

STOCKLAND BRISTOL
St Mary Magdalene
0281

BELL REHANGING & BELL FRAME REPAIRS

QUOTATIONS RECEIVED FROM:

Matthew Higby & Company Ltd
Nicholson Engineering
John Taylor & Co Ltd

Matthew Higby & Company Ltd

MATTHEW HIGBY & COMPANY LTD

BELL FOUNDERS - BELL HANGERS – SERVICE ENGINEERS

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The Church of St Mary Magdalen, Stockland Bristol. 21st January 2025.
A report on the bell installation with proposals and recommendations for restoration.

The Tower



The tower from the south.

The Tower

This attractive western tower, rebuilt in 1865, is built of coursed and squared blue lias with rubble infill and dressings of Bath Stone.

The ground floor chamber is open to the church on the east side, and has a large west door with stained glass window above. This chamber measures 3m x 3.125m in plan, and 7.3 meters in height.

A stone spiral stairway in the south/east corner of the tower (accessed externally) gives access to the upper floors of the tower and the tower roof.

The first-floor ringing chamber measures just over 3.5 meters square in plan and 4.8 meters in height. There are windows to the north, south and west. A large mechanical clock is located against the east wall of this chamber, with a weight chute in the north/east corner.

The second-floor belfry measures just under 3.7m square in plan and 3.9m in height. This chamber has large sound exit windows on each side, which were originally protected with netting. This has long-since disintegrated, allowing birds free access to this area, which is now filled with nesting materials and excrement. This chamber houses a ringing peal of six bells, hung in a timber bellframe.

Whilst we noted minimal electric lighting and power within the tower, none appeared to work. Severe cracking in the stairway and tower walls was also noted, with the most notable crack rising through the first-floor chamber to the belfry above. There appear to be trap-doors in all of the floors, and there are large beams below the tower roof, which could be used for lifting purposes. There is additional scope for the use of temporary lifting beams.

The Bells

The outline details of the bells are as follows:

Bell	Weight <i>Cwt-qtr-lb</i>	Note	Diameter <i>Inches</i>	Date Cast	Founder	Canon Type	Turning
1	3-3-15	F#	25.75"	1960	Mears & Stainbank	Flat top	Unturned
2	5 cwt	E	27.75"	1866	John Warner & Sons	Traditional	Unturned
3	6 cwt	D	28.25"	1903	John Warner & Sons	Traditional	Unturned
4	7 cwt	C#	31.00"	1866	John Warner & Sons	Traditional	Unturned
5	7 cwt	B	33.00"	1827	John Kingston	Traditional	Unturned
6	11 cwt	A	37.00"	1903	John Warner & Sons	Doncaster head	Unturned

Bell 1 was cast with a flat top and is hung using bolts passing through holes drilled in its head. The remaining bells have canons, and are supported by wrought iron strapwork. The canons of bell 6 are of a simplified design often referred to as a 'Doncaster Head'.

Bells 1,3 and 6 have independent crown staples bolted through central holes. The remaining bells have cast-in crown staples which are visibly corroding.

As the name describes, a "cast-in" crown staple is a loop made of wrought iron, from which the clapper is hung. This would have been cast into place as part of the bell manufacture and being made of a ferrous material, the staple corrodes, delaminates could potentially expand to up to 7 times its original size, building up huge pressure on the surrounding bell metal. Corroded cast in crown staples are the most common cause of cracks in bells, and any remains of these should be carefully extracted as part of any planned restoration.



A typical crack caused by corroded cast-in crown staple.
(Sparkford, Somerset – Photo Christopher J N Dalton).

The bells are moderately indented where the clappers strike. From what can be seen and heard as they hang in the tower, the bells appear to be in sound condition. In general, the bells are coated with corrosion product, dirt and bird excrement.

Tone and Tuning

An analysis of the 5 main partial tones of the bells has produced the following frequencies (which measured in Hertz).

<u>Bell</u>	<u>Detail</u>	<u>Hum</u>	<u>Prime</u>	<u>Tierce</u>	<u>Quint</u>	<u>Nominal</u>
1	Ideal	371	743	891	1114	1485
	Is	369	741	883	1171	1478
	Error	-2	-2	-8	57	-7
2	Ideal	331	662	794	992	1323
	Is	363	571	793	1022	1330
	Error	32	-91	-1	30	7
3	Ideal	295	589	707	884	1179
	Is	323	553	713	980	1182
	Error	28	-36	6	96	3
4	Ideal	278	556	668	834	1113
	Is	297	485	655	850	1101
	Error	19	-71	-13	16	-12
5	Ideal	248	496	595	743	991
	Is	271	434	583	765	984
	Error	23	-62	-12	22	-7
6	Ideal	221	442	530	662	883
	Is	237	418	529	707	883
	Error	16	-24	-1	45	Datum

The errors (shown in red) are compared to harmonically tuned bells, which has been the modern standard since the late 1920's.

The sound of a bell is made up numerous different overtones, but the 5 main partial tones have the following names:

Nominal - The overtone tone to which the other bells most of often musically relate.

Prime - (sometimes referred to as the "Fundamental tone") - Ideally an octave below the nominal.

Hum - Ideally an octave below the prime (i.e. 2 octaves below the nominal).

Tierce - A minor third (3 semitones) above the prime.

Quint - An approximate fifth (7 semitones) above the prime.

The design of the profile, shape and thickness of a bell, directly effects the arrangement of these 5 main partial tones. If they are drastically mis-aligned, the bell will sound unpleasant. If they are correctly aligned, the bell will sound sweet and harmonious (also referred to as being harmonically or "Simpson" tuned). This method of tuning was discovered by the Hemony Brothers of Amsterdam in the mid-17th Century, and was adopted as standard practice in the UK, during the early 20th Century, following much research by Canon A B Simpson.

The sound of Stockland Bristol bells is mixed. The larger five bells have distinctly old-style harmonics, with sharp hum partials and flat prime partials in comparison to the nominal partials. In contrast, the 1960 addition is tuned with true harmonics, which gives it a bright and piercing tone. There is little doubt that the individual tone of the five larger bells could be significantly improved with some careful retuning work, and this would

make them a better match to the harmonically tuned treble bell. It might be worth retuning this bell also, to flatten its quint partial, which would make its tone more mellow.

Bell Fittings

Headstocks

The headstock of bell 1 is of cast iron, and appears to be in good condition, apart from shown signs of surface corrosion. The remaining bells are hung on hardwood headstocks, which appear to date from around 1865. Those fitted to bells 2,3 and 5 have strap type gudgeons secured with stock hoops. The headstocks of bells 4 and 6 have been fitted with more modern plate gudgeons.

The 5 larger bells are supported by iron straps and dogs, which pass through the canons, around the headstocks and are secured with nuts on top of each headstock. The timber headstocks are becoming decayed and the ironwork is beginning to sink into the timberwork. It appears that the gudgeon plates are no longer accurately aligned as a result.

Main Bearings

Bells 1,4 and 6 are fitted with ball bearings which are housed in cast-iron housings, secured to the heads of the bellframe via iron bed-plates. The remaining bells have bronze plain bearings, let into the heads of the bellframe and covered with crude timber dust-covers.

Wheels

These are made to traditional designs, using hardwood with outer shrouds secured with iron nails or screws. That of bell 1 is in good condition but the larger 5 are in very poor order. The nails which secure the outer shroudings, are heavily corroded and cracking the surrounding timber. Several of the shrouds have fallen off as a result.

The wheel of bell 1 is strengthened by steel angle irons.

The remaining wheels are braced by round iron wheel stays, from the timber headstocks.

Clapper Assemblies

The clappers are made of traditional wrought iron. That of bell 1 has an eye type top end and hangs from an independent crown staple. The remaining clappers have spatula type top ends and are secured with a U stap and bolts. Those in bells 2,4 and 5 hang from the original cast-in crown staples, the remainder hang from independent crown staples, bolted through central holes. The clappers in the larger bells are worn and the point of strike, and at their pivots.

Roller Boxes

The rollers are formed of timber sheaves mounted on plain or ball bearings. Being made of timber, the cross grain is softer than the end grain, and the pulleys have worn unevenly.

