

Taverham Mill Nature Reserve



Desk-Based Assessment



May 2013 (updated July)

Client: Savills for Anglian Water

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Desk-Based Assessment at Taverham Mill Nature Reserve

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Table of Contents

Summary.....	5
1 Introduction.....	7
1.1 Planning Background.....	7
1.2 Location and Geology	7
1.3 Acknowledgements.....	7
2 Archaeological and Historical Sources	9
2.1 Historical Sources	9
2.2 The Historic Environment Record (HER).....	10
2.3 Cartographic Evidence.....	12
2.4 Aerial Photographs.....	14
2.5 Earthworks.....	14
2.6 Archaeological Excavations and Surveys.....	14
3 Deposit Mapping	15
3.1 General.....	15
3.2 Prehistoric.....	15
3.3 Roman.....	15
3.4 Saxon and medieval.....	16
3.5 Post-medieval and modern.....	16
4 Degree of Survival	17
4.1 General.....	17
5 Conclusions	18
5.1 General.....	18
Appendix A. USAAF B24 Liberator Crash Report.....	19
Appendix B. HER records within 0.5km of proposed Development	20
Appendix C. Bibliography	22
Appendix D. OASIS Report Form	23

List of Figures

- Fig. 1 Site location map showing proposed development area outlined red
- Fig. 2 HER records within 0.5km of development area
- Fig. 3 c.1780s map of Taverham (NRO 276/1/1048) with proposed development area outlined red
- Fig. 4 1844 Tithe map of Taverham (NRO 844) with proposed development area outlined red
- Fig. 5 1st Edition Ordnance Survey Map with proposed development area outlined red
- Fig. 6 Taverham paper mills (NRO 276/1/0357)
- Fig. 7 1839 Tithe map of Costessey (NRO DH/TA 555) with proposed development area outlined red

List of Plates

- Plate 1 Aerial photograph TG11-TG1513-A-16APR1946-RAF.jpg
- Plate 2 Area of proposed new visitor centre (looking west)
- Plate 3 Location of proposed footbridge over the River Wensum with area of car park in distance (looking south)
- Plate 4 Memorial to the crewmen of USAAF B24 Liberator B24J41-29418 which crashed 21st April 1944

List of Tables

- Table 1 NHER records for find spots and monuments within 0.5km of proposed development

Summary

In May 2013 Oxford Archaeology East (OA East) were commissioned by Savills to undertake a desk-based assessment in advance of proposed construction of a visitors centre, two pedestrian bridges and new car park in land within Taverham and Costessey parishes, Norfolk. The land within the proposed development presently comprises a car park for Taverham Mill Fisheries, which is based in two adjacent prefab structures as well as fields within Costessey parish.

A 0.5km search around the development site in the Norfolk HER, cartographic and historic sources at the Record Office was undertaken for this report. The former comprised six prehistoric records (all at least 0.3km from the site), a single Roman find spot 0.5km away, many Late Saxon and medieval records (largely relating to two different settlements) as well as many referring to post-medieval and modern buildings and finds spots. It is in the Late Saxon period that there is a reasonable chance the site was being occupied with a mill, one of two recorded for Taverham in the Domesday Survey (1086). It is also possible that domestic occupation encroached into the site from the the main settlement at Taverham. The Saxon/medieval road (now called) Costessey Road, runs adjacent to the east of the development area and runs up to the church of St Edmund, 0.25km to the north-east of the site.

The original mill was replaced by a paper-mill in c.AD 1700, but may have been to the north of the original, as we know the River Wensum was straightened possibly for it. Eighteenth and mid 19th century maps of the area show the paper mill was largely built adjacent to the north-west and west of the proposed development area. Two probable mill buildings shown on the 1839 Costessey and 1844 Taverham tithe maps are adjacent/may be just within the extreme western side of the proposed development. After the mill complex expanded further, two mid/late 19th century buildings, a related road and bridge were built through the proposed development area with the latter two built to link the mill with Taverham Road. This mill went out of use in 1899 and the site seems to have been abandoned for more than 50 years and then the present present prefab buildings were constructed.

A stray child's jaw bone, a few medieval and post-medieval pottery sherds were probably found adjacent to the development area in the 1990s by members of the public, but it is uncertain their significance. A B24 Liberator crashed in 1944, directly within and to the south-west of the proposed site.

The foundations of the proposed pedestrian bridges are likely to disturb former river channels of the River Wensum and analysis of any pollen from deposits have the potential to provide environmental information of the surrounding area over time.

1 INTRODUCTION

1.1 Planning Background

- 1.1.1 An archaeological desk-based assessment has been conducted for the proposed new visitor centre, two footbridges over the River Wensum and a car park at land within and adjacent to Taverham Mill Nature Reserve (Fig. 1; TG 1579 1371). This report is pre-planning application and assesses the archaeological potential of this site. The area of the proposed visitor centre development lies within Broadland District Council (Taverham parish) and the car park within South Norfolk District Council (Costessey parish) with the River Wensum forming the boundary between the two.
- 1.1.2 Taverham Mill is owned and operated by Anglian Water and in a pre-application consultation document dated November 2012 (Savills 2012), the reason for this proposal was to provide for increased levels of public access to Taverham Mill and within this site have an educational facility, which will be aimed particularly at local schools and younger People.
- 1.1.3 This archaeological desk-based assessment follows the Institute for Archaeologists (IfA) *Standards and Guidance for Desk-Based Assessments* (2012). The IfA guidance defines desk-based assessment as, "a collation of existing written and graphic information to identify the likely character, extent, quality and worth of the known or potential archaeological resource of a given area or site". For this report a visit was made to the proposed development site, historic documents and cartographic evidence was assessed at Norfolk Records Office, and a visit was made to the Norfolk Historic Environment Record to assess both the archaeological records within 0.5km of the development area and any aerial photographs of the site.
- 1.1.4 The results of this report will enable decisions to be made by NCC, on behalf of the Local Planning Authorities, with regard to the treatment of possible archaeological remains within the proposed development area.

1.2 Location and Geology

- 1.2.1 The existing site is partly within a fairly flat island wrapped around by the River Wensum on all sides and lands adjacent to the south of it. The existing access to the 'island' is from Costessey Road via a long narrow track, which also provides access to the neighbouring residential properties to the north of the site, and a bridge crosses the northern arm to the island itself (Savills 2012, 3). The site has three buildings on site, one brick building (probably late 19th/early 20th century in date) and two are prefabricated huts (one is used as a shop while the other as sleeping accommodation for anglers using the fishing lakes. There are two small parking areas on either side of the huts. The new proposed car park is to the south of the River Wensum is located above the flood plain.
- 1.2.2 The geology of the existing site comprises Earthy Eutro-Amorphous Peat soils (soils of Eastern England: Soil Survey of Eastern England sheet 4 (revised 1980). The new proposed car park is at the boundary of the above peat and Typical Brown Sands to the south.

