

# Birmingham Northern Relief Road Archaeological Project Design

## Revised General Strategy and Methodology

### 1 Introduction

- 1.1 This Project Design represents a general Written Scheme of Investigation (WSI) for examination of the sites and areas of archaeological interest which are affected by the construction of the Birmingham Northern Relief Road (BNRR). It has been prepared by Oxford Archaeological Unit (OAU) and revised by Babbie Group on behalf of Midland Expressway Limited to fulfil the requirements of an outline programme of work set out in the *Archaeological Report* submitted to the Birmingham Northern Relief Road Public Enquiry in 1994 (Deposit Document 34A) and accepted by that Enquiry, as well as being agreed by English Heritage and the relevant Local Authority Archaeological Officers. The approach set out here follows the outline adopted in the 1994 report (referred to hereafter as the *Archaeological Report*) modified (where necessary) by consideration of current best practice in relation to infrastructure projects of this kind. In points of detail the present document also takes account of the results of a concurrent updating of the Desk Based Assessment sections of the *Archaeological Report*, recognising that the data compiled there was collected more than six years ago.
- 1.2 This document defines the overall strategy and methodology to be adopted and should be read in conjunction with the site-specific WSIs to be provided for the particular sites and areas affected by the scheme. It includes a statement of the recording procedures to be adopted. The general WSI and the site specific WSIs taken together provide technical information on the archaeological mitigation strategies identified and summarised in Sections 6 and 7 of the 1994 *Archaeological Report*.
- 1.3 A list of standards relevant for this project are set out in Appendix 1. The provisions of the Employers Requirements and Annexe 1/3 will take precedence over the provisions in this General Strategy and Methodology.

### 2 Background

#### 2.1 *Development of the General Strategy and Methodology*

- 2.1.1 The *Archaeological Report* was prepared for Ove Arup and Partners on behalf of Midland Expressway Ltd as an assessment of the archaeological implications of the Birmingham Northern Relief Road. The report contained the results of both a desk-based study and fieldwork, set within a framework account of the relevant national legislation, policy standards and local planning policies (*Archaeological Report*, Section 3).

2.1.2 There are five main purposes in producing this document setting out the General Strategy and Methodology to be adopted for the archaeological field investigations designed to mitigate the archaeological impact of the scheme:

- To identify the key archaeological research themes which are relevant to the scheme as a whole;
- To define an integrated approach and outline programme for the wide range of archaeological work to be carried out across the whole scheme;
- To set out a common standard for recording the different types of investigative archaeological mitigation works proposed;
- To provide a method statement which assembles project wide information on standards in one place rather than overloading the site specific WSIs;
- To provide procedural and other information of a general character required for the smooth and effective running of the archaeological works.

2.1.3 The following sections providing the background to the project and its archaeological aims and objectives, from which the general archaeological strategy and methodology and site specific WSIs are developed, are based essentially on the 1994 *Archaeological Report*. In view of the lapse of time since the initial gathering of archaeological data in 1992-3 the principal sources of these data have been checked for new information in order that the proposed programme is based on the best currently available evidence. A report giving a full account of the new information will be produced separately as an addendum to the original survey contained in the *Archaeological Report*.

## 2.2 *The Scheme*

2.2.1 The road scheme as a whole is some 43 km long. It consists largely of a completely new road intended to relieve pressure on the existing M6 and thus linked to that motorway at both ends – just west of Cannock in Staffordshire at the north-west and at Maxstoke in Warwickshire at the south-east. For much of its line the BNRR mirrors the route of existing major roads. In the north-western stretch it generally lies close to the line of the A5 (Watling Street). It diverges southwards from this line east of Shenstone, successively following the A38, A446 and M42 alignments, in some cases very closely.

## 2.3 *Geology and Topography*

2.3.1 The route crosses a range of topography running from the South Staffordshire and South Cannock Plateaux, both divisions of the Birmingham Plateau, in the north-west. The Black Brook cuts through the north east tip of the Sutton Plateau at Hints and its upper basin forms a subdivision known as the Shenstone Basin. At the south-east end the route enters the lower Tame and Blythe valleys, part of the Trent Valley System. Broadly, the underlying geology consists mainly of marls and shales of the Coal Measures in the north-west, a range of sandstones and pebble beds in the central section, and Mercian Mudstones in the south-east. There are also extensive gravel terraces in the south-east, particularly in the Coleshill area (Cole valley) and in the Tame valley as far as Wishaw. Drift Boulder clay covers some areas, more especially the region between

Chasewater and Bridgtown, large areas of which were not considered suitable for field survey in any case because of disturbance by mining and modern development. Elsewhere Boulder Clay is patchy. There are small areas of floodplain alluvium in the valleys of the rivers Blythe and Tame, but these are not extensive and were generally covered by pastures.

2.3.2 Despite this variety, the geology does not give rise to extreme variations in topography or soil conditions. The relief generally consists of undulating hills and broad valleys. Altitude ranges from 76 m AOD (the floodplain of the Tame) to 160 m AOD (near Weeford Park), with a general altitude around 100-130 m AOD.

2.3.3 Soils are generally light and sandy, but slightly heavier over the Mercian mudstones. The tendency of the sandy soils to weather rapidly meant that the conditions for previous field observation and collection were generally good and all categories of finds easily seen. The exception to this would have been spreads of burnt pebbles which might have been expected on sites of ploughed-out prehistoric burnt mounds. In the event none were found and the only abnormally pebbly concentrations were interpreted as natural outcrops. There is no naturally occurring flint in the region and flint artefacts, which can sometimes be difficult to distinguish from natural flints, were consequently highly visible when they occurred.

## 2.4 *General Aims and Objectives of the Project*

2.4.1 The Environmental Statement (ES) for the BNRR identified five objectives with respect to Cultural Heritage (Section 2.5.3.1). These were:

“Objective 1: to avoid physical impact, landtake and severance of known areas of significant historic landscape, archaeological remains, buildings and other features of architectural or historic value.

Objective 2: to minimise landtake and disturbance to areas of possible archaeological importance, or known areas of value which may be unavoidably affected.

Objective 3: to minimise the effect of visual intrusion on the setting and amenity of historic, architectural and archaeological features or areas of value.

Objective 4: to minimise the impact of noise on the amenity of features or areas of historic, architectural and archaeological value.

Objective 5: to minimise damage to organic artefacts and deposits through hydrological draw-down effects, due to change in local water-table levels.”

2.4.2 The extent to which these objectives were considered to have been achieved in the design stage was set out in section 2.5.12 of the ES and a detailed assessment of the (archaeological) effects of the BNRR was set out in Section 6 of the 1994 *Archaeological Report*. The proposed mitigation measures arising from

consideration of these effects were set out in Section 7 of the *Archaeological Report*, with further details of mitigation approaches given in Appendix 6 of the same document.

2.4.3 The nature of this documentation was such that overall archaeological objectives, beyond identification of the resource and minimisation of impacts, were not defined at that stage of the project. Moreover, in the light of the relative paucity of archaeological remains on much of the BNRR route general objectives can only be defined at a fairly simplistic level. In the first instance the project can be seen as providing a random transect through the region which provides the opportunity to assess the extent to which existing records reflect the real density of archaeological sites and thus examine the validity of traditional views that much of this region saw only limited activity, and particularly settlement, in the past, especially before the Roman period.

2.4.4 For significant parts of the route, therefore, the archaeological programme on the BNRR can be seen as an important exercise in gathering basic data on the chronology, character and density of sites present. With regard to those sites already identified the objectives of the project are to provide further definition of their character and importance, where this remains unclear, in order to identify appropriate mitigation strategies. Where mitigation strategies have already been proposed these will be implemented against a set of key archaeological themes (Section 3.1) and to standards set out below in Sections 4-6.

## 2.5 *Archaeological and Historical Development of the Study Area*

2.5.1 The route passes through a variety of landscapes. From the north the route starts in the undulating landscape of the South Staffordshire and South Cannock Plateaux, both divisions of the Birmingham Plateau. The Black Brook cuts through the north east tip of the Sutton Plateau at Hints and its upper basin forms a subdivision known as the Shenstone Basin. In general this is a region of low relief. The southern part of the route enters the Blythe-Lower Tame Valleys, part of the Trent Valley System. Traditionally the region has been seen as having been forested and sparsely settled for much of its early history, though in recent years this has been brought into question.

2.5.2 The Palaeolithic period is poorly represented in the region. Only one artefact of this period, a quartzite hand axe (1038) is located within the corridor.

2.5.3 Mesolithic find scatters are indicative of a hunting and gathering population within the route corridor (Thomas 1974); this is further evidenced by small scatters of flint tools at Wishaw (Hodder 1988) and now supplemented by further material from Langley Mill farm in the same general area. No other traces of Mesolithic settlement are known. The material is generally too sparse to distinguish between hunting and base camps as has been attempted for some other parts of the country.

2.5.4 Again it is flint artefacts which characterise the nature of sites in the Neolithic period. For example within the corridor a flint core, scraper, blade and flakes

were located at Weeford Park, and two flints in the Wishaw area. Few Neolithic monuments have been definitely identified in the region, though cropmark complexes such as that traversed by the route at Shenstone could contain Neolithic elements.

2.5.5 Round barrows, burnt mounds and chance finds of metalwork, including bronze palstaves, are all known within the study area representing the Bronze Age period. Offlow Tumulus (1033) was perhaps the most prominent monument of the period within the study area but has been much diminished by ploughing, as has the ring ditch to its west. Further cropmarks of ring ditches, one with a central burial, occur in the adjacent cropmark complex to the south crossed by the route. A double ring ditch feature north of Wharf Lane Farm, Brownhills, will be directly impacted by the scheme. Two burnt mounds of the late Bronze Age occur within the study corridor, typically adjacent to streams, as with the possible example at Wishaw Hall Farm and further examples have been located recently at Langley Mill Farm, where they will be affected by the scheme. An immediately adjacent cropmark is undated but might be contemporary with these features. Such sites have been variously interpreted and are perhaps best seen as prehistoric cooking places though suggestions have been made that they were primitive saunas.

2.5.6 There are several find spots including flintwork and socketed axes. A late Bronze Age hoard was retrieved from Shenstone, though bronzes are in general rare and their occurrence usually relates to chance finds.

2.5.7 Some of the cropmarks identified at Shenstone are likely to have Iron Age origins. Early rectilinear field systems have been identified around Lichfield, which may well extend into the Wall and Shenstone complexes. Hodder (1988) suggests that within Sutton Chase such an early field system:

‘may be represented by a group of fields between Sutton Coldfield and Wishaw which are known to be the sites of medieval assarting, but whose regular layout is similar to the early field systems....These hints of extensive areas of enclosed fields are consistent with the environmental evidence from Fisherwick and Wall which indicates that the Iron Age landscape of the region was predominantly open with only small areas of woodland.’

2.5.8 It is likely that Iron Age settlements, especially around the Wall area, were predecessors of known Roman settlements. Occupation at the settlement excavated at Grimstock Hill (1116) began in the late Iron Age, extending into the Roman period. A number of pre-Roman or early Roman buildings were overlain by a Roman temple.

2.5.9 Two major routes were established by the Romans; Watling Street (1026) from London, north-west across the Midlands to Wroxeter, and thence to the military districts of the north-west, giving access to Leicester and the north; Ryknield Street (1145) which branched from the Foss Way in Gloucestershire through Alcester, Birmingham, Wall and Derby to Templeborough in Yorkshire. These two roads crossed within the study area at Wall (*Letocetum*), which is almost

half-way along Watling Street. This site has a series of Roman forts around which a small town flourished. The main centres in the West Midlands are all located near or at forts and began as modest settlements. The area was revived by Hadrian in c. 125 AD and the province prospered, however the Midlands was only a second rate growth area with sites thinly spread and few which exhibited the wealth of regions to the south. Roman farming settlements with possible evidence of associated fields are known at Shenstone, and another late Roman settlement is recorded at Wishaw close to the route. Roman finds which have been discovered during fieldwalking may represent actual settlement sites, even where present only in small quantities. Roman finds are generally fairly numerous, and include material recovered in metal detector surveys.