Stays, Sliders & Runner Gear

The stay of bell 1 is of straight type and the remainder are of curved variety. These engage with curved ash sliders. Generally, these are showing signs of age and wear and attack by wood boring insect.

Bell Ropes and Rope Ways etc

The ropes are of flax/hemp with woollen sallies. They are in poor condition. A chiming rope is attached to the main rope of bell 1, extending it to the ground floor.

The rope bosses are made of turned hardwood.

Clock Hammers

There are drop-type clock hammers on bells 2, 5 and 6. These are driven by an array of levers, cranks and wires, from the clock in the ringing chamber below.

The pull-off mechanism for the hammer on bell 5, appears to have broken.

Bellframe

The bellframe is made of oak and appears to date from 1865. It houses the six bells upon one level with bells 1 and 6 swing in a north to south direction on the east side of the belfry, with the remainder swinging east to west on the west side of the belfry. The pit of bell 1 was clearly wider than ideal, and has been narrowed by the addition of steel station type framesides, secured to the head and foot sills of the bellframe.

The foundation beams which support this frame are sandwiched between the ringing chamber ceiling and the belfry floor, so inspection of these is currently impossible. It appears that the beam ends rest on concrete corbels, possibly added in the restoration of 1960. The bells are currently unringable due to concerns for the safety of the tower structure, so I was unable to assess the frame for movement whilst the bells were ringing. The central frameside appears to be moveable towards the south side of the belfry, as slots have been cut in the head and foot sills. These have been filled with removeable battons, holding the frameside in position.

There are no iron corner brackets or vertical tie-rods, which are usually associated with timber frames such as this.

Conclusions and Recommendations

It is now 65 years since any significant work was undertaken to the bellframe and fittings, and the majority of the fittings are approaching 160 years of age.

Regular ringing stopped in the late 1990's due to fears that cracks in the tower were compromising the safety of the structure as a whole. With no maintenance work being undertaken to the bell fittings in the intervening period, the bell wheels have disintegrated.

I am pleased to hear that a comprehensive restoration of the tower is being considered, which includes the repair of the tower structure, and the rehanging of the bells.

I therefore recommend that the following works are considered:

- Firstly, I strongly recommend that the bells and their fittings are removed from the tower before any building work is undertaken.
- The condition of the foundation beams needs to be ascertained, and this can only be done by the removal of the ringing chamber ceiling, and/or the belfry floor. If these are found to be in good condition, then I suggest that the bellframe is strengthened by the addition of corner brackets and vertical steel tie-rods.
- Bells 2, 4 and 5 should be conserved, by having their cast in crown staples carefully extracted.
- I recommend that the bells are tuned together to enhance their individual tone, together with their musicality as a peal.
- I suggest that the fittings of bell 1 are overhauled and/or replaced as required.
- The remaining bells should be rehung with all new fittings, to include steel hollow-box section headstocks and modern ball bearings.
- The timber areas of the bellframe should be cleaned and treated with wood preserver. All ironwork should be cleaned down and treated with rust inhibitor, then primed and then painted with exterior grade machinery enamel.
- The bells should be rehung in the frame and fully adjusted to give optimum performance from minimal effort.

- The clock hammers should be adjusted to suit the new arrangement, and new pull-off mechanisms should be provided, to pull the hammers clear of the bells whilst ringing takes place.

With these thoughts in mind, I have produced the attached estimates.

Report written and compiled by Matthew Higby

Date 21st January 2025.

Inspection date 21st January 2025.

Information included in this report has been taken from:

Our own site inspection.

Dove's Guide (CCCBR).

Church Bells of Somerset (George W Massey – 2011).



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Church of St Mary, Stockland Bristol.

An estimate to rehang the bells with new or refurbished fittings.

Revised estimate date 21st January 2025.

Pre-commencement Meeting

Send a representative of our company to the church, to meet with the architect and parish representatives, to discuss the project in fine detail and to establish timescales and a sequence of working (particularly if other contractors are involved).

Health, Safety & Insurance

Provide a copy of our standard Health and Safety Policy with Risk Assessments and Method Statements for site working.

Provide proof of insurance cover for every aspect of our work. This includes Public, Products and Employers Liability Cover, together with cover for the bells whilst they are in our care, including whilst in transit).

Provide all barriers and signage to warn any visitors to the church that works are taking place.

Dismantling

Send three men to the church with all necessary tools and tackle.

Provide hardwood plywood sheets and plastic sheeting as required, to keep dust to a minimum and to protect any vulnerable areas including the church floors.

Open up all trap ways down through the tower floors.

Assemble temporary lifting beams above the bells as required.

Dismantle the bells and fittings, lowering them to the floor through existing trap ways in the tower floors.

Carefully move the bells to the churchyard gate, where they can be loaded onto our vehicle and transported to our works.

Dispose of all unwanted fittings and framework parts, close the trap-ways and leave the church and churchyard in a clean and tidy manner.

The Bells

With the greatest of care remove the canons from bells 2-6.

Carefully extract all remains of the cast-in crown staples. Clean the bells and inspect them for cracks. Liaise with the PCC if any unforeseen repairs are found to be required.

Cast hard resin pads on the crowns of the largest 5 bells, onto which the new headstocks can be mounted.

Machine the heads of the bells/resin pad seatings flat.

Accurately measure the main and partial frequencies of each individual bell, and produce a tuning plan for the customers approval. Once all is agreed, adjust the main and partial notes under our tuning machine, to enhance the individual tone of each bell, together with the musicality of the peal as a whole.

The Ringing Fittings

Provide the following ringing fittings:

- For the largest five bells, provide fabricated steel, hollow box section, conventional type headstocks with turned steel gudgeons machined in true alignment, wheel cleats and clapper adjustment screws for the setting and subsequent maintenance of even striking.

Please note that each headstock would be designed and made bespoke to suit each individual bell, to ensure that the swing time of each bell is brought into a graded alignment from treble through to tenor.

Each of the largest five bells would also be provided with the following:

- Independent clapper staple fitted with a high tensile steel hinge pin.

- Clapper of spheroidal graphite (ductile) cast iron, properly proportioned and machined along its length to give optimum swing characteristics and to remove any impurities which seem to migrate to the outer edge of the casting. Fit each clapper with a resiliently mounted machined Tufnol bush at the point of swing and grease applicator.
- A pair of highest quality double-row, self-aligning ball bearings, housed in cast-iron housings and secured to the gudgeons with tapered locking sleeves. Each housing to be charged with the correct grade and amount of lubricant.
- Traditional bell wheel of hardwood, with shrouds secured by stainless steel screws. Provide galvanized steel braces (or wheel irons) to strengthen the wheels and keep them straight.
- Heavy steel bed-plates to be mounted true and level on the heads of the bellframe in the correct positions, onto which the bearings would be securely bolted.
- Roller(s) of cast nylon, running on twin sealed for life ball races, housed in a hardwood box.
- Stay and slider of finest air-dried ash with hardwood runner board and adjustable stop blocks.
- Slider pivot bracket of steel.
- Bell Rope, consisting of a flax bottom end, neatly spliced into a pre-stretched polyester top end with a sally of pure wool (choice of colours).

Turn each bell to present an unworn face of the soundbow to the blows of the clapper. Voice each bell to give the best possible strike point from a tonal point of view. Balance each bell and drill their heads as required for the bell support bolts. Supply all required support bolts, with washers, tapered washers, isolation washers, nuts and lock nuts.

The Bell Frame

Clean down the timberwork and fit steel corner brackets and vertical tie-bars. Treat all woodwork with a high-quality wood preservative. Scrape and paint all metalwork, treat with rust inhibitor and paint with two coats of exterior grade machinery enamel.

Painting and Metal Treatment

All iron and steelwork to be thoroughly cleaned and descaled.

Headstocks to be shot-blast cleaned and powder coated to give long-lasting protection.

Steelwork to be hot zinc sprayed (**BS EN 22063**) as appropriate.

Woodscrews to be of stainless steel.

Some smaller steel fabrications to be painted with our 3-coat paint system.

Timber to be treated with high quality wood preserver.