1.3 Acknowledgements

- 1.3.1 The author would like to thank Savills, especially Will Lusty, who commissioned the work on behalf of Anglian Water. The project was managed by Paul Sperry who also

edited the report. Heather Hamilton of Norfolk County Council supplied the HER information and the aerial photograph. Norfolk Record Office helped in showing historic maps and records for Costessey and Taverham. Mike Stowe of Accident-Report.Com kindly gave the accident research data on the B24 Liberator. Simon Wrigglesworth was helpful in providing local information on the site.

2 ARCHAEOLOGICAL AND HISTORICAL SOURCES

2.1 Historical Sources

Place-name and Domesday Survey

- 2.1.1 The name Taverham is likely to have been derived from *teafor* (Old English) to mean 'red lead, vermilion' (Smith 1987, 177). Smith suggested this name may be to do with red-painted buildings which may have been located here? Professor Ekwall in his dictionary of place-names has a similar definition 'red pigment or vermilion' plus *ham* meaning village or homestead (quoted in Norgate 1969, 12). Norgate himself suggested Taverham derived from *Tawian* (Tanner in Old English) and the *ham* ending suggested a settlement of some importance which dated from the Early Saxon period (5th-7th century (*ibid*, 12)). River Wensum itself derives from the meaning wandering (*ibid*, 12)
- 2.1.2 Taverham was an important centre in both the Late Saxon and early medieval period and this can be seen by the fact that it was named as the head of one of Norfolk's 33 hundreds. The Domesday Survey (1086) records that Taverham was split between six landholders (King William, Count Allan, William of Warenne, Bishop William, lands of St Michael of Norwich and Ralph of Baufour)(Morris 1984). This survey notes that St Edmunds Church and presumably the main settlement was associated with the church, although there may have been other settlement areas within the parish. There was two mills mentioned in the 1086 with King William owning 1½ mills with William of Warenne and Ralph of Baufour each owning ¼ of a mill.
- 2.1.3 Costessey is derived from *Kost's Island* (Old English), and this name dates probably from the 7th century. Costessey was the centre of an important Middle Saxon estate which survived reasonably intact into the Late Saxon period (Williamson 1993, 96-8 and 133). It was in the Forehoe Hundred and in 1086 the Domesday Survey recorded that the parish was entirely owned by Count Allan, although he had some under-tenants (Morris 1984). In this parish the Domesday Survey also mentioned that there were two mills.

Taverham Mill

- 2.1.4 One of the two mills recorded in the Domesday book for Taverham was probably in/adjacent to the area of the proposed development. It was used as a corn mill, but later went on to grind bone meal and animal fodder (www.norfolk Mills.co.uk). The date of the establishment of it as a paper mill is uncertain, but the first documentary record for it is 1701 when this papermill came into the news by manufacturing high quality paper and helping to break a near monopoly held by the White Paper Makers Co. (Norgate 1969, 46). In a pamphlet by Francis Burgess dated 1701, Taverham Paper mill was recorded as being within four miles from Norwich and producing cheap paper for books with the paper sent to London (*Ibid*, 41).
- 2.1.5 In 1807 it was fitted with Fourdrinier fourvat machines, among the first in Britain, but these seem not to have worked well. In the early 19th century there were two separate plants, one for brown paper and one for white (www.norfolk Mills.co.uk). It was attacked in the 1830 *Captain Swing* machine riots and the plant was damaged. From 1846-90 the mill complex was worked by 11 steam engines, three water wheels and c.150 workers in various buildings over a four acre area (Figs. 5 and 6). Rags were collected from the surrounding area and taken to the mill, lime came from pits in Costessey Lane. The finished paper was then taken by cart to Norwich railway station

(www.norfolk Mills.co.uk). At its peak in the late 19th century it produced around 25 tonnes of paper per day and this was used to make various books including the Oxford English Dictionary, bank notes for the Bank of England as well as several newspapers including The Times. The mill was having economic problems in the very late 19th century and was sold in 1890 but this did not work- its closure took place on 19th April 1899 and when this occurred it was the last of about a dozen paper mills (and by far the biggest) in Norfolk to close.

USAAF B24 Liberator

- 2.1.6 The record of the *USAAF B24 Liberator* which crashed partly within the site was kindly obtained by Mike Stowe (Appendix A). This report details how the plane broke up in poor conditions at 14,000 feet and the outcome with two crew surviving but also that eight died.

2.2 The Historic Environment Record (HER)

- 2.2.1 The Norfolk HER was searched for archaeological sites, historic buildings and historic landscapes within a 0.5km study area centred on the development site (Fig. 2; Appendix B). There were no Scheduled Monuments, Registered Battlefields or Historic Parks and Gardens within the study area. There were 33 NHER records within this study area with a few of these being multi-period.

Prehistoric

- 2.2.2 six prehistoric NHER records (7830, 7832, 19753, 22989, 32781 and 40550) were recorded in the study area and all are located between 0.3km and 0.5km+ from the site. Two may relate to settlement or burial and these comprise a possible ring ditch with Beaker pottery close to it (NHER 7830; 0.5km to the north-west) and the other to Iron Age pottery and pot boilers recovered during field walking at least 0.5km to the west (NHER 40550). The other four records comprised single Neolithic or Bronze Age flint artefacts.

Roman

- 2.2.3 A single Roman record relates either to settlement or casual loss with pottery recovered during field walking at least 0.5km to the west (NHER 40550).

Late Saxon and medieval

- 2.2.4 The NHER do not any records of sites or artefacts dating to the Early or Middle Saxon periods. In contrast the Late Saxon and medieval are the most numerous with 14 separate records including one within the proposed development site and the other 13 all to the north of the River Wensum to the east, north and west of the site.
- 2.2.5 The HER notes that Taverham Mill (NHER 7902) may have been the location of one of the two watermills recorded for the parish in the Domesday Survey (1086). Medieval and later pottery as well as a human child's jaw bone has also been found within this area by members of the public. The HER states that the jaw bone was found before 1992 "on the north bank of the mill complex", which seems to suggest this was directly beyond the northern arm of the River Wensum on the town side? It is possible therefore that when this later northern arm of this river was dug to incorporate a mill, it could have disturbed earlier remains? The HER states that the 15th century langerware stoneware was found in 1998, but its exact location was uncertain.

- 2.2.6 The other HER records implies that there were two separate Late Saxon and medieval settlements within 0.5km of the development site. The main settlement is centred around the church of St. Edmund (NHER 7908) with its Saxon cross and a possible medieval guildhall (NHER 13257), 0.25km to the north-east of the site. Five Late Saxon/medieval find spots were located near to the church and comprised a Saxon whetstone and two Saxon or medieval pottery sherds (NHER 7842) and single metal objects (23866, 23987, 23988 and 24897), although the latter four had been given a general co-ordinate location of TG 16 13 but the HER located them to the positions shown in Fig. 2.
- 2.2.7 A second settlement is suggested 0.5km+ to the west of the proposed development site and comprises a sub-square 0.3km² area of cropmarks (NHER 54462), an adjacent possible moated manor site 0.4km away (NHER 25715) and find spots of Late Saxon and medieval pottery at NHER 32781 and medieval pottery and quern at NHER 7841.
- 2.2.8 The second Taverham mill recorded in the Domesday Survey has probably been found as medieval documents suggest there was a mill at the site of Tunstall's Yard, c.200m to the south-east of the proposed development site (NHER 29022). A single possible medieval pottery sherd (NHER 7900) was found 0.5km to the north, but its significance is uncertain.

