thick
General description	A hard fired, wheel-turned buff or grey ware, with no obvious surface treatment. A medium thickness hard-fired fabric with a rough, hard feel. Occasional to common sand grains and small grits. Small amounts of mica are present but appear to be a natural inclusion.

Name	Coppery Micaceous Ware 
Code	COM
Distinguishing features	A coppery-buff coloured micaceous ware with medium and small mica fragments common throughout fabric and on surfaces, frequently giving sherds a silvery sheen.
Surface treatment	Surfaces flattened and smoothed and then treated with a micaceous wash or thin slip. This micaceous wash appears to have been smoothed or burnished. Micaceous wash also visible on interior of some sherds
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces are 7.5YR 6/4 light brown. Fabric is 2.5YR 6/1 grey.
Fracture	Rough, but fairly regular fracture, and generally perpendicular to the surfaces
Inclusions	Frequent small to medium (1-4mm) angular and sub-angular mica fragments and frequent mica dust. Roughly sorted sub-angular sand grains and occasional roughly sorted sub-angular small clear grits (2-3mm)
Thickness	Sherds range between 2.3 and 6.5mm with one slightly thicker sherd measuring roughly 8mm
General description	A hard fired wheel-turned micaceous ware with a smooth feel and silvery sheen. Sherds are usually thin and treated with a micaceous wash or slip to lend a silvery appearance. Fabric is fairly densely micaceous throughout but compact and hard despite mica content. The fabric is similar to BOM4 but a grey-buff colour throughout.

Name	Dark Micaceous Ware 
Code	DARM
Distinguishing features	A dark grey/buff micaceous ware with frequent mica fragments on surfaces and within the fabric. Occasionally mica-slipped on both surfaces or treated with a thin black slip. Large roughly sorted sub-angular sand grains apparent in fabric.
Surface treatment	Surfaces flattened and smoothed then occasionally treated with a micaceous wash on either surface. Exterior surface of sherds sometimes treated with a thin black slip
Decoration	Usually none, occasional sherds with incised horizontal lines on shoulder portion. A couple of sherds display lines coupled with other decoration such as a wavy line or incised oblique notches. Decorated sherds are those with a slip.
Manufacture	Wheel-turned
Firing	Medium to Hard
Colour (Munsell)	Patchy colouration. Some areas black/dark brown 7.5YR 5/3 brown through to 7.5YR 6/4 light brown
Fracture	Rough, irregular fracture but generally perpendicular to the surfaces
Inclusions	Frequent to dense small to medium (1-4mm) angular and sub-angular mica fragments throughout. Roughly sorted large sub-angular sand grains and occasional poorly sorted small angular and sub-angular clear/opaque white grits (<2mm)
Thickness	4 to 7mm in thickness with a few sherds in the range of 8 to 14mm
General description	A medium fabric dark brown or black micaceous ware, medium to hard fired and wheel-turned. Distinguished from BOM as the fabric is always dark brown or black, occasionally with buff/grey areas, but not orange or red. A fairly general ware category with a range of mica size and frequency: Usually moderately to densely micaceous and always with mica visible in the core and on the surfaces. Some sherds have been treated with a thin black slip which may be burnished. Slip contains fragments of mica, and those without a black slip often appear to have a micaceous wash on the surfaces.

Name	Red Slipped Dark Micaceous Ware 
Code	DARM.RS
Distinguishing features	A dark grey/buff micaceous ware with large mica frequent mica fragments on surfaces and within the fabric. Occasionally mica-slipped on both surfaces but always treated with a thin dark red slip. Large roughly sorted sub-angular sand grains apparent in fabric
Surface treatment	Surfaces flattened and then smoothed and treated with a thin red or brownish-red slip mixed with small mica fragments. Sheen on some sherds indicates an additional micaceous wash. Interior surface occasionally treated with a micaceous wash or slipped.
Decoration	Usually none, occasional sherds with incised horizontal lines
Manufacture	Wheel-turned
Firing	Medium to Hard
Colour (Munsell)	Patchy colouration. Some areas black/dark brown 7.5YR 5/3 brown through to 7.5YR 6/4 light brown. Areas of 2.5YR 6/6 red slip
Fracture	Rough, irregular fracture but generally perpendicular to the surfaces
Inclusions	Frequent to dense small to medium (1-4mm) sub-angular or angular mica fragments, and common mica dust. Roughly sorted large sub-angular sand grains and occasional poorly sorted small angular and sub-angular clear/opaque white grits (<2mm)
Thickness	4 to 8mm in thickness, four sherds between 9 and 13mm thick
General description	A medium to hard fired wheel-turned ware with a medium buff-grey, dark brown or black micaceous fabric. A fairly general ware category with a range of mica size and frequency: Fabric is moderately to highly micaceous and treated with a red or brownish-red slip with visible small mica fragments mixed in. Inclusions of grits and sand, and a level of mica which is similar to BOM2 orBOM3. Distinguished from BOM as the fabric is always dark brown or black, occasionally with buff/grey areas, but not orange or red. Dark red or brownish-red slip, often very worn.

Name	Fine Black and Red Ware 
Code	F.BAR
Distinguishing features	A fine, thin Black and Red Ware - highly burnished on both sides.
Surface treatment	Surfaces smoothed and flattened. Both surfaces slipped and then burnished or brought to a polish.
Decoration	None (One sherd with a horizontal line to delineate the rim)
Manufacture	Wheel-Turned
Firing	Hard
Colour (Munsell)	Both surfaces black burnished. Bottoms of exterior surfaces are 5YR 6/6 reddish yellow.
Fracture	Smooth, even and perpendicular to the surfaces
Inclusions	Well-sorted rare sub-rounded sand grains (1mm), very rare mica dust
Thickness	Body ranges from 2mm to 4mm in thickness
General description	Smooth, hard-fired, thin fabric with the distinctive black and red colouring resulting from inverse firing. Uniformly dark grey or black throughout the fabric and core. Both surfaces are highly burnished or polished, and have a hard smooth feel. The fabric has a metallic ring. This ware occurs in characteristic shallow carinated bowl forms. **Similar wares:** Shaw 2007 'Black and Red Ware' – Medium thickness fabric, well levigated, hard smooth fabric **Possible date range:** 10th century BC to 3rd century BC (Shaw, 2007). Most common in excavations c. 1000BC but continues up to Early Historic in association with NBPW (Ansari & Dhavalikar, 1975)

Name	Fine Dark Micaceous Ware 
Code	FIDAM
Distinguishing features	**:** A thin, finer version of DARM with only fine mica dust on the surfaces and in the fabric.
Surface treatment	Surfaces flattened and smoothed and usually treated with a micaceous wash to give a slight sheen. Some sherds have a thin black or dark grey slip with fine mica inclusions. Interior surface is often treated with a micaceous wash
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy colouration. Some areas black/dark brown 7.5YR 5/3 brown through to 7.5YR 6/4 light brown
Fracture	Rough but fairly regular and perpendicular to the sides
Inclusions	Moderate small (<2mm) sub-angular mica fragments and frequent mica dust. Roughly sorted small sand grains
Thickness	Usually 2 to 5mm in thickness. Three thicker body sherds around 7mm
General description	A fairly fine dark micaceous ware, wheel-turned and hard fired. Surfaces treated with small/dust mica and there is also small mica throughout fabric. A thin hard ware which is quite compact as the mica is fine. Sand inclusions are visible but grits or vegetable temper are not obvious. Fabric is mostly a dark grey/black or buff/grey. Surfaces have been smoothed, occasionally slipped and then washed with mica.

Name	Grey And Orange Ware 1 
Code	GOW1
Distinguishing features	Orange surfaces with a thick grey core, relatively fine fabric.
Surface treatment	Surfaces flattened and smoothed, no other treatment visible
Decoration	None
Manufacture	Wheel-turned
Firing	Medium-Hard
Colour (Munsell)	Some 5YR 6/6 (Reddish Yellow) or 5YR 5/6, others 10YR 5/6 Red and 2.5YR 6/8 Red. Core is grey GLEY2 6/5PB
Fracture	Can be rough but generally smooth, regular and perpendicular to the edges
Inclusions	Very rare mica dust, rare roughly sorted sand grains, occasional vegetal voids on surfaces and rare small sub-angular clear grits (2mm)
Thickness	Generally 4 to 7mm with a few falling in the range of 8 to 11mm thickness
General description	A fairly fine, medium to hard fired ware with distinctive orange or pink-orange exterior around a thick uniform grey core. The fabric is reasonably well levigated, compact, and medium to hard in feel. It can be quite lightweight. Few evident inclusions in the fabric and the mica appears to be a natural inclusion.

Name	Red Slipped Grey And Orange Ware 1 
Code	GOW1.RS
Distinguishing features	Orange surfaces with a thick grey core, relatively fine fabric. Thin orange-red slip.
Surface treatment	Surfaces flattened and smoothed, thin red slip applied, usually to exterior but occasionally both sides. Slip is close in colour to the surface of the ware
Decoration	None
Manufacture	Wheel-turned
Firing	Medium-Hard
Colour (Munsell)	Some 5YR 6/6 (Reddish Yellow) or 5YR 5/6, others 10YR 5/6 Red and 2.5YR 6/8 Red. Slip is close to the original surface colour, and usually 5YR 6/6 (Reddish Yellow) and core is grey GLEY2 6/5PB
Fracture	Can be rough but generally smooth, regular and perpendicular to the edges
Inclusions	Very rare mica dust, rare roughly sorted sand grains, very rare poorly sorted sub-angular opaque white grits (<3mm), occasional thin vegetal voids particular on surfaces.
Thickness	Generally 5 to 8 mm with a few falling in the range of 9-12mm thickness
General description	A fairly fine, medium to hard fired ware with distinctive orange or pink-orange exterior around a thick uniform grey core. The fabric is reasonably well levigated, compact, and medium to hard in feel. It can be quite lightweight. Few evident inclusions in the fabric and the mica appears to be a natural inclusion. The thin slip is an orange-red in colour and often very close in colour to the fabric surfaces.

Name	Grey And Orange Ware 2 
Code	GOW2
Distinguishing features	Orange surfaces with a thick grey core, coarser fabric than GOW1 with more evident inclusions
Surface treatment	Surfaces flattened and smoothed, no other obvious surface treatment
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Some 5YR 6/6 (Reddish Yellow) or 5YR 5/6, others 2.5YR 5/6 Red. Core is grey throughout: GLEY2 6/5PB
Fracture	Rough, fairly regular and perpendicular to the edges
Inclusions	Moderate mica dust, rare small (<2mm) sub-angular mica fragments, moderate roughly sorted sand grains, occasional poorly sorted sub-angular/angular clear grits (2-3mm), rare rounded/ sub-rounded brown grits (2-3mm), occasional thin vegetal voids particularly on surfaces
Thickness	Generally 6 to 9 mm with a few falling in the range of 10-16 thickness
General description	**:** A coarser thicker version of GOW1 - a hard-fired, relatively lightweight ware with distinctive orange or pink-orange exterior around a thick uniform grey core. Rougher surfaces and more frequent inclusions, particularly grits, than in GOW1. Mica still appears to be a natural inclusion

Name	Red Slipped Grey And Orange Ware 2 
Code	GOW2.RS
Distinguishing features	Orange surfaces with a thick grey core, coarser fabric. Red/Orange-red slipped
Surface treatment	Surfaces flattened and smoothed, thin red slip applied, usually to exterior but occasionally both sides, and some evidence of a micaceous wash on a few sherds
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Some 5YR 6/6 (Reddish Yellow) or 5YR 5/6, others 2.5YR 5/6 Red. Slip is 2.5YR 6/6 Red or 5YR 6/6 (Reddish Yellow). Core is grey throughout: GLEY2 6/5PB
Fracture	Rough, fairly regular and perpendicular to the edges
Inclusions	Moderate mica dust, rare small (<2mm) sub-angular mica fragments, moderate roughly sorted sand grains, occasional poorly sorted sub-angular/angular clear grits (2-3mm), rare rounded/ sub-rounded brown grits (2-3mm), occasional thin vegetal voids particularly on surfaces
Thickness	Sherds between 6.5 and 10 mm with one sherd measuring around 13mm thick
General description	A coarser thicker version of GOW1 – a hard-fired, relatively lightweight ware with distinctive orange or pink-orange exterior around a thick uniform grey core. Rougher surfaces and more frequent inclusions, particularly grits, than in GOW1. Mica still appears to be a natural inclusion. Treated with a thin orangey-red slip, similar in colour to the fabric surface colour

Name	Grey And Orange Micaceous Ware 
Code	GOWM
Distinguishing features	Orange surfaces with a thick grey core, frequent mica in comparison to GOW
Surface treatment	Surfaces flattened and smoothed, a thin red slip is often applied to the exterior and there is evidence of a micaceous wash on a few sherds
Decoration	None
Manufacture	Wheel-turned
Firing	Medium-Hard
Colour (Munsell)	Some 5YR 6/6 (Reddish Yellow) or 5YR 5/6, others 2.5YR 5/6 (Red). Slip can be 2.5YR 6/6 (Red) or 5YR 6/6 (Reddish Yellow). Core is grey: GLEY2 6/5PB
Fracture	Rough and irregular but generally perpendicular to the surfaces
Inclusions	Frequent small to medium (1-4mm) sub-angular and angular mica fragments, rare poorly sorted rounded brown grits (2-4mm), roughly sorted sand grains and occasional long thin vegetal voids on surfaces
Thickness	Sherds between 4 and 8 mm thick with occasional sherds in the range of 10 to 13mm
General description	A micaceous version of Grey and Orange wares (GOW), and most similar to GOW2. A medium to hard fired ware with distinctive orange or pink-orange exterior around a thick uniform grey core. Rough, medium fabric, with a hard feel and generally heavier than GOW1 or GOW2. Mica fragments appear as a deliberate inclusion in this ware. This fabric has been treated with a thin red slip, similar in colour to the fabric surface

Name	Gritty Orange Mica Tempered Ware 1 
Code	GROMIT1
Distinguishing features	**:** An orange fabric with frequent sub-angular large grits and medium to large mica fragments. Thick bodied, hard and very gritty
Surface treatment	Occasional traces of a thin micaceous wash. Otherwise surfaces rough and uneven despite some evidence of flattening
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Variable colours across ware: typically surface is 10YR 6/4 Light yellowish brown or 5YR 6/6 Reddish yellow. Core 2.5YR 6/1 Grey or 10 YR 4/2 Dark greyish brown
Fracture	Rough, irregular fracture which sometimes delaminates in the particularly micaceous sherds
Inclusions	Frequent/dense roughly sorted sub-angular medium to large clear and opaque white grits (2-5mm), occasionally grits are larger than 5mm. Moderate poorly sorted round brown grits (2-4mm), Frequent to dense small to large (1-6mm) angular mica fragments
Thickness	Sherds usually within the range of 12 to 21mm, some occasionally thinner and in the range of 7 to 10mm thickness
General description	A hard-fired rough ware with a densely micaceous fabric and a large quantity of medium to large mixed grits. Patchy exterior surface colour but essentially an orange fabric with a grey core. Fabric feels hard and compact, and is difficult to break with a rough fracture with some laminations from the large amount of mica. The fabric is heavy and the large size and quantity of grits is the defining feature. Surface feels rough despite some evidence it has been flattened or smoothed on some sherds, as the large quantity of grits forms an irregular surface. Commonly appears in long, thick flaring rim forms, and some site correlation is apparent.

Name	Red Slipped Gritty Orange Mica Tempered Ware 1 
Code	GROMIT1.RS
Distinguishing features	An orange fabric with frequent sub-angular large grits and medium to large mica fragments. Thick bodied, hard and very gritty. Evidence of a thin red slip
Surface treatment	Surfaces rough and uneven despite some evidence of flattening, but treated with a thin red slip and occasional micaceous wash
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Fabric surface variable: 7.5YR 6/4 Light brown to 5YR 6/6 Reddish Yellow. Core Colour 5YR 6/1 Grey or 5YR 5/3 Reddish Brown. Slip ranges from 2.5YR 6/8 Red to 2.5YR 5/8 Red
Fracture	Rough, irregular fracture which sometimes delaminates in the particularly micaceous sherds
Inclusions	Frequent/dense sub-angular and angular large clear and opaque white grits (2-5mm), occasionally grits are larger than 5mm. Moderate poorly sorted round brown grits (2-4mm), Frequent to dense small to large (1-6mm) angular mica fragments
Thickness	Sherds usually within the range of 10 to 15mm, some occasionally thinner and in the range of 7 to 9mm thickness
General description	A hard-fired rough ware with a densely micaceous fabric and a large quantity of medium to large mixed grits, as in GROMIT1, but with a thin weak red slip. Fabric has a grey core and brown/orange surface. Fabric feels hard and compact, and is difficult to break with a rough fracture with some laminations from the large amount of mica. The fabric is heavy and the large size and quantity of grits is the defining feature. Surface feels rough despite some evidence it has been flattened or smoothed on some sherds, as the large quantity of grits forms an irregular surface. Commonly appears in long, thick flaring rim forms, and some site correlation is apparent.

Name	Gritty Orange Mica Tempered Ware 2 
Code	GROMIT2
Distinguishing features	An orange fabric with frequent to dense sub-angular medium to large grits and common mica
Surface treatment	Surfaces rough but smoother than in GROMIT1, seem to have been flattened or smoothed. Occasional micaceous wash
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Variable colours across ware: typically surface is 10YR 6/4 Light yellowish brown, 5YR 4/3 Reddish Brown or 5YR 6/6 Reddish yellow. Core 2.5YR 6/1 Grey or 10 YR 4/2 Dark greyish brown
Fracture	Rough, irregular fracture but generally perpendicular to the surfaces
Inclusions	Frequent to dense roughly sorted medium to large (1-4mm) sub-angular and angular clear grits, and occasional sub-rounded and rounded brown grits (2-4mm). Occasional grits larger than 4mm. Moderate small to medium (1-4mm) angular and sub-angular mica fragments throughout
Thickness	Sherds usually between 7 and 10mm thickness, occasional sherds are slightly thinner (5-6mm) and some sherds up to 14mm thickness
General description	A hard-fired, medium, wheel-turned ware with fabric similar to GROMIT1 but with smaller better sorted grits and less common and smaller mica fragments. Fabric is thick but thinner than in GROMIT1. Appears in a range of colours but typically reddish brown or light brown with grey or dark brown core. Fabric has a rough feel, but the surfaces have been flattened or smoothed and the smaller size and quantity of grits means that the surface is more regular than in GROMIT1. The ware has a heavy feel, and is hard and compact

Name	Red Slipped Gritty Orange Mica Tempered Ware 2 
Code	GROMIT2.RS
Distinguishing features	An orange fabric with frequent to dense sub-angular medium to large grits and common mica
Surface treatment	Surfaces rough but smoother than in GROMIT1, seems to have been flattened or smoothed. Treated with a thin red slip and occasional micaceous wash.
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Variable colours across ware: typically surface is 10YR 6/4 Light yellowish brown, 5YR 4/3 Reddish Brown or 5YR 6/6 Reddish yellow. Core 2.5YR 6/1 Grey or 10 YR 4/2 Dark greyish brown. Slip: 2.5YR 6/8 Red or 2.5YR 4/6 Dark Red
Fracture	Rough, irregular fracture but generally perpendicular to the surfaces
Inclusions	Frequent to dense roughly sorted medium to large (1-4mm) sub-angular and angular clear grits and occasional sub-rounded and rounded brown grits (2-4mm). Occasional grits larger than 4mm. Moderate small to medium (1-4mm) angular and sub-angular mica fragments throughout.
Thickness	Sherds usually between 6 and 10mm thickness, occasional sherds are slightly thinner (5-6mm) and some sherds up to 15mm thickness
General description	A red slipped version of GROMIT2 which is a hard fired wheel thrown ware with fabric similar to GROMIT1 but with smaller better sorted grits and less common and smaller mica fragments. Fabric is thick but thinner than in GROMIT1. Fabric appears in a range of colours but typically reddish brown or light brown with grey or dark brown core. Fabric has a rough feel, but the surfaces have been flattened or smoothed and the smaller size and quantity of grits means that the surface is more regular than in GROMIT1. The ware has a heavy feel, and is hard and compact. The slip is thin and typically dark red.

Name	Gritty Orange Mica Tempered Ware 3 
Code	GROMIT3
Distinguishing features	A thick-bodied orange fabric with a black core. Moderate sub-angular large grits and mica fragments throughout fabric and clear vegetable temper visible on surfaces
Surface treatment	Surfaces flattened but no other visible surface treatment
Decoration	Usually none, however one has apparently moulded decoration
Manufacture	
Firing	Hard
Colour (Munsell)	Surface is generally 5YR 6/6 Reddish yellow with core of 10 YR 4/1 Dark Greyish brown to Black
Fracture	Rough and irregular fracture, but generally perpendicular to the surfaces
Inclusions	Frequent small to medium (1-4mm) angular mica fragments, moderate sub-angular medium to large grits usually clear or translucent grey (2-5mm) and roughly sorted sand grains. Frequent vegetable temper, usually leaving long thin voids, mainly on the surfaces
Thickness	Most sherds within the range of 13 to 20mm with some larger sherds between 22 to 33mm thick
General description	A thick hard-fired ware with an orange exterior fabric and black core. Fabric is compact, thick and heavy with multiple types of inclusions, including common grits and mica throughout and vegetable temper which is particularly apparent on surfaces. This ware is similar in appearance to VORBL but is harder, heavier and with more obvious grits as opposed to vegetable voids.

Name	Red slipped Gritty Orange Mica Tempered Ware 3 
Code	GROMIT3.RS
Distinguishing features	A thick-bodied orange fabric with a black core. Moderate sub-angular large grits and mica fragments throughout fabric and clear vegetable temper visible on surfaces. Thin red slip.
Surface treatment	Surfaces flattened and treated with a thin red slip. On some sherds a thin micaceous wash also appears to have been added
Decoration	None
Manufacture	
Firing	Hard
Colour (Munsell)	Surface is generally 5YR 6/6 Reddish yellow with core of 10 YR 4/1 Dark Greyish brown to Black**.** Slip: 2.5YR 5/8 Red, 2.5YR 6/6 Red
Fracture	Rough and irregular fracture, but generally perpendicular to the surfaces
Inclusions	Frequent small to medium (1-4mm) angular mica fragments, moderate sub-angular medium to large grits usually clear or translucent grey (2-5mm) and roughly sorted sand grains. Frequent vegetable temper, usually leaving long thin voids, mainly on the surfaces
Thickness	Sherds within the range of 11 to 15mm thickness
General description	A thick hard-fired ware with an orange exterior fabric and black core. Fabric is compact, thick and heavy with multiple types of inclusions, including common grits and mica throughout and vegetable temper which is particularly apparent on surfaces. This ware is similar in appearance to VORBL but is harder, heavier and with more obvious grits as opposed to vegetable voids. Surfaces have been treated with a thin pale red slip.

Name	Gritty Orange Mica Tempered Ware 4 
Code	GROMIT4
Distinguishing features	A thick-bodied orange fabric throughout with moderate sub-angular large grits, mica fragments and vegetable temper visible on surfaces.
Surface treatment	Surfaces flattened but no other visible surface treatment
Decoration	None
Manufacture	
Firing	Hard
Colour (Munsell)	Fabric is generally 5YR 6/6 Reddish yellow
Fracture	Rough and irregular fracture but generally perpendicular to the surfaces
Inclusions	Frequent small to medium (1-4mm) angular mica fragments, frequent poorly sorted sub-angular medium to large clear grits (1-4mm) and moderate poorly sorted rounded brown grits (2-4mm). Occasional vegetable temper visible on surfaces
Thickness	Sherds usually within range of 11 to 21mm thickness
General description	A thick hard-fired ware with an orange fabric throughout as opposed to GROMIT3 which has a black core. Fabric is heavy and thick, with frequent grits and mica. This ware has a rough feel but surfaces do appear to have been flattened or smoothed. There is evidence of vegetable temper particularly on surfaces and no obvious trace of slip or other surface treatment.

Name	Gritty Red Ware 
Code	GRW1
Distinguishing features	A grit tempered red ware, similar to GROMIT1 and GROMIT2 but without the addition of mica
Surface treatment	Surfaces appear to have been flattened but no other obvious surface treatment
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface colour typically 5YR 4/3 Reddish Brown or 10YR 6/4 Light Yellowish brown. Core colour 10YR 5/1 Grey or 10YR 4/1 Dark greyish Brown
Fracture	Rough, fairly regular and generally perpendicular to the surfaces
Inclusions	Roughly sorted frequent sub-angular and angular opaque white or clear grits (2-5mm), poorly sorted occasional rounded/sub-rounded brown grits (2-3mm). Occasional opaque white or clear grits larger than 5mm. Roughly sorted moderate sand grains
Thickness	Sherds generally between 6 and 12mm with some larger sherds in the range of 15 to 28mm thick
General description	A hard-fired thick ware distinguished by the large size and quantity of grits. It is very similar in appearance to both GROMIT1 and GROMIT2 but without the addition of mica. A heavy, compact fabric with a hard rough feel despite some evidence the surfaces have been smoothed. The fracture is rough due to the frequency of grits throughout.

Name	Red Slipped Gritty Red Ware 
Code	GRW1.RS
Distinguishing features	A red slipped grit tempered red ware, similar to GROMIT1 and GROMIT2 but without the addition of mica
Surface treatment	Surfaces appear to have been flattened, and have been treated with a thin red slip
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface colour typically 5YR 4/3 Reddish Brown, 10 YR 4/2 Dark greyish Brown or 10YR 6/4 Light Yellowish brown. Core colour 10YR 5/1 Grey or 10YR 4/1 Dark greyish Brown. Slip: ranges from 2.5YR 5/8 Red to 2.5YR 6/6 Red
Fracture	Rough, fairly regular and generally perpendicular to the surfaces
Inclusions	Roughly sorted frequent sub-angular and angular opaque white or clear grits (2-5mm), poorly sorted occasional rounded/sub-rounded brown grits (2-3mm). Occasional opaque white or clear grits larger than 5mm. Roughly sorted moderate sand grains
Thickness	Generally between 7 and 9mm thick but occasional thinner sherds between 4 and 7mm thick
General description	A hard-fired thick ware distinguished by the large size and quantity of grits. It is very similar in appearance to both GROMIT1 and GROMIT2 but without the addition of mica. A heavy, compact fabric with a hard rough feel despite some evidence the surfaces have been smoothed. The fracture is rough due to the frequency of grits throughout. Fabric is similar to GRW but has been treated with a thin red slip, usually dark red in colour but occasionally more orange-red.

Name	Black Slipped Grey Ware 
Code	GW.BLS
Distinguishing features	A common ware with uniform grey fabric containing roughly sorted sub-angular sand grains. This ware has a black slip (often burnished) on one or two surfaces
Surface treatment	Surfaces have been smoothed and flattened and then treated with a thin or thick black slip on one or two surfaces, but most commonly the exterior. The slip is usually burnished. The interior surface frequently displays a thin micaceous wash
Decoration	Range of decoration, most commonly incised horizontal lines, often coupled with oblique notches or lines, notched applique, wavy lines or a stamped floral/sun design. The stamped decoration is most commonly found in this ware. Rims often have thick applique designs or a thin notched applique edge (beading)
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Exterior surface is black slipped, and often burnished. Fabric is 10YR 6/1 grey.
Fracture	Regular, fairly even and perpendicular to the surfaces
Inclusions	Very rare small mica fragments (<1mm) and rare mica dust, roughly sorted occasional sub-angular sand grains, occasional poorly sorted angular and sub-angular clear or opaque white/grey grits (1-3mm). Occasional long thin vegetal voids in fabric
Thickness	Sherds generally between 2.5 and 10mm thick with some falling in a large range of 10-17mm thick
General description	Similar to GW in being a hard-fired medium grey ware with a uniform mid-grey to light bluish-grey fabric but with a black slip. This ware feels hard and can be relatively lightweight but is generally finer and harder than GW. Surfaces feel fairly even as they have been smoothed and flattened and then slipped with a thin or thick black slip, but the interior surfaces can be slightly rough. The slip is often burnished and occasionally contains traces of mica, although mica is rare in the fabric and probably unintentional. Some distinctive decoration including thick applique rims and stamped designs.

Name	Grey Ware 
Code	GW
Distinguishing features	A mid grey fabric with rare mica fragments and roughly sorted sub-angular sand grains and grits. Some sherds have a pinkish-orange discolouration from the surrounding soil.
Surface treatment	Surfaces have been smoothed and flattened. Sometimes no other surface treatment is apparent and surfaces are dull and matt, but frequently sherds have a thin buff/light grey slip usually on the exterior surface with occasional traces of burnishing
Decoration	Range of decoration, most commonly incised horizontal lines, often coupled with oblique notches, or a wavy line. Rims often have thick applique designs
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Fabric is 10YR 6/1 grey. Occasionally has discolouration from soil giving sherds patches of 10R 6/3 pale red or 10YR 6/4 light yellowish brown. If slip is present it ranges between 10YR 6/3 pale brown and 10YR 6/1 grey
Fracture	Rough, but fairly even and perpendicular to the surfaces
Inclusions	Very rare small mica fragments (<1mm) and rare mica dust, roughly sorted occasional sub-angular sand grains, occasional poorly sorted angular and sub-angular clear or opaque white/grey grits (<2mm)
Thickness	Usually within the range of 4 to 10mm thickness with two sherds measuring slightly less (smallest = 2.5mm) and two slightly more (thickest = 15mm).
General description	A hard-fired medium grey ware with a uniform mid-grey to light bluish-grey fabric. This ware feels relatively lightweight compared to other wares and the surfaces feel rough, with thicker sherds occasionally having a slightly porous appearance. This ware is often treated with a thin buff or light grey slip which sometimes appears to have been burnished. Unslipped sherds may have lost their slip as they tend to be badly eroded.

Name	Heavy Red Ware with Black Core 
Code	HRBC
Distinguishing features	A thick, heavy red ware with a black core and orange outer fabric.
Surface treatment	Surfaces flattened but no other surface treatment visible
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Outer fabric 5YR 6/6 (Reddish yellow) or 5 YR 5/6 (Yellowish Red), with a dark grey or black core
Fracture	Rough and irregular with some laminations, usually an inwards or outwards facing fracture
Inclusions	Occasional long thin or rounded vegetal voids in fabric, occasional poorly sorted small to medium sub-angular and angular clear or opaque grey grits (2-6mm). Roughly sorted sand grains and rare poorly sorted small mica fragments (<2mm)
Thickness	All sherds are thick usually ranging between around 16 to 22mm. Some sherds are slightly thicker with the maximum thickness observed being 42mm
General description	A heavy hard-fired and thick-bodied red ware with an orange fabric and a black core. This ware has a very irregular fracture and is quite coarse, with no decoration or surface treatment - perhaps a coarse storage ware. Clear vegetable temper leaving voids in fabric and on surfaces, usually long voids but some very clear grain and husk impressions on surfaces, including obvious rice grain impressions. Other inclusions are occasional small to medium grits, which are poorly sorted and in various shapes and sizes, and rare mica fragments.

Name	Red Slipped Heavy Red with Black Core Ware 
Code	HRBC.RS
Distinguishing features	A thick, heavy red ware with a black core and orange outer fabric. Similar to HRBC but red slipped and not as common
Surface treatment	Surfaces flattened and treated with a thin red slip
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Outer fabric 5YR 6/6 (Reddish yellow) or 5 YR 5/6 (Yellowish Red), with a dark grey or black core. Slip is 2.5YR 5/6 Red
Fracture	Rough and irregular with some laminations, usually an inwards or outwards facing fracture
Inclusions	Occasional long thin or rounded vegetal voids in fabric, occasional poorly sorted small to medium sub-angular and angular clear or opaque grey grits (2-6mm). Roughly sorted sand grains and rare poorly sorted small mica fragments (<2mm)
Thickness	All sherds within the range of 15 to 38mm thickness
General description	A heavy hard-fired and thick-bodied red ware with an orange fabric and a black core. This is similar in fabric to HRBC but the surfaces have been smoothed and flattened and treated with a thin red slip. This ware has a very irregular fracture and is quite coarse, with no decoration. Clear vegetable temper leaving voids in fabric and on surfaces, usually long voids but some very clear grain and husk impressions on surfaces, including obvious rice grain impressions. Other inclusions are occasional small to medium grits, which are poorly sorted and in various shapes and sizes, and rare mica fragments.

Name	Large Storage Jar Ware 
Code	LAST
Distinguishing features	An abrasive hard fired fabric with orange fabric and black core, visible vegetable and sand temper
Surface treatment	Surfaces have been flattened and usually treated with a thin red slip.
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	2.5YR 6/8 Red, 2.5YR 6/4 weak red with patches of 7.5YR 6/4 Light brown
Fracture	Rough and irregular but perpendicular to the surfaces
Inclusions	Rare mica dust, common vegetal voids on surfaces and within the fabric ranging from round voids to long and thin. Roughly sorted common sand grains, occasional poorly sorted angular small to medium clear grits (2-4mm)
Thickness	Sherds all in the range of about 7 to 15mm
General description	A thick, hard heavy ware, with brown to orange fabric and a black core. This ware feels rough and abrasive. Surfaces have been somewhat flattened and are sometimes clearly slipped with a thin red slip but no other surface treatment is visible and there is no decoration. Vegetable and sand temper is dominant and the ware also contains some grits and rare mica dust (natural inclusion from clay?).

Name	Orange Micaceous Ware 1 
Code	ORM1
Distinguishing features	A red/brown/orange fabric throughout. Large and small mica fragments throughout, particularly common on surfaces
Surface treatment	Surfaces smoothed and flattened, no slip but occasionally there are traces of a thin micaceous wash, particularly on exterior surfaces but sometimes on interior
Decoration	Usually none, but one sherd has incised horizontal lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces mainly 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown or 5 YR 6/6 Reddish yellow
Fracture	Rough and irregular, occasionally delaminating but generally perpendicular to the surfaces
Inclusions	Dense small to large sub-angular and angular mica fragments (1-5mm), rare poorly sorted sub-angular and angular clear or opaque white grits (2-3mm), moderate roughly sorted sand grains, and occasional small vegetal voids particularly on surfaces
Thickness	Sherds generally between 3 and 8.5mm thick, a few sherds in the range of 9 to 16mm
General description	A medium to coarse hard-fired and densely micaceous fabric, orange/red throughout. Similar to BOM1 but without the black or grey core. This fabric has a rough feel, although surfaces have been smoothed and flattened. Some sherds are highly eroded on surfaces. The thinner sherds can break fairly easily but thicker sherds feel harder. This fabric is more compact and harder fired than ROM, and not as orange in colour.

Name	Red Slipped Orange Micaceous Ware 1 
Code	ORM1.RS
Distinguishing features	A red/brown/orange fabric throughout. Large and small mica fragments throughout, particularly common on surfaces. Red Slipped
Surface treatment	Surfaces have been smoothed and flattened and then treated with a thin red slip usually on the exterior but occasionally on both surfaces. There is also sometimes evidence of an additional micaceous wash on the exterior or on the interior
Decoration	Usually none but a couple of sherds display incised horizontal lines or small incised notches
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces mainly 2.5YR 5/4 weak red, 5YR 6/4 light reddish brown or 5 YR 6/6 Reddish yellow. Slip is 2.5YR 5/6 Red
Fracture	Rough and irregular, occasionally delaminating but generally perpendicular to the surfaces
Inclusions	Dense small to large sub-angular and angular mica fragments (1-5mm), rare poorly sorted sub-angular and angular clear or opaque white grits (2-3mm), moderate roughly sorted sand grains, and occasional small vegetal voids particularly on surfaces
Thickness	Most sherds fall between 3 to 8mm in thickness, however 3 sherds are between 10 and 12mm thick
General description	A medium to coarse hard-fired and densely micaceous fabric, orange/red throughout. Same as ORM1 but with a red slip. This fabric is more compact and harder fired than ROM, and not as orange in colour – it is more similar to BOM1.RS but without the black or grey core. This fabric has a rough feel, although surfaces have been smoothed and flattened. The thin slip is usually a dark red colour with small mica fragments or dust mixed in – occasionally the slip is more orange-red in colour. This ware typically appears in carinated vessel forms.

Name	Orange Micaceous Ware 2 
Code	ORM2
Distinguishing features	A distinctive pale orange fabric with very common small to medium mica fragments throughout, more on surfaces. Similar to a fine version of ROM.
Surface treatment	Surfaces have been smoothed and flattened and then most probably treated with a thin micaceous wash or slip and burnished to achieve a smooth finish
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	2.5YR 6/6 Red (Appears a pinkish-orange) fabric and surface
Fracture	Rough fracture, generally perpendicular to the surfaces but forming small laminations from the mica content
Inclusions	Dense small to medium (<4mm) mica sub angular and angular fragments. Frequent mica dust occasional angular clear grits 2-3mm poorly sorted, roughly sorted sand grains
Thickness	Sherds usually 3 to 10mm thick, a few thinner sherds around 2mm, and some sherds in the range of 11 to 20mm
General description	A hard-fired, medium ware with a pale orange/red fabric colour throughout. There is dense mica in the fabric in small to medium sized fragments and an additional micaceous slip/wash. This ware has a smooth silvery appearance from the surface treatment, and has a smooth hard feel. Mica content is similar to ROM, but perhaps slightly less and better sorted so that combined with the hard firing this is a more compact fabric compared to ROM. Very distinctive due to the smooth micaceous burnished surface and the uniform pale orange/red colour. Common in rounded rims and carinated vessels.

Name	Orange Micaceous Ware 3 
Code	ORM3
Distinguishing features	A fairly coarse orange fabric with common medium and small mica fragments and moderate angular grits throughout surfaces and fabric
Surface treatment	Surfaces have been smoothed and flattened but there is no other visible surface treatment
Decoration	None
Manufacture	Wheel-turned
Firing	Medium to hard
Colour (Munsell)	Surface is around 5YR 6/6 (reddish yellow) or 7.5YR 6/6 (Reddish yellow)
Fracture	Rough and fairly irregular but generally perpendicular to the surfaces
Inclusions	Frequent small to medium angular mica fragments (1-4mm) and mica dust, moderate sub-rounded sand grains, common poorly sorted sub-angular clear grits (2-3mm) and occasional sub-rounded brown grits (3-4mm). Rare larger sub-angular grits, usually clear or translucent grey. Occasional vegetal voids, particularly on surfaces
Thickness	Most sherds fall within the range of 3 to 9mm thick, some are slightly thicker between 9 and 16mm
General description	This is a relatively coarse, medium-fired fabric similar to BOM7 but with a uniform orange colour throughout. This fabric has a rough, gritty feel where mica and dust can rub away and stain the fingers orange, as in ROM. Unlike ROM however, the mica content is average and there are a variety of inclusions including grits, sand grains and some vegetable temper. Although surfaces appear to have been smoothed and flattened there is no other visible surface treatment and surfaces can be quite eroded. Appears to be a utilitarian ware, and often occurs in simple cord-made bases.

Name	Orange Micaceous Ware 4 
Code	ORM4
Distinguishing features	Orange fabric with occasional small mica, mica dust which is more common on surfaces, and occasional medium grits
Surface treatment	Surfaces flattened and smoothed but no other visible surface treatment other than occasional traces of a thin micaceous wash
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces are 5YR 6/6 Reddish yellow or 7.5YR 6/6 Reddish yellow
Fracture	Rough and irregular but generally roughly perpendicular to the surfaces
Inclusions	Occasional to frequent small to medium sub-angular mica fragments (1-4mm) and mica dust, occasional poorly sorted small to medium sub-angular/angular clear grits (2-5mm), and rare rounded small brown grits (<2mm). Common roughly sorted sand grains and occasional long, thin vegetal voids particularly on surfaces.
Thickness	Most sherds are between 3 to 8mm thick, occasional sherds in the range of 8.5 to 14.5mm
General description	A medium, hard-fired ware with an orange-brown fabric throughout. Ware is rough to the feel with common grit and sand inclusions. This fabric also contains frequent mica dust and small mica fragments, but less that in ORM1-ORM3. The fabric is hard and compact. No clear surface treatment and no decoration – appears utilitarian.

Name	Red Slipped Orange Micaceous Ware 4 
Code	ORM4.RS
Distinguishing features	Orange fabric with occasional small mica, mica dust which is more common on surfaces and occasional medium grits. Red Slipped
Surface treatment	Surfaces flattened and smoothed and then usually exterior surface is treated with a thin red slip. Occasionally there are traces of an additional thin micaceous wash on the exterior surface
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces are 5YR 6/6 Reddish yellow or 7.5YR 6/6 Reddish yellow. Range of red shades in slip but generally 2.5YR 5/6 Red to 10YR 5/8 Red
Fracture	Rough and irregular but generally roughly perpendicular to the surfaces
Inclusions	Occasional to frequent small to medium sub-angular mica fragments (1-4mm) and mica dust, occasional poorly sorted small to medium sub-angular/angular clear grits (2-5mm), and rare rounded small brown grits (<2mm). Common roughly sorted sand grains and occasional long, thin vegetal voids particularly on surfaces.
Thickness	Sherds all fall within the range of 3 to 9mm thickness except one which measures 10.6mm
General description	A medium, hard-fired ware with a uniform orange-brown fabric throughout. Ware is rough to the feel with common grit and sand inclusions. This fabric also contains frequent mica dust and small mica fragments, but has lower mica content than in wares ORM1-ORM3. The fabric is hard and compact, and surfaces have been flattened and slipped. The thin red slip appears in a range of shades, usually a dark red or orange-red, and small mica fragments have been mixed into the slip.

Name	Orange Micaceous Ware 5 
Code	ORM5
Distinguishing features	Relatively fine orange fabric with only occasional mica dust and small fragments in fabric and on surfaces. Few other inclusions
Surface treatment	Surfaces have been flattened and smoothed, and usually no other surface treatment is visible although occasionally there are traces of a thin micaceous wash on the exterior or interior surface
Decoration	Usually none, although occasional sherds display incised lines and one appears to be incised or 'basket'-impressed
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces are 5YR 6/6 Reddish yellow or 5YR 5/6 Yellowish red
Fracture	Rough but regular and perpendicular to the surfaces
Inclusions	Common to dense mica dust and common small sub-angular mica fragments (<1mm), occasional roughly sorted fine sand grains, and rare poorly sorted small angular clear or opaque white grits (<2mm)
Thickness	Most sherds fall between 3 and 8mm thick, a couple are slightly thinner than 3mm (c. 2.5mm) and a few sherds are in the range of 9 to 11mm thick
General description	A medium thickness, hard-fired micaceous ware, with frequent to dense mica dust and small fragments. This ware has a rough sandy feel although surfaces appear to have been smoothed and flattened, and fine sand grains do appear as an inclusion. This ware is a uniform orange/sandy-brown colour throughout, and resembles a red ware except in the high quantity of mica dust which indicates it is an intentional inclusion. The fabric has a hard, compact feel, and also has a fairly regular fracture as the inclusions are small and the fabric medium to fine in quality.

Name	Red Slipped Orange Micaceous Ware 5 
Code	ORM5.RS
Distinguishing features	Relatively fine orange fabric with only occasional mica dust and small fragments in fabric and on surfaces. Few other inclusions. Red slipped.
Surface treatment	Surfaces have been flattened and smoothed, and then treated with a thin red slip. Occasionally there are traces of a thin micaceous wash on the exterior or interior surface
Decoration	Usually none but one sherd displays incised lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces are 5YR 6/6 Reddish yellow or 5YR 5/6 Yellowish red. Slip is usually around 2.5YR 5/6 Red
Fracture	Rough but regular and perpendicular to the surfaces
Inclusions	Common to dense mica dust and common small sub-angular mica fragments (<1mm), occasional roughly sorted fine sand grains, and rare poorly sorted small angular clear or opaque white grits (<2mm).
Thickness	Most sherds are in the range of 3 to 7, but a couple are slightly thicker between 8 and 10.7mm
General description	A medium thickness, hard-fired micaceous ware, with frequent to dense mica dust and small fragments. This ware has a rough sandy feel although surfaces appear to have been smoothed and flattened, and fine sand grains do appear as an inclusion. This ware is a uniform orange/sandy-brown colour throughout, and resembles a red ware except in the high quantity of mica dust which indicates it is an intentional inclusion. The fabric has a hard, compact feel, and also has a fairly regular fracture as the inclusions are small and the fabric medium to fine in quality. The thin red slip ranges in colour from an orange-red to dark red, and has small mica fragments mixed in.

Name	Patchy Ware 
Code	PATCHY
Distinguishing features	A rough surfaced medium to thin-bodied orange and black micaceous fabric, patchy and pitted on the surface. Mica and vegetable temper.
Surface treatment	Surfaces appear to have been flattened but no other surface treatment is visible
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surfaces mainly 10YR 5/4 (Yellowish brown), mottled with 10YR 4/2 (Dark Greyish Brown). Core 10YR 3/1 (Very dark Grey)
Fracture	Rough and irregular fracture with uneven break, sometimes perpendicular to the surfaces and sometimes inwards or outwards facing
Inclusions	Frequent small to medium angular mica fragments (1-4mm), poorly sorted sub-angular and angular clear or translucent grey grits (1-3mm) and rounded brown grits (<2mm), very rare large clear or translucent grits (>5mm). Common rounded and long, thin vegetal voids visible on surfaces and within fabric.
Thickness	Sherds are mostly 3.5 to 8mm with the majority between 4 and 6mm thick. Some sherds are in a larger size range of 8 to 12.3mm
General description	A hard-fired, relatively coarse micaceous ware with an orange surface fabric and dark grey or black core. Distinctive patchy appearance to exterior, with areas of darker brown on orange – unclear whether this is part of manufacture or something that has happened after deposition as most appear to be from the same site. This ware has a coarse, rough feel and an irregular fracture, with a high number of inclusions, including mica fragments and grits. The surfaces have been slightly smoothed or flattened on the exterior but there is no other surface treatment, and no sign of decoration. This ware is almost exclusively restricted to small straight sided bowls with a cord pulled bottom.

Name	Red Slipped Red with Black Core Ware 1 
Code	RBC1.RS
Distinguishing features	Hard, relatively fine red/orange ware with occasional mica. Similar to RED1 but with a black core. Red slipped.
Surface treatment	Surfaces have been smoothed and flattened and then treated with a red slip. Slip can be thin or thick and is often burnished. Occasional traces of an additional thin mica wash on the exterior and sherds may also have a micaceous wash on the interior surface
Decoration	Usually none; most common decoration is incised horizontal lines. Occasional sherds have incised notches or a small incised applique line (beaded appearance)
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is 5 YR 6/6 reddish yellow or 5 YR 5/6 yellowish red with a dark grey or black core. Slip is usually 2.5YR 5/6 Red
Fracture	Rough but regular and perpendicular to the surfaces
Inclusions	Rare mica dust, more on surfaces. Very occasional clear vegetal voids are visible on surfaces and in fabric, occasional roughly sorted sub-angular small clear grits (2-3mm). Roughly sorted sub-angular sand grains
Thickness	Most sherds fall within the range of 2.5 to 8mm thickness (with the majority measuring between 4 and 6mm), with a few slightly thicker sherds measuring between 8 and 11.3mm.
General description	A hard-fired orange fabric with a black/dark grey core. This ware feels hard and fairly smooth, and is relatively fine in comparison to other fabrics. There are few obvious inclusions, mainly fairly well sorted sand grains and occasional small grits. The mica dust that is apparent in some sherds is at a low level and appears to be a natural inclusion from the parent clay. Mica may be more apparent on surfaces due to a thin micaceous wash as part of the surface treatment. Surfaces feel quite smooth and are well slipped. The slip, which is usually a dark red but can appear more orange-red in some sherds, may be thick or thin and is often shiny from burnishing. The slip sometimes contains small mica fragments. This ware appears mainly in restricted jar forms.

Name	Red Slipped Red with Black Core Ware 2 
Code	RBC2.RS
Distinguishing features	Hard, medium red/orange ware with occasional mica. Similar to RBC1.RS but slightly less fine, with a rougher fabric and more common inclusions. Red slipped.
Surface treatment	Surfaces have been smoothed and flattened then treated with a red slip. Slip can be thin or thick and is often burnished. Occasional traces of a thin mica wash on the exterior or interior surface
Decoration	Often none but also a range of decoration; the most common form of decoration is incised horizontal lines. Also displayed are wavy lines, incised notches, incised oblique lines and notches, pinched applique on rims and stamped floral/sun designs
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is 5 YR 6/6 reddish yellow or 5 YR 5/6 yellowish red with a dark grey or black core. Slip is usually 2.5YR 5/6 Red.
Fracture	Rough but regular and perpendicular to the surfaces
Inclusions	Rare small sub-angular/angular mica fragments (<2mm, more on surfaces) and rare to occasional mica dust. Roughly sorted sand grains, occasional poorly sorted sub-angular small clear or opaque white grits (2-3mm), and rare sub-rounded/rounded brown grits (2-3mm). Very rare large angular clear grits (>4mm).
Thickness	Sherds are generally between 3 and 9mm with occasional sherds between 9 and 13mm thick
General description	A hard-fired medium fabric red ware with orange/red surface fabric and a black/dark grey core. A medium thickness ware with quite fine inclusions including sand grains, small grits and mica dust/fragments. The mica fragments and dust appear to be a natural inclusion from the parent soil. This ware is very similar to RBC1.RS but not quite as fine, with a rougher fabric and slightly more common and larger inclusions. Surfaces may not be as smooth as in RBC1.RS, but they have been flattened and slipped. The red slip is usually a dark red but occasionally is more orange-red, and small mica fragments are more likely to be mixed into the slip than in RBC1.RS.

Name	Red with Black Core Ware 3 
Code	RBC3
Distinguishing features	A hard, sandy red/orange ware with a black core. This ware has fairly rough surfaces.
Surface treatment	Surfaces have been smoothed and flattened but no other surface treatment is generally obvious. Occasional sherds have traces of a thin micaceous wash on the exterior or interior surface
Decoration	Generally none but occasional sherds have incised horizontal lines. One has both horizontal lines and incised oblique lines, and one sherd has a stamped floral/sun motif.
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is 5 YR 6/6 reddish yellow or 5 YR 5/6 yellowish red with a dark grey or black core
Fracture	Rough, but fairly regular and generally perpendicular to the surfaces
Inclusions	Moderate mica dust, mostly on surfaces and rare small sub-angular mica fragments (<2mm), occasional thin long vegetal voids, more on surfaces. Occasional poorly sorted sub-angular small clear grits (2-3mm) and rare rounded small brown grits (1-2mm). Moderate roughly sorted small sand grains
Thickness	Most sherds measure between 3 and 9mm thick, some sherds are slightly thicker and measure from 10 up to 23mm thick
General description	A hard fired medium fabric with a sandy-brown/orange exterior fabric and dark grey to black core. This ware has a hard, sandy feel and is rougher than RBC2.RS. Surfaces have been smoothed and flattened, and occasional treated with a thin micaceous wash but there is no slip. Occasional sherds may have minute traces or red slip indicating that perhaps in some cases the slip has been eroded away. This ware appears in a number of types including small handles, bases, and rims.

Name	Red Slipped Red with Black Core Ware 3 
Code	RBC3.RS
Distinguishing features	A hard, sandy red/orange ware with a black core. This ware has fairly rough surfaces but is red slipped
Surface treatment	Surfaces have been smoothed and flattened, and then treated with a usually thin red slip (slip is occasionally thick). Occasional sherds show evidence of burnishing and others have traces of a thin micaceous wash on the exterior or interior surface.
Decoration	Usually none; one sherd displays incised horizontal lines and one rim has pinched applique decoration
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is 5 YR 6/6 reddish yellow or 5 YR 5/6 yellowish red with a dark grey or black core. Slip is usually 2.5YR 5/6 Red.
Fracture	Rough, and fairly irregular but generally perpendicular to the surfaces
Inclusions	Occasional small sub-angular mica fragments (<2mm) and moderate mica dust. Occasional long thin vegetal voids, more common on surfaces. Occasional poorly sorted sub-rounded/rounded brown grits (2-3mm, occasionally >3mm) and common poorly sorted sub-angular and angular small clear or opaque white grits (2-3mm but with occasional larger grits). Moderate roughly sorted sand grains
Thickness	Most sherds measure between 4 and 10mm thick, occasional sherds measure from 12 up to 28mm thick
General description	A hard-fired, medium fabric with a sandy-brown/orange exterior fabric and dark grey to black core. This ware is similar to RBC2.RS, but has a coarser fabric with more common and larger inclusions - The fabric contains occasional large grits, and a higher sand content. The mica fragments and dust are more common on surfaces and still appear to be a natural inclusion. The fabric has a hard and rough feel, despite the surfaces having been smoothed and flattened, before being slipped. The red slip is usually a dark red but sometimes appears more orange-red, and often has small mica fragments mixed in.

Name	Red with Black Core Ware 4 
Code	RBC4
Distinguishing features	Rough orange ware with a black core. Occasional mica but still classed as a red ware. Similar to RED4 but with black core
Surface treatment	Surfaces are often eroded but have been smoothed and flattened. There may be traces of red slip on a couple of sherds but this is unclear due to erosion. Most appear to have had no other surface treatment
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is 5YR 6/6 reddish yellow, or 5YR 5/6 yellowish red
Fracture	Rough and irregular but generally perpendicular to the surfaces
Inclusions	Rare small sub-angular mica fragments (<2mm) and mica dust. Frequent poorly sorted sub-angular and angular clear or opaque white grits (2-4mm) and occasional sub-rounded brown grits (3-5mm). Roughly sorted moderate sand grains and occasional to frequent vegetal voids throughout fabric and on surfaces
Thickness	Most sherds fall within the range of 4 to 9.5mm thickness, with some larger sherds measuring between 11.5 to 20mm.
General description	A relatively coarse but hard-fired red ware, similar to RED4 but with an orange outer fabric and a dark grey/black core. This ware has fairly frequent inclusions, mainly grits and sand grains but also occasional mica. The mica is still infrequent enough to appear to be a natural inclusion. This fabric has a rough, sandy feel and often eroded surfaces, although most have clearly been flattened. There is no clear surface treatment beyond smoothing and flattening although some sherds may have very small traces of a red slip. This ware commonly appears as bases/small bowls, and has no decoration indicating it is fairly utilitarian.

Name	Black Slipped Red Ware 
Code	RED.BLS
Distinguishing features	A red/orange fabric with a black or dark brown slip on one or two surfaces.
Surface treatment	Surfaces have been smoothed and flattened and then treated with a thin black or dark brownish-grey slip on one or both surfaces. The slip is occasionally burnished and there are rare traces of an additional thin micaceous wash.
Decoration	Usually none but some sherds have incised horizontal lines, and there are occasional examples of incised notches
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Outer surface is black or 2.5YR 3/1 reddish brown, and inner surface is approximately 5YR light reddish brown to 5YR 5/3 reddish brown
Fracture	Rough, but fairly regular and perpendicular to the surfaces
Inclusions	Rare to occasional mica dust and occasional roughly sorted sub-angular sand grains. Occasional poorly sorted sub-angular small clear grits (2-3mm) and rare rounded brown grits (3-4mm). Occasional long, thin vegetal voids
Thickness	Sherds are within the range of 3 to 8.5mm thick with one sherd measuring 11mm thick
General description	This is a hard-fired, medium fabric, compact red ware with an orange outer fabric with a grey/black core and a dark brownish-grey or black slip. Though the outer slip is usually black there are often patches of greyish or brownish slip, often on the interior of rim. This ware contains occasional grits and sand inclusions and rare mica dust, which is more common on surfaces. Small mica fragments or dust are sometimes mixed into the slip, which is often also burnished.

Name	Over-Fired Red Ware 
Code	RED.OF
Distinguishing features	General red ware category – over fired
Surface treatment	Range of surface treatments, surfaces all smoothed and flattened, occasional evidence of a thin red slip or micaceous wash
Decoration	Usually none, one sherd with incised horizontal lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Patchy, generally around 7.5YR 5/3 Brown, 7.5YR 6/4 Light brown
Fracture	Rough fracture but usually perpendicular to the surfaces
Inclusions	Rare small (<1mm) sub-angular mica fragments and mica dust, occasional sand grains and occasional poorly sorted small clear grits (<2mm) and sub-rounded brown grits (<2mm)
Thickness	General range between 3 and 10mm with a few slightly thicker sherds up to 18mm
General description	This is a general ware category used to describe red wares which have been over fired and appear discoloured and difficult to identify as a result. These red-wares are generally hard fired and occasionally treated with a thin red slip.

Name	Red Slipped Red Ware 1 
Code	RED1.RS
Distinguishing features	A red/orange fabric with hard firing and fine inclusions. Red slipped. Very similar to RBC1.RS but orange fabric throughout
Surface treatment	Surfaces have been smoothed and flattened and then treated with a red slip. The slip is usually thick, but may be relatively thin, and is often burnished. There are occasional traces of a micaceous wash, particularly on the interior surface.
Decoration	Usually none but occasional sherds display incised horizontal lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is approximately 5YR 6/6 Reddish yellow or 5YR 5/6 yellowish red. Slip usually appears to be 2.5YR 5/6 Red
Fracture	Rough and somewhat irregular, but generally perpendicular to the surfaces
Inclusions	Rare mica dust, occasional roughly sorted sub-angular sand grains, rare poorly sorted sub-rounded brown grits (2mm) and sub-angular clear grits (2-3mm)
Thickness	Most sherds are between 3 and 8mm thick with three sherds between 8 and 9.5mm thick
General description	A hard-fired medium thickness fabric similar in appearance to RBC1.RS. Relatively fine and well-levigated, and orange in colour throughout as opposed to RBC1.RS. This ware has relatively fine inclusions, mainly rare grits and roughly sorted sand grains. The mica dust is minimal and appears to be a natural inclusion. The surfaces have been smoothed, flattened and slipped. The red slip may be thick or thin and is usually dark red, although it may be more orange-red in some cases. The slip is often burnished and occasionally almost brought to a polish. This ware appears mostly in short necked jar forms.

Name	Red Ware 2 
Code	RED2
Distinguishing features	A red/orange fabric, rougher than RED1.RS but with generally fine inclusions. Occasional mica.
Surface treatment	Surfaces smoothed and flattened, occasional sherds show evidence of a mica wash
Decoration	Occasional sherds with incised horizontal lines. One sherd with an applique band with thumb impressions and another with incised or impressed basket decoration
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	5YR 6/6 (Reddish yellow) or 5YR 5/6 (Yellowish red).
Fracture	Rough but generally regular and perpendicular to the surfaces
Inclusions	Very rare small sub-angular mica fragments (<2mm) and rare mica dust, more on surfaces. Poorly sorted occasional sub-angular and angular clear grits (2-3mm) and rare rounded brown grits (2-3mm). Roughly sorted sub-angular sand and occasional thin and long vegetal voids.
Thickness	Generally between 3 and 9mm in thickness, with several thinner sherds (<3mm) and thicker sherds usually around 10mm thick. The thickest sherd is 21mm thick.
General description	A hard-fired medium fabric, orange in colour throughout. The fabric has a hard, relatively rough feel, and quite compact surfaces which have been smoothed and flattened. There has been little other surface treatment; there is no slip but occasional sherds have a thin micaceous wash. This fabric is not as hard or fine as RED1.RS. It occurs frequently in bases with a cord-bottom, and fairly utilitarian shapes.

Name	Red Slipped Red Ware 2 
Code	RED2.RS
Distinguishing features	A red/orange fabric, rougher than RED1.RS but with generally fine inclusions. Occasional mica. Red slipped.
Surface treatment	Surfaces smoothed and flattened. Treated with a red slip, usually thin and occasionally burnished.
Decoration	Usually none but occasional incised horizontal lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	5YR 6/6 (Reddish yellow) or 5YR 5/6 (Yellowish red). Slip is usually 2.5YR 5/6 (Red)
Fracture	Rough but generally regular and perpendicular to the surfaces
Inclusions	Very rare small sub-angular mica fragments (<2mm) and occasional mica dust. Poorly sorted, occasional sub-angular and angular clear grits (2-3mm), rare poorly sorted larger angular grits and rounded brown grits (2-3mm). Roughly sorted sub-angular sand and occasional thin vegetal voids.
Thickness	Usually between 3 and 9mm thick, occasional thicker sherds between 10 and 13mm.
General description	A hard-fired medium red ware, with orange fabric throughout. The fabric has a hard, relatively rough feel and quite compact surfaces, which have been smoothed and flattened. This fabric is not as hard or fine as RED1.RS. This ware is treated with a red slip which is usually quite thin and can be eroded. The slip is often burnished and usually dark red or orange-red in colour. Although the inclusions are usually relatively fine, occasional sherds contain rare large grits.

