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PRE-CONSTRUCT ARCHAEOLOGY

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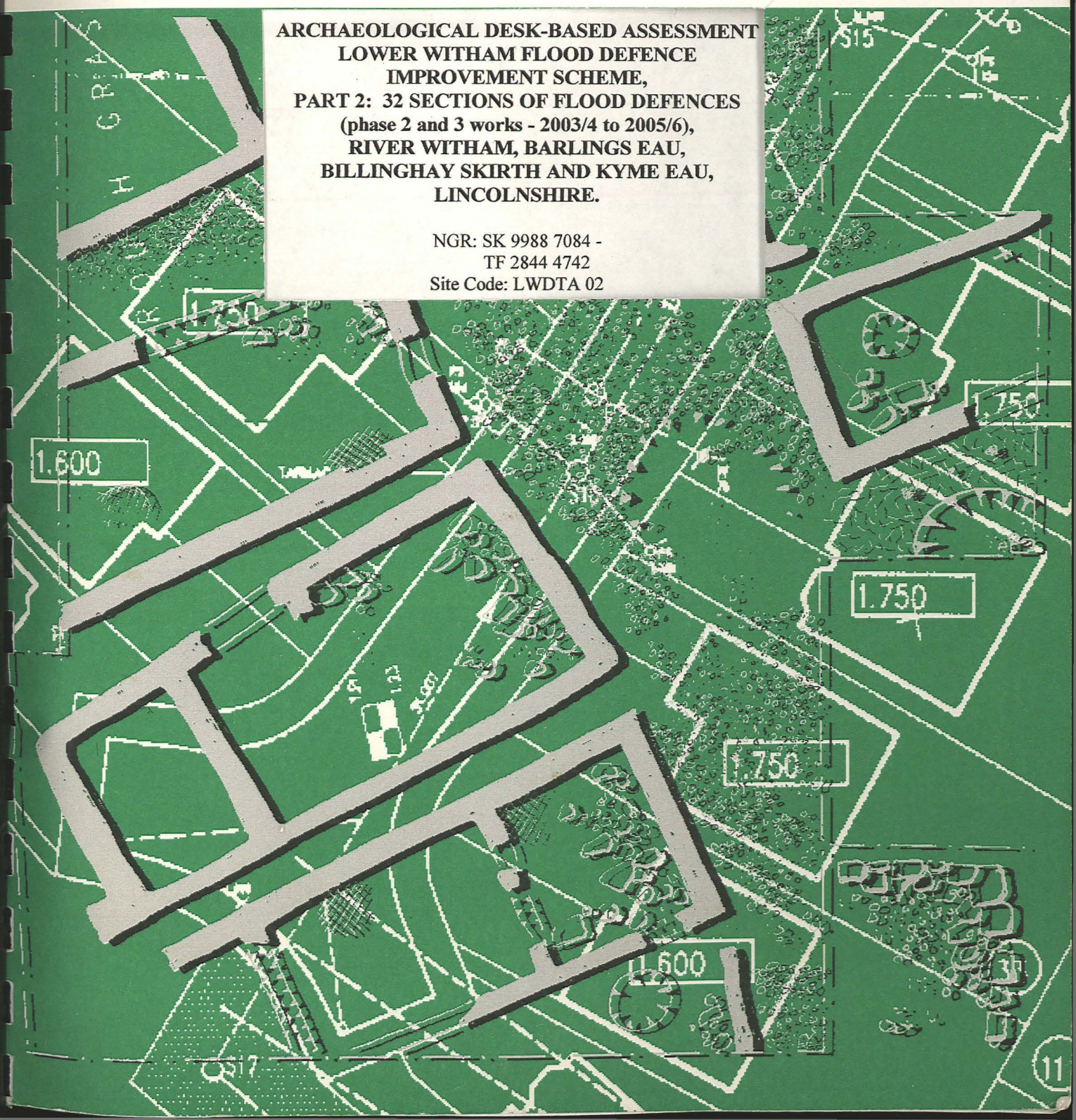
ARCHAEOLOGICAL DESK-BASED ASSESSMENT LOWER WITHAM FLOOD DEFENCE IMPROVEMENT SCHEME, PART 2: 32 SECTIONS OF FLOOD DEFENCES (phase 2 and 3 works - 2003/4 to 2005/6), RIVER WITHAM, BARLINGS EAU, BILLINGHAY SKIRTH AND KYME EAU, LINCOLNSHIRE.

NGR: SK 9988 7084 -
TF 2844 4742
Site Code: LWDTA 02



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Report Prepared for
Bullen Consultants, on behalf of the Environment Agency,
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Colour photographs

Plate 1 — Section (**25**) - image taken from the top of the flood bank, looking north-west. The high organic content of the ploughsoil is clearly visible.

Plate 2 — Section (**38**) – building platform, visible as an area of longer yellowish-brown vegetation at the centre of the image, which is located at the western end of the section, looking west.

Plate 3 — Section (**39**) - image taken from the top of the flood bank, at the pronounced bend in channel of the Billinghay Skirth, looking south-west. The lorry is situated over the in-filled channel of the Car Dyke, which runs directly toward the viewer.

Plate 4 — Section (**39**) – brick bridge carrying Causeway Road over the Billinghay Skirth, looking north-west. Note the concentration of limestone rubble visible at the waterline c. 2m to the east of the bridge.

Summary

- *An archaeological desk top study has been undertaken prior to the commencement of elements of Phases 2 and 3 of a scheme of works to enhance specific sections of the flood defences along the River Witham, and its tributaries the Barlings Eau, Stainfield Beck, Billinghay Skirth, and the River Slea/Kyme Eau. The study concentrated upon thirty-two discrete sections of bank that extend a total of 19,065m.*

- *The results of this study indicate that the different sections of riverbank that were examined exhibit varying archaeological potential. An assessment of existing evidence suggests that groundworks associated with the improvement of Sections **18**, **23**, **25**, **31**, **32**, **34**, **36**, **37**, **38**, **40**, **41**, **42**, **43**, **44**, **45**, **46**, **47**, **49**, **50**, and **51** are unlikely to expose any significant archaeological deposits.*

- *It is considered likely that the following elements of the flood defence improvement scheme overlie deposits of some archaeological significance. Analysis suggests that Sections **21**, **22** and **24** are situated close to causeways utilised for votive deposition during the post-Roman period. Sections **33** and **39** incorporate stretches of the Car Dyke, while Section **19** lies opposite the junction between the northern end of the Car Dyke and the River Witham. Section **33** also appears to lie in close proximity to a medieval fishery, as does Section **26**. It is probable that Romano-British deposits will be encountered during works along Section **48**.*

- *Work associated with the improvement of Section **20** is likely to have some impact upon archaeological deposits relating to a medieval grange and fishery situated at the confluence of the Barlings Eau and the Witham.*

- *Section **27** runs along the edge of a monastic canal leading to Stainfield Priory. Additionally, a large barrow cemetery, part of which is classified as a Scheduled Ancient Monument, is situated immediately to the north of this section.*

1.0 Introduction

Bullen Consultants, on behalf of the Environment Agency, commissioned Pre-Construct Archaeology (Lincoln) to undertake an archaeological desk-based assessment in advance of a scheme of works to enhance specific sections of the flood defences of the River Witham between Lincoln and Boston, Lincolnshire, and its tributaries the Barlings Eau/Stainfield Beck, Farroway Drain/Billinghay Skirth, and the River Slea/Kyme Eau. These improvements to the riverbanks are to be undertaken in three phases, with the work programmed to extend over five seasons, years 2001/2002 to 2005/2006 inclusive.

The information in this document is specifically concerned with the elements scheduled for completion in the last three years – i.e. the sections of the flood defences scheduled for improvement between 2003/2004 and 2005/2006.

This report details the results of the desk-based study, which sought to assess the overall archaeological potential of each section of the riverbank being improved without the use of intrusive fieldwork. Where relevant the study has also aimed to determine the nature of any potential impact that the groundworks may have upon the resource.

Research was conducted in accordance with the procedures set out in the Lincolnshire County Council publication *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice* (LCC, 1998); national guidelines produced by the Institute of Field Archaeologists were also adhered to (IFA, 1994).

2.1 Location and description

The study area represents a section of the River Witham, which extends approximately 44km from the eastern edge of Lincoln (SK99007097), south-eastwards to Anton's Gowt (TF28454740) (*Table 1*) (figs. 1 & 2). The survey also relates to three tributaries of the river - the southern 2.5km of the Barlings Eau/Stainfield Beck, which is situated c. 10km to the east of Lincoln, a short section of the Farroway Drain/Billinghay Skirth located c. 24km to the south-east of the city, and the eastern 8km of the River Slea/Kyme Eau, lying c. 28km away in the same direction. As the programme of flood defence enhancement is focussed upon the immediate environs of these channels, the area of investigation only extends 0.5km to each side of the opposing banks of each section being enhanced (i.e. a 1km wide transect).

The most westerly components of the area of investigation lie on the dip slope of the Lincolnshire Limestone ridge, at the south-eastern edge of Lincoln. The other elements of the survey lie within the Lincoln Clay Vale and the Fenland Basin. The river channel constitutes the boundary of a number of administrative districts, components of the study area lying within the City of Lincoln, West Lindsey, North Kesteven, East Lindsey and Boston District.

This desk-based assessment concerns 32 distinct sections of flood defences. While it would be possible to provide a detailed account of each component, much of the information would be duplicated in successive segments. Consequently, only relatively brief descriptions are provided below, listing the most salient characteristics of each unit of the programme. For the location of each section (specified in bold - e.g. **20**) refer to table 1.

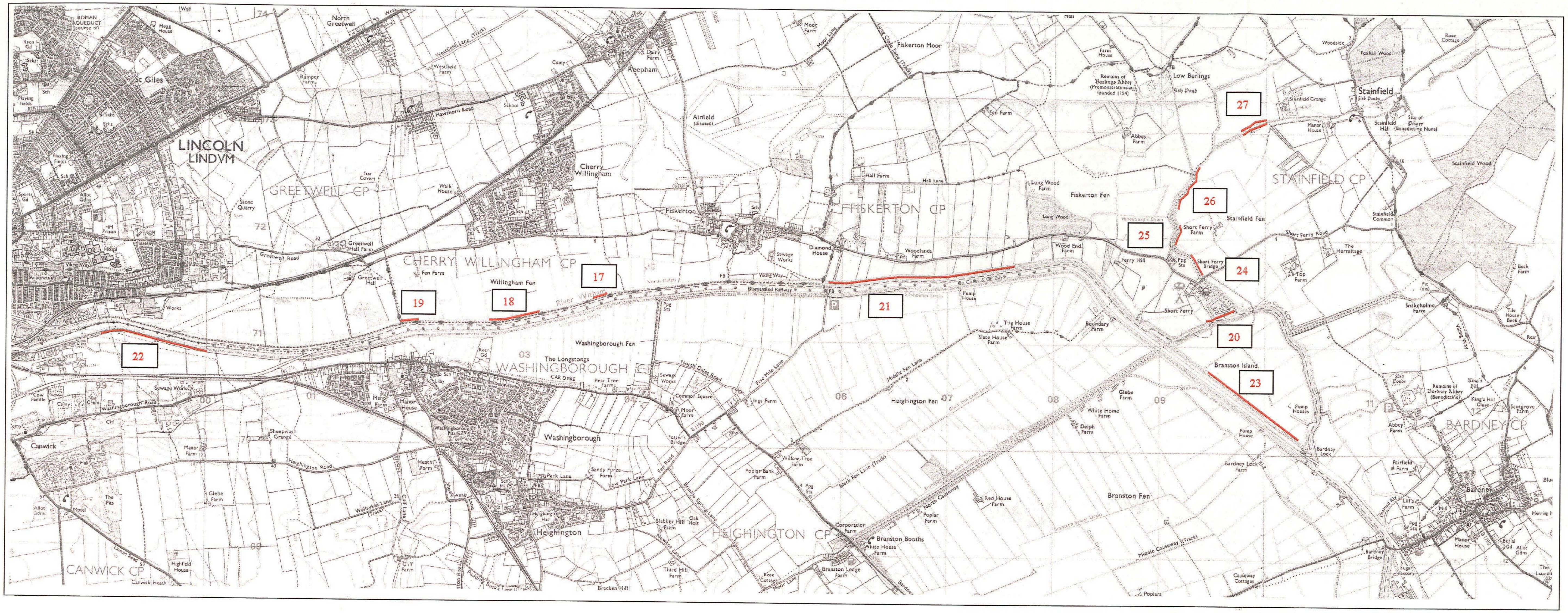


Figure 1: Location of the sections of flood bank along the River Witham and Barlings Eau, Lincolnshire, which are to be enhanced during the final stages of the Phase 2 and Phase 3 works of the flood defence improvement scheme, at a scale of 1: 40,000.

