

**THE WATER TOWER AND FIRE STATION
SWAN SIDE, BRAINTREE
ESSEX**

HISTORIC BUILDING RECORDING



Essex County Council

Field Archaeology Unit

November 2008

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Document Ref.	1929rep
Report Issue Date	21st November 2008
Circulation	Bowergrange Estates Ltd
	ECC Historic Environment Management
	Essex Historic Environment Record

As part of our desire to provide a quality service, we would welcome any comments you may have on the content or the presentation of this report.

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**THE WATER TOWER AND FIRE STATION
SWAN SIDE, BRAINTREE
ESSEX**

HISTORIC BUILDING RECORDING

Client: Bowergrange Estates Ltd

FAU Project No.: 1929

NGR: TL 7576 2316

OASIS No.: essexcou1-51604

Planning Application: BTE/0723/07 & BTE/0714/08

Date of Fieldwork: 5th & 6th June 2008

1.0 INTRODUCTION

A programme of building recording was undertaken by Essex County Council Field Archaeology Unit (ECC FAU) on a former brick water tower and contemporary fire station during conversion to flats and a restaurant. The work was commissioned by the developer, Bowergrange Estates Ltd, and carried out in accordance with a brief issued by the Historic Environment Management team of Essex County Council (ECC HEM 2008), who also monitored the work.

Copies of the report will be supplied to ECC HEM and to the Essex Historic Environment Record (EHER) at County Hall, Chelmsford. The archive will be deposited with Braintree Museum. An online OASIS record has been created at <http://ads.ahds.ac.uk/oasis/index.cfm>.

The main structure is a steel-framed masonry-style water tower constructed in 1928 to replace an earlier Victorian tower, also now converted to flats. The fire station was built in 1931 in contemporary modernist style. All three buildings are prominent structures in the Braintree townscape.

2.0 BACKGROUND

2.1 Site location and description (fig.1)

The site lies in the Braintree Conservation Area to the north of the medieval and post-medieval nucleus of the town, around Bank Street and the market square (ECC HEM 2008). Swan Side is named after The Swan public house, which stands to the west, above Little Square (fig. 1). The two water towers and fire station stand within a triangular-shaped plot formed when the road linking Swan Side and Blyths Meadow was cut in the 1980s.

Both are brick-built. The water tower (plate 1) has an arcaded twelve-sided structure surrounding a square central core below a large iron tank. The fire station is built on two main levels with a flat roof and large folding doors for the engines at the front, onto the street. The Victorian tower (plate 2) is a narrower, fully-enclosed masonry-style tower, built on an octagonal plan form in polychrome brickwork.

2.2 Planning background

Braintree District Council received a planning application for conversion of the water tower to residential use in 2006. The plans involved removing the tank and inserting new floors to create eight flats, and a side extension. In view of the changes to the building the ECC HEM team recommended a full archaeological condition to the planning permission 'to preserve the building by record'. The condition was based on advice given in Planning Policy Guidance Note 16: Archaeology and Planning (DOE 1990). However, the condition was not implemented until the conversion had already started, so the tower could not be recorded in its unaltered state.

2.3 Historical background

As part of the survey, sources at the Essex Records Office, Chelmsford were consulted to provide details on the origins and development of the site. A previous survey, *The Public Water Supply Industry in Essex* (Crosby 1999) was also consulted, which views the existence of two towers on the site as significant and suggests the presence of original fixtures associated with use. From this report, a short paragraph is included below as background on the chain of processes involved in water supply

At the start of the process, pumping stations pump water from boreholes in the ground. Water is then carried by underground pipes to be stored in covered service reservoirs or water towers. Water towers were built on high ground to create the pressure necessary to provide gravity-fed water. Many early towers were built of brick, while later versions

employed steel frames and, from the 1930s onwards, heavy concrete structures were built. After storage, the water is treated in the water works, where it is screened, filtered and chemicals added, before reaching the customer at the other end. Most Essex water originates from underground sources which need little treatment, river water requiring the most (Crosby 1999).

An Industrial Archaeology Working Party set up by Anglian Water in 1982 only included the Victorian tower in its survey (ERO T/Z 254/1). The survey states the original water tower was built in 1857 with a capacity of 40,000 gallons and supplied by the Hoppits Bridge pumping station to the south, on Notley Road. The capacity is estimated at 45,000 gallons in the ECC report (Crosby 1999).

According to the ECC survey report, the Victorian tower was replaced by a new masonry tower in 1928. The capacity of the new water tower was compatible with the old and probably fed off existing pipes. The second structure followed the later water tower form of a central working area (core) and open exterior to support the tank, rather than being fully enclosed. The design blended in with the style of the earlier tower, whilst also expressing its own architectural character in an Italianate style. An interesting point is the new tower was built by the present client's grandfather, quite early in his career (M. Brand pers. comm.)

By 1982 the Victorian water tower was redundant and in this year the link road between Swan Side and Blyths Meadow was cut (ERO T/Z 254/1). The second tower was still functioning in 1998 (Crosby 1999). The subsequent years' survey recommended the two towers should be Grade II listed, amongst other things, for the rarity value of having two water towers on the same site (Crosby 1999). Some time before 2001 the second tower was decommissioned as conversion plans were submitted in that year, although this conversion did not take place.

In recent years the Victorian tower was converted to flats although the top section appears unaltered and may still contain the tank.

The fire station was built in 1931 by ECP Brand Builders, after the family firm had divided into two (M. Brand pers. comm.). An undated picture of the fire crew outside the station is included in 'Braintree and Bocking in Old Postcards' (Brisley vol. III 1992). A new fire station was built along Railway Street that was completed in 1991 (Brisley 1992) and for a while a community woodworking enterprise used the old station, but in recent years the building has been redundant.

3.0 OBJECTIVES

The purpose of the historic building survey was, as outlined in the brief (ECC HEM 2008), to provide a detailed record of the water tower in its pre-conversion state. As the survey was commissioned after building works had started, and features and fabric removed, it was agreed between the FAU and the HEM monitoring officer that the survey should adopt a 'watching brief' approach to using what remained of the fabric to interpret the structure. In view of the advanced stage of works, the level of recording was downgraded from an English Heritage Level 3 to Level 1-2, although with information supplied by the client something close to a Level 3 analysis was achieved. As part of the discussion it was highlighted that the fire station was also undergoing conversion works and agreed this should be recorded also, but to a lower level (a basic English Heritage Level 1). Costings were submitted accordingly and the resulting written scheme of investigation (FAU 2008) tailored to reflect the work required.

Within these constraints, the survey was required to consider the following as part of the record: plan form of the site; materials and method of construction; dating, development, function and internal layout; surviving fixtures and fittings; and the context of the water structure in its contemporary landscape and the water supply industry in regional and national terms.

The focus of the investigation and this report is the water tower before conversion, rather than as a record of the tower as it underwent conversion. Therefore the latter is referred to only in broad terms and the drawings and most of the photographs show the building in its pre-conversion state.

4.0 DESCRIPTION OF RECORDING WORKS

The survey was undertaken during ongoing building works with the water tower in particular in an advanced stage of conversion. The water tank had been removed and new concrete floors added internally. Additional floors had been inserted, disturbing the original spatial relationships and the ground floor dug out for the basement, exposing the water pipes. Most of the inner arcading on the first two levels had been removed to create space inside the new flats. No machinery or technical features such as water pumps or pressure dials remained, but these may have been removed upon closure. The project was aided significantly by pre- and early stage conversion photographs provided by the client, along with existing plans and

elevations by AWG Land Holdings from October 2005, the latter of which forms the basis for figures 3-7 in the report.

