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MARINE SURVEYOR

Accredited Member of the Yacht Designers and Surveyors Association

REPORT OF A CONDITION SURVEY CARRIED OUT ON THE VESSEL:

“ [REDACTED] ”



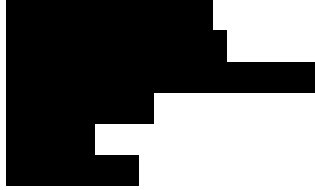
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A. GENERAL NOTES

The following survey was carried out afloat on the River Adur and on the slip at Shoreham Yacht Club between [REDACTED]



Scope

The survey was carried out as a pre-purchase measure to assess the structural and material condition of the vessel. Where equipment was tested this is detailed in the text. References to condition are in relation to the vessel's age (i.e. good condition does not necessarily mean new).

Recommendations are restricted to:

- (A) items which should be addressed before the vessel is used and/or which may affect insurability and;
- (B) items which should be addressed in the near future in order to prevent future problems.

Recommendations are printed in red for quick reference within the body of report and are also listed in the summary. They do not cover cosmetic or minor defects, although suggestions to address these may be included.

The survey is for the client above. No liability is extended to anyone else.

Limitations

Parts of the vessel that were covered, unexposed or inaccessible due to fixed panels, linings etc. were not examined, so I cannot say these areas are free from defects other than where specified in the text. No fittings or fastenings were removed for examination other than where specified. Note it is not possible to detect some latent and hidden defects without destructive testing which is not possible without the owner's consent.

Plating thickness was determined by a Cygnus 2 multiple echo ultrasonic thickness gauge. This is used to assess point thicknesses at regular intervals and more frequently where corrosion is suspected in conjunction with a visual examination. However it is unlikely that localised pitting will be found by this method if it is otherwise concealed.

The cradle bases limited inspection over two 1.5m transverse areas on which the hull rested.

Conditions

The vessel was initially inspected afloat on the River Adur where she has been laid up on a mud berth for about 3 years. She was taken across the river under her own power and, after waiting for lower winds, slipped on the yacht club slipway using paired cradles which placed her stem about 0.4m above ground and stern 1.5m.

SUMMARY

██████████ a Boltjalk (pronounced 'boltchalluk') type barge, built in 1909 of riveted iron plate to carry cargo under sail in the inland seas and waterways of the Netherlands. At some point in the last decade the hold space was covered with a coach roof to create a living area but this work was never completed. The hull is presently a large open space apart from the engine area. She was sold and brought to the UK by the present owner in 2007 and has since been laid up on a mud berth at the top of the spring tide level on the south side ██████████

As is normal for such transactions, the 2007 Dutch sales agreement included carrying out a survey of the bottom plates and reinforcing any found below 4mm, the original nominal¹ thickness of the iron plate being 6mm. This was carried out with 5mm plate. Virtually all of the bottom of the barge has now been over plated at different stages.

Corroded areas requiring attention are mostly around the waterline and to the deck. The inside of the hull is clean and well coated. Further details are in the recommendations and the plating survey plans.

The rig was removed some time ago although the pivot points, tackle leads and winches for the lee boards remain. A mast step was welded onto the new coach roof but the present owner removed the compression post beneath this. It would have to be replaced if it were ever planned to reinstate the rig.

A marinised Daf diesel engine was installed when the barge was sold in 2007 and she was brought to the UK under her own power. This is a basic installation with most of the exhaust and cooling system being made up of welded mild steel pipe which is now corroding. These will need to be replaced if extended cruising is planned. The engine was seen running.

The surveyor was onboard when she was motored across the river to the slip. Winds were about force 4-5 and handling was only possible using a safety boat to pull the bow of the barge around. Given the proposed use on European inland waterways, in my opinion it will be essential to lower the barge in the water and install a bow thruster to improve handling. The smooth bottom of the barge has no grip on the water otherwise (she was designed to be handled under sail when she would have had leeboards). To lower her by 10cm would take about 6 tonnes of concrete. This can be cast in two slabs alongside the existing concrete cast into the turn of the bilge. There are several other points that need to be addressed before the barge can be safely taken out to sea.