- 2.5.10 The upland areas in the region e.g. the Birmingham Plateau and Cannock Chase are thought to have been forests, light woodlands and scrub which supported hunting and pannage and provided wood for charcoal burners. The coalfields of the region were also exploited during this period on a small scale. The most well known industrial site, however, is that of Mancetter-Hartshill, which was one of the largest pottery producing centres in the country. Production began in the later part of the first century and extended into the fourth, possibly as late as AD 370. It specialised in *mortaria* (mixing bowls) which have been identified across the north and central region. Roman pottery production on a smaller scale has been identified at Sherifoot Lane in Sutton Coldfield, dating to the second century.
- 2.5.11 There are extensive prehistoric and Roman cropmarks in the Tame and mid Trent valleys as well as the River Blythe. The number of undated cropmarks interpreted as farmsteads and enclosures within the study corridor may point to a reasonable level of settlement and farming if they are of late prehistoric and Roman origin. There may have been little change in the character of Iron Age farmsteads after the Roman conquest.
- 2.5.12 Relatively little is known of the end of the Roman period, but Wall has for some time been seen as a centre of particular potential interest. The Roman administrative area centred on Wall may have been maintained into the fifth century in the form of a bishopric. Certainly the area is of considerable interest for the connection between Wall and the later Diocese of Lichfield.
- 2.5.13 Very little is known about the study corridor for the early Anglo Saxon period, in complete contrast to areas such as the Avon Valley where several cemeteries of this date have been discovered. There are no known Anglo-Saxon sites within the corridor.
- 2.5.14 Most of the parishes crossed [by] the route are recorded as settlements in the Domesday Book of AD 1086, and the names given often have Saxon origins. Even Watling Street has a name of Saxon origin and has been interpreted as 'way of the sons of Waetla'. The name Canwell is first recorded in the 12th century, though Cane was probably an Anglo-Saxon personal name.
- 2.5.15 The route passes through what was essentially a rural area during the medieval period; a substantial length of the route crosses what were the chases of Cannock

and Sutton. These chases were probably created because they were on relatively poor soils, well wooded and thinly populated at the time of the Norman Conquest and before, and remained so into the later Middle Ages.

- 2.5.16 In 1086 Cannock or Chenet was an estate directly held by the king, largely as a hunting forest. Within this estate woodland was recorded as being six leagues long by four leagues wide. It became a free chase in 1290 when the metes and bounds covering Cannock and Rugeley were set out. The overlordship of Great Wyrley remained with the Crown apparently from before the Conquest until at least 1487. Prior to the Norman Conquest land in Great Wyrley appears to have been attached to the office of Keeper of the Royal Forest of Cannock.
- 2.5.17 The unevenly distributed hamlets and settlements and the characteristic moated sites of the 12th and 13th centuries and later reflect the practice of *assarting* as inroads were made back into the waste and woodlands after probable forest regeneration in the post-Roman period. The early Middle Ages saw substantial population expansion which led to many areas being taken into cultivation. Settlements were established on the edge of prosperous land gradually encroaching on the 'waste' land, taking it into use. Moated sites were created primarily for prestige, often surrounding major dwellings, and occasionally had a limited defensive function.
- 2.5.18 Medieval parks were formed as areas of land enclosed to keep in game, especially deer. These were often 'waste' land in so far as they were unenclosed tracts of rough grazing and heath. Parks of medieval origin of which traces survive within the landscape of the study area include Weeford and Coleshill. Weeford received its licence to empark in about 1288-9. Yates' map of the county (1769-75) shows it as woodland, and of similar extent to the present limits of Weeford Park.
- 2.5.19 The most well known aspect of the more recent history of the region through which the route passes is that of its industrial development towards the end of the 18th century. The coal industry was expanding from the 16th century, and the introduction of the blast furnace in the 17th century laid the foundations which enabled the two major resources of the region to be exploited to their full extent. The smelting of iron ore using coke as opposed to charcoal meant that these major assets could be capitalised on. The North Warwickshire and South Staffordshire coalfields are within the study corridor.
- 2.5.20 The success of Brindley's canal in 1758 for the Duke of Bridgwater's colliery at Worsley meant that a canal network was rapidly established to aid in the transport of goods. In the 1830s and 1850s the canal network was extended by several branches to serve the collieries. A number of these late canals built in the railway age are crossed by the route.
- 2.5.21 Also from the late 18th century the turnpike roads were undergoing improvements by Act of Parliament which enabled tolls to be levied for their upkeep.

- 2.5.22 Early systems of primitive railways which connected the mines started on wooden tramrails. Main lines soon followed, such as the London and North Western. The route crosses a number of disused mid to late nineteenth century branch lines which again reflect the industrial expansion of the Victorian era.
- 2.5.23 Population increased in areas where there was a concentration of industrial activity, as for example at Bridge Town. The pattern of smaller agricultural settlements remained similar to that of the later medieval period. The main inclosure of fields took place in the mid 19th century. Although not usually seen as a period of agricultural boom, some areas like North Warwickshire were clearly flourishing in the of the late 19th century and the environs of both Canwell and Wishaw are notable for the numerous substantial estate cottages and farmhouses of this period. Most farms are likewise marked by good solid late 19th century farm buildings, though a few earlier examples survive.
- 2.6 *The Range of Archaeological Remains within the Study Corridor*
- 2.6.1 Within the study corridor two hundred and twenty-five locations or items of archaeological interest were defined up to 1994 as a result of detailed study of existing data, supplemented by fieldwalking and evaluation at four sites (see Section 2.7.2 below). All these sites were listed within the archaeological gazetteer contained in Appendix 1 of the *Archaeological Report*.
- 2.6.2 By period these include twenty-one prehistoric items, one Palaeolithic, three Mesolithic, four Neolithic, four Bronze Age (with one other possible Bronze Age entry), one Iron Age and seven unclassified prehistoric items or sites. The greatest concentration of prehistoric material is in the vicinity of Shenstone. There are sixty Roman entries (with another nine possible Roman features), most of which occur around Wall, Shenstone and Wishaw. There are twenty-eight medieval entries, which are fairly widely distributed. There are forty-three post-medieval and one modern item. The post-medieval remains of greatest interest include canals and railways dating from early to mid 19th century, mostly within the Cannock/Brownhills section of the study area. Fifty-three sites are undated or are multi-period.
- 2.6.3 By type of archaeological remains these sites have been categorised as forty-four miscellaneous sites, (of buildings, settlements etc), eighty cropmark sites (many occurring within fairly extensive complexes at Wall and Shenstone, and also scattered throughout the southern half of the study area), fifteen earthworks, five miscellaneous linear features (park boundaries, tracks etc), three roads (two Roman), five canals (with seven associated canal features), four disused railways (with one associated feature), four structures or ruins, twenty-three scatters of surface finds and twenty-nine other finds spots. In addition, one general area of wetland, two woods and two buildings have been identified from County Sites and Monuments Records.
- 2.6.4 There is one Scheduled Ancient Monument within the study corridor, at Wall, which includes one English Heritage 'Property in Care', owned by the National Trust. A second Scheduled Ancient Monument lies beyond the study corridor at



Maxstoke. Listed buildings lie outside the scope of this document, but it is understood that no such buildings are directly affected by the route of the Birmingham Northern Relief Road.

## 2.7 *Direct Impacts and Archaeological Implications*

2.7.1 Of the sites within the scheme corridor discussed in Section 2.6 a number lie very close to the actual line of the BNRR. These are tabulated below. The table also shows the mitigation stages already identified as required in the 1994 *Archaeological Report* and distinguishes clearly between sites known when that report was compiled and those subsequently located, for which the present document draws on a preliminary version of the updated Desk Based Assessment. Where archaeological potential is clear, mitigation stages have been defined for some of these 'new' sites in line with the proposals in the *Archaeological Report*. In a number of cases the scope and definition of stages of mitigation such as excavation or watching brief will be dependent upon the results of preliminary work such as geophysical survey or evaluation trenching. In these cases, the possible requirement for further work has been indicated.

2.7.2 A number of sites lie very close to the line of the BNRR but for a variety of reasons, including low importance and exact location in relation to the route are not considered likely to require a programme of archaeological work. In some cases mitigation of risk to the archaeology is achieved by design or engineering solutions. In all these instances the outline measures are indicated in the 1994 *Archaeological Report* and are not reiterated here. Sites which are considered to require a direct programme of archaeological work, of whatever scale, are identified with a single site number. The remaining 'very close' sites are not so numbered but are retained in the table for completeness.

2.7.3: BNRR PROPOSED MITIGATION OUTLINE: SCHEDULE OF SITES

No.	Site	Gazetteer Nos.	NGR	SMR No.	Significance	Approx. Area (sq m)	Geophysics /Other Survey	Trenching	Excavation	Targeted Watching Brief	Other Watching Brief/Mitigation	Comments
1	Hawkins Canal basin & aqueduct	1121	9754 0812	Staffs	County/Regional	5,000					Y	
2	Hatherton Reservoir	1122	9780 0806	Staffs	County/Regional	21,000					Y	
3	Gilpins basin & wharf	1226	9850 0820	Staffs	County/Regional	21,000					Y	
4	Church Bridge complex	1064	9836 0828	Staffs 1086	Local	Structure only					Y	
5	Enclosure/R&F, Washbrook Lane, Norton Canes	1072	007 078	Staffs	Local	16,400			Y			
6	Cannock Extension Canal	1132	0200 0640	Staffs 2225	County	1600					Y	
7	Norton Branch Railway Cropmarks S of Chasewater	1126 1073	0287 0700 040 068	Staffs Black Country	Local Local	- 10,000				Y		
	Chasewater Reservoir & Spillways etc	1143 1133	035 075 0466 0700	Staffs 2221 Black Country 2693	Regional	-						
	Anglesey Branch Canal	1133	0466 0700	Staffs 2221 Black Country 1880	Regional	-						
	Cannock Chase Colliery branch railway	1118	0432 0754	Staffs	Local	-						
8	Wyreley & Easington Canal	1129	0665 0627	Staffs 2221	Regional/County	4,600					Y	
	Wall mansio etc	1151 1152	0982 0061 0943 0630	Staffs 33	National	-						
9	Wall, W of Crane Brook, poss RB enclosure	1052	0946 0634	Staffs 813	?County	37,200 (excn 10,000)			Y	?		
10	Wall, W of Ashcroft Lane: poss trackway, field system, occupation site, ditches. Parchmark ? Roman road	1156 1178 1113 etc	0973 0675	Staffs	?County	42,000	Y	Y	?	?		
11	Wall, E of Ashcroft Lane, possible fort	1147	102 061	Staffs	?County	29,200		Y	?	?		
12	Wall Ryknield Street	1145	1059 0612	Staffs	?Regional	24,700 excn	Y	Y	?	?		

