

9. ANALYSIS AND DISCUSSION

9.1 THE SUPERIMPOSITION OF THE ARCHAEOLOGICAL RESOURCE ON THE AGGREGATE TERRACES

- 9.1.1 Radiocarbon dating of the river terraces was undertaken at various locations along the Ribble (*Section 5.2*), and as a result relatively secure dating sequences were established for the Lower Ribble Valley and the Calder Valley, with less information available for the Hodder and the Upper Ribble. The sequence established indicates that, from Terrace T2 onwards, there is the potential for archaeological monuments to exist buried under the gravels and sediments.
- 9.1.2 The terrace formation procedures are complex, however. *In-situ* monuments and artefacts may be obscured by sediment overburden in earlier terraces, but episodes of erosion and deposition may also move artefacts from their original location and redeposit them on later terraces. Using the dating sequence provided by this project, hypothetically Terrace T2 could potentially contain obscured prehistoric monuments *in-situ*, whereas the later terraces are more likely to contain redeposited artefacts. However, if monuments are indeed buried in Terrace T2, the significant depth of overburden means that they will be obscured beyond any means of archaeological investigation yet may be at risk from aggregate extraction.
- 9.1.3 Superimposing the location of known prehistoric monuments, and in particular artefacts, on the map of river terraces allows us to highlight areas that may require further investigation or monitoring (Fig 161). Although there are also post-medieval monuments identified on these terraces, the distribution of the prehistoric monuments provides the best indicator of a significant archaeological resource that is potentially buried within the areas of terracing.
- 9.1.4 Monuments and artefacts found in Terrace T2 may be *in-situ*, implying deposition whilst the terrace was being formed. Aggregations of artefacts found in Terrace T3 may represent material redeposited from elsewhere, eroded from Terrace T2 further up the river.
- 9.1.5 Five prehistoric monuments have been found in areas now known to be part of Terrace T2 (Table 52).

HER Monument Number	Monument Name	Monument Type
HER PRN2	The Albert Edward Dock	Stone: Flint arrowhead
HER PRN6	Preston Docks	Metal: Bronze spearhead
HER PRN100	Near Higher Brockholes Farm	Stone: Flint arrowhead
HER PRN1410	River Ribble, Opposite Castle Hill, Penwortham	Organic: Wooden dugout canoes
HER PRN4952	Preston	Metal: Bronze

Table 52: Prehistoric monuments found in Terrace T2

- 9.1.6 Three of the artefacts (HER PRN18079, HER PRN6 and HER PRN1410) were found in very close proximity, in the area now occupied by Preston Docks. HER PRN6 and PRN1410 were found in the late nineteenth century during the

construction of the docks, and HER PRN2 in 1934, in the same area (*Section 2.3.26*). HER PRN2 was associated with human and animal remains and HER PRN1410 with bronze implements. These were deeply buried in the gravels, with one of the dugout canoes (HER PRN1410) being recorded at 14 feet (4.26m) below the surface. These aggregations of finds may represent catchpoints, where material has collected at bends in the river (see *Section 6.2.6*). The other artefacts in that area, and HER PRN100 at Higher Brockholes Farm, may be redeposited isolated finds, and HER PRN100 in particular was found considerably closer to the surface (1ft (0.30m)). The aggregation of these finds seems to imply that the T2 terrace around Preston might contain further buried prehistoric artefacts and monuments. These are likely to be found only in the event of further deep excavations, such as aggregate extraction. *Section 7.2.8* suggests that this area (LIV3) is not particularly suitable for extraction as it is urbanised, but should intrusive work of any kind take place it should be closely monitored.

- 9.1.7 A further four prehistoric finds were found in areas mapped as Terrace T3 (Table 53). They are all extant earthworks in the area of Brockhall wood, close to the confluence of the Ribble and the Calder (Fig 162).