Post-medieval and modern

- 2.2.9 Within/adjacent to the proposed development area, there are three HER records. Partly on the development area, a paper mill dating from c.AD 1700 was recorded and it ceased use by 1900 (NHER 7902). The HER notes that the only standing remains of this mill is a brick lined mill race. Post medieval pottery has been found within the development area in the 1990s. In the area of one of the proposed pedestrian bridges, there had been a 19th century bridge (NHER 13217) linking Taverham Mill to Taverham Lane and it is shown on 1st Ordnance Survey edition 1890 1" map.
- 2.2.10 A WWII USAAF B24 Liberator crashed on 21st April 1944 partly within and adjacent to the west of the development site (HER 55474) and in 2011 a memorial was unveiled in the development area (Plate 4). The plane broke up in the air and the HER records that the exact location of where the debris fell was not clear, but 'newspaper reports from when the memorial was unveiled suggest that it lies to the south of the River Wensum'. The HER has drawn an area (142m by 108m) where the remains of the plane may lie.
- 2.2.11 Directly to the north of the site, lies part of the former extensive post-medieval Taverham Park (NHER 30525). This park was created soon after 1784 and it extended over a c.1km by c.0.5km oval area, mostly to the west of the site. One undated post-medieval possible building lay within the north-eastern part of this park, 150m to the west of the site (NHER 7899), post-medieval earthworks (NHER 54462) and pottery (NHER 32781) have been found 0.4km and 0.5km+ to the west respectively.
- 2.2.12 In the area around St Edmunds Church, c.250m to the north-east several post-medieval and modern buildings and a road sign are recorded (NHERS 16689, 42787, 41916, 55262 and 57032). A WWII military camp lay 0.5km to the north of the site (NHER 54461).

Undated

- 2.2.13 Three undated HER records in the study area comprise cropmarks of ditches of unknown date 0.5km+ to the south, and two find spots (NHERs 7911 and 7909), 0.3km to the north-west and south-west respectively.

2.3 Cartographic Evidence

- 2.3.1 The proposed development straddles two parishes (Taverham and Costessey) and maps from both parishes were examined at the Norfolk Record Office (Figs. 2-6).

Taverham maps

1740 and 1780s maps

- 2.3.2 The earliest map for Taverham dates to AD 1740 and is the Church Commissioners map (no. 11915). This map was copied in the 1780s with no changes to plot or buildings within the proposed development area and adjacent to it (NRO 276/1/1048). The later copy is included as Fig. 3 as it is clearer and includes some relevant written texts which the earlier original map does not. The two maps show that the River Wensum has been altered with the 1780s map including the text "The Old River" next to the southern branch of the River Wensum. The two maps suggest that the original river had been meandering, and presumably as part of the mill construction this northern branch of the River Wensum was either made by extending a previous minor tributary of the river or the wholesale straightening of the river through a formerly untouched stretch of land. It may be significant that the 1780s map has the southern branch of the river as "old", suggesting that this insertion of a new river route had been done relatively recently to the drawing of the map to incorporate the paper mill which was drawn crossing through this northern river branch on the western side. The maps show a road leading from the village centre and running up to mill but it does not cross over the river into the 'island' where part of the present development is proposed.

1844 Tithe map

- 2.3.3 The 1844 Tithe map (Fig. 4; NRO 844) shows some changes next to the development area had occurred since the 1740 and 1780s maps. The main mill building across the northern branch remained, but a new leat runs north-west to south-east parallel to the north of the River Wensum up to the mill's northern side. A bridge now crosses over the northern branch of the river, adjacent to the east of the main mill building, into the proposed development area. This road presumably leads to the new small building which straddles the southern 'original' arm of the River Wensum possibly just within the site. In the 'island' itself the map has 157 recorded on it and this is listed as mill meadow, suggesting that the area of the proposed development was left largely untouched.

Costessey mid 19th century maps

- 2.3.4 The proposed development site lies well away from the settlement in this parish in former meadow areas (i.e. marginal agricultural land) and therefore maps for this part of Costessey are few.
- 2.3.5 The 1839 Tithe map of Costessey (Fig. 7; NRO DH/TA 555) records the development area to the south of Taverham parish for the first time. The site is on the edge of the map where it is very worn. The proposed development area is within land marked 275 ('Thorufare Meadow') and 273 ('Mill Meadow'). In the latter area, the southern mill building across the River Wensum is shown as well as an adjacent building to the south

of it, presumably a related building. These two buildings are located at/just beyond the extreme western limits of proposed development area. To the east and south-east of the site are plots 40 and 41 (both 'Common Meadows').

- 2.3.6 The 1857 Enclosure map (NRO C/SCA/78; not illustrated) has the area as one land ownership (128).

Costessey and Taverham late 19th and 20th century maps

1st Edition Ordnance Survey Map (1890) and Taverham Paper Mills map

- 2.3.7 The 1890 1st Edition Ordnance Survey Map (Fig. 5) has many new mill related buildings showing the site had significantly expanded since the 1844 Tithe map. The mill buildings shown on this 1st OS are drawn in a larger scale on the contemporary Taverham Paper Mill map (Fig. 6; NRO BR 276/1/0357). Fourteen mill buildings are recorded on the maps, with the majority located directly to the north of the River Wensum but with the 'island' there are several buildings on the western side including two just running into the proposed development area. No buildings are shown on the eastern part of the island within the area of the proposed visitor centre or the footbridge. Instead within this area there is a new road and bridge to the east which, for the first time, linked the Taverham Paper Mill complex to Taverham Lane and thereby allowing a new access to this expanded mill complex.

- 2.3.8 There were several late 19th century maps in the NRO record office relating to various aspects of the above expanded Victorian Paper mill complex with more detailed aspects of the above buildings. There was another overall map of the mill buildings, but the NRO record records it was in a fragile condition fragile and therefore it has not been used.

- 2.3.9 The 1st Edition 1890 Ordnance Survey map has the Costessey parish area comprising a single field with streams including one within the western side of the site, presumably either dug for this expanded mill complex and/or allowing better drainage in this low lying area (Fig. 5).

2nd Edition Ordnance Survey Map (1907)

- 2.3.10 This 2nd edition OS map shows the mill buildings within Taverham parish still remaining (not illustrated). The bridge crossing the southern arm of the River Wensum to Taverham Lane has been removed. Trees are recorded growing within the centre and southern part of the 'island'. The Costessey parish part of the development area has not changed compared with the 1st Edition map.

3rd Edition Ordnance Survey Map (1938)

- 2.3.11 The 3rd edition OS map (not illustrated) shows the same details as the 1907 map.