13	Linear features Shenstone	1208 1209 1093	112 055	Staffs 1098	Local/ County		3000 74,900	Y	?	?			
14	Ring ditch Shenstone	1094	113 056	Staffs	County		10,200		Y				
15	Enclosures/linear features	1097 1098	113 053	Staffs 1098	Local/ County		44,000			Y			
	Linear cropmarks and fnds	1101	121 051	Staffs	?Local		-						
16	Linear cropmarks N of Weeford Park	1227	133 041	Staffs	?Local		27,000			Y			
17	Thickbroom DMV	1022	130 038	Staffs 2083	?County		30,000 notional	Site inspection	?	?			
	Clay pit etc Bassets Pole	1187	1380 9943	B'ham	Local		-						
18	Poss enclosures Fox Hill	1166	1412 9908	B'ham 20198	Uncertain		22,500	Y	?	?			Includes 2055
	Langley Mill	1188	1542 9684	B'ham 05683	Local		-						
	Wishaw RB site	1188	1542 9684	Warwicks	County		-						
	Wishaw prehistoric remains	1109	174 954	Warwicks	Local/ County		-						To be treated with Sites 19 and 20
19	Wishaw post-med site	1070	174 955	Warwicks	?County		19,900			Y			
20	Wishaw medieval site	1002 1003 1216	173 954	Warwicks 55	Local/ County		51,500 exen 10000		Y	?			
21	Dumton Wharf	1119	1855 9382	Warwicks 4396	Regional		4250						Y, structural recording etc
22	Curdworth prehistoric fnds	1219	185 929	Warwicks	Local/ County		22,400	Y	?	?			
	Coleshill Hall Walk	1190	194 881	Warwicks	County		-						
23	Coleshill finds scatter	1220	193 884	Warwicks	?Local/ County		15,700	Y	?	?			
24	Hawkeswell	1173	2152 8650	Warwicks	Local/ County		13,800		Y				
	Whiteacre & Hampton Railway	1172	2160 8700	Warwicks	Local		-						
25	Cropmarks W of River Blythe	1106	217 867		?Local		6,700			Y			
	<b>*NEW SITES</b>												
26	Sarcodon dubious cropmarks	2002	959 073	Staffs 04534? 04535 04536 04537 04539 05423 05424	?County		61900	Y	?	?			
	Cannoek, Barn Farm	2001	0069 0745	Staffs 03166	Local		-						
	Brownhills boundary	2005	0314 0720	Black Country	Local		-						

	stone Hammerwich ridge and furrow	2003	0434 0738	9173 Black Country 13005 Staffs 04900	Local	-					Y			
	Burntwood Road Bridge	2007	0459 0709	Black Country 9540	Local	-								
27	Brownhills ring ditch	2009	0462 0739	Black Country 9909	County	5000	Y of feature and surrounding area	Y	?				Computer rectified plotting of AP	
	SW of Roundhill Farm, amorphous cropmark	2008	0521 0652	Black Country 9907	Local	-	Y of feature and surrounding area	Y	?				Computer rectified plotting of AP	
	Brownhills railway bridge	2006	0535 0649	Black Country 9283	Local	-								
	Cropmarks at Turf Pits Lane	2054	1395 9956	B'ham 21003	Local		?	?						
	Ridge and furrow at Hilton	2004	0069 0745	Staffs 20076	Local	-								
	Collets Brook worked flint	2011	1438 9839	B'ham 20197	Local	-								
	Collets Brook worked flint	2015	1445 9830	B'ham 20518	Local	-								
28	Collets Brook dam	2016	151 977	Warwicks	Local/ County	?	Site inspection Earthwork Survey?	Y						
29	N of Langley Mill flint etc	2012	1537 9720	B'ham 20461	Local/ County	7000		Y	?		?			
30	Langley Mill burnt mounds and enclosure	2013 2014 2017	1576 9670	B'ham 20465 20467	County	30000 exen 15000		Y	Y		?			
	Wishaw Hall Farm prehistoric finds see 1109	2021 2022	1740 9550 1740 9530	Warwicks 7358 7359	Local/ County	-							Covered by programme for Site 20	
	Wishaw prehistoric finds	2019 2020	1795 9480	Warwicks 7356	Local	-								
	Curdworth lime kilns	2023	1855 9374	Warwicks 6609	Local	-							Adjacent to Site 21	
	Maxstoke enclosures	2018	2280 8620	Warwicks 1501	Local/ County	-					Y			

- 2.8 *Previous Archaeological Work on the Scheme*
- 2.8.1 With few exceptions archaeological work relating to the line of BNRR has been carried out entirely in the context of this project. The area around Wall has seen extensive fieldwork of various types over a long period, but none of this has taken place on the BNRR route itself. Equally the well-known area of multiperiod activity at Wishaw has not been subject to systematic archaeological activity prior to work on the BNRR project.
- 2.8.2 In the context of the BNRR project two phases of fieldwork have been carried out. In 1992 and 1993 a programme of field walking examined some 200 ha of arable land. This represented about 13.4 km of the length of the route (i.e. about 33% of the total length), a substantial proportion of the land potentially available for examination in this way. The results of this work are presented in detail in Appendix 3 of the 1994 *Archaeological Report*. Four sites (Crane Brook (Wall), Shenstone Hall Farm, Wishaw Hall Farm and Hawkeswell Farm (Coleshill)) were evaluated by trial trenching in 1994. The principal results of these exercises were incorporated in the *Archaeological Report* and are summarised in Sections 2.8.4-7 below. The detailed reports were issued separately (OAU 1994a-d). Subsequently, fieldwork has been carried out in the Birmingham sector of the route by the Field Group of the Birmingham and Warwickshire Archaeological Society. This work has resulted in the identification of a number of additional sites, particularly in the vicinity of Langley Mill Farm.
- 2.8.3 The main conclusion drawn from the fieldwalking programme (*Archaeological Report* A3.5) was that the fieldwalking programme identified no definite new sites of archaeological significance despite the area covered. The density of artefacts was generally very light. Only the relatively dense concentration of pottery around Wishaw Hall Farm suggested that the known medieval occupation might have been more extensive than previously thought. Elsewhere, small concentrations of medieval and Roman pottery were thought to reflect patterns of discard peripheral to actual occupation sites. Only very small amounts of prehistoric flintwork were recovered; these again were thought likely to reflect low level activity peripheral to main settlement areas.
- 2.8.4 Archaeological evaluation at Crane Brook, Wall (Oxford Archaeological Unit 1994a), mostly on the west side of the brook, examined a number of cropmark features. Some of these appeared to be field boundaries of relatively recent date, though one probably earlier (but undated) likely enclosure was identified. There had been considerable truncation of features by ploughing. Potentially significant organic deposits were located in some feature fills but were generally poorly-preserved.
- 2.8.5 An evaluation at Shenstone Hill Farm, Staffordshire (Oxford Archaeological Unit 1994b) also examined cropmark features in two distinct areas. In Area 2, to the east, south of FingleField Cottages, two linear features were undated. In Area 1, immediately east of Birmingham Road, Shenstone, few features other than those recorded as cropmarks were located, and dating evidence was very sparse indeed. The presence of a possible ring ditch was confirmed, though it was not

dated and its precise form was uncertain. This feature did produce waterlogged deposits from the base of the ditch which, despite their poor preservation, could be particularly significant if the feature was of Bronze Age date. The majority of the other features, including a trackway, probable field boundaries and possible enclosures, may have been of Roman date. As at Crane Brook, the general preservation of features was poor, as a result of recent ploughing.

2.8.6 Evaluation trenching at Wishaw Hall Farm, Warwickshire (Oxford Archaeological Unit 1994c) produced no evidence for prehistoric or Roman activity, which was concluded to lie away from the proposed line of the road. Medieval and post-medieval features were examined, including the moat. No significant settlement-related features or deposits were located, however, though this was presumably a consequence of the levelling of the moat platform and the infilling of the moat itself in the 1960s. The function of the moat, which may always have been L-shaped, remains uncertain. Associated fishponds and possible field boundaries were also examined. Overall quantities of artefactual material were low and no environmental data could be recovered from a waterlogged sample in the moat, though a sample from one of the fishponds did produce some molluscan evidence. Primary fills of both these features contained 13th century pottery.

2.8.7 A small evaluation (three trenches) at Hawkeswell Farm, Coleshill, Warwickshire (OAU 1994d), examined an enclosure related to the earthworks of the Deserted Medieval Village, already partly destroyed by the M6 to the south. Medieval and later features occurred in the two trenches in the southern part of the enclosure, but there was no sign of activity in its northern part. Medieval linear features were located on a different alignment from that of the extant earthworks. Domestic activity was indicated, along with the presence of a nearby structure. Domestic activity dated c 1600-1800 was also indicated, though there was no direct or indirect structural evidence of this date.

### 3 Overall Approach

#### 3.1 *Key Archaeological Themes*

3.1.1 The 1994 *Archaeological Report* identified two broad areas of particular interest in the known archaeology of the route. These were the Roman settlement pattern, particularly in the immediate vicinity of Wall, and the evidence for different phases of the Midlands canal network, principally concentrated in the western part of the route. The potential of the proposed programme of archaeological work on the BNRR to provide valuable evidence on these aspects is clear. In view of the relatively low level of information available on the route for many archaeological periods, however, it is not desirable to define a prescriptive list of aspects of archaeological interest, discoveries outside of which would be considered of low priority. Indeed, in this area finds of prehistoric material, in particular, which elsewhere might be unremarkable, could assume considerable local if not regional importance simply because of their relative rarity. The following short list of important archaeological themes to be

considered in relation to the proposed archaeological programme is based on existing evidence, by the nature of which the themes are mostly very broadly based. Major Themes which emerge from the existing data are as follows:

- Environmental development of the transect in relation to past human exploitation, contrasting the plateau country of the north-western part with the Shenstone Basin and Tame and Blythe Valleys
- The nature of earlier Prehistoric activity across the region
- Later prehistoric predecessors to the Roman settlement pattern
- Roman settlement and landuse patterns in the vicinity of Wall
- Variation in Roman settlement density and character in relation to proximity to the major road network (Watling Street and Ryknield Street)
- The nature and settlement history of medieval rural sites
- The physical characteristics, development and landscape impact of the 18th-19th century canal system
- The development of the region in the early post-medieval period (c. 1500 to 1750), with particular reference to industrial development before the 'industrial revolution'.

3.1.2 Other themes may be recognised on the basis of the data already assembled, but these are either less significant or less likely to be readily addressed than the Major Themes defined here; though indeed some of the latter may be difficult to address in detail with material which may emerge from the archaeological programme. In addition further themes may emerge from unexpected discoveries during fieldwork. In both respects these lesser themes will not be ignored but will be recognised within the priorities afforded to different aspects of the work.

## 3.2 *General Approach*

3.2.1 The identification of a number of overarching themes is intended, as far as possible, to give a degree of coherence to the project overall, even at fieldwork stage where this can be achieved. In terms of these themes the project needs to be viewed and reviewed as a whole, both during excavation and particularly in the post excavation assessment, analysis, reporting and publication stages.

3.2.2 In the context of such a broad approach, some discoveries of relatively minor intrinsic interest could take on a greater value when seen within this wider framework, or within the pattern of a series of such discoveries.

3.2.3 In terms of the archaeological product of the work, the approach will be to produce a thematic report on the findings of the study, rather than a series of disconnected individual site reports. This will most effectively give due weight

to the individual findings within the overall picture, thus neither giving too much weight to minor discoveries nor underplaying their cumulative value as might occur if they were dealt with separately.

- 3.2.4 This has a number of implications, particularly for the timing and programming of the post-excavation stages of the work. For the excavation stage the value of a standardised approach to recording and sampling will be recognised.

#### 4 **Scope of Proposed Archaeological Works**

##### 4.1 *The General Project Design*

- 4.1.1 This General Project Design has been developed on the basis of the information contained in the 1994 *Archaeological Report* modified as appropriate in the light of supplementary data derived from updating of the original desk based assessment. The site specific WSIs, yet to be prepared, will also be based on these sources but will take as their starting point the principles and standards set out in this document.

- 4.1.2 The General Project Design relates to three broad phases of fieldwork identified in the *Archaeological Report* (Section 7 and Appendix 6) and also sets out in outline the principal stages of post-excavation work. The three fieldwork phases are:

- 1) Completion of the scheme-wide phase of initial site location work
- 2) A staged programme of investigation of specified sites including as appropriate:
  - (i) evaluation by geophysical survey and/or trenching as identified in 2.7.3
  - (ii) excavation at an appropriate level (as defined in 4.3.4) or site specific watching brief, as already identified or as indicated by the results of evaluation
- 3) A scheme-wide watching brief programme on the principal earthmoving operations during the construction stage of BNRR

- 4.1.3 The first of these phases is intended to diminish 'the risk of the route adversely affecting unknown sites without adequate mitigation' (*Archaeological Report* Section A6.2 and see further Section 4.2.1 of this document). It is clear, however, that total coverage of the route in this phase is not possible given the range of types of past and present land-use of parts of the route and the limitations of the standard archaeological techniques employed in this phase. For this reason, after the implementation of phases 2(i) and 2(ii) of fieldwork (the evaluation and mitigation of specified sites) a third phase of work (general watching brief) is required, not only as a cross-check on the results of the earlier phases but also because this will be the only time at which some parts of the route will be examined archaeologically.