Monument Number	Monument Name	Monument Type
HER PRN149	Barrow, Brockhall Wood	Barrow
HER PRN179	Winkley Lowes	Barrow
HER PRN180	Winkley Lowes	Barrow
HER PRN28088	Winkley Lowes	Earthwork

Table 53: Prehistoric monuments and artefacts found within Terrace T3

- 9.1.8 This collection of barrows and earthworks has not been closely dated, although HER PRN179 and PRN180 were excavated by antiquarians in 1894 (*Section 2.3.34*). Radiocarbon dates for the palaeochannels on the surface of this section of terrace suggest infilling took place between *c* 970 cal BC-cal AD 490 and cal AD 650-890 (*Section 5.2.34*), but this does not narrow down the possible date-range for these monuments, indicating only that they were constructed after 1065-860 cal BC.
- 9.1.9 There are other aggregations of finds on bends in the river that do not fall exactly within the river terraces (according to the location recorded in the HER) but may also represent catchpoints in the river worthy of further investigation. The collection of artefacts discovered at Marles Wood may represent such a site. HER PRN1015 and PRN1872 (Fig 163) are a wooden dugout canoe and a canoe fragment respectively (*Section 2.3.11*); a spearhead was also found with HER PRN1872. These artefacts do not appear to be *in-situ*, but do highlight the fact that the river was an important channel for activity in the prehistoric period. Charting where these artefacts were originally deposited is, however, beyond the scope of this project.
- 9.1.10 Also at Marles Wood is a small collection of flint scatters (HER PRN1868, PRN2894 and PRN28205). These are thought to be *in-situ* and not part of the aggregation of finds at the catchpoint, but support the idea that this was an area of prehistoric activity.

9.1.11 In conclusion, these groupings of prehistoric monuments and artefacts on and close to Terraces T2 and T3 imply that these terraces may have a high archaeological value. Further work could develop the idea that certain points in the river act as catchpoints for finds deposited upstream. Highlighting areas of known activity close to Terraces T2 and T3 might point to the location of buried monuments and artefacts within the gravels that will only be discovered during deep, intrusive excavations such as extraction. A monitoring strategy could be established that concentrates on these areas if extraction takes place.

9.2 THE IMPACT OF GEOMORPHOLOGICAL CHANGE ON THE ARCHAEOLOGICAL RESOURCE

9.2.1 **Present Geomorphological Change:** the location of the known archaeological monuments, and the maps of archaeological potential, were superimposed onto the models created by CAESAR (*Section 3.11.36*) to assess the impact of present geomorphological change on the archaeology. For the purposes of this project, change is defined as erosion or deposition. These clearly have differing impacts on the archaeology, and require different management approaches.

9.2.2 *Section 8.1.3* indicates that the CAESAR model has predicted a relatively high degree of change within the Upper Ribble Valley. However, much of this does not fall within the study area for this project, and as such there is no quantification of the archaeology there. Further south, the model predicts a relatively low level of change around the Calder, and an intermittent pattern of hillslope erosion and valley floor deposition for the Hodder catchment. In the Ribble Valley the changes are dominated by sedimentation with limited areas of erosion around the outer bends of meanders.

9.2.3 When superimposed on the map of known archaeological monuments (Fig 164), 15 such sites were in the areas identified in the model as possibly affected by geomorphological change, either erosion or deposition (Table 54).

Threat Type	Primary Reference Number	Monument Name	Monument Type	NMR Broad Type	Period
Deposition	LM0054	Trawers Ferry	Ferry	Maritime	Post-medieval
Deposition	LM0055	Dinkley Aqueduct	Aqueduct	Water Supply and Drainage	Post-medieval
Deposition	LM0056	Dinkley Gravel Pit	Gravel Pit	Industrial	Post-medieval
Deposition	HER PRN1022	Bullasey Ford	Battlefield	Unassigned	Early-medieval
Deposition	HER PRN1581	Near Hacking Hall	Aerial Photograph	Unassigned	Unknown
Erosion	LM0060	Winckley Mill	Mill	Industrial	Post-medieval
Erosion	LM0061	Hodder Limekiln	Limekiln	Industrial	Post-medieval
Erosion	HER PRN290	The Old Lower Hodder Bridge, Aka Cromwell's Bridge	Bridge	Transport	Post-medieval
Erosion	HER PRN6102	Winckley Hall	House: Domestic	Domestic	Post-medieval
Erosion	HER PRN6102	New Bridge, Lower Hodder	Bridge	Transport	Post-medieval
Erosion	HER PRN3112	South-east Of Cross Gills, Hurst Green	Earthwork	Monument <by Form>	Unknown

