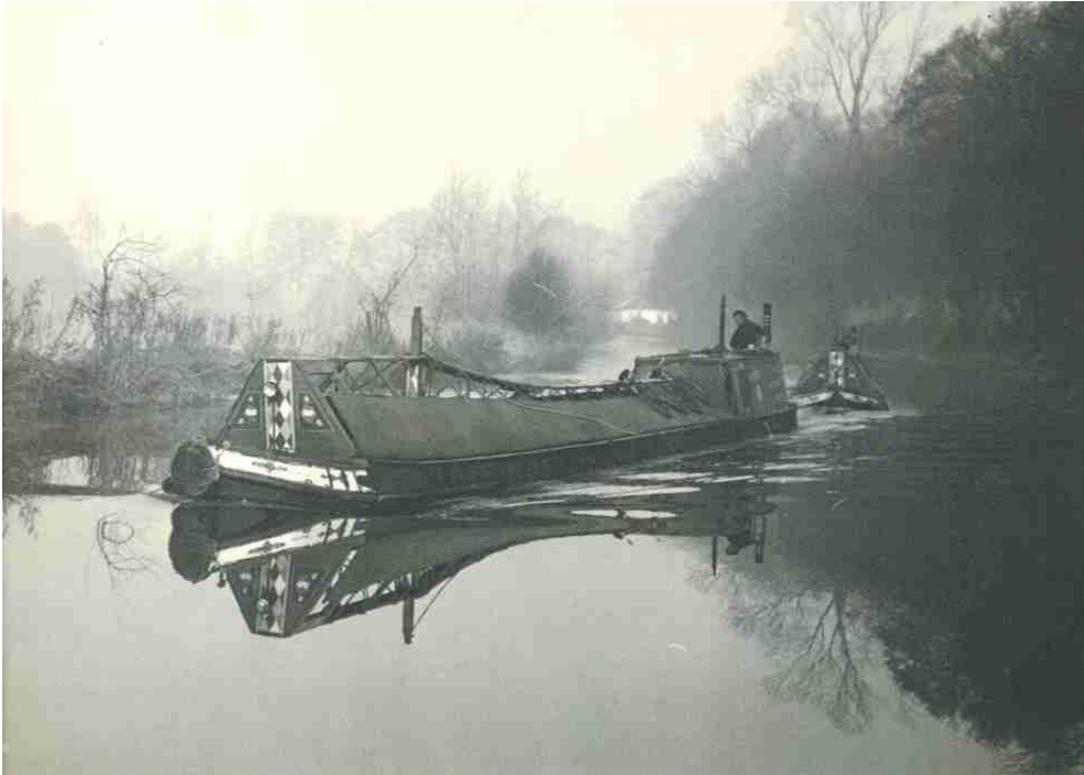


Rickmansworth Waterways Trust Ltd



“Roger”

Conservation for Operational Use

Conservation Management Summary and Plan

2012 – 2030



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“Roger” Conservation Management Plan 2012 – 2030

Introduction

The Conservation Management Plan for “Roger” is based on the guidance of the National Historic Ships book “Conserving Historic Vessels”. It considers the standard phases of a major conservation project – Evaluation, Stabilisation, Understanding, Assessing Significance, the selection of the Conservation Gateway, the assessment of Risks to her significance, and the conservation process itself.

The initial conservation process required an extreme reconstruction, and resulted in the present long period of maintenance to ensure the longevity of the boat.

It is recognised that “Conservation for Operational Use”, even for a different operation than that originally envisaged, did, and will, result in the loss of original materials. Operating “Roger” will inevitably result in replacement, repair and, in the very long run, reconstruction. The intention is to apply sufficient skill to these processes to maintain her integrity and significance – it is also recognised that this may inhibit the amount of freedom that can be given to volunteers.

The Trust recognises also the paradigm that the significance of “Roger”, as captured at Annex D, must be at the heart of all conservation activity. Her significance must be properly understood: while this itself requires a degree of effort, it is not considered directly in this Plan.

History, Phases and Timelines

Roger had been used but not modified in the years to 1992, having been laid up for sale following her withdrawal from operational service in 1968 and used mainly as a recreational craft from 1971 to 1975, then (it is understood) as a houseboat and recreational craft which included recovering the *Albert* from near Burton on Trent. Little substantial work was done to her until 1992, when the newly-formed Rickmansworth Waterways Trust began to consider options for her. This period may now be seen as the Evaluation phase, from 1992 to 1993.