- 4.1.4 Phases 1 and 3 are therefore scheme-wide in scope, while phase 2, though carried out to broad standards and methodologies which apply across the whole



scheme, comprises a series of site specific programmes of work, each defined in detail by its own WSI.

- 4.1.5 The overall principles and programme set out are taken to apply not only to the BNRR scheme as currently set out, but also to all related off-site works for which details are not yet available. The definition of off-site works includes not only the provision of specific installations (e.g. compounds, borrow pits, topsoil dumps etc) but also temporary arrangements for such items as vehicle movements etc.

## 4.2 *Scheme-Wide Initial Site Location*

### 4.2.1 Stage i) further field survey

- 4.2.1.1 This was defined as Stage i) of the proposed archaeological mitigation strategy in Appendix 6 (Section A6.2) of the *Archaeological Report* and its purpose described in the following terms

“This stage of the strategy has the primary aim of diminishing the risk of the route adversely affecting unknown sites without adequate mitigation. As with any fieldwork it may also enhance information about sites already identified, and this is an important secondary aim.”

The proposed methodology consisted of fieldwalking (a detailed surface collection survey) on all accessible arable areas of land-take not already surveyed, to be complemented by low intensity geophysical scanning of extensive areas of grassland in areas of clear archaeological potential. Only the area south of Wall was identified as falling in the latter category. On the basis that this particular area is already indicated as of archaeological significance from other evidence and will be mitigated accordingly, further consideration of the use of geophysics has been largely confined to the section below relating to site-specific mitigation strategies (Section 4.3.3.3). The one exception to this approach might be in cases where, after identification of archaeological potential on the basis of fieldwalking evidence, immediately adjacent areas not suitable for fieldwalking could be subject to geophysical survey (provided that ground conditions were appropriate) as part of the stage i) programme..

- 4.2.1.2 It is accepted that total coverage of the route using these techniques would be impossible, given the range of past and present land-use of parts of the route. In some cases, where large scale ground disturbance is well documented, it is also clearly inappropriate. In relation to past and current land-use two lengths of the route (from Middle Hill to Norton Canes and where BNRR shares the M42 alignment) have already been identified as areas where the risk of disturbing unknown archaeology is minimal on this basis (*Archaeological Report* Section 5.2.4). These two areas cover some 6.9 km, or almost 18% of the route length.

- 4.2.1.3 Fieldwalking carried out in 1992-3 covered an estimated 33% of the total route length (Section 2.6.2 above), representing a substantial proportion of the route then available or suitable for examination by this technique.
- 4.2.1.4 On the basis of these figures and allowing for the presence of smaller areas of completely unsuitable ground (generally, areas in non-agricultural use) the area potentially available for fieldwalking has been calculated as the equivalent of c. 40% of the total route length. A reasonable proportion of this may be in a suitable condition for fieldwalking prior to the commencement of the construction programme.
- 4.2.1.5 Where required detailed surface collection survey would be carried out using a systematic linear transect sampling method to a standard specification based on walking lines 20 m apart and collecting artefacts from units of 20 m along each line.

#### 4.3 *Staged Mitigation of Specific Sites*

- 4.3.1 This phase of the proposed fieldwork programme consists of two main sub-phases of work (Phases 2(i) and 2(ii)) equivalent to Stages ii and iii as defined in Section A6.3 and 4 of the *Archaeological Report*. These correspond broadly to the evaluation and further fieldwork stages of conventional archaeological projects. It is important to note, however, that Watching Brief has been defined as a specific mitigation strategy for certain sites and in these cases it is included here, while elsewhere this approach is adopted for the Phase 3) scheme-wide archaeological phase of the project, involving monitoring of the principal engineering earthmoving operations (see further Section 4.4 below). The methodologies for the two forms of watching brief are different (see Section 4.3.4.6 vis-à-vis Section 4.4.5) and in the mitigation phase there will also be differences in approach to below ground archaeology and industrial structures.
- 4.3.2 Mitigation of adverse effects on archaeological sites through engineering means is not considered in detail here. In general there is a presumption in favour of preservation of nationally important sites *in situ* where this is possible. Such an approach might include the burying of sites under earthwork embankments, for example. However, there is a lack of detailed evidence relating to the results of compression and other effects on archaeological deposits which might result from such an approach and its employment would have to be considered very carefully on a site specific basis. In any case, no site defined as being of national importance has currently been identified on the BNRR route. On this basis, preservation *in situ* is unlikely to be an applicable mitigation strategy except in very rare cases, and the potential long-term benefit of such an approach to sites of local or regional importance may be offset by an immediate increase in understanding based on recovery of archaeological data in the field.
- 4.3.3 Phase 2(i) evaluation by geophysical survey and/or trial trenching

- 4.3.3.1 The objective of this stage is to evaluate known sites and areas of archaeological potential (identified either in the *Archaeological Report* or through the initial field investigation of the route – Section 4.2 above) so that firstly their research potential can be considered in detail and secondly that in the light of more detailed information requirements for further investigation or, if appropriate, preservation *in situ* beneath the route, can be defined. This would be done in the form of specifications for the work to be carried out in each case.
- 4.3.3.2 Two principal techniques can be employed at this stage, either as alternatives, or in sequence, depending on the circumstances of individual sites. These are geophysical survey and machine trenching. Geophysical survey will be deployed in cases where there is an identified need to obtain a broad plan of the extent and density of archaeological features prior to or as a basis for defining the nature and scope of further work. The objective of machine trenching will be to provide more specific detail on the character and chronology of archaeological features in cases where some evidence for the site plan already exists, and to provide a check on the reliability of that evidence (for example, aerial photographs will often reflect only a proportion of the total archaeology present).
- 4.3.3.3 The characteristic geophysical survey technique will be magnetometry. Where this technique is used the work will be carried out by a specialist sub-contractor. A standard survey approach, in which readings are recorded at 1.0 x 0.5m intervals (maximum) [see *Geophysical Survey in Archaeological Field Evaluations*, English Heritage 1995], is likely to be employed, and measurements of magnetic susceptibility would also be taken routinely, but this level of detail, or any departure from this norm, would be set out in the methodology statement of the detailed WSI for the relevant site or sites. In specific instances it may be appropriate to consider the use of resistivity as a survey technique or as an additional technique. Advice on this point would be sought from the relevant specialist sub-contractor.
- 4.3.3.4 The use of machine trenching will be regarded as the normal method of detailed evaluation, with sampling rates which will not normally exceed around 2% of land surface area. However, a standard rate of sampling may not be appropriate to all situations, especially where the basic character and layout of a site is clear and the evaluation can be targeted to answer specific questions of preservation or chronology. Details will be agreed in advance with the relevant County Archaeologists in site-specific WSIs. The use of other techniques instead of, or in addition to trenching may also be appropriate for specific sites and circumstances. These would be determined by agreement with the relevant Local Authority Archaeologist.
- 4.3.4 Phase 2(ii) Mitigation fieldwork
- 4.3.4.1 Archaeological mitigation fieldwork to achieve preservation by record will be undertaken where existing archaeological reports, or the results of evaluation carried out during Phases 1 or 2(i), identify archaeological sites with significant research potential which cannot be preserved *in situ*, or where the research potential is too critical for it to be acceptable to render the site inaccessible for the

foreseeable future by burying it undisturbed. It is accepted, however, that in the great majority of cases excavation will be an exercise in sampling the potentially available information rather than involving attempted total recovery of all the available archaeological data (for a possible exception to this see below Section 4.3.4.5). The inherent sampling activity involved in excavation must be structured and will be designed to ensure adequate recovery of significant information.

4.3.4.2 In some instances, the general prospection surveys and detailed evaluations undertaken in Phases 1 and 2(i) may themselves provide an adequate record of areas affected. However, where the archaeological potential of an area is confirmed and requires more detailed analysis, specifications for further investigation will be drawn up within the following framework, as set out in Section A6.4 of the *Archaeological Report*:

4.3.4.3 I) Limited Sample Excavation

This term is used to indicate a level of investigation which examines a generally small proportion of a site. This is applicable in two types of case:

a) When the site is of a character where there is relatively little variability over long distances (e.g. roads, field systems, colluvial and alluvial deposits) where only small areas are required to provide an adequate sample, though these may nevertheless be subject to highly intensive study.

b) Where a site is of limited importance or only peripherally affected. In this case it may be sufficient to excavate only very small parts of it in detail (though a larger area may often be stripped carefully to expose it). The recovery of a plan, key stratigraphic relationships, basic dating evidence and a general characterisation of palaeoenvironmental deposits may often be an appropriate level of response in these situations.

4.3.4.4 II) Full Excavation

This term is used here to indicate a level of investigation in which the land-take areas affecting a site are stripped to archaeological specification and all deposits are sampled archaeologically. This is likely to involve a full record of deposits and structures and their relationships, much fuller recovery of artefactual evidence, and detailed sampling of palaeoenvironmental deposits. It is applicable to sites of regional or national and in some cases of county importance, particularly where moderate and severe land-take impacts will occur.

4.3.4.5 III) Total Excavation

This term is used here to indicate a level of investigation where all or most deposits are totally excavated rather than being sampled. It is appropriate to two main categories of site:

a) Where severe land-take impacts of limited extent affect especially rich complex deposits.

b) Where by virtue of the character of the site anything less than total recovery of finds and stratigraphic information would not be an adequate response. This would apply particularly to cemetery sites where all burials likely to be affected should be removed archaeologically (in accordance with Home Office Licence conditions).

#### 4.3.4.6 IV Watching Brief

As indicated above (Section 4.3.1) watching brief has been indicated in the *Archaeological Report* (Sections 7 and A6.5.3 and 4) as an appropriate mitigation strategy in certain circumstances, in addition to its broader application on a scheme-wide basis during the construction process (see 4.4 below). The deliberate use of watching briefs rather than a more extended mitigation programme to record sites identified prior to construction will generally be limited in the case of below ground archaeology to sites of local importance with a relatively low perceived archaeological potential. It has also been considered appropriate, however, to use this approach on sites which may have wider significance but where the overall feature density is likely to be low (see below). Watching brief has also been identified as the principal approach for recording the various industrial (particularly canal) sites encountered on the route of the BNRR.

Section 7 of the *Archaeological Report* identifies the need to ensure provision for watching brief recording to be clearly built into the construction programme for those sites where watching brief is indicated as the principal mode of mitigation. Recent experience on a number of major linear projects has consistently shown that these operations need to be defined as 'targeted watching briefs', in line with current best practice (see Section 1.1), in which the removal of topsoil is carried out under direct archaeological control and to archaeological specifications (i.e. employing appropriate machinery), usually in advance of the principal earthmoving phase of the construction programme. The advantages of this approach are that, by placing the work within the archaeological rather than the construction programme, timetable conflicts and hence the risk of expensive delays to the engineering programme are minimised, conditions suitable for archaeological recording can be guaranteed and the recovery of reliable evidence (which may include negative evidence) thus assured. In many cases this can be considered the most effective way of gathering evidence for sites with relatively low feature density where neither extensive formal excavation nor the high level of evaluation necessary to identify individually important features could be considered cost-effective.

Recovery of evidence for industrial structures (particularly canals and related features) under the heading of watching brief will mostly fall within the general phase of the scheme-wide watching brief since the recording of these features will be largely consequent upon the operations of the earth-moving phase of the engineering programme.