Threat Type	Primary Reference Number	Monument Name	Monument Type	NMR Broad Type	Period
Erosion	HER PRN3114	Lower Hodder Bridge	Aerial Photograph	Unassigned	Unknown
Erosion	HER PRN3115	East Of Great Mitton	Earthwork	Monument <by Form>	Unknown
Erosion	HER PRN3117	North Of Cat Scar Wood	Earthwork	Monument <by Form>	Unknown
Erosion	HER PRN18851	River Hodder	Metal: Gold coin	Findspot	Medieval

Table 54: Currently known monuments at risk from geomorphological change

- 9.2.4 Eight of the monuments are situated within the large zone of erosion close to Great Mitton at the confluence of the Ribble and the Lower Hodder. However, this may be illusory rather than real, resulting from a problem with the digital elevation data (*Section 8.1.4*). As such, it is probably less important to monitor this area than others highlighted. However, the monuments within this zone are worthy of further investigation, should the area be subject to any kind of geomorphological change.
- 9.2.5 Within this zone there are four further earthworks of unknown period (HER PRN1581, PRN3114-9, PRN3117), described as circular or sub-circular features, which could perhaps be prehistoric roundhouses, although they could also be modern cattle feeding areas (Fig 165). This area has no LiDAR coverage, and no further investigation was undertaken for this project. HER PRN290, the Old Lower Hodder Bridge, or Cromwell's Bridge, is the only Scheduled Monument (SM13691) that is considered at risk from present geomorphological change.
- 9.2.6 To the north, outside the study area, the HER records considerable prehistoric activity, around the meanders of the Hodder (Fig 165). At Horse Hey Farm and Crooked Field, close to Bashall Eaves, are prehistoric settlements (HER PRN 2303 and PRN 1875 respectively). Further south, within the study area, at High Hodder Bridge and in the woods close to Kemple End, polished stone axes have been found (HER PRN 1878 and PRN 190 respectively). Further south again, at the confluence of the Ribble and the Calder, are two Bronze Age barrows (HER PRN179 and PRN180). It is conceivable, therefore, that these earthworks could provide evidence of further prehistoric settlement in an area of obvious prehistoric activity, and this zone should be flagged up as extremely important for monitoring and resource management.
- 9.2.7 The remainder of the monuments at risk from present geomorphological change are either of early medieval date, or unknown period. Five monuments subject to impact by deposition are all situated extremely close to the present course of either the Ribble or the Calder (Fig 166). Three are post-medieval, a fourth possibly of early medieval date, and the fifth is of unknown date. The monument of unknown date (HER PRN1581) is an area of earthworks seen on an aerial photograph, in an area outside the LiDAR coverage, so no further identification could be made. There is, however, a considerable potential that these unclassified earthworks related to prehistoric activity. Of the other monuments affected by fluvial deposition, the impact is perceived to be of little significance. Trawers Ferry (HER PRN28254) is identified on the 1848 OS first edition map

and nothing was seen on a site visit. Dinkley Aqueduct (HER PRN28255) and the gravel pit (HER PRN28256) are still extant, but unlikely to be badly affected by fluvial deposition. The Bullasey Ford site (HER PRN1022) is actually a documentary reference, and has been suggested as the site of a battle of AD 798 between Eardwulf, King of Northumbria, and the rebel King Wada (Farrer and Brownbill 1908). Evidence for this is sketchy, but if correct, the site would be of considerable importance, given its period. The likelihood of stray finds relating to the battle would be quite high, although none have been recorded to date.

