

# National Mapping Programme Mapping of Wild Purbeck

Historic England Project Number 6600



**Cornwall Archaeological Unit**



# **National Mapping Programme Mapping of Wild Purbeck**

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2015**

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### **Note:**

Following changes to English Heritage's structure in April 2015, EH was renamed Historic England. Whilst this occurred midway through the Wild Purbeck project after it was initially commissioned by EH, for clarity this report will refer throughout to Historic England (HE) and to Historic England Archive (HEA).

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# Wild Purbeck

## Results of NMP Mapping

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## **Abbreviations**

ADS	Archaeological Data Service
ALGAO	Association of Local Government Officers
AMIE	Archives and Monuments in England Database
AONB	Area of Outstanding Natural Beauty
BP	Before Present
CCO	Channel Coast Observatory
CUCAP	Cambridge University Committee for Aerial Photography
DCC	Dorset County Council
DEFRA	Department for Environment, Food and Rural Affairs

DTM	Digital Terrain Model
EH	English Heritage
GIS	Geographical Information System
HAA	Heavy Anti-Aircraft Battery
HBSMR	Historic Buildings and Site and Monuments Record
HE	Historic England
HEA	Historic England Archive
HER	Historic Environment Record
HLC	Historic Landscape Character
LAA	Light Anti-Aircraft Battery
NCA	National Character Area
NE	Natural England
NHLF	National Heritage List for England
NHPCP	National Heritage Protection Commissions Programme
NIA	Nature Improvement Area
NMP	National Mapping Programme
NRHE	National Record of the Historic Environment
MAL	Meridian Air Maps
MNS	Map Note Sheet
MOD	Ministry of Defence
OS	Ordnance Survey
PGA	Pan Government Agreement
PHHP	Poole Harbour Heritage Project
RAF	Royal Air Force
RCHME	Royal Commission on the Historical Monuments of England
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
SWRCZAS (Dorset)	South West Rapid Coastal Zone Assessment Survey
UID	Unique Project Identifier
USAAF	United States Army Air Force

# 1 Summary

This report outlines the results of an archaeological survey involving the systematic interpretation, mapping and recording of archaeological sites from aerial photographs and lidar of 346 square kilometres of the Purbeck area in southeast Dorset. The analytical aerial survey was carried out using Historic England's National Mapping Programme (NMP) methodology.

The primary aim of this NMP project was to provide a rapid baseline survey of Purbeck and thereby enhance understanding of the range of historic assets there. Of particular interest were those areas of heathland lost to 20<sup>th</sup> century plantation which were surveyed using historic photography and lidar where available. By recording directly into the Dorset HBSMR database, the survey results were immediately available to facilitate assessment of their significance and permit effective management of the resource.

The project achieved these aims by providing significant enhancement to existing baseline data through the mapping, interpretation and recording of 2328 archaeological sites of which 1934 were new sites, previously unrecorded in the Dorset HER.

Whilst sites dating to the Neolithic date were sparse, one potential new long barrow was identified as well as 45 new Bronze Age round barrows. Only small numbers of later prehistoric monuments were recognised (including eight Iron Age, ten Iron Age/Romano British and 62 prehistoric or Roman sites); the majority (54%) of sites attributed to these periods were new to the Dorset HER.

Like neighbouring Hampshire, and Southern England in general, the early medieval period is poorly understood in Dorset. No sites recorded during this project could be positively identified as dating to this period.

Sites from the later medieval period were more richly represented with 112 sites recorded. These were particularly concentrated in the southern half of the project area, with the greatest densities on the Isle of Purbeck south of the Purbeck Hills. Of the medieval sites encountered, 46% were new to the Dorset HER. The majority of new sites were agricultural features such as field boundaries, field systems and ridge and furrow fields.

Post medieval or early twentieth century sites were the most abundant with 1026 monuments being mapped and recorded, of these, 984 (96%) were new to the record. The current project is perhaps one of the first to systematically record post medieval sites within the project area. A broad range of monuments were recorded from this period including agricultural, industrial, domestic and military sites. One of the strengths of NMP is that it offers a rapid means of increasing our knowledge and understanding of previously poorly-recorded site types.

Evidence for twentieth century military activity was identified right across the project area, particularly on the open heathlands, many of which may have dated to the First World War.

This report describes the extent of the project area, the methodology used and gives an illustrative overview of the results of the aerial survey on a period by period basis.

## **2 Background to the project**

### **2.1 Circumstances of and reasons for the project**

This project was carried out under commission from Historic England (HE) after consideration of two proposals submitted in July 2012 (Royall 2012a and b). The proposals were the outcome of discussions between CAU, Dorset County Council and the Dorset AONB (Area of Outstanding Natural Beauty).

The proposals were for a detailed consideration, through the review of all readily available aerial photographs and lidar imagery, of the archaeological resource of the Wild Purbeck Nature Improvement Area (NIA) in southeast Dorset. Much of the NIA lies within the eastern part of the Dorset AONB.

### **2.2 Background to the project**

Following the successful delivery of the South Dorset Ridgeway NMP survey, Dorset County Council (DCC) and the Dorset AONB carried out an assessment of the potential for further NMP mapping within the county. This concluded that the Isle of Purbeck and the WPNIA formed the highest priority area.

The landscape in this part of southeast Dorset has undergone major changes since the end of the Second World War. Alterations in forestry, agricultural and economic policies have led to major changes in landscape management. Within Purbeck, large tracts of ancient heathland have been lost to coniferous plantation since the 1950s which has resulted in the degrading of many wildlife areas and loss of species and habitat (Dorset AONB 2009).

Dorset AONB led a successful partnership bid to designate Purbeck as an NIA and formulated an action plan which included a heathland restoration scheme. To achieve this, the NIA programme, funded by Natural England (NE) and the Department for Environment, Food and Rural Affairs (DEFRA), included a programme of tree felling which commenced in April 2012 and is scheduled to continue for the three years of the NIA action plan. Dorset AONB will continue with the heathland restoration for a further five to ten years beyond the timeframe of the action plan.

By systematically recording components of the historic environment from aerial photographs, a principle aim of this NMP project was to provide the essential data previously lacking within the HER and the Dorset AONB. Results from the project will facilitate a full assessment of the archaeological resource of the WPNIA, informing strategic planning and future research frameworks for the area. It is intended that the accurate NMP mapping and the resultant HER enhancement will facilitate the restoration of heathland in a sensitive manner.

The mapping project was financed through the HE National Heritage Protection Commissions Programme (NHPCP). The mapping phase was carried out between November 2013 and November 2014.

### **2.3 Overview of NMP methodology**

The NMP was initiated by the Royal Commission on the Historical Monuments of England (RCHME) in 1992. The aim of the NMP is 'to

enhance our understanding about past human settlement, by providing information and syntheses for all archaeological sites and landscapes (visible on aerial photographs) from the Neolithic period to the twentieth century' (Bewley 2001, 78).

To achieve this aim a methodology was developed from previous selective approaches to mapping from aerial photographs (e.g. Benson and Miles 1974). The guiding principle of the methodology is 'to map, describe and classify all archaeological sites recorded by aerial photography in England to a consistent standard' (English Heritage 2010a and 2010b).

The NMP applies a systematic methodology to the interpretation and mapping of archaeological features visible on aerial photographs and lidar data (Winton 2015). This includes not only recording sites visible as cropmarks and earthworks but also upstanding structures, such as those relating to twentieth century military activities. This comprehensive summary of the archaeological information available on aerial photographs is intended to assist research, inform planning and guide protection of the historic environment.

The Wild Purbeck project followed standard NMP methodology and involved the systematic examination of all readily available aerial photographs from the two important national collections held by Historic England Archive (HEA) and the University of Cambridge (CUCAP). In addition, lidar held by the Channel Coast Observatory (CCO) and the Environment Agency were accessed via the internet. The online digital sources of aerial photographs held by Google Earth and Bing were also consulted.

Archaeological features were digitally transcribed using the AERIAL (Version 5.33) rectification programme and AutoCAD Map3D 2013 (infrastructure design suite). Each archaeological site was recorded directly into Dorset County Council's Historic Buildings, Sites and Monuments Record (HBSMR) database and supplied to HE in .pdf and .rft formats.

Full details of the project methodology are contained in Appendix 1.



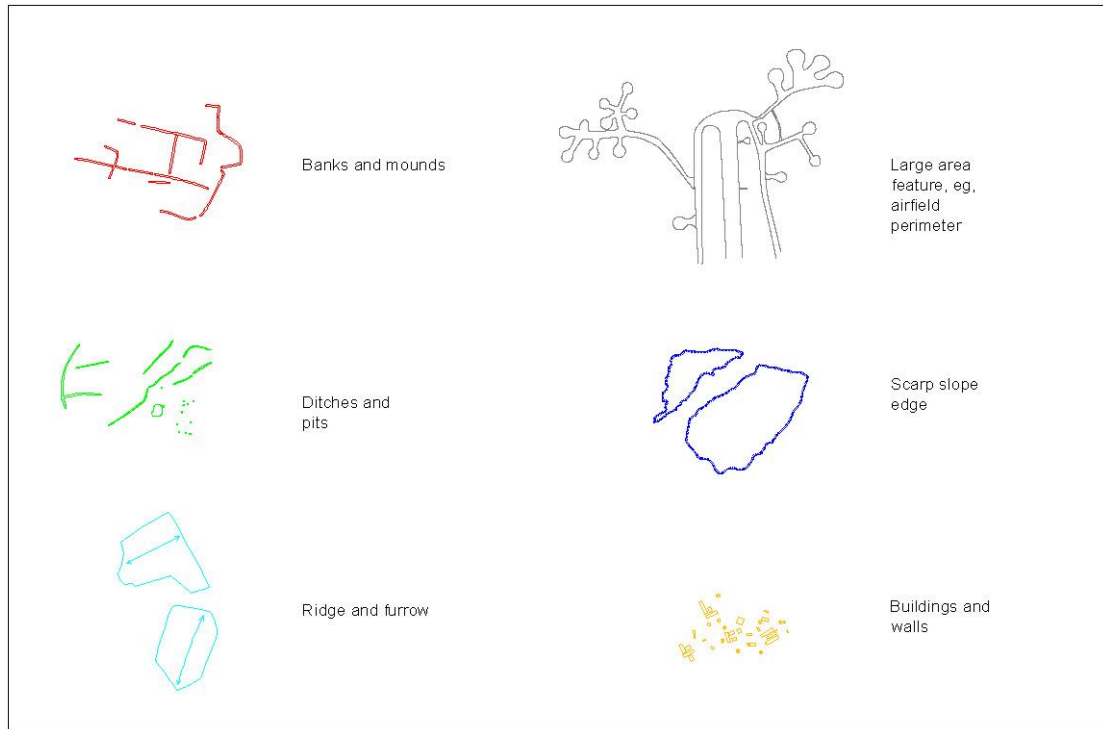


Figure 1. Conventions used for Wild Purbeck NMP maps.

### **3 Aims and objectives**

The main aim of the Wild Purbeck NMP was to improve knowledge of the archaeological resource of the project area.

The overarching aim of the National Mapping Programme is:

'to enhance our understanding about past human settlement, by providing information and syntheses for all archaeological sites and landscapes (visible on aerial photographs) from the Neolithic period to the twentieth century' (Bewley, 2001, 78).

Further aims and objectives specific to this project are set out below:

#### **3.1 Aims**

1. To define, characterise and analyse the historic environment of the project area.
2. To improve understanding and inform decisions regarding strategic planning, management and preservation of the historic environment in southeast Dorset.
3. To enable the more effective implementation of the Dorset AONB management plan in the South Dorset Ridgeway and Purbeck areas.
4. To inform the strategic management and implementation of the heathland restoration programme in the Wild Purbeck NIA.
5. To assist in the formulation of research objectives and strategies for the South Dorset Ridgeway, Purbeck and Dorset as a whole.
6. To inform the presentation of and increase public awareness of the historic environment in the project area and the wider county.

#### **3.2 Objectives**

These aims will be achieved through the following objectives:

1. Digital mapping of the archaeological landscape of the project area to current standards adopted by Historic England's National Mapping Programme.
2. Production and incorporation of baseline data into the Dorset HER to inform strategic and management decisions.
3. Publication and dissemination of the results of the project to raise awareness of the historic environment.
4. Integration of the data resulting from the project into the Historic England National Record of the Historic Environment (NRHE).

## 4 The project area

The Wild Purbeck NMP survey covered 346 square kilometres of southeast Dorset, stretching from Swanage and the edge of Poole Harbour in the east to Puddletown and Chaldon in the west (Figure 2). The western boundary of the project area was formed by the eastern limit of the South Dorset Ridgeway NMP survey area. Neither Poole Harbour itself nor a 1-2km strip inland from the coast was included as these areas had previously been mapped as part of the South West Rapid Coastal Zone Assessment Survey (SWRCZAS) project.

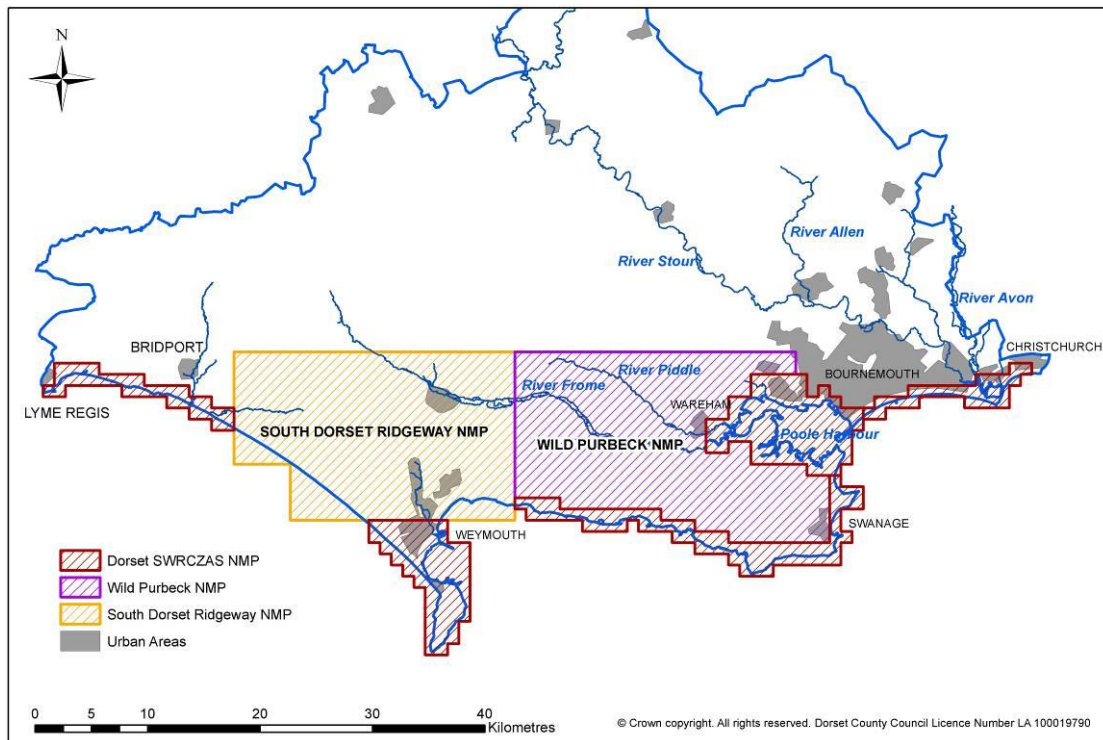


Figure 2. Map of southeast Dorset showing the Wild Purbeck NMP project area and the completed South Dorset Ridgeway and SWRCZAS NMP project areas.

The project area included the Isle of Purbeck. Its northern part (Stage 1) took in the lower reaches and catchments of the Piddle and Frome rivers and the extensive plantations and nationally important heaths of Wareham Forest, Upton Heath and Moreton Plantation.

To the south (Stage 2) the project area encompassed the eastern end of the South Dorset Ridgeway and the Purbeck Hills. The easternmost portion of the Dorset AONB lay within the southern part of the NMP project area and all but the northernmost part of the Wild Purbeck NIA (Figure 3).

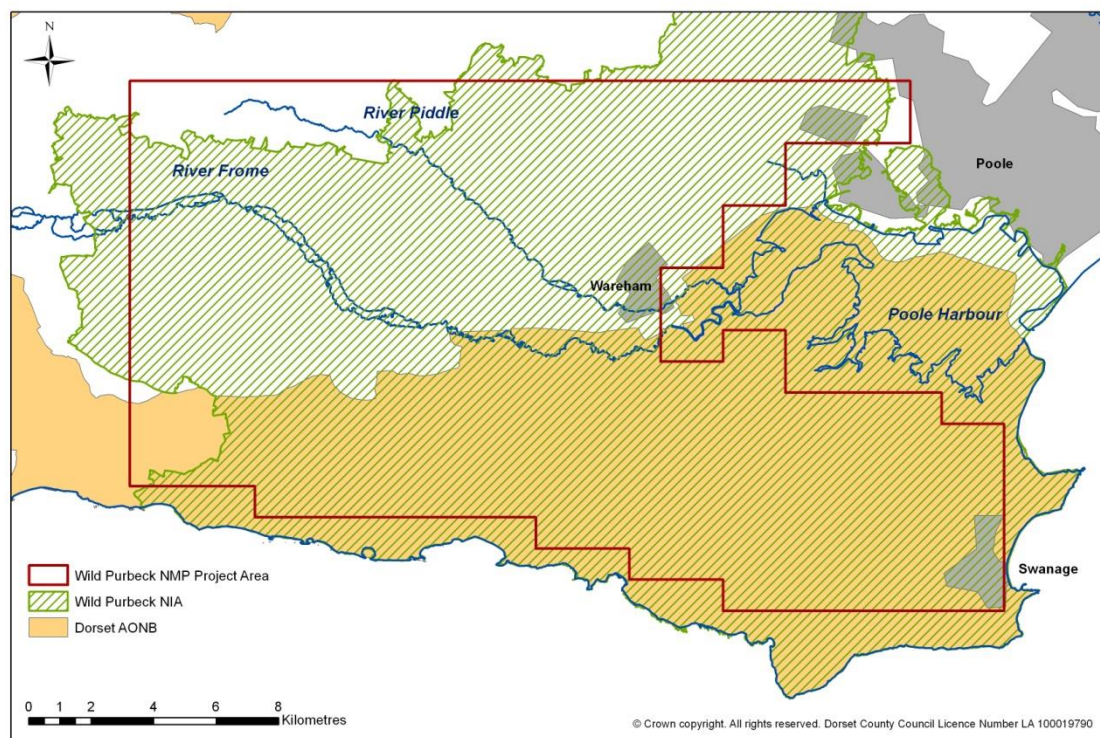


Figure 3. Map showing the NMP project area, the extent of the Wild Purbeck NIA and the south eastern part of the Dorset AONB.

## 4.1 Geology, soils and landscape character

### 4.1.1 Geology

The geological descriptions below are derived from British Geological Survey data supplied to CC under licence © NERC.

The solid bedrock geology of the project area is diverse in age, structure and property, ranging in date from the Jurassic to the Palaeogene (Figure 4).

The earliest rocks within the project area are the Jurassic shales and mudstones of the Kimmeridge Clay Formation (c.154-145 million years BP) which lie coastwards of Kimmeridge. These oil-bearing shales run in a band from Dorset to East Anglia and are arguably the most economically important rocks in Europe, being the source rock of the North Sea oil fields. A narrow band of Jurassic Portland Sand Formation sandstone (c.145-142 million years BP) lies immediately to the north of the Kimmeridge Clay and forms the top of the distinctive ridge from Tyneham Cap to Egmont Point via Swyre Head.

Fossiliferous thin-bedded limestones of the Late Jurassic/Early Cretaceous (c.142-136 million years BP) outcrop in a broad band on the south eastern edge of the project area. They form the undulating hills inland from the coast from north of Kimmeridge eastwards to Swanage and Durstone; two small isolated outcrops of limestone also lie further west near Holworth.

A wide band, 1-2km across, of mudstones and sandstones of the Early Cretaceous Wealdon Group (c.136-121 million years BP) is situated to the north of the limestone. These softer rocks give rise to the undulating vales inland from Swanage to Corfe Castle and Steeple in the west, which

are dominated to the north by the distinctive chalk ridge of the Purbeck Hills.

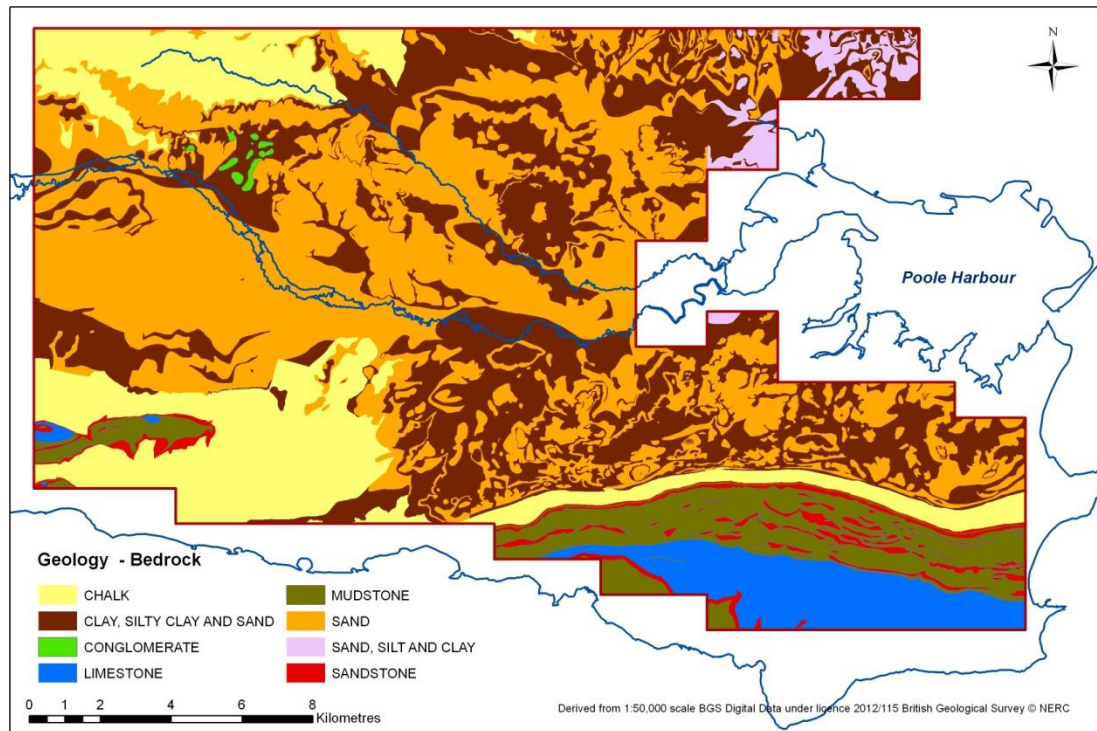


Figure 4. Map showing the geology of the project area.

Narrow beds of Lower Greensand, Gault Formation Sandy Mudstone and Upper Greensand (c.121 million years BP) lie between the Wealdon Beds and the Cretaceous chalk ridge (c.121-71 million years BP) which forms the backbone of the South Dorset Ridgeway. From Ballard Point to Lulworth Cove the chalk band of the ridgeway is less than 1km wide.

The wider eastern part of the South Dorset Ridgeway is formed by Portsdown Formation chalk and the older Lewes Nodular Chalk Formation. It is a continuation of a much wider bank of chalk which runs from the southwest to the northeast of the county, underlying the Dorset Downs and forming part of the South England Chalk. The chalk ridges of the Dorset Downs form the north western fringe of the project area around Puddletown and Tolpuddle.

The most extensive geological deposits within the project area are formed by Palaeogene sands, silts and clays of the Bracklesham and Thames Groups, which were deposited in the flood plain of a major river system 40 – 50 million years ago. These deposits are contained in a structure known as the Wareham Basin which occupies some 160 km sq. centred on Wareham. The Wareham Basin extends westwards into the catchment of the River Frome.

Superficial deposits, mainly of Quaternary river sand and gravels and Head, are widespread across the lower lying areas (Figure 5). On the chalk ridges, patches of Clay-with-Flints are considered to be a residual periglacial deposit formed from the dissolution of the underlying chalk and mixing with overlying deposits due to freezing and thawing of the surface.

Alluvial deposits are located within the valleys of the major river and tributary streams including the Piddle and Frome as well as the Rivers Sherford and Corfe. A small patch of tidal flat deposits associated with Poole Harbour is located in the vicinity of The Moors, Arne, and to the south on Middlebere Heath are organic-rich peats.

Perhaps the most interesting superficial deposit recorded by the BGS is a small patch of calcareous tufa, an inorganic or organic calcium carbonate usually deposited near springs. The small patch lies to the north of Blashenwell Farm, Corfe Castle, where a small spring flows out from the limestone ridge. A Mesolithic occupation site has been found fossilised under the tufaceous marl (Section 6.1.1).

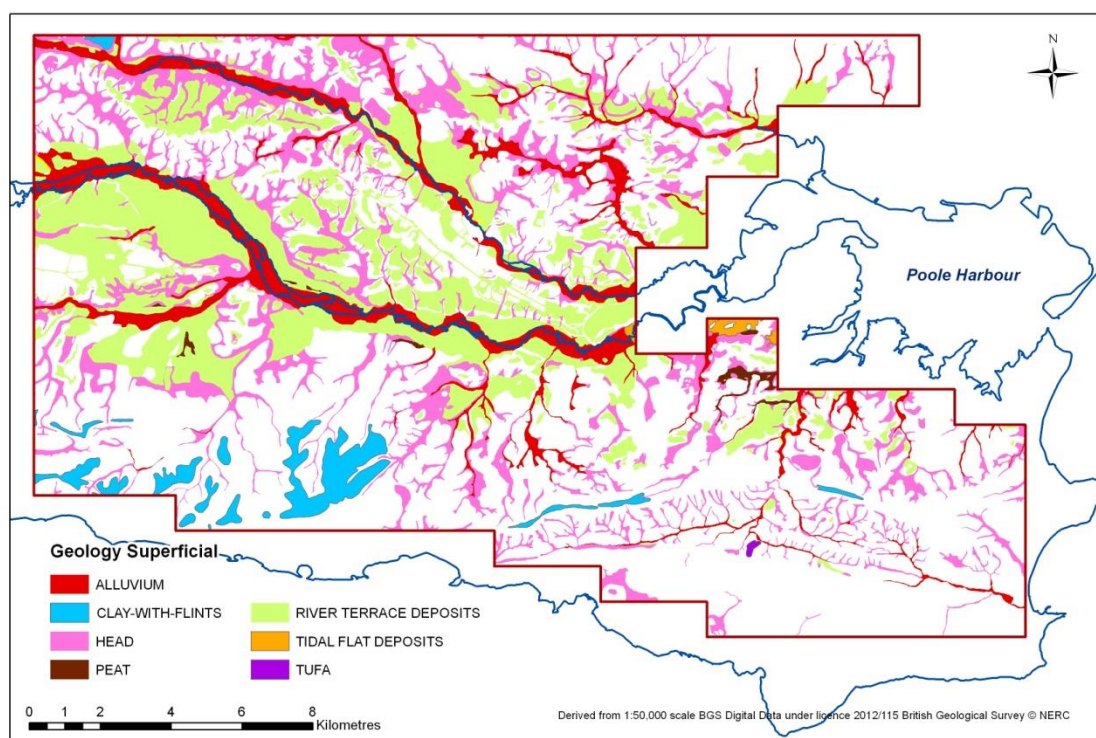


Figure 5. Map showing the superficial geology of the project area.

Several of the minerals located in the project area are sufficiently economically viable for commercial extraction (Dorset County Council 1999) and mineral extraction may potentially have an adverse impact on the archaeological resource in the project area (Figure 6):

- **Purbeck Stone.** The quarrying of blockstone on Purbeck is a long established, traditional industry. Purbeck stone is confined largely to an area of about 10 km sq. to the south and west of Swanage. There are currently 20 operational stone quarries on Purbeck and, as much of the charm of Purbeck villages is their traditional construction in local stone, it follows that there will be a continuing need for quarrying.
- **Ball clay.** Ball clay is identified as a mineral of national importance because of its special qualities and its rarity. It is used primarily in the ceramics industry for the manufacture of wall and floor tiles. The ball clays of Dorset are confined to the Poole Formation

sequence. There are currently five open cast mines and two deep mines, all but one located to the south of the Frome.

- Aggregates.** There are four naturally occurring terrestrial sources of aggregates in Dorset, all of which are found in the project area. Dorset's gravel has traditionally come from the Plateau Gravels – these cap many of the hills and ridges between Dorchester and Wareham and around Poole and Bournemouth. However, only isolated pockets of Plateau Gravel remain, the rest having been worked out or built upon. As a result future gravel extraction is likely to target the younger river terrace gravels in the Piddle and Frome valleys of which there has only been limited working in the past. The sands of the Poole Formation are extracted and this is likely to continue. There is also limited extraction of Purbeck limestone for use as crushed rock aggregate.

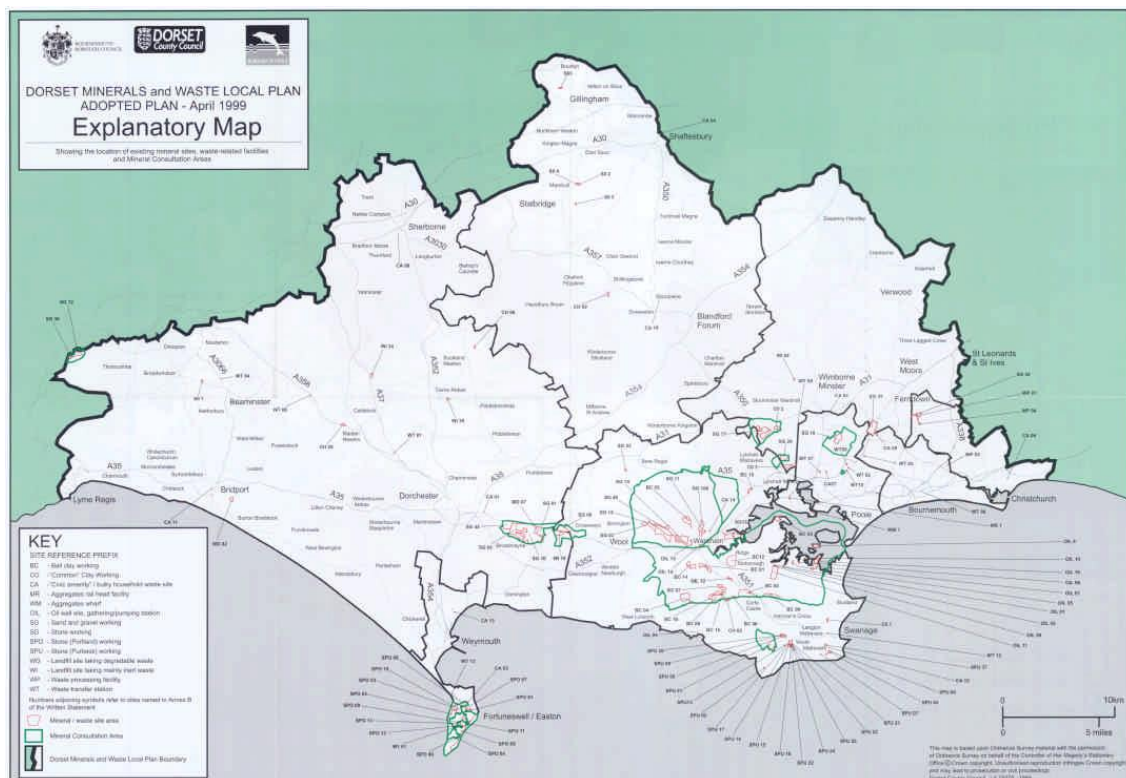


Figure 6. Extract from the Dorset Minerals and Waste Local Plan showing existing extraction sites (in red) and Mineral Consultation Areas (outlined in green). DCC 1999. (North to the top of image)

The project area is also home to Western Europe's largest onshore oilfield, Wytch Farm, where 'extended reach' drilling of up to 10km is undertaken from a number of well heads around Poole Harbour (Dorset AONB 2011).

**4.1.2 Soils**

There are four predominant soil types in the project area.

The chalk is overlain by brown calcareous earths and argillic or paleo-argillic brown earths. These are well drained shallow chalky soils associated with deeper loamy soils.

The Jurassic limestone gives rise to brown calcareous earths and calcareous pelosols, which are well drained, shallow and stony but are capable of supporting general arable.

The sandstone areas are overlain by brown earths or argillic brown earths. These are moderately deep loamy (usually silty) soils with impeded drainage usually associated with dairying, horticulture or forestry.

Much of the Wareham Basin supports gley-podzols, sandy gley soils and brown earths forming well drained sandy or coarse loamy soils with subsurface pan and usually associated with moorland and woodland, dairying or forestry. (Source: Cranfield University 2015).

#### 4.2 Landscape character

A landscape character assessment of the entire county was carried out by Dorset County Council in partnership with the AONB. Within the county, 21 broad landscape character types have been identified based on broadly similar combinations of geology, topography, vegetation, land use and settlement pattern, (Figure 7). The following descriptions are based on data from Dorset County Council, 2015a.

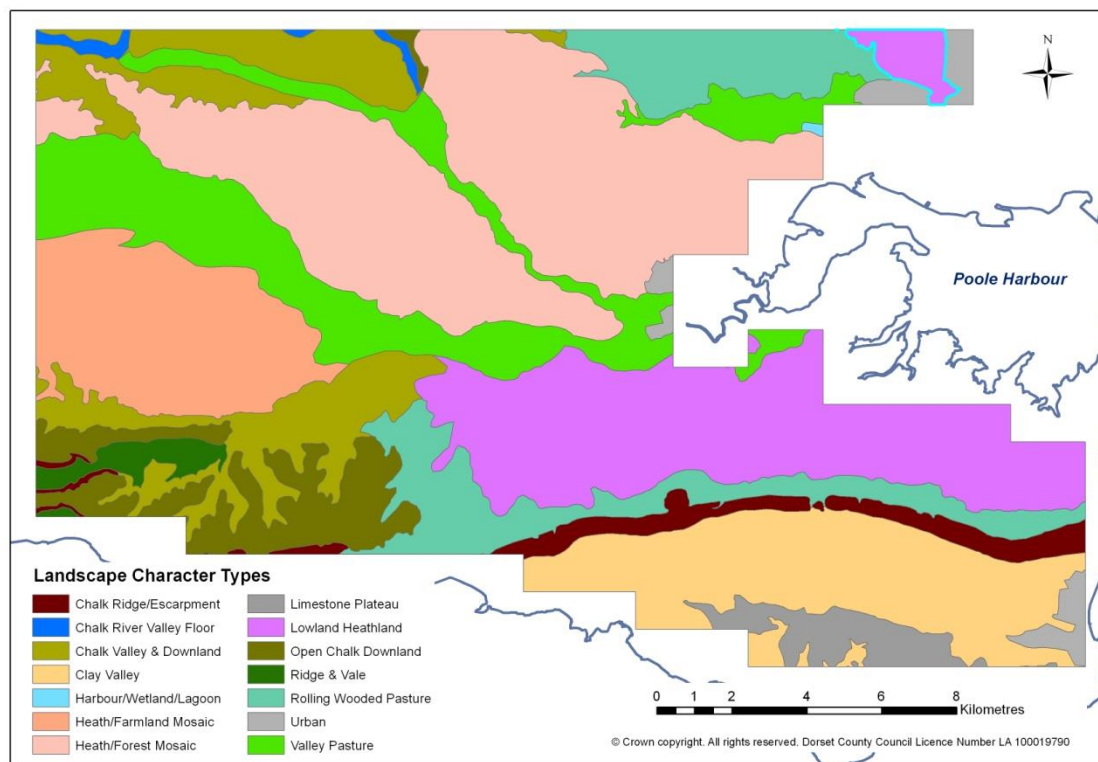


Figure 7. Dorset Landscape Character Types

#### Character Types

The project area contains a very varied landscape, reflecting its varied geology and morphology. The area contains 14 Landscape Character Types, listed in Table 1 below.

The area is characterised predominantly by heathland character types, but approximately 75% of the area is under agricultural management, with a small number of large estates, numerous tenancies and some owner-occupied farms (Dorset AONB 2011). The farming is mixed arable and



grazing and agri-environment schemes are well subscribed (within the Wild Purbeck NIA 100 km sq. were covered by High Level Stewardship agreements and 130km sq. by Entry Level agreements).

Roughly 20% of the area is wooded and just over half of the woodland is coniferous, most of which is owned or leased by the Forestry Commission. The area has a long association with the military: some 3,500ha are under the control of Defence Estates, with two holdings at Bovington Camp and Lulworth Camp.

<b>Landscape Character Type</b>	<b>% project area</b>
Chalk Ridge/Escarpment	2.6
Chalk River Valley Floor	0.4
Chalk Valley and Downland	9.3
Clay Valley	10.3
Harbour/Wetland/Lagoon	0.1
Heath/Farmland Mosaic	8.4
Heath/Forest Mosaic	23.2
Limestone Plateau	2.0
Lowland Heathland	15.1
Open Chalk Downland	4.9
Ridge and Vale	1.0
Rolling Wooded Pasture	9.0
Urban	1.6
Valley Pasture	12.1

Table I. Landscape Character Types.

Although 14 Landscape Character Types are contained within the project area, the most dominant types include:

**Chalk Ridge and Escarpment.** The Chalk Escarpment/Ridge landscape overlies the chalk of the Purbeck Hills and forms the southern edge of the South Dorset Ridgeway to the east. It is a dominant visual edge which forms a steep, distinctive and dramatic backdrop to much of the surrounding patchwork lowland landscape. With an undeveloped, open character and bold skyline, this landscape type supports important patches of chalk grassland and hanging mixed woodlands. Ancient hillforts and burial mounds form key landmarks.

**Chalk Valley and Downland.** This, along with Open Chalk Downland, is the main character type underlying the wide band of chalk of the Dorset Downs. Secluded chalk valleys drain the surrounding open downland, each valley with its own unique character and diversity of cultural features and habitats. Stone, brick and flint settlements with distinctive church spires and traces of old water meadows give the valleys a rich cultural heritage.

**Clay Valley.** Sweeping landscapes lie inland from the limestone plateau between Kimmerage and Swanage. Enclosed by escarpment ridges, the

Corfe and Bride Valleys have a settled rural character with a patchwork of rolling pasture and scattered woodland. Small villages and farming hamlets are dotted throughout the landscape.

**Heath/Farmland Mosaic.** This is described as a transitional area between other heathland landscape types and the chalk landscapes and river valleys. It is a patchwork landscape comprising mixed farming interspersed with heathland and scrub. Plantations and tree belts form key features in the landscape.

**Heath/Forest Mosaic.** This is the most common character type within the project area and consists of a mosaic of heath, forest and scrub on impoverished sandy soils. This landscape type is generally found on elevated areas popular for recreational activities and includes many 20<sup>th</sup> century conifer plantations on former heathland sites.

**Limestone Plateau.** Southern Purbeck between Durlston and St Aldhelm's Heads and inland to Worth Matravers is an exposed limestone plateau with a dramatic coastline of steep cliffs and incised deep valleys. A long tradition of quarrying has left a scatter of small quarries, spoil heaps and trackways in this windswept treeless landscape.

**Lowland Heathland.** A large area of internationally important lowland heathland lies to the north of the Purbeck Hills. This has an undulating lowland landform with poor sandy unfertile soils giving rise to a complex mosaic of open dry and wet heath and wooded scrubby heath. The fragile heaths are under constant pressure and have been fragmented by 20<sup>th</sup> century conifer plantation, farming and mineral extraction.

**Open Chalk Downland.** The project area includes small areas of chalk downland that forms the wider Dorset Downs; large-scale landscapes of rolling open hills and dry valleys with large arable agricultural estates form the backdrop to 'Thomas Hardy county'.

**Rolling Wooded Pasture.** Rolling wooded pasture lies to the south of the Poole Basin between the Lowland Heathland and the Chalk Escarpment of the Purbeck Ridge. It is characterised by an irregular patchwork of pasture, woods and hedgerows with many small villages linked by winding hedge-lined lanes.

**Valley Pasture.** Found along the valleys of the Rivers Frome and Piddle the valley pasture landscape lies on alluvial deposits forming wide meandering floodplains. Extensive water meadows are typical of this landscape type with wet woodland and pastures dotted with market towns around the fringes.

### **4.3 Historic Landscape Character**

An historic landscape character (HLC) assessment was carried out of the entire county by DCC in partnership with Historic England. The HLC provides broad-brush comprehensive mapping of the typical historic cultural processes that shaped the present landscape. The Dorset HLC is still in draft form and in depth association and analysis not currently possible. The draft data was however supplied to the project by DCC and a brief summary is described below. Figure 8 shows the HLC at Broad Character Type level.

The Wild Purbeck project area has a mainly rural character, with small remote settlements lying within enclosed fields, scattered woodland, plantations and areas of open rough grassland. The area contains eight Historic Landscape Broad Character Types, listed below.

<b>Broad Historic Landscape Character Type</b>	<b>% project area</b>
Enclosed	48.5
Industrial	1.5
Military	4.0
Open Ground	9.3
Recreation/ornamental	3.0
Settlement	4.5
Water Association	8.0
Woodland	21.2

*Table II. Broad Historic Landscape Character Types.*

Enclosed agricultural fields cover almost half of the project area, particularly in the south and west. Scattered 'industrial' areas include the major sand and gravel quarries west of Wareham and at Warwell Airfield, as well as Winfrith Technology Centre on Winfrith Heath west of Braytown.

Three large military areas lie in the area including Bovington Camp and its associated tank training area which lies between the rivers Frome and Piddle to the north of the village of Wool. South of the Frome is a second large tank firing range on West Holme and Povington Heaths which forms part of the extensive Lulworth Ranges. Lulworth Camp itself is on the southern edge of the project area to the northeast of West Lulworth.

Large areas of open ground are scattered across the area. These open heathlands include Corfe Common, Godlingston Heath, Creech Heath and Middlebere Heath to the southeast and Upton Heath to the northeast. Open ground also lies further west in the vicinity of Bovington Camp. A distinct linear band of open grassland coincides with the narrow chalk ridge of the South Dorset Ridgeway.

Some of the open ground described above is now contained within nature reserves and these have been characterised as recreational/ornamental. The reserves include Stoborough, Coombe and Higher Hyde Heaths. Other recreational areas include the campsites on the fringe of Swanage and the grounds of Lulworth and Corfe Castles.

The settlement pattern is one of small nucleated villages and farms with no major urban centres (although parts of Swanage, Wareham and the western edge of the Poole conurbation lie on the very fringe of the project area). Wool is the largest settlement wholly within the project area. Other scattered villages include Puddletown to the northwest and Corfe and Langton Matravers to the southeast.

The rivers Frome, Piddle and Sherford run westwards from Poole Harbour through the project area. The wide floodplains, with extensive areas of watermeadow and post medieval drainage, dominate these areas which have been characterised as Water Association.

