

## **STRUCTURAL RECORDING REPORT**

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SCCAS REPORT No. 2010/027

# **Hengrave Lock, Culford CUL 046 Cavenham Lock, Lackford LKD 034**

**R. Brooks**  
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## HER Information

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**Date of Fieldwork:** 10th-11th September and 16th November, 2009, 5th February 2010

**Grid References:** Hengrave Lock- TL 8302 6930  
Cavenham Lock- TL 7818 7140

**Funding Body:** Environment Agency

**Curatorial Officer:** Jude Plouviez

**Project Officer:** David Gill and Rob Brooks

**Oasis References:** Hengrave Lock- suffolkc1-65045  
Cavenham Lock- suffolkc1-65047

Digital report submitted to Archaeological Data Service:  
<http://ads.ahds.ac.uk/catalogue/library/greylit>

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## Summary

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A building recording project was carried out on two locations along the River Lark, Suffolk, to record two lock structures known as the Cavenham Lock and the Hengrave Lock, which had been part of the Lark Navigation. Some time was also spent monitoring repair works carried out on the Cavenham Lock. These observations revealed that both locks were of late 17th to early 18th century date and had been repaired at various points throughout their lifespan, up to and including the 20th century. They were mainly constructed from bricks of varying sizes, as well as a timber superstructure designed to reinforce the brickwork and to hold the lock gates, which were no longer present. Concrete, metal fittings and stone were also used.

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## 1. Introduction

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Surveys to record two locks on the River Lark, north and north-west of Bury St Edmunds, Suffolk were undertaken prior to and during repairs being carried out (Figs. 1 and 2). The work was required to fulfil the Brief and Specification issued by Jude Plouviez (Suffolk County Council Archaeological Service, Conservation Team) specifying an English Heritage Level 2 recording (Appendix 1). The work was carried out on the 10th and 11th September, and the 16th November, 2009 and the 5th February, 2010, and was funded by the Environment Agency.

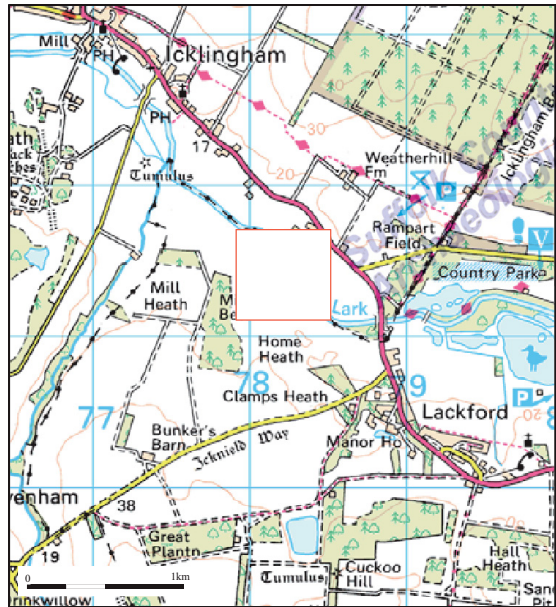
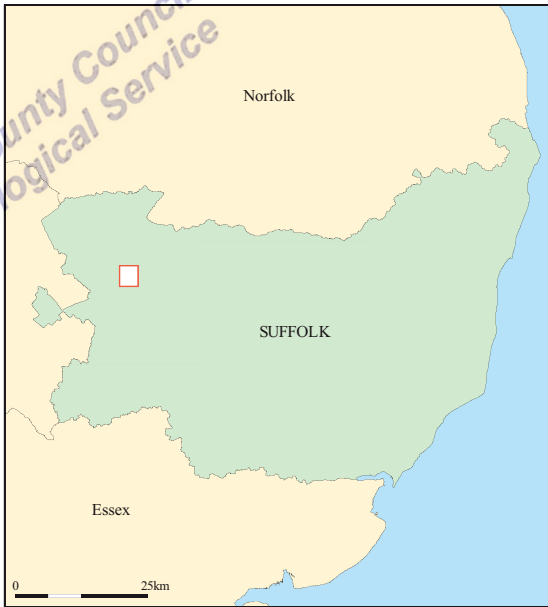
## 2. The recording

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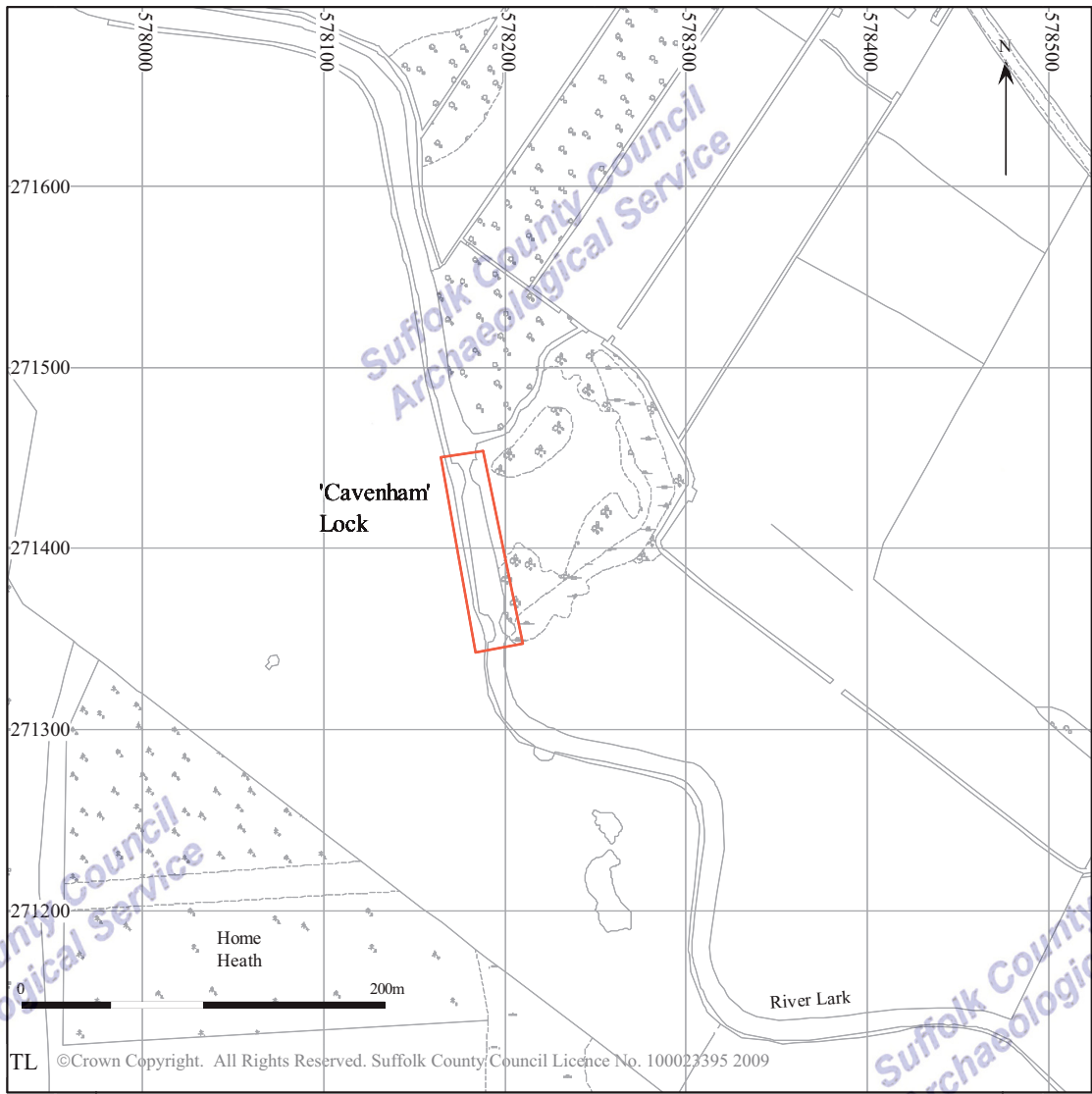
### 2.1 Site locations

Both locks are located on the River Lark and downstream from Bury St Edmunds, Suffolk. The Cavenham Lock is to the north-west of Bury at TL 7818 7140 and at 13.9m above the Ordnance Datum (Fig. 1). The Hengrave Lock is located north of the town at TL 8302 6930, but a spot height was unavailable (Fig. 2). The Cavenham Lock is located in managed grassland and woodland on its eastern side and farmland to the west, whilst the Hengrave Lock is surrounded by woodland, reed bed and marshland.