Ordnance Survey Map (1957)

- 2.3.12 The mill buildings have gone by the 1957 map with the possible exception of the small brick building in the northern part of the 'island' (not illustrated). The Costessey area has still not changed except large scale quarrying had taken place directly to the south of the proposed development area.

Ordnance Survey map (1964)

- 2.3.13 The 1964 map shows changes within the 'island area' (not illustrated). The brick building still stands but three prefabricated structures had been built within the centre of the 'island'. The Costessey area had not changed from the previous map.

2.4 Aerial Photographs

- 2.4.1 The Norfolk HER aerial photographs section was examined during the HER visit. The proposed development area is in area which has been meadow land and the underlying natural is peat. No cropmarks was visible within the site. Aerial photograph TG11-TG1513-A-16APR1946-RAF.jpg (Plate 1) shows extraction of Brown Sands had taken place directly to the south of the proposed car park (in an area where a new woodland has since been planted).

2.5 Earthworks

- 2.5.1 No earthworks could be seen within the proposed development area during the site visit.

2.6 Archaeological Excavations and Surveys

- 2.6.1 There has been no excavations or evaluations within the proposed development area and extremely limited archaeological work has taken place within the 0.5km study area around (see Section 2.2 above).

3 DEPOSIT MAPPING

3.1 General

3.1.1 This section aims to broadly predict the existence of archaeological remains within the development area based on the mapping of the distribution of all known historic assets outlined in the previous sections. The lack of archaeological work within the study area does mean that deposit mapping has to be taken with caution.

3.2 Prehistoric

3.2.1 There is no evidence of prehistoric evidence within 0.3km of the site and only six prehistoric records have been recorded within the study area with the majority comprising single find spots.

3.2.2 The area of the proposed development is adjacent and up to c.150m from a significant river, and this location would have been favoured in prehistoric times. Activity from Mesolithic and Early Neolithic people were often next to river sides and later prehistoric people (Mid/Late Neolithic to Iron Age) often gravitating slightly further away on slightly higher ground. At Thetford for example, where unlike Taverham there has been significant quantity of archaeological work, several flint working areas and burnt mounds have been recorded/excavated in recent years over a c.5km distance adjacent or close to the River Thet (Atkins and Connor 2010, 107; fig. 2). The majority of these features were single isolated examples, although in one of the Thetford sites there was significant flint working evidence.

3.2.3 The proposed development includes two bridges over the old former meandering southern branch of the river. The underlying geology is peat, which is significant as pollen is known to survive well in waterlogged peat deposits.

3.2.4 The proposed development area is relatively small and overall there is a low probability of encountering prehistoric artefacts/features, but considering the location of this site at a major river, this can not be ruled out. There is extremely high chance that former river channel deposits and any environmental remains in them survive. Analysis of these deposits may produce an understanding of the environment and possibly even agricultural practices in the neighbourhood of the development area over time.

3.3 Roman

3.3.1 A single Roman find spot has been recorded in the study area, c.0.5km away. Roman settlements were often located near to rivers, on slightly higher ground. The finding of a child's jaw bone seemingly directly to the north of the site, on the northern bank of the mill complex, raises interesting questions. The presumed burial is unlikely to be Mid Saxon or later as people in this period were Christian and would have been buried in St Edmunds Church, 0.25km away. Was the jaw bone a disturbed burial when this northern arm of the River Wensum dug to locate the mill on the straightened river? If it was from a burial, it is therefore likely to be any date before the Mid Saxon period with perhaps a Roman date most likely as Roman burials were often interred next to rivers?

3.3.2 There is low probability of encountering Roman remains within the development site, however, as there has been no archaeological investigations within proximity, this cannot be entirely ruled out and the finding of a human jaw bone in the vicinity raises possibilities?

3.4 Saxon and medieval

- 3.4.1 In the study area, the HER has numerous records for Late Saxon and medieval Taverham, although none for Costessey parish. The records suggest that general area in/around the development area there had been a watermill, one of two recorded in the Domesday Survey for Taverham. It is more likely the mill had been located on the old river route (southern branch of the River Wensum) and not the northern branch of the river, which may have been deliberately constructed for a powermill in c.AD 1700 (see Section 2.3.2 above). It is therefore entirely possible that the medieval watermill was within the proposed development area?
- 3.4.2 There were two Late Saxon and medieval settlements recorded within the study area. It is possible that part of the eastern settlement located around St Edmunds church continued up to or into the site. The present bridge located directly to the east of the site, c.up to 50m away from the development area, was presumably on the site of a former medieval bridge. It is possible, even likely that houses had originally fronted Costessey Road on the northern bank of the river, up to and beyond the church? Whether back plots of any settlement continued into the development area is uncertain and it is possibly depended on when/if the northern branch of the River Wensum had been constructed in the medieval or post-medieval period. If it was the former, it is unlikely any medieval structure was within the 'island'. It is extremely unlikely that western Late Saxon and medieval settlement with its moated manor and earthworks 0.3km -0.5km+ away, continued into the development area.
- 3.4.3 The main (and possibly the only) Late Saxon and medieval settlement in Costessey parish lies more than 1km to the east. The mid 19th century maps record the proposed development area in Costessey parish being meadowland with no evidence of settlement in the vicinity.
- 3.4.4 There is low to moderate probability of medieval remains within the northern part of the development area in Taverham parish, but extremely low for the southern side in Costessey parish.

3.5 Post-medieval and modern

- 3.5.1 The post-medieval paper mill was located to the north-west of the development site, but significantly the map evidence from AD 1740 and 1780 informs us the islands was unused in this period with no structures or even a bridge crossed into this area. The 1844 Taverham tithe map shows that the site was within meadow land and although a bridge had been built over the northern branch of the river this was linked to a new building crossing the southern branch of the river, just within/adjacent to the proposed development area. This latter building is also recorded on the 1839 Costessey tithe map with a further probably related building adjacent to the south of it. Part of the mid/late 19th century mill complex in Taverham parish runs into the western part of the development area, but not as far as the proposed location of the proposed visitor centre. A mid or late 19th century road and a bridge was within the development area with the visitor centre where the former road had been.
- 3.5.2 It is likely that the crash site of the B24 liberator was within and to the south-west of the development area, with the plane falling over an area directly to the south of the river (eye witnesses remembering the event in 2011). The plane broke up at 14,000 ft and so it is uncertain how wide its remains lie.
- 3.5.3 There is low possibility of finding post AD 1700 to early 19th century remains within the site but high possibility of c. mid 19th and later remains within it.

4 DEGREE OF SURVIVAL

4.1 General

- 4.1.1 This section broadly assesses the degree of likely survival of any archaeological remains in the site. It has not been possible to provide a detailed predictive deposit model as there has been (on present knowledge) no site investigation reports and there are no definite recorded finds from the site, therefore the following is intended as a guide only.
- 4.1.2 The northern area of the proposed development within Taverham parish is more difficult to gauge as it may have been affected by a mid/late 19th century road and bridge constructed within the site. It is uncertain how deep the road was constructed. The mid 20th century prefab huts and car park may also have affected any archaeological remains within the area. The southern part within Costessey parish has been affected only by possible ploughing in recent times, although mostly it has been used as meadow land.