- 9.2.8 **Potential:** the areas at greatest threat from geomorphological change in the Lower Ribble Valley are confined almost entirely to the immediate confines of the Ribble and represent sedimentation rather than erosion. This area is classified as of medium potential for archaeological monuments overall (Fig 167), medium for prehistoric (Fig 168) and Roman (Fig 169), and with low potential for medieval monuments (Fig 170). As these areas are mainly at threat from deposition rather than erosion, there is perhaps less of an issue for future management as any monuments are likely to be protected by being buried under accumulated sediment. It is unlikely that development will be a problem so close to the river, unless this relates to water management.
- 9.2.9 In the area around Dinkley (Fig 167), considerable numbers of small brooks and streams drain into the Ribble, and these may be at risk of erosion. This area has a considerable potential for archaeology, being scored high for prehistoric, medium for Roman and medium for medieval activity. The areas affected by erosion are very small and discrete and would have only a localised effect on archaeological remains in their vicinity, but this should be monitored, given the considerable levels of prehistoric activity to the north, around the Hodder. The Ribble itself continues to be subject to deposition around Dinkley, and is an area of medium potential overall.
- 9.2.10 The large zone of potential erosion around the Lower Hodder coincides with areas of low, medium and high overall potential for archaeology. For the prehistoric period there is a zone of medium potential formed by a meander of the Hodder, surrounded by areas of high potential, whereas for the Roman and medieval periods there are discrete pockets of high, medium and low potential. The area of greatest concern, if the model is accurate in this area (*see Section 8.1.4*), would be to the west of the Hodder around the Lower Hodder Bridge.
- 9.2.11 To the north-east of the study area, beyond Clitheroe (Fig 167), there are discrete areas at risk from erosion around the Ribble itself, with discrete areas of deposition also around a wide meander in the Ribble between Edisford Hall and Waddow Hall, north of Clitheroe. The zones of erosion all fall within areas of high overall potential for archaeology, but again are so localised as to be of less concern. The areas of deposition fall within a zone of medium potential overall, and medium potential for each of the broad archaeological periods. Again, the localised nature of these zones means that they present little threat. Further north-east, towards Chatburn, the threat from both erosion and deposition increases. From Horrocksford to the confluence with Swanside Beck, south of Sawley, is a zone of deposition along wide meanders on the north bank of the Ribble. On either side of this and the river are areas at threat from erosion, including some larger zones around Chatburn. The zone of deposition is in an area of high potential for archaeology overall, high potential for prehistoric, and

medium for Roman and medieval monuments. The largest area of erosion falls mainly within Chatburn Quarry, which by its very nature is an area of low potential overall. The smaller zones of erosion to the north fall within an area of medium potential overall, and medium potential for each of the periods.

- 9.2.12 In the far north of the study area are a few small discrete zones of erosion and deposition. One of these, an area of erosion, is in the environs of Sawley Abbey, and two patches of deposition are also very close. This is an area of high potential for archaeology overall, with each of the broad periods having a high potential also. While these areas of threat are very small and discrete, their proximity to one of the most important archaeological zones within the study area means that they should be considered as a significant threat, despite their limited size.
- 9.2.13 **Future Geomorphological Change:** CAESAR was also used to simulate the effect of future geomorphological change until AD 2050 (*Section 3.11.36*). Under this scenario, higher winter rainfall intensities would trigger a greater degree of geomorphological change than under present conditions. This would lead to an extension of the areas of erosion and deposition in all areas apart from the Calder catchment, which appears more stable.
- 9.2.14 Given the wider geomorphological area that would be affected, considerably more known monuments would potentially be affected by this threat than at present, 115 in total (Table 55, Fig 171). This accounts for almost 10% of the total monuments known within the study area and, of these, 82 are projected to be subject to deposition and 33 to erosion. The overwhelming majority of these monuments are post-medieval or modern in date (Table 55), which is representative of the fact that there are considerably more monuments of those periods within the study area.

Period	Erosion	Deposition	Total
Prehistoric	0	2	2
Roman	0	4	4
Medieval	3	7	10
Post-Med/Modern	21	59	80
Unknown	9	10	19
Total	33	82	115

Table 55: Breakdown of monuments at risk from future geomorphological change, by period

- 9.2.15 Two monuments are of prehistoric date: HER PRN28205, the Mesolithic flint scatter at Marles Wood (Fig 172), is likely to be subject to deposition in the future. Although badly disturbed by tree root activity, this was thought to be *in-situ* at the time of discovery, implying that there may be further evidence of Mesolithic activity in the area. Burial by further river sediment is unlikely to cause further significant disturbance to any surviving archaeological remains, but this area should be highlighted for monitoring. The second prehistoric monument is the findspot of a Bronze Age spearhead (HER PRN199). The account recorded only an approximate location, and thus it can be taken as nothing more than an indication of Bronze Age activity in the area. As such, there would be little or no management requirement in this case.