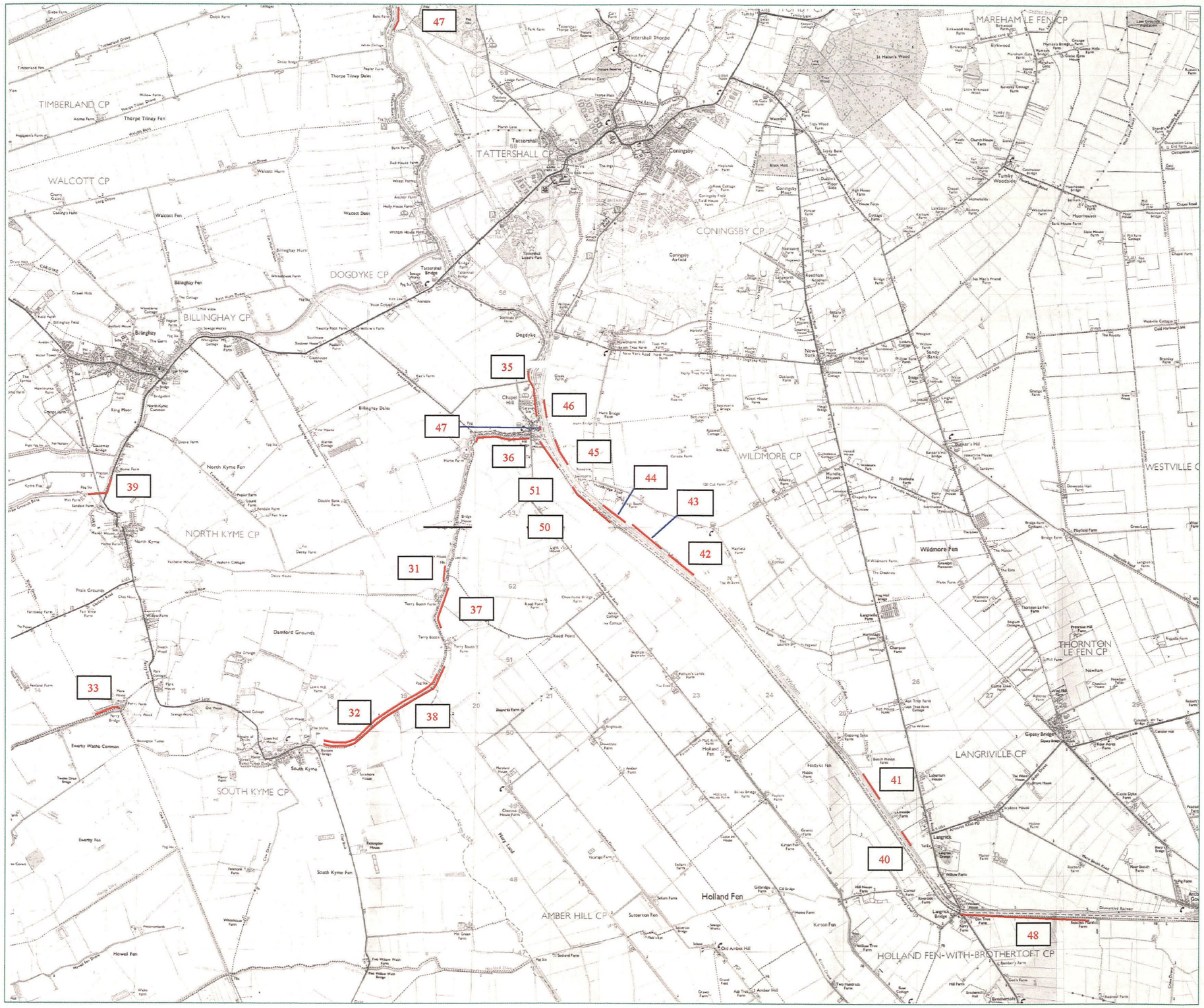


Figure 2: Location of the sections of flood bank along the River Witham Billinghay Skirth and Kyme Eau, Lincolnshire, which are to be enhanced during the final stages of the Phase 2 and Phase 3 works of the flood defence improvement scheme, at a scale of 1: 50,000.

Contractors I.D. No.	Location	Chainage	NGR
YEAR 2003/2004: PHASE 2			
17	River Witham – LHB Willingham Fen	CH44550-44650	TF03787143 – TF03677140
18	River Witham – LHB Willingham Fen	CH45250-45750	TF03147125 – TF02667116
19	River Witham – LHB Willingham Fen	CH46450-46550	TF01917115 – TF01847113
20	Old Witham – LHB Short Ferry	CH2100-2350	TF09717133 – TF09457124
21	River Witham – LHB Fiskerton Fen	CH40750-42500	TF07617156 – TF05837172
YEAR 2004/2005: PHASE 2			
22	South Delph - RHB Lincoln	CH48550-49450	SK99887084 – SK99007097
23	River Witham – LHB Branston Island	CH37450-38450	TF10317013 – TF09517072
24	Barlings Eau – LHB Stainfield Fen	CH500-750	TF09397167 – TF09307186
25	Barlings Eau – LHB Stainfield Fen	CH950-1150	TF09157198 – TF09137214
26	Barlings Eau – LHB Stainfield Fen	CH1350-1750	TF09167233 – TF09347265
27	Stainfield Beck – LHB & RHB Stainfield Fen	CH250-550	TF09757297 – TF10037311
YEAR 2003/2004: PHASE 3			
31	Kyme Eau - LHB Damford Grounds	CH2750-2950	TF19565226 – TF19545206
32	Kyme Eau - LHB Damford Grounds	CH4350-6350	TF19455083 – TF17874982
33	Kyme Eau - LHB Praie Grounds	CH9550-9850	TF15155025 – TF14825016
34	River Witham – RHB Chapel Hill	CH15840- 15875	TF20515410 – TF20505414
35	River Witham – RHB Chapel Hill	CH16075- 16625	TF20865434 – TF20725492
YEAR 2004/2005: PHASE 3			
36	Kyme Eau - RHB Chapel Hill	CH150-975	TF20755405 – TF19985402
37	Kyme Eau - RHB Hart's Grounds	CH2950-3550	TF19575204 – TF19465147
38	Kyme Eau - RHB Hart's Grounds/South Kyme Fen	CH4050-6300	TF19565097 – TF17894980
39	Billinghay Skirth – RHB North Kyme	CH6140-6570	TF15005344 – TF14725322
YEAR 2005/2006: PHASE 3			
40	River Witham – LHB Langrick	CH8125-8325	TF25904844 – TF25794861

41	River Witham – LHB Langriville	CH8900-9285	TF25474909– TF25254940
42	River Witham – LHB Wildmore Fen	CH13025-13475	TF22845221– TF22485250
43	River Witham – LHB Wildmore Fen	CH13525-14025	TF22445253– TF22035286
44	River Witham – LHB Wildmore Fen	CH14125-14475	TF21955293– TF21675315
45	River Witham – LHB Chapel Hill	CH15325-15625	TF21145377– TF21035405
46	River Witham – LHB Chapel Hill	CH15875-16125	TF20965428– TF20905454
47	River Witham – LHB Kirkstead Mill	CH22625-22875	TF18855960– TF18905989
48	River Witham – RHB Langrick Bridge	CH5290-7070	TF28444742– TF26674748
49	River Witham – RHB Pelham's Lands	CH10900-11350	TF24315042– TF24015080
50	River Witham – RHB Pelham's Lands	CH14250-14950	TF21795293– TF21285338
51	River Witham – RHB Chapel Hill	CH15270-15780	TF21105365– TF20855402

NB: RHB or LHB = right or left hand bank, as viewed when looking downstream.
Chainage runs upstream – e.g. on the Witham it increases with movement toward Lincoln (i.e. south to north, and east to west).

Table 1: The location of all the sections of flood defences considered in this desk-based assessment of archaeological potential. The unique contractors identification numbers will be used throughout the following text to refer to each element of the scheme.

17 North-east to south-west aligned flood bank on the northern side of the River Witham. The flood bank and the area immediately to the north of it form a narrow strip of pasture following the river. The ground surface supports relatively short, course grass, which totally cloaks the surface of the topsoil. The North Delph separates this strip of pasture from the arable fields to the north, both of which contained a young crop. The flood bank has a regular profile, while the area to the north is relatively level, being situated at c. 2.0 – 2.5m OD.

18 North-east to south-west aligned flood bank on the northern side of the River Witham. The flood bank and the area immediately to the north of it form a narrow strip of pasture following the river. The ground surface supports relatively short, course grass, which totally cloaks the surface of the topsoil. The North Delph separates this strip of pasture from the arable fields to the north, both of which contained a young crop. The flood bank has a regular profile, while the area to the north is relatively level, being situated at c. 2.0 – 2.5m OD.

19 East to west aligned flood bank on the northern side of the River Witham. The flood bank and the area immediately to the north of it form a narrow strip of pasture following the river. The ground surface supports relatively short, course grass, which totally cloaks the surface of the topsoil. The North Delph separates this strip of pasture from the arable fields to the north, both of which contained a young crop. The flood bank has a regular profile, while the area to the north is relatively level, being situated at c. 2.0 – 2.5m OD.

20 North-east to south-west aligned flood bank on the northern side of the Old River Witham, its eastern end terminating at the confluence with the Barlings Eau. Much of this section of flood bank is relatively poorly defined, this probably reflecting the raising of the land immediately to the north, to c. 4m OD, following the excavation and creation of Short Ferry Marina. The ground surface supports relatively short, course grass, which totally cloaks the surface of the topsoil.

21 East to west aligned flood bank on the northern side of the River Witham. The flood bank and the area immediately to the north of it form a narrow strip of pasture following the river. The ground surface supports short to medium length course grasses, which totally cloak the surface of the topsoil. The North Delph separates this strip of pasture from the arable fields to the north, most of which are 'set aside' and contain stubble and rough vegetation. The flood bank has a regular profile, while the area to the north is relatively level, being situated at c. 2.0 – 2.5m OD.

22 East-west aligned flood bank on the southern side of the South Delph. The flood bank and the area immediately to the south of it form a narrow strip of pasture following the river. The ground surface supports relatively short, course grass, which totally cloaks the surface of the topsoil. The Longstongs Delph separates this strip of pasture from a sewage farm to the south. A railway embankment, formerly surmounted by a line linking the Lincolnshire Loop Line to the Lincoln to Spalding line, runs from south-east to north-west between the South Delph and the Witham, becoming wider at the western end of this section. Trees and shrubs cloak this embankment. The flood bank has a regular profile, while the area to the south undulates slightly, being situated at c. 3.0m OD.

23 North-west to south-east aligned flood bank on the north-eastern side of the River Witham. The flood bank and the area immediately to the north of it form a narrow strip of pasture following the river. The ground surface supports medium

length, course grass, which totally cloaks the surface of the topsoil. A drain separates this strip of pasture from arable fields to the north-east, the southern halves of which are covered in stubble, sedges or pools of standing water. Where visible the soil is dark and peaty. The flood bank has a regular profile, while the area to the north is level, being situated at c. 2.0m OD.

24 North-west to south-east aligned flood bank on the north-eastern side of the Barlings Eau. The flood bank supports relatively short, course grasses, which totally cloak the surface of the topsoil. An unmetalled track runs along the top of the bank and there are fishing pegs at regular intervals. A level strip of ground, c. 8m wide, runs along the base of the bank, beyond which is a drain. To the north of the drain is an arable field, which has recently been ploughed, the soil is dark grey to black and has a significant peat/organic component. The flood bank has a regular profile, while the field is level, being situated at c. 3.5 m OD.

25 North to south aligned, slightly sinuous section of flood bank on the eastern side of the Barlings Eau. The flood bank supports relatively short, course grasses, which totally cloak the surface of the topsoil. An unmetalled track runs along the top of the bank. A level strip of ground, c. 8m wide, runs along the base of the bank, beyond which is a drain. To the east of the drain is an arable field, which has recently been ploughed, the soil is dark grey to black and has a significant peat/organic component. The flood bank has a regular profile, while the field is level, being situated at c. 3.5 m OD.