It was decided, in view of her material state and historic significance (see Annex C), to attempt a restoration, and a period of Stabilisation, to buy time, commenced when she was lifted onto the bank at Batchworth in 1993. During this time the planning and fund-raising effort allowed a clear understanding of the boat, and agreement (notably with the HLF and other authorities) that *Roger* did indeed merit conservation.

Conservation for Operational Use was decided upon: the “Fabric” route would not result in a satisfactory outcome, and there was in any case nowhere to display the fabric of such a large item except afloat.

The conservation method “reconstruction” was adopted, and it was decided to return *Roger* to the as-built state. This required the cabin, fitted while in service by the Nurser’s boatyard after her acquisition by the Samuel Barlow Coal Company in 1956,

to be returned to the original style, and dictated that the livery would be that of her original owner, Harvey Taylor, and not of either of the later owners Samuel Barlow or Blue Line. A little adaptation for modern requirements would be required, and Annex D lists the adaptations carried out during and after the reconstruction.

The Reconstruction was done between spring 1997 and May 2000. The work was done at Batchworth by the craftsman Chris Collins, and all the timber and some of the iron and steel components (notably the fastenings) were replaced, and the engine rebuilt. Great care was taken to ensure that this was a “reconstruction” and not a “replication”. Each plank was replaced *in situ*, with its template carefully taken first; so there is considerable confidence that the present boat is indeed linked to the original by an unbroken history.

Roger was re-launched by crane in May 2000, and fitting out was completed by May the following year. This completed the Reconstruction phase; the effort since then has been put into maintenance and operation as part of RWT’s education programmes.

Conservation for Operational Use

Now registered (no 2313) on the National Historic Ships Register, *Roger* has been and will continue to be used extensively for RWT’s programmes for young people. Relatively little used from 2001 to 2009, then rather more so until 2017, the greatly increased utilisation and consequent wear and tear in the next 10 years will both benefit the boat and give rise to a need for careful and expert maintenance. Just painting and using it will not be enough.

The Trust wishes to take a long term view of the maintenance of the *Roger*. It became clear during 2010 that the current good state of the boat is well regarded by groups including the Heritage Lottery Fund, and it is required of the Trustees to ensure the future care of the boat. This rolling Plan now covering the years 2012 – 2030 has therefore been prepared. It will without doubt require modification in the light of events, but provides a basis for planning. It will be updated each year.

The Trust has asked Jem Bates, a craftsman in wooden canal boat maintenance and repair, to advise it on the requirements, and to act as the preferred supplier in carrying out the required work.

The routine work required at every docking is re-caulking and blacking of the hull, and a general inspection of the underwater fittings. The general state of the timbers is also assessed each time, with full hull survey required by the insurer about every six years.

Recent History

Roger is permanently moored at Batchworth. Since re-launch in 2000, she has been taken for maintenance every winter, although often the work done has been limited to

simple tasks. The recent history saw docking at Bulbourne in March 2008 (2 weeks) and April 2010 (3 weeks). The expert recommendation is that docking be done at least every 2 years, and last 2 or 3 weeks, and this is a key element of our conservation planning.

The Trust must nonetheless consider and contain the costs of ownership of “*Roger*”. Having been told by the insurer in 2009 that hull survey was next required before insurance renewal in 2015, the original proposed future plan minimised the planned dockings while providing for the expected maintenance and repair requirements. The rolling forward Plan is at Annex A.

At the docking of April 2010, however, it became clear that rot was unexpectedly present in the stem post and fore-end flashes, and in some of the bottom planks at the fore-end of the hold. Temporary repairs were made, with full repairs identified in outline for the future. It was also noted that the stem post does not meet the keelson properly, and was to be rectified with the replacement of the stem post.

A number of other small defects were rectified, which were expected to be sound for some years with inspection at each docking.

Routine inspection in May 2011, however, showed that the rot mentioned above was advancing more quickly and more widely than expected, and it became clear that earlier docking and much more significant conservation work was required. This was done in early 2012, with funding from the PRISM Fund of the Arts Council, the Heritage Lottery Fund and TRDC. A full survey was required as a condition of the HLF grant, and was in any case appropriate given the background to the work.

