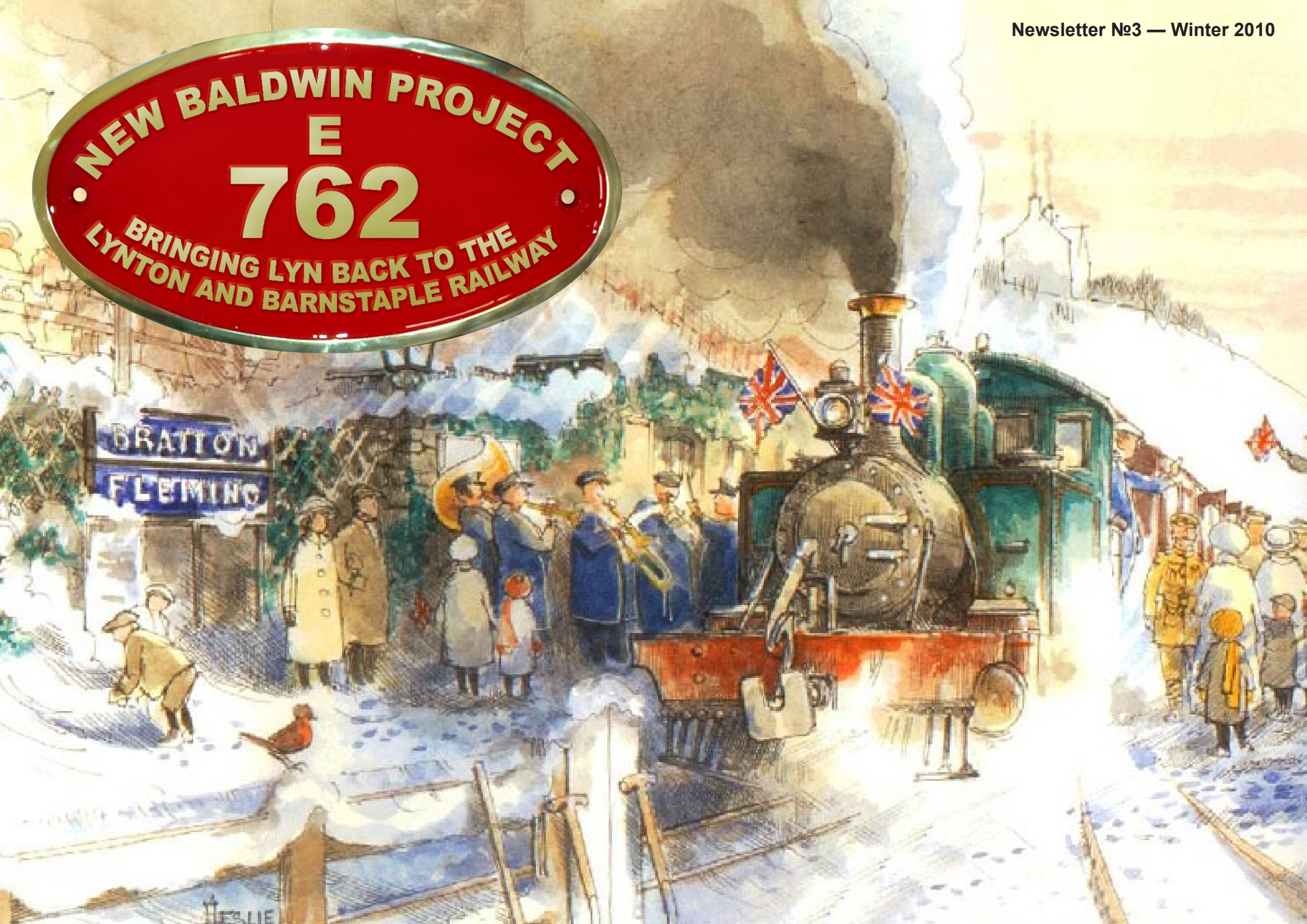


NEW BALDWIN PROJECT
E
762
BRINGING LYN BACK TO THE
LYNTON AND BARNSTAPLE RAILWAY



The 762 Club

Building No 762 Baldwin locomotive Lyn
for the Lynton & Barnstaple Railway



Introduction

Welcome to the Winter Newsletter No 3 of the 762 Club covering progress and activities of our collective mission to bring the new-build Baldwin 2-4-2T locomotive, Southern Railway No 762 Lyn to the legendary Lynton and Barnstaple Railway.