Name	Red Ware 3 
Code	RED3
Distinguishing features	Powdery and often sandy/gritty orange fabric
Surface treatment	Surfaces flattened, but usually no other surface treatment**.** Occasional sherds display a thin micaceous wash
Decoration	Usually none, although seven sherds have a matching moulded design. One sherd has incised or impressed basket decoration
Manufacture	Wheel-turned
Firing	Medium
Colour (Munsell)	Fabric is 2.5YR 6/8 (Red), varying to 5YR 6/8 (Reddish yellow) in some sherds
Fracture	Smooth, but often worn. Generally regular and perpendicular to the surfaces
Inclusions	Rare mica dust, common roughly-sorted fine sand grains, occasional poorly sorted small sub-angular clear grits (2-3mm), vegetal voids
Thickness	Usually between 3 and 10mm, with occasional thicker sherds in the range of 10 to 16mm
General description	A medium-fired red ware which is orange throughout. Characterised by a softer powdery feel and its bright orange colour. This ware can feel soapy or powdery, and the surface comes away when rubbed. Usually relatively fine to medium with fine inclusions but some rougher sherds have a sandier or gritty feel.

Name	Red Slipped Red Ware 3 
Code	RED3.RS
Distinguishing features	Powdery and often sandy/gritty orange fabric. Red slipped.
Surface treatment	Surfaces flattened and treated with a thin red slip on the exterior surface
Decoration	Usually none; one sherd has incised or impressed basket decoration and another has applique decoration.
Manufacture	Wheel-turned
Firing	Medium
Colour (Munsell)	Fabric is 2.5YR 6/8 (Red), varying to 5YR 6/8 (Reddish yellow) in some sherds. Slip is usually 10YR 5/8 (Red)
Fracture	Smooth, but often worn. Generally regular and perpendicular to the surfaces
Inclusions	Rare mica dust, common roughly-sorted fine sand grains, occasional poorly sorted small sub-angular clear grits (2-3mm), vegetal voids
Thickness	All sherds are between 4 and 8.4mm thick
General description	A medium-fired, red ware with a red slip and orange fabric throughout. Red slipped version of RED3 but less common. It may be that RED3 originally had a red slip as often the red slip on RED3.RS is worn away or fragmentary, and the surfaces of this ware are powdery. The slip is thin and usually orange-red in colour. Soapy or powdery feel, and the surface comes away when rubbed. Usually relatively fine to medium with fine inclusions but some rougher sherds have a sandier or gritty feel.

Name	Red Ware 4 
Code	RED4
Distinguishing features	A relatively coarse and gritty red/orange fabric.
Surface treatment	Surfaces flattened, no other surface treatment visible
Decoration	None, one sherd shows traces of incised horizontal lines
Manufacture	Wheel-turned
Firing	Medium to Hard
Colour (Munsell)	5 YR 6/6 (Reddish yellow) or 5/6 (Yellowish red)
Fracture	Rough and irregular but generally perpendicular to the surfaces
Inclusions	Very rare mica dust. Frequent round and straight, thin vegetal voids on surfaces and in the fabric. Frequent to common poorly-sorted sub-angular and angular small clear grits (2-4mm) and opaque white grits (often >4mm), occasional poorly-sorted rounded/sub-rounded brown grits (4mm). Common, roughly sorted sub-angular sand grains.
Thickness	Sherds vary between 4 and 10mm in thickness. One sherd measures 3mm and there are also occasional sherds up to 13.7mm thick
General description	A medium to hard-fired, relatively coarse red ware, which is orange in colour throughout. This ware is sometimes quite porous in appearance, and feels fairly lightweight. A similar fabric to RED2 but coarser with more frequent inclusions. Commonly contains grits and sand. Although surfaces appear to have been smoothed and flattened they are often eroded and feel rough and gritty. Appears in fairly utilitarian shapes and bases with a cord turned bottom.

Name	Red Slipped Red Ware 4 
Code	RED4.RS
Distinguishing features	A relatively coarse and gritty red/orange gritty fabric, with a red slip. Not commonly found
Surface treatment	Surfaces flattened and treated with a thin red slip
Decoration	None
Manufacture	Wheel-turned
Firing	Medium to Hard
Colour (Munsell)	5 YR 6/6 (Reddish yellow) or 5/6 (Yellowish red) with a range of slip usually around 2.5YR 5/6 (Red)
Fracture	Rough and irregular but generally perpendicular to the surfaces
Inclusions	Very rare mica dust. Frequent round and straight, thin vegetal voids on surfaces and in the fabric. Frequent to common poorly-sorted sub-angular and angular small clear grits (2-4mm) and opaque white grits (often >4mm), occasional poorly-sorted rounded/sub-rounded brown grits (4mm). Common, roughly sorted sub-angular sand grains.
Thickness	Sherds range between 5.5 to 9.7mm in thickness
General description	A medium to hard-fired, relatively coarse red ware, which is orange in colour throughout. This ware is sometimes quite porous in appearance, and feels fairly lightweight. A similar fabric to RED2 but coarser with more frequent inclusions. Commonly contains grits and sand. Although surfaces appear to have been smoothed and flattened they are often eroded and feel rough and gritty. This fabric has a thin red slip, which is orange-red or dark red in colour.

Name	Red Ware 5 
Code	RED5
Distinguishing features	A fine pale orange fabric, which is softer fired than RED1. Rarely found
Surface treatment	Surfaces smoothed and flattened. No other surface treatment visible
Decoration	None
Manufacture	Wheel-turned
Firing	Medium
Colour (Munsell)	5 YR 6/6 (Reddish yellow) or 5/6 (Yellowish red)
Fracture	Fairly smooth, regular and perpendicular to the surfaces
Inclusions	Very rare mica dust. Rare, poorly sorted rounded brown grits (2-3mm) and occasional fairly well-sorted sand grains
Thickness	Most sherds are in the range of 5mm thickness, one sherd is 10mm thick
General description	A relatively fine medium-fired pale orange fabric, which is similar to RED1 but is softer fired. This ware has few inclusions, a smooth and often soapy feel with smoothed surfaces. There has been no other surface treatment. This fabric is very rare in the assemblage.

Name	Red Slipped Red Ware 5 
Code	RED5.RS
Distinguishing features	A fine pale orange fabric, which is softer fired than RED1. Red slipped.
Surface treatment	Surfaces smoothed and flattened with a thin red slip, which may be burnished or treated with a micaceous wash
Decoration	None, one sherd shows traces of incised horizontal lines
Manufacture	Wheel-turned
Firing	Medium
Colour (Munsell)	5 YR 6/6 (Reddish yellow) or 5/6 (Yellowish red) with slip 2.5YR 5/6 (Red)
Fracture	Fairly smooth, regular and perpendicular to the surfaces
Inclusions	Very rare mica dust. Rare poorly sorted rounded brown grits (2-3mm) and occasional fairly well-sorted sand grains. Very rare vegetal voids on surfaces and white calcitic inclusions
Thickness	Sherds are usually between 4 and 7mm thick. A couple of sherds are <4mm and a couple of sherds are thicker, up to 8.3mm
General description	A relatively fine medium-fired pale orange fabric, which is similar to RED1 but is softer fired. This ware has few inclusions, a smooth and often soapy/powdery feel with smoothed surfaces. There has been no other surface treatment. This fabric is rare in the assemblage but more common than the unslipped RED5, which may represent sherds where the red slip has worn away. The exterior surface has been treated with a thin red slip, usually orange-red in colour. The slip may also have a thin micaceous wash or some evidence of burnishing.

Name	Rough Orange Micaceous Ware 
Code	ROM
Distinguishing features	Very rough orange fabric throughout, with very common large angular mica fragments
Surface treatment	Surfaces appear to have been flattened and perhaps smoothed, but no other surface treatment is visible and sherds are now heavily eroded and rough
Decoration	None
Manufacture	Wheel-turned
Firing	Medium
Colour (Munsell)	5YR 6/6 reddish yellow fabric
Fracture	Rough, irregular fracture, often delaminating slightly into sheets due to high mica content. Frequently an outwards facing fracture
Inclusions	Very dense large angular mica fragments, size ranging from 1 – 6mm. Occasional poorly sorted sub-angular clear and translucent grey grits (2-3mm) and poorly sorted sub-angular/rounded sand grains
Thickness	Most sherds are in the range of 3 to 8mm in thickness but some sherds also measure between 9 and 15mm with one measuring 30mm thickness.
General description	A medium-fired fabric, which is very distinctive due to the bright uniform orange colour throughout and the very large quantity and size of mica fragments. This fabric has a rough feel, and mica and ceramic dust comes away when rubbed, staining the fingers orange. Surfaces are often badly eroded and there is no evidence of any special surface treatment or decoration, although one sherd potentially displays very faint incised lines. This ware often occurs in similar rim types and carinated vessels.

Name	Thin Grey Ware 
Code	TIG
Distinguishing features	A thin brittle grey ware with a range of slip colours, usually brown or black.
Surface treatment	Surfaces have been smoothed and flattened, and the exterior surface has been treated with a thin brown/grey/black slip, as well as occasionally the interior surface. Occasional sherds also show burnishing of the slip or a micaceous wash.
Decoration	Usually none, one sherd shows incised horizontal lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	5 YR 6/1 Grey with 5 YR 4/3 or 4/2. Occasional Black slip, and some reddish brown surfaces from soil.
Fracture	Fairly smooth, regular and perpendicular to the surfaces.
Inclusions	Occasional mica dust, and occasional thin, long vegetal voids on surfaces. Fairly well-sorted small sub-angular clear grits (2mm) and rare larger sub-angular clear grits, occasional fairly well-sorted sand grains
Thickness	Sherds are between 2 and 6mm thick with most sherds in the range of 3-4mm thick
General description	A hard-fired, thin brittle grey ware. This is a medium to relatively fine fabric which is grey throughout. This ware contains occasional mica dust throughout the fabric and on surfaces, and moderate sand grains and small grit inclusions spread evenly throughout the fabric. The exterior surface, and occasionally the interior, has been treated with a thin slip. The slip appears in a range of brown/grey/black shades and is occasionally burnished or treated with a micaceous wash. The slip is most commonly brownish-grey. It is unclear whether this fabric constitutes a separate ware or represents thin body sherds of another ware, as it only occurs as body sherds and has a range of slips.

Name	Thin Orange Ware 
Code	TOR
Distinguishing features	A thin brittle orange ware
Surface treatment	Surfaces are smoothed and flattened, no other visible surface treatment
Decoration	Usually none, one sherd has incised horizontal lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	5 YR 6/6 (Reddish yellow) or 5/6 (Yellowish red)
Fracture	Regular, fairly smooth and perpendicular to the surfaces
Inclusions	Frequent mica dust, more common on surfaces. Well sorted common sand grains. Rare sub-angular clear grits (2-3mm) and poorly-sorted rounded brown grits (3mm). Occasional thin straight vegetal voids on surfaces and very rare grog.
Thickness	Most sherds fall between 2 and 5mm thick, a couple are just over 5mm thick
General description	A hard-fired thin brittle orange ware, with orange fabric and occasionally a thin grey or brown core. The fabric contains frequent mica dust but this occurs more on surfaces and does not qualify it as a micaceous fabric. Very similar to TORRS but lacking the slip and less common; however with some sherds it could be that the slip has worn away. It is unclear whether this constitutes a separate ware type or whether this represents the thin body sherds of another ware such as RED2/RBC2. It only occurs as body sherds and is not common.

Name	Thick Bodied Orange Micaceous Ware. 
Code	TORM
Distinguishing features	A rare thick-bodied orange fabric with grit and mica temper, similar to ORM3.
Surface treatment	Surfaces have been flattened but no other surface treatment is visible
Decoration	One rim has no decoration, the other has an applique fringe
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	5 YR 6/6 (Reddish yellow)
Fracture	Rough, regular and fairly perpendicular to the edges
Inclusions	Frequent small to medium mica fragments (1-3mm), vegetable temper visible mainly on surfaces, occasional to common poorly-sorted angular and sub-angular clear grits (2-3mm).
Thickness	10-12mm thick
General description	A thick-bodied medium orange ware. The fabric contains less vegetable temper than VORM and it is harder fired. The vegetable temper is clear on the surfaces but the defining inclusion is mica. Although the surfaces have been smoothed or flattened this ware has a rough feel. This ware is only represented by two large rims of storage vessels.

Name	Thin Orange Red Slipped Ware 
Code	TORRS
Distinguishing features	A thin brittle orange ware with a red/brown slip.
Surface treatment	Surfaces are smoothed and flattened and the exterior has been treated with a thin red/brown slip and then frequently burnished. Occasional sherds show clear burnishing marks, and some have thin micaceous washes.
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	5 YR 6/6 (Reddish yellow) or 5/6 (Yellowish red). Slip can be between 2.5YR 5/6 (Red) and 2.5YR 4/4 (Dusky red)
Fracture	Regular, fairly smooth and perpendicular to the surfaces
Inclusions	Frequent mica dust, more common on surfaces. Well sorted common sand grains. Rare sub-angular clear grits (2-3mm) and poorly-sorted rounded brown grits (3mm). Occasional thin straight vegetal voids on surfaces and very rare grog.
Thickness	Sherds generally fall between 2 and 5mm thick, with occasional sherds around 5 and 6mm thick.
General description	A hard-fired thin brittle orange ware, with orange fabric and occasionally a thin grey or brown core. The fabric contains frequent mica dust but this occurs more on surfaces and does not qualify it as a micaceous fabric. The ware has been treated with a thin dark red or brownish-red slip, which is often clearly burnished. It is unclear whether this constitutes a separate ware type or whether this represents the thin body sherds of another ware such as RED2/RBC2. It only occurs as body sherds and is not particularly common.

Name	Thick Orange Ware 
Code	TOW
Distinguishing features	An abrasive hard fired fabric with vegetable and sand temper.
Surface treatment	Surfaces flattened but little evidence of other surface treatment. Could be traces of a thin red slip on some sherds
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	5YR 6/6 (Reddish yellow) or 5YR 5/6 (Yellowish red)
Fracture	Rough but fairly regular and perpendicular to the surfaces
Inclusions	Rare small angular mica fragments. Common poorly sorted angular clear grits (2-4mm) and occasional larger clear grits (>4mm), occasional poorly sorted small rounded brown grits (2-3mm). Roughly sorted common sand grains. Common long, thin vegetal voids on surfaces and within the fabric
Thickness	Most sherds are within the range of 7-13mm thickness with several thicker sherds measuring between 16 and 22mm
General description	A hard, thick ware with an orange or pink-orange exterior fabric usually with an orange core but sometimes with a thin grey core. This ware feels hard, rough and sandy due to the sand and grit inclusions. Little surface treatment visible although surfaces have been flattened.

Name	Vegetable Tempered Orange and Black Ware 
Code	VORBL
Distinguishing features	A thick-bodied micaceous ware with an orange outer fabric sandwiching a dark grey/black inner fabric. Dense vegetable temper voids on surfaces, occasional sand and grog temper and frequent mica fragments
Surface treatment	Surfaces flattened but no clear surface treatment
Decoration	None
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is 5YR 6/6 (Reddish yellow) or 5YR 5/6 (Yellowish red) with a dark grey/black core
Fracture	Rough and irregular, generally perpendicular to the surfaces but occasional laminations from inclusions
Inclusions	Frequent small to medium angular mica fragments (1-4mm), common voids from vegetable temper, particularly on surfaces, leaving long thin voids and rounded impressions. Occasional, roughly sorted sand grains, and occasional grog. Occasional poorly sorted small angular clear grits (2-3mm), occasional small rounded brown grits (<2mm) and rare larger clear grits (>4mm).
Thickness	Sherds are usually between 8 and 16mm thick but some larger sherds range between 17-27mm
General description	A vegetable tempered micaceous ware, harder fired than VORM, with an orange fabric sandwiching a black core. Fabric has a hard, rough feel, and gritty surfaces despite some attempt to flatten surfaces, but there is no additional surface treatment or decoration. This ware is thick-bodied which could indicate its use as a storage ware. The vegetable temper is the dominant feature leaving voids throughout the fabric and on surfaces, followed by the addition of frequent small to medium mica fragments.

Name	Red Slipped Vegetable Tempered Orange and Black Ware 
Code	VORBL.RS
Distinguishing features	A thick-bodied micaceous ware with an orange outer fabric sandwiching a dark grey/black inner fabric. Dense vegetable temper voids on surfaces, occasional sand and grog temper and frequent mica fragments. Thin red slip.
Surface treatment	Surfaces flattened and then treated with a thin red slip. No other surface treatment visible
Decoration	Usually none, but one sherd has incised oblique lines
Manufacture	Wheel-turned
Firing	Hard
Colour (Munsell)	Surface fabric is 5YR 6/6 (Reddish yellow) or 5YR 5/6 (Yellowish red) with a dark grey/black core**.** Slip is 2.5YR 5/6 Red
Fracture	Rough and irregular, generally perpendicular to the surfaces but occasional laminations from inclusions
Inclusions	Frequent small to medium angular mica fragments (1-4mm), common voids from vegetable temper, particularly on surfaces, leaving long thin voids and rounded impressions. Occasional, roughly sorted sand grains, and occasional grog. Occasional poorly sorted small angular clear grits (2-3mm), occasional small rounded brown grits (<2mm) and rare larger clear grits (>4mm).
Thickness	Two sherds measure around 14mm and two measure 18 and 22mm thickness
General description	A vegetable tempered micaceous ware, harder fired than VORM, with an orange fabric sandwiching a black core. Fabric has a hard, rough feel, and gritty surfaces despite some attempt to flatten surfaces. Fabric has been treated with a thin weak red slip but there is no additional surface treatment. This ware is thick-bodied which could indicate its use as a storage ware. The vegetable temper is the dominant feature leaving voids throughout the fabric and on surfaces, followed by the addition of frequent small to medium mica fragments.

Name	Vegetable Tempered Orange Micaceous Ware 
Code	VORM
Distinguishing features	Thick bodied orange micaceous fabric throughout, with vegetable, grit and mica temper.
Surface treatment	Surfaces flattened but no other visible surface treatment
Decoration	Usually none, but two sherds have a scalloped design or applique decoration
Manufacture	Wheel-turned
Firing	Medium
Colour (Munsell)	Fabric is 7.5Yr 6/6 Reddish yellow
Fracture	Rough (but often heavily eroded) and irregular, sometimes perpendicular to the surfaces and sometimes with an inwards or outwards facing fracture
Inclusions	Moderate small to medium angular mica fragments (2-4mm), dense vegetal voids on surfaces and throughout, leaving both rounded voids or seed impressions and long thin voids. Frequent poorly sorted angular clear grits (2-5mm) and occasional poorly sorted sub-rounded brown grits (2-4mm). Poorly sorted sand grains
Thickness	Sherds usually fall within the range of 8 to 14mm thick, a couple range from 16 to 22mm thick.
General description	A heavy and thick-bodied medium-fired orange micaceous ware. This ware features a uniform orange fabric throughout with no grey or black core. There is the heavy inclusion of vegetable temper leaving voids particularly on surfaces but also within. A range of vegetable matter is indicated including grass, straw, grains and husks. There is also grits and mica as an additional temper. Although the surfaces appear to have been flattened there is no other surface treatment and sherds feel rough. Could be intended for large storage vessels.

Appendix 6: Ceramic typology

This appendix concerns the types of vessels identified during the ceramic analysis. Relatively little comparative data is available; the majority of the Rāmṭek ceramic types do not sufficiently resemble the published examples in the excavation reports consulted. Where a parallel type was identified in published research, this has been included along with the type's subsequent broad date range within the project chronology.

Following the overview of the ceramic types is a reference table outlining the main chronological phasing referred to in excavation reports.

Type	General Type	Description	Published Parallel	Period	Project Phase	Notes	Unique Sherd No.
1	Shallow bowl/dish	Characteristic shallow bowl/dish of Black and Red ware. The vessel has an in-turned featureless rim with a rounded terminus. The body of the vessel is convex and curves in to a flat bottom. Exterior of the vessel sides may be decorated with incised lines	Nevasa: T.28d & T.28g, dish in burnished B&R ware, T.59a, dish in burnished B&R ware; Kaundinyapur: T.39-3 in coarse Red and Black ware; Tuljapur Garhi, T.13; Paunar: T.11A in B&R ware	Nevasa P.IV & P.V; Kaundinyapur (2001), Pre-Mauryan; Tuljapur Garhi, Phase B (Jorwe); Paunar P.1	I/II	Only in Black and Red Ware	
2	Shallow bowl/dish	Characteristic shallow bowl/dish of Black and Red ware with everted rim. Vessel has convex, curved sides and a flat bottom. The rim turns slightly outwards with a rounded terminus and may be grooved on exterior.	Nevasa: T.28h, wide dish in B&R ware and T.59, dish in burnished B&R; Kaundinyapur: T.53-10 in B&R ware; Pauni T.17, bowl in medium fabric B&R ware; Tuljapur Garhi, T.17	Nevasa P.IV & P.V; Kaundinyapur (2001), Late Sātavāhana; Pauni (1998), P.III; Tuljapur Garhi, Phase A (Malwa)	I/II	Only in Black and Red Ware	
3	Bowl	Small shallow bowl with curved sides, and small rounded rim. The rim is grooved on the outside	Maheshwar & Navdatoli, similar to T.99, burnished red slipped ware; Pauni, T.11, red slipped red ware bowl; Timbarva, T.25, plain red ware bowl; Kaundinyapura T.171, red ware bowl; Paunar T.44E tan ware bowl	Maheshwar P.V; Pauni (1998) P.IV; Timbarva, P.1; Kaundinyapura A, P.IV; Paunar P.IIA	II		5249
4	Bowl	Rounded rimless bowl with convex sides and slightly narrower mouth than the widest point of the vessel body.	Maheshwar & Navdatoli: Similar to T.84b, rimless bowl in burnished red ware; Pauni, T.33, red slipped ware	Maheshwar & Navdatoli, P.IV; Pauni (1968), P.II	II		

5	Bowl	Small to medium sized bowl with a wide mouth and small rim. The rim is grooved or undercut on the exterior, and usually has a flattened top. The rim turns slightly inwards. The sides of the vessel are convex and curve downwards into a shallow to medium-depth bowl	Timbarva, similar to T.67 , in plain red ware	P.II	II		
6	Bowl	Wide mouthed medium-sized bowl with relatively straight sides. The rim has a flattened top but a featureless exterior. The top of the rim may feature small grooves					
7	Bowl	Wide mouthed, shallow small bowl with convex curved sides. The flattened rim turns slightly inwards.					3179
8	Bowl	Wide-mouthed, medium-sized bowl with relatively straight sides. The bowl has a slightly bulbous, rounded out-turned rim					482
9	Shallow bowl/dish	Wide-mouthed, shallow bowl/dish with a square slightly in-turned rim.	Dwarka, similar to T.24, pan in slipped red ware	Dwarka, P.I	II		4321
10	Shallow bowl	Medium-sized shallow bowl with convex sides beneath the rim leading to straighter sides to the base. The sides of the vessel are relatively thin. The rim is up-turned and rounded.					2485

11	Bowl	Simple small bowl with straight sides, a small base which has been string cut, and a featureless rim which varies from rounded slightly pointed at the terminus. Very common type	Devnimori, T.1; Baroda, T.8d; Pauni, T.60, dull red ware bowl; Shamalaji, T.55, bowl with thread marks on base; Timbarva, T.61, bowl in crude red ware (Pankti); Bhokardhan, T.1 in coarse red ware	Devnimori, c. 2nd-4th century to 7th/8th century AD; Baroda, P.II; Pauni (1968) P.II; Shamalaji P.II-III; Timbarva P.I; Bhokardhan P.IA	II/III/IV		
12	Bowl	Medium-sized bowl with straight sides and an up-turned rounded rim. The sides of the vessel have rows of grooves for decoration.					998
13	Bowl	Medium-sized, wide-mouthed bowl with straight sides sloping inward to the base. The sides are grooved. The rim is undercut on the outside while the interior is grooved.					4870
14	Bowl	Small bowl with narrow base and relatively straight sides leading to a wide mouth. The rim is small and slightly undercut on the exterior, with a triangular section. The walls of the vessel are relatively thin.					
15	Bowl	Small bowl similar in form to T. 14, with slightly thicker walls. The bowl has a wide mouth, relatively narrow base and slightly convex sides. The rim is small, undercut on the exterior and may be slightly rounded. The interior of the bowl features a small ridge a few cm from the top.					

16	Bowl	Small wide-mouthed shallow bowl with slightly convex sides. The rim is undercut on the exterior and triangular in section with a rounded terminus. The interior of the rim may be slightly grooved.	Pauni, T.51 in red slipped ware	Pauni (1968), P.II	II		
17	Shallow bowl	Wide-mouthed shallow bowl with a bulbous rounded rim. The rim is undercut on the exterior and grooved on the interior. The sides of the bowl are convex and turn quite sharply inwards. The sides of the bowl are relatively thick and towards the bottom of the body, the vessel may bear incised decoration	Vaisali, similar to T.6, in red ware	P.III	II		
18	Bowl	Medium-sized bowl with a wide mouth and relatively narrow base. The rim is bulbous with a round profile, in-turned and slightly undercut on the exterior. The top interior of the rim has a groove and is then undercut. The interior of the rim meets the body at around a 90 degree angle. The sides of the bowl are relatively straight and slant sharply inwards					

19	Shallow carinated bowl/dish	Wide- mouthed shallow bowl or dish with a slight carination where the sides turn inwards into a shallow body. The rim is rounded and out-turned with an undercut. The interior of the rim creates a slightly closed opening to the bowl due to the angle at which the rim sits.	Bhokardhan: Similar to T.40A	Bhokardhan, P.1A	II		4693
20	Bowl	Open wide-mouthed, medium-sized bowl with a slight carination; The sides come down and then turn slightly inwards. The rim is out-turned with a rounded tip. The top of the rim is flattened					4956
21	Shallow bowl/dish	Medium-sized shallow bowl/dish with a very wide mouth. The rim faces inwards with a rounded exterior and a flattened top. The interior of the rim is slightly undercut.	Brahmapuri: T.13, dish in black slipped ware; Pauni, T.91, mica slipped shallow dish	Sātavāhana; Pauni (1968) P.III	II		
22	Shallow bowl	Wide-mouthed shallow bowl with a squared off collared rim. The rim is undercut and the point turns inwards.					5308
23	Shallow carinated bowl	Wide-mouthed shallow bowl with an in-turned rim, which triangular in section with a pointed terminus. From the rim the sides extend vertically before a slightly ridged carination at the shoulder from which the body curves inwards.	Shamalaji, T.45, carinated dish plain/burnished black ware				

24	Shallow bowl/dish	Wide-mouthed, shallow bowl with thick up-turned rim. The rim either has a rounded or pointed terminus which turns slightly inwards. The rim is often undercut on the exterior before the body curves inwards. The sides of the bowl are either straight of slightly convex.	Dwarka, T.170, basin in burnished black ware; Nevasa: T.117c, shallow 'dough' in coarse red ware; Kaundinyapura similar to T.110, red ware basin	Dwarka, P.IV; Nevasa, P.VI; Kaundinyapura (1968) P.VI	V		
25	Shallow bowl	Small shallow bowl with an in-turned rim, with a pointed terminus. The body of the bowl and the rim turn sharply inwards from the point on the shoulder of the bowl. The angle of the widest point of the bowl is less than 90 degrees.	Sanchi: Similar to T.6, shallow bowl in micaceous ware; Devnimori: T.66, broad mouthed bowl in micaceous ware; Shamalaji, T.134, dish in micaceous ware	Sanchi 1st to 4th century AD; Devnimori c. 2nd-4th century to 7th/8th century; Shamalaji from P.IIA	II/III		
26	Shallow bowl/dish	Wide-mouthed bowl with an incurved and externally collared rim with small undercut. Sometimes the rim features an internal groove, which creates a slight overhang.	Sanchi: Similar to T.27, Basin in various fabrics	6th century B.C. to 3rd/2nd century B.C.	I		
27	Bowl	Large, fairly steep-sided bowl with in-turned and pointed rim. The rim has an interior and exterior projection, giving a triangular profile. There is a small ridge beneath the rim and occasionally the body of the bowl is decorated with incised lines or notches.	Brahmapuri: T.5a, Dish with chocolate slip; Hastinapura, No. Xia	Brahmapuri, Bahmani; Hastinapura, late 11th to early 15th century AD	V		

28	Bowl	Wide-mouthed bowl with an in-turned rim, with a rounded terminus The shoulder of the vessel at the base of the rim has a small ridge, from which the rim and sides of the bowl turn inwards. The interior angle at the point is just over 90 degrees. The shoulder of the bowl may be decorated with horizontal incised lines. Due to the in-turned rim, the mouth of the bowl is slightly narrower than the shoulder.	Maheshwar & Navdatoli: T.100 & 100b, Basin in burnished red slipped ware; Nevasa: Similar to T.49, Basin in red washed ware; Nasik, T.19b, dish in red ware; Shamalaji, T.48 in plain/burnished black ware	Maheshwar & Navdatoli, P.V; Nevasa, P.IV	II		
29	Flanged bowl	Wide-mouthed bowl with an in-turned rim with a rounded terminus. The widest part of the bowl tat the end of the rim has an undercut projection which droops over. The outer part of the rim and projection is grooved, and the shoulder has a slight ridge. The interior of the rim is also slightly undercut and droops over. The sides of the bowl are fairly straight and it appears to be relatively deep	Maheshwar & Navdatoli: Similar to T.79, Kunda in coarse red ware; Dwarka: Similar to T.171, basin in burnished black ware	Maheshwar & Navdatoli, P.IV; Dwarka P.IV; Nasik, P.IIA	?		
30	Basin	Medium-sized, open-mouthed basin with what appears to be steep sides leading into a deep body. There is a slight ridge or carination below the rim where the sides of the vessel turn inwards. The rim is out-turned and features a number of grooves to give it a stepped appearance					3951

31	Flanged bowl	Wide-mouthed bowl with a ridged projection around the widest point just below the rim. The rim has a rounded terminus and turns in slightly from the shoulder. The body curves in below the flange, which has numerous incised grooves. The body of the bowl is relatively deep.					
32	Carinated bowl	Wide-mouthed carinated vessel with short neck, sloping shoulder and a small ridged carination. The short rim varies between a rounded form and a slightly more pointed form. The rim extends internally to marginally restrict the opening of the vessel so that it is narrower than the widest point of the bowl. The body of the bowl turns inwards from the carination	Maheshwar & Navdatoli: Similar in external profile to T.135c carinated vessel in red slipped ware; Dwarka: Sherd 3359 shares similarities with T.99, Pot with ridged carination in coarse black ware	Maheshwar & Navdatoli, P.VI; Dwarka, P.III	III/IV		
33	Carinated bowl	Wide-mouthed carinated bowl with a short neck and small in-turned rim, with a rounded terminus. The bowl has a short flange or ridge on the shoulder and widest part of the bowl. The ridge can be either undercut or slightly upturned features incised grooves. The rim and body turn inwards from carination, and the body is relatively deep					

34	Carinated bowl	Wide-mouthed, medium-sized carinated bowl with a rounded, mostly featureless rim. Below the rim is a pointed ridge from which the body extends inwards.	Maheshwar & Navdatoli, T.76d, carinated bowl in coarse red ware; Kaundinyapura, similar to T157, red micaceous ware vessel	Maheshwar, P.IV ; Kaundinyapura (1968), P.IV	II		4255
35	Carinated bowl/dish	Large, wide-mouthed slightly carinated bowl or dish. The body portion from the example is missing but the sides appear to extend inwards from a small ridge below the rim. The rim is up-turned, slightly turned inwards with a small pointed terminus.					3772
36	Lid-cum-Bowl	Wide-mouthed lid-cum-bowl with a small featureless rim and long flange around the widest part. The flange is angled slightly upwards and the neck and body both extend inwards from this point. The interior angle where the rim and body meet is slightly over 90 degrees. The sides of the vessel curve inwards to a shallow bowl	Pauni: T.25, lid-cum-bowl in red slipped red ware; Pauni (1972), T.58, dull red ware; Kaundinyapur: T.19-1; Maheshwar & Navdatoli: T.98 in slipped red ware; Nasik, T.23a lid in red ware; Timbarva T.71 in plain black ware; Paunar T.95B red slipped lid	Pauni (1998) P.IV; Pauni (1972) P. II, Kaundinyapur, Early Historic; Maheshwar & Navdatoli, P.V; Nasik, P.II; Timbarva, P.I; Paunar P.III	II/III		
37	Lid-cum-Bowl	Small lid-cum-bowl with a vertical featureless rim. Below the rim is a small ridge or projection to enable the lid-cum-bowl to fit another vessel. From this small flanged waist, the body slopes inwards to a shallow bowl.	Baroda: T.55, bowl/dish with incurved rim and carination	P.III	IV		

38	Lid-cum-Bowl	Small lid-cum-bowl with a straight neck and vertical or slightly out-turned rim with a flattened top. The vessel has a small ridge at the shoulder from which the body extends inwards to create a shallow vessel. The sides of the bowl are initially fairly straight	Baroda: Similar to T.23 & 23a, Carinated dish; Paunar: T.164A, carinated cover	Baroda P.II; Paunar P.III	II/III		
39	Lid-cum-Bowl	Small lid-cum-bowl, with a small base (or knob) - the base is not solid but more like a stand. The collared rim projects inwards slightly and is undercut on the interior. The exterior is also slightly undercut and rounded projecting out slightly. From the rim the convex sides curve into a rounded body.					
40	Shallow dish	Large wide-mouthed, shallow dish with thin sides and a slightly thicker rim. The rim is either rounded or slightly squared off with a slight groove underneath. The sides of the dish curve inwards slightly then appear to continue into a wide flat base	Sanchi: Similar to T.41a, bowl in Late Medieval grey ware & T.43, shallow bowl in Medieval unslipped red or black ware	Sanchi, phasing unknown			

41	Shallow dish	Wide-mouthed, large shallow dish with a rather square profile. The rounded rim curves straight into the sides of the vessel which turn inwards at an angle of around 100 degrees. The sides of the vessel are relatively thick around the rim, thinning as the sides move into the body portion					5131
42	Shallow dish	Wide mouthed shallow dish with quite vertical sides and a carinated shoulder from which the bottom of the bowl turns sharply inwards. The sides of the bowl have grooves above the carination and below the rounded rim. The rim is small and slightly out-turned.	Brahmapuri: T.19, dish				
43	Shallow dish	Large dish with a long extended rim with rounded terminus. The upper portion of the rim is usually concave but may be slightly convex after the groove before the rim terminus. There is an interior ridge just before the main body of the dish curves down. The shoulder of the dish may have a slight ridge	Baroda: T.117, shallow bowl in burnished red or black ware E47	Baroda, P.VI	V		

44	Dish	Large dish, slightly deeper than T.43, with a long flaring rim. The rim is curved and slightly overhanging, with a rounded terminus, and has a small interior groove before the main bowl of the dish. The exterior of the body has a small carinated shoulder, from which the body curves inwards. Some examples have decoration on the upper face of the rim	Sanchi: Decorated examples similar to T.12, in B&R or grey slipped wares; Pauni, T.1 dish in red polished ware; Nevasa, T.86b, shallow plate in red washed ware; Vaisali, T.8, red ware plate	Sanchi, c.3rd-2nd centuries BC; Pauni (1998) P.IV; Nevasa, P.V; Vaisali P.IV	II/III		
45	Shallow dish	Shallow carinated bowl or dish with wide mouth. The vessel has a sloping rim with a pointed terminus and often grooves on the upper face. Immediately below the rim is a carinated shoulder from which the body of the vessel curves inwards. The carination varies between being a small ridge and a more defined point. The bowl appears to have a fairly shallow, rounded base. Some examples have incised notches on the shoulder and others simply have incised horizontal bands	Maheshwar & Navdatoli: Similar to T.150 in Micaceous ware; Pauni, T.54, red slipped dish; Shamalaji, T.136, dish in micaceous ware	Maheshwar P.VI; Pauni (1968), P. II; Shamalaji from P.IIA	II/III		

46	Carinated bowl	Unusually shaped small carinated bowl with thick sides. The mouth is open and forms the widest point of the vessel. The rim has a triangular section and is undercut, drooping slightly. From the rim the concave neck curves down to the ridged carination. The lower part of the body curves inwards to form the base of the vessel.					
47	Carinated handi	A carinated handi rim form, found on both medium and small pots. The mouth is closed, being narrower than the widest part of the vessel. The handi has a carinated shoulder defined by slight grooves around the ridge, with occasional incised notch decorations. Below the rim the body turns inward before the rim turns back outwards at an angle of over 90 degrees. This creates the small rounded internal lip which restricts the opening. The large external lip has a rounded terminus and the rim top has small incised lines. The rim shape is one of the more common and recognisable forms	Pauni: Similar to T.4, carinated basin in mica slipped red ware; Baroda: Similar to T.2, carinated pot; Brahmapuri: T.39; Paunar, T.125 carinated basin; Bhokardhan T.39A carinated handi in micaceous ware	Pauni (1998), P.IV; Baroda, P.II; Brahmapuri, Sātavāhana; Paunar: P.III; Bhokardhan P.1A	II/III	Exclusively occurs in Micaceous wares	

48	Carinated Pot	A medium to large carinated pot with a closed mouth. The body below the rim slopes to a carinated shoulder at the widest point of the vessel. The upper portion of the body above the carination is longer than in the carinated handis. The bottom portion of the body curves inwards into a seemingly globular body. The relatively small rim flares outwards, with a pointed terminus.	Nevasa, similar to T.48, in red slipped ware; Pauni, similar to T.68 in upper profile, mica slipped ware; Timbarva, similar overall to T.57 in red burnished ware	Nevasa P.IV; Pauni (1968) P. II; Timbarva P.I	II		
49	Carinated handi	Carinated handi rim form found on both medium and small examples. The small rim forms a simple out-turned curve, with a flattish top and rounded terminus. The shoulder of the vessel is carinated and often defined by a groove. The body of the vessel curves inwards from the carination to a medium depth to shallow globular body. This is a fairly common rim type, however while all examples have the same rim profile and angle to the body, not all have the carination.	Maheshwar & Navdatoli, similar to T.152a, carinated vessel in ware with quartz grains; Sanjan, T.77, in mica red ware	Maheshwar & Navdatoli, P.VI; Sanjan occupied from 7th century AD	III, IV	Exclusively occurs in Micaceous wares	

50	Carinated Pot	Medium-sized carinated pot possibly for cooking, with a wide, slightly closed mouth. The small rim extends out at 90 degrees to the neck, with a flattened top and a small external rounded terminus. The rim is often undercut and drooping. The neck has small raised horizontal bands on the external surface before a ridged carination with an upward pointed external extrusion. The body then slopes into a wide rounded body.	Maheshwar & Navdatoli: T.119a, carinated vessel in black ware; Nevasa: similar to T.69a in tan-slipped ware	Maheshwar & Navdatoli, P.VI; Nevasa, P.V	II/III	Exclusively occurs in Micaceous wares	
51	Globular pot	Globular pot with a ridged carination at the shoulder and a concave neck. The body from the small upturned ridge is rounded rather than sloping directly inwards. The neck of the vessel has slopes up to a small out0turned rim. The neck may be decorated with a series of grooves. The rim has a rounded terminus with a grooved top and is undercut on the exterior					
52	Globular pot	Globular pot with a concave neck and curved shoulder portion featuring a small pointed ridge. From the neck the body appears to be wide and round but this portion is missing on all examples. The rim is uncut and droops over the neck, and features a small groove on the interior					

53	Globular pot	Globular pot with a short concave neck, long shoulder portion and small out-turned rim. The rim is undercut and droops over, while on the interior the neck is pointed inwards to constrict the opening of the vessel. The shoulder portion is decorated with lines and a small ridge before the body. The area above the ridge may be decorated with incised notches. The vessel body appears to be wide and rounded.					
54	Globular pot	Wide-mouthed globular pot with a short concave sim and bulbous ridge on the shoulder which may be fairly pointed. The body continues outwards from the ridge and may then curve into a globular pot, although this portion is missing on the sherd examples. The rim flares outwards with a smooth appearance and pointed terminus.	Maheshwar & Navdatoli: T.138, carinated vessel in coarse red ware; Devnimori, T.62, in micaceous ware; Shamalaji, similar to T.124, handi in micaceous ware; Paunar: T.118F carinated handi	Maheshwar & Navdatoli, P.VI; Devnimori c. 2nd-4th century to 7th/8th century; Shamalaji from P.IIA; Paunar P.III	II/III		

55	Carinated Cooking pot	Large storage pot/cooking vessel rim type. The small out-turned rim develops off a straight vertical or long concave curved neck. The transition from body to neck is fairly sharp in most examples, while the transition from neck to rim is smooth. The rim has a simple rounded or pointed terminus. This vessel may have a pronounced carination from which the body extends downwards into an apparently relatively deep rounded base, or a smoother transition into the carinated shoulder and body.	Bhokardhan, similar to T38A, carinated handi in micaceous ware	Bhokardhan, P.1A	II	Primarily ROM	
56	Globular pot	Globular pot with a concave, constricted neck and a collared, turned-out rim. The neck of the vessel is quite long and flaring with a smooth transition into a small featureless rim. The rim has a simple rounded terminus which may droop over slightly. The body of the vessel extends outwards from the narrowest point of the neck - it is likely that the main body of the vessel is globular, although this portion is missing	Nevasa, similar profile to T.71, high necked vessel in tan slipped ware; Paunar T.91B red slipped jar	Nevasa P.V; Paunar P.III	II/III		

57	Globular pot	Globular pot with a constricted neck and long flaring rim. The rim is featureless with a simple rounded or pointed terminus and usually extends directly from the narrowest point of the neck in an upwards and outwards flaring manner. In such cases, The rim meets the body at an angle of just less than 90 degrees. In some examples the rim appears part of a concave neck flaring out from the body giving a more rounded appearance. The body portion appears to extend into a round globular pot	Pauni: T.19, vase in mica slipped red ware; Maheshwar & Navdatoli: similar to T.151, in ware with quartz grains; Kaundinyapura T.8b, wide mouthed cooking vessel in micaceous ware	Pauni (1998), P.IV; Maheshwar & Navdatoli P.VI; Kaundinyapura (1968), Sātavāhana	II/III		
58	Globular pot	Simple small pot with a short concave neck and small splayed out rim. The rim terminus is rounded or slightly pointed, and extends out at a roughly 90 angle from the body. The body extends down and out and appears to become rounded or oval in shape. This may be a small to medium serving or storage vessel.	Sanchi: T.91a, cooking vessel in coarse grey ware/burnished red ware; Devnimori: T.23 & T.24, pear shaped pots in plain red ware; Pauni: Similar to T.3, globular pot in red ware; Pauni (1972), T. 108, micaceous red ware; Paunar T.24D coarse red jar	Sanchi: 2nd-4th century AD; Devnimori c. 2nd-4th century to 7th/8th century AD; Pauni (1998), P.III; Pauni (1972) P.III; Paunar P.II	II/III		
59	Pot	Pot with concave, restricted neck and a medium-long flaring rim which meets the body at around a 90 degree angle. The rim may feature a slight bulge near to the neck and has a rounded terminus. The body of the vessel appears to be globular or oval in shape	Dwarka: T.13, in slipped red ware; Hastinapura, similar to No.XXXVIII; Pauni, T.66, in micaceous red ware; Shamalaji, T.100, plain/burnished red ware handi	Dwarka, P.I; Hastinapura, P.IV; Pauni (1978), Phase II	II		

60	Jar/Globular jar	Large storage jar rim type: The rim turns out from the body at just over a 90° angle, and flares straight outwards to a length of 35 to 70mm. Some examples display a slight downward curve to the rim, and all have a simple rounded or pointed terminus. The body does not remain on most examples but appears to continue into a globular or oval jar form	Devnimori: Similar to T.60, pot with flared rim in micaceous red ware; Paunar T.61 course micaceous jar	Devnimori c. 2nd-4th century to 7th/8th century AD; Paunar, P.II	III	Primarily Gritty Micaceous Wares	
61	Globular jar	Jar with very rounded body (majority of vessel body is missing). The jar has a short straight, vertical neck with a small rounded rim. The rim is slightly out-turned					3978
62	Jar	Storage jar rim form with a medium-length concave neck and small out-turned rim. The neck features a small ridge which may be decorated with an incised pattern. The rim has a flattened top and often a slight undercut projection inwards. At the narrowest part of the neck is an interior groove					
63	Jar	Storage jar form with a concave rounded neck. Above the neck are several grooves and the rim flares outwards. The interior of the rim bulges slightly to give a rounded appearance with a flat underside.	Shamalaji, T.85, in plain/burnished red ware				2926

64	Jar	Large storage jar rim type: The vessel has a concave neck which smoothly transitions into a long up and outwards flaring rim. The rim has a slightly thicker terminus which is more rounded on the interior and make by defined with a small groove. The body of the vessel is missing but appears to be rounded at the top. This may later extend into an oval shaped jar	Nevasa, similar to T.47b, in red slipped ware; Kaundinyapura T. 13 high necked red ware ghada shaped vessel	Nevasa, P.IV; Kaundinyapura (1968) Mauryan (300-100BC)	II		
65	Jar/Vase	Jar with long, flaring rim, which may be designed for pouring. The rim extends out from the neck and is usually quite straight. The end of the rim is slightly bulbous with a rounded terminus. The body portion is missing but from the profile where it meets the rim, it would appear to extend into an oval jar form. This rim type usually occurs in a heavy, gritty ceramic fabric.	Kaundinyapura: T.53-8 in micaceous fabric	Kaundinyapura (2001), Early Historic	III		
66	Jar/Vase	Jar with a long flaring neck leading to a rounded rim. The rim curves outwards and is slightly undercut. The body of the vessel is missing					3224

67	Jar	A jar with a long flaring neck and relatively wide mouth. The neck of the vessel is more out-flared and curved than in T.65, with a more pronounced rounded rim terminus. The end of the rim may be slightly undercut. Though most of the neck and body is usually missing, the neck of the vessel appears to be constricted.	Pauni, T.75, in red slipped ware	Phase II (3rd to 1st century BC)	II		
68	Jar	Jar rim form with a constricted neck and long flaring neck/rim. The rim has a rounded terminus and is undercut on the exterior, with a small groove on the interior top. The mouth of the vessel is quite wide in comparison to the neck. While the body portion is missing it would appear to be a rounded or oval jar form	Timbarva, similar to T.74, ware with micaceous slip	Timbarva, P.II	II		
69	Jar	Jar with relatively long concave neck portion leading up to an out-turned rim. The rim is quite deeply undercut and droops over on the exterior with a rounded appearance. The body of the vessel is missing but it appears the neck is narrow and constricted, indicating a jar for storage or pouring	Timbarva, similar to T.51 & 52, in red burnished ware	Timbarva, P.I	II		

70	Jar/Vase	Example of a vase or jar rim. The body of the vessel is missing. The neck appears to be concave and flaring outwards ending in a dropping undercut rim. The top-interior of the rim has a groove. The vessel appears similar to type 69 with the addition of the interior groove.					3879
71	Jar/Vase	Jar/Vase with medium length concave, flaring neck and small out-turned rim. The rounded rim is undercut and droops slightly. There is a groove around the middle of the rim exterior. The neck of the vessel is very narrow and constricted, indicating a jar/vase for pouring or serving. Based on published parallels the body of the vessel may be quite wide	Brahmapuri, T.79, Pot with flaring rim; Dwarka, T.44, in slipped red ware; Maheshwar & Navdatoli, T.132, in red slipped ware; Paunar T.92I red slipped high neck jar	Brahmapuri, Late Sātavāhana; Dwarka, P.II; Maheshwar & Navdatoli, P.VI; Paunar, P.III	II/III		
72	Jar/Vase	Very similar jar/vase form to T.71. The vessel has a long concave flaring neck and a small out-turned rim. The rim has a pointed terminus and flattened exterior face, and it is undercut to droop slightly. There is a groove towards the top of the rim. The neck is narrow and constricted and the vessel body turns out at the base of the neck. The body appears to continue into a globular or oval jar/vase	Dwarka, T.48, in burnished red ware; Maheshwar & Navdatoli, T.86f, high-necked vessel in burnished red ware	Dwarka, P.II; Maheshwar & Navdatoli P.IV	II		

73	Jar/Vase	Another similar jar/vase with a high concave neck and small flaring out-turned rim. The rim has a groove before its terminus which creates a squared off end. The rim is pointed at the top and slightly undercut. The neck of the vessel is very narrow and constricted, ideal for pouring, and it appears the body is globular or oval in shape	Devnimori, T.38, water pot/pitcher in plain red ware; Pauni, similar to T.28, vase in dull red slipped red ware; Hastinapura, No.XXXIV ; Bhokardhan, similar to T.7A, coarse red ware pot	Devnimori c. 2nd-4th century to 7th/8th century AD; Pauni (1998), P.IV; Hastinapura P.IV; Bhokardhan, P1A	II/III		
74	Jar/Vase	Jar or vase with a long flaring neck and small rim with more prominent groove on top creating a beaked appearance. The high neck is concave and may extend fairly vertically or be flared outwards. The groove on the top of the rim may be for receiving a covering, and creates a flat exterior surface to the rim. The vessel has a narrow, restricted neck.	Timbarva, similar to T.73, red ware pot; Kaundinyapura, Similar to T35b	Timbarva, P.II; Kaundinyapura (1968) P.V Late Sātavāhana	II		
75	Jar/vase	Jar with a long flaring neck and small out-turned rim: the shoulder and body portion is always missing in this type. The remaining neck appears to be quite straight and would indicate a narrow, restricted opening. The rim is undercut and tapers. It has a triangular section and squared off terminus.	Sanchi: T.148, jar with clubbed rim in red slipped ware; Kaundinyapur: Similar to T.47-3, in red ware; Baroda: Similar to T.31; Timbarva, T.50, in red burnished ware; Paunar T.92K red slipped jar with high concave neck; Bhokardhan T.17A globular pot with red wash	Sanchi, 2nd century BC to 5th-6th century AD; Kaundinyapur (2001), Early Historic (Sātavāhana); Baroda, P.II; Timbarva, P.I; Paunar, P.III; Bhokardhan, P1A	II/III		

76	Jar/Vase	Jar/Vase with a high concave neck, constricted at the base of the neck. The rim flares outwards and droops over a small undercut. The rim terminus may be rounded or slightly squared off. The body of the vessel appears to continue into an oval jar form.	Pauni: T.10, vase in medium, dull red ware; Baroda, T.26; Timbarva, T.28, high necked pot in plain red ware; Vaisali, T.13 red ware	Pauni (1998), P.IV; Baroda, P.II; Timbarva P.I; Vaisali, P.IV	II/III		
77	Jar/Vase	Jar/vase with a long straight neck which flares outwards in a funnel shape from the body. The rim is undercut and droops over. The rim also has a groove on the outside giving it a split appearance. The neck of the vessel is restricted, but the body portion is missing	Bhokardhan: T.81, pot with high concave neck in red slipped ware	Bhokardhan, P.1B	II		
78	Jar/Vase	Jar/ Vase with a flaring rim with two grooves on the exterior and a groove on the interior. The neck of the vessel appears to be quite long and flaring, and the neck base is constricted. The body portion is missing					
79	Jar	Top portion of a jar with an apparently concave neck leading to an upright, collared rim. The rim exterior has two grooves, and the interior also has a single groove from which the neck curves downwards	Bhokardhan: Similar to T.18, coarse red storage jar	Bhokardhan, P.1A	II		635

80	Jar	Top portion of a jar with an apparently straight neck. The neck curves outwards slightly towards to top to lead into an overhanging, bulbous rim. The rim has two grooves on the exterior.					5353
81	Jar	A small jar rim with an overhanging rim. A groove splits the rim into two and the bottom portion has incised decoration. The rim is overhanging and has a slightly flattened top	Kaundinyapura, similar to T.164, thick red ware rim with twisted cable design	Kaundinyapura (1968), P.IV Sātavāhana	II		1355
82	Globular jar	Small globular pot/jar rim type. The neck of the vessel is relatively short and concave. The out-flaring rim is split by a groove across the middle. Some examples have a slightly triangular terminus. The body slopes down from the rim into a rounded					1812
83	Jar	Jar with long, concave neck and out-turned rim. The rim has an interior groove and a groove on the outer face	Dwarka, similar to T. 46, with more pronounced groove on top, burnished red ware; Pauni, T.73a, dull red ware	Dwarka, P.II; Pauni (1968), P.II	II		5653
84	Jar/Vase	Jar/Vase with long concave neck and a rounded out-turned rim. The rim has a groove on the exterior					4075

85	Jar/Vase	Jar with a long concave neck and a long rim with a triangular profile. The rim is slightly undercut and has a groove on the exterior. The neck base of the vessel is restricted and narrow, while the body portion is missing.					
86	Jar	Jar with a medium-length concave neck and an out-flaring rim. The rim is undercut with a groove on the interior top. The rim has a pointed terminus and a generally triangular profile. The body portion of the vessel is mostly missing but appears to continue into an oval or globular jar form		Period II (1-4c AD)			
87	Jar/Vase	Jar or vase with a short or medium length concave neck and a rim which turns outwards. The rim has a triangular section and a slightly concave undercut at the base of the rim. It is internally curved and continues into the narrow neck of the vessel. The body portion is missing but appears to have been a globular jar	Kaundinyapura, T.41-7; Type 18 (Vase of coarse mica slipped red ware); Dwarka, T.3, in slipped red ware; Pauni, T.12, vase in dull red slipped red ware; Timbarva, similar to T.41 & 43, in red gritty ware; Paunar, T.92S red slipped jar with high neck	Kaundinyapura (2001) Early Historic; Dwarka, P.I; Pauni (1998), P.IV; Timbarva, P.I; Paunar P.III	II		
88	Jar	Jar with out-turned flaring rim and a relatively straight neck. The rim is squared off and has a groove on the interior	Pauni, Similar to T.30, vase in mica slipped dull red ware	Pauni (1998), P.IV	II		706

89	Jar	Jar with long straight neck. The rim is undercut and droops over to a slightly pointed terminus	Baroda, similar to T.31	Baroda, P.II	II/III		3009
90	Jar	Jar with what appears to be a straight, long neck but the neck and body are missing. The rim is thick and rounded - it is slightly undercut and concave underneath.					3484
91	Jar/Vase	Jar or vase with a long straight neck. The neck flares outwards slightly and ends in a triangular rim which is slightly undercut.	Sanjan, similar to T.195, in red slipped red ware; Hastinapura, No.XXXa; Vaisali, T.27, red ware	Sanjan, late 7th to early/mid-9th century AD; Hastinapura P.IV; Vaisali, P.IV	II-IV		3190
92	Jar	Jar with a ridged neck leading to an out-flaring rim. The neck has a central ridge. The rim is fairly thick and has several grooves on the exterior surface	Nevasa, T.46c, red slipped ware	Nevasa, P.IV	II		1769
93	Jar	Jar or vase with a long concave neck and a small flaring rim which is a continuation of the curve of the neck. The rim is featureless and has a small rounded or square terminus. The neck curves vertically from the rim down to the body which appears to continue into a globular vessel.	Dwarka, T.54, in black ware; Pauni, T.10, vase in dull red slipped red ware; Timbarva, similar to T.53, in plain red ware; Paunar T. 16B high necked pot	Dwarka, P.II; Pauni (1998), P.IV; Timbarva, P.I; Paunar P.I	II		

94	Jar	Jar with globular body and restricted opening. The vessel has a short concave neck with a long, vertical rim. The rim has a small rounded terminus and a slightly ridged exterior	Nasik, T.7b, straight necked vessel in red ware	Nasik, P.IIA	I		
95	Jar	Small jar with a narrow neck which flares outwards slightly. The rim is turned inwards and is undercut on the interior with a flattened top.					1622
96	Jar	Jaw with a slightly concave, vertical rim leading to a rim featuring an undercut projection or flange - possibly to receive a lid. The top of the rim is rounded and featureless					5762
97	Jar	An unusual jar form with a narrow, restricted neck but wide shallow rim. The exterior the neck and rim is ridged and incised. The rounded top of the rim turns inwards and is undercut					5045
98	Jar	Small jar with a long concave neck. From the outside the rim has a triangular appearance and is slightly undercut. The interior of the rim has a curved projection which slightly restricts the opening of the vessel.					4757

99	Lidded Jar	Necked globular vessel/jar with a constricted opening. The rim may be flattened or tapering, and partly protrudes inwards. The neck also bears a small flange either with an oblique square undercut ring or a triangular profile, from which the neck slopes inwards. The fairly straight angle of the neck suggests these are not small lids (as in Pauni, T.26 (Fig. 15), P.IV) but the top of a vessel designed to hold a lid or covering	Maheshwar & Navdatoli: T.132a, vessel with ringed rim in red slipped ware; Dwarka, similar to T.51, rims with a projecting band in Red ware; Sanchi, T.105c, Lidded vase/jar in Red slipped/burnished ware	Maheshwar & Navdatoli, P.VI; Dwarka P.II; Sanchi, c. 5th-6th to 11th-12th c AD	II/III	All Red slipped red or micaceous wares	
100	Pot	Small globular pot rim type. The rim curves outward from the body at around 90 degrees and generally thickens slightly into a simple rounded rim terminus. Some examples have a slightly triangular terminus. The body slopes down from the rim into a rounded globular shape	Pauni: T.7, vase in coarse red slipped red ware; Baroda, T.7, pear shaped jar; Devnimori, T.25/26; Shamalaji, T.79, plain/burnished red ware	Pauni (1998), P.II; Baroda P.II; Devnimori c. 2nd-4th century to 7th/8th century AD	I/II/III	Wide range of wares across Red, Micaceous and a couple of Buff/Grey	
101	Pot	Pot with a short neck and flaring rim. The neck slopes inwards from a seemingly globular body. The rim is undercut and has a simple rounded terminus. The top of the rim is curved and incised with thin grooves.					