Installation

Provide hardwood plywood sheets and plastic sheeting as required, to keep dust to a minimum and to protect any vulnerable areas including the church floors.

Open up all trap ways down through the tower floors.

Transport the bells and their fittings to the site, carefully move them into the church.

Hoist the bells and fittings into the belfry and assemble them in bellframe.

Fit the new bell ropes and adjust for both height and length.

Set each bell for the correct depth of set at both handstroke and backstroke.

Adjust each bell for even clapping using our laser activated timing meter within 5 milliseconds of true, checking that all swing and clapping times are brought into a graded alignment from treble through to tenor. Make any final adjustments if required.

Reposition the existing clock hammers to suit the revised arrangements, and provide new drive wires and pull-off mechanism to suit the revised arrangement.

Remove all of our tools and lifting beams/gear from the tower, close the trap-ways and leave the church and churchyard in a clean and tidy manner.

Commissioning

Arrange for a test ringing of the bells with the local bellringers and following any final adjustments, leave the restored ring all ready for use.

After Care

Revisit the church after 12 months and carry out a full service of the bell installation. Discuss and make any adjustments that may be required.

Following this, we offer a regular servicing and maintenance contract on an annual or bi-annual basis, at a discounted rate.

We undertake to carry out the whole of the work specified above, including the provision of equipment, labour, draughtsmanship, expenses, carriage and third-party insurance in connection therewith, for the sum of: £46,635.00 + VAT*.

*It may be possible to reclaim the VAT paid in the form of a grant, from www.lpwscheme.org.uk

Excluded from this estimate:

- The removal and replacement of the existing belfry ceiling and/or belfry floor to allow the foundation beams of the bellframe to be inspected.
- Any repairs to the foundation beams which may be found to be required.
- Any electrical work, including the provision of lighting and power sockets.
- Any clockmakers work, outside that specified in the above estimate.



Matthew Higby & Company Ltd – General Estimate Notes and Terms of Business.

General Business Etiquette

We strive to give honest and factual advice from the outset and aim to be as flexible and transparent at every stage of our business transactions. At no point will we ever attempt to sell you something that you don't need and try to make ourselves readily available to discuss answer any questions which you may have.

Acceptance of Quotations

Due to the current volatile nature of the metal markets, these quotations are based upon current costs but can be held firm if accepted in writing within three months of the estimate date. Revised estimates can be supplied on request.

Standard Terms of Payment

We try to be as flexible as possible when it comes to payments and payment regimes. We offer a range of options which would be agreed by both parties in advance. A 100% refundable deposit with order would hold prices for up to 1 year whilst fundraising continues, or faculties are sought. We offer a discount for full payment in advance. Our most regular payment regimes work out as follows:

For orders where the total value is less than £20,000 (ex VAT):

50% when work begins.

The balance, less any deductions due, on completion.

For orders where the value exceeds £20,000 (ex VAT):

These quotations are based upon the following terms of payment:

One-third payable when work starts.

One-third at an agreed midway point.

The balance, less any deductions, within 14 days of our final invoice.

Lead times

For larger projects we currently have approximately a 6-9 lead time from the point of order, to being in a position to start work. This does alter on a regular basis, so please do check the current status. Our site working slots are then allocated on a first come, first served basis, after both faculty permission and funding are in place. Small projects can often be slotted in alongside other larger projects, with significantly shorter lead-times.

Grant Aid

If the project is lucky enough to secure grant aid, please note that the customer is 100% liable for the full amount to be paid within the terms of our invoice (our invoice terms are generally payment within 14 days unless agreed in advance). We have past experience of grant making bodies and trusts taking over 12 months to pay. If Trusts and Grant Making Bodies prefer to pay the contractor direct, the customer is still liable for the full amount to be paid within the terms as detailed on the invoice and we will fully reimburse the customer when the funds have been received.

Post-Conservation Reports

Grant-Making Bodies often require a post-conservation report before paying their promised grant. Such a report outlines the work that has been undertaken in fine detail, including specifications and details of materials used and techniques. Colour photographs of the work being undertaken are also required. It has become increasingly apparent that the contractor is expected to provide this report. If you need such a report, please inform us before we start work, to enable us to take the required photographs etc. We charge £65 + VAT per hour to produce post-conservation reports. These usually take between 3 and 5 hours to produce.

Faculty Permission etc

Most of the work to be undertaken to bell installations in churches requires a faculty to be granted by either the Archdeacon (for smaller works) or by the Chancellor of the Diocese. We are not able to commence any work until we either receive a copy of such documentation or written notification that it has been received.

Insurance

We carry full insurance cover for all of our products and our site work. Please ask if you require details.

Volunteer 'DIY' labourers

We are aware that some of our competitors offer sizeable savings for local volunteers assisting with site work. Having consulted 4 separate insurance firms about this matter, we have been assured that insurance cover for those assisting with sitework is a very grey area. As things currently stand, our insurers refuse to provide insurance cover for what they consider to be 'untrained operatives' assisting with physically demanding works, which often involve working at height, and lifting heavy objects. If you can provide insurance cover for volunteer labourers, through the church's own insurance firm (at no cost to our firm) then we would be happy to look at this proposal again.

Working with Clock Makers/Contactors.

Our projects often include interactions with clock makers. Where clock hammers need to be fitted to new bell frames, we invite the clock makers concerned to undertake the fitting works whilst the installation is assembled in our works. We make no additional charge for this.

Drawings and Photographs

All drawings, plans and photographs are the property of Matthew Higby & Company Limited and are subject to copyright. If drawings and detailed specifications are required for faculty applications, these can only be supplied following the receipt of an official order (obviously subject to faculty). If this is not possible, we would require a deposit payment equal to the cost of the time spent producing the drawings, which would be refunded from our final invoice on completion of the work.

VAT

If the building in which the bells are to be installed, is a listed place of worship, the VAT paid should be reclaimable via the Listed Places of Worship Grant Scheme. See <https://listed-places-of-worship-grant.dcms.gov.uk/> for more information. **PLEASE NOTE – we have received confirmation from the Listed Places of Worship Grant Scheme, that PCC's DO NOT require receipted invoices to enable claims to be processed. An unreceipted invoice showing the VAT number is perfectly adequate. WARNING – This scheme is not confirmed to run beyond the end of March 2025.**

Guarantees

All bell frames and most new bell fittings are guaranteed for the ten years. Stays and sliders, which are designed to break when subjected to excessive force, are not guaranteed. Frictional parts such as clapper bushes are only guaranteed through faulty materials or workmanship, and do not include normal wear and tear. Bell ropes are guaranteed for 12 months from the point of sale, not the point of fitting.

Delivery Dates

We endeavour to give realistic and firm delivery dates for all of our projects. However, with the best will in the world, these sometimes have to be amended depending on obtaining parts from suppliers. We endeavour to give constant updates if problems occur. Do not arrange dedication ceremonies etc, until we have a confirmed date of installation.

Method Statements, Risk Assessments, Health and Safety

We have a full company health and safety policy, copies of which can be made available on request. This policy carries general method statements and risk assessments which cover the majority of our work. Bespoke method statements and risk assessments are available at additional cost.

Visiting our Works

We invite our customers to visit our works whilst we are working on their projects. We often entertain large parties and are pleased to provide descriptive talks and guided tours of our workshops, Tours often includes an illustrated talk, with demonstrations of various aspects of our work. Bellringers are welcome to use our small demonstrator peal or in-house dumbbell to demonstrate their own skills. Some customers choose to use their visit as a fund-raising event or to publicise their project. Refreshments can be provided by the customer, or by us by prior arrangement.

Parking/Congestion/Clean Air Zone/ULEZ Charges

Our estimates include travel expenses but exclude Parking and Congestion/ULEZ Charges. These will be added (at cost) to our final invoice.

Photographs.



The ground floor chamber.



The first-floor ringing chamber showing the clock case and weight chute.