Highlights

1. Boiler Order placed with Bennett Boilers of Highbridge Somerset.
2. Design Requirement Specification has been finalised and approved by the Directors of the 762 Club and Alan Keef Ltd
3. Driving and pony wheels patterns ready for despatch for casting
4. The 762 Club re-structure almost complete

Progress to Date

1. Boiler Order Placed!

The contract for the construction of the new boiler was awarded on 13th November 2010, the seventy-fifth anniversary of the auction of the L&B's effects on 13th November 1935. On that melancholy day all the line's original locos were sold for scrap - in Lyn's case for a derisory £50



Photo taken at Bennetts Boiler works showing the partially completed boiler for No.778. The new boiler for 762 will be of similar welded construction with flanged throat and backhead.

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- and these unique machines were cruelly reduced to debris in just a few days. The boiler order represents one of the most significant milestones in the project build, the 762 Club was pleased to award the contract to Bennett Boilers of Highbridge, Somerset after putting tenders out to the principle UK manufacturers. Bennett Boilers have experience with Baldwins after they constructed the new boiler for the Greensands Trust 4-6-0 Baldwin No. 778 built in 1917 based at the Leighton Buzzard Railway.

Retained 762 Club design engineer Ian Gaylor has been extremely busy and has completed the major design task covering the thermal design of the boiler. This has required significant analysis to create an appropriate design which can not only evaporate the required quantity of water but also achieve the desired level of superheat. This task is almost complete as this article is written and drawings and specifications will have been issued to the Bennets for construction purposes by the end of the year.

The boiler will be of all welded construction and as we also need to make sure that the boiler can be manufactured and maintained economically there have been a large number of discussions with the Boiler Maker to ensure that the thermal design can be embodied in a pragmatic practical manner.

Key design features of the boiler include

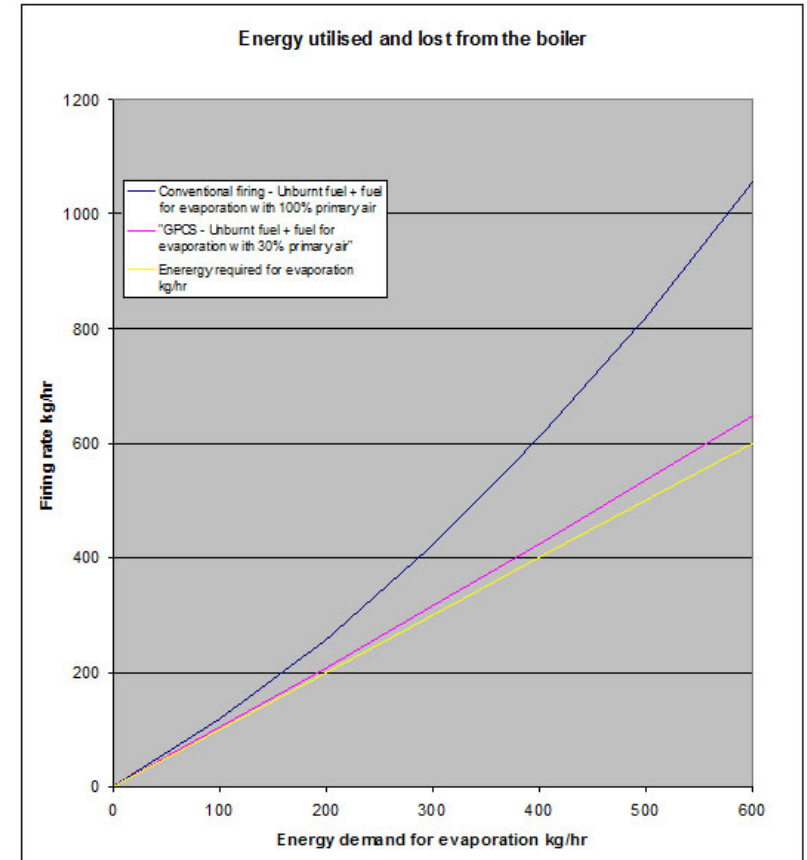
1. Increasing the pressure slightly from 180 to 250 psig to improve thermal efficiency and water consumption
2. A stainless steel firebox arch to aid full combustion of volatiles.
3. A stainless steel deflector plate and horizontally hinged mild steel fire door to optimise the admission of secondary air to aid combustion.