26 North-east to south-west aligned flood bank on the south-eastern side of the Barlings Eau. The flood bank supports relatively short, course grasses, which totally cloak the surface of the topsoil. An unmetalled track runs along the southern two thirds of the top of the bank in this section; a post and wire fence separates the northern third from the area to the south. In the southern half of this section there is a level strip of ground, c. 8m wide, running along the base of the bank, beyond which is a drain. To the north of the drain is an arable field, which supports a young cereal crop, the soil is dark grey to black and has a significant peat/organic component. There is a slight mound, c. 90m in diameter and up to 0.6m higher than the surrounding field, at the centre of the section. The soils in this area are lighter, with a significant sand and flint gravel component. The northern end of the mound has been quarried away leaving a small marshy pond surrounded by hawthorn bushes. To the north of this quarry pit, a silted up ditch runs along the base of the bank to the junction with the next field to the north. Beyond this point it has been cleaned out and still functions. The flood bank has a regular profile. Most of the field is level, at c. 3.0m OD, climbing very slightly toward the east, c. 3.5 – 4.0m OD, with the top of the mound being situated at c. 3.5m OD.

27a & b North-east to south-west aligned sections of flood bank on the opposing northern and southern sides of Stainfield Beck.
a (north side): The flood bank supports medium length coarse grasses, which totally cloak the surface of the topsoil. The field to the north runs up to the base of the bank, and is covered by rough vegetation including long grass, nettles and thistles. **b** (south side): relatively short, course grasses cloak the surface of the bank, which is only c. 1.0m higher than the arable field that extends to the southern edge of its base. This field supports a young cereal crop and has a moderate gravel component at this point. The field is higher along this part of its northern edge than in the other areas to the south, lying between c. 3.0 – 4.0m OD.

31 North to south aligned flood bank on the western side of the Kyme Eau. The flood bank supports rough vegetation, predominantly long grass with some thistles, which totally cloak the surface of the topsoil. A dike runs along the western edge of the bank at the southern end of this section. It then steps out to the west at the centre of this stretch, creating a berm c. 8m wide at the foot of the bank. An unmetalled track runs along the outer edge of the ditch, leading to Terry Booth Farm to the south. The field at the southern end of the section is currently used as a small paddock, while the field immediately to the north contains rough vegetation. The flood bank has a regular profile, while the fields are level, lying at c. 2.0m OD.

32 Arcing section of flood bank on the western side of the Kyme Eau that turns from a north-east to south-west alignment, to an east-west orientation. The sides of the flood bank support medium length coarse grass, which totally cloaks the ground surface. A level strip of ground, c. 6m wide, runs along the base of the bank, beyond which is a drain. An unmetalled track has been laid along this berm at the northern end of the section; the track provides access to a pumping station recessed into the bank. The three fields at the northern end of the section are under arable cultivation. The most northerly has recently been ploughed, the soil being dark grey to black, with a significant peat/organic component, while the other two contain young cereal crops. The southern two-thirds of this section runs along the edge of a golf course, the predominant vegetation being short grass, but there are also some hawthorn thickets. The flood bank has a regular profile, but decreases in height, relative to the surrounding land, with progress south-eastward. This results from the land rising gradually toward South Kyme. However, there is little topographical variation in any of the fields or on the golf course, the ground surface being situated at c. 3.0 – 4.0m OD.

33 North-east to south-west aligned flood bank on the north-western side of the River Slea/Kyme Eau, which has a pronounced bend toward the south at its eastern end. The flood bank supports rough grasses, which totally cloak the ground surface. A barbed wire fence runs along the base of the bank, separating the eastern end of this section from the yard and buildings of Ferry Farm. An unmetalled track runs alongside the bank at the western end of the section, beyond which is a small field containing the remains of a maize crop. The flood bank is quite low, but also very uneven; the latter appears to be due to a high density of mole activity. Ferry Farm sits on a slight mound at c. 4.0m OD, with the surrounding fields at c. 2.5 –3.0m OD.

34 North to south aligned flood bank on the western side of the River Witham. A path runs along the top of the flood bank, with rough grass covering its eastern face down to the water's edge. The western face of the bank is completely covered by bushes and scrubby vegetation - elder, hawthorn, alder, etc - and has a drain running along its base. To the west of this ditch is a low-lying field covered in medium length rough grass. The flood bank has a regular profile, while the field rises gently toward the west, the surface of the latter lying at c. 1.5 - 2.0m OD.

35 North to south aligned flood bank on the western side of the River Witham. A footpath runs along the top of the flood bank, with rough grass covering its eastern face down to the water's edge. Bushes and scrubby vegetation - elder, hawthorn, alder, etc, cover the western face of the bank. There is a drain running along the base of the bank in the southern half of this section, the land to the west of this ditch being used as a caravan park. The drain ends at the northern end of the caravan park; the base of the bank is then followed by the access road to the

site, beyond which are three small fields containing young cereal crops. The flood bank has a regular profile, while the caravan park and fields rise gently toward the west, the surface of the latter lying at c. 1.5 - 2.0m OD.

36 East to west aligned section of flood bank on the southern side of the Kyme Eau. A footpath runs along the top of the flood bank, while its sides support medium length coarse grasses and occasional hawthorn bushes, which totally cloak the ground surface. A level strip of ground, c. 2m wide, runs along the base of the bank. At the eastern end of the section there is a silted up ditch to the south of this berm, beyond which lies a grown out hawthorn hedge containing a number of mature willow trees. In contrast, the two fields at the centre and the western end of the section are separated from the berm by a hawthorn hedge, with a functioning drain along its southern edge. All three fields contain young cereal crops. The flood bank has a regular profile and there is little topographical variation in any of the fields, the ground surface being situated at c. 2.0m OD.

37 North to south aligned flood bank on the eastern side of the Kyme Eau. The flood bank supports rough vegetation, predominantly long grass with some thistles, which totally cloak the surface of the topsoil. A level strip of ground, c. 6m wide, runs along the base of the bank, beyond which lies a substantial drain that runs between Kyme Lower Lock and Terry Booth Farm. The field at the southern end of the section contains a young cereal crop, while the field immediately to the north has recently been ploughed, the soil being dark grey to black, with a significant peat/organic component. The flood bank has a regular profile, while the fields are level, lying at c. 1.5 - 2.0m OD.

38 Arcing section of flood bank on the eastern side of the Kyme Eau that turns from a north-east to south-west alignment, to an east-west orientation. A track/footpath runs along the top of the flood bank, while the sides support medium length coarse grass, which totally cloaks the ground surface. The field at the northern end of the section is utilised as a long, narrow strip of pasture that lies immediately to the south of Terry Booth Farm. The surface of this field undulates, but none of these irregularities could be resolved into features with a discernable archaeological provenance. The flood bank forms part of this field, there being no intervening drain at its base. There is a small wood running along the southern edge of this pasture. A series of drains run along the edges of the wood, passing under the flood bank to empty into the Kyme Eau via a complex of sluices. The large field to the south of this has recently been ploughed, the soil being dark grey to black, with a significant peat/organic component. The field is separated from the flood bank by a drain and a level strip of ground, c. 3m wide, which runs along the base of the bank. At the south-eastern edge of this field is another small block of woodland, beyond which lies another recently ploughed field. The berm and drain continue to a point approximately two-thirds of the way along the north-western edge of the field before terminating. The field then runs up to the base of the bank for the remaining length of this section, there being two more fields, both of which have recently been ploughed. The soils were generally dark grey to black, with a significant peat/organic component. However, there were some localised areas of mid brown clayey or sand silts that were mixed with flinty gravel, these areas appearing to represent the exposed tops of small mounds in the underlying natural. The western end of the section ran alongside a small area of waste ground covered by coarse grasses. The flood bank has a regular profile, but decreases in height, relative to the surrounding land, with progress south-eastward. This results from the land rising gradually toward South Kyme. However, there was little topographical variation in any of the fields (except the pasture at the northern end, see above), the ground surface

being situated at c. 2.5 – 4.0m OD.

39 Arcing section of flood bank on the south-eastern side of the Billinghay Skirth that turns from a north-east to south-west alignment, to an east-west orientation.
The element to the east of Causeway Road: (i.e. the road that runs from North Kyme to Billinghay) A footpath runs along the top of this element, which forms the north-eastern two-thirds of the section. The base of the bank is followed by the edge of the A1531, except at the southern end of the element where there is a triangle of open ground situated in the angle between Causeway Road and the A1531. The flood bank and much of the triangle of open ground are covered by medium length coarse grasses, which totally cloak the ground surface. However, a small pond covers the northern edge of the open ground, where it abuts the flood bank, this marshy ground being fringed by reeds, sedges, bulrushes and two small willows.
The Causeway Road crosses the Billinghay Skirth by a single span brick built bridge.
The element to the west of Causeway Road: A track surfaced with limestone chippings runs along the top of the bank to Mill Farm, which is situated at the western end of the section. The sides of the bank are covered by medium length coarse grasses, which totally cloak the ground surface. A ditch that is largely filled with silt follows the base of the bank. A hawthorn hedge that contains five mature trees follows the southern edge of the ditch. Beyond the hedge is a small paddock, the land rising as it approaches Sandpit Farm at its southern edge. There were no visible earthworks within this field. The ground surface is situated at c. 4.0 – 5.0m OD.

40 North-west to south-east aligned flood bank on the north-eastern side of the River Witham. The flood bank has been enhanced to form the embankment for the GNR Lincolnshire Loop Line. The railway line has been removed and the embankment is now used as a track and footpath. The western side of the bank supports coarse grass, while the north-eastern side supports rough vegetation, primarily elder and hawthorn bushes, but also long grass, brambles, nettles and thistles, which totally cloak the surface of the topsoil. There is a small pump house recessed into the north-eastern face of the bank at the centre of the section. A drain runs along the base of the bank to the north and south of this building. A narrow strip of rough ground lies to the east of this drain, separating it from another parallel ditch. The field at the southern end of the section contained a young cereal crop, with the other field being covered by stubble and rough vegetation. The flood bank has a regular profile, while the area to the north-east is situated at c. 2.0 m OD.

41 North-west to south-east aligned flood bank on the north-eastern side of the River Witham. The flood bank has been enhanced to form the embankment for the GNR Lincolnshire Loop Line. The railway line has been removed and the embankment is now used as a track and footpath. The western side of the bank supports coarse grass, while the north-eastern side supports rough vegetation, primarily elder and hawthorn bushes, but also long grass, brambles, nettles and thistles, which totally cloak the surface of the topsoil. A drain runs along the base of the bank, a narrow strip of rough ground separating it from another parallel ditch. Both fields abutting this section contained a young cereal crop. The flood bank has a regular profile, while the area to the north-east is situated at c. 1.5 - 2.0 m OD.

42, 43, 44 North-west to south-east aligned flood bank on the north-eastern side of the River Witham. The flood bank has been enhanced to form the embankment for the

GNR Lincolnshire Loop Line. The railway line has been removed and the embankment is now used as a track and footpath. The western side of the bank supports coarse grass, while the north-eastern side supports rough vegetation, primarily elder and hawthorn bushes, but also long grass, brambles, nettles and thistles, which totally cloak the surface of the topsoil. A drain runs along the base of the bank, a narrow strip of rough ground separating it from another parallel ditch. Both fields abutting this section contained a young cereal crop. The flood bank has a regular profile, while the area to the north-east is situated at c. 1.5 - 2.0 m OD.

45 North-west to south-east aligned flood bank on the north-eastern side of the River Witham. The flood bank has been enhanced to form the embankment for the GNR Lincolnshire Loop Line. The railway line has been removed and the embankment is now used as a track and footpath. The western side of the bank supports coarse grass, while the north-eastern side supports rough vegetation, primarily elder and hawthorn bushes, but also long grass, brambles, nettles and thistles, which totally cloak the surface of the topsoil. A drain runs along the base of the bank in the southern third of the section, a narrow strip of rough ground separating it from another parallel ditch. This second ditch continues northward, a c. 30m wide berm developing between it and the base of the bank; this coincides with a slight bend in the river, at its confluence with the Kyme Eau. The field abutting this section contains a young cereal crop. The flood bank has a regular profile, while the area to the north-east is relatively level being situated at c. 1.5 - 2.0 m OD.

46 North to south aligned flood bank on the eastern side of the River Witham. The flood bank has been enhanced to form the embankment for the GNR Lincolnshire Loop Line. The railway line has been removed and the embankment is now used as a track and footpath. The western side of the bank supports coarse grass, while the north-eastern side supports rough vegetation, primarily elder and hawthorn bushes, but also long grass, brambles, nettles and thistles, which totally cloak the surface of the topsoil. A level strip of ground, c. 30m wide, runs along the base of the bank in the southern three-quarters of the section. A drain separates this strip of rough pasture from the field to the east, which contains a young cereal crop. In the northern quarter of the section the ditch turns westward to run along the base of the flood bank. The flood bank has a regular profile, while the area to the east is situated at c. 2.0 – 2.5m OD.

