

Charmborough Bells

Risk Assessment and Method Statement

Introduction

This risk assessment and method statement has been prepared to outline the procedures adopted in assembling, using and dismantling the Charmborough Ring. It also considers the key health and safety risks and the control measures designed to minimise these risks.

The Charmborough ring is a small ring of tower bells hung in their own steel structure. See photographs. A video of the assembly process can also be viewed [here](#)

The Charmborough ring is checked for defects prior to assembly and on dismantling, and any defects rectified. The trailer is also serviced periodically by GT Towing.

Pre-planning

The Charmborough Ring is hired for use at public events for about 12 to 15 days per year. Each hirer is responsible for providing the details of the proposed location to the booking coordinator and highlighting any site specific risks in advance.

We check proposed access using google streetview and if necessary a site inspection is undertaken by one of the experienced supervisors before the booking is confirmed. On arrival, the supervisor will double check the site and ensure that it is safe to drive the vehicle and trailer on to the site, how close this is to the place where the ring will be erected, and whether the trailer can be left at this location whilst the event takes place.

Where the trailer cannot reach the place of erection, and act as a safe working platform, we check the route between the trailer and place of erection, and ensure that openings are wide enough, and there are no surfaces that are easily damaged. We have timbers that are used as load spreaders at the base of the ring, which also protect surfaces.

Transport

The mobile belfry is transported in a dismantled state on a four-wheeled trailer which measures approximately 4m long, 2.1m wide and 2m high with a laden weight of about 1 ton. Prior to towing there will be a safety check of the trailer and towing vehicle, using the checklist provided (appendix 2). This method statement and risk assessment considers the issues once the trailer has reached the site.

Supervision

The belfry is assembled and dismantled under the supervision of an experienced erector. The ring is erected in two stages the first taking about three quarters of an hour. For the first stage, a team of five able bodied adults will assist with carrying the components and the assembly and dismantling process generally. No person will need to lift a weight greater than about 25kg.

The second stage involves hoisting the bells into position using an electric hoist and involves working at height. Only one assistant is required at this stage, and it is preferable that other people are not present underneath the ring. This stage will about half an hour.

Safety

Prior to erection the supervisor will give a toolbox talk and safety briefing to the assembly team. Personal protective equipment (PPE) in the form of five pairs of stout gloves and hard hats are stored in the toolbox on the trailer. The team should also wear appropriate footwear.

Members of the public will be kept out of the site whilst assembly and dismantling takes place. The area needed measures 8m x 5m.

Assembly

Two 225 x 50mm x 2400mm lengths of timber will be used as load spreaders on the surface. If the surface is not entirely level, additional timber packers will be used to bring the two lengths of timber level.

The steel framework will be unloaded from the trailer, carried to the site, and bolted together in accordance with the erection sequence (see appendix 1). The largest items are the portal legs and each weighs approximately 70kg and needs to be carried by three people. Fully assembled, each portal contains three components and weighs a total of about 200kg.

Where there is limited space, one set of portal legs can be assembled upside down, before being raised.

Each portal is raised manually from horizontal to vertical by the five person team, and diagonal braces fixed to restrain the structure. This completes the first half of the erection sequence.

Working from the ladders, the upper parts of the frame and uprights for the tubular lifting gantry are then bolted on, and two timber duck boards are put into position either side of bells 5 and 6, for the supervisor to stand on to complete assembly of the hoist and then hoist the bells.

The bells are then carefully lowered from the trailer down two of the 225 x 50mm x 2400mm lengths of timber. This is a five person operation, with care being taken to ensure that the castors remain on the boards, and no-one is in front of the bells as they are lowered.

Each pair of bells will then be wheeled to the site and then lifted into position using the electric scaffold hoist provided. Power will be taken from portable generator, or permanent mains supply. Care will be taken to ensure that electric cables do not become snagged. The hoist has a lifting capacity of 250kgs. Each pair of bells weighs a maximum of about 200kg. The hoisting operation is undertaken by the supervisor who stands on the platforms at bell level.

A blue tarpaulin cover may then be fitted over the top of the belfry and a second translucent cover around the sides at high level, if wet and outdoors. Once the ring has been assembled all bolts are then checked for tightness, the ring can be used.

Dismantling

Dismantling is undertaken as the reverse of this process.

As the components are dismantled and stored on the trailer, their condition is checked, using the checklist provided (Appendix 3). Any defects are rectified before the next use.

Assembly takes about one and a half hours; dismantling takes about one and a quarter hours, depending on how far the trailer is away.

Feedback

We encourage feedback from each event, so that we can continuously improve our procedures.