When the survey started conversion works inside the fire station were also advancing rapidly. Concrete stairways were being removed and the rear wall to the former fire engine area taken down. Within Health and Safety restraints, sketch plans were made of the main levels (fig. 9).

A short series of digital photographs were taken of both buildings during the conversion. Some of those showing architectural detail and fixtures are reproduced at the back of the report as plates 1-22, alongside those supplied by the client. The remainder can be found in the archive.

Cartographic and documentary research was undertaken at the Essex Records Office and Braintree Library to gain a wider understanding of the structures and to place them in context within the Braintree streetscape and the 20th century development of the town. Important background information was also supplied by the client, whose family were involved in the construction of both structures. Each structure is described separately in the following section, starting with the water tower.

5.0 THE WATER TOWER

5.1 General description (exterior and construction)

The water tower stands 13m south-west of the old tower (fig.1), inside a modern railed fence (plate 1). Sole access to the enclosure was formerly by a metal gate close to the fire station which served all three structures. The water tower is larger than its earlier counterpart, 24.5m high and 13m wide at the base. It has a symmetrical twelve-sided plan form with uniform brick arcading diminishing with height on all sides. This arcading gives the appearance of a masonry-built tower but is really a device to hide the steel-frame supporting the tank at the top. Inside, the open arcading continues from the outer piers to a square central core, forming a cross-pattern plan (fig. 4). The core accommodated testing areas and provided the only (ladder) access to the base of the tank in two stages (levels 1 and 2), and thereafter through the tank by a narrow steel shaft to the platform above. The tank is circular, c.5.5m deep and 11.3m in diameter, providing a volume of c.195m³ and hence a capacity of 195,000 litres or 43,000 gallons, a similar capacity to the earlier tower.

The outer arcading is built from English-bonded red brick in two stages, topped by a third stage of blind arcading that hides the tank (plate 3). The springing points of the arches are dressed in limestone and there is a limestone band along the base of the third stage. Here the twelve pilasters supporting the tank are topped by moulded pediments (plate 3). The inner arcading, less conspicuous from the street, is built in more utilitarian Fletton bricks, still using English bond as is the central core (plates 4 & 5).

The steel frame is the main structural element. It consists of large 10 x 11 inch (25 x 28cm) stanchions, flared at the base and wrapped within the brick piers that rise up to the base of the tank (fig. 4). The tank (plate 5) is built from riveted 5 x 15 foot (1.5 x 4.5m) iron sheets sealed to base and sides by concrete. It is supported on the tops of brick-shrouded vertical steels at the tops of the piers linked to a ring of steel joists (fig. 4). Another ring of steels is located between the first and second levels and attached to the brickwork of the central core by radiating joists (fig. 4, plate 5).

The roof is pitched and slate clad. Its eaves overhang above a concave limestone soffit. Triangular wooden air vents are located on the cardinal points (fig. 3) above the tank.

5.2 Internal description (central core and tank level)

The square inner core is divided into three levels, the ground floor engineer's room (so called in the 1999 survey report) for maintenance purposes, the first floor (level 1) and second floor (level 2). The two levels comprise steel platforms as ladder stages. From the second level, a metal shaft extends upwards through the centre of the tank to a platform at the top where the water could be inspected and tank cleaned out, if necessary. The internal relationship between the different areas is illustrated as a section in figure 4, which also highlights the constructional elements.

The central core containing the engineer's room/testing area is entered through the north side of the colonnade (fig. 4). The door had been removed but the fanlight over can be viewed in plate 6. The interior is bare brickwork and the floor dug out exposing three water pipes. One was in the direction of the old tower (inflow) and the two others in the direction of the town (outflow). One of these may have fed the fire station, which would need its own supply. A small plastic sign on the wall indicates a sample testing area. A steel ladder, probably like those shown in the pre-conversion plates, would have led to the level 1 platform and had been removed before the survey. Long steel-framed windows, arched like the fanlight over the door, lit the inner core on all sides, comprising narrow fixed panes, apart from the central section that tilted open (plates 4, 5 & 7).

None of the platforms to levels 1 and 2 survive, but their positions were indicated by cut-through steel joist supports in the core walls. The platforms consisted of steel plates with ladder hatches and safety bars, providing breaks in the climb. Their positions are shown in fig. 3. The level 2 platform is included in the pre-conversion plates, showing a blue ladder passing up to it from level 1, beside a steel safety rail (plate 9). Another blue ladder took the climber from the second stage and up through a metal shaft (plate 10) inside the tank to the platform above, and then into the tank. The shaft and platform are clearly shown in plate 11, taken inside the tank before the current works began, and it is worth noting the long inflow pipe just to the right of the shaft that reaches to the top of the tank. The two outflow pipes were located at the base of the tank (fig. 4). Plate 10 illustrates the platform and access ladder well, and also the iron rods that tied the shaft and outer walls in position, while plate 12 gives a good impression of the tank's size.

Above the tank, the roof has a relatively complex angle-iron frame to support the heavy and wide slate roof whose rafters are hidden behind sarking boards.

6.0 THE FIRE STATION

The outward design of the former fire station has a much more progressive, modern design than the more traditional but contemporary water tower, and there are some features of the time, though many areas are purely functional and lack any more abstract qualities. Like the tower, the main construction is on a steel frame with brick outer walls and reinforced concrete floors. The building is essentially in two parts, the main two-floored southern end, containing the fire engines and staff rooms, and the slightly-taller triple-storied north end (plate 14), comprising mainly showers and office-type rooms. The levels are created from large steel joists and concrete forms, screed over, while the roof is flat and topped with roofing felt (plate 15).

The front part of the building is the appliance room and contains two pairs of tall folding doors for the fire engines (plate 16). Inside, the appliance room was attached to the muster (fig.9a, plate 17) whereby the firemen dropped down the pole behind the engines (since removed) to gather and get kitted-out for the call. The pole would appear to have been located in the kitchen/mess area at the rear of the building on the first floor, close to the entrance (fig. 9b, plate 15). A GEC-manufactured fire bell was still attached to the wall in the appliance room (plate 18) and there was at least one other in the mess room.

Above the appliance room was a large recreation/social area that was partially-stripped but still contained the pool table. It is likely to have had other games, tables and perhaps a bar. It was well-lit at the front by a long row of Crittalls windows (plate 19).

The secondary north block is also fenestrated in Crittalls windows, most effectively either side of the north-west corner. As part of the main elevation, they have neat geometric-style concrete surrounds that are lacking on the side windows, which are just fitted to head and sill (plate 14). An architectural feature of some interest is located on the north elevation in the form of a moulded concrete porch to the fireman's entrance. The curving step and lintel and incised closed eastern wall are evocative of the modernist style of the period (plate 20). Other similar features are the porched doorway into the kitchen/mess room and glass-tiled ceiling light above the corridor (plates 21 and 22). Otherwise there are few features of interest inside the station.

7.0 DISCUSSION AND CONCLUSION

The Swan Side water tower and fire station are prominent early 20th-century Braintree buildings, each with their own very distinctive style. The rudimentary steel frame of the principle structure is cleverly disguised behind its Italianate-style brick arcading and roof, thus complimenting the earlier masonry tower and augmenting the historic nature of the town centre. The water tower is well-built in traditional English bond with good proportions and strong, if rather minimal, architectural detailing.

The importance of water towers from all eras has already been noted in the 1999 survey and the two Braintree towers are included, with their noted significance as a pair. Regarding the typological form of the 1928 water tower, it is best described as a steel-framed masonry tower. This makes it as an unusual and important structure in its own right as steel-framed towers tend to be built as purely functional structures, consisting only of a bare frame and tank.