The second largest character type within the project area is that of Woodland. This includes the extensive post war conifer plantations planted on the ancient heathlands

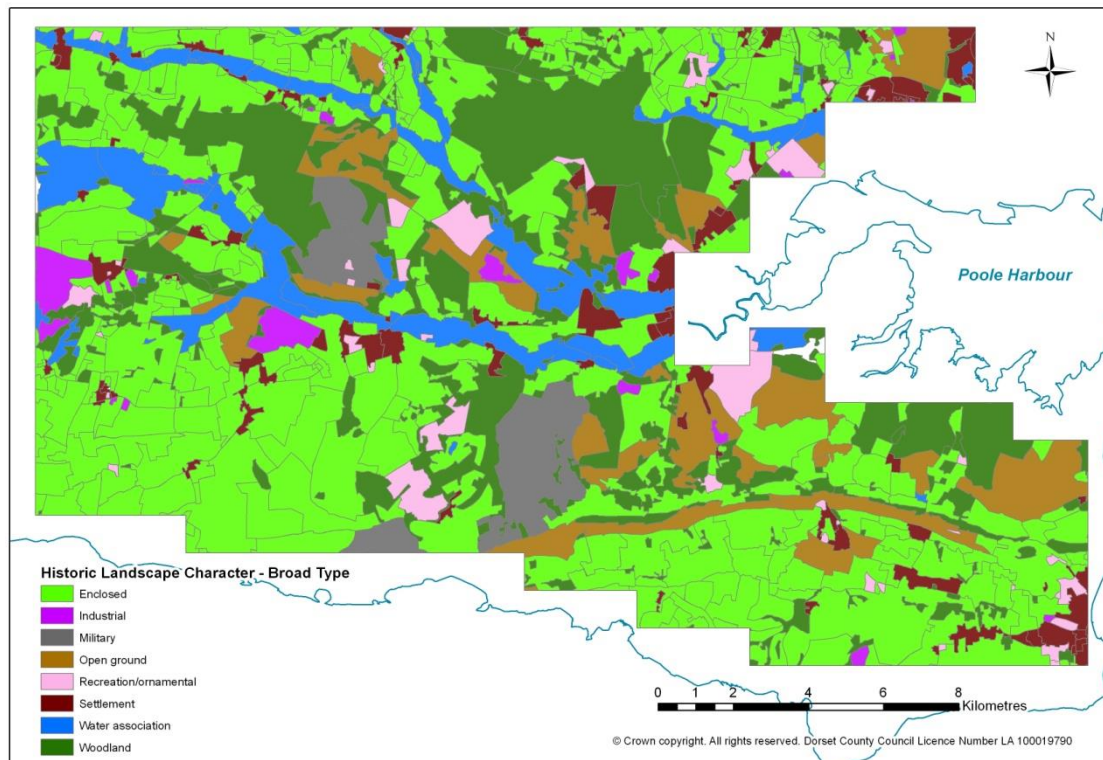


Figure 8. Historic Landscape Character of the Project Area.

#### 4.4 National Character Areas

The project area is primarily covered by two National Character Areas (NCA) as defined by Natural England (2013).

##### 4.4.1 Dorset Heaths (NCA 135)

The Dorset Heath NCA covers a broad area between Studland and Hengistbury Head and inland to Beckhampton in the west and Fordingbridge to the north. It takes in the entire Poole Basin and the lower river valleys of the Frome, Piddle, Stour and Avon. Twenty three per cent of the area is wooded and the remainder mainly a very open and largely pastoral landscape. The Poole/Bournemouth/Christchurch conurbation lies within this NCA.

##### 4.4.2 South Purbeck (NCA136)

South Purbeck NCA is a compact but highly diverse landscape. It includes the Purbeck chalk ridge, the Corfe and Swan Vales, the coastal slope at Kimmeridge and the gently rolling chalk downland around Chaldon Herring. The coastal habitats are principally grasslands, many of which are Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC). The land use is overwhelmingly agricultural, comprising a mosaic of pastoral, arable and semi-natural habitats.

## 5 Overview of the aerial photographs

Nearly 100 years of aerial reconnaissance has taken place in Dorset and this has ensured that there is extensive aerial photographic cover of the county. Available aerial photographs include specialist oblique photography, some taken in the 1920s and 1930s by OGS Crawford, Major Allen and Alexander Keiller, all early pioneers of aerial photography. Extensive programmes of vertical photography were carried out by the Royal Air Force (RAF) in the years during and after the Second World War. Blanket vertical cover has continued up until the present day, the flights carried out initially by the Ordnance Survey (OS) in the 1960s and, later, from the 1970s onwards, by DCC and the OS. These more recent sorties produced digital colour images.

The primary source of aerial photographs used during the course of this project was the Historic England Archive (HEA) collection in Swindon; in all over 7,300 prints and digital images were loaned from this collection. The Cambridge University collection (CUCAP) was also consulted and a selection of their photographic prints made available as loans. In addition, digital photographs from Google Earth and Bing were accessed via the internet. Dorset CC provided digital aerial photographs dating from 1972, 1997, 2002 and 2009. Pan Government Agreement geo-referenced digital aerial photographs provided by HE were also available. Details of photographs used during the project are contained in Appendix 1.

### 5.1 EPW digital photographs



Figure 9. Early 20th century thatched houses, Bladen Valley, Briantspuddle.

Unrectified oblique photograph, north to the bottom of image. Photograph: EPW032353 APR-1920. © Historic England (Aerofilms Collection).

The earliest available oblique aerial photographs are from the HE Aerofilms Collection, many of which date to April 1920. A large number of these images are low-level panoramic shots of country houses and

estates, features outside of the NMP remit for mapping and as such of limited value to this project although of great historic interest.

## 5.2 Crawford Collection photographs

The earliest oblique aerial photographs taken for archaeological purposes are from the HE Archive's Crawford Collection. Whilst exact dates are not available for all of these prints, they were taken or collected by Crawford and others in the 1920s and 1930s and formed the basis of Crawford's first archaeological transcriptions using aerial photographs (Crawford 1923, Crawford and Keiller 1928). The earliest dated prints from the Crawford Collection of the project area are from 29<sup>th</sup> September 1926.



Figure 10. Impact craters and other features associated with Bovington Camp, home of the Armoured Forces of the British Army since 1916.

MDO30444. Unrectified vertical photograph, north to the top of image  
Photograph: CCC 11755 Frame 5860 date unknown circa 1920-30. © Historic England (Crawford Collection).

## 5.1 Specialist oblique photographs

The Cambridge University Committee for Aerial Photography (CUCAP) has undertaken an aerial reconnaissance programme since 1947. Where possible these photographs were consulted. As the project had funding for four loans, and CUCAP restricts loans to 100 prints, only a selection of the available prints were looked at. In general, loans were filtered by subject and only alternate prints of vertical runs borrowed.

A systematic programme of reconnaissance has been carried out by the Royal Commission on the Historic Monuments of England, latterly as part

of Historic England, since the 1970s. The photographs from this and others collected by the National Monuments Record (NMR), now HEA, provided the bulk of the oblique coverage available to this project.

Oblique photographs taken in slanting sunlight (either during the winter months or in the early morning or late evenings of summer) are an ideal medium for defining earthwork monuments. Figure 11 shows the east-west orientated lines of crofts and tofts associated with the deserted medieval village of Holworth, Chaldon Herring; the earthworks are picked out in low September sunlight.



Figure 11. The remains of a deserted medieval settlement at Holworth picked out in low September sunlight.

MDO7230. Unrectified oblique photograph, north to the right of image  
Photograph: NMR 23295/10, 24-SEP-2003. © Historic England.

## 5.2 Vertical photographs

Vertical photographs provide coverage of all parts of the project area and have been taken at regular intervals from the early 1940s onwards. As part of the routine NMP process all readily available vertical aerial photographs were examined. A three dimensional view of the landscape, including any extant archaeological features, was achieved by using a hand-held stereoscope.

The advantage of vertical photography is that large areas are usually surveyed. A potential disadvantage is that they are not always taken at the most favourable times of day or year to maximise the visibility of archaeological features. Nonetheless the value of vertical photography to the project cannot be overstated.

A good range of sources of vertical photography were available to the project, and as a result a wide variety of archaeological site types were recorded. RAF vertical photographs from the 1940s to the early 1960s

were an important source of information, particularly for 20th century military features. The provision of a wide variety of later sorties (the DCC digital aerial photo tiles, the OS and the Meridian Airmaps (MAL) collections and online digital colour photographs from Google and Bing) ensured that coverage from vertical photography was extremely good.



Figure 12. Deserted Second World War military camp and post medieval water meadows at Moreton.

*MDO30418 and MDO30448.  
Photograph: RAF  
CPE/UK/2018 Frame 3026,  
17-APR-1947. Historic  
England RAF Photography.*

Building platforms and access roads associated with a probable military camp on the south bank of the River Frome at Moreton are visible on photographs taken soon after the end of the Second World War (Figure 12).

Using the historical RAF verticals in combination with modern images allows a direct comparison of the state of preservation of archaeological sites over time. Many sites which were visible as earthworks on the 1940s photographs have since been partially or completely levelled and other structures (military or domestic) extant in the 1940s are now demolished or completely overgrown and no longer visible (Figures 13 and 14).

Abandoned during the war when the military took over the village for training purposes, the house and estate of Tynham House is clearly visible on photographs taken in March 1945. Taken soon after desertion, the 1945 photographs clearly show the 14th century house with its 16th and 17th additional wings intact and a well-maintained kitchen garden to the north east. (Figure 13).

Throughout the latter half of the twentieth century the house and grounds fell into disrepair. The east front was dismantled in the 1960s and, by 2009; the DCC images show the house as largely a ruined shell with no sign of the kitchen garden under the encroaching trees (Figure 14).





Figure 13. Tynham House and kitchen gardens in 1945.

*MWX586. Photograph: RAF 106G/LA200 Frame 1006, 27-MAR-1945. Historic England RAF Photography.*



Figure 14. Tynham House and kitchen gardens in 2009.

*MWX586. Photograph: SY8880.ecw, 2009 © Dorset CC.*

### 5.3 Military oblique photographs

A small number of military oblique photographs were available for the study area. These were from sorties taken by the RAF between 1941 and 1968. These were generally of 20th century military features and did not provide additional detail to the contemporary RAF vertical photographs.

### 5.4 Lidar

Light Detection and Ranging (lidar) is an airborne mapping technique which uses a laser to measure the distance between the aircraft and the ground. The technique allows the identification and recording of upstanding features on the ground to sub-metre accuracy. The benefits of using lidar for archaeological recording have been previously recognized (Bewley *et al* 2005, Devereux *et al* 2005, Royall 2011 and Royall 2013).

Lidar data was available for much of the northern portion of the project area, although more patchy for the south. The Environment Agency (Geomatics) had undertaken sorties of the valleys of the Rivers Piddle and Frome and the intervening heathlands. This was captured from 1m grid taken in 2012. The digital terrain model (DTM) was available as ascii grid (.asc) files which were viewed and modeled in AutoCAD. A small amount of lidar was also available from the Channel Coast Observatory for those areas adjacent to the coastal fringes.

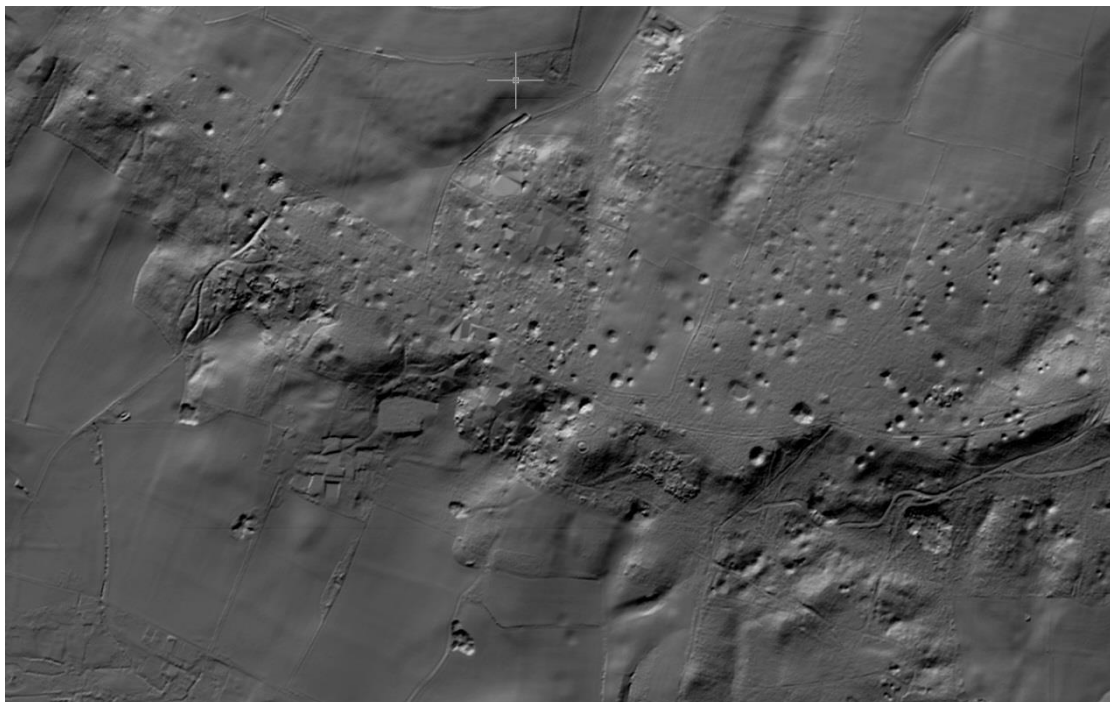


Figure 15. An extensive area of post medieval extractive pits and natural solution hollows across Southover Heath is clearly visible on Environment Agency lidar taken in 2012.

MDO30461. © Cornwall Council 2015 based on Environment Agency (Geomatics) lidar data 2012.

## 6 Previously known sites in the project area

### 6.1 NRHE and Dorset HER databases

Prior to the mapping, the Historic England's National Record of the Historic Environment (NRHE) database contained 838 records for the project area. Of these, 546 were for sites potentially visible on aerial photographs and lidar (i.e. not find spots), and within the NMP remit (i.e. not roofed buildings).

In addition, the Dorset Historic Buildings Sites and Monuments (HBSMR) contained 2126 sites within the project area. Slightly less than half (47%) of these were for sites outside the NMP sphere of interest, such as find spots, place names and extant buildings. One thousand one hundred and thirty six records were for sites potentially visible on aerial photographs, such as cropmarks and earthworks as well as structures and subsurface features (including excavated features). This equates to an average of 3.28 sites per square kilometre.

Figure 16 shows the distribution of those records existing prior to the NMP project in the Dorset HBSMR and Historic England's NRHE database for sites within the NMP sphere of interest.

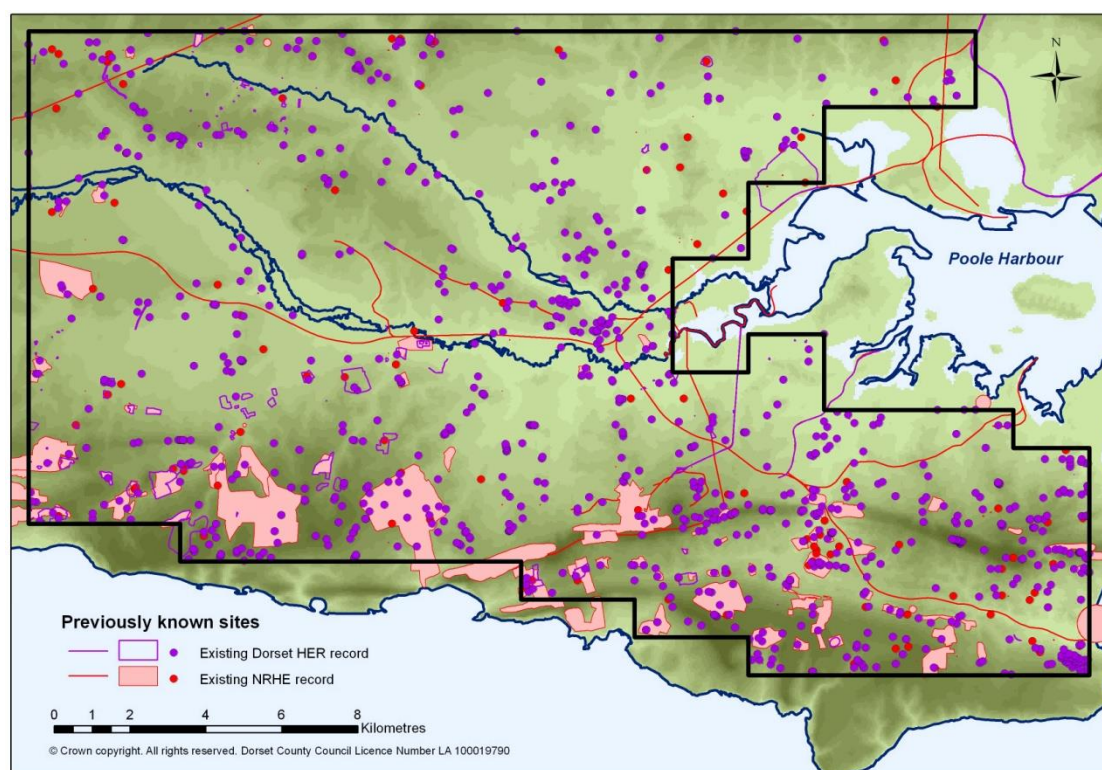


Figure 16. Distribution of pre-existing NRHE and Dorset HBSMR records (Monument (MON) records only).

The previously recorded sites cover a wide range of monument types which include buildings, archaeological monuments (earthworks and cropmarks), and numerous finds from most periods. The previously known archaeological resource of the project area is therefore rich and varied with evidence for human activities from the Palaeolithic to the twentieth century.

The following summary is based on information from the NRHE and the Dorset HBSMR.

A large hoard of 57 Palaeolithic hand-axes was recovered from Red Brick Pits, at Moreton and two others from a gravel pit near Moreton Station. Other Palaeolithic hand-axes have been found in the area including at Athelhampton, Wool, Winfrith Newburgh, Moreton, Woodsford, Bere Regis, Turners Puddle, Affpuddle and Studland.

A Mesolithic occupation site with up to 500 flakes was found fossilized under a tufaceous marl deposit at Blashenwell. Two dense concentrations of Mesolithic flints were recovered from Whitcombe Hill, Winfrith Newburgh. Probable Mesolithic flint working sites are recorded at Athelhampton and Godlingston Farm, Swanage. Further Mesolithic microliths, blades and flints were found around Woolsbarrow, Bloxworth and at Blacknoll, Winfrith Newburgh.

Only one previously known monument dates to the Neolithic period, that of a long barrow on Nine Barrow Down, Corfe Castle. A small number of Neolithic artefacts have been recovered, however, including a partly ground flint axe which was found on Philliols Heath, Bere Regis; a polished quartzite axe recovered at Worgret, Arne; and a leaf arrowhead from Corfe Castle.

Small scatters of other worked flints and artefacts dating from the Mesolithic to Bronze Age have been found right across the project area.

A late Neolithic/Early Bronze Age stone circle, the Rempstone Circle, is located at the foot of Nine Barrow Down, Corfe Castle; ten of its stones survive. The site of a second stone circle is alleged to have existed up until the 19<sup>th</sup> century between East Lulworth and Povington.

The Bronze Age is richly represented. Burial mounds dating to this period were the most numerous site types recorded in the HER and NRHE, with over 350 barrows scattered across the project area. A bronze hoard including a carp's tongue sword was found at Sleight Farm, Winfrith Newburgh. Other find spots include a cinerary urn in High Wood, Wool; a barded and tanged arrowhead at West Lulworth; and a tanged spearhead at Holme near Wareham. Evidence for Bronze Age settlement, including an occupation floor and storage pits, was recorded at Swanworth quarries, Worth Matravers.

Sites dating to the Iron Age include hillforts at Woodbury Hill, Bulbury Camp, and Woolsbarrow, and cross dykes associated with a hilltop enclosure on Knowle Hill. The earthwork remains of several Iron Age or Romano British 'Celtic' field systems are known across the project area. These include field systems at Sleight Bottom and Marley Botton, Chaldon Herring; Kingston, Corfe Castle; Corfe Common; Ringstead Barn, Osmington; Brinstone Bottom Barn, Chaldon Herring; and north of Lulworth Common, Coombe Keynes. Iron Age findspots have included brooches, coins and quern fragments.

Evidence for Iron Age/Romano British occupation includes extensive settlements with associated field systems at Tynham, Tolpuddle; Smedmore Hill, Church Knowle; and West Lulworth. Iron Age or Roman enclosures are known at Bowley's Plantation, Owermoigne and at Pound

Round, Chaldon Herring. A possible midden site with occupation debris was excavated from the edge of a modern quarry at Wilswood, Langton Matravers. An alleged prehistoric village has been recorded at Woodsford and several cropmarks of prehistoric or Roman settlement enclosures and trackways have been located elsewhere in the parish.

A later prehistoric linear earthwork ran for over 5km to the west of Wareham. The site, known as Battery Bank, has largely been destroyed by gravel extraction, although some sections are scheduled. Additional, possibly contemporary, earthworks are located to the east on Worget Heath and Wareham Common.

The Roman period is represented by numerous finds including coins, pottery, brooches, spindle whorls, mortarium and occupation debris. A number of Romano British shale artefacts have been recovered including a table-leg carved in the shape of an animal head at Norden Clay works, Corfe Castle. Two oyster shell middens have been located near the North Bridge across the Piddle into Wareham.

Three Roman roads run through the area: from Dorchester to Old Sarum, Badbury Rings to Poole, and from Wareham to Flowers Barrow. Several Romano British graves are known, including an inhumation cemetery and settlement at Herston, Swanage and Kimmeridge shale cist graves west of Tynham.

Further sites dating to the Roman period include Roman villas at Brenscombe and Bucknowle Farm, Corfe Castle and at East Creech Church, Knowle. A scheduled Roman settlement is located at Winfrith Newburgh. The cropmarks of a settlement enclosure partially excavated in 1986 are situated at Cuckoo Pound Lane, Arne.

A Roman shale working site with occupation debris, inhumations and a ritual well-shrine are known in the Norden Clay Works, Corfe Castle. A shale-working site was also excavated at Povington Farm, Tynham and shale cores found at Kingston Vale.

The early medieval period is not well represented in the databases. A probable late Saxon inhumation cemetery was discovered during the construction of a garage in Swanage and a second cemetery excavated at Shepherds Farm, Ulwell, Swanage.

The town of Wareham was an Anglo Saxon burg and its defensive earthworks date from the 9th century. Rebuilt in the 10th and 11th centuries, Wareham is the only burg with its defences still intact (source NRHE UID 456707). A single find dating to this period is documented; a possible 9th century lozenge-shaped metal plate with interlaced design found at Encombe, Corfe Castle.

There are many medieval sites scattered across the project area, particularly in the south. These include parish churches, farms, settlements, field systems, hollow ways, lynchets and trackways. Extensive contour type strip lynchets are located at Chaldon Herring, Owermoigne and Poxwell. Strip fields and lynchets of extensive medieval field systems are known at South Egliston, Tynham; Tolpuddle; and around Kingston and Corfe Castle.

Probably the best-known medieval site in the project area is Corfe Castle, a former royal castle built on a natural hilltop in a gap in the Purbeck Hills. A ringwork and bailey, which is probably a 12<sup>th</sup> century siege work, lies to the southwest of the castle.

A late 13th century moated site lies at Moigne Court, Owermoigne. Shrunken and deserted settlement earthworks are widely spread across the area and include those at Blashenwell, Corfe Castle; North Egliston, Tynham; Warmwell; Woodsford; Chaldon Farm, Chalden Herring; Suddon and Galton, Owermoigne; Holworth, Chaldon Herring; West Burton, Winfrith Newburgh; and Bardolfeston, Puddletown.

Medieval fishponds are recorded at Woodsford Castle and near Corfe Castle. Pillow mounds have been identified at Wool; Warren Heath, Bere Regis; and on Ridgeway Hill, Church Knowle. A deer park is known at Mansham Park and possible boundaries and pales associated with medieval parks are listed at Moreton, Lulworth, and Athelhampton, Affpuddle. A medieval abbey is known at Bindon, Wool and priories at Holme, East Holme; and Wilkswood, Langton Matravers. Purbeck marble quarries, which supplied material to Salisbury Cathedral, are located at Downshay, Worth Matravers.

Previously known sites dating from the post medieval period include manor houses, farmsteads, chapels, tollhouses, bridges, tramways and railways, brick and lime kilns, chalk and clay pits, and limestone quarries. A hunting lodge belonging to the Royal Purbeck Forest once stood on the summit of Creech Barrow Hill.

Lulworth Castle began as a post medieval hunting lodge which was later converted to a residence with a surrounding landscape park. Eighteenth century landscape parks were also laid out in the grounds of Encombe House and Creech Grange, and a folly built in the grounds of Creech Grange. Eighteenth century decoy ponds were constructed on Decoy Heath, Wareham St Martin, and watermeadows associated with the River Puddle are known at Puddletown and Athelhampton.

A range of 20th century monuments are known in the area: these include railways, tramways and a 'Humphrys' iron isolation hospital which was built at Norden Heath, Corfe Castle.

First World War military features include airship moorings at Upton, Poole, and an army camp at Worget Road, Wareham.

A Second World War military airfield was constructed at Warmwell with associated gun batteries, pillboxes and bombing decoy. Several other Second World War pillboxes are known in the area including at Leeson House, Worth Matravers; at Woodsford Castle and by a ford on the River Frome near Moreton.

A number of military installations are known on Studland Heath including pillboxes, gun emplacements and slit trenches. Auxiliary unit special duties outstations and an operational base are recorded at Stoborough Heath, south of Wareham and at Doreys Farm, East Holme although, their precise locations are uncertain.

Other Second World War military sites include anti-aircraft batteries at Northmoor Park, Upton Heath, Godlingston Heath, Gore Heath and Holton Heath. Several of these batteries were built to protect the Royal Naval Cordite Factory on Holton Heath, Wareham St Martin which was also protected by a bombing decoy site at Gore Heath.

The sites of two cold-war Royal Observer Corp monitoring posts are known on Woodbury Hill, Bere Regis and at Acton, Worth Matravers.

## 6.2 Scheduled Monuments

Two hundred and forty six of the sites mentioned above have been protected by scheduling and are listed in the National Heritage List for England (NHLE).

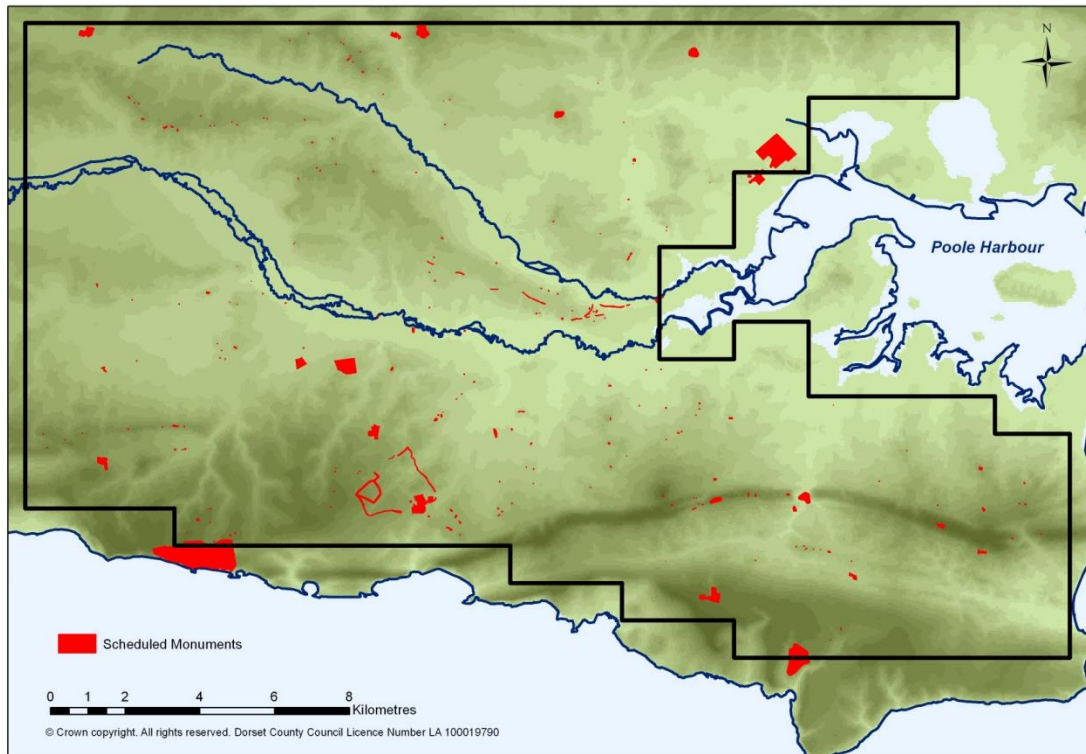


Figure 17. Scheduled monuments in the NMP survey area.

## 7 Results of NMP mapping

### 7.1 Overview of the NMP mapping

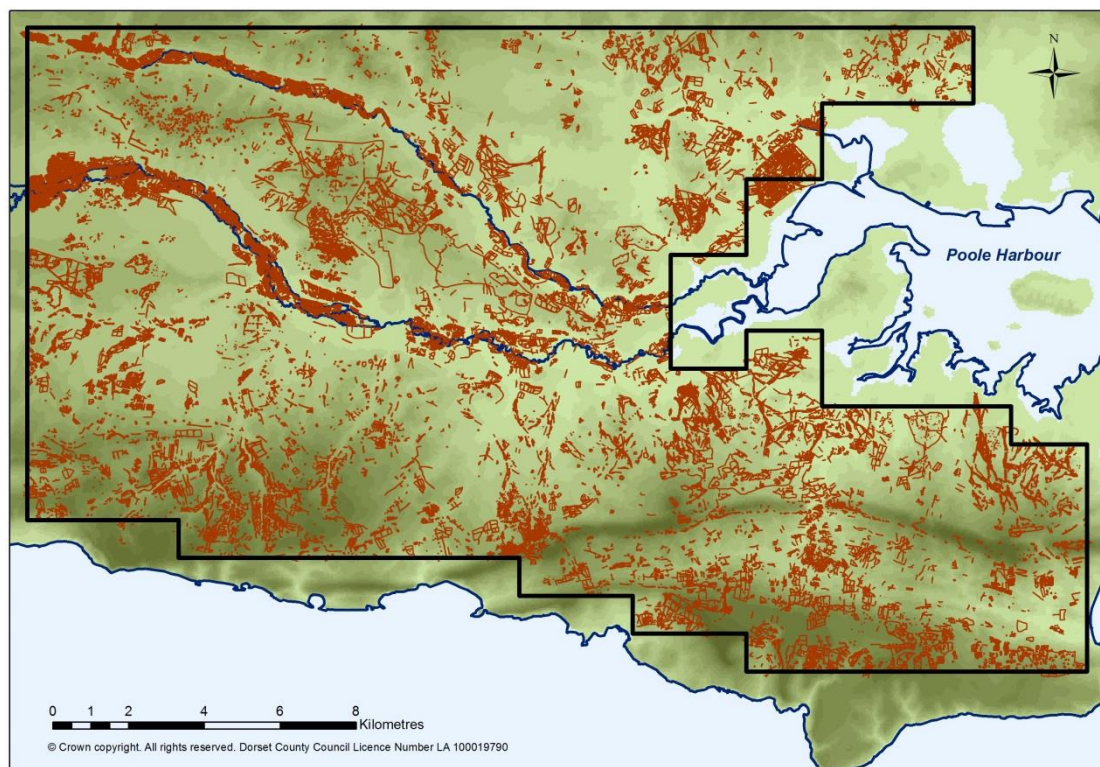


Figure 18. Map of the project area showing all NMP mapping.

The NMP methodology entails the interpretation, mapping and recording of all archaeological sites from the Neolithic to the twentieth century from all available aerial photographic sources and lidar imagery. In the case of aerial photographs, these are moderately substantial ditched or banked features either visible above ground as earthworks, or as cropmarks of sub-surface features. Relatively slight earthworks under tree cover or in open ground can be identified from lidar imagery.

Historic aerial photography also provides details of earthworks and structures which have subsequently been denuded or levelled by ploughing, or otherwise destroyed or removed.

All sites mapped were recorded in the Dorset HBSMR database which automatically generated unique project record numbers prefixed MDO. Some sites previously existing within the database were prefixed MWX. All sites discussed in this report will be referenced using these MDO or MWX numbers.

For the purposes of this report, reference to 'new sites' refers to those not previously recorded in the Dorset HBSMR.



### 7.1.1 Numbers of sites in the project area

During the project details of 2328 monument records were input to the Dorset HBSMR database, these sites are shown in the distribution map (Figure 19).

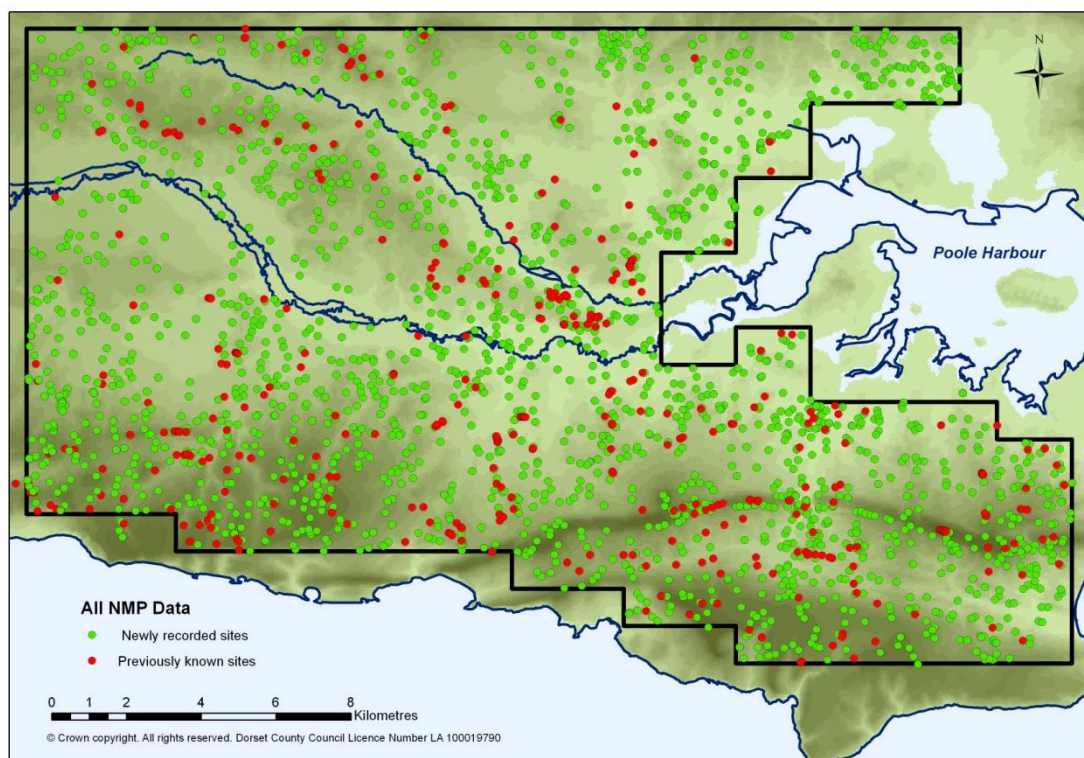


Figure 19. Distribution of all monuments mapped and recorded during the project.

The map shows that in terms of overall distribution, sites were plotted right across the study area. On average the project recorded 6.73 sites across each km<sup>2</sup>, including those sites already listed in the HER (see section 6.1). This equated to an average increase of 3.45 sites per km<sup>2</sup>. It should be noted that this statistic does not accurately reflect the extent of archaeological sites: many extensive prehistoric and medieval field systems were plotted, each extending over many hectares but recorded as a single record.

Of the 2328 monument records, 1934 (83%) were for new sites and 394 were sites already recorded in the Dorset database. The percentage increase of sites recorded across the project area as a whole was 105%.

The numbers of sites recorded by period are listed in Table 3. The date ranges used in this report conform to national standards and are those used in the Dorset HBSMR. The project database requires start and end dates for all sites (or automatically assigns dates based on the given period). With the exception of the early medieval period, archaeological sites were recorded for all periods from the Neolithic to the mid-20th century.

Period	Updated Sites	New Sites	Total
Neolithic	1	1	2
Bronze Age	232	45	277
Iron Age	7	1	8
Iron Age/Romano-British	10	0	10
Prehistoric/Roman	20	42	62
Medieval	60	52	112
Post medieval/early 20th century	42	984	1026
Historic	10	376	386
Twentieth Century	6	345	351
Undated	6	88	94
<b>Total</b>	<b>394</b>	<b>1934</b>	<b>2328</b>

Table III. Numbers of sites recorded in the project database.

It should be noted that the nature of aerial photographic evidence means that only broad dates can be assigned to sites unless there is further corroborative evidence from fieldwork, artefact scatters or excavation. Attributing precise dates is not always possible.

In this report, sites have been assigned broad periods based on the evidence from morphology, context and association with other securely dated sites. Some generalisations have been made: for example, ring ditches which were considered to relate to funerary practices have been assigned to the Bronze Age despite their potential for being of late Neolithic/Early Bronze Age origin. Similarly prehistoric enclosures, settlements and field systems have generally been allocated a later prehistoric date (Iron Age/Romano British) although some may have their origins in the Bronze Age.

### 7.1.2 Form and survival of sites

The form and survival of each site was recorded in the project database. At the direction of the HEA, only the last known form of the site was recorded (e.g. as visible on the latest Google Earth images or on the lidar) and not necessarily the form of the site on the photographs from which it was plotted.

For example, if a site was visible as an earthwork on early RAF 1940s photographs but was later plough-levelled and consequently only visible as cropmarks on the latest photography, then the site was recorded in the database as a cropmark.

Similarly, if a site was not visible at all (neither as earthworks nor cropmarks) on the latest imagery but had been plotted as an earthwork from early photographs, it would be recorded in the database as Levelled Earthwork (unless no assessment of the current state of the monument could be made, for example if the site was obscured by vegetation [tree-cover or scrub], in which case it was recorded as earthwork).

A summary of the form and survival of sites recorded is set out in Table 4 below.

Form	No: Sites	% or total
Cropmark	344	14.7
Cropmark and earthwork	91	3.9
Cropmark and levelled earthwork	24	1.0
Earthwork	1215	52.3
Partially levelled earthwork	42	1.8
Levelled earthwork	525	22.5
Extant structure	17	0.7
Partially extant/ruined structure	9	0.4
Completely demolished structure	63	2.7
<b>Total</b>	<b>2328</b>	

Table IV. Form and survival of sites recorded in the project database.

Of the 2328 sites recorded during the mapping project the majority, 1349 (58%), were still extant or partially extant earthworks and 26 (1%) were extant or partially extant structures. No upstanding features survive for 953 sites (41%) which had been completely levelled or demolished. Of the total 2328 sites, 457 (20%) were visible or partially visible as cropmarks on the aerial photographs.

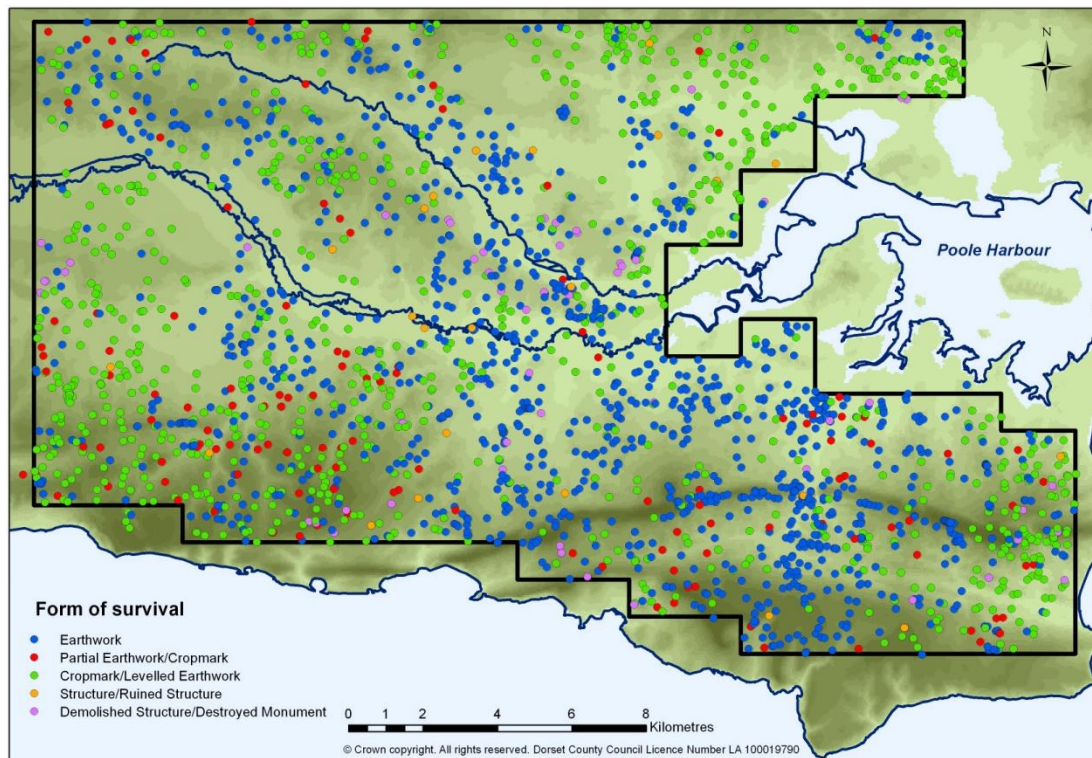


Figure 20. Form of all monuments mapped and recorded during the project.

There are also dense earthwork scatters to the north of the Purbeck Hills from Middlebere Heath towards Wareham and along the River Piddle.

Figure 20 shows the distribution of sites by form across the project area. Whilst found right across Purbeck, the densest concentrations of sites surviving as earthworks are situated in the southeast, particularly along the main ridge of the Purbeck Hills and southwards into the Isle of Purbeck.

Completely levelled sites (including those visible only as cropmarks) are particularly concentrated in the northeast (Sandford to Upton Heath); the far southeast (Swanage to Godlingston Heath); and to the south of the River Frome, west of Wool.

The highest numbers of demolished sites lie in the central area and are associated with extensive 20th century sand and gravel extraction. Small numbers of extant and ruined structures are distributed right across the project area.

One of the main aims of this project was to enhance awareness of the archaeological resource within the 20<sup>th</sup> century plantations. Over a fifth of the project area lies within the HLC area woodland (i.e. ancient woodland and modern plantation (see Table II and Figure 8) and 334 sites (14% of the total mapped during this project) lie within these wooded plantations. As Table 4 shows, across the project area as a whole, 52% of sites mapped during the project were assessed as upstanding earthworks on the most recently available imagery. This increases to 68% for the 334 sites within the woodland.

As many of these 334 sites were mapped solely from early photographs dating to the 1940's (prior to the plantations being laid out) and unless there was clear evidence on lidar imagery (if available), these early aerial photographs would have been the most recent available imagery to the project.

It is not possible using historical photographs alone to assess the current survival of sites under modern tree-cover. Assuming the sites survived any earthmoving and disruption during the initial tree-planting process, an increased preservation of sites within the plantations is likely due to the reduced forces of attrition within woodland in contrast to sites in open arable or in active military service.