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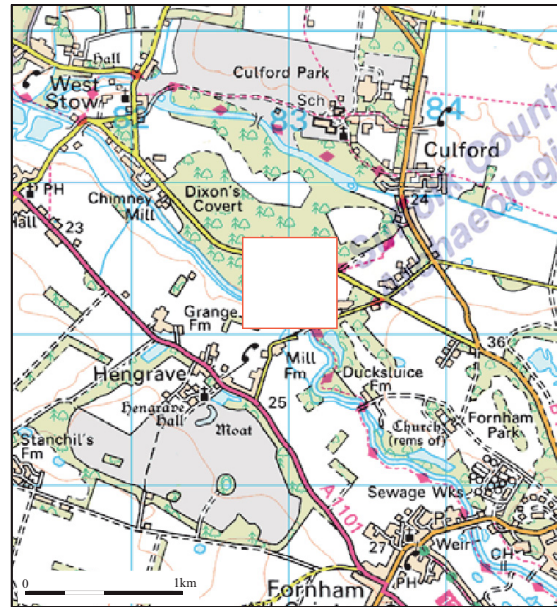
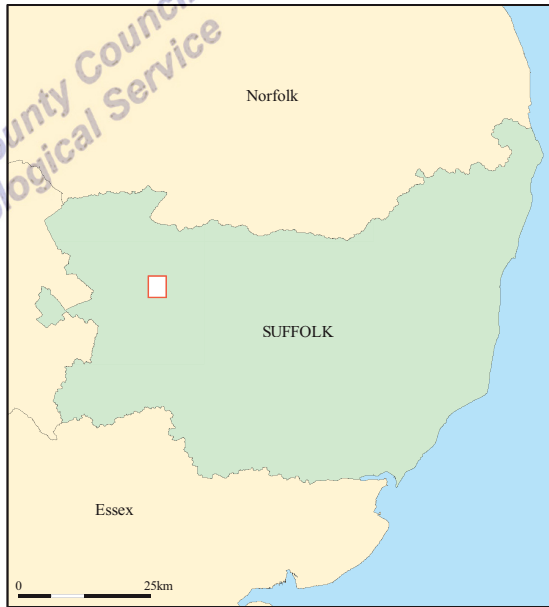


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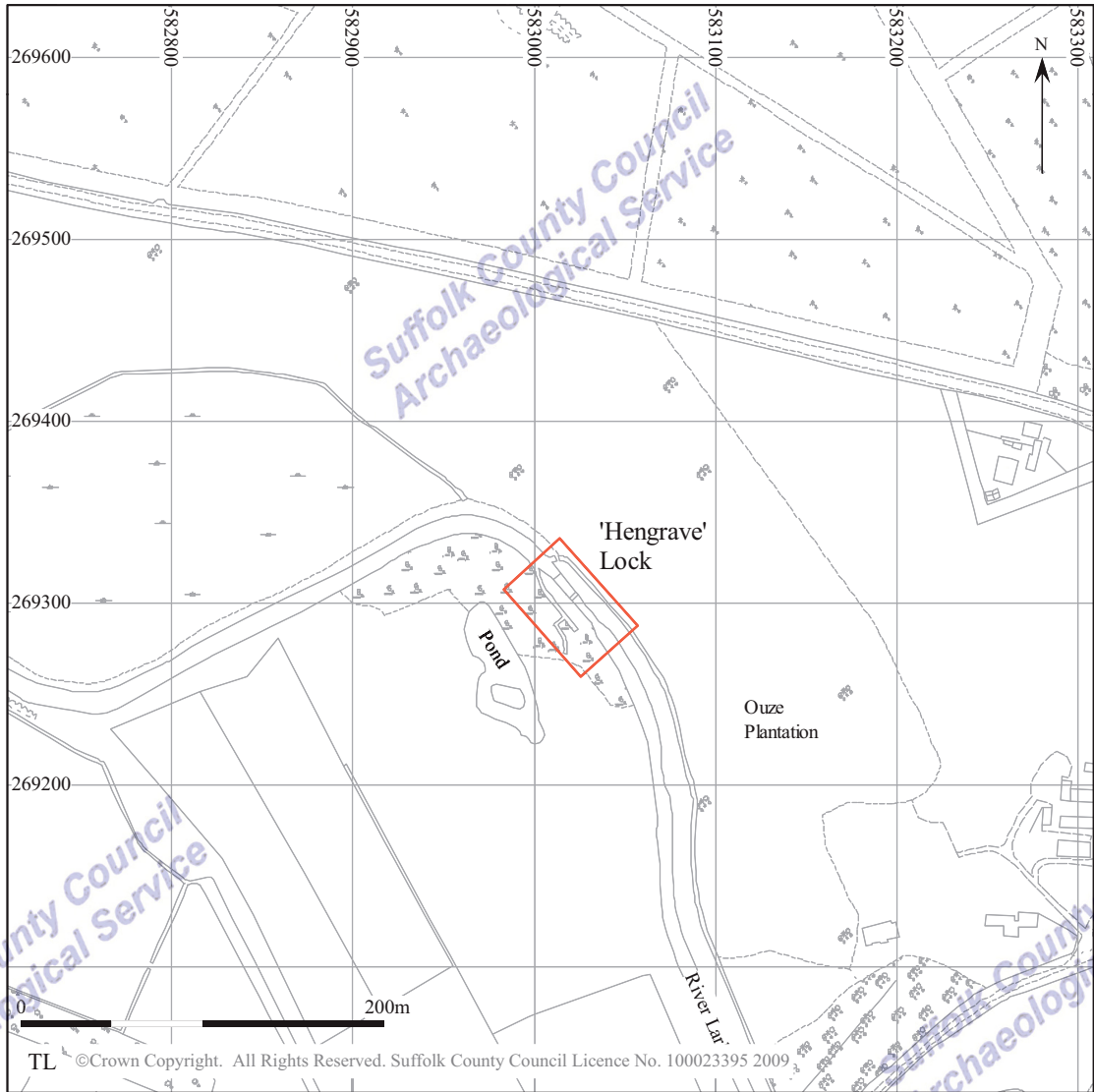
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Figure 1. Location of Cavenham Lock, Lackford

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Figure 2. Location of Hengrave Lock, Culford

## 2.2 The River's Background and Management

The River Lark's source is near Hay Wood, Whepstead, Bury St Edmunds. Its official navigation course runs from Eastgate Bridge, Bury St Edmunds, to the Great Ouse River, at Branch Bridge in the Isle of Ely (Weston, 1976). Whilst it is known that the Lark was used for navigation since the early Middle Ages (when known as the Burne), it is likely that the river has been used since prehistory for a variety of purposes. Its use for regular traffic began in the late 17th and early 18th centuries as a result of the Navigation Act of 1700 titled 'An Act for making the River Larke, alias Burn, navigable' (Priestley, 1831). This work was partially completed by the late 17th or early 18th century by Henry Ashley junior of Eaton Socon, with the full programme of works finishing in 1732, by which time Hengrave Lock had been built (Faulkner, 1977). These alterations ran from Lee Brook near Isleham, Cambridgeshire, but were not allowed to extend into Bury St Edmunds as the Borough Council was concerned that this would damage local trade. By the late 18th or early 19th century, Socon's nephew, Sir Thomas Gery Cullum had inherited the river and embarked on repairing many of the existing features and a new building programme as part of the 1795 Act of Parliament 'For improving the Drainage of the Middle and South Level and the Navigation of the Several Rivers communicating with the Ouse'. At the end of this, up to 15 staunches and 10 locks were in place. During this process, Cavenham Lock, known then as the Lackford Double Lock had been repaired, despite Weston's claims that it was built at this point (Weston, 1979).

Rebuilding works were also carried out in the 1830s and 1840s. This involved the construction of various further staunches and locks. Around the mid 19th century navigation to Bury St Edmunds was achieved, when it was extended up to the railway. However, repair works were also required in the 1890s as much of the infrastructure had fallen into disrepair as a result of the comparative success of the railways over river and canal transport. Alongside these repairs by the Eastern Counties Navigation & Transport Company Limited, attempts were made to encourage trade on the river by purchasing a fleet of boats towed by steam tugs. These carried mainly coal, but also granite, phosphates, pyrites, slag, wood, grain, earthenware, glass, sugar and many other products. Some of this work carried on until the end of World War

I, at which point the river was largely only suitable for pleasure boating on limited stretches, although the final known trader, E. W. Diver of Isleham, brought sugar beet up to Bury St Edmunds by river until 1959 (ibid.). Various groups were in ownership of the river from the late 19th century onwards, and it is now managed by the Environment Agency.

A series of different structures have been used to control the river in order to make it suitable for navigation. The most common of these are the pound locks and staunches found regularly along the river. These functioned to help control the flow of water in order to create enough depth for boats to navigate the channel. A pound lock is the more common type of lock found in Britain. These usually consist of two lock gates containing the 'pound' area of water, the level of which is raised or lowered by the opening or shutting of the gates. A staunch consists of a weir with a single gate to control water flow, with boats either moving against the flow of water as the gate opened, or waiting until the water levels had become even on both sides. A simple version, known as a 'plank staunch' involved planks laid one above another and is found mainly in East Anglia (Shead, 2009). The vessels using these structures would have mainly been the fenland 'lighters', small gangs of cargo boats that were c.13m long, which had presumably evolved from similar, shallow draft medieval boats. These had no means of independent propulsion, being towed by horses or tugs (Unknown author, 2009).

Hengrave Lock is to be found 3 miles along from the Bury St Edmunds end of the Lark navigation, with Hengrave Bridge upstream and Chimney mill Lock downstream. This is a pound lock structure, c.56m long (NW-SE) x c.11.5m wide (SW-NE). 'Cavenham' Lock is located downstream, 6 miles from the Eastgate Bridge navigation point, between Lackford Bridge upstream and Farthing Bridge downstream (Weston, 1976). Weston states: 'This consists of two staunches 283' [86.3m] apart, thus making and serving the function of a lock. A large meander is by-passed by them'. Whilst Weston says that these structures were staunches, this is misleading as they did function as lock gates similar to those used at the Hengrave Lock, with a section of canal being used as the Pound.