Conversely, the fire station was built in the contemporary, more utilitarian, modernist styling of block form, flat roof and Crittalls windows. An easily-overlooked building, it has some interesting design features and is a rare style of building in today's town centre. Modernist design was suited to the internal requirements of the fire station and many others were designed in this way across the country in the pre- and post-war period. Although there are

fire station histories, the buildings themselves are often overlooked and further research will lead to better understanding of these structures as a group.

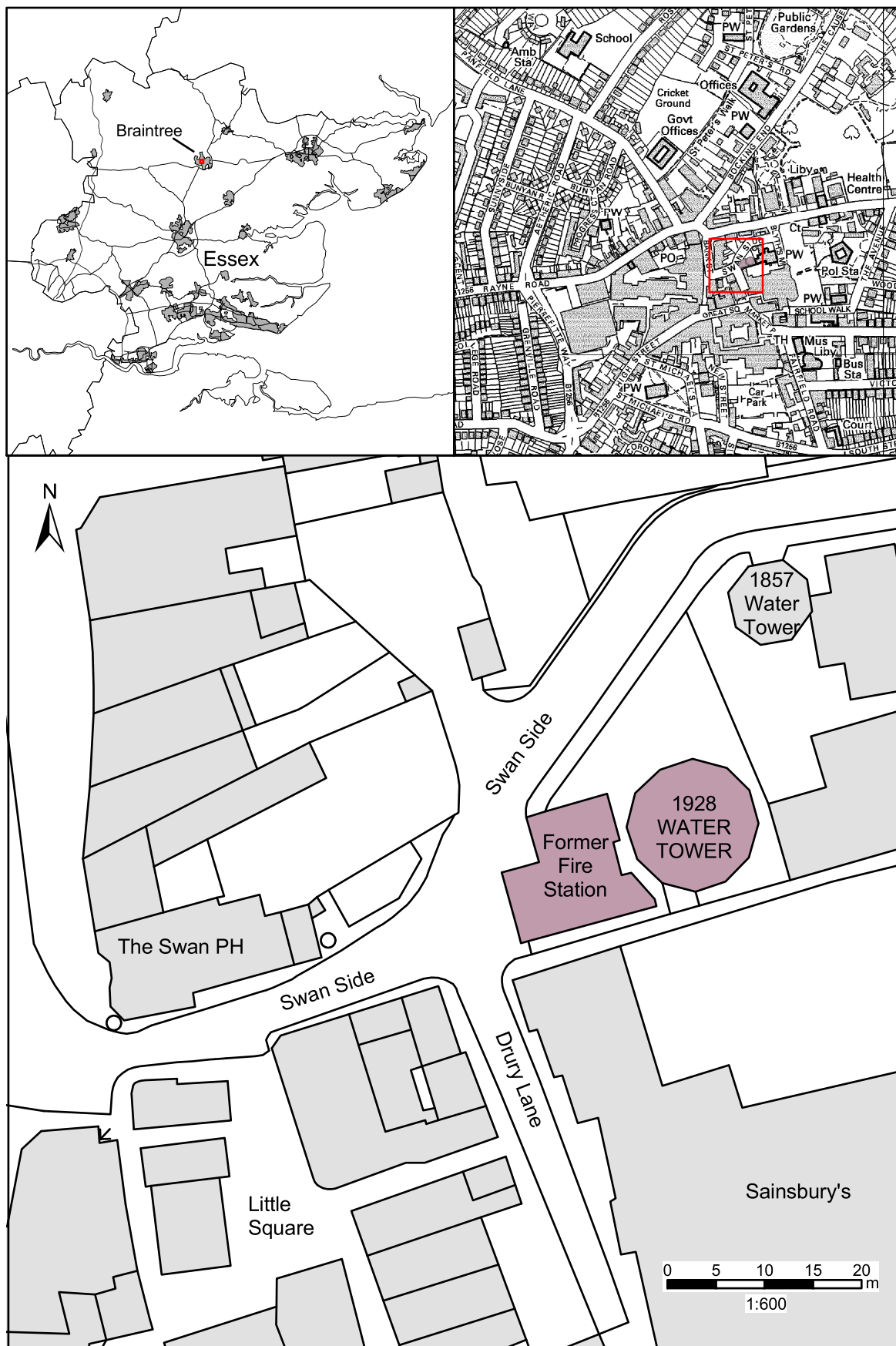
All in all, the survey managed to record the water tower and fire station to a good standard, which will hopefully add to and encourage the study of early 20th century industrial buildings like these that are under threat of redevelopment or demolition.

ACKNOWLEDGEMENTS

Thanks are due to the client, Mark Brand of Bowergrange, for commissioning the works and supplying valuable background information and drawings. The assistance of staff at the Essex Records Office is also acknowledged. Fieldwork, recording and photography were undertaken by the author and illustrations prepared by the author and produced by Andrew Lewsey. The project was managed by Adrian Scruby of ECC FAU and monitored by Teresa O'Connor of ECC HEM on behalf of the LPA.

BIBLIOGRAPHY

- | | | |
|------------------|------|---|
| Brisley, D. | 1992 | <i>Braintree and Bocking in Old Postcards' (vol. III).</i> |
| Brunskill, R.W. | 1997 | <i>Brick Building in Britain Victor Gollancz, London</i> |
| Crosby, T. | 1999 | <i>The Public Water Supply Industry in Essex 1850-1939: A Comparative Survey</i> , report for ECC Planning Dept. |
| DOE | 1990 | <i>Planning Policy Guidance Note 16: Archaeology and Planning</i> , HMSO, London |
| English Heritage | 2006 | <i>Understanding Historic Buildings: A Guide to Good Recording Practice</i> Swindon |
| ECC FAU | 2008 | <i>Written Scheme of Investigation for Historic Building Recording at the Swan Side Water Tower & Fire Station, Braintree</i> ECC FAU |
| ECC HEM | 2008 | <i>Brief for Historic Building Recording at the Swan Side Water Tower, Braintree</i> ECC HEM |
| Stevens Curl, J. | 1999 | <i>Oxford Dictionary of Architecture</i> , Oxford University Press, Reading |