Work needed to address corrosion to the hull plating was started under the surveyor's supervision immediately after the survey as agreed.

¹ Nominal or manufactured thickness will vary; for wrought iron 6mm plate it might be between 5.5mm and 6.5mm. Modern steel plate is usually closer but can still vary by +/- 0.2 mm. For commercial vessels, most classification societies require the plate to be replaced if more than a third of the original thickness is gone.

RECOMMENDATIONS (welding work underlined)

(A) items which should be addressed before the vessel is used and/or which may affect insurability.

1. Shot blast and recoat all corroded areas along the entire waterline, including the rudder. Over plate heavily pitted areas to port from 13m to 17m aft as shown on plans and paint sprayed on the hull. Over plate two small areas of corrosion at the junction of doublers starboard aft and on the angle iron holding the skeg, also starboard aft. Recoat all surfaces with at least 6 layers of bituminous paint. (A).
2. Over plate corroded areas on the deck forward to both port and starboard by the leeboard pivots; to the bow at the starboard deck edge with the bulwark and under the port anchor davit mount. Remove surface rust and repaint the entire deck (A)
3. Replace both anodes (A).
4. Clean and dry the bilge around the welded engine water intake pipe and repaint with several layers of bituminous paint. Free off and grease the engine water intake ball valve. Replace galvanised hose clips to the hose from intake pipe to the engine with paired stainless steel clips at both ends (A).
5. Secure all openings against weather and theft (A).
6. Fit a large capacity diaphragm manual pump and an engine driven or independently powered (i.e. electrical) bilge pump (A).
7. Fit at least 2 multi purpose fire extinguishers to BS5423 with a minimum rating of 12A/113B (A).
8. Refill the engine secondary coolant and fit a suitable cap to the header tank (A)
9. All faulty engine indicators (oil, temperature and charge) should be repaired before the engine is used again (A).
10. Repair a leak at the fuel tank filter and reinstall the fuel delivery system with the pipes firmly clipped to a secure and protected base. Replace the short length of degraded flexible fuel pipe between the copper supply pipe and the engine (A)

(B) items which should be addressed in the near future order to prevent future problems. In this context it is assumed that the vessel will not be used in open water in the near future; otherwise some items on this list should be brought forward;

1. Replace the stern bulwark plating where corroded and fit a capping piece to both this and the bow bulwark (B).
2. Remove the propeller to check for any corrosion on the shaft taper (B)
3. Remove rust from and paint the inside of the hawse pipe (B).
4. Grease, paint and re secure the anchor winch before the vessel is taken out of harbour (B).

5. Degrease and paint the entire engine and associated metal pipework with heat resistant enamel (B)
6. Replace the engine water pump fan belt and change the engine oil and filter (B)