## 7.2 NMP results: Neolithic sites (4,000BC – 2,351BC)

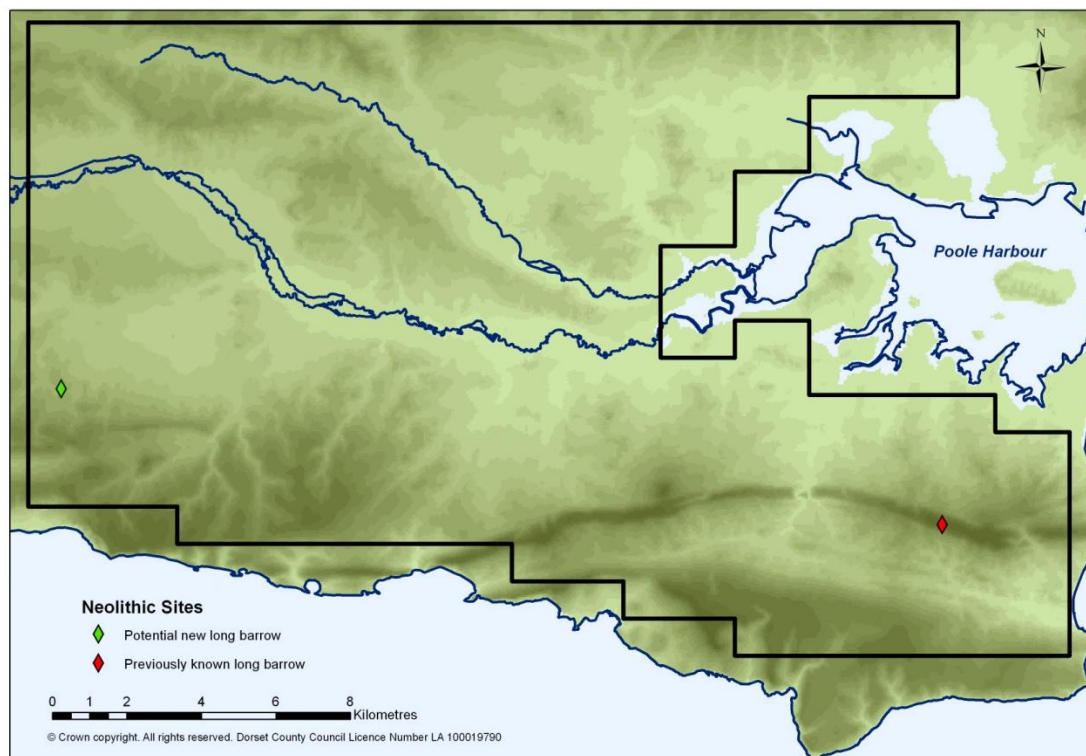


Figure 21. Distribution of Neolithic sites.

Only two sites dating to the Neolithic period were mapped and recorded including one previously recorded long barrow on Nine Barrow Down, Corfe Castle (MDO7407), towards the eastern end of the Purbeck Hills.

A second potential Neolithic site was identified for the first time during the project, just to the north of the A352 Wareham to Dorchester road at Watercombe, Owermoigne (Figure 22).

Neolithic long barrows are the earliest monumental constructions found in the landscape. They comprise a long mound of material rarely more than about 50m in length and up to 25m in width. Sometimes slightly trapezoidal or oval in form they are generally flanked by ditches from which the mound material may have been derived.

Archaeological excavations have shown that the construction of the earthen long barrow was often the last phase in a complex sequence connected with the ritual inhumation of the dead. Many long barrow sites began as small rectangular enclosures known as mortuary enclosures; a timber mortuary chamber was sometimes constructed within the enclosure prior to the long mound being built (EH, 2011).

The Watercombe site consists of a 'U' shaped ditched enclosure visible as cropmarks on aerial photographs taken in 1995 (MDO32049). The enclosure is 25m wide and at least 40m long with its long axis running east-west and a wide gap at the western end which may be original. The feature is possibly the surrounding ditches of a, now plough-levelled, long barrow or mortuary enclosure.

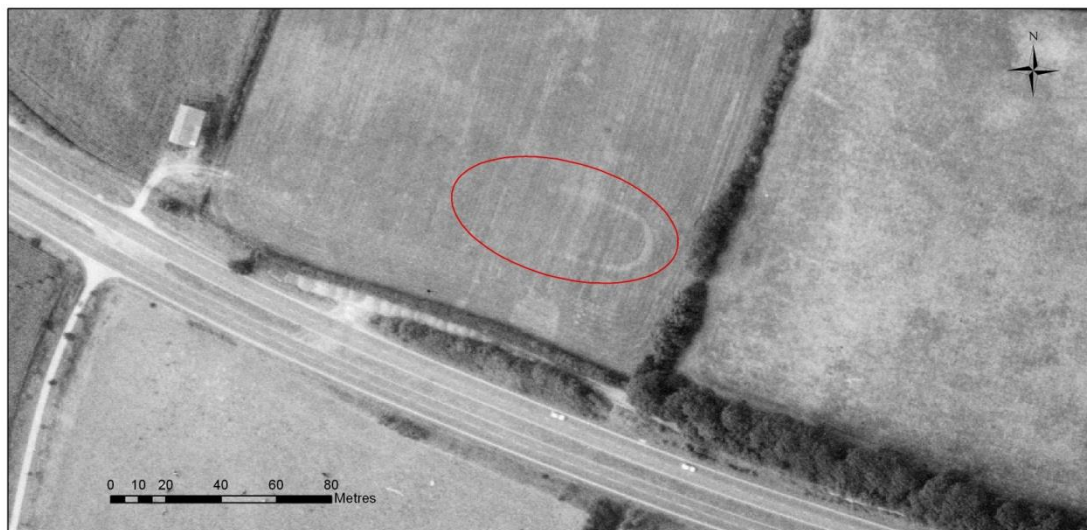


Figure 22. Potential new Neolithic long barrow or mortuary enclosure at Watercombe, Owermoigne

MDO32049. Photograph: NMR 15362/3, 07-AUG-1995. © Historic England.

The site lies 150m to the north of a possible Bronze Age linear barrow cemetery (MDO32190-3). This possibly adds weight to the interpretation of this site as a long barrow: the Nine Barrow Down long barrow also being sited in close proximity to a later Bronze Age linear barrow cemetery (MDO7430-4 and MDO7438-40). Both monuments may have been located in places of special significance; places which continued to be revered by later generations, the later Bronze Age funerary sites being situated in close proximity to their earlier counterparts.

### 7.3 NMP results: Bronze Age sites (2,350 – 701BC)

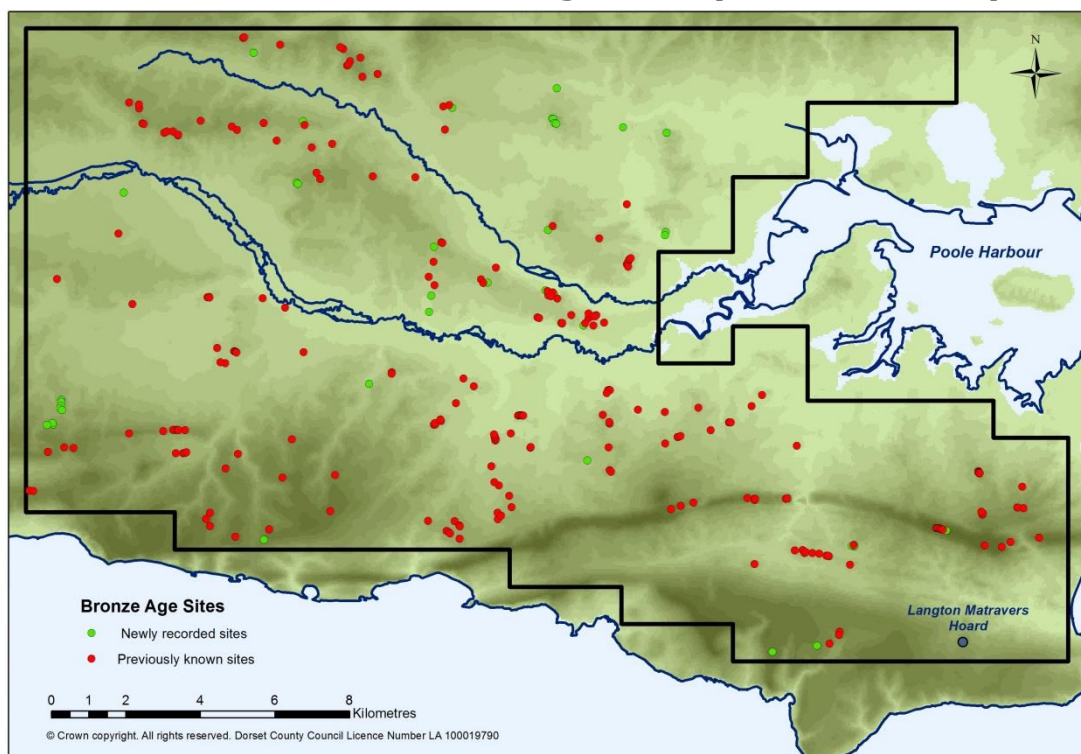


Figure 23. Distribution of Bronze Age sites.

During the mapping project, 277 sites were specifically attributed to the Bronze Age. These were all funerary-related barrow sites, the majority of which are likely to be Early or Middle Bronze Age. There may be other sites such as field systems which had their origins in this period but these were allocated a more general Prehistoric or Roman date and are therefore discussed in section 7.6.

As the distribution map shows (Figure 23), the barrows are scattered throughout the project area but generally on areas of higher ground. There was a tendency for barrows, over time, to be built together in large cemeteries and the South Dorset Ridgeway cemetery to the west is one of the most impressive in the country (Royall 2011).

Two small linear barrow cemeteries at Five Mary's (MDO7264-71) and, 600m to the south, at Chaldon Herring (MDO7258-61) may be seen as eastern outliers to the main South Dorset Ridgeway Group which stretches for over 21km from White Horse Hill, Osmington to Chilcombe Hill (Royall 2011).

Perhaps surprisingly, relatively few barrows were recorded on the distinct chalk escarpment ridge of the Purbeck Hills itself. The 4.5km stretch of ridge between Whiteway Hill and Steeple is completely devoid of barrows, as are Rollington and Brenscombe Hills, east of Corfe Castle.

In terms of HLC, the majority of barrows are in the open ground, military training areas and within woodland although significant numbers do lie in the enclosed arable area to the south of the river Frome, between Lulworth and Warmwell. The greatest concentrations appear to be on the

sandy heaths such as Corfe Common, Povington Heath and those to the south of Affpuddle (now covered in modern plantation).

The majority of barrows sites were visible as earthworks on the latest sources with only 30 (10%) having been levelled or destroyed. Whilst earthwork sites survived across all geologies and HLC types, as would be expected, those levelled sites (including cropmarks) were generally located within the enclosed agricultural land.

Site Type	No: Sites
Cropmark	19
Destroyed Monument	4
Earthwork	247
Levelled Earthwork	7
<b>Total</b>	<b>277</b>

Table V. Bronze Age survival

Of the 277 Bronze Age barrow sites recorded during the project, 45 (16%) are new discoveries, perhaps the most significant of which lies to the east of Watercombe. Here a group of eight potential barrows, in two groups set 400m apart, is visible as cropmarks on aerial photographs. The round barrows lie immediately to the south of the potential new long barrow described in Section 7.2.

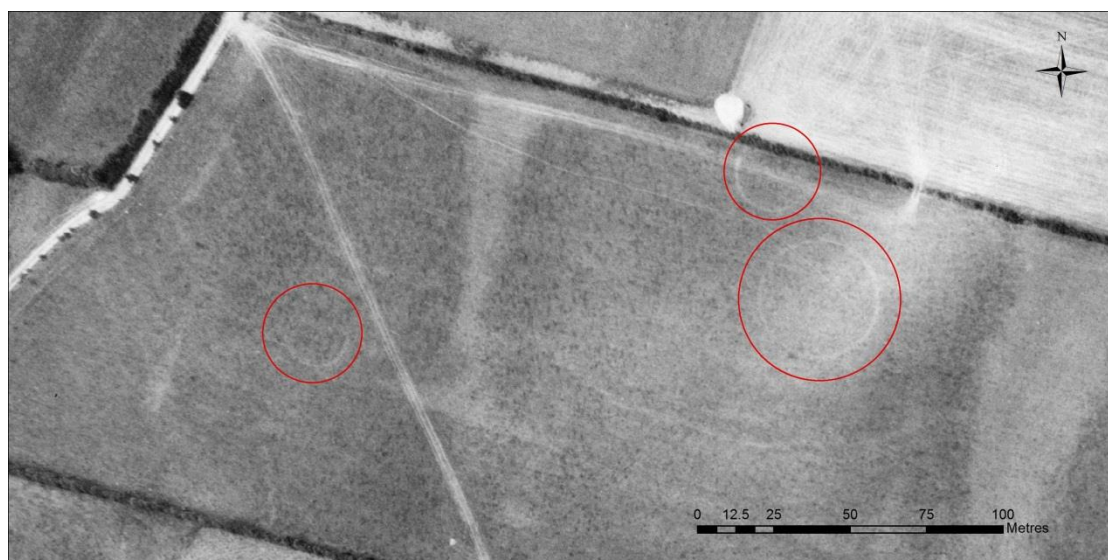


Figure 24. Possible sites of a three ploughed out Bronze Age round barrows, Watercombe, Overmoigne.

MDO32194-6. Photograph: NMR 15362/2, 08-AUG-1995. © Historic England.

Other newly identified barrows include ring ditches at Woodsford Lower dairy (MDO30675); Newlands Cottages, West Lulworth (MDO31827); and at Woodman's Cross, Coombe Keynes (MDO30408). The remains of potential burial mounds have been mapped at Throop Clump, Affpuddle



(MDO31370); Corfe Common, Corfe Castle (MDO31514-6) and on Bloxworth Heath (MDO30101).

A group of four mounds to the west of Woolsbarrow hillfort on Bloxworth Heath are visible on photographs taken in 1947 (MDO30109-12). They are marked as Tumuli on the OS 1<sup>st</sup> edition map and were flagged by the interpreter as being potentially Bronze Age barrows, although they may alternatively be spoil heaps associated with adjacent post medieval extraction or natural gravel knolls (Figure 27).

One of the largest Bronze Age hoards recovered from Britain and Ireland was found by metal detectorists in the project area at Langton Matravers in 2007 (Roberts et al 2015). The hoard comprised 373 tin-bronze socketed axes along with 404 axe-fragments. The hoard was found in pasture to the south of the village in an area of later historic lynchets (MDO30763) and quarries (MDO31042). This was an area devoid of any known Bronze Age barrow sites, and the NMP did not add to the overall distribution of sites dating to this period, see Figure 22.

## 7.4 NMP results: Iron Age (800BC – 42AD)

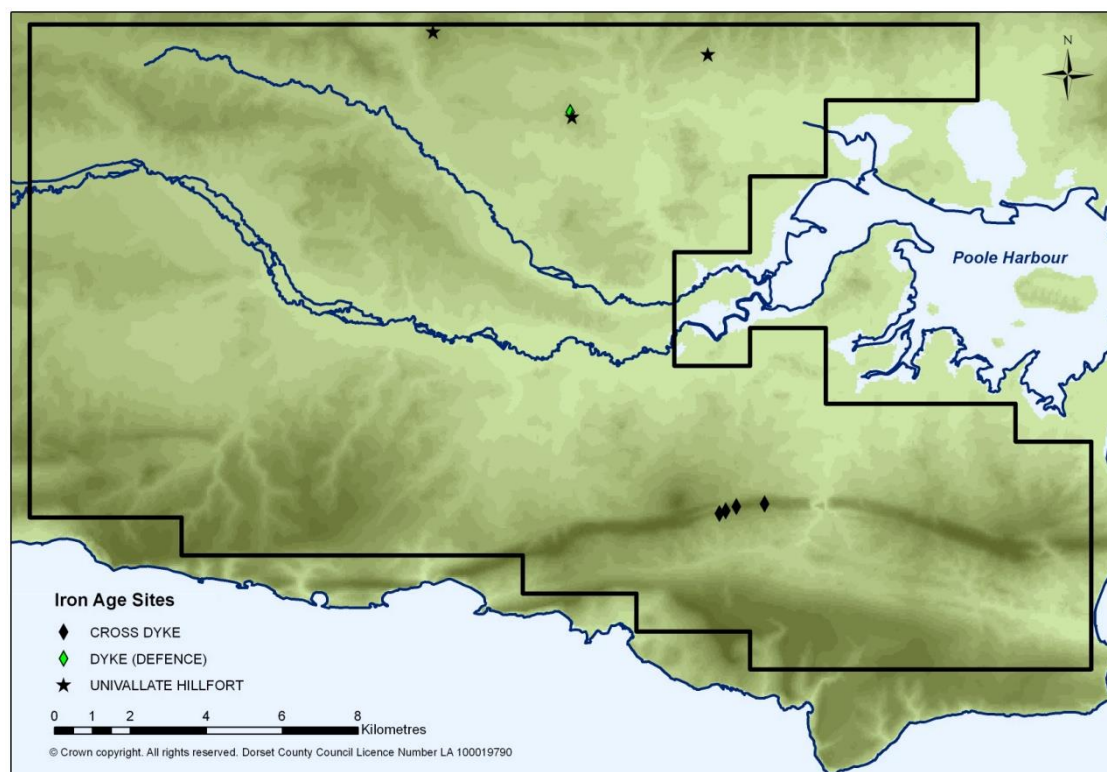


Figure 25. Distribution of Iron Age sites

Eight sites mapped during the project were specifically attributed to the Iron Age; all but one had previously been recorded in the Dorset HBSMR. All were surviving as upstanding earthworks. A further ten sites were attributed to the Iron Age or Roman period and are described in Section 7.5 below.

Site Type	No: Sites
Cross Dyke	4
Dyke (defence)	1
Univallate Hillfort	3
<b>Total</b>	<b>8</b>

Table VI. Iron Age site types

### 7.4.1 Hillforts and hilltop enclosures

Hillforts are defended enclosures surrounded by one or more earthen ditched and banked ramparts. They are generally placed on hilltops, ridges and promontories, although some are located in much more low-lying positions (EH 2011b).

Once considered an Iron Age phenomenon, the development of defended hilltop enclosures and the construction of hillforts can now be traced back to the Late Bronze Age (Haselgrove 2009). Whilst some may have had

their origins in the late Bronze Age, large multivallate hillforts were generally built and occupied in the Iron Age. The main period of construction of these hillforts in the south of England occurred during the 5th and 6th centuries BC (Sharples 2010).

There are three hillforts within the project area. All are located in the central northern area between Lytchett Matravers and Bere Regis and are evenly spaced, being located between 3.8 and 4.1km apart. They are all simple univallate enclosures of probable Later Bronze Age or Early Iron Age origin. All are Scheduled.

**Bulbury Camp, Lytchett Minster.** Bulbury Camp is a small univallate hillslope enclosure at 40m elevation. Its oval ramparts enclose an area of 4ha on a gentle southeast facing slope between two tributary streams of the River Sherford. It lies 4.2km from Lytchett Bay on the northwest side of Poole Harbour and is in an unusual location for hillforts, being on relatively low-lying ground.

The southern portion of the enclosure has been partially levelled by ploughing whilst the northwest section of rampart has been fossilised in the modern field boundaries. Parts of the northeast side have been destroyed by field boundaries and buildings associated with Higher Bulbury Farm. There is a simple in-turned entrance at the lowest part of the hillfort, in its southern corner.

Slight univallate hillforts are a feature of the Late Bronze Age and Early Iron Age (Haselgrove 1999). They may have been stock enclosures, permanent or temporary settlements and/or central places for trade and redistribution. The defensive potential of the Bulbury enclosure is questionable (it being in a low-lying location) and, whilst having clear views to the north and south, its location is the least commanding of any other hillfort in southeast Dorset (NRHE UID 457414).



Figure 26. Bulbury Camp, Iron Age hillfort at Lytchett Minster.

MDO7793. Photograph: NMR 23002/10, 03-MAR-2003. © Historic England.

Finds recovered from the site in the 19th century suggest that the hillfort was in use into the 1st century AD. They included a decorated mirror,

sword fragments, an iron anchor and chain, and a collection of iron tools and nails.

**Woolsbarrow, Bloxworth.** A second small univallate hillfort lies on Bloxworth Heath, Bloxworth. It is located approximately equidistant from the other two hillforts, on the ridge between the rivers Piddle and Sherford, within what is now Wareham Forest. This hilltop enclosure sits on the 50m contour; it is the smallest hillfort in Dorset, its wide ramparts enclosing an area of only 0.9ha. Much of the interior has been disturbed by gravel quarrying although the ramparts remain intact.

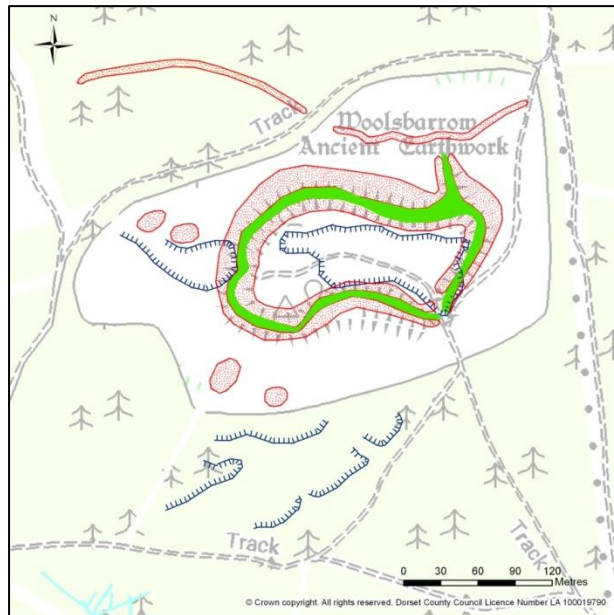


Figure 27. Woolsbarrow, Iron Age hillfort on Bloxworth Heath.

MDO7215. NMP Mapping © Historic England.

Immediately to the north of the enclosure a linear bank has been identified on RAF photographs taken in 1947. The earthwork (MDO30105), runs for 380m in a roughly east-west direction and was considered by the interpreter to be a defensive earthwork, possibly contemporary with the hillfort.



Figure 28. Woodbury Hill Camp, Iron Age hillfort at Bere Regis.

MDO7148. Photograph: Next Perspectives PGA Imagery SY8594 20-SEP-2008 © Bluesky Internal Getmapping PLC. NMP Mapping © Historic England.

**Woodbury Hill, Bere Regis.** The largest of the three recorded univallate hillforts is located at 100m elevation on the southern arm of Woolbury Hill (Figure 28). Its single rampart encloses an area of 5.4 ha with commanding views over the Bere Stream 700m to the southwest. Five gaps cut through the ramparts although not all are considered to be original entrances. A number of internal features associated with a medieval chapel, holy well and ridge and furrow cultivation were identified during the mapping project.

#### 7.4.1 Cross Dykes and Defensive Dykes

A cross dyke is a linear earthwork consisting of one or more parallel ditches with adjacent banks of up-cast material. They typically vary in length from 0.2km to 1km although some prehistoric linear earthworks are known to be longer than 80kms (50 miles) (EH 2011c).

The defining characteristic of the shorter cross dykes is that they tend to cut across the widths of upland ridges and spurs, running between the steep slopes on either side. These significant land boundaries appear in greater numbers from the Middle Bronze Age, (around 1500 BC), and continued in use into the Iron Age.

The four cross dykes recorded within the project area were attributed an Iron Age date although they may have had an earlier Bronze Age origin. One defensive dyke was assigned to this period, the linear earthwork immediately to the north of Woolsbarrow (see section 7.4.1).

The four cross dykes all cut across the chalk ridge of the Purbeck Hills at Knowle Hill. Knowle Hill is considered to be the site of a large settlement enclosure which may have been 300m long. A curvilinear cross dyke (MDO7334) forms its western side, with its eastern end defined by a second cross dyke (MDO7335) (Figure 29).

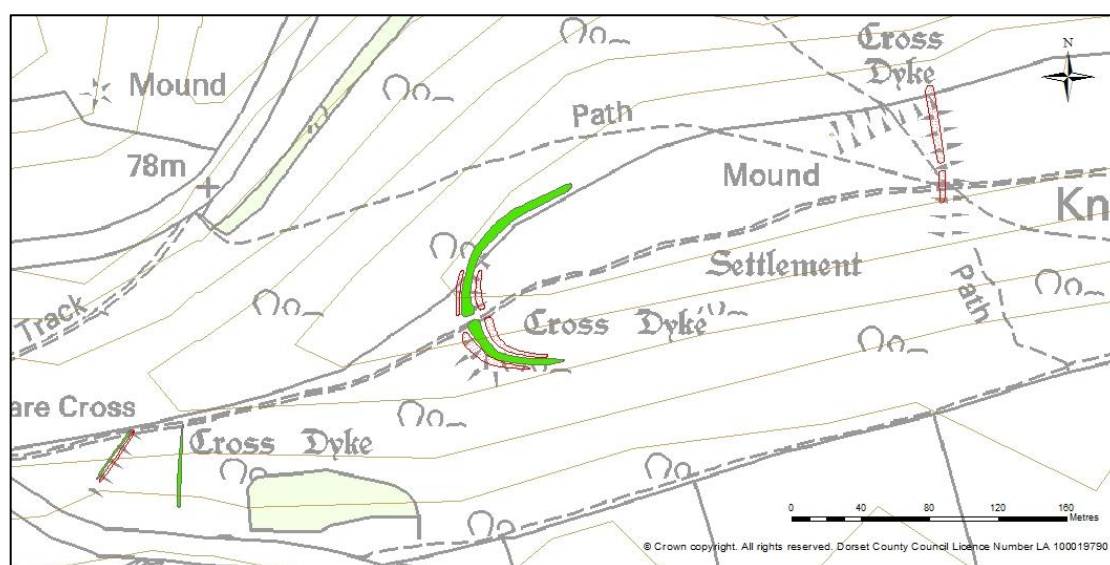


Figure 29. Cross dykes defining the extents of a settlement enclosure on Knowle Hill, Church Knowle.

MDO7334-5 NMP Mapping © Historic England

## 7.5 NMP results: Roman or Iron Age/Romano British sites (800BC – AD409)

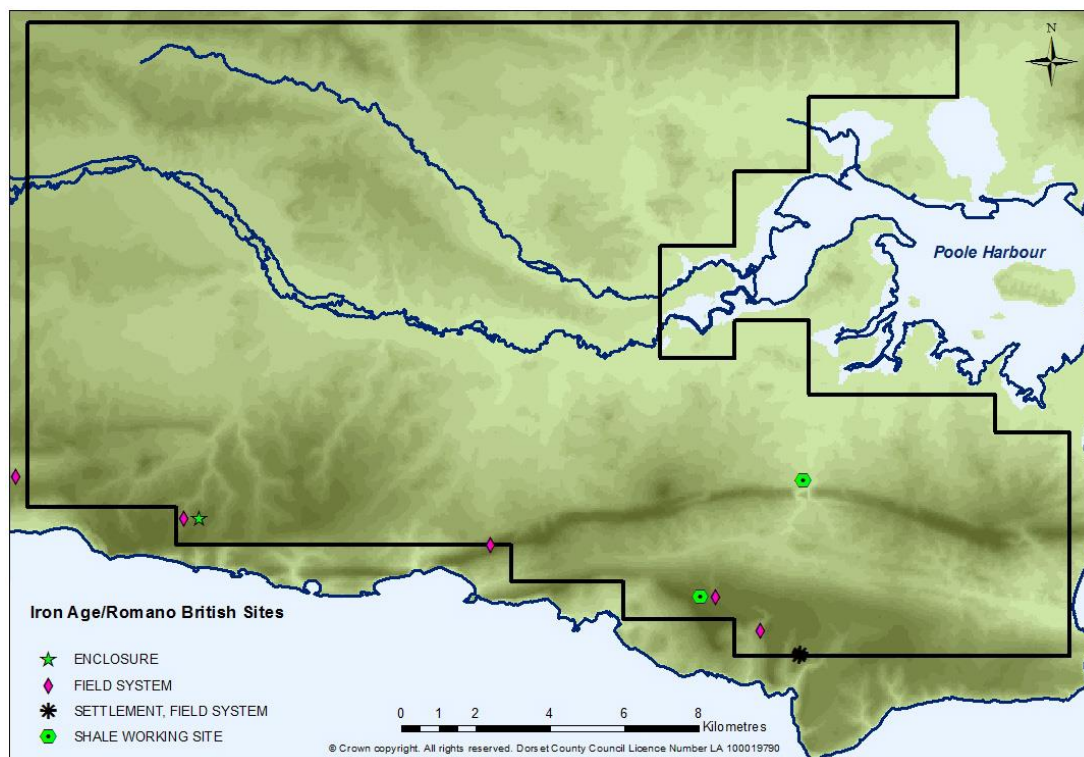


Figure 30. Distribution of Roman or Iron Age/Romano British Sites.

Two sites allocated a specifically Roman date were mapped during the project. In addition, a further eight were attributed more generally to the late Iron Age or Roman periods. All of these sites were previously recorded in the county HBSMR.

As Figure 30 shows, all the sites which had been specifically assigned an Iron Age or Roman date are located in the south of the project area; they were also all still visible as extant or partially extant earthworks.

In terms of HLC, the majority of Iron Age/Roman sites are located on enclosed ground. Most sites relate to settlement and agricultural features and it is therefore unsurprising that these should be situated in those areas of anciently enclosed land that continue to be farmed to this day.

Site Type	No: Sites
Enclosed Field System/Field System	4
Enclosure	1
Settlement/Field System	3
Shale Working Site/Settlement	1
Shale Working Site	1
<b>Total</b>	<b>10</b>

Table VII. Roman site types

### 7.5.1 Field systems and field boundaries

Seven Iron Age or Roman field systems were plotted during the mapping project, including three settlement sites with associated field systems. Whilst these sites may have earlier origins, it seems probable that they had later adaptations and were in use during the Iron Age and into the Roman period (EH 2011d).

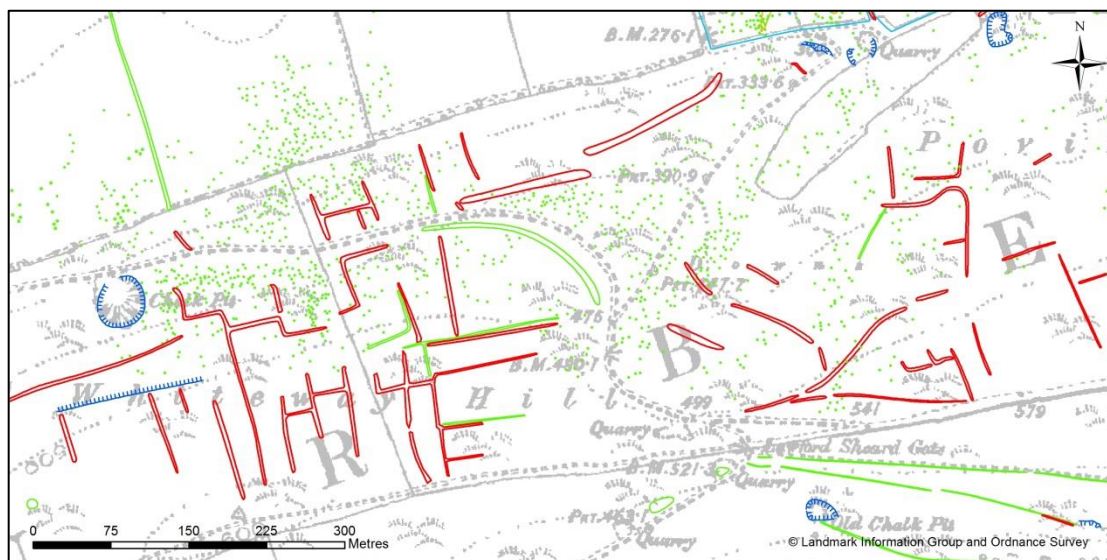


Figure 31. Iron Age/Romano British field system on Whiteway and Povington Hills, Tyneham.

MWX584. NMP mapping © Historic England.

Fragments of a regular rectilinear banked field system were mapped from aerial photographs on the ridge of the Purbeck Hills. The ordered system of fields is most complete on Whiteway Hill where the average field size is 30m across (Figure 31). The system continues to the east onto Povington Hill where the remains are more fragmented and the field pattern more irregular.

Other fragments of field system were recorded at Encombe, Corfe Castle (MDO7559), Church Knowle (MDO7304), Osmington (MDO1838) and at Chideock Farm, Chaldon Herring (MDO7285).

#### 7.5.1 Settlements

Four sites mapped during the project were listed in the Dorset HER as Iron Age or Roman settlements.

**Chideock Farm, Chaldon Herring.** At Chideock Farm, Chaldon Herring, a series of small rectilinear enclosures within a larger field system may be the site of a settlement. A rectilinear banked enclosure known as the Round Pound lies in close association with field system (RSM Legacy No: 29084). The enclosure is considerably likely to have been a stock enclosure dating to the Iron Age or Roman periods and has no other similar contemporaries within this part of Dorset.

The enclosure has been protected by statutory Scheduling, although the field system has not. Both are, however, considered to be largely

contemporaneous with each other and are evidence of the agricultural exploitation of the down during this period (Figure 32).

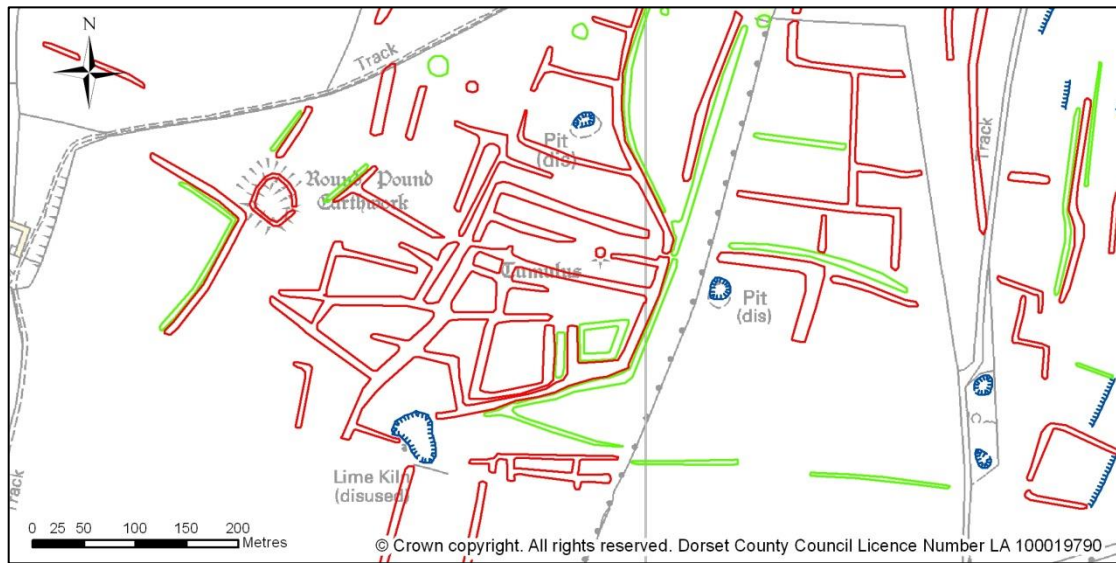


Figure 32. Field system, settlement and enclosure at Chideock Farm, Chaldon Herring.

MDO7272 and MDO7285. NMP mapping © Historic England.

**Kingston Down.** Two Romano-British settlements are located on Kingston Down, Corfe Castle. Here an extensive field system covering an area of over 100 hectares lies on the coastal plateau above Hounstout Cliff (MDO7451).

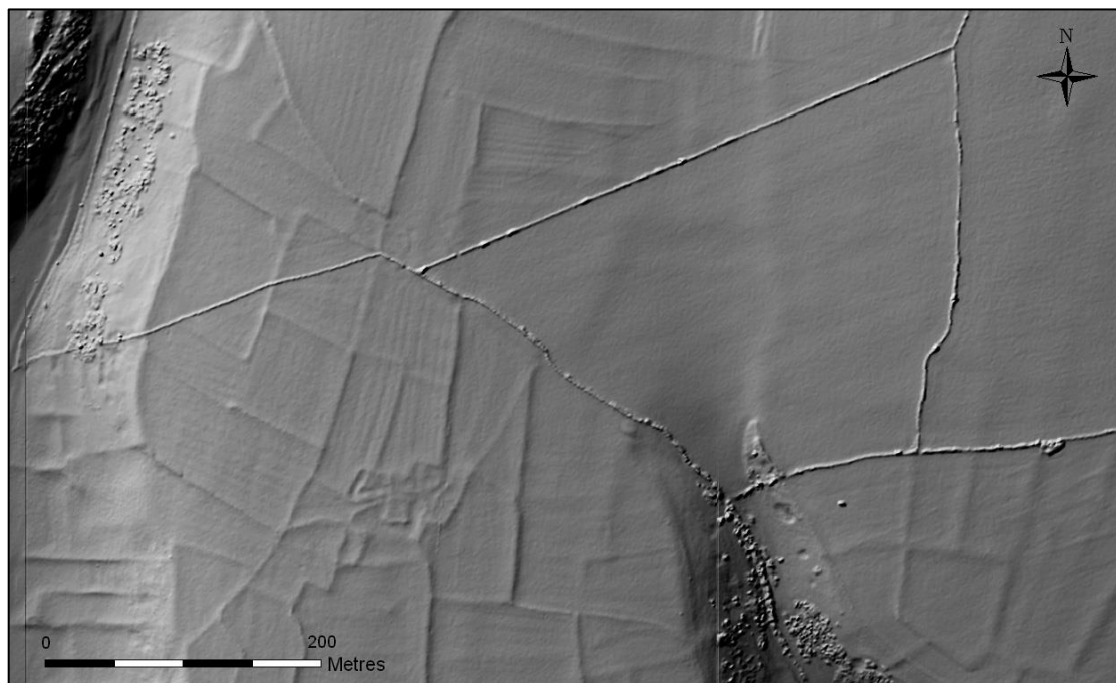


Figure 33. Iron Age/Roman settlement and field system at Kingston Down, Corfe Castle.



MDO7450-1. © Cornwall Council 2015 based on Channel Coast Observatory data 2008.

The two settlements are incorporated into the coherent system of Celtic fields, the northernmost being within the project area on the plateau overlooking the confluence of three stream valleys. The settlement is clearly visible as earthwork on lidar (Figure 33). Later Iron Age and Romano-British pottery sherds have been recovered from the vicinity.

The southern settlement was mapped during the Rapid Coastal Zone Assessment Survey of the South Dorset Coast (Royall 2014). A 32 hectare area including the two settlements is protected by statutory Scheduling (NHLE Entry 1002728).

**Smedmore, Church Knowle.** The earthworks at Smedmore are an example of a Romano-British nucleated settlement. Here a group of 12 to 15 enclosures form a small aggregated village covering an area of over a hectare. The village earthworks are associated with a field system to the east which extends over 11ha at the head of (and running northwards along) a small dry valley (Figure 34).

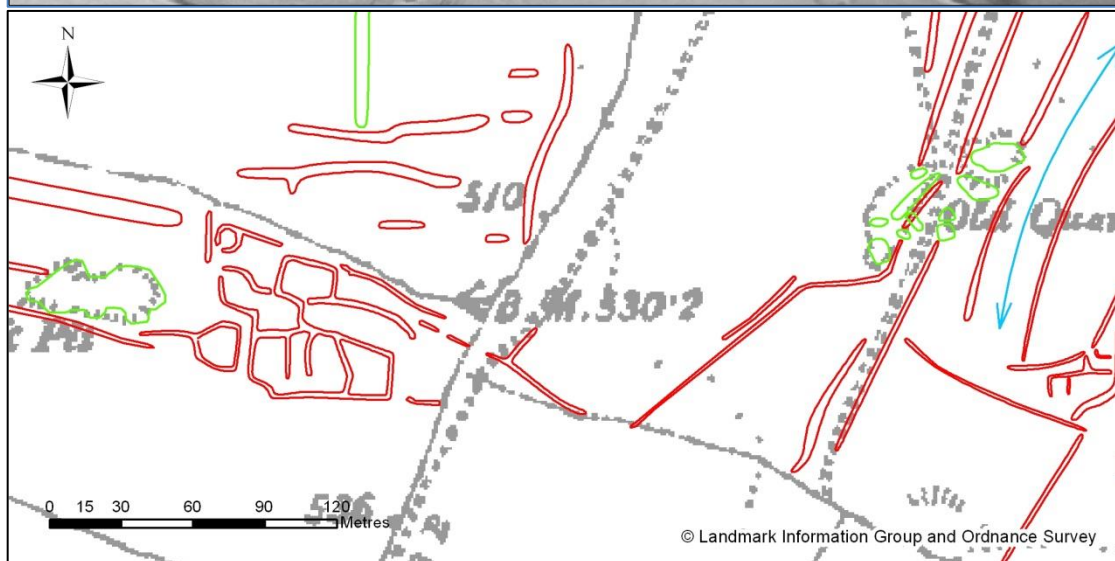
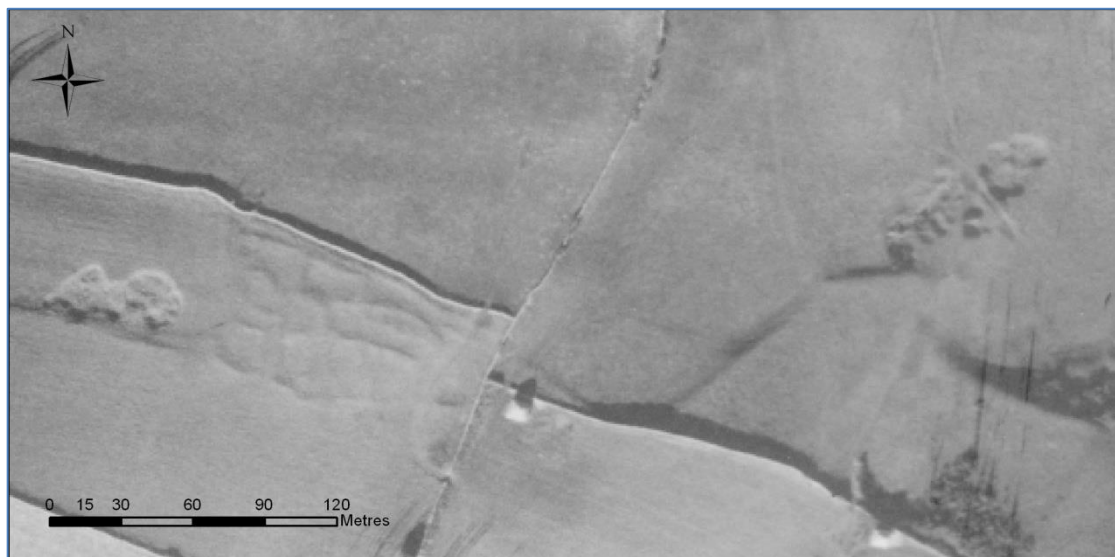


Figure 34. Late Iron Age/Roman period settlement and field system at Smedmore, Church Knowle.