Figure 3. Hengrave Tithe map, 1839 (left) and 2nd Edition Ordnance Survey map, 1904

Of the historical maps available, the Hengrave Tithe and 2nd Edition Ordnance Survey Maps give the only useful information (Fig. 3). They show the presence of two channels, one to either side of the lock. These are still present today and are important as they suggest why the Hengrave structure appears to be asymmetrical (Figs. 8 and 9). This is because the south-west wall of the lock was built to respect the channel on this side, stopping just short of it. However, the north-east wall seems to have been built to block the channel on this side. The reason that the south-west wall does not dam the channel on this side is probably in order to allow it to function as part of the drainage system for the Hengrave Mill and local field systems, with which it is clearly and specifically linked on the Ordnance Survey map.

### 3. Methodology

Each structure was largely visible, although some of the submerged features were cleaned by hand and parts of the exposed brick structures were partially cleared of vegetation.

At this point a photographic record was made of the structures using a DSLR camera set to 300 x 300dpi resolution. Photographs were taken of each structure from various angles, with attempts being made to photograph any elevations at an oblique angle. Any pertinent details were also photographed close up and these are all included in the archive (Appendix 2 and accompanying CD). Initially annotated sketch plans were made of each structure, with further plans being made of both the upstanding and submerged structures with a Total Station Theodolite, which were located using a RTK GPS where possible. Hand measurements were also made of details where required. Certain measurements were either difficult or impossible to take from the submerged parts of the structure, particularly in the north section of the Cavenham Lock, where the base was both unstable and irregular. As such some of the measurements are estimations. Some parts of the Hengrave Lock were also too deep to safely enter.

The first phase of repair works was carried out on the Cavenham Lock on 16th November, 2009. This involved the removal of a largely collapsed wall section at the south end on the west side with a mechanical digger. Initially the soil layers from behind the wall were removed. After this, attempts were made to remove the whole portion of wall, although it broke up at this point. The fragile bank and structure, as well as the close proximity of the machine meant that it was not safe to make many measurements during the operation, although sequential photographs and notes were made. This was necessary in order to record any evidence that might have survived within the bank from the construction and possible repair phases of the lock.

Site data has been recorded using the Suffolk Historic Environment Record codes LKD 034 for the Cavenham Lock and CUL 046 for the Hengrave Lock. OASIS forms have been completed for the project (reference no. suffolkc1-65047 for the Cavenham Lock and suffolkc1-65045 for the Hengrave Lock) and a digital copy of the report submitted for inclusion on the Archaeology Data Service database (<http://ads.ahds.ac.uk/catalogue/library/greylit>).

## 4. Results

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### 4.1 Cavenham Lock, Lackford – LKD 034

Two structures on either end of a length of canal, functioning as the pound, made up Cavenham Lock. Each gate structure consisted of two slightly bow-sided chambers, separated by a single pair of gates, at the ends of which two splayed walls emerged. The two gate structures were aligned NNW-SSE along the length of the river with a distance of 71m between them. As illustrated in Figure 4, the parish boundary and the original river channel run in a loop to the north-east of the structures and the Pound area. It is likely that this diversion was added as part of the building of the lock and the river improvements as a whole, in order to make the channel more easily navigable. It was clear during the recording work that the lock had been repaired substantially on at least two occasions, suggesting that it may have been one of the earlier modifications carried out on the river.

Both of the lock gates and their superstructures had been somewhat damaged by the erosive and mechanical effects of the river and by the encroachment of vegetation. However, many of the original walls were still standing, and the base in each gate compound had survived partially, revealing how they were built, how they had been repaired and partially how they functioned. The results of this analysis were put together into a composite plan as shown on Figure 5.

#### ***The upstanding structures***

The upstanding parts of the lock gate structures consisted of two splayed brick 'arms' at each end (Fig. 5 – *A* and *B*), which channelled the water into and out of the main body (*C1* and *2*). This area was made up of two walls that both curved out gently at two points along their respective lengths. These measured 1.95m from the top brickwork to the water line. At the base of *C1* and *C2* was a concrete foundation/lip that emerged slightly from the face of the bricks (*D*). Where the walls both initially first curved out on *C1*, a recess was visible that was c.0.5m deep and ran from approximately halfway up the wall to below the waterline, at c.1m wide x >1.05m tall (Figs. 5 and 6 - *F*). It is assumed that this recess may have housed part of the lock gates when they were open and thus abutting the wall. Set into the southern end of *C1* were



metal fixtures presumably also associated with the gate mechanism. The pairs of metal hoops (G) were probably used to hold the gates open in some way. A length of metal chain was still attached to one of the loops on the northern gate structure.

Rebated within each wall originally were three vertical timbers, although these only survived partially, if at all (E1 and 2). Measurements from the surviving timbers and their recesses at this lock and at Hengrave Lock suggest that these supports measured approximately c.0.22 x c.0.34m. At Cavenham Lock, one of the central timbers still had the base of a hinge *in situ*, which was assumed to be present originally on the opposite timber as well (E1). These ran through the timber and were secured to the brick (Figs. 5 and 6).

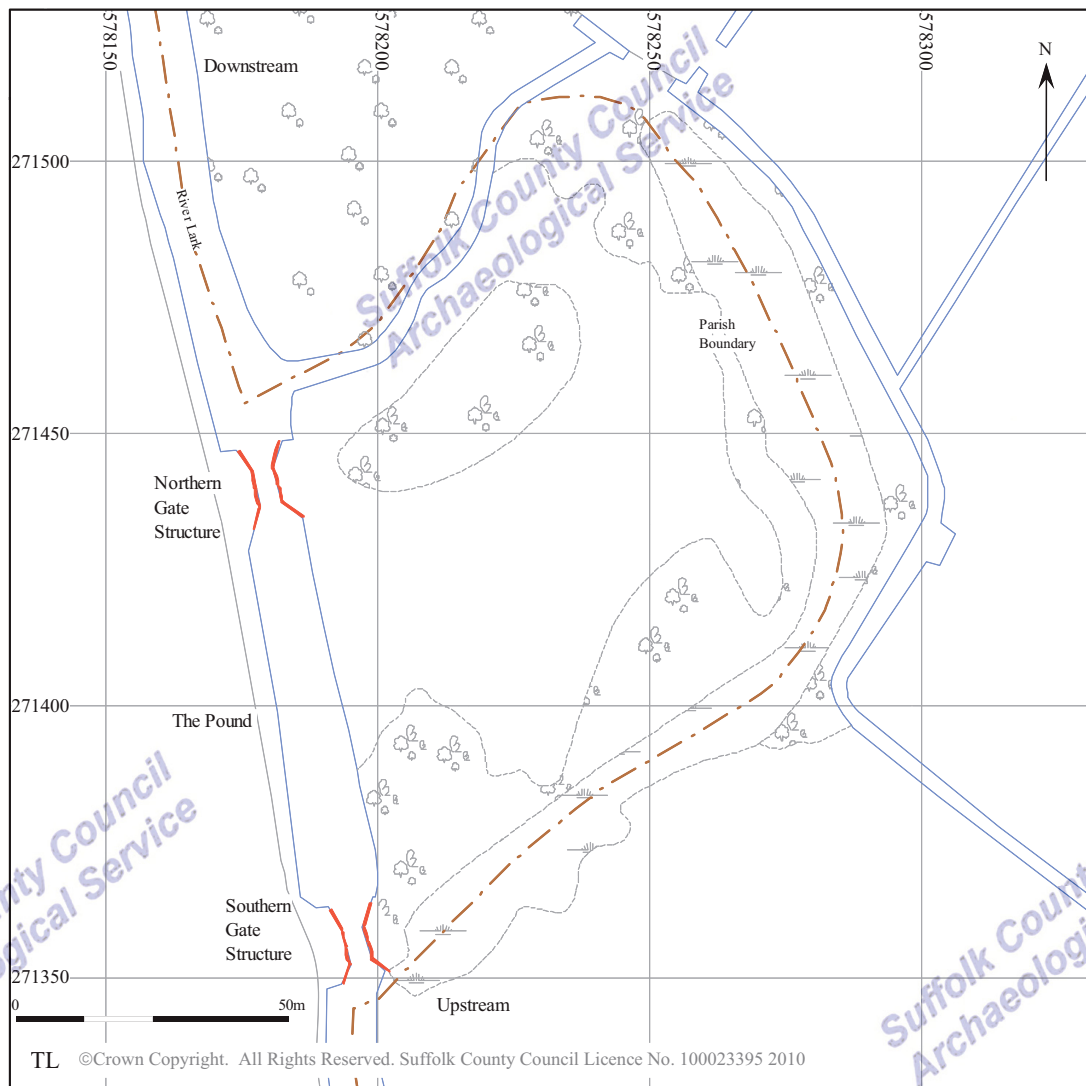


Figure 4. Cavenham Lock, LKD 034

The full dimensions of the wall structures as they survived, and measured from the points most distant points of A and B were, c.13.8-14.5m (NNW-SSE) x c.9-9.7m (WSW-ENE). According to the composite plan, the actual dimensions may have originally been closer to c.14.7m (NNW-SSE) x c.9.8m (WSW-ENE).