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Fig.1. Site location

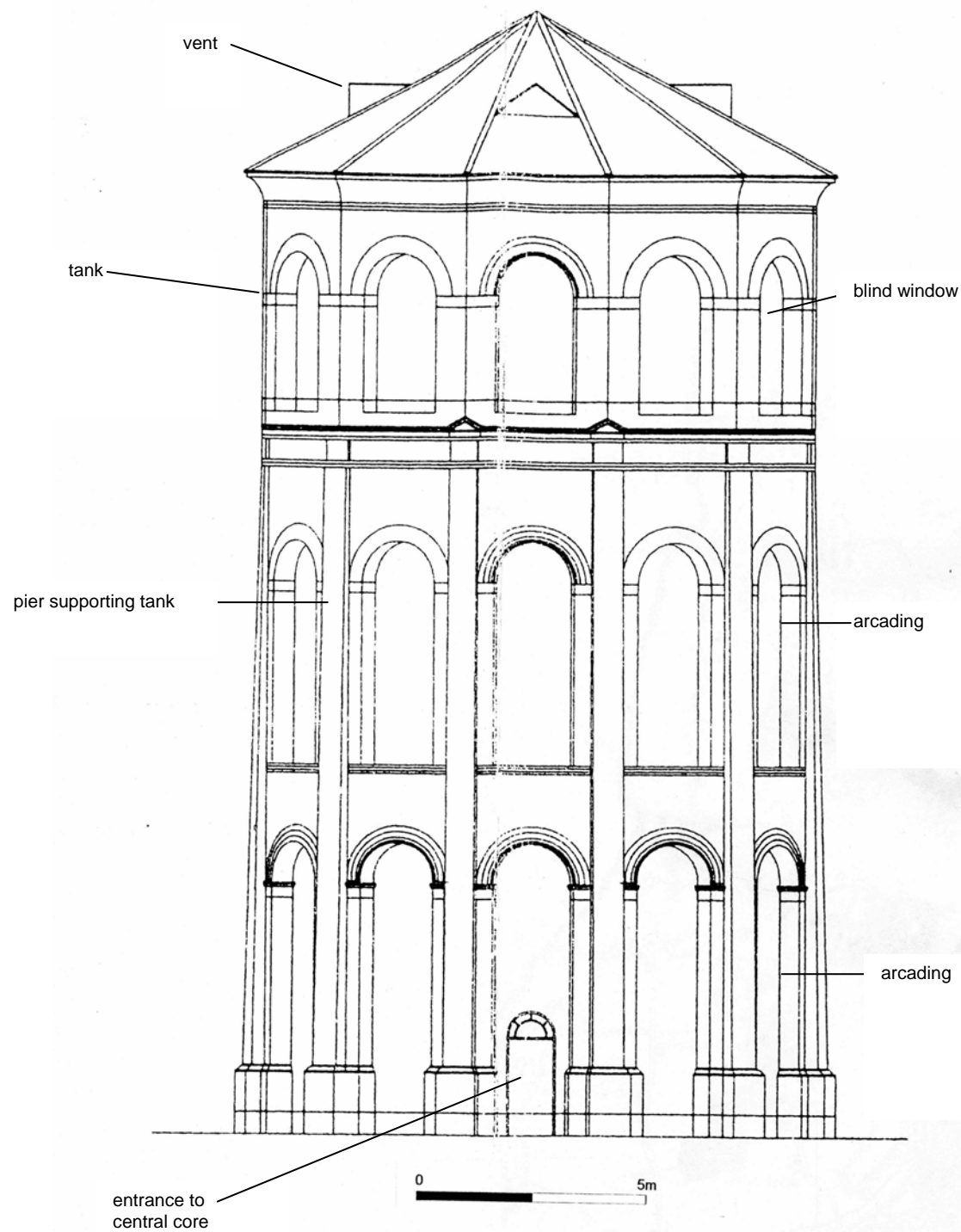


Fig.2. North elevation (reproduced from AWG Land Holdings drawings, 2005)