MDO7331. *Photograph: RAF CPE/UK/1824 Frame 4231 04-NOV-1966. Historic England RAF Photography. NMP Mapping © Historic England.*

Parallel cultivation ridges within the associated field system may be contemporary with the original phase of use of the field system or may perhaps indicate a later reuse in the medieval period.

A water pipe was laid in the 1950s and archaeological investigations of the trench produced pottery dating from the Iron Age to Roman periods. In addition, worked shale debris and cores from bracelet production were recovered, indicating that the site had been used for shale artefact production. (NHLE Entry 1014835).

### **7.5.1 Shale working sites**

Kimmeridge shale bracelets were manufactured in Dorset from the Late Iron Age and into the Roman period. Evidence for shale working has been recovered from a number of permanent domestic settlement sites, such as that at Smedmore, Church Knowle, but a small number of specialist craft centres (perhaps only seasonally occupied) have also been identified for example at Eldon's Seat, Encombe (Cunliffe and Phillipson 1969), dating to the Late Iron Age.

Whilst many industries and crafts developed throughout the Iron Age, these were often carried out on a part-time basis within a domestic environment. The expansion of settlement has been linked to an increasing specialisation in the production of glass, textiles, pottery and shale-working and, by the Late Iron Age/Roman periods, these processes had probably become full-time specialist industries.

Shale was being exported from Purbeck inland and from Poole Harbour along the coast from the Later Iron Age but after the Roman conquest this exploitation and export increased to accommodate a new civilian market for shale tables, trays and ornaments.

At Norden, Corfe Castle, a Roman industrial settlement site was excavated in the late 1960s (Sunter 1987). Here a quantity of shale artefacts was recovered, including bracelets, vessels, tablets, table legs and waste material. Two or three bracelets were possibly cut from the same core and broke during the final stages of production. These unfinished bracelets led the excavator to conclude that production had occurred on or near to the site (ibid, 31).

No features specifically dating to the nationally important site at Norden were identified during this current project although pits and spoil heaps associated with the later post medieval and early 20th century clay works on the site were plotted.

## 7.6 Prehistoric or Roman sites (4000BC – AD409)

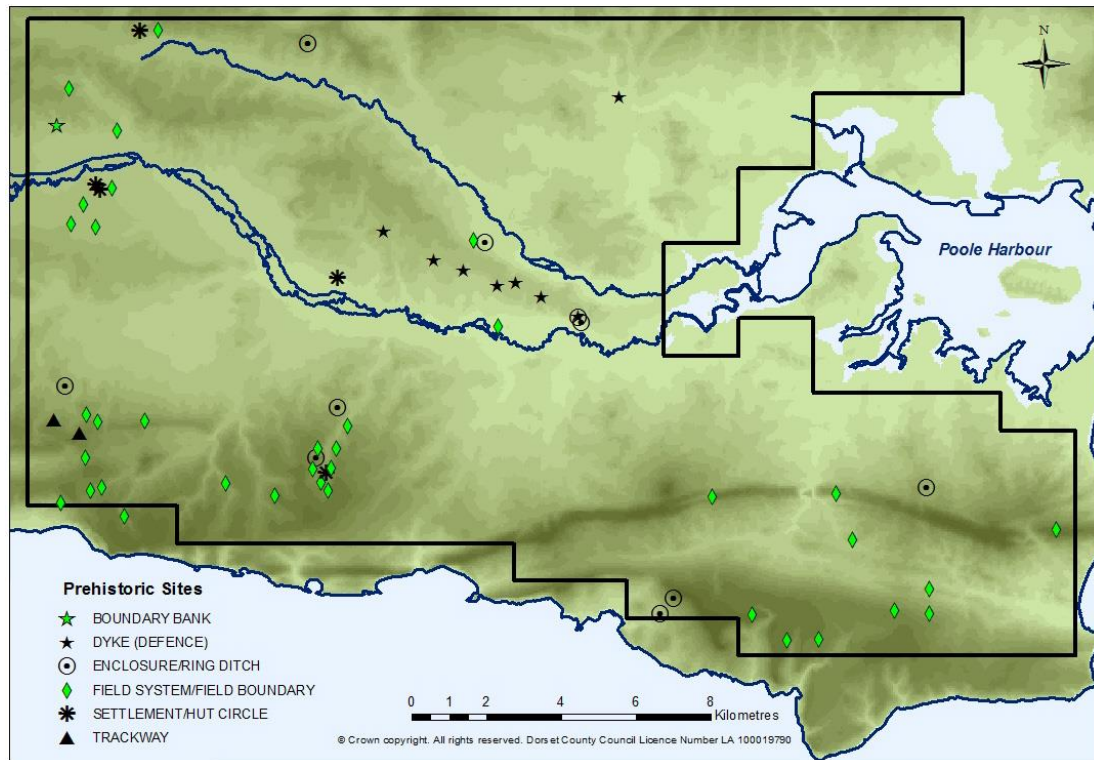


Figure 35. Distribution of Prehistoric or Roman sites.

It was not possible to attribute a specific period to 62 sites considered to be of Roman or earlier date; of these, 39 (63%) were new to the record. Twenty eight sites (45%) are still extant or partially extant as earthworks. For the purposes of this report, these sites are referred to as 'Prehistoric' in the following section even though some may have been in use into the Roman period. They included monument types such as field systems, trackways and enclosures, not attributable to a specific prehistoric period.

Site Type	No: Sites
Boundary Bank	1
Dyke (Defence)	8
Enclosure/Rectilinear Enclosure	8
Field Boundary/Field System/Enclosed Field System	35
Hut Circle/Ring Ditch	4
Settlement/Unenclosed Hut Circle Settlement	3
Trackway	3
<b>Total</b>	<b>62</b>

Table VIII. Prehistoric site types

As with the Iron Age/Roman sites, the majority of prehistoric monuments relating to settlement and agriculture are located in areas that are agriculturally rich enclosed ground today. The linear boundaries,

however, are on more marginal land classed as open ground or woodland (i.e. those areas once ancient heathland).

### 7.6.1 Field systems and boundaries

Field systems and boundaries were the most commonly encountered site dating to the prehistoric period. The most extensive enclosed field systems are located in the south west of the project area to either side of Winfrith Hill, Winfrith Newburgh (Figure 35) but large well-preserved systems were also recorded on Lulworth Common and around Westhill Farm, Corfe Castle (MDO30699-700).

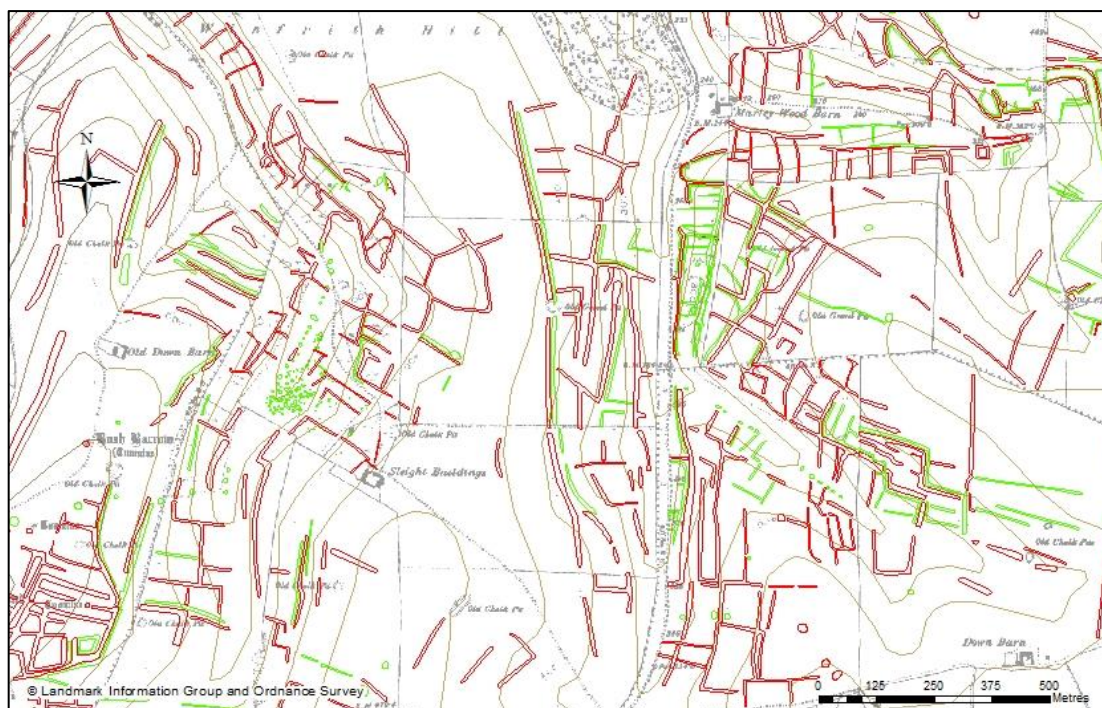


Figure 36. Winfrith Hill, Winfrith Newburgh - Prehistoric field systems.

MDO8311 and MDO8313. NMP Mapping © Historic England.

Many field systems probably had their origins in the Middle and Later Bronze Ages with later adaptations throughout the Iron Age and into the Roman period (EH 2011d, Yates 2007). The presence of medieval cultivation ridges within prehistoric field systems indicates that some of these systems were in use across several millennia. This use may have been continuous and uninterrupted, or discontinuous, the prehistoric field boundaries being reused in the medieval period.

Whilst the current project only mapped small areas of prehistoric field system, large tracts of land would have been under cultivation in the prehistoric periods. Many areas may well have been reorganised in the medieval and post medieval periods and therefore little evidence of the prehistoric systems remains. It can be conjectured therefore that those prehistoric field systems identified during the project probably formed only part of an even larger and more coherent pattern of enclosed fields in the landscape that we cannot identify from the lidar and aerial photography alone.

What does remain of this ancient landscape indicates a system of sub-rectangular fields defined mainly by banks but with adjacent ditches in some places. There is often no recognisable trend in the orientation of the systems; their axes seem to be primarily dictated by the underlying topography.

### 7.6.2 Settlements, roundhouses and enclosures

Three settlement sites including two unenclosed roundhouse settlements were mapped and recorded during the project. In addition two possible isolated roundhouses were identified and two possible roundhouse sites indexed as ring ditches.



Figure 37. Prehistoric settlement, Woodsford.

MDO30667. Photograph: NMR 23489/18, 15-JUN-2004. © Historic England. NMP Mapping © Historic England.

**Woodsford.** To the east of the village of Woodsford, a prehistoric settlement lies just off the floodplain of the River Frome (Figure 37). Situated on the southern bank overlooking the river just above the 40m contour, it appears to be the remains of a multi-phased settlement with overlapping curvilinear and rectilinear elements.

Two curvilinear enclosures are set 210m apart, the northernmost of the pair enclosing 0.09ha with an east facing entrance. The southern enclosure is 0.15 ha in size, with an out-turned entrance on its southern side.

To the east of the southern enclosure are fragments of two rectilinear enclosures which may be of later date and contemporary with a possible trackway that appears to cut through the earlier enclosure. A scatter of pits and fragments of field boundary are associated with this site, which had not previously been recorded prior to the NMP project.

**Tolpuddle.** Four kilometres to the north of the Woodsford settlement is the possible site of an unenclosed roundhouse settlement at Burleston, Tolpuddle (Figure 38). Here four sub-circular ditched enclosures, possibly roundhouses, with associated pits, lie in an elevated position on a low ridge above the 70m contour. The ring ditches are between 16m and 35m in diameter and the largest appears to have a north-facing entrance.

Plough-levelled Bronze Age barrows also appear as cropmark ring ditches and are often sited in similar elevated positions so; alternatively, these features could be interpreted as barrows rather than roundhouses.

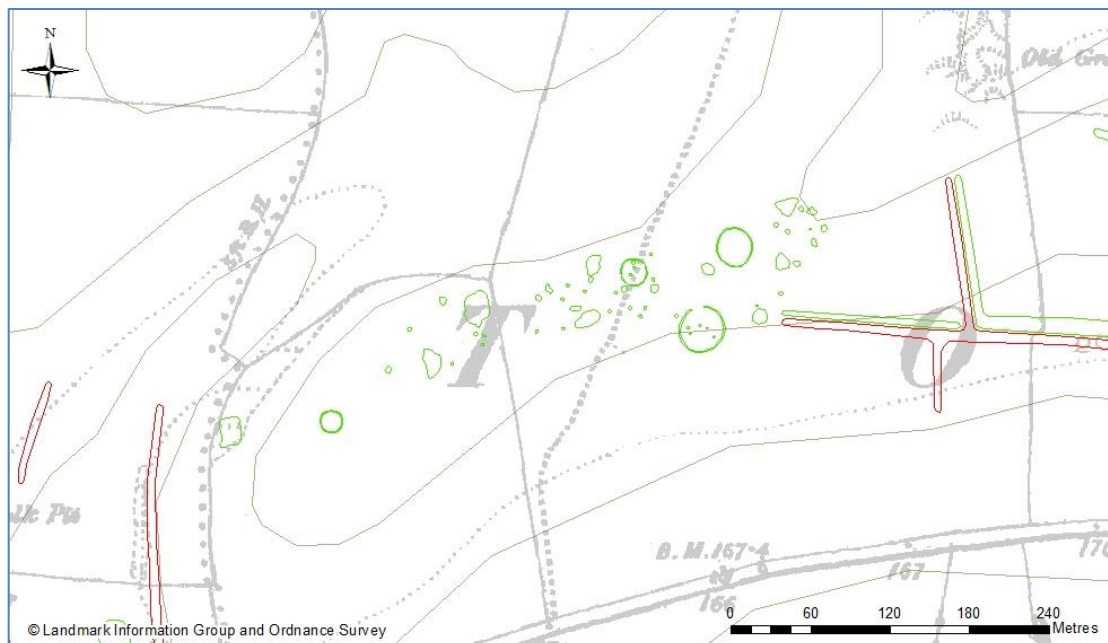


Figure 38. Possible unenclosed roundhouse settlement at Burtleston, Tolpuddle. MDO30640. NMP Mapping © Historic England.

**Wool.** A second unenclosed settlement was identified to the south of Bovington Lane, Wool (Figure 39). Here the settlement is situated just off the floodplain of the river Frome, on the northern bank just above the 20m contour. The roundhouses appear to be located within a contemporary field system, fragments of which, along with a small scatter of pits, were identified from cropmarks on aerial photographs.

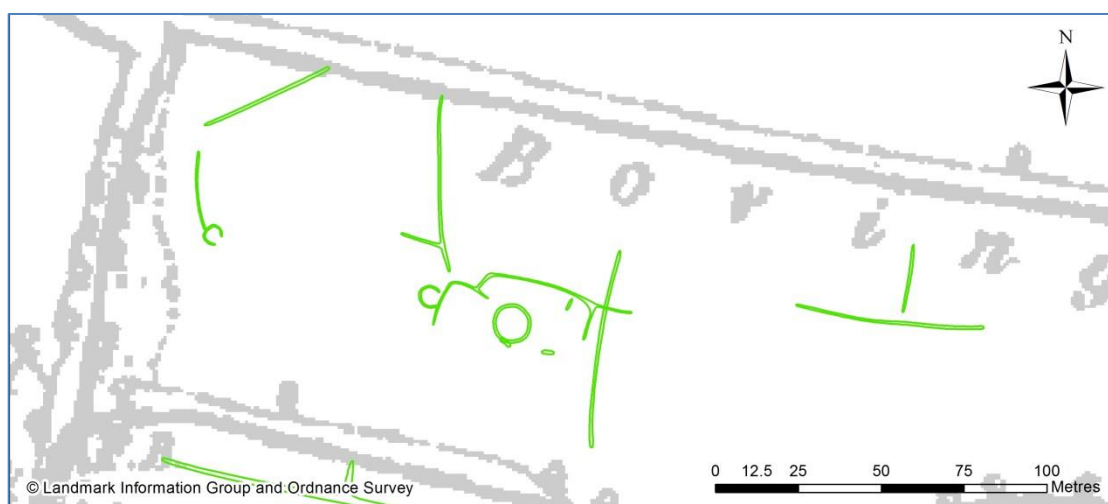


Figure 39. Possible unenclosed settlement at Bovington Lane, Wool MDO30421. NMP Mapping © Historic England.

### 7.6.1 Enclosures

Seven enclosures or groups of enclosures were attributed to the prehistoric or Roman periods. These were of both rectilinear and

curvilinear forms and of very small size, being between 20-35m wide and enclosing less than a tenth of a hectare. These enclosures were given no specific interpretation but may represent domestic settlement or stock enclosures.



Figure 40. Prehistoric or Roman enclosures.

NMP Mapping © Historic England.

### 7.6.2 Defensive Dykes

A long linear earthwork known as The Battery Bank runs intermittently for over 6km from Wareham Heath to Stoke Heath (east of Bovington Camp). Eight separate sections of this earthwork were mapped and recorded during the project.

Its known western extent is just to the west of Wareham, 150m to the south of the River Piddle, where a series of earthworks run across Wareham Common and onto Worgret Heath. The course of the dyke then runs northwest along the edge of the low ridge between the Rivers Piddle and Frome for a further 5.5 km.

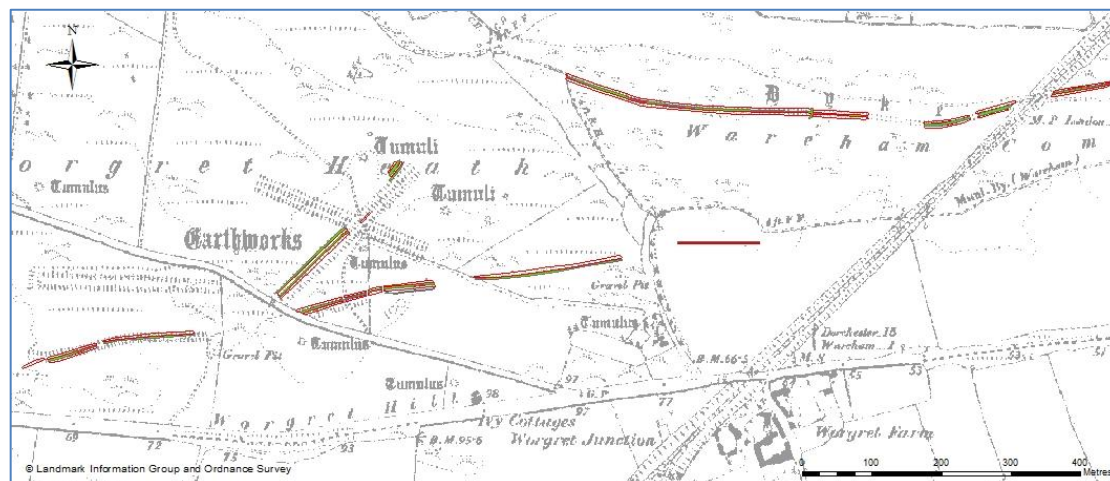


Figure 41. Battery Bank. Prehistoric linear earthworks on Worgret Heath and Wareham Common.

NMP Mapping © Historic England.

Long linear boundaries of this type may have had their origins as ranch boundaries in the Bronze Age although they may have been maintained as features in the landscape for many century and/or reused in later periods. Other linears are contemporary with the Iron Age enclosed settlements and are known as territorial oppida, the principal defining characteristic of which is the widespread system of related linear earthworks many of which extend for considerable distances (EH2011e, Cunliffe, 2005).

These linear boundaries are substantial earthwork features comprising single or multiple ditches and banks which extend over distances varying from less than 1km to over 10km. The scale of many of these earthworks suggests that they marked out important boundaries in the landscape. They were probably used to define and order the territories of the large social groups who constructed them and they may have had religious associations.

The Battery Bank earthworks have been likened to those on Cranborne Chase which may have been constructed as barriers to livestock movement rather than being defensive structures (RCHME 1970, 515-9). Although large sections of Battery Bank have been destroyed by 20th century gravel extraction, small sections remain as upstanding earthworks including a short length within Great Plantation, East Stoke, which has been Scheduled.

A short section of linear bank and ditched feature was identified on aerial photographs taken in 1945 on Binnegar Plain, East Stoke. The feature appears to continue the line of the Battery Bank on South Heath which is currently scheduled (LegacyUID 29059) and may be a continuation of it. Sand and gravel quarrying in this area has destroyed part of the earthwork, the remainder now being obscured by scrub vegetation (Figure 42).



Figure 42. Possible continuation of Battery Bank, Binnegar Plain, East Stoke.

MDO30148. Photograph: RAF 106G/LA/105 Frame 2014 21-JAN1945. Historic England RAF Photography. NMP Mapping © Historic England.



## 7.7 NMP results: Medieval sites (AD1066 – AD1539)

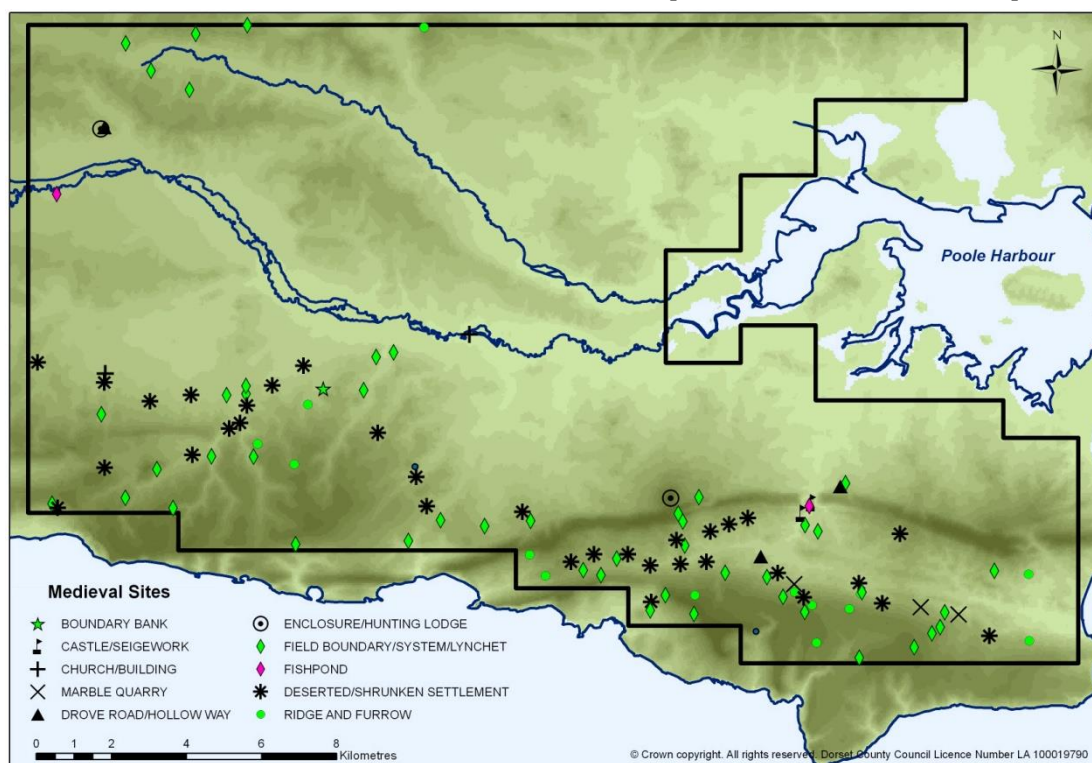


Figure 43. Distribution of Medieval sites.

Like neighbouring Hampshire, and Southern England generally, physical evidence for early medieval activity in Dorset is sparse. No sites were plotted during the NMP project which could be positively identified as dating to the early medieval or Anglo Saxon period (AD410-1065).

Sites dating to the later medieval period, however, are more richly represented, with 112 monuments identified during the project, of which 52 (46%) were new to the Dorset HBSMR. The majority (92 (82%)) were still visible as upstanding or partially upstanding earthworks or structures.

As Figure 43 shows, a high proportion of the medieval sites are located to the south of the River Frome, with the greatest densities to the south of the Purbeck chalk ridge on the Isle of Purbeck itself. A small, but significant, scatter of medieval sites is also located to the northwest in the vicinity of Puddletown and Tolpuddle.

The majority of new sites were related to agricultural activity and included field boundaries, field systems, strip lynchets, and ridge and furrow. Five settlement sites and a possible hunting lodge were also recorded for the first time.

It must be noted that many more potentially medieval sites were encountered during the mapping project. However as some of these may have had earlier prehistoric origins or continued in use into the post medieval period they were given more general date ranges and are described in Sections 7.9 (Historic) and 7.11 (Undated).

In terms of HLC, almost without exception, the medieval sites are located on the Broad type enclosed ground. This follows the same trend as the Iron Age/Roman sites relating to settlement and agricultural features,

clearly demonstrating the lasting importance of the productive soils (particularly on the chalk and limestone) which underlie this HLC type and have supported a rich farming community from prehistoric times through to the present day.

<b>Site Type</b>	<b>No: Sites</b>
Boundary Bank	1
Building/House Platform	2
Castle	1
Church	1
Deserted Settlement/Shrunken Village	32
Drove Road/Hollow Way/Trackway	4
Enclosure	1
Field Boundary	14
Field System	22
Fishpond	2
Hunting Lodge	1
Marble Quarry	3
Park Pale	1
Ridge and Furrow	14
Seigework	1
Strip Field	2
Strip Lynchet	10
<b>Total</b>	<b>112</b>

Table IX. Medieval Site Types

### **7.7.1 Settlements**

Changes in settlement patterns and a decline in the rural population of England occurred from the fourteenth century onwards. In Dorset, villages were either deserted completely or shrank to small hamlets or single farmsteads. This decline in rural population has traditionally been attributed to the Black Death of 1348-9 (Hare 1994) however the reasons for settlement shrinkage and abandonment were far more complex.

The process of rural settlement decline may well have preceded the Black Death and was merely exacerbated by it. Earlier large scale land reorganisation caused by the creation of the Royal Forests and the establishment of Cistercian monasteries, both in the 12th century, would have been contributory factors, as would the creation of landscape parks from the 14th century onwards.

Soil exhaustion, failed harvests, a change from an arable farming to a pastoral regime and, at the end of the medieval period, the movement of a large portion of the rural population into towns, also contributed to abandonment of many rural settlements.

The development and contraction of settlements is a complex response to changes in social, economic or climatic conditions, each settlement being unique in its reaction to those changes. No one factor can therefore be attributed as the cause of widespread settlement abandonment (EH 2011f).

The southern portion of the project area is rich in both dispersed and nucleated settlements dating to this period. Evidence of shrinkage is common throughout this area, with most of the surviving villages having earthworks of deserted crofts or tofts somewhere on their periphery.

A string of seven shrunken settlements are located along the spring-line on the southern slopes of the Purbeck Hills, overlooking the valley of the Corfe River, and a further five settlements are located along the spring-line of the river's southern valley side. A second linear string of settlements is located along the valley running southwards from Chaldon Herring, and a third runs east-west along the spring-lines just off the chalk, from Warmwell to West Barton.

In all, earthworks associated with 32 deserted or shrunken medieval settlements were mapped and recorded. Four of these are protected by Scheduling including West Burton, Winfrith Newburgh (MDO8290), Coombe Keynes (MDO7377), Holworth, Chaldon Herring (MDO7230) and East Lulworth (MDO7641), Figure 44.

**West Burton, Winfrith Newburgh.** In the fields to the southeast of West Burton Farm, Winfrith Newburgh, a series of hollow ways with possible building platforms and field boundaries are visible on aerial photographs. It is one of a series of spring-line villages (some still occupied, others shrunken to farmsteads) along the modern A352 which is likely to have been an important route-way between Wareham and Dorchester in the medieval period. A wide hollow way ran northeast - southwest just to the north of the modern A352. This hollow way was destroyed in 1966 during realignment of the modern road and is therefore outside the currently Scheduled area.

The remains of a second hollow way are visible running northwards and then north-westwards from the main road, which is considered likely to be a street associated with the settlement. A number of tofts lie to the south of the street which extends westwards towards the modern farm complex.

The site is at the base of the chalk hills on a knoll overlooking the river Frome and is likely to be the location of the medieval hamlet of West Burton mentioned in the Charter Rolls of 1279 (NHLE 1016726).

**Holworth, Chaldon Herring.** Holworth is one of the few deserted Dorset medieval villages to have been partially excavated. The earthworks cover an area of 8ha and comprise an east-west orientated street lined on its northern side by a series of tofts between 20 and 35m across (Figure 11). A series linear strip fields or crofts extends to the north of the tofts. Larger platforms to the south of the street may be the locations of the village church or manor.

The settlement was formerly a detached part of the parish of Milton Abbas as a result of King Athelstan granting Milton Abbey six hides at Holworth in 933. Holworth is mentioned in the Lay Subsidy Roll of 1333 when 14

occupants were recorded (RCHME 1970, 35-7). Excavations have recovered occupation evidence from the 12th and 13th centuries (Rahtz 1958)



Figure 44. Scheduled medieval settlements within the project area.

Top Left: West Burton, Winfrith Newburgh (MDO8290). Top right: Coombe Keynes (MDO7377). Bottom Left: East Lulworth (MDO7641). Bottom Right: Holworth, Chaldon Herring (MDO7230).

NMP Mapping © Historic England.

**East Lulworth.** Within the parkland of Lulworth Castle are the remains of the medieval settlement of East Lulworth. The village survives as a series of well-preserved earthworks including crofts, tofts and hollow ways to the southeast of St Andrew’s Church and to the east of Lulworth Castle and the estate office.

Field boundaries and parallel ridge and furrow cultivation marks are visible in low sunlight on aerial photographs (Figure 45). In all, the features cover an area of over 18ha.

The village of Lulvorde or Loloworde is mentioned in the Domesday survey and has been attributed to the site. Other forms of the name are recorded in 12th century chronicles and in 1268 the prefix 'East' is first documented. The village was incorporated within the boundary of a medieval park pale and is unusual in that it continued to be occupied after the medieval deer park was laid out.

During the 17th century the park was redesigned and the area of the village incorporated into formal gardens and parkland. The settlement was finally abandoned, almost certainly forcibly, around 1790 in order to create open parkland. (NHLE 1017306).



Figure 45. East Lulworth medieval settlement and field system earthworks picked out in low sunlight and light snow.

(MDO7641). *Photograph*  
RAF 106G/LA 105 Frame  
1082 21-JAN-1945  
*Historic England RAF*  
*Photography.*

Five potential medieval settlement sites were identified which had not previously been recorded in the Dorset HBSMR. Their interpretation was based on similarities to other known settlement sites with identifiable elements such as crofts and tofts as well as topographical context.

New sites included earthworks at West Fossil Farm, Owermoigne (MDO31854). The main focus of the site lies between West Fossil Dairy and West Fossil Farm where up to 20 enclosures sit to either side of a track which is possibly of medieval origin. Whilst no building platforms were identified, these small enclosures are potentially the sites of tofts. The remains of three strip fields or crofts extend to the south. Further enclosures are located to the southeast of West Fossil Farm (Figure 46).

The site is 3km to the southeast of the West Burton settlement. Both settlements are located in similar situations, just to the north of the major medieval route-way, now the modern A352. This road runs just north of

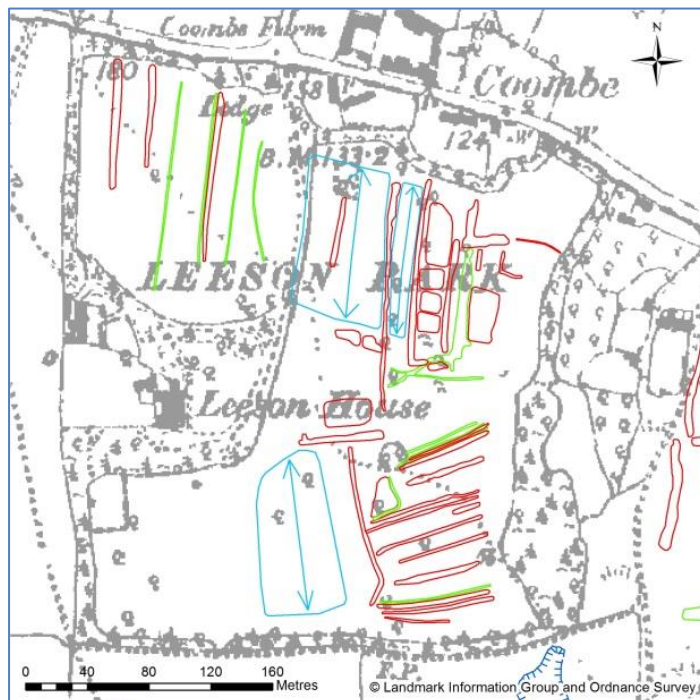
the spring-line along the boundary between the Upper Cretaceous chalk and the Eocene sand. It would have connected a string of medieval settlements positioned close to these springs.



Figure 46. Medieval settlement earthworks at West Fossil Farm, Owermoigne.

MDO31854. Photograph: RAF CPE/UK/1824 Frame 4252 04-NOV-1966. Historic England RAF Photography. NMP Mapping © Historic England.

At Coombe, Langton Matravers, an area of possible medieval settlement earthworks was identified of the southern side of the hamlet within Lesson Park (MDO30773, Figure 47). The features are visible over 2.5 ha and consist of a group of potential house platforms located along a north-south orientated hollow way.



Strip field boundaries and two possible areas of ridge and furrow cultivation lie in close association with the house platforms and are therefore considered to be of contemporary date.

Figure 47. Medieval settlement earthworks at Coombe, Langton Matravers.

MDO30773. NMP Mapping © Historic England.

### 7.7.2 Agricultural features

Sixty five sites associated with medieval agriculture were plotted during the project. These included 22 field systems, 14 field boundaries or groups of field boundaries, two strip fields and ten strip lynchets. In addition 14 ridge and furrow cultivation strips were identified. Of these sites, 50 (77%) were new to the Dorset HBSMR.

It has been previously noted that parts of South Dorset were extensively cultivated in the Middle Ages (Royall 2011 and 2014). This is clearly the case for the southern portion of the project area with its extensive systems of fields and lynchets.

In addition there is evidence for the reuse of older prehistoric field systems, for example at Smedmore Hill, Church Knowle (MDO7304). At West Hill Farm, Corfe Castle (MDO30699) low parallel ridge and furrow earthworks overlying the prehistoric field system associated with the settlement on Kingston Down are clearly visible on the lidar imagery (Figure 33).

**Ridge and furrow, field systems and strip fields.** During the medieval period, throughout much of England, arable cultivation took place using common fields or the open field system (Hare 1994). Large open fields associated with each village were split into sections or furlongs and then further subdivided into smaller strips. Strips of land were cultivated by individual families for their own subsistence farming within the larger open field.

Each strip was ploughed using a single-sided mold-board plough which turned the soil over in one direction only. Over time, this type of ploughing moved the soil towards the centre of each strip giving rise to the distinctive ridge and furrow earthworks.

From the 12th century onwards, the smaller strips were gradually enclosed by field boundaries giving rise to the typically long narrow strip fields of this period. Evidence for medieval strip fields and ridge and furrow cultivation was found right along the southern portion of the project area.

Significant clusters of ridge and furrow were identified around both deserted and modern nucleated villages. Some of the most extensive medieval cultivation marks lie to the north and southeast of Kingston, Corfe Castle, and to the south and east of the deserted village of Povington.

Smaller clusters of ridge and furrow have been identified around many smaller hamlets and individual farms such as at West Creech Farm (MDO31742) and Whiteway Farm (MDO31743) in the parish of Steeple with Tynham.

Some of the best preserved medieval open strip fields in the project area are associated with the village of Corfe Castle, which was formerly a royal borough. Parts of the open field system and many of the medieval furlongs are still preserved in places (Figure 49).



Figure 48. Medieval strip field systems.

Top Left: Chaldon Herring (MDO7236). Top right: Knitson Farm, Langton Matravers (MDO7738). NMP Mapping © Historic England.



Figure 49. Enclosed medieval strip fields at Corfe Castle.

MDO 31532,  
MDO7401,  
Photograph: RAF  
CPE/UK/1821 Frame  
2409 04-NOV-1946  
Historic England RAF  
Photography.

**Lynchets and strip lynchets.** The construction of extensive contour strip lynchets lining the valley sides of the dry coombes on the chalk downs occurred throughout much of southern Britain during the medieval period. This was in the main due to population pressure forcing villagers to cultivate previously marginal areas and steep hillsides (Hare 1994).

A small area of contour lynchets is located to either side of the dry coombe known as Marley Bottom to the southeast of Winfrith Newburgh.



The lynchets are associated with ridge and furrow cultivation on the higher, less steep slopes (Figure 50).

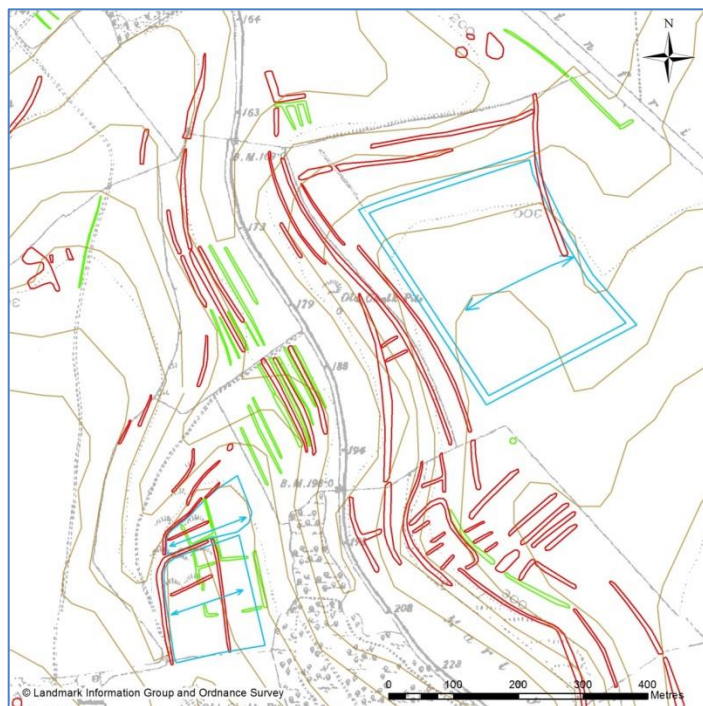


Figure 50. Medieval contour lynchets, Marley Bottom, Winfrith Newburgh. MDO8289. NMP Mapping © Historic England.

### 7.7.1 Medieval castles and fortified manor houses

**Corfe Castle.** Standing on a hill defending a natural gap in the Purbeck Hills, Corfe Castle is arguably the best-known site in the project area. The earliest evidence for fortification of the hill dates back to the Saxon period. Post holes belonging to a Saxon hall, possibly associated with Kings Edgar and Ethelred, have been recorded on the site (Yarrow 2015).

The current castle was commissioned by William the Conqueror in the 11th century and was one of the first in England to have been constructed in stone. Additional fortifications, such as the keep and outer baileys, were built in the 12th century and the castle remained a royal seat until the reign of Elizabeth I.

The upstanding walls of the keep and curtain walls are clearly visible on aerial photographs; these were mapped during the project, no new detail was added to that already known.

The earthworks of a medieval ringwork and bailey are situated less than a quarter of a mile to the southwest of the castle (MDO7400). Known locally as The Rings, the ringwork encloses an area of 0.3ha, and the outer bailey 0.5ha. This fortification is attributed to the period of the Anarchy and was probably built by King Stephen when he sieged the castle in 1139. The earthworks of this siege-work are clearly visible on aerial photographs (Figure 51).



Figure 51. Corfe Castle and its 12th century siege works.

MDO16751 and MDO7400. Unrectified oblique photograph, north to the top right of the image. Photograph: SY9582/63 NMR 18655 frame 14 21-FEB-2000 © Historic England.

**Woodsford Castle.** Situated beside the River Frome in the parish of Woodsford are the remains of a fortified manor house dating to the 14th century (MDO3434). The remains of fishponds associated with the manor house were mapped during the project as well as strip fields and a hollow way relating to the adjacent settlement of Woodford Strangways in the field to the east of the 'castle' (MDO30666).

Fishponds were a common feature of the noble and monastic estates of the medieval period (Rackham 1986, 366) and both Woodford and Corfe castles have fishponds associated with them.

**Moigne Court.** Medieval moated sites are relatively rare in Dorset (Aberg 1978, 2-3) however one is known at Owermoigne, where a moat encloses a square area of 0.7ha around Moigne Court (MDO1868).

Earthworks of a now deserted nucleated village lie to the east and south of the moated site. The modern building complex of Moigne Court is all that remains occupied of this once thriving medieval settlement. Foundations of wall features, possibly a post medieval kitchen garden, were plotted to the north of the moat (Figure 52).

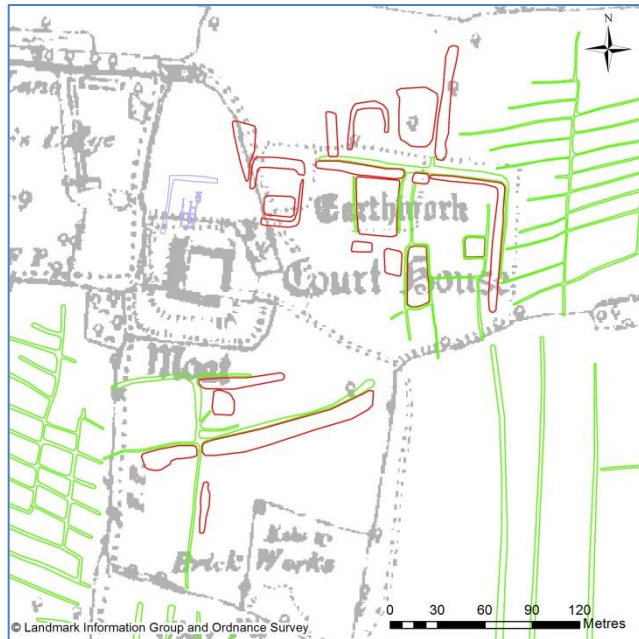


Figure 52. Moigne Court, medieval moated site and deserted settlement. MDO1868, MDO1870 and MDO1873. NMP Mapping © Historic England.

### 7.7.2 Royal Forests and Deer Parks.

In addition to constructing stone castles, William the Conqueror established the first of the Royal Forests. These were areas of land legally set aside specifically for the purpose of royal hunting. At the height of this practice in the 12th and 13th century, one third of southern England had been designated a Royal Forest, including the entire counties of Essex and Huntingdonshire (Loyn 1991).