### **Gate structure bases**

The northern and southern gate structures had bases made up of wooden, brick, concrete, metal and possibly stone components (Fig. 5, *H-P*). At the southern end of each was concrete ramp (*H*). This extended 1m from the main brick and timber structure of the base. At its highest point it was c.0.2m lower than the rest of the surviving base. At the northern end of each structure was another sloped platform, on this occasion facing downstream (*M*). It is uncertain whether this was made up of timber or concrete and it emerged c.0.6m from the northern *J* timber. Bounding the end of this structure was timber *K3*, which itself was then held in place by two stone or concrete buttresses (*M*). The floor of the lock structure was higher than the river bed and the sloping ramps at the entrance and exit to each lock gate helped channel the water through. The upstream ramp would have prevented eddying water from scouring out the river bed and undermining the lock and was made of concrete, suggesting it was a recent repair. The downstream ramp would have aided the entrance of the barges.

The gate structures were floored with wooden boards (*P*), which ran longitudinally. The floor boards were attached with pairs of nails to closely spaced sill beams (*K*), which ran across the width of the lock and were secured between panels of bonded brickwork (*I*). The timber flooring survived only partially in the northern structure, but the presence of the various sill beams across the lock bases suggests that the entire floor of the structures was once boarded over. The use of floor boards across the base of the locks would have both protected the hull of the boats and the lock base and were probably replaced regularly. The bricks were laid out in a stretcher bond and measured 0.225m long x 0.045m tall (*I*). In the southern half of the base the bricks were laid in 7 courses. Elsewhere it was unclear. Four recesses were seen within the bricks (*L*). It is assumed that these functioned as the fixing point for some feature, such as a stud to secure the large *J* timbers.

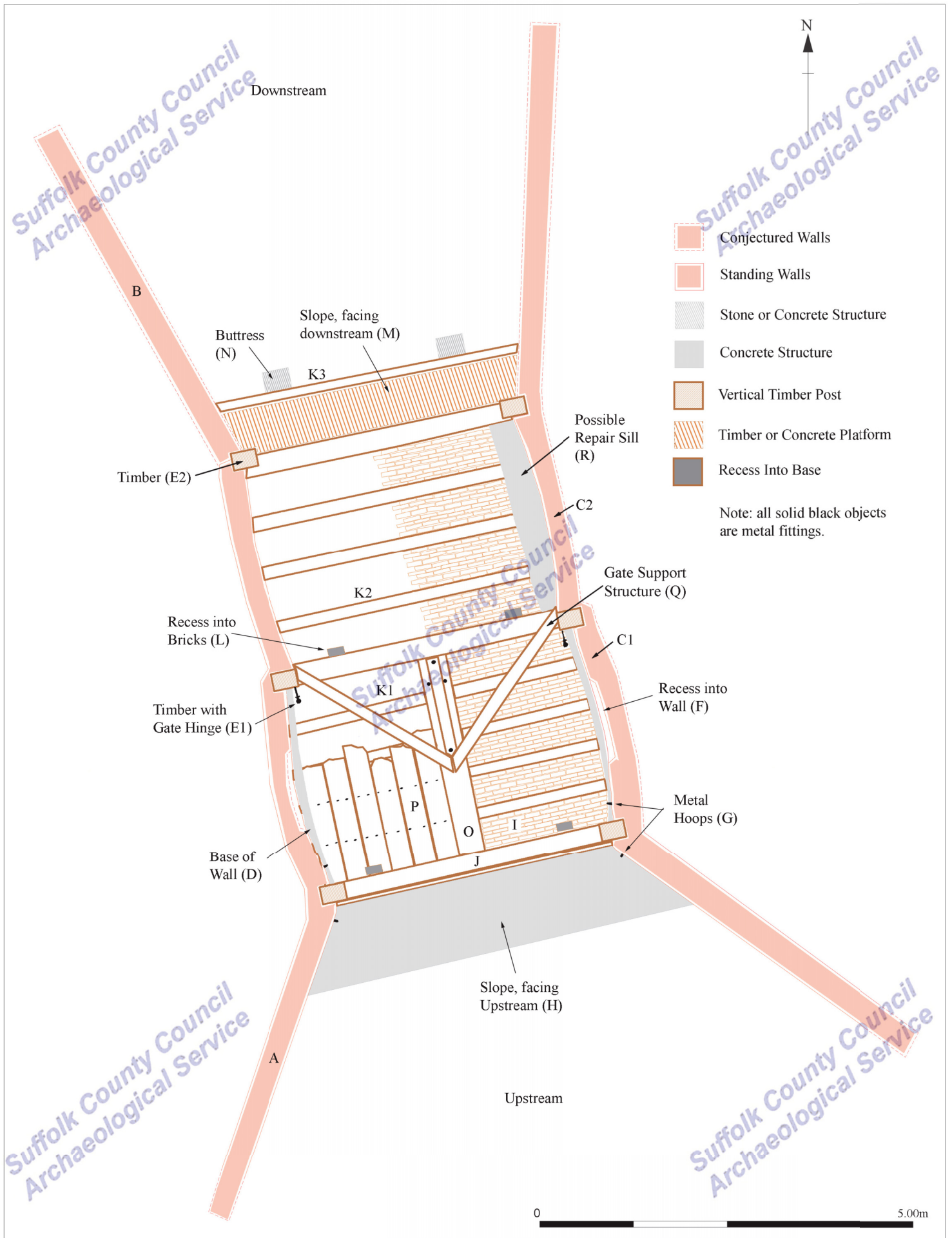


Figure 5. Composite plan of northern and southern lock structures for LKD 034

Forming part of the frame around the bricks were three large timbers (*J*), which joined to the base of the vertical timbers *E1* and *2*. They measured c.0.25m wide x >3.6m long. On the same alignment were several other timber struts (*K1-3*). Those in the southern half of each structure were the smallest, as they abutted timber *O*, measuring c.0.15m (NNW-SSE) x c.1.85 (WSW-ENE) (*K1*). Those in the northern half also measured c.0.15m (NNW-SSE), but stretched the full width of the base at c.3.8m (WSW-ENE) (*K2*). *K3* was at the far northern end of the bases and was c.0.14m (NNW-SSE) x 4.1m (WSW-ENE).

Running perpendicular to the *K* and *J* timbers was timber *O*. It abutted the central and southern *J* timbers. With the central *J* timber, *O* formed the primary fixing structure for the gate support structure (*Q*). *O* measured c.0.3m (WSW-ENE) x c.2.65m (NNW-SSE).

In the northern gate structure, several partially surviving timber boards ran over the base. These covered the bricks and the *K1* and *K2* timbers and were seen abutting the southern *J* timber. It seems that they also would have abutted timber *O*, although they only survived at the edges of the lock base and therefore may have functioned simply to secure the ends of the *K* timbers and not have covered the whole base. Within the *K1* timbers up to 12 metal fixings were recorded running the length of each strut. From this it is assumed that these were for securing the *P* boards and as a result that there were probably 6 boards between timber *O* and the walls, if two fixings were required per board and the boards covered the whole base. If this is the case, it would mean that the boards were c.0.3m wide (WSW-ENE) x c.2.6m long (NNW-SSE).

The uppermost structures in the bases were the three timbers that made up the Gate Support Structures (*Q*). These formed the shape of an arrow pointing upstream and would have helped to support the base of the gates, secured to *E1*, when they were shut. The central timber of this structure was secured to timber *O* with two large metal rods. It is likely that the two other timbers were similarly fixed to *O* and the central *J* timber in order to withstand the high mechanical pressure applied by the gates.

### ***Phases of construction and repair***

(Fig. 5 – R, and Fig. 6)

#### ***Phase 1 – 17th to 18th century construction***

The initial stage of construction for the Cavenham Lock is likely to have been at the same time as the earliest works on the river, carried out by Henry Ashley junior. This is indicated by the  $8^{3/4"} \times 4^{1/4"} \times 2^{3/8"} (0.22\text{m} \times 0.11\text{m} \times 0.06\text{m})$  bricks recorded in the base of the walls (Phase 1 – Fig. 6). These dimensions indicate a late 17th to early 18th century date (Floyd, 1925).

#### ***Phase 2 – 18th century repairs***

The bricks in the second phase of construction are likely to be of late 18th century date, measuring  $9" \times 4^{1/4"} \times 2^{1/2"} (0.23\text{m} \times 0.11\text{m} \times 0.06\text{m})$  (Floyd, 1925). This date coincides with the period during which Sir Thomas Gery Cullum had inherited the river and started repairs on many of the existing structures. As such it is probable that Phase 2 was part of Cullum's repair programme. Although only partly visible, the amount of repair work needed seems to have been quite substantial, as is shown by the depth of the repairs on Wall C2, Figure 6.