47 Slightly arcing section of north-east to south-west aligned flood bank on the eastern side of the River Witham. A footpath runs along the top of the flood bank, while its sides support medium length coarse grasses, which totally cloak the ground surface. A drain runs along the base of the bank, with another lying c. 10m to the east along the northern three-quarters of the section. The field to the east is covered by stubble and rough vegetation. The flood bank has a regular profile, while the area to the east is situated at c. 3.5 – 4.0m OD.

48 East to west aligned flood bank on the southern side of the River Witham. A footpath runs along the top of the flood bank, while its sides support short to medium length coarse grasses, which totally cloak the ground surface. A drain runs along the base of the bank, beyond which lies an unmetalled track that runs approximately 1km from Langrick Bridge at the western end of the section. The field at the western end of the section surrounds Elm Tree Farm and is currently under pasture, while most of the other fields to the east contain young cereal crops. The flood bank has a regular profile, while the area to the south is level and situated at c. 2.0 m OD.

49 North-west to south-east aligned flood bank on the south-western side of the River Witham. An unmetalled track runs along the top of the flood bank, while its sides support medium length coarse grasses, which totally cloak the ground surface. A strip of level ground, c. 2m wide, runs along the base of the bank, beyond which lies a ditch. There are the remains of a grown out hawthorn hedge on the south-western side of the ditch. Both fields abutting this section contain a young cereal crop. The flood bank has a regular profile, while the area to the south-west is situated at c. 2.0 m OD.

50 North-west to south-east aligned flood bank on the south-western side of the River Witham. An unmetalled track runs along the top of the flood bank, while its sides support medium length coarse grasses, which totally cloak the ground surface. A strip of level ground, c. 5m wide, runs along the base of the bank, beyond which lies a ditch. There is a grown out hawthorn hedge on the south-western side of the ditch, with another ditch running along its other edge. Both fields abutting this section contain a young cereal crop. The flood bank has a regular profile, while the area to the south-west is situated at c. 2.0 m OD.

51 North-west to south-east aligned flood bank on the south-western side of the River Witham. An unmetalled track runs along the top of the flood bank, while its sides support medium length coarse grasses, which totally cloak the ground surface. A strip of level ground, c. 2m wide, runs along the base of the bank, beyond which lies a ditch; this has totally filled with silt along the northern third of the section. There is a grown out hawthorn hedge on the south-western side of the ditch, with another ditch running along its other edge. The three fields abutting the southern two-thirds of the section contain a young cereal crop, while the land at the northern end is used as a caravan park. The flood bank has a regular profile, while the area to the south-west is situated at c. 1.5 - 2.0 m OD.

2.2 Geology

The uppermost geological strata encountered along the course of the Lower Witham are exclusively Quaternary drift deposits, which extend across the depression of the river valley and along its margins. At the western end of the study area, between Lincoln and Cherry Willingham, the solid geology has constrained the river, limiting it to a relatively narrow valley around 800m wide. The present river channel runs roughly centrally in this basin, through thick deposits of clayey alluvium within which are peaty laminae (I.G.S., 1973). The underlying solid geology in this section is very diverse, being primarily comprised of the limestone and clay beds that form the dip slope of the Lincoln Edge.

To the east of Cherry Willingham the valley begins to broaden, to c. 1.4km wide, the river channel migrating toward its northern edge. Around 2.5km to the east of Washingborough the southern side of the valley turns southwards to follow the eastern periphery of the limestone edge. This increases the width of the valley to c. 5km. Again the uppermost strata are laminated beds of alluvium and peat. The uppermost deposit is generally a shrunken peat from which protrude sand banks of varying size. These riverine deposits overlie extensive beds of boulder clay/glacial till along both the northern and south-western edges of the valley. These in turn mantle the Kellaways Sand and Clay, and Oxford Clay, both Jurassic formations (*ibid.*).

The Barlings Eau and Stainfield Beck flow through an irregularly shaped valley that fluctuates from c. 750m to 3km in width. This low lying area, Fiskerton Fen and Stainfield Fen, is also blanketed by alluvium, within and above which are peat deposits (*ibid.*). A number of 'islands' of undifferentiated river terrace sands and gravels project through the alluvium, the largest having Barlings Abbey sited upon it. Further river terrace sands and gravels are exposed along the eastern edge of the valley of the Barlings Eau, but comparable deposits do not mantle the boulder clay along the western edge of the basin. A spur of boulder clay projects south-eastward into the angle formed by the confluence of the Witham and the Barlings Eau.

At this point the Witham turns to flow toward the south-west, running along the eastern edge of the valley as it does so. Some 5km to the south, in the vicinity of Potterhanworth, the valley broadens to c. 6km in width, which varies little thereafter until its junction with the silt fens near Kyme Eau. Peat and alluvium are again the uppermost deposits within the valley, but these overlie substantial marine and estuarine deposits. Beds of Upper River Gravel Deposits, and glacial till are exposed along the river's eastern edge (*ibid.*; B.G.S., 1995). The upper strata of the underlying solid geology are composed of the Jurassic Kimmeridgian and Oxfordian Clay Formations.

North and South Kyme lie at opposite ends of a large island of sand and gravel, representing river and glaciofluvial sheet deposits laid down at the beginning of the Quaternary. To the south of this island the river valley broadens to c. 12km as it enters the area known as Holland Fen. It then becomes wider still, essentially being open to the sea on its eastern side. This relationship is reflected by the uppermost drift deposits, which compose the Barroway Drove Beds. These are silty clays and silts that are either marine deposits or were laid down in adjacent salt marshes, probably during a marine incursion corresponding to the Neolithic period (c. 4,500 – 2,200 BC) (B.G.S., 1995). The Barroway Drove Beds are extensive and continue to flank the River Witham until it reaches the south-eastern edge of Boston.

No	Location	Geology
YEAR 2003/2004: PHASE 2		
17	River Witham – LHB Willingham Fen	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat ('Black Soil'), with occasional sand banks. *Solid*: Great Oolite Limestone and Upper Estuarine Beds (clays with limestone).
18	River Witham – LHB Willingham Fen	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat, with occasional sand banks. *Solid*: Upper Lincolnshire Limestone.
19	River Witham – LHB Willingham Fen	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat, with occasional sand banks. *Solid*: Lower Lincolnshire Limestone.
20	Old Witham – LHB Short Ferry	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat, with occasional sand banks. There is a spur of glacial till less than 100m to the north-west. *Solid*: Oxford Clay.
21	River Witham – LHB Fiskerton Fen	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat, with occasional sand banks. *Solid*: Oxford Clay.
YEAR 2004/2005: PHASE 2		
22	South Delph - RHB Lincoln	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat, with occasional sand banks and possible localised deposits of undifferentiated river terrace sand and gravel. *Solid*: Middle Lias clay and shale.
23	River Witham – LHB Branston Island	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat, with occasional sand banks. *Solid*: Oxford Clay.
24	Barlings Eau – LHB Stainfield Fen	*Drift*: alluvium, some peat laminations, with an 'island' of undifferentiated river terrace sand and gravel at the centre of the section. Uppermost layer is a degraded peat. *Solid*: Oxford Clay.
25	Barlings Eau – LHB Stainfield Fen	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat. *Solid*: Oxford Clay.
26	Barlings Eau – LHB Stainfield Fen	*Drift*: alluvium, some peat laminations. Uppermost layer is a degraded peat. *Solid*: Oxford Clay.
27	Stainfield Beck – LHB & RHB Stainfield Fen	*Drift*: alluvium, some peat laminations, giving way to undifferentiated river terrace sand and gravel and glacial till toward eastern end of section. Uppermost layer is a degraded peat. *Solid*: Oxford Clay.
YEAR 2003/2004: PHASE 3		
31	Kyme Eau - LHB Damford Grounds	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
32	Kyme Eau - LHB Damford Grounds	*Drift*: From northern end of section to golf course - Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. From eastern edge of golf course to western end of section – A deposit of glacial till (c. 500m long) - a chalk rich, sandy gravely clay - overlies the eastern edge of a large island of 'river and glaciofluvial sheet deposits' (sands and gravels) upon which South Kyme is sited. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
33	Kyme Eau - LHB Praie Grounds	*Drift*: 'river and glaciofluvial sheet deposits' (sands and gravels), the River Slea defining the south-western edge of a large island of this material. Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), lie immediately to the south of the river. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).

34	River Witham – RHB Chapel Hill	*Drift*: Undifferentiated marine and estuarine deposits - silty clays, with some peat laminations, up to 15m deep. Uppermost layer is a degraded peat. (Chapel Hill stands on small island of sand and gravel, detected during Fenland Survey, these deposits may extend eastward into area of (**34**) (Lane & Hayes, 1993). *Solid*: Jurassic formations of the Ancholme Group (Kimmeridge Clay Formation, Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
35	River Witham – RHB Chapel Hill	*Drift*: Undifferentiated marine and estuarine deposits - silty clays, with some peat laminations, up to 15m deep. Uppermost layer is a degraded peat. (Chapel Hill stands on small island of sand and gravel, detected during Fenland Survey, these deposits may extend eastward into area of (**35**) (Lane & Hayes, 1993). *Solid*: Jurassic formations of the Ancholme Group (Kimmeridge Clay Formation, Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
YEAR 2004/2005: PHASE 3		
36	Kyme Eau - RHB Chapel Hill	*Drift*: Undifferentiated marine and estuarine deposits - silty clays, with some peat laminations, up to 15m deep. Uppermost layer is a degraded peat. (Chapel Hill stands on small island of sand and gravel, detected during Fenland Survey, these deposits may extend southward into area of (**36**) (Lane & Hayes, 1993). *Solid*: Jurassic formations of the Ancholme Group (Kimmeridge Clay Formation, Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
37	Kyme Eau - RHB Hart's Grounds	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
38	Kyme Eau - RHB Hart's Grounds/South Kyme Fen	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. Deposits of glacial till and 'river and glaciofluvial sheet deposits' run along the northern edge of the Kyme Eau in the western half of this section (see 32). *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
39	Billinghay Skirth – RHB North Kyme	*Drift*: Western end of section to Causeway Road bridge - A small deposit of glacial till (upon which Mill Farm is sited) - a chalk rich, sandy gravely clay - overlies the north-western edge of a large island of 'river and glaciofluvial sheet deposits' (sands and gravels) upon which North Kyme is sited. From Causeway Road bridge north-eastwards - Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
YEAR 2005/2006: PHASE 3		
40	River Witham – LHB Langrick	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
41	River Witham – LHB Langriville	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).

42	River Witham – LHB Wildmore Fen	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
43	River Witham – LHB Wildmore Fen	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
44	River Witham – LHB Wildmore Fen	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
45	River Witham – LHB Chapel Hill	*Drift*: Undifferentiated marine and estuarine deposits - silty clays, with some peat laminations, up to 15m deep. Uppermost layer is a degraded peat. (Chapel Hill stands on small island of sand and gravel, detected during Fenland Survey, these deposits may extend eastward into area of (**45**) (Lane & Hayes, 1993). *Solid*: Jurassic formations of the Ancholme Group (Kimmeridge Clay Formation, Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
46	River Witham – LHB Chapel Hill	*Drift*: Undifferentiated marine and estuarine deposits - silty clays, with some peat laminations, up to 15m deep. Uppermost layer is a degraded peat. (Chapel Hill stands on small island of sand and gravel, detected during Fenland Survey, these deposits may extend eastward into area of (**46**) (Lane & Hayes, 1993). *Solid*: Jurassic formations of the Ancholme Group (Kimmeridge Clay Formation, Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
47	River Witham – LHB Kirkstead Mill	*Drift*: marine and estuarine deposits, silt and clay with peat laminations. Uppermost layers are a degraded peat and some alluvium, with occasional sand banks (Upper River Terrace sand and gravel along eastern bank of river 200m to east). *Solid*: Ampthill clay formation.
48	River Witham – RHB Langrick Bridge	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
49	River Witham – RHB Pelham's Lands	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
50	River Witham – RHB Pelham's Lands	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).
51	River Witham – RHB Chapel Hill	*Drift*: Barroway Drove Beds – older marine deposits (prob. Neolithic) and salt marsh deposits (silty clays), with some peat laminations. Uppermost layer is a degraded peat. *Solid*: Jurassic formations of the Ancholme Group (Ampthill Clay Formation, West Walton Formation and Oxford Clay Formation).