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4. Siting the feed water positions at the front near the top of the boiler barrel situated to each side to minimise deposition of scale in the tube bundle.
5. A superheater to provide significant fuel and water economy in operation. To avoid and lubrication problems superheated steam temperatures will be limited to a maximum of 400°C, 750°F, which was quite normal in Germany and was also achieved on the British Railways 9F programme.
6. 50mm thick ceramic fibre insulation to minimise thermal losses.
7. A steam pipe from the dome to the manifold to prevent surging of the boiler water from interrupting the steam supply to auxiliaries such as the injectors.
8. Application of the Porta boiler water treatment system, or similar, to increase boiler life by keeping it clean internally and minimising corrosion. This system also reduces fuel consumption by minimising waste heat losses which arise from the high number of blowdowns required with conventional boiler treatment systems.
9. As mentioned in the last newsletter, a Producer Gas Combustion System, PGCS, will also be incorporated as combustion rates will be too high for conventional firing without excessive unburnt fuel losses and spark throwing. The beneficial impact of using this system compared to conventional firing can be seen in the Fig. below where conventional firing rates (shown in blue) rise rapidly compared to PGCS rates (shown in pink) as evaporation demand increases.



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Comparison of conventional firing with GPCS

In addition clinker formation is avoided as the firebed burns at a dull red below the ash fusion temperature. Thus a PGCS fitted locomotive can work continuously without the deterioration in performance that occurs with conventional firing. This is achieved by entraining exhaust steam in the primary air stream below the grate to create the producer gas (Carbon Monoxide) which is burnt over the top of the fire in the secondary air.

1. The depth of the firebox has been increased to support the use of thick fires as required by the PGCS in order to produce the required carbon monoxide for combustion above the firebed. This will necessitate the use of an alternative swing link pivot arrangement for the rear pony truck, similar to that used on both the Talylyn and Perrygrove Railways, as the ashpan will occupy the space required for the original 'A' frame.
2. Plate thicknesses have been adjusted to match modern design and construction practice and are generally slightly thicker than the original and although welded construction saves weight compared to riveting by avoiding lap joints and heavy foundation rings the final weight of the boiler will be 15-20% greater than the original

Other Design Work

Since the last newsletter there has been progress in a number of areas on the design front. Firstly, the Design Requirement Specification has been finalised and approved by the Directors of the 762 Club and Alan Keef Ltd and we are now anticipating formal approval by the Railway shortly. This is an important milestone in the design process as it defines the key design parameters and operating requirements and will avoid expensive alterations later on in the design or manufacturing process.

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At the start of the process it was easy to imagine that the requirements would be readily defined but as the specification developed it soon became apparent that not only were there gaps in the engineering information required but some serious thought had to be given to the commercial operating environment of the loco to ensure that we anticipated the future needs!

Secondly, the success of the recent Gala when Lyd visited the Railway underlined the benefits of ensuring future inter-operability with the Welsh Highland Railway and we much appreciated the very considerable assistance received from their General Manager, Paul Lewin, and Chief Engineer, John Whalley, who provided access to Engineering Standards for Trackwork, Loading Gauge, Wheel Profiles and Braking Systems. This has culminated in an agreed wheel profile and axle loading that will enable the free interchange of locomotives in the future so that we can look forward to Lyd and Lyn working together for special occasions both in North Devon and North Wales.



Photo showing the sad remains of Lyn shortly after the sale in 1935. It will not be long before the 762 Club has recreated the items shown in the photo if the current level of support is maintained.

Finance

Membership of the Club has now reached an amazing 130 representing 37% of the total required. The L&B Autumn gala confirmed that there are many prospective members waiting to see the 762 Club actually start to commit to cut metal and place the order for the purchase of a significant part of the locomotive. That commitment has finally been demonstrated!

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Building a Steam locomotive is incredibly expensive and every penny really does count and we look forward to additional members joining the Club. If you know additional prospective members please contact them and help us place further orders for components.