#### ***Phase 3 – 19th century repairs***

A third phase of work is also visible in the Cavenham Lock. The bricks are clearly of early-mid 20th century date, being London Brick Company Flettons. These repairs were obviously as extensive, if not more so, than those in Phase 2, as again shown by the large depth of bricks that were required in Wall B, Figure 6.

#### ***Undated repair work***

At some point another undated repair also took place on the Cavenham Lock. It may well have been part of Phase 3 but cannot be fully identified. This involved the replacement of the presumably damaged *P* boards with a concrete sill *R* (Fig. 5). Whilst this did not run across the full width of the base, it would have served to keep the *K1* and *K2* boards in place. It is thought to be a repair rather an original feature because it showed no timber impressions.

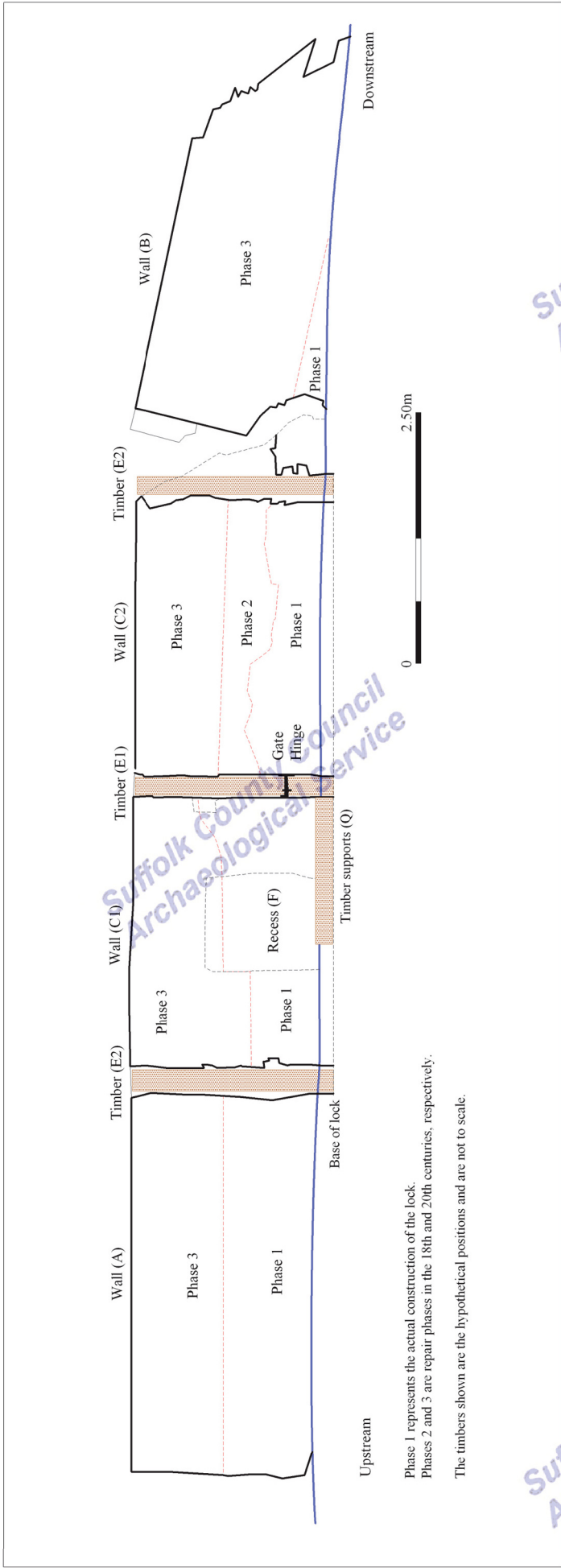


Figure 6. Elevation of Cavenham Lock, Southern structure, West side phasing

## 4.2 Hengrave Lock, Culford – CUL 046

The Hengrave Lock structure measures 56.2m (NW-SE) x >12.5m (NE-SW) (Figs. 7 and 8). Although a single structure, the lock is made up of three abutting but separate sections. These consist of the two gate areas, including splayed walls, and the central pond. As at Cavenham Lock, the gates had either been destroyed or removed. The lock is asymmetrical with the north side splaying walls being longer than those on the southern end and this is thought to be an attempt to control the side channels and to respect and utilise the shape of the river bank.

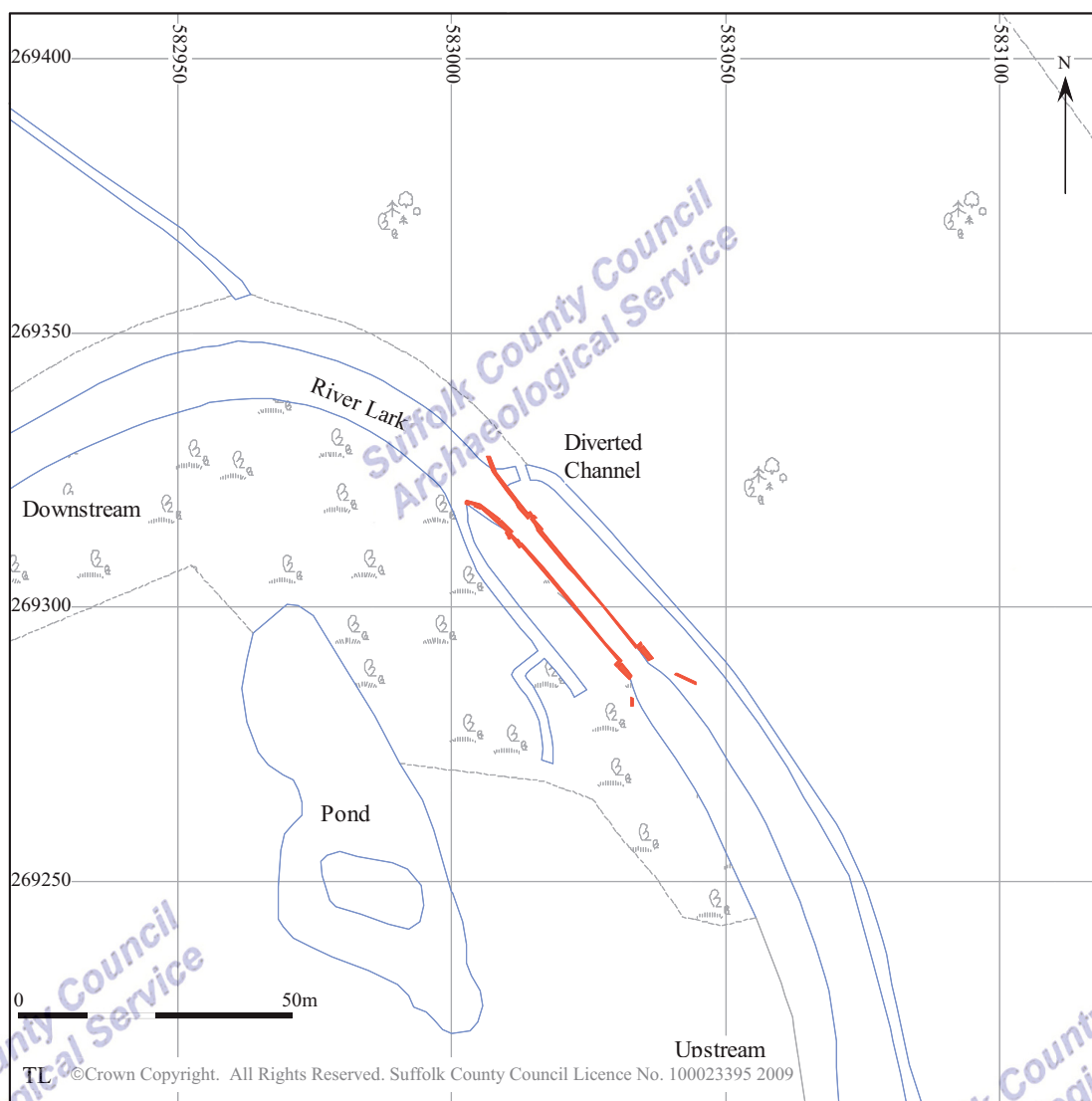


Figure 7. Hengrave Lock, CUL 046

Significant parts of the end walls of the Lock had been damaged by water movement. However, the path of the walls at the northern end could both still be seen, but much of the southern end had collapsed, and as a result the plan of the structure is partly based on assumption.

### **The upstanding structures**

(Fig. 8 – AA-EE)

The walls running along each side of the lock made up the main upstanding structures. Each was made up of three sections of wall, including the splayed and heavily damaged south-eastern walls (Fig. 8 - AA). These had been largely broken up by water movement and their original layout was uncertain. However, it is likely from the remaining structures that the end of the north-eastern wall was c.12.3m long and extended c.12m from the parallel *BB* wall, whilst the south-western wall was at least 8.2m long and extended c.7.7m from the *BB* wall. There were no other details clearly visible on the *AA* walls although their main function was to channel the water into the lock body.

The main length of the lock was made up of the parallel *BB* walls. At the surface these appeared to be separated from the *AA* and *CC* walls by a slight gap. They measured c.30.9m (NW-SE) x c.0.35-0.6m thick (SW-NE). Although the Pound area of lock contained a high quantity of rubble and refuse, and was heavily silted up, it is clear that the *BB* walls were >2m tall. The depth of the water in this area, along with the material making up the base of the lock made it too dangerous to physically enter and record the lock between these walls. However, the TST survey of the north-west end of the Pound area clearly outlined a second lock gate area, identical in outline to that which was still intact at the south-east end. This area is shown on Figure 8.

