



Friends of

Upminster Windmill

Newsletter December 2016

*Our new Community Engagement Officer,
Charlotte Coombes, starts work in January*

**STOP
PRESS**

Friends of Upminster Windmill

is a Charitable Incorporated Organisation (CIO) managing the windmill on behalf of the London Borough of Havering.

Chairman: Dennis Coombs

Vice-Chairman: Martin Withers

Secretary: Paul Sainsbury

Membership Secretary: Ian Ross

Treasurer: Jean Webb

Web Master: Neil Morley **Comm'ty Engmt. Officer:** Charlotte Coombes

Telephone: 0300 030 1803

E-mail: info@upminsterwindmill.co.uk

Website: <http://www.upminsterwindmill.org>



Visiting. The mill remains closed during its restoration, which will last until 2018. The Visitor Centre will open in early summer 2017.



Diary note.

Quiz Night.

Our ever popular quiz night will take place on :

18th February 2017

St. Lawrence Church Hall

Doors will open at 7.00pm for a 7.30pm start.

Tickets £6 per person. Tables for 8 can be booked through

Linda Hawthorne Tel. 01708 225451



Members and Volunteers.

Volunteers
Christmas get together
Wine and Mince Pies
Sunday 18th December
3.00pm to 4.30pm
In the Old Chapel
St Marys Lane, Upminster RM14 2QR

RSVP by 11th December
to Martin Withers
martinwithers@tiscali.co.uk
tel: 01708 229564



Dennis Reports

Progress on the project

Our main article in this edition explains the excellent progress made by Willem Dijkstra, our millwright, to refurbish the cap and sails in his Dutch workshop. Over the winter we will see preliminary work undertaken on the site to prepare the smock tower for restoration, with the work getting underway in the spring.

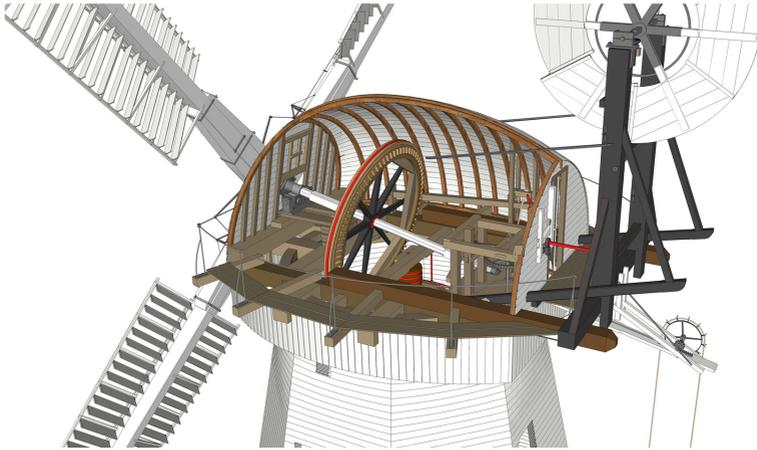
Our last edition featured the new visitor centre, on which most of the outstanding work has now been completed. Volunteers are now equipping the workshop and we hope to equip the rest of the building in the New Year.

Historic England (formerly English Heritage) funded a professional archaeological survey of the steam plant area which was undertaken in October. Volunteers were able to participate and learn measuring techniques. We are still awaiting the report which we hope to feature in our next edition. In the meantime, to ensure the preservation of the site, we are covering the tops of the walls with building fleece and partially filling the site with sand. A second survey is being undertaken to establish the need for work to consolidate the top of the brickwork and, once that is done, the intention is to rebury the site. We hope that, sometime in the future, plans can be developed for a building to cover the site, enabling the historic remains to become a permanent public display.

Following completion of the visitor centre, we are now able to start landscaping work on the grounds to its the south and west. This is in front of and to the left as you look up the field. The first step will be the provision of a hedge to surround the garden area, planted along the edge of the area we will shortly be leasing from the Council. This approximates to the area inside the heras fencing, and will allow the fencing to be removed. In the spring, we will be advertising for volunteer gardeners to help layout and maintain the grounds.