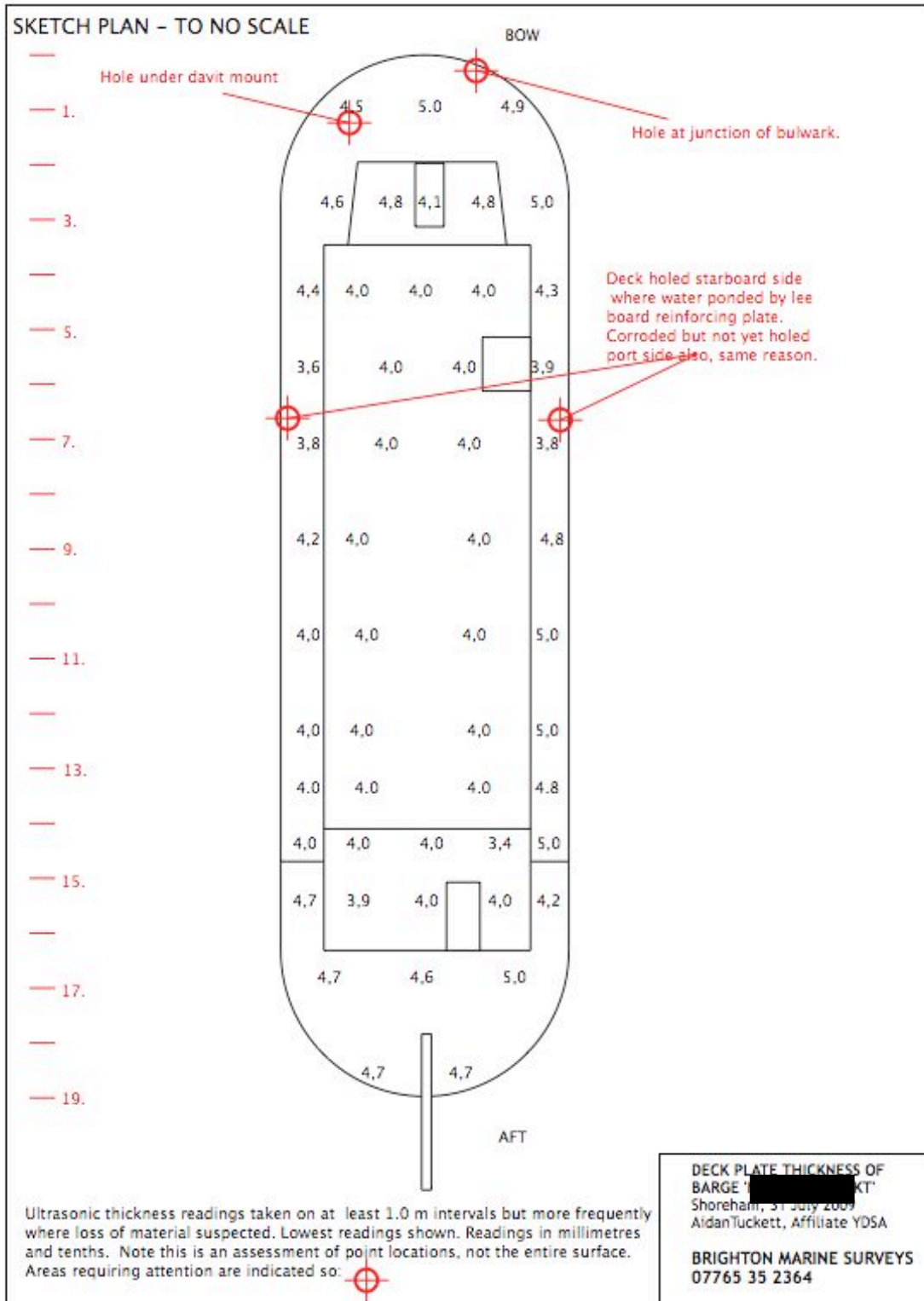
Note in addition to the above, Section H outlines minimum work required before the vessel can be taken to sea.