Subsequent dockings have been carried out in March 2014, November 2015, July 2017, February 2019 and November 2020. In the late summer 2015 it became clear that a small, long-standing but unsuspected leak in the canvas roof covering had resulted in serious degradation of the roof and some other timbers, and a temporary repair was made to keep more water out: the 2015 docking confirmed the problem, but it was clear that a proper repair of the whole roof required warmer weather, and it was decided to arrange the next docking in July 2017 to allow a three-week work period and subsequent repainting. This was done, and the work carried out is listed, as is the full history of work on *Roger* since reconstruction, at Annex B.

Materials

Roger was built of wood – oak hull planking, decking and lining, elm bottoms, pitch pine top planks. Although rarely used when carrying coal, canvas top cloths were also provided by the Harvey Taylor Company. Iron knees and guard irons were used to protect the hull in operation and for certain other fittings, and a steel cabin was provided over the engine room, as was done from an early stage after the introduction of diesel engines about 30 years before *Roger* was built.

Various dockings and refits were, of course, carried out during her operational life of over 30 years. One was done by Nurser's at Braunston after her acquisition by Samuel Barlow in 1956, when a new cabin was fitted (they tended to have a life of about 20 years anyway) and, probably, the JP2 engine was installed. But when the reconstruction started in 1997, the timbers were in such a state as to require total replacement, and this is clearly shown in the photo record.

They were replaced using English oak and American elm, English elm being by then effectively unavailable. But much of the original ironwork, especially the knees, was retained. To have done otherwise would have threatened the significance of the boat to some extent.

Fastenings.

Most of the fastenings – spikes, nails, bolts – are galvanised steel. Consideration has been given to various other options (any metal applied to oak causes deterioration of the timber to some degree), but even stainless steel has drawbacks and no more cost-effective option has been identified.

The 2012 project

Oak was used to repair hull and main timbers – Opepe to replace elm, with NHS and HLF express approval, in rotted bottom planks.

Decoration and Presentation

Exterior

There is no contemporaneous record of the H-T livery, which is variously reported as “black” or “very dark blue” and white. Certainly the respected illustrator Edward Paget Tomlinson depicted the livery as black, and several accounts report it as “black”, although others suggest “very dark blue”.

Although the boat was painted in a somewhat-dark blue when first reconstructed, it has become clear that this was not quite correct, and black has been used at the 2013 repaint.

No attempt has been made to reproduce paints from the 1930s, and modern materials have been used both to give best protection and to respect modern safety usage.

The Harvey Taylor lettering and style is well recorded, and has been well replicated throughout.

The Cabin

There is no contemporaneous record of the interior decoration of the cabin, but a quote from Harry Finnemore, one of the men who worked at Bushell Brothers in the 1930s, shows that while the exterior of Harvey Taylor boats was plain, the interior of the cabin was lavishly painted with the roses and castle scenes so typical of working boats.

When *Roger* was reconstructed, therefore, the cabin was grained in the traditional style, and painted in such a way as to represent the original décor. When it became necessary after 10 years to redecorate the cabin in 2011, the opportunity was taken to enhance the decor even more, although still probably not to the extent originally done, and this has been sustained at intervals since then with the help of the painter Beverley Clarke.

In addition to the painted decoration, the cabin is also arranged in the traditional manner, although there is no evidence of how *Roger's* cabin was actually arranged during her working life. Ribbon plates, crochet work and polished brass all feature, and this style of ornamentation forms an important element of the significance of the boat as an element of the historic narrow boat "fleet".

Interpretation

The Trust's role as a Heritage Education Charity uses *Roger* as an example of a historic boat, and does not focus on *Roger* herself. This is reflected in our interpretation, especially within our main education programme for Primary School children: a cupboard is laid out to show how babies might have been cared for, and various other artefacts have been imported to allow a general impression to be given. This approach is not considered to affect the significance of *Roger* herself.

The main way of conveying the significance of *Roger* is by the literature and video material provided and updated from time to time.

The Engine

The engine, an early Lister JP2 now believed to have been installed for the Samuel Barlow Coal Company at Braunston in the 1950s, was rebuilt and refitted along with its Lister Blackstone gearbox. But the propulsion train, including the screw, tail shaft, stern tube assembly, plummer block and prop shaft, were replaced *in toto* – a modern Cardan shaft was fitted as the propshaft to guard against misalignment problems.

A new fuel tank, day tank, fuel pump and associated pipework were also provided, and some later renovation of these items has been required subsequently. The fuel tank was vented in a manner required to meet the Boat Safety Certificate requirements, but none of these minor modifications is considered to have affected the significance of the boat to any material degree.