102	Pot	Globular pot with a short concave neck and small out-turned rim. The rim has a simple rounded or squared off terminus. The neck of the vessel is relatively narrow and curves out into the rounded body portion					
103	Pot	Pot with a short concave neck and small out-flaring rim. The rim is undercut and droops over slightly, with a simple rounded terminus. The neck curves out into a round globular body.					
104	Jar	Pot with a medium-length concave neck and a rim which flares horizontally outwards. The rim is grooved just before a simple rounded terminus, and is slightly undercut. The body of the vessel is missing but appears to be a rounded pot					
105	Pot	Pot with a short concave neck and a rim with a simple rounded terminus which is grooved on the interior top. The rim may be deeply undercut and droop over or be more slightly undercut. The body of the vessel is missing but appears to be globular					

106	Jar	Rim of a globular jar with a medium-length concave neck. The rim folds inwards with a rounded terminus. On the exterior is a small undercut lip					5274
107	Jar	Jar with a long ridged neck which curves outwards below the rim. The ridges on the neck form small points. The rim is rounded and bulbous. The rim has a groove at the base of the interior side.					710
108	Jar	Pot with a short concave neck and a rounded rim. The rim has a groove on the interior, and the neck also has a small ridge. The body of the vessel is globular					
109	Pot	Globular pot with a short concave neck and a small, curved rim. The neck sometimes features a small ridge below the rim, which is turned outwards. The rim has a rounded terminus and is thicker than the rest of the vessel walls					
110	Jar	Globular pot with a short neck that slopes inwards and meets the undercut rim. The rim has a bulbous, rounded end. The interior features several grooves					

111	Pot	Globular pot with sides that slope inwards with a straight line. The neck turns outwards at an angle of around 100 degrees below the rounded bulbous rim. On the interior of the rim is a groove at the narrowest part of the vessel opening. The pots sometimes feature incised horizontal lines on the exterior as decoration	Dwarka, similar to T.106 in slipped red ware	Dwarka, P.IV	IV		
112	Pot	Medium-sized globular pot with a vertical neck leading to a small bulbous rim. Just below the rim the neck curves out slightly. The rim itself faces inwards and has a groove on the interior					
113	Pot	Similar to type 112: A globular pot with a short slightly concave neck ending in an oval-shaped bulbous rim. The rim extends outwards and inwards, being undercut on both sides. The interior lip slightly narrows the opening of the vessel					
114	Jar	Rim of a large jar? The neck has straight sides and turns slightly outwards. The rim droops over the neck on the exterior and has a pointed terminus					3545

115	Jar	Similar to 114 - Rim of a large jar? The neck has straight sides which are more clearly extending outwards towards the rim. The rim is undercut and has a squared off external edge. From the rim terminus the rim curves smoothly in to the neck on the interior of the vessel					1360
116	Pot	Rim of what appears to be a wide-mouthed pot. The sides of the vessel are relatively thin and there is a ridge below the small rim. The rim is simple and has a squared off terminus					1308
117	Pot/Jar	Rim of either a globular pot or a short necked jar. The neck is straight and angled slightly inwards. Below the rim the neck curves out at an angle of around 100 degrees. The rim has a rounded terminus	Pauni, T.98, red slipped ware	Pauni (1968), P.III	II		5336
118	Pot/Jar	Short necked globular pot or jar. Concave neck leading to a rounded rim. The rim is angled at just over 90 degrees to the neck.					
119	Pot/Jar	Thick walled short necked globular pot or jar. The vessel has a concave neck and thick rim which is slightly undercut.					4756

120	Pot/Jar	Globular pot or jar with thin body walls and a short concave neck. The rim is round and thick with a clear undercut					
121	Jar	Small to medium-size jar with a short concave neck and rounded bulbous rim. The rim is undercut on the exterior and features a small groove on the interior					
122	Jar	Vessel with an out-turned neck and thick bulbous rim. The rim has a groove on the interior and a ridge around the middle of the rim. The rim is slightly undercut on the other side of the internal groove, where it attaches to the thinner neck portion. The neck slopes down and appears to lead into a globular vessel.					
123	Jar	Similar to T120, thick fabric vessel with a wide mouth, bulbous inverted rim with external undercut and lip on interior. Neck is concave from the undercut then curves outwards to lead into body	Kaundinyapur: Similar to T80-6; Paunar T.46 red slipped globular jar	Kaundinyapur (2001) Early Historic; Paunar P.IIA	II/III		
124	Jar	Wide mouthed vessel with small flattened inverted rim undercut on the interior. Neck curves slightly outwards indicating a short neck and a bulbous body	Kaundinyapur: Similar to 48-2	Kaundinyapur (2001), Early Historic	II/III		

125	Jar	Appears to be the rim of a large wide-mouthed pot or jar. The walls of the vessel are relatively thin and it has a rounded rim. The rim has a small groove on the interior. Most of the neck and the entire body is missing but it appears that the neck extends inwards from the rim and would continue in a concave fashion					4850
126	Jar	Appears to be the rim of a large wide-mouthed pot or jar. Similar to T.125, the walls of the vessel are relatively thin while most of the neck and the body is missing it appears that the neck extends inwards from the rim and would continue in a concave fashion. This type has a rim with a more triangular profile and pointed terminus					
127	Pot	Large wide-mouthed pot rim type. This vessel has a short concave neck and a rim which flares outwards. The rim has a rounded terminus					
128	Pot	Medium-sized globular pot with no neck. The sides of the vessel extend straight up to the rim, which droops over the exterior. The rim is undercut and has a rounded terminus					

129	Pot	Globular pot with no neck and restricted opening. The remaining sides of the vessel are straight and slope inwards to meet the rim. The rim turns outwards and droops over the exterior. On the interior is a small groove at the narrowest part of the opening					4471
130	Pot	Globular pot with no neck and wide mouth. The rim droops over a deep undercut and has an angular appearance. The rim has a rounded terminus					5565
131	Pot	Simple globular pot with a wide, restricted mouth. The sides of the vessel slope inwards to narrow the opening and then the rim folds back on the exterior. The rim is featureless with a rounded terminus					2270
132	Pot	Very similar to T.131. A thin walled globular pot with no neck. The rim on this type extends out from the body at roughly 75 degrees and is therefore angled upwards. The rim has a flattened edge on the interior and a rounded terminus	Paunar, T.73A micaceous globular pot	Paunar, P.IIB			665

133	Pot	Wide-mouthed globular pot with no neck. The sides of the vessel slope inwards and the rim flares out directly from the body. The angle forms is roughly 90 degrees. The interior side of the rim is flattened and the rim has a rounded terminus	Sanjan, similar to T.147, in black slipped grey ware	Sanjan, late 7th to early/mid-9th century AD	IV		
134	Pot	Similar to T.134: Globular pot with no neck. The rim meets the body at around 90 degrees and is more curved and less angular than in T.133					
135	Pot	Small-sized globular pot similar to T.133 where the rim meets the body at around 90 degrees and the rim has a flattened edge on the interior. Below the rim is a small ridge					5244
136	Pot	Similar to T.134: Globular pot with a very short concave neck and a rim that turns outwards and is undercut. The rim has an oval section and slightly pointed terminus	Pauni, T.18, vase in mica slipped red ware; Pauni (1972), T.106, dull red storage jar; Bhokardhan, similar to T.8, coarse red ware pot	Pauni (1998), P.IV; Pauni (1972) P.III; Bhokardhan, P1A	II		
137	Jar	Jar with a slightly concave neck and an out-turned, undercut rim. The rim has a flattened interior which is undercut at the narrowest point. The exterior of the rim is undercut and has a pointed terminus					

138	Jar	Appears to be the rim and neck of a large, wide-mouthed jar/basin. The sides of the vessel are thin and extend inwards from the rim. The rim curves outwards and is slightly undercut with a round terminus. The rim is also externally grooved and has a flat top leading to the interior of the vessel. Below the rim of the interior is another groove.	Pauni, T.99, dull red ware basin	Pauni (1968), P.III	II		1510
139	Pot	Similar to T132. A thin walled globular pot with no neck. The rim on this type extends out from the body at roughly 75 degrees and is therefore angled upwards. The rim has a flattened edge on the interior and a rounded terminus On the top of the rim is a small groove. Some varieties feature incised lines on the topside of the rim					
140	Pot/Jar	Rim of a wide-mouthed jar or globular pot with very thin walls. Only the rim piece remains. The rim is thin, flaring outwards and externally undercut. The exterior of the rim has a groove to create a split lip. On the interior there is another groove just about the narrowest part of the opening.					2706

141	Jar/Vase	Rim of a medium-sized jar or vase. The neck of the vessel extends inwards from the out-facing undercut rim. The rim has an external groove giving it a split lip with rounded ends. The top has a groove, possibly for receiving a covering and may feature incised decoration					
142	Jar	Globular jar with short neck and out-turned rim. The mouth of the vessel is quite wide but restricted. The rim is undercut and has grooves along the middle creating a panel decorated with oblique incisions or a corn design. The top interior of the rim has a groove. Occasionally the shoulder of the vessel displays incised horizontal lines	Hastinapura, No. XXXVI, red ware vase	Hastinapura P.V	V		
143	Jar	Globular jar similar to T45. This vessel type has a short restricted neck, fairly wide mouth and slightly undercut rim. The rim flares out horizontally and has two grooves on the exterior giving it a triple lipped appearance. The middle section of the rim is less pronounced than the upper and lower section, but this panel bears no decoration as in the other type.	Pauni, T.25 mica slipped red ware				

144	Jar	Rim of a wide-mouthed jar with what appears to be a long concave neck. The rim faces outwards and has two grooves creating a face which is split into three.					4541
145	Jar	Rim of a medium-sized jar with a slightly concave neck. The rim is rounded and has an external groove creating a split lip. The rim is undercut and also features an interior groove					2673
146	Pot	Short-necked pot with an undercut rim which has a pronounced groove in the middle. This creates a double folded appearance with the top part of the rim dropping over the bottom, which also folds down over the neck. The neck leads into what appears to be a globular body					
147	Jar	Jar with constricted medium-length neck, and presumably globular body. The rim is split as in other types but has a rounded top giving the profile a beaked appearance. The rim is slightly undercut, and the interior of the neck has a small ridge					754

148	Jar	Medium sized closed storage jar rim type. Rim has external split/double lip on a horizontal external overhang. Top is flattish, occasionally more rounded and most examples have a small internal groove just down from the rim. Some examples have horizontal grooves below the short neck on the shoulder exterior. Body appears to be rounded and globular	Baroda, T.43. jar in grey ware; Shamalaji, T.22, plain/burnished black ware	Baroda, P.III	IV	Primarily Grey wares and Red burnished red wares	
149	Jar	Medium sized closed storage jar rim type. The globular jar has a medium-length sloping neck which leads up to the rim. The rim has an external split/double lip on a horizontal external overhang. The top of the rim is flattened and there is a small groove on the interior. Similar to T7 but with a less distinct neck and more pronounced overhanging rim	Maheshwar & Navdatoli, similar to T.120, globular vessel in burnished black; Pauni, T.113, in grey ware	Maheshwar & Navdatoli, P.VI; Pauni (1968), P.III	II/III		
150	Jar	Medium sized closed storage jar rim type. Rim has external split/double lip and is undercut. Some examples have horizontal grooves below the short neck on the shoulder exterior. Body appears to be rounded and globular.	Baroda, similar to T.40, jar in grey ware but also similar to T.70 in red slipped ware; Sanjan, T.197, in black slipped grey ware; Paunar T.142A drab black pot	Baroda P.III & Period IV/V; Sanjan, from 7th century AD; Paunar P.IV	IV/V		

151	Jar	Similar jar to other types, having a split or grooved rim giving a double lipped appearance. This vessel type has a short constricted neck and presumably globular body. The rim is more vertical than horizontally protruding.					
152	Jar	Medium-sized wide-mouthed jar with short neck and small triangular rim. The rim is positioned with a point at the top and straight edge either vertical or at a 45 degree angle. Short neck leads into a globular pot/jar form	Dwarka, T.162, in burnished black ware	Dwarka, P.IV	IV/V		
153	Pot	Large globular pot with a wide body that extends right up to the rim with a very short concave neck. The rim extends out horizontally and has a squared off exterior. The top of the rim features a small groove					

154	Jar	Closed necked jar with wide globular body. Out-turned rim with short neck. Rim has a square terminus, occasionally with a slight groove around the middle. The top of the rim is flattened and there is a groove on the interior which varies between being situated at the edge or further down towards the interior of the closed neck. The shoulder of the vessels is occasionally decorated with incised horizontal lines and dots.					
155	Jar	Globular jar with wide mouth and short constricted neck. The rim is undercut, often quite deeply, and hangs over. There is a slight indent on the external face of the rim. The rim interior has a groove and then slopes inwards to the ridge restricting the neck of the vessel					
156	Jar	Medium sized globular jar with short neck and vertical collared rim. The rim is pointed at the top with a small groove on the interior. The rim has a triangular section and is undercut on the outside but does not overhang.					

157	Jar	Small globular pot or jar with a short concave neck. The rim overhangs and has a square terminus. The interior features several small grooves. The body of this type displays lightly incised horizontal lines					1808
158	Jar	Fairly common medium-sized jar with closed neck. The rim has a central band decorated with a characteristic incised diamond pattern, giving the cross section the appearance of being split into three. This rim form is similar to Type 11, except with an elongated and larger rim with a more exaggerated band of decorated. The rim has an inner lip with an internal groove and there is often a raised line around the interior of the neck. Body appears to extend down into an oval jar form.				Primarily in grey wares	
159	Jar	Jar with characteristic decorated rim. The rim is ribbed and incised with a diamond pattern. The short neck leads into a globular pot/jar form.	Paunar, T.163B drab black globular jar with trefoil rim	Paunar, P.IV	IV	Primarily in grey wares	

160	Jar	Rim from a medium sized globular jar with short restricted neck. The rim flares out slightly at around a 90 angle from the neck and has a rounded terminus. On the interior the rim is simply curved down into the neck. The rim is decorated with a small applique fringe					
161	Jar	Rim of a small jar with a short concave neck. The rim is rounded with an interior groove. Under the rim is a row of applique pinched decoration	Nevasa, No. IV, example of applique decoration	Nevasa, P. V	II		692
162	Jar	Small jar with a short concave neck and rounded rim. The rim has an external groove which creates a split rim. The top section extends vertically, and the lower section protrudes	Bhokardhan, similar to T.26, storage pot in red slipped ware	Bhokardhan, P.1A	II		753
163	Pot	Globular pot with short neck and a small rounded rim with a ridge on the exterior, possibly for receiving a lid. The rim also has a groove on the interior.	Sanchi, similar to T.106, lidded jar in red slipped and coarse red ware; Dwarka, resembles T.45, in burnished red ware; Nevasa, similar to T.67, in red and black ware	Sanchi, 2nd c BC- 9th c AD; Dwarka, P.II; Nevasa P.V	II-IV		
164	Jar	Small jar with thick walls and a short concave neck. The rim faces outwards and is slightly undercut with an external groove					2319

165	Pot/Jar	Rim form of medium to large-sized pot or jar with a slightly concave neck. The rim forms a simple collar on the exterior but the top angles inwards and is grooved to create a rounded terminus facing the opening of the vessel					5030
166	Jar	As in type 165 but small-sized pot or jar with a more angular rim. Above a slightly concave neck, the rim forms a squared off collar on the exterior but the top angles inwards and is grooved to create a rounded terminus facing the opening of the vessel					5802
167	Jar	Similar to T.166. Small sized jar with a slightly concave neck and long collared rim. Rather than a groove across the exterior of the rim, it simply begins to curve inwards to slightly restrict the opening of the vessel.					547
168	Pot	Short necked globular pot with ridge and short upright ribbed rim.				Primarily in grey wares	
169	Jar	Jar with short constricted neck and ridged, collared rim. The rim is ridged on the exterior and the interior. The body appears to be globular	Sanchi, similar to T.167, globular jar with ribbed collared rim in Medieval unslipped ware (red or black)	Phasing unknown (Medieval)	V		

170	Globular pot	Globular pot with a short neck curving upwards to a thick rim. The rim is inverted and square in profile. On the interior the rim is undercut due to a small groove.	Kaundinyapura, similar to T.37, large storage jar in coarse red ware	Kaundinyapur (1968), P.V Late Sātavāhana	II		
171	Globular pot	Small globular pot with no neck and a small rounded rim. The rim faces outwards and is defined by a slight undercut					4665
172	Pot	Large close-mouthed jar or pot with bulbous body. Small rim with thick inner bulb or projection. Rim is either rounded or slightly squared off	Bhokardhan, similar to T.16C, coarse red storage jar	Bhokardhan, P.1A	II		
173	Globular pot	Small-sized globular pot with no neck and an inverted rim. The rounded body leads straight into the rim which features a small groove on the exterior. On the interior the rim has a rounded terminus and restricts the opening of the vessel	Pauni, T.74, mica slipped ware	Pauni (1968), P.II	II		
174	Globular pot/jar	Appears to be a globular pot or jar with no neck. The rim is inverted and features a slightly pointed end on the exterior. The interior terminus of the rim is rounded and makes the opening the narrowest part of the vessel. The upper portion of the body may have incised decorations	Sanjan, similar to T.90, in Black slipped grey ware; Paunar similar to T.115A, red ware neckless storage jar+E180	Sanjan, c. early/mid 9th to mid/late 12th century AD; Paunar P.III	III/IV		

175	Globular pot/jar	Neckless globular pot or jar with a small featureless rim. The rim has a square terminus which is inverted.					3196
176	Globular pot/jar	Large wide-mouthed globular pot or jar with no neck. Similar to type 175 but with a much wider body. The rim is inverted but slightly angled upwards with a rounded profile					2730
177	Globular pot/jar	Globular pot or jar with no neck and relatively thin walls. The rim is inverted and undercut on the interior to form a small point at its base. The top of the rim is flattened.					3728
178	Globular pot	Similar to type 176" A large, wide-mouthed globular pot with no neck. The rim is inverted and has a rounded terminus					1317
179	Heavy Pot	Large storage vessel with relatively narrow closed rim and thick fabric. The rim extends upwards from the short neck and forms a rounded terminus. The body of the vessel extends down and out from the neck in a curve giving it a globular appearance	Pauni, T.104, dull red storage jar	Pauni (1968), P.III	II		

180	Globular pot/jar	Neckless globular pot or jar with a rounded inverted rim. On the exterior the rim has a groove while the majority of the rim faces inwards to restrict the opening of the vessel					
181	Globular pot/jar	Medium-sized globular pot or jar with no neck. The rim is inverted and marked on the exterior by a deep groove and often a ridge which may feature incised decoration. The rim has a rounded terminus which restricts the opening of the vessel	Paunar, similar to T.147 drab black pot with incurved mouth	Paunar P.IV	IV		
182	Globular pot/jar	Neckless globular pot or jar with wide mouth. The rim is inverted and on the exterior is marked by a number of incised horizontal lines and a ridge. On the interior the rim simply has a rounded terminus					5537
183	Pot	Medium to large-sized wide mouthed jar. The rim turns inwards to create a closed opening, narrower than the widest point of the vessel. The rim has a flattened top and rounded terminus. The shoulder of the vessel has an applique ridge, and is perhaps shaped to receive a covering. Similar applique decoration to Type 16 but far less pronounced					

184	Flanged bowl	Large wide-mouthed carinated bowl with a flange. The rim is slightly inverted and marked on the outside by a number of incised lines and small ridges. The interior side of the rim is featureless and the top is flattened. The flange extends horizontally from the carination where the body of the vessel begins to extend down and inwards. Underneath the flange is a pinched applique fringe.					
185	Pot	Medium to large-sized wide mouthed flanged jar with incised and applique around the rim and shoulder portion of the vessel. The rim is rounded and inwards facing while the flange has a square profile with the applique decoration.					
186	Basin	Deep steep-sided bowl with in-turned rim. The rim has a rounded terminus either turned up or down with ridges on the top. The external base of the rim has a more pronounced ridge. The sides of the vessel either extends down and then curves in or is convex all round into a globular body. The vessel is thin-sided and some examples have an internal ridge halfway down the body.	Dwarka, similar to T.78, in slipped red ware; Paunar T.160 drab black neckless jar	Dwarka, P.III; Paunar P.IV	IV		

187	Pot	Globular pot with a short, concave neck and a large flanged rim. The body of the vessel features incised decoration of incised lines and notches. The rounded rim faces the interior of the vessel and is slightly undercut. On the exterior is an upwards facing flange with a groove and further incised decoration on the top	Pauni, T.30, mica slipped red ware & T.112, in micaceous red ware	Pauni (1968), P.I & P.III	I/II		
188	Jar	Medium-sized globular pot or jar with a short concave neck and an outwards flaring rim with a rounded terminus. The rim is undercut and features a pinched applique fringe. The top of the rim features several grooves with incised decoration.	Paunar, similar to T.142 neckless storage jar	Paunar, P.III	III		4392
189	Jar	Thick sided jar with constricted concave neck. The body portion is missing but it would appear to be globular or vase shaped. The rim is deeply undercut and overhangs. The rim is ridged and has an applique fringed decoration. The interior of the rim has a small groove					2790
190	Jar	Thick sided jar with large bulbous rim. Most of the neck is missing but begins to slope inwards from the rim with straight sides indicating a restricted neck. The rim is rounded and undercut with an applique fringe. The interior of the rim is rounded and slightly undercut too.	Paunar, T.114C, storage jar with beaded rim in red slipped ware	Paunar P.III			4668

191	Storage jar	Large storage jar rim type with a short concave neck. The underside of the neck/rim features several ridges and grooves. The rim has a triangular profile and is faces outwards. The exterior of the rim has a small groove, below which is a ridged fringe					3157
192	Heavy Pot	Very large storage vessel with thick fabric and closed rim. Rim curves inwards to form a rounded internal lip. The rim also has an external extruded rounded lip and a flat rim top, giving a triangular section. The body curves downwards, presumably extending into a long oval shape.				Primarily in Storage Jar wares	
193	Basin	Large vessel with wide mouth and outwards splayed collared rim. The body extends almost vertically from the neck, with slight rounding to produce a deep wide basin. On some examples there is a small raised rounded band below the neck. The rim displays a small rounded internal lip and a larger external lip with a rounded terminus. The rim top is decorated with small incised horizontal lines.	Sanchi, similar to T.72, in grey ware; Shamalaji, similar to T.126, handi in micaceous ware; Vaisali, T.1, red ware basin; Paunar, T.73A coarse micaceous globular pot	Sanchi, 1st-4th century AD; Shamalaji from P.IIA; Vaisali P.III; Paunar, P.IIB	II/III		

194	Basin	Deep, steep sided basin or bowl (with flattened base on one example). Thick sided vessel made from coarse material. No definition leading to the rim, just thinning of sides and rounded terminus	Maheshwar & Navdatoli, T.141, Kunda in coarse red ware	Maheshwar & Navdatoli, P.VI	III		
195	Basin	Vessel with straight sides and flat top, with slightly rounded exterior to the rim. The top of the rim is decorated with an incised beaded pattern. The exterior of the vessel has small ridges	Nevasa,T.106, Kunda in coarse black ware; Sanchi, similar to T.50, heavy lidded basin in red slipped or micaceous ware	Nevasa, P.V; Sanchi 1st-4th century AD	II		4946
196	Miniature pot	Miniature carinated vessel with an everted rim. The pot has a carination with a groove around the middle. The rim has a rounded terminus and has a groove on the top, perhaps for receiving a lid.					1295
197	Miniature pot	Miniature pot with a small carination towards the base and an out-flaring rim. The base carination has a groove and small ridge. The rim extends up and outwards and has a small rounded terminus.					693
198	Miniature pot	Small bowl or pot with a carinated body and a large, wide rim. The rim flares outwards and is undercut. The exterior of the rim is flattened and the top features a small groove potentially for receiving a cover/lid					1945

199	Votive pot	Small votive pot with a globular body and a long flaring rim. The top of the rim is missing. The top of the body and base of the rim create a small concave neck.					4000
200	Votive pot	Small votive pot with a rounded body, short concave neck and a small featureless rim. The rim extends upwards and has a rounded terminus.	Pauni, T.129, miniature pot in dull red ware	Pauni (1968), P.II	II		4883
201	Lamp	Small lamp with a flat base and slightly curved sides. The lamp has a small featureless rim with a rounded terminus					
202	Lamp	Small lamp with a slightly inverted base and concave, thin sides. The rim faces outwards and has a rounded terminus					
203	Lamp	Small squat lamp with relatively thick sides and base. The bottom is not completely flat and rather the outside edge meets the ground at the middle part of the base is slightly raised. This lamp has a rim with a triangular section and faces outwards					2749

Excavated site	Phasing	Reference
Baroda	P.I: Prehistoric P.II (100-600AD) P.III (600-1000AD) P.IV (1000-1300AD) P.V (1300-1600AD) P.VI (19th century AD)	(Subbarao, 1953)
Bhokardhan	P.IA (c.2nd to 3rd century BC) P.IB (c. 1st century BC to 2nd/3rd century AD) P.II (c.3rd century AD onwards)	(Deo & Gupte, 1974)
Brahmapuri	Sātavāhana 200 BC to 200 AD	(Sankalia & Dikshit, 1952)
Devnimori	Occupation of site around 2nd to 4th century AD with settlement coming to an end in c. 7th or 8th century AD	(Mehta & Chowdary, 1966)
Dwarka	P.I (1st to 2nd BC) P.II (1-4th AD); P.III (c.7th-8th AD) P.IV (10th AD-modern)	(Ansari & Mate, 1966)
Hastinapura	PI: (pre-1200 BC) P.II (c.1100 to 800BC) P.III (early 6th to early 3rd century BC) P.IV (early 2nd century BC to end of 3rd century AD) P.V (Late 11th to early 15th century AD)	(Lal, 1954-55)
Kaundinyapur (A)	P.I (Megalithic) P.II (Pre-Mauryan c.800-600BC) P.III (Mauryan 300-100AD) P.IV (Sātavāhana 150BC-200AD) P.V (Late Sātavāhana 200-250AD) P. VI (Muslim 1300-1600AD)	(Dikshit, 1968)
Kaundinyapur (B)	Early Historic	(Smith, 2000; 2001b)
Maheshwar & Navdatoli	P.III Protohistoric (pre 400 BC) P.IV Early Historic (400-100BC) P.V Early Historic II (100BC-200AD) P.VI Early Historic III (200-500AD) P.VII Muslim-Marāṭhā	(Sankalia, *et al.*, 1958)

Nasik	P.II (Early Historic c. 400 BC – 50 AD) P.III (Roman contact 50 AD to 200 AD) P.IV (Early Muslim-Marāṭhā c. 1400 AD to 1875 AD)	(Sankalia & Deo, 1955)
Nevasa	P.IV (150-50BC) P.V (50BC to 200AD) P.VI (1400-1700AD)	(Sankalia, *et al.*, 1960)
Paunar	P.I (1000-800BC) P.IIA (4th/3rd BC to 1st BC) P.IIB (1st BC to 2nd/3rd AD) P.III (3rd-8th AD) P.IV (10th/11th to 15th/16th AD)	(Deo & Dhavalikar, 1968)
Pauni (A)	P.I. (4^{th} to 3^{rd} century BC) P.II (3rd to 1st century BC) P.III 1st century BC to 3rd century AD)	(Deo & Joshi, 1972)
Pauni (B)	P.I (c. 6^{th} to 4^{th} century BC) P.II (c. 4^{th} to 2^{nd} century BC) P.III (2nd to first half of 1st century BC) P.IV (Second half of 1^{st} century BC to 3rd century AD) P.V (c. 3^{rd} to 6^{th} century AD)	(Nath, 1998)
Sanchi	Date indicated in table	(Shaw, 2007)
Sanjan	Occupied from 7th AD	(Nanji, 2011)
Shamalaji	P.I (0-50 AD) P.IIA (50-400 AD) P.IIB (400-1000 AD) P.III (1500-1800AD)	(Mehta & Patel, 1967)
Timbarva	P.I (400 BC - 0 AD) P.II (0-300 AD) P.III (600 -1000 AD)	(Mehta, 1955)
Tuljapur Garhi	Phase A: Malwa, Phase B Jorwe	(Bopardikar, 1996)
Vaisali	P.I (pre 600 BC) P.II (600 – 200 BC) P.III (200 BC-200 AD) P.IV (200-600 AD) P.V (post 600 AD)	(Sinha & Roy, 1969)

Appendix 7: Ceramic illustrations

Rim Type	Sherd No.	Rim Diameter (mm)	Notes	Sheet No.	Drawn By
1	3674	200		32	HRL
1	3703	240		32	HRL
1	4239	240		32	HRL
2	1316	200		34	HRL
3	5249	160	Unique	90	HRL
4	3840	150		81	HRL
5	839	140		76	HRL
5	3129	200		62	HRL
5	3306	140		62	HRL
6	4846	200		97	HRL
7	3179	140	Unique	105	HRL
8	482	250	Unique	104	HRL
9	4321	200		108	HRL
10	2485	200	Unique	76	HRL
11	4609	130		67	HRL
12	998	220	Unique	68	HRL
13	4870	270	Unique	89	HRL
14	4874	200		67	HRL
15	4942	200		68	HRL
15	5189	170		69	HRL
16	5655	200		69	HRL
17	5172	350		71	HRL
18	2675	300		51	HRL
19	4693	350	Unique	102	HRL
20	4956	260	Unique	100	HRL
21	4099	290		88	HRL
21	4681	380		99	HRL
22	5308	260	Unique	91	HRL
23	5572	300		54	HRL
24	405	320		104	HRL
24	2661	240		21	BJS
24	4636	280		21	BJS
25	664	110		20	BJS
26	2504	320		23	BJS
26	5947	320		23	BJS
27	986	380		24	HRL
27	2697	400		24	HRL
28	5059	200		26	HRL
28	5586	350		26	HRL

29	1066	300		27	HRL
30	3951	240	Unique	79	HRL
31	2375	250		28	HRL
32	680	250		73	HRL
32	1349	250		73	HRL
33	2742	280		27	HRL
33	4795	280		27	HRL
33	4934	200		72	HRL
34	4255	230	Unique	95	HRL
35	3772	650	Unique	102	HRL
36	4723	220		30	HRL
36	5847	300		30	HRL
37	1848	180		40	BJS
38	1766	210		55	HRL
38	1810	190		55	HRL
38	5687	220		33	BJS
39	4166			46	BJS
40	713	340		21	BJS
40	2638	420		21	BJS
41	5131	350	Unique	105	HRL
42	1818	300		62	HRL
43	60	420		20	BJS
43	5584	460		20	BJS
44	1061	440		19	BJS
45	4534	300		34	HRL
45	4858	300		35	HRL
45	5198	250		35	HRL
46	5712	230		13	HRL
47	156	250		3	HRL
47	970	240		2	HRL
47	974	270		1	HRL
47	2633	210		3	HRL
48	1198	350		4	HRL
49	5144	250		8	HRL
49	5205	250		4	HRL
49	5251	200		52	HRL
50	5217	280		9	HRL
50	5554	270		9	HRL
51	2464	200		74	HRL
52	1312	150		97	HRL
53	3642	220		91	HRL
53	5148	260		80	BJS
54	3359	230		52	HRL
54	5741	300		52	HRL
55	1862	240		5	BJS

55	1864	340		5	BJS
56	4159	180		37	HRL
56	5675	230		38	HRL
56	5731	230		108	HRL
57	3201	300		82	HRL
57	MNSII	450		98	HRL
58	452	150		60	HRL
58	1944	160		53	HRL
59	802	120		99	HRL
59	5780	180		8	HRL
60	2585	210		6	HRL
60	3765	250		6	HRL
61	3978	140	Unique	37	HRL
62	5596	140		92	HRL
62	5618	150		78	HRL
63	2926	140	Unique	43	HRL
64	3672	220		43	HRL
64	3729	300		53	HRL
64	3760	180		45	HRL
65	3717	200		44	HRL
65	4232	270		44	HRL
66	3224	200	Unique	110	HRL
67	3724	220		40	BJS
67	3732	250		44	HRL
67	4314	220		96	HRL
68	3916	200		47	HRL
69	765	180		93	HRL
69	4148	150		97	HRL
70	3879	150	Unique	107	HRL
71	5737	100		47	HRL
72	4092	100		81	HRL
72	4126	100		47	HRL
73	1303	140		49	HRL
73	1314	150		49	HRL
73	5145	140		48	HRL
74	3162	140		49	HRL
74	3898	160		42	BJS
75	870	100		100	HRL
75	3364	150		47	HRL
75	3389	110		100	HRL
76	4106	150		48	HRL
76	4203	160		38	HRL
77	983	160		50	HRL
77	1952	160		51	HRL
78	4226	140		50	HRL

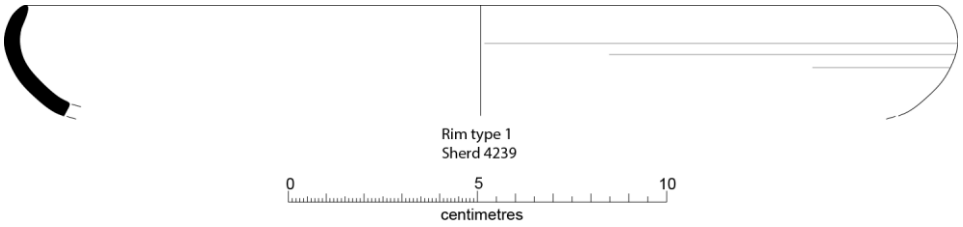
79	635	180	Unique	94	HRL
80	5353	150	Unique	96	HRL
81	1355	120	Unique	110	HRL
82	1812	100	Unique	100	HRL
83	5653	150	Unique	105	HRL
84	4075	160	Unique	80	HRL
85	161	150		91	HRL
85	2250	130		107	HRL
86	3989	100		41	HRL
86	4088	140		39	HRL
87	1842	120		41	HRL
87	4654	210		41	HRL
88	706	130	Unique	100	HRL
89	3009	120	Unique	82	HRL
90	3484	150	Unique	100	HRL
91	3190	100	Unique	99	HRL
92	1769	180	Unique	50	HRL
93	4595	130		42	BJS
94	3959	100		39	HRL
95	1622	90	Unique	101	HRL
96	5762	80	Unique	94	HRL
97	5045	100	Unique	94	HRL
98	4757	50	Unique	93	HRL
99	789	80		28	HRL
99	1244	100		28	HRL
100	1059	120		7	BJS
100	3325	120		7	BJS
100	4176	100		7	BJS
101	745	220		59	HRL
102	5790	130		74	HRL
103	1693	200		73	HRL
103	2351	140		78	HRL
103	2701	130		56	HRL
104	4185	170		74	HRL
105	1613	200		59	HRL
105	2326	180		78	HRL
106	5274	180	Unique	82	HRL
107	710	200	Unique	45	HRL
108	2648	180		54	HRL
109	297	260		76	HRL
109	703	240		59	HRL
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111	62	200		71	HRL
111	2413	250		66	HRL
111	2433	230		58	HRL

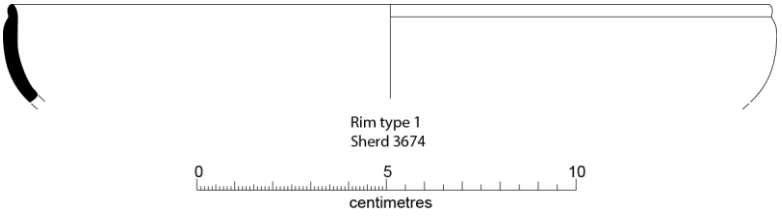
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112	1671	160		58	HRL
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113	5706	110		99	HRL
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115	1360	260	Unique	98	HRL
116	1308	250	Unique	101	HRL
117	5336	180	Unique	75	HRL
118	1796	220		96	HRL
118	5380	220		92	HRL
119	4756	220	Unique	107	HRL
120	4724	280		89	HRL
121	739	170		95	HRL
121	3892	170		81	HRL
122	4738	250		63	HRL
123	3894	400		88	HRL
123	4658	200		109	HRL
124	3060	400		104	HRL
125	4850	340	Unique	101	HRL
126	1374	310		110	HRL
126	3164	450		109	HRL
127	4679	400		61	HRL
128	719	240		55	HRL
128	2555	190		110	HRL
129	4471	100	Unique	91	HRL
130	5565	220	Unique	75	HRL
131	2270	160	Unique	103	HRL
132	665	180	Unique	103	HRL
133	3246	400		105	HRL
134	5254	200		60	HRL
135	5244	180	Unique	110	HRL
136	4714	210		41	HRL
136	4939	240		60	HRL
137	4710	220		42	BJS
138	1510	300	Unique	88	HRL
139	841	220		61	HRL
139	2488	200		103	HRL
139	4550	200		75	HRL
139	5669	220		108	HRL
140	2706	260	Unique	90	HRL
141	988	200		109	HRL
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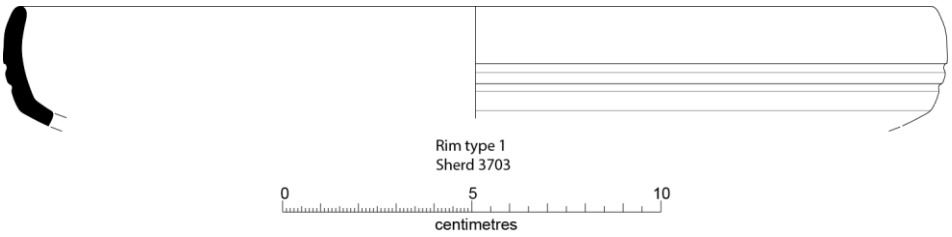
144	4541	300	Unique	94	HRL
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146	3956	220		77	HRL
146	MNSI	200		98	HRL
147	754	150	Unique	70	HRL
148	424	160		10	BJS
148	2466	150		96	HRL
148	5632	180		10	BJS
149	620	190		40	BJS
150	56	200		29	BJS
150	5631	200		10	BJS
150	5635	110		29	BJS
151	978	180		29	BJS
151	987	180		29	BJS
152	2647	190		14	BJS
152	5810	200		14	BJS
153	4181	200		16	BJS
154	2674	180		16	BJS
154	3566	180		16	BJS
155	1454	150		79	HRL
155	4522	200		109	HRL
155	5816	200		33	BJS
156	5054	200		33	BJS
157	1808	140	Unique	90	HRL
158	2637	170		15	HRL
158	2658	160		15	HRL
159	622	190		14	BJS
160	539	120		66	HRL
161	692	130	Unique	66	HRL
162	753	130	Unique	93	HRL
163	2676	160		79	HRL
164	2319	180	Unique	80	HRL
165	5030	300	Unique	104	HRL
166	5802	140	Unique	107	HRL
167	547	130	Unique	92	HRL
168	1618	200		56	HRL
168	3825	150		56	HRL
169	2631	160		31	BJS
170	4637	200		31	BJS
171	4665	110	Unique	90	HRL
172	2399	180		23	BJS
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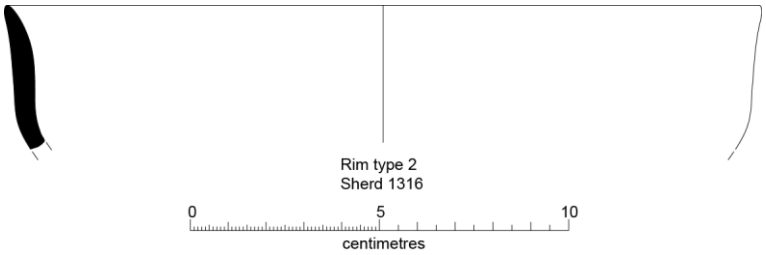
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176	2730	370	Unique	95	HRL
177	3728	350	Unique	72	HRL
178	1317	240	Unique	108	HRL
179	4610	310		11	BJS
180	1264	230		75	HRL
180	3065	230		71	HRL
181	915	220		108	HRL
181	2838	300		70	HRL
181	3049	200		70	HRL
181	5159	210		72	HRL
182	5537	200	Unique	106	HRL
183	668	350		30	HRL
183	1271	300		17	HRL
183	2341	180		18	HRL
183	2656	200		31	BJS
184	134	300		18	HRL
185	5515	180		18	HRL
186	740	210		25	HRL
186	2180	210		25	HRL
186	5571	250		26	HRL
187	317	240		57	HRL
187	760	240		57	HRL
187	2470	250		65	HRL
188	4392	220	Unique	65	HRL
189	2790	340	Unique	64	HRL
190	4668	250	Unique	64	HRL
191	3157	250	Unique	102	HRL
192	3147	650		11	BJS
193	980	270		12	HRL
193	2576	460		13	HRL
193	2703	250		12	HRL
193	4018	290		61	HRL
194	3328	360		22	BJS
194	5193	360		22	BJS
195	4946	200	Unique	103	HRL
196	1295	100	Unique	36	HRL
197	693	80	Unique	63	HRL
198	1945	120	Unique	93	HRL
199	4000		Unique	46	BJS
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201	1215			46	BJS
202	5152			46	BJS
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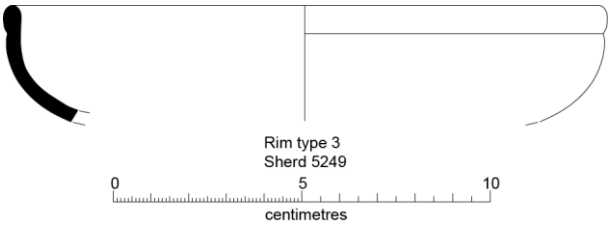
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	817		Handle	87	HRL
	1210		Decorated sherd	86	HRL
	1231		Decorated sherd	86	HRL
	1306		Decorated sherd	83	HRL
	1463		Decorated sherd	84	HRL
	1678		Decorated sherd	85	HRL
	1800		Decorated sherd	84	HRL
	1946		Decorated sherd	83	HRL
	2702		Decorated sherd	85	HRL
	2803		Decorated sherd	87	HRL
	2816		Decorated sherd	83	HRL
	2822		Decorated sherd	84	HRL
	2958		Decorated sherd	87	HRL
	3853		Decorated sherd	86	HRL
	3982		Decorated sherd	86	HRL
	4807		Decorated sherd	85	HRL
	5187		Decorated sherd	86	HRL
	5641		Decorated sherd	84	HRL
	3588		Handle	87	HRL
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	758		Sprinkler	82	HRL

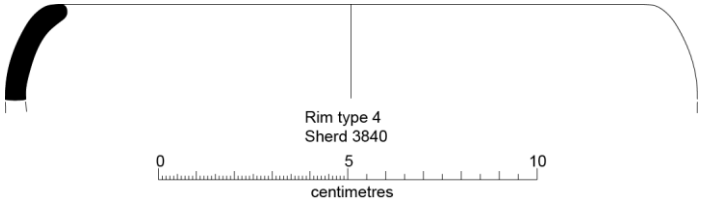

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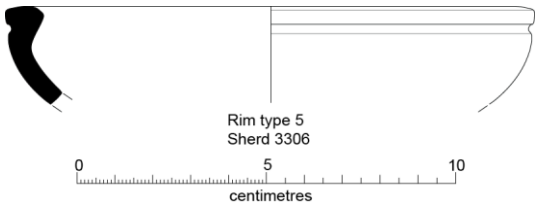

Rim type 1
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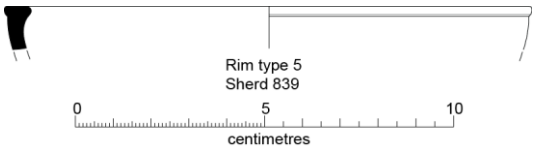

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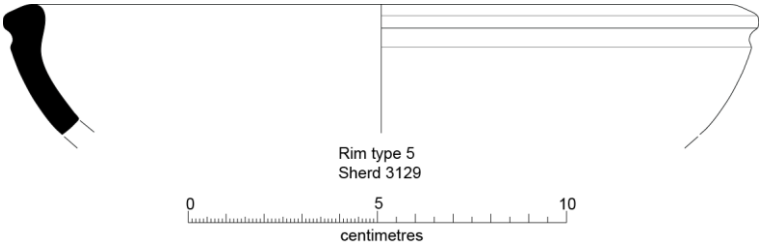

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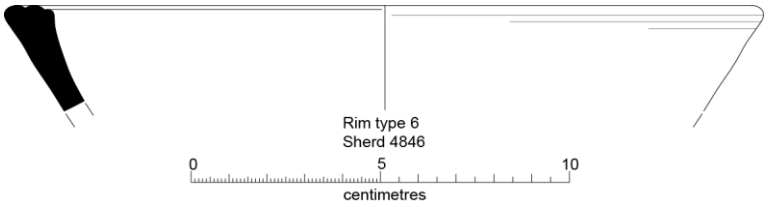

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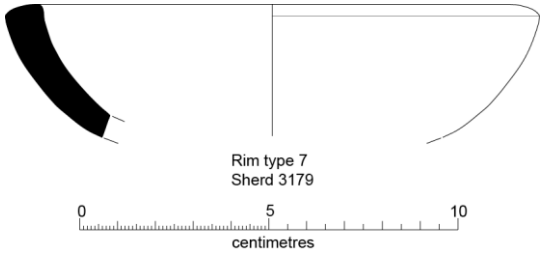

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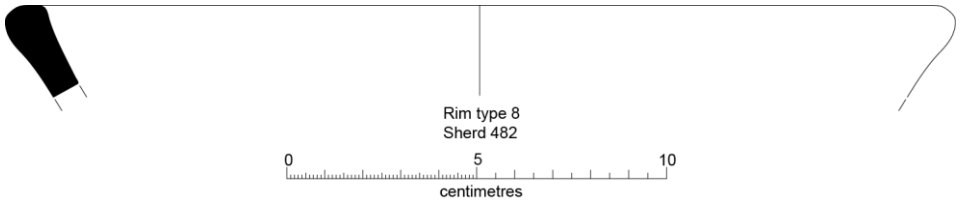

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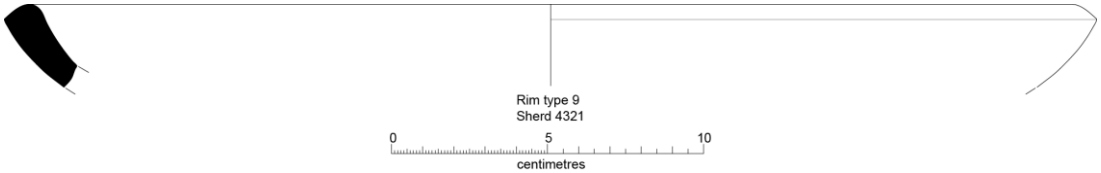

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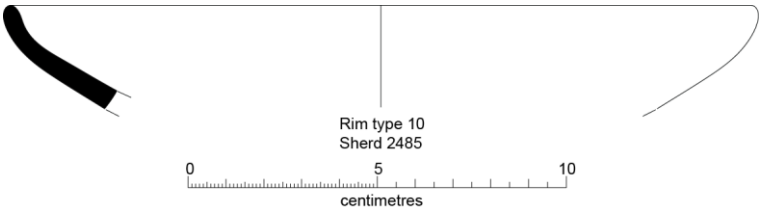

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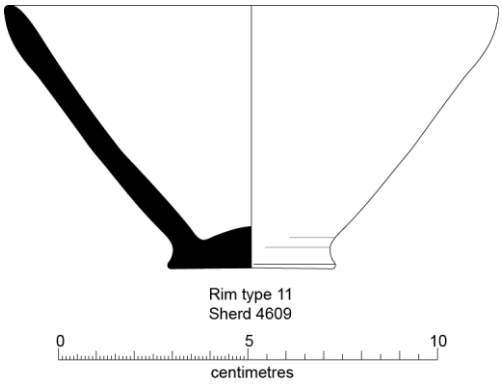

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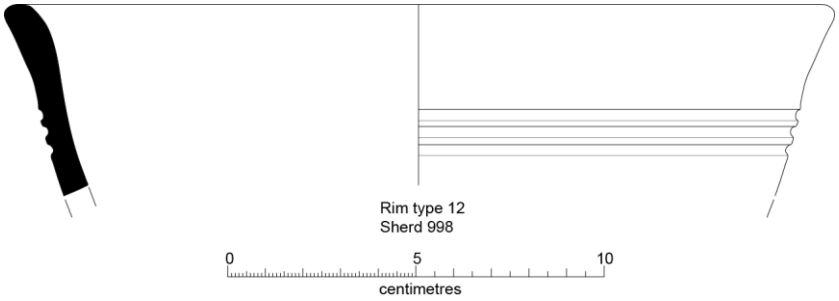

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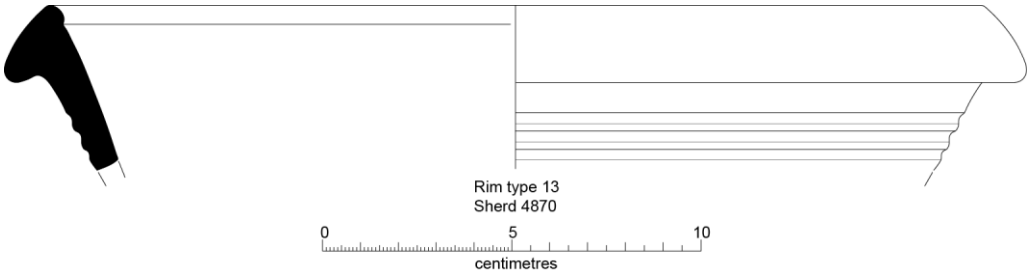

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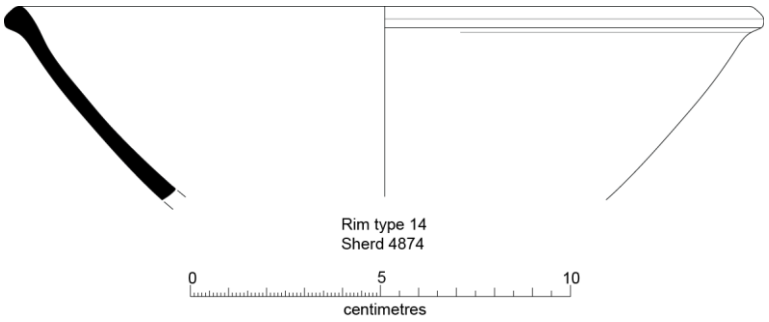

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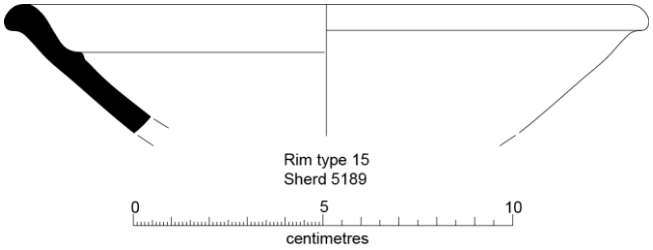

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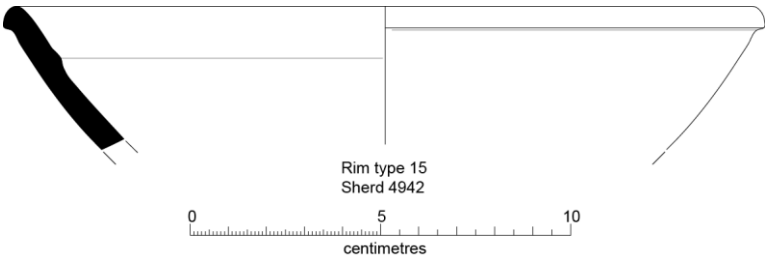

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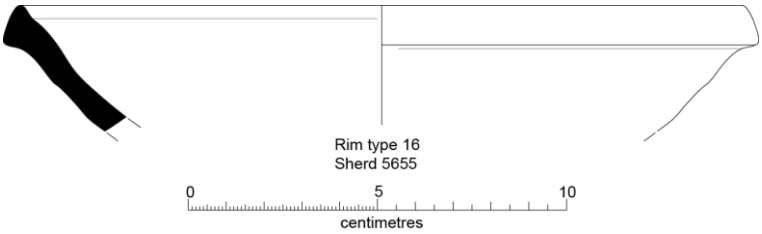

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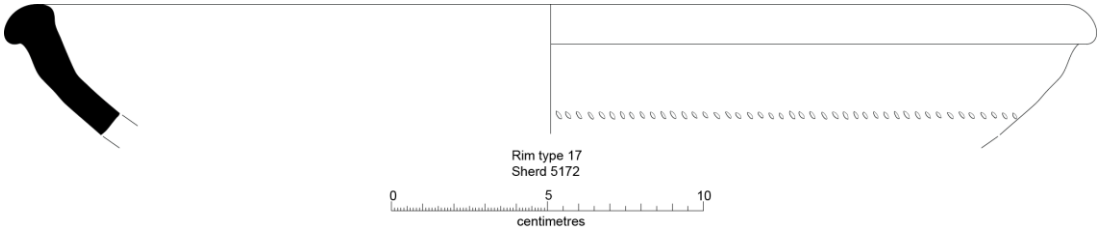

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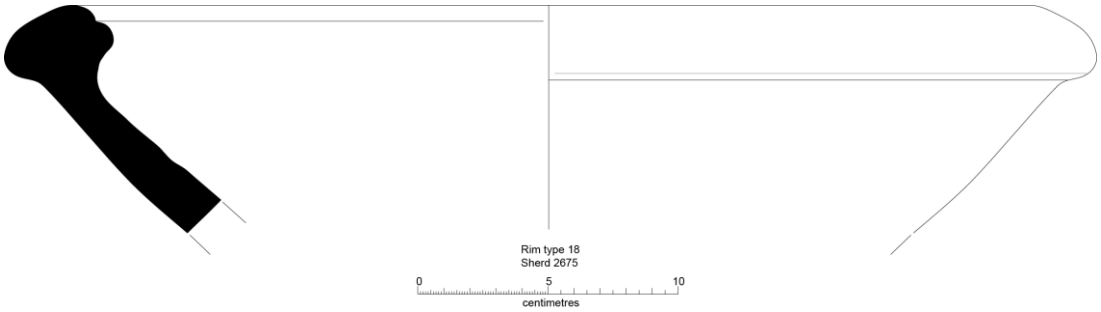

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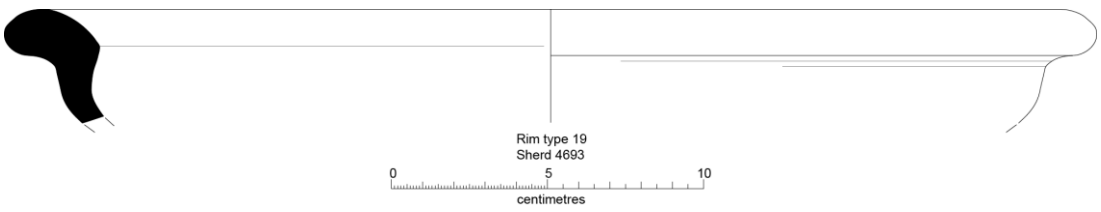

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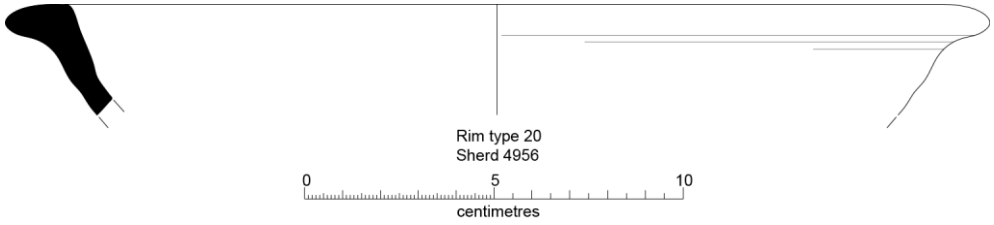

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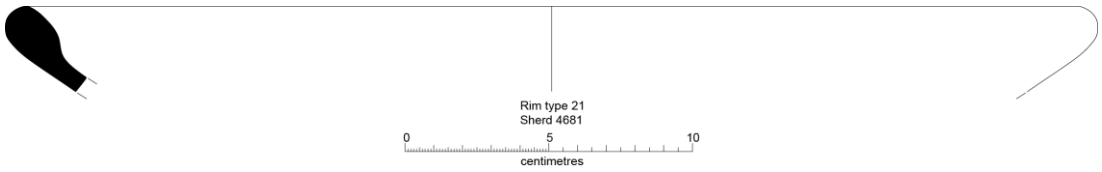

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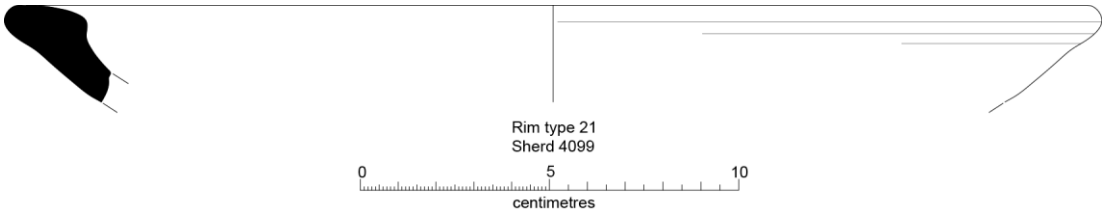

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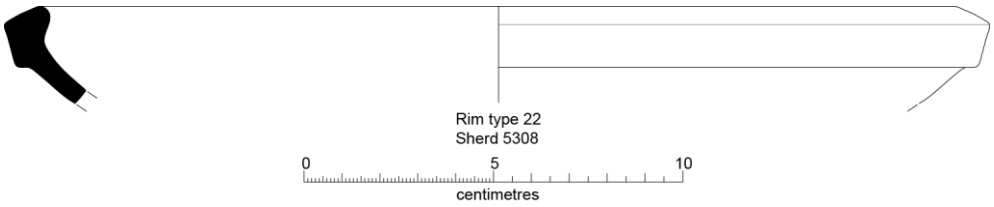

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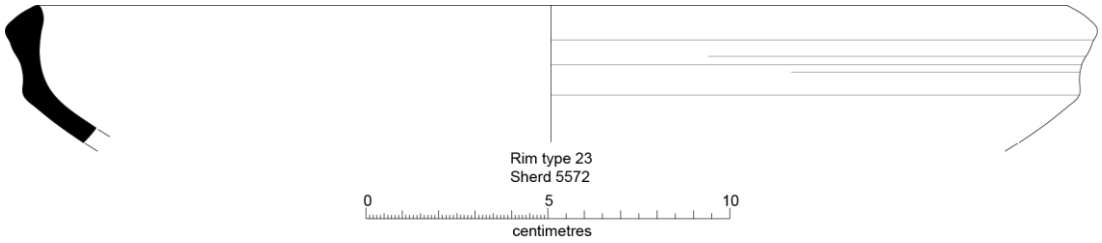

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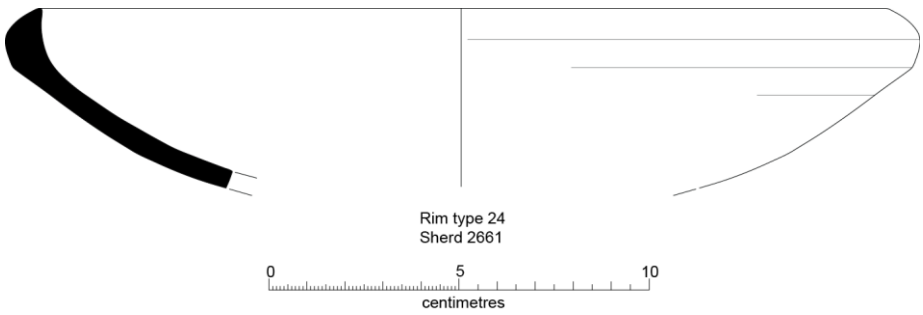

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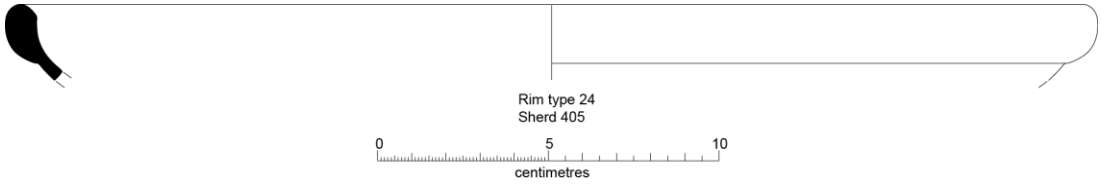

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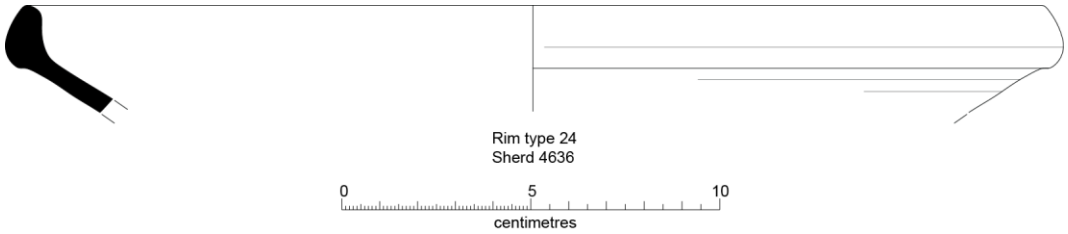

Rim type 21
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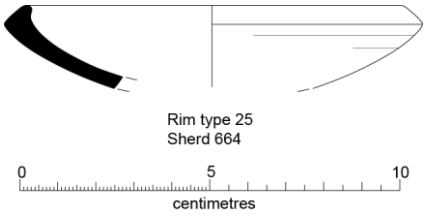