Risk assessment

| Risk | Party responsible for managing risk | Risk management action | After risk management | | Action period/deadline |
|---|-------------------------------------|---|-----------------------|--------|------------------------|
| | | | Likelihood of risk | Impact | |
| Delivery to site and return to depot afterwards | Supervisor | The ring will be transported to site on the trailer. This will be checked before towing. | Low | Low | |
| Safety of erection team | Supervisor | Prior to erection the supervisor will give a toolbox talk and safety briefing to the assembly team. The team are also encouraged to view the video beforehand. Personal protective equipment (PPE) in the form of five pairs of stout gloves and hard hats are stored in the toolbox on the trailer. The team should also wear appropriate footwear. | Low | Medium | |
| Manual handling | Supervisor | To be covered in toolbox talk. All beams are to be lifted by at least two people. The legs will be erected by five people. As they are assembled on the ground, and prior to lowering afterwards, the legs will be resting on timber packers, to help avoid fingers becoming trapped. | Low | Medium | |
| Falling objects | Supervisor | As components are handed up or taken down from high level there is a risk of falling objects. No work is to be carried out at low level during this stage and assistants to wear hard hats. | Low | Medium | |

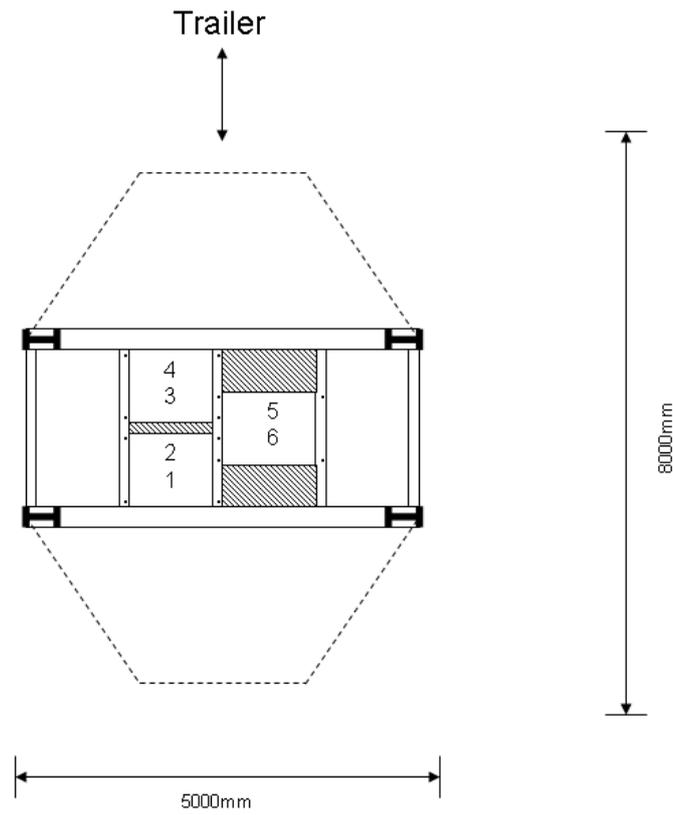
| | | | | | |
|--------------------------------|------------|---|--------|--------|--|
| Risk of slips, trips and falls | Supervisor | Those carrying the steel beams and lowering the bells off the trailer need to check the path and ensure that there are no trip hazards. | Low | Medium | |
| Risk of slips, trips and falls | Supervisor | Falling from the ring during stage 2 of the erection sequence is a risk. Care will be taken and only one person will be working at high level at one time, and people keep well away.. | Medium | Medium | |
| Catching fingers | Supervisor | There is a risk of fingers becoming caught in between beams as they are assembled and in the pulley on the hoist during operation. Stout gloves must be worn and hands kept clear of the pulley during hoisting. | Low | Medium | |
| Electric shock | Supervisor | The electrical equipment will be checked visually before use. Care will be taken with the routing of electric cables to ensure that they do not become snagged or damaged during the lifting operation. | Low | Medium | |
| Ringling of the bells | Supervisor | The bells will only be rung under the supervision of a competent bellringer. The bells are sufficiently light for there to be very little risk of any damage to people misusing them. A video of the bells being rung can be viewed here . | Low | Low | |

