
2.0 Site Location, Geology, Topography and Land Use.

Creets Bridge is a grade II listed structure and is located circa 0.5 km to the east of the village of Kirkby Malzeard (SE 242 745), which in turn lies approximately 10 km to the north west of Ripon, North Yorkshire (Fig. 1).

The geology of the area consists of solid geology comprising Upper Carboniferous Sandstone. Overlying the solid geology is post-glacial deposits, which in turn are overlain by loamy soils.

Within the area of the bridge the solid geology and the topsoil are divided by former riverbed material comprising gravel, shingle and well-rounded cobbles. These deposits were found to extend to the east and west of the bridge.

The topography consists of an undulating landscape comprising shallow river valleys and interspersed higher areas of land (generally lying between 150-160 m AOD). Most of the valleys carry streams or becks that lie superimposed within their valleys and many are fed by springs from the higher ground. Within the region rivers such as the Laver and the Ure add to the overall drainage pattern, where like many of the becks, their source lies in the dales moorland to the north.

The land use is mainly given over to the rearing of livestock and the area has many farms and related businesses.

3.0 Background.

3.1 *Archaeological and Historical Background.*

Approximately, 300 m to the northwest of the bridge the remains of Mowbray castle still exist. Although, now all that is visible is the earthworks which probably represent a motte and bailey castle layout. The castle is named after the Mowbrays who held the manorial seat at Kirkby Malzeard. It is known that the castle was destroyed after the rebellion of 1174 (Gowlands 1938). Whether the castle was ever re-constructed as a motte and bailey is not known, however, documentary evidence (*ibid.*) indicates the subsequent construction of a manor house and or manor houses at this location. It is also clear that extensive gardens associated with the castle site were constructed. It is known that these gardens occupied land to the northeast and west of the castle site in the area of land now known as Park Wood.

Later in the Post-Medieval period the region saw the expansion of lands owned by the Aislabies a wealthy landowning family whose family pile was established at Studley Royal c. 12 km to the southeast of Kirkby Malzeard. It is known from documentary evidence that during the eighteenth century the Studley Estate held land immediately to the east and west of the village (Newman 2001). A large area of the land to east of the village was apparently accessed from the west by the road across Kex Beck. It is possible then that Creets Bridge was constructed by the estate to facilitate access to the land probably as part of a wider carriage drive, that were a familiar landscape feature of the time, allowing landowners to display and impress their friends and acquaintances with their wealth as land. Certainly elements of the architectural style of the bridge such as the newels and (the original) worked stone finials imply an ostentatious embellishment to what would necessarily have been an everyday working structure.

The earliest historical map evidence, dating to the early seventeenth century (possibly Robert Greenhurst's map of 1601?), shows the eastern road that passes over Kex Beck, however there is no indication as to whether a bridge or ford existed at this time at the crossing point. The map itself is very limited in the information it conveys and the scale prevents identification of the route of the road for comparison with the existing one. The bridge appears on a map dating to the eighteenth century (undated photocopy from the collection of the owner of Park Wood) and is shown in its present location. The route of the road is clearly identifiable as are many of the field boundaries that connect with it. Interestingly the map shows the bridge and the road widening significantly more to the south suggesting that a ford may have existed at the location too. The bridge is shown again on a map dating to 1848 (photocopy from the collection of the owner of Park Wood) in the same location although the scale prevented identification of the possible ford shown on the earlier map. The bridge appears on the c. 1930 OS map in the same location and the map clearly indicates no ford, however, it does show a weir situated under or immediately adjacent to the bridge.

3.2 *Previous Work.*

The site was previously the subject of a watching brief between 20th May and 17th June 2002 (Unpublished report On Site Archaeology 2002). The bridge was damaged by a flood in the autumn of 2000 that caused the east abutment to fail. A watching brief was required during the installation of a support system for the bridge, the dismantling of the stonework of the eastern portion of the bridge, and the removal of the fill lying beneath the road surface.