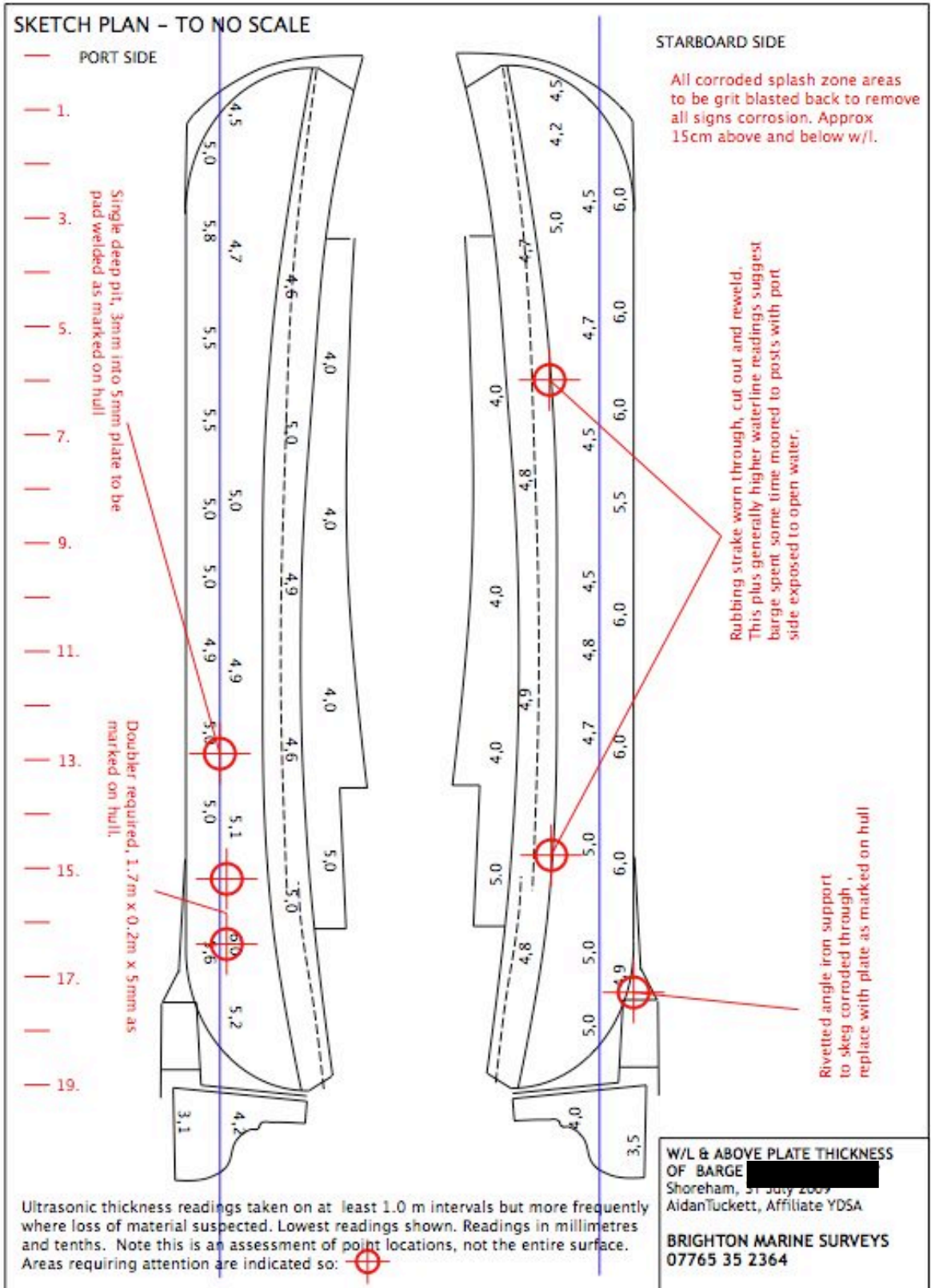
C. VESSEL DATA

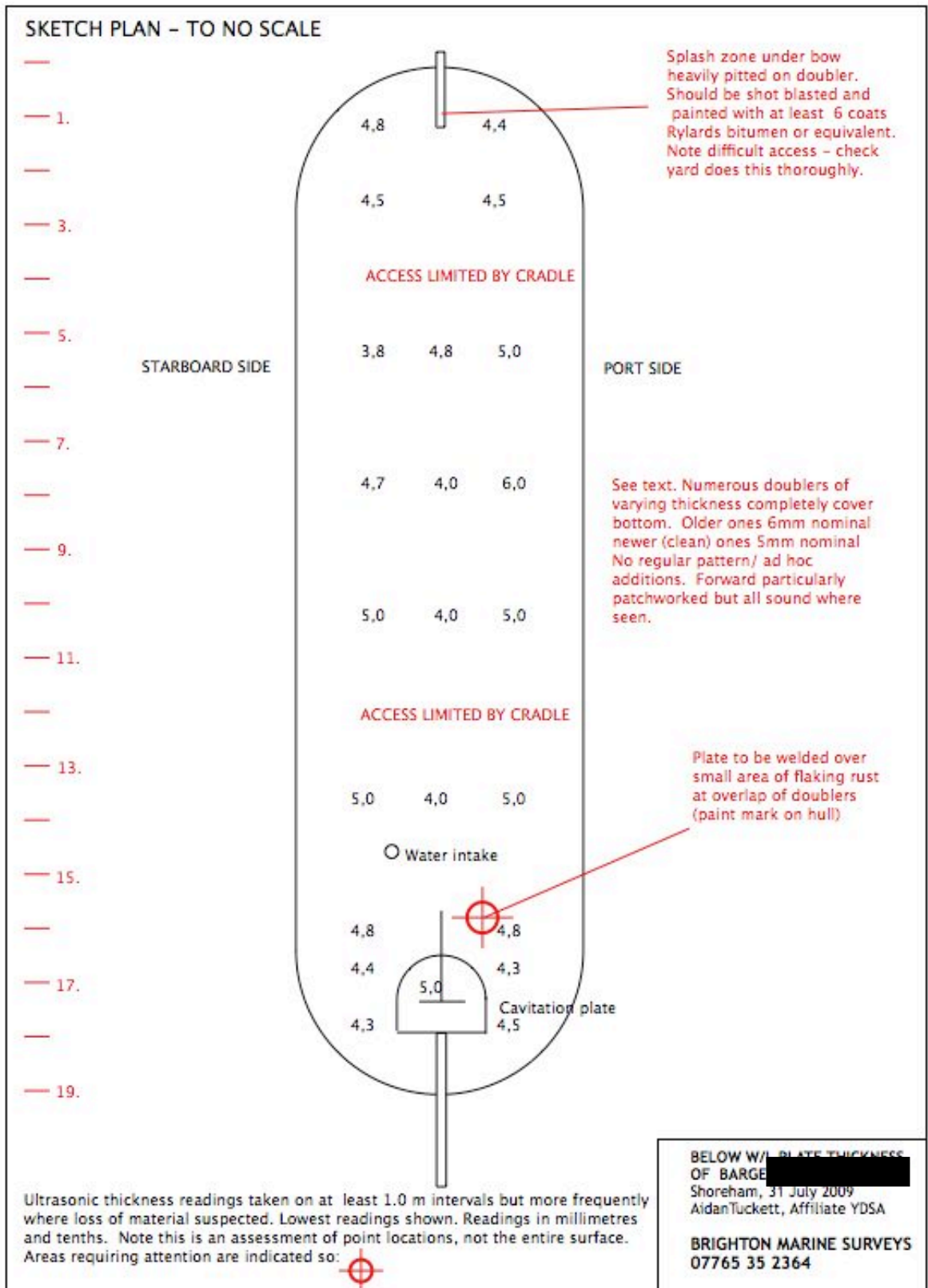
Dimensions approximate.

LENGTH OVERALL	:	19 m
LENGTH WATERLINE	:	17 m
BEAM	:	4.1m
DRAFT	:	0.6m at skeg aft, otherwise 0.4m.
DISPLACEMENT	:	Estimated 25 tonnes
BUILT	:	1909
REGISTRATION	:	<div style="background-color: black; width: 150px; height: 1em; display: inline-block;"></div> Dutch inspection number <div style="background-color: black; width: 50px; height: 1em; display: inline-block;"></div> 1989 stamped on after end coachroof by helm.
ENGINE	:	Daf 575 diesel, believed 105hp.
FUEL	:	approx 450 lts
WATER	:	approx 1100 lts (2 x 550lt tanks aft)

D. Hull, Deck and Structure.
 D1. Ultrasound survey







D2. External shell

The original hull is riveted wrought iron plating of 6mm nominal thickness. Over the parallel mid body this is in seven strakes; a sheer strake from the top of the bulwark to the turn of the bilge, rolled plates to form the bilge each side and three bottom plates. Additional stealers are used to get the curvature to the bow and stern. Rivets are at approximately 60 mm centres.