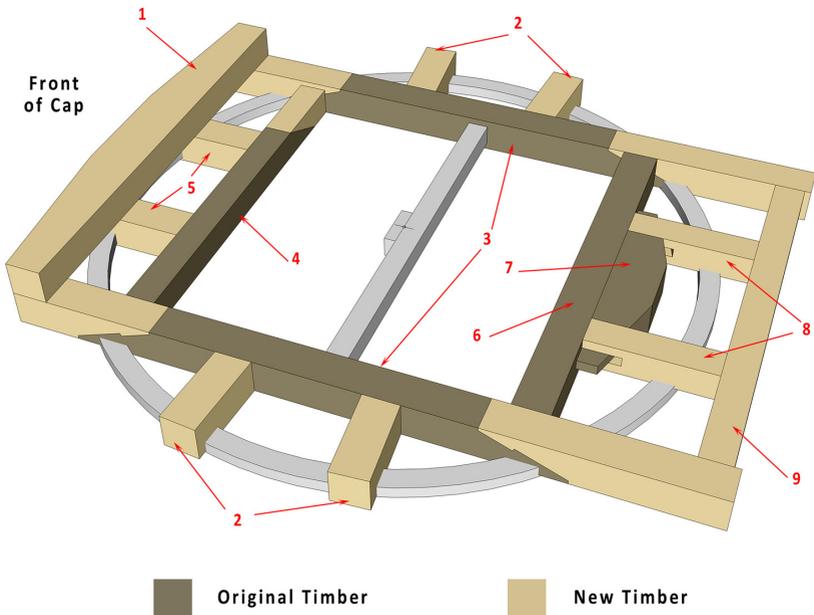
Restoration of the cap and sails

During the year, we reported the removal of the cap and sails from the Mill and explained that they would be refurbished in Willem's workshop in Holland. We also reported on the initial dismantling of the cap and the selection of timber for the repairs. Considerable progress has since been made. Cliff Featherston's electronic model gives us a cutaway view of the timbers and helps us to understand the work that is underway.



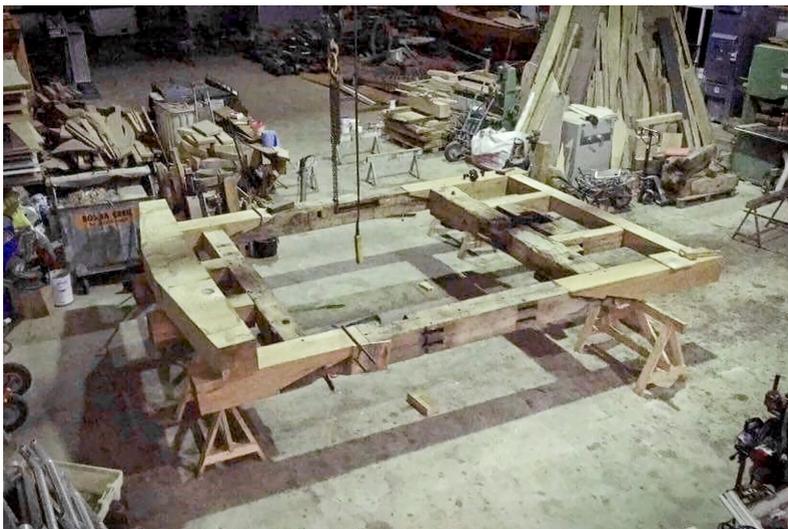
Supporting structure

The cap's supporting structure was found to be in very poor condition and much has had to be replaced. However, to retain authenticity, timber replacement is being kept to a minimum. Cliff's second diagram shows how various sections will be either retained or replaced.



1. Weather beam. 2. Side horns, or puncheons. 3. Sheers. 4. Headstock.
5. Front, or head mullions. 6. Tail beam (original 1803/5).
7. New tail beam (added in 1901). 8. Rear, or tail mullions. 9. Threshold beam.

Much of the cap frame is hidden from public view though the central sections of the two sheers and the adjoining headstock and tailbeam (together with its 1901 extension) are visible just above head height on the top floor of the mill. The retention of these sections is therefore key to retaining authenticity. The picture shows how the new wood has been scarfed onto the old.