This work recorded the eastern abutment foundation, the eastern springers and spandrel masonry, the eastern abutment themselves, part of the northeast wing wall and the removal of a portion of the bridge fill (see On Site Archaeology 2002 watching brief report for further detail of the findings). Further more, most of the northern parapet had been dismantled during the course of works to make the structure safe immediately after the floods of 2000.

3.3 *General Description of the Bridge.*

For the purpose of this description, it will be assumed the bridge lies on an east-west alignment and this alignment will be followed throughout the rest of the report.

The bridge was constructed of well-dressed sandstone. The load of the bridge was carried by a segmental arch that rose 1.15m above its springing level with a span of 6.36m. The full length of the bridge was approximately 21.8m, and its width, between the tops of the parapets, was 4.90m.

The parapet was three courses in height, the topmost course consisted of doubly chamfered copingstones. The distance from road surface to top of coping was c.1m. The copings did not overhang the inner face of the parapet, but did overhang the external one (On Site Archaeology 2002).

Immediately beneath the parapet was a stringcourse that was offset from the masonry above and below it. It ran the entire length of the bridge and was interrupted only by the masonry of the abutments. The east and west abutments were c.1.20m wide and some 0.20m proud of the face of the bridge. The stones of the abutments were in general larger than those found in the parapet or the spandrels. In June 2003 the eastern abutments had been removed along with a segment of the arch and the stonework above it. At the west end of the bridge were two masonry piers or newels. Furthermore recent repairs to the bridge parapet could be detected immediately to the east of the southern newel, identifiable as fresh sandstone blocks which had horizontal tool marks as against the circular type identified on the rest of the worked masonry (On Site Archaeology 2002).

4.0 Methodology.

Due to the fact that the bridge is a grade II listed building it was decided that the structure was to be dismantled and reconstructed using the same architectural and facing masonry. Additionally it was also decided that the bridge was to be widened in order to cope with modern transport and provided with a steel superstructure to provide overall strength to the structure. In order to facilitate with the re-construction of the facing masonry the main structural elements of the bridge were issued with individual identifying numbers as dismantling progressed.

Thus the dismantling of the relevant sections of bridge required the removal of the fill of the bridge, and of the individually numbered stones. The masonry blocks were removed using a hoist attached to a 360° tracked mini-digger. The removal of all such stones was monitored at all times, and once an individual stone was removed, it was inspected for features of interest, such as masons marks and or indications of reuse. Individual context numbers were issued to the main architectural components of the bridge: for example the parapet, stringcourse, abutments and so on. Various stones from each context were measured to obtain average dimensions. During the dismantling of the masonry the completion of a context sheet for each structural element, along with relevant plans and/or sections drawn to scale was undertaken. The written and drawn record was supplemented by an extensive photographic record using a digital camera. A digital camera was utilised as the photographs could be down loaded on site onto a lap top computer using the relevant soft ware. As upwards of twenty shots were often taken this was deemed the most suitable way of recording the information.

The bridge fills were removed by the same 360° excavator, using either a smooth or toothed bucket depending on the circumstances. Some fill was also removed by hand. All removal of the fill was monitored, and where appropriate, hand cleaning by trowel was carried out. As with the masonry, context sheets were compiled along with relevant plans and/or sections drawn to scale and photographic record was undertaken.

5.0 Results.

The foundations for the abutments were set within natural deposits, context (1005). The natural comprised three horizons. The lowest was a deposit of fragmented yellow sandstone. Above this was a layer of gravel and shingle matrix within which small to large rounded cobbles were frequent inclusions. This last horizon was interpreted as former streambed material. A number of fragments of pottery were recovered from the streambed material comprising the natural deposit. Overlying the natural was the foundation base for the abutments, context (1019). They consisted of a loose cobble and gravel deposit set behind a large timber support, which was situated parallel to the stream bank. The timber was 3.00m x 0.26m and was slightly curved and had been tooled, indicating that it may have been a re-used structural timber (Plate.1). Resting on top of the cobble and gravel foundation was a layer of un-mortared, roughly hewn sandstone blocks. The dimensions of the sandstone blocks varied between 1.07m x 0.53m x 0.40 and 1.20m x 0.56m x 0.32m. The foundation was situated below water level and was only partially identifiable during its removal by the 360° excavator.