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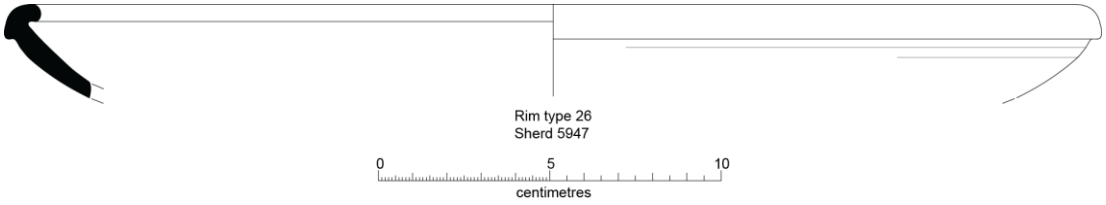

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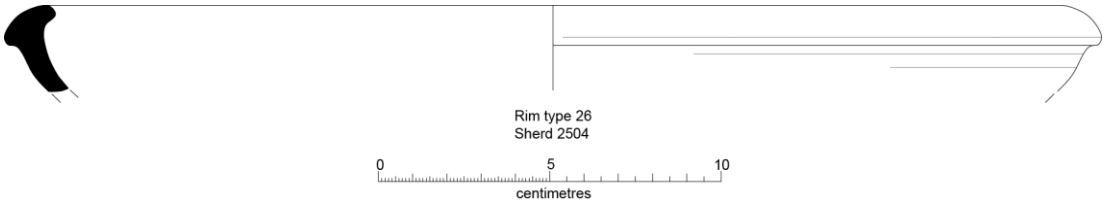

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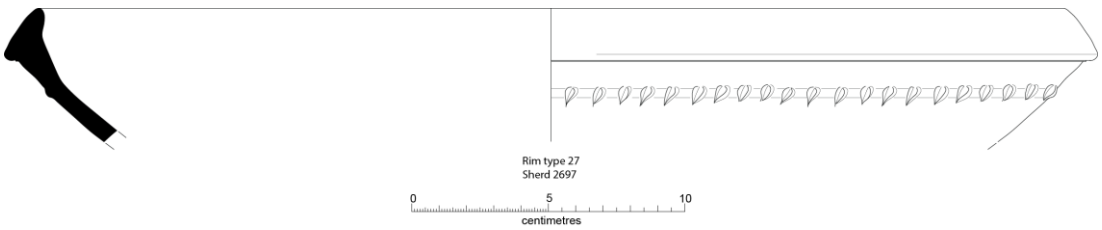

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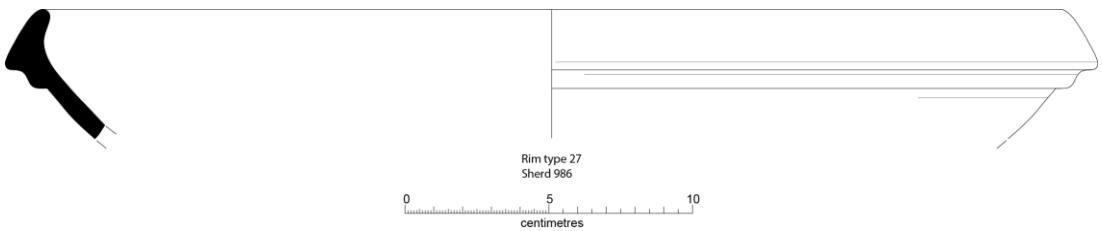

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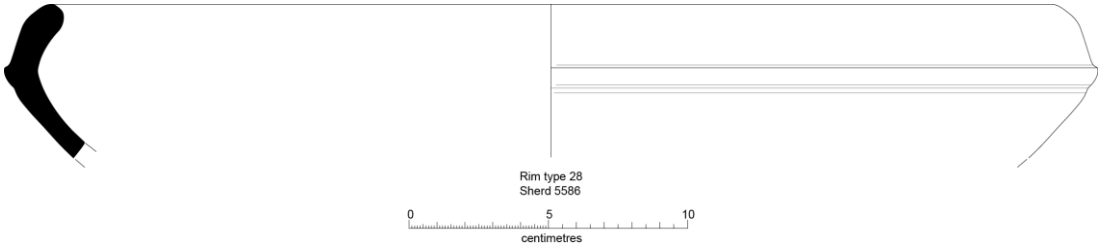

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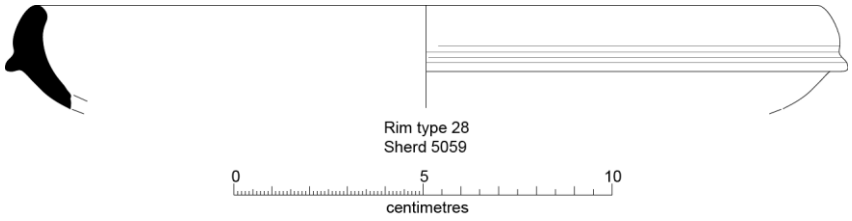

Rim type 26
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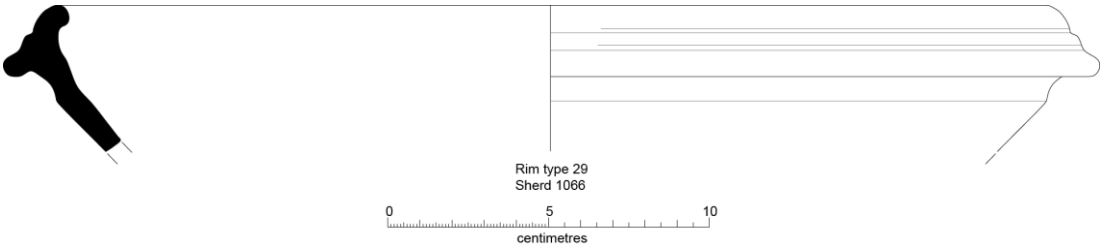

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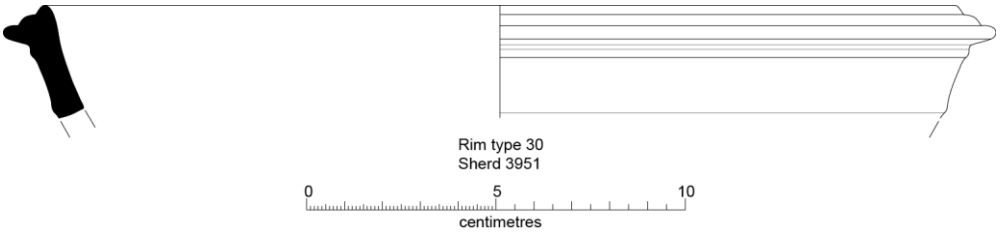

Rim type 27
Sherd 2697
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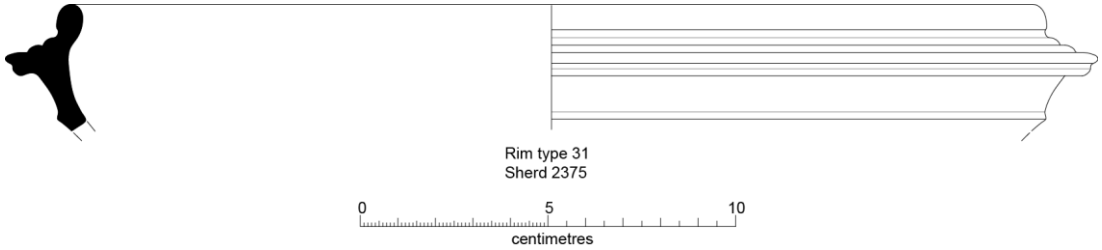

Rim type 27
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centimetres

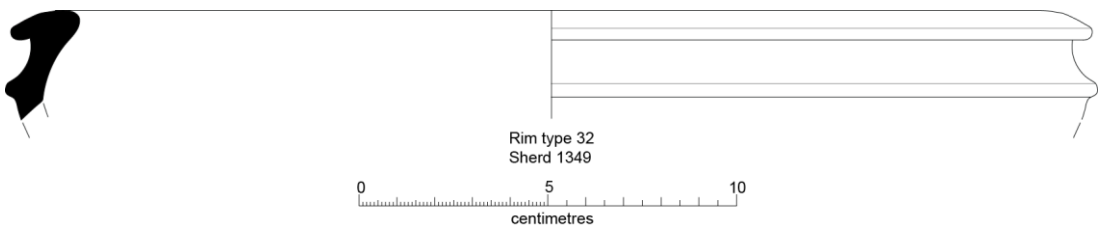

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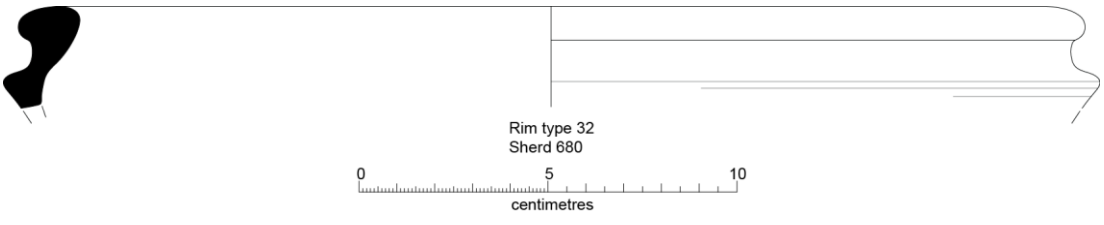

Rim type 28
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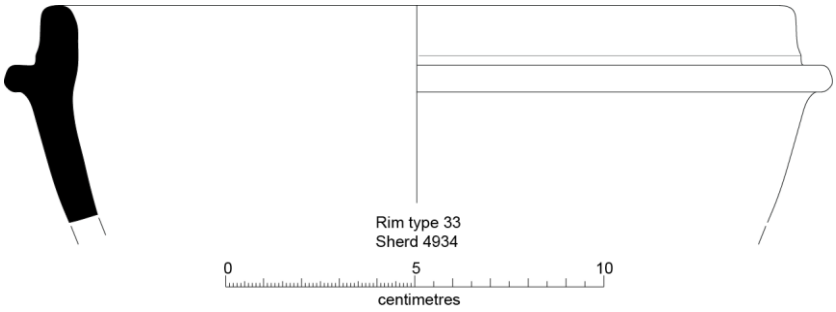

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centimetres

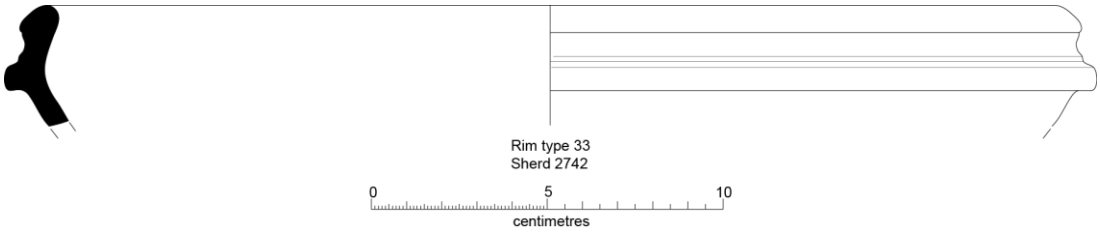

Rim type 30
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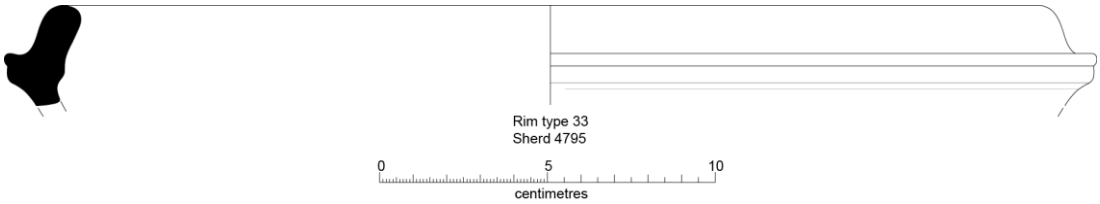

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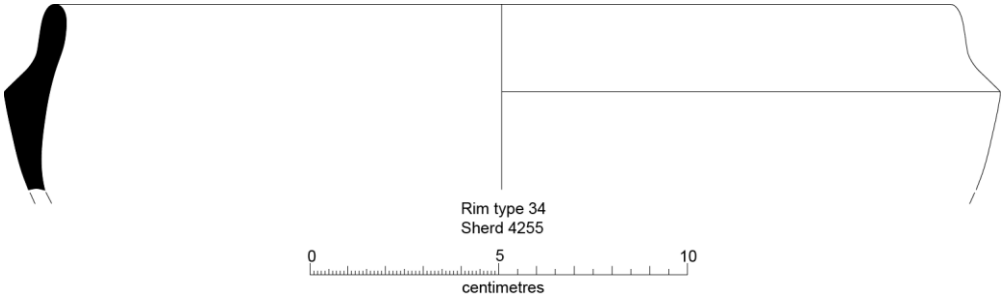

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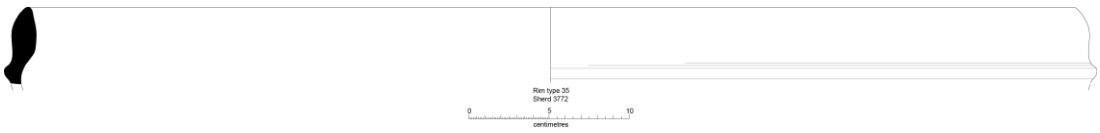

Rim type 32
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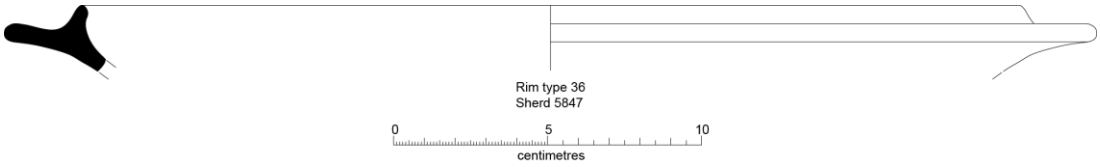

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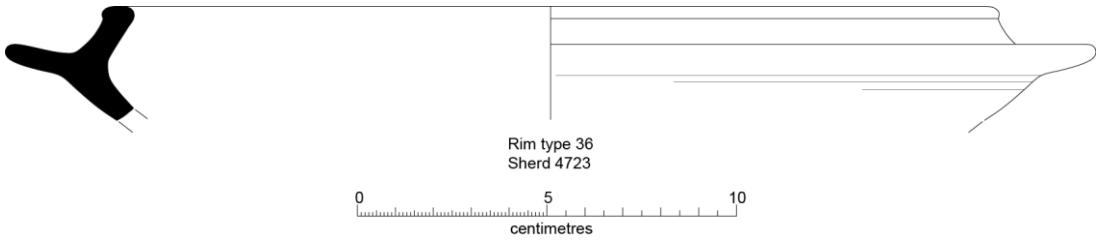

Rim type 33
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centimetres

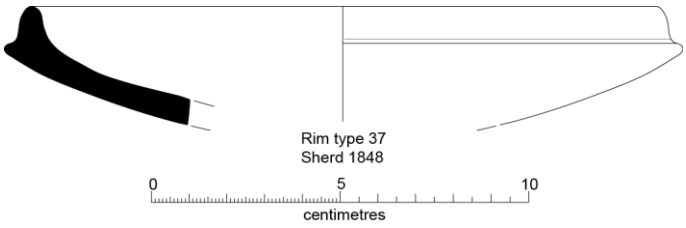

Rim type 33
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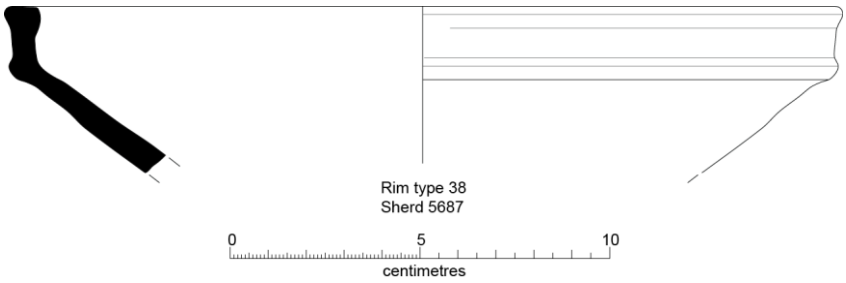

Rim type 34
Sherd 4255
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centimetres

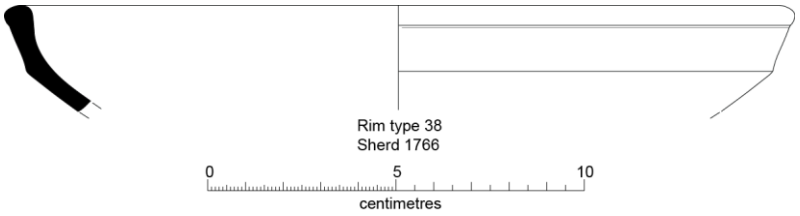

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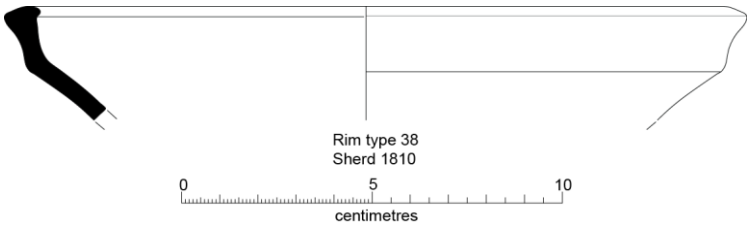

Rim type 36
Sherd 5847
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centimetres

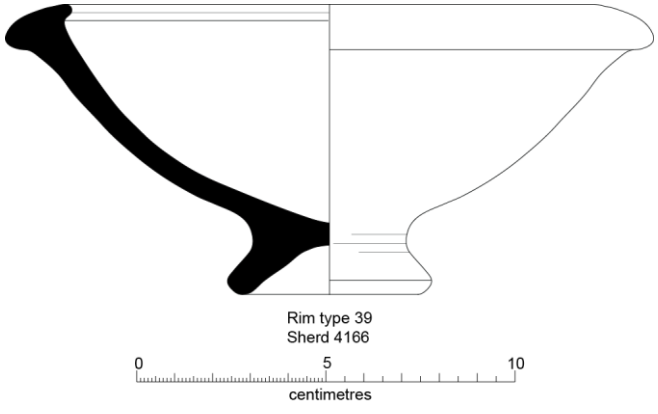

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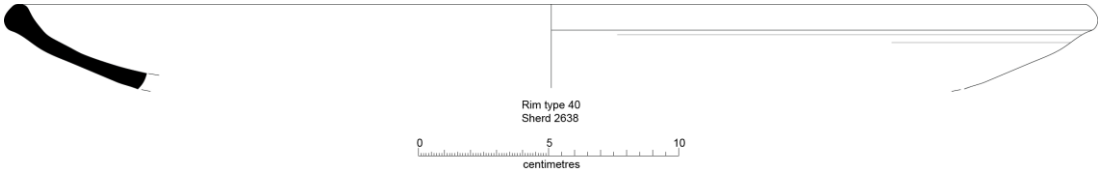

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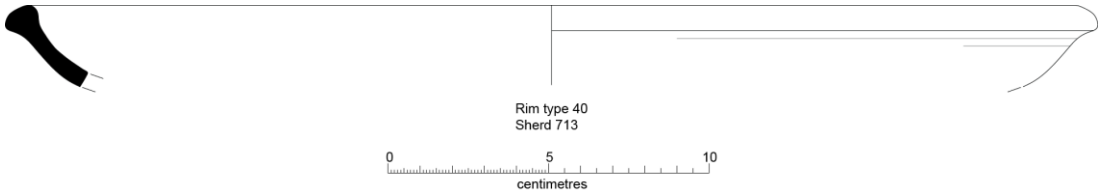

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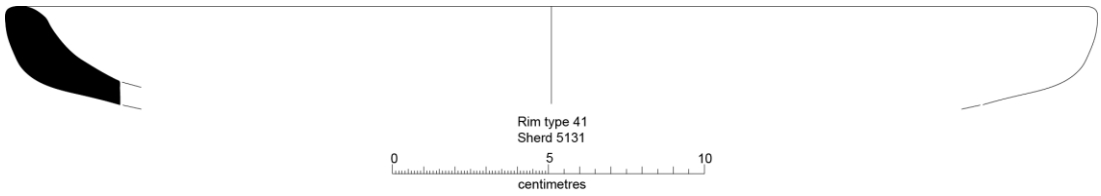

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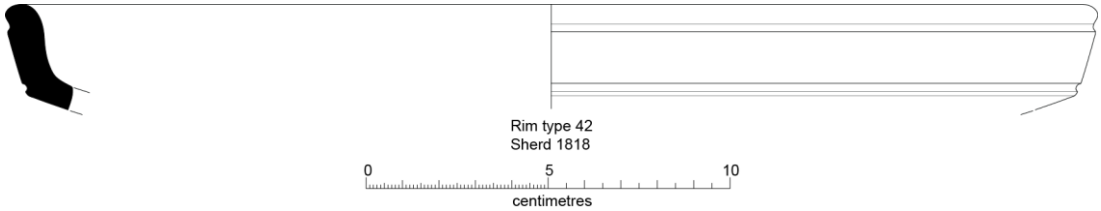

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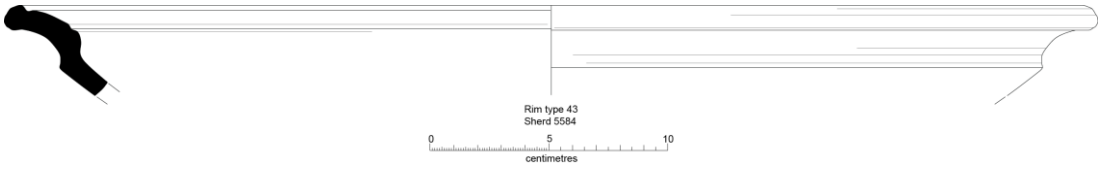

Rim type 39
Sherd 4166
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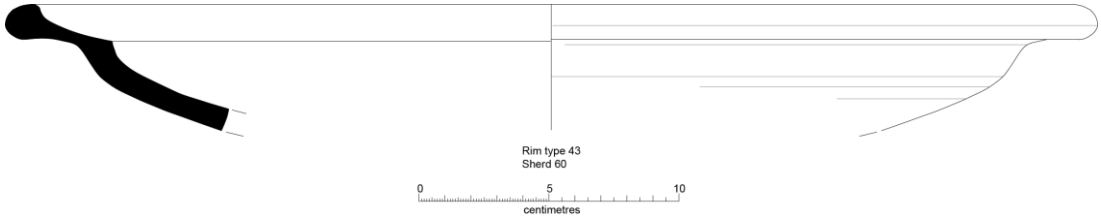

Rim type 40
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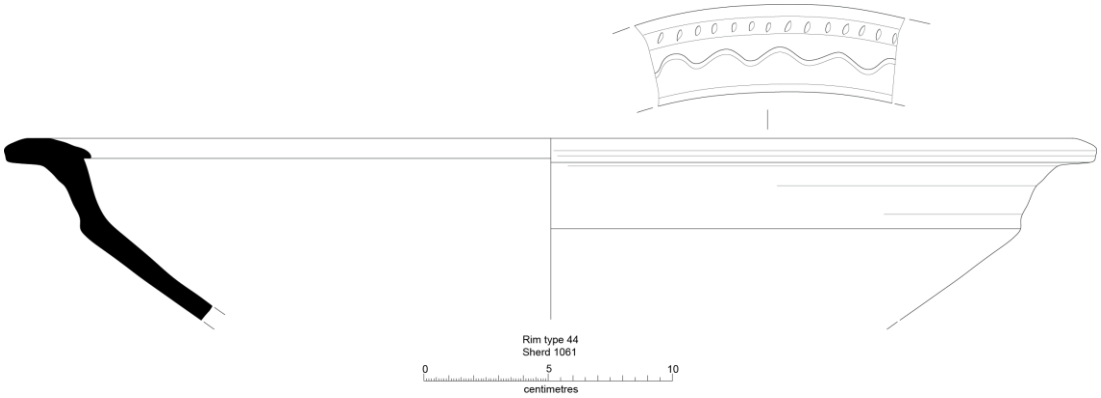

Rim type 40
Sherd 713
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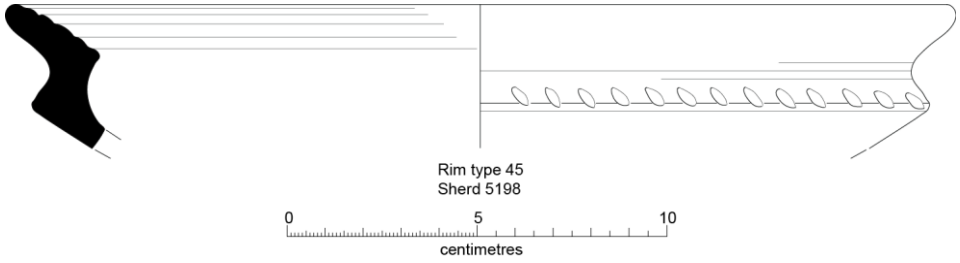

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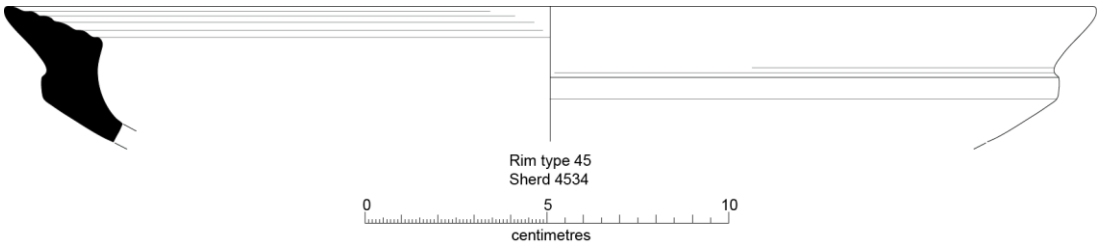

Rim type 42
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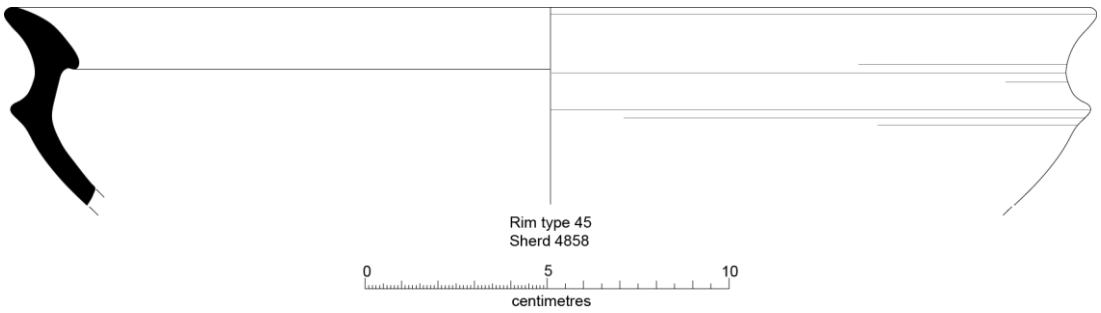

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Sherd 5584
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centimetres

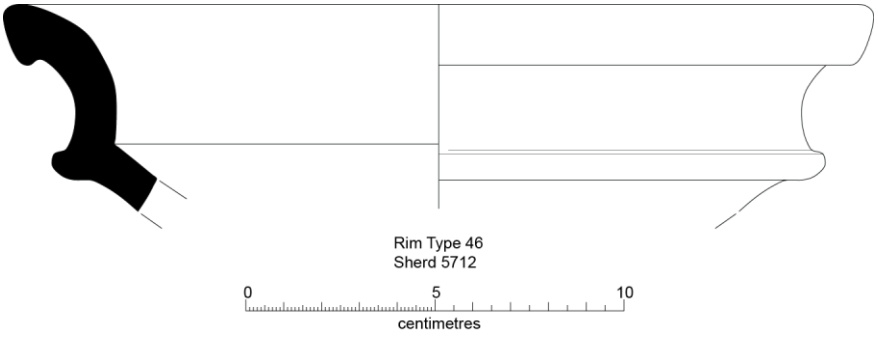

Rim type 43
Sherd 60
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centimetres

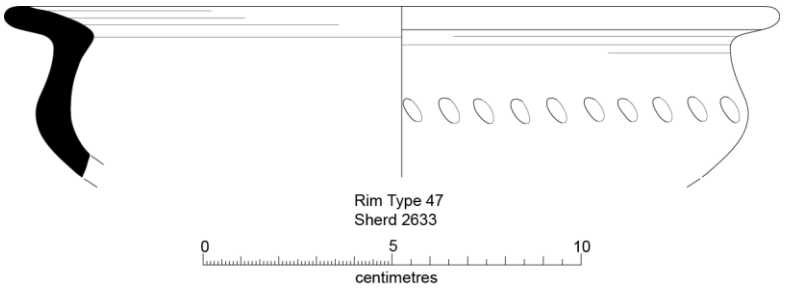

Rim type 44
Sherd 1061
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centimetres


Rim type 45
Sherd 5198
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centimetres


Rim type 45
Sherd 4534
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centimetres

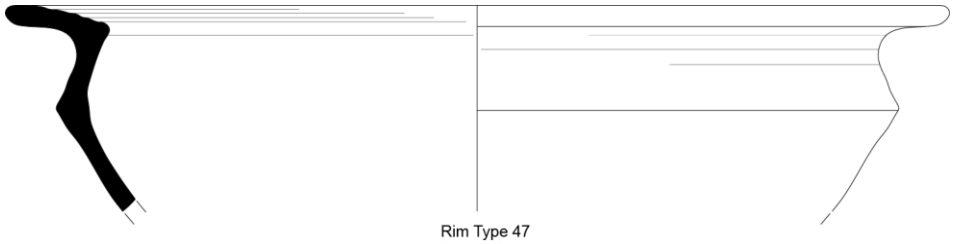

Rim type 45
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centimetres


Rim Type 46
Sherd 5712
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centimetres



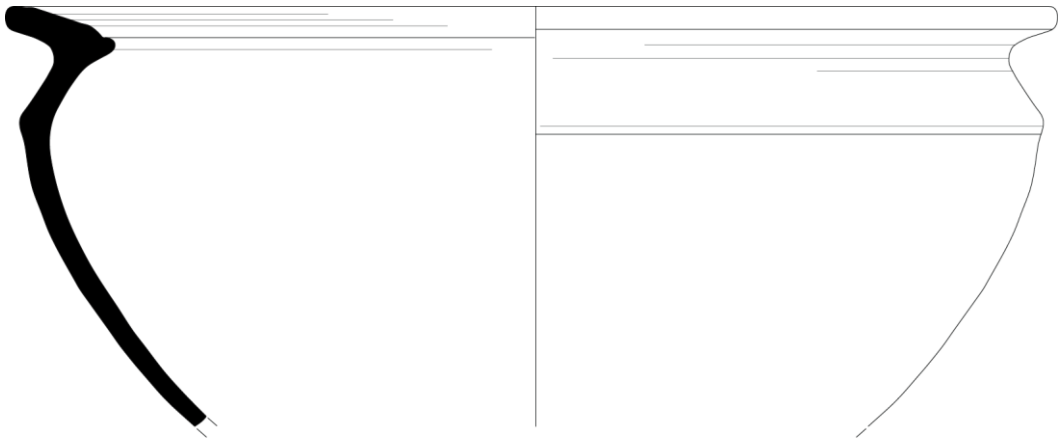
Rim Type 47
Sherd 2633

0 5 10
centimetres



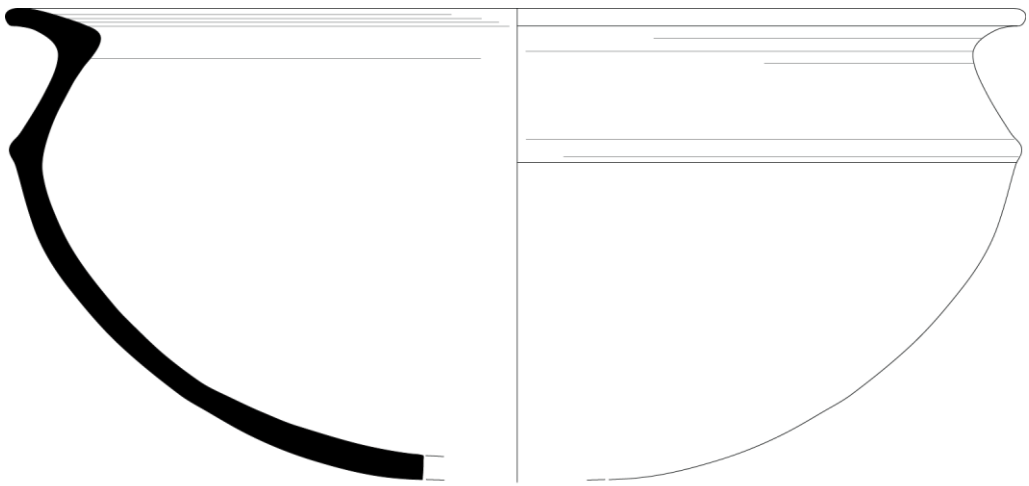
Rim Type 47
Sherd 156

0 5 10
centimetres



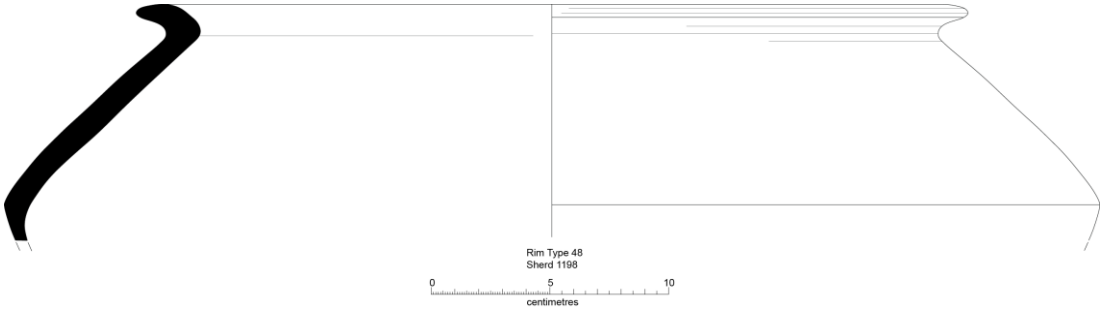
Rim Type 47
Sherd 970

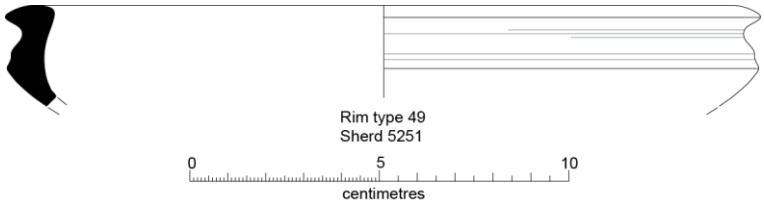
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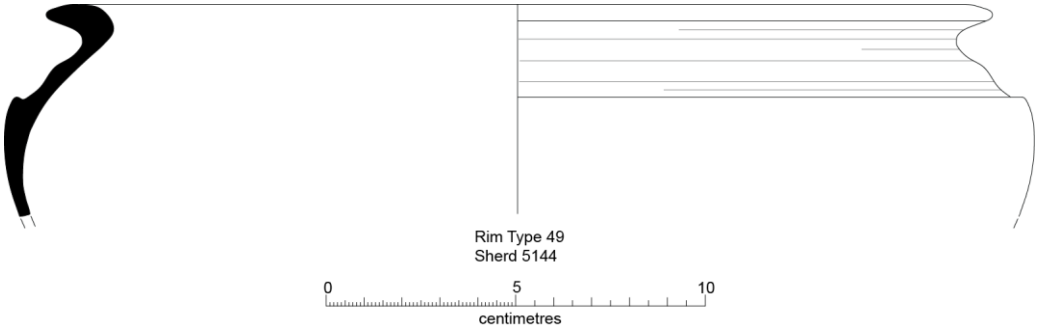


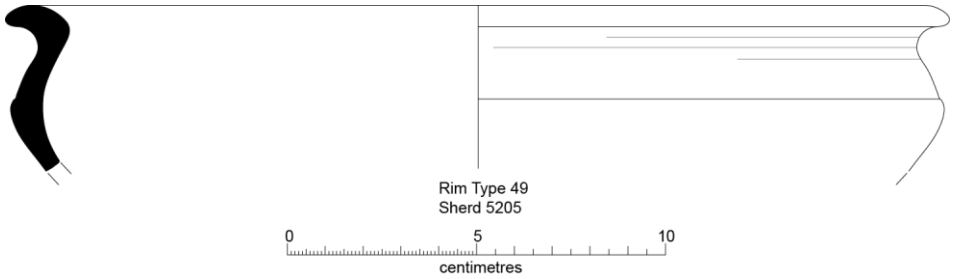
Rim type 47
Sherd 974

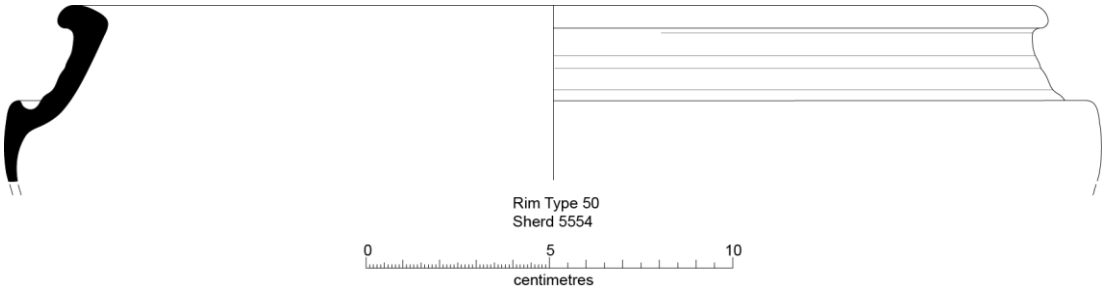
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centimetres


Rim Type 48
Sherd 1198
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5
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centimetres

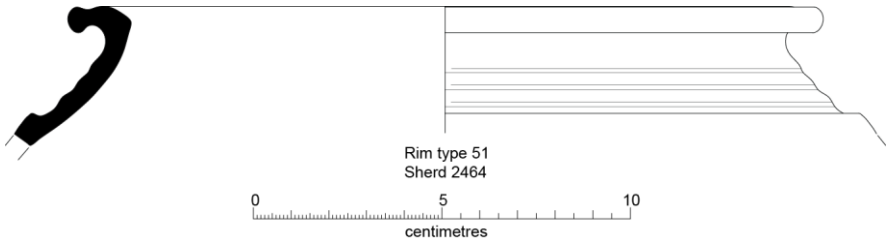

Rim type 49
Sherd 5251
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centimetres


Rim Type 49
Sherd 5144
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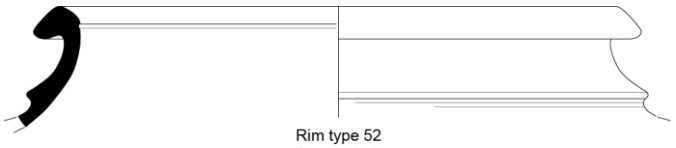

Rim Type 49
Sherd 5205
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centimetres


Rim Type 50
Sherd 5554
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centimetres

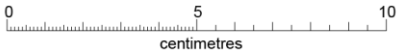

Rim Type 50
Sherd 5217
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centimetres

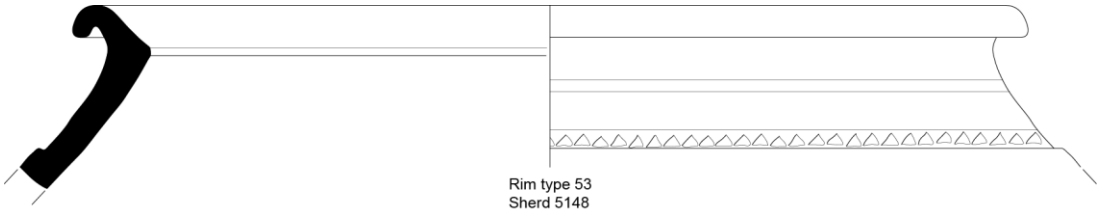


Rim type 51
Sherd 2464

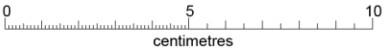


Rim type 52
Sherd 1312



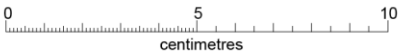


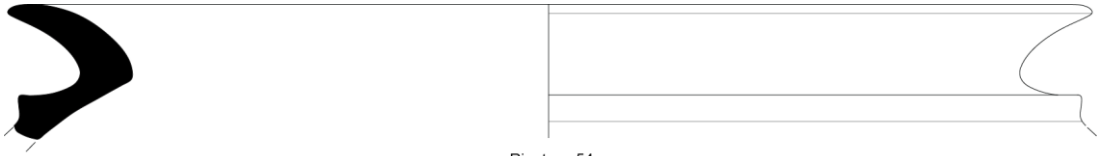
Rim type 53
Sherd 5148



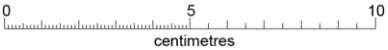


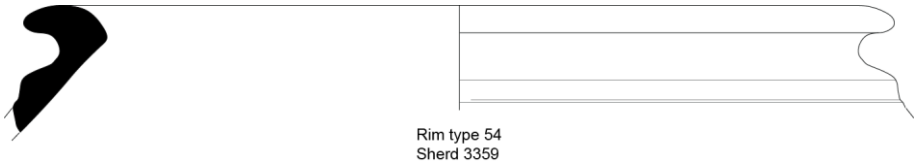
Rim type 53
Sherd 3642



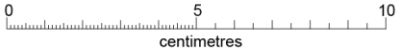


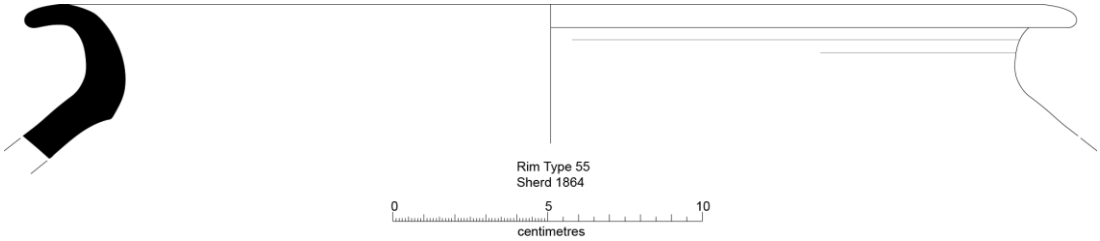
Rim type 54
Sherd 5741

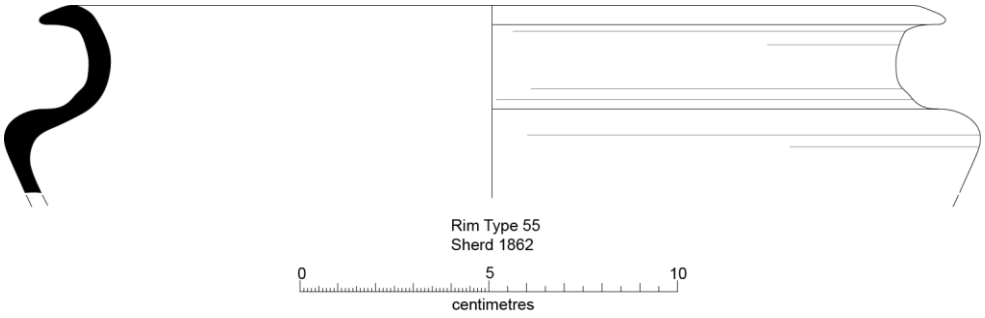


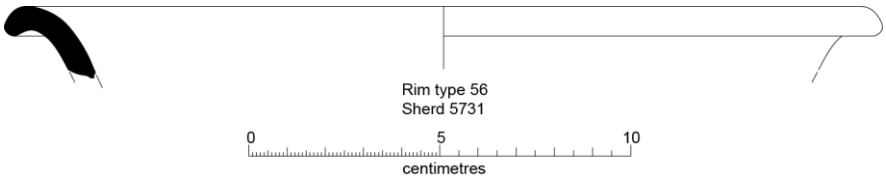


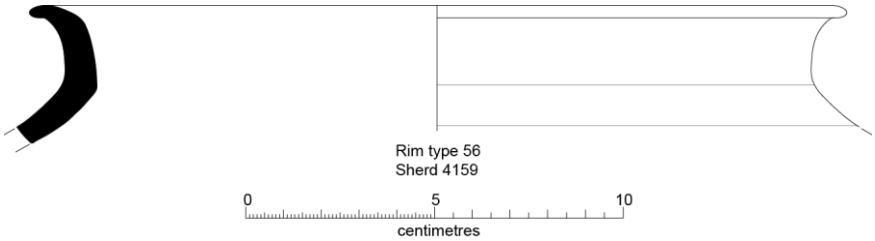
Rim type 54
Sherd 3359

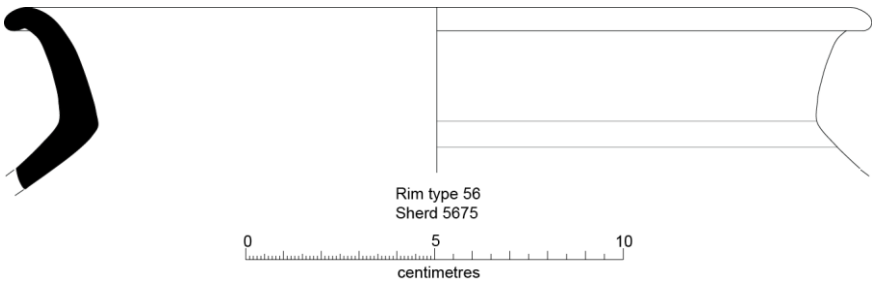


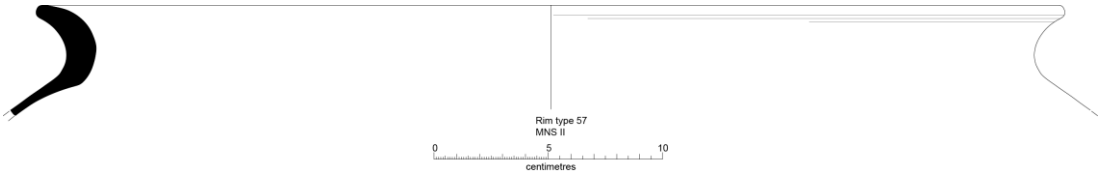

Rim Type 55
Sherd 1864
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centimetres

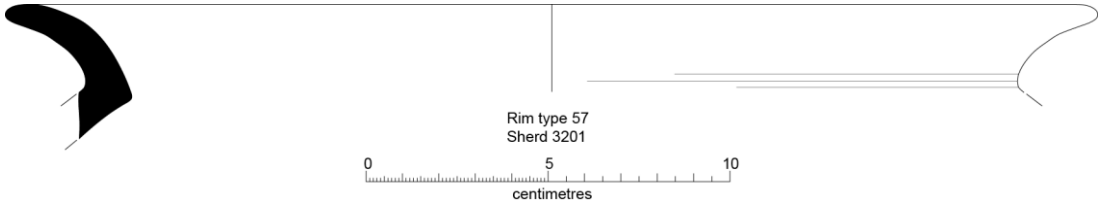

Rim Type 55
Sherd 1862
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centimetres

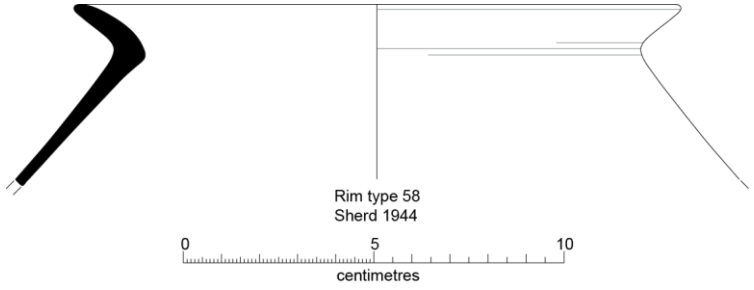

Rim type 56
Sherd 5731
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centimetres

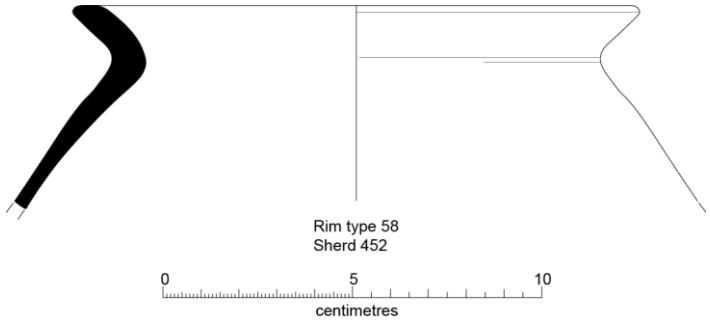

Rim type 56
Sherd 4159
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centimetres

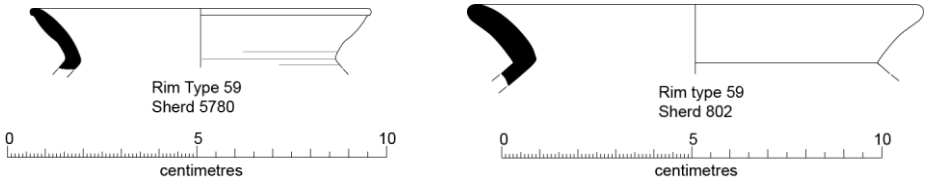

Rim type 56
Sherd 5675
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centimetres

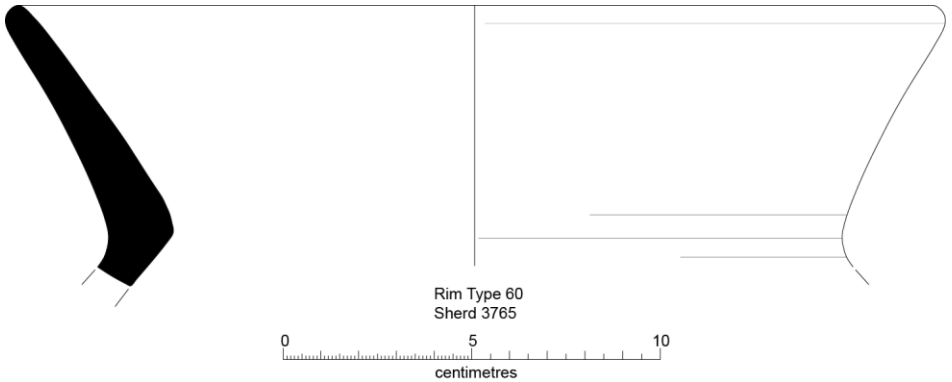

Rim type 57
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centimetres

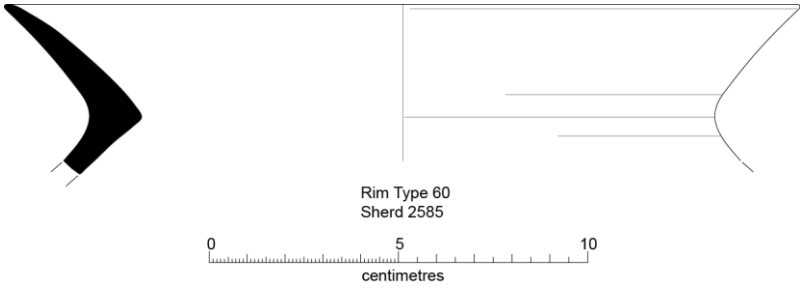

Rim type 57
Sherd 3201
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centimetres

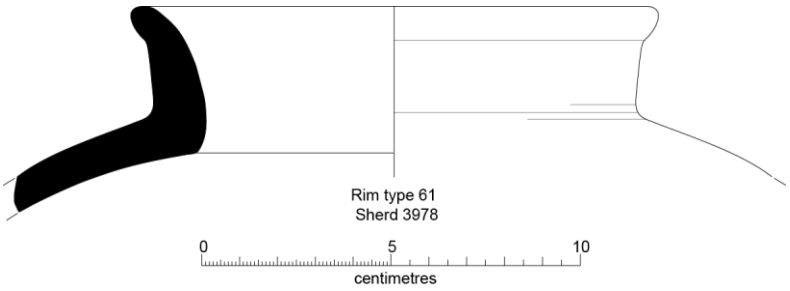

Rim type 58
Sherd 1944
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centimetres

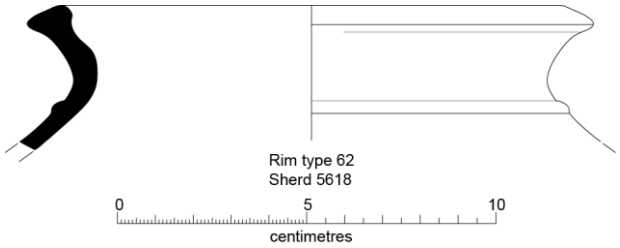

Rim type 58
Sherd 452
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centimetres

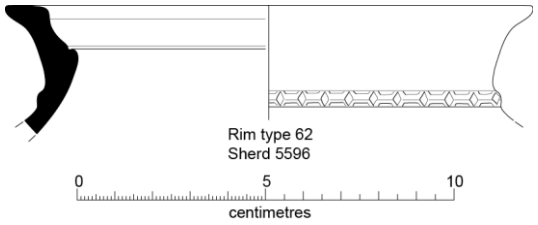

Rim Type 59
Sherd 5780
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centimetres
Rim type 59
Sherd 802
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5
10
centimetres

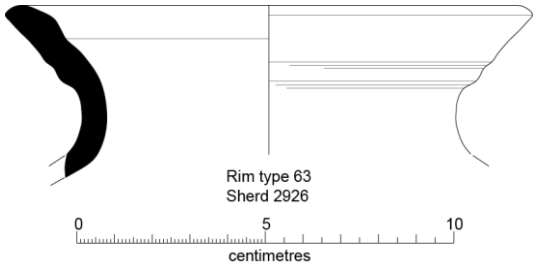

Rim Type 60
Sherd 3765
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centimetres

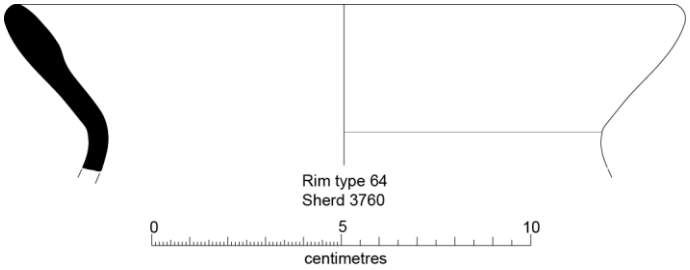

Rim Type 60
Sherd 2585
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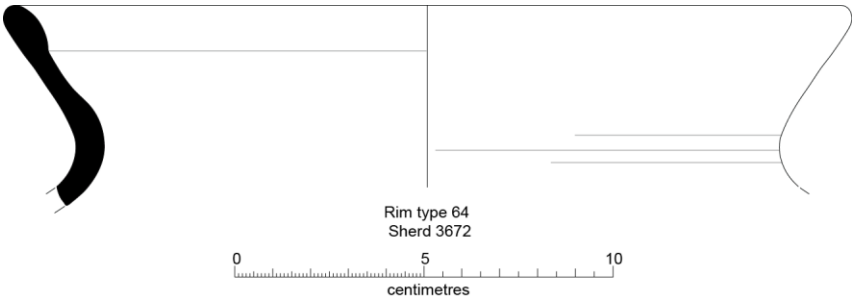

Rim type 61
Sherd 3978
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centimetres

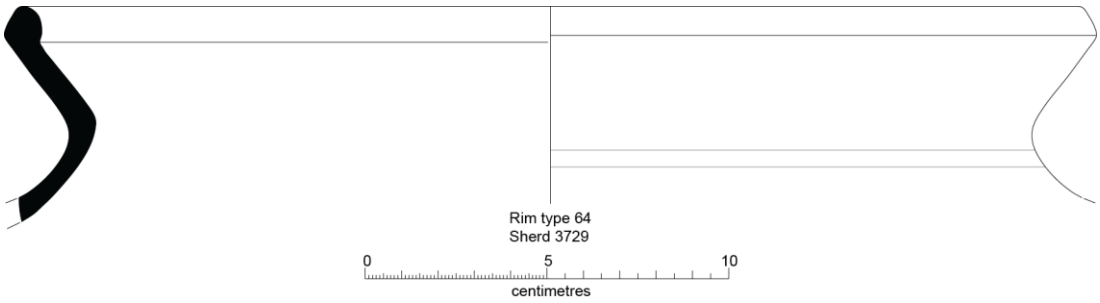

Rim type 62
Sherd 5618
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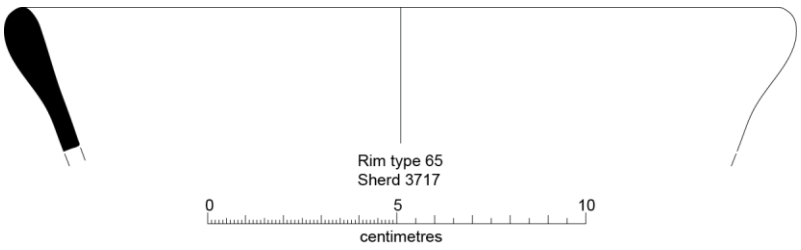

Rim type 62
Sherd 5596
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centimetres

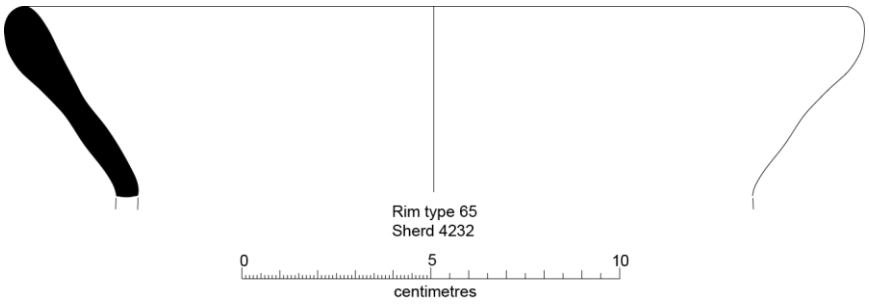

Rim type 63
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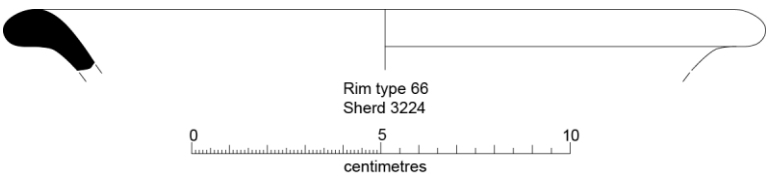

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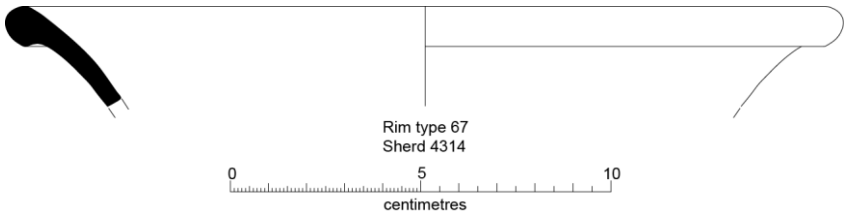

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Sherd 3672
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centimetres