Three additional photographs illustrate the complexity of the jointing and scarfing as well as demonstrating the enormous size of the timbers.



The Headstock laying on its side showing new timber grafted to one end. Also seen are two new head mullions during their fitting (pointing upwards in this view).

In 1899 the windshaft broke in a storm and was replaced in 1901 by one slightly longer than the original. To accommodate the extra length the tail beam was extended, but a structural mullion was removed. To restore strength two tail mullions are being fitted (one is seen here during jointing).





In the foreground is the left sheer with new timber grafted to the front end. The large shaped beam seen behind is the new weather beam, the beam that carries the weight of the sails and windshaft assembly.

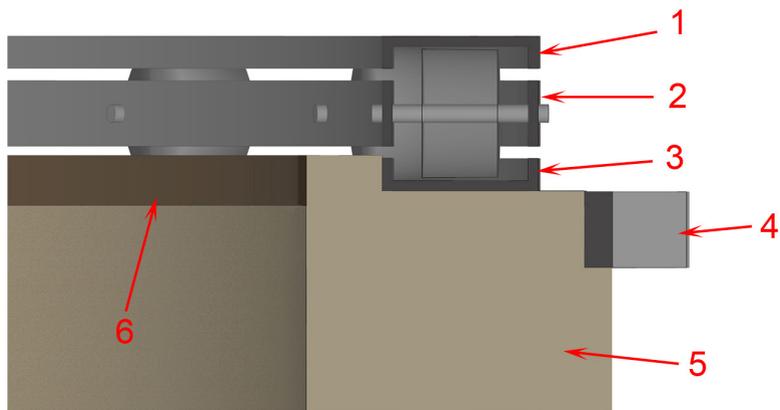
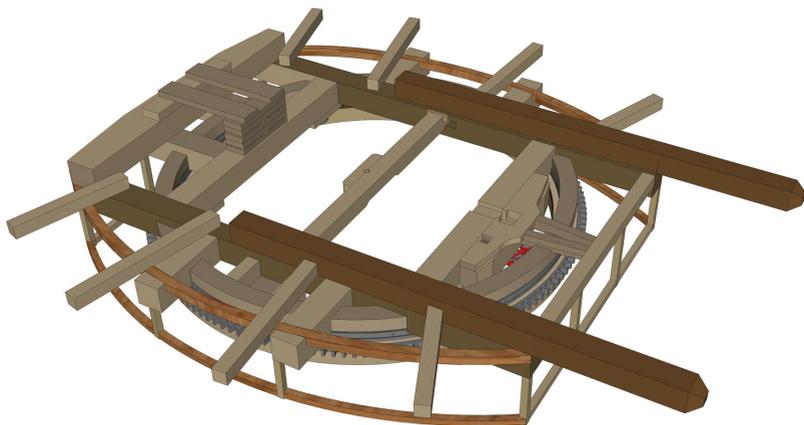
Curb

The cap rotates on a curb, comprised of both metal and wooden sections. Our earlier report pictured the curb reassembled on the floor of Willem's workshop and explained its poor condition.

Repairs to the metalwork have been completed and new timbers have been cut with the appropriate curve. The pictures below show the timber for the curb sections before they were cut to shape. A template on one of the pieces shows the shape required. The pieces will be laminated in pairs, as dry, well seasoned timber of the large thickness required is rare to find. Laminating will also make the finished curb stronger and more stable.



Another of Cliff's illustrations shows how the curb, which sits on top of the smock tower, sits below the cap beams. His model also provides a cross section of the curb, demonstrating how the cap rotates on a series of rollers, which remain invisible once installed.

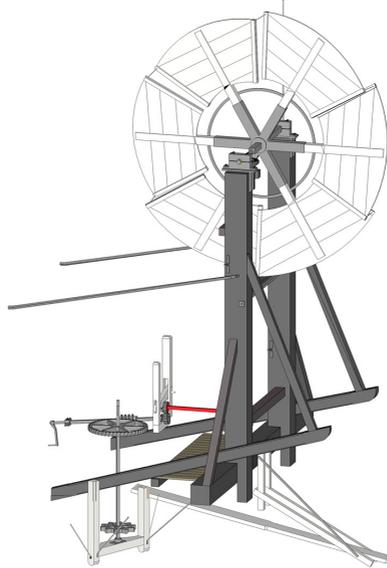


Key to Curb cross section:

1. Upper section of roller tack mounted to under side of cap circle.
2. Roller Cage.
3. Lower section of roller track mounted on curb.
4. Cast iron gear rack.
5. Timber curb beam.
6. Truck wheel running rail.