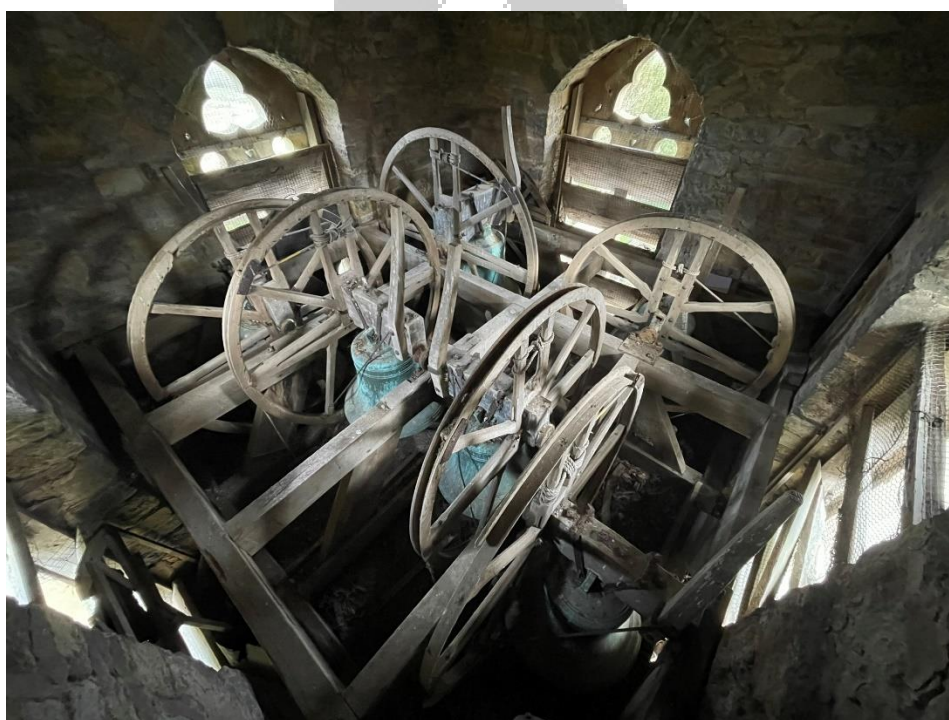
Looking up at the second-floor.



Bell 1 and its fittings.



The clapper of bell 2.



A general view of the belfry, showing bellframe and disintegrating bell wheels.

Additional Information from Matthew Higby & Company:

Dear Marcus, Many thanks for your email.

I will answer your questions in turn....

- Has any sound insulation been allowed for? If not, how much would it be to include it?

Further to our chat the other day, when we discussed the removal and replacement of the ringing chamber ceiling being undertaken by the main building contractor responsible for this project, I assumed that any insulation (which I assume would be packed into the void between the ringing chamber ceiling and the belfry floor) would have to be installed during that operation, and presumably by the same building contractor. I can't really see any other practical way that this would work.

- Please could you advise on a cost to upgrade bell frame plates and rods to stainless steel – Grade 316.

I doubt that there would be a huge difference in cost to be honest. It would probably make more sense to use galvanized steel for the corner brackets and 316 for the required bolts/coach screws, as getting large section steel in 316 is difficult.

- Would you test the bell-frame movement before removing the bells?

Whilst this seems a sensible plan, to enable the bells to be swung, a significant amount of nesting materials would need to be removed from the belfry, to give room for the bells to swing. The bell wheels would need to be temporarily repaired (mostly screwing the wheel shrouds back on), and some different bell ropes would need to be fitted (the old ones are significantly rotten). I guess this approach would also enable the various cracks in the walls to be monitored for movement at the same. I would be happy to do this work and gather some experienced ringers to carry out a test ring if required - let me know what you think.

- Please could you clarify why you would not modify Bell No1. I know we asked you not to, but others have suggested we should modify it to change the centre of gravity. Please could you comment briefly on this and provide a cost for replacement.

When Bell 1 was added to the ring in 1960, Mears & Stainbank chose to hang the new bell using a modern hanging method. As a result, it features a relatively small wheel and a shorter hanging radius compared to the original five bells. It seems likely that Mears assumed the fittings of the older bells would eventually be updated in a similar manner in the near future.

Currently, the hanging radius and wheel diameter of the treble bell are nearly ideal, at least by my standards (though I acknowledge that other bellhangers may have differing opinions). While the hanging radius could theoretically be adjusted by modifying the size of the hardwood pad between the bell and its headstock, there is minimal room for such changes. The bell fits very tightly in its pit, with the clapper flight clearing the frame end by only about half an inch, according to my measurements.

Given these considerations, I believe it would be best to leave the treble bell as it is and instead rehang the larger bells using a similar hanging method. This approach would ensure the swing and clappering times across the ring are perfectly synchronized.

- We note your comment about volunteering savings and insurance challenges. If we can get PCC insurance can you give any indication of the level of saving that might be possible?

This is a tricky situation! Our insurers view "untrained operatives" working at height or lifting heavy objects as a significant risk and therefore exclude these activities from our employer's liability insurance. While I'm aware that

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Chantrey Conservation Architects Ltd

some firms offer substantial discounts for DIY helpers assisting their bellhangers, our insurance advisors have made it clear that coverage in such cases is highly uncertain and strongly recommend we avoid this practice. Interestingly, our competitors seem to disregard the same advice!

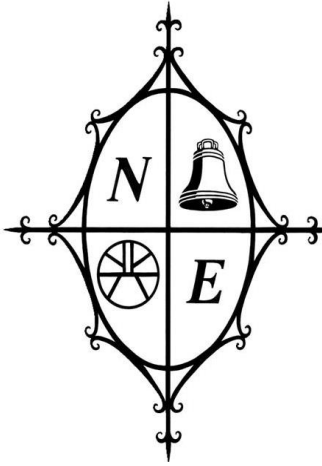
I believe we need to determine exactly what tasks the locals are capable of handling. For instance, if they could clear out the entire tower and assist with general fetching and carrying, I could calculate an appropriate allowance. Let me know your thoughts!

If you have any further questions, please let me know.

With my very best wishes,

Matthew

Nicholson Engineering



NICHOLSON ENGINEERING

Works: Church Bell Works, St.Swithin's Road, Bridport, Dorset. DT6 5DW

Telephone (01308) 422264

Facsimile: (01308) 427172

Correspondence: Walton, Woodmead Road, Lyme Regis, Dorset. DT7 3AB

Telephone (01297) 445865

Email: bells@nicholsonbellhangers.com

Website: www.nicholsonbellhangers.com

Church of St.Mary Magdalene Stockland Bristol

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Customer Charter

The majority of our work is for churches worldwide, other work including clock chimes in secular buildings. We are ourselves active members of our own churches and have between us served variously as Churchwarden, Ringing Master, Organist, Fabric Officer and PCC member. As such we know, understand and appreciate the unique nature of any work to churches and the often conflicting requirements which exist when working on a historic building which is also a living place of worship. We also appreciate the essential need to undertake any work to the very highest standard, both in offering only the very best to the Glory of God and recognising that our work is likely to have to stand the test of time over the decades and centuries to come. It is our privilege to work upon some of the nations' finest and most historic buildings small and large and to become part of the history of the communities we serve.

- ❖ The quality of the service we offer is second to none. Our Managing Director Andrew Nicholson is freely available to discuss your requirements or concerns before, during and after any work is complete.
- ❖ We are pleased to welcome visitors to our works to view our facilities and to see work in progress. It would be wise to make prior arrangements before visiting.
- ❖ We promise that, unless the specification has been changed by mutual agreement, when a quotation is accepted and dates agreed the price offered will be the price you pay. We never charge "extras".
- ❖ We insist on using only the very finest materials and equipment available.
- ❖ Only the casting and tuning of bells is sub-contracted, all other work being under the care of our own dedicated and skilled team of craftsmen.
- ❖ We will ensure that any disruption to your place of worship is kept to a minimum while we are working there. We recognise that funerals may occasionally have to take place while we are at the church and will ensure that materials are stored as discretely as possible and that work ceases while the service is in progress.
- ❖ We will at all times treat your place of worship with the care and respect it deserves.
- ❖ Upon completion of any work we will clean away all mess and rubbish from the site and leave all as we found it.
- ❖ We will conform to all current Health & Safety regulations while we are working at your church.
- ❖ Upon completion of any work we will fully test all and leave ready for use. Where any new equipment has been installed we will provide instruction on its care and use.
- ❖ Our work carries a full ten year guarantee on all new parts, the only exceptions being those parts liable to wear and tear unless failure has been due to faulty workmanship or materials. Our guarantee assumes that any installation will be subject to proper maintenance. We are pleased to offer maintenance contracts.
- ❖ Whilst we may not initially be the cheapest available, we offer true long-term value for money and superlative standards of service.
- ❖ We take great pride in offering work of the very highest quality and guarantee total satisfaction to all our clients.