#### 4.4 *Scheme-wide Watching Brief*

- 4.4.1 The *Archaeological Report* (Section A6.5.1) recognises that despite the implementation of the programme of work outlined above 'it is possible that not all sites will have been identified and investigated before construction starts, and it is therefore necessary to ensure that the opportunity to record remaining unidentified sites is available.' This will apply, for example, to areas of the route where for whatever reason it was not possible to carry out initial site identification. As far as possible the archaeological coverage of the entire route would be maximised by carrying out a watching brief in the form of observation of contractors' earth moving operations.
- 4.4.2 The limitations of such an approach are well known. It is recognised that observation during construction work can be a very unsatisfactory means of archaeological investigation since there is little control on the circumstances and standard of discovery and recording. Both archaeologists and contractors are potentially put in the position of interfering substantially with each other's legitimate concern of doing their job to a satisfactory standard within pre-set timetables. In general the speed, scale and methods of constructing modern transport systems militate against the effectiveness of watching briefs in adequately recording sites, though some of these problems can be mediated by good communications between the archaeological and engineering contractors.
- 4.4.3 Despite these difficulties the potential value of a watching brief is considerable and this can be a cost-effective way of gathering evidence. Of particular importance will be the monitoring of preliminary construction work (e.g. topsoil stripping for the haul road, service diversions, excavation of drainage ditches, road diversions and offsite works such as compounds and the location of topsoil dumps, borrow pits etc), which may be critical for gaining early warning of likely impacts, and thereby ensure reasonable time for more detailed investigation if required.
- 4.4.4 In addition to monitoring of the preliminary construction works it is most important that the main route-wide topsoil stripping operations should be closely watched, since this provides statistically much the greatest opportunity for recovery of otherwise unknown archaeological features or finds. Close observation of minor earthmoving operations in the later phases of the construction programme is considered a lower priority, except in areas which have been demonstrated in earlier phases of the project to be of high archaeological potential.
- 4.4.5 Contractors' earthmoving in connection with preliminary construction work and the principal route-wide topsoil stripping will therefore be closely monitored. This will require the simultaneous deployment of several small, mobile teams. In the later stages of the construction programme the number of such teams would be significantly reduced.

#### 4.5 *Recording Standards*

4.5.1 Standard methodologies for fieldwork and recording at different levels are presented in Section 6 below. These will be implemented as appropriate in line with the overall framework of the project as set out above. The stages of archaeological work proposed for specific sites will be clearly linked to the standard methodologies so that the levels of sampling and recording to be applied are commonly understood. The purpose of the setting out levels of sampling and recording at this stage is also to ensure that archaeological work is undertaken to an appropriate professional standard across the whole of the BNRR scheme.

4.5.2 Site specific WSIs will be prepared and agreed for each component site within the scheme. Unless these state otherwise the general standards for sampling and recording to be followed will be those set out in Section 6 appropriate to the specific stage or type of fieldwork required as defined in the accompanying table (Section 2.7.3). These general sampling and recording standards set out in Section 6 may be varied to be more or less intensive, where appropriate, in the light of the specific circumstances of individual sites following consultation with the Local Authority Archaeologist. In general the more specific documents are taken to override the more general ones except where legal issues of ownership or compliance with other legislation (e.g. Health and Safety) arise. The following specific points have been noted:

- Work beyond the area of the Compulsory Purchase Order (CPO) will as far as possible be avoided (except where necessitated by off-site construction or mitigation works).
- In interpreting the specific methodological guidelines of Section 6 below, the following policy will be adopted:

In general excavation, sampling and recording strategies will be further developed and executed with reference to the archaeological objectives of particular sites, current best practice, and the character of the actual archaeology exposed on the ground.

- With regard to the roles of different organisations and individuals involved in the archaeological programme, the procedures to be adopted will be as set out below (Section 5).

#### 4.6 *Application of Different Types of Mitigation*

4.6.1 The application of different types of mitigation as defined above along the whole route is set out in summary form in the accompanying table, 2.7.3.

4.6.2 Plans showing the extent of areas to be investigated will be presented with the site-specific WSIs.

## 5 Procedures

### 5.1 *Detailed Written Schemes of Investigation*

- 5.1.1 Site specific WSIs setting out the requirements, objectives and proposed methods for each specific area or site requiring mitigation will be submitted as drafts simultaneously to the Employer's Agent, the appropriate archaeological curator and English Heritage at least one month in advance of field work and in any case within the time limits set out for submission for the Review Procedure within the Design and Build Contract. The Employer's Agent will respond in accordance with the review procedure within 28 days of receipt, having agreed the WSI with English Heritage or the relevant Local Authority Archaeologist within that time (or if affected by delays in provision of necessary information as soon as possible within the month's notice).
- 5.1.2 The site specific WSIs will include a plan at an appropriate scale (not smaller than 1:2,500) showing the area(s) to be investigated, the excavation strategy, reference to how the general methods to be used as outlined in this document will be applied, and assessment of the risk of unforeseen archaeology being present.
- 5.1.3 Advice on scientific matters will be sought from the English Heritage Regional Archaeological Science Advisor.

### 5.2 *Consents and Arrangements for Deposition of Archive*

- 5.2.1 Arrangements for the deposition and long term storage of the archives and finds generated by the project will be made as far as possible in advance of fieldwork, either on a general or site-specific basis. This will include informing Midland Expressway Limited/Main Contractor of which recipient museums would be most appropriate as the long term curators of the material and any charging structure that they may apply to the long term conservation and storage of finds and archives from archaeological excavations. Museum guidelines will be followed and the requirements for deposition and discard will be addressed and agreed with the appropriate museum before any archaeological work commences.

### 5.3 *Human Burials*

- 5.3.1 This section sets out the procedures to be followed in the event of discovering human remains. In order to excavate human remains a licence is normally required under Section 25 of the Burials Act 1857 for the removal of any body or remains of any body from any place of burial.
- 5.3.2 In the case of known burial sites along the route where previous work has revealed the presence of human remains, a licence will be applied for, in writing to the Home Office. The application will include relevant details of the nature of the site. Any conditions attached to the licence will be complied with.



5.3.3 In the event of unexpected discoveries of human remains, a licence may be obtained from the Home Office by telephoning them and explaining the situation. Any conditions attached to the licence will be complied with. The following procedural steps will be followed to ensure adherence to legal obligations with as little disruption to the project programme as possible while also keeping all parties informed of the situation:

- On first discovering any unexpected human remains the archaeological contractor will endeavour as rapidly as possible to establish whether it is likely that they form part of group (e.g. a cemetery) or are isolated occurrences.
- The archaeological contractor will immediately inform the engineering contractor's site engineer.
- The archaeological contractor will immediately contact the Home Office, explaining the discovery and requesting the licence to be faxed to the archaeological contractor.
- The archaeological contractor will inform the District Coroner, if appropriate (on the advice of the Coroner) the Police and the County Archaeologist as necessary.
- Until receipt of the licence limited archaeological excavations would continue in the area of the discovery, without disturbing the burial(s), to clarify the nature and extent of burial features.
- Should the discovery be too late in the working day, or the licence not received on the same day as the discovery in time to excavate and fully record the remains with due care and attention, they will be covered in an appropriate manner, and if necessary special overnight security provisions will be made to ensure that the remains are not disturbed by unauthorised persons.
- On receipt of the licence the remains will be excavated and recorded as soon as is practically possible, in accordance with any conditions attached to the licence.

5.3.4 In general due care and respect will be accorded any human remains located in the course of archaeological excavations and monitoring of the construction works.

5.3.5 In order not to attract public interest of an undesirable kind, which might result in disturbance of the remains, site staff will be required not to discuss the finds in any public place at least until excavations are completed.

5.3.6 Archaeological recording will be undertaken in accordance with OAU's Field Manual. No excavated remains will be left on site overnight, but will be removed to a safe store pending full compliance with any conditions for disposal required by the licence.

5.4 *Unexpected Discoveries: Treasure*

- 5.4.1 This section sets out the procedures to be followed in the event of discovering items of possible Treasure. The meanings and outline procedures are those defined in the *Treasure Act* of 1996 (which replaced previous Treasure Trove legislation) and in the associated *Treasure Act 1996: Code of Practice*.
- 5.4.2 Treasure is now considered to apply to a wide range of object types and materials concealed in above ground structures or deposited in the ground, including those finds which would previously have been defined as Treasure Trove. The procedure for determining whether or not a find is regarded as Treasure involves reporting the find to the appropriate district coroner.
- 5.4.3 Items declared to be Treasure generally become the property of the Crown, though the Secretary of State has the power to disclaim objects that have been submitted as potential treasure. Such objects are then returned by the coroner to the finder unless objections to this are received from the landowner or occupier within a specified period.
- 5.4.4 Items declared to be Treasure and retained will normally be offered by the Secretary of State to an appropriate museum. In the event that the Treasure is accepted in this way a reward may be payable to the finder. Such rewards are not normally payable, however, when the finder is an archaeologist, and *there is a presumption that objects of treasure found during the course of archaeological excavations will be kept with the rest of the archaeological archive*. Any metal detector user operating on the scheme in conjunction with the archaeological contractor but not a direct employee of the archaeological contractor will be required to waive any rights to a reward in the event that he/she discovers treasure on the BNRR route.
- 5.4.5 In the event of the discovery of items which might potentially be deemed Treasure, the following procedures will be followed:
- The archaeological contractor will immediately inform the engineering contractor's site engineer.
  - The archaeological contractor will also inform the District Coroner, if appropriate (on the advice of the Coroner) the Police, and the County Archaeologist as necessary.
  - OAU staff will proceed with the excavation and recording of the finds to the highest standards. This will be done by or under the direct continuous personal supervision of OAU's Site Director or the Project Manager.
  - Where possible, to avoid any security risk, objects will be excavated and recorded on the same day as their discovery, and will be removed to a stored off site in a security safe.
  - Should it not prove possible to excavate and properly record the items by the end of the day of discovery, then arrangements will be made for overnight security.
  - The nature and location of the items will be treated as strictly confidential, and site staff will be under strict instruction not to discuss the find with outside parties.

- All records will be copied to the Coroner and to Midland Expressway Limited/Main Contractor as soon as reasonably practical, together with a statement about the circumstances and initial interpretation of the find.

## 5.5 *Unexpected Discoveries: General*

5.5.1 In the event of significant unexpected archaeological discoveries being made, the archaeological contractor shall inform the Contractor who will inform the Employer. Such discoveries may be made during purposive archaeological mitigation, i.e. trenching or excavation, and will be defined as consisting of significant archaeology which could not have been reasonably predicted in advance by a qualified, competent archaeologist. Alternatively they may arise during the brief phase, which by its very scope, is likely to reveal archaeological finds of an unpredictable nature. Following rapid appraisal, the archaeological contractor shall follow the procedures set out in 2.14.3 and 2.14.4 of the Employer's Requirements.

## 5.6 *Quality Assurance*

5.6.1 The archaeological contractor shall maintain a Quality Assurance System compliant with British Standard EN ISO 9001. The Employer's Agent and any properly authorised representative shall have the right to verify at source by audit or any other reasonable means that the Services supplied are compliant with EN ISO 9001.

## 5.7 *On-site Monitoring and Communication*

5.7.1 It is recognised that the BNRR project presents a number of challenges with regard to the programme for archaeological works (see also Section 5.9 below). The key to the successful completion of the on-site stages of the archaeological programme lies not only in the quality of work carried out but in realistic timetabling. This is dependent upon close liaison between the Employer's Agent, archaeological contractors, curators and engineers to minimise the risks of misunderstanding and conflict of interest which can jeopardise the progress of the project. Regular contact, both formal and informal, will need to be maintained between all parties.

5.7.2 Prior to commencing the works the archaeological project manager shall agree a programme of regular monitoring visits with the appropriate County Archaeologist.

5.7.3 Access for on-site monitoring will be afforded to the Local Authority Archaeologists and/or their representatives at all reasonable times. Subject to 5.7.2 above, reasonable notice of access requirements must be given to the archaeological contractor in advance to ensure compliance with project Health and Safety requirements and access controls. Such access must also comply with 2.14.4 and 2.14.5 of the Employer's Requirements.

5.7.4 The completion of archaeological mitigation works to the terms set out in the site-specific WSIs (or any agreed variation from these) will be notified in advance to the Employer's Agent and the appropriate Local Authority Archaeologist.

5.7.5 Arrangements will be made for provision of information on a regular (e.g. weekly) basis by the archaeological contractor both to the Contractor, the Employer's Agent and to the archaeological curators.

## 5.8 *Staffing*

5.8.1 The archaeological contractor will provide in advance full details of the overall Project Director and the Principal Project Manager.

5.8.2 Lists of managerial, specialist and supervisory staff who may be employed on the project, and in what capacity, will be supplied in advance of field work. This general list will be updated as necessary if additional staff are deployed.

5.8.3 The specific managerial and supervisory staff allocated to each site or area will be notified in advance when this has been finalised, in advance of the work beginning.