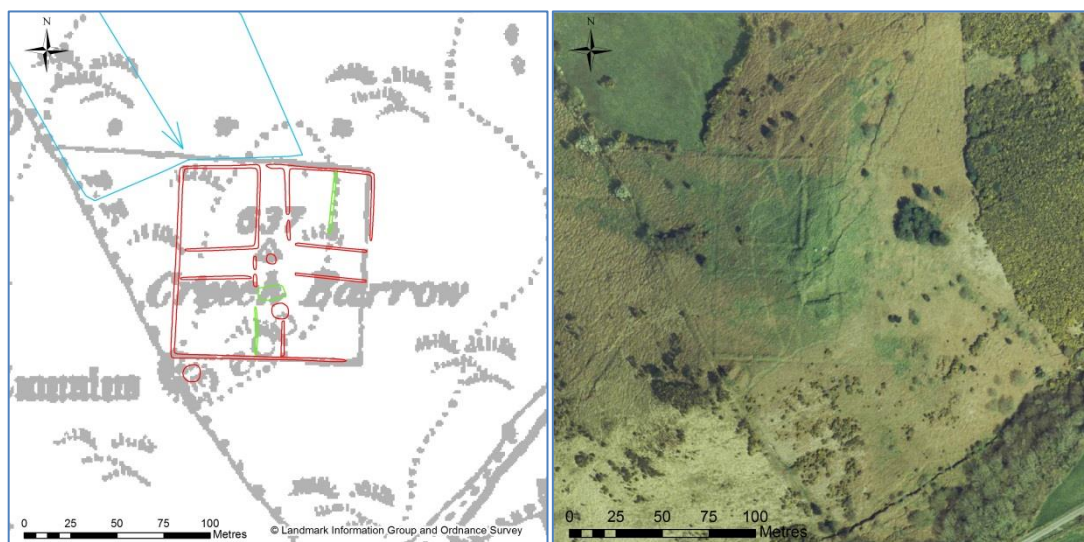


Figure 53. Medieval or post medieval hunting lodge on Creech Barrow Hill, Church Knowle.

MDO31253. Photograph: © Dorset County Council SY9282.ecw 2002  
NMP Mapping © Historic England.

The area of the current NMP project area was once within the Royal Purbeck Forest. First set out in the reign of King John (1199-1216) and then later extended, the Forest was also known as the 'warren, forest or chace of Corfe' (Page 1908, 296). Three hunting lodges associated with the forest are documented at Creech Barrow, Slepe and near Swanage.

The site of one hunting lodge associated with the king's sport was identified in the project area on Creech Barrow Hill, Church Knowle (MDO31253). The lodge was first documented in 1853 although an earlier medieval origin is possible and medieval pottery has been recovered from the site.

The lodge comprises a sub-square embanked enclosure 104m across with double banks internally forming a cross. It has been documented that a tower once stood at the centre of this cross and a small mound visible on the photographs may be the remains of this structure (RCHME, 1970, 49, Figure 53).

As well as the Royal Forests, deer parks were also created during the medieval period in order to create areas of wood pasture for grazing animals and deer. When compared to the vast Royal Forests, the deer parks would have been relatively small areas of enclosed parkland for the use of the manor lord. They often had distinctive earthworks around them consisting of banks and ditches which would have been embellished with timber pales to prevent the animals escaping.

One deer park is known at East Lulworth. Here the park pale originally enclosed an area of about 216ha. The pale comprised a bank flanked on either side by a ditch from which the bank material would have been excavated. Sections of this linear earthwork are visible on aerial photographs, particularly those bounding the eastern edge and north-eastern corner of the park.

The deer park pale is protected by Scheduling as its form and dimensions suggest a probable origin in the later 13th century when the estate was owned by the de Newburgh family (NHLE 1017306). Historic records confirm that the deer park survived until the early 17th century when it was doubled in size by Thomas, the third Lord Howard. Thomas enclosed a further 1000 acres but continued to reuse some of the earlier sections of boundary.

### **7.7.3 Ecclesiastical sites.**

As many of the shrunken nucleated villages in the project area are still inhabited, most parish churches dating to this period still survive as upstanding monuments within the modern landscape. As roofed buildings that are still in use are not included in the NMP remit, none of these (such as St Michaels Church, Owermoigne and St James's Church Kingston), were recorded during this project.

The site of one church was, however, plotted at East Stoke (MDO7674). The site of St Mary's Church lies to the northwest of the modern hamlet, adjacent to the river Frome close to the bridging point of the modern lane. Its location, away from any closely associated settlement, has led to the suggestion that it served the non-lay community of the abbey estate of

Bindon Abbey (NHLE 1016723). The church was demolished in 1848 but the wall of the churchyard, including grave stones, and parts of the 15<sup>th</sup> century south porch and nave have been Scheduled and remain extant in a modern pasture field known as Stoke Meadow.

## 7.8 NMP results: Post medieval or early twentieth-century sites (AD1540 - AD1938)

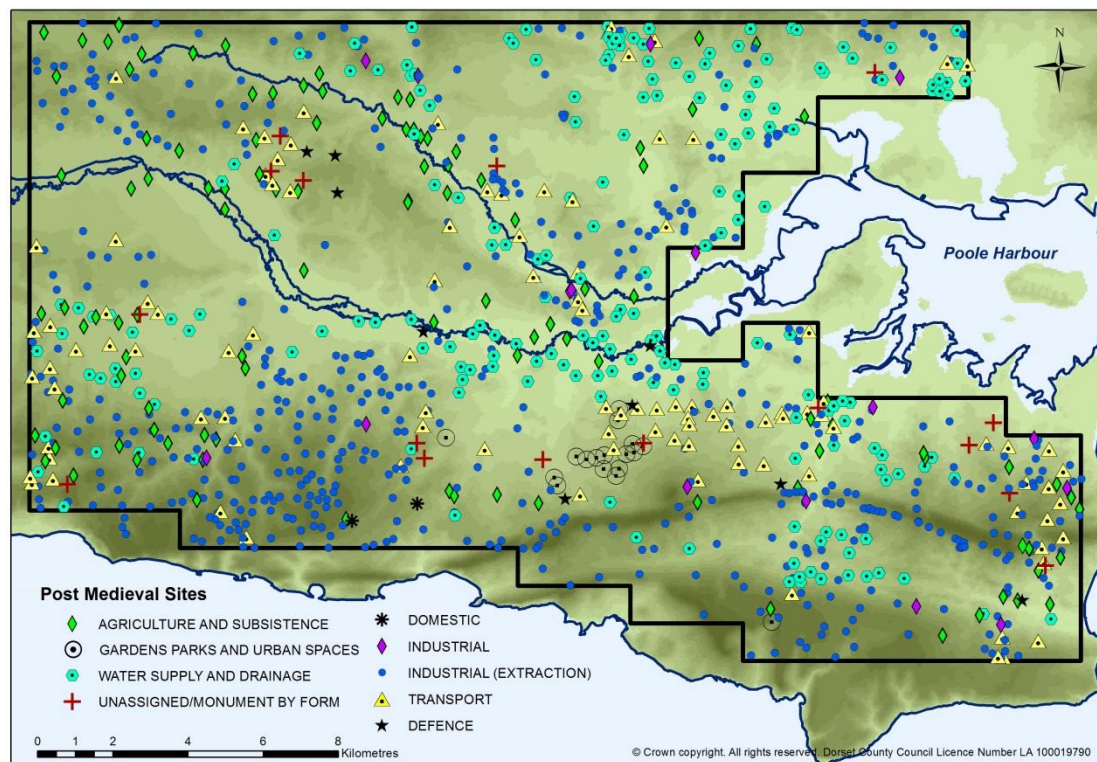


Figure 54. Distribution of Post Medieval or early twentieth century sites.

During the mapping project 35% (808) of sites identified were attributed a post medieval date. In addition, a further 218 sites were allocated a post medieval or possible early 20th century date. These were generally features such as extractive pits, trackways and drainage systems which could be 19th (post medieval) or early 20th century (modern) in origin, or Victorian features which spanned the two centuries. In this report, all sites in these categories will be referred to simply as post medieval.

Combined, these 1026 sites amounted to over 44% of all monuments recorded during the project. This is a period that has, up until fairly recently, not been the primary focus for archaeological survey and field investigation and therefore 979 (95%) of these sites had not previously been recorded in the Dorset HBSMR. The majority (58%) survive as extant or partially extant earthworks and structures; 42% were cropmarks, levelled earthworks, or destroyed or demolished structures.

As with all interpretations based on aerial photographic or lidar evidence alone, precise dating can be problematic. Many of the sites attributed to the post medieval period may have had their origins in the medieval period; for example the numerous extractive pits described in Section 7.8.2 below. Many more potentially post medieval sites were encountered during the mapping project, however as some may have had earlier medieval origins they were given a more general date range and are described in Sections 7.9 (Historic) and 7.11 (Undated) below.

Post medieval sites were recorded right across the project area and therefore they were distributed across all the major broad HLC types.

<b>Site Type</b>	<b>No: Sites</b>
Bank (earthwork)/Boundary Bank	4
Brick kiln/Brickworks/Brickyard	9
Chalk/Clay/Extractive/Gravel/Sand Pit	494
Country House	1
Cultivation Marks/Terrace	21
Decoy Pond	3
Dew Pond/Pond	4
Drain/Drainage Ditch/Drainage System	196
Enclosure/Rectangular Enclosure	11
Field Boundary/Field System	50
Folly	1
Hollow Way/Trackway	102
Icehouse	1
Lime Kiln	5
Limestone Quarry/Quarry	51
Milestone	1
Mill	1
Mine Shaft	2
Obelisk	1
Pound	2
Railway/Railway Embankment	3
Rifle Range	2
Settlement	1
Spoil heap	10
Structure	1
Tramway	2
Tree Enclosure Ring	15
Water Meadow	27
Weir	1
Windmill Mound	1
Wood Bank	3
<b>Total</b>	<b>1026</b>

*Table X. Post medieval or 20th century site types*

### 7.8.1 Agricultural features

Of the 1026 post medieval or earlier 20th century sites recorded during the project, 79 (8%) were associated with agricultural activity. These monuments included 21 cultivation marks, three wood banks and three decoy ponds. Fifty field boundaries and field systems associated with post medieval parliamentary enclosures were mapped and recorded. These were generally distinguished from the earlier medieval or prehistoric fields by their ruler-straight boundaries as well as their association with other later features.

One example of a system of very straight and parallel bank and ditched boundaries was plotted to the north of Chalden Herring (MDO32113) (Figure 55). It was considered most likely to be a post medieval field system although the boundaries may follow the lines of earlier medieval strip fields and they may, alternatively, be drainage features.



Figure 55. Field system or drainage features to the north of Chalden.

*MDO32113. NMP Mapping © Historic England.*

One interesting group of field boundaries and enclosures is located on Middlebere Heath, Arne (Figure 56). Here fragments of six or more embanked rectilinear enclosures are considered to form part of a now abandoned field system. They are in a location marked as newly enclosed on Treswell's Map of 1586 (Willmott 1997, 112 and 763) and are therefore considered to be the remains of 16th century enclosure of the heathland.

The enclosures lie immediately to the north of a small stream adjacent to an area depicted as marsh on the OS 1<sup>st</sup> edition map. The field boundaries are not marked on the OS 1<sup>st</sup> edition map and therefore this area must have been abandoned within two centuries of first being taken into agriculture.

To the south is a complex of small enclosures which are considered to be the remains of a settlement (MDO7505). It is undated and therefore described in section 7.11.



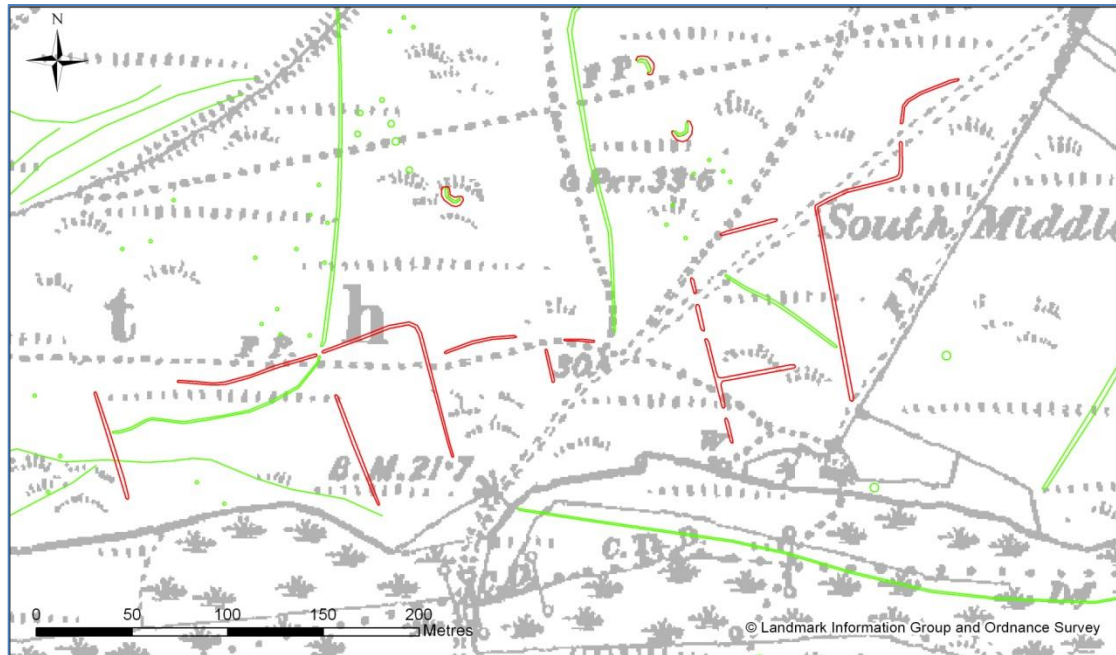


Figure 56. Field system and enclosures, Thornmoor House, Arne.

*MDO31369 and MWX3129. NMP mapping © Historic England.*

#### 7.8.1.1 Decoy Ponds.

Decoy ponds were either modified natural ponds or artificially created pools of water used for luring wildfowl to be trapped and killed for food as well as feathers. They may have originated in Holland and were introduced to England in the 17th century although their greatest popularity was in the 18th and 19th centuries.

Classic decoy ponds would have had a central pond with narrow arms off it known as pipes. The pipes would have been netted at their far ends and the birds would have been flushed into the net by dogs.

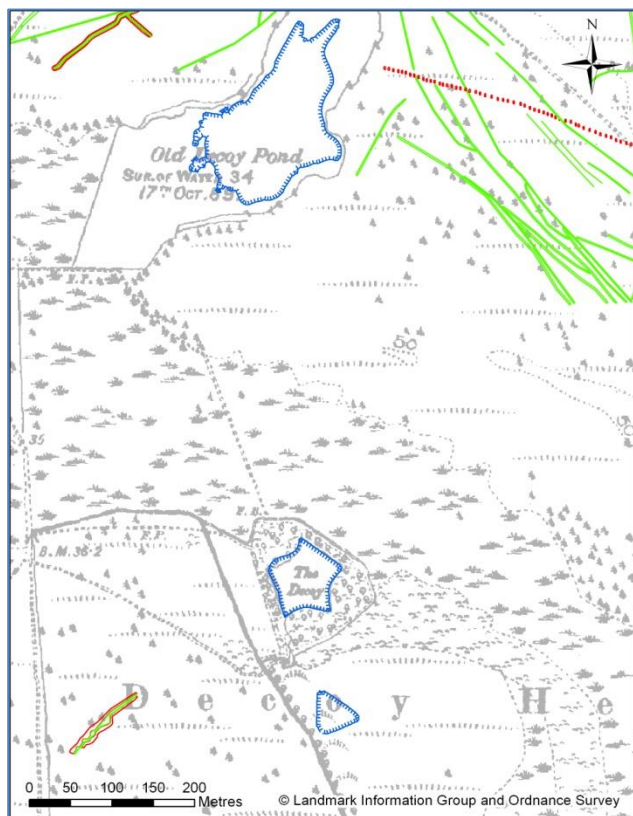


Figure 57. Decoy ponds on Decoy Heath, Wareham St Martin.

*NMP mapping © Historic England*

Four decoy ponds are located on the sandy heathland to the south of Wareham Forest in Wareham St Martin. Three are located on Decoy Heath between Gore and Morden Heaths (MDO8205 and MDO30513) and the fourth 3km to the southwest on the southern edge of Hyde Heath (MDO8216).

The Decoy Heath ponds were built by the Drax family in 1724 and were abandoned from 1856 onwards (Prendergast 1986). Two of the three Decoy Heath ponds are marked on the OS 1<sup>st</sup> edition map. The northernmost pond is marked as 'Old Decoy Pond' and covers an area 58 ha in size. No pipes are marked on the OS mapping nor were identified during the current project. To the south is a smaller pond (0.5ha) with evidence of five equidistant pipes making it a star-shaped pool of water. According to Prendergast (*ibid*) the northern, larger pond was used to attract wildfowl to the area and they were trapped in the southern pond, the evidence for pipes on the southern pond would seem to support this idea.

A third pond was identified to the south of the star-shaped pond. It is triangular in shape (possibly having once had 3 pipes) and covers an area of less than 0.2ha (Figure 57).

### 7.8.2 Water Supply and Drainage features

Post medieval water management is represented right across the project area by numerous drainage systems and water meadows. Drainage systems were found across the sands and clays around Owermoigne, to the northeast of the river Piddle as well as in the major river valleys.

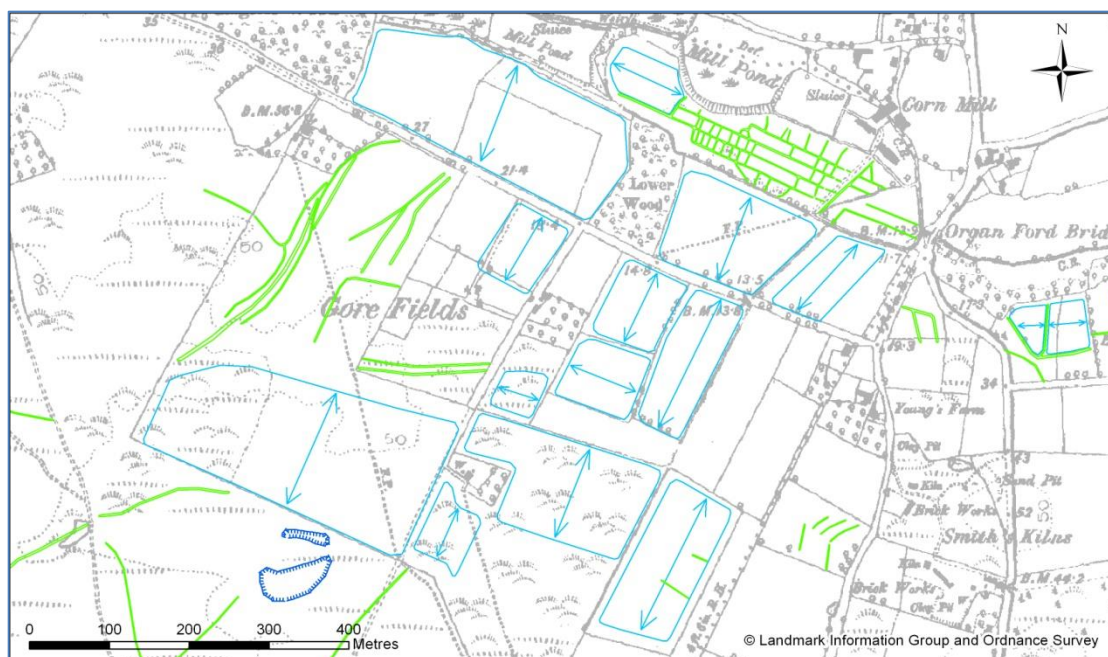


Figure 58. Post medieval field system and associated drainage features at Gore Heath, Wareham St Martin.

MDO 30575. NMP mapping © Historic England.

One of the most extensive areas of post medieval drainage features is located on the north eastern edge of Gore Heath, Wareham St Martin. Here a large area of heathland (approximately 50ha) was taken into

agriculture in the post medieval period with the construction of a system of small fields known as Gore Fields which are marked on the OS 1<sup>st</sup> edition map. Parallel features representing attempts to drain the fields were identified on aerial photographs taken in the 1940s. Many of the field boundaries have since been removed along with the drainage earthworks although some are still visible on recent digital imagery.

**Water meadows.**

Water meadows are areas of pasture adjacent to rivers and streams that have been irrigated to increase grass production for grazing and cropping. Water meadows are known from the 13th century onwards and initially simply involved the blocking of watercourses causing them to overflow and flood the surrounding grassland. This method is known as 'floating upwards' and had the benefit of depositing rich silts over the fields. However, as the water had to naturally find run-off, if it failed to do this quickly the grassland could become damaged (HE 2013).

In the 17th century, more sophisticated systems of water meadows were constructed, with stricter controls of the water on and off the fields. These 'bedworks' were 'floating down' systems which produced a constant flow of water through the grassland (*ibid*). The water was diverted from the main watercourse and directed through a series of sluices into tapering channels known as floats which lay along the tops of broad ridges or beds.

Water was then made to overflow across the beds before being collected and removed from the meadows in a series of drains. Some of the earliest records of these 'bedwork' systems come from within the project area at Affpuddle. Here manorial records make reference to ditches and channels being dug along the River Puddle in 1605 (*ibid*).

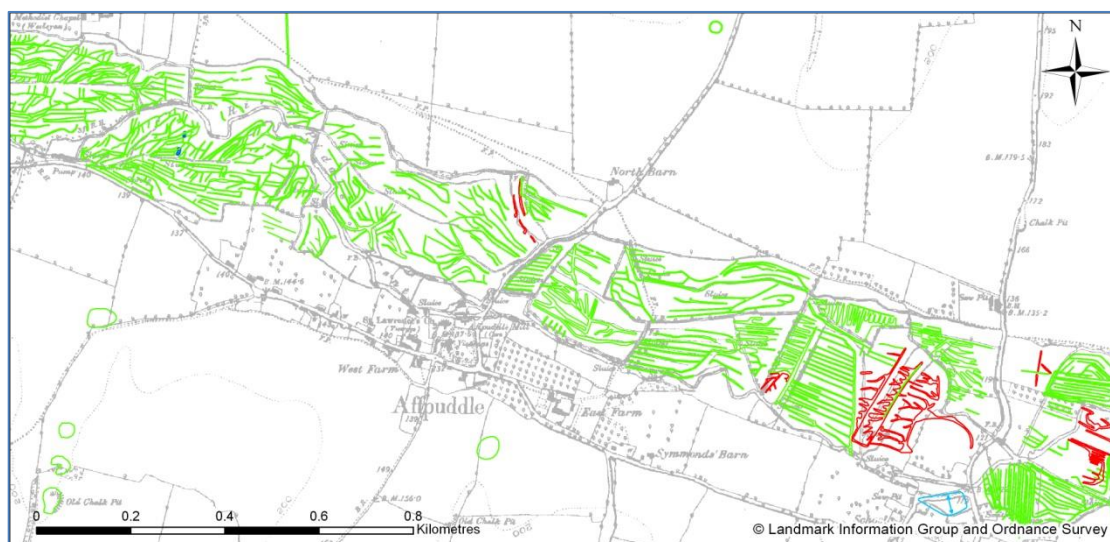


Figure 59. Early 17th century water meadows along the River Piddle at Affpuddle. MDO30454 and MDO31153. NMP mapping © Historic England.

Extensive systems of bedwork water meadows were recorded all along the rivers Piddle and Frome, as well as simpler systems along the Sherford River. The process of irrigating water meadows boosted fertility of the soil with the deposition of nutrient rich sediments from the rivers and were an

effective means of producing a reliable hay crop. As a result they quickly spread throughout southern England in the 17th and 18th centuries.

As well as increasing the productivity of the riverine pastures, water meadows also potentially increased arable productivity. Livestock grazing on the meadows were often moved to adjacent unsown arable fields overnight where their manure provided fertiliser for later sown crops.

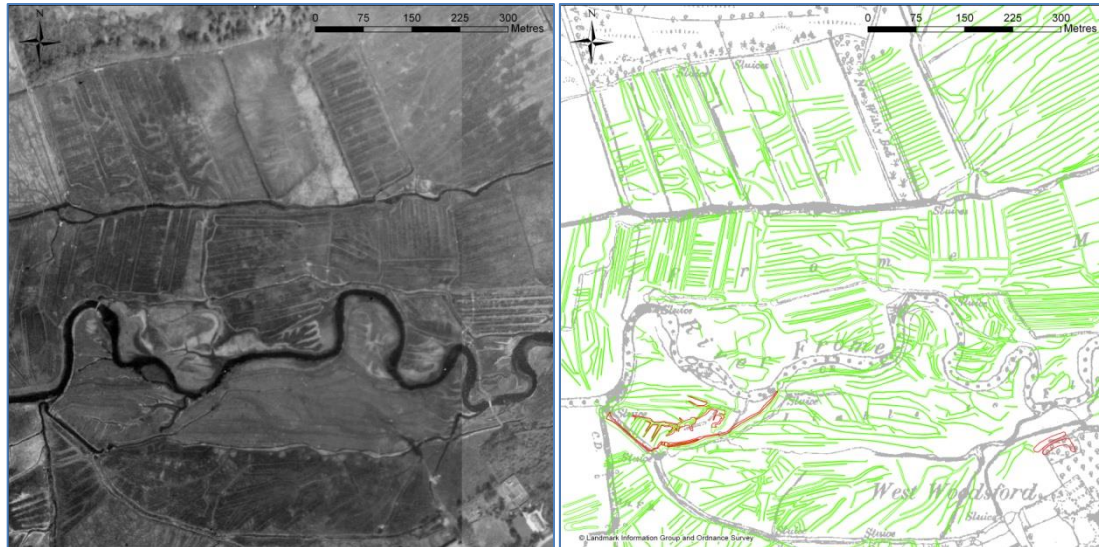


Figure 60. Extensive water meadow on the River Frome at Woodsford.

MDO30455. Photograph: RAF CPE/UK/2018 Frame 3018-9 17-APR-1947 Historic England RAF Photography. NMP mapping © Historic England.

### 7.8.3 Extraction sites

The most common site types assigned a post medieval date were those associated with extraction. These included extractive pits, quarries and spoil heaps. In all, 555 extractive sites were identified, which amounts to 54% of all sites assigned to the post medieval period. Of these, only 28 (5%) had previously been recorded in the Dorset HBSMR.

This low number of previously known post medieval extractive sites is typical of other NMP results for Southern England: in neighbouring Hampshire, for instance, only 2% of extractive sites recorded during the Hampshire Downland NMP had previously been recorded in the county HER (Royall 2013b, 70) and in the New Forest this figure was only 1% (Royall 2013, 65). On the South Dorset Ridgeway, 8% of all post medieval sites had previously been recorded, (Royall 2011, 58).

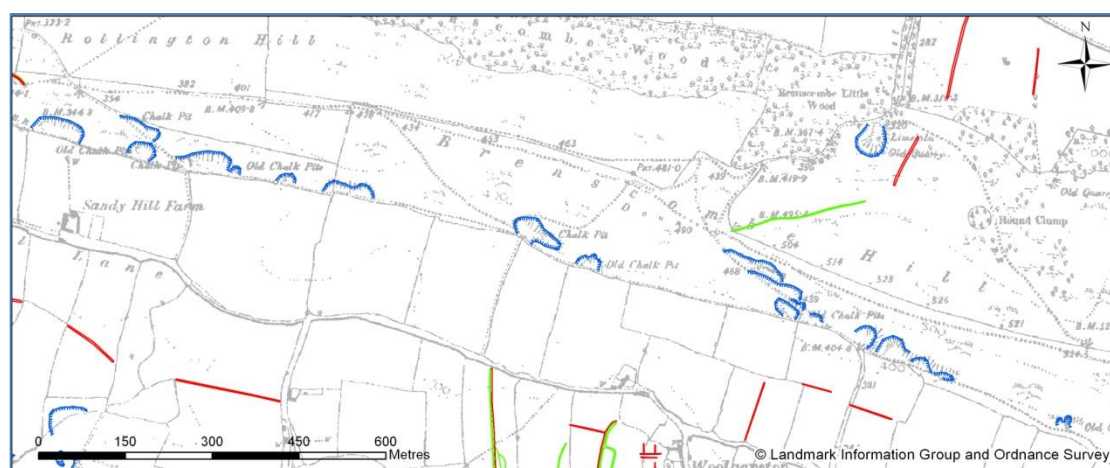


Figure 61. Post medieval chalk pits along the ridge of the Purbeck Hills on Brenscombe and Hollington Hills.

NMP mapping © Historic England.

Extractive sites were generally only given a specific interpretation such as 'chalk pit' or 'gravel pit' if the site was marked as such on the historic base mapping or if it was in close association with other extractive sites which did have specific interpretations. Being located on a particular bedrock was not necessarily deemed sufficient evidence for a specific interpretation as superficial deposits such as gravels may have been extracted. The majority of sites therefore were simply given the generic interpretation of 'extractive pit'.

A small number of quarries were interpreted as limestone quarries; these were all on the southern edge of Purbeck within Langton Matravers and Corfe Castle parishes. They included several small quarries at Downshay which are documented to have been the source of Purbeck marble used in the construction of Salisbury Cathedral.

Swanworth Quarries are located at the northern end of Hill Bottom, north of St Alhelms Head, (MDO30721). Quarrying of Purbeck stone at Swanworth dates back to the late 19th century, small quarries being marked on the OS 1<sup>st</sup> edition map. Although much expanded in recent decades, the extent of the historic quarrying and associated buildings were recorded from aerial photographs taken in the 1940s.

#### 7.8.4 Industrial sites

Eighteen post medieval industrial sites were identified on the aerial photographs and lidar, including nine associated with brick making and five lime kilns. These sites are generally positioned close to naturally occurring local resources, the brick sites being located on clay and lime kilns on chalk.

There is one exception to this, a potential lime kiln near Wytch Plantation, Corfe Castle (MWX4860). This site was identified during excavation on the line of an access road for the Wytch Plantation Gathering Station in 1987 (Hearne 1991). A sub-square structure approximately 8m across with an associated trackway was identified on aerial photograph taken in the 1940s. The structure lies on Palaeogene sands with the nearest chalk deposits lying over 2km to the south.

Of the nine brick-making sites, seven had not been previously recorded in the HBSMR although all were marked on the OS 1<sup>st</sup> edition map. These 19th century sites are scattered right across the project area and each probably served a local market for bricks. One brickworks is located on the immediate outskirts of a village (Coombe Keynes (MDO31925)) and the others at least 1km away from their nearest village or town.

Dodding's Brick Yard (MDO30002) and Blackhill Brick Works, Affpuddle, (MDO31184) both probably served Bere Regis, which is 1km to the north.

Two brickworks are in close proximity to the town of Wareham, including that at Sandford Bridge (MDO30775) 1km to the north and kilns on Farm Heath, East Stoke 2.5km to the west.

Two sites on Studland Heath were identified by the interpreter as mine shafts (MDO31120 and MDO31125). They were both rectilinear structures on sand deposits and therefore are more likely to be associated with sand extraction.

The site of a water mill was identified adjacent to a stream at the foot of West Hill, Corfe Castle (MDO31454) and a possible windmill mound at Combe Hill Langton Matravers (MDO7742).

#### **7.8.5 Military Sites**

Two sites relating to post medieval military activity were recorded including rifle ranges at Godlingston, Swanage (MDO31077) and at Dorey's Farm, East Holme (MDO31092). Both are marked on the OS 1<sup>st</sup> edition maps.

The Dorey's Farm site is marked on the map as originally being 760m long. It was probably already long out of use by the mid-20th century and the locations of only five butts relating to the site could be identified on the 1940s aerial photographs.

#### **7.8.6 Gardens Parks and Urbans Spaces/Recreational Features**

A tree enclosure ring is typically a near-circular banked enclosure within which trees have been planted. These were created in the later post medieval period for ornamental purposes as part of landscaping schemes associated with country estates.

Fifteen tree enclosures were mapped during the project, all in the vicinity of Grange and Holme Heaths, Steeple. All are marked on the OS 1<sup>st</sup> edition map. A further three tree enclosures were indexed as 'enclosure' in the vicinity of Moreton Plantation, Affpuddle.

Other recreational features identified were an obelisk in the grounds of Encombe house, erected in 1835 in the honour of Sir William Scott (MDO30934), an icehouse in the gardens of Bindon Abbey (MDO8337), and a folly on the northwest shore of The Lake, Coombe Keynes, Lulworth (MDO31688) which is marked as 'The Fort' on the OS 1<sup>st</sup> edition map.

#### **7.8.7 Domestic Sites**

The sites of two country houses were recorded during the mapping project; the first at West Lulworth (MDO8238) where a 16th century country house was built by Thomas Poynings, 1<sup>st</sup> Baron Poynings.

The site of the house is marked on the OS 1<sup>st</sup> edition map and several terraces and low earthworks were identified on aerial photographs taken in the 1940s, along with field boundaries and cultivation marks which may have had an earlier origin (Figure 62).

Mount Poynings is generally considered to have been demolished in 1588 prior to Lulworth Castle being built.

Lulworth Castle was originally built as a hunting lodge in the late 16th or early 17th century for Henry Howard, Lord Bindon (RCHME, 1970, 146). It was remodelled several times over the following two centuries, particularly by the Weld family in the 18th century before being gutted by fire in 1929. (MDO17502).

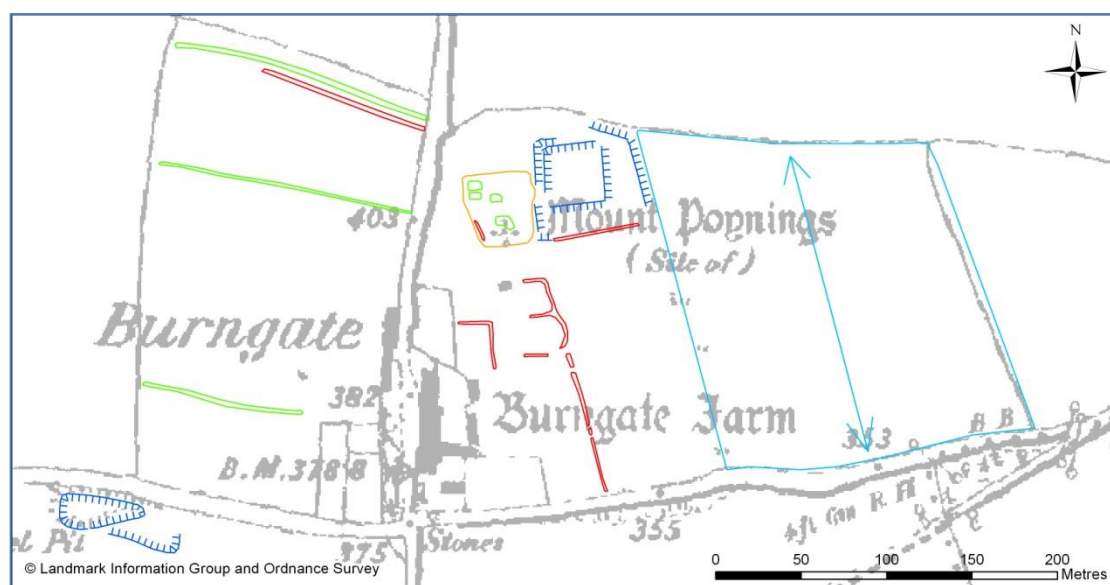


Figure 62. Site of a 16th century country house at Mount Poynings, West Lulworth.

MDO8238 and MDO31890. NMP mapping © Historic England.

### 7.8.8 Transport-related sites

One hundred and eight sites relating to transport were mapped in the project area. These included two tramways, three railways, a milestone and 103 trackways.

The three sections of railway all relate to the extensive 19th and 20th century clay workings on Creech Heath, Church Knowle, where pits, spoil heaps and associated buildings cover an area of 200ha (MDO31149 and MDO31167). A system of narrow gauge branch lines serving the clay-workings are marked on the OS 1<sup>st</sup> edition map, sections of which are now fossilised in modern lanes and trackways. Three sections of railway that had not previously been mapped by the OS were mapped and recorded during the project (MDO31150, MDO31151 and MDO31161).

Many trackways were identified, particularly on the Palaeogene sands, silts and clays of the Bracklesham and Thames Groups, where extensive systems of tracks cut across the unenclosed heaths. These trackways,

some of which have since been obscured with 20th century plantation, clearly show on the RAF photographs dating to the 1940s.

Most of the trackways were not deliberately constructed but are simply the result of erosion caused by the passing of people, livestock and vehicles across the landscape. As such, there is little to distinguish a trackway of post medieval origin over one first in use in the medieval or even prehistoric periods when using aerial photographic and lidar evidence alone. Of the trackways identified during the project, 102 were given a post medieval date. In addition, 150 trackways were assigned a general medieval or later (Historic) origin and no attempt was made by the interpreters to date a further 19 sites.

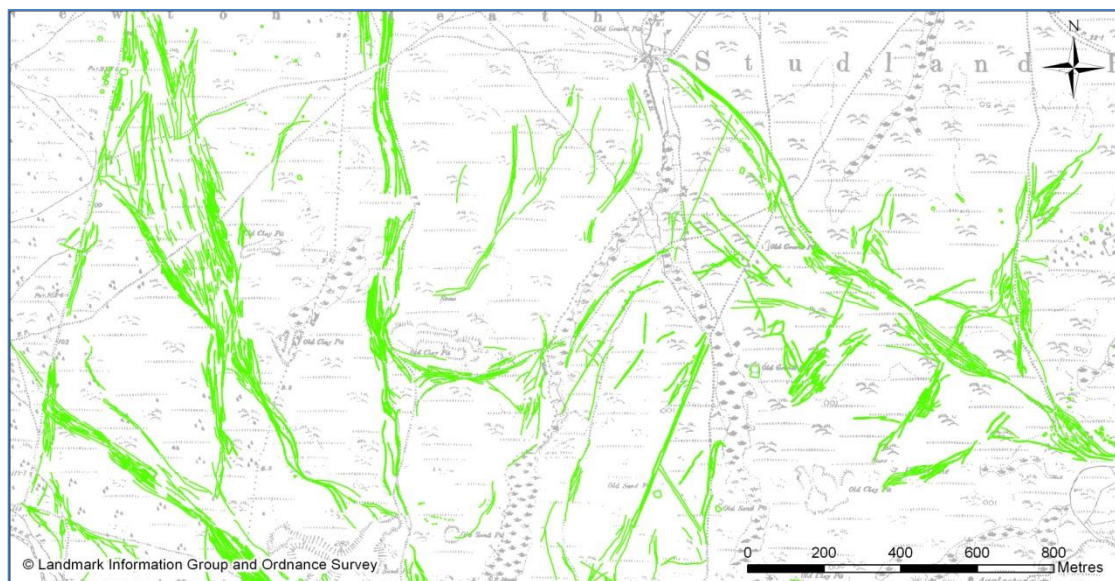


Figure 63. Post medieval trackways crossing Godlington Heath, Studland.

*MDO30852-5. NMP mapping © Historic England.*

Trackway systems specifically dated to the post medieval period include those running across Godlington Heath, Studland (Figure 63) and Stoborough Heath, Arne (MDO31183, 5, 6, 7). Those on Stoborough Heath (Figure 64) appear to predate a number of post medieval small-holdings which are marked on the OS 1<sup>st</sup> edition map.



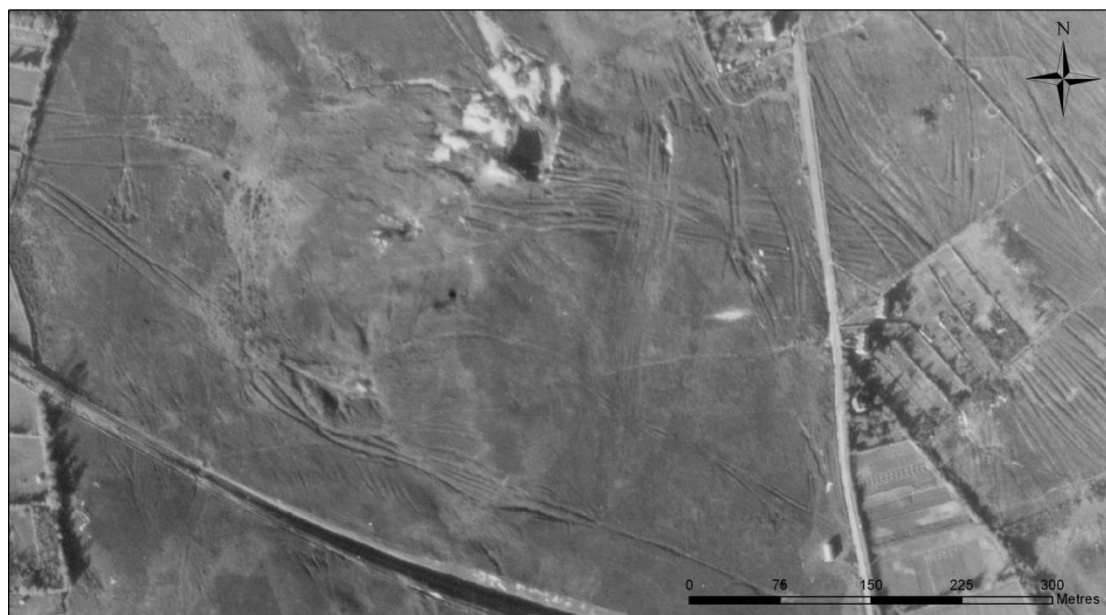


Figure 64. Post medieval trackways on Stoborough Heath, Arne.

MDO31183 and MDO30455. *Photograph: RAF CPE/UK/1821 Frame 4410 04-NOV-1946 Historic England RAF Photography*

### 7.8.9 Miscellaneous post medieval features

In addition to the above sites, 16 miscellaneous features were allocated a post medieval date, including 11 enclosures. Three of the enclosures were tree enclosure rings in the vicinity of Moreton Plantation, Affpuddle (MDO31205-7).

Two enclosures were interpreted as post medieval pounds, including a very small banked enclosure on Round Down, Swanage. This encloses less than 0.05ha and is one of several enclosures of comparable size in the project area (Figure 65). These were all considered to be of post medieval date, based on morphology or association with other sites. Whilst they lie within a range of HLC types, all but one are located in open ground or scrub as marked on the 1<sup>st</sup> edition OS map. Two are marked as enclosures on the 1<sup>st</sup> edition map, the Holworth site being marked as Higher Barn.



Figure 65. Post medieval enclosures.

NMP Mapping © Historic England.

Four linear banks or boundary banks were recorded; these included two linear boundary banks at Kennel Farm. The first runs northwards through Kennel Hill Plantation (MDO31694), and the second eastwards along the parish boundary on the southern edge of Kennel Rings

(MDO31695). These features run up to and abut the post medieval park pale around Lulworth Park and are considered likely to be of contemporary date (Figure 66).

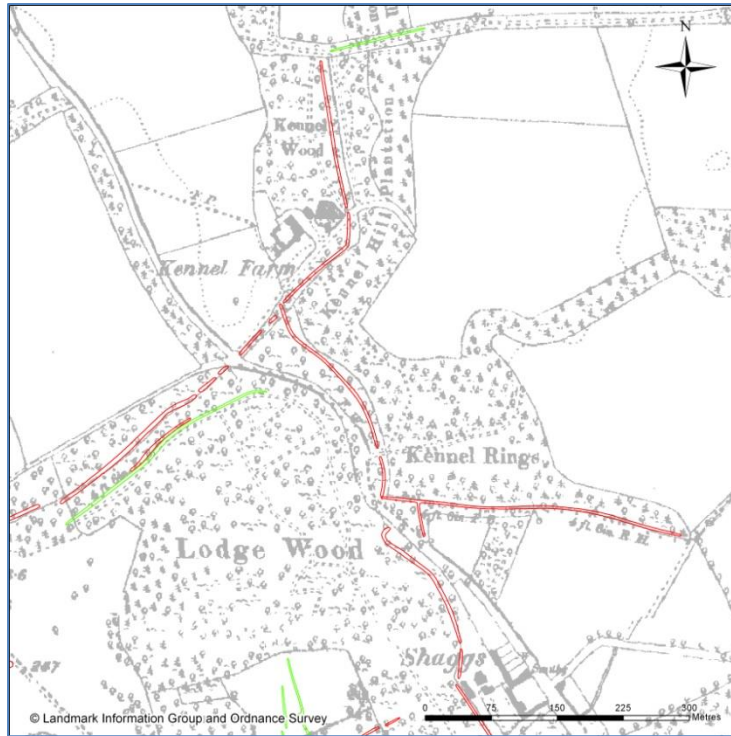


Figure 66. Post medieval boundary banks at Lulworth Park.