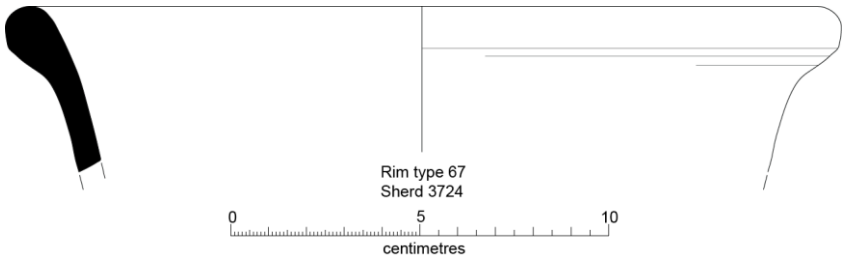

Rim type 64
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centimetres

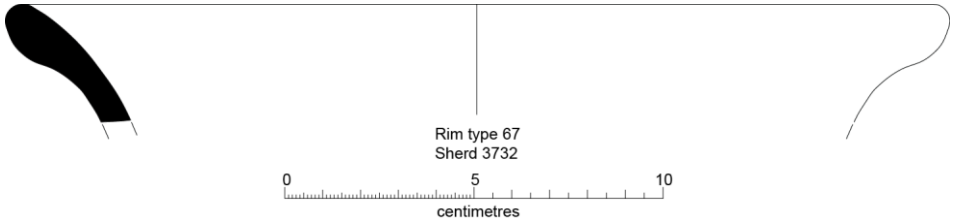

Rim type 65
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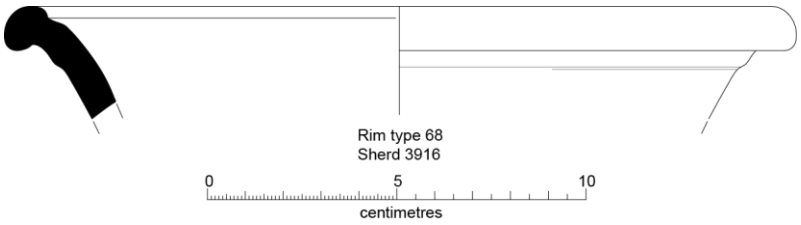

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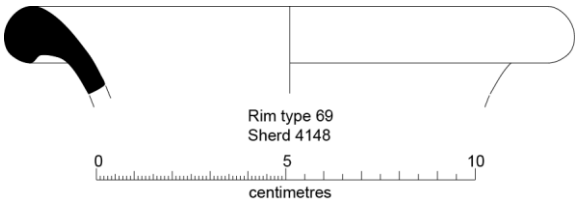

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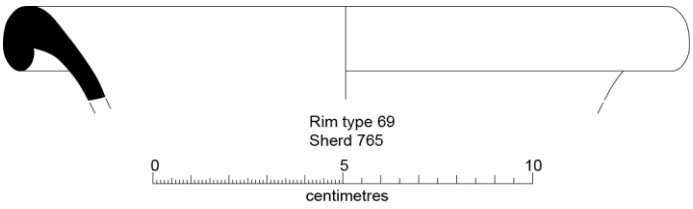

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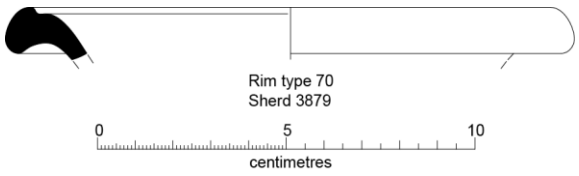

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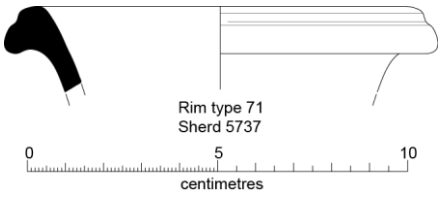

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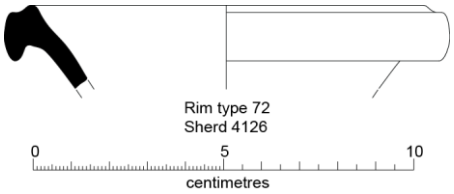

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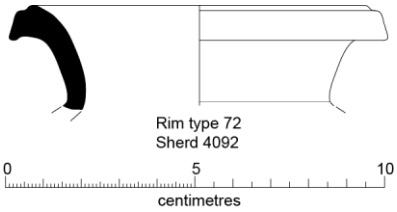

Rim type 69
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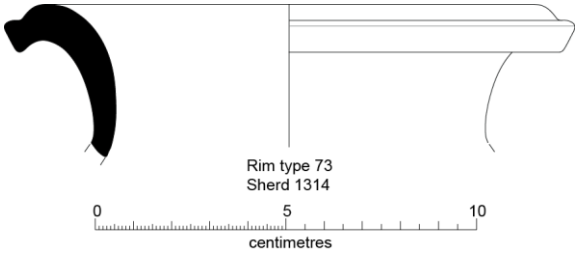

Rim type 69
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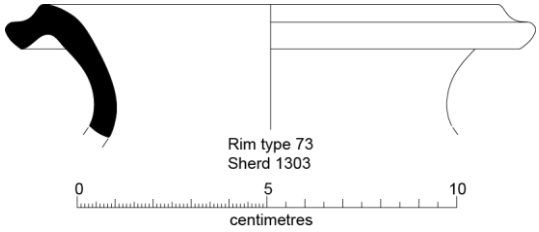

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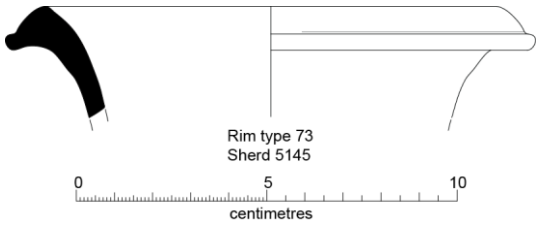

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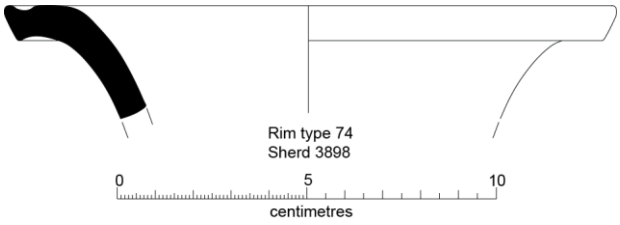

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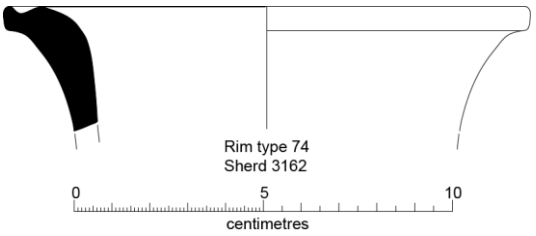

Rim type 72
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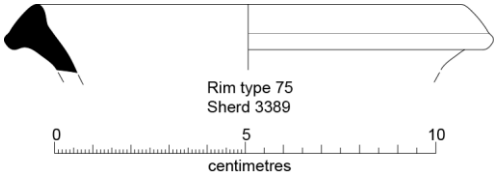

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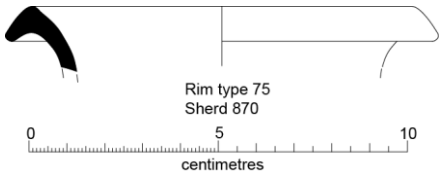

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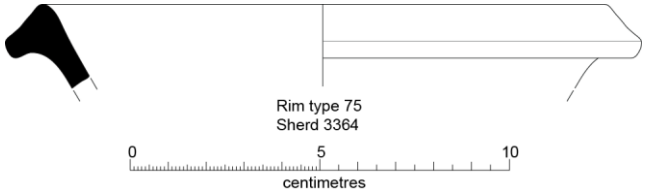

Rim type 73
Sherd 5145
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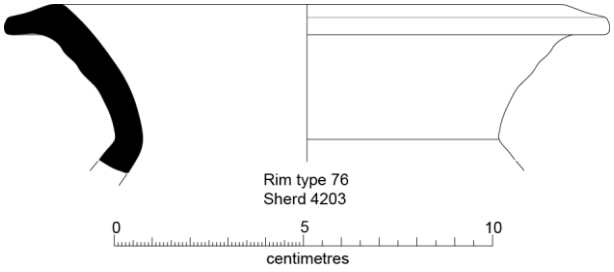

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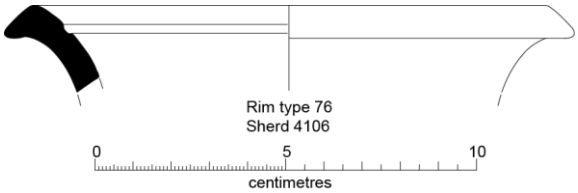

Rim type 74
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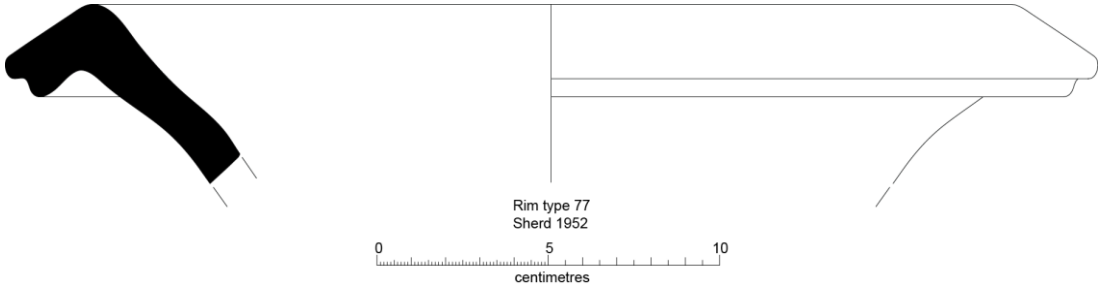

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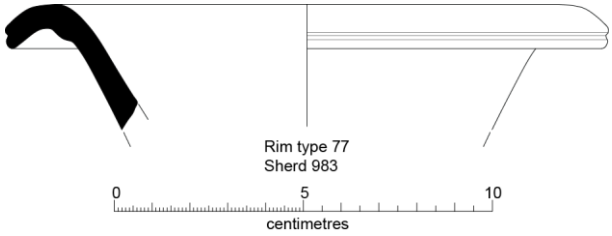

Rim type 75
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centimetres

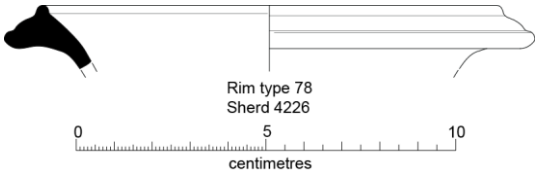

Rim type 75
Sherd 3364
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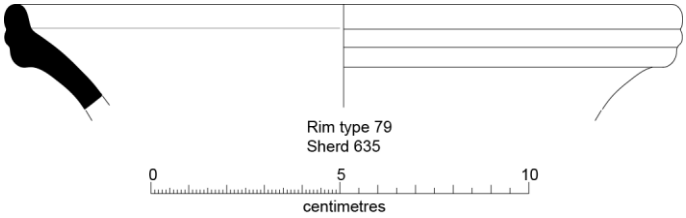

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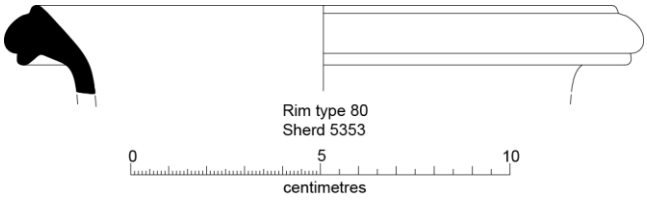

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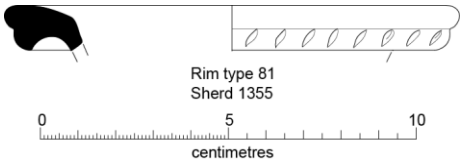

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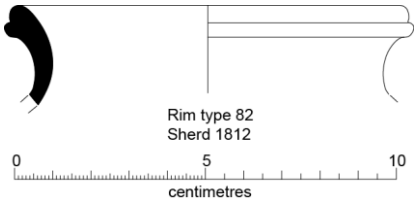

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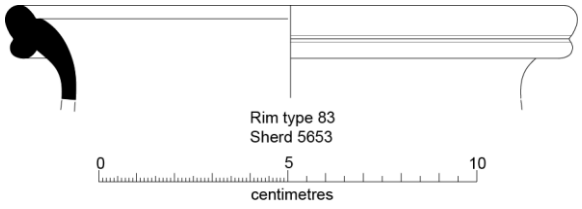

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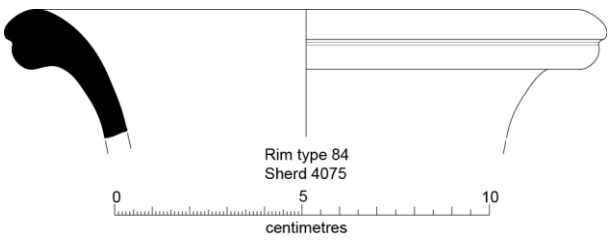

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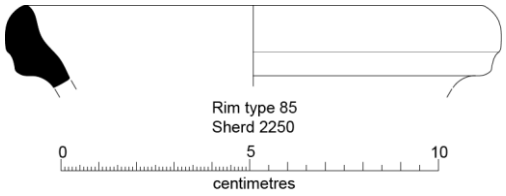

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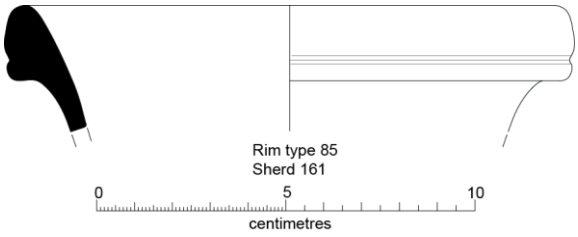

Rim type 81
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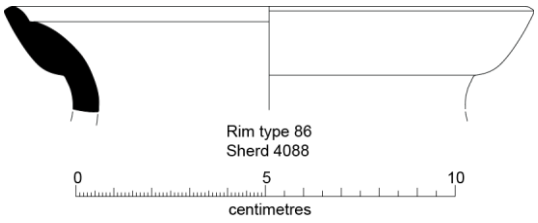

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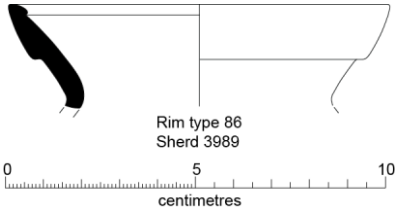

Rim type 83
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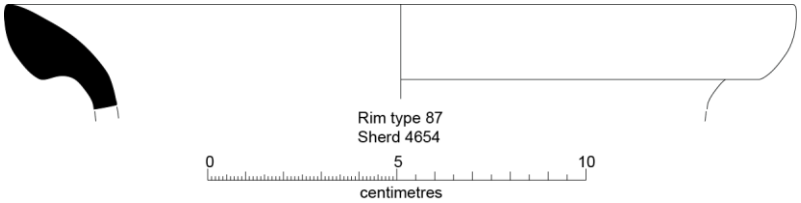

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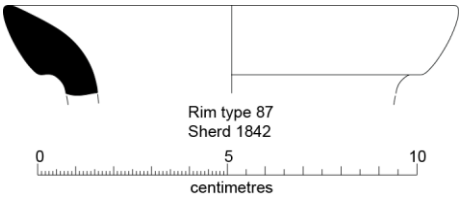

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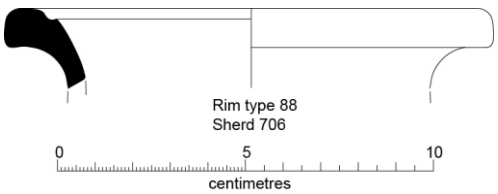

Rim type 85
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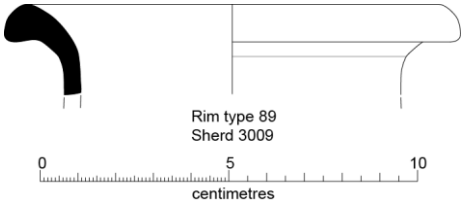

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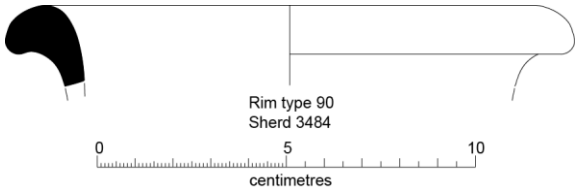

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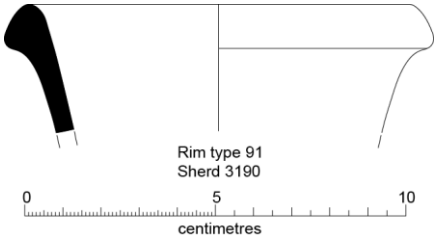

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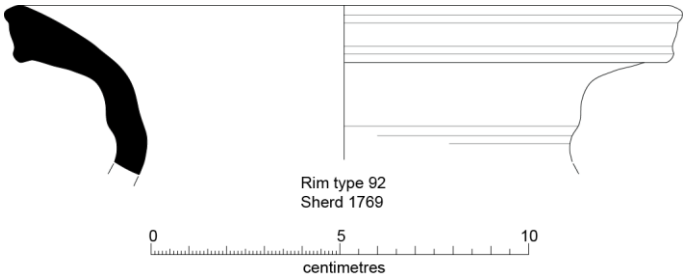

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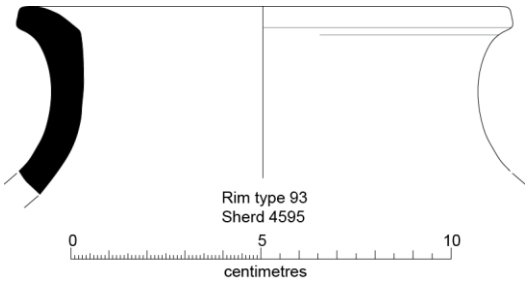

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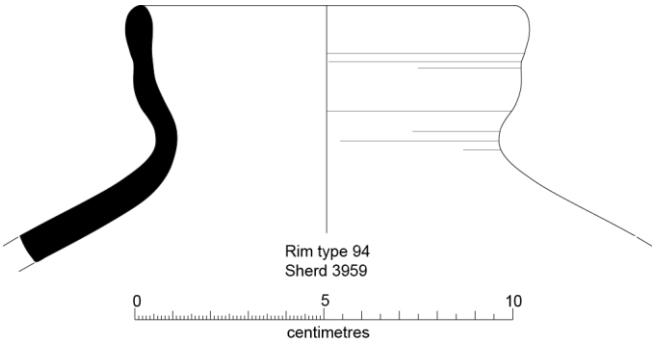

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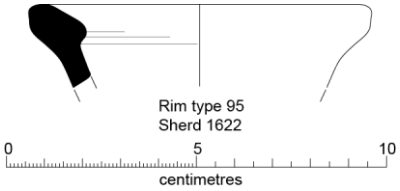

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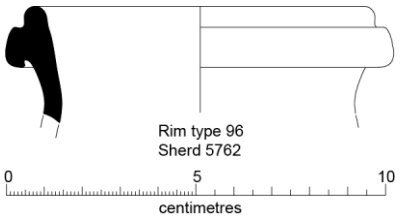

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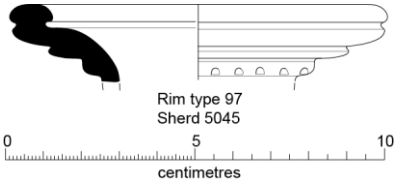

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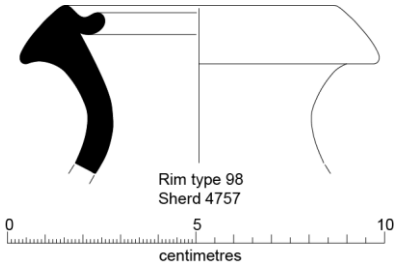

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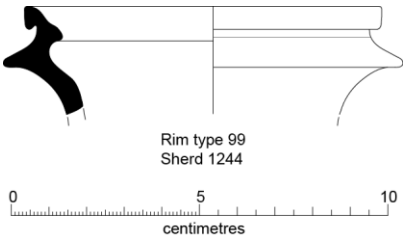

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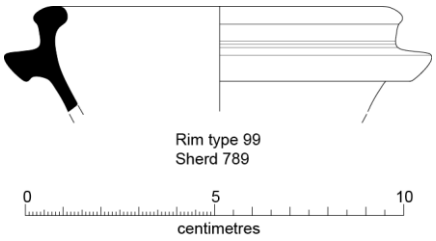

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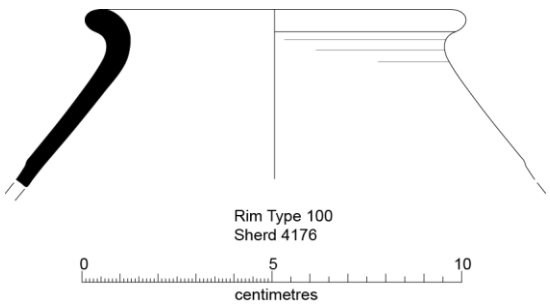

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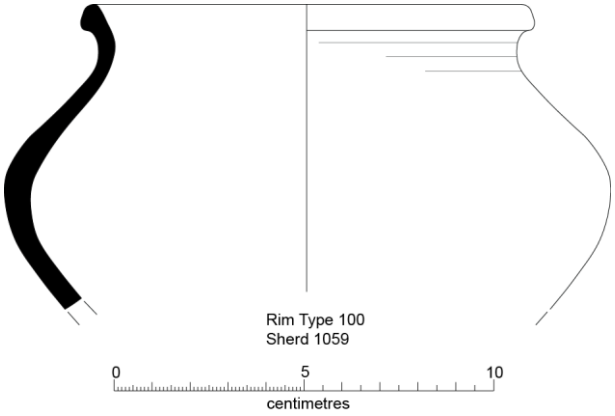

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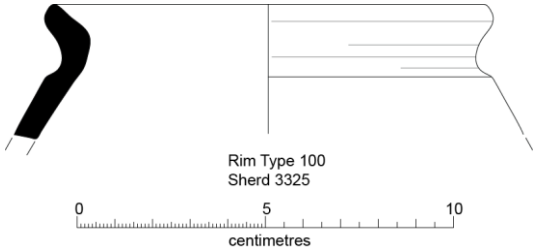

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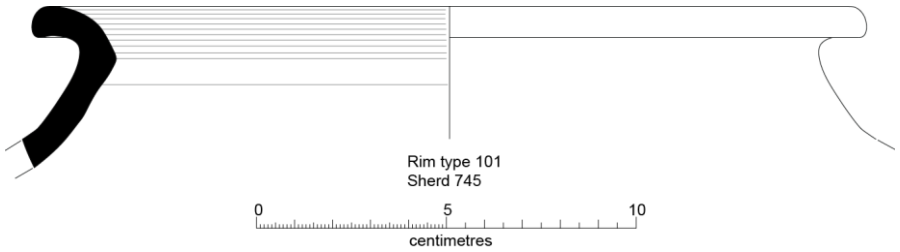

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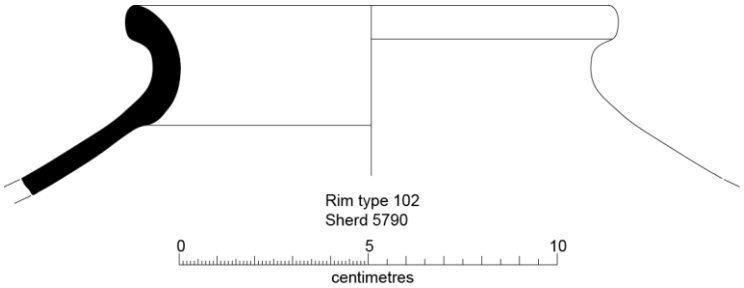

Rim type 99
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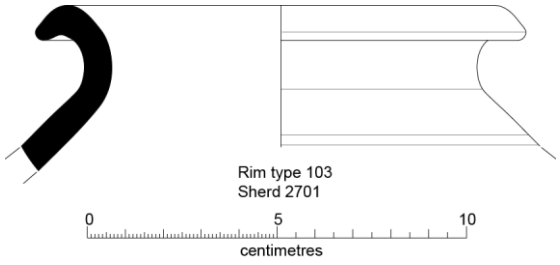

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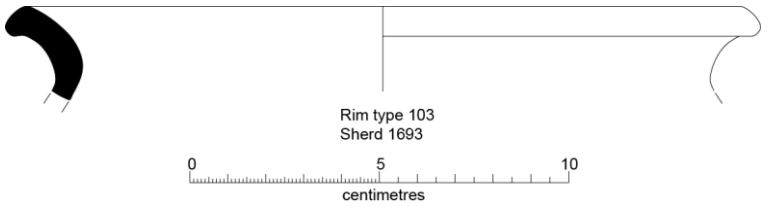

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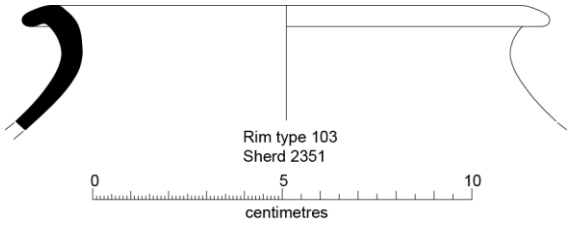

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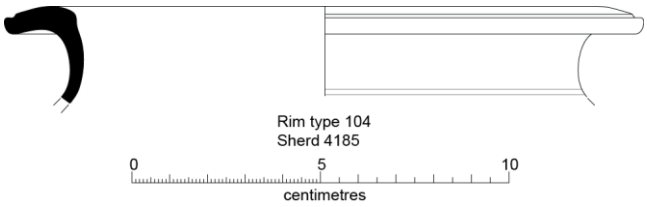

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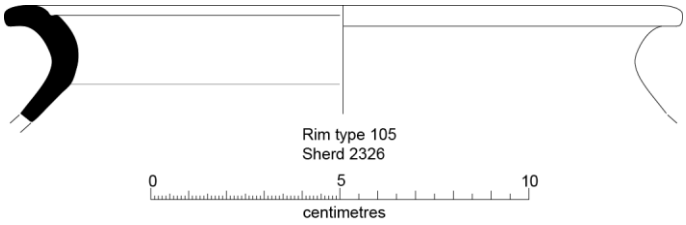

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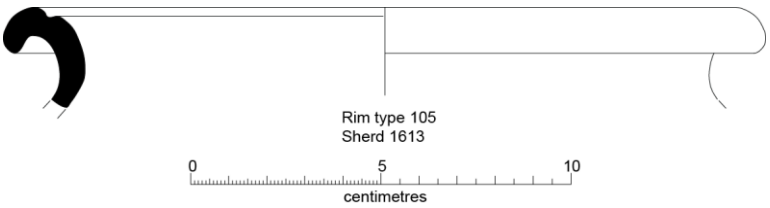

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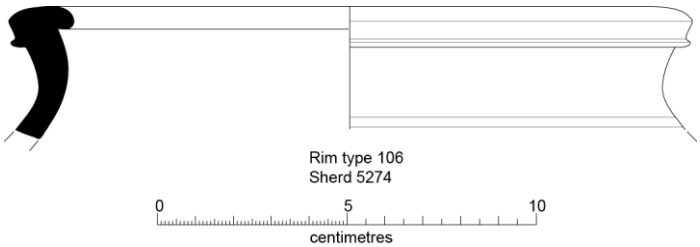

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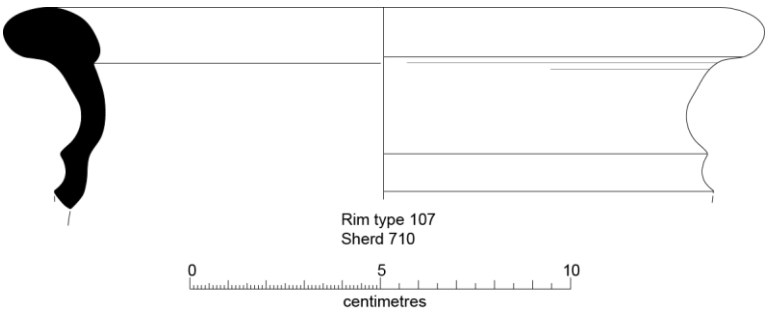

Rim type 103
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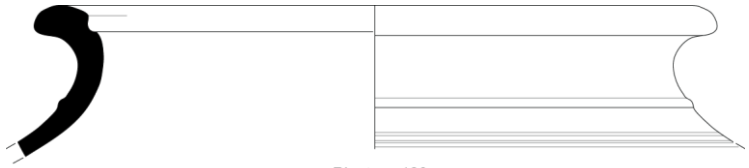

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centimetres


Rim type 105
Sherd 2326
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centimetres


Rim type 105
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centimetres

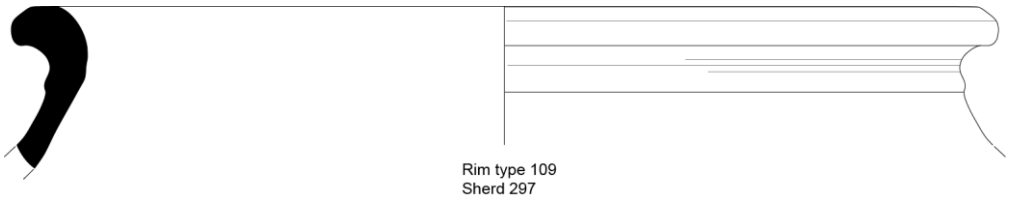

Rim type 106
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centimetres


Rim type 107
Sherd 710
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centimetres



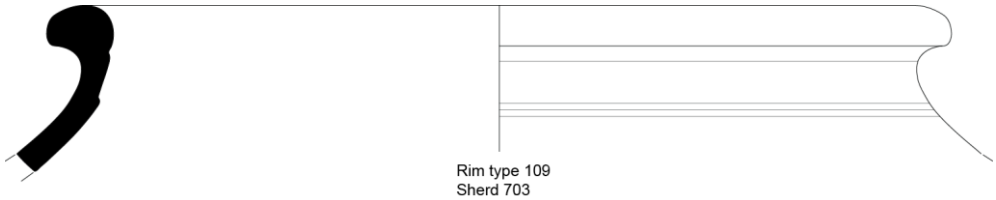
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Sherd 2648





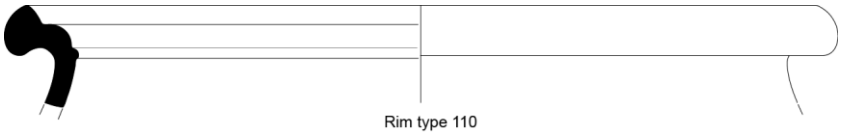
Rim type 109
Sherd 297





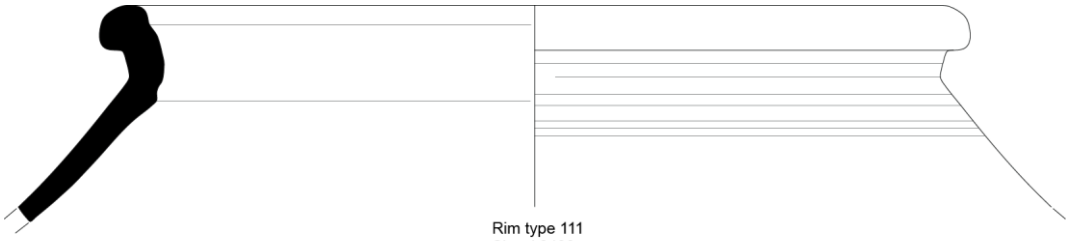
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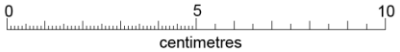


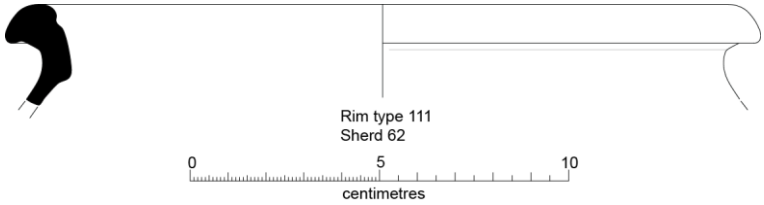
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Sherd 984

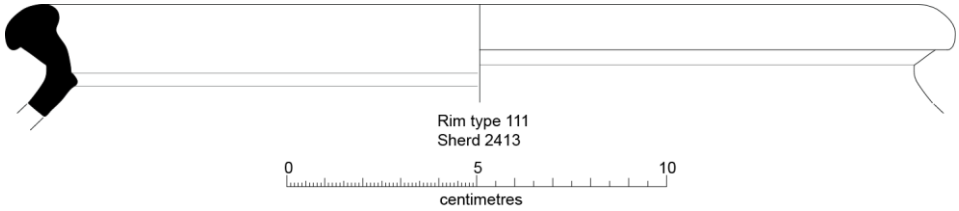


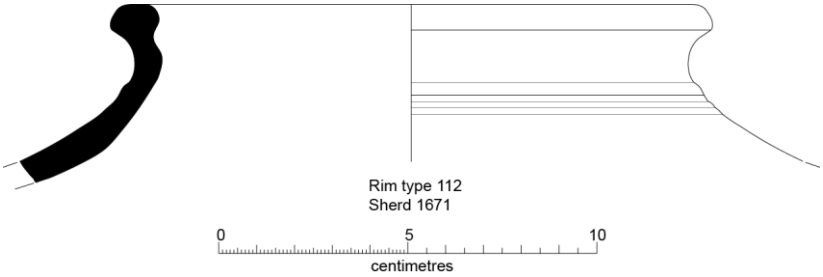


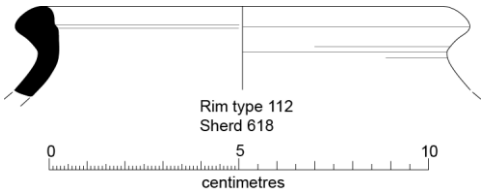
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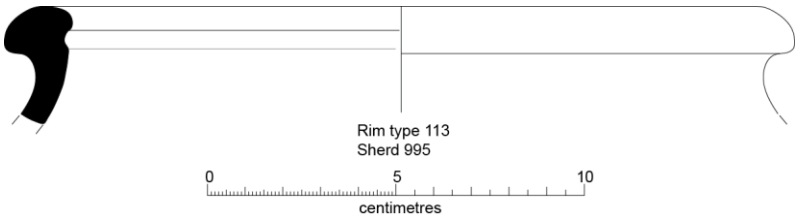


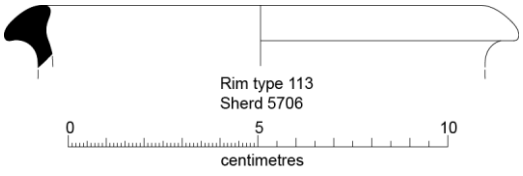

Rim type 111
Sherd 62
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centimetres

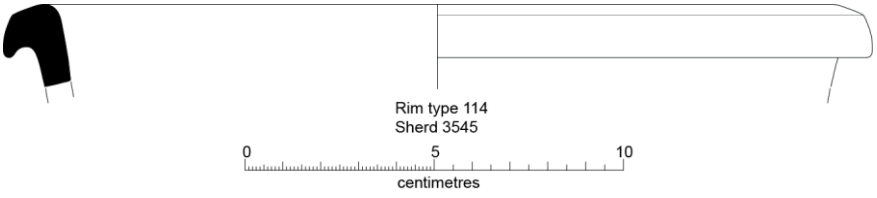

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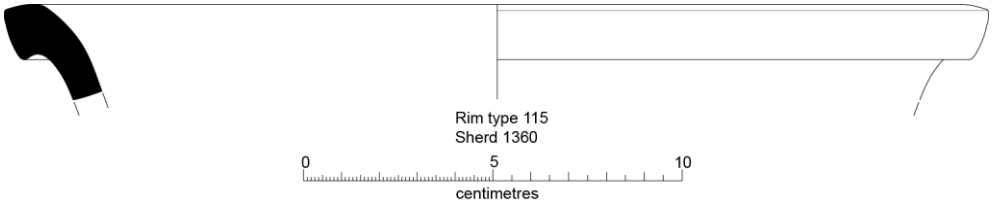

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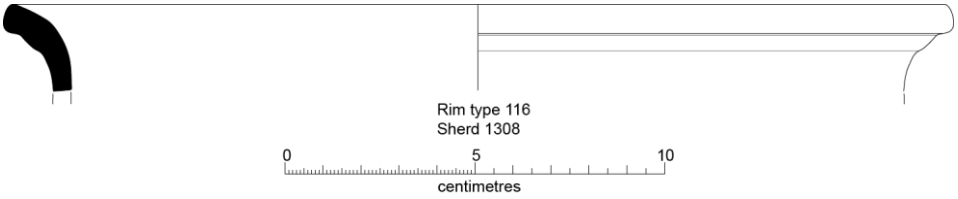

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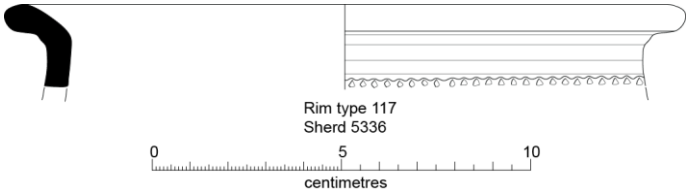

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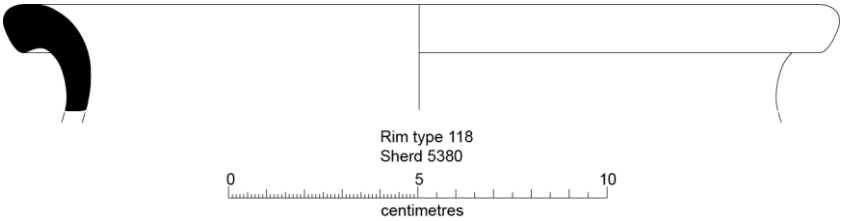

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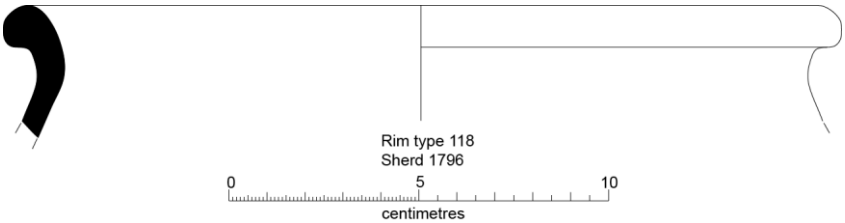

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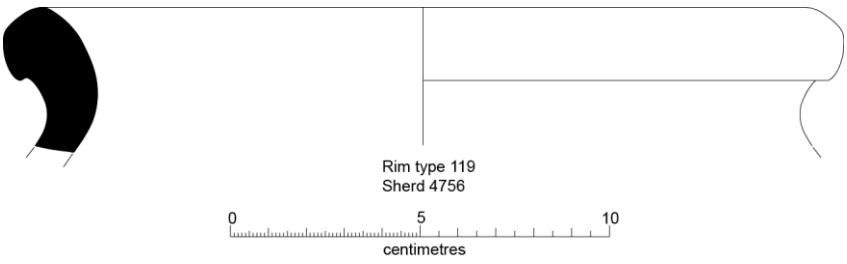

Rim type 115
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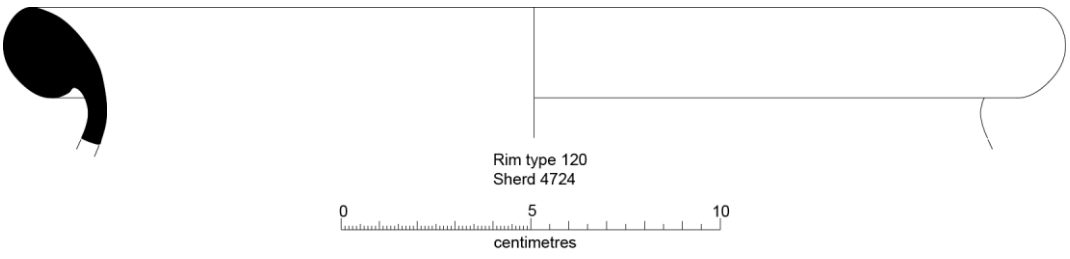

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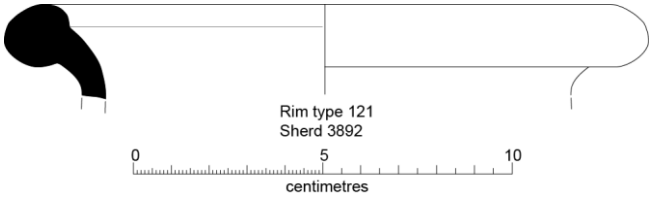

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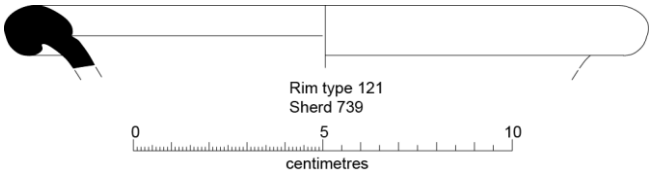

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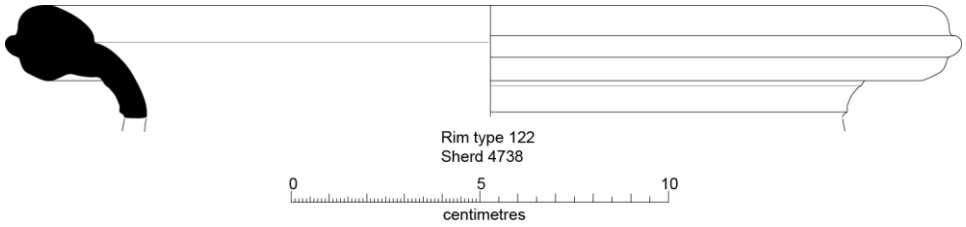

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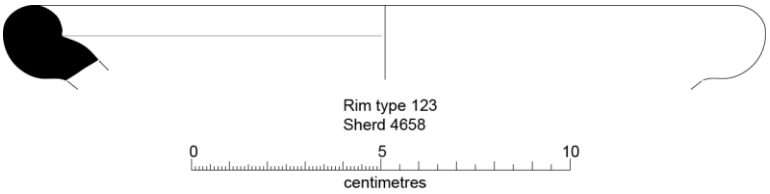

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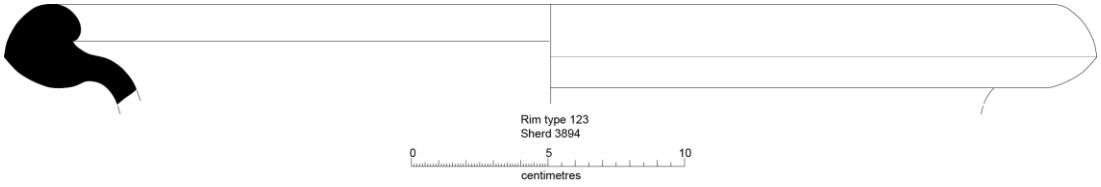

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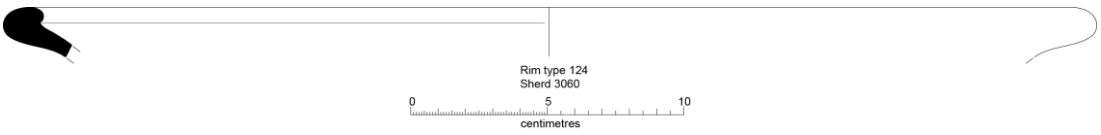

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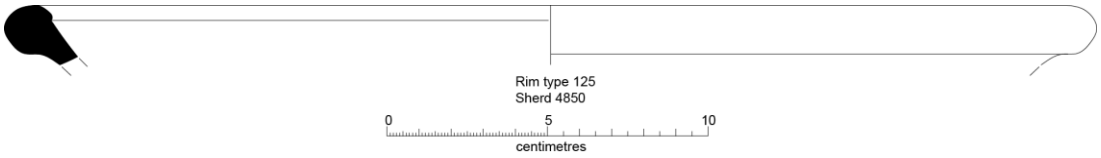

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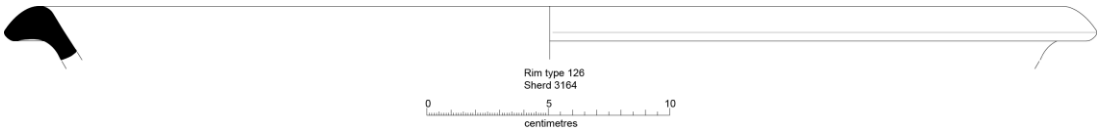

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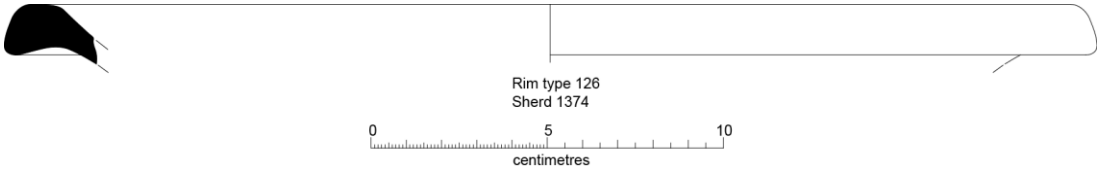

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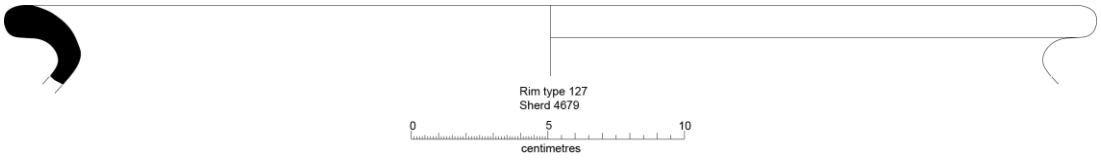

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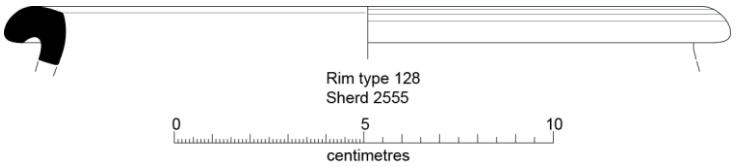

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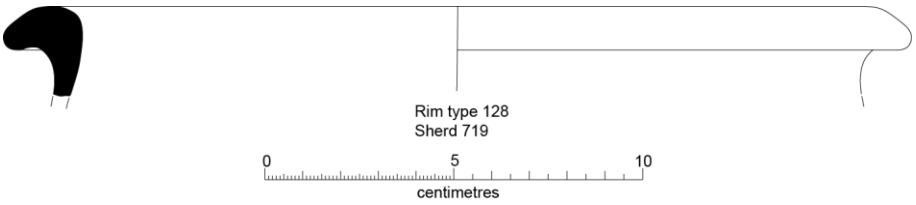

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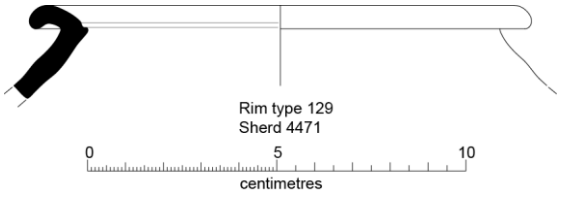

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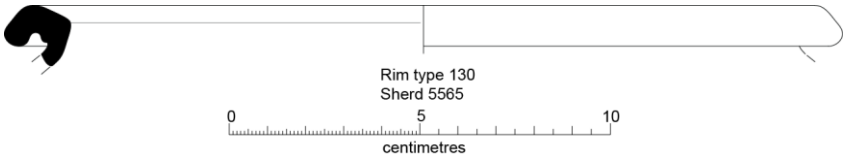

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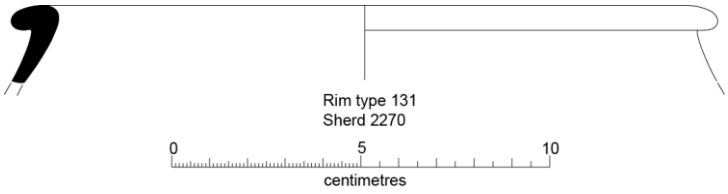

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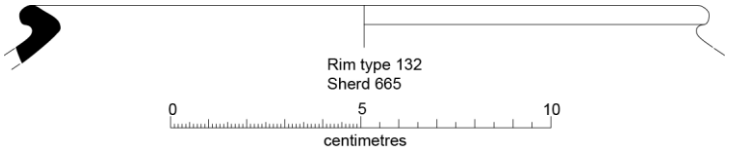

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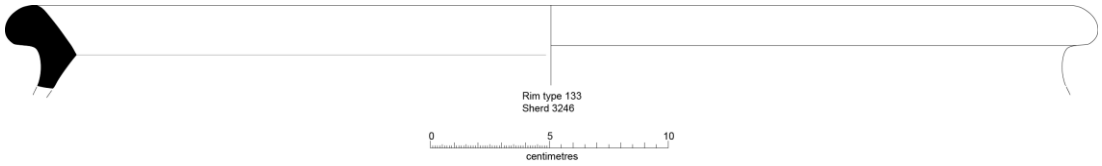

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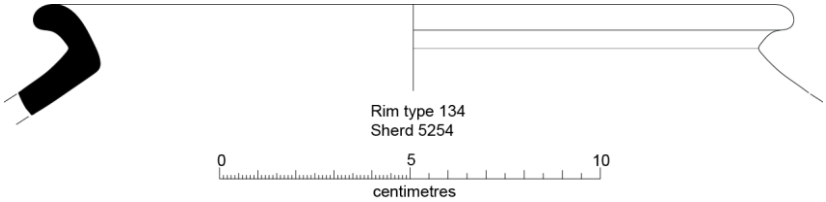

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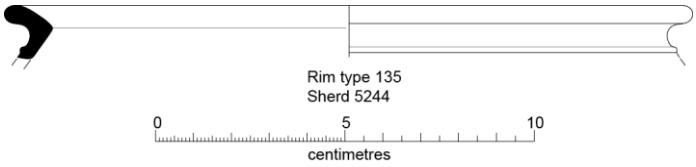

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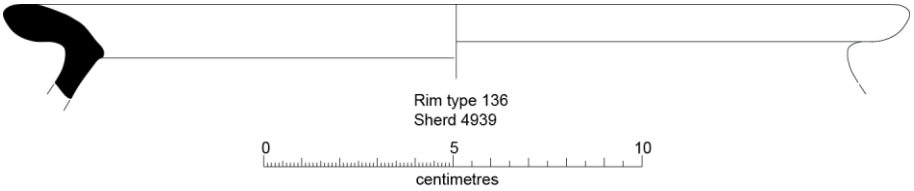

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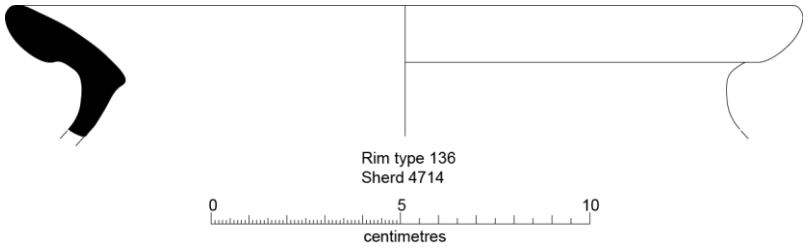

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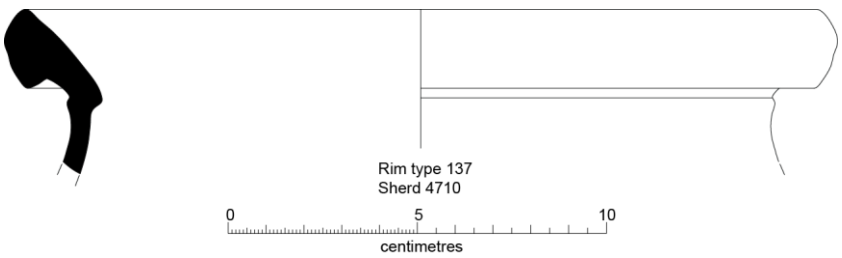

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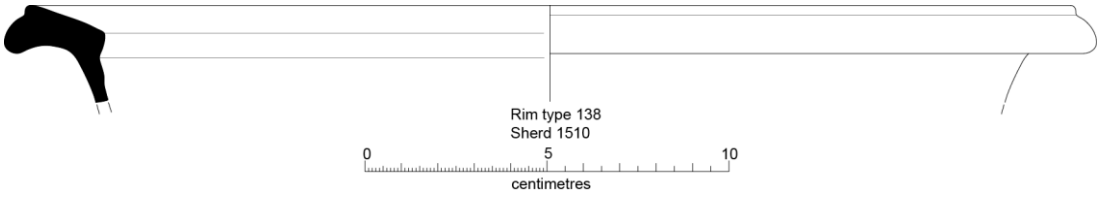

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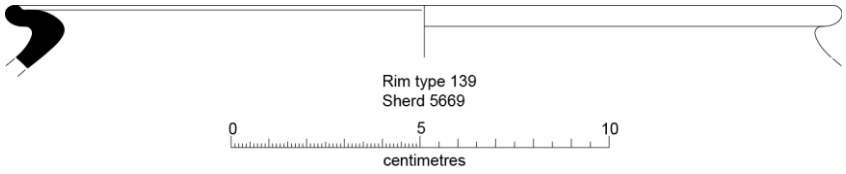

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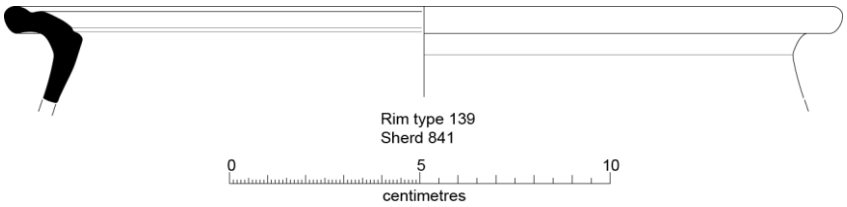

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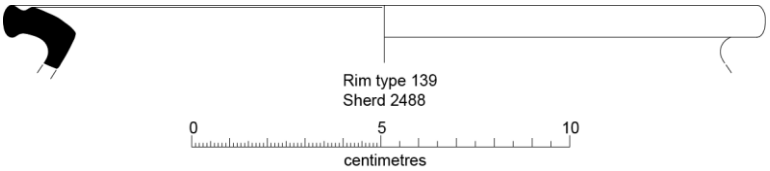

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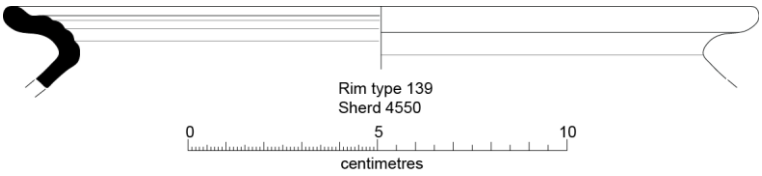

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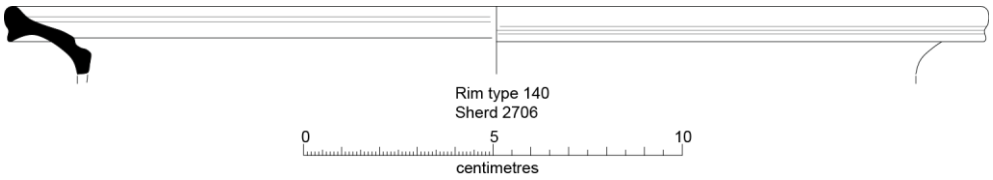

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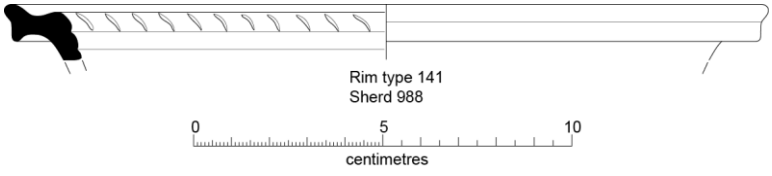

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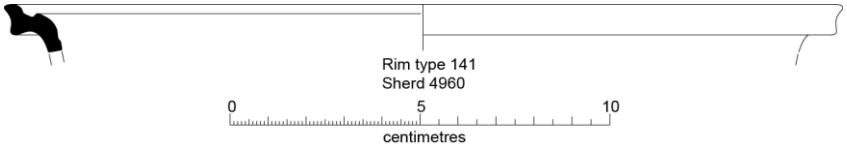

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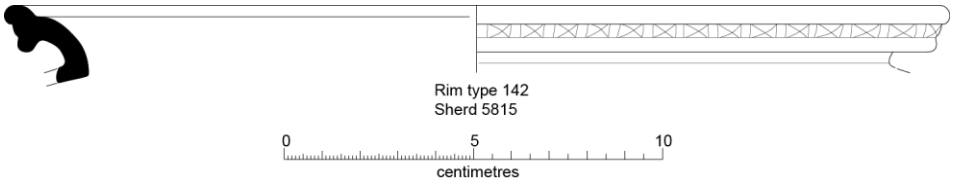

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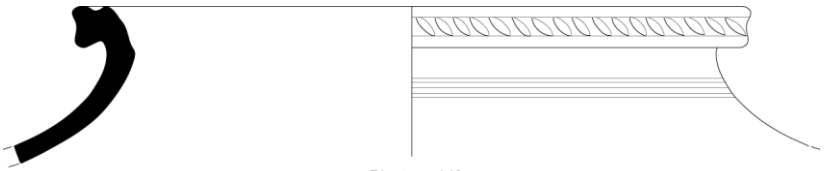

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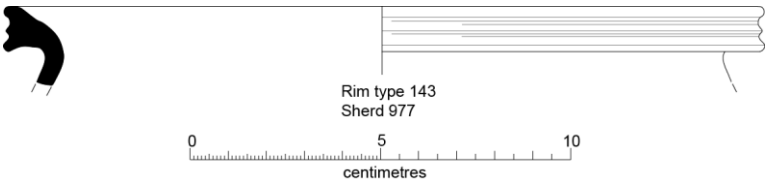

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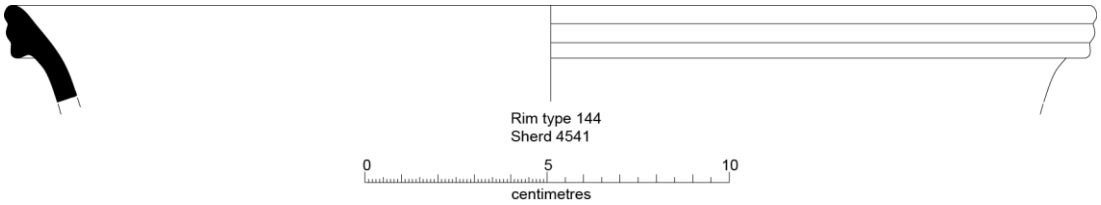

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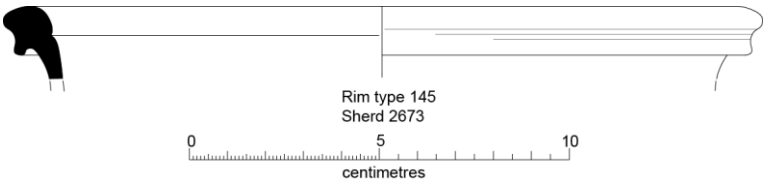

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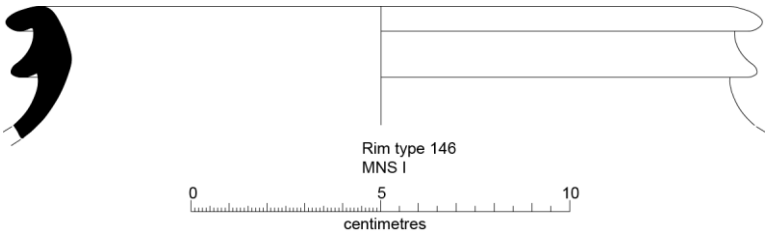