A square sectioned stem and skeg is riveted to the structure.



The entire bottom has been doubled with welded steel plates at various times, most recently in 2007 before she was brought to the UK. Most of this work is neatly done, although there is an area between 3m and 5m aft of the bow (shown) where numerous small plates have been welded in an ad hoc fashion. One of these is a 200mm plate which transverses the hull and a slight concavity was noted in this area. No damage was noted inside the hull.

All welds were visually inspected and the paint removed from sample areas and hammered where accessible. All inspected areas appeared to have good penetration with no porosity or other signs of poor workmanship. Sample rivets (above the waterline) were inspected and hammer sounded and found to be secure, flush with the plate surface and showing no signs of movement.

The hull is coated with a bitumen-based paint, believed Rylards 'Rytex', which is in fair condition except where described below.

There are numerous dents to the top sides which is to be expected for a 100-year-old working craft. None warrant attention.

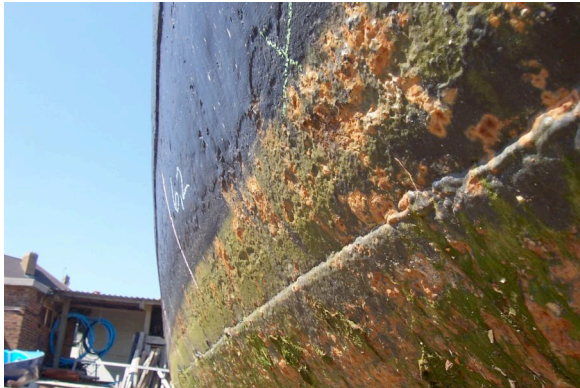
There is a rubbing strake formed of a 200mm plate welded some 600mm below the bulwark cap with an oval strip welded to the centre. This is secure but the oval has partially worn through on the starboard side aft and mid ships where presumably the barge has been moored to pilings for some time and chafed against these.



The barge was slipped at Shoreham yacht club on 30 July and the hull inspected over several days thereafter. Plates were visually inspected, hammer sounded to remove rust and thickness checked with a multiple echo ultrasonic thickness gauge which allows readings to be taken through paint coatings. Deep pits were checked with a gauge and any areas with less than 2/3 original plate thickness paint spray marked for repair. An area of corrosion and pitting was noted around the entire waterline, the pitting in places being up

to 3mm deep (shown).

In particular areas along the waterline to port (shown) between 13m and 17m aft need over plating or pad welding (A).



Elsewhere the paint coating along the waterline has broken down allowing corrosion beneath. The entire waterline area should be shot blasted 20cm above and below the waterline and recoated. It is important that adequate attention is given to the waterline at the bow which is close to the base of the slipway and difficult to clean and paint (A).



Where the hull is taken back to bare metal steel, it is recommend a minimum of at least six coats of bitumen paint be applied directly to the steel to provide adequate protection attention. Bitumen paint is a soft coating which must be kept well maintained. The manufacturers of Rylards 'Rytex' (already used on the rest of the hull) advise that this should be used directly on bare steel without red oxide or any other primer as the two paints are incompatible.

Apart from the waterline area, a small area of flaking was found at the overlap between two doublers under the stern to starboard (shown). This has been paint marked.



A 5mm anti-cavitation plate has been welded over the propeller. This is in good condition and secure.

The top of the sheer strake forms the bulwarks at the bow and stern. These have been repaired at the bow by cutting away corroded metal and tack welding a strip of 4 mm steel. This has a sharp top edge and needs a capping piece (B).

The bulwark to the stern is badly corroded (shown) and again should be cut back to firm metal and a similar repair executed (B).

Further 11 pages detailing engine and systems removed...