*MDO31684 and MDO31695 NMP Mapping © Historic England.*

## 7.9 NMP results: Historic (early medieval or later) sites (AD410 -AD1900)

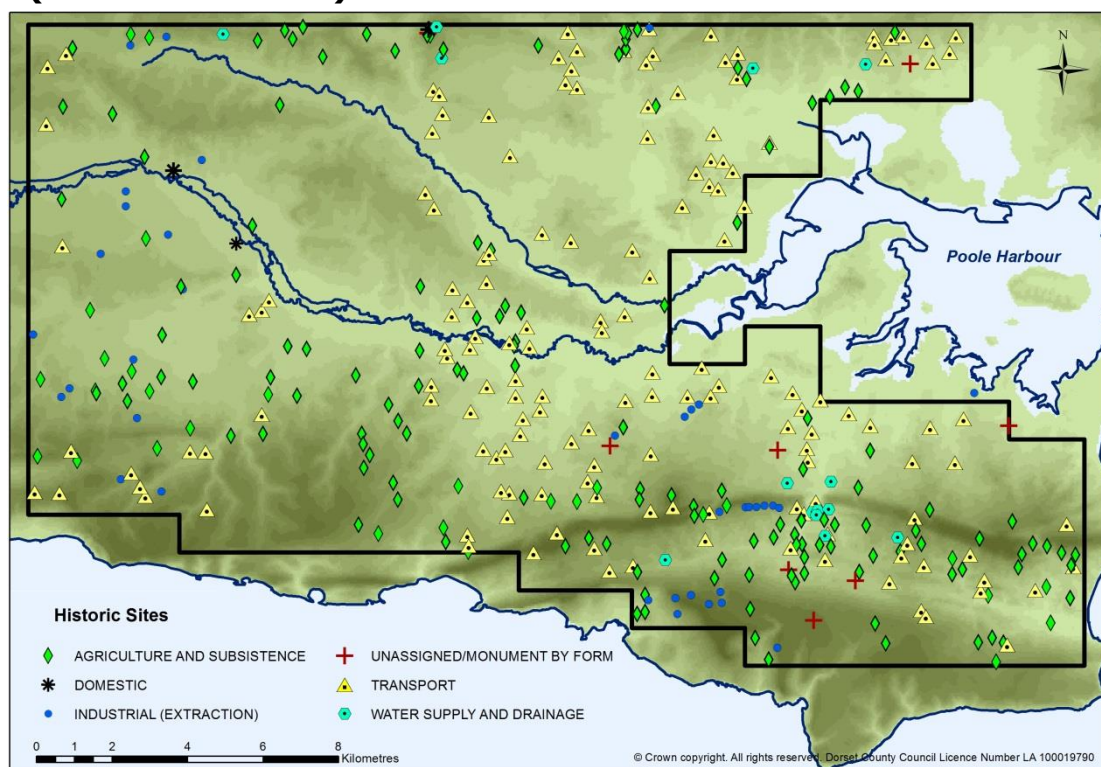


Figure 67. Distribution of Historic (early medieval or later) sites.

The nature of the evidence from aerial photographic and lidar surveys means that for many categories of site it was not possible to ascribe a more precise date than post Roman (early medieval or later) in origin. This was particularly true for agricultural features such as field boundaries, fragments of field system, trackways and areas of parallel cultivation marks (ridge and furrow) which could have been medieval or post medieval in date. Where a more specific date could not be determined from the aerial photographic evidence, these sites were attributed a general historic date.

Of the 386 records allocated a general historic date, 53% were still visible as upstanding or partially upstanding earthwork monuments, the remaining 47% being completely plough-levelled or demolished structures.

All but ten sites had not previously been recorded in the Dorset HBSMR. Sites included 105 linear features interpreted as trackways, 122 field boundaries and field systems and 53 areas of parallel ditched features interpreted as drainage features, cultivation marks or ridge and furrow.

<b>Site Type</b>	<b>No: Sites</b>
Boundary Bank	1
Chalk Pit, Extractive Pit, Quarry	35
Cultivation Marks/Ridge and Furrow/Terrace	39
Drain/Drainage Ditch	14
Enclosure/Rectilinear Enclosure	7
Field Boundary, Field System	122
Hollow Way/Trackway	8
Limestone Quarry	1
Pillow Mound	4
Settlement/Shrunken Village	3
Stone	1
Trackway	150
Wood Bank	1
<b>Total</b>	<b>386</b>

*Table XI. Historic site types*

### **7.9.1 Pillow mounds**

Rabbits were first introduced to England by the Romans but did not become established in the wild until the mid to late 12th century. They were, however, a particularly important commodity from the medieval period onwards when warrens were established for the breeding, rearing and capture of rabbits and hares.

Warrens incorporated artificial mounds known as pillow mounds, often set within an enclosure. The pillow mounds were constructed as habitation and breeding places. They were typically oblong mounds, sometimes with flanking ditches to prevent water logging, and often had stone-lined tunnels constructed within the soft soil mound allowing further burrowing (Williamson 2007).

The construction and maintenance of artificial rabbit warrens occurred throughout the medieval and post medieval periods. There is little to distinguish between medieval or post medieval warrens and therefore the four pillow mounds identified during the project were given a general historic date.

Two pillow mound sites had previously been recorded in the Dorset HBSMR, both located on the chalk ridge of the Purbeck Hills. On the eastern end of Ridgeway Hill at Cocknowle a linear series of six mounds were mapped on the OS 1<sup>st</sup> edition map, four of which were identified on aerial photographs dating to the 1940s (MDO7297). A seventh mound lies 600m to the east on the adjacent hill within the Iron Age enclosure on Knowle Hill (MDO7324).

The potential sites of two newly recorded pillow mounds were identified during the project. At Frogmore Farm, Morden, two adjacent sub-

rectangular mounds between 9 and 10m long are visible as earthworks on aerial photographs taken in 1947; they have since been levelled by ploughing (MDO30511).

To the east of Galton, Owermoigne, the extensive remains of a deserted medieval settlement are known (MDO1875). Here a complex of house platforms and hollow ways cover an area of 2.5ha 500m to the west of the hamlet of Galton, which itself has additional shrunken settlement earthworks in the adjacent fields.

Galton is one of string of shrunken medieval settlements along the Wareham to Dorchester road and the OS mark the area immediately to the north as rough ground. Two low mounds are visible on aerial photographs taken in 1946 on the southern edge of this rough ground 200m to the north of the village earthworks. The mounds are morphologically typical of pillow mounds, being 35-50m long and 12-15m wide with flanking ditches.

Whilst plough-levelled throughout the later 20th century, the earthworks are faintly visible on recent aerial photographs and some traces of the mounds may therefore remain on the ground.

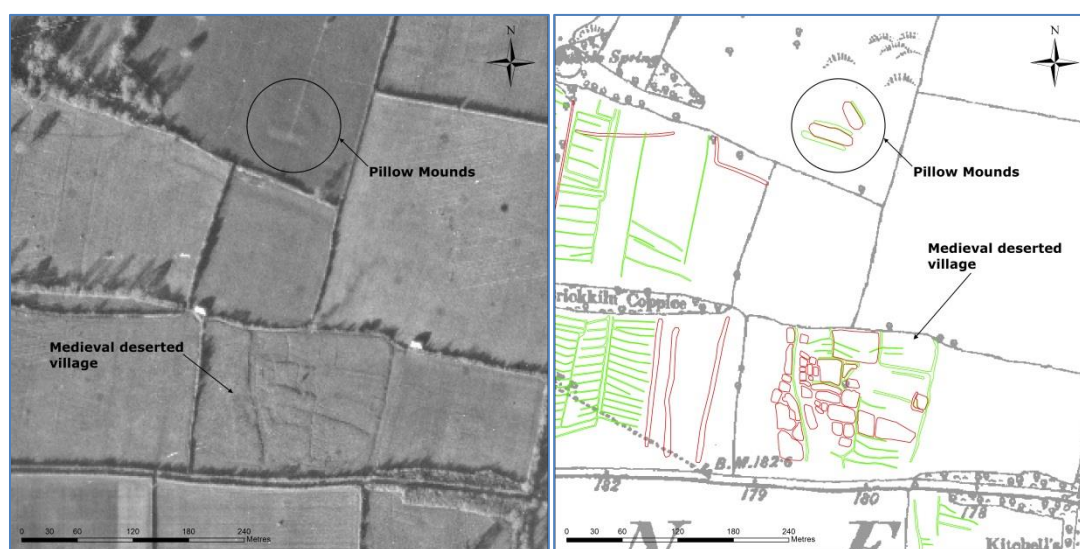


Figure 68. Medieval shrunken village earthworks and adjacent pillow mounds at Galton, Owermoigne.

*MDO1875 and MDO32053 Photograph: RAF/CPE/1821 Frame 6429 04-NOV-1946 Historic England RAF Photography. NMP Mapping © Historic England*

### 7.9.2 Settlements

Settlement earthworks were recorded at Morton (MDO30417), Woodbury Hill (MDO29992), and at Pallington Farm, Pallington (MDO30660). It was uncertain whether the identified features were associated with medieval or post medieval settlement and therefore a more general historic date has been attributed to the sites.

The earthworks at Moreton are located in the field immediately to the south of St Nicholas's Church, to the east of Moreton House. The manor house at Moreton was built in 1744 by the Frampton family, who later became infamously associated with the Tolpuddle Martyrs. It was James Frampton who wrote to the Home secretary bringing his attention to the

illegal proto-trade union and then later sat on the jury of their trial (Evatt, 2009).

### 7.9.3 Enclosures

Seven enclosures of medieval or post medieval origin were recorded. These included a rectilinear bank and ditched enclosure within Woodbury Hill hillfort. The enclosure lies in the vicinity of the settlement listed in 7.8.2 above which is marked on the OS 1<sup>st</sup> edition map.

The Woodbury enclosure is bank and ditched and encloses an area of 0.4ha between the site of Anchoret's Chapel and the north-south lane cutting through the middle of the hillfort (Figure 28). The enclosure may be associated with the medieval chapel and adjacent well or with the later annual September fairs which took place within the hillfort.

The origins of the fair are uncertain but charters for it are known to have been granted in 1231 by Henry III. The fair continued for over 700 years before being discontinued during the Second World War (Bere Regis Village Website, 2015).

On Newton Heath, Studland, two conjoined embanked enclosures lie immediately to the south of the site of Newton Clay Works. The features are not marked on any of the OS maps and may be of medieval or post medieval date.

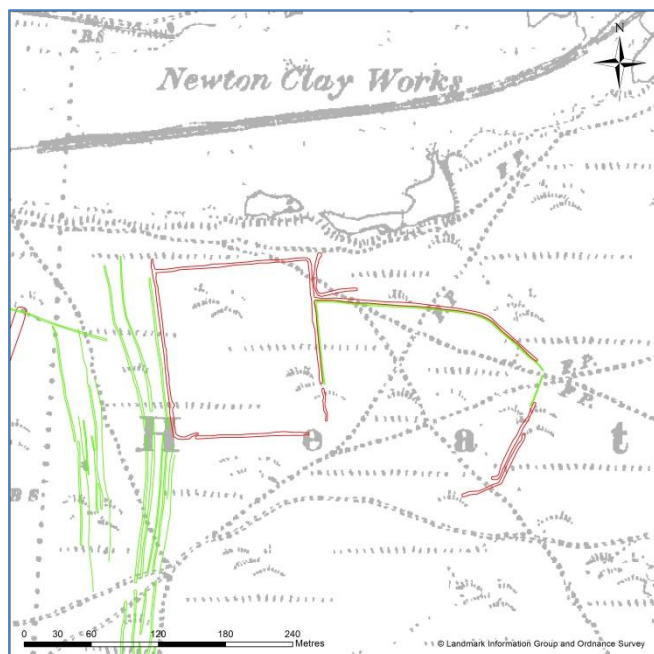


Figure 69. Historic enclosures on Newton Heath, Studland MDO7967.

NMP Mapping © Historic England

## 7.10 NMP results: Twentieth century sites (AD1901 onwards)

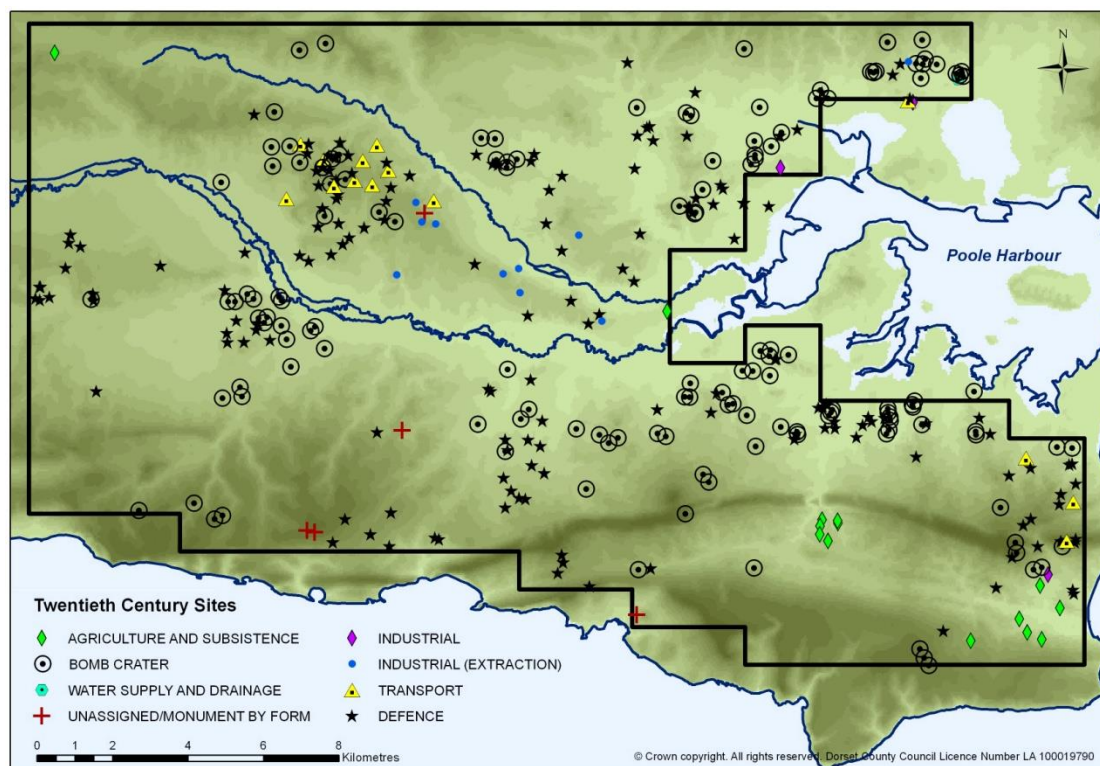


Figure 70. Distribution of twentieth century sites.

As part of the NMP remit, all early 20th century sites predating the end of the Second World War are mapped and recorded, including all military features relating to the War itself. Features post-dating 1945 were not generally plotted unless they were abandoned military features associated with the Cold War.

The project was carried out to standard NMP guidance (Winton 2016) and therefore did not record structures still in use or preserved in later structures that are still in use. It therefore, did not map extant field boundaries, roofed buildings, canals, railways or 20th century drainage features (see Appendix 1, Methodology).

Fifteen percent of monuments encountered during the project dated to the 20th century, 351 sites being recorded. Of these, 98% were new to the record, with only six sites previously being recorded in the Dorset HBSMR. Of the 351 sites, 216 (62%) have been completely levelled, destroyed or demolished, the remaining 135 sites are still surviving or partially surviving as standing structures or earthworks. Three hundred and eight (88%) of the twentieth century monuments were military sites relating to the First and Second World Wars. This represents a significant enhancement of baseline data for this important period of the recent past.

Civilian sites included trackways, field boundaries, buildings and quarries. Fourteen allotments were recorded; six around Corfe Castle village and five on the outskirts of Swanage. The remaining three allotments were recorded at Langton Matravers, Puddletown and Wareham. Large scale sand extraction has been carried out over the 20th century on sandy

heathlands, particularly between the rivers Frome and Purbeck. Smaller quarries dating to the 19th century were also recorded.

<b>Site Type</b>	<b>No: Sites</b>
Air Raid Shelter	1
Allotment	14
Anti-Aircraft Battery/Gun Tower/Gun Emplacement/HAA/LAA	12
Anti-Landing Obstacle	4
Barbed Wire Entanglement	2
Bomb Crater/Bomb Site	142
Bombing Decoy/Anti Landing Obstacle	3
Bombing Range Target	1
Brickworks	1
Building	2
Clay/Gravel/Sand Pit/Quarry	10
Drainage Ditch	1
Enclosure	3
Factory/ Munitions Factory	2
Fieldwork	8
Firing Platform/Firing Range/ Rifle Butts	18
Military Airfield	1
Military Building	9
Military Camp	5
Military Depot	1
Military Site	27
Military Training Site/Training Area	7
Pillbox	1
Platform	1
Practice Trench/Slit Trench	30
Prisoner of War Camp	1
Radar Mast/Transmitter Site	1
Railway Building	1
Rifle Pit/Weapons Pit	28
Trackway	13
Triangulation Point	1
<b>Total</b>	<b>351</b>

*Table XII. 20th century site types*



In terms of HLC, the majority of 20th century sites are located on the Open ground, Woodland or Military areas. Those areas classed as Military are in current military use. The Woodland and Open ground coincides with those areas which were on ancient heathland and used for military training as early as the late 19th century, or for Second World War installations, many of which have since been abandoned.

### **7.10.1 Bovington Camp**

The extensive military training area of Bovington Camp and its adjacent Lulworth Ranges were mapped and recorded during the project. The features created during its use by the infantry, and later by the tank training school, were recorded from photographs dating from 1918 and the 1940s. Numerous sites including tank firing ranges, practice trenching, fieldworks, bomb craters and air-raid shelters were recorded over an area of over 1000ha.

The history of the camp and its development over the 20th century has been well documented and much of the detail of the camp history outlined below has been gathered from Lanning 1970.

#### Origins of the Camp

The training area was originally established in the area of Wool in 1899 and was in use during both the First and Second World Wars, during which time it was gradually increased in size. One thousand acres (approximately 405ha) of land on Turners Puddle Heath and Wool Heath was initially purchased by the War Office between 1896 and 1899 for use as an infantry camp and rifle range for military exercises. This was later expanded in 1907 and 1910 to include an area of Chamberlyne's Heath.

The site of an early military camp was identified on aerial photographs dating to 1945. The camp was located on the boundary of Turners Puddle Heath and Chamberlyne's Heath and had been abandoned by the time the photographs were taken. It is possible therefore that it was the original site of the temporary tented barracks and headquarters of the camp.

The mapped features included a complex of temporary buildings and building platforms located on the higher ground with numerous shell holes and craters on the lower ground to the northwest. To the south of the camp, butts associated with at least five rifle ranges were identified as well as many linear fieldworks surrounding the area (Figure 71).

#### First World War expansion

The huge increase in the size of the army in the first of the First World War saw all permanent and temporary military camps pressed into use. Bovington was one of those temporary camps and the newly formed 17th Infantry Division were based in what was initially a tented camp with limited facilities although a hutted camp was established at Bovington in 1915.

In June 1916 the training camp of the Heavy Section of the Machine Gun Corps was moved from Elvedon to Bovington, under the command of Colonel E D Swinton. The tank had started to be developed by the British Army from 1915 and in August 1916, 13 tanks were dispatched to France,

they were sufficiently successful for the Field Marshall Haig to request a further 1000.

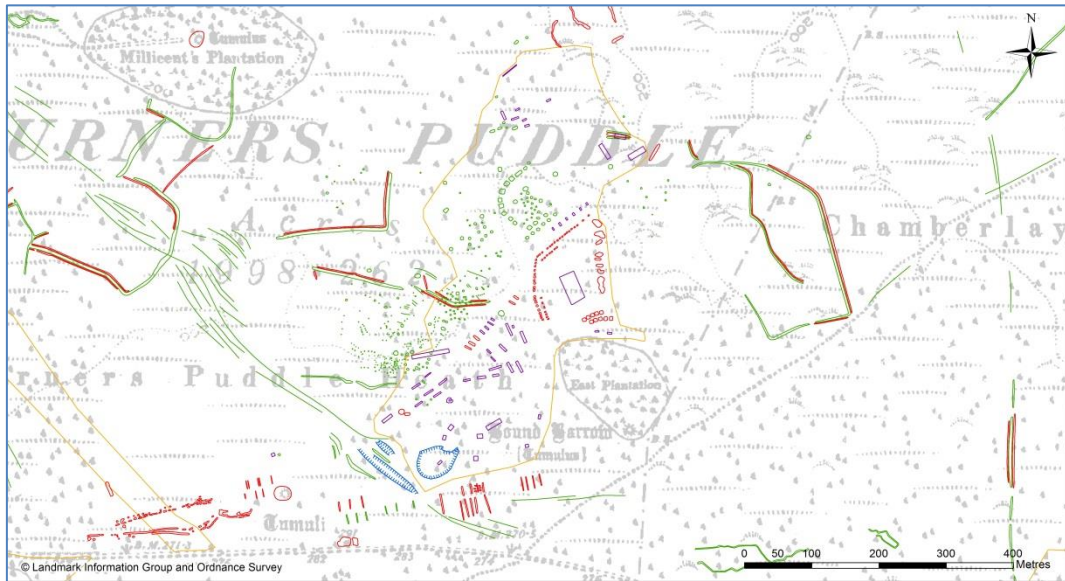


Figure 71. Early 20th century military camp on Turners Puddle Heath with associated firing ranges.

NMP Mapping © Historic England



Figure 72. Bovington hutted camp in 1918.

MDO30438. Unrectified vertical photograph, north to the top left of image.  
Photograph: JXG\_14217 Frame 21 01-JAN-1918 © J Gadd

The Heavy Section was greatly expanded as a result, necessitating a move from the small camp at Elvedon. A contemporary war diary of Colonel Swinton states; "the wooded country around Bovington is particularly adapted to the training of tank battalions, the rolling downs, the woods and the small streets being very similar to and as equally deserted as the battlefields of France" (Hutchins, 1920).

The now hotted camp at Bovington was expanded with the arrival of the Heavy Section and new buildings and facilities necessary for the maintenance and repair of tanks were added, including a new galvanised iron and steel-framed building with an overhead five-ton travelling crane.

Training took place on driving tracks on grounds which originally covered about 40 acres (around 16 ha), but were extended as the number of tanks increased. The tracks were arranged to give the maximum variety of driving conditions, with part of the area being entrenched, part sparsely wooded and part artificially altered by means of explosives.

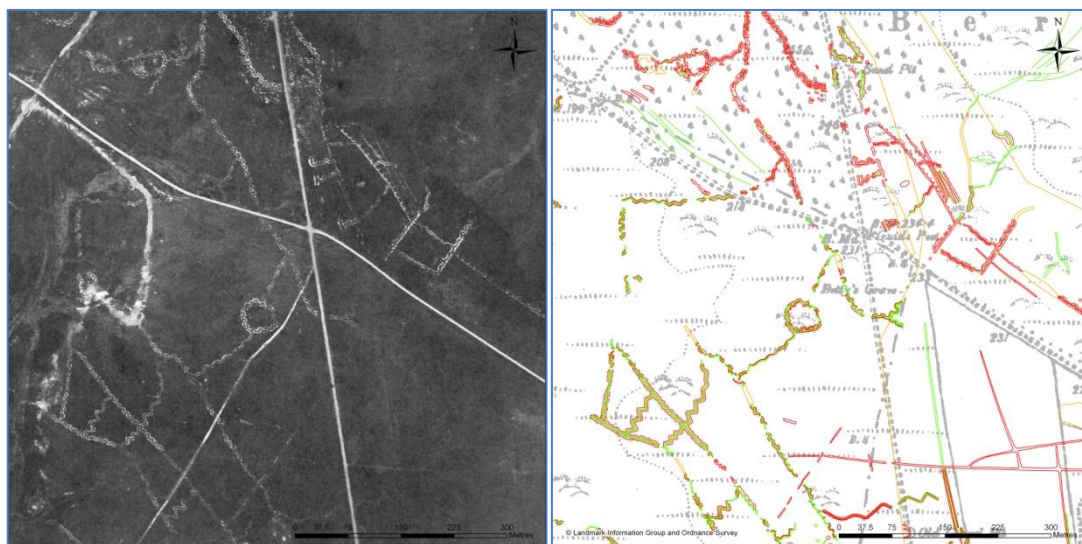


Figure 73. First World War practice trenching on Gallows Hill.

MDO30437. Photograph: CCC 11755 Frame 5851 date unknown circa 1920-30. © Historic England (Crawford Collection).

The practice grounds were gradually adapted to resemble battlefields and a replica of a section of the Western Front was created on Gallows Hill so that the crews could practice driving across barbed wire between the British and German lines. Many old trenches, shells and mine craters had been left by the infantry, dating from the early life of the camp and these were utilised as tank training obstacles. The remains of the complex trench system on Gallows Hill, the scattered sections of earlier practice trenches and numerous shell craters were plotted during this project (Figures 73 and 74).

On the 28<sup>th</sup> June 1917 the War Office changed the name of the Heavy Section to the Tank Corps and expanded it from nine to 18 battalions. By the end of 1917 there were 300 tanks at Bovington and further technical buildings had been added to the camp. In total, 21,000 officers and men completed their tank training during the war at Bovington.

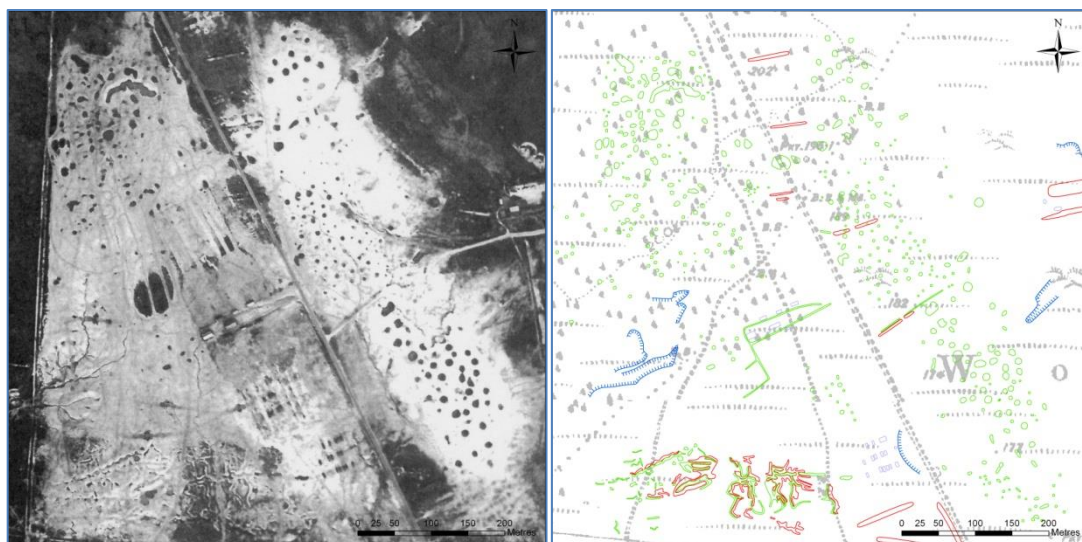


Figure 74. Bovington Camp. First World War Tank Ranges.

MDO30444. Photograph: CCC 11755 Frame 5860 date unknown circa 1920-30. © Historic England (Crawford Collection).

### The Inter-war period

Rapid demobilisation after the end of the First World War led to the depletion of the Tank Corps. Personnel fell from 16,000 in 1918 to 2,232 in 1921. However, the Tank Corps was still used in a variety of operational roles overseas, such as in Palestine, Mesopotamia and India, together with Armoured Car Companies.

Their continuing use led to a recruitment drive and new waves of recruits were instructed by the Central Schools Gunnery School at Lulworth and at the Driving and Maintenance School at Bovington. On the 17<sup>th</sup> November 1923 the future of the Tank Corps was assured when it received a Royal Warrant, becoming the Royal Tank Corps. Bovington Camp was expanded during 1923-4 and older accommodation was refurbished.

Land which had been requisitioned during the First World War, then returned to its owners, was purchased by the War Office to further expand the site. There was an increase in emphasis on the tactical side of instruction and an expansion in experimental work. One new recruit who came to Bovington Camp in this period was T E Lawrence. He enlisted in the Tank Corps in 1923 under the name "T E Shaw". Lawrence did not enjoy his time in the Tank Corps but was impressed by the training and provisions of the camp. He noted "fuel, food, bedding etc all plentiful" (T E Lawrence in D Garrett 1938).

In 1937 Central Schools became the Armoured Fighting Vehicles School, with a Gunnery wing at Lulworth and a Driving and Maintenance wing at Bovington. In 1939 the Royal Armoured Corps was formed, bringing together the Royal Tank Corps and the mechanised cavalry regiments.

The camp expanded to the south at the beginning of the Second World War, but otherwise remained as it had been in 1925.

Post Second World War to modern day

Further acquisitions of land have been made since the Second World War and the RAC Centre has continued in use. Bovington camp continues in its role as the British Army's Centre of Excellence for Armoured Fighting Vehicle (AFV) training. In 1999 it was renamed Armour Centre. Its current role is as an operational division of the Army Training and Recruitment Agency. In 2008 the Bovington Training Area came under the command of the Defence Training Estates, now the Defence Infrastructure Organisation.



Figure 75. Bovington Camp in 1946

MDO30438.  
Unrectified vertical photograph, north to the top left of the image.

*Photograph: RAF 106G/UK/1179  
Frame 3067 20-FEB-1946 Historic England RAF Photography.*

Bovington Camp retains a training role for armoured fighting vehicles into the present day. As an active military site, it is not easily accessible on the ground, but analysis of historic and modern aerial photographs make it possible to document its development.

Whilst large areas of the range have been ravaged by a century of military training and the modern tanks have obliterated significant portions of the early 20<sup>th</sup> century practice trenching, isolated areas are still visibly extant. Perhaps the best preserved are the sections of practice trenches and associated shell holes on Stoke Heath (Figure 76). The Heath has been taken out of active military use and is currently an area of undisturbed open heathland.



Figure 76. Early 20th century practice trenching and associated shell holes on Stoke Heath, Bovington Camp.

MDO30427 and MDO30437. Unrectified oblique photograph, north to the bottom of the image. Photograph: SY8489/15 NMR 21554 frame 27 15-APR-2002 © Historic England.

Although still being used for military training, significant tracts of Bovington Camp have been given over to plantation and scrub making it difficult to assess the current survival of military earthworks. Figure 76 shows the same areas as Figures 73 (left) and 74 (right) in 2008. Large portions of the original tank ranges have been obliterated by the expansion of the camp infrastructure however much may still be preserved under the encroaching scrub vegetation and tree plantation.



Figure 77. False Colour Infrared Photographs of Bovington Camp, 2008.

Left: Photograph PGA\_SY8490\_2008\_08\_30 Right: Photograph mosaic  
PGA\_SY8290\_2008\_08\_30, PGA\_SY8390\_2008\_08\_30,

PGA\_SY8289\_2008\_08\_30 and PGA\_SY83890\_2008\_08\_30. 30-MAR-2008 © Bluesky Internal Getmapping PLC

### 7.10.2 RNCF Holton Heath

Holton Heath is situated on the northwest side of Poole Harbour and was the location of the first purpose-built factory for the manufacture of cordite. The factory was built during the First World War as a response to the need for the Royal Navy to have an independent supply of cordite used as a propellant for shells (Bowditch, 1996 and NHLE 1019151).

The manufacturing process involved very volatile ingredients and Holton Heath provided a perfect remote coastal location adjacent to the railway with good transport links to the naval bases at Devonport and Portsmouth. Building work started in 1915 and the factory opened in January 1916, occupying an area of around 200 hectares.

A world shortage of acetone, an important component in the manufacturing process, meant that the factory required its own supply and an acetone plant was therefore added in 1917.

The problem with using cordite was that the flash given off at firing gave away the position of the guns. For this reason flashless cordite was developed in the 1920s. Flashless cordite no longer required large quantities of acetone and the factory's concrete acetate fermentation tanks were therefore abandoned and then later converted into air raid shelters during the Second World War. The new cordite did however require the addition of picrites and a picrites factory was therefore added to the site in 1937.

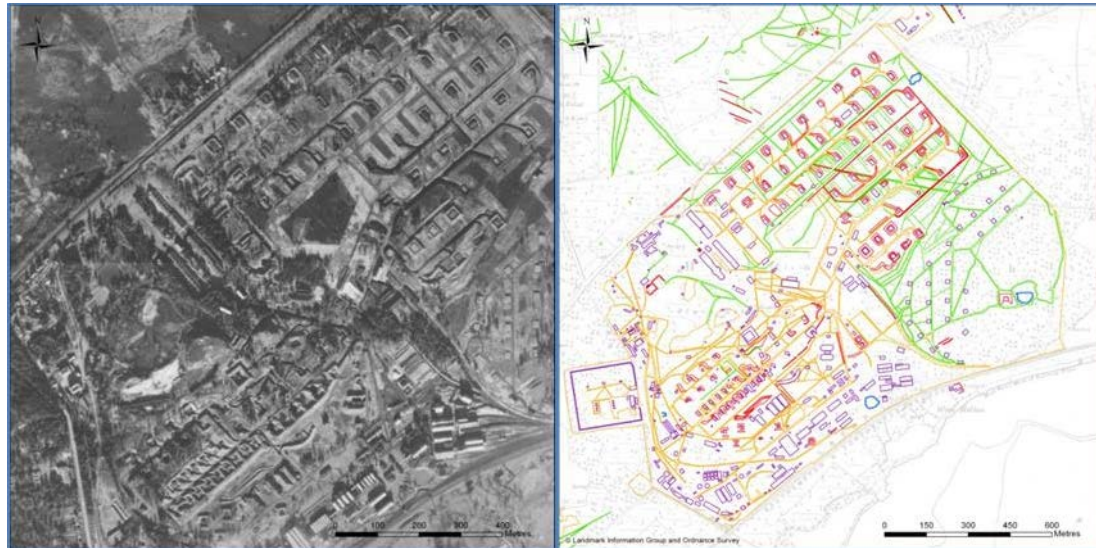


Figure 78. First and Second World War Royal Naval Cordite Factory on Holton Heath, Studland.

MDO8224. Photograph: RAF CPE/UK/1934 Frame 2049/5049 17-JAN-1946 Historic England RAF Photography. NMP Mapping © Historic England

Cordite manufacture ceased in 1946 although picrites and tetryl production continued intermittently until 1957 when the factory finally closed. To the west of the main factory complex, a square fenced-off area was used as an experimental compound for cordite testing.

The components of the Holton Heath site including the acetone plant, a nitration plant and a cordite drying plant and picrites factory in the east. In all over 120 buildings sat within the Danger Area and each was surrounded by earthen mounds. Many of these features were mapped during the project from photographs taken in 1946 (Figure 78). Many are still extant and a large area of the site is currently protected by Scheduling.

During the Second World War the factory was protected by anti-aircraft batteries (section 7.10.3.2) and three decoy sites at Arne, on Brownsea Island, and on Gore Heath. Features possibly associated with the Gore Heath decoy were identified during the project (section 7.10.4.4).

### 7.10.3 RAF Warmwell

One military airfield is situated within the project area, that of RAF Warmwell. This Second World War site was initially called RAF Woodsford when it opened in 1937. The station, which only ever had grass runways, was initially home to the 6<sup>th</sup> Armament Training Camp and used as a practice airfield for armament training due to its proximity to Chesil Beach Bombing Range (Hampshire Airfields 2014).



Figure 79. RAF Warmwell.

MDO31842. NMP Mapping © Historic England





Figure 80. Barrage Balloon moorings at RAF Warmwell.

*Photograph: RAF CPE/UK/2491 Frame 3003 11-MAR-1948 Historic England RAF Photography.*

During the Second World War the airfield became an important fighter station and aerial photographs between 1940 and 1946 document the expansion of the technical area to the east of the runway. The airfield was repeatedly bombed by the Luftwaffe during the war and the sites of several barrage balloon mooring sites were visible on the historic photographs (Figure 80).

The airfield was taken over by the USAAF in 1944 and used before and after D-Day and then closed immediately after the war. It was sold in 1950 and the eastern section is now built over by housing at Crossways. Some of the Second World War features still remain including the air traffic control tower and cinema which is now the village hall. The western part has largely been destroyed by sand and gravel extraction at Warmwell Quarry.

Immediately to the north of the airfield a number of ancillary military features were identified on the historic aerial photographs including a round embanked structure 60m across which was interpreted as the site of a radar mast or transmitter site (MDO31843). This feature was associated with other military buildings and, to the north at SY 7610 8941, a series of abandoned roadways and building bases (MDO31844).

These structures were initially considered by the interpreter to be ancillary features associated with the Second World War airfield, however the site of a First World War airship station is documented in this area (DCC 2015b). Work on Moreton Admiralty Airship Station was commenced in 1918 but it was never operational as the war ended before it was completed. The exact location of the airship station is not documented and the mapped structures may relate to it (Figures 79 and 81).



Figure 81. Possible site of First World War Airship Station, Crossways.

MDO31844 Photograph: RAF CPE/UK/2491 Frame 3003 11-MAR-1948 Historic England RAF Photography.

#### **7.10.4 Other Second World War military features**

During the Second World War, the entire length of the south coast of England became the front line of the European conflict and was fortified in anticipation of invasion. Large areas of the countryside inland from the coast were requisitioned for military training areas, camps and for the construction of airfields. Being in a prime location near the south coast, relatively unpopulated and in close proximity to the important urban centres of Weymouth, Poole and Bournemouth, the project area was greatly affected by the war.

##### **7.10.4.1 Anti-Aircraft Batteries**

German aerial bombing raids over Britain were most intensive during the winter of 1940-41. Important urban installations and dockyards were targeted by the Luftwaffe during the 'Blitz'. Less intensive bombing continued throughout the war before intensifying once again in 1944 (Dobinson 1996a).

Anti-aircraft guns were first deployed in England as a response to the First World War and by 1939 were distinguished between heavy anti-aircraft artillery (HAA) for high-flying bomber aircraft and light artillery (LAA) as a defence against low-flying aircraft.

Artillery batteries were most extensive across England in the later years of the Second World War with Operation Diver, the code name given to the defensive actions taken against the German flying-bomb. *Diver* was developed during the spring of 1944 and between June 1944 and March 1945 a series of anti-aircraft guns, searchlights, radar and early warning installations were developed across the south of England (Dobinson 1996a and 1996d).

Poole Harbour was extremely important strategically during both the First and Second World Wars, lying on the south coast and offering secure harbour for naval ships. The Harbour was protected by a ring of light and heavy anti-aircraft batteries and coastal batteries many of which are still

in a good state of preservation. The sites of three heavy anti-aircraft batteries were identified during the project in addition to two light anti-aircraft batteries and seven other potential gun batteries and gun emplacements. Nine of these sites lie on the periphery of Poole Harbour and two others inland of Swanage. The final site is a single gun emplacement protecting RAF Warmwell.

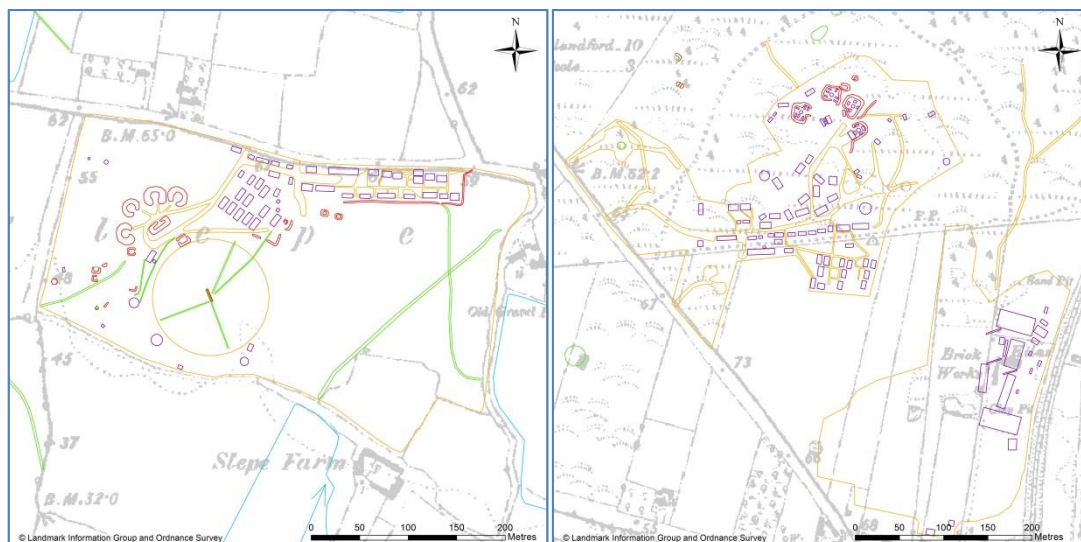


Figure 82. HAA's at Slepe (Left) and Upton (right) Lynchett Minster.

MDO30549 and MDO30978. NMP Mapping © Historic England

Heavy anti-aircraft batteries.

HAAs employed a range of large calibre (3 inch to 5.25 inch) guns and up to 1940 most were housed in temporary earthwork emplacements. Later emplacements became permanent and generally comprised four guns in a semi-circular formation around a command post with administrative and accommodation blocks close by. Two of the HAAs at Slepe and Upton formed part of the ring of six built to protect the Royal Navy cordite factory on Holton Heath (Dobinson 1996a, Vol 1.3, 375) (Figure 82).

The large circular feature identified to the southeast of the gun emplacements at Slepe (Figure 82, left image) is considered to be the site of a gun laying radar platform. Initially known as Radio Direction Finding, gun laying radar platforms were used on heavy anti-aircraft batteries to provide medium range warning of incoming enemy aircraft, tracking them and allowing fire upon airborne targets in poor visibility or at night (Dobinson, 1996a, 128-138).

Light anti-aircraft batteries.

LAAs employed a range of armaments including light machine guns fixed to poles or tripods and were generally more temporary structures. They also were armed with 40mm Bofors guns which were the most popular medium-weight anti-aircraft systems used during the war.

LAAs varied in structure from small gun-pits protected by earthwork banks to larger platforms with blockwork and earthen bank protections.

One potential site of an anti-aircraft battery was identified on Stoborough Heath, Arne (MDO31152). Here four curvilinear embanked features, each approximately 6-9m across are arranged in an arc formation on Hyde Hill. Three smaller curved features are set inside the arc which is located between two Bronze Age barrows and on an area of heathland crossed by many post medieval trackways. The size and curved array of these features is suggestive of it being an anti-aircraft battery, possibly with a central command post (Figure 83).