5.8.4 CVs of all managerial, specialist and supervisory staff will be supplied with notification of the staff to be employed. CVs of field and finds technicians will be made available if requested.

## 5.9 *Programme*

5.9.1 The programme of archaeological works will be worked out as soon as possible and will be integrated with the overall construction programme. This programme is likely to require some revision to accommodate unforeseen circumstances, possibly including the removal of some sites if further evaluation shows that further work is not required. Updated programmes will be provided as soon as revisions are firmed up.

5.9.2 Revisions will include the programming of the watching brief element when the detailed construction programme is finalised.

## **6 Methodology**

### 6.1 *General Application*

6.1.1 The following sections set out the methods generally applicable to the different types of archaeological investigative mitigation (except for geophysical survey, for which technical details will be supplied by the relevant specialist) required for the scheme, as applied to the anticipated archaeology. Not all the methodologies detailed below will necessarily be applicable to the archaeology of the BNRR (e.g. test-pitting (Section 6.3) may not be employed) but are

included for completeness. The present document indicates those methodologies most likely to be employed on any given site (See Table, Section 2.7.3) and this will be confirmed in the site-specific WSIs. Where unexpected archaeological discoveries arise, depending on their character and scale, modifications to these standards may need to be made to achieve a reasonable record without jeopardising the scheme programme:

## 6.2 *Evaluation Trenches*

- 6.2.1 A visual inspection of the entire site to be examined will be undertaken. This will include the examination of any available exposures (e.g. recently cut field ditches and geological test pits).
- 6.2.2 For machine excavated trenches, an appropriate machine will be used. This will normally be a JCB 3CX Sitemaster (or equivalent) or 360° tracked excavator with a 5' or 6' wide toothless bucket.
- 6.2.3 All machining will be undertaken under direct archaeological supervision.
- 6.2.4 All undifferentiated topsoil or overburden of recent origin will be removed down to the first significant archaeological horizon, in successive, level spits.
- 6.2.5 Following machine clearance, all faces of the trench that require examination or recording will be cleaned where necessary using appropriate hand tools.
- 6.2.6 Spoil heaps will be monitored in order to recover artefacts to assist in the analysis of the spatial distribution of artefacts. Modern artefacts will be noted but not retained.
- 6.2.7 All investigation of archaeological levels will normally be by hand, with cleaning, examination and recording both in plan and section. Where extensive general deposits are thought to mask underlying archaeological features these may be removed in part by machine after recording.
- 6.2.8 Within significant archaeological levels a minimum number of features required to meet the agreed aims will be hand excavated. Occasional pits and postholes will be subject to a 50% sample by volume; complex clusters of pits will be sampled more selectively. Linear features will be sectioned as appropriate. Features not suited to excavation within narrow trenches will not be sampled. No archaeological deposits will be entirely removed unless this is unavoidable. It is not necessarily the intention that all trial trenches will be fully excavated to natural stratigraphy, but the depth of archaeological deposits across the entire site will be assessed. The stratigraphy of all evaluation trenches will be recorded even where no archaeological deposits have been identified.
- 6.2.9 Any excavation, both by machine and by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits which appear to be worthy of preservation *in situ* where this would be feasible.

- 6.2.10 The level of post-excavation analysis and reporting for the purposes of evaluation will be sufficient to establish the character, scale, date range, artefactual and palaeoenvironmental potential and overall significance of the remains.
- 6.2.11 Style and format of the report will be determined by the archaeological contractor, but will include as a minimum the following:
- A location plan of trenches and/or other fieldwork in relation to the proposed development.
  - Plans and sections of features located at an appropriate scale.
  - A section drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
  - A summary statement of the results.
  - A table summarising per trench the features, classes and numbers of artefacts contained within, spot dating of significant finds and an interpretation.
  - A reconsideration of the methodology used, and a confidence rating for the results.
  - An interpretation of the archaeological findings both within the site and within their wider landscape setting.
- 6.2.11.a In the unlikely event that specific elements of evaluations, which were not followed by excavations, were of major significance, the results shall be incorporated in the final overall publication.
- 6.2.12 The level of artefact analysis will be sufficient to establish date ranges of archaeological deposits, a general assessment of the types of pottery and other artefacts to assist in characterising the archaeology, and to establish the potential for all categories of artefacts should further archaeological work be necessary. In exceptional circumstances where dating by artefacts is likely to be insufficiently precise and is required to enable the preparation of a further WSI it is anticipated that, if appropriate, samples will be taken for scientific dating (usually radiocarbon dating). Such samples shall be submitted promptly to laboratories.
- 6.2.13 Palaeoenvironmental samples, if appropriate, will be processed and scanned to establish the site's potential for yielding valuable information of this type. The scanning will be done by specialists with long standing experience of assessing the significance and potential of such material on the basis of limited analysis. Samples will be retained for possible future detailed analysis.
- 6.2.14 The significance of any archaeology will be judged by general reference to the Secretary of State's non-statutory criteria for definition of scheduled monuments and will also be related to the main research themes identified in Section 3.1 above.
- 6.2.15 The report on the evaluation will also provide an assessment of the impact of the Scheme and propose appropriate mitigation measures where deemed necessary.

- 6.3 *Test Pits*
- 6.3.1 Test pits will be laid out from predetermined positions plotted on Ordnance Survey 1:2500 edition maps, or project maps of equivalent or larger scale. Spacing and dimensions will be as specified in site specific WSI(s).
- 6.3.2 Test pits will be excavated by machine (usually JCB 3CX type excavator) and the spoil systematically hand sorted using trowels.
- 6.3.3 A known volume of topsoil and any other horizons from each pit will be sieved through a 10 mm, and if appropriate, 5 mm mesh.
- 6.3.4 Subdivisions within the material excavated will be respected during the excavation of the pits (topsoil differentiated from earlier ploughsoils or archaeological horizons) will be as specified.
- 6.3.5 Any archaeological features encountered will be sampled as for evaluation trenches so far as possible within the confines of the pit, or will be left unexcavated if the area is due to be topsoil stripped and sample excavated under archaeological control.
- 6.3.6 All artefact totals will be recorded by class. Individual artefacts or assemblages of unusual significance will be appropriately assessed, studied and published.
- 6.4 *Excavation*
- 6.4.1 Main area excavations will be stripped of topsoil and other overburden mechanically. An appropriate machine will always be used. This will normally be a 360° tracked excavator with a 1.5 or 1.8m wide toothless bucket. In other cases a JCB 3CX Sitemaster or equivalent may be employed. Lorries or dumpers will be used to move spoil to the storage areas. No machinery will be allowed to cross stripped areas.
- 6.4.2 All machining will be undertaken under direct archaeological supervision.
- 6.4.3 All undifferentiated topsoil or overburden will be removed down to the significant archaeological horizon or natural subsoil, whichever is encountered first.
- 6.4.4 Great care shall be exercised to ensure that a minimum of archaeological cleaning is required after machine stripping. If required, parts of the resulting surface will be cleaned by hand using appropriate tools, normally either shovels, hoes or trowels. This shall not be undertaken for extensive areas of natural subsoil devoid of any archaeological interest.
- 6.4.5 A site grid covering the area of investigation will be established. The grid will normally be on a 20 m or occasionally 10 m spacing and related to survey points established for the scheme and to the Ordnance Survey grid. Temporary bench marks related to main survey points for the scheme and hence to Ordnance

Datum will be set up. All the grid points will need to be converted to Ordnance Survey values for archive and publication.

#### 6.4.6

The sampling level of the archaeological remains that will be excavated will be determined after the initial surface clean, but (subject to the proviso regarding unexpected archaeology) will normally seek to adhere to the following principles:

- *Structures and specific features of specialised activity:* (e.g. industrial, agricultural processing, ceremonial, funerary) will be fully excavated and all relationships recorded.
- *Ditches and gullies and other linear features:* (e.g. walls and robber trenches) all significant relationships will be defined and investigated. All terminals will be excavated. Sufficient of the ditch lengths will be excavated to determine the character and morphology of each individual ditch over its entire course with consideration given to possible recutting of ditches which may not have taken place over the entire length. This will aim to achieve an average of about 10% sample of each ditch length including excavation of intersections where relationships cannot be determined in plan (for plain lengths of ditch sections will normally be 1 m wide). Should specialised deposits (e.g. localised refuse dumping, industrial wastes) be discovered, then more extensive excavation may need to take place. Consideration will be given to the recovery of sufficient artefact assemblages to assist in dating stratigraphic sequences and for obtaining sufficient ceramic assemblages for comparison with other sites. Likewise where artefactual evidence is very limited the likelihood of it being entirely redeposited and hence of little reliability for dating purposes will be borne in mind, and the scale of sampling may be reduced accordingly. Following hand sampling and detailed recording, bulk sample excavation of features by machine may be undertaken to enhance artefact recovery as an addition to the basic sampling.
- *Pits:* 100% (by number), or if numerous the practicability of this will be reviewed in the light of the numbers of such features present and an appropriate representative sample, will be half sectioned, or in the case of complex intercutting suitably quadranted. Some pits may be fully excavated where the special nature of deposits or the need to fully recover artefacts in order to fulfil the overall objectives of the excavation (this is typically the case with earlier prehistoric pits and those containing 'special' deliberate deposits). Where this arises decisions as to which pits will as an addition be fully excavated will be made in the light of information gained in half sectioning.
- *Post and stake holes:* where they are not clearly part of coherent structural elements, sufficient will be half sectioned to establish relationships and chronologies. Where deemed necessary (by artefact content, or the need to verify the interpretation) a number may require full excavation.
- *Extensive archaeological deposits, buried soil horizons:* where such deposits are of limited extent they may be fully excavated with appropriate palaeoenvironmental sampling (see below). Where they are



of more general extent they will be sampled using machine-dug trenches or test pits to a sufficient extent to achieve the aims and objectives of the Project.

- *Working hollows, quarry pits etc:* all relationships will be ascertained and one or more hand dug sections cut of suitable width (e.g. 1-1.5 m) to establish the character of the fill, floor of the feature and any evidence of method of excavation, and to obtain dating evidence; further investigation will be a matter for the specific cases and on-site judgement and consideration will be given to machine excavation. The scale and method of excavation will be determined by the need to define their extent, date and function. The potentially long time span and likely character of the backfilling of such features gives a high probability of artefacts in secondary contexts being redeposited. Unless there are specific reasons to expect special deposits or stabilised horizons with evidence of occupation activity in their backfill, a combination of machine excavation following the basic stratigraphy and hand sampling will be used for further excavation. Below the formation level of the road, excavation of such features will be limited or excluded to avoid the risk of creating undesirable soft spots.
- *Other archaeological deposits:* excavation and sampling strategies for other types of deposit will be decided according to their nature and significance with regard to achieving the aims and objectives of the Project.

In exceptional circumstances where dating by artefacts is likely to be insufficiently precise and is required to enable the preparation of a further WSI it is anticipated that, if appropriate, samples will be taken for scientific dating (usually radiocarbon dating). Such samples shall be submitted promptly to laboratories.

## 6.5 *Watching Briefs*

- 6.5.1 Areas designated for targeted watching briefs (Section 4.3.4.6 above) will be stripped by 360° excavator or box scraper with toothless blades under archaeological supervision. Exposed areas will not be hand cleaned except where essential to define the edges of discrete features. Other areas will be monitored for archaeological deposits and artefacts during contractors' stripping.
- 6.5.2 Ground disturbances (general site strip and levelling, reduction for roads, excavation for drainage ditches etc) will be monitored by an archaeological supervisor assisted, where necessary, by archaeological technicians and under the overall guidance of a project manager.
- 6.5.3 In targeted watching briefs the minimum standard of work will comprise recovery of a complete plan, examination of key stratigraphic relationships and collection of finds and (where appropriate) environmental samples.
- 6.5.4 So far as reasonably possible all archaeological features and deposits exposed will be recorded.