- 9.2.16 Four monuments are Roman in date. Two are classified as findspots (HER PRN151 and PRN1846), HER PRN151 being a hoard of approximately 30 objects found close to Ribchester, and HER PRN151 was some pottery found in 1971 during a sub-aqua survey of the Ribble river bed near Samlesbury. Taking findspots as indicators of activity, and perhaps of no longer extant monuments, then these will be unaffected by fluvial deposition. The two other monuments (HER PRN1568 and PRN15510) are sections of the Roman road near Ribchester. As extant sections of road, these will be more affected by fluvial deposition, and as such should be highlighted as areas for monitoring and management.
- 9.2.17 Ten monuments are classified to date as medieval, of which three are at risk from future erosion and seven from future deposition. Of the monuments at risk from future deposition, one, Bullasey Ford (HER PRN1022), is also at risk from current deposition (*Section 9.2.8*). HER PRN2570 is a findspot of a ceramic jug, found during drainage work.
- 9.2.18 The four remaining known monuments (HER PRN28014, PRN28109, PRN28111 and PRN28129) at risk from future deposition are situated in the Waddington/Grindleton/Chatburn area. They all appear to be related to the small-scale linen production that is well known in the locality. HER PRN28109, PRN28111 and PRN28129 are grouped together to the south-east of Grindleton and form a complex of retting ponds, leats and sluices. HER PRN28014 is an earthwork close to Waddington that was identified from LiDAR as part of this project, possibly related to the former retting system at Waddington (HER PRN12898). It should be noted that HER PRN12898 was classified in the HER as of post-medieval date, but within the context of cultural resource management this collection of sites possibly represents an important fragment of medieval landscape within the study area. Future fluvial deposition is unlikely to cause damage to these monuments, but they should be monitored.
- 9.2.19 Of the three monuments subject to risk from future erosion, one is a findspot (HER PRN18851), the approximate location of a fifteenth-century gold coin. As a findspot it is indicative of activity in the area but is probably not an indication of a site directly at risk from erosion. HER PRN1013 is Dinkley Hall, a rebuilt farmhouse on a medieval site. This should perhaps be monitored as part of a future management plan, but there is little evidence about the quantity and quality of any extant medieval remains. HER PRN22363 is a documentary reference to a medieval chapel and hermitage; these no longer survive as surface features, but could potentially be buried monuments.
- 9.2.20 Eighty post-medieval or modern monuments are at risk from future fluvial change (Fig 173). This includes Old Lower Hodder Bridge (HER PRN290), the only Scheduled Monument to be affected (*Section 9.2.5*). There are also several listed buildings in this group, but monuments covered by statutory constraints such as scheduling or listing will be subject to higher levels of protection and monitoring in the future, so any damage from fluvial change is likely to be mitigated on a case-by-case basis.
- 9.2.21 However, this period of monument forms the core of the Historic Landscape Character (Fig 52) within the study area and as such coherent groupings of unscheduled and unlisted monuments under threat should be considered significant. Fluvial deposition or erosion would also, at the least, obscure ridge

and furrow or other ephemeral earthworks that contribute greatly to an interpretation of the landscape.

- 9.2.22 The majority of these monuments are in the north of the study area, where there are two significant groupings, and a large number of outlying individual sites. South-east of Grindleton is a series of ridge and furrow earthworks (HER PRN28033, HER PRN28116, HER PRN28117, HER PRN28120-6, HER PRN28128), which are in a large meander of the river that would be affected by future deposition. Adjacent to these is Fields House (HER PRN12897), which is the best-preserved flax pond system on the Ribble floodplain. The only monuments possibly at risk from erosion are HER PRN2091 and PRN17938, which are extant farmhouses (listed Grade 2* and 2 respectively).
- 9.2.23 A further aggregation of monuments at risk from future deposition is around Sawley, and most of these are substantial extant remains, but there are again traces of ridge and furrow (HER PRN28023, PRN28100). Within this area, three Grade 2 listed houses (HER PRN17939, PRN17940, PRN18080) are possibly at risk from erosion, along with the Sawley Arch (HER PRN23905).
- 9.2.24 Towards the south and west of the study area are fewer groupings of monuments, and more single sites. The monuments in this area are situated close to the river and are mainly industrial, maritime, or are water-related. Many of them are also known from documentary references only, shown on historic OS maps, and are not necessarily extant now, nor are they shown on modern mapping. Around Winckley, the monuments are likely to be at risk primarily from erosion, whereas in the remainder of the study area the main risk is from deposition.
- 9.2.25 **Potential:** the areas likely to be affected by future geomorphological change in the far north of the study area comprise large zones of potential deposition surrounded by smaller zones of potential erosion. From Sawley to Waddington these are in zones of high overall potential for archaeology (Fig 174), high for prehistoric activity (Fig 175), and medium for Roman (Fig 176) and medieval sites (Fig 177). The area that is of high potential overall and for all the periods is around Arnot House, south-west of Sawley, which is an area of predicted future deposition. The largest zone of potential for future erosion is along Swanside Beck, south of Sawley. This is a zone of medium potential overall, and medium for the individual periods.
- 9.2.26 To the south-west, towards Clitheroe, the areas of potential future deposition are bordered on either side by zones of potential erosion, and continue to coincide with areas of high overall potential for archaeology, high for prehistoric, medium for Roman and medium for medieval activity. The main exception to this is the quarry at Chatburn, which by its very nature is an area of low potential for archaeology, and is an area of potential erosion.
- 9.2.27 Around Great Mitton and Lower Hodder Bridge are areas of potential future erosion but no deposition. The first of these continues to respect the zones of high overall potential for archaeology, high for prehistoric, medium for Roman and medium for medieval activity. Great Mitton itself is an exception, as it has a high potential for medieval monuments. The zone around the Lower Hodder is mainly of medium overall potential, although zones are of low potential for medieval and Roman activity, including the River Hodder itself in this area.