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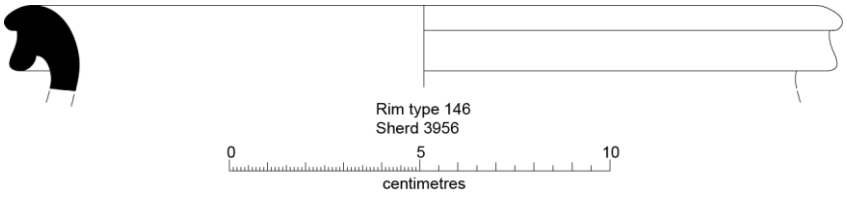

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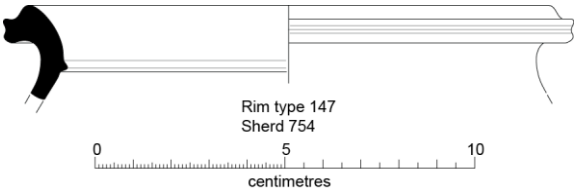

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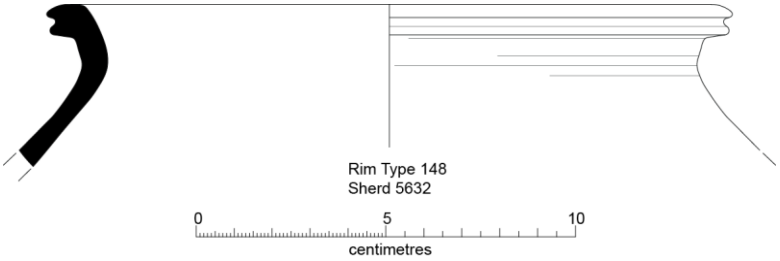

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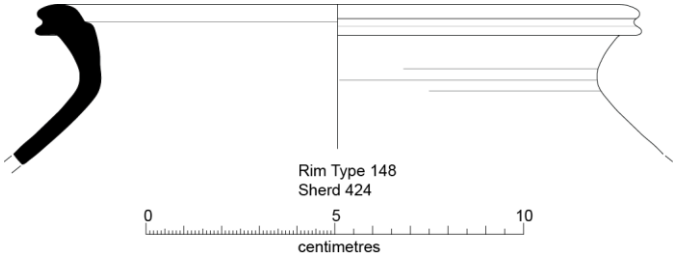

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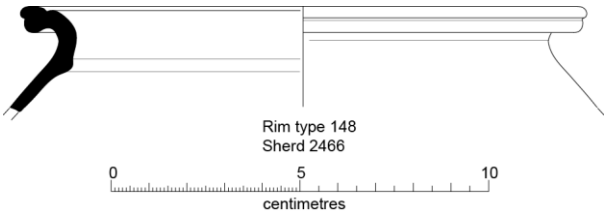

Rim type 146
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centimetres

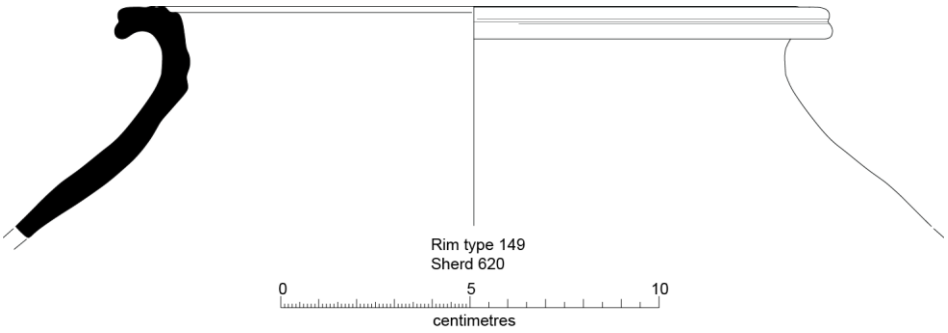

Rim type 146
Sherd 3956
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centimetres

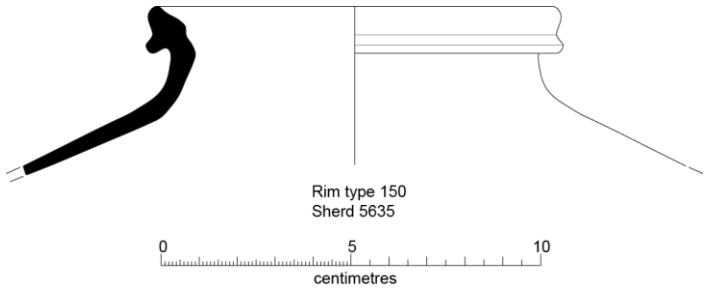

Rim type 147
Sherd 754
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5
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centimetres


Rim Type 148
Sherd 5632
0
5
10
centimetres

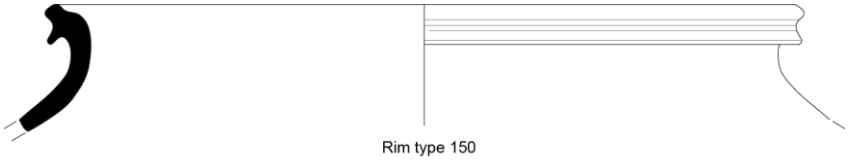

Rim Type 148
Sherd 424
0
5
10
centimetres


Rim type 148
Sherd 2466
0
5
10
centimetres


Rim type 149
Sherd 620
0
5
10
centimetres

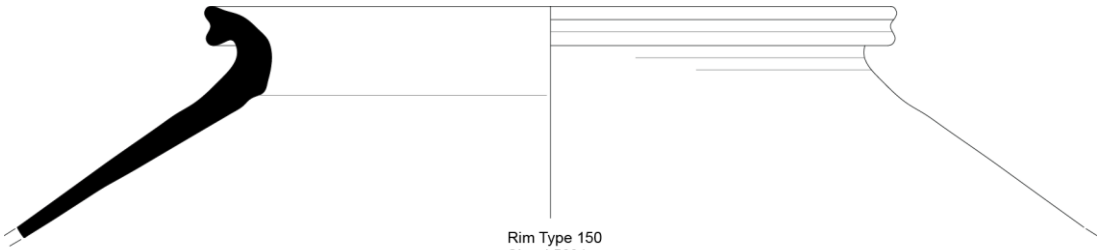


Rim type 150
Sherd 5635

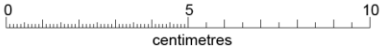


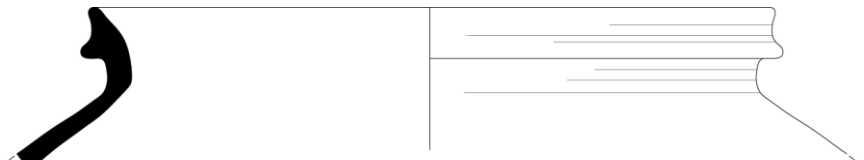
Rim type 150
Sherd 56





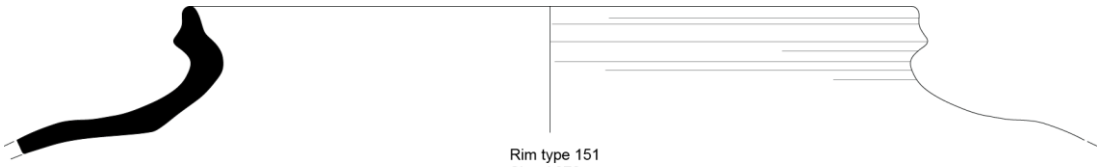
Rim Type 150
Sherd 5631



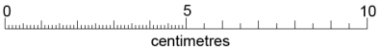


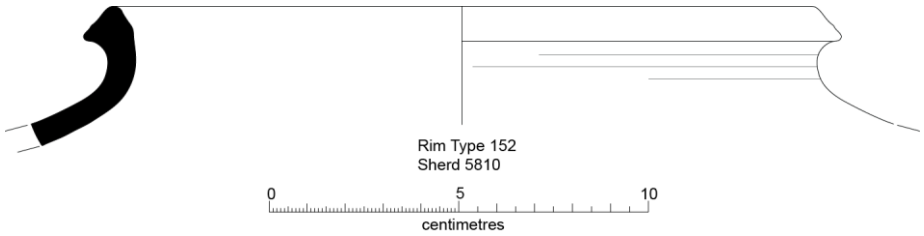
Rim type 151
Sherd 987

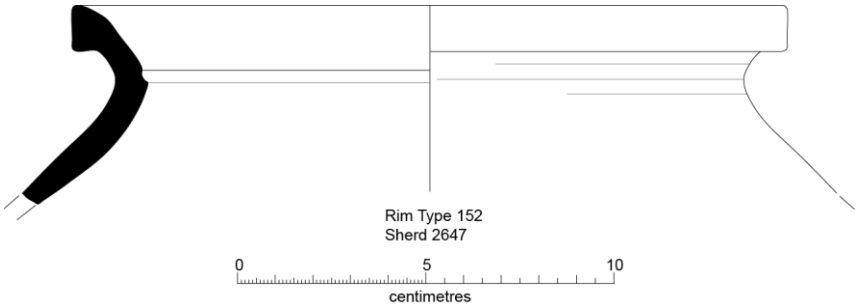


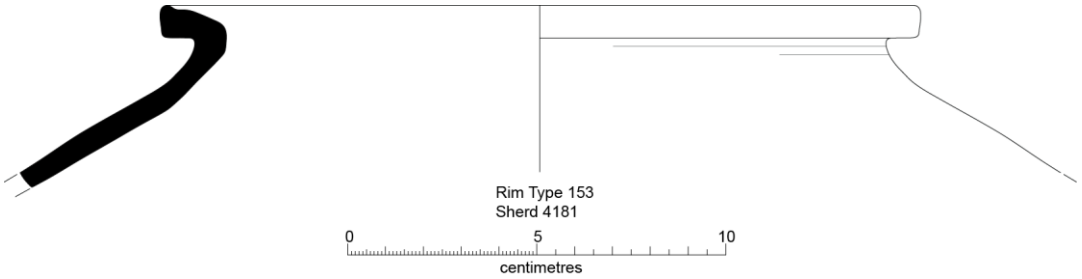


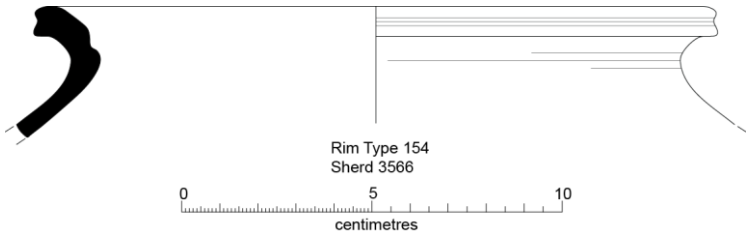
Rim type 151
Sherd 978

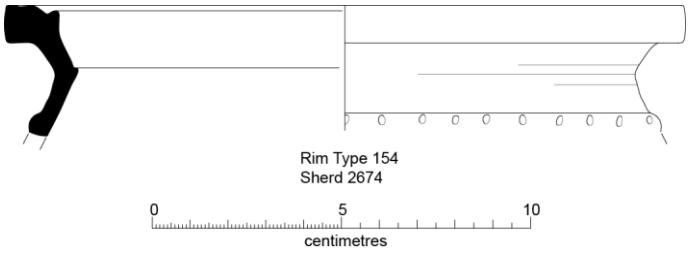


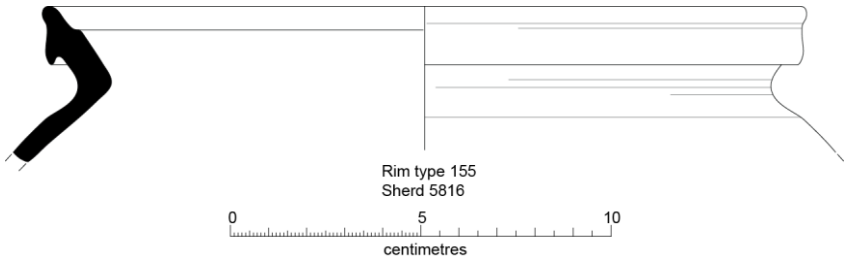

Rim Type 152
Sherd 5810
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centimetres

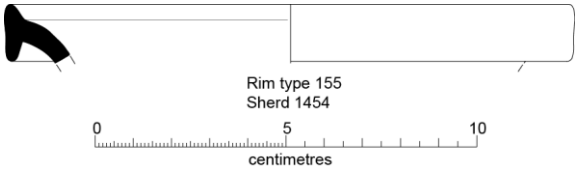

Rim Type 152
Sherd 2647
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centimetres

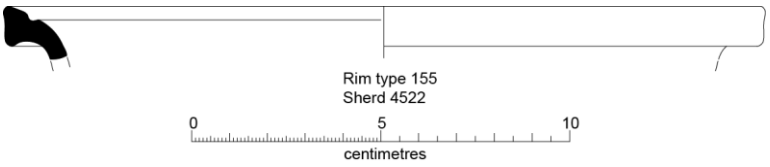

Rim Type 153
Sherd 4181
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centimetres

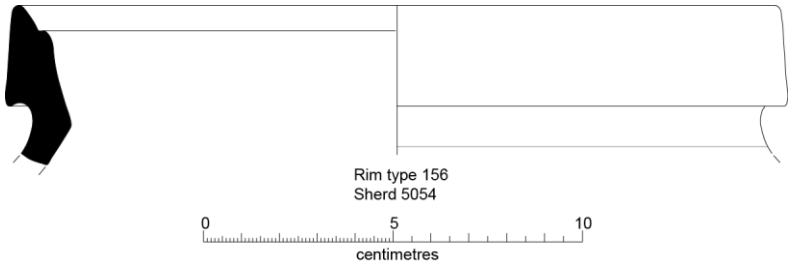

Rim Type 154
Sherd 3566
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centimetres

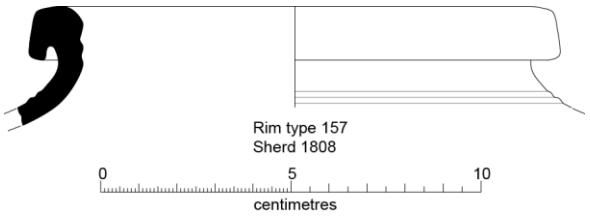

Rim Type 154
Sherd 2674
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centimetres

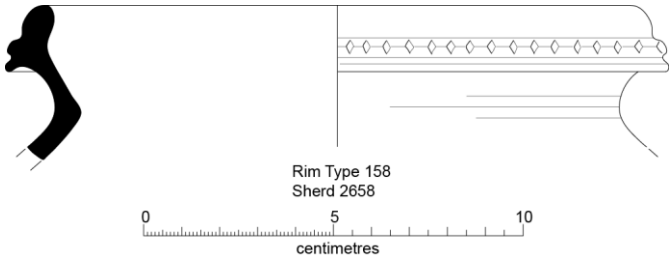

Rim type 155
Sherd 5816
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centimetres

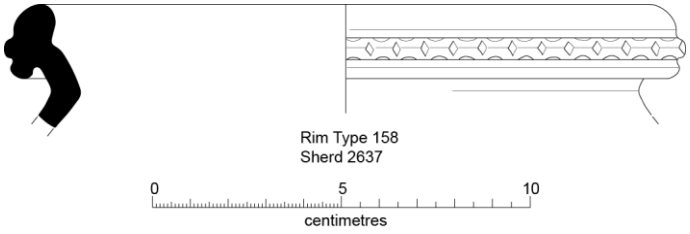

Rim type 155
Sherd 1454
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5
10
centimetres

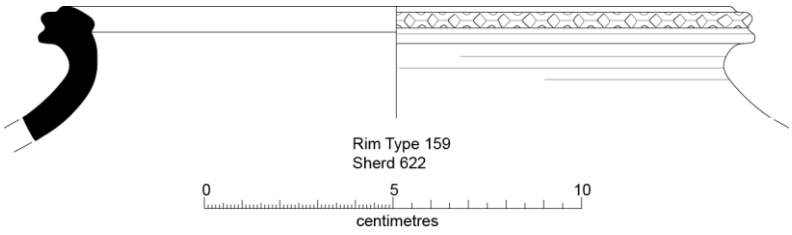

Rim type 155
Sherd 4522
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centimetres

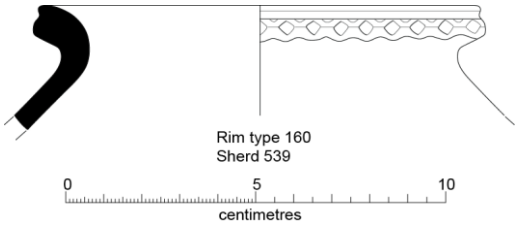

Rim type 156
Sherd 5054
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centimetres

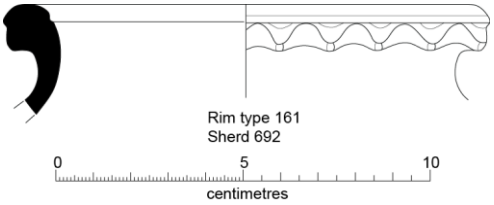

Rim type 157
Sherd 1808
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centimetres

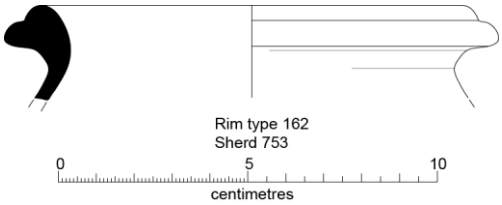

Rim Type 158
Sherd 2658
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centimetres

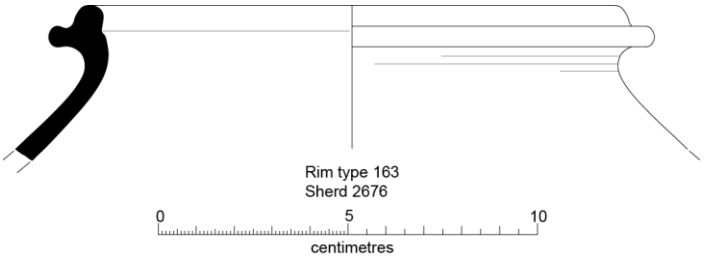

Rim Type 158
Sherd 2637
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centimetres

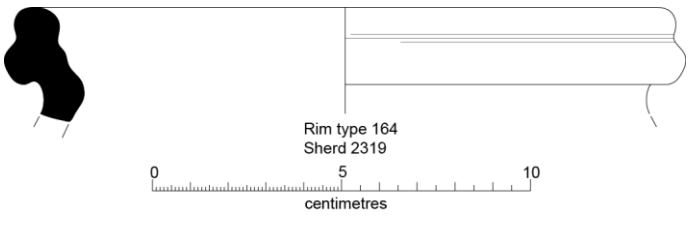

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Sherd 622
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centimetres

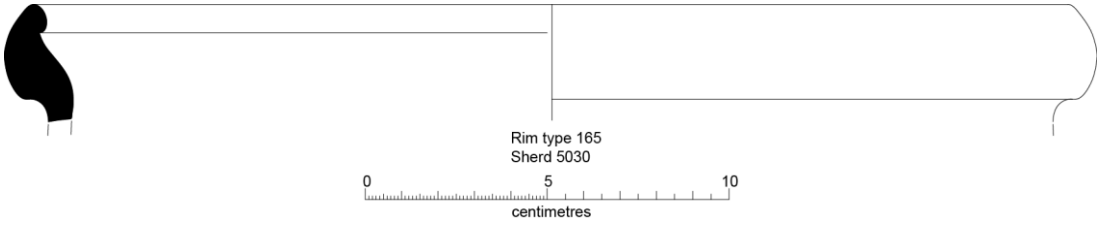

Rim type 160
Sherd 539
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centimetres

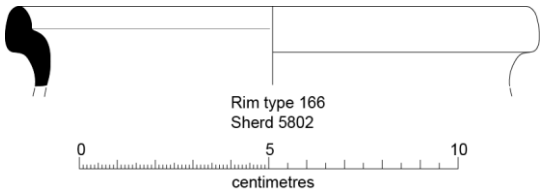

Rim type 161
Sherd 692
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centimetres

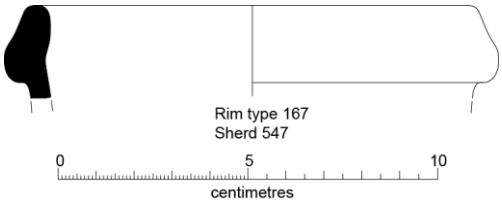

Rim type 162
Sherd 753
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centimetres

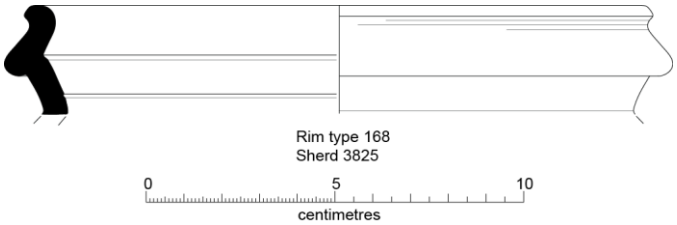

Rim type 163
Sherd 2676
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centimetres

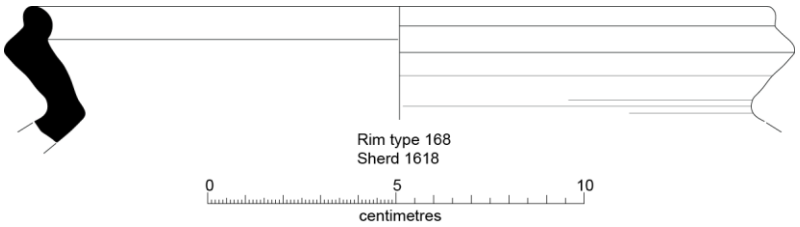

Rim type 164
Sherd 2319
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centimetres

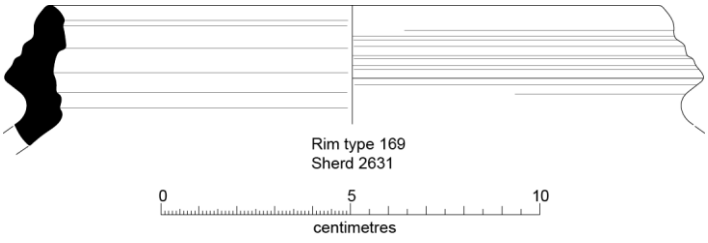

Rim type 165
Sherd 5030
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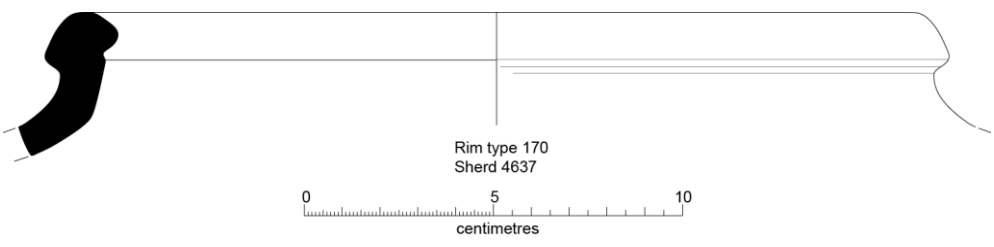

Rim type 166
Sherd 5802
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centimetres

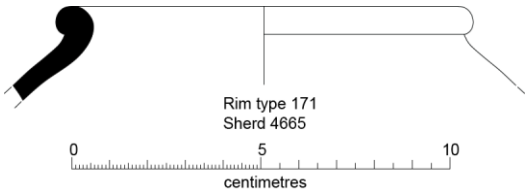

Rim type 167
Sherd 547
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centimetres

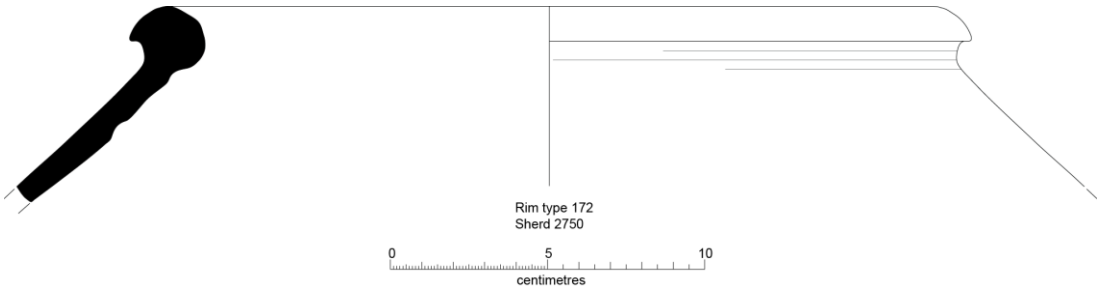

Rim type 168
Sherd 3825
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centimetres

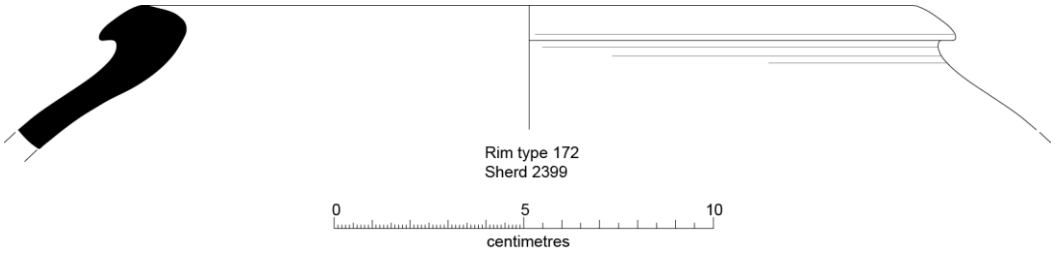

Rim type 168
Sherd 1618
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centimetres

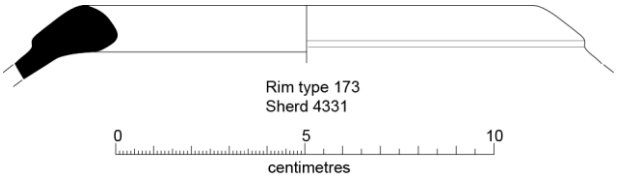

Rim type 169
Sherd 2631
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centimetres

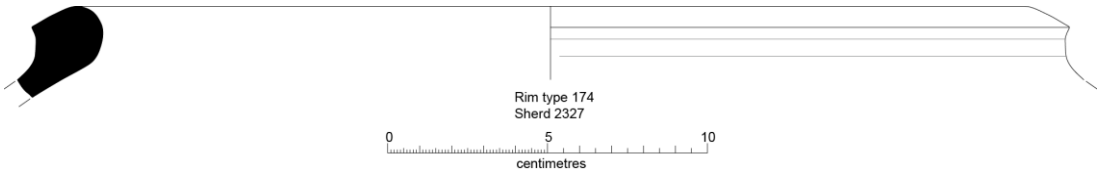

Rim type 170
Sherd 4637
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centimetres

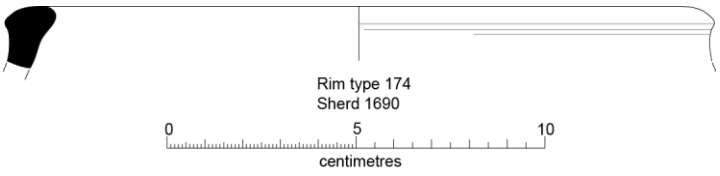

Rim type 171
Sherd 4665
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centimetres

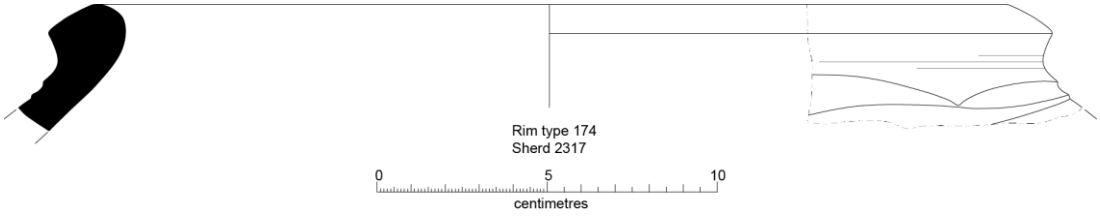

Rim type 172
Sherd 2750
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centimetres

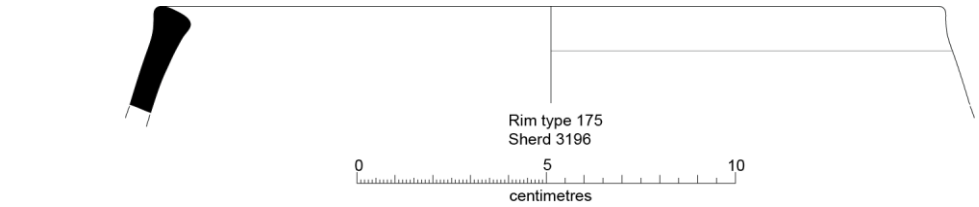

Rim type 172
Sherd 2399
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centimetres

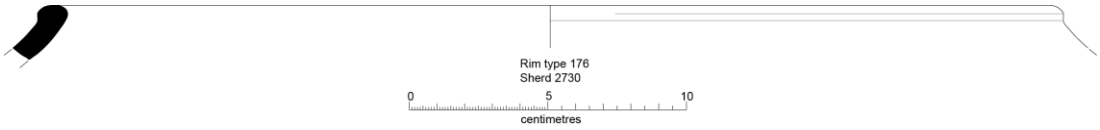

Rim type 173
Sherd 4331
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centimetres

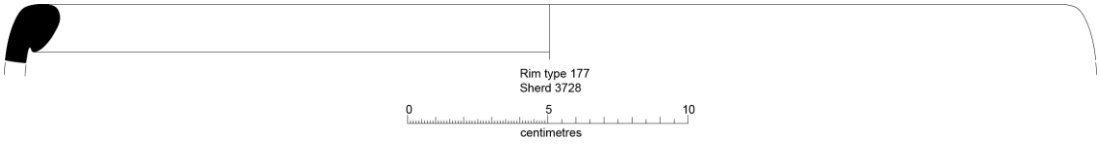

Rim type 174
Sherd 2327
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centimetres

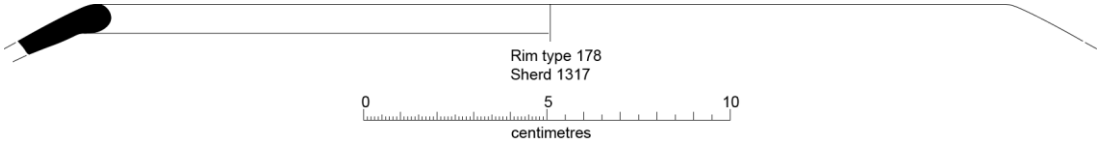

Rim type 174
Sherd 1690
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centimetres

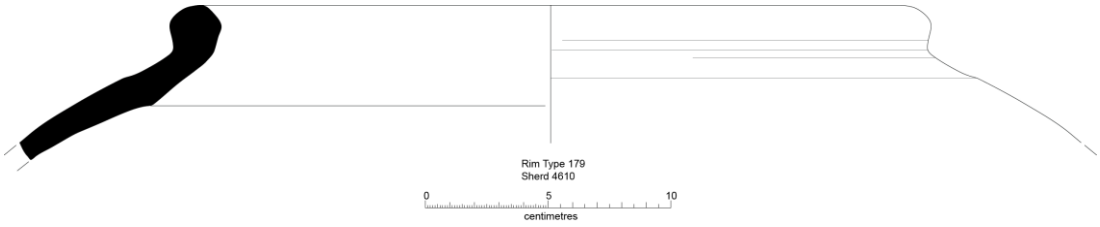

Rim type 174
Sherd 2317
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centimetres

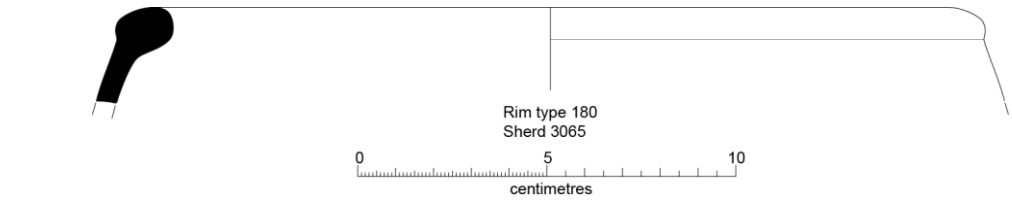

Rim type 175
Sherd 3196
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centimetres

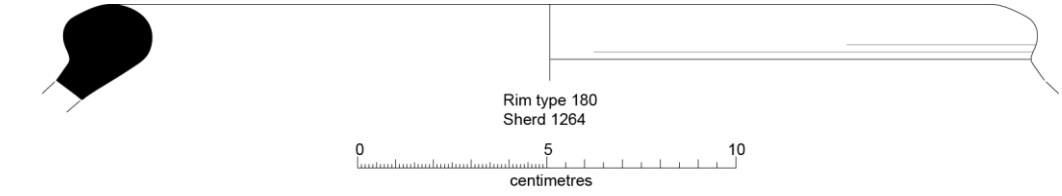

Rim type 176
Sherd 2730
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centimetres

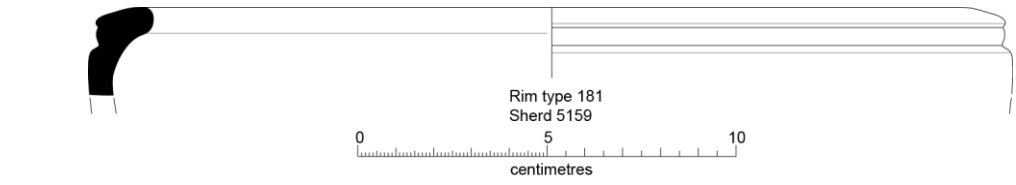

Rim type 177
Sherd 3728
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centimetres

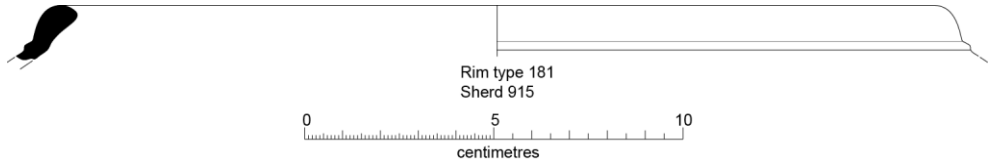

Rim type 178
Sherd 1317
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5
10
centimetres

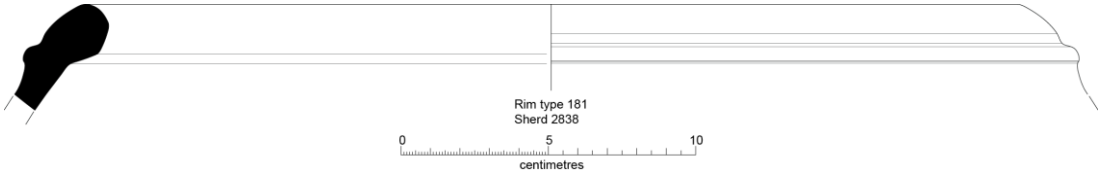

Rim Type 179
Sherd 4610
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10
centimetres

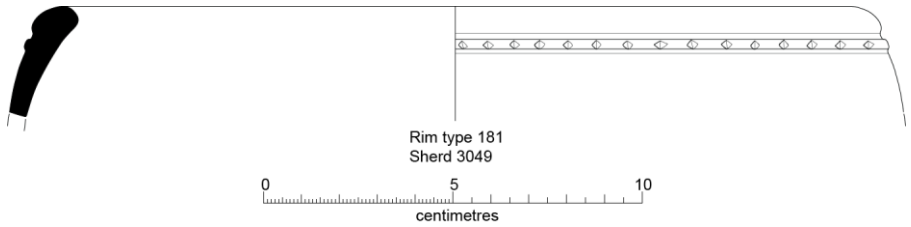

Rim type 180
Sherd 3065
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centimetres

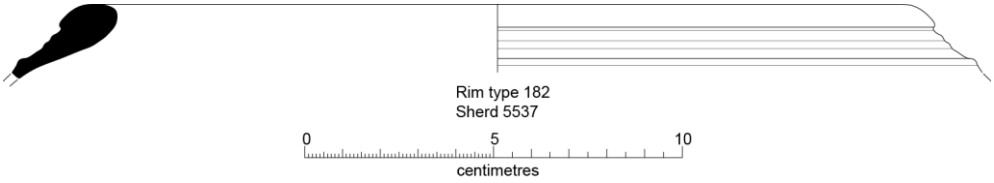

Rim type 180
Sherd 1264
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centimetres

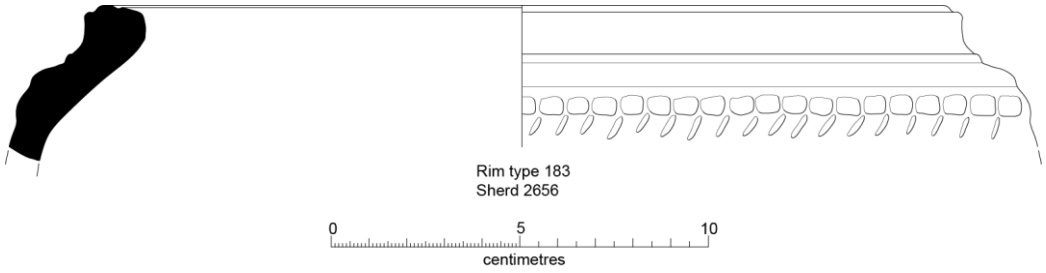

Rim type 181
Sherd 5159
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5
10
centimetres

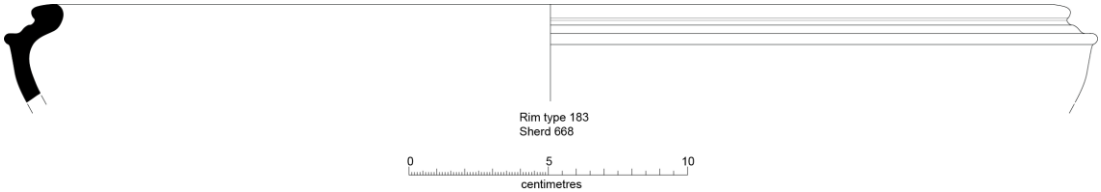

Rim type 181
Sherd 915
0
5
10
centimetres

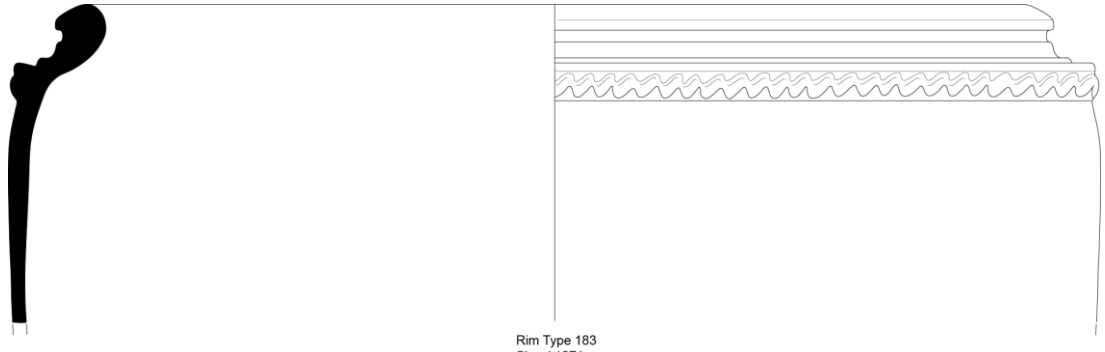

Rim type 181
Sherd 2838
0
5
10
centimetres


Rim type 181
Sherd 3049
0
5
10
centimetres


Rim type 182
Sherd 5537
0
5
10
centimetres


Rim type 183
Sherd 2656
0
5
10
centimetres


Rim type 183
Sherd 668
0
5
10
centimetres



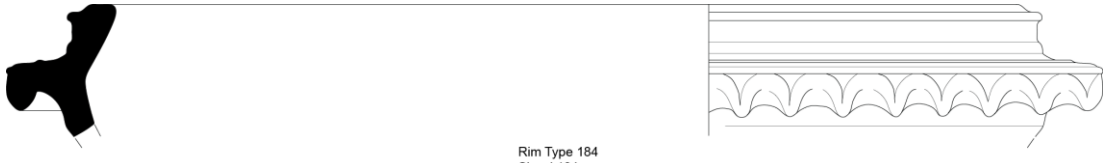
Rim Type 183
Sherd 1271

0 5 10
centimetres



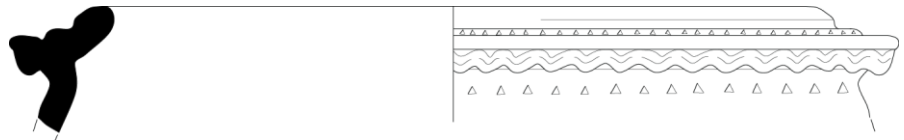
Rim Type 183
Sherd 2341

0 5 10
centimetres



Rim Type 184
Sherd 134

0 5 10
centimetres



Rim Type 185
Sherd 5515

0 5 10
centimetres



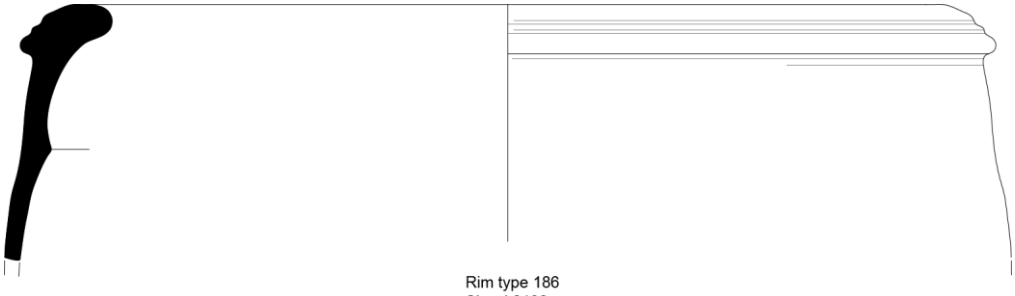
Rim type 186
Sherd 5571

0 5 10
centimetres

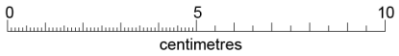


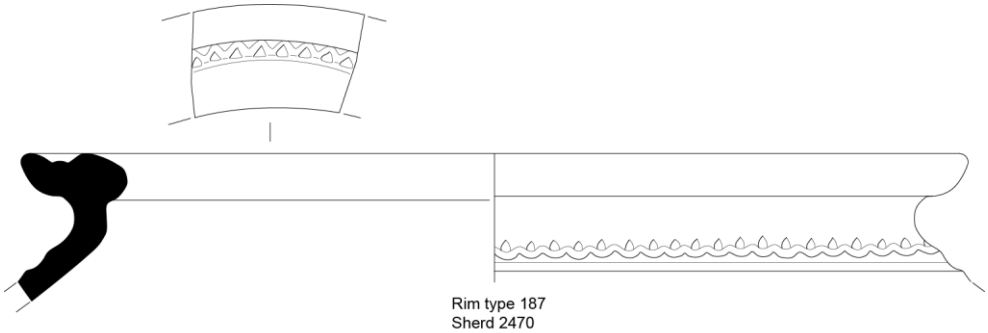
Rim type 186
Sherd 740



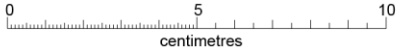


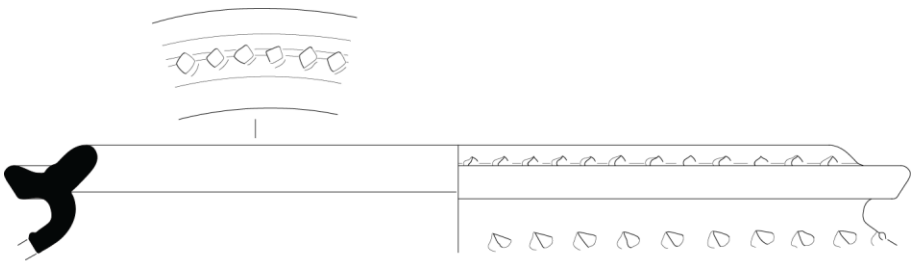
Rim type 186
Sherd 2180



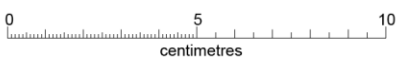


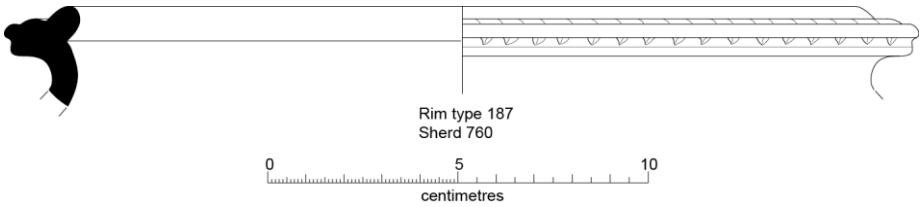
Rim type 187
Sherd 2470

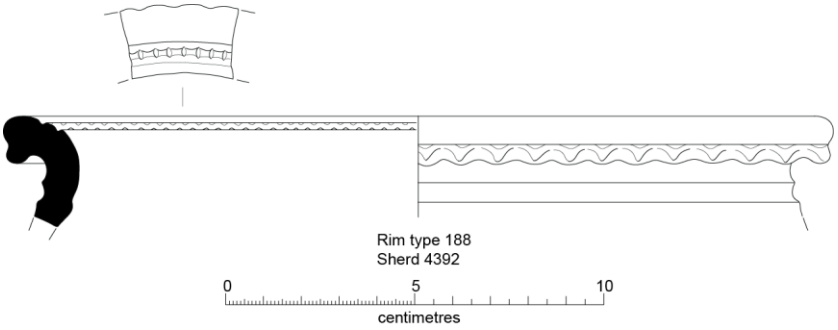


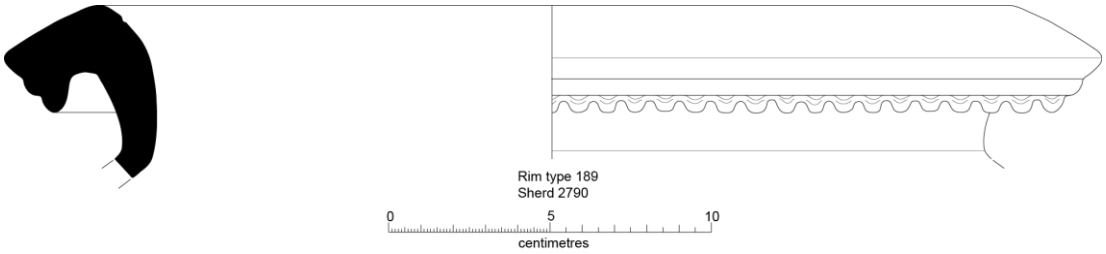


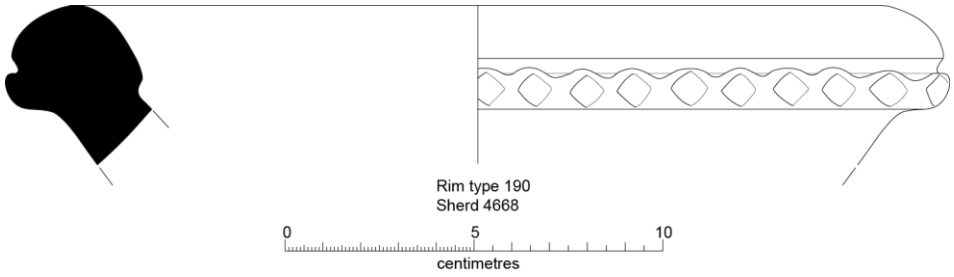
Rim type 187
Sherd 317

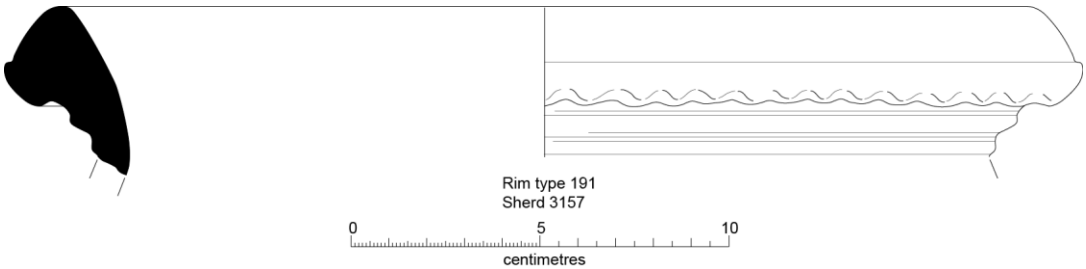


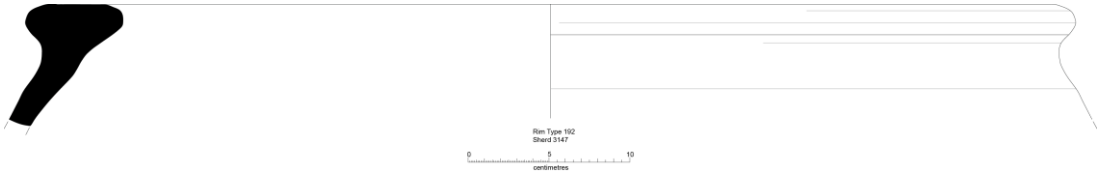

Rim type 187
Sherd 760
0
5
10
centimetres

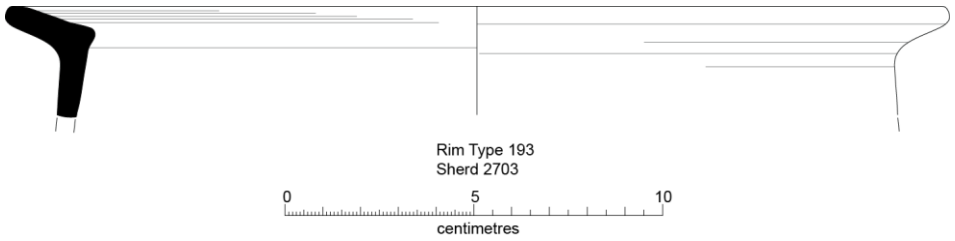

Rim type 188
Sherd 4392
0
5
10
centimetres

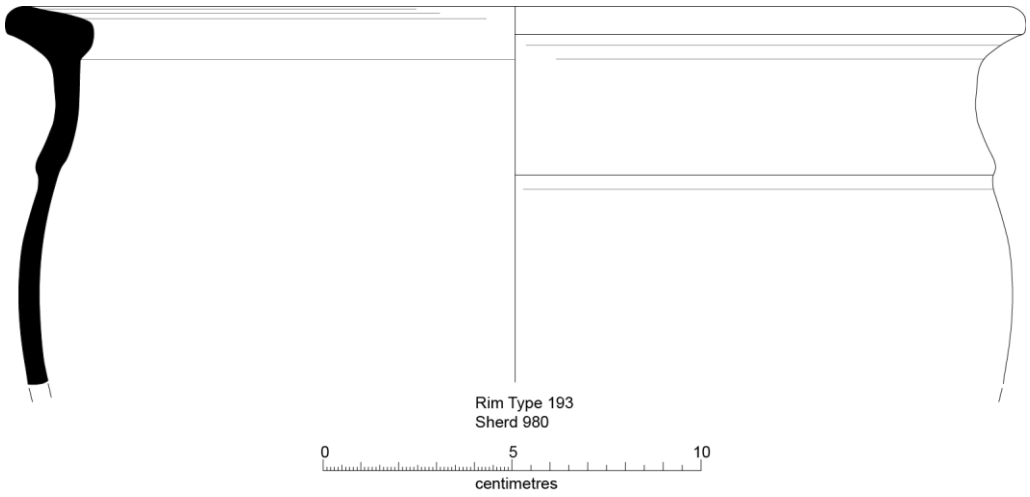

Rim type 189
Sherd 2790
0
5
10
centimetres

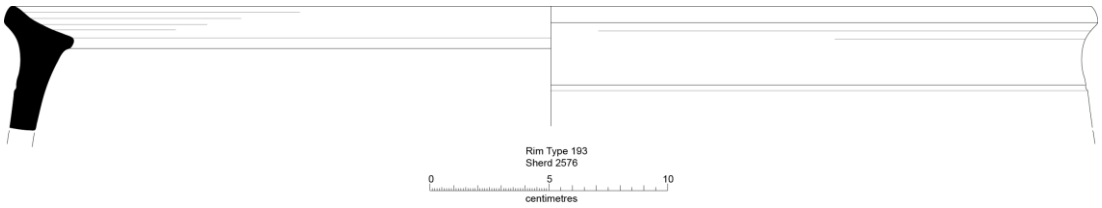

Rim type 190
Sherd 4668
0
5
10
centimetres

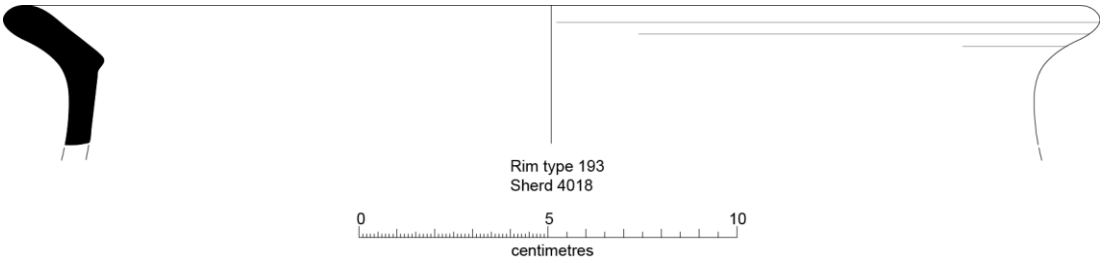

Rim type 191
Sherd 3157
0
5
10
centimetres

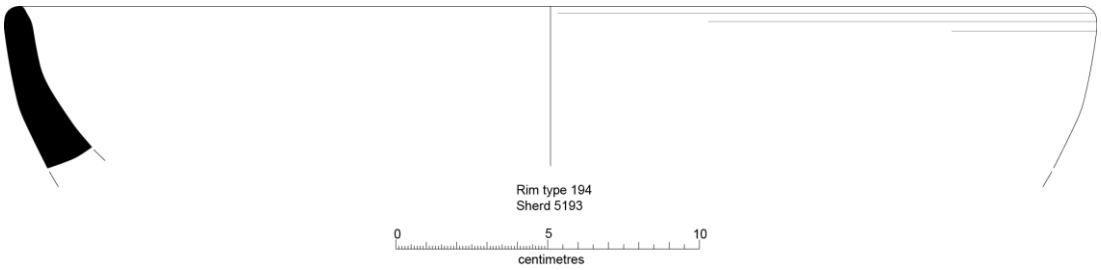

Rim Type 192
Sherd 3147
0
5
10
centimetres

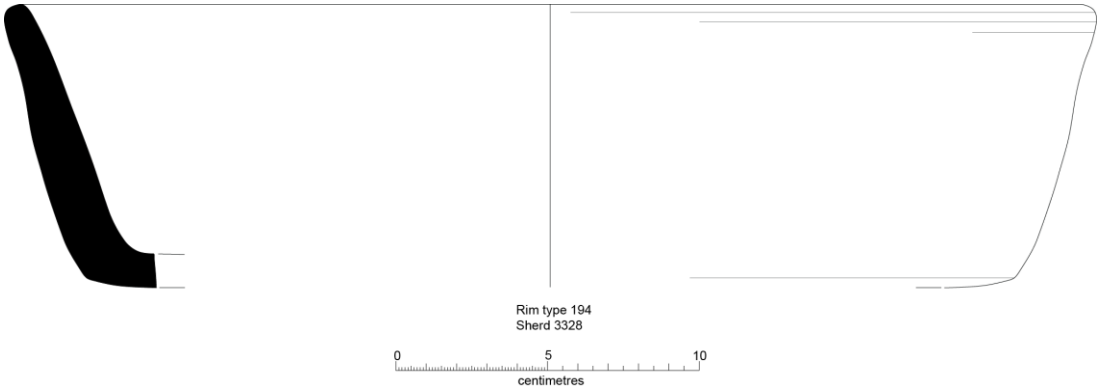

Rim Type 193
Sherd 2703
0
5
10
centimetres

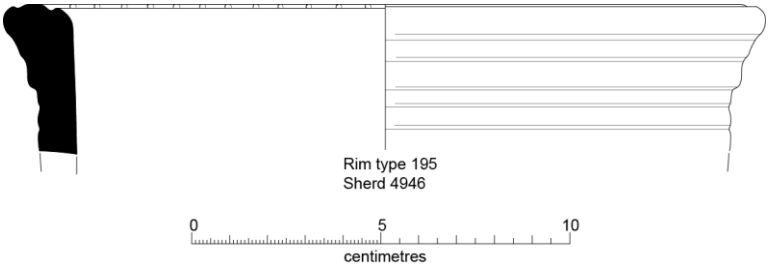

Rim Type 193
Sherd 980
0
5
10
centimetres

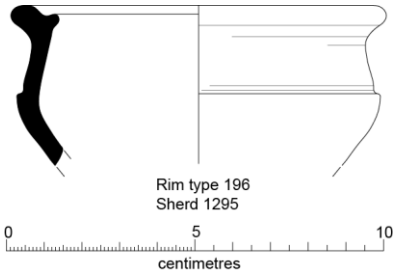

Rim Type 193
Sherd 2576
0
5
10
centimetres

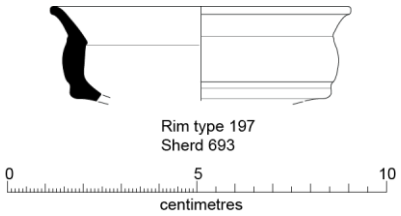

Rim type 193
Sherd 4018
0
5
10
centimetres

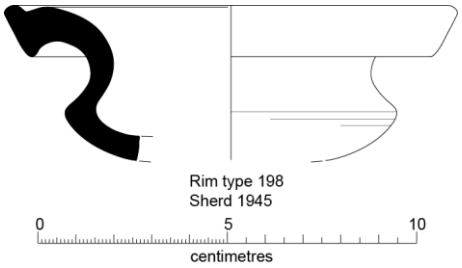

Rim type 194
Sherd 5193
0
5
10
centimetres

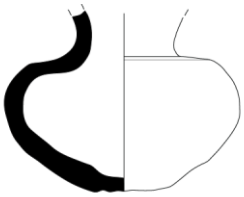

Rim type 194
Sherd 3328
0
5
10
centimetres


Rim type 195
Sherd 4946
0
5
10
centimetres

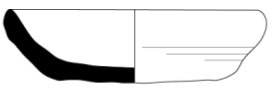

Rim type 196
Sherd 1295
0
5
10
centimetres

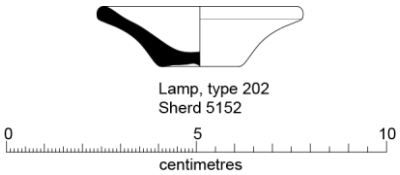

Rim type 197
Sherd 693
0
5
10
centimetres


Rim type 198
Sherd 1945
0
5
10
centimetres


Small pot, type 199
Sherd 4000
0
5
10
centimetres

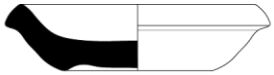

Miniature pot, type 200
Sherd 4883
0
5
10
centimetres


Lamp, type 201
Sherd 1215
0
5
10
centimetres



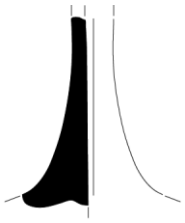
Lamp, type 202
Sherd 5152

0 5 10
centimetres



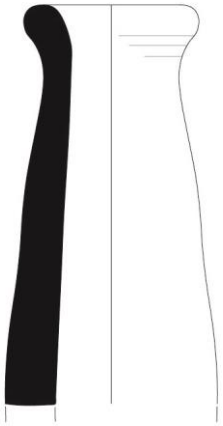
Lamp, type 203
Sherd 2749

0 5 10
centimetres



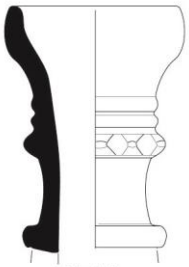
Sprinkler
Sherd 758

0 5 10
centimetres



Find 24

0 5 10
centimetres



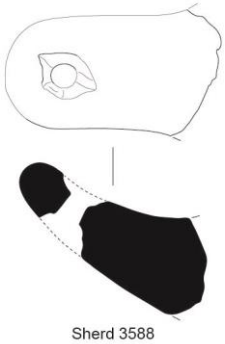
Find 22

0 5 10
centimetres



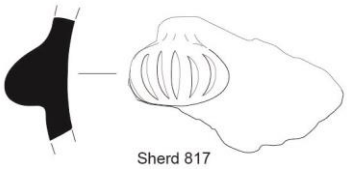
Sherd 1326

0 5 10
centimetres



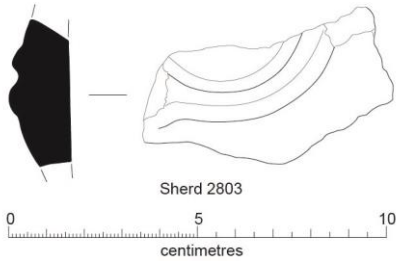
Sherd 3588

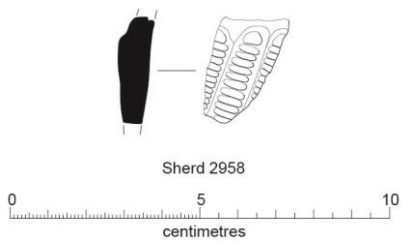
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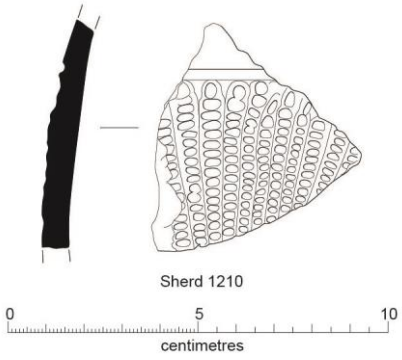