Erection Sequence

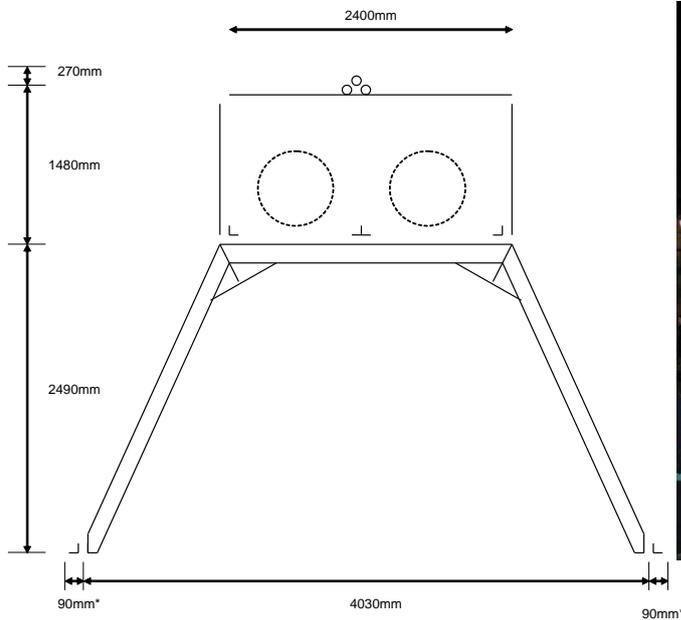


1. If the surface on which the ring is being erected is likely to be damaged, lay the four 6mm sheets of plywood and join with gaffer tape. The sheets have an outline of the ring on them, so enabling the ring to be assembled square. On soft ground the 225x 50mm 2400mm long timbers may be used underneath each floor angle to spread the load.
2. The portal frames are numbered I and II, and are marked as such. Lay out the first top beam on the ground. Ensure that there is timber packing underneath, to make lifting easier later.
3. Lay the two legs out on the ground and offer each leg up to the top beam. Each leg is lettered A, B, C or D, to correspond with the letters on the relevant ends of the top beam. Ensure that the sides labelled 'inner' are facing up. Fit three long M12 bolts to the upper side of each joint and leave finger tight.
4. Repeat the operation for the other portal frame
5. Connect the two floor angles to the legs as shown, using the larger M16 nuts, bolts and washers. The bottom flange goes underneath the leg.
6. Attach the four cross braces with long M12 bolts. The cranked end is attached to the floor angle and goes on the outside flange.
7. Five people are needed to lift each portal frame member into position. It becomes easier the nearer to the vertical it gets. One person will then fit the two diagonal braces, with long M12 bolts.
8. Once the two portals have been lifted, ensure that the structure is square. Move if necessary.

9. If it is possible, move the trailer underneath the erected portals to act as a safe working platform. Otherwise work from the extension ladder provided.
10. Fit the two side cross members with short M12 bolts. The connectors for the gantry poles are on the outside. The cross members are numbered with the appropriate bells 1/2; etc and these must correspond with the same numbers on the top flanges of the portal beams.
11. Fit the middle cross member. Ensure the bell numbers correspond with the same numbers on the top flanges of the portal beams.
12. Fit in position with short M12 bolts.
13. Lay the two wide timber platforms between the side and middle cross member. They go either side of bells 5 and 6. Ensure that they are square. Also check that rest of structure is square
14. Fix the remaining long M12 bolts on the inside joints between portal legs and top beam.
15. Insert the four gantry poles. Tighten each one with an allen key. Do not over tighten.
16. Fit the two gantry transoms. Each has a 90° coupler on the end. Tighten the allen screws.
17. Pass up the electric hoist and runners to those working at high level. Thread the hoist on to the pole and loosely fit the 2nd set of runners. Offer up to the gantry cross members. Ensure that this runs smoothly and then tighten the allen screw on the 2nd set of runners.
18. If the hoist is lowered without any load, the cable on the drum can become slack and snag, and can damage the cable. Always use the counterweight provided.
19. The bells are normally transported with the ropes taken round the wheel and the tail end looped around the clapper. The bells are at about 45° to the horizontal. Unattach the ropes from the clappers before lifting.
20. Position the bellframe containing bells 1 and 2 on the trailer under the space for 5 & 6 and so that the gantry can travel across to their final position, without moving the electric hoist on the gantry. Lower the hoist and attach the frame. Hoist through the larger opening. Move across into position and lower. Put one 6mm bolt in each corner and fit nut from underneath.
21. Repeat this operation for bells 3 & 4.
22. The narrow platform fits between these two frames.
23. Repeat the operation for bells 5 & 6, which can be lifted straight to their final position.
24. Unattach the power supply and wrap the cables and operator out of the way so that they are not damaged by the bells.
25. If it is likely to rain, attach the 'tent' roof. The frame is rectangular, so make sure it is the right way round.
26. If desired, attach the translucent sides of the 'tent'. This wraps round the belfry. Otherwise attach the Charmborough Ring banners with cable ties.
27. The bells are now ready for ringing.



Plan showing space needed for assembly



The Charmborough Ring Overall Dimensions

Overall height 4240mm (excluding timber packing/floor protection)
 Area on plan 4030mm x 2050mm.
 * If angles bolted on outside, this increases to 4210mm x 2050mm

Important: These are overall dimensions of the structure and do not include working space needed for assembly.

Revision 2
 Roger Booth 13th July 2008

Towing Checklist

| | Yes | No |
|--|--------------------------|--------------------------|
| Is lock fitted? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is safety chain attached? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is load secure? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is load spread evenly? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is cover secured? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is correct number plate fixed to trailer? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are indicator lights working? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are brake lights working | <input type="checkbox"/> | <input type="checkbox"/> |
| Are side lights working | <input type="checkbox"/> | <input type="checkbox"/> |
| Are tyres properly inflated and in good condition? | <input type="checkbox"/> | <input type="checkbox"/> |

Comments

Dismantling Checklist

| | Yes | No |
|---|--------------------------|--------------------------|
| Are bells and wheels secure on their headstocks? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are contents of toolbox correct (tools & nuts and bolts)? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is electric hoist satisfactory? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is petrol generator satisfactory? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are electric cables, plugs and sockets satisfactory? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there fuel and oil for generator | <input type="checkbox"/> | <input type="checkbox"/> |
| Is plywood and timber protection satisfactory? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is trailer satisfactory? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are bell ropes satisfactory? | <input type="checkbox"/> | <input type="checkbox"/> |

Comments/repairs needed