- 6.5.5 Where only the tops of features or deposits are exposed, these will be located on a site plan, planned, and recorded by written description and by photographs.
- 6.5.6 Visible artefacts will be collected in order to assist in the dating of features and deposits.
- 6.5.7 Where trenches are excavated through cut features (pits, ditches etc) and vertical stratigraphy is not present, the features will be recorded in section with appropriate collection of finds.
- 6.5.8 Where ground disturbance exposes stratified remains or significant features, wherever possible these will be hand excavated by the archaeologist and recorded.
- 6.5.9 The appropriate archaeological curator will be advised at the earliest opportunity of any significant archaeological features of more than local interest.
- 6.5.10 In exceptional circumstances where dating by artefacts is likely to be insufficiently precise it is anticipated that, if appropriate, samples will be taken for scientific dating (usually radiocarbon dating).
- 6.6 *Recording Procedures*
- 6.6.1 In order to facilitate the production of an overall project archive of consistent standard, the following recording procedures will be applied as far as possible to all the types of excavation due to be undertaken. In the case of watching briefs, on-site recording may need to be very rapid and some of the less critical aspects such as registers and cross referencing may be omitted or completed retrospectively. In these cases priority will be given to making the basic drawn and descriptive record fully related to the recovery of artefacts and samples.
- 6.6.2 Each specific area, site or group of sites will be assigned a unique alphanumeric site code, to be agreed with the recipient museums, which will be used to identify all records, finds and samples relating to that piece of work.
- 6.6.3 All on-site recording will be undertaken in accordance with current best practice.
- 6.6.4 A continuous unique numbering system will be operated. Written descriptions will be recorded on proforma sheets comprising factual data and interpretative elements.
- 6.6.5 Where stratified deposits are encountered a Harris Matrix will be compiled during the course of the excavation.
- 6.6.6 Plans will normally be drawn at 1:50 and more detailed plans, where required, will be at an appropriate scale (1:20, 1:10). Burials will be drawn at 1:10.

- 6.6.7 The site grid will be accurately tied into the project survey points and thence to the National Grid and located on the 1:2500 or 1:1250 map of the area or on the scheme drawings.
- 6.6.8 A register of plans will be kept.
- 6.6.9 Long sections of trenches showing layers will be normally drawn at 1:50 or 1:20. Exceptionally long sections designed to show major sedimentary sequences will be drawn at 1:100 or with differential vertical and horizontal scales. Sections of features or short lengths of trenches will be drawn at 1:20 or 1:10.
- 6.6.10 A register of sections will be kept.
- 6.6.11 Generally all sections will be tied in to Ordnance Datum.
- 6.6.12 A full black and white and colour (35 mm transparency) photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work.
- 6.6.13 Photographs will be recorded on OAU Photographic Record Sheets.
- 6.6.14 A register of small finds and environmental samples will be maintained.
- 6.6.15 All identified finds and artefacts will be retained, although certain classes of building material or post medieval pottery may sometimes be discarded after recording if an appropriate sample is retained. However, no finds will be discarded without the prior approval of the nominated representative of the local authority and the receiving Museum.
- 6.6.16 All finds and samples will be treated in a proper manner and to standards agreed in advance with the approved recipient museum. These will be exposed, lifted, cleaned, stabilised, marked, bagged and boxed in accordance with the guidelines set out in UKIC's *Conservation Guidelines No. 2*.
- 6.7 *Finds Recovery*
- 6.7.1 The following provisions will apply as far as reasonably possible to all the types of archaeological investigation proposed. This is likely to prove most effective for trenched evaluations and excavations, and of more limited application to the other types of investigation.
- 6.7.2 All artefacts will be retained from hand excavated contexts unless they are of recent origin. In these cases sufficient of the material will usually be retained where it is important to validate the date and establish the function of the feature.
- 6.7.3 Some categories of finds of limited intrinsic interest may be sampled and recorded on site where their retention is not considered essential to the archaeological aims and objectives of the Project *and* they would constitute an

excessive storage burden. Examples are burnt stone or undifferentiated post medieval tile fragments.

- 6.7.4 Unstratified objects from topsoil or other modern deposits will not normally be retained except where they are collected for a specific purpose (as with test pits) or are of intrinsic interest either in their own right or in contributing to an understanding of the site.
- 6.7.5 Recovery will normally be by hand, except where bulk samples are taken for other purposes or for special recovery of small items (e.g. with cremation deposits)
- 6.7.6 In certain circumstances where unusual or extremely fragile and delicate objects are found, then their recovery will be by appropriate specialists. Where necessary, specialist advice on the conservation of artefacts will be sought and followed.
- 6.7.7 Metal detectors will be employed as a means of finds recovery where this is considered appropriate. This is likely to be particularly in the context of excavation and targeted watching brief operations. For reasons of security and (particularly) insurance, such work would (unless specifically agreed to the contrary with Main Contractor) be carried out by suitably qualified personnel employed by the archaeological contractor.

## 6.8 *Palaeoenvironmental and Industrial Sampling*

- 6.8.1 The following provisions will apply as far as reasonably possible to all the types of archaeological investigation proposed. This is likely to prove most effective for the excavations, and of more limited application to the other types of investigation.
- 6.8.2 Different environmental sampling strategies may be employed according to established research targets and the perceived character, interpretative importance and chronological significance of the strata under investigation., although they will initially be based on the methodology set out below. Sampling strategies and appropriate sample sizes will be agreed in consultation with the appropriate specialists before the investigation begins. Sampling strategies will include a reasoned justification for selection of deposits for sampling, and may be subject to modification in the light of results and conditions in the course of the investigation.
- Bulk samples, normally of the order of 20 to 40 litres will be taken for flotation for *carbonised plant remains* from datable deposits according to the agreed sampling strategy. Residues from the sample processing will be retained for recovery of small artefacts and bones.
  - Bulk samples, normally of the order of 10 litres, will be taken from significant datable waterlogged deposits for *insects and macroscopic plant remains*.

- Sub-samples or Column samples of waterlogged deposits and sealed buried soils with potential for *pollen* preservation will be taken for analysis with the advice of the appropriate specialist.
- Bulk samples, normally of the order of 2 kg will be collected for *molluscs* if clearly present, and columns of such samples will be taken through deposits where there is clear potential for recovering a datable sequence of environmental information.
- Large bulk samples, of the order of 100 litres, will be taken from specific datable contexts in consultation with the appropriate specialist, for sieving to retrieve *animal bone* and small finds. Bone will also be hand collected from datable unsieved deposits. Deposits particularly rich in bone will normally be excavated, recovered and sieved in their entirety, in consultation with the specialist.
- Each deposit in *possible human cremations* will be recovered in its entirety, sieved to retrieve the cremated bone and any associated artefacts, and then processed by flotation to recover any associated charred plant remains.
- Buried soils and sediment sequences will be inspected and recorded on site by a geoarchaeologist since field inspection may provide sufficient data for understanding site formation processes including environmental changes. Samples may be collected for laboratory analysis of chemistry, magnetic susceptibility, particle size, micromorphology and/or other techniques as appropriate, in consultation with the geoarchaeologist. Where there is evidence of industrial activity, large technological residues will be collected by hand. Separate samples will be collected for small amounts of technical residues (e.g. micro-slugs, hammer-scale and spherical droplets) in consultation with the specialist.

6.8.3 Advice on environmental matters will be sought from the appropriate English Heritage Regional Scientific Archaeological Advisor.

## 6.9 *Project Review Stage*

6.9.1 On completion of the fieldwork the results from each site will be briefly reviewed. Such reviews will be submitted to the Employer's Agent and the relevant Local Authority Archaeologist for consultation within four weeks of the completion of the element of work reviewed. This review will provide a brief summary of findings suitable for inclusion in the relevant Local Authority Sites and Monuments Record in a format to be agreed with the Local Authority Archaeologists concerned.

6.9.2 The site archive (paper and photographic record, artefacts and environmental samples) will be prepared for long-term storage in accordance with *Guidelines for the preparation of excavation archives for long term storage* (Walker 1990 - UKIC) and *Standards in the Museum Care of Archaeological Collections* (Museums and Galleries Commission 1992), to a standard from which post excavation assessment could proceed in a format agreed in advance with the relevant local museum.

- 6.9.3 On completion of each main stage of the watching brief the same procedure as above will be adopted.
- 6.9.4 Advice presented in the Review on the need for full post-excavation assessment will be determined in the light of the results of the fieldwork, guided by the overall archaeological aims and objectives of the project. In general where results are of only minor local interest and do not contribute to identified themes of archaeological interest, the archive may be deposited with no further assessment, though this will not preclude reference back to it if unforeseen points of interest are identified in the light of other work.
- 6.10 *Post-excavation Assessment*
- 6.10.1 Post-excavation assessment will be carried out in line with the principles established in MAP2 (English Heritage 1991), informed by English Heritage's draft *Minimum standards for MAP2 project designs and assessments*.
- 6.10.2 The post-excavation assessment will begin on completion of the reviews of the last purposive archaeological works, and will include the results from any watching briefs completed at that stage, and be completed within six months. The results of subsequent watching briefs or additional work will be added as revisions to the post-excavation assessment as the programme allows.
- 6.10.3 The overall site archive will be security copied and a copy deposited with the NAR before post-excavation assessment begins or as soon thereafter as can be conveniently arranged. All metal objects will be x-rayed.
- 6.10.4 The receiving Museum will be further consulted about their conditions for long term conservation and storage of the archives and excavated material. This consultation will form the basis of the advice to be provided to Main Contractor on the long term requirements and costs of archive and finds storage.
- 6.10.5 A summary report will be prepared on completion of the site archive and assessment. The summary report will be regarded as a Design Input Statement as in Annex 1/3 5 Archaeological Works of the Employer's Requirements. This report will include:
- A statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled or extended.
  - A summary of the quantities and potential for analysis of the information recovered for each category of site, finds, dating and environmental data.
  - A list of the project aims as revised in the light of the results of fieldwork and post-excavation assessment.
  - A list of the methods which will be used to achieve the research aims (these should be explicitly linked to aims).
  - A list of all the main tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, wherever possible linking each task explicitly to the relevant

method statement and indicating the personnel and time in days involved in each task. Allowance will be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time.

- A provisional report synopsis, broken down into chapters, section headings and subheadings, with approximate word lengths and numbers and titles of illustrations per chapter. The structure of the report synopsis should explicitly reflect the research aims of the project.
- A list of the personnel involved indicating their qualifications for the tasks undertaken.
- A cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project.
- Provisional publication options indicating potential publisher(s) and report format.

## 6.11 *Post-excavation Analysis and Reporting*

6.11.1 Methods to be adopted in post-excavation analysis and reporting will be determined on the basis of the post-excavation assessment which will act as a supplement to and updating of this document.

6.11.2 Reporting and dissemination of the results of the archaeological programme will take account of the need to present the main findings of the project at more than one level. It is anticipated that a full academic publication will be required in line with the standards set out here and in the controlling documentation (e.g. MAP2). However, there is a widely perceived need for dissemination of information in a more popular form. The production of such information, while distinct from that of the formal report(s), would form an integral part of the reporting process for the project as a whole.

6.11.3 Details of the organisation and format of both academic and popular reports on the results of the project are yet to be determined, and will depend on the outcome of the post-excavation assessment as above. The option to use electronic as well as conventional printed formats will be considered.

6.11.4 Draft reports for publication will be submitted to the Employer's Agent and the relevant Local Authority Archaeologists for comment and agreement. Final reports will be submitted for publication within three years of the date of the submission of the post-excavation assessment.

6.11.5 In addition to the full publication reports, short summaries will be submitted at an appropriate earlier stage to the journal *West Midlands Archaeology* and an appropriate period-based journal. English Heritage and the relevant Local Authority Archaeologists will be consulted over the selection of appropriate journals for these summaries.

## 7 **Copyright and Confidentiality**

- 7.1 The archaeological contractor will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive licence to Midlands Expressway Limited in all matters directly relating to the project as described in the Written Scheme of Investigation.
- 7.2 The archaeological contractor will assign copyright to Midlands Expressway Limited upon written request but retains the right to be identified as the author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988 (Chapter IV, s.79).
- 7.3 The archaeological contractor will advise the client of any such materials supplied in the course of projects which are not the archaeological contractor's copyright.
- 7.4 The archaeological contractor undertakes to respect all requirements for confidentiality about the client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. The archaeological contractor further undertake to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that clients respect the archaeological contractor's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

## 8 **Health and Safety**

### 8.1 *Standards*

8.1.1 The archaeological contractor undertakes to safeguard, as far as is reasonably possible, the health, safety and welfare of its staff and of all others affected by the archaeological contractor's activities.