Quotation

RESTORE AND REHANG THE BELLS FOR FULL CIRCLE RINGING

PRELIMINARIES

Attend a meeting at the church to discuss the detail of the project and to agree working practices at the church.

Take detailed measurements from the bellframe and produce all necessary working drawings for our work. Provide copies of all relevant drawings to the architect.

Make a steel lifting beam together with all necessary fixings. Send the beam for hot-dip galvanizing.

DISMANTLING

Lay protective plywood sheeting over all floors over which bells and other heavy items must pass.

Stop the clock mechanism and cover the clock case with protective polythene sheet to prevent dust ingress.

Erect scaffolding in the ringing chamber. Dismantle and take down the whole of the ringing chamber ceiling, taking care when removing the ceiling boards so that they can be re-used, all so as to give full access to the bellframe foundation joists. Lay the boards safely to one side. Bag up all sawdust which may be present in the ceiling void, remove it from site and dispose of it in accordance with all relevant legislation.

In the presence of the architect, structural engineer and others as the architect may require, undertake a thorough inspection of the bellframe foundation joists. Agree a specification of any repairs or renewals which might be found to be required and provide a supplementary quotation for any remedial work.

Erect a temporary safety rail and secure it in place around the bell hatch in the ringing chamber floor. Open up the hatch.

Hoist the steel lifting beam into the tower and install it above the bells to provide additional lifting points from which the tenor and fifth can be lifted, face-fixing the beam to the bellchamber wall using stainless steel anchors bolts and to the side of the existing roof beam.

Dismantle the bells and their ringing fittings. Dismantle and lay to one side the frameside between the third and fourth bells. Lower all the bells and their fittings to the ground. Close up the hatchway in the ringing chamber floor.

Either stack the unwanted ringing fittings in the churchyard for disposal by others or cart away as the parish may require.

Transport the bells back to our works.

Clear away and remove all plywood floor protection, tools and equipment. Undertake a thorough clean of all areas affected by our work including the bellchamber, leaving all clean and tidy.

BELLS

Cut away, drill out and entirely remove all remains of the original cast-in crown staples from the heads of the fifth, fourth and second and drill central stress-relieving holes through which new independent crown staples can be fitted.

Neatly remove the canons from the heads of the bells and cast resin pads true and level to which new headstocks may be accurately mounted.

FRAME

Make up a total of 18no. 20mm diameter stainless steel tie rods together with large plate washers, nuts and washers.

Make up a total of 24no. heavy stainless steel corner plates together with all necessary M16 fixings.

FITTINGS

Make a new headstock for each of the bells, all fitted with steel gudgeons set in true alignment and with staple adjusting screws for setting and maintaining even clapping. Send the headstocks for hot-dip galvanizing and then have them powder coated so as to provide industry-leading protection against corrosion. Fit the headstocks to the bells, stock down and balance, turning the bells to present unworn surfaces to the blows of their clappers. Drill through and fit galvanised steel supporting bolts together with insulation washers for fitting between the crowns of the bells and the bolt heads.

Provide new heavy duty double row self-aligning ball bearings housed in cast iron plumber blocks. Fit the bearings to the new headstocks and charge with the correct lubricant before closing, no further lubrication being required for 25 years.

Make up heavy stainless steel bedplates for fixing to the frameheads to which the new plumber blocks may be bolted.

Remove and discard the existing soles and shrouds to the wheels. Adapt the spokes to suit the new headstocks, replacing any spokes which are found to be defective. Make and fit new steam bent ash solings and oak or chestnut shrouds, all secured with stainless steel screws. Provide each of the wheels with a pair of steel angle cleats and braces. All fixing bolts to the wheels to be hot-dip galvanized steel.

Make completely new pulleys consisting of cast nylon sheaves each running on two lubricated-for-life ball bearing races all housed in hardwood boxes.

Make new stays and steam-bent sliders of finest quality ash, together with new hardwood runner boards and steel slider pins, all made to suit the new headstocks.

For each of the bells make a completely new clapper and crown staple consisting of a malleable iron clapper fitted with a Tufnol bush resiliently mounted in neoprene rubber, together with an independent crown staple fitted with a stainless steel hinge pin and with an insulation pad for fitting between the staple and the crown of the bell. The clappers to be carefully machined to the correct profile to emulate the performance characteristics of the best wrought iron clappers.

Provide a set of six new bellropes each consisting of a pure wool sally in a choice of colours, together with a natural fibre tail end and with the benefit of a pre-stretched polyester top end.

PAINTING AND TIMBER TREATMENT

All ungalvanized steelwork to the ringing fittings to be primed as appropriate with a heavy zinc-rich primer and all then painted with two coats of top-quality machinery enamel.

All timber parts of the ringing fittings to be treated with a heavy application of Lignum Pro156 preservative.

INSTALLATION

Transport all to the church.

Relay the plywood floor protection.

Temporarily reassemble the centre section of the bellframe. Drill down through the frameheads, braces, sills and where appropriate the foundation joists and fit and tighten all the new tie-rods. Drill through the frameheads and fit the corner plates to the frameheads of all six pits, securing them in position with stainless steel bolts.

Fit the new bedplates to the frameheads true and level and secure them in place using stainless steel fixings.

Disassemble the centre section of the bellframe. Open up the hatch in the ringing chamber floor. Hoist the bells into the tower and hang true and level in the bellframe. Reassemble the bellframe. Close up all the hatches and remove the safety rails.

Assemble all the ringing fittings, test each bell and adjust for even striking and correct set at handstroke and backstroke.

Adjust the position of the clock hammer as required to suit the new hanging radius of the hour bell. Test the pull-off mechanism to ensure that when pulled off the hammer is clear of all bells and fittings.

RINGING CHAMBER

Install Rockfloor RC65 or equivalent insulation material to the underside of the bellchamber floor to replace the sawdust originally used for sound insulation purposes. Reinstall the ringing chamber ceiling, securing it in place with secret stainless steel nails.

Remove the dust protection to the clock mechanism. Restart the clock and set it to time.

TESTING AND COMMISSIONING

Fit the new ropes and adjust them to a convenient length.

Try out the bells with a competent band of local ringers and make any final adjustments which might be required.

Clear away all tools and equipment and the plywood floor protection. Leave all areas affected by our work clean and tidy.

Leave all ready for use.

We are prepared to undertake the whole of the above works, including time on site and in our works, materials, transport, mens' accommodation and expenses etc., for the sum of:

£61086

SUPPLEMENTARY QUOTATION NO.1A – TUNING

Using the very latest techniques, including a mixture of inside and outside cutting, carefully and accurately attend to all the bells under our tuning machines, putting all the nominal or principal notes into accurate alignment and at the same time putting the various partial tones into the best possible alignment.

After all tuning is complete, carefully and accurately voice the bells to establish new strike points at the most advantageous places.

If done in conjunction with quotation no.1, we are prepared to undertake the whole of the above works, including time on site and in our works, materials, transport, mens' accommodation and expenses etc., for the sum of:

£3578

POSSIBLE REDUCTION

Many parishes like to provide the labour of local people for major bell projects. If the parish is able to provide the fit, able-bodied assistance of a minimum of two persons to assist with all the site work, we would be pleased to make a reduction of £9614 against this quotation.

In considering the provision of such assistance the parish must realise that the work would be dirty and would involve a degree of heavy lifting and working at height, for all of which those assisting must be prepared and suited. Provided some basic health & safety criteria are adhered to, those assisting would be fully covered under the terms of our employers' liability insurance.

TERMS

For the above quotations we would require one third payment with order, one third upon commencement, with the balance due immediately on completion of the works according to this specification.