- 9.2.28 To the west, the zones of potential future fluvial change are restricted mainly to the immediate confines of the Ribble. The river itself is an area of potential future deposition, and the banks to either side contain zones of potential erosion as far down as Ribchester. Below Ribchester there are virtually no areas of erosion. The river itself in this area is of medium overall potential for archaeology, high for prehistoric, medium for Roman and low for medieval activity. The banks on either side are of high potential overall, high for prehistoric, and medium for Roman and medieval sites.
- 9.2.29 South-west of Samlesbury, the zones of potential future deposition still follow the line of the river, with isolated patches on either side, before petering out as the river passes into Preston. These are zones of medium overall potential, medium for prehistoric and Roman, and low for medieval activity. The exceptions are patches around Cuerdale, which is a zone of high overall potential, high for prehistoric, and medium for Roman and medieval sites.

9.3 THE IMPACT OF AGGREGATE EXTRACTION ON THE ARCHAEOLOGICAL RESOURCE

- 9.3.1 Some 387 monuments fall within the areas of river terracing throughout the study area. This accounts for approximately 30% of the total number (Table 56). The majority (61%) are post-medieval or modern date, and consequently present less of a management concern, as they are more likely to be extant, robust and visible.

Period	Number of Monuments
Prehistoric	17
Roman	52
Medieval	31
Post-medieval/Modern	239
Unknown	48
Total	387

Table 56: Monuments within river terraces, broken down by period

- 9.3.2 Following the protocol set out in *Section 7*, the remainder of this analysis concentrates on the two main areas of aggregate extraction suitability along the Ribble: namely the M6 to the Calder; and from Preston to the estuary. Within those two areas are discrete sections with a good prospect for extraction, containing large quantities of minerals, which are also subject to few constraints (*Sections 7.2.6 and 7.2.8*).
- 9.3.3 ***The Ribble between the M6 and the Calder Tributary:*** The best prospects within the Lower Ribble Valley for mineral extraction are Resource Blocks A1, A, B, C, D and J/K (*Section 7.2.6*). Within these blocks are 14 known monuments (Fig 178, Table 57).

Monument Number	Name	Type	Period
HER PRN100	Near Higher Brockholes Farm	Stone: Flint arrowhead	Prehistoric
HER PRN15394	Connerie Bridge	Stone: worked stone	Roman
HER PRN1569	Near Ribchester Bridge	Road	Roman
HER PRN1570	Ribchester Bridge	Aerial Photography Site	Unknown
HER PRN1613	Red Scar Wood, Near Preston	Metal: Coin	Roman
HER PRN16519	North Of Salesbury Hall	Moated Site	Medieval
HER PRN1716	Higher Brockholes	Farmhouse	Post-medieval
HER PRN1720	Lower Brockholes, Brockholes Brow, Preston	Farmhouse	Medieval
HER PRN18785	Alston	Deserted Medieval Valley	Medieval
HER PRN1975	Elston Bottoms	Metal: bronze flat axe	Prehistoric
HER PRN28052	Field Boundary	Field boundary	Post-medieval
HER PRN28053	Ridge and Furrow	Ridge and Furrow	Post-medieval
HER PRN28106	Linear	Linear feature	Post-medieval
HER PRN28173	Earthwork	Earthwork	Unknown