Table 2: Summary of the solid and drift geology, with relation to each section of the scheme examined in this study (compiled from I.G.S., 1973, B.G.S., 1995a & b, and Lane & Hayes, 1993).

3.0 Planning background

The Environment Agency has implemented the Lower Witham Flood Defence Improvement Scheme to enhance the flood defences of the River Witham and its tributaries, the Barlings Eau, Stainfield Beck, Sandhill Beck, Billinghay Skirth and River Slea/Kyme Eau, as well as a section of the old river channel encircling Branston Island. It is a five-year programme of works that will target 51 distinct sections of flood bank.

Work was initiated in 2000/2001 and several components of the scheme have already been completed. The latter are situated on the northern (LHB) bank of the Witham, the western bank (RHB) of the Barlings Eau and the southern/western bank (RHB) of Branston Island. Archaeological deposits were encountered during the groundworks associated with these initial elements of the scheme. As a consequence the Built Environment Team, Highways and Planning Directorate, Lincolnshire County Council, have requested that this document be produced to highlight any further potential impacts upon the archaeological resource, which will facilitate the formulation of a mitigation strategy.

4.0 Objectives and methods

The purpose of this report is to identify and assess the nature of *in-situ* archaeological deposits that may be damaged or destroyed by groundworks associated with the enhancement of the flood defences and, if necessary, to suggest further methods by which any such deposits detected may be evaluated in advance of construction works.

Data for this report was drawn from the following sources:

- Records held by the County Sites and Monuments Record for Lincolnshire (SMR)
- Records held at the Lincolnshire Archives Office (LAO)
- Records held at the Lincolnshire Local Studies Library (LSL)
- Aerial photographs held by the National Monuments Record, Swindon (NMR)
- Published and unpublished sources
- Information supplied by the client
- A detailed inspection of the site

The author visited the sections of the flood defences to be improved on 16th and 23rd January 2002.

The scheme of works is specifically focussed upon the River Witham and its tributaries. Consequently, the area of investigation has been defined as a 1km wide corridor, which brackets these watercourses along each section of flood bank being enhanced. The research also included an examination of the areas lying up to 0.5km upstream and downstream of each section. However, as more than 1km separates some neighbouring segments, it should be noted that this study does not represent a full analysis of all the archaeological material to be found in the river valley between Lincoln and Boston.

The areas examined represented parts of the parishes/administrative districts of the City of Lincoln, Canwick, Greetwell, Washingborough, Cherry Willingham, Fiskerton, Heighington, Branston and Mere, Stainfield, Barlings, Apley, Bardney, Timberland, Kirkstead, Tattershall Thorpe, Dogdyke, Coningsby, Hart's Grounds, Pelham's Lands, Wildmore, Langriville, Brothertoft, Amber Hill, Billinghay, North Kyme, South Kyme, Ewerby & Evedon and Anwick. However, many of these parishes are large, and the river or its tributaries often run along their edges forming the boundary. As a consequence only a few of the modern settlements partially fall within the study area; these are Lincoln, Washingborough, (Short Ferry), Chapel Hill, Langrick Bridge, North Kyme and South Kyme.

Much of the data held by the SMR or contained within documentary sources relates to specifically to the villages in each of these parishes, or to their immediate environs. Therefore, it is concluded that the spatial separation between them and the river renders much of this information marginal or irrelevant with respect to this study. This was an important factor in structuring the section on the archaeological and historical background of the area (see 5.0 below). This section is intentionally brief and generalised, and deliberately avoids presenting a comprehensive historical narrative for each of the parishes concerned. It is intended merely to provide an indication of the range and date of materials and sites already discovered in the area of interest. More detailed analysis is provided in section 6.0, where data will be presented in a format that enables it to be directly related to each element of the flood defence improvement scheme.

5.0 Archaeological and historical background

The earliest evidence for human activity along the section of the Lower Witham Valley, between Lincoln and Anton's Gowt, is a Mousterian handaxe, which was recovered in the Parish of Fiskerton (TF 0648 7166). This artefact was recovered from ploughsoil and, although plough-damaged, had not been rolled raising the possibility that Middle Palaeolithic (c. 75,000 – 50,000 BP) occupation layers are being exposed by peat shrinkage (author's data).

Artefactual material created during the Later Mesolithic and Earlier Neolithic is more prolific. A programme of field walking undertaken by Washingborough Archaeology Group has recovered worked flint from 43 of the 45 fields walked. Much of this lithic material does not possess datable traits, but several scatters contain diagnostic pieces indicative of activity prior to the Later Neolithic. Most of this early material was recovered from lithic scatters situated on the dip slope of the limestone ridge, immediately to the south of the river valley. However, Mesolithic flints were recovered from the surface of an exposed sand bank beside the Witham in Washingborough Fen (60613 – TF 0410 7140) (Coles, *et al*, 1979). Additionally, debitage and blades of Later Mesolithic or Early Neolithic date were recently recovered from a sand bank located close to the Iron Age timber causeway at Fiskerton (TF 0493 7165) (author's data).

A small number of Mesolithic flints were also recovered from the surface of a small gravel island a little to the north of Chapel Hill (TF 2060 5525) in the southern half of the study area (Lane & Hayes, 1993). However, the majority of the worked lithic material from this site resulted from Later Neolithic activity.

It has been suggested that an oval cropmark situated at the northern edge of the floodplain at Greetwell (52460 - TF 0070 7124) represents the remains of an Early Neolithic long barrow, although this remains to be verified. A number of Neolithic stone axes have been recovered from Cherry Willingham, Fiskerton, Heighington Fen and to the west of Branston, these having a close spatial relationship to the wetland areas of the Witham Fen (Field & Parker-Pearson, in press). In comparison, there is little evidence for Neolithic activity along the river

between Branston Island and Southrey, but a number of stone axes have been discovered between Stixwould and Woodhall Spa. This group includes five Neolithic axes and a pebble mace of similar date that were recovered within 1km of the eastern edge of the River Witham. Similarly, a number of stone axes have been recovered from the slight ridge of sand and gravel that runs between North and South Kyme. Of this latter group, five axes were found in the immediate environs of Halfpenny Hatch, which is situated at the junction between the Carr Dyke and the River Slea.

The relationship between these artefacts and the rivers is unlikely to be entirely fortuitous. For instance, the faunal resource base is likely to have been richer and more diverse along the margins of the river, with animals being drawn toward easily accessible supplies of drinking water. While this may provide one possible reason for this 'concentration' of activity, there may also be non-functional explanations for this distribution. Unstratified finds of stone axes are often considered to be casual losses, yet the means of their acquisition was anything but casual and often involved long-distance exchange (Edmonds, 1995). This would suggest that these items had a great deal of implicit value, which would tend to contradict notions that their owners would abandon them so readily. Research has indicated that wetland environments were foci for the ritual deposition of axes during the Neolithic (*q.v.* Bradley, 1990). Such deliberate social processes may better explain the presence and patterning of these stone axes.

The residues of human activity become more extensive and visible during the Late Neolithic and Early Bronze Age when large numbers of round barrows were constructed on the valley floor between Lincoln and Stainfield. The barrows appear to form a number of discrete cemeteries that seem to form pairs facing each other across the river. A group of at least 12 barrows (52841 - TF 0070 7110) appears to have developed around the putative long barrow at Greetwell, at the western end of the study area. Opposite lies a cluster of 7 barrows to the west of Washingborough (60930 – TF 0020 7070). On the north side of the river, further possible barrows lie to the south of Greetwell Hall and to the south-west of Cherry Willingham (52860, 52855 & 52856). Another 5 barrows line the top of a sand bank situated between Cherry Willingham and Fiskerton. These face the western edge of a very extensive cemetery (c. 145ha) stretching over much of Washingborough Fen (60327). Thirty possible barrows have been identified, these being dispersed along a 1.7km long section of the valley.

At present there do not appear to be any further barrows along the river valley to the east of this large cluster. However, there is another large cemetery in Stainfield Fen within the valley of the Barlings Eau. This is located c. 2km to the north of the confluence between the latter and the Witham, the 32 barrows being sited in two dense groups that face each other across Sambre Beck. Further round barrows have been identified in the area lying to the east of the Old River Witham and south of Short Ferry Road, although these appear to be more dispersed than the examples forming the Barlings/Stainfield cemetery. A watching brief undertaken at Top Farm, Stainfield, may have exposed part of the encircling ditch of one of these funerary monuments (Palmer-Brown, 1997). A number of pits were also identified, one of which was found to contain four sherds of Late Neolithic (Peterborough Ware) or Early Bronze Age (Food Vessel group) pottery.

It is interesting to note that every barrow in all of these cemeteries was constructed on a ground surface lying below 5m OD. This would suggest that there must have been little surviving woodland within the river valley if these mounds were intended to be visible from any appreciable distance (Field & Parker-Pearson, in press). Further barrows were constructed along the western edge of the ridge of sand and gravel running between North and South Kyme, but some of these may have been at or slightly above the 5m contour. It is also possible that there was a barrow cemetery in the area later occupied by the manor house and priory at South Kyme (Trollope, 1872).

A range of Late Neolithic and Early Bronze Age artefactual material has also been recovered from the river valley. This includes a number of perforated stone axe hammers from Fiskerton (52910 – TF 0580 7160; 61453 – TF 0580 7110; 52911 – TF 0482 7199), a barbed and tanged arrowhead from Cherry Willingham (51208 – TF 0366 7159), a Food Vessel found on Branston Island (TF 0973 7122) and Later Neolithic flints from Chapel Hill, (TF 2060 5525). However, it is possible that further material of this date that is situated to the south of Tattershall may lie buried beneath marine deposits and peat, as inundation of the silt fens began in the Later Neolithic (Lane & Hayes, 1993).

There is little evidence for Middle and Late Bronze Age settlement within the river valley or along its margins despite the recovery of a large number of artefacts (Field & Parker-Pearson, in press). It would appear that peat began to develop in the northern half of the study area around 1000BC, these organic deposits rapidly covering the earlier ground surface. The most compelling evidence for occupation was discovered around the pumping station at Washingborough. Finds recovered from three small trenches and the surrounding ground surface included an antler cheek piece, 59 sherds of Late Bronze Age or Early Iron Age pottery, animal and human bone and worked wood (Coles, *et al*, 1979) (60612 – TF 0423 7138). The Washingborough Archaeology group have also recovered over 300 sherds of comparable pottery from the surface of the field immediately to the south-east (60462 – TF 0445 7115).

Other finds include Middle Bronze Age palstaves from Canwick (61504 – TF 0010 7071; SK97SE – CT SK 9995 7072) and Southrey and a contemporary dirk from Fiskerton (52882 – TF 0470 7180). There are also at least three hoards of socketed axe in the parishes of Washingborough and Fiskerton. The Washingborough Fen hoard included at least four axes and the valves of a two part axe mould (61277 – TF 0462 7091). Another hoard found in a small field to the south of Fiskerton Church is estimated to have contained between 4 and 14 axes (52877 – TF 0487 7182), with the third being recovered c. 1910 from a site adjacent to Long Wood (52895 – TF 0770 7200). At least four Late Bronze Age swords have come from the Witham at Lincoln, between Stamp End and Monk's Leys (SK97SE/CN - SK 9858 7102; SK9871SW/A – SK 9842 7104), while a further three bronze swords were found near the river at Washingborough (61295 – TF 0228 0791). Two Bronze Age spearheads were found in or near the river at Fiskerton, while another, of the peg-hole type (40083), was found adjacent to the river at Stixwould. The recovery of a Bronze Age axe (at TF 1647 6418) along the river at Stixwould is also recorded in the SMR parish file, but without any supporting data.

Significant quantities of Bronze Age metalwork have also been recovered from the parishes of North and South Kyme. A palstave was recovered from a paddock to the south of North Kyme church in 1922 (TF15SE/E – TF 1531 5269). It is also recorded that bronze spearheads were recovered from a barrow lying c. 1km to the south of the village (Trollope, 1872), while two flat bronze axes were found a little to the south, near Halfpenny Hatch (TF15SE/T – TF 156 503). A number of items have been found within the area later occupied by Kyme Priory and manor house. At least five bronze palstaves have come from this area, while two bronze rapiers were found beneath a bank separating the western edge of the manor precinct from the Kyme Eau (*ibid.*).