Early members will recall our correspondence about a proposed reorganisation of the 762 Club to a charity to facilitate onward claiming of gift aid. This is now virtually complete and we will forward membership certificates shortly. Additional memberships, where applicable, are referenced on the certificate where applicable.

Incentives due will be reviewed early in the New Year, members will be contacted as required and if the incentive is not required please let us know so that this resource can be invested back into the construction of the locomotive.

Sponsor a part

The Sponsor a part scheme has hugely successful raising over £6,500 additional income to build the Locomotive. This provides the opportunity to contribute to the Project without committing to membership of the Club.

To donate simply click the link on the 762 Club website www.762club.com, or send cheque made payable to The 762 Club to Jon Pain, 26 Oaklands, Bideford, N.Devon EX39 3HW.

Where requested, donors can receive a choice of certificate (see enclosed images) and their name added to the website acknowledging their contribution.

As we are running up to Christmas, why not sponsor a part or purchase a share to give as a Christmas present.

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To date a significant number of parts have been taken up via the sponsorship route.

As the individual items are manufactured or procured these will be communicated via the website so donors can take pride in seeing 'their item' being produced.

With Christmas imminently approaching what better gift to give for the person who has everything?

Additional components are added regularly so keep an eye out for any items you might wish to sponsor.



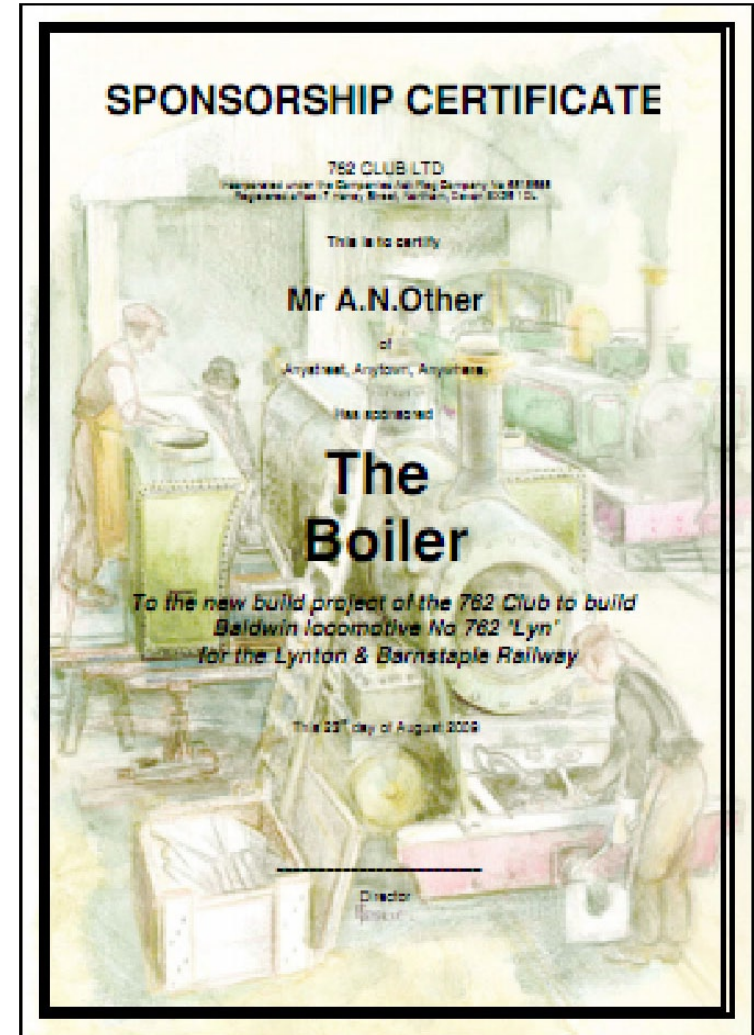
Steam valve



Injector



Fusible plug



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Surviving Worldwide Baldwins

The challenges ahead for the 762 Club look less daunting when we look at what a group in New Zealand has been undertaking. The Baldwin Steam Organisation was established to recover and restore two Baldwin WB class locomotives, WB 292 and WB 299. Locomotive 292 entered service in January 1899 and 299 slightly later at East Town, Wanganui, one of 7 WB class tanks that replaced Double-Fairlies from the mainline roster. Grades were as steep as 1 in 35, curves down to 5 chain radius, both of which had been taken into account in the loco design specification. 292 would have hauled the New Plymouth mail train on occasion, along with mixed and goods trains.