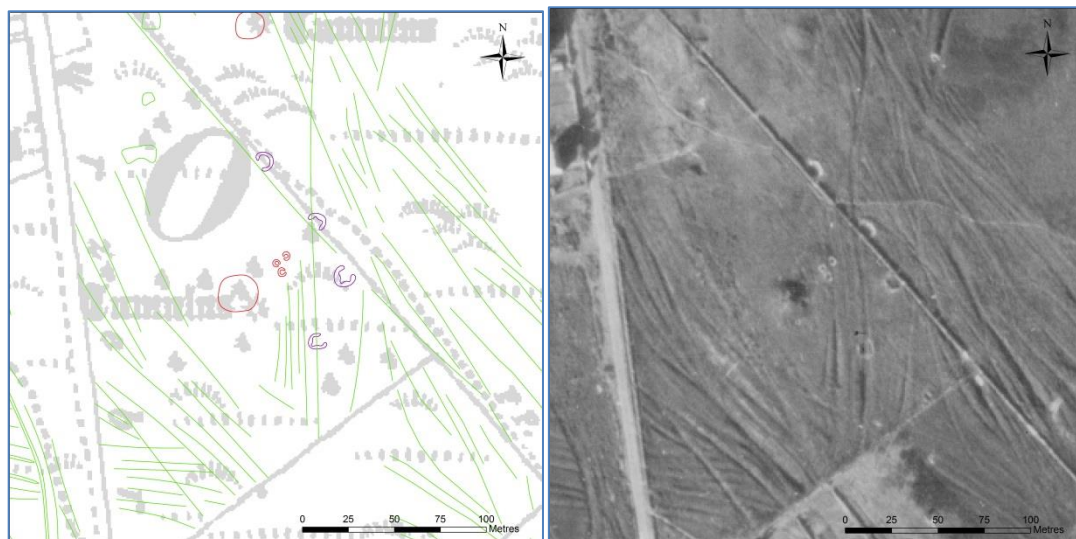


Figure 83. Possible anti-aircraft battery on Stoborough Heath, Arne, Lynchett Minster.

MDO31152. Photograph: RAF CPE/UK/1821 Frame 4410 04-NOV-1946 Historic England RAF Photography. NMP Mapping © Historic England

#### 7.10.4.2 Anti-invasion Obstacles

The expected invasion of Britain was considered most likely to combine an invasion force landing on the beaches combined with parachute and glider troops landing inland. Following the evacuation from Dunkirk, the Home Executive was tasked with constructing anti-landing obstacles as a matter of urgency.

Potential areas suitable for the operation of troop carrying aircraft were made unfit for landing, being systematically obstructed with trenches, poles, scaffolding and barbed wire. These obstructions were one of Britain's earliest anti-invasion defences and became the most extensive (Dobinson 1996b).

Work began in May 1940 on areas within five miles of operational airfields and continued until autumn 1941. Potential landing grounds were to be obstructed by trenches dug on a chequer board pattern with sides of 150 yards. The approved method issued by War Office on 27th May 1940 was for the trenches to be four feet wide and flanked with spoil heaps to enhance the obstacle (*ibid*, 134).

Four areas of possible anti-landing obstacles and trenching were identified during the mapping on Morden Heath, Wareham (MDO30561), on the outskirts of Swanage (MDO30842), Slepe Heath, Arne (MDO30905) and on Newton Heath, Studland (MDO30865).

Each of these sites comprised one or two short lines of mounds or pits. They did not form parts of extensive systems of obstructions and therefore their interpretation is only tentative. The Newton Heath example is perhaps the most extensive with a grid pattern of pits and mounds covering an area of 9ha over what would have been open heathland during the war but is now under modern plantation.

#### 7.10.4.3 Barbed wire obstructions

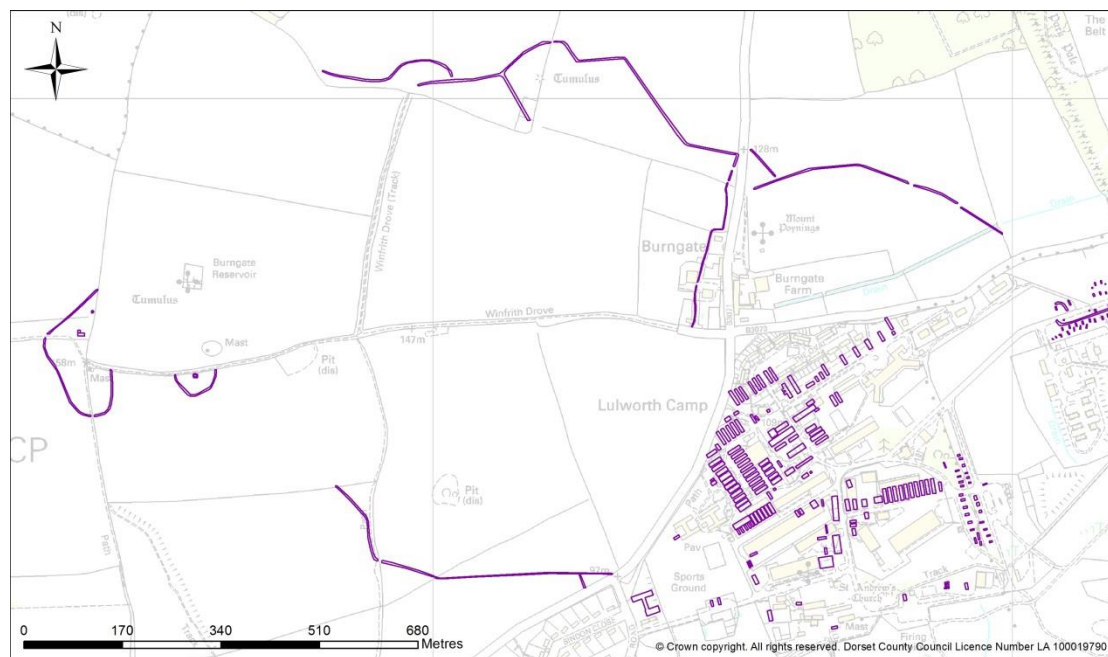


Figure 84. Barbed wire obstructions protecting the northern and western flanks of Lulworth Camp.

MDO31893-6. NMP Mapping © Historic England

Two main forms of barbed wire obstruction were deployed during the war. Barbed wire fences comprised several lengths of barbed wire affixed to posts and were most commonly used at the coast as part of a linear beach defence. Barbed wire entanglements comprised three coils of barbed wire stacked upon each other and fixed by metal picket fencing; this construction was more generally used around defended positions such as pillboxes (Foot 2006).

Barbed wire obstructions were not easily identifiable on the aerial photographs, being visible only as darker lines cutting across the landscape, caused by the longer growth of vegetation and weeds within the entanglements themselves (the barbed wire prohibiting access to grazing animals or other means of maintenance).

In other places barbed wire was identified encircling gun emplacements, pillboxes and other military installations, presumably to enhance their defences as well as preventing civilians from straying into these potentially dangerous locations.

At nine sites these darker lines were identified as barbed wire. These included extensive linear defences to the north and west of Lulworth Camp and two barbed wire 'enclosures' surrounding installations to the west of the camp (Figure 84). Barbed wire defences were also identified around

military buildings and installations at Egliston, Tyneham (MDO31772, 3, 5 and 6).

#### 7.10.4.4 Bombing decoys

The bombing of airfields, communications targets, towns and cities was an integral part of Germany's *blitzkrieg* or lightning war. Heavy bombing of the British mainland commenced in 1940 with attacks on airfields and important strategic settlements. Air defences included gun batteries and barrage balloon bases as well as less conspicuous dummy targets and decoy sites designed to protect specific targets (towns and airfields) by drawing away enemy fire.

The decoy sites included day and night dummy airfields (K and Q sites) and diversionary fires (QF and SF (Starfish) sites) designed to simulate night time fires after a successful bombing raid. Other strategic sites such as towns, factories and army and naval establishments were protected with Starfish and simulated urban lighting decoys (QL) (Dobinson 1996c).

A bombing decoy is documented within the project area on Knighton Heath, Winfrith Newburgh (Dobinson 1996c, 94). It was a Q type night decoy built to deflect enemy bombing away from RAF Warmwell, which lay 4km to the west. The decoy would have displayed lights to resemble an active airfield and is documented as being active for 12 months between August 1941 and August 1942.

Just to the north of Knighton Heath on Winfrith Heath an extensive grid-like system of pits was identified across 75ha of heathland. The features were interpreted as either anti-landing obstacles or potentially the site of the bombing decoy. A bomb crater lies at the junction between two lines of pits perhaps indicating success of the site, if it indeed it is the site of the bombing decoy (Figure 85).

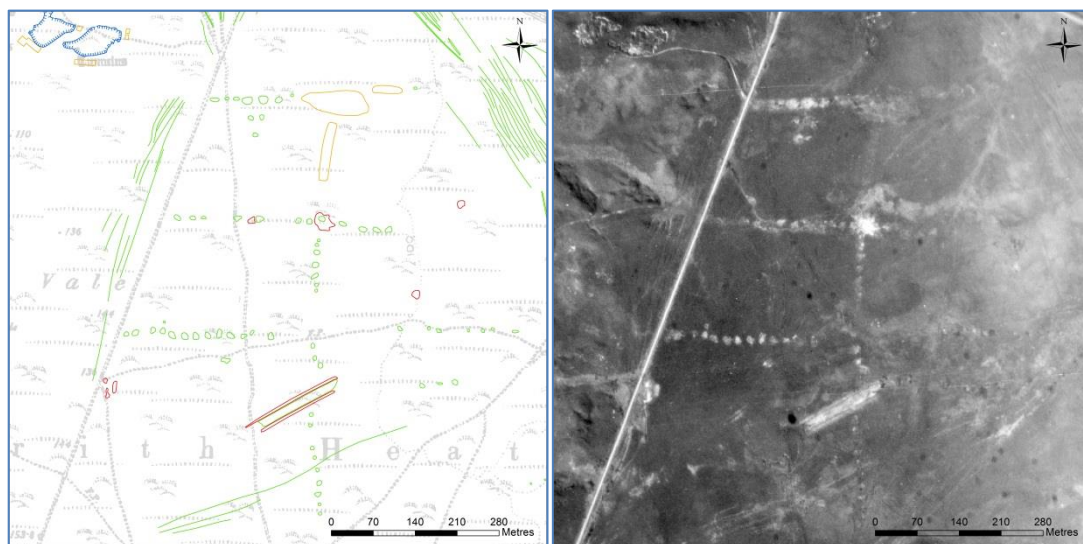


Figure 85. Possible night bombing decoy on Winfrith Heath, Winfrith Newburgh.

MDO30342. Photograph: RAF CPE/UK/1821 Frame 6424 04-NOV-1946 Historic England RAF Photography. NMP Mapping © Historic England

A bombing decoy is also documented on Gore Heath, Wareham St Martin (Dobinson 1996c, 116). It was a QF type night decoy built to deflect

enemy bombing away from RNCF Holton Heath which lay less than 2km to the southeast. A small group of earthworks were identified on the heath which had been attributed to Second World War military activity, these features may relate to the decoy site (MDO30567).

#### **7.10.4.5 Prisoner of War Camps.**

The site of a German prisoner of war camp is documented to have been located in woodland at West Lulworth (Thomas 2003, 50). The camp, known as Park Camp (camp number 688), was a German Working Company Camp housed on the site of a former British Army camp.

Features associated with the camp, including barrack blocks and a possible exercise yard, were mapped from photographs taken just after the end of the war (MDO31898). All the buildings have since been demolished, although traces of the east-west roadways are still identifiable on recent Google earth images.

#### **7.10.4.6 Other military features.**

There has been a long history of military activity in Dorset and large parts of the project area have been used for military training since the First World War and earlier. In addition to the important military camps of Bovington Camp and Lulworth Camp (section 7.10.1), a number of other smaller training areas, military installations, firing ranges and traces of practice slit trenching were identified across the study area. In all, five military camps and nine groups of military buildings were identified as well as 27 unidentified military sites, 30 areas of slit trenching and 28 weapons pits.

Traces of practice trenching, possibly dating back to the First World War, were identified on many of the open heathlands including Worget Heath, Arne (MDO30245), Gore Heath, Wareham St Martin (MDO30601-2) and Northport Heath, Wareham St Martin (MDO30719). Possible tank tracks were plotted at Great Ovens Hill, Gore Heath and a possible tank range at Dean Hill, Studland (MDO30830).

The 141 bomb craters and groups of bomb craters that were mapped during the project are evidence of the amount of military activity that took place within the project area during the Second World War. The bomb craters are scattered right across the project area and are associated with both enemy bombing raids and Allied training. The greatest concentrations lie on Winfrith Heath, associated with the site of a possible bombing decoy (see section 7.10.3.5), on the open heaths of Arne and Studland on the southern fringes of Poole Harbour, and on the northern fringes of the Harbour in the vicinity of RNCF Holton Heath.

To the west of Part Square Plantation, Wareham St Martin, a large circular perimeter fence, approximately 450m in diameter was identified on aerial photographs dating to 1945 (MDO30178, Figure 87). The feature appears to have an internal series of structures in a linear arrangement towards the south of the site, and another structure is located just outside the perimeter fence to the northwest.

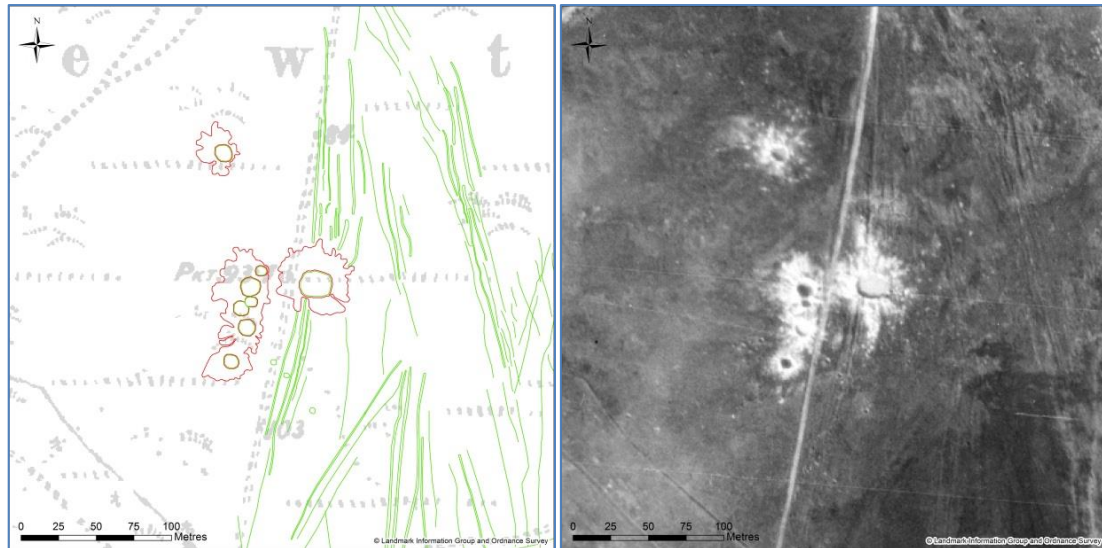


Figure 86. Bomb craters on Newton Heath, Studland.

MDO31152. Photograph: RAF CPE/UK/1821 Frame 4397 04-NOV-1946 Historic England RAF Photography. NMP Mapping © Historic England

The Part Square Plantation feature is of uncertain function but is considered to be of military origin due to its precisely circular morphology. It is possibly associated with radar or radio transmission being reminiscent of gun laying radar platforms although at 450m it is significantly larger than the normal 119m diameter (Dobinson 1996a). It may alternatively have been some kind of direction marker as it would have been highly visible to military aircraft in flight.

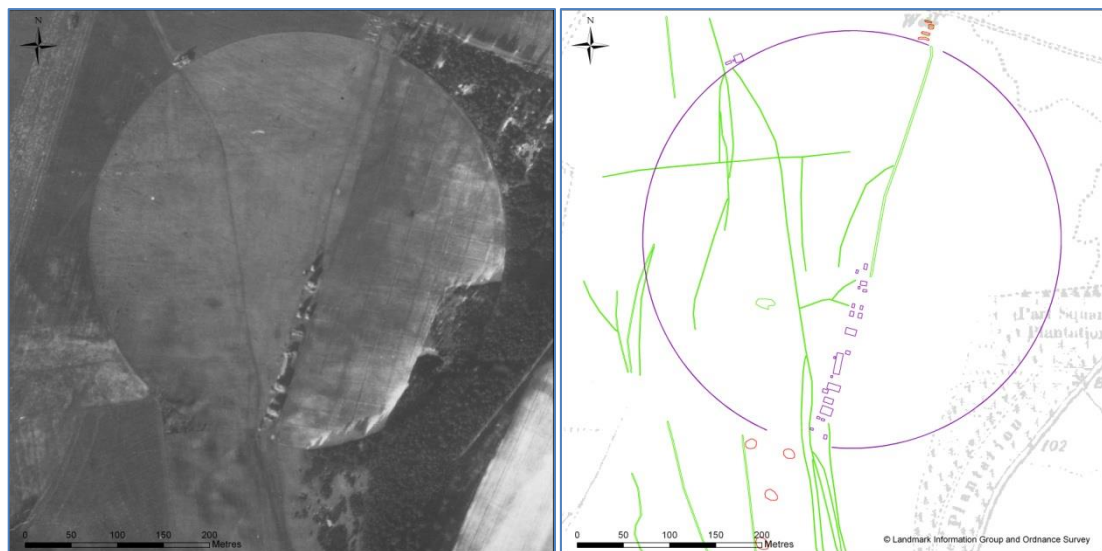


Figure 87. Uncertain military feature, Part Square Plantation, Wareham St Martin.

MDO30178. Photograph: RAF 106G/LA/105 Frame 1044 21-JAN-1945 Historic England RAF Photography. NMP Mapping © Historic England



## 7.11 NMP results: Undated sites

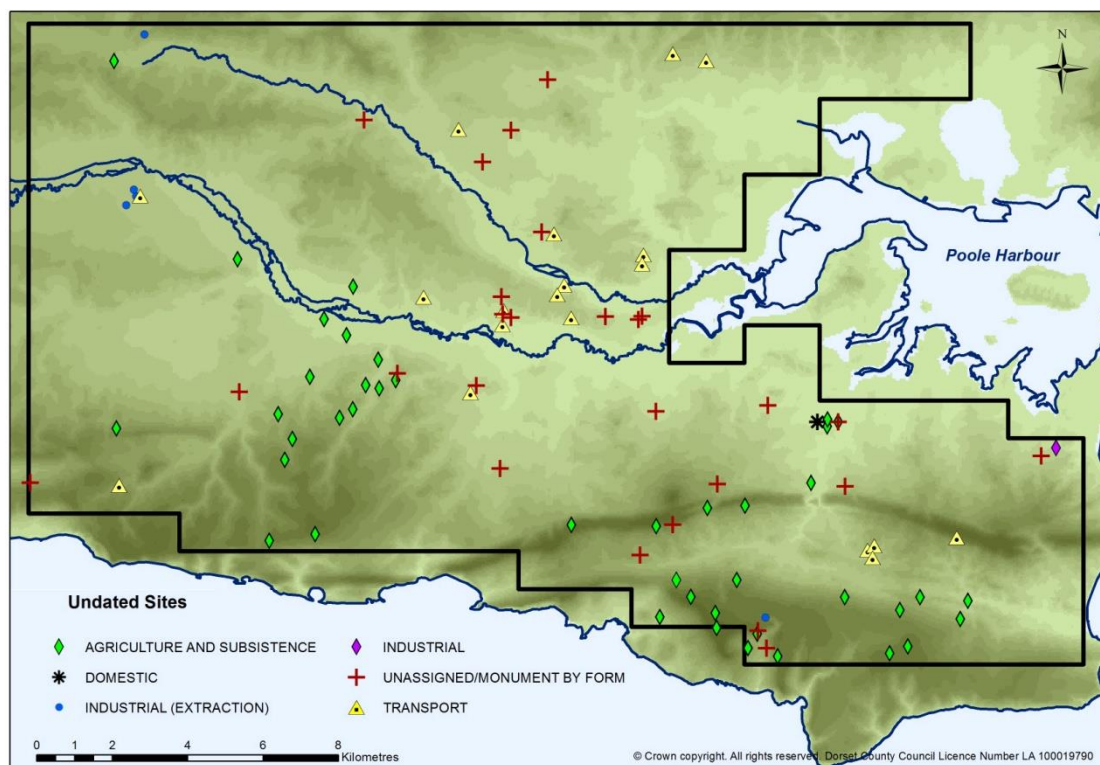


Figure 88. Distribution of undated sites.

Ninety four sites were listed in the project database as of uncertain date; these are sites to which a more specific prehistoric or historic date could not be allotted with confidence. They include sites of ambiguous function, such as mounds and ditches, as well as site types that could range in date from the prehistoric through to the historic periods, such as field boundaries and field systems, trackways, and enclosures. Many of these sites could well be of prehistoric origin. Of the 94 sites, only six had been previously recorded in the Dorset HBMR.

Site Type	No: Sites
Bank (earthwork)	3
Enclosure	9
Extractive Pit, Pit	8
Field Boundary. Field System	41
Mound	12
Settlement	1
Strip Lynchet	1
Trackway	19
<b>Total</b>	<b>94</b>

Table XIII Undated site types

Sites of particular interest include an undated settlement on New Mills Heath, Corfe Castle (MDO7505). Here a complex of settlement enclosures

and field boundaries lie on the northern edge of a plateau of sandy heathland to the west of the Corfe River (Figure 89).

The site is reminiscent of later prehistoric or Roman settlements in other parts of the country although a medieval date cannot be ruled out on the strength of the aerial photographs alone. The site is immediately to the south of the post medieval enclosures described in section 7.8.1 (Figure 56), and a contemporary date cannot be ruled out.

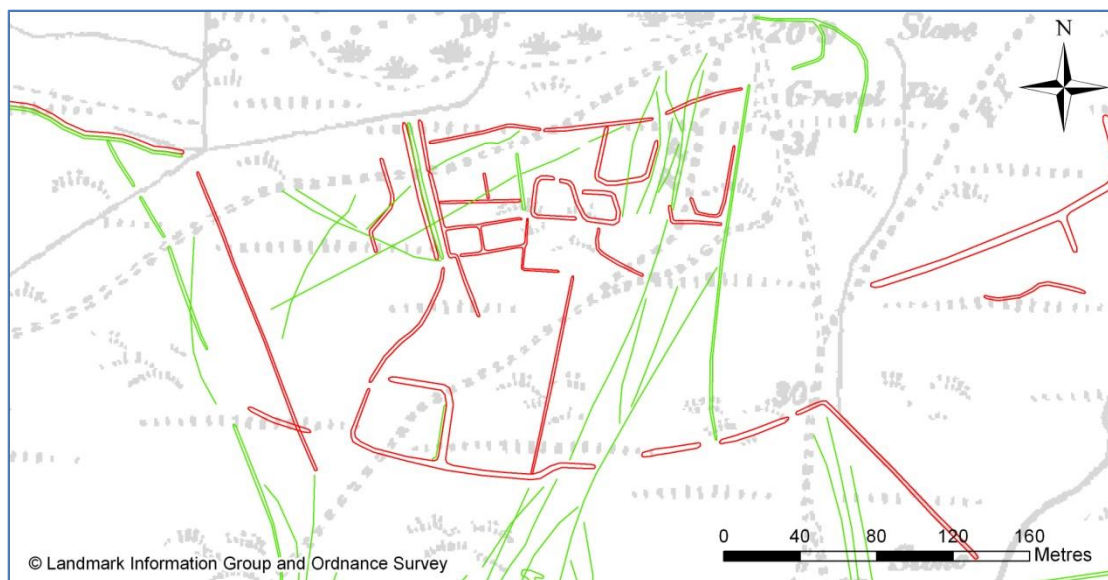


Figure 89. Undated settlement on New Mills Heath, Corfe Castle.

MDO7505. Photograph: RAF CPE/UK/1821 Frame 4404 04-NOV-1946 Historic England RAF Photography. Background mapping NMP Mapping © Historic England

**The Studland Circles.** A group of intriguing near-circular enclosures are located on the Studland Peninsula. They were first recognised in 1860 when they were considered to be prehistoric roundhouses. The date and function of the circles still remains uncertain despite survey and excavation. It has previously been suggested that they are Roman or medieval salt pans (Legg 1987), although this has been questioned due to the permeability of the underlying bedrock (West 2014). Another theory is that they were weathering pots for seaweed dating to the post medieval period (Henderson 2011). Excavation work carried out at one of the circles in 2009 suggested a post medieval date for the features as the circle had been cut into wind-blown sand which may have been deposited since 1500 (PHHP 2014 and Bellamy et al 2014).

A group of Studland Circles had previously been plotted during the Rapid Coastal Zone Assessment Survey NMP, to the north of the current project area (Royall 2014, 101). Two curvilinear embanked enclosures between 32m and 40m across were identified on lidar imagery during the current project towards the southern end of Studland Heath (MDO30994 and MWX3117, Figure 90). They are considered likely to be outliers to this group.

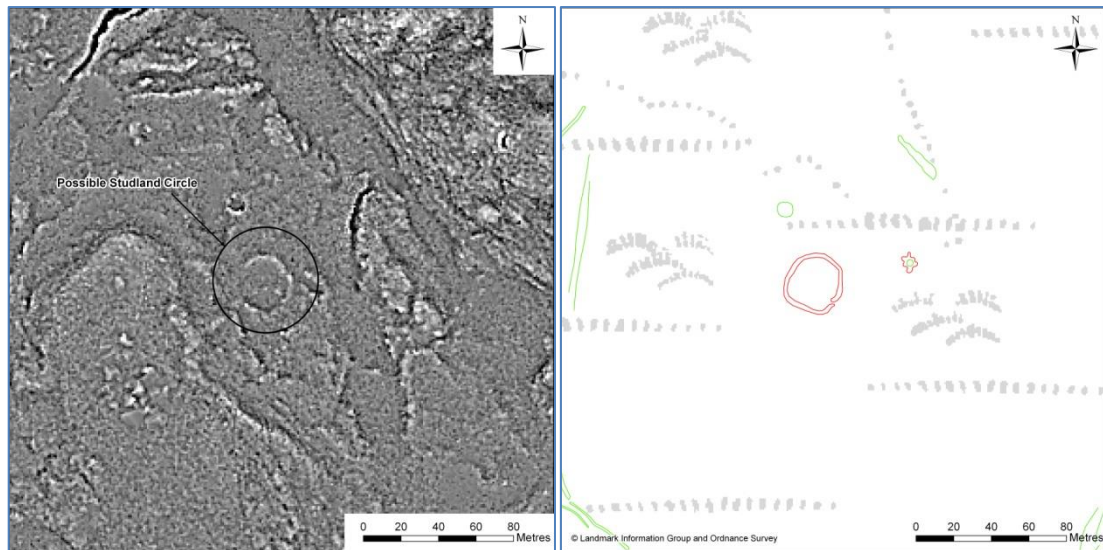


Figure 90. Possible Studland Circle to the south of Greenlands Farm, Studland.

MWX3117. © Cornwall Council 2015 based on Natural England Geomatics lidar data 2012. NMP Mapping © Historic England

## Conclusions

The NMP mapping of Purbeck identified 2328 monuments of which 1934 (83%) were previously unrecognised or unrecorded in the Dorset HER. The project mapped a wide range of site types from all periods ranging from the Neolithic to the mid-20th century and demonstrated both the great complexity and intensity of use of the landscape within the project area.

Of the 2328 sites recorded, 1349 (58%) were still extant or partially extant earthworks and 26 (1%) were extant or partially extant structures. Nine hundred and fifty three (41%) had been completely levelled or demolished and of these, 48% were visible or partially visible as cropmarks on the aerial photographs. In this respect the project fulfilled its aim of improving knowledge of the archaeological resource, by providing a fuller awareness of the range and extent of archaeological remains within the project area.

By looking at the RAF historical photographs dating to the 1940s, many features were plotted on the once open heathlands that have since been obscured through mid to late 20th century conifer and mixed plantation. Over a fifth of the project area lies within the HLC area woodland (i.e. ancient woodland and modern plantation (see Table 2 and Figure 8) and 334 sites (14% of the total mapped during this project) lie within these wooded plantations.

Whilst across the project area as a whole, 52% of sites mapped during the project were assessed as surviving earthworks on the most recently available imagery, this figure increases to 68% for sites within the woodland. One of the main aims of this project was to enhance awareness of the archaeological resource within the 20<sup>th</sup> century plantations. Over a fifth of the project area is located within the HLC type woodland and 334 sites (14% of the total mapped during this project) were identified within these wooded plantations.

Of the sites within HLC type Woodland, 82% have not previously been recorded in the Dorset HER. This enhanced awareness of the archaeological resource within these plantations will facilitate the sensitive restoration of the ancient heathlands.

On a broader level, the results of this project will assist the management of the area's historic environment on a site specific as well as a strategic level. By looking in detail at the areas of cropmark sites the NMP mapping will help define those parts of the Purbeck landscape most sensitive to threat by ploughing or urban expansion

The main outcomes of the NMP mapping and recommendations for further survey and research are set out below.

### 7.12 Outcomes

Whilst many of the sites recorded during the mapping project were extractive features and cultivation remains dating to the historic periods, a significant number of prehistoric or Romano-British sites were identified. Many sites identified related to the use of this stretch of Dorset by the military from the early 20th century through to the present day. The

results have therefore greatly improved our understanding of the nature and extent of human activity along the Dorset coast for all periods.

Whilst sites dating to the Neolithic date were sparse, one potential new long barrow was identified during the project as well as 45 new Bronze Age round barrows. Only small numbers of later prehistoric monuments were recognised (including eight Iron Age, ten Iron Age/Romano British and 62 prehistoric or Roman sites); the majority (54%) of sites attributed to these periods were new to the Dorset HER.

Like neighbouring Hampshire, and Southern England in general, the early medieval period is poorly understood in Dorset. No sites recorded during this project could be positively identified as dating to this period.

Sites relating to the later medieval period were more richly represented with 112 sites recorded. These were particularly concentrated in the southern half of the project area, with the greatest densities on the Isle of Purbeck south of the Purbeck Hills. Of the medieval sites encountered, 46% were new to the Dorset HER. The majority of new sites were agricultural features such as field boundaries, field systems and ridge and furrow fields.

Postmedieval or early twentieth century sites were the most abundant with 1026 monuments being mapped and recorded, of these, 984 (96%) were new to the record. The current project is perhaps one of the first to systematically record post medieval sites within the project area. A broad range of monuments were recorded from this period including agricultural, industrial, domestic and military sites.

Evidence for 20th century military activity was identified right across the project area, particularly on the open heathlands, and much of this activity may have dated to the First World War. The systematic recording of military sites, particularly using the RAF vertical photographs taken during and soon after the war, has therefore proved highly informative.

Further research into the impact of the Second World War using the exhaustive documentary sources from the period may prove invaluable in providing more precise dating and interpretations for some the features plotted.

### **7.13 Recommendations**

- **Continuing aerial reconnaissance.** Specialist aerial reconnaissance has been undertaken over the project area in recent decades and a number of important new sites have been identified from this photography. In addition, a large number of remains were identified from vertical photographs taken by the OS and by the RAF in the 1940s. There consequently remains considerable potential for the discovery of archaeological sites through a continuing programme of aerial reconnaissance, particularly during the summer months. The use of NMP mapping during future aerial reconnaissance will also allow much greater efficiency by facilitating better targeting in an area of very dense archaeological remains.
- **Further NMP projects.** The significant numbers of important new sites recorded during the project demonstrate the effectiveness of

NMP mapping within Dorset. This is despite there having been a long history of aerial reconnaissance over the county since the 1920s. Further NMP mapping for all parts of the county as yet unmapped would be of enormous value, especially in those areas subject to continued ploughing.

- **Further investigation of sites recorded from aerial photographs.** Although a large number of sites have been recorded from aerial photographs, a relative lack of field work and excavation means that little is known about them. In particular the date and function of many features is unclear. A programme of ground-based investigation of a representative sample of the sites recorded by NMP, involving field walking, geophysical survey and limited excavation, would significantly enhance current knowledge of prehistoric, Roman and Saxon rural settlement.

A selection of sites which would benefit from further ground-based investigation is included in Appendix 4 below. Of notable interest is the Neolithic long barrow or mortuary enclosure at Watercombe, Owermoigne (MDO32049) and the group of ring-ditches at Burleston, Tolpuddle (MDO30640), both known only from cropmarks on aerial photographs. The Burleston enclosures may be the remains of a prehistoric settlement but may equally be the levelled remains of a Bronze Age ritual site.

- **Enhanced Designations.** The NMP mapping has added to the numbers of important archaeological monuments within the project area. The extents of previously known sites (such as field systems) have in some cases also been increased. This is an important area of the country in terms of the national archaeological resource and therefore is it strongly recommended that the current designations (in terms of the numbers and extent of scheduled sites) are reviewed at the earliest opportunity. A list of potentially national and regionally important sites is included in Appendix 4).
- **Round Barrow Assessment.** Of the 277 round barrows recorded during the project, 247 still survive as earthworks. Of these, 45 are new discoveries. A significant number of those previously recorded in the Dorset HER are not scheduled. It would be beneficial to carry out a further a project to assess all barrows in the landscape in order to identify those most at risk and those most suitable for designation.
- **Further investigation of form and survival.** Undertake further analysis on change of form and survival of sites over time. The rate at which sites visible as earthworks in the 1940's are now cropmarks, are sites on particular soils/geologies or in particular HLC zones more susceptible to this kind of change in form/survival. This would be valuable when looking at management of the heritage of Purbeck on a broad and site level.
- **Further investigation of site distribution and geology, soils and HLC.** Further research could be undertaken to fully assess the association between sites and soils/geology. Are there relationships between the underlying soils/geology and the types of site

encountered? If these factors do affect condition and survival, what is the likelihood that the distribution of known sites is representative of 'real' distributions of these site-types in the past?

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## **Project Archive**

The CAU project number is HEXQPR146348

The project's documentary and drawn archive is housed at the offices of the Historic Environment Service, Cornwall Council, Fal Building, County Hall, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing the project design, project correspondence and administration.
2. This report held in digital form on the Cornwall County network and copies deposited with HE and DCC
3. The AutoCAD drawings held in digital form on the Cornwall County network and copies deposited with HE and DCC

## Appendix 1 Methodology

### Sources

#### **Aerial photograph collections**

All readily available aerial photographs were consulted during the project. The Historic England Archive (HEA) formerly part of the National Monuments Record (NMR) in Swindon holds large numbers of aerial photographs of the project area. These include vertical prints taken by the Royal Air Force (RAF) and Ordnance Survey (OS) ranging in date from the 1940s to 1999.

The HEA also holds a large collection of oblique prints; including military obliques taken by the Ministry of Defence (MOD) between 1941 and 1950 and a collection of specialist oblique prints, slides and digital images which were taken for archaeological purposes and range in date from the 1960's to the present day. In addition a small number of very earlier oblique images taken in the 1920s and 30s by OGS Crawford are held in the HEA collection

Cambridge University Committee for Aerial Photography (CUCAP) holds an important national collection containing a number of vertical photographs taken for a range of non-archaeological purposes as well as specialist oblique photography resulting from archaeological reconnaissance.

In addition to these two national collections, Dorset County Council (DCC) holds a collection of vertical photographs. Images from several years of flying are held in this collection. The 1997, 2002, 2005 and 2009 colour images were provided to the project as digital jpegs as were scans of the 1972 greyscale photographs.

A total of 10,6190 aerial photographs were consulted during the project. These consisted of 8861 vertical photographs, 1,562 specialist oblique photographs and 177 military obliques.

The largest collection was that of the HEA, of which 7,320 photographs were consulted. Available photographs consisted of 5,670 vertical prints, 1,473 specialist oblique prints and 177 military oblique prints. These included 195 digital images and 426 laser prints. A loan arrangement was put in place enabling the consultation of these photographs at Cornwall Council's offices in Truro.

The photographic collection held by CUCAP was available to the project although access was restricted to 100 photographs per loan. These included 207 vertical prints and 89 specialist oblique prints.

Additional digital photographs available to the project included 2,537 vertical photographs from DCC and 447 photographic tiles provided by HE from the Pan Government Agreement (PGA). PGA images included 80 false colour infrared tiles. Online photographic images from Google Earth and Bing were also accessed via the internet.

## **Lidar Tiles**

Two hundred and ten lidar tiles were provided by the Environment Agency (Geomatics) as .asc files, a small number were also accessed from the Channel Coast Observatory.

## **Data sources**

### ***Data from the Dorset HBSMR***

Data from the Dorset HER (HBSMR) was provided to the project team as a series of Arcview shape files with attached object data

### ***Data from the NRHE***

Monument data from the National Record of the Historic Environment (NRHE) AMIE database was provided to the project team for the study area by HE at the start of the project. This data included details of all archaeological sites and was provided digitally in a series of PDF files and Arcview shapefiles.

## **Map Sources**

In addition to the current OS MasterMap data which was used as the primary source of control for the rectification and mapping. The historic 1<sup>st</sup> Edition mapping dating from the late nineteenth century was consulted to further understand the archaeology of the project area and to aid interpretation of specific sites.

## **Archaeological scope of the project**

**Plough-levelled features and earthworks.** All cropmarks and soilmarks representing buried "negative" features (i.e. ditches and pits), earthworks or stonework of archaeological origin were recorded. All earthwork sites visible on aerial photographs were recorded, whether or not they had previously been surveyed (including those marked on the OS maps), and whether or not they are still extant on the most recent photography.

**Buildings and structures.** The foundations of buildings and structures which appear as ruined stonework, earthworks, cropmarks, soilmarks or parchmarks were recorded. Standing roofed or unroofed buildings and structures were not normally plotted unless there was no other adequate map record. In specific archaeological contexts however (e.g. industrial and military complexes and country houses) or when associated with other cropmark and earthwork features, particularly when buildings have been demolished since the photography (even if depicted by the Ordnance Survey), then it may have been appropriate to map them in order to make an association explicit.

**Ridge and furrow .** All areas of medieval and post medieval ridge and furrow were mapped using a standard convention to indicate the extent and direction of the furrows. The project database included brief comment on preservation and visibility over the area mapped as well as any archaeological assessment.

**Water meadows.** Areas of extensive water meadows thought to pre-date 1945 were transcribed and recorded. The lines of the main drains and leats were mapped in full, plus a sufficient sample of the minor water courses to give a true feel for the extent and pattern of the whole.

**Post medieval field boundaries.** All removed field boundaries and field systems were plotted where they were considered to pre-date the OS 1<sup>st</sup> Edition map (c.1880) and are not already recorded on any other OS map. Where post medieval field boundaries mapped by the OS may be misinterpreted (e.g. within complex areas of archaeological features), these may have been plotted or mentioned in the text record.

**Parkland, landscape parks, gardens and country houses.** All park and garden landscape features (including deer parks) visible on aerial photographs but not previously recorded by the OS were plotted. Similarly, the former existence of country houses either completely or partially demolished during the period of photography were mapped. If the house is depicted by the OS then it will not be mapped but will be mentioned in the text record. Normally the whole complex of house, garden and park was recorded using a single brief text record.

**Industrial features and extraction.** The aim of NMP is to provide a rapid, basic level, comprehensive survey of the extent and character of industrial remains in a landscape context. The scope for industrial recording is immense and some data already exists within national databases, local specialist recording groups and literature.

Areas of industrial archaeology were recorded using the appropriate conventions where they can be recognised as pre-dating 1945. Roofed or unroofed buildings, when associated with other mapped features within industrial complexes, may have been recorded as described above.

All extractive features believed to pre-date 1945 were mapped. These included large-scale features such as quarries, pits and mines, as well as small-scale extraction of resources for immediate local use (e.g. minor stone quarries and gravel extraction).

**Transport.** Major transport features (i.e. disused canals and main railways) are included in the Ordnance Survey sphere of interest and subsequently appear on OS mapping; these were therefore not mapped. Smaller features which are outside the Ordnance Survey sphere of interest were mapped, as were trackways, pathways and roadways considered

**Twentieth-century military features.** NMP military recording includes First and Second World War as well as Cold War features. The aim of NMP is to provide a rapid, basic level, comprehensive survey of the extent and character of the major military remains of the twentieth century. Military structures (originally designed without a roof) and roofed, or unroofed, military buildings, particularly when associated with other mapped features, were therefore mapped, especially when they have been removed or destroyed. Where an extensive site is already mapped by the OS a minimalist approach for NMP mapping was used.



Normally NMP mapping of military sites aims to be a “snapshot” of the main features of the site in 1945 or 1946. Military structures mapped include outlines of extensive features such as airfield perimeter and runways, camp perimeters as well as significant buildings and earthwork structures, and all ephemeral features such as barbed wire, lines of tank cubes, etc.

**Coastal archaeology.** The coastal zone comprises inshore waters, the intertidal zone, the seashore and river estuaries and is recognised by EH as underrepresented in the archaeological record (English Heritage 1998, 2.1). In coastal areas covered by NMP features identified within the intertidal zone were depicted using appropriate conventions. Wrecks were mapped using a simple plan outline and minimum textual recording. The last known location of features which move in the inter-tidal zone was recorded where appropriate as was whether features were covered over with mud or sand.

**Urban areas.** Major conurbations are currently a low priority for NMP projects, as such elements of the urban landscape (e.g. factories, housing, transport termini), and particularly twentieth century development, were only mapped in exceptional cases, for example where there is a direct association with features being mapped outside the urban area. In areas built up in the twentieth century, historic aerial photographs (most are from the 1940s onwards) may record archaeological features, or aspects of the landscape not recorded on historic maps. All archaeological features visible on aerial photographs of the pre-urban landscape were mapped and recorded.

**Natural features.** Geological and geomorphological features visible on aerial photographs were not generally mapped. In exceptional circumstances however, they were plotted but only if their presence helped to define the limits of an archaeological site or if it was considered likely that an archaeological interpretation may have already been (or in future be) made in error, in which case the true origin of the features was discussed within the project database.

### **Transcription**

The results of the mapping were produced entirely in digital format using AutoCAD.

Information was derived from the photographs and lidar available in the collections identified above.

1. Oblique and vertical photographs were scanned.
2. Digital transformations of the archaeological features visible on the photographs were produced using AERIAL (Version 5.29). Digital copies of current OS 1:2500 MasterMap were used for control information and as a base for mapping in AutoCAD (Version Map3D 2010). All digital transformations will therefore be within a level of accuracy within 5m to true ground position, but typically less than 2.5m to the base map. Where necessary digital terrain models

(DTM) were used to aid more accurate rectification of the photographs.

3. The rectified images were imported into the relevant AutoCAD drawings.
4. Archaeological features were digitally transcribed in AutoCAD according to a nationally agreed layer structure and using agreed line and colour conventions as specified by Aerial Survey and Investigation (EH 2010b).
5. Polygons were drawn around each separate monument to define its extent. Object data was attached to the monument polygons and archaeological features in AutoCAD in a table called RECORD. This recorded the Unique Identifier numbers (UID) for records within the AMIE and HCC AHBR databases.
6. Map Note Sheets (MNS) were maintained for each OS quarter sheet within the survey area. MNS record the progress of each sheet and the sources used.
7. Quality assurance checks were carried out on selected map sheets to ensure that all sheets were completed to NMP standards.