In many respects the Early to Middle Iron Age has become the most renowned aspect of the prehistoric landscape of the Witham Valley, following the discovery of a timber causeway at Fiskerton (52904 – TF 0500 7162). This was constructed from two rows of timber posts, which may have supported a raised superstructure. The timbers and been replaced episodically and were dated by dendrochronology to between 456 and 317BC. Associated with the causeway were a range of artefacts that included several iron swords, iron spears, over 50 bone points, iron axes, files, a saw, part of a ribbed bronze bracelet, shield fittings, pottery, human bone and log boats (Field & Parker-Pearson, in press; author's data). The

concentration, range of types and quality of these materials provides strong indications that they were deposited into this watery context during ritual activities.

The riverine contexts of these finds are generally anaerobic and consequently organic materials are well preserved. The two log boats found in association with the Iron Age causeway at Fiskerton are the most recent examples of this kind of vessel, many others having been discovered in the Witham Fen over the last 2 or 3 centuries. Most of these have been found downstream from the confluence of the Witham and the Barlings Eau, with a particular concentration around Branston Island and Bardney (e.g. 51154 – TF 1162 6854). There are some outliers further down the river including an example recovered from land adjacent to the river at Stixwould in 1848. The date and recorded location (TF 159 648) of the find indicate that it was discovered during the construction of Stixwould Station (White, 1978).

There is a lot of evidence for human activity during the Romano-British period, which is unsurprising given the close proximity of Lincoln, one of the largest settlements in Roman Britain. The Car Dyke, thought to be a Roman canal or drain, runs along the junction between the limestone ridge and the Witham Fen, to the south of Lincoln. A section is still visible as an earthwork running along the northern edge of Washingborough village (60714). An artefact scatter discovered to the west of the village probably marks the location of a Romano-British farmstead or small settlement (60463 - TF00257050). Other Roman artefactual material has been found at a number of other sites around the village (61288; 61285; 61278; 61289 61510) suggesting sustained activity.

There have also been a large number of Romano-British finds in and around Fiskerton. A number of bowls, pots and whetstones were found in association with the Iron Age timber causeway, indicating that it was being reused for votive deposition (52905; 52902; possibly 52883). Close by, at Perrins Cottages, a Romano-British 'hard' constructed from limestone and roof tile has been discovered (52887). This had been created along the edge of a former channel of the Witham and was probably used for loading and unloading boats using the river. There may have been another Roman settlement at Short Ferry, where pottery was discovered during the construction of the marina (52907 - TF 0965 7134).

Evidence of Romano-British activity along the stretch of river between Branston Island and Holland Fen is relatively sparse. A single sherd of greyware and four fragments of Romano-British tile were recovered from the riverbank alongside Chapel Hill during the course of fieldwork undertaken for the Fenland Survey (Lane & Hayes, 1993). Further to the south, there appears to have been a significant amount of Romano-British activity around Langrick and Langrick Bridge. Artefact scatters that include sherds of greyware and samian pottery have been identified at ten locations along the present or former course of the river (including: 40663 – TF 2620 4750; 43972 – TF 2683 4770; 43959 – TF 2681 4797; 40664 – TF 2730 4750; 40662 – TF 2690 4820; 43960 – TF 2765 4760 and 40665 – TF 2810 4750).

A section of the Car Dyke is still visible as a well-preserved earthwork that runs along the western edge of the village of North Kyme (TF15SW/M – TF 1480 5265). Further to the south, this watercourse can be traced as a less substantial ditch, which defines the western edge of the parish of South Kyme before joining the River Slea at Halfpenny Hatch. A small Romano-British 'thumb-pot' was recovered from the bed of the river at this junction (TF15SE/G - TF 152 502).

The importance of the River Witham as a focus for the deposition of prestige objects is re-emphasised in the Anglo-Saxon and Viking periods. An Anglo-Saxon to medieval period sword was recovered from the river channel at the eastern edge of Lincoln, at a point where a number of Late Bronze Age weapons had also been deposited (SK9871SE/A – SK 9890 7108). Three very ornate Anglo-Saxon silver-gilt disk headed pins were also found in the river, just downstream from the Iron Age causeway (52878 – TF 0498 7152). These were

probably manufactured during the first half of the 9th century. A Viking sword, also of the 9th century, was found slightly further downstream on the northern bank of the Witham, opposite Five Mile House (52896 – TF 0564 7155). Another Viking period object, an axe head, was found near Horsley Deeps, Bardney, during dredging, c. 1815 (51163).

Further weaponry, including a sword of Anglo-Saxon/Danish type (probably of the 9th-11th centuries AD), a dagger with a wooden handle and an iron spearhead were found in the river at Kirkstead Wath in 1788 (40084). These items also appear to represent the residues of ritual practices undertaken at watery contexts, possibly in a form analogous to the events surrounding the disposal of Excalibur in Arthurian legend (*q.v.* Bradley, 1990). Interestingly, further weaponry recovered from the site of Stixwould Station, in 1848, appears to indicate that such practices continued into a period of universal and unambiguous Christian belief and practice. These items included a mass of chain mail, probably a hauberk, an iron sword, an iron spearhead and a human skull (White, 1979). Typologically they appear to have been manufactured during the 13th or early 14th centuries.

In the same way that the river valley appears to have been a focal point for pagan ritual activity, it also became the setting for a large number of monastic houses and estates. The first abbey was established at Bardney toward the end of the 7th century, a particularly early foundation (Stocker, 1993). By the medieval period the river margins were lined by a remarkably density ecclesiastical settlements (Stocker & Everson, forthcoming). These included Monk's Abbey at Lincoln, Sheepwash Grange at Washingborough, Barleymouth Grange at Short Ferry, Bullington Priory, Barlings Abbey and Stainfield Priory on the Barlings Eau, Bardney Abbey, Tupholme Abbey, Branston Grange, Nocton Priory, Stixwould Priory, possibly Stixwould Grange, Kirkstead Abbey, Linwood Grange, Catley Priory, Haverholme Priory and Kyme Priory. In addition monastic houses held several of the manors lining the river; principal among these was the Manor of Fiskerton, which was controlled by St Peter's Abbey, Peterborough.

Secular activity was focussed around the villages fringing the river valley, most of which have names of later Anglo-Saxon origin. Many of these settlements have churches containing surviving medieval fabric, and remnants of associated open field systems are often visible either as earthworks or cropmarks. Some settlements have proved more successful than others; Washingborough has expanded massively over the last two centuries while Greetwell Hall is surround by the earthworks of a deserted medieval village. Of especial interest is the settlement of Southrey, a satellite of Bardney, which has a particularly regular form suggesting that it was a deliberately planned medieval settlement (51182 – TF 1370 6665).

The river itself was navigable during the medieval period and was utilised as an arterial route linking Lincoln with its seaport at Boston. There are some indications that several of its tributaries were canalised to enable monastic houses to access this trade route. Of particular relevance to this study is the section of the Barlings Eau situated to the south of Barlings Abbey (53012), the section of the Stainfield Beck between the Barlings Eau and the site of Stainfield Priory (51209), and the lower part of the Bardney Beck to the west of Bardney Abbey (51148). The river was also lined by a large number of fisheries. Many of these appear to have been established during the Anglo-Saxon period as they are listed in the *Domesday Book*. Among these were 2 fisheries at Canwick held by Bishop Geoffrey, 2 at Cherry Willingham held by Gilbert of Ghent, who also had 5 at Bardney and 1 at Southrey '*inland* of Willingham' (Morgan & Thorn, 1986). Another fishery at Southrey and 2 at Canwick belonged to Roger of Poitou, while the Abbey of Peterborough owned 3.5 fisheries at Fiskerton. Waldin the Breton held 2 on the river at Stixwould and Walter d'Aincourt had a further 3 within the Parish of Branston.

Work to straighten, widen and scour the river, in order to create a viable commercial waterway, began in earnest after the passing of the Witham Drainage Act in 1762 (White,

1979). The section between Lincoln and Chapel Hill was embanked and improved between 1787 and 1788, the section downstream to Boston having already been completed (Thompson, 1856). It was at this time that many artefacts detailed above were observed and recovered from the river channel and its immediate environs. Further improvements to the navigation, including the canalisation of some sections of the river, occurred between 1816 and 1826. The Great Northern Railway's Lincolnshire Loop Line was constructed alongside the river during the late 1840s. The track from Lincoln was laid along the southern flood bank of the river, which it crossed at Bardney Lock in order to follow the eastern bank until Langrick Bridge. It then turned eastward to run along the northern bank of the river, before changing direction again at Anton's Gowt for its final stretch southward to Boston.

6.0 Archaeological potential

The information presented below has been collated from a variety of sources. Data from published and unpublished sources has been synthesised with information obtained from map regression studies and aerial photographs, as well as a site inspection. To assist in the rapid assessment of this data, it has been compiled in relation to each of the sections of the flood defence improvement scheme. The sub-sections describe the information obtained from each source and are followed by a brief summary. Finally, an estimate of the archaeological potential of each section is provided.

6.1.1 Section 17

A: *SMR data and documentary sources*

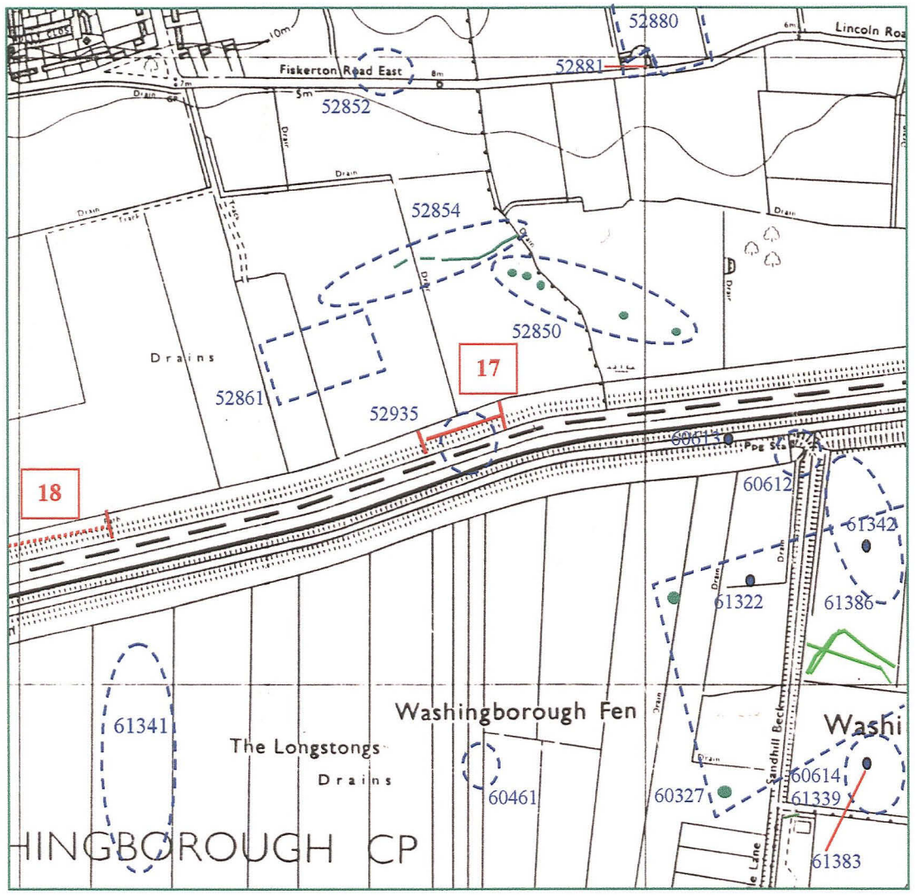
A number of archaeological sites and artefacts have been identified along this section of the river valley, which is situated to the south-east of Cherry Willingham (fig 3a). However, densities are significantly lower than in the area immediately downstream, to the south of Fiskerton. The material recovered indicates that this area was utilised with increasing intensity from the Later Mesolithic onwards. Flint tools and debitage from this period have been found to the north-west of Washingborough pumping station, c. 350m to the east of Section (**17**) (60613 – TF 0410 7140). Additionally, Later Mesolithic or Early Neolithic flints were discovered on a sandbank c. 50m from the recent archaeological excavations at Fiskerton (TF 0493 7164) (author's data).

Neolithic activity is indicated by the recovery of a small polished stone axe of Tremolite Fels, found on the riverbank within Section (**17**) (52935 – TF 0370 7130). Additionally, eight pieces of worked flint were exposed in the side of a drain where it cut through a rodden located approximately 200m to the north (51208 – TF 0366 7159). Among this material was a barbed and tanged arrowhead of later Neolithic to Early Bronze Age date. Further stone tools have been recovered from a field on the opposite side of the river, immediately to the south of (**17**) (60461 – TF 0372 7087).