All prices are based upon current costs but will be held firm if accepted in writing within 90 days.

VAT

VAT is chargeable in addition as applicable at the rate current at the time. Provided the church is a listed building, the PCC may be able to make a retrospective application to the Listed Places of Worship Grant Scheme for a grant equal to the VAT paid.

GUARANTEE

For these works we would be pleased to offer a full ten-year guarantee on all new parts, the only exceptions being those items subject to wear and tear such as ropes, stays and sliders, except where failure is due to faulty workmanship or materials. All guarantees are given on the basis that the installation would be subject to full and rigorous maintenance and in particular that all fixings are kept fully tightened at all times.

FACULTY

A faculty will be required before these works may be commenced.

INSURANCE

We carry full public, products and employers' liability insurance in the sum of £10,000,000.

I trust that the above quotation is of interest and we look forward to being favoured with your valued instructions.

Andrew Nicholson

9th December, 2024.

Possible Sources of Grant Aid

SOME CHARITIES WHICH CAN GRANT-AID CHURCH BELL RESTORATION WORK

The following charities have in the past given grant aid to various types of bell restoration and augmentation schemes. The list is by no means comprehensive, there being a large number of local charities in many areas of which we have no knowledge.

Church Buildings Council

The Conservation Officer
Church Buildings Council
Church House
Great Smith Street
London
SW1P 3NZ

The council has funds available for the conservation of bells and bellframes of historical significance.

The Barron Bell Trust

The Managing Trustees
71 Lower Green Road
Pembury
Tunbridge Wells
Kent
TN2 4EB

This fund specifically exists to help all aspects of work to bells in churches where, in the opinion of the trustees, the associations are low as distinguished from high, broad or modernist.

Historic Churches Preservation Trust

Historic Churches Trust
Fulham Place
London
SW6 6EA

The trust supports structural repairs but not bell restoration.

Heritage Lottery Fund

10 St.James Street
London
SW1A 1EF
Tel. 0171 930 0963
Fax. 0171 930 0968

The Fund has made grants for bell restoration. The heritage aspect is important regarding both the bells and the building. The conditions applicable to such grants can sometimes be onerous.

Worshipful Company of Ironmongers

Ironmongers' Hall
Shaftesbury Place
Barbican
London
EC2Y 8AA

The Company has given substantial grants aimed specifically at those parts of bell projects connected with the conservation of the ironwork to a bell installation.

Garfield Weston Foundation

The Foundation may be contacted via its website at www.garfieldweston.org

The Foundation has made significant grants towards bell restoration projects.

Central Council of Church Bell Ringers

The Council represents bell ringers worldwide and operates a bell restoration fund. The Council has members willing to give their time to advise parishes contemplating a bell restoration scheme. They may be contacted via their web addresses;

<https://cccbr.org.uk/about/workgroups/stewardship-and-management/>

<https://cccbr.org.uk/resources/stewardship-and-management/>

smp@cccbr.org.uk

Additional Information from Nicholson Engineering:

Dear Marcus

Further to our correspondence last week, I am now pleased to attach our quotation.

I have included in our quotation for the new fittings to the treble; as previously advised, it would not be possible to re-use the existing headstock and so forth without seriously compromising what could be done to the other five bells and thus the final result. The cost of the work to the treble which I have included in our quotation is £3277 and I provide this figure in case it is of assistance when comparing quotations.

The cost of providing and permanently installing the lifting beam is included in our quotation.

As you will see, I have allowed for making the new tie-rods, corner plates, bedplates and all their fixings in stainless steel. Although this inevitably adds to the cost, it will provide the parish with a truly long-term solution and avoid the need for future painting or replacements.

Our standard specification these days is for our headstocks to be hot-dip galvanized and then powder coating, this combination being intended to maximise protection against corrosion and this minimise future maintenance requirements.

I have separated out the cost of tuning. I must, however, strongly recommend that the bells be tuned while the opportunity is to hand; not to tune this peal of bells would be a missed opportunity of considerable magnitude!

I hope the attached document is of assistance and that I have correctly interpreted your requirements. If, however, there is anything further you require, do please let me know.

Best wishes

Andrew

John Taylor & Co Ltd

JOHN TAYLOR & CO.,

BELLFOUNDERS, BELLHANGERS AND CARILLON BUILDERS



Our ref: SEA/sa/697/7

23rd January 2025

PCC of St Mary Magdalene, Stockland Bristol
c/o Mr Marcus Chantrey
Chantrey Conservation Architects Ltd
St Omer
The Street
Draycott
Somerset
BS27 3TH

Dear Mr Chantrey,

CHURCH OF ST MARY MAGDALENE, STOCKLAND BRISTOL – The Bells

As arranged, we visited Stockland Bristol church on Wednesday 22nd January 2025 to inspect the bell installation. We wish to thank you for sending us the tender documents and Mr John McVerry for making access to the tower possible.

Background

The bells were last rehung in 1866 when the tower was rebuilt. The bells were provided with new ringing fittings and were hung in a new timber bellframe; the works being carried out by John Warner and Sons of London. The ringing fittings of the five largest bells are now of an obsolete and outdated design.

In 1960 a newer lighter Treble bell was cast and installed by the Whitechapel Bellfoundry to create a ring of six bells; at the same time rehung the 4th and Tenor bells on new ball bearings. No other work appears to have been undertaken since that time, and clapper wear upon the soundbows of the bells is not at all excessive.

Although the bells have not been rung for some decades, we consider that it is the condition of the tower rather than the bellframe that is the main cause for their silence. This opinion is given further weight with the following information gathered from a national website that records bellringing activities (https://bb.ringingworld.co.uk/search?dove_tower=11990):

Sunday 11th June 1995. A full peal of 5040 Changes, taking about 2 hours 45 minutes
Sunday 23rd August 1997. A quarter peal of 1260 Changes rung in 38 minutes

**John Taylor Bell Foundry (Loughborough) Limited trading as
JOHN TAYLOR & CO.**

The John Taylor Bell Foundry, Freehold Street, Loughborough, Leicestershire, LE11 1AR, UK
Telephone: 01509 212241 Fax: 01509 263305 Tel: International +44 1509 212241 Fax: International + 44 1509 263305
Email: office@taylorbells.co.uk www.taylorbells.co.uk

Registered in England No. 7032766

Were the bellframe and bell fittings in a much-dilapidated condition, the above ringing activities would have been practically impossible to sustain.

Recommendations

We agree with the need and intention to rehang the bells on mainly new up to date ringing fittings, and that whilst the bells are out of the tower they should be appropriately conserved, cleaned and carefully retuned.

Although the specification of works calls for steel fabricated headstocks, we strongly recommend the use of cast iron headstocks, which have widely been in use since 1892 and have excellent resistance to corrosion and are very robust and strong.

The bellframe has been made to fit tightly in the tower (which is usual for a Victorian timber frame), and in some areas the headcills are not particularly wide where they are close built to the walls and also have to provide clearance for the bells to swing past.

We therefore recommend that all corners of the bellframe headcills are fitted with strong and durable bolted in corner cleats to lessen any horizontal movement set up when the bells are rung.

We noted that the “stay-side” (north east) corner of the Tenor bell pit has only an ‘X’ brace at the end of its bell pit, and little support between the base and headcills in the corner. This is also the case in the (south west) corner of the 2nd bell pit. We suggest that some vertical supports (by way of fabricated steel CHS) are introduced to give more support to these corners where there is little else provided.

The “stay side” frame head of the Tenor bell pit has a dowel peg in a mortice joint pushed out, and there is an amount of cracking (shakes) along the grain of the framehead. These items should be attended to.

We agree that the ringing chamber ceiling should be taken down in order to remove all old sound insulating material (we test sounded a bell whilst in the ringing chamber and found it to be louder than is comfortably ideal for full circle ringing bells).

Importantly, as the bellframe foundation beams are concealed between the belfry floor and the ringing chamber ceiling, it is necessary to reveal them to see if any works are required. We noted that the bellframe base cills are connected to the foundations by 6no. short tie rods with nuts visible in the ringing chamber (See page 13 for an example of foundations installed by John Warner).