At the north-west end of the lock were the *CC* walls. *CC1* was 10.5m long, although the curvature meant that its furthest point was only 10.3m from the end of the *BB* wall. At the north-west end of *CC1* there were some irregularities in the layout of the brickwork on the external edge. The purpose of these was unclear. This wall seemed to terminate precisely at the edge of the drain shown on Figure 9, apparently so as not to block it and to allow the drain to still function. Opposite *CC1*, *CC2* had a much more elongated form. It measured 13.7m (NW-SE), extending 13.6m from the *BB* walls. Although partially razed to ground level, the remainder of the wall's base was still visible in the bank, clearly showing that it once blocked the channel that was present to the north-west. Alternatively it may have at one time had an opening to



allow this channel to pass through, but the 1839 Tithe Map appears to indicate that the channel was blocked off at this time (Fig. 3).

Various vertical timbers were either secured to the walls of the lock, or appeared to be physically inset (*DD1-3*). The rebates for the *DD1* timbers were still clearly visible within the south-eastern end of the structure, measuring 0.34m (NE-SW) x 0.22m (NW-SE). At the base of these slots, a mortice was also visible where these timbers fixed partially into the brick and concrete of the lock and also into one of the base timbers (Figs. 8 and 10 – *DD1*). This is probably also how the vertical *J* timbers at Cavenham Lock were fixed to the base. It is likely that these *DD1* timbers also functioned as the gate supports at this end. The *DD2* timbers were probably identical to the *DD1* posts. However, because the area where they were located at near the north-west end of the structure was completely overgrown, it was impossible to see the presence of any posts or rebates.

Timber *DD3* was inset within wall *CC2*. It was only visible where the wall had split, which was probably as a result of the structural weakness caused by the timber. The size and function of the post are unclear and it is uncertain whether it was present in *CC1*, although it is assumed that it was, as there appeared to be a corresponding area of damage on this wall also. It was covered with a layer of bricks and plaster and may have operated as a reinforcing rod.

Another vertical timber was found at the north-west end of the lock, just south-west of wall *CC1*. *EE* measured c.0.15m x c.0.15m and was the only timber structure outside of the brick structures. Its function is unknown and whether it was present on the opposite side of the lock is also uncertain.

#### **Lock base**

(Fig. 8 – *FF-KK*)

The base of the lock was designed to create a structure strong enough to hold the gates when they were shutting and trying to withstand high water pressure. Although only one of these structures was seen at Hengrave Lock, it is certain that a second would have been present at the north-west end also.

Although the wooden structures were smaller than those at the Cavenham lock, they were essentially very similar to the southern half of those at LKD 034. The difference is that these would have been supported by the rest of the structure, and therefore presumably did not require such a large and elaborate support system.

The lowest section of the base was made of concrete with small stones inset (*GG*). This was irregular and could only be seen emerging slightly from the base of the timber structure. It would probably have worked as a foundation for the timber structures. Overlying this was the base timbers, (*II*). These were c.0.3m (NW-SE) x c.4m (NE-SW) a 0.12m thick, and fixed to the rest of the structure by a series of nails. On the north-west end of these was timber *JJ*. This was a substantial timber, similar to the *J* timber at Cavenham Lock. This was 0.28m (NW-SE) x c.3.95m (NE-SW). It functioned to secure the *DD1* and *DD2* timbers. Flush with the top of *JJ* was a series of thin horizontal slats (*FF*) than ran down to the base of the Pound enclosure. The dimensions of these were unclear. *FF1* represents part of the original structure. However, the *FF2* boards were more recent additions, at a higher level than the south-west gate base, which seemed to function to block entrance to that end of the lock.

The uppermost part of the gate structure was *KK*, the gate support. This, as with *Q* at Cavenham, was arranged in an arrow form, facing upstream and was also presumably fixed to the base in a similar manner. The central timber was 0.15m (NE-SW) x c.1.65m (NW-SE), whilst the other pieces were 0.2m (E-W) wide x c.2.4m (N-S) long.