A large barrow cemetery, with at least 30 round barrows, extends over much of Washingborough Fen on the southern side of the river (60327). The funerary monument that appears to be situated at the north-western corner of this complex lies c. 370m from (**17**). A similar funerary complex appears to have existed on the northern bank, a line of five barrows running along a sand bank situated c.175m to the north-east of Section (**17**) (52850 – TF 0390 7160). Interestingly this latter group also includes a possible square barrow, hinting that funerary activity may have continued into the Early Iron Age. Further cropmarks defining boundaries and trackways (52854) and a sub-rectangular enclosure (52861) lie a similar distance to the north and north-west respectively.

An important assemblage of Late Bronze Age to Early Iron Age artefactual material was recovered from three small trenches that surrounded the pumping station at the end of Sandhill Beck, Washingborough Fen, which is located c. 450m to the east of Section (**17**) (60612 – TF 0423 7138). Finds included a decorated antler cheekpiece from a bridle, pottery, human and animal bone, and worked wood (Coles, *et al*, 1979). It is possible that this material may have been associated with a causeway crossing Washingborough Fen, a precursor to the Early Iron Age causeway a little further downstream (*q.v.* Field & Parker-Pearson, in press). However, it is also possible that there was an adjacent occupation site, as over 300 sherds of Late Bronze Age/Early Iron Age handmade pottery have been recovered from the surface of the three fields immediately to the south-east of the pumping station (60462 – TF 0445 7115). Associated artefacts included worked flint and further human bone. Isolated sherds of Late

A



B

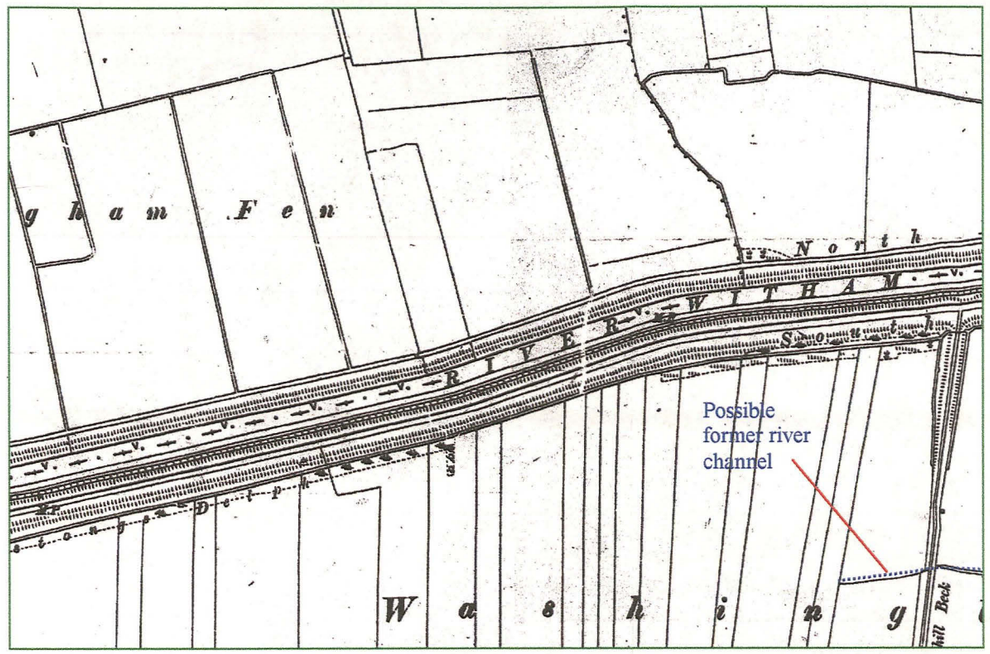


Figure 3: SECTION 17

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs during the National Mapping Programme are shown in dark green, additional cropmarks light green.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXXI.NW, of 1907; reproduced at c. 1: 10,000.

Bronze Age to Early Iron Age pottery were also found to the south of the pumping station (61322 – TF 0416 7116) again c. 450m from (**17**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1907 – Sheet LXXI.NW, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1905.

- Ordnance Survey, 1906 – Sheet LXXI.6, Second Edition, large scale map (1: 2,500). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1905.

There are few significant differences between the Second Edition Ordnance Survey map and modern editions within the area surrounding Section (**17**). The southern bank of the river, the South Delph, Silkholmes Drain and Longstongs Drain already had the form that they have today (fig. 3b). The edges of the fields abutting this complex are depicted as marshy ground on the map of 1907. There were no buildings along this stretch of the river at this time, but a pumping station has since been constructed at the junction of Sandhill Beck and the South Delph.

The Second Edition map indicates that most of the fields to the south of the river had the same form as they do today. The exceptions are a few of the very elongated narrow fields to the west of Sandhill Beck, which have merged since 1907. Similarly, the arrangement of the fields on the northern side of the river between Cherry Willingham and Fiskerton has varied very little over the last 97 years.

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified two complexes of cropmarks in the area surrounding Section (**17**). Five barrows were identified to the north of the Witham (52850), these forming a line running roughly parallel to the channel, between Fiskerton and Cherry Willingham. An east-west aligned linear boundary (52854) situated immediately to the north-west of this group was also transcribed. There were further cropmarks at the western end of this boundary, one of which appeared to form a sub-rectangular enclosure (52861). The location of another 30 barrows on the southern side of the river was also ascertained, these forming the Washingborough Fen barrow cemetery (60327). Only one of these monuments lies within 500m of the section of bank that is being enhanced, this being the round barrow at the north-west corner of the complex.

Examination of oblique aerial photographs held by the NMR indicated that there were further cropmarks and soilmarks to the south of the river. Two very substantial curvilinear cropmarks could be observed at the southern end of the field located immediately to the east of Sandhill Beck, c. 600m to the south-east of Section (**17**) (NMR: *TF0470/9, -/10 & TF0471/8*). One ran north-eastward from the south-east corner of the field. After c. 120m it turned through 90°, before traversing a further 110m to the western perimeter. The other cropmark ran from north-west to south-east for c. 130m, before appearing to curve southwards. The second feature was superimposed upon the first, suggesting that they result from two phases of activity. However, each would appear to form two sides of a large enclosure (centred on TF 0429 7108), the first enclosing at least 0.9ha, with the other sides lying in surrounding fields. These curvilinear cropmarks have a diffuse appearance directly comparable to that of the

surrounding round barrows. This suggests that they represent raised banks of sand and gravel that are protruding through the top of surrounding peat deposits. It is therefore interesting to speculate whether these banks provided the inspiration for the name of the adjacent Sandhill Beck.

D: *Site visit*

An examination of the northern riverbank along Section (**17**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

An examination of existing sources indicates that the environs of this section of the river were utilised throughout much of the prehistoric period. However, the residues left by these activities would appear to suggest that their intensity was somewhat less than along the 1km long stretch situated immediately to the east (*q.v.* Rylatt, 2001).

A polished stone axe was recovered from this section of the riverbank. Additionally, localised scatters of worked lithic material have been identified both to the north and south-east of Section (**17**) raising the possibility that similar or associated deposits may be disturbed or exposed by works associated with the flood defence improvements. However, the density and nature of this activity remains relatively poorly understood due to the absence of a programme of systematic fieldwalking within the parishes on the northern side of the Witham. Consequently, the possibility that such deposits may be disturbed by groundworks is largely extrapolated from an examination of the fieldwork undertaken by the Washingborough Archaeology Group.

Barrow cemeteries of Late Neolithic to Early Bronze Age date have been identified both to the north-east and south-east of Section (**17**). Three of the barrows on the northern side of the river lie within 200m of the area where the flood bank will be enhanced. It is possible that there are further barrows that were not visible in the aerial photographs examined, which raises the possibility that other comparable monuments or associated funerary deposits lie in very close proximity to the proposed works.

This possibility is supported by the recovery of human bone from the immediate environs of the pumping station at Washingborough, which is situated c. 450m downstream from (**17**) (Coles, *et al*, 1979). These human remains were associated with a range of other artefacts, including Late Bronze Age to Early Iron Age pottery, animal bone and a decorated antler bridle cheekpiece. Evidence from the three trenches opened suggested that the river had redeposited all of this material at this locality, its point of origin lying a little upstream.

The total area excavated was only c. $10m^2$, making it highly unlikely that any associated structures would have been exposed.

> "The material recovered from the surface and from the excavated areas must represent only a fraction of the original deposit, some of which is destroyed by drainage ditches or sealed beneath the pumping station and river bank" (Coles, *et al*, 1979: 6).

The possibility that there were structures in the area of the pumping station was raised by the recovery of 59 pieces of wood, two of which had certainly been worked. Given the proximity of this building to Section (**17**), it is necessary to acknowledge that further ancient wood may be preserved upstream in the environs of the proposed flood defence enhancements. Although prevailing anaerobic conditions may have conserved this wood, it will have become relatively soft and malleable. Consequently, significant localised pressure of the sort applied by heavy machinery, or the compaction of bank material, is likely to result in the deformation or

destruction of this element of the archaeological resource. It may therefore be advisable to establish the presence or absence of such deposits in order to ascertain whether a mitigation strategy is necessary.

Assessment of archaeological potential:

Section 17	**LOW-MEDIUM**

6.1.2 Section 18

A: *SMR data and documentary sources*

There is comparatively little evidence of prehistoric activity in the environs of Section (**18**) relative to the adjacent areas situated c. 1.5km upstream or 1km downstream of this stretch of the river (fig. 4a). Two cropmarks situated c. 450m to the north-west of (**18**) suggest the presence of round barrows in Willingham Fen (52860 – TF 0230 7150). Two other circular cropmarks lie 100m further south, and it is tempting to interpret these as additional round barrows (52855 – TF 0225 7132; 52856 – TF 0210 7128). Comparable features have not been identified on the southern side of the river, but it should be noted that the other barrow cemeteries identified along this east-west aligned section of the Witham appear to be paired, the river acting as a line of symmetry.

Worked flint has been recovered from two adjacent fields situated in Washingborough Fen, c. 300m to the south of Section (**18**). The two small scatters were identified in the fields immediately to the east of the village recreation ground (61323 – TF 0288 7084; 61329 – TF 0275 7080).

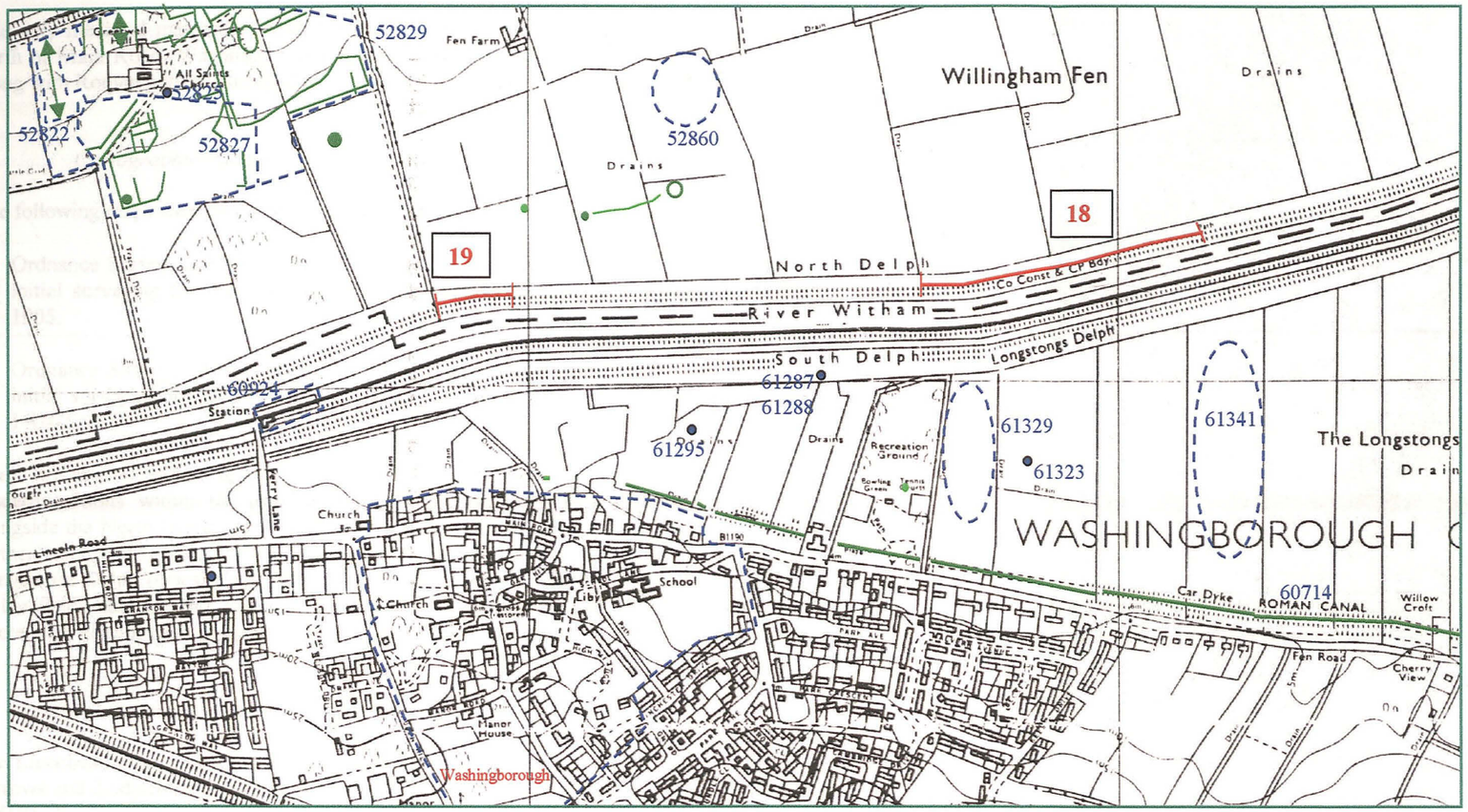
The only evidence of votive deposition focussed upon this element of the river is represented by a group of 3 Late Bronze Age swords (61295). The SMR identifies the find spot as TF 0228 0791, which lies c. 150m to the south of the South Delph, to the south-east of Section (**18**). However, it is known that these items were found during the construction of the Lincolnshire Loop Line. They were