## **Data processing**

### **Project database**

Data for all features mapped during the project was input into the Dorset HBSMR v4 database. The database automatically generated unique Project UID numbers (Monument Prefix MDO) and contained fields enabling monument indexing to be carried out to HEA and ALGAO standards. Appropriate data was entered into this database for each archaeological feature mapped (data recorded included summary, description, photographic references, site type and period, locational information and details of the interpreter).

### **AutoCAD attached object data**

Three object data tables were incorporated into each AutoCAD drawing to enable concordance with the GIS and to facilitate basic analysis of the drawings.

The HBSMR number of all sites, and the AMIE Hob UID of each site (where it existed) was recorded in the first table.

The second table recorded basic interpretative information and contained four fields; period, type, form, and photo number as well as including a comment field.

The third table recorded the date, surveyor, scale of survey, and copyright information.

These tables were attached to all plotted features and the relevant polygon defining the monuments.

## **Data exchange**

The mapped data was provided to DCC as AutoCAD drawings as well as GIS data in the form of Arcinfo .tab files with HBSMR site numbers attached.

Copies of the mapping were provided to EH in AutoCAD format suitable for incorporation in to the HE Corporate GIS.

All data supplied to HE and DCC was to NMP monument recording standards and in line with HE minimum standards for monument recording.

Copies of the Project Design, Final Report and all other relevant project documentation will be deposited with HE. The PDF version of the report will be deposited with Archaeology Data Service (ADS).

## **Project outcome**

A series of AutoCAD drawings was produced showing all archaeological features visible on aerial photographs for each of the two mapping blocks.

The Dorset HBSMR was updated with descriptions of all archaeological sites mapped during the project.

## Appendix 2 Quantification Assessment

(The following has been taken from the Project Design)

It is a requirement of NMP projects that the project design should include a quantification of the project area to determine the potential density of archaeological features and the nature of the aerial photography cover. The aim of the assessment is to inform the project timetable and the expected progress per map sheet, in order to minimise the risk of variance from the project timetable.

### Density of HER records

In general terms the nature of archaeological evidence available from aerial photographs determines the types of sites recorded as part of NMP. Usually these are relatively substantial ditched or banked features visible above ground as earthworks or as cropmarks or soilmarks of sub-surface features. Historic photography provides details of earthworks and structures which have been denuded or levelled by ploughing, or otherwise destroyed or removed over the last 60 years. Historic photographs are also an important source for evidence of twentieth century military features.

<b>Stage 1. HER records</b>			
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>Sites</b>	<b>Sites/km<sup>2</sup></b>
SY79SE	25	43	2
SY88NE	20	51	3
SY88NW	17	13	1
SY89SE	25	25	1
SY89SW	25	44	2
SY98NE	2	3	2
SY98NW	16	66	4
SY98SE	15	55	4
SY98SW	15	68	5
SY99SE	12	14	1
SY99SW	24	20	1
SZ08SW	7	41	6
<b>Total</b>	<b>203</b>	<b>443</b>	<b>2</b>

Appendix 2, Table 1. Dorset HER monument records covering the Stage 1 project area.

The Dorset HBSMR contains 1,218 records for the WPNIA NMP project area. When records for find spots, listed buildings and features such as milestones, which are outside the NMP remit, are filtered out 910 monument records relevant to NMP remain. No information is available as to the form of survival of these monuments (whether they survive as earthworks or are plough-

levelled). A breakdown of the distribution of these monument records per map sheet is shown in tables 1 and 2 and in Fig 2.1 below.

Stage 2. HER records			
Map sheet	Km <sup>2</sup>	Sites	Sites/km <sup>2</sup>
SY78NE	25	27	1
SY78SE	16	45	3
SY88NE	5	7	1
SY88NW	8	20	3
SY88SE	22	65	3
SY88SW	20	59	3
SY97NE	10	34	3
SY97NW	5	27	5
SY98SE	10	60	6
SY98SW	10	32	3
SZ07NW	6	44	7
SZ08SW	6	46	8
<b>Total</b>	<b>143</b>	<b>466</b>	<b>3</b>

Appendix 2, Table 2. Dorset HER monument records covering the Stage 2 project area.

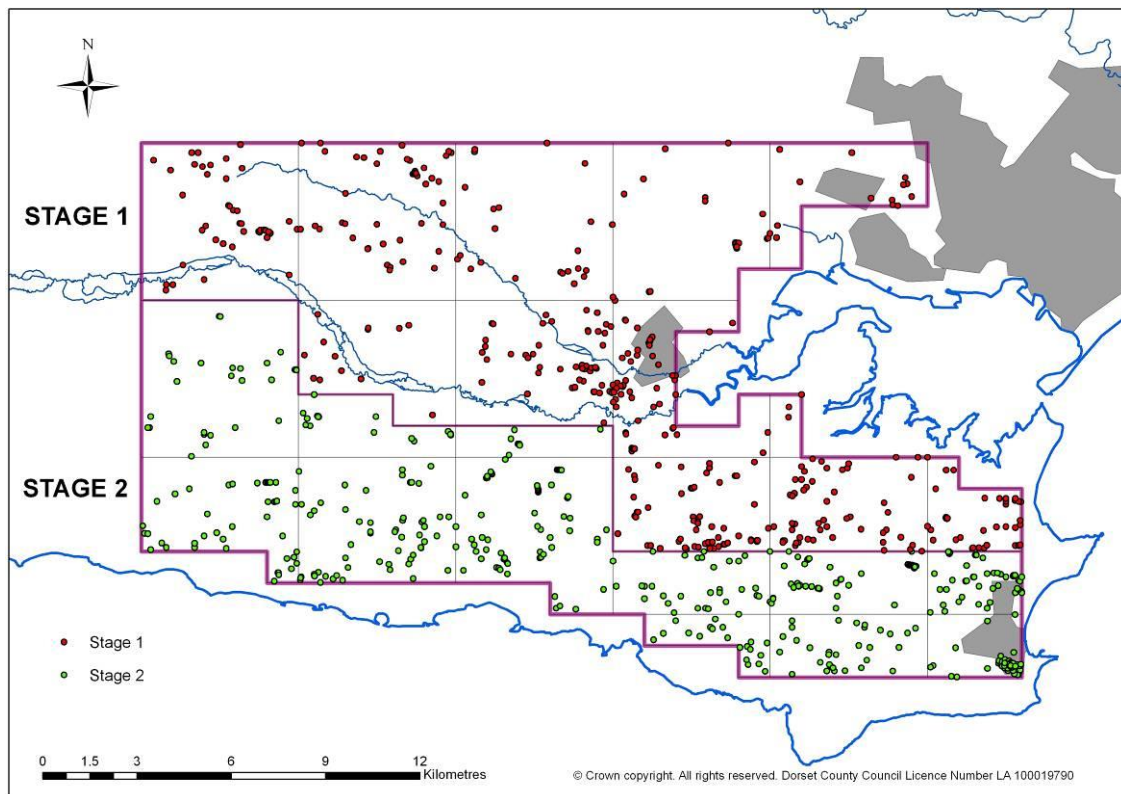


Fig Appendix 2.1. Distribution of monuments recorded in the Dorset HER.

## Density of aerial photographs and lidar imagery

The main photographic collection is held at the HEA in Swindon. The collection consists of specialist oblique photographs taken for archaeological purposes, military obliques taken by the RAF during the 1940s and 1950s, and numerous vertical photographs (usually at 1:10,000 scale) taken by the RAF, Ordnance Survey and a range of commercial organisations from 1960 onwards. EH can also provide digital Pan Government Agency (PGA) imagery as 1km<sup>2</sup> tiles as well as lidar data.

Other collections are the Cambridge University Collection of Aerial Photographs (CUCAP), which contains a range of vertical and oblique imagery, and DCC who hold several series of vertical coverage.

Other sets of digital imagery, such as Google Earth and BING, will also be accessible. Digital imagery provides uniform coverage across the whole project area, whereas the photographic prints provide greater or lesser coverage.

### Vertical photography

A breakdown of the number of vertical prints per map sheet in the HEA collection is shown in tables 3 and 4 below.

<b>Stage 1. HEA vertical photography</b>					
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>1940s</b>	<b>1950s +</b>	<b>Total</b>	<b>Verts/km<sup>2</sup></b>
SY79SE	25	150	366	516	21
SY88NE	20	87	246	333	17
SY88NW	17	174	259	433	25
SY89SE	25	86	275	361	14
SY89SW	25	146	332	478	19
SY98NE	2	3	29	32	16
SY98NW	16	35	290	325	20
SY98SE	15	32	190	222	15
SY98SW	15	35	177	212	14
SY99SE	12	82	174	256	21
SY99SW	24	89	246	335	14
SZ08SW	7	14	99	113	16
<b>Total</b>	<b>203</b>	<b>933</b>	<b>2683</b>	<b>3616</b>	<b>18</b>

Appendix 2, Table 3. HEA vertical photographs covering the Stage 1 project area.

<b>Stage 2. HEA vertical photography</b>					
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>1940s</b>	<b>1950s +</b>	<b>Total</b>	<b>Verts/km<sup>2</sup></b>
SY78NE	25	80	314	394	16
SY78SE	16	53	92	145	9
SY88NE	5	9	48	57	11
SY88NW	8	52	89	141	18
SY88SE	22	103	199	302	14
SY88SW	20	180	183	363	18
SY97NE	10	71	55	126	13
SY97NW	5	31	22	53	11
SY98SE	10	48	133	181	18
SY98SW	10	48	104	152	15
SZ07NW	6	45	140	185	31
SZ08SW	6	14	51	65	11
<b>Total</b>	<b>143</b>	<b>734</b>	<b>1430</b>	<b>2164</b>	<b>15</b>

Appendix 2, Table 4. HEA vertical photographs covering the Stage 2 project area.

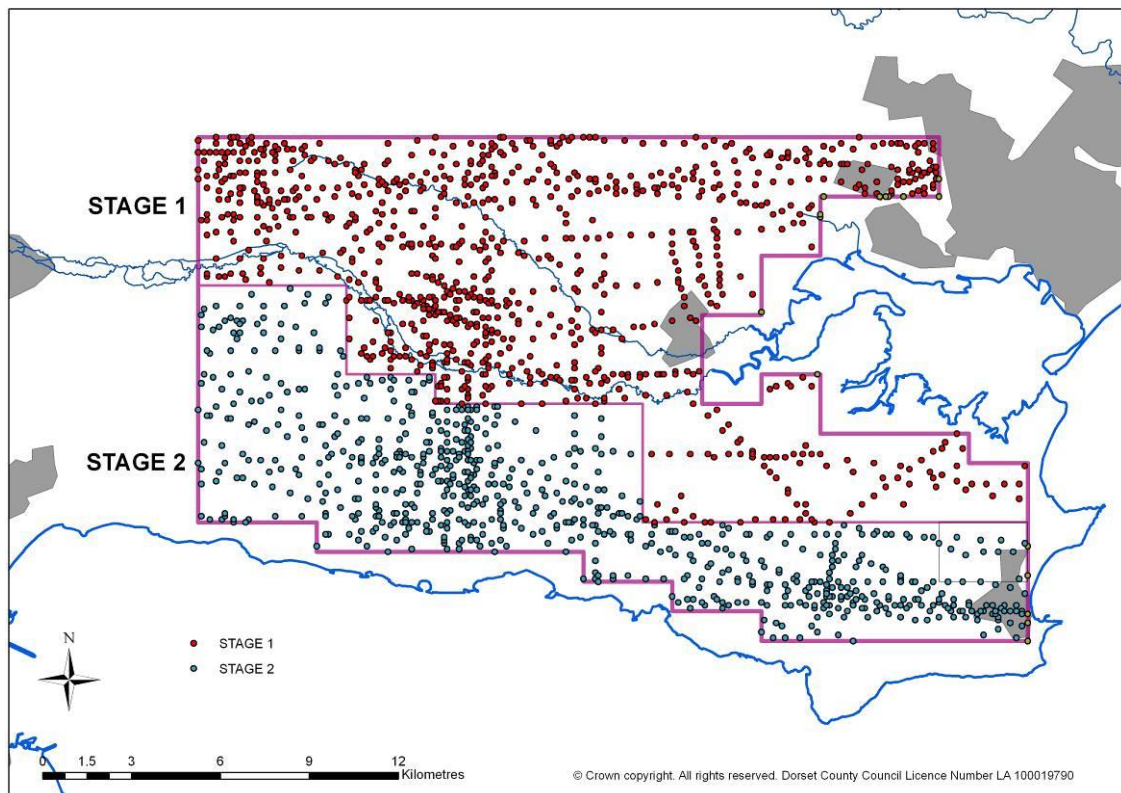


Fig Appendix 2.2. Distribution of 1940s vertical photographs

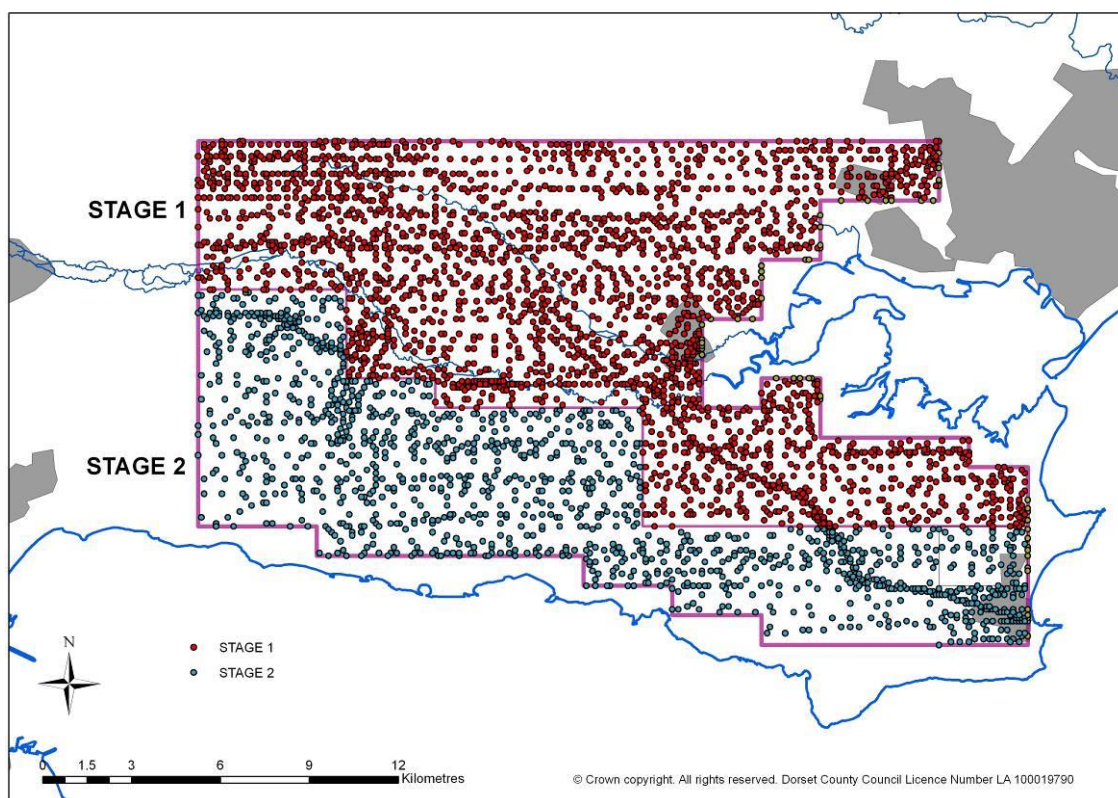


Fig Appendix 2.3 Distribution of post 1950 vertical photographs

Clearly there are substantial numbers of vertical photographs for this project area, 5,780 photos at an average density of 16.5 prints per km sq. As a comparison, HE Project's two current NMP projects have a considerably lower vertical coverage: the New Forest Remembers project (400km sq) is covered by 4,894 HEA verticals at an average of 12 prints per km sq, and the Hampshire Downland project (403km sq) is covered by 5,442 photos at an average of 13.5 prints per km sq.

#### **DCC vertical photography**

Dorset County Council hold vertical imagery from surveys carried out in 1972, 1986, 1997, 2002 and 2005. These were comprehensive surveys of the entire county and are therefore relatively even over the project area at an average of three photos per km sq.

#### **PGA imagery**

Pan Government Agency aerial imagery is available on licence from EH. This is supplied in 1km sq tiles and comprises the following:

- 12.5cm aerial photography, 2008 – covers most of the project area; 2007 – covers a small are in the northeast corner around Poole.
- Initial 25cm aerial photography, 2002 – covers entire project area.



- 25cm aerial photography, 2007–2009 – covers entire project area.
- Infra-Red 50cm imagery, 2007-2009 – covers entire project area.

Entire project area here includes both Stages 1 and 2.

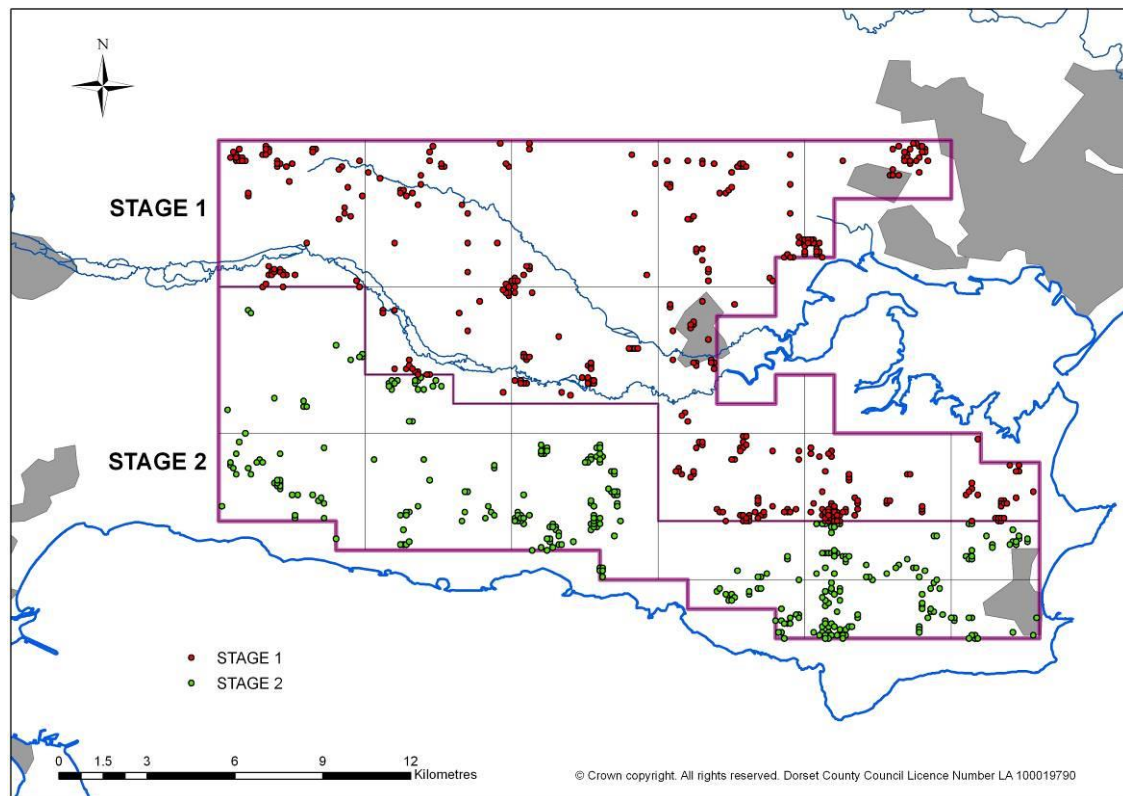
#### **Lidar data**

Environment Agency lidar tiles covering almost the entire project area are available as static .JPGs. A small amount of 1m lidar surface data is available for the northeast corner of the project area around Poole.

#### **EHA oblique photography**

In total the HEA collection contains 1,438 oblique aerial photographs covering the project area, 800 covering the Stage 1 area and 638 the Stage 2 area. This gives an average of 4 photos per km sq, which compares with 1.5 photos per km sq for the New Forest Remembers project and 20 photos per km sq for the Hampshire Downland project.

Overall the coverage is patchy and is clearly targeting archaeological sites, such as Corfe Castle (Fig 2.4).



*Fig Appendix 2.4. Distribution of HEA oblique aerial photography.*

A map sheet by map sheet breakdown of the HEA oblique coverage is set out in tables 5 and 6 below.

<b>Stage 1. HEA oblique coverage</b>			
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>Photos</b>	<b>photos/km<sup>2</sup></b>
SY79SE	25	130	5
SY88NE	20	66	3
SY88NW	17	38	2
SY89SE	25	24	1
SY89SW	25	30	1
SY98NE	2	0	0
SY98NW	16	38	2
SY98SE	15	195	13
SY98SW	15	115	8
SY99SE	12	54	5
SY99SW	24	61	3
SZ08SW	7	49	7
<b>Total</b>	<b>203</b>	<b>800</b>	<b>4</b>

Appendix 2, Table 5. HEA oblique photographs covering the Stage 1 project area.

<b>Stage 1. HEA oblique coverage</b>			
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>Photos</b>	<b>Photos/km<sup>2</sup></b>
SY78NE	25	23	1
SY78SE	16	53	3
SY88NE	5	0	0
SY88NW	8	21	3
SY88SE	22	198	9
SY88SW	20	30	2
SY97NE	10	100	10
SY97NW	5	37	7
SY98SE	10	88	9
SY98SW	10	11	1
SZ07NW	6	27	5
SZ08SW	6	50	8
<b>Total</b>	<b>143</b>	<b>638</b>	<b>4</b>

Appendix 2, Table 6. HEA oblique photographs covering the Stage 2 project area.

### **Military obliques**

A total of 179 aerial photographs taken by the RAF in 1941, 1946, 1950, 1959 and 1968 are held in the HEA collection. The photographs are targeted on the course of the river Frome (1959) and on Bovington Camp (1946). Elsewhere there are isolated

photographs around the southern and eastern edges of the project area. These are likely to be part of more extensive surveys of coastal areas just outside the boundary of the project area (Fig 2.5).

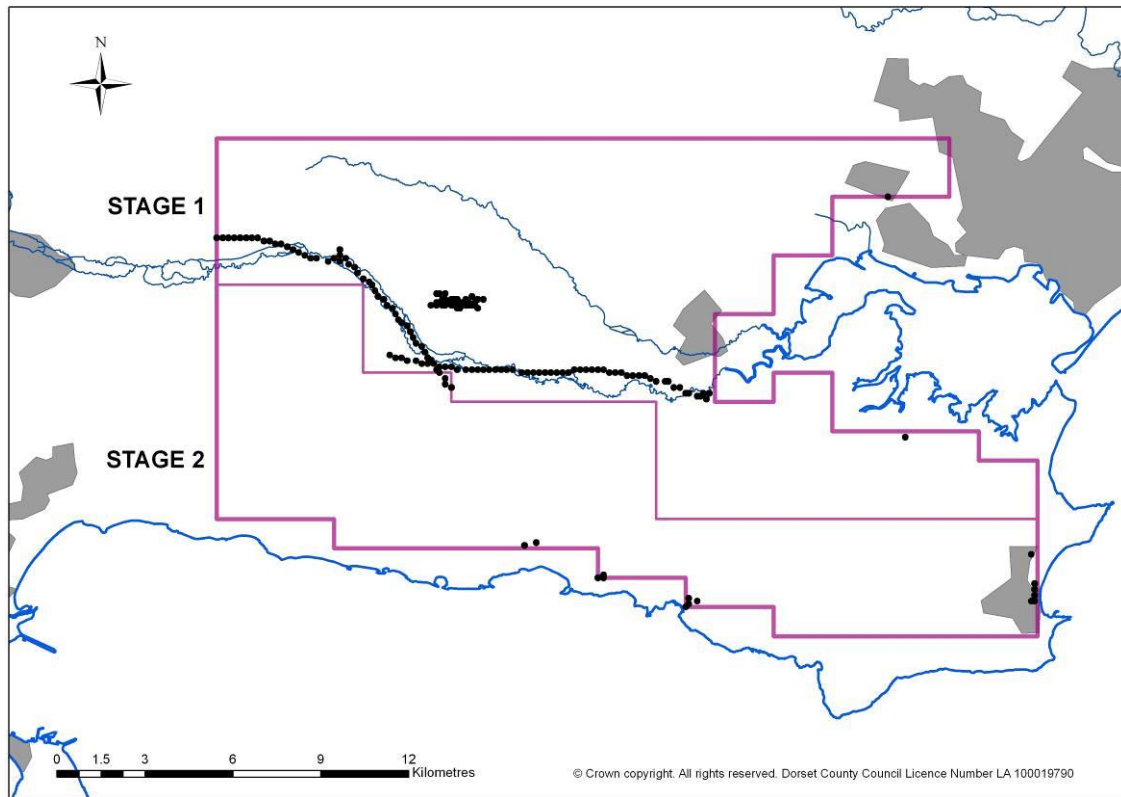


Fig Appendix 2.5. Distribution of military oblique photography.

A map sheet by map sheet breakdown of military oblique coverage is set out in tables 7 and 8 below.

<b>Military oblique coverage. Stage 1</b>		
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>Photos</b>
SY79SE	25	28
SY88NE	20	24
SY88NW	17	89
SY89SW	25	2
SY98NW	16	12
SY98SE	15	1
SY99SE	12	1
<b>Total</b>		<b>157</b>

Appendix 2, Table 7. HEA military oblique photographs covering the Stage 1 project area.

<b>Military oblique coverage. Stage 2</b>		
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>Photos</b>
SY88NW	8	4
SY88SE	22	6
SY97NW	5	4
SZ07NW	6	9
SZ08SW	6	1
<b>Total</b>		<b>24</b>

Appendix 2, Table 8. HEA military oblique photographs covering the Stage 2 project area.

### **Overall density of photo and HER records coverage**

Whilst obliques coverage is only partial and incomplete there are above average numbers of vertical photographs for the WPNIA project area. In addition there is almost complete lidar coverage of the entire project area and this is likely to reveal features obscured by woodland. This has been taken into account when estimating the likely time to be allocated for mapping and recording as has the density of monument records for each map sheet. The estimated timescale for each OS 1:10,000 map sheet for both Stage 1 and Stage 2 areas is set out in tables 9 and 10 below. These tables show the size of each map sheet, whether there is above average (Av+), below average (-Av), or average (Av) coverage and the time estimate in person days.

<b>Stage 1. Photo and monument density</b>						
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>Verticals</b>	<b>Obliques</b>	<b>HER</b>	<b>Overall</b>	<b>Days</b>
SY79SE	25	Av+	Av+	Av	Av+	30
SY88NE	20	Av	-Av	Av+	Av	18
SY88NW	17	Av+	-Av	-Av	Av	17
SY89SE	25	-Av	-Av	-Av	-Av	20
SY89SW	25	Av+	-Av	Av	Av	25
SY98NE	2	Av	-Av	Av	Av	2
SY98NW	16	Av+	-Av	Av+	Av	16
SY98SE	15	-Av	Av+	Av+	Av	15
SY98SW	15	-Av	Av+	Av+	Av	15
SY99SE	12	Av+	Av+	-Av	Av	17
SY99SW	24	-Av	-Av	-Av	-Av	19
SZ08SW	7	Av	Av+	Av+	Av+	9
<b>Total</b>	<b>203</b>					<b>203</b>

Appendix 2, Table 9. Photo and monument density for the Stage 1 project area.

<b>Stage 2. Photo and monument density</b>						
<b>Map sheet</b>	<b>Km<sup>2</sup></b>	<b>Verticals</b>	<b>Obliques</b>	<b>HER</b>	<b>Overall</b>	<b>Days</b>
SY78NE	25	Av	-Av	-Av	-Av	22
SY78SE	16	-Av	-Av	Av	-Av	13
SY88NE	5	-Av	-Av	-Av	-Av	4
SY88NW	8	Av+	-Av	Av	Av	8
SY88SE	22	-Av	Av+	Av	Av	22
SY88SW	20	Av+	-Av	Av	Av	20
SY97NE	10	-Av	Av+	Av	Av	10
SY97NW	5	-Av	Av+	Av+	Av	5
SY98SE	10	Av+	Av+	Av+	Av+	15
SY98SW	10	-Av	-Av	Av	-Av	8
SZ07NW	6	Av+	Av+	Av+	Av+	10
SZ08SW	6	-Av	Av+	Av+	Av	6
<b>Total</b>	<b>143</b>					<b>143</b>

Appendix 2, Table 10. Photo and monument density for the Stage 2 project area.

## Appendix 3 Working Blocks

In its entirety the Wild Purbeck NMP project area comprises 346 square kilometres and includes eight complete OS 1:10,000 quarter map sheets and portions of ten others (Fig 5). In order to meet EH requirements the project will be carried out in two Stages: Stage 1 will begin in November 2013 and Stage 2 will follow on immediately after in July/August 2014.

To facilitate project management the project area will be divided into four 'blocks' each consisting of a number of whole or partial OS quarter map sheets, which will be surveyed sequentially. In both the Stage 1 and Stage 2 areas there will be two blocks, defined on an east-west basis (Fig 6).

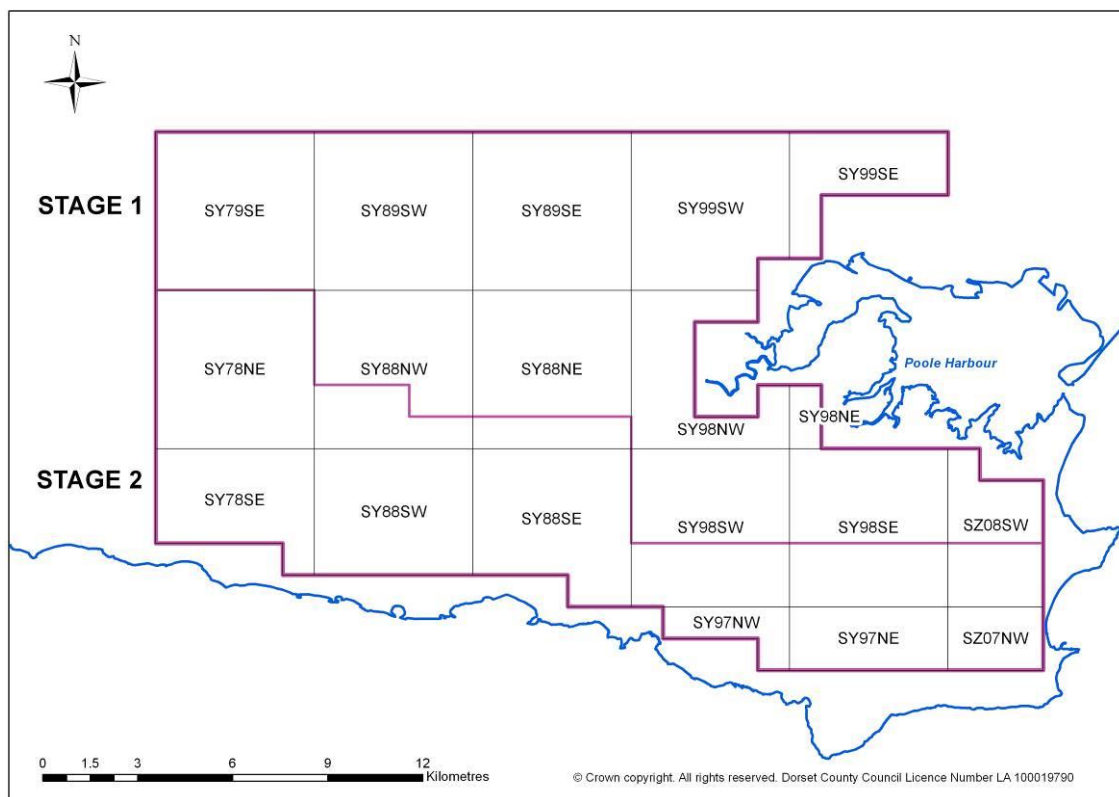


Fig Appendix 3.1 The Wild Purbeck NMP project area showing Stages 1 and 2 and OS 1:10,000 quarter map sheets covered.

### 8.2.1 Stage 1

The Stage 1 area was defined following consultation with Tom Munro, the Dorset AONB manager with regard to the NIA action plan. It includes the highest priority areas for NMP mapping. These are:

- The forested areas which are to experience large scale woodland clearance to heathland.
- The river valleys which may be subject to water level adjustments as birdlife conservation measures.

- The fringes of Poole Harbour which may be subject to habitat changes due to sea level rise.
- The Purbeck Ridge.

Stage 1 is formed by the northern part of the project area. It includes the town of Wareham in the east as well as the valleys of the Piddle and Frome. In total it covers 203 square kilometres.

**8.2.2 Stage 1. Block 1. Piddle and Frome valleys**

Block 1 comprises 112 km sq and includes three complete 1:10,000 OS quarter map sheets - SY79SE, SY89SE and SY89SW – and two partial map sheets, SY88NE (20km sq) and SY88NW (17km sq).

**8.2.3 Stage 1. Block 2. Poole Harbour fringes**

Block 2 comprises 91 km sq and contains seven partial map sheets.

Map sheet	Km sq
SY98NE	2
SY98NW	16
SY98SE	15
SY98SW	15
SY99SE	12
SY99SW	24
SZ08SW	7
<b>Total</b>	<b>91</b>

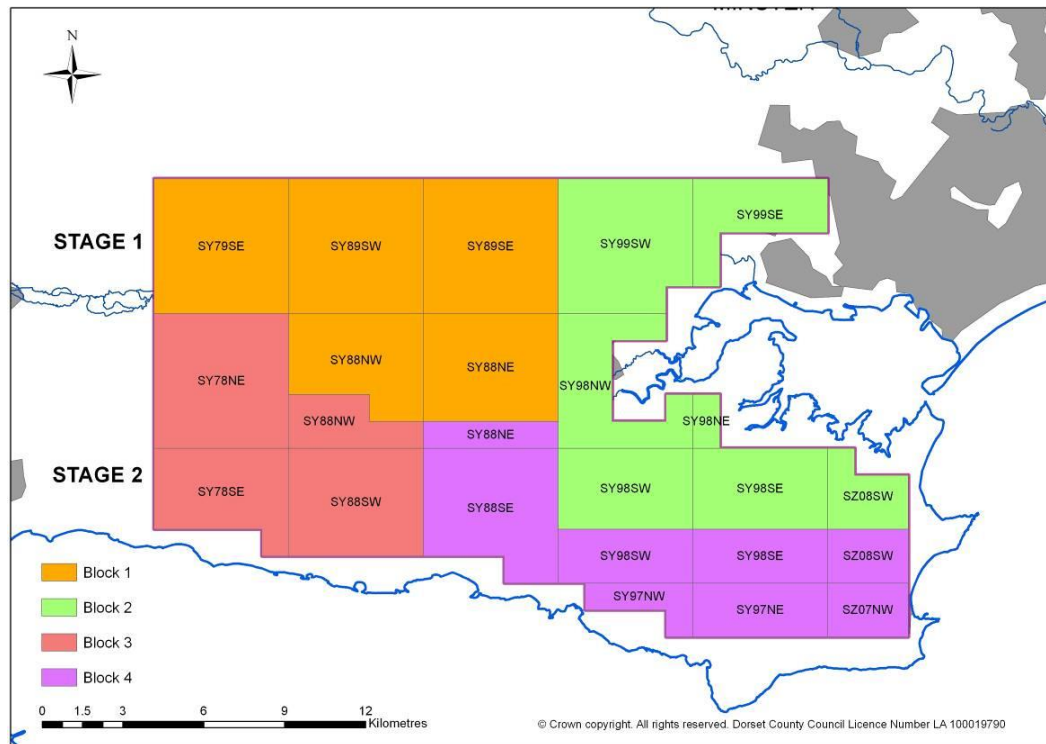


Fig Appendix 3.2 Map showing the project area divided into working blocks.

**8.2.4 Stage 2**

The Stage 2 area forms the southern part of the project area. It includes the town of Swanage in the east and the eastern part of the Dorset AONB. In total it covers 143 square kilometres

**8.2.5 Stage 2. Block 3. South Dorset Ridgeway**

Block 3 comprises 69km sq and includes one complete OS 1:10,000 quarter map sheet, SY78NE, and three partial map sheets, SY78SE (16km sq), SY88NW (8km sq) and SY88SW (20km sq).

**8.2.6 Stage 2. Block 4. Purbeck Hills**

Block 4 comprises 74km sq and includes eight partial OS 1:10,000 quarter map sheets.

<b>Map sheet</b>	<b>Km sq</b>
SY88NE	5
SY88SE	22
SY97NE	10
SY97NW	5
SY98SE	10
SY98SW	10
SZ07NW	6
SZ08SW	6
Total	74



## Appendix 4 Recommendations for further work

Description	Place	HER and/or NRHE Monument No.	NGR	Assessment of significance/reason for further work/nature of further work
Potential Neolithic long barrow or mortuary enclosure. Plough-levelled cropmark.	Watercombe, Owermoigne	MDO32049	SY 7589 8515	Possible example of rare monument type. Ground based survey (field walking, geophysics) to confirm interpretation.
Three Bronze Age round barrows. Plough-levelled cropmark.	Watercombe, Owermoigne	MDO32194-6	SY 7573 8435	Possible example of rare monument type. Ground based survey (field walking, geophysics) to confirm interpretation.
Five Bronze Age round barrows. Plough-levelled cropmark.	Watercombe, Owermoigne	MDO32050 and MDO32190-3	SY 7598 8494	Possible example of rare monument type. Ground based survey (field walking, geophysics) to confirm interpretation.
Potential Bronze Age round barrow. Plough-levelled cropmark.	Woodsford Lower dairy	MDO30675	SY 7762 9058	Possible example of rare monument type. Ground based survey (field walking, geophysics) to confirm interpretation
Potential Bronze Age round barrow. Plough-levelled cropmark.	Newlands Cottages, West Lulworth	MDO31827	SY 8140 8126	Possible example of rare monument type. Ground based survey (field walking, geophysics) to confirm interpretation
Potential Bronze Age round barrow. Plough-levelled cropmark.	Woodman's Cross, Coombe Keynes	MDO30408	SY 8421 8545	Possible example of rare monument type. Ground based survey (field walking, geophysics) to confirm interpretation
Possible Bronze Age	Grange Heath, Steeple	MDO31132	SY 9008 8338	Ground based survey to assess survival

barrow located within a tree enclosure ring. Earthworks in 1962, now under trees.				and confirm interpretation. Assess potential for scheduling.
Possible Bronze Age barrow. Earthworks in 1945, now under trees.	Grange Heath, Steeple	MDO31132 NRHE 457101	SY 9050 8461	Ground based survey to assess survival and confirm interpretation. Assess potential for scheduling.
Prehistoric field system. Partially upstanding earthworks.	Sleight Bottom, Winfrith Newton	MDO8311	SY 803 825	Partially in open heath/grassland. Assess potential for scheduling.
Prehistoric field system. Partially upstanding earthworks.	South east of Marley Wood, Winfrith Newburgh	MDO8313	SY 8150 8205	Partially in open heath/grassland. Assess potential for scheduling.
Prehistoric field system. Partially upstanding earthworks.	Chideock Farm, Chaldon Herring	MDO7272 and MDO7285. RSM legacy No 29084	SY792 816	Assessment of scheduled area. Adjacent pound scheduled but wider field system not.
Prehistoric settlement. Plough-levelled enclosures and field boundaries.	Woodsford	MDO30667	SY 7682 9056	Ground based survey (field walking, geophysics) to confirm interpretation.
Prehistoric field systems reused in the medieval period	Lulworth Common and Westhill Corfe Castle	MDO30699 and MDO30700	SY 9617 7844 and SY 9530 7841	Round based survey to assess preservation. Schedule?
Four prehistoric ring ditches. Plough-levelled.	Burleston, Tolpuddle	MDO30640	SY 7802 9467	Ground based survey (field walking, geophysics) to confirm interpretation either BA barrows or later prehistoric settlement features.
Prehistoric settlement. Hut-circles, pits and	Bovington Lane, Wool	MDO30421	SY 8330 8807	Ground based survey (field walking,

field boundaries. Plough-levelled.				geophysics) to confirm interpretation
Possible prehistoric boundary (extension to Battery Bank?).	Binnegar Plain, East Stoke	MDO30148	SY 8850 8796	Ground based survey to assess survival under scrub/trees, significance and scheduling potential.
Sub-square enclosure. Plough-levelled.	Worget Heath, Arne	MDO30246	SY 8981 8690	Ground based survey (field walking, geophysics) to confirm interpretation
Rectangular enclosure. Plough-levelled.	Stokeford Heath, Bere Regis	MDO30164	SY 8724 8903	Ground based survey (field walking, geophysics) to confirm interpretation
Medieval shrunken settlement	West Burton, Winfrith Newburgh	MDO8290 NRHE 455343	SY 823 859	Assess extent of currently scheduled area. Mapped features extend beyond.
Medieval shrunken settlement	Combe Keynes	MDO7377 NRHE 455657	SY 8433 8413	Assess extent of currently scheduled area. Mapped features extend beyond.
Medieval shrunken settlement	East Lulworth	MDO7641 NRHE 455500	SY 8563 8218	Assess extent of currently scheduled area. Mapped features extend beyond.
Medieval shrunken settlement	West Fossil Farm, Owermoigne	MDO31854	SY 7935 8514	Earthworks identified on 1940's photographs. Ground-based survey to assess survival.
Possible medieval shrunken settlement. Partially upstanding earthworks.	Lesson Park, Coombe, Langton Matravers	MDO30773	SZ 0064 7872	Earthworks identified on 2000's photographs. Ground-based survey to assess survival.
Possible medieval hunting lodge	Creech Barrow Hill, Church Knowle	MDO31253	SY 9214 8239	Site of medieval hunting lodge. Extant features may be more recent but ground-based survey to assess nature of the remains. Survival and potential for scheduling.

Deserted settlement of uncertain date	New Mills Heath, Corfe Castle	MDO7505	SY 9594 8443	Ground based survey and field walking to assess survival and dating.
Oval enclosure	Povington Heath, Tynham	MDO31736	SY 8868 8335	Tentatively given a post medieval date. Ground-based survey to assess survival, date, function and importance
Rectangular enclosure, possibly post medieval	Godlingston Heath, Studland	MDO31014	SZ 0110 8245	Tentatively given a post medieval date. Ground-based survey to assess survival date, function and importance
Rectangular enclosures, possibly post medieval	Newton Heath, Studland	MDO7967	SZ0100 8436	Tentatively given a post medieval date. Ground-based survey to assess survival date, function and importance
First World War Airship Station	Crossways	MDO31844	SY 7611 8939	Ground based survey and field walking. Site partially under trees. Assess survival and importance
Early 20 <sup>th</sup> century slit trenching preserved in open heathland	Stoke Heath, Bovington Camp	MDO 30437	SY 8490 8968	Ground based survey. Assess potential for permanent removal from MOD training/sheduling
Curvilinear enclosure, possible Studland Circle	Greenlands Farm, Studland	MWX3117	SZ 022 837	Ground based survey, geophysics and limited excavation. Site on lidar as upstanding. Assess survival, date, function and importance