Heritage, Design and Access Statement: Lock 12 Hazelhurst- Caldon Canal

1.Type of application

This statement accompanies the listed building consent application in relation to the proposed works to lock 12.



FIGURE 1: LOCK 12 ON THE CALDON CANAL.

2.Location

Lock 12 is located on the Caldon Canal. The lock is grade II designated and located in the Caldon Canal conservation area. Please see accompanying plans and figure 2.

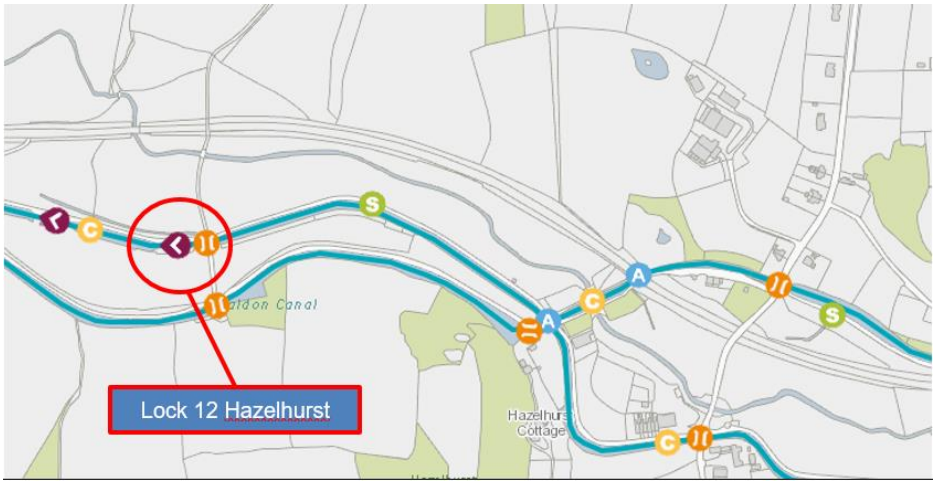


FIGURE 2: MAP SHOWING THE LOCATION OF LOCK 12 AT HAZELHURST.

3.Statement Prepared by

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4.Listing description

Details

CHEDDLETON C.P. CALDON CANAL SJ 95 SE SJ 950 537 5/43 Lock at SJ 950 537 -

GV II

Lock. Circa 1779 with mid-C19 alterations and circa 1981 lock gates. Stone retaining walls patched within channel in blue brick and concrete. Lower face has sandstone steps winding up from canal level (and cutting into retaining wall) on left and climbing embankment to right, wrought iron spandrels under catwalk span lower entrance to lock. Forms part of a group with the nearby bridge (q.v.).

Listing NGR: SJ9504253705

5.Historic Information

5.1 Caldon Canal

The Caldon Canal was built as a branch of the cross-country Trent & Mersey. It runs from Stoke-on-Trent to Staffordshire and its final miles run through an area known as 'Little Switzerland'. The Canal opened in 1779 and runs for 18 miles with 17 locks.

The Canal would originally have been a tub-boat canal, as the boats were designed to carry just 5 tons, and rather than using locks, inclined planes were to be used at points where the level of the canal needed to change. Two more plans were considered, and the third included extra reservoirs which would supply the summit level of the existing main line. At a similar time, an independent company was planning a link to Leek, but the Trent & Mersey Co. managed to block this. Having secured contracts with several owners of limestone quarries in the Caldon Low area, the company

sought an Act of Parliament to authorise construction of the new works, which it obtained in May 1776.[1]

The Act enabled the proprietors to borrow £25,000 to fund the construction, which was completed in 1779. Initially, there were 16 locks, eight rising from Etruria to the start of the summit at Stockton, and eight falling from the end of the summit to Froghall. 1.5 miles (2.4 km) of the canal followed the bed of the river Churnett near Consall. A second Act of Parliament was obtained in 1783 to authorise a new tramway, and to extend the canal by 530 yards, which included the Froghall tunnel.[2]

Traffic on the Trent and Mersey main line was such that it suffered from water shortage in dry periods, and water levels on the Caldon branch were often too low at such times, as the water to use to keep the main line moving. In 1796, the company wanted to build a reservoir at Rudyard, to improve the situation, and a branch to Leek was included in the Bill, as it was the only way to obtain the consent of the Leek authorities and landowners for the reservoir. The Bill was defeated in Parliament, after which the Peak Forest Canal Company proposed to build a branch of their canal from Marple to Leek, and on to join the Caldon branch. It would also have included a reservoir at Rudyard, but the plan was short-lived, as the Trent and Mersey succeeded in getting their bill passed when they submitted it to Parliament for a second time in 1797. In order to ensure that the water from Rudyard could be used to supply the main line, the Leek branch had to join the top level of the Caldon branch, and so the original route with the three Park Lane locks was closed and a new route built, with a three-lock staircase between the junction and the old line of the canal. This was altered again in 1841 to the present arrangement, where the canal to Froghall passes under an aqueduct on the Leek branch, and three separate locks at Hollinhurst raise the old line up to the summit level.[3]