Engine Servicing. The JP2 engine (an unrecorded statement by Arthur Bray suggests that it was the prototype, but with the loss of Lister's records in 1976 this cannot be proven: as above, it was probably installed in the 1950s) is maintained routinely by volunteer members. This largely takes the form of changing the lub oil, greasing the items requiring it, cleaning the oil tank, crankcase and filter, cleaning the fuel filters and addressing fuel and oil leaks.

Having been rebuilt in 2000 it had a full service by the local firm P&S Marine in August 2009, and this will be repeated at about 10-year intervals. A considerable

number of small items of work has been done by Clive Pelerin, however, and this full service may be postponed for some time, although a full overhaul will be needed at some stage.

Detailed Maintenance Plan

This plan (detailed at Annex A), which also leads to the record of conservation work carried out (Annex B), develops that first fixed in 2009. It will be developed annually to cover the following 10 years, in decreasing granularity towards the later dates.

The record is supported by a set of digital photographs and survey reports kept principally on digital media held in the Trust's safe.

The advice of the surveyor Trevor Whitling IEng AMIMarEST and of the specialist boatbuilder Jem Bates was taken into account in 2012, and has been renewed in 2017. Mr Whitling has now retired, and another surveyor will be used in future.

Annex A

Forward Plan 2020 – 2026

2021

Exterior repaint of cabin. To be costed and considered.

Note (November 2020) that the steelwork of the engine room is corroding, as is usual in such instalments, around the rivets and between the plating and the supporting angles. This will need attention in the foreseeable future. A full repair would involve total removal of the steelwork in a specialist yard, and the renewal of the plates and rivets in a rebuild of the cabin before replacement and extensive 'work in way'. This would be very expensive: more realistic seems to be the drilling-out of the rivets in situ, cleaning and preserving the plating and angles before re-assembling and securing, probably with round-headed bolts to preserve the appearance while improving future maintainability. This will be investigated during 2021, with the intention of having the work done locally.

June 2022

Assessment of work required for next docking Nov 2022.

Nov 2022

Docking at Bulbourne.

Full hull survey (as required by insurer- periodicity 6 years)

Re-caulk and re-black hull.

Check play on stern gear and tail shaft. Some play was identified

Re-pack stern gland (if not done earlier).

Lift ballast and shutts, clean and preserve bottom planks and knees.

Fit skin fittings to cooling water intakes.

Carry out other repairs as necessary, following hull survey.

March 2024

Boat Safety Certificate

Nov 2024

Docking at Bulbourne.

Hull check

Re-caulk and re-black hull.

Lift ballast and shutts, clean and preserve bottom planks and knees.

Carry out other repairs as necessary, following hull check.

Nov 2026

Docking at Bulbourne.

Hull check

Re-caulk and re-black hull.

Lift ballast and shutts, clean and preserve bottom planks and knees.

Carry out other repairs as necessary, following hull check.

Feb 2028 – Boat Safety Certificate

Summer 2028

Cabin repaint (external).

Nov 2028

Docking at Bulbourne - hull survey (as required by insurer - periodicity 6 years)

- Re-caulk and black hull.
- Lift ballast and shutts, clean and preserve bottom planks and knees.
- Carry out other repairs as found necessary after hull survey.

Oct 2030

Docking at Bulbourne –

- Re-caulk and black hull.
- Lift ballast and shutts, clean and preserve bottom planks and knees.
- Carry out other repairs as necessary, following hull check. *Note that the hull will be thirty years old by then, and extensive work must be expected.*

Annex B - Work done since 2010

April 2010.

Docked at Bulbourne

Complete re-caulking and hull blacking.

Remove counter guards, clean and preserve under, replace and seal.

Cut rotten timber out of stem post and flashes, block in new.

Cut rotten timber out of worst-affected bottom planks, block in new. Cut out other rotten material, fill with tar and preserve.

Tidy gunwale ends at back of cabin to remove moisture trap. Fill holes and cracks in counter cants.

Fill holes and cracks in fore-end counter cants.

Fill gap between counter and cabin sides.

Fill gunwale bolt holes.

Repaint all gloss paintwork and cabin roof. Preserve all unpainted timber (decks, gunwales etc).

Remove all ballast and shuts. Clean, preserve and inspect bottom planks and keelson. Replace ballast and shuts.