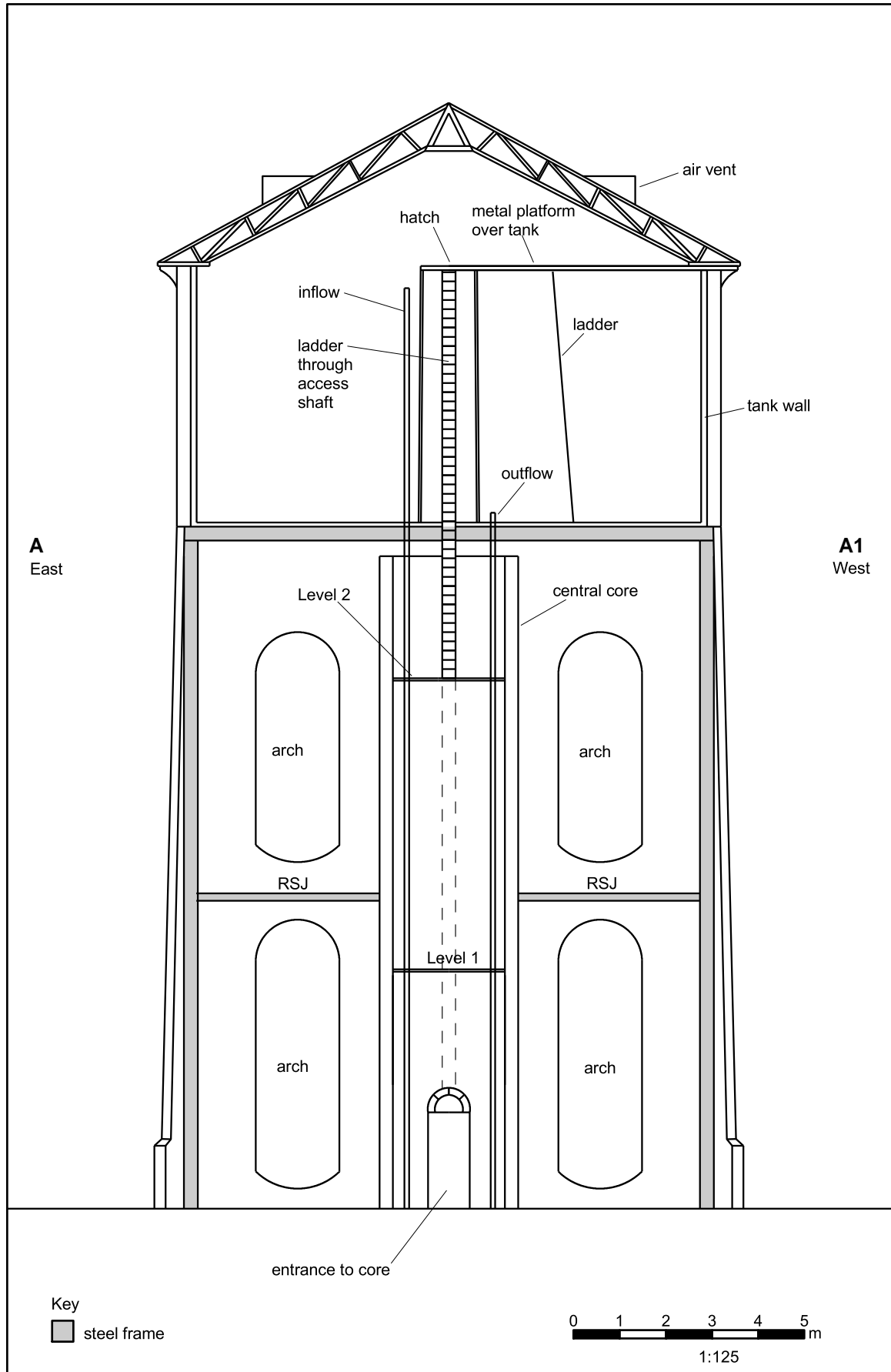


Fig.3. Section through water tower

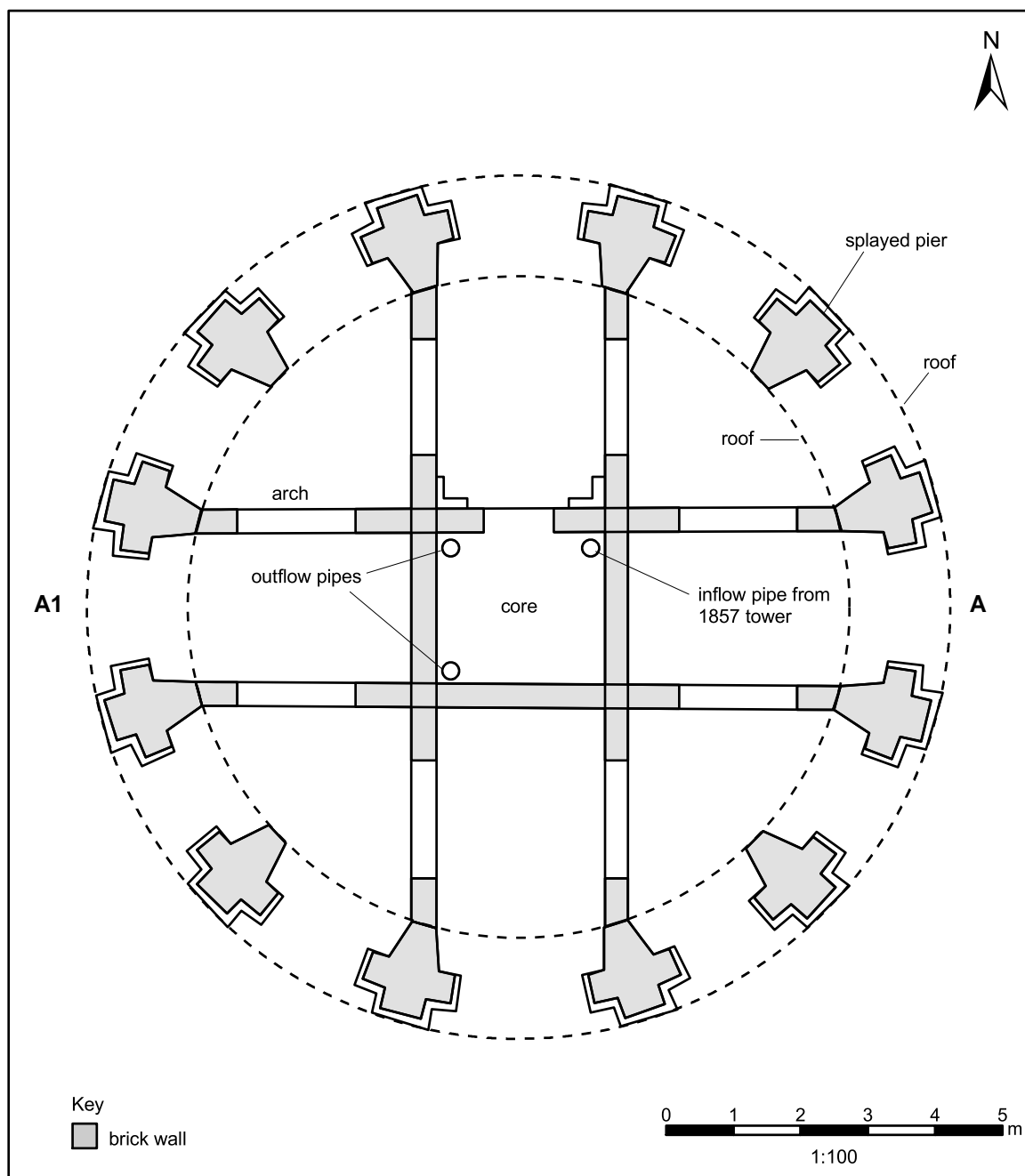


Fig.4. Ground floor plan of water tower

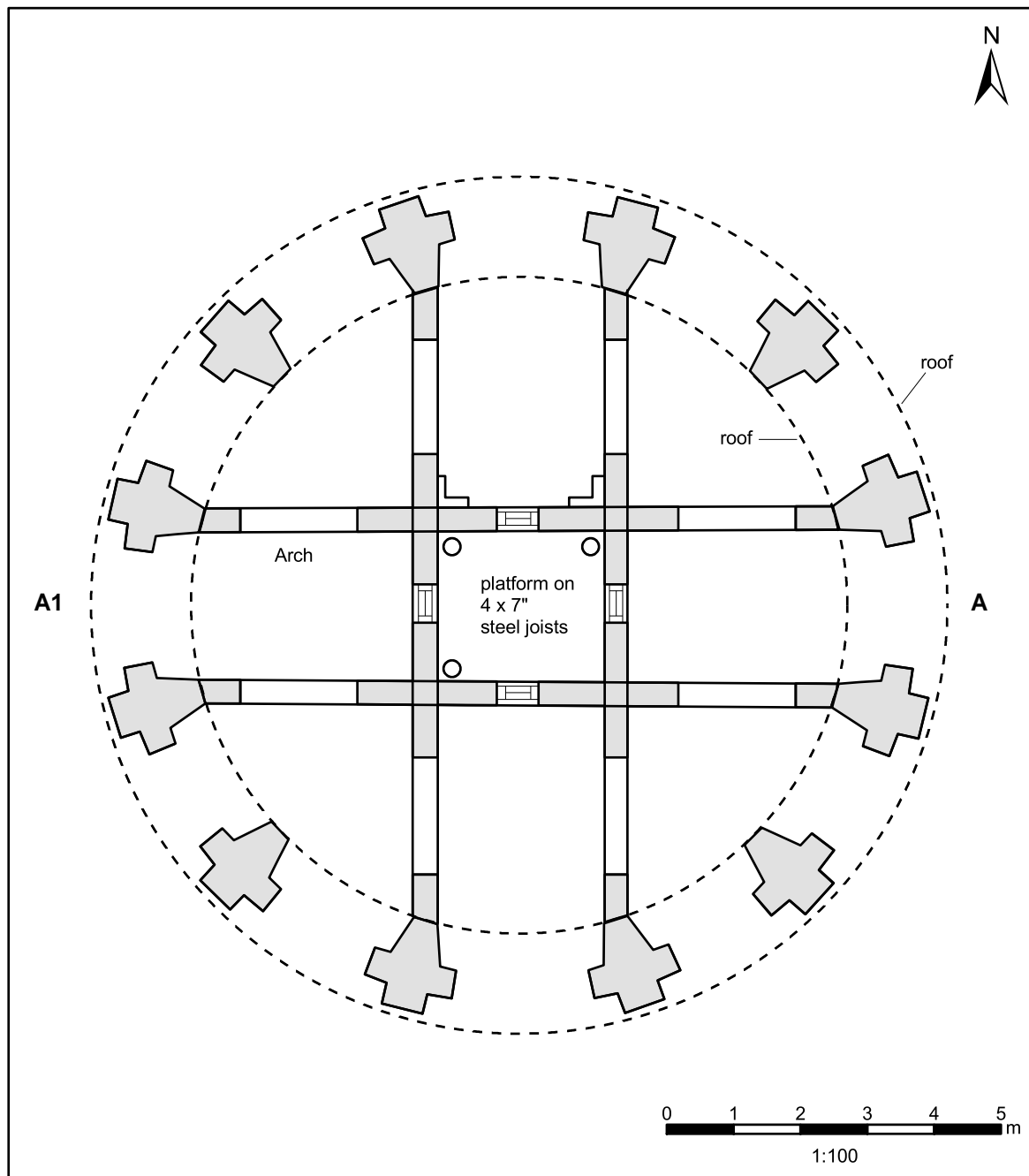