With the coming of the railways, the Trent and Mersey Company canals were sold to the North Staffordshire Railway, with the formal takeover occurring on 15 January 1845. They were keen to promote the canals and railways as mutual feeders, and so maintained the canals, with the exception of the Uttoxeter branch, which was closed by an Act of Parliament obtained in July 1847, so that the Churnet Valley Railway could be built along its course. The tramway from Froghall to Cauldon Quarries was replaced by a new cable-operated railway in 1849. It included inclined planes at Froghall, Oldridge and Cotton, and was built to a gauge of 3 ft 6 in. Trains consisted of up to nine wagons, each capable of holding 6 tons of limestone and around 1000 tons a day were moved from the quarries to the canal.[4]

Traffic gradually moved away from the canal to the railways. In 1904, Endon basin was built, where limestone brought from the quarries by the railway could be transferred to boats. One of the major users of the limestone, based at Sandbach, closed in 1920, and the cable railway to Froghall closed in the same year. Limestone was no longer transhipped at Endon from 1930, and the canal saw virtually no traffic. Responsibility for the canal passed to the London, Midland and Scottish Railway in 1940, who closed the Leek branch under an Act of Parliament obtained in 1944. The last commercial traffic was the transfer of coal from Endon to Cheddleton, which ceased in 1952.[5]

The Canal was restored in the 1970's.

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[1] Hadfield (1985), pp.33-34

[2] Hadfield (1985), pp.199-200

[3] Hadfield (1985), pp.222-223

[4] Hadfield (1985), pp.229-230

[5] Canals of North Staffordshire, Richard Dean, 1997

2.2 Lock 12 Hazelhurst Bottom Lock



FIGURE 3: HAZELHURST LOCK 12 CIRCA 1962 (CANAL & RIVER TRUST ARCHIVES).

The lock, which is Grade II listed, is constructed predominantly from red sandstone with some later red brick repairs. The existing gates are replacement composite gates i.e. of timber and steel construction, which were added during the late twentieth century (the steel gearing is dated 1973). These replacement gates are acknowledged within the listing text for the lock. The lock retains historic-style timber quoins, though again these are not original as the quoins are an element which is subject to regular replacement due to wear and tear. The lock chamber comprises stone coping and stone blocks with some brick piecing and an iron split bridge over the tail bay, the bridge features wrought iron spandrels. Two flights of stone steps lead to the north and south ends of the lock to provide access onto the lockside from approaching boats.

Lock 12 has a split bridge which would have allowed a rope to pass through to accommodate the horses pulling the boats. A metalwork conservation specialist has advised that considering the style, condition, corrosion state, fixing methods and materials used; the bridge itself likely does not date from the construction of the lock which would be prior to 1777 and the completion of the canal. It is suggested that the bridge dates from a period post-acquisition by the railway and is likely to date from between 1870 and 1900.

6. Significance

Lock 12 forms part of a high value collection of canal related buildings including the small lengthman's hut and Locks 10 and 11, as well as the nearby Lock Cottage, cast iron bridge and aqueduct which make up Hazelhurst Junction. Collectively, they form an impressive arrangement of functional canal structures along one of the more attractive stretches of Britain's canal network.

Lock 12 and its accompanying tail bridge have undergone some minor alteration during the 20th century to incorporate modern composite gates which were installed by the local canal society. The

lock is therefore of considerable significance, as it forms part of an impressive set-piece canalscape with stone, iron and brick bridges, locks, cottage and single arched aqueduct.

7. Proposed works to Lock 12

7. 1 Gate replacement

The composite lock gates are showing signs of decay through extensive surface corrosion and de-lamination to the steel gates and steel balance beams. Gate replacement is the only viable option, given condition assessment and remaining projected serviceable lifespan.
The gates will be replaced with timber gates, as they would have been originally. In order to mark the restoration of the canal (during which the composite lock gates were added in the early 1970's) composite lock gates will remain in place at lock 11 on this flight. In addition to changing the bottom gate, the following associated works are required:

- To minimise any potential leakage, before installing the new gate, the sacrificial timber cill liner should be checked and replaced as necessary using FSC green oak timber, size to match existing.
- The opportunity should be taken to replace the gate cups if they are worn and required.
- Beam furniture to be reused where possible. The opportunity should also be taken to replace or repair, gearing and fittings if required.
- Router lock number onto lock beam downstream/upstream (as applicable) face. Style and position to match other lock numbers on beams at lock flight.



FIGURE 4: EXISTING LADDERS AT LOCK 1 WHICH DO NOT REACH THE BOTTOM OF THE LOCK CHAMBER AND DO NOT HAVE SPACE FOR PEOPLE TO GRIP THE SIDE OF THE STRINGERS. THE LADDERS REQUIRE ALTERATION FOR HEALTH AND SAFETY REASONS.