Replace skeg/stern gear anode.

Aug 2010 – completed

Replace cabin range, flue pipe and chimney collar. This reduces risk of water ingress through failing chimney collar, and will allow cabin to be heated through properly.

Sept/Oct 2010 – completed.

Add extra ballast, to increase draft by at least 6" overall.

Clean bottom planks (under shuts) with disinfectant preservative to ensure infection-free environment (only partly completed).

Paint cabin roof (esp in way of new chimney collar).

Spring 2011 – completed.

Refurbish cabin (strip existing scumble and varnish, new undercoat, scumble, varnish and decorative paintwork - volunteer specialist Beverley Clarke).

Ensure integrity of cabin sealing against water ingress.

Engine service: clean fuel filters, change oil.

Autumn 2011 - Original Plan – not completed

Repaint cabin exterior under cover. Renew sealing material under cabin sides, and under cabin hand rail.

Winter/Spring 2012 – completed

Docking at Bulbourne: full hull survey.

- Check underwater fittings and stern gear.
- Re-caulk and re-black hull.
- Cut up and lift ballast and shutts, clean and preserve bottom planks and knees.
- Replace stem post and fore-end flashes with timber selected during 2010
- Replace rotted bottom planks (15ft) with Opepe.
- Renew timber panelling of cabin back bulkhead.
- Replace plank on starboard side, following survey.
- Block repairs to bottoms: port side at engine room bulkhead, port side by Knee 7, stbd side by Knee 3.
- Replace tinplate protection of bottom planks end grain – full length, both sides.
- Tin plate protection of two small areas on bottoms underside.
- Carry out other minor repairs as required – inc cut back shearing to prevent further water ingress, block repair to stbd side plank, filler repair to counter cants.

April 2013

Full repaint of cabin exterior – cost £3500, supported by a grant of £1000 from National Historic Ships.

By Nov 2013

Engine checks/service and repairs to fuel system.

Dec 2013

Inspect to determine work plan for next docking, Mar 2014.

Mar 2014

Docking at Bulbourne. Cost £7,000

Hull inspection. Special note of timber engine bearers and lower swim shearing, identified at survey 2012.

Re-caulk and re-black hull.

Lift ballast and shutts, clean and preserve bottom planks and knees.

Carry out other repairs as necessary, especially:

- Repair aftermost fore-end timber knee (port side).
- Fit steel brackets to strengthen junction of fore-end cross beam and lining planks.
- Renew sacrificial anode on skeg.
- Address damage to counter cants, especially round rudder stock.

Dec 2015

Inspect boat afloat to prepare for docking in Mar 2016.

Mar 2016

Docking at Bulbourne. Cost £7,000

Check underwater fittings and stern gear.

Re-caulk and re-black hull.

Lift ballast and shutts, clean and preserve bottom planks and knees.

Carry out other repairs as necessary.

Boat Safety Certificate

July/Aug 2017

Docking and hull survey (following change of insurer) - cost £17,000.

Hull survey reveals nothing of significance beyond known damage to cabin (see below). Minor and routine repairs to soft points in bottoms.

Routine re-caulking and blacking of hull.

Repair to cabin roof:

- Remove water-damaged timbers, plywood and canvas covering.
- Replace soft (white) wood planking with new soft (red) wood timber, being more durable.
- Cut out and replace damaged planking on cabin sides and back end.
- Remove and replace painted plywood side panels.
- Remove, refurbish and return hardwood hand rails.
- Encase roof and cabin sides in 3M 'Scotchkote' proprietary reinforced resin coating.
- Renew canvas roof covering.
- Repaint whole cabin, and sign-write to return visual effect.
- Fit new hull skin fitting to engine cooling outlet (port side).

April 2018

Re-decoration of interior of cabin (Beverley Clarke) to renew scumbling etc in wake of cabin repair.

Dec 2018

Inspect boat afloat to prepare for docking in 2019.

(proposed move to Blisworth for painting was not completed – it was not possible to find a suitable slot in the paint dock programme).

Jan/Feb 2019

Full repaint, by Blisworth Tunnel Boats - not completed, see above.

Jan 2019

Docking at Bulbourne. Cost £10,000.

Re-caulk and re-black hull.

Lift ballast and shutts, clean and preserve bottom planks and knees.

Other repairs necessary:

- Extensive small block repairs to gunwales on both sides.
- Renewal of counter cants.