Fig.5. Level 1 plan

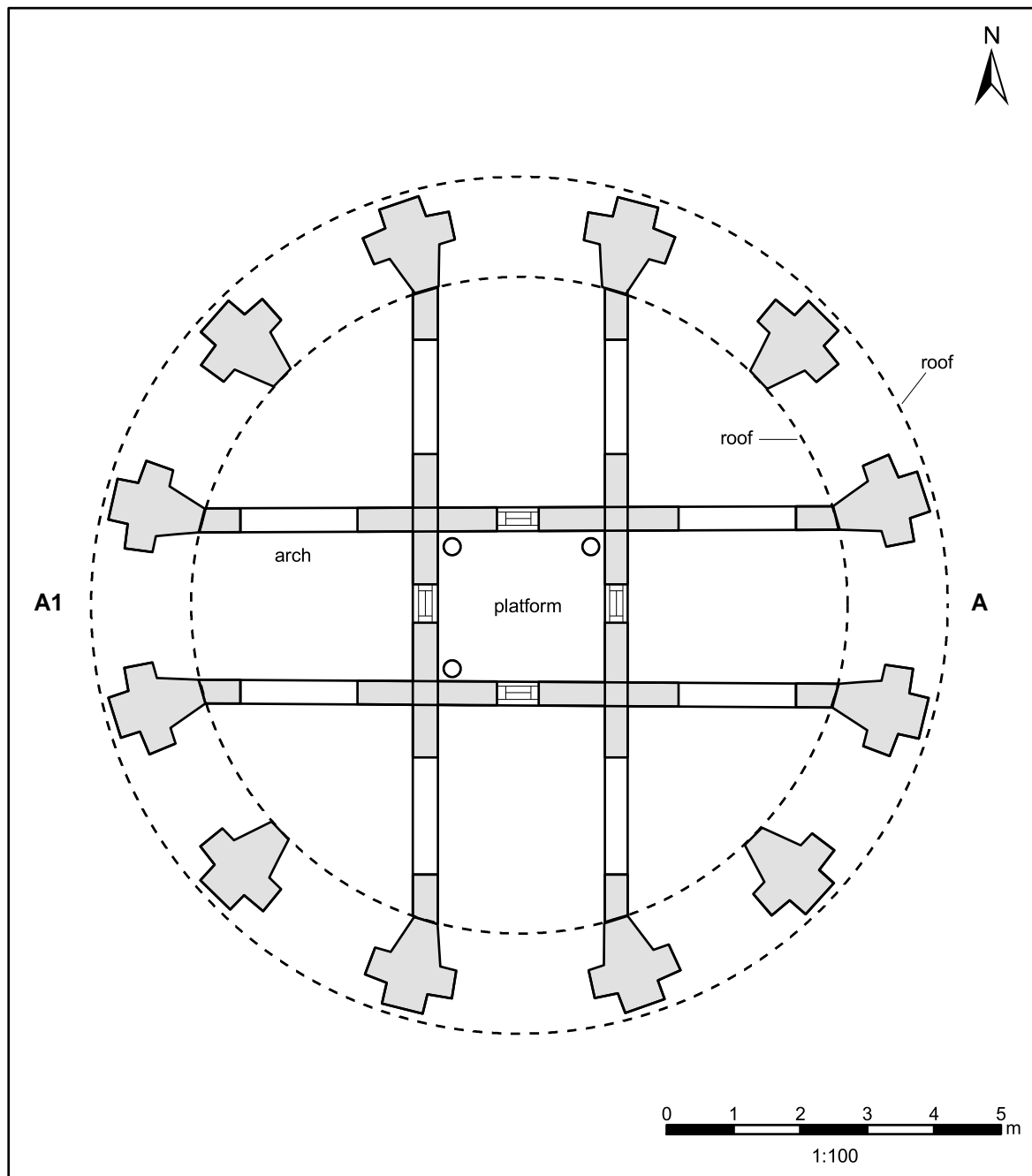


Fig.6. Level 2 plan

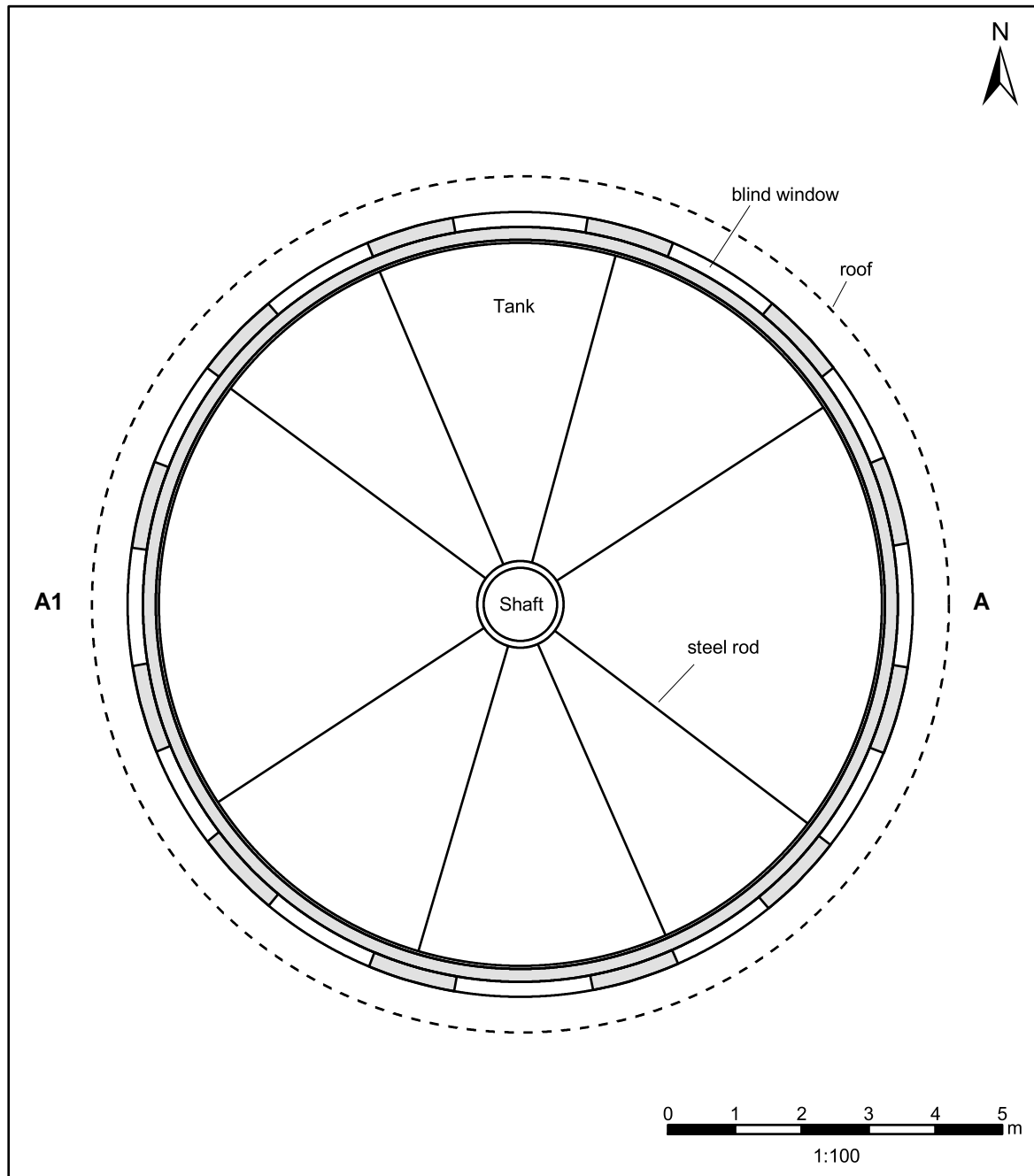
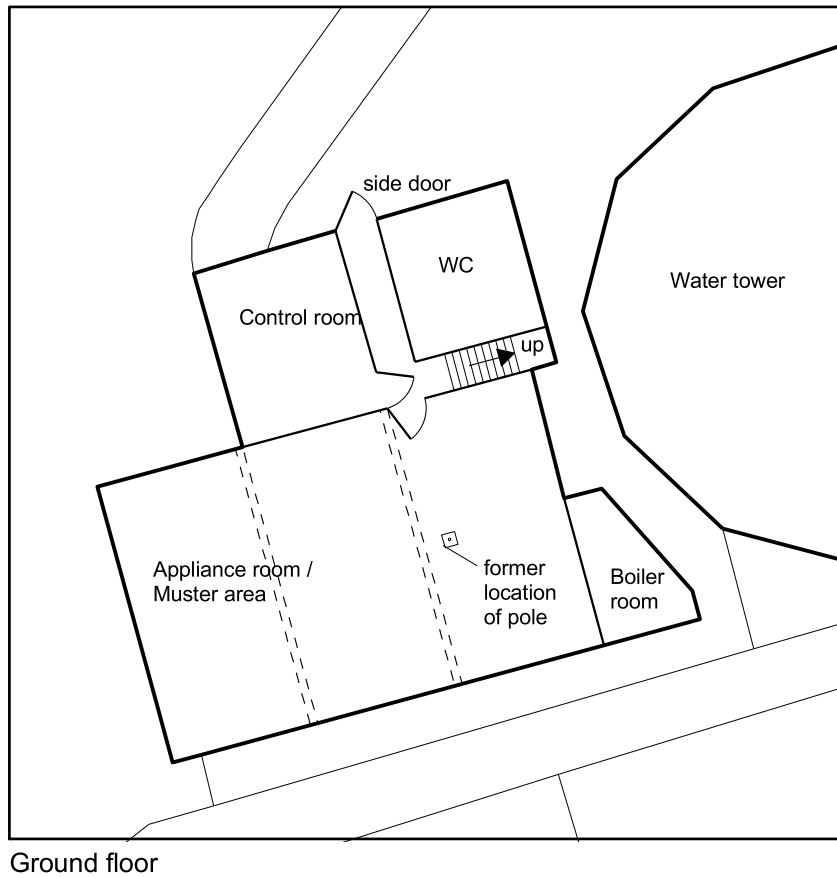
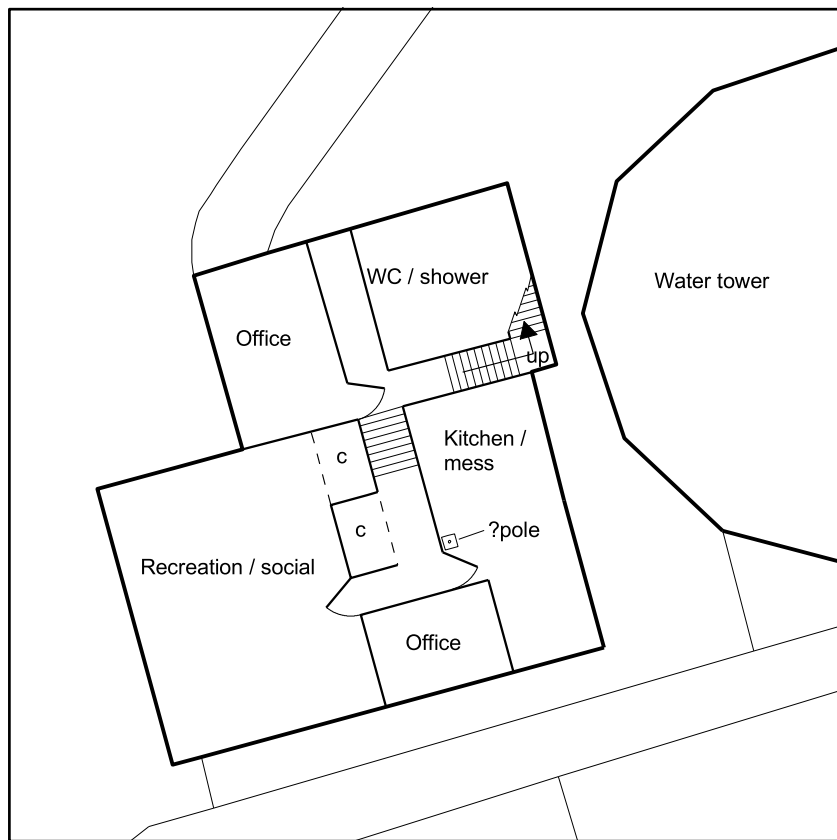