5 CONCLUSIONS

5.1 General

- 5.1.1 The object of this desk-based assessment was to assess the archaeological potential of the development site by drawing together all known documentary, cartographic and archaeological evidence from the surrounding area.
- 5.1.2 There is low potential for prehistoric archaeological features with the development area, but considerable likelihood of pollen remains surviving from within any former river channel deposits and analysis of these have the potential for understanding the environmental landscape around the site over time. It is uncertain the significance or even the age of the child's jaw bone found directly to the north of the site.
- 5.1.3 The medieval potential for archaeological remains is also unknown. It is uncertain where a mill recorded in the Domesday Survey was exactly located, and even whether the main Late Saxon/early medieval settlement of Taverham continued into the site. Of relevance is when the northern arm of the River Wensum to form the present island was dug, it seems more likely to have occurred when a new paper mill was built in c.AD1700. If this was the case, the medieval mill would have been built across the southern original branch of the river, possibly within the development area. If the river had been straightened on this northern side in the Late Saxon period, the original mill would have been located across this stretch and therefore away from the proposed development.
- 5.1.4 The important post-medieval paper mill did not initially affect the proposed development area seemingly lying to the north-west of it and it was only in the c. mid 19th century was the site definitely built on with parts of two buildings, a road and bridge constructed to link the expanding mill complex with Taverham Lane, and a probable c.mid 19th century mill building within Costessey parish.
- 5.1.5 In the modern era, it is likely that part of the remains of a B24 Liberator lies buried within the development area, as eye witnesses stipulate that it crashed in this general location.

APPENDIX A. USAAF B24 LIBERATOR CRASH REPORT

Accident #.

44-7-21-525

Date

5-30

Checked by

L.H.M.

Analyzed by

Copies for Wright

Field by

Notes

ATT: LT. COL. BOYNTON

1225:9-43

RESTRICTED

ACCIDENT NO. _____

WAR DEPARTMENT
AAF Station 115
U. S. ARMY AIR FORCES

REPORT OF AIRCRAFT ACCIDENT

44-4-21-5
132

5 mi. NW of Norwich, England

(1) Place 1 mi. NE of Ringland Hills (2) Date 21 April 1944 (3) Time 1415

AIRCRAFT: (4) Type and model B-24 (5) A. F. No. 41-29418 (6) Station AAF Station 115

Organization: (7) 8th AF (8) 44th Bomb (9) 68th Bomb
(Command and Air Force) (Group) (Squadron)

PERSONNEL

DUTY (10)	NAME (Last name first) (11)	RATING (12)	SERIAL NO. (13)	RANK (14)	PERSONNEL CLASS (15)	BRANCH (16)	AIR FORCE OR COMMAND (17)	RESULT TO PERSONNEL (18)	USE OF PARACHUTE (19)
P	Havens, Forrest C.	P	0-687031	2nd Lt	16	AAF	8th AF	Major	U K
CP	DelGrande, Leon L.	P	0-817399	2nd Lt	18	AAF	8th AF	Minor	S B
H	Sajtek, James L.	H	0-698812	2nd Lt	19	AAF	8th AF	Fatal	No
B	Cole, Edward A.	B	0-691634	2nd Lt	20	AAF	8th AF	Fatal	No
E	Lambert, Leonard P. Jr.	E	18202589	Sgt	21	AAF	8th AF	Fatal	No
AE	Edmonson, Roger W.	AE	18218286	S/Sgt	22	AAF	8th AF	Fatal	No
R	Houghins, George B. Jr.	R	15339517	S/Sgt	23	AAF	8th AF	Fatal	No
AR	Higgins, Hartwell J.	AR	14094125	Sgt	24	AAF	8th AF	Fatal	No
TG	Taylor, Russell G.	TG	39196030	Sgt	25	AAF	8th AF	Fatal	No
BT	Wood, Hal W.	BT	18113166	Sgt	26	AAF	8th AF	Fatal	No

(20) Havens, Forrest C. (21) 0-687031 (22) 2nd Lt (23) 16 (24) AAF
(Last name) (First name) (Middle initial) (Serial number) (Rank) (Personnel class) (Branch)

Assigned (25) 8th Air Force (26) 44th Bomb (27) 68th Bomb (28) AAF Station 115
(Command and Air Force) (Group) (Squadron) (Station)

Attached for flying (29) _____ (30) _____ (31) _____ (32) _____
(Command and Air Force) (Group) (Squadron) (Station)

Original rating (33) P (34) 29/Jul/43 Present rating (35) P (36) 29/Jul/43 Instrument rating (37) 14/Sept/43
(Rating) (Date) (Rating) (Date) (Date)

FIRST PILOT HOURS:
(at the time of this accident)

(38) This type <u>B-24</u>	<u>205:40</u>	(42) Instrument time last 6 months	<u>38:35</u>
(39) This model <u>B-24H</u>	<u>4:00</u>	(43) Instrument time last 30 days	<u>2:30</u>
(40) Last 90 days	<u>91:45</u>	(44) Night time last 6 months	
(41) Total	<u>333:25</u>	(45) Night time last 30 days	

AIRCRAFT DAMAGE

DAMAGE	W	W	W	W
(46) Aircraft	W			
(47) Engine(s)	W	W	W	W
(48) Propellers:	W	W	W	W

(49) LIST OF DAMAGED PARTS OF _____
Complete destruction of aircraft.

(50) Weather at the time of accident: .2 to .3 clouds at 2500 ft. .8 to 10/10 clouds at 6000 ft.
Visibility - 4 miles. Heavy rime ice in middle clouds.

(51) Was the pilot flying on instruments at the time of accident Yes
(52) Cleared from AAF Station 115 (53) To AAF Station 115 (54) Kind of clearance Contact
(55) Pilot's mission Combat

(56) Nature of accident: Essential parts of aircraft disintegrated while aircraft was in flight. Aircraft was climbing about 155 to 160 M.P.H. through overcast in severe icing conditions. Aircraft forced into a stalling position and from there into a spin.

(57) Cause of accident: Aircraft forced into a stalling position due to excessive icing. Went into a spin in which the essential parts disintegrated.

(58) Form 54 has not been submitted.

RESTRICTED

CLASSIFICATION CANCELLED OR CHANGED BY AUTHORITY OF CG
RESTRICTED
DATE 2-6-46

DESCRIPTION OF ACCIDENT

(Brief narrative of accident. Include statement of responsibility and recommendations for action to prevent repetition)

1. During the investigation of the accident of aircraft B-24H 41-29418 the following evidence was brought out by the investigating officer.

a. Scene of the Accident:

As evident by the widely scattered parts of the wreckage the airplane either exploded in mid-air as a result of a collision or broke apart under too much strain.

b. Questioning of Pilot:

Although the pilot was still suffering from severe shock, the following essential facts were learned: The plane was climbing about 155 to 160 miles per hour through overcast. It has reached an altitude of 14,000 ft, when it lurched violently and started swerving to the right. The pilot had no control over the ship and it swerved back to the left and then started to spin to the ground. The airplane turned over on its back and the right wing and tail were torn off. The pilot and co-pilot were thrown into the top of the airplane and when the cabin ripped off they were thrown clear of the wreckage. Pilot states that the plane was icing up but he was taking all necessary precautions available in the combat airplanes.