Table 57: Monuments within Resource Blocks of considerable suitability for aggregate extraction between the M6 and the Calder tributary

- 9.3.4 There are two prehistoric sites, three Roman, three medieval, four post-medieval and two of unknown period (Table 57). The prehistoric sites (HER PRN100 and PRN1975, in Resource Blocks A1 and B respectively) are findspots. Resource Blocks A1 and B comprise Terraces T1 and T2, so were created prior to 6750 Cal BC (*Section 5.2.23*). Consequently, it is very unlikely that these findspots are pointers highlighting the location of other monuments buried under the terraces. Considered in context, they are relatively close (within 2km) to two possible promontory forts (HER PRN15241 and PRN15242) on the north bank of the Ribble, but otherwise are some distance from the main concentrations of prehistoric monuments in the area and may be indicators of prehistoric activity.
- 9.3.5 The Roman monuments within these Resource Blocks comprise a possible section of the Roman road going east from Ribchester, and associated earthworks (HER PRN1569, in Resource Block J/K), a findspot of three Roman coins near Red Scar Wood (HER PRN1613, in Block A1) and some worked stone incorporated in Connerie Bridge (HER PRN15394, also in J/K). Of these, the monument most at risk from extraction must be the Roman road and earthworks. No work has been undertaken in this area to determine the nature of the earthworks, and as such this should be recommended before potential aggregate extraction takes place. Resource Block A1 comprises Terrace T2, of abandonment date 7150-6750 Cal BC (*Section 5.2.23*), and as such the findspot is unlikely to represent unknown, buried monuments. Similarly, Resource Block J/K is also on Terrace T2.
- 9.3.6 The medieval monuments likely to be affected by any extraction are extant features, and are therefore less at risk from inadvertent destruction. HER PRN1720, in Block A1, is a sixteenth-century farmhouse that has now been modernised. HER PRN1720, in Block J/K, was described in the HER as a possible moated platform close to Salesbury Hall. It is a very subtle feature, and no further information could be gathered by studying the LiDAR. HER PRN18785 in Block D is recorded in the HER as a possible deserted medieval

village. It falls within an area with no LiDAR coverage and is not visible on the vertical aerial photography or on the first edition OS mapping, so no further information is available.

- 9.3.7 The maps of archaeological potential were overlain on the Resource Blocks deemed most suitable for aggregate extraction. Almost all the blocks were in areas of high potential for each period, with smaller areas of lower potential (Fig 179). This highlights the fact that using the location of known archaeology alone as a measure of the impact of extraction may not always be enough, and some level of archaeological survey should be undertaken in those areas prior to extraction.
- 9.3.8 ***The Ribble between Preston and the estuary:*** the best prospects for aggregate extraction between Preston and the Ribble estuary are LIV6 and LIV7, to the north of the river (Fig 180). Only six known monuments are situated in these zones, comprising one post-medieval bridge (HER PRN11887), a modern floodgate (HER PRN28265) and four earthworks of unknown date (HER PRN3146, PRN4502, PRN28192 and PRN28194). Two of the earthworks (HER PRN4502 and PRN28192) have been identified using aerial photography and LiDAR and have the appearance of cropmarks of post-medieval features. HER PRN3146 is an ill-defined sub-rectangular feature, and HER PRN28194 is a sub-circular feature also identified using LiDAR.
- 9.3.9 It should be noted, however, that much of Blocks LIV6 and LIV7 is outside the study area for this project, and as such the small number of monuments located may not be accurate. If extraction were to take place within those Resource Blocks, an equivalent data-gathering exercise would need to be undertaken to ensure that no other monuments were affected.
- 9.3.10 Although not highlighted as particularly suitable for aggregate extraction, LIV3 has potentially *in-situ* prehistoric remains (*Section 6.2.4*) that were found during the construction of Preston Docks. Any further work in this area should be closely monitored.
- 9.3.11 The small sections of the Blocks that lie within the study area have mixed archaeological potential (Fig 181). Although it would be inadvisable to infer very much about the potential in the remaining area from the small section inside the study area boundary, it would appear that the potential increases slightly from east to west for all periods. This implies that a thorough survey of the affected Blocks would be necessary before any extraction could take place.