March 2020

Boat safety certificate.

Sept 2020

Minor repairs to fore-end flashes and cants – repainted, both ends.

Nov 2020

Docking at Bulbourne. Expected cost £10,000.

Re-caulk and re-black hull.

Lift ballast and shutts, clean and preserve bottom planks and knees including in engine room. Several small points of softening repaired by blocking.

Other repairs:

- A small area of softening on port side of counter above bottom guard iron repaired by blocking. This seems to have been due to a small crack, a legacy of the reconstruction twenty years ago before rather than new damage.
- 1 metre section of gunwale starboard side forward replaced. It was hoped to avoid this sort of piecemeal repair with last year's block repairs, and this shows the value of keeping on top of such defects as they emerge.
- Renewal of sealing around new counter cants.
- Renew sacrificial anodes on skeg.

Annex C - Statement of Historic Significance.

Roger is presented as a working boat in full working order, and is significant on several counts:

- She is one of the last few (less than 20) wooden canal boats left in original working order.
- She is the last example of Bushell Brothers' influential narrow boat building.
- She was the last wooden motor boat trading on the Grand Union Canal, and is associated with a number of historic events related to the decline of commercial canal carrying after WW2.
- She will be for ever associated with her captain of over 25 years, the famous boatman Arthur Bray, and his family – see below. The Brays are commemorated by a plaque at Braunston.

The Trust now uses *Roger* in its education programmes, especially to give opportunities for young people to gain experience, self-confidence and new skills on the waterways.

Roger's History

Roger was built by Bushell Brothers at their yard on the Wendover Arm near Tring late in 1935, for the Aylesbury coal merchant and canal carrier Arthur Harvey-Taylor. She entered service in Feb 1936.

Roger was paired with the butty *Daphne* and captained by Arthur Bray with his wife Rose from 1941. This continued during the decline of the Harvey Taylor fleet during the 1940s and 50s, with the *Roger* and *Daphne* carrying the last load for Harvey-Taylor, coal from Baddesley Colliery to the Croxley paper mill, in April 1955. They then passed to the Samuel Barlow Coal Company, where *Daphne*, built in 1930, was replaced by the brand-new *Raymond*, the last wooden working boat built in England, in 1958.

Roger and *Raymond* went in 1962 to Blue Line when they took over the Barlows canal carrying business, and continued, carrying mainly coal under the captaincy of the Brays, until 1968, when *Roger* was replaced by the steel motor boat *Nutfield* and paid off to be sold.

She was bought by the Thomson family in March 1970 and used mainly as a recreational craft until 1975, and then, after sale, as a houseboat. Her last trip, in 1986, was to recover the derelict Ovaltine boat *Albert* from near Burton on Trent for restoration, but she was left in poor repair in Maple Cross basin in 1987. Nothing further was done to her until 1992, when her then owner, Tim Woodbridge, and colleagues in the newly-formed Rickmansworth Waterways Trust began to consider options for her. This period may now be seen as the Evaluation phase, from 1992 to 1993.

It was decided, in view of her material state and historic significance (see above), to attempt a restoration, and a period of stabilisation to buy time commenced when she was lifted onto the bank at Batchworth in 1993. During this time the planning and fund-raising effort allowed a clear understanding of the boat, and agreement (notably with the HLF and other authorities) that *Roger* did indeed merit conservation. It was decided that the correct Conservation Gateway, as it can now be termed, was Conservation for Operational Use: the “Fabric” route would not result in a satisfactory outcome, and indeed there was nowhere to display the fabric of such a large item except afloat.

It was decided that sufficient material remained to allow templates to be taken good enough to result in the reconstruction of a truly “Bushells” boat, with important elements available for re-use. In any case, her significance depended not only on her structure, but on her crew to an important degree, and on her role in the post-war canal carrying period. It was therefore assessed that her significance was not seriously put at risk by the conservation process, and it was agreed to continue.

The conservation method “reconstruction” was nonetheless clearly indicated, and it was decided to return *Roger* to the as-built state. This required the cabin, fitted while in service by the Nurser’s boatyard after her acquisition by the Samuel Barlow Coal Company in 1956, to be returned to the original style, and dictated that the livery would be that of her original owner, Harvey Taylor, and not of either of the later owners Samuel Barlow or Blue Line. But it was also clear that very little adaptation for modern requirements would be required: the Boat Safety Scheme was (and is) relatively undemanding if there is neither gas nor electricity, and neither was planned to be installed. Annex B lists the adaptations required.