Typical coal consumption was 40 - 45 lb per mile, requiring 18 - 22 cwt coal to work the 55 miles west to Hawera or east to Palmerston North. Bunker capacity of 25 cwt (1¼ ton) was an issue, leaving little room to spare.

When the locomotives were withdrawn from use in the 1950's steam locomotives on the West Coast were not an economical proposition to scrap. Hence they were perfect for use as river protection - a good size and able to be towed to a site where the line was under threat from river erosion. You will see from the following extract the little regard there was for the locos future!

Letter from E.H. Kean, Acting Chief Stationmaster, Westport to Resident Engineer, Greymouth.

“Yard Accommodation : Westport.”

“The two condemned locomotives, which, I understand, are to be used for river protection work, are not only taking up yard space, but as they are now in a rusty and dilapidated condition, present an unfavorable impression on passengers and other persons who have business at this station.”

“If you have their disposal in view, it would be appreciated if the work could be carried out as soon as possible.”

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Hence in 1958 WB 292 was towed north to Seddonville, 30 miles north of Westport. WB 299 followed in January 1960. Track was unbolted and slewed, the locos jacked until they toppled into position in the river bed at the relevant position.

The Salvage Operation

The dumping of WB 292 and WB 299 had been reported in the New Zealand Railway Observer early in 1960. Railway tours of the West Coast paused at the site for photographs. Railway enthusiasts continued to visit the wrecks over the years. The railway between Seddonville and Mokihinui Mine was closed in 1974. Vegetation reclaimed the formation and the locomotives. Rust and vandals took their toll.



Photo showing one of the locomotives already in position and the second at the point of being rolled down into the river bed.

Salvage planning

By 1987 the railway formation was completely overgrown, the only way in was to wade up the creek bed. The locomotives were a sorry sight, WB 292 in particular was half-buried in sand, cab and tank plates rusting right through. The railway line and bridges had been removed and the dump site of WB 292 and WB 299 was over a mile from the nearest road.

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Various schemes were considered, including:

- Placing the locos on a sled and towing with a bulldozer;
- Constructing tracksets and moving the locos on their own wheels, dismantling track behind them and reconstructing ahead.
- Forming a road to take cranes and trucks alongside the locos

It appeared feasible to clear a temporary road up the creek bed and drive a 30-ton crane, truck and low loader trailers directly to the site. Hence R.H. Pearson of Westport was contracted to salvage 292 and 299 from Seddonville on the West Coast. A hydraulic excavator worked steadily for a day forming a road up the bed of Coal Creek. On 28 June 1989 a 30 ton road-crane, two low-loaders, an excavator and a six-wheel truck were driven up the creek bed.



Lifting WB 299 clear of her resting place of thirty years. H. McCracken.

WB 299 was the first to be tackled, lying higher than 292, and posing fewer problems. Boulders were removed from underneath the loco, the back end lifted and swung towards the stream bed.

In a few moments it was turned upright, and readied for lifting. WB 299 was dead-lifted, the low-loader backed underneath, the loco then gently lowered onto the trailer deck. It was well into the night before 299 was safely parked up at a neighboring farm, safe at last.



Photo showing the poor state of locomotive WB299 taken in 1989 – H. McCracken. A mile from the nearest road.

In the next newsletter we will cover the restoration work completed by the group to date on these locomotives, after the heroic recovery. All photos and information credited to the www.baldwin-steam.org.nz

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How can you help?

You can help by spreading the word, identifying other interested prospective members, supported and donors. You might be interested in buying additional memberships and we encourage you to do this.

In 2010 we witnessed a Manning, Wardle back on the L&B in the guise of 'Lyd'. The sight and sound of Lyn permanently based on the L&B is firmly in progress and with additional support will be a reality in 2013.

Do you have any Baldwin photographs, anecdotes or articles? We would be happy to upload these to the 762Club website, already we have had Baldwin enthusiasts contact us and we will develop the 762 Club website accordingly.

Finally, our thanks goes to all our members and supporters for their ongoing commitment and dedication to this unique project. We wish you all a very merry Christmas and a Prosperous New Year!



Photo showing Lyd at Woody Bay on the recent gala with the completed cab for Lyn on the station forecourt.

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