In order to fully and accurately determine the level of works required to the bellframe and foundations, after opening up of the ringing chamber ceiling boards, we strongly suggest that the heaviest bells in each direction (5th and Tenor bells) are individually and carefully swung to 180° (halfway up in ringing terms) as to place appropriate horizontal forces to the bellframe and foundations, which would show up any differential of movement.

The reason for suggesting this course of action is that we know of bells being rehung in old bellframes which have not been tested at all, and the parish has then had to face additional repair costs that had not been properly inspected and quantified.

Our specification of works set out below includes everything required to restore and rehang the bells; the ancillary works to open up the ceiling of the ringing chamber, and the provision of temporary lifting beams installed over the bells.

CHURCH OF ST MARY MAGDALENE, STOCKLAND BRISTOL
DIOCESE OF BATH AND WELLS

SPECIFICATION AND QUOTATION No.1.0
TO REHANGING THE BELLS ON NEW RINGING FITTINGS

Dismantling

Bellhangers to travel to the church with the necessary tackle, tools and temporary lifting beams and 'Mendham' wall brackets.

Passageway to be opened up throughout the tower to allow the lowering and hoisting of the bells, their fittings and other materials. Place a safety barrier around the ringing chamber floor bell trapdoor.

At an appropriate height above the bells slit mortar joints in the tower walls and fit the Mendham wall brackets and temporary lifting timbers. Set up lifting gear from the temporary and permanent beams.



Photo: Typical arrangement of temporary lifting beams (where there are no fixed roof beams in position to lift from).

Disconnect the clock hammer quadrants and wiring that pass below and through the bell trapdoor of the ringing chamber ceiling to give clear access to the trapdoor.

Take down the matchboarding of the ringing chamber ceiling. Inspect and check the revealed foundation beams of the bellframe. (If agreed, test swing the 5th and Tenor bells to determine movement of the bellframe and foundations).

The bell fittings to be removed from the bells and set aside. The 2nd and 3rd bells to be hoisted from their pits and placed on stout timbers elsewhere on the bellframe.

The "shifter" bellframe truss of the shared 2nd and 3rd bells to be removed and set aside
The lift out boards of the belfry floor to be removed to allow clear passage.

The bells and their fittings to be lowered to the ground floor and moved onto our haulage vehicle and transported to our Works (the bells could exit via the west or south doors, depending on PCC preference).

The belfry to be thoroughly cleared of all dust, debris and nesting materials, and in particular of anything lodged between the base cills and the tower walls.

The bellframe to be cleaned down and thoroughly treated with good quality wood preservative solution (such as Lignum Pro 156). The tie bars to be eased, lubricated, tightened and passageways to be closed. The upstands of the Treble bell bearing beds to be descaled, and well repainted.

Send to site our design engineer, to take particulars of the bellframe for the manufacture of new ringing fittings.

At the Works

The bells to be received, their headstocks to be removed, and the bells to be weighed, measured, and musically pitched. The bells to be carefully sandblast cleaned inside and out to remove verdigris and scale.

The cast-in crownstaples to be removed from the heads of the 2nd, 4th, and 5th bells and centre holes to be drilled to allow the fitting of independent crownstaples.

Any voids in the bell heads caused by the extraction of the staple roots to be back filled with 'Devcon' resin putty.

The canons to be carefully and neatly removed from the heads of the five largest bells.

Resin pads to be cast on the heads bells to allow headstocks of modern design to be fitted. The heads of the new resin pads and the inside crowns of the bells to be lightly machine skimmed to allow the new headstocks and crownstaples to sit square and true.

The bells to be placed upon our tuning machines for careful retuning of their nominals and other partials to bring about an accurate improvement and alignment to their scale of tuning (strike notes) and overall quality of tone, whilst retaining their character.

The bells to be graphite coated on their exterior surfaces.

Bell fittings

Provide for each of the bells a full new set of ringing fittings comprising:

1. For the five largest bells - hollow box section cast iron headstock of standard pattern with clapper adjusting screws. Fit to the headstocks hot rivet fastened morse taper steel gudgeons (removeable and renewable under workshop conditions). The Tenor bell to be provided with a curved headstock (as to "tuck it up" to lower the centre of gravity and greatly reduce its forces on the tower).

2. Provide double row, self-aligning, ball bearings with taper lock sleeves mounted in specially made cast iron housings with bearing caps and dust seals. Bearing bedplates for the five largest bells headcills.
3. Bell support bolts with isolation washers, steel washers and top nuts.
4. The five largest wheel frames to be trimmed down and reduced in diameter to suit the new bell hanging radii and fitted with steam bent Ash soling and Sapele mahogany shrouding, secured with stainless steel screws; the wheels to be fitted with turned garter hole bobbins to protect the bellrope as it passes through the wheel soling; profiled metal wheel strengthening irons.
5. New well-seasoned hardwood turned rope rollers, running on ball bearings, mounted in a hardwood roller box, with all required fixings to fasten them to the bellframe.
6. New ash stay and steam bent ash sliders; softwood runner board with adjustable hardwood stop blocks.
7. Profile lathe turned spheroidal graphite cast iron clappers with resiliently mounted impregnated phosphor bronze clapper bush; cast iron crownstaple with high tensile steel joint pin and lubrication point.
8. Smooth turned cast iron floor bosses to protect the bellrope as it passes through the floors, with nylatron bosses for the belfry floor.
9. New bellropes with soft woolen salleys, hemp tail ends and pre-stretched polyester top ends.
10. For the newer Treble bell, the headstock to be sandblasted clean and the main bearings to be opened up, checked for wear, relubricated, fitted with new seals and fresh lubricant. The bell wheel to be cleaned down, fitted with stainless steel screws and preservative treated. The clapper to be cleaned down, annealed and repainted. Provide new bell bolts. Repaint the clapper and headstock.

The bells to be turned to present unworn surfaces of the soundbows to the blows of the clappers. The bells to be correctly balanced on their headstocks and drilled as necessary to receive their new fittings.

The bells to be assembled with their fittings and test rung on our ringing up stand so that their clappers and swing times can be checked and the clappers to be timed to suit the bell swing times.

The floor bosses to be painted with matt black rust inhibiting paint. The remainder of the new metalwork of the bell fittings to be properly prepared and painted with one coat each of primer, undercoat and gloss paint. The new woodwork to be dip treated with good quality Timbershield wood preservative solution. New steelworks to be galvanised to BS EN 1461 (2009) standard.

All necessary nuts, bolts, washers and other fixings to be provided for the bell fittings and bellframe.

Bellframe strengthening

Provide for the bellframe:

1. 24no. strong and robust rolled steel angle corner cleats, drilled and provided with nuts and bolts. Where XOX cannot be fitted, timber coach screws to be installed.
2. Provide 2no. Rolled hollow section steel tubes with top and bottom plates to fit into the corners of the 2nd and Tenor bell pits where there is little support at present. The steel tubes to be fully tie bolted between the head and base cills of the bellframe.
3. Provide for the “stay side” of the Tenor bellframe a repair plate and bolted connections to reinforce the split / shake of the framehead.

Rehanging

Bellhangers to travel to the church with tools and tackle. Mark out and drill the bellframe as required and fit the new corner cleats and rolled steel hollow supports, and repair plate.

Mark out and fit new strong steel bearing bedplates to the frameheads for the five largest bells.

The bells, and their new fittings to be transported to the church.

Set up lifting tackle from the temporary and fixed lifting beams. Open up passageways throughout the tower.

The bells to be hoisted and hung in the bellframe. The bearing housings to be bolted down to the headcills. The shifter bellframe truss to be refitted and bedded down.

The bell fittings to be properly adjusted, the necessary rope holes to be cut in the floors of the tower; the floor bosses and bellropes to be fitted.

The clock hammer positions to be adjusted and set as required to suit the new bellhanging radii. The clock hammer quadrants and wiring to be reconnected to the clock mechanism.

Any damaged surfaces of paintwork on the new bell fittings to be touched up and the painted surfaces to be given a further coat of gloss paint.

Ringling chamber ceiling

The ringling chamber ceiling to be reboarded with new matchboarding, and the void to be well packed with rockwool sound insulation material.