2. Due to the conditions under which the accident occurred no definite statement can be made as to the cause of the accident. It is the opinion of the investigating board that the airplane picked up too much ice, was forced into a stalling position and from there into a spin in which the essential parts disintegrated.

3. Pilot and co-pilot were thrown clear of wreckage while aircraft was in flight. Un-determined whether blast effect opened parachutes or they instinctively pulled rip-cords.

James W. Kohl
JAMES W. KOHL,
Major, Air Corps.

Robert J. Lennhausen
ROBERT J. LENNHAUSEN,
Captain, Air Corps.

Robert E. Felsen *James C. Healy*
ROBERT E. FELSEN, JAMES C. HEALY
Captain, Air Corps. Capt., Air Corps



Signature

(Investigating Officer)

28 April 1944

Date

APPENDIX B. HER RECORDS WITHIN 0.5KM OF PROPOSED DEVELOPMENT

NHER No.	Name	Comments	NGR (TG)
7830	?Monument	A ?ring ditch shown as possible cropmark on a 1946 aerial photo. In 1958 Beaker pottery was found in park near to the cropmark location. Small scale excavations in location adjacent to the Neolithic pottery found only early medieval and post-med pottery	1547 1403
7832	Find spot	Neolithic axe found in 1951	1608 1416
7841	Find spot	Medieval pottery and quern; p-med knife were found in 1959	1537 1358
7842	Find spot	Saxon whetstone and two sherds of Saxon or med pottery were found in 1948	1614 1384
7899	?Monument	Possible post-medieval building foundations were exposed while ploughing in 1957	1564 1374
7900	Find spot	A single ?medieval 12th century pottery sherd was recovered	1539 1410
7902	Monument	Taverham Mill has possible ?Domesday origins. A post-medieval paper mill on site dates from c.1700 and this was 'one of the most important in the country'. Mill abandoned c.1900 and only Mill Race remains as 'standing' feature. Medieval and post-medieval pottery sherds and a child's jaw bone were found in area of mill in the 1990s	1583 1374
7908	Monument	St Edmund's Church has Saxo-Norman origins and inside the church there is a Late Saxon cross.	1607 1381
7909	Find spot	Undated nail	1533 1321
7911	Find spot	Undated lava millstone was found in 1961	155 138
13217	Monument	Post-medieval bridge shown on 1st Ordnance Survey edition 1890 1" map linking Taverham Mill and Taverham Lane - bridge no longer exists.	1590 1371
13257	Monument	Records show there may have been a medieval Guildhall at Taverham. A 17th century terrier seems to support this, but if there had been a guildhall it no longer exists as upstanding remains	16080 13899
16689	Monument	Modern 1930s lime kiln has since been buried	1620 1409
19753	Find spot	Neolithic flint axe was found in 1983	161 141
22989	Find spot	Prehistoric flint blade was found in 1986	1615 1391
23866	Find spot	Late Saxon disc brooch was uncovered by metal detector in 1987	16 13
23987	Find spot	Late Saxon strap end was uncovered by metal detector in 1987	16 13
23988	Find spot	Late Saxon disc brooch was uncovered by metal detector in 1987	16 13
24897	Find spot	Late Saxon/early medieval copper-alloy object was uncovered by metal detector in 1988	16 13
25715	Monument	Site of possible medieval moated manor in Taverham Park comprises rectangle of ditches by river 60m by 30m and these were up to 4m wide - survives as shallow depressions in ground	15465 13603
29022	Monument	According to medieval documents Tunstalls Yard was the site of a medieval watermill	1604 1367
30525	Monument	Taverham Park was created soon after 1784 and incorporated existing woodland. Some trees were planted 1840 and a formal garden was laid in 1864. A small portion of park survives including a late 19th century kitchen	1490 1332
32781	Find spot	Iron Age, Roman Late Saxon, medieval and post-medieval pottery were found during fieldwalking over a large area in 1997. Other finds include possible prehistoric pot boilers	1489 1368
40550	Find spot	Neolithic/Bronze Age arrowhead was found in 2004	15963 14016

41787	Monument	Undated brick building foundations were seen in 2005 whilst digging holes for fence posts	1590 1371
41916	Monument	Late 18th/early 19th century remains of Church Farm barn	16121 13809
54371	Monument	WWII air raid shelter (Anderson) in Taverham - this is one of a number of shelters including in central Norwich and confusingly all given one number and one grid reference	1846 1090
54461	Monument	WWII military camp in Taverham Park	1529 1398
54462	Monument	Medieval to post-medieval earthworks within Taverham Park - and these were part of a possible former settlement and related field system. Earthworks comprised hollow ways, boundary ditches and banks	1515 1328
54464	Monument	Cropmarks of ditches of unknown date	1574 1302
55262	Monument	Taverham School built in 1851	1611 1385
55474	Monument	Site of USAAF B24 Liberator air crash on 21st April 1944. There is a memorial erected in 2011 to the crew	1579 1371
57032	Monument	1921 road place name sign	1604 1390

Table 1: *NHER records for find spots and monuments within 0.5km of proposed development*

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- Taverham c.1780s map (NRO 276/1/1048)
- Taverham 1844 Tithe map (NRO 844)
- Taverham Paper Mills map (NRO BR 276/1/0357)
- Costessey Tithe map 1839 (NRO DH/TA 555)
- Costessey Enclosure map 1857 (NRO C/SCA/78)
- First Edition Ordnance Survey Map (1890)
- Second Edition Ordnance Survey Map (1907)
- Third Edition Ordnance Survey Map (1938)
- 1957 Edition Ordnance Survey map
- 1964 Edition Ordnance Survey map

APPENDIX D. OASIS REPORT FORM

All fields are required unless they are not applicable.

Project Details

OASIS Number	oxfordar3-150512			
Project Name	Desk-Based Assessment at Taverham Mill Nature Reserve			
Project Dates (fieldwork)	Start	02-05-2013	Finish	07-05-2013
Previous Work (by OA East)	No		Future Work	Unknown

Project Reference Codes

Site Code	XNFTAV13	Planning App. No.	N/A
HER No.	N/A	Related HER/OASIS No.	N/A

Type of Project/Techniques Used

Prompt	Voluntary/self-interest
Development Type	Amenity Area (e.g. public open space)

Please select all techniques used:

DBA

<input checked="" type="checkbox"/> Aerial Photography - interpretation	<input checked="" type="checkbox"/> Documentary Search
<input type="checkbox"/> Aerial Photography - new	<input checked="" type="checkbox"/> Visual Inspection (Site Visit)

Monument Types & Period

List feature types using the [NMR Monument Type Thesaurus](#) together with their respective periods. If no features were found, please state "none".

Monument	Period
N/A	Select period...