7.2 Ladder alterations

The existing lock ladder does not extend to the full depth of the lock so an alteration is required to ensure that if a canal user needs to gain access from the bottom of the lock they can obtain footing onto the ladder with greater ease. The recess where the ladder sits needs to be deepened so that the stringers will have space at the sides to allow hands to grip- this is not currently the case with the existing ladders. Works are required as follows:

- Remove existing hoops and ladder.
- Deepen and widen ladder recess to required dimensions as per Drawing B19HPW-CRT-xx-0xx-002-DR-C-00x – Lock ladder Recess Enlargement. The stone will be cut back as little as possible to accommodate the wider ladder.
- Cut the sandstone coper (where present) After the chamber recess brickwork has been cut out to size, in case timber wall ties are discovered. In the event timber wall ties are discovered contact engineer.
- Install hoops that attach directly to the stringers. See drawing P08820-STD-DTL-6B-600mm-EQUAL HOOPS.
- Between the new ladder hoops install new cross patterned copers that match the existing copers in size and appearance. Copers will need to be cut to match the profile of the ladder recess. Use NHL5 lime mortar for bedding copers and joints.

7.3 New quadrant surfacing

The quadrant areas are grass and bare earth, which make operation of the lock more hazardous, and harder to do than if the lock had Heel grips installed. Therefore, it is proposed that a new arc is installed to make the operation of the lock safer- the rest of the lock quadrant surface will remain as grass and not be impacted. No historic surfacing will be effected by the work. Please see the lock heel grips drawing, the process will be as follows:

- Terram or other similar geo textile matting will be laid before a layer of type 1 material minimum depth 100mm is placed on top, which is then compacted.
- A 100mm layer of C20/25 concrete is then applied on top of the compacted subbase to form the completed foundation work.
- Stone setts will then be laid onto a bed of mortar, with lime mortar pointed joints. Bricks forming heel grips will then installed 25mm above surrounding setts.



FIGURE 5: THE AREA OF DARKER WORN GROUND IS THE LOCATION WHERE THE ARC OF COBBLES WITH BRICK UPSTARTS WILL BE ADDED.

7.4 Tail bridge repairs

The tail bridge at lock 12 is showing signs of corrosion works are required to repair this. The bridge will be removed by a metal work conservation specialist and taken to a workshop to repair. As much historic fabric will be kept as possible. Where the iron work is corroded new pieces of wrought iron will be welded in.

The timber decking on the bridge is rotten and will be replaced like for like with timber and an anti-slip surface (see figure 6).

The modern handrail which was added in the 1970's will need to be removed to allow for the removal and repair of the bridge. The handrails are required for safety reasons however there is an opportunity to install more sympathetic handrails. The current handrails are one rail and do not showcase the fact that the bridge is a split bridge. The new handrail design will have a small split to show the existence of the rope gap.

Patches of concrete have been added to the stone copers, it is proposed that stone is reinstated once the bridge is returned (see figure 9).

Please see the methodology statement for the repair of the split bridge.



FIGURE 6: CORRODED METAL AND THE TWO SIDES OF THE TAIL BRIDGE SAGGING TOGETHER.



FIGURE 7: CORROSION UNDER THE SPLIT BRIDGE.



FIGURE 8: THE TAIL BRIDGE AT LOCK 12.



FIGURE 9: PATCHES OF CONCRETE BY THE SPILT BRIDGE. IT IS PROPOSED THAT STONE IS REINSTATED.

8. Impact Assessment

The ladders themselves are a modern addition, not original, and are to be replaced for health and safety reasons. From an aesthetic perspective the works will have a limited impact on the visual appearance as the ladder recess will be increased and ladder hoops installed. Also, some of the stonework will be cut back so that it can accommodate the new wider ladder. All works will be guided by the principles of 'minimum intervention' it is felt that the significance of the lock will not be impacted by the ladder alterations.

The lock gate originally would have been timber, however when the canal was restored composite lock gates were put in place. The composite lock gates represent an important part of the history of the Caldon Canal and it is appropriate that a set of gates remain to mark this. However due to the cost of removing and then repairing composite lock gates (due in part to weight) they are not the preferred option for the Trust. Therefore, the lock gates at lock 12 will be replaced by timber, as they would have been originally, on the agreement that the composite gates at lock 11 will be maintained. The gates do have historical value due to reasons detailed above, however the mitigation is that the composite lock gates at lock 11 will be maintained. Furthermore, whilst this is a material change- the timber will be mean a return to how the gates were originally. Therefore, on balance the significance of the lock will not be harmed.

The split bridge will be repaired by a qualified conservation metal work specialist, and as much historic fabric will be saved as possible. The modern handrails will be replaced in a more sympathetic design which reinstated the rope gap to help people to read the lock. This will enhance the heritage values of the bridge and save the original structure with necessary repairs being made.

The addition of the new lock surface quadrant will have an impact on the aesthetic appearance of the lock- it will not have an impact on the significance of the lock and is required for safety reasons.

Lock 12 is in the Caldon Canal conservation area. Therefore, any works should seek to preserve and enhance its character. Considering the above it is our opinion that the proposed work will not result in the loss of any significance and will consist of less than substantial harm while enabling the safe use of the lock and therefore ensuring the optimum viable use in the future. The works will also enhance the conservation area.