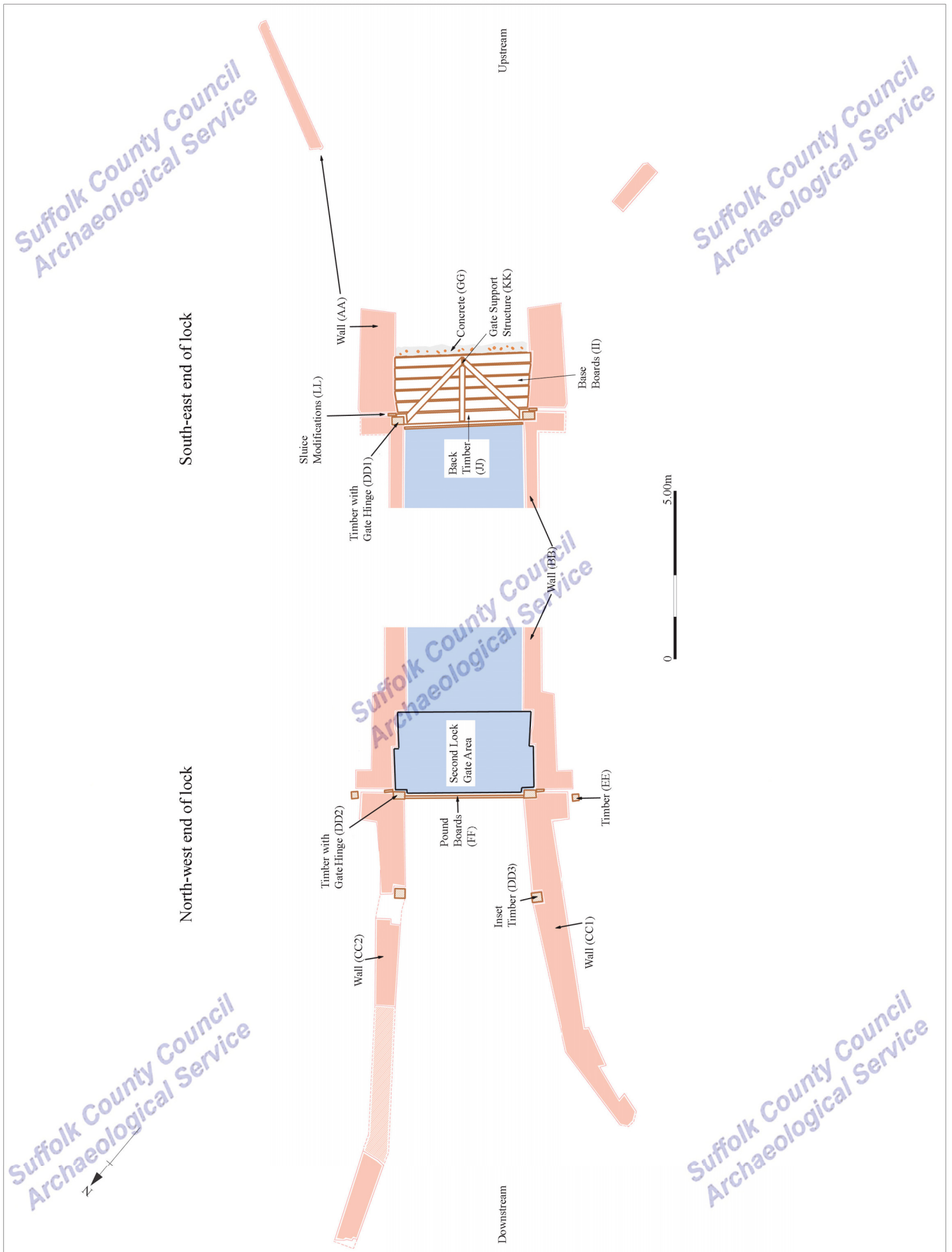


Figure 8. Plan of NW and SE ends of Hengrave Lock Gate Structures

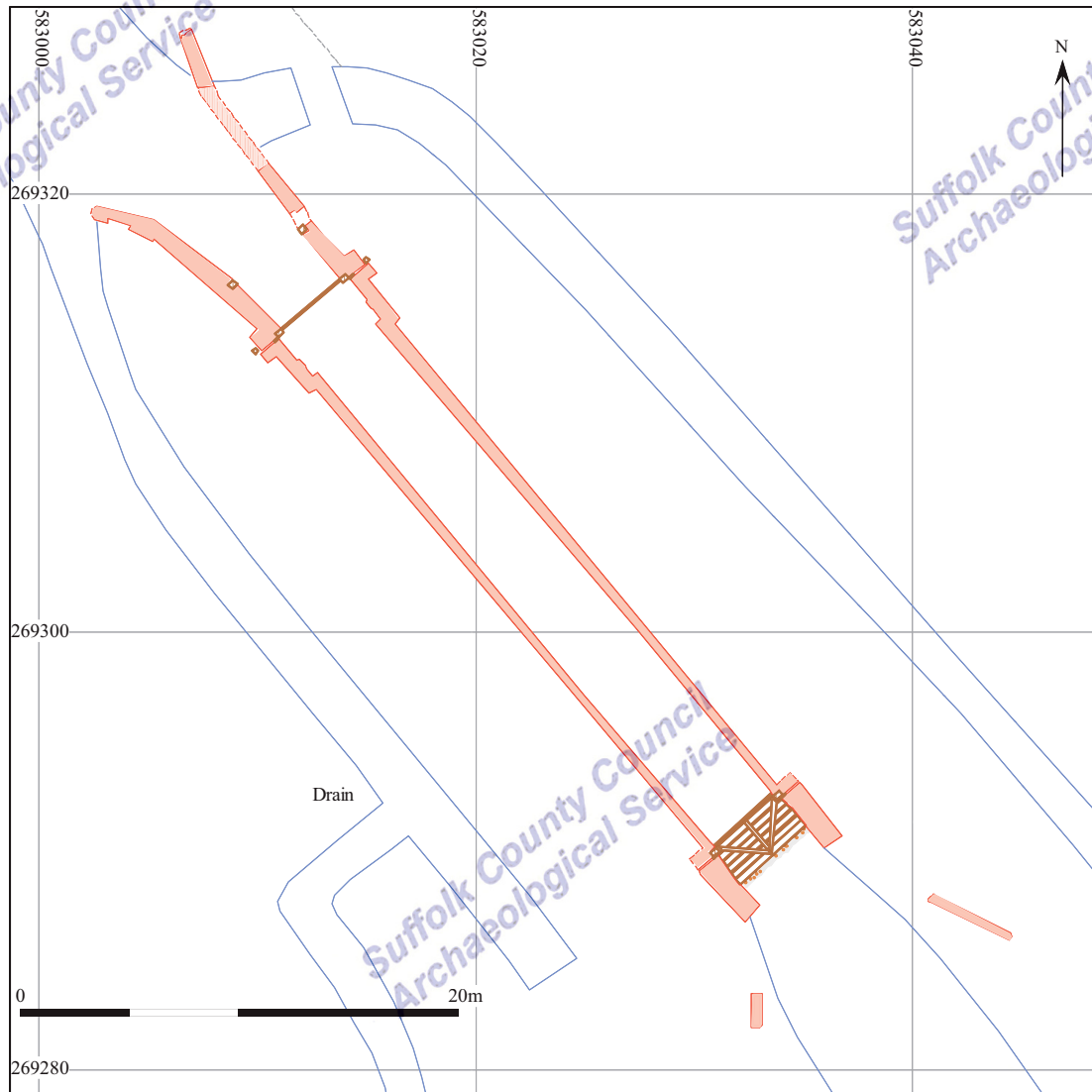


Figure 9. The full layout of the Hengrave Lock structure as it now stands

### ***Lock construction phases and components***

The final component of the Hengrave Lock was indicated by a series of rebates in the concrete, between walls *AA* and *BB*. These suggested the presence of horizontal boards running across the lock, measuring c.0.23m tall x c0.07m thick x c.4.4m long (*LL*). The purpose of such boards is unclear, although they probably represent part of the construction of the lock, functioning as a plank staunch to keep the rest of the Pound dry whilst the building works took place.

Various brick types were recorded within the lock structure. From these certain dates were loosely attributed to the lock's construction and subsequent repairs, although these could not be as clearly defined as those of the

Cavenham Lock, where the brickwork could be seen more clearly. However, plain red bricks measuring 9" x 4<sup>1/2</sup>" x 2<sup>1/2</sup>" (0.23m x 0.115m x 0.065m) were present and thought to be of early-mid 18th century date, representing the first phase of construction or the first phase of repairs, approximately matching Phase 1 of the Cavenham Lock (Floyd, 1925). These bricks were only clearly recorded in the top brickwork in the southern AA walls, although it is possible that others were present in the areas that could not be accessed or cleaned.

The second clearly recorded phase in the brickwork was shown by a set of possibly late 18th century repair bricks. These were 9" x 4<sup>1/2</sup>" x 2<sup>3/8</sup>" (0.23m x 0.115m x 0.06m) and dated at c.1781, from similar bricks found at Semer Bridge, Suffolk. This would suggest a phase of works carried out as a result of the 1795 Navigation Act. These bricks were also located amongst the AA walls.

Throughout the visible brickwork a high number of irregular, unevenly fired bricks were present. Although it is unclear, these may be 19th century, brought in from the fenland, and this date fits with the lock having been repaired in this period (Aitkens, pers. comm.).

## 5. Archive deposition

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Paper and photographic archive: SCCAS Bury St Edmunds

T:arc\Archive field proj\Culford\CUL 046 Hengrave Lock

T:arc\Archive field proj\Lackford\LKD 034 & CUL 046 Lock Gates

## 6. List of contributors and acknowledgements

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The excavation was carried out by archaeological staff, (David Gill and Rob Brooks) from Suffolk County Council Archaeological Service, Field Team.

The project was directed and managed by David Gill, who also provided advice during the production of the report.

The production of site plans and sections was carried out by David Gill and Rob Brooks. The report was checked by David Gill and Richenda Goffin.

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## Appendix 1. Brief and specification



### The Archaeological Service

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Environment and Transport Service Delivery  
Shire Hall  
Bury St Edmunds  
Suffolk  
IP33 2AR

## Brief and Specification for Historic Structure Recording

### Flood Risk Management: 'Cavenham Lock', parish of Lackford

1. **Background**
  - 1.1 The Environment Agency has consulted SCCAS about the proposed removal for safety reasons of brick structures in the River Lark at Lackford.
  - 1.2 The structures consist of a brick walls at either end of a canalised arm of the River Lark at TL 7819 7139 and is listed in the county Historic Environment Record as LKD 034. This part of the Lark Navigation was constructed between 1699 and 1715, this structure is described (Weston 1980) as 'staunches Nos 4 & 5 (Lock No 10) Lackford Double Lock. This consists of two staunches 283' apart, thus making and serving the function of a lock. A large meander [of the river] is by-passed by them'. The 1880's OS map shows the single gate at each end of the canal section and labels each as 'Stanch'. The Lark Navigation was out of use by the 1920's (Robertson in Dymond & Martin, Historical Atlas Suffolk 1999). The site was visited and described from E side only by SCCAS (RDC) in 1993 who noted 18<sup>th</sup> century brick only in the northern walls, with 19<sup>th</sup> century brick above and 20<sup>th</sup> century patching. The southern walls appeared to be entirely 19<sup>th</sup> and 20<sup>th</sup> century, and he suggested that only the northern structure was used up to the mid 19<sup>th</sup> century. The brickwork to be demolished includes an area at the north end with two ?gate slots, with one section close to collapse, and an area at the south end with one visible feature on the photos provided. (? Are opposing walls still in situ and if so being demolished or not?)
  - 1.3 In accordance with the standards and guidance produced by the Institute of Field Archaeologists this brief should not be considered sufficient to enable the total execution of the project. Detailed standards, information and guidance to supplement this brief are to be found in *Understanding Historic Buildings; A guide to good recording practice* (English Heritage 2006; this defines the different levels of recording recommended by English Heritage, see: [www.helm.org.uk/server/show/category.19612](http://www.helm.org.uk/server/show/category.19612)) and *Standard and Guidance for the archaeological investigation and recording of standing buildings or structures* (Institute of Field Archaeologists 2001). Technical standards, applicable to detailed survey, are covered by *Metric Survey Specification for English Heritage* (English Heritage 2000). A Written Scheme of Investigation (WSI) based upon this brief and the accompanying outline specification of minimum requirements, is an essential requirement. This should be submitted by the developers, or their agent, to the Conservation Team of the Archaeological Service of Suffolk County Council (Shire Hall, Bury St Edmunds IP33 2AR; telephone/fax: 01284 352443) for approval. The work should not commence until this office has approved both the recording contractor as suitable to undertake the work, and the WSI as satisfactory. The WSI will *provide the basis for measurable standards* and will be used to establish whether the work has been adequately carried out.

1.4 Before commencing work the recording contractor should carry out a risk assessment and liaise with the site owner, client and the Conservation Team of SCCAS (SCCAS/CT) in ensuring that all potential risks are minimised. Note that it may be necessary to arrange access by water in order to safely record the structure.

1.5 It is the recording contractor's responsibility to ensure that adequate resources are available to fulfil the Brief.

## 2. Brief for Historic Building Recording

2.1 Historic structure recording, as specified in Sections 3 is to be carried out prior to demolition.

2.2 The objective will be to compile a descriptive record of the lock at English Heritage Level 2 (see above 1.3) before demolition takes place and to record its location in the context of the canal.

## 3. Specification for Archaeological Recording

The survey methodology will form part of the WSI and is to be agreed in detail before the project commences; defined minimum criteria in this outline are to be met or exceeded.

Any variation from these standards can only be made by agreement with SCCAS/CT, and must be confirmed in writing.

3.1. English Heritage Level 2 recording should be carried on the lock structure and its setting. It will be viewed, described and photographed.

3.2 A block plan should be produced of the site, to locate the lock structures and their relationship with the canal on the National Grid.