Resting on the foundation was the base of the abutments, context (1012). It consisted of three courses of lime mortared, irregularly coursed sandstone blocks that was 5.80m wide at its base, 1.20m in length and c. 0.90m high (Plate.2). The courses stepped in towards the bridge face as they rose from the foundation. The majority of the sandstone blocks were roughly hewn apart from the facing sides, which had been dressed. The upper course had also been tooled flat along the top outer edge to provide a support upon which the springing stones for the arch were mortared (Plate.2). The masonry for the base of the abutment also extended for c. 1.20m maximum to the east and west of the bridge respectively. Here the masonry was comprised of smaller blocks of faced sandstone, with maximum dimensions of 0.74m x 0.30m x 0.34m, which were secured with a lime mortar bond. On the southern side of the bridge this masonry was stepped onto the stream bank as it rose from the foundation (Plate.3). However on the northern side the masonry was less substantial with the lower courses being shorter and dug deeper into the steeper stream bank (Plate.4).

A course of springing stones, context (1013), were secured to the third course of the base masonry, outlined above, with a lime mortar. The course was 5.00m wide and c. 0.50m in length and comprised blocks of dressed sandstone with a maximum dimension of 0.70m x 0.44m x 0.33m. The course comprised nine stones on each side of the bridge of which seven were chamfered along their length (Plate.5). The chamfer provided a base onto which the bridge arch masonry was set. At the northern and southern ends of both the east and west course of springers a half chamfered block was set. The blocks were dressed so that they appeared to be part of the abutment masonry. They were fully faced to the north and south while the respective east and west faces were half faced and then half chamfered (see Plates.5 & 6). Behind the latter was another block of faced sandstone masonry; together with the half chamfered block they comprised the first course of the abutments.

The abutments, context (1014), were offset by c 0.20m from the face of the bridge and were comprised of large blocks of dressed masonry that had minimum dimensions of 0.25m x 0.13m

x 0.25m and maximum dimensions of 105.5m x 0.25m x 0.29m (Plate.7). Behind the abutments on both sides of the bridge the wing walls, context (1002): the main facing masonry of the bridge had been constructed. Generally, the wing walls were orientated east –west and comprised eleven courses of dressed sandstone masonry which, were c. 6.50m in length and of which at least c. 40% was buried by context (1004): the made up ground on the northern and southern sides of the bridge, from which several sherds of pottery were recovered (Plate.8). The masonry that comprised the wing walls varied in size from 0.28m x 0.26m x 12.5m to 0.60m x 0.34m x 0.12m with a tendency for larger blocks nearer the base of the structure. A number of blocks of reused masonry were recorded from context (1002) that mainly comprised rectangular blocks with worked ends of grooves and or blocks presumably for keying into the original structure from which they were recovered (Plate.9).

At the west end of the bridge were two masonry piers or newels, context (1016). Each pier consisted of a foundation block of lime mortared roughly hewn stone on which was set a plinth which in turn was surmounted by four worked stones, each of which was chamfered at its corners and were 0.55m x 0.55m x 0.40m in size (Plate.8). Each pier was topped by a stone carrying a moulding and a concave chamfer, above which was a stone with a convex chamfer. This was surmounted by a wooden ball finial, the original stone ones having been taken from both the north and south sides of the bridge. Although the northwest pier appears to be largely original, save for its ball finial, the southwest one was, save for its copings, a later replacement, the masonry having been machine cut. Presumably the pier had been struck by a vehicle.

Rising from the springing stones was a course of sandstone masonry that formed the vault of the arch, context (1018). The masonry was of large dimensions that ranged from 0.43 x 0.46 x 0.24m up to 1.07m x 0.35m x 0.46m depending on their position within the structure. In general, the stones lower down the arch were larger. All stones were bonded together with lime mortar, and most were roughly shaped with most having the inner face roughly dressed. However, a number of re-used coping stones were identified (Plate.10). These varied in length, but each was doubly chamfered and 0.25m in width. They were narrower and taller than the existing coping stones and were probably re-used from an earlier bridge or different structure altogether. Above the arch was the continuation of the main facing masonry: the spandrel wall part of context (1002) (see Plate.11).