The bells to be tried out by a band of bellringers under our supervision to ensure that all is well with the installation. Make adjustments as required, and clean and tidy site.

Approximately 12 months after completion of the project, our bellhangers to return to site and carry out a full service of the installation.

QUOTATION No.1.0

The present-day cost of undertaking the work above would be **£66,150.00 plus VAT**. This price can be considered fixed for orders placed by March 2026 with the exception of rising cost of materials and changes to inflation that are beyond our control.

We aim to provide the highest specification of materials, giving the installation a very long life of reliable service and all-inclusive levels of workmanship, fairly costed.

Cost reducing items

Appended Item No.1.1. - Locally provided labour

If two fit and able-bodied assistants could be provided locally, free of charge to us, so that we need only send one bellhanger to undertake the removal and rehanging of the bells, our Quotation No.1.0 would be reduced by the sum of **£4,386.00**. We should point out that it is essential, especially for insurance and Health & Safety purposes, that our bellhanger has assistance in the tower at all times. All local labourers are covered by our insurance, free of charge to the project when we are at site.

Appended Item No.1.2. – Locally provided accommodation

If locally provided accommodation was made available in the form of a B&B, guesthouse, holiday let, Air B&B, etc could be provided free of charge for our bellhangers, there we could allow a reduction from our main quotation of **£2,688.00** for two bellhangers, or **£1,344.00** if we were sending only one bellhanger.

Appended Item No. 1.3. – Locally provided transport

If locally provided transport were made available free of charge to us to move the bells from the church to our works and back, there we could allow a reduction of **£1,459.00**.

Appended item No. 1.4 – Local removal of clappers, wheels, ropes and stays

If the bellropes, stays, roller boxes, and wheels could be removed ahead of our arrival, we could allow a reduction of **£358.00** from our main quotation.

Appended item No. 1.5 – Provision of steel fabricated headstocks

If it was decided to provide the five largest bells with steel fabricated headstocks rather than cast iron ones, we could allow a reduction of **£785.00** from our main quotation.

Additional cost items

Appended item No. 1.6 – Canon retaining headstocks

If it was decided to retain the canons (ornamental loops) upon the heads of the five largest bells, meaning that canon retaining headstocks would be required, the additional cost of providing these would be **£982.00 plus VAT**.

Appended item No. 1.7 – Contingency items

We recommend that as the foundation beams of the bellframe are currently unseen that a contingency sum of 15% is allowed for in financial planning.

EXCLUSIONS

The only exclusion is that of unknown works to the foundation beams below the bellframe. All works of lifting provisions and opening up passageways is included in our specifications.

TERMS OF BUSINESS

The above Quotations is subject to our Standard Terms of Business a copy of which is enclosed for your information. We are happy to vary the terms and conditions and invoicing percentages to suit local needs. A deposit payment made will secure the project price ahead of works starting.

CONTINGENCY

We suggest that a contingency sum of 10% is kept aside to cover the cost of any further welding repairs that may be required to any bells that are found to be cracked.

VAT

VAT is chargeable at the rate of 20%. All VAT paid is currently reclaimable in the form of a grant that can be applied for from the Listed Places of Worship. See lpwscheme.org.uk.

FACULTY APPROVAL TO PROCEED

The work covered by the foregoing specification will require approval by the Diocesan Advisory Committee and for an appropriate Faculty to be issued by the Chancellor of the Diocese.

Forms of application and details of Faculty procedure may be obtained from the Diocesan Offices. We regret that we are unable to commence any work for which an appropriate Faculty has not been issued.

DESIGN DRAWINGS

We will provide a set of drawings detailing any works to the bellframe and foundations in order to support a faculty application.

CDM REGULATIONS

The collective number of days and hours worked in continuity classify the bells project as non-notifiable to the HSE. We work in compliance with current health and safety and CDM regulations, and prepare RAMS, construction phase and lifting plans. We manage our own projects in collaboration with our clients.

INSURANCE

We are insured for £10M in respect of Employer's Liability, and for £10M Public and products liability. Bells held in our works and transported by our haulier are covered by our insurance for their full replacement value. Volunteer labour helpers are covered by our insurance free of charge when we are at site.

GUARANTEES

Our headstocks and gudgeons carry a 30-year guarantee against manufacturer's failure. Our headstocks have been in very wide circulation since their development in 1892, and have certainly stood the test of time, particularly on large and heavy bells.

All other fittings are guaranteed as per our standard terms and conditions.

FOUNDRY VISIT

Whilst the bells are at our Works we will invite the Parish to a complimentary tour of the works and foundry and to see their project in progress.

FUNDING

We recommend that the following grant giving bodies be approached:

Garfield Weston Foundation
Sainsbury's Charitable Foundation
Co-operative Community Fund
Landfill Operators (SITA, VIRIDOR CREDITS, SUEZ TRUST etc)
GRANTScape
Entrust Ltd
WREN via National Churches Trust
Quarry Operators (TARMAC, LAFAGRE, etc)
Waitrose Green token community projects
The Arts Council
National Heritage Lottery Fund and Awards for All (HLF)

Place donors' names on new headstocks (**£5.50 plus VAT per character**) See p.12.

For the Garfield Weston Foundation & HLF, if you can put an 'Educational' and 'Historical' spin on the application, encompassing the wider community as far as possible, that will help. We suggest:

- * At the start of the scheme, lower the bells, but leave them on display in Church for a day / week (may need night time attendance/sleep over for security)
- * Arrange an evening lecture on bells with a slide show presentation
- * Set up a display in Church of the current bells condition and future scheme; link the scheme to something of community benefit and significant historical events, such as WW1 memorial.
- * Engage with schools / colleges / youth groups to learn about the bell founder's history, and the art of bell tuning, casting etc.

- * Use the above groups to help write a history booklet
- * Arrange a coach trip to the Bellfoundry (tours for up to 35 possible)
- * Use local labour / unemployed youngsters (often through a scheme or foundation) to gain work experience, assisting the bellhanger on site
- * Set up a permanent display board, so that reduced mobility people can see photos without climbing the tower. Install CCTV in the bellchamber
- * Arrange a number of open days per year
- * Use a local haulier to transport the bells
- * Bring in local media

A great deal of the above could be financed by HLF as a part of their grant. Funders that may require a faculty and an amount of money already to be in place are:

Church Buildings Council & Pilgrim Trust
 Barron Bell Trust
 The Sharpe Trust
 Somerset Historic Churches Trust
 Bath and Wells Association of Bell Ringers – Bell Repair Fund
 Central Council of Church Bell Ringers - Bell Restoration Fund
 All Churches / Benefact Trust
 The Hobson Charity (London)
 Elmgrant Trust
 Church of England Fundraising website <https://www.parishresources.org.uk/wp-content/uploads/Charitable-Grants-for-Churches-July-2023.pdf>

RECENT WORKS

We have recently rehung the following peals nearby: Bere Regis; Chideock; Thornford; Whitchurch Canoniconum; Netherbury; Iwerne Courtney (Shroton); Lytchett Matravers; Milborne Port; Templecombe; Bradford Peverell; Litton Cheney; Brinkworth (Wiltshire); Chagford; St Budeaux; Brent Tor; Calstock; Moretonhampstead; Taunton Minster Church of St Mary; Bridgwater St Mary; Kingston St Mary; HT Taunton; Staplegrove; North Curry.

We currently have in hand the works to rehang the bells at Trull, (Taunton); Frampton (Dorset); Tonbridge (Kent); Greetham (Rutland); Clifford Chambers (Warwickshire); Mordiford, (Herefordshire).

We trust that our specification and quotation are of interest and are happy to consider variations to the proposals we have set out above. We look forward to hearing from you after the PCC have considered our scheme.

Yours sincerely,



Simon Adams
JOHN TAYLOR & Co.,
 Encl. Terms

cc: Mr John McVerry (via email)



Photo: Brinkworth bells with their new headstocks



Photo: Lettered headstock



Photo: Milborne Port bells rehung with all new fittings in their existing bellframe



Photo: The bellframe foundations and belfry floor at Revelstoke (Noss Mayo) Devon as installed by John Warner in 1881