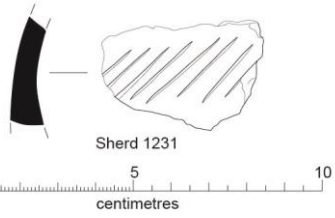
Sherd 817

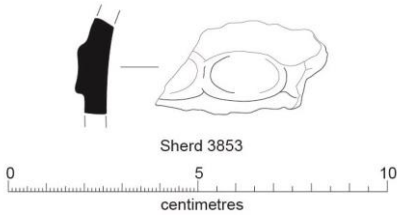
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centimetres

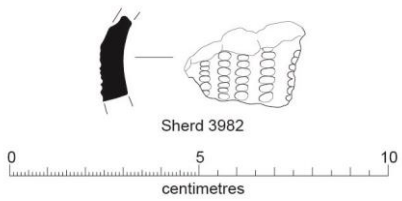

Sherd 2803
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5
10
centimetres

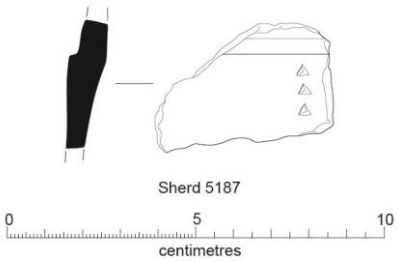

Sherd 2958
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5
10
centimetres

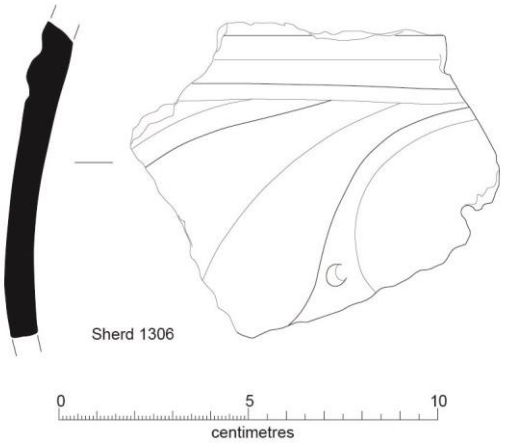

Sherd 1210
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centimetres

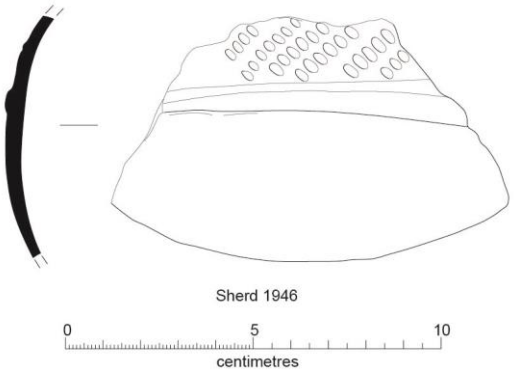

Sherd 1231
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5
10
centimetres

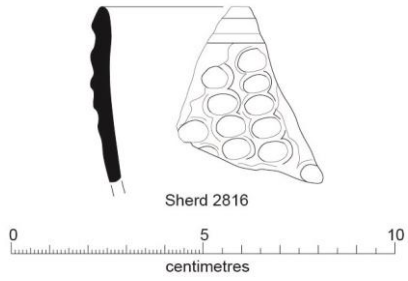

Sherd 3853
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5
10
centimetres

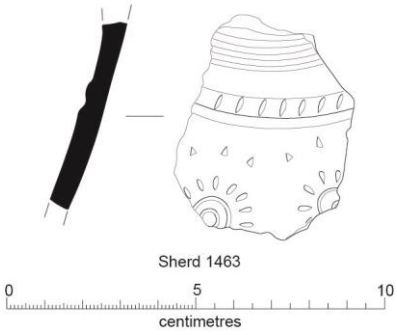

Sherd 3982
0
5
10
centimetres

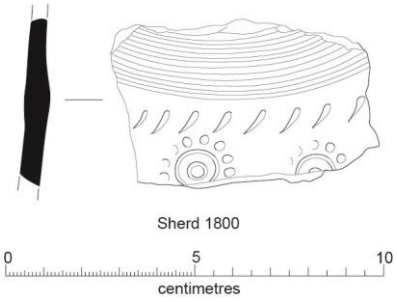

Sherd 5187
0
5
10
centimetres

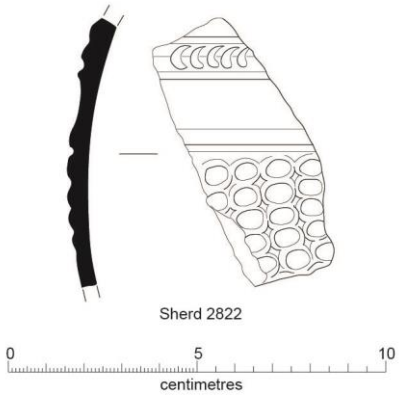

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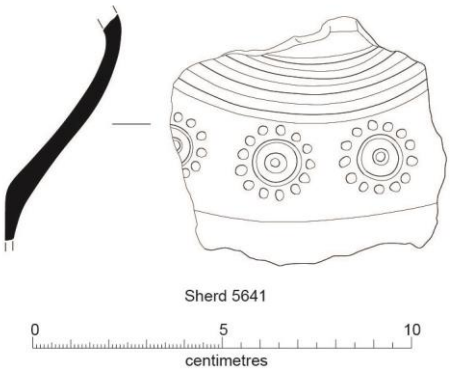

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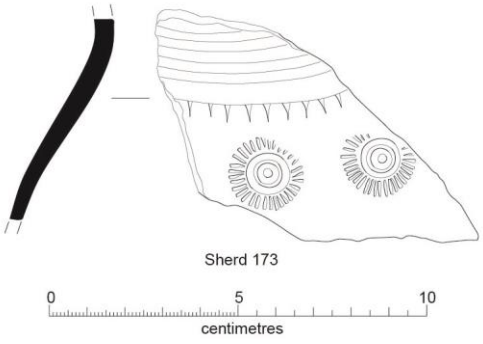

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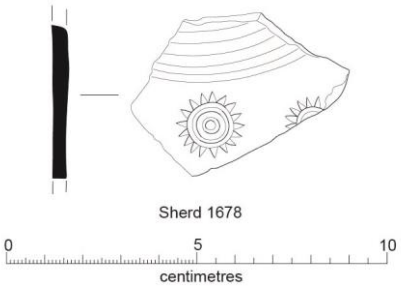

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centimetres

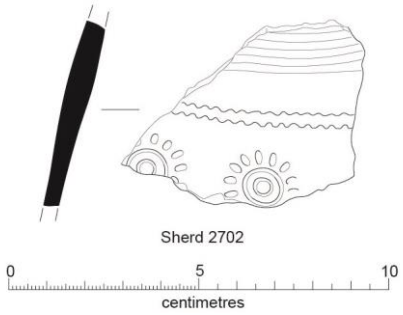

Sherd 1800
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5
10
centimetres

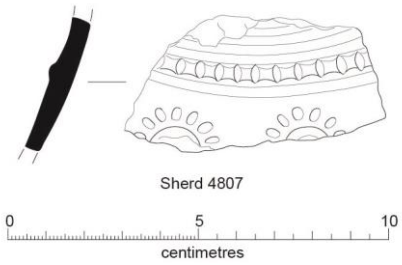

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10
centimetres


Sherd 5641
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5
10
centimetres


Sherd 173
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5
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centimetres


Sherd 1678
0
5
10
centimetres


Sherd 2702
0
5
10
centimetres


Sherd 4807
0
5
10
centimetres

Appendix 8: Ceramic Seriation

The following table presents the relative seriation of the ceramic assemblage. As noted in the main text, this table is based on sites with over 0.5% of the total ceramic assemblage (29 sherds) and key wares which form over 1% of the total assemblage. The table has been conditionally formatted based on percentage of ceramic ware groups and the sites have been manually rearranged to determine patterns of ware association.

Site No.	BAR	Gritty	Grey/ Orange	Storage	Red	Mica1	Mica2	Dark mica	Other Mica	Red BLS	Red Burn	Grey/ Buff	Unknown	Sherd Count
353	16.4%	10.0%	10.0%	0.9%	27.3%	0.9%	3.6%	4.5%	0.0%	0.9%	5.5%	18.2%	1.8%	110
325	5.7%	47.5%	3.8%	1.3%	12.0%	1.3%	8.9%	0.6%	0.0%	0.0%	14.6%	3.2%	1.3%	158
262	2.8%	16.8%	8.4%	1.9%	32.7%	6.5%	16.8%	3.7%	0.0%	0.0%	2.8%	2.8%	4.7%	107
197	2.2%	22.2%	9.4%	5.6%	21.1%	5.0%	20.6%	5.0%	0.0%	0.0%	6.1%	0.6%	2.2%	180
196	0.0%	0.0%	12.1%	12.1%	48.5%	3.0%	6.1%	0.0%	0.0%	0.0%	6.1%	12.1%	0.0%	33
363	0.0%	2.2%	9.6%	8.1%	51.1%	5.2%	8.9%	0.7%	0.0%	0.0%	4.4%	2.2%	7.4%	135
316	0.0%	2.3%	18.6%	9.3%	34.9%	18.6%	7.0%	0.0%	0.0%	0.0%	0.0%	4.7%	4.7%	43
76	2.7%	2.7%	0.0%	0.0%	20.3%	17.6%	36.5%	4.1%	0.0%	0.0%	6.8%	5.4%	4.1%	74
72	0.0%	7.8%	7.0%	11.7%	31.3%	23.4%	7.8%	2.3%	0.0%	0.0%	6.3%	0.8%	1.6%	128
265	0.0%	2.4%	0.0%	9.8%	58.5%	25.6%	1.2%	1.2%	0.0%	0.0%	0.0%	0.0%	1.2%	82
59	0.0%	0.0%	2.8%	2.8%	47.2%	30.6%	0.0%	13.9%	0.0%	0.0%	2.8%	0.0%	0.0%	36
241	0.0%	6.2%	1.2%	8.6%	34.6%	29.6%	9.9%	2.5%	0.0%	0.0%	1.2%	4.9%	1.2%	81
7	0.0%	4.5%	0.9%	18.9%	28.8%	21.6%	9.0%	0.0%	0.9%	0.0%	12.6%	1.8%	0.9%	111
79	0.0%	1.3%	1.8%	3.1%	26.7%	53.8%	7.6%	1.3%	0.9%	0.4%	0.0%	0.9%	2.2%	225
213	1.1%	16.9%	9.0%	3.4%	11.2%	22.5%	19.1%	6.7%	2.2%	0.0%	3.4%	1.1%	3.4%	89
71	0.0%	11.3%	1.6%	14.5%	11.3%	51.6%	3.2%	0.0%	0.0%	0.0%	4.8%	0.0%	1.6%	62

71	0.0%	11.3%	1.6%	14.5%	11.3%	51.6%	3.2%	0.0%	0.0%	0.0%	4.8%	0.0%	1.6%	62
400	0.0%	5.7%	3.4%	3.4%	18.4%	11.5%	24.1%	8.0%	0.0%	1.1%	1.1%	19.5%	3.4%	87
29	0.0%	0.0%	0.0%	0.4%	27.4%	3.9%	6.5%	1.7%	0.0%	3.5%	48.3%	8.3%	0.0%	230
21	0.0%	0.0%	0.0%	0.0%	22.2%	5.6%	22.2%	0.0%	0.0%	0.0%	33.3%	16.7%	0.0%	36
92	0.0%	0.0%	0.0%	0.0%	14.3%	25.7%	5.7%	5.7%	0.0%	2.9%	28.6%	14.3%	2.9%	35
48	0.0%	0.0%	0.0%	0.0%	10.3%	64.1%	10.3%	2.6%	2.6%	0.0%	7.7%	0.0%	2.6%	39
20	0.0%	0.0%	2.3%	0.0%	15.9%	40.9%	29.5%	2.3%	0.0%	0.0%	9.1%	0.0%	0.0%	44
94	0.0%	0.0%	0.0%	0.0%	14.9%	55.3%	19.1%	2.1%	0.0%	0.0%	4.3%	4.3%	0.0%	47
48	0.0%	0.0%	0.0%	0.0%	10.3%	64.1%	10.3%	2.6%	2.6%	0.0%	7.7%	0.0%	2.6%	39
364	0.0%	0.6%	1.3%	0.0%	7.1%	23.1%	51.3%	9.6%	0.0%	0.0%	3.2%	2.6%	1.3%	156
49	0.0%	1.2%	0.6%	0.6%	3.1%	16.7%	15.4%	1.9%	59.3%	0.0%	1.2%	0.0%	0.0%	162
351	0.0%	0.0%	1.8%	0.0%	0.0%	14.3%	73.2%	7.1%	0.0%	0.0%	0.0%	3.6%	0.0%	56
46	1.2%	0.0%	0.0%	0.0%	2.4%	4.9%	70.7%	13.4%	0.0%	0.0%	2.4%	3.7%	1.2%	82
318	0.0%	0.7%	2.0%	0.0%	2.7%	1.4%	66.7%	18.4%	0.0%	0.0%	5.4%	2.7%	0.0%	147
236	0.0%	4.7%	0.6%	0.0%	2.3%	4.7%	61.4%	19.3%	0.0%	0.0%	4.7%	1.8%	0.6%	171
289	0.0%	9.0%	3.2%	1.3%	6.4%	9.0%	55.8%	8.3%	0.0%	0.0%	3.8%	0.0%	3.2%	156
47	0.0%	1.5%	0.0%	0.0%	0.0%	7.6%	48.5%	24.2%	0.0%	0.0%	9.1%	9.1%	0.0%	66
75	0.0%	10.3%	0.0%	0.0%	10.3%	10.3%	27.6%	17.2%	0.0%	0.0%	3.4%	20.7%	0.0%	29
210	0.0%	2.5%	2.5%	1.3%	1.9%	3.8%	43.4%	9.4%	0.0%	1.3%	20.8%	12.6%	0.6%	159
45	0.4%	0.4%	0.7%	0.0%	3.8%	2.9%	22.5%	8.0%	0.0%	1.1%	10.7%	47.9%	1.6%	449
276	0.0%	0.0%	1.1%	0.0%	4.5%	3.4%	16.9%	4.5%	0.0%	2.2%	22.5%	43.8%	1.1%	89
202	0.0%	2.7%	2.7%	2.7%	2.7%	0.0%	29.7%	8.1%	0.0%	0.0%	21.6%	27.0%	2.7%	37
155	0.7%	0.0%	0.0%	0.0%	2.0%	2.7%	11.5%	5.4%	0.0%	2.0%	17.6%	58.1%	0.0%	148
312	0.0%	0.0%	5.3%	0.0%	2.6%	7.9%	23.7%	7.9%	0.0%	0.0%	7.9%	44.7%	0.0%	38
352	0.0%	1.0%	3.1%	0.0%	2.1%	2.1%	12.5%	2.1%	0.0%	0.0%	8.3%	68.8%	0.0%	96
107	0.0%	0.0%	0.0%	1.3%	3.8%	2.5%	10.0%	3.8%	0.0%	1.3%	21.3%	56.3%	0.0%	80

122	0.0%	0.0%	0.0%	0.0%	5.5%	1.1%	2.2%	0.0%	0.0%	4.4%	70.3%	13.2%	3.3%	91
106	0.0%	0.0%	0.0%	0.0%	3.8%	0.0%	0.0%	1.9%	0.0%	1.9%	17.3%	73.1%	1.9%	52
116	0.0%	0.0%	0.0%	0.0%	2.5%	2.5%	5.0%	0.0%	0.0%	0.0%	35.0%	55.0%	0.0%	40
348	0.0%	0.0%	1.0%	0.0%	2.5%	0.5%	5.4%	2.5%	0.0%	1.5%	17.3%	68.8%	0.5%	202
386	0.0%	0.0%	1.0%	0.0%	5.2%	0.0%	4.1%	0.0%	0.0%	0.0%	13.4%	76.3%	0.0%	97
356	0.0%	4.7%	0.0%	0.0%	7.0%	0.0%	2.3%	0.0%	0.0%	0.0%	9.3%	74.4%	2.3%	43
275	0.0%	0.0%	0.0%	0.0%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	6.5%	82.3%	4.8%	62
349	0.0%	0.0%	0.0%	1.5%	7.4%	0.0%	0.0%	0.0%	0.0%	2.9%	2.9%	83.8%	1.5%	68
350	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	1.4%	5.4%	90.5%	0.0%	74
Grand Total	41	253	134	136	761	623	1111	289	103	41	654	1247	82	5475

Appendix 9: List of sculpture

This appendix contains general information regarding the sculptural pieces identified and recorded during survey. Each sculpture was assigned a number when discovered. A number of sculptures are less useful for a chronological study of the landscape as they belong to an unknown phase of activity or are broadly identified as 'Post-Vākāṭaka. Many are highly fragmentary or eroded, and features are often obscured by the layers of s*indūr* applied in worship.

Sculpture No.	GPS No.	Site No.	Identification	Description	HxWxD (cm)	Rough Period
1	24	21	Narasiṃha	Kevala-Narasiṃha sculpture, Rāmṭek		III
2	28	22	Naga	5 Hooded Naga originally from Naga House opposite the Kevala-Narasiṃha Temple at Rāmṭek	61x40	III
3	33	23	Narasiṃha	Rudra-Narasiṃha sculpture, Rāmṭek		III
4	37	24	Varāha	Theriomorphic Varāha, Rāmṭek		III
5	54	20	Trivikrama	Damaged red sandstone Vākāṭaka sculpture of Trivikrama, Rāmṭek		III
6	61	31	Ganesh	Very eroded sandstone Ganesh sculpture incorporated into modern shrine at Ambālā		III
7	63	33	Nandi	Nandi Sculpture in modern shrine at Ambālā: Left leg bent up, bell around neck, back left leg tucked under body		IV+
8	70	40	Nandi	Nandi sculpture pulled from Ambālā Tank. The left front leg is bent up; both back legs are visible on right side. Decorated with bells and garlands	45x24x65	IV+
9	86	45	?	Lower half of red sandstone female figure currently located in Nagardhan Fort. Seated with right leg bent up. Decoration visible around the thighs and waist and anklet on right foot		III
10	86	45	Liṅga	Liṅga lying on side in Nagardhan Fort: Square long base, possible trace of Brahmasūtra and pārśvasūtra.	(48 Liṅga) 91x34	III
11	61	31	Ganesh	Possibly modern Ganesh located in a shrine at Ambālā, next to another heavily eroded sandstone Ganesh. Covered in Sindūr: Right leg is bent up and the left leg is tucked under the body. Appears to have four arms.		V-VI
12	61	31	Liṅga/Yoni	Small Liṅga on round pīṭha		IV+

13	63	33	Naga	Large Naga in modern shrine at Ambālā (with Nandi): Heavily covered in Sindūr but appears to have one or two heads		IV+
14	63	33	Liṅga/Yoni	Very small Shiv Liṅga on large rounded pīṭha		IV+
15	71	30	Nandi	Seemingly late period Nandi at Ambālā: Left leg raised and both back legs visible on right side. Adorned with bells and garlands. Pronounced, slightly pointed hump and horns	80x34x65	IV+
16	103	50	Architectural	Comparatively intricate sculpture at Koteshwar Temple, Nagardhan: architectural fragment. Smoothed/polished sandstone. At the bottom is a makara, with a kneeling male figure above, holding onto what might be a lotus?	37x20x12	IV+
17	103	50	Gaṇa-type figure	Red sandstone incomplete sculpture at Koteshwar Temple: possibly Vākāṭaka - similar to one seen at Nagpur Museum. Appears to be a Gaṇa-type figure (although may be Kubera): Two armed, rotund-bellied, seated resting with left leg up. Bracelets visible, particularly on right wrist. Necklace also visible (with amulet type design), possibly anklets as well	35x29x11	III
18	95	310	Nandi	Eroded sandstone Nandi on small platform with other sculpture under worship in Bori, left front leg tucked underneath body, bridle visible on face	20x28x16	IV+
19	95	310	Viṣṇu Pada	Viṣṇu Pada on shrine at Bori	25x25	Unknown
20	96	48	Liṅga/Yoni	Small sandstone Liṅga in modern shrine by tank next to Nagardhan Fort: Round pīṭha. Back of liṅga is damaged/cut away (pīṭha: 100x84cm)	35x26	III
21	12	80	Ganesh	Large Ganesh Sculpture at Hamlapuri	109x92	III

22	12	80	Liṅga	Square based Liṅga at Hamlapuri - design of Brahmasūtra and pārśvasūtra		III
23	12	80	Liṅga	Square based Liṅga at Hamlapuri: cuts on main body of sculpture indicate the Brahmasūtra and pārśvasūtra		III
24	12	80	?	Fragment of sandstone sculpture: lower half of body, figure is seated with the right leg bent		III
25	103	50	Narasiṃha	Small Narasiṃha statue at Koteshwar Temple, Nagardhan. Same pose as Narasiṃha at Rāmṭek with cakra In hand. Appears to be small replica. Stone not determined due to sindūr.	25x22x5.5	III
26	103	50	?	Sandstone sculpture of female at Koteshwar Temple, similar aspects to Viṣṇu: 2 armed figure with two necklaces and large earrings with crown on head. Appears to have a third eye. Female figure on figure's left side.	68x33x22	IV+
27	103	50	Ganesh	Very badly eroded sandstone Ganesh at Koteshwar Temple: Seated cross legged, appears 4 armed	64x43x15	Unknown
28	103	50	Ganesh	Badly eroded and incomplete Ganesh sculpture at Koteshwar Temple: 4 arms	36x37.5x19	Unknown
29	103	50	?	Two figures: very eroded. Architectural piece? One is seated cross-legged the other standing, standing figure may be female? Post-Vākāṭaka door post?	32x31x9	IV+
30	103	50	Hero Stone	Part of Hero Stone at Koteshwar Temple: Striding figure with sword and shield	28x25x13	IV+
31	103	50	Hanuman	Hanuman sculpture at Koteshwar Temple in heroic pose standing on the demon, with tail curled overhead. Obscured by sindūr		V+

32	103	50	Hanuman	Red sandstone sculpture head in tree at Koteshwar Temple, identified as Hanuman. This image may be a slightly older depiction of Hanuman		V+
33	115	91	Ganesh	Very eroded sandstone sculpture at Shrine on route to Nandpuri: 4 armed Ganesh sat with left leg tucked under body	59x43x23	Unknown
34	115	91	Mahishamardini	Sandstone sculpture of female figure at shrine on route to Nandpuri: standing with right foot on an ass. Necklaces and bracelets visible. Short arms, provincial style	67x41x7	Unknown
35	115	91	?	Badly eroded sandstone sculpture of 4-armed male figure at shrine on route to Nandpuri	85x39x16	IV+
36	115	91	Naga	Bottom part of small sandstone Naga showing curled tail in figure of 8 similar to that seen in early depictions: Head missing	27x22x10	Unknown
37	121	105	Naga	Small sandstone Naga: as part of a sculpture pile at shrine in Rāmṭek town with numerous fragmentary and eroded pieces of sculpture. Single hood		Unknown
38	127	110	?	Sculpture at modern shrine in Rāmṭek: striding figure.		Unknown
39	127	110	Hanuman	Large Hanuman in modern shrine, standing with hands in front of the body		V+
40	150	6	Liṅga	Sandstone Liṅga in excavated temple West of Mansar Palace: Brahmasūtra and pārśvasūtra. Base is Octagonal	56 (+base 14)x35	III
41	157	177	Liṅga	Liṅga on top of Hill east of Mansar-Moil by Modern shrine. Square base, appears there is some evidence of a line similar to the Brahmasūtra and pārśvasūtra but it is unclear whether this is an intentional feature. End of shaft is slightly bulging	(49 liṅga) 103x37	Unknown

42	160	179	Liṅga	Isolated liṅga on its side by village at base of hill with similar profile to type.42. Square base, damaged and no visible Brahmasūtra and pārśvasūtra.	83.5 (51 liṅga) 43	Unknown
43	164	10	Liṅga	Sandstone liṅga in the star-shaped temple at Mansar: clear Brahmasūtra and pārśvasūtra and square base	60 (+base 12) x43	III
44	199	113	Hanuman	Hanuman sculpture in small temple next to tank at Rāmṭek. Standing Hanuman with Gada under left arm, hands held in front of body and tail over head		V+
45	207	119	Liṅga/Yoni	Liṅga in Temple in main Rāmṭek town: small liṅga, round pīṭha with deep run off lines for water libation		V+
46	207	119	Naga-Kal	Double Naga stone: Straight necks with single loops in tails, oval shaped hoods, very basic		IV+
47	207	119	Naga	Naga with coiled body and hood with 5 heads		Unknown
48	207	119	Hanuman	Small Hanuman sculpture, standing straight with hands in front of body, gada and tail not so clear, covered in sindūr		V+
49	207	119	Naga-Kal	Two Naga figures carved on a stone in collection of sculpture/rocks being worshipped outside temple: bodies have a single loop in centre and hoods face outwards next to each other. Single heads, stone has rounded shape to top		V+
50	211	152	Naga-Kal	Small Naga-Kal at Nāgarjun Temple on the hill near Rāmṭek: modern Ganesh Temple with Naga figure, 5 heads and double curled body		Unknown
51	217	43	Ganesh	Ganesh sculpture in Medieval shrine at Ambālā: East end of Ambālā tank at base of hill. Seated with 4 arms, Snake around belly. Appears to be late depiction for use in temple alcove	44x27x12	IV+
52	217	43	?	Sculpture of a female figure with hands on hips. Jewellery on upper arms, necklaces, large earrings/part of headdress, holding something in left hand		IV+

53	14	98	Ganesh	4 armed seated Ganesh at Devi Temple in Rāmṭek. May be an Early Historic depiction - sindūr obscures details. Sitting to side with corpulent body, appears to be carved from sandstone	45x40	III
54	14	98	Naga-Kal	Naga stone at Devi Temple in Rāmṭek: single head: Snake has one wide hood and a body that forms one loop	58x43x15	Unknown
55	111	353	Naga	Naga shrine outside modern temple near Kelapur. 5 hoods, appears to be sandstone although covered in Sindūr		Unknown
56	233	227	Hanuman	Hanuman Sculpture next to Manapur temple and tank. Incomplete and painted in Sindūr: Only top half of sculpture remains: tail curled overhead, late design	62x55	V+
57	233	227	Nandi	Nandi, similar to S015 at Ambālā. Heavily decorated with prominent hump and horns. Left leg raised and both back legs tucked under to the right. Elaborately decorated with bell designs on back		V+
58	233	227	Vyāla/Yali	Siṁha-Vyāla at Manapur Temple next to Tank area. Fragment of Lion head carved from sandstone, possibly from column piece	41x23x18	V+
59	233	227	Nandi	Fragment of small sculpture: animal head that appears to be Nandi? Highly decorated with elaborate headdress, although no ears/horns visible	13x8	IV+
60	233	227	Hanuman	Hanuman sculpture with tail overhead and hands held in front of body		V-VI
61	241	404	Naga	Small 5 headed Naga in shrine by village of Bhilewada. Other stones in worship		Unknown
62	242	410	Naga	Chota Mahadev Temple: 5 headed Naga		Unknown
63	242	410	Ganesh	Chota Mahadev Temple: Seated Ganesh, with 4 arms?		Unknown

64	242	410	Nandi	Nandi at Chota Mahadev, pronounced hump and horns, right front leg tucked under, left front leg up and back legs visible on both sides		IV+
65	86	45	?	Sculpture in the Baori of Nagardhan Fort: Kali/Vaishnavi?		IV+
66	491	85	Hanuman	Hanuman Temple in Hamlapuri		V+
67	491	85	Naga	Naga in the Hanuman Temple in Hamlapuri village		Unknown
68	351	84	Bhairava	Sandstone carving of Bhairava, being worshipped as a female. Probably later folk art	112x62	IV+
69	351	84	Lajjā Gaurī	Next to Bhairava: small Lajjā Gaurī. No head, type II on Bolon's typology	8.5x6.5	III
70	351	84	Lajjā Gaurī	Upside down Lajjā Gaurī, more detailed than S069 but overall similar depiction	8x6	III
71	351	84	?	Small sandstone sculpture of two figures: May be Shiva/Parvati?	12x10	Unknown
72	351	84	?	Larger standing figure in shrine - provincial style		V-VI
73	351	84	?	Smaller standing figure with four arms - provincial style		V-VI
74	247	83	?	Said to be a seated figure of a naked woman holding a child in her lap. Owners said it was carved of red sandstone and that the hair is visible going down the back. Also stated the figure has three eyes. 3 eyes are visible, but figure appears as an old man with no hair - possibly modern, or too obscured by paint to be identified	40	Unknown

75	248	89	Nandi	Large Nandi with right leg bent and left tucked under body, neck decoration	50x60x60	IV+
76	493	87	Ganesh	Seated 4 armed Ganesh in Nandpuri, looks to be late/modern		V-VI
77	250	174	?	Small sculpture outside Hanuman temple on Mansar Road: seated figure, large features and squat body. No clear parallel and covered in sindūr so hard to identify. Could be folk art	40x23	Unknown
78	251	327	Naga-Kal	5 headed Naga carved on a stone with 4 coiled body		Unknown
79	251	327	Ganesh	4 armed seated Ganesh image		Unknown
80	251	327	Annapurna	Carving of seated Annapurna with ladle across lap, necklaces and headdress but not clearly female		IV+
81	253	330	Hanuman	Standing Hanuman figure with hands in front of body		V+
82	262	260	?	Small carved plaque with two figures, male and female holding spears. Very small image	17x10	IV+
83	262	260	Sati stone	Pair of matching standing figures in a local folk style	19x49	IV+
84	265	253	Hanuman	Striding Hanuman in heroic pose with thick coating of sindūr		V+
85	265	253	Nandi	Head of a Nandi		IV+
86	266	261	Naga	Small metal Naga, hood visible, body has been concreted into floor of shrine	9	Unknown
87	266	261	Naga	Naga which appears to have 5 heads	16x12	Unknown

88	271	202	Liṅga	Square base Liṅga: could be old but hard to tell without obvious markings: centre point of Hivri village	50 (+base 40) 35x35	III
89	585	205	Ganesh	Seated 4 armed Ganesh with right leg tucked under body. Covered in sindūr	32x20	Unknown
90	585	205	Naga-Kal	5 headed Naga with double coiled body carved onto stone. Covered in sindūr	32x20	Unknown
91	585	205	Annapurna	Small temple icon of Annapurna with ladle across lap	32x20	Unknown
92	585	205	Liṅga/Yoni	Small Liṅga and pīṭha	35x25	Unknown
93	585	205	Nandi	Small Nandi associated with the yoni. Fairly crude carving and obscured by sindūr	27x9x23	Unknown
94	585	205	Hanuman	Standing Hanuman with Gada	74x55	V+
95	584	204	Naga-Kal	Stone with two one headed Nagas - similar to Sculpture 49 overall	34x28	Unknown
96	583	203	Annapurna	Seated female with large ear plugs and headdress, hands on knees but no visible object across lap	27x21	IV+
97	583	203	?	Standing male figure with ear plugs in provincial style. Probably quite late but phasing unknown	32x24	Unknown
98	583	203	?	Striding figure - in provincial style	32x19	Unknown
99	272	191	Naga	5 headed Naga with double coiled body	38x22	Unknown
100	274	193	Ganesh	Seated Ganesh with two arms - no other features identifiable	40x22	IV+
101	274	193	Ganesh	Seated Ganesh, appears to be only two armed	37x20	IV+

102	274	193	Naga	Perhaps a 5 headed Naga, with 4 coiled body, end of tail visible at bottom	38x20	Unknown
103	274	193	Ganesh	4 armed seated Ganesh, crude appearance		Unknown
104	274	193	?	Standing figure crudely carved onto a stone - folk style image with disproportionate limbs		Unknown
105	275	194	Naga	5 headed Naga with heavily coiled body - included in trimurti	34x20	IV+
106	275	194	Ganesh	Seated 2 armed Ganesh - temple icon as part of trimurti	35x19	IV+
107	275	194	Annapurna	Image of Annapurna with the ladle - part of trimurti	31x21	IV+
108	275	194	Nandi	Small crude image of Nandi	36x26x6	IV+
109	277	215	Naga	Small very eroded one headed Naga		Unknown
110	348	216	?	Standing figure carved on stone with hands held in front of body	50x27	Unknown
111	348	216	?	Standing figure holding a long object - folk style	38x26	Unknown
112	348	216	Ganesh	Seated Ganesh with tilted head? Other features not visible	41x25	Unknown
113	348	216	Nandi	Very small badly preserved Nandi	28x11x25	Unknown
114	348	216	Liṅga/Yoni	Small Liṅga and pīṭha	7x30x40	IV+
115	348	216	?	Fragmentary and eroded carved stone, could be the remains of a female figure but impossible to clearly identify		Unknown

116	283	248	Ganesh	4 armed seated Ganesh at Rithi Bhagi		IV+
117	288	58	Liṅga	Very large liṅga in Nagardhan town, but mostly buried. Circumference is very large: 160cm	38 (visible) x45	III
118	290	297	Naga	One headed snake with hood - part of trimurti		IV+
119	290	297	Ganesh	Seated Ganesh - part of trimurti		IV+
120	290	297	Annapurna	Seated Annapurna- part of trimurti		IV+
121	290	297	Naga	5 headed Naga with heavily coiled body		Unknown
122	290	297	Nandi	Nandi with left leg bent and right tucked under body, quite decorated but also covered in Sindūr		IV+
123	290	297	Hanuman	Standing Hanuman in heroic with foot on demon, holding gada in right hand and with tail curved overhead. Late style		V+
124	292	220	Annapurna	Image of Annapurna with the ladle - part of trimurti		IV+
125	292	220	Ganesh	Seated Ganesh, probably with 2 arms - part of trimurti		IV+
126	292	220	Naga	5 headed Naga with heavily coiled body - part of trimurti		IV+
127	293	379	Naga	One headed Naga with single coil in body carved onto stone	(stone H 50) 33x20	Unknown
128	295	399	Nandi	Headless Nandi outside Hanuman temple: very eroded, small in size		Unknown
129	295	399	Liṅga/Yoni	Liṅga and pīṭha - the liṅga does not match the base of the yoni		Unknown

130	295	399	?	Apparently modern carving of a standing figure with hands on hips and large headdress		VI?
131	295	399	?	Quite modern looking standing figure with hands on hips, female		VI?
132	295	399	Hanuman	Central Hanuman figure of temple: standing in heroic pose holding up the Mountain in the left hand		V+
133	296	440	Hanuman	Standing Hanuman in Chaugaon: features are indistinguishable due to sindūr		IV+
134	299	396	Hanuman	Large and apparently modern standing Hanuman, with hands held in front of body and Gada by side		VI?
135	299	396	?	Small unknown figure placed on outside of temple - folk style		Unknown
136	299	396	?	Small figure placed on outside of temple, almost like Lajjā Gaurī but too eroded and painted for accurate identification	11x12	Unknown
137	300	397	Memorial stone	Carved stone with two standing figures standing side by side. Right figure has earrings and bangles. Folk art from the second millennium?		IV+
138	303	407	Hanuman	Standing Hanuman with Gada on right side of body: cannot distinguish details due to Sindūr		V+
139	305	386	Hanuman	Very small standing Hanuman in Sonpur		V+
140	307	171	?	Fragmentary seated figure, headless as damaged but it could be old. Body is corpulent - perhaps a gaṇa or image of Ganesh?	18x22	III
141	307	171	Ganesh	Very eroded sandstone sculpture - hard to distinguish but most probably Ganesh with the left leg drawn up		Unknown

142	307	171	Amalaka	Sandstone amalaka piece		IV+
143	309	361	Hanuman	Standing Hanuman sculpture in Gudhegaon: Gada on right side		V+
144	309	361	?	Squatting figure, very hard to distinguish as eroded		Unknown
145	309	361	Naga	Naga with coiled body, hood looks large enough for 5 heads		Unknown
146	309	361	Ganesh	Very eroded seated Ganesh		Unknown
147	309	361	Liṅga/Yoni	Small liṅga and pīṭha		Unknown
148	311	326	Naga	5 headed Naga with knotted body		Unknown
149	312	410	Naga	5 headed, modern looking, Naga	27x23	VI?
150	312	410	Ganesh	Seated Ganesh, could be modern but entirely covered in thick Sindūr	35x27	VI?
151	312	410	Nandi	Nandi with decorations around neck and back, left leg raised. Small pointed hump	35x40	IV+
152	314	424	Hero stone	Carved stone with two striding figures (in battle?), one with sword and shield, the other with a sword	45x34	IV+
153	314	424	Narasiṃha	Small Narasiṃha tearing the demon across lap - only example of this iconography in survey area	17x9	IV+
154	314	424	?	Standing animal, possibly back of a monkey? Short round tail, missing its head. Folk art		Unknown
155	314	424	Bagh	Animal that appears to be lying down - Hard to distinguish features but can see paw? Identified locally as Bagh		IV+

156	315	426	Naga	5 headed Naga with double coiled body	36x22	Unknown
157	315	426	Naga	5 headed Naga with unequal sized heads, middle is most prominent, double coiled body	32x17	Unknown
158	315	426	Hanuman	Standing Hanuman with Gada on left side, fairly modern appearance		VI?
159	315	426	Naga	Very eroded 5 headed Naga with knotted body		Unknown
160	315	426	Annapurna	Seated image of Annapurna with the ladle. Part of temple trimurti		Unknown
161	316	270	Hanuman	Standing Hanuman with gada on left side	67x32x19	V+
162	316	270	Hanuman	Male figure, standing or striding, with strange face and headdress (could be a local depiction of Hanuman?)		V+
163	317	271	Hanuman	Striding Hanuman holding Gada in right hand		V+
164	317	271	Naga	Very covered in Sindūr but appears it could be 5 headed with double coiled body - part of trimurti		Unknown
165	317	271	Annapurna	Image of Annapurna with the ladle - part of trimurti		Unknown
166	317	271	Ganesh	Seated Ganesh, very covered in Sindūr so cannot tell if 2 or 4 armed - part of trimurti		Unknown
167	320	272	Hanuman	Standing Hanuman sculpture at Sangrampur Ki Toli, hard to distinguish		V+
168	320	272	Annapurna	Seated image of Annapurna carved onto stone: object across lap but held up on left side in this depiction.		IV+

169	321	283	?	Standing figure with sword and object in left hand: appears to be female - folk art		Unknown
170	321	283	?	Larger standing figure also with sword and object in left hand, could be male - folk art	33x14	Unknown
171	323	295	Hanuman	Standing Hanuman with gada on left side of body		V+
172	324	315	Hanuman	Standing Hanuman, badly eroded and covered in sindūr		V+
173	324	315	Naga	5 headed Naga with knotted body - part of trimurti	23x16	Unknown
174	324	315	Ganesh	Seated Ganesh with left knee up, appears only 2 armed - part of trimurti	28x14	Unknown
175	324	315	Annapurna	Seated figure, Annapurna with the ladle across lap, definitely ear plugs/earrings but top of head covered in Sindūr - part of trimurti	25x14	Unknown
176	326	324	Ganesh	Unknown sculpture, very covered in sindūr, possibly seated figure: Ganesh? Also looks like it could be a Naga from the side but it is quite large	40x30	Unknown
177	328	340	Naga	Metal snakes: one very clear hood with head on the left. Various shapes and sizes		Unknown
178	328	340	?	Standing figure, male, hard to distinguish, possibly quite modern		VI?
179	331	341	Hanuman	Standing Hanuman with gada on the left side, very covered in Sindūr		V+
180	233	227	Ganesh	Small possibly 4 armed seated Ganesh, very covered in Sindūr, can't see details		Unknown
181	233	227	Naga	5 headed Naga with coiled body	26x23	Unknown

182	233	227	Śiva	Shiva sitting on a lion with right hand raised and snake around neck		VI?
183	233	227	Viṣṇu Pada	Possibly modern Viṣṇu Pada	?x25	VI?
184	233	227	Annapurna	Bottom half of seated figure, highly decorated, with object across lap. Legs would appear to belong to a female: draped materials and anklets. The object looks like the end of a gada? Sitting on a lotus? Back shows material fold covering down from waist. Could be Yādava period	18x16	IV+
185	238	278	Hanuman	Standing Hanuman in Charkurda temple. Hands held in front of body, Gada on left side and tail curled overhead, late (fairly modern) design		V+
186	238	278	Nandi	Highly decorated Nandi in Charkurda temple, large head in proportion to body		IV+
187	238	278	Ganesh	4 armed seated Ganesh, probably quite modern, holding an axe and elephant goad?		VI?
188	238	278	Naga	5 headed Naga with knotted body	34x20	Unknown
189	238	278	?	Seated figure, female? Broken sculpture: 4 arms, knotted hair or headdress	36x22	Unknown
190	342	250	Naga-Kal	Carved stone with one headed Naga with wavy but not coiled body, Nerla		Unknown
191	342	250	Naga-Kal	Carved stone with Naga. Possibly 5 heads given size of hood, coiled body and long tail hanging out from the knot of the body		Unknown
192	342	250	Hanuman	Standing Hanuman with foot resting on demon?) and tail curled overhead: appears fairly modern		VI?
193	342	250	?	Two figures sitting on a chariot/cart		Unknown

194	343	299	Hanuman	Standing Hanuman with gada by left side in Sirpur		V+
195	343	299	Annapurna	Annapurna with ladle across lap, very eroded and covered in Sindūr - part of trimurti	22x15	Unknown
196	343	299	Naga	Presumably a Naga with perhaps 5 heads due to hood size and body shape - part of trimurti	16x24	Unknown
197	343	299	Ganesh	Seated figure, fairly indistinguishable due to erosion and sindūr but presumably Ganesh- part of trimurti		Unknown
198	343	299	Nandi	Simple small Nandi figure, crudely depicted	18x20	Unknown
199	344	304	Hanuman	Modern Hanuman sculpture: standing with tail straight up		VI?
200	345	311	Naga	Free standing 5 headed Naga on coiled body	23x15	Unknown
201	345	311	Garuda	Standing figure of Garuda with sword: bird wings clearly visible and large pointed nose. Seems to be wearing a decorated cap, earrings, necklace and bracelets	105x58	IV+
202	345	311	Nandi	Decorated Nandi with left leg raised and back legs to the right side. Extensive bridle and bell designs, not very prominent hump but long pointed horns	50x26x43	IV+
203	345	311	Hanuman	Hanuman standing on a demon with gada raised in right hand and tail curled over head	108x59	V+
204	345	311	Ganesh	Ganesh plaque in wall of temple, 4 armed, seated, basic carving - part of trimurti	47x28	Unknown
205	345	311	Annapurna	Annapurna with ladle across lap, headdress and large earrings - part of trimurti	51x30	Unknown
206	345	311	Naga	5 headed snake with knotted body carved onto stone plaque - part of trimurti	45x33	Unknown

207	345	311	Liṅga/Yoni	Proportionally large liṅga on pīṭha with deep run off lines	23x40x60	Unknown
208	548	313	Naga	5 headed free standing Naga		Unknown
209	347	243	Nandi	Basic Nandi, not particularly highly decorated, with small hump	30x39x23	IV+
210	347	243	Hanuman	Modern looking standing Hanuman with gada by left side and tail straight up to the right		VI?
211	347	243	Narasiṃha	Eroded top half of sculpture: body position and shape of the shoulders is reminiscent of the Narasiṃhas in the Rāmṭek temples	43x34x18	III
212	347	243	Naga-Kal	Naga plaque with single head and figure of 8 body with straight tail coming down	33x20x12	Unknown
213	349	190	Naga	Single headed Naga, quite free standing, with coiled body	22x12	Unknown
214	353	279	Nandi	Nandi with legs tucked under and fairly prominent hump	32x29x14	Unknown
215	353	279	Liṅga/Yoni	Quite large liṅga and pīṭha	12x48x34	Unknown
216	353	279	Hanuman	Hanuman standing on head of demon with club in right hand and something in left hand. Tail curled over head	80x42	VI?
217	354	293	Hanuman	Standing Hanuman with Gada on left side and tail curled over head		V+
218	354	293	Hanuman	Hanuman standing on demon, holding gada up in right hand and something to chest in left hand. Tail curled behind		V+
219	355	252	Nandi	Eroded and headless Nandi		Unknown
220	355	252	Liṅga/Yoni	Simple yoni with small liṅga		Unknown

221	360	355	Hanuman	Large, possibly modern, standing/striding Hanuman with right hand raised		VI?
222	360	355	Liṅga/Yoni	Small round pīṭha with liṅga		Unknown
223	359	371	Hanuman	Small standing Hanuman, mostly obscured by sindūr		V+
224	359	371	Hanuman	Striding Hanuman holding gada in right hand and left hand holding up another object, standing on demon, looks modern		VI?
225	364	317	?	Largest figure in temple at base of dam. Standing male figure, long body and arms, crudely carved - folk art?	64x24	Unknown
226	364	317	?	Striding 4 armed figure with pleated skirt and necklace. Quite badly eroded - unclear who is depicted	36x20	Unknown
227	364	317	?	Main sculpture under worship: standing, possibly 4 armed, said to be female, measured without head projection from sindūr build-up	57x32	Unknown
228	364	317	?	Seated male figure		Unknown
229	364	317	?	Top half of standing male (?) with right hand raised	15x8	Unknown
230	364	317	?	Seated figure, face obscured	15x12	Unknown
231	364	317	Hanuman	Standing Hanuman with right hand raised and tail straight up on right side		V+
232	364	317	Memorial Stone	Small stone with two figures carved inside a border, hands held in front of body: A type of local memorial stone?		IV+
233	364	317	?	Top half of small stone plaque with carved figure, male, standing	12x8	Unknown

234	364	317	?	Standing figure with large ears, hands clasped low in front of body, crude carving - folk style	?x10	Unknown
235	364	317	Nandi	Eroded Nandi, very damaged	37x45	Unknown
236	364	317	Naga	Single headed Naga with coiled body in a figure of 8, similar to others seen across survey area	40x22	Unknown
237	364	317	Naga	Tall single headed Naga, broken below hood, with coiled body	67x41	Unknown
238	366	219	Naga	Naga looks modern, 4 coils in body and large hood		VI?
239	366	219	Liṅga/Yoni	Larger of the two liṅga and yoni pieces on the shrine in Satak. Eroded yoni and short liṅga		Unknown
240	366	219	Liṅga/Yoni	Small yoni with liṅga which looks to be added on at a later date		Unknown
241	366	219	Naga-Kal	Naga carved on a stone, singular head and single curl in body, circular appearance		Unknown
242	368	276	Hanuman	Broken Hanuman sculpture (headless) on mound area near to Udapur, standing with foot on the demon and with clothing/object hanging between legs	80x47	V+
243	370	365	?	Mata Mai temple: Small standing figure, carved on a stone backing. Arms raised at sides, appears to have a necklace, and right hand perhaps holding something		Unknown
244	373	288	Hanuman	Striding Hanuman, very ornate, holding gada up by right shoulder, foot raised, looks like it is curled around or resting on something/someone holding up something in left hand (the Mountain?) drapes of material and jewellery visible		V+
245	373	288	Ganesh	Small seated 4 armed Ganesh, right leg bent up with hand resting on knee. Left lower arm holding something out (sweetmeats?) Upper 2 arms raised and holding attributes		Unknown

246	373	288	Hanuman	Part of a Hanuman sculpture? Although facing left unlike others, striding position, right leg bent but top half missing		V+
247	373	288	Annapurna	Image of Annapurna with the ladle - part of trimurti		Unknown
248	377	401	Hanuman	Standing Hanuman near Bhilewada, covered in sindūr. Hands in front of body		V+
249	378	387	Hanuman	Old Soneghat: Modern Hanuman, standing with hands in front of body, tail curled around head and gada under left arm		VI?
250	378	387	Nandi	Nandi with raised left leg, both back legs tucked under and to the right, fairly prominent hump.		Unknown
251	378	387	Ganesh	Small seated Ganesh, obscured by Sindūr, presumably 4 armed - part of trimurti		Unknown
252	378	387	Annapurna	Annapurna with the ladle across lap - part of trimurti		Unknown
253	378	387	Naga	Small Naga statue, highly coiled body with probable 5 headed hood - part of trimurti		Unknown
254	379	389	Hanuman	Probably modern standing Hanuman, hands in front of body and tail overhead, gada under left arm		VI?
255	380	383	?	Small carved standing figure in shrine by Pindkapar, crude figure and badly preserved. Two other stones more difficult to make out - all in folk style		Unknown
256	383	375	?	Top of sculpted sandstone figure in small roadside shrine, shoulders and head. Rounded head, large ears and what appears to be a bun on top	21x25	Unknown
257	283	248	Ganesh	Quite large Ganesh sculpture at Bhagi Rithi. 4 armed and seated with right leg bent	70x40	Unknown

258	385	377	?	Outside Dongri: small figure in wall of shrine, hard to distinguish, seems to have 4 arms, quite squat, either sitting or moving/dancing		Unknown
259	386	373	Hanuman	Standing Hanuman, nearly completely obscured in sindūr		V+
260	386	373	Nandi	Small Nandi, quite squarely carved, but mostly obscured, appears quite modern		Unknown
261	386	373	Ganesh?	Presumably a seated Ganesh but completely obscured		Unknown
262	386	373	Annapurna	Annapurna with a necklace around neck and hair piled on head. Crossed legs, and ladle resting in lap and hands - part of trimurti		Unknown
263	386	373	Naga	Coiled body, obscured by sindūr but appears to be a 5 headed hood- part of trimurti		Unknown
264	387	376	?	Seated figure, male, wearing robes on lower half and topless. Both knees are drawn up with hands resting on knees. Some form of headdress or decoration - folk style?	48x23	Unknown
265	388	357	Naga	5 headed Naga with double coiled body, probably quite modern		Unknown
266	389	358	?	Seated figure, probably female, right knee raised and left leg tucked in front. Holding an object up in both hands, long straight object like sword in right hand and club/gada shaped object in left hand. Appears to have long hair hanging down to shoulders as well as piled on head	50x20	IV+
267	389	358	?	Second seated figure in the Musewadi temple, left knee bent up with right leg in front of body. Crude carving, small legs compared to torso and head. Hands resting on knees, perhaps hair behind the head, no objects/attributes visible - folk style	50x37	Unknown

268	391	335	?	Small standing figure with legs together and arms out to side, wearing robes, arms and head broken off	?x5	Unknown
269	394	158	Liṅga/Yoni	Small modern liṅga and pīṭha, black in colour		VI?
270	394	158	Nandi	Small modern Nandi		VI?
271	395	159	Viṣṇu Pada	Small sandstone Vishnu Pada, plain, undecorated	14x14	IV+
272	397	169	Architectural	Architectural fragment, with several figures. A larger figure, torso only, right hand held up and left by hip. Above is a seated female, side on, leaning on left hand with right hand raised. Appears to be part of railing or door jamb?	46x16	IV+
273	397	169	Elephant?	Sandstone animal figure: appears it could be an elephant with a raised trunk, can also see quite large ears and decoration around the back of the neck and over the back. From position, it could be rearing up on back legs? Architectural piece?	27x15	IV+
274	397	169	Vyāla/Yali	Sandstone Lion headed Vyāla, badly eroded, mane is more visible but face is difficult to work out. Architectural decorative piece	20x11	IV+
275	194	393	Nandi	Nandi sculpture, painted so difficult to see the carved stone, prominent small hump and decorated body, quite square carving with thin legs. Both back legs out to the right and left front leg bent up	55x30x65	Unknown
276	194	393	Hanuman	Covered in Sindūr but fairly modern Hanuman with hands in front of body, standing straight up, presumably a gada under left arm	80x41	VI?
277	194	393	Naga	Coiled body, knotted close to hood, single head but defined features and tongue visible - part of trimurti	50x20	VI?
278	194		Ganesh	Presumably a 4 armed seated Ganesh, right leg bent up, very obscured by sindūr - part of trimurti	42x29	Unknown

279	194	393	Naga	Free standing 5 headed Naga, black in colour and on a base with same designs as later architecture. Body coiled around with hood rising up, like a real snake	34x33	VI?
280	194	393	Annapurna	Seated figure, body quite feminine given thin waist and potential breasts but face seems male with earrings, crown/headdress, and large ears. Decorated with jewellery. Something behind or on left shoulder (possible snake connecting the figure to Śiva?). Sitting on lotus style platform, left leg bent in front and right knee up and foot turned out. Ladle held in hands across lap	49x26	VI?
281	194	393	Liṅga/Yoni	Liṅga and pīṭha with snake coiled around liṅga	20x56x84	VI?
282	194	393	"Kālidāsa"	Seated slim-waisted figure in yogic position, said to be Kālidāsa by locals. Figure is sat on a lotus style platform with an animal hand under his legs - there is also another small seated figure in the front of the platform. Hands held on lap, left holding out an object but right broken, remains of some object with beaded shape visible. Arm bands, bracelets and necklaces visible. Distinct beard and curled moustache visible and hair piled on head. Quite long face with big eyes and well defined features despite sindūr covering. Folk art with Śaiva ascetic matted hair. Below figure appears to be a buffalo head and a devotee. Probably a temple niche and part of a larger structure	61x27	IV+
283	194	393	Annapurna	Unknown figure resembling Annapurna, seated with crossed legs, quite portly, topless but wearing robe with hanging bit on bottom. Round face with large decorated ears but hair difficult to work out. Holding a ladle in hands across lap as seen in other sculptures	46x26	IV+

284	194	393	?	Another unknown figure at Japala temple: Also seated, definitely male with similar folk characteristics like the figure said to be Kālidāsa. Legs are crosses and left hand is resting on lap holding out an object. Right hand holds an object with interesting shape similar to the broken piece on the Kālidāsa figure. Topless and less jewellery, slim waisted, face quite obscured but still appears to have a moustache	37x27	IV+
285	194	393	Pīṭha	Pīṭha with a flower instead of a liṅga at the centre. Long and quite eroded		Unknown
286	194	393	Naga	Probably modern Naga, body curled around itself with visible end of tail, tall slim hood with 5 heads		VI?
287	194	393	Hero Stone	Carved stone piece with quite geometric crude figure carved on. Standing figure in triangular skirted dress, left arm raised and holding a spear? Right hand down and holding an object. Round face with prominent ears - possible hero stone in folk style		Unknown
288	405	380	?	Modern sculpture of a goddess, feet turned to right and arms by side. Looking face on, wearing short sari like outfit and necklace. Hair down to shoulders		VI?
289	405	380	?	Carved stone piece with crude standing figure, arms by side - folk art		Unknown
290	406	161	Naga-Kal	Broken Naga stone with single hooded Naga, uncoiled tail with slight curve in it - could have had a second Naga to the right side, based on design		Unknown
291	410	165	Naga	Metal Naga? Partially concreted into shrine, straight body, curling at bottom and hood potentially represents 5 heads		Unknown
292	200	114	Nandi	Damaged Nandi, missing part of face. Back legs curled under to the left, right front leg bent up. Simple carved decorations on back, fairly crude depiction		Unknown

293	200	114	Annapurna	Sitting figure, possibly with ladle across lap. Large ears visible, appears male, with crossed legs?		Unknown
294	200	114	Śiva	Head of a sculpture: Hair piled on head or tall headdress - from the side you can see the matted hair. Eyes appear to be closed, wide nose, lips are full. Reminiscent of 5th century design		III
295	200	114	?	Partial head, eyes upwards visible. Large almond eyes. Hair/headdress reflects those on some Mansar sculptures, see Bautze 2008. There is a bun behind and appears to have pleated hair in the front. On top it may be possible to see a rosette or some other headdress feature		III
296	199	113	Viṣṇu Pada	Small plain Viṣṇu Pada, now sealed in concrete but possible older, appears to be of sandstone		Unknown
297	199	113	Nandi	Small, squat Nandi with legs tucked under to left side and front right leg bent up. Decorated around neck, small upraised head and little hump		Unknown
298	199	113	Liṅga/Yoni	Large modern pīṭha sculpted around a stone liṅga, small liṅga, fairly square		VI?
299	199	113	Naga	Small free standing Naga, coiled upright body and rounded hood, appears to be single headed		Unknown
300	199	113	Ganesh	Small seated Ganesh, obscured by sindūr - part of trimurti		Unknown
301	199	113	Annapurna	Small seated figure, left leg in front and right knee bent up. Quite squat, ladle across lap - part of trimurti		Unknown
302	419	207	?	Small seated sculpture, right leg bent up, hands resting on knees. Large material piece draped between legs. Round face, prominent ears and hair on head in small bun? Anklets, necklace and earrings visible, not particularly fine carving - folk art		Unknown

303	421	198	Hero Stone	Part of a Hero stone? Only sun and crescent moon visible		Unknown
304	421	200	Naga-Kal	Naga stone: small Naga image in square carved onto stone, figure of 8 body and clear hood	37x21	Unknown
305	421	198	Hanuman	Fairly modern standing Hanuman , hands in front of body, gada under left arm and tail curled over head with a twist in it	80x40	VI?
306	421	198	Nandi	Large Nandi, quite heavily decorated and square in shape. Right leg bent up and back legs tucked under to the left. Bridle and bells clear	52x22x45	IV+
307	421	198	Ganesh	4 armed seated Ganesh, right leg bent up, very obscured by Sindūr- part of trimurti	30x18	Unknown
308	421	198	?	Figure with crossed legs and robes on, holding hands in prayer in front of body. Two arms also visible behind. Crown or headdress visible and quite prominent ears - part of trimurti	31x20	Unknown
309	421	198	Naga	5 headed Naga with highly coiled body - part of trimurti	32x20	Unknown
310	422	201	Naga	Platform shrine in Hivra with large modern Naga, figure of 8 body and tall 5 headed hood		VI?
311	422	201	Nandi, liṅga & Yoni	Small Nandi, liṅga and yoni set, quite decorated and seems late in date. Bridle and bells visible		Unknown
312	423	212	Hanuman	Small standing Hanuman, hands in front of body and tail just visible curled overhead. It and other associated sculpture, is entirely obscured by sindūr		V+
313	424	222	Architectural	Sandstone architectural piece, partially obscured by sindūr and also upside down. A face is visible with full lips and a fairly large nose. The Headdress/crown appears to be part of a wider structural element		IV+