8.1.2 All work will be carried out in compliance with current and relevant Health and Safety legislation, including, but not limited to:

*The Health and Safety at Work etc. Act 1974*  
*Factories Act 1961*  
*Offices Shops and Railway Premises Act 1962*  
*Fire Precautions Act 1971*  
*Construction (Design and Management) Regulations 1994*  
*Construction (Health, Safety and Welfare) Regulations 1996*  
*Health and Safety (Consultation with Employees) Regulations 1996*  
*Management of Health and Safety at Work Regulations 1999*  
*Manual Handling Operations Regulations 1992*  
*Health and Safety (Display Screen Equipment) Regulations 1992*  
*Personal Protective Equipment at Work Regulations 1992*



*Provision and Use of Work Equipment Regulations 1998*  
*Workplace (Health, Safety and Welfare) Regulations 1992*  
*Control of Substances Hazardous to Health Regulations 1994*  
*Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995*

8.1.3 The archaeological contractor will attach a copy of its Health and Safety Policy as Appendix 2.

## 8.2 *Application*

8.2.1 A project-wide Health and Safety Plan will be prepared, as a development of the Health and Safety Plan issued by the Planning Supervisor. Further development will consist of site-specific Health and Safety Plans, and Risk Assessments, cross-referenced to method statements as appropriate.

## 9 Standards and Procedures

9.1 The archaeological contractor shall conform to the standards of professional conduct outlined in the documents in Appendix One.

9.2 The scope of work detailed in the main part of this Project Design is aimed at meeting the aims of the project in a cost effective manner. The archaeological contractor will attempt to foresee possible site specific problems and resource these. However there may be unusual circumstances which have not been included in the costing and programme.

- Unavoidable delays due to extreme bad weather, vandalism, etc.
- Complex structures or objects, including those in waterlogged conditions, requiring specialist removal.
- Extensions to specified trenches or feature sample sizes requested by the archaeological curator.
- Trenches requiring shoring or stepping, ground contamination, unknown services, poor ground conditions requiring additional plant, specialist reinstatement of surfaces (i.e. tarmac, turf).

9.4 The archaeological contractor will hold Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Details to be supplied on request.

9.5 The archaeological contractor will not be liable to indemnify the client against any compensation or damages for or with respect to:

- Damage to crops being on the Area or Areas of Work (save in so far as possession has not been given to the Archaeological Contractor);
- The use or occupation of land (which has been provided by the Client) by the Project or for the purposes of completing the Project (including consequent loss of crops) or interference whether temporary or permanent

with any right of way, light, air or water or other easement or quasi easement which are the unavoidable result of the Project in accordance with the Agreement;

- Any other damage which is the unavoidable result of the Project in accordance with the Agreement;
- Injuries or Injuries or damage to persons or property resulting from any act or neglect or breach of statutory duty done or committed by the client or his agents, servants or their contractors (not being employed by the archaeological contractor) or for or in respect of any claims demands proceedings damages costs charges and expenses in respect thereof or in relation thereto.

[Appendices etc not at present supplied, nor anything else past this point]

## **Bibliography**

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## APPENDIX 1: QUALITY ASSURANCE

### 1 General

#### 1.1 *ISO9000 registration*

OAU is not at present ISO certified. As a first stage in achieving certification, OAU is undergoing a global review of procedures including the production or review of existing technical manuals, ongoing review of the health and safety policy and drafting of an environmental policy. A management review, designed to deliver increasingly efficient and standardised management systems, is also in progress, and due for completion by March 2000.

#### 1.2 *OAU quality management practices*

##### *Standards*

It is OAU's stated policy to adhere to current professional standards set by IFA, English Heritage, Association of Local Authority Archaeologists and museums organisations.

OAU helps the profession to develop and establish standards by serving on national working parties.

OAU conforms with current legislation and national and local policy standards for archaeology, health and safety and other relevant matters.

OAU has established procedures and policies which control all aspects of its routine work. These conform with best professional practice and have been developed into draft or final technical manuals for the following areas:

- ◆ Fieldwork
- ◆ Environmental sampling and processing
- ◆ Finds storage and handling (including finds retention and discard policy)
- ◆ Archiving
- ◆ Post-excavation

### *Quality management*

Quality matters are ultimately the responsibility of the Unit Director. He is responsible for formulating a strategic approach to Quality Control matters, in consultation with the Senior Management Group. This role is supported by regular inspections of major fieldwork and post-excavation projects.

The Assistant Directors are responsible for assisting the Director in the formulation and implementation of Quality Control procedures. They also monitor individual fieldwork and post-excavation projects and approve all client and publication reports.

The Project Manager is responsible for detailed checking of fieldwork projects, design documents and client reports. Major post-excavation projects are also subject to scheduled audits by a designated Project Monitor.

Monitoring of Health and Safety matters is the responsibility of the Unit Director, assisted by the Safety Officer, who is responsible for approving Safety Plans, Risk Assessments and Safety Audits. Where required, internal monitoring systems are supplemented by external audits conducted by Safety Services (UK) Limited.

### *Staff*

OAU ensures that its staff are fairly recruited, fairly employed, and properly qualified for their work whether by formal qualification or by established and verifiable experience.

OAU ensures that staff remain committed and enhance their abilities through annual staff appraisals, by supporting formal and informal training and educational courses. The ongoing management review has resulted in the appointment of a dedicated personnel officer to oversee these activities.

OAU have established terms and conditions of employment and a system of staff representation to ensure regular consultation on employment matters.

Regularly scheduled meetings of staff at all levels are held to discuss issues of technical quality control and management. These include monthly project managers' meetings and three monthly technical review meetings.

### *Procurement of services and materials*

OAU procures subcontracted work, equipment and materials on the basis of value for money, considering quality, track record and service as well as cost.

OAU regularly reviews quality of sub-contracted work and uses tendering procedures for major sub-contracts.

### *Working Practices*

Management procedures ensure that all work conducted within the Company and all end product reports to clients are monitored and evaluated whilst they are in progress, during compilation, and after completion.

Fieldwork client reports and design documents are subject to detailed checking by the Project Manager and review and approval by the Assistant Director (Fieldwork). Publication texts are subject to detailed editorial procedures, approval by the Assistant Director (post-excavation) and external academic refereeing.

All aspects of activity at the OAU are governed by written procedures which are used as codes of 'standard practice' throughout the organisation. It is the responsibility of all line managers to ensure that staff adhere to these procedures and the direct responsibility of departmental managers to check that procedures are followed.

### *Data Acquisition and Security*

All external data sources are documented (whether productive of information or not), as are the limits of search, and the date of search. Data is filed by project.

During fieldwork projects OAU removes all records and finds from site each day. Primary fieldwork archives are security copied by microfilming as part of the standard archiving procedure.

The OAU has a networked computer system. In addition to providing standardised software suites for use by all personnel the computer administration facility monitors logs and checks all activity on the network. The IT Manager is responsible for monitoring data security and ensuring that operating quality is maintained. OAU has daily backup of all computer systems, with latest version stored off-site, and maintains up-to-date anti-virus software.

### *Artefact Security*

OAU handles, temporarily stores and co-ordinates internal and external specialist research on many thousands of artefacts and antiquities of interpretative and intrinsic value.

OAU has unique numbering systems, check-lists, transit forms and procedures to ensure that all artefacts are adequately logged, individually identifiable and their location known as they proceed through the analysis and reporting stages of archaeological projects.

OAU has a specialist secure storage racking system and other secure storage facilities for storage of all intrinsically valuable artefacts.

### *Key Stages in Project QA Procedures*

The following procedures cover technical aspects of OAU's archaeological work (health and safety and financial/ management issues are presented separately).

1) Desk-based assessment is normally carried out prior to any fieldwork taking place and is intended to inform the Project Planning process. The data sources consulted follow standard OAU technical specifications and the requirements of the design brief prepared by the local authority Archaeological Officer. If submitted as a formal document the assessment is checked by the Project Manager and approved by the Head of Consultancy before submission to the local authority Archaeological Officer.

2) Fieldwork Project planning is generally carried out in the following stages:

- ◆ Consideration of the requirements of the brief.
- ◆ Consideration of alternative approaches, leading to consultation with the client and curator.
- ◆ Detailed consideration and documentation of cost, logistics, staff and programming.
- ◆ Statutory service checks
- ◆ Consultation with proposed sub-contractors on cost/ logistical/ health and safety matters.
- ◆ Development of Project Design.
- ◆ Development of Health and Safety Plan and Risk Assessment.

- ◆ Approval of documentation by Assistant Director (Fieldwork).
  - ◆ Submission of required documentation to client and curator.
  - ◆ Appointment of sub-contractors.
- 3) The Site Manager/ Supervisor is briefed by the Project Manager on all relevant background data and information, procedures, technical specifications, staff, plant and programming details.
  - 4) Execution of fieldwork is guided by technical manuals, incorporating unique site codes and context numbering systems.
  - 5) Site recording systems use standard proforma sheets, each initialed on completion by the technician responsible. All records are checked and cross-referenced on site by the Site Manager/ Supervisor and audited by the Project Manager.
  - 6) The finds system is designed to document the location of objects, and to establish museum destination and legal ownership of finds. Finds transit forms are subject to checking by the Finds Manager and approval by the Project Manager.
  - 7) Post-excavation assessment procedures follow the model outlined in *Management of Archaeological Projects* (English Heritage, 1991). The process is designed to generate an Assessment Report on the fieldwork results. This results in an Up-dated Project Design incorporating revised aims and objectives, a publication plan and detailed task list and programme. These documents are subject to checking by the Project Manager, internal approval by the Project Monitor and Assistant Director (Post-excavation) and external approval by the local authority Archaeological Officer.
  - 8) Publication reports are subject to detailed internal editorial procedures. They are then approved by the Project Monitor and the Assistant Director (Post-excavation) and are usually subject to external academic refereeing. Those reports to be published in an academic journal are then submitted to the journal editor. OAU publications are subject to a further stage of checking and approval following type-setting.
  - 9) Projects are subject to constant review and monitoring to ensure objectives are being met in the fieldwork and post-excavation stages. In most cases external monitoring is carried out by the local authority Archaeological Officer or English Heritage.
  - 10) OAU site archives (paper and photographic record, artefacts and environmental samples) are prepared for long-term storage in accordance with *Guidelines for the preparation of excavation archives for long term storage* (Walker 1990 - UKIC) and *Standards in the Museum Care of Archaeological Collections* (Museums and Galleries Commission 1992). Standard procedures



are in place for making arrangements with landowners and recipient institutions for the deposit of archives and finds in appropriate publicly accessible institutions. Archive management is the responsibility of a dedicated archives officer.

### *Health and Safety*

OAU has a written Health and Safety policy which covers all aspects of its work, and is in accordance with national legislation, regulations, and professional guidelines. OAU has a Safety Officer and Health and Safety Committee which oversee Health and Safety matters on a regular basis.

For field projects a five-stage process of dealing with health and safety matters is adopted, as follows:

- 1 Collection of existing general and site-specific data.
- 2 Initial identification of hazards - implement additional data collection where required.
- 3 Finalise identification of hazards and prepare risk assessments
- 4 Output of principal Health and Safety documents
  - Safety Plan
  - Method statement
  - Risk Assessment(s)
- 5 Refer documents to Safety Officer for checking, and distribute
- 6 Implementation
  - Familiarisation with documents and site for key staff
  - Safety briefing for key staff
  - Authorised persons system
  - Implement safety training for all project staff as defined in Safety Plan
  - Implement Safety Audit System as defined in Safety Plan - feedback and adjustments to Safety Plan as required
- 7 Report and investigate any health and safety incidents.

**APPENDIX 2: HEALTH AND SAFETY POLICIES**