3.3 The record will present any conclusions regarding the location, form, date, development and use of the structure.

## 4. Report Requirements

4.1 An archive of all records is to be prepared consistent with the principles contained in *Understanding Historic Buildings; A guide to good recording practice* (English Heritage 2006), particularly section 7. This should be deposited with the County HER within six months of the completion of work. It will then become publicly accessible.

4.2 The recording contractor should consult the County HER Officer (Dr Colin Pendleton) to obtain a HER number for the work. This number will be unique for each project or site and must be clearly marked on any documentation relating to the work.

4.3 The recording contractor should consult the SCC Archive Guidelines 2008 and also the County HER Officer regarding the requirements for the deposition of the archive (conservation, ordering, organisation, labelling, marking and storage).



- 4.4 The WSI should state proposals for the deposition of the digital archive relating to this project with the Archaeology Data Service (ADS), and allowance should be made for costs incurred to ensure proper deposition (<http://ads.ahds.ac.uk/project/policy.html>).
- 4.5 A copy of the report, clearly marked DRAFT, should be presented to SCCAS/CT for approval within six months of the completion of fieldwork unless other arrangements are negotiated with the project sponsor and SCCAS/CT. Following approval, two hard copies, as well as a digital copy, of the report should be presented to SCCAS/CT.
- 4.6 A summary report, in the established format, suitable for inclusion in the annual 'Archaeology in Suffolk' section of the *Proceedings of the Suffolk Institute of Archaeology*, should be prepared and included in the project report.
- 4.7 At the start of work (immediately before fieldwork commences) an OASIS online record <http://ads.ahds.ac.uk/project/oasis/> should be initiated and key fields completed on Details, Location and Creators forms.
- 4.8 All parts of the OASIS online form should be completed for submission to the County HER. This should include an uploaded .pdf version of the entire report (a paper copy should also be included with the archive).

Specification by: Jude Plouviez

Suffolk County Council  
Archaeological Service Conservation Team  
Environment and Transport Department  
Shire Hall  
Bury St Edmunds  
Suffolk IP33 2AR

Tel.: 01284 352448  
E-mail: [jude.plouviez@suffok.gov.uk](mailto:jude.plouviez@suffok.gov.uk)

Date: 24<sup>th</sup> July 2009 Reference: Lackford\LKD 034 Spec Lock Structure recording July 2009.doc

**This brief and specification remains valid for six months from the above date. If work is not carried out in full within that time this document will lapse; the authority should be notified and a revised brief and specification may be issued.**

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Appendix 2. Selected photographs



1. A-type wall, LKD 034, southern structure, western side



2. C1-type wall, LKD 034, southern structure, western side

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3. C2-type walls, LKD 034, southern structure, western side

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4. B-type walls, LKD 034, southern structure, western side



5. LKD 034, southern lock structure, looking SE



6. LKD 034, northern lock structure, looking NE

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7. LKD 034, Base of lock structure

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8. LKD 034, *In-situ* gate hinge, southern structure, western side

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9. LKD 034, northern lock structure, western side, chain and hoop

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10. LKD 034, from southern lock structure, looking to northern structure



11. CUL 046, Lock structure, after cleaning, looking NE



12. CUL 046, Lock structure, northern end, intact wall, looking NW





13. CUL 046, northern end, eastern wall damaged by secondary channel, looking NE



14. CUL 046, northern end, west side, after cleaning



15. CUL 046, northern end, eastern wall timber recesses



16. CUL 046, northern end, eastern wall, exposed reinforcing timber

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17. CUL 046, southern end, lock base

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18. CUL 046, southern end, eastern side, timber recesses after cleaning

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### Appendix 3. Full Photographic Record (on accompanying CD)

#### Hengrave Lock – CUL 046

Photograph Number	Description
CUL 046 01	Looking NE
CUL 046 02	N end, E side, facing SE, cleaned
CUL 046 03	N end, facing SE, cleaned
CUL 046 04	N end, facing SE, cleaned
CUL 046 05	N end, W side, cleaned
CUL 046 06	N end, E side, cleaned
CUL 046 07	N end, W side, cleaned
CUL 046 08	N end, W side, cleaned
CUL 046 09	N end, W side, cleaned
CUL 046 10	N end, W side, cleaned
CUL 046 11	N end, E wall
CUL 046 12	N end, exposed timber
CUL 046 13	N end, facing S
CUL 046 14	N end, facing NW
CUL 046 15	N end, facing NW
CUL 046 16	S end, E side, cleaned
CUL 046 17	S end, E side, cleaned
CUL 046 18	S end, E side, cleaned
CUL 046 19	S end, E side, cleaned
CUL 046 20	S end, E side, cleaned
CUL 046 21	S end, W side
CUL 046 22	S end, lock base
CUL 046 23	S end, E side
CUL 046 24	S end, E side
CUL 046 25	S end
CUL 046 26	S end, construction timber recess
CUL 046 27	S end, W side
CUL 046 28	Wall core

#### *Eastern wall profile*

CUL 046 29	E side (S end)
CUL 046 30	E side
CUL 046 31	E side
CUL 046 32	E side
CUL 046 33	E side
CUL 046 34	E side
CUL 046 35	E side
CUL 046 36	E side
CUL 046 37	E side
CUL 046 38	E side
CUL 046 39	E side
CUL 046 40	E side
CUL 046 41	E side
CUL 046 42	E side
CUL 046 43	E side
CUL 046 44	E side

<b>Photograph number</b>	<b>Description</b>
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CUL 046 45	E side
CUL 046 46	E side
CUL 046 47	E side
CUL 046 48	E side (N end)

*Western wall profile*

CUL 046 49	W side (S end)
CUL 046 50	W side
CUL 046 51	W side
CUL 046 52	W side
CUL 046 53	W side
CUL 046 54	W side
CUL 046 55	W side
CUL 046 56	W side
CUL 046 57	W side
CUL 046 58	W side
CUL 046 59	W side
CUL 046 60	W side
CUL 046 61	W side
CUL 046 62	W side (N end)

## Cavenham Lock – LKD 034

**Photograph  
Number**      **Description**

### *Structure recording*

LKD 034 01	From S end, looking N
LKD 034 02	N end, E side 1
LKD 034 03	N end, E side 2
LKD 034 04	N end, E side 3
LKD 034 05	N end, E side 4
LKD 034 06	N end, E side collapse
LKD 034 07	N end, E side collapse
LKD 034 08	N end, E side timber
LKD 034 09	N end, looking NE
LKD 034 10	N end, lock base
LKD 034 11	N end, lock base detail
LKD 034 12	N end, W wide
LKD 034 13	N end, W side chain
LKD 034 14	N end, W side chain
LKD 034 15	N end, W side 1
LKD 034 16	N end, W side 2i
LKD 034 17	N end, W side 2ii
LKD 034 18	N end, W side 3
LKD 034 19	N end, W side timber
LKD 034 20	S end, E side 1
LKD 034 21	S end, E side 2
LKD 034 22	S end, E side 3
LKD 034 23	S end, E side 4
LKD 034 24	S end, E side 5
LKD 034 25	S end, E side 6
LKD 034 26	S end, E side, fixing recess
LKD 034 27	S end, E side 1
LKD 034 28	S end, E side 2
LKD 034 29	S end, E side 3
LKD 034 30	S end, E side 4
LKD 034 31	S end, E side concreted lip
LKD 034 32	S end, E side recess
LKD 034 33	S end, E side timber and recess 1
LKD 034 34	S end, E side timber and recess 2
LKD 034 35	S end, looking SE 1
LKD 034 36	S end, looking SE 2
LKD 034 37	S end lock base 3
LKD 034 38	S end lock base 5
LKD 034 39	S end lock base 6
LKD 034 40	S end lock base 7
LKD 034 41	S end lock base rivets
LKD 034 42	S end, looking N
LKD 034 43	S end, looking S
LKD 034 44	S end, upstanding timber 1
LKD 034 45	S end, upstanding timber 2
LKD 034 46	S end, upstanding timber 3

<b>Photograph Number</b>	<b>Description</b>
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LKD 034 47	S end, upstanding timber and collapsed wall 1
LKD 034 48	S end, upstanding timber and collapsed wall 2
LKD 034 49	S end, W side collapsed wall 1
LKD 034 50	S end, W side collapsed wall 2
LKD 034 51	S end, W side collapsed wall 3
LKD 034 52	S end, W side fixing
LKD 034 53	S end, W side gate fixing
LKD 034 54	S end, W side gate fixing
LKD 034 55	S end, W side 1
LKD 034 56	S end, W side 2
LKD 034 57	S end, W side 3
LKD 034 58	S end, W side 4
LKD 034 59	S end, W side recess
LKD 034 60	S end, W side wall

*Wall removal monitoring*

LKD 034 61	S end, W side wall removal 1
LKD 034 62	S end, W side wall removal 2
LKD 034 63	S end, W side wall removal 3
LKD 034 64	S end, W side wall removal 4
LKD 034 65	S end, W side wall removal 5
LKD 034 66	S end, W side wall removal 6
LKD 034 67	S end, W side wall removal 7
LKD 034 68	S end, W side wall removal 8
LKD 034 69	S end, W side wall removal 9