314	424	222	Naga	Naga with coiled body and tail end coming out of the centre. Large head		Unknown
315	426	224	Śiva	Sculpture of Śiva, painted blue. Śiva is sitting and holds his right hand up while the left rests on his knee. A snake is coiled around his shoulders with the hood on the left side		VI?
316	427	225	Architectural	Sandstone architectural Fragment (?) in a 'Kali' shrine, rectangular block with some carvings		IV+
317	427	225	Architectural	Smaller architectural piece		IV+
318	428	226	?	Standing figure with completely round and flat face, no hair or ears but facial features picked out quite geometrically. Arms by sides, crudely carved - folk art	54x20	Unknown
319	429	229	?	Tulja Bai'(?) Covered sandstone figure, with umbrella and backing/halo to head. Small bun on top of head	15x25	Unknown
320	429	229	Naga-Kal	Naga stone with coiled body and tail pointing down. One head	50x26	Unknown
321	430	230	Amalaka	Amalaka architectural fragment from top of temple.		IV+
322	430	230	?	Very eroded standing figure, hard to distinguish		Unknown
323	434	232	Naga-Kal	Naga stone with circular curled body and thin head/hood pointing straight up	46x34	Unknown
324	434	232	Nandi	Small Nandi with quite prominent hump, covered in sindūr	29x20	Unknown
325	434	232	Liṅga/Yoni	Large pīṭha, with liṅga, but may be later addition, very circular with long projection. Yoni measures 85L by 52W	21x14	VI?
326	434	232	Ganesh	Headless sitting figure, probably Ganesh, pot-bellied, hands resting on lap, left leg in front and right knee bent up	35x50	Unknown

327	434	232	Hanuman	Very basic/crude standing Hanuman, probably modern.		VI?
328	435	233	Hanuman	Small standing Hanuman, holding gada over right shoulder?	30x13	V+
329	435	233	Naga-Kal	Naga stone with loosely coiled body and apparently single head and hood		Unknown
330	435	233	Ganesh	Seated Ganesh, apparently only with two arms. Sindūr covered so details not visible		Unknown
331	435	233	Naga	Small Naga with rounded coiled body and probably a 5 headed hood - obscured by sindūr		Unknown
332	436	273	Naga	Modern Naga stone with figure of 8 body and 5 headed triangular hood		VI?
333	438	266	Memorial Stone	At Mata Mai temple: Two standing figures holding hands, male on left and female on right. The male is holding a sword (?) and skirted/robed from waist down, and the female is holding a water pot (?) and is also robed with material at the front and beaded necklaces, upper arm torque and bangles are visible. Both have prominent ears, particular the female, and larger round earrings are also visible on her. Face is eroded away on the female, the male has some features visible, flat nose and almond eyes, smiling? Hair or band around forehead. Possibly also has beaded necklace. Pieces such as this could be memorial stones in provincial style	32x34	IV+
334	439	267	Hanuman	Large standing Hanuman with foot on demon, tail curled overhead and gada held up in right hand, while left hand is in front of body		V+
335	439	267	Hanuman	Smaller heroic Hanuman with Gada in right hand, tail up by right side and left hand holding up the mountain		V+

336	439	267	Ganesh	Seated Ganesh, appears to be 4 armed. Left leg bent up with right leg in front. Long head, seems to have a headdress with a central ornament - part of trimurti		Unknown
337	439	267	Annapurna	Sitting figure, looks female, wearing sari like robes and necklaces. Right leg up, same style as the Ganesh. Object across lap held in hands. Prominent ears and looks to have a headdress also - part of trimurti		Unknown
338	439	267	Naga	Tightly coiled body with clearly 5 headed hood - part of trimurti		Unknown
339	439	267	Liṅga/Yoni	Small pīṭha with liṅga (might not be original)		VI?
340	439	267	Nandi	Small Nandi, back legs tucked underneath to right hand side, right front leg raised, lots of decoration including bridle and bells, small pointed hump		Unknown
341	439	267	Annapurna	Another seated Annapurna probably quite modern, wearing sari style robes, prominent ears with big round earrings and triangular/diamond shaped necklace and ladle in hands across lap. Right knee bent up and left leg in front. - part of trimurti		VI?
342	440	268	Memorial Stone	Stone with standing figures holding holds, man on left and woman on right. Male's right arm is broken so cannot see if holding object. Both wearing robes and decorated with beaded necklaces. Female also has torques and bangles. The Male's upper half seems clothed in a braided material? Both have large ears and the female has large round earrings in. Male has hair carved into stripes with a band across, female has hair drawn back and an ornament in the middle of forehead. Both had smiling faces, eyebrows and quite simplistic faces. Similar in style to GPS 438. Behind them the stone is carved, perhaps with sun? Said to be Rukhmani by local children - folk depiction		Unknown

343	441	269	Naga	Metal snake, body straight up and tail curled around at bottom. Representation of 5 heads/forked tongues coming out of hood		Unknown
344	441	269	Naga	Hood of metal snake visible, 5 heads		Unknown
345	442	420	Naga	Coiled knotted body with the body arching around the back of the hood and the tail coming out the front, stone Naga with 5 clear heads - part of trimurti		Unknown
346	442	420	Ganesh	Crudely carved sitting Ganesh, hard to determine features, appears to have only 2 arms, quite elongated - part of trimurti		Unknown
347	442	420	Annapurna	Annapurna with ladle held in hands across lap. Seems to have a headdress or hair piled up. Face is slightly obscured, but is quite full and round with large almond eyes - part of trimurti		Unknown
348	442	420	Nandi	Small quite eroded Nandi with left leg tucked under and right front leg raised.		Unknown
349	442	420	Liṅga/Yoni	small rounded pīṭha with liṅga, in proportion with the Nandi		Unknown
350	443	421	Naga	Small free standing Naga with single coil in body and one hood	29x10	VI?
351	444	422	Hanuman	Standing Hanuman with Gada on left side and hands held in front of body.		V+
352	444	422	Hanuman	Slim standing Hanuman with hands in front of body and gada on left side. Tail can be seen curling over head		V+
353	444	422	Nandi	Small square Nandi with collar and decoration on back, front legs curved in strange way - crude depiction		Unknown
354	444	422	?	Top of figure, incomplete and eroded, hard to distinguish		Unknown

355	444	422	Ganesh	Sitting Ganesh, with legs crossed in front, 4 armed, holding attributes, left lower arm holding out something, right is resting on knee - crude depiction - part of trimurti		Unknown
356	444	422	Annapurna	Annapurna with ladle held in hands across lap. Wearing anklets, large ears with round rosette style earrings visible - part of trimurti		Unknown
357	444	422	Naga	Coiled Naga with body curled around hood and tail coming out the front, seems to have only one head - part of trimurti		Unknown
358	445	423	?	Sitting animal, headless. Slim, straight front, legs. Sitting on haunches with tail visible up the back, shaped like a lion's tail (?)	27x10x31	Unknown
359	445	423	Bagh	Said to be Bagh but badly eroded: Tiger. Long animal, lying down. 4 legs visible and front of snout. Folk-Art, very hard to date	18x12x42	Unknown
360	446	416	Naga	Free standing Naga with 5 heads: simple coiled body		Unknown
361	446	416	Hanuman	Standing Hanuman, hands in front of body and gada by left side, tail just visible over head		V+
362	446	416	Nandi	Nandi, very obscured by sindūr, but back legs tucked under to right		Unknown
363	446	416	Liṅga/Yoni	Quite deep pīṭha, probably with replacement liṅga		Unknown
364	446	416	Naga	Naga obscured by Sindūr but can see coiled body, also appears to have 5 heads- part of trimurti		Unknown
365	446	416	Annapurna	Annapurna - seated figure with right leg bent up and ladle in hands across lap - part of trimurti		Unknown

366	446	416	Ganesh	Sitting Ganesh, can only clearly make out two arms and hands resting on knees. Trunk hangs to left of body, quite pot-bellied - part of trimurti		Unknown
367	447	417	?	Small carved piece, unsure what is being depicted: Three projections and two holes between them - could be part of small Naga or architectural piece	8x8	Unknown
368	447	417	Hero Stone	Figure carved onto stone, with left hand in front of body, prominent ears and earrings. Broken and eroded - possibly part of later folk hero stone	16x12	Unknown
369	447	417	Annapurna	Main figure under worship, sitting on pedestal, right leg down left crossed on lap: Annapurna with ladle in hands across lap. Wearing sari type robes and bangles. Appears could be female. Crown/Headdress and hair to neck. Halo behind head. Probably quite modern	48x24	V-VI
370	448	418	Naga	Small free standing Naga with simple curled bottom of body and large 5 headed hood		VI?
371	448	418	Hanuman	Basic standing Hanuman with left foot slightly raised with bent knee and gada on right side		V+
372	448	418	Nandi	Very square Nandi with legs tucked under body, some decoration visible but mostly obscured		Unknown
373	448	418	Liṅga/Yoni	Broken sandstone pīṭha with separate liṅga		Unknown
374	448	418	Ganesh	Crude carving built into wall of temple and mostly obscured. Can see the Ganesh has 4 arms, a pot belly and legs underneath the body - part of trimurti		Unknown
375	448	418	Ganesh?	Another obscured sculpture with legs tucked under the body, possibly with 4 arms but they are raised and not resting on the legs, could be Ganesh but face is obscured and there is no trunk hanging downwards		Unknown

376	448	418	?	Standing figure, obscured by sindūr and built into temple wall, appears potentially to be female with hands by hips		Unknown
377	450	419	Hanuman	Standing Hanuman, Hands in front of body and gada down by left side. Tail is clearly curled behind the head and Hanuman has a headdress		V+
378	451	413	?	Small standing figure, left arm by side and right raised. Eroded so features missing - folk depiction		Unknown
379	451	413	Hanuman	Very basic standing Hanuman with left leg bent and raised, resting on demon. Tail is curled overhead and right hand raised while left rests on left knee. Probably modern		VI?
380	451	413	Ganesh	Part of a sitting figure, probably Ganesh, with right leg bent and hand resting on knee, left leg in front of body - part of trimurti		Unknown
381	451	413	Annapurna	Sitting figure of Annapurna, right leg bent and knee raised, ladle held in hands across lap- part of trimurti		Unknown
382	451	413	Naga	Small Naga, quite obscured but coiled body and hood visible. Appears to have 5 heads - part of trimurti		Unknown
383	451	413	Naga	Small sandstone coiled Naga with 5 heads in own shrine: knotted body		Unknown
384	451	413	Pīṭha	Large round pīṭha with short projection, no liṅga		Unknown
385	451	413	Nandi	Small Nandi with back decorations, bridle and belled collar, long flat ears and a small hump		Unknown
386	451	413	?	Sitting figure, looks male, left leg bent in front of body and right knee up. Two arms, hard to distinguish features - folk depiction		Unknown

387	452	414	Naga	Small metal snake with single hood next to trident		VI?
388	454	441	Hanuman	Modern looking Hanuman sculpture, striding with left leg raised. Gada in right hand and left hand holding up the Mountain (?)		VI?
389	455	442	Naga	Probably modern Naga stone, figure of 8 body and large 5 headed hood		VI?
390	457	428	Naga	Probably modern Naga stone, figure of 8 body and large 5 headed hood		VI?
391	458	429	?	Rounded 'head' area and long pointed section, very angular with spike at end. Rounded portion almost appears to have animal like facial features - local item of significance or folk depiction		Unknown
392	459	430	Naga	Metal Naga with curled body as a base and a single head in an open hood		Unknown
393	460	431	?	Sitting/reclining figure, covered in sindūr so mostly obscured. Appears to have right hand on raised knee and resting back on left. Quite pot-bellied, face completely obscured		Unknown
394	460	431	Nandi	Top portion of a quite large Nandi, front legs and head, covered in sindūr		Unknown
395	462	433	Hero Stone	Top of a carved stone, rounded top, possibly hero stone, very eroded so can't make out detail		Unknown
396	463	434	Śiva & Consort?	Sitting Śiva with crossed legs and snake around neck with hood to left side. Consort (?) also has snake on right shoulder and is holding a trident. Potentially a tiger as well on right shoulder Painted, hard to distinguish features, material or age, probably modern		VI?

397	463	434	Ganesh	Seems to be a small 4 armed seated Ganesh, with left leg across lap, probably modern		VI?
398	464	435	Trimurti	Frieze with 3 figures: Seems to be Shiva with a snake coiled around neck, small Ganesh, Annapurna		Unknown
399	464	435	Naga	Tall metal Naga on small coiled base		Unknown
400	464	435	Liṅga/Yoni	Small pīṭha and liṅga, which look fairly modern		VI?
401	464	435	Nandi	Fairly modern looking Nandi with decorated back, prominent pointy hump, same stone as the liṅga		Unknown
402	466	437	Durga?	Female figure with 8 arms sitting on a tiger. Lowest hands, left is resting on leg and right is broken but appears to have been held up. Holding various attributes in back hands including a knife, a trident		Unknown
403	466	437	Naga	Thick metal Naga with one head		Unknown
404	467	187	Naga	Small metal Naga with one head, mostly buried in the shrine. Head has pointed end		Unknown
405	468	188	Hanuman	Possibly modern Hanuman, striding with Gada in right hand and holding up the Mountain in the left		VI?
406	471	403	Bagh	Very eroded sculpture with rounded head		Unknown
407	471	403	Bagh	Larger eroded figure with rounded head, no real discernible features. From position, could be Nandi		Unknown
408	471	403	Bagh	Another round headed figure, appears to be lying down from body position, cannot distinguish any features		Unknown
409	472	394	Hanuman	Modern Hanuman sculpture, striding with gada in right hand and holding up the Mountain in the left		VI?

410	473	398	Hanuman	Standing Hanuman, probably modern, Gada under left arm and tail overhead but to the left		VI?
411	474	395	Annapurna	Annapurna with ladle across lap. Wearing sari like robes and a headdress		Unknown
412	475	391	?	Large head, with trident on forehead and crown placed on top: modern rudimentary object of worship?		Unknown
413	475	391	Naga	Probably modern Naga with figure of 8 body and large 5 headed hood		VI?
414	475	391	?	Standing robed figure, male, holding right hand up - folk depiction of unknown figure		Unknown
415	477	384	Hanuman	Very obscured by sindūr, standing hanuman with hands in front of body and tail over head		VI?
416	477	384	Nandi	Small Nandi, quite eroded, with prominent hump and belled collar visible. Left front leg is curved and raised		Unknown
417	477	384	Liṅga/Yoni	Tall stone pīṭha with oval shaped liṅga attached		Unknown
418	478	97	Amalaka	Piece of an amalaka from a temple in a roadside shrine being worshipped as the seven sisters (associated with the farming land)	37x34	IV+
419	479	381	Hanuman	Probably modern, quite crude sculpture of Hanuman, kneeling on left leg with gada clasped in hands in front of body		VI?
420	479	381	Hanuman	Standing Hanuman with hands in front of body, gada under left arm and tail curled over head		V+
421	479	381	Nandi	Small stone Nandi with fringed collar, bridle and back decoration, legs tucked under body front and back		IV+
422	479	381	Liṅga/Yoni	Appears to be one piece, rounded bottomed pīṭha with side projections and small liṅga		Unknown

423	479	381	Ganesh	Sitting Ganesh with left knee bent up. Badly preserved and covered in sindūr - part of trimurti		Unknown
424	479	381	Annapurna	Sitting Annapurna with right knee bent up, and ladle held in hands across lap. Face obscured but large ears and round earrings visible - part of trimurti		Unknown
425	479	381	Naga	Naga with coiled body, seems to have a single head. Scales on body are visible - part of trimurti		Unknown
426	480	438	?	Carved stone with two sitting figures, mirror image of each other: each has an outside hand raised, the inside leg bent up with hand resting on knee. Faces quite obscured, sculpture is eroded - folk image	24x25	Unknown
427	481	439	Naga	Shrine with metal trident and snake winding round (modern?) but hood of another metal Naga also present		VI?
428	482	172	Hanuman	Architectural fragment or carved stone with striding figure, probably Hanuman, only torso visible		V+
429	482	172	?	Architectural fragment or piece of carved sculpture, design hard to identify as fragmentary		Unknown
430	482	172	Hanuman	Standing Hanuman, very obscured but Gada is visible held up in right hand		V+
431	482	172	Naga-Kal	Part of a Naga stone with body twisted into backwards S shape and round single head		Unknown
432	482	172	Ganesh	Sitting 4 armed Ganesh. Legs are underneath the body with feet touching, trunk is raised on left side of body and seems to have headdress, quite crude carving and obscured with sindūr		Unknown
433	482	172	Hanuman	Although badly preserved image of a heroic Hanuman		V+

434	482	172	Hanuman	Badly preserved and sindūr covered but could be a striding Hanuman with Gada in right hand. Although could also be another figure holding a sword as face seems to have ears		V+
435	483	173	?	Possibly modern sculpture of goddess with multiple arms: 4? Holding various attributes but covered in clothing		Unknown
436	484	254	Hanuman	Standing Hanuman sculpture, hands in front of body and gada under left arm		V+
437	484	254	Trimurti	Trio of figures: L-R Ganesh, Annapurna and Naga		Unknown
438	484	254	Naga	Naga stone with double figure of 8 coiled body and 5 headed hood		Unknown
439	485	255	?	Sitting figure carved on a stone with left leg hanging down and right leg drawn up to chest. Left hand is between legs and right holds and object to ear/pours something over body. F	17x31	Unknown
440	485	255	?	Standing female figure, hands in front of body, long ears, robes clear on bottom with material hanging in centre - folk art	29x11	VI?
441	485	255	?	Smaller standing female figure, hands in front of body, but not touching. Resting on hips? Long ears, slightly different robes like a sari - folk art	27x11	VI?
442	486	256	Hanuman	Standing/Striding Hanuman with left foot raised on demon, let hand in front of body, right hand raised and tail curled over head	105x48	V+
443	486	256	Ganesh	4 armed seated Ganesh in wall of temple. Left leg bent and right in front of body, definite headdress - part of trimurti	21x16	Unknown
444	486	256	Naga	Naga in wall of temple with coiled body and 5 heads - part of trimurti	22x19	Unknown
445	486	256	Annapurna	Sitting figure in wall of temple, Annapurna with ladle held across lap, main piece obscured by sindūr - part of trimurti	26x17	Unknown

446	486	256	Nandi	Eroded smaller Nandi, hardly any features visible, lying in typical position	38x10	Unknown
447	486	256	Nandi	Larger eroded Nandi, also hardly any features but clear posture and shape of body	23x10	Unknown
448	488	258	?	Red sandstone carved piece, seems to be upper torso and arms but the stone has been placed upside down on the platform shrine - provincial style	22x20	Unknown
449	488	258	?	Red sandstone torso of a female figure with 4 arms. The upper left hand seems to be holding a small trident and the lower right hand a sword, the other two are damaged. The chest area is bare except for a necklace. This sculpture has a strange shape with the broad square shoulders. Not Vākāṭaka, difficult to date - provincial style	38x32	Unknown
450	489	263	Hanuman	Modern looking Hanuman sculpture, striding with left foot up, gada in right hand and mountain in left		VI?
451	489	263	Naga	Small 5 headed Naga stone with coiled body - part of trimurti		VI?
452	489	263	?	Small female figure, cross legged with hands in front of chest - part of trimurti		Unknown
453	489	263	Ganesh	Small cross legged figure with hands held up in prayer position in front of body. Statue covered in sindūr - part of trimurti		Unknown
454	489	263	Nandi	Small square Nandi with legs tucked under body, prominent hump and large horns. Collar decoration and bridle visible but crudely carved		Unknown
455	489	263	Liṅga/Yoni	Small round pīṭha and liṅga		Unknown

456	490	264	?	Standing figure with robed lower half and large beaded necklace hanging around neck. Hands are on hips, in swathes of material? Figure appears to be male, has long ears and something on forehead - folk depiction		Unknown
457	490	264	?	Larger standing figure in same style, robed bottom half, large beaded necklace and hands on hips in the material. Rounded face, long ears and something on forehead - folk depiction		Unknown
458	490	264	?	Top part of a sculpted piece with upper torso and head of figure: Holding hands in prayer position in front of body. Hair on top of head in a bun - folk depiction		Unknown
459	491	85	Hanuman	Standing Hanuman, seems to be modern. Obscured with sindūr. Gada under left arm	52x31	VI?
460	491	85	Ganesh	Small seated Ganesh, obscured by Sindūr	23x12	Unknown
461	491	85	Annapurna	Fairly heavily decorated sitting figure on a lotus style pedestal, with left leg across lap and ladle held in hands across lap. Wearing sari like robes and a diamond/triangular pendant. Has a headdress on and seems to have a third eye	28x18	Unknown
462	491	85	Naga	Totally obscured by sindūr but can just see coiled of body and hood (presumably 5 heads given width)	30x15	Unknown
463	492	86	Naga	Appears to be a modern Naga stone, figure of 8 body and large hood but only one head		VI?
464	493	87	Ganesh	Sitting Ganesh, with 4 arms and elongated body and head. Right leg bent up and hand resting on knee - part of trimurti	71x44	Unknown
465	493	87	Nandi	Small Nandi, quite plain but could be because of sindūr, back legs tucked under to left and right front leg bent up. Prominent hump on back and small horns		Unknown

466	495	337	Hanuman	Standing Hanuman, Hands in front of body and Gada under left arm		V+
467	495	337	Ganesh	Sitting 4 armed Ganesh holding attributes, right leg drawn up - part of trimurti		Unknown
468	495	337	Naga	Coiled body and single pointed head in hood		Unknown
469	495	337	Annapurna	Annapurna with left leg drawn up and ladle held across lap. Wearing a headdress and has prominent ears, could be male or female- part of trimurti		Unknown
470	496	338	?	Standing figure, obscured by sindūr and badly eroded. Cannot make out features	21x16	Unknown
471	496	338	?	Second standing figure even more eroded and damaged		Unknown
472	498	320	Memorial Stone?	Carved stone with two figures. Very hard to distinguish, large faces, seem to be sitting, quite crudely carved - folk depiction	39x30	VI?
473	499	321	Naga-Kal	Tall Naga stone with triple curled body and straight up hood with single head		Unknown
474	499	321	Hanuman	Standing Hanuman, gada under left arm, quite short and rounded in shape	67x31	V+
475	499	321	Nandi	Small Nandi with large hump and horns, bridle and decoration just about visible	25x16	Unknown
476	499	321	Liṅga/Yoni	Small pīṭha with liṅga, in proportion to the Nandi	11x21	Unknown
477	499	321	Naga	Probably modern Naga with figure of 8 body and large 5 headed hood	32x45	VI?

478	499	321	Ganesh	Also possibly modern 4 armed sitting Ganesh. Quite heavily decorated with small curling trunk, large ears and headdress and robed lower half. Left leg curled into lap and lower left arm holding sweetmeats? - part of trimurti	38x59	VI?
479	499	321	?	Small standing figure: Hands appear to be by hips, ears visible and possibly hair or some sort of halo behind head - folk depiction	37x23	Unknown
480	500	342	Hanuman	Large standing/striding Hanuman, completely obscured	66x33	V+
481	500	342	Annapurna	Small Annapurna with ladle across lap, large head but most features obscured	39x23	Unknown
482	501	343	Nandi	Small Nandi with front legs bent up, belled collar and back decoration, small pointed hump and pointed horns	40x20x45	Unknown
483	501	343	Liṅga/Yoni	Liṅga is very big in comparison to pīṭha and carved from a different stone? Pīṭha is quite eroded - possibly pieces of mixed date	44x55x80	Unknown
484	501	343	Ganesh	Part of 4 armed Ganesh built into recess in wall of temple. Features obscured - part of trimurti	26x24	Unknown
485	501	343	Annapurna	Sitting Annapurna with ladle across lap, probably female but again totally obscured by sindūr - part of trimurti	25x18	Unknown
486	501	343	Naga	Small Naga with coiled body and 5 heads - part of trimurti	23x18	Unknown
487	501	343	Hanuman	Large standing Hanuman, with hands in front of body and tail probably overhead		V+
488	503	345	Naga	Small metal Naga with rounded model and flat hood with single head		Unknown

489	504	346	?	Sitting figure with left leg across lap. Left hand resting on lap holding out an object and right hand holding a sword. Figure is wearing robes and beaded necklaces/decoration over shoulders as well as a diamond shaped pendant, and has a beaded headband/headdress on. Large prominent ears, female. Appears to be same figure as sculpture 266 due to the position, and attributes	44x27	IV+
490	504	346	?	Standing figure, with broken off arms. Robed in lower half but with bare legs and wearing some decoration on chest. Male but face quite obscured - folk depiction	40x12	Unknown
491	504	346	Viṣṇu Pada	Very eroded Viṣṇu Pada		Unknown
492	505	359	Hero stone	Striding figure holding something in right hand and possibly a shield in left, carved on a stone - local style	52x31	Unknown
493	505	359	?	Standing figure with 4 arms, two held down by sides and other two raised and holding attributes. Robed with some jewellery but appears to be male. Headdress and prominent ears visible - provincial style	37x17	Unknown
494	505	359	?	Bottom half of a standing sculpture, waist and tops of legs.	8x10x14	Unknown
495	505	359	?	Head of a sculpture, possibly related to the bottom half. Tall headdress but facial features obscured		Unknown
496	505	359	Bagh	Large headed animal sculpture, possibly tiger or lion. Able to make out mouth and snout, placement of eyes and perhaps ears (holes on side/top of head). Legs are not defined but joined together. Standing but short legs. Long tail hanging down on back	24x16x34	Unknown
497	505	359	Bagh	Standing animal sculpture with short legs and relatively large, slightly raised head: can make out snout and perhaps nostrils	20x10x28	Unknown

498	506	360	Hanuman	Large standing Hanuman with hands in front of body, gada by left side and tail over head		V+
499	506	360	Nandi	Nandi with raised head, legs tucked under body, with clear hooves, small hump and bridle/collar visible. Design of cloth over back? Large ears and pointed horns	44x18x30	IV+
500	506	360	Liṅga/Yoni	Medium-sized pīṭha with cuts for water run-off and liṅga	40x25	Unknown
501	506	360	Ganesh	Seated Ganesh, presumably with 4 arms. Right leg drawn up and left in front of body, features obscured by sindūr - part of trimurti	28x20	Unknown
502	506	360	Naga	Tightly coiled body wrapped behind hood, and large hood with 5 heads - part of trimurti	28x20	Unknown
503	506	360	Annapurna	Sitting Annapurna with right leg drawn up and ladle in hands across lap, face completely obscured by sindūr- part of trimurti	28x19	Unknown
504	507	362	Naga	Small possible modern Naga with figure of 8 body and large hood but only one head		VI?
505	508	378	Naga-Kal	Stone with small carved Naga, small wavy body and head. Corner of stone has modern inscription		Unknown
506	508	378	Liṅga/Yoni	Large flat yoni with long projection, on square base with small liṅga in centre. Base has chisel marks	100	Unknown
507	508	378	Hanuman	Tall standing Hanuman, hands held in front of body, tall headdress		V+
508	508	378	Naga	Naga with figure of 8 coiled body and wide triangular hood with 5 heads		VI?
509	509	408	?	Standing figure with sari like robes, probably female. Right hand raised and left by hip (holding a sword?) Large rounded features and hair or headdress - provincial style		Unknown

510	510	409	Naga	Free standing Naga with figure of 8 body, large hood and 5 heads		VI?
511	511	368	Bagh	Small standing animal sculpture with rounded head and pointed body, on short joined together legs. Eye (right) and ear (? Left) just visible on head but otherwise featureless?	58x10	Unknown
512	512	369	?	Standing figure, probably female with hands held in front of body, features eroded - folk depiction		Unknown
513	513	370	Naga	Naga with figure of 8 body and large hood. Single head with visible neck area and markings like ridges or scales, mouth open		Unknown
514	514	124	Naga-Kal	Naga stone with figure of 8 body, end of tail up and round hood with one head		Unknown
515	514	124	Naga-Kal	Naga stone with single loop in body, and tail up, large oval shaped hood with one head, head is visible and quite triangular		Unknown
516	514	124	Naga-Kal	Naga stone with long Naga, S shaped body with loop at the end, round hood for one head		Unknown
517	514	124	Naga	Free standing Naga sat on coiled body with large triangular hood - seems like one head		Unknown
518	514	124	Naga	Free standing Naga on coiled body piled up 2 or 3 times and small hood for what seems like one head. Head has been broken off in past		VI?
519	515	125	?	Standing figure, quite crude, possibly modern? Wearing tunic, short legs and long arms by side - folk depiction		Unknown
520	515	125	?	Upper part of small carved figure, appears to be sitting, eroded and obscured - cannot identify		Unknown
521	515	125	?	Standing figure carved on stone, very crude, few features - folk depiction		Unknown

522	516	126	Naga	Modern Naga with a single head and hood, and tail curling out onto floor. Unlike any others and also quite obscured by sindūr		VI?
523	517	105	Hanuman	Large standing Hanuman with hands in front of body and clear gada under left arm		V+
524	517	105	?	Very eroded 4 armed figure, sitting/feet together under body. Two hands in front of body and two behind presumably holding objects		Unknown
525	517	105	Naga	Naga with very twisted knotted body and fan-like hood with 5 heads. Body has a lot of detail with carved scales and ridges - part of trimurti		Unknown
526	517	105	Ganesh	Eroded Ganesh, sitting with left leg in front of body and right knee drawn up. 4 armed, wearing beaded necklace, with large ears and relatively small head and clear headdress - part of trimurti		Unknown
527	517	105	Annapurna	Sitting figure of Annapurna with left leg in front of body and right knee drawn up with hand resting on knee. Left hand holds an object. Body is decorated with necklaces including a triangular/diamond shaped pendant and anklets. Clearly large ears with round earrings but face is obscured - folk depiction		Unknown
528	517	105	Ganesh	Sitting figure of Ganesh? Left leg in front of body and right knee drawn up with leg hanging down. Pot-bellied, 4 clear arms. Lower arms are broken off, left upper arm clearly holds a lotus flower. Body is decorated with necklaces and bangles. Some form of headdress of hair decoration and prominent ears with earrings	34x24	Unknown
529	517	105	?	Standing figure, fairly eroded, with hands in front of body. Head is obscured and it is difficult to tell if there are more arms - folk art	37x22	Unknown

530	517	105	Memorial Stone	Stone with two carved figures, holding hands, probably male and female. Outside hands are holding something. The right figure is slightly smaller and has prominent ears and earrings. Rest of stone and details are very eroded - provincial style	42x32	Unknown
531	517	105	?	Headless figure, standing with hands in front of body, other features indistinguishable - folk depiction	30x16	Unknown
532	517	105	Naga-Kal	Naga carved on a stone with round coiled body and upright hood with single head	41x26	Unknown
533	517	105	Naga-Kal	Naga carved on a stone with a single knot in body and one head	61x29	Unknown
534	517	105	?	Head of a sculpture with very round face and full lips, hair around head is textured, and appears to be curly. Could be fairly old	17x12	III
535	517	105	Nandi	Part of a Nandi, head and front left leg. Belled collar very clear and pointed horns	44x18x32	Unknown
536	517	105	Ganesh	Very eroded and crude figure of Ganesh with apparently four arms. Features completely gone, could have been sitting or could be broken	41x27	Unknown
537	518	127	Naga-Kal	Naga stone with coiled body (2 figure of 8s) and a triangular hood with 5 heads		Unknown
538	518	127	Naga	Metal Naga with curled body as a base and a triangular hood with 5 clear separate heads		Unknown
539	521	130	Ganesh	Small seated Ganesh with left knee drawn up and arm/trunk resting on knee. Seems to just be 2 armed, covered in sindūr - part of trimurti		Unknown
540	521	130	Naga	Naga with very coiled body and wide hood, hard to distinguish but could be 5 heads due to hood shape - part of trimurti		Unknown

541	521	130	Annapurna	Small seated Annapurna with left leg in front of body and ladle held in hands across lap. Wearing sari like robes, large ears with rounded earrings - part of trimurti		Unknown
542	521	130	Hanuman	Striding/walking Hanuman, turned to his right side. Right hand in front of body and left raised, tail over head		VI?
543	522	131	Nandi	Nandi with heavy decoration including belled collars and back decoration. Small hump and square head. Legs tucked under body, back legs are awkwardly carved	40x21x48	Unknown
544	522	131	Liṅga/Yoni	Round deep pīṭha with short projection and side additions, small square liṅga	12x37x57	Unknown
545	522	131	Hanuman	Standing Hanuman with left foot on demon, left hand in front of body, right raised and tail over head		V+
546	522	131	Naga?	Naga? Totally covered in sindūr, but appears to be a coiled body with one hood in the centre		Unknown
547	522	131	Ganesh	Large modern Ganesh. Sitting with left leg in front of body, pot-bellied	150x70	VI?
548	523	132	Hanuman	Head of Hanuman, badly damaged		V+
549	523	132	?	Head of a sculpture, very round with clear ears. Features mostly obscured by sindūr		Unknown
550	523	132	Hanuman	Large standing Hanuman with hands in front of body and gada underneath left arm		VI?
551	524	133	Hanuman	Hanuman standing on demon, with left arm in front of body and right hand raised		VI?
552	524	133	Liṅga/Yoni	Stone pīṭha and liṅga, seem to be one piece		Unknown
553	524	133	Ganesh	Sitting Ganesh, obscured by sindūr - part of trimurti	18x28	Unknown

554	524	133	Naga	5 headed Naga with triangular hood and coiled body - part of trimurti	18x28	Unknown
555	524	133	Annapurna	Sitting figure of Annapurna with right knee drawn up and ladle held in hands across lap. Necklaces clear- part of trimurti	18x28	Unknown
556	524	133	Nandi	Nandi with small hump and horns. Coiled decoration around back - bridle and bell decoration	24x18x30	IV+
557	525	134	Hanuman	Short standing Hanuman with hands in front of face, and Gada by left side. Completely covered in sindūr		V+
558	525	134	Ganesh	Sitting Ganesh, completely obscured by Sindūr but appears to be 4 armed, and has left knee drawn up - part of trimurti	27x29	Unknown
559	525	134	Annapurna	Sitting Annapurna with left knee drawn up and ladle in hands across lap. Decorated with necklaces and bangles. Large ears with rounded flower style earrings. Hair seems to be in bun on head - part of trimurti	23x16	Unknown
560	525	134	Naga	Naga with tightly coiled body and 5 heads- part of trimurti	23x17	Unknown
561	526	135	Bagh	Animal sculpture possibly tiger or lion, sat on haunches, but front legs missing. Rounded head, though seems snout/mouth is still visible. Tail going up back	50x20x30	Unknown
562	526	135	Naga-Kal	Naga stone with tightly coiled body and short wide hood for 5 heads		Unknown
563	207	119	Hanuman	Fairly large standing Hanuman with left foot raised up and right hand raised up. Tail overhead. Covered in Sindūr		V+
564	207	119	Hanuman	Standing Hanuman, seems to have tail overhead to right side of body not left. Covered in Sindūr		V+
565	207	119	Viṣṇu Pada	Eroded sandstone Viṣṇu Pada with run off area for libations		Unknown

566	207	119	Annapurna	Sitting figure of Annapurna with right leg in front of body and left one drawn up, ladle horizontal in hands across laps. Appears to have a headdress		Unknown
567	207	119	Nandi	Possibly quite modern Nandi, legs tucked under body, belled twisted bridle and decorated cloth on back, small hump and pointed horns		VI?
568	207	119	Ganesh	Modern looking Ganesh, sitting with left knee drawn up, 4 armed and lower hands resting on knees		VI?
569	554	150	Hanuman	Standing Hanuman with hands in front of body, features completely covered by sindūr		V+
570	554	150	Nandi	Small Nandi with raised curved front leg, small hump and crossed bridle over back		Unknown
571	554	150	Ganesh	Sitting Ganesh with left leg drawn up, 4 arms and a headdress - part of trimurti		Unknown
572	554	150	Naga	Heavily twisted body with 5 heads very well defined. Body has lots of detail with scales, definition and ridges - part of trimurti		Unknown
573	554	150	Annapurna	Annapurna with left knee drawn up, ladle in hands across lap. Not very decorated but large long ears with earrings - part of trimurti		Unknown
574	531	139	Hanuman	Standing Hanuman with hands in front of body, gada under left arm and tail curled over head		V+
575	531	139	Nandi	Small Nandi, crudely carved with little decoration		Unknown
576	531	139	Liṅga/Yoni	Round pīṭha with pointed projection and small liṅga which may not be original, wider at top and slimmer at base		Unknown

577	532	140	Hanuman	Standing Hanuman, left foot raised, right hand raised, left hand in front of body. Appears modern and also covered in Sindūr		VI?
578	533	141	?	Standing figure with round flat face, covered in material		Unknown
579	533	141	?	Small standing figure with round flat face, covered in material - folk depiction		Unknown
580	533	141	?	Small sitting figure with archway design behind, large earrings and headdress visible but rest covered up - folk depiction?		Unknown
581	534	142	Naga	Possibly modern Naga stone with figure of 8 body and tall slim hood with 5 heads		VI?
582	535	184	Naga	Top portion of a metal snake with large triangular hood		Unknown
583	535	184	Naga	Small hood of a metal Naga with one head		Unknown
584	536	185	?	Very eroded and obscured sculpture hard to distinguish or identify		Unknown
585	538	143	Hanuman	Large, probably modern sculpture of Hanuman striding with left foot resting on demon. Left hand in front of body with right hand raised and tail over head		VI?
586	539	144	Hanuman	Standing Hanuman with hands in front of body and Gada by left side, tail over head		V+
587	540	145	Hanuman	Striding Hanuman with left foot raised, left hand in front of body and right hand raised, tail possibly over head	110x50	V+
588	540	145	Hanuman	Small kneeling Hanuman, probably modern with large Gada over right shoulder	20x10	VI?

589	540	145	Hanuman	Small kneeling Hanuman, probably modern with large Gada over right shoulder		VI?
590	540	145	Hanuman	Striding small Hanuman, heavily decorated but also quite obscured by sindūr		V+
591	540	145	Ganesh	Sitting Ganesh with right leg drawn up, 4 armed - part of trimurti	23x17	Unknown
592	540	145	Annapurna	Sitting Annapurna with right leg drawn up and ladle in hands across lap - part of trimurti	23x17	Unknown
593	540	145	Naga	Naga with coiled body and single head - part of trimurti	23x16	Unknown
594	540	145	Nandi	Small simple Nandi, covered in sindūr so hard to define	25x14x32	Unknown
595	541	146	Nandi	Small Nandi with raised head, no decorations, and small hump		Unknown
596	541	146	Naga	Naga with coiled body and 5 heads		Unknown
597	541	146	Annapurna	Sitting figure of Annapurna with right leg drawn up and ladle in hands across lap. The sculpture is very obscured by sindūr		Unknown
598	541	146	Ganesh	Small sitting Ganesh with presumably 4 arms but very obscured with sindūr		Unknown
599	542	147	Nandi	Nandi with feet tucked underneath body and belled decoration all over body and around neck. Small pointy hump and small pointy horns		Unknown
600	542	147	Liṅga/Yoni	Round pīṭha with quite long projection and side bits. Liṅga may be original, Liṅga is on round base		Unknown

601	542	147	Ganesh	Sitting Ganesh with left leg in front of body and right bent, lower hands resting on knees, back arms holding attributes. Headdress and jewellery clear - part of trimurti		Unknown
602	542	147	Annapurna	Late or possibly modern sitting figure of Annapurna on a lotus pedestal. Quite heavily decorated with necklaces, anklets and bracelets. Headdress and earrings visible. Ladle in hands across lap - part of trimurti		Unknown
603	542	147	Naga	Naga on a pedestal with twisted body looped around neck and small 5 headed hood - part of trimurti		Unknown
604	542	147	Hanuman	Standing Hanuman with hands in front of body and gada by left side, tail is probably over head		V+
605	544	149	Hanuman	Standing Hanuman with hands in front of body, large gada on left side and presumably end of tail hanging down to the right		V+
606	544	149	Nandi	Quite eroded Nandi, with legs tucked under body and bells visible around neck and back. Small pointed hump and horns		Unknown
607	544	149	Annapurna	Sitting figure of Annapurna with right leg drawn up and ladle across lap		Unknown
608	544	149	Ganesh	Sitting Ganesh with 4 arms, covered in Sindūr		Unknown
609	544	149	Naga-Kal	Naga carved with knotted body that curves around neck, straight up hood with 5 heads		Unknown
610	546	301	Naga-Kal	Probably modern Naga with figure of 8 body and large 5 headed hood		Unknown
611	545	300	Architectural	Architectural piece with two figures carved on: right figure has raised right arm. Left has a strange bottom portion of torso, almost looks curved, perhaps kneeling		Unknown
612	545	300	Nandi	Very eroded Nandi, quite rectangular in shape, prominent hump and some clear decorative features. Underneath head there is still a portion of stone - crude depiction		Unknown

613	549	314	Naga-Kal	Naga carved on stone, with body curled into spiral and one oval hood and head	44x33	Unknown
614	549	314	Hanuman	Striding figure of Hanuman - not complete, only torso: right hand raised and left holding gada	38x37	V+
615	549	314	?	Standing figure, very crude design with arms on waist - folk depiction	38x33	Unknown
616	549	314	Nandi	Small Nandi with slightly raised head, prominent small hump, not well preserved, bells and bridle visible	17x11x29	Unknown
617	549	314	Nandi	Larger Nandi with very square face and pointed horns, very small hump	22x14x33	Unknown
618	549	314	Naga	Very eroded and obscured but Naga with coiled body and presumably 5 heads based on shape of hood	22x14	Unknown
619	549	314	Hanuman	Standing Hanuman with large head, hands in front of body and gada under arm. Tail just visible behind head	49x28	VI?
620	550	298	Hanuman	Modern Hanuman sculpture, striding with foot resting on demon. Gada in right hand over shoulder and left hand holding up the mountain, heavily decorated		VI?
621	550	298	Hanuman	Small badly preserved striding Hanuman with left foot resting on demon, Gada on right side and left hand holding up the mountain		V+
622	551	291	Memorial stone	Stone with two figures carved on, seems to be male on the left and female on right. Standing side by side with arms down. Features fairly obscured but generally crudely carved - modern folk depiction?		VI?
623	552	296	Liṅga/Yoni	Possibly modern pīṭha with large liṅga and Nandi combined. Naga wrapped around the liṅga		VI?

624	552	296	Hanuman	Completely obscured by Sindūr but still appears to be Hanuman striding to left side		V+
625	552	296	Hanuman	Completely obscured by Sindūr but still appears to be Hanuman standing with hands in front of body		V+
626	553	303	Bagh	Animal sculpture resembling tiger of lion as seen elsewhere, head raised slightly and snout, mouth and ears are recognisable. Sitting back on haunches	24x20x12	Unknown
627	555	281	Hanuman	Badly preserved Hanuman, covered in Sindūr. Standing straight with hands in front of body, gada appears to hang on left side of body		V+
628	555	281	pīṭha	Round, damaged pīṭha with pointed projection but no liṅga		Unknown
629	556	282	Parvati?	Probably modern sculpture in Mata Mai temple. Goddess sitting cross legged wearing a sari, jewellery and headdress with hair hanging behind head. 4 arms holding attributes including trident	42x28	VI?
630	556	282	?	Very small stone piece with carved figure on but badly eroded and difficult to distinguish		Unknown
631	557	284	Hanuman	Standing Hanuman with hands in front of body, gada under right arm and tail over head		V+
632	557	284	Ganesh	Ganesh sitting cross legged on a platform, appears to only have two arms but hard to tell with sindūr covering - part of trimurti		Unknown
633	557	284	?	Figure sitting on a platform with right leg drawn up and left in front of body with female figure sitting on knee. 4 arms, lower right is resting on knee, back two hold attributes and lower left behind the female figure		Unknown

634	557	284	?	Female figure sitting cross legged on platform with hands held in prayer position in front of body		Unknown
635	557	284	?	Male figure sitting cross legged on a horse drawn chariot? 4 arms, lower two holding objects and resting on knees, upper two raised and also holding attributes		Unknown
636	558	285	?	Interesting squatting figure with left hand in between legs and right hand raised and touching shoulder. The figure is leaning to the right side of body. Some details are visible such as perhaps material around legs and torques on top of arms. Something in between legs and behind left hand (phallus?) Face raised, rounded - folk art	18x26	Unknown
637	558	285	?	Broken piece of sculpture, definitely a figure sitting on a platform, right leg is visible, left is presumably bent in front of body	8x10x22	IV+
638	559	286	Naga	Naga with coiled body and single head, could be modern	45x34	VI?
639	559	286	Ganesh	Sitting Ganesh with four arms. Right lower hand raised and left holding out sweetmeats. Upper two arms holding attributes	19x28	Unknown
640	559	286	Annapurna	Seated Annapurna with ladle across lap in hands. Figure has potentially got a headdress on and long ears	20x12	Unknown
641	559	286	Liṅga/Yoni	Small Liṅga and pīṭha liṅga is comparatively big. Yoni has pointed projection and small additions to side	11x23x36	Unknown
642	559	286	Nandi	Small Nandi with a large head, collar and basic carvings on back for decoration, and prominent hump. Legs are tucked under the body. Pointed horns and head slightly raised	26x10x21	Unknown
643	560	287	Nandi	Small Nandi with large collar and simple carved decoration on back. Prominent hump which is quite square in shape. Square head with bridle and pointed horns		Unknown

644	560	287	Hanuman	Possibly modern Hanuman, striding with left leg raised, foot resting on demon, Left hand in front of body and right hand raised. Tail curled overhead		VI?
645	560	287	Naga	Naga with figure of 8 body and large hood with 5 heads		Unknown
646	560	287	Liṅga/Yoni	Small pīṭha with projections on side and with larger liṅga - shape of the liṅga bulges towards top		Unknown
647	561	246	Hanuman	Large striding Hanuman with left leg raised quite high. Left hand in front of body and right on hip. Tail curled overhead to right side of body with curl in the end of tail		VI?
648	561	246	Liṅga/Yoni	Very eroded sandstone pīṭha and liṅga, broken so only circular part is intact		Unknown
649	561	246	Naga	Small sandstone Naga with figure of 8 body and tail coming out at the bottom. Head is close to body, small hood or broken		Unknown
650	561	246	Ganesh	Small seated Ganesh, not well preserved, seems to be 4 armed, right knee drawn up		Unknown
651	561	246	?	Standing figure, badly eroded, right arm raised and left down but broken. No features discernible - folk art		Unknown
652	561	246	Architectural	Unknown carving: two items, same shape like columns. Architectural fragment?		Unknown
653	561	246	Nandi	Very eroded Nandi with no head, right front leg out and others presumably tucked under body. Some decoration visible, but badly preserved		Unknown
654	562	247	Hanuman	Fairly modern looking Hanuman, striding to left with left leg raised on demon. Left hand in front of body and right raised, tail over head		VI?
655	562	247	?	Presumably male sitting figure covered with cloth, possibly modern and made of metal. Tall headdress		VI?

656	562	247	?	Possibly female sitting figure with halo around back of head, similar to male figure, same material. Also covered by cloth		Unknown
657	562	247	Nandi	Nandi with large body and quite small head. Decorated over back and around neck. Pointed horns and rectangular hump. Right front leg drawn up and others tucked under body		Unknown
658	562	247	Liṅga/Yoni	Large round pīṭha with short projection and small liṅga		Unknown
659	562	247	Liṅga/Yoni	Small pīṭha with wide bulging liṅga, quite a deep/tall pīṭha for its size		Unknown
660	563	61	Bagh	Sitting animal sculpture, back on haunches, but face completely obscured by sindūr		Unknown
661	563	61	Hanuman	Standing Hanuman, obscured by Sindūr, with headdress and hands raised holding objects		V+
662	564	62	Hanuman	Small striding Hanuman with gada held up to right shoulder and left hand raised presumably holding up the mountain. Covered in Sindūr		V+
663	564	62	Ganesh	Small seated 4 armed Ganesh with legs crossed underneath him and lower arms on lap		Unknown
664	564	62	Nandi	Small Nandi with head raised. Covered in Sindūr and badly preserved.		Unknown
665	564	62	Liṅga/Yoni	Small pīṭha and short liṅga, covered in sindūr		Unknown
666	565	63	Hanuman	Tall modern looking Hanuman, striding with left leg raised, standing on demon, gada over right shoulder and left arm holding up the mountain. Tail up behind body to right		VI?
667	566	64	Hanuman	Standing Hanuman completely obscured by sindūr		V+

668	567	65	Liṅga	Sandstone liṅga, small shaft on tall square base. No discernible markings. Looks to be old and could be from the period of interest, although without markings it is hard to date	100	III
669	568	66	Hanuman	Striding Hanuman with left foot raised, left hand in front of body, and right hand raised. Tail clearly overhead. Seems to have a headdress		V+
670	568	66	Viṣṇu?	Standing figure in decorated border. Figure has 4 arms: the lower two are clear with left hand raised and right palm facing front and pointed down. The back two blend into the border, and appear to be holding flowers. Figure is highly decorated with necklaces and jewellery, and a tall headdress. Robed on lower half. Vishnu? Unusual depiction of hands as they cross the frame. Flowers may indicate Surya	41x28	IV+
671	569	67	Hanuman	Standing Hanuman with hands held in front of body, gada under left arm. Very covered in sindūr		V+
672	569	67	Hanuman	Small standing figure, possibly Hanuman with hands in front of body		V+
673	569	67	Ganesh	Sitting Ganesh with left leg drawn up, 4 arms, lower 2 holding attributes and upper two seem to be part of border of sculpture		Unknown
674	569	67	?	Two standing figures flanking the Ganesh, mirror images of each other, standing females in oval doorway shaped border, each with an arm raised (inner arm to Ganesh), other hand held in front of body. Seem to have long ears but very obscured by sindūr		Unknown
675	571	69	Ganesh	Small sitting Ganesh with 4 arms but may be modern? Covered in sindūr	30x20	Unknown

676	571	69	Śiva	Sculpture painted blue, appears to be Śiva. Two armed, sitting with left leg drawn across body. Right hand held up. Snake over left shoulder. Hair piled on head, appears matted as ascetic. Face and figure looks like the sitting figure at GPS 558	46x26	Unknown
677	571	69	Devotee	Sitting figure, cross legged with hands held in front as in prayer. Halo behind head, and hair in bun on top of head. Appears to be a divine devotee or saint but there is no attached iconography	15x26	IV+
678	571	69	Liṅga/Yoni	Round pīṭha with small projection and small liṅga	?x49x65	Unknown
679	571	69	Nandi	Small eroded Nandi, long body but no head, quite prominent hump but badly preserved	22x12x19	Unknown
680	571	69	Nandi	Small Nandi with clear bridle and decoration, and hump but badly preserved		Unknown
681	571	69	Hanuman	Striding Hanuman? Standing with foot raised. Right hand up and left in front of body. Seems to have headdress, could be modern but very covered in sindūr	120x60	V+
682	571	69	Ganesh	Small Ganesh, trunk in front of body, arms and legs visible but the whole figure is obscured in sindūr	40x21	Unknown
683	571	69	?	2 standing figures, very crude and probably modern		VI?
684	571	69	Nandi	Large Nandi, painted blue, very crude with legs carved on, large collar and hump. Looks like a modern imitation of a Nandi	45x22x33	VI?

685	571	69	Maitraka?	Lower portion of a seated female figure. Clearly female with necklace hanging between breasts. Right leg visible but left either broken away or quite far behind to the left. Left hand very clear and resting on or holding a stone between legs. Decoration around waist/top of clothing. A dancing maitraka that would have been part of a group. The hand may belong to another figure. Fairly old but post-Vākāṭaka	30x18	IV+
686	194	393	Hanuman	Second Hanuman figure at Japala temple. Standing with hands in front of body		V+
687	199	113	Hanuman	Standing Hanuman with hands in front of body, tail overhead and gada underneath left arm		V+
688	417	115	Hanuman	Striding Hanuman figure with foot on demon		V+
689	575	37	Hanuman	Striding Hanuman with foot on demon and tail curved overhead with curl in the end. Holding gada in right hand, face obscured		V+
690	575	37	Hanuman	Broken image of Hanuman in crude folk style: Standing with left foot on demon, and right hand raised. Large ears with earrings		V+
691	574	34	Nandi	Ornate medium-sized Nandi with decorated bridle and pointed hump. Sitting facing the temple with left front leg up and back legs tucked to right side	80x34x65	Unknown
692	580	117	Nandi	Large Nandi, quite short in length but tall with straight neck. Small hump on back and legs tucked under body. Belled bridle visible	56x23x68	Unknown
693	580	117	Ganesh	Sitting Ganesh with trunk curled to left side. Left knee raised with hand resting on it. Two armed	36x23	Unknown

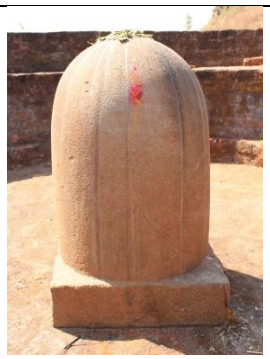
694	580	117	Annapurna	Small image of figure sat with ladle across lap, Annapurna although not noticeably female. Large ears, quite crude carving - folk depiction	34x18	Unknown
695	580	117	Naga	5 headed fairly modern looking Naga with body twisted around neck	28x18	VI?
696		99	Jina	Sculpture kept in the Jain complex at Rāmṭek, possibly with Jain affiliation? Figure sitting in meditative pose flanked by other smaller figures. Looks to be part of a scene or architectural detail rather than standalone piece		IV+

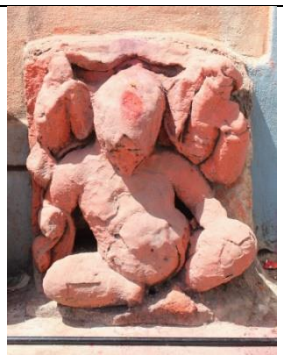
Appendix 10: Sculpture images

This appendix presents selected images of sculptures recorded during survey. Those too eroded or obscured by *sindūr* have been omitted.

		
Sculpture no. 2	Sculpture no. 7	Sculpture no. 8
		
9	10	11
		
12	15	16

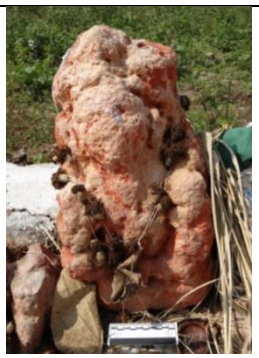
		
Sculpture no. 17	Sculpture no. 18	Sculpture no. 20
		
21	22	23
		
24	25	26
		
27	28	29

		
Sculpture no. 30	Sculpture no. 31	Sculpture no. 32
		
33	34	35
		
36	39	40
		
41	42	43

		
Sculpture no. 45	Sculpture no. 46	Sculpture no. 49
		
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54	56	57
		
58	59	60

		
Sculpture no. 64	Sculpture no. 68	Sculpture no. 69
		
70	71	77
		
78	81	82
		
83	84	86

		
Sculpture no. 88	Sculpture no. 89	Sculpture no. 90
		
91	92	95
		
96	98	104
		
114	117	123

		
Sculpture no. 130	Sculpture no. 134	Sculpture no. 137
		
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155	156	157

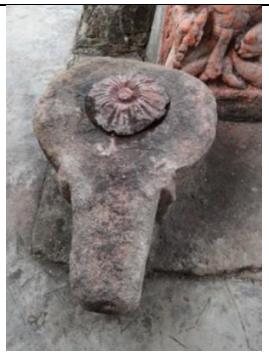
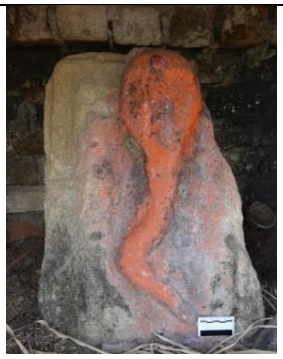
		
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183	184	185
		
186	200	201

		
Sculpture no. 202	Sculpture no. 203	Sculpture no. 207
		
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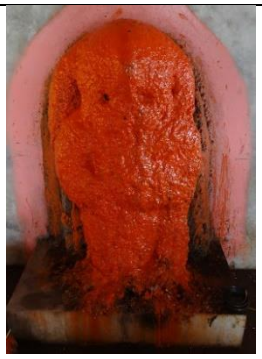
		
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Sculpture no. 253	Sculpture no. 254	Sculpture no. 255
		
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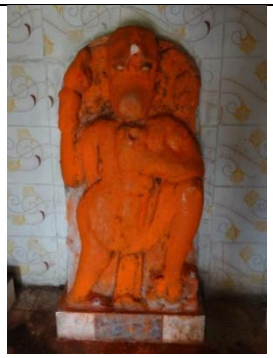
		
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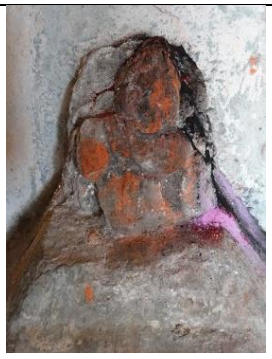
		
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Sculpture no. 292	Sculpture no. 294	Sculpture no. 295
		
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Sculpture no. 305	Sculpture no. 306	Sculpture no. 307
		
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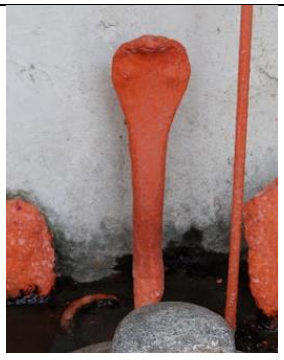
		
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Sculpture no. 331	Sculpture no. 333	Sculpture no. 334
		
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Sculpture no. 344	Sculpture no. 345	Sculpture no. 346
		
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Sculpture no. 357	Sculpture no. 358	Sculpture no. 359
		
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Sculpture no. 370	Sculpture no. 371	Sculpture no. 372
		
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Sculpture no. 382	Sculpture no. 383	Sculpture no. 384
		
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Sculpture no. 404	Sculpture no. 405	Sculpture no. 406
		
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Sculpture no. 419	Sculpture no. 420	Sculpture no. 421
		
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Sculpture no. 432	Sculpture no. 433	Sculpture no. 434
		
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Sculpture no. 444	Sculpture no. 445	Sculpture no. 447
		
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Sculpture no. 464	Sculpture no. 473	Sculpture no. 477
		
478	479	483
		
484	485	486
		
487	488	489

		
Sculpture no. 490	Sculpture no. 491	Sculpture no. 493
		
494	495	496 and 497
		
501	502	503
		
506	508	509

		
Sculpture no. 510	Sculpture no. 512	Sculpture no. 513
		
518	523	524
		
525	528	529
		
530	531	532

		
Sculpture no. 533	Sculpture no. 534	Sculpture no. 536
		
537	538	539
		
543	545	548
		
549	550	551

		
Sculpture no. 552	Sculpture no. 556	Sculpture no. 559
		
561	565	567
		
568	571	572
		
573	582 and 583	585

		
Sculpture no. 587	Sculpture no. 588	Sculpture no. 599
		
601	602	603
		
612	613	614
		
616 and 617	618	619

		
Sculpture no. 620	Sculpture no. 621	Sculpture no. 622
		
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633	634	635
		
636	637	638

		
Sculpture no. 639	Sculpture no. 640	Sculpture no. 641
		
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645	646	647
		
648	649	650

		
Sculpture no. 651	Sculpture no. 652	Sculpture no. 654
		
657 and 658	663	664
		
668	669	672
		
673	674	675

		
Sculpture no. 676	Sculpture no. 677	Sculpture no. 678
		
682	683	685
		
692	695	696