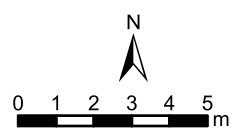
Fig.7. Level 3 plan (inside the tank)



Ground floor



First floor



1:200



Essex County Council
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Fig.8. Internal sketch plans of the fire station



Plate 1 1928 Water tower viewed to south (from Crosby 1999)

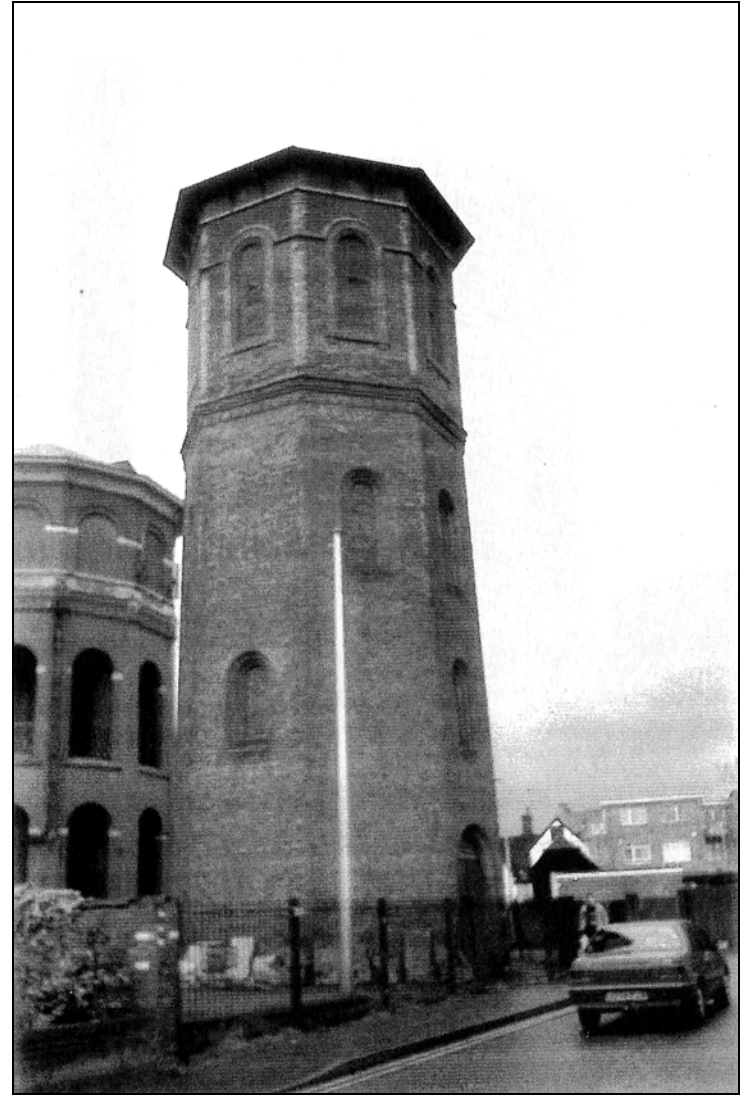


Plate 2 1857 Water tower with 1928 tower to left (from Crosby 1999)



Plate 3 1928 Water tower before conversion, viewed to south-east (courtesy of M. Brand)