Project Location

County	Norfolk	Site Address (including postcode if possible)
District	Broadlands + South Norfol	Taverham Mill Fisheries Costessey Rd Taverham, Norwich NR8 6TA
Parish	Taverham + Costessey	
HER	Norfolk	
Study Area	0.5 sq km	National Grid Reference
		TG 1579 1371

Project Originators

Organisation	OA EAST
Project Brief Originator	N/A
Project Design Originator	N/A
Project Manager	Dr Paul Spoerry
Supervisor	Rob Atkins

Project Archives

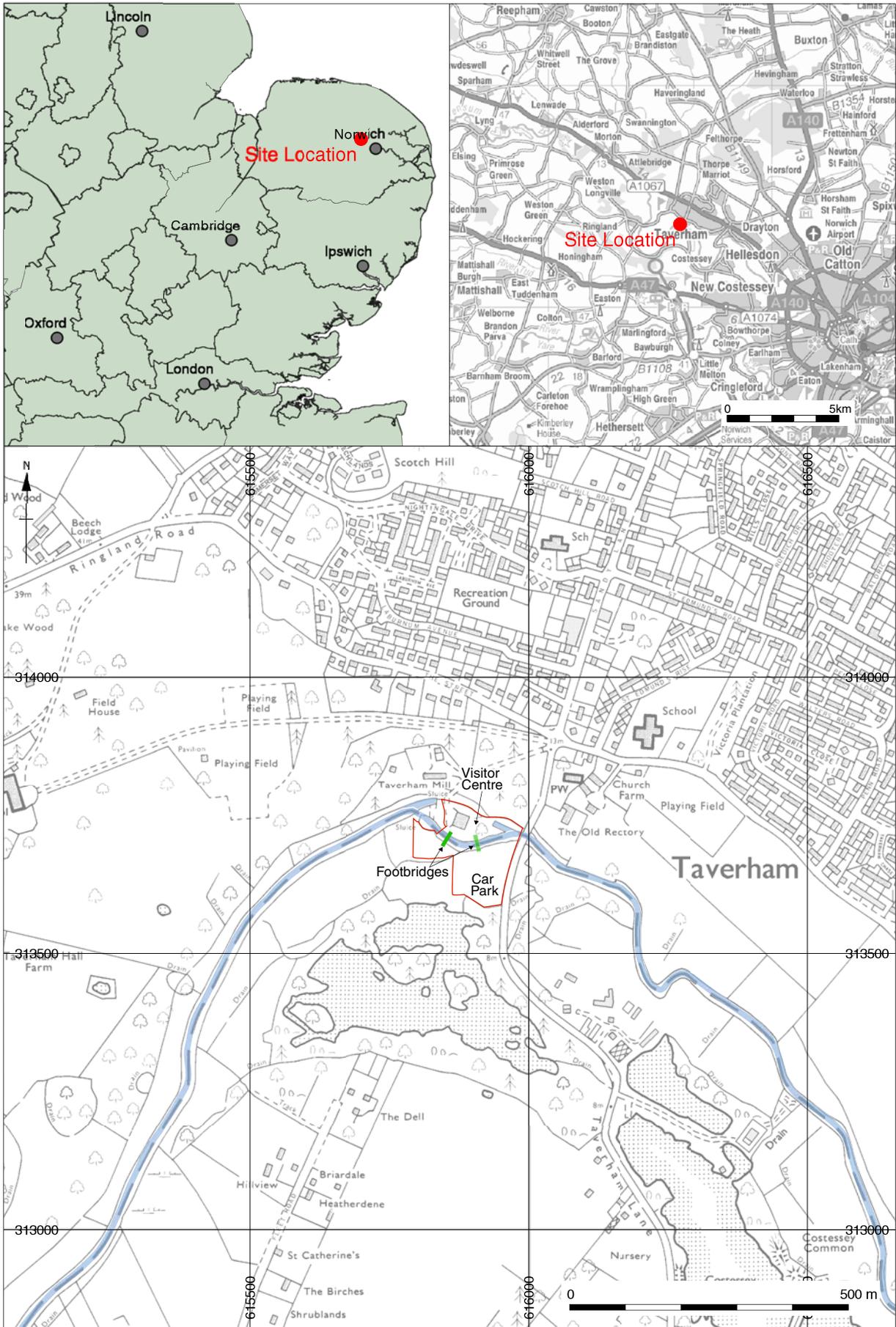
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OA East	OA East	OA East
XNFTAV13	XNFTAV13	XNFTAV13

Archive Contents/Media

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Ceramics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human Bones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Survey		<input type="checkbox"/>	<input type="checkbox"/>
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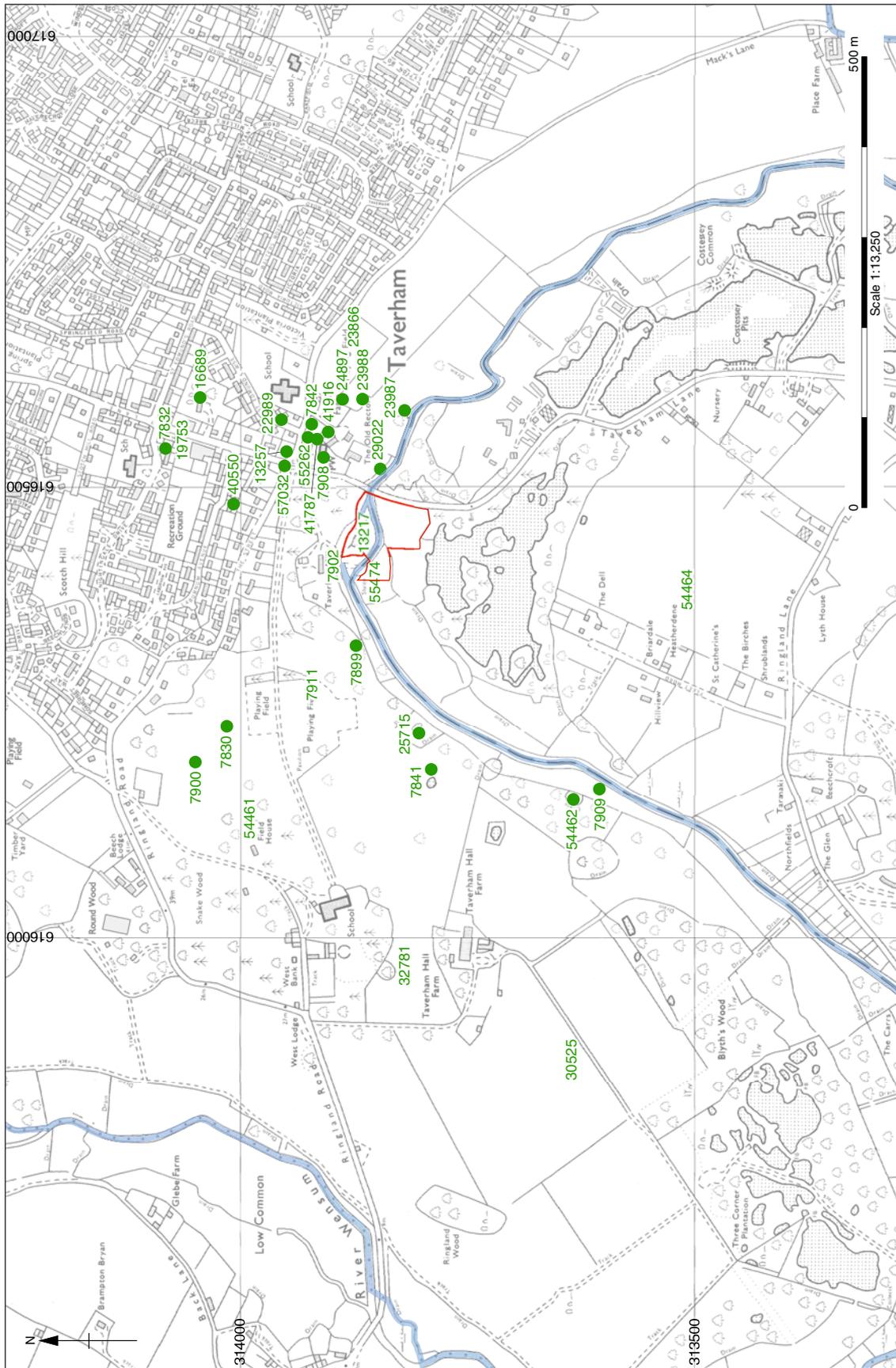
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<input checked="" type="checkbox"/> Images	<input type="checkbox"/> Diary
<input checked="" type="checkbox"/> Illustrations	<input type="checkbox"/> Drawing
<input type="checkbox"/> Moving Image	<input type="checkbox"/> Manuscript
<input type="checkbox"/> Spreadsheets	<input checked="" type="checkbox"/> Map
<input type="checkbox"/> Survey	<input type="checkbox"/> Matrices
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<input type="checkbox"/> Virtual Reality	<input type="checkbox"/> Misc.
	<input checked="" type="checkbox"/> Research/Notes
	<input checked="" type="checkbox"/> Photos
	<input type="checkbox"/> Plans
	<input checked="" type="checkbox"/> Report
	<input type="checkbox"/> Sections
	<input type="checkbox"/> Survey