Fan stage

Rotation of the cap is driven by the wind pressure against the side of the fantail. Again, Cliff's illustration enables the mechanism to be seen. The blades of the fantail were restored by volunteers a few years ago and the base timbers for the fan stage are now being prepared in Willem's workshop.



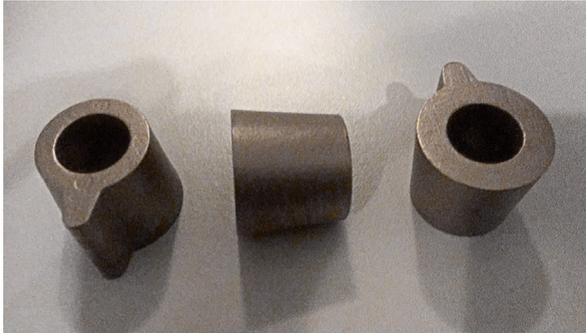
Next steps on the cap and sails

Willem will fully assemble the cap in his workshop to ensure the parts all fit together. It will then be disassembled and returned to the UK, probably in January 2017. This will free the space to build two new sails and to refurbish the two that were replaced after the storm a few years ago.

Shutters for the sails are being made by our volunteers in the UK. For many years, only a partial set existed. The full set of 72 shutters for each sail has required the production of 288 wooden shutters, the work on which is now complete. The cover illustration of this Newsletter shows Mike Turner making shutters.

The shutters, which open and close like venetian blinds, are mounted in the sail frames using metal bushes and pivots. The thimble like bushes are let into the side timbers of the sail frames, and the pivots are mounted on the ends of the shutters. The pivot on the end of the shutter nearest the sail whip is

also combined with an operating lever (see the cover illustration). The existing metal parts are worn out. Replacements - 576 bushes (two per shutter), 288 single pivots, and 288 pivots with operating lever - will be made in Holland and brought to the UK for fitting by our volunteers. The illustration shows some newly cast thimble bushes.



Restoration of the main structure

Willem returned to the UK during November to take measurements and undertake exploratory work. This included:

- Digging up a section of the floor to determine its composition. The aim is to replace the existing concrete with a breathable material to ameliorate future damage.
- Removing some brickwork to assess the condition of some of the supporting timbers. This exposed considerable deterioration but enabled Willem to plan the necessary repairs.

We are expecting Willem to return in January and, in the following few weeks, to:

- Prepare the concrete floor to support internal props during the repairs to the smock tower.
- Assess (and possibly begin) the brickwork repairs to the base of the tower.
- Jack up the smock frame in preparation for stripping the weatherboards and smock frame repairs.

Then, from around April 2017, Willem is expected to remove the external gallery, erect scaffolding, strip the weatherboarding and windows and proceed with the timber frame repairs.

We previously published a picture of the timber selected by Willem for the structural repairs.



The wood has now been prepared:



A full lorry load ready for shipping



Some of the larger timbers



Sections for repair grafts to the sheers

In the meantime. Paul Kemp has been working with our volunteers to dismantle much of the internal machinery. Our next edition will provide details.

Dennis Coombs



Archaeology

As has been mentioned, Historic England carried out a recording survey of the steam mill site in October. They took many photographs, and by combining some of those with others we already had, along with drone aerial images, a photogrammetric 3D model of the site has now been made.

The model has been uploaded to our Sketchfab website and can be viewed by going to:

<https://sketchfab.com/upminsterwindmill>

and opening the model titled Steam Mill Remains. Below is a still image from the model



Cliff Featherston



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Registered Charity Number 1162180
Front cover illustration: FUW volunteer Mike Turner making sail
shutters**