Above the main facing masonry was a stringcourse of large blocks of dressed sandstone, context (1001). The course was offset from the masonry above and below it. It ran the entire length of the bridge, being interrupted only by the masonry of the abutments (Plate.11). The string course was composed of lime mortared, well dressed masonry blocks which ranged in size from 0.12m x 0.27m x 0.28m to 0.85m x 0.36m x 0.29m.

Above the stringcourse was the parapet, context (1000). The parapet was comprised of three courses of lime-mortared masonry and ran the full length of the bridge (Plate.11). Throughout the two bottom courses the masonry ranged in size from 0.35m x 0.30m x 0.20m to 0.78m x 0.29m x 0.38m. However, there was a tendency for larger blocks in the bottom course and at least one block was re-used masonry from a different structure (Plate.12). The top course of

the parapet comprised blocks of well-dressed doubly chamfered sandstone that ranged in size from 0.30m x 0.30m x 0.15m to 0.76m x 0.46 x 0.24m.

The abutments were backed by a lime mortar, cobble and sandstone fragment rich deposit, context (1017). The deposit was in places keyed into the masonry of the abutments (Plate.13), context (1014), and overlay the base foundations, context (1012). The deposit was c. 1.00m in length by 4.80m wide at its base (see Fig.2) and was identified extending through the profile of the bridge fills for c. 2.00m where it reached a length of c. 3.00m (see Fig.3). The wing walls of the bridge were backed by a similar deposit of lime mortar, cobbles and fragments of sandstone, context (1011). This deposit stretched the full length and height of the walls and was 0.50m wide (see Plate.14 and Fig.4).

The earliest bridge fill was context (1010). This context comprised a firm dark greenish grey clay sand with occasional small round stones, which was up to 1.20m thick. Overlying the latter was context (1009). Context (1009) was interpreted as a former made road surface and comprised a light brownish yellow sand and gravel matrix with small rounded stones and rounded cobbles and stones. Furthermore, the deposit was identified on the western side of the bridge only (identified in section: see Fig.5 for location of section). Although the composition of the material was not clear in section (see Fig.3), further cleaning identified that the larger cobbles and stones were concentrated at the base of the deposit while the smaller stones and gravel formed the compact surface of the roadway. However, nearer to the arch (to the east) there was a distinct change in the make up of the surface. Here the surface butted up to two parallel rows of larger cobbles with no covering of smaller material (Plate.15). The surface was cleaned and identified over an area of 2.00m squared and was between 0.15m – 0.20m thick (Fig.2). It is believed that the deposit was the original surface to a possible earlier bridge, which has been replaced by the then existing structure. During further machining context (1009) was identified to the east, west and south where it was noted that the surface was truncated by deposit (1017) to the east (Fig.2) and context (1011) to the south.

The made road surface identified above was overlain by context (1003), another bridge fill (Fig.3). Context (1003) comprised a compact dark greyish brown silty sandy clay with frequent small rounded stones and moderate rounded cobbles. The larger cobbles occurred more frequently at the boundary between this deposit and the layer above, context (1008). Context (1003) was identified on the western and eastern sides of the bridge and was c. 3.00m wide and 0.60m deep and was seen in section for a length of c. 6.00m on the western side only (identified in section: see Fig.5 for location of section). A sherd of heavily abraded green glaze pottery was recovered from the deposit, but this was highly likely to have been residual. Lying above the latter deposit was context (1008): a made road surface (Fig.3). This deposit was similar to context (1009) in that it comprised a compact light brownish yellow sand and gravel matrix with small rounded stones and larger rounded cobbles and stones. Furthermore, the deposit was identified on the western side of the bridge only (identified in section: see Fig.5 for location of section). The larger cobbles and stones were concentrated at the base of the deposit while the smaller stones and gravel formed the compact surface of a second and later roadway (Plate.16). Above the latter context was a layer of modern hardcore, context (1007), which was in turn overlain by a layer of modern tarmac, context (1006).