The Reconstruction began during 1997 once funding from HLF had been secured, and continued until May 2000. The work was done in the open air at Batchworth by the craftsman Chris Collins, and is captured in a photographic record mainly by Doug Bail. All the timber and some of the iron and steel components (notably the fastenings) were replaced, and the engine (see below) rebuilt.

Great care was taken to ensure that this was a “reconstruction” and not a “replication”. Each plank was replaced *in situ*, with its template carefully taken first; so there is considerable confidence that the present boat is indeed linked to the original by an unbroken history.

Roger was re launched by crane in May 2000, and fitting out was completed by May the following year. This completed the Reconstruction phase; the effort since then has been put into maintenance and operation as part of RWT’s education programmes.

Annex D

Adaptations made at and since reconstruction to conform with modern requirements

At reconstruction (1999)

1. Fuel Tank venting and isolations.
2. Fitting Fire Extinguishers

At engine service 2009

3. Fitting modern stern tube greaser

At repair 2012

4. Replace rotted bottom planking with opepe in place of elm (not available).
5. Use modern sealants (eg Sicalflex 291) to provide operational durability.

At docking 2017

6. Fit brass skin fitting to engine cooling water outlet, to cure leak into lining plank and protect hull timbers.
7. Protect replacement cabin roof timbers with 3M 'Scotchkote' liquid roof system, and the new side panels (of 6mm ply) with a West waterproofing system.

Annex E – Engine Maintenance

2009 – FULL ENGINE MAINTENANCE SCHEDULE by Derek Harrison (P&S Marine). Details not recorded at the time.

Nov 2019

Fitted grease nipples to the rocker shaft grease pots; freed off the block cooling water air vent; made and fitted block water drain cock operating lever.

Nov 2019

Cleaned out the rocker chambers and filled with fresh engine oil to the top of the pushrod tubes.

Dec 2019

Made and left for use a rocker cover domed nut box spanner.

Dec 2019

Experimented with shims to lift the decompression levers fully because they are worn. Realised that the levers would open the exhaust valves fully if set at 45deg so shims are unnecessary at the moment.

Jan 2020

Fitted new rear cylinder rocker shaft grease tube support bracket which was later removed because it fouled the starting rope.

Feb 2020

Freed off the cooling water control valve and sketched its operation.

May 2020

Installed tool peg board with tools.

June 2020

Fitted new cartridge fuel oil filter to rear filter and renewed all gaskets.

Fitted new cartridge fuel oil filter to front filter and renewed all gaskets. Wrote fuel filter change procedure for the maintenance manual; made and supplied filter air vent key; renewed 5/16"BSF cover screws with washers.

A parts box with spare cartridges, gaskets, seals and 3/16"BSF shake-proof nuts was left on site.

June 2020

Tightened front cylinder fuel spill rail nut and checked for leaks; left modified open ended spill rail nut spanner on tool board; removed reduction gearbox filler tube and freed cap; refitted tube and tightened.

July 2020

Fitted new hexagon 5/16"BSW screws with ground ends to both cylinder rocker shafts as grub screws, to prevent rotation of shafts.

Sept 2020

Removed and sent for modification (Marine Engine Services Midlands) spill rail terminal pipe. The spill rail connections to injectors have been leaking small quantities of fuel for many years, and it is timely to replace the vulnerable bell end connections.

Oct 2020

Spill rail connections re-fitted. This required the removal of the injectors, allowing inspection and cleaning of them. The leaks have reduced markedly, but there remains some residual leakage elsewhere, yet to be identified.

Exhaustive efforts have been made to re-run cooling water pipework. The reduction gearbox cooling was by-passed when the engine was fitted in 2000, with the pipe run taken across the top of the gearbox so as to obstruct the dipstick and to provide a trip hazard; while the mild steel pipe from the mudbox has been corroding noticeably. It was desirable to replace the latter and run the cooling water through the reduction gearbox in the designed way, while recognising that this is not necessary operationally and indeed is now rarely done for these gearboxes.

After much work to re-run the pipework and provide the gearbox with suitable drainage, however, it emerged that the gearbox casing is cracked and not repairable – which is presumably why it was by-passed in the first place. The original configuration has been restored, therefore, and the gearbox will remain uncooled. The corroded pipe has, however, been replaced.