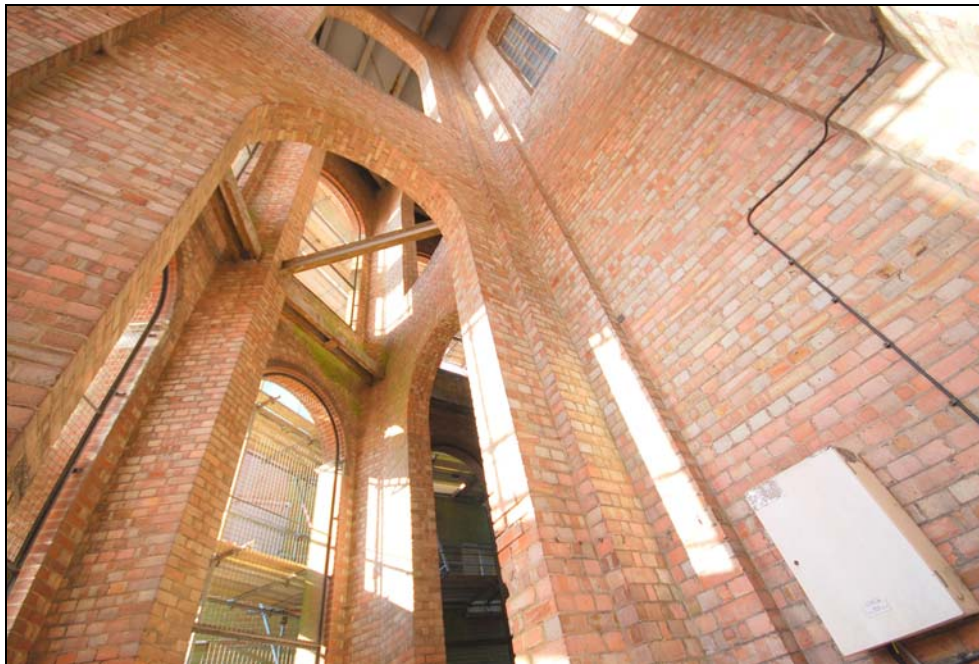


Plate 4 Brick arcading (left) and central core (right) (courtesy of M. Brand)



Plate 5 View up structure to base of tank (courtesy of M. Brand)



Plate 6 Entrance to core



Plate 7 Core fenestration and pipe brackets

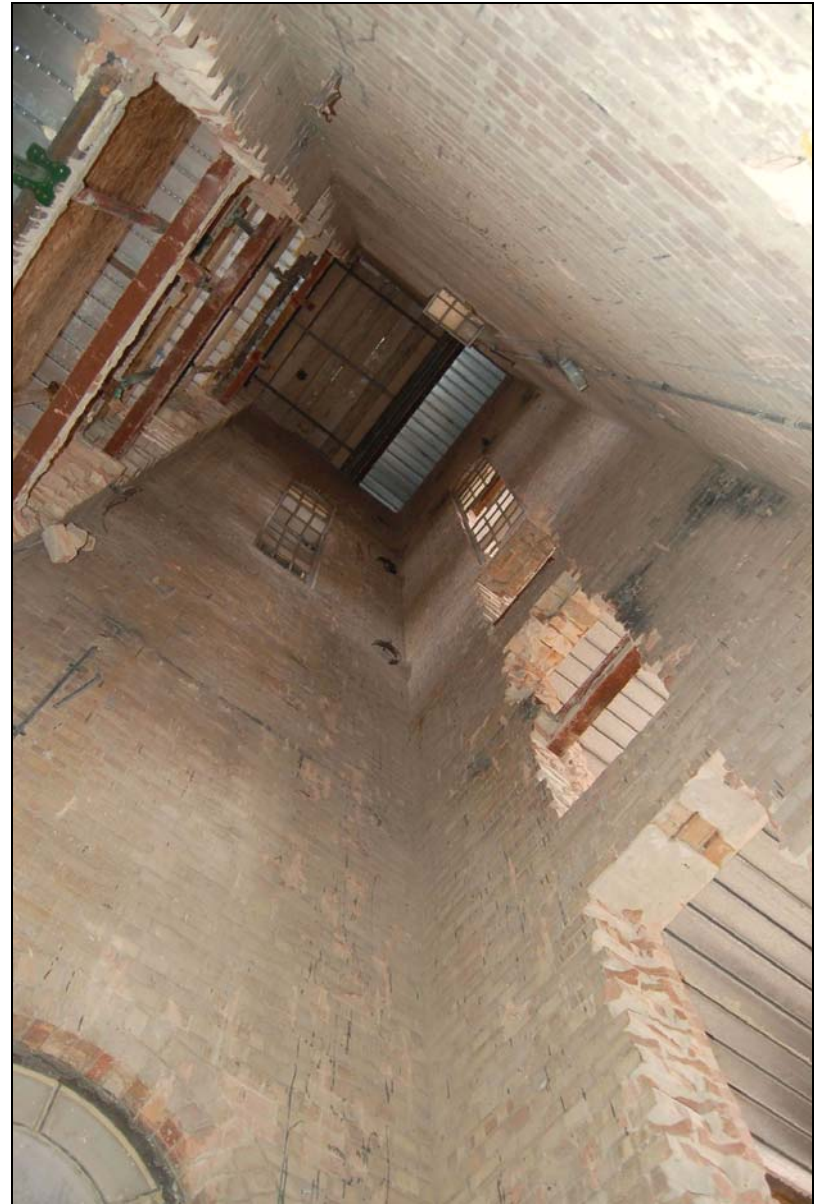


Plate 8 View up central core



Plate 9 Level 2 platform (courtesy of M. Brand)



Plate 10 Looking down tank shaft from platform (courtesy of M. Brand)



Plate 11 View inside water tank, showing shaft and platform (courtesy of M. Brand)



Plate 12 View from platform to bottom of tank (courtesy of M. Brand)



Plate 13 Roof structure during conversion works



Plate 14 Fire station viewed to south-east



Plate 15 Fire station construction from rear (east)



Plate 16 Fire station viewed to north-east



Plate 17 Appliance room viewed from muster



Plate 18 Fire bell



Plate 19 Recreation area



Plate 20 Modernist-style porch to fireman's door



Plate 21 Porch to kitchen/mess doorway



Plate 22 Glazed tile roof lights

Appendix 1: Contents of Archive

Site name: Swan Side Water Tower & Fire Station, Braintree, Essex

Project no. 1929

Index to the Archive

Document wallet containing:

1. Research Archive

- 1.1 ECC HEM design brief
- 1.2 ECC FAU written scheme of investigation
- 1.3 Two copies of client report (one unbound)
- 1.4 CD containing digital images & copy of report (pdf-formatted)

2. Site Archive

- 2.1 Photographic register
- 2.2 Photographic record (digital prints)
- 2.3 AWG survey of water tower
- 2.4 Bowergrange drawings for water tower
- 2.5 Site notes & annotated survey plans

Appendix 2: EHER Summary Sheet

Site Name/Address: Swan Side Water Tower & Fire Station, Braintree, Essex	
Parish: Braintree	District: Braintree
NGR: TL 7576 2316	OASIS Record No.: essexcou1-51604
Type of Work: Building recording	Site Director/Team: Andrew Letch ECC FAU
Dates of Work: 5th & 6th June 2008	Size of Area Investigated: N/A
Curating Museum: Braintree Museum	Funding Source: Bowergrange Estates Ltd
Further Work Anticipated? None	Related EHER No.: None
Final Report: Summary in EAH	
Periods Represented: Early 20th century	
SUMMARY OF FIELDWORK RESULTS: A low-level record was made of an Italianate-style masonry/steel-framed water tower during conversion works to flats by ECC FAU. It was built in the 1928 to replace an 1857 masonry tower and probably fed by a pumping station on the Notley Road. A record was also made of a modernist-style 1931 fire station that was included in the development, intended to become a restaurant. The site is unusual in having two water towers, with the brick-built appearance of the 1928 tower complimenting the earlier one, while hiding a steel frame underneath. The steel frame supports a raised c. 43 gallon circular tank into which water pipes feed up a square central core. Although much of the interior had been stripped-out, useful photographs were supplied of the structure in the early stages of conversion. The fire station is interesting in its modernist styling and detailing and both buildings are important as landmarks within the historic town centre.	
Other Reports: None	
Author of Summary: A. Letch	Date of Summary: 18th November 2008