Notes:



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Figure 1: Site location map showing proposed development area outlined red



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Figure 2: HER records within 0.5km of development area



Figure 3: c. 1780 map of Taverham (NRO 276/1/1048) with proposed development area outlined red

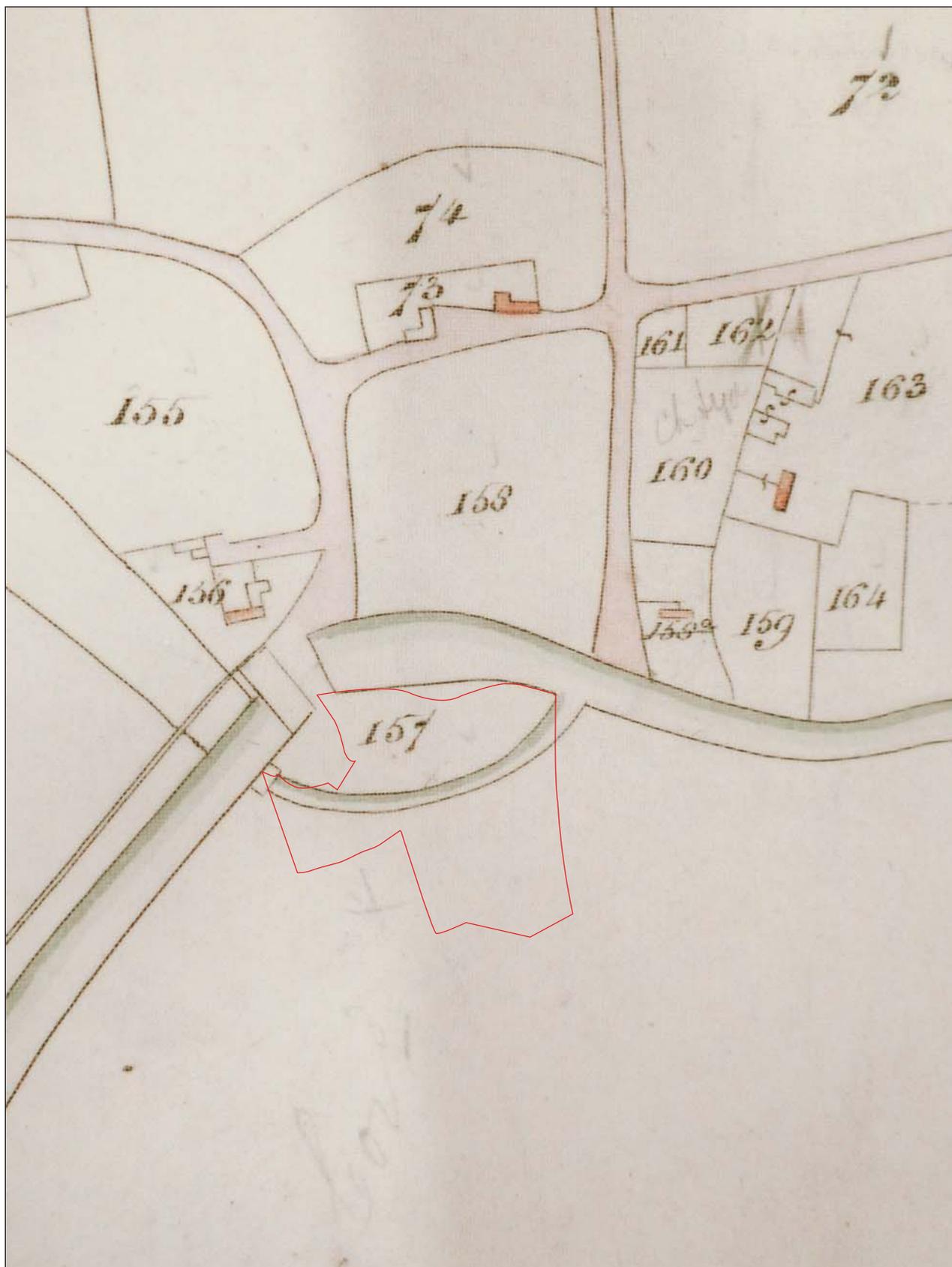


Figure 4: 1844 Tithe map of Taverham (NRO 844) with proposed development area outlined red



Figure 5: 1st Edition Ordnance Survey Map with proposed development area outlined red



Figure 6: Taverham paper mills (NRO 276/1/0357)



Figure 7: 1839 Tithe map of Costessey (NRO DH/TA 555) with proposed development area outlined red



Plate 1: Aerial photograph TG11-TG1513-A-16APR1946-RAF (© Norfolk County Council)



Plate 2: Area of proposed new visitor centre (looking west)



Plate 3: Location of proposed footbridge over the River Wensum with area of car park in distance (looking south)



Plate 4: Memorial to the crewmen of USAAF B24 Liberator B24J41-29418 which crashed 21st April 1944



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