> "discovered in a cutting, during the making of the Great Northern railway, at Washingborough, near the river Witham…Two of them were found in a bay about three feet below the surface…The third specimen…was also obtained from the same site" (JBAA, 1855: 263).

This indicates that these swords are more likely to have been recovered from the immediate environs of the Witham, the railway embankment running between the river channel and the South Delph.

There appears to have been significant activity in this area during the Romano-British period. Much of this may have been focussed around the Car Dyke (60714). It is thought that this channel was created by Roman military engineers as a major drain or canal that followed the eastern edge of the dip slope of the Lincoln Heath, thus dividing the higher ground from the Witham Fen (Whitwell, 1992). The Car dyke is still visible as a substantial earthwork that runs along the northern edge of Fen Road/Main Street, Washingborough. A small quantity of Romano-British material has been recovered from the narrow strip of land sandwiched between the Witham and the Car Dyke. It is recorded that 2 Roman pots were found in close association to the Late Bronze Age swords (JBAA, 1855). Further Roman pottery was discovered in the side of the Longstongs Delph, c. 200m to the south-west of Section (**18**) (61288 – TF 0250 7100).

A



B

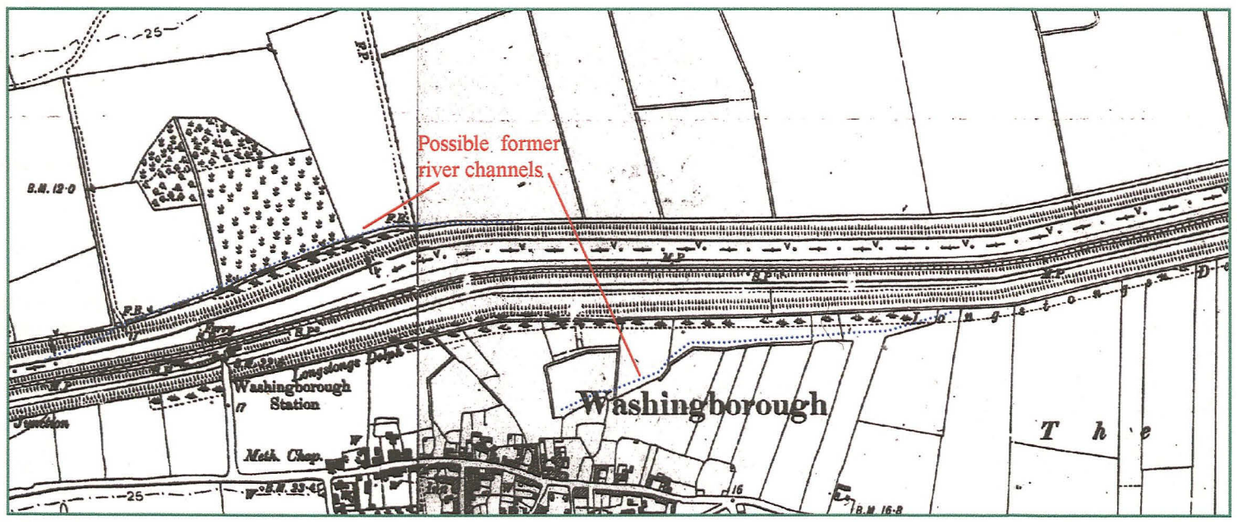


Figure 4: SECTIONS 18 AND 19

A: Position of these sections of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs during the National Mapping Programme are shown in dark green, additional cropmarks light green.

NB: There are a large number of medieval and post-medieval structures listed in the SMR, which lie within the polygon marked 'Washingborough'; individual sites are not marked to improve the clarity of the map. Sites include: 61319, 61207, 61289, 61309, 61310, 61312, 61282, 61275, 61285, 61315, 61281, 60403, 61313, 61320, 61317, 61314, 61308, 61304, and 61276).

B: Composite extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXXI.NW, of 1907, and Sheet LXX.NE, of 1908; reproduced at c. 1: 10,000.

The only medieval material to have been identified in this same strip of land situated to the north of Main Road, Washingborough is the base of a medieval baluster jug that was found along with Roman pottery during cleaning of the Longstongs Delph (61287 – TF 0250 7100).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1907 – Sheet LXXI.NW, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1905.

- Ordnance Survey, 1908 – Sheet LXX.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885-6 (First Edition) and was revised in 1904-5.

There are few significant differences between the Second Edition Ordnance Survey map and modern editions within the area surrounding Section (**18**) (fig. 4b). The fields running alongside the North Delph essentially had the same form as they do today, a few having been further subdivided since 1907. The southern bank of the river, the South Delph, and Longstongs Delph opposite Section (**18**) already had the form that they have today. The edges of the fields abutting this complex are depicted as marshy ground on the maps of 1907/8. There were no buildings along this stretch of the river at this time.

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified 2 possible round barrows and 2 adjacent circular features to the west-north-west of Section (**18**) (52855, 52856, 52860). To the south of the river they highlighted the location of elements of the Car Dyke that survive as earthworks.

An examination of the oblique aerial photographs held by the NMR indicated that a linear feature ran directly between the two circular features (52855 & 52856) identified by the NMP.

Another circular parchmark was identified on the southern side of the river. This was situated immediately to the north-west of the tennis courts at Washingborough recreation ground (NMR: *TF0270/1, -/2, -/3 & -/4*). Morphologically this cropmark feature was indistinguishable from the other round barrows identified along the Witham Valley. Consequently, it is possible that there are further undiscovered funerary monuments located along the northern edge of the village. However, the close proximity of modern development and the apparent absence of any comparable features in the immediate vicinity on this side of the river implies that this cropmark may relate to another kind of feature or have been generated by relatively recent activity.

D: *Site visit*

An examination of the northern riverbank along Section (**18**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

It is probable that there is a Late Neolithic to Early Bronze Age barrow cemetery within the western half of Willingham Fen, c. 400m to the north-west of Section (**18**). The small number of circular features that appear to constitute this complex have been identified solely from aerial photographs. Consequently, it is possible that there may be further monuments that did not generate cropmarks and were not evident in the aerial photographs examined. This raises the possibility that other comparable monuments or associated funerary deposits lie in close proximity to the proposed works.

Three Late Bronze Age swords were found adjacent to the river during the construction of the railway in the mid-19th century. An account of their recovery indicates that they were found

> "at a short distance from...two Roman vessels of grey coloured terra-cotta" (JBAA, 1855: 263).

The description of these pots suggests that they were unbroken or largely complete. The juxtaposition of prehistoric metalwork and complete Roman vessels has been observed at the Iron Age timber causeway at Fiskerton, where it would appear that the vessels contained or represented votive deposits, and indicated a resumption of ritual activity after a hiatus of c. 350 years. It is therefore possible that similar depositional practices were enacted further upstream at Washingborough (in the vicinity of TF 0240 7100). Furthermore, the depositional environment may have been directly comparable, suggesting that there may also be surviving elements of a Late Bronze Age causeway that ran across river valley between Sections (**18**) and (**19**).

Assessment of archaeological potential:

Section 18	**LOW**

6.1.3 Section 19

A: *SMR data and documentary sources*

Much of the evidence for past human activity along this stretch of the river relates to the Roman, medieval and post-medieval periods, there being appreciably less evidence of prehistoric activity in the environs of Section (**19**) (fig. 4a). Two cropmarks situated c. 450m to the north-east of this section suggest the presence of round barrows in Willingham Fen (52860 – TF 0230 7150). Two other circular cropmarks lie even closer (52855 – TF 0225 7132; 52856 – TF 0210 7128), one within 200m of the area of flood bank under consideration. The morphology of these two features suggests that they may also be round barrows.

The only evidence of votive deposition focussed upon this element of the river is represented by a group of 3 Late Bronze Age swords (61295). The SMR identifies the find spot as TF 0228 0791, which lies c. 150m to the south of the South Delph, approximately midway between Sections (**18**) and (**19**). However, it is known that these items were found during the construction of the Lincolnshire Loop Line (JBAA, 1855). As this railway embankment runs between the river and the Delph, it appears likely that these swords were recovered from the immediate environs of the Witham. Direct transference of the find spot northwards to the closest stretch of river places it c. 300 –350m from the eastern end of (**19**).

There appears to have been a significant amount of activity in this area during the Romano-British period. Much of this may have been focussed around the Car Dyke (60714). It is thought that this channel was created by Roman military engineers as a major drain or canal

that followed the eastern edge of the dip slope of the Lincoln Heath, thus dividing the higher ground from the Witham Fen (Whitwell, 1992). The Car Dyke is still visible as a substantial earthwork that runs along the northern edge of Fen Road/Main Street, Washingborough. Cropmarks allow it to be followed a little further to the west, but it cannot be traced beyond TF 0203 7084.

On the north side of the river, two Romano-British fibulae were found in the grounds of Greetwell Hall, c. 500m from (**19**) (52827 – TF 0145 7140). Larger quantities of Romano-British artefacts have been recovered from Washingborough to the south. It is recorded that two Roman pots were found in close association to the Late Bronze Age swords (JBAA, 1855), and other contemporary material has been recovered from within the village. A coin of Tetricus II was discovered to the south of Main Road (61289 – TF 0195 7077), while two further coins, of the 3rd century AD, were unearthed in the grounds of Washingborough Hall (61285 – TF 0181 7060).

The remains of the shrunken medieval village of Greetwell lie 300-500m to the north-west of Section (**19**). This settlement appears to have been founded during the Anglo-Saxon period, its name, given as *Grentewelle* in the *Domesday Book*, derives from two Old English components meaning 'the gravely spring' (Cameron, 1998). Only a few buildings still remain, All Saint's Church, a large part of which was constructed in the 11th century, Greetwell Hall, the core of which is late 16th to 17th century, The Lodge, built in 1856, and the more extensive complex of buildings forming Greetwell Hall Farm, which lie to the north of the Lincoln to Grimsby railway line (Everson *et al.*, 1991). The church and hall are surrounded by a complex of earthworks that represent the roads and building platforms of the medieval and early post-medieval village, which appears to have been largely abandoned by the mid-17th century (SAM 22748). Superimposed upon the southern area of these remains are other banks and platforms that relate to the formal garden and ancillary buildings constructed around Greetwell Hall in the later part of the 16th to 17th century (52829 – TF 0150 7155).

The modern village of Washingborough lies c. 350m due south of Section (**19**). The core of the medieval village appears to have lain around 150m further south, between Main Road and Manor Road, where the church of St John the Evangelist (61275 – TF 0184 7063) can still be found.

The etymology of the place-name appears to suggest that this settlement was also founded during the Anglo-Saxon period; in the *Domesday Book* it is referred to as *Washingeburg*, which utilised the Old English element *burh*, meaning 'fortified place', and *Wassinga*, the name of a kinship group (Cameron, 1998). However, it is also possible that the defended enclosure referred to as the 'fortified place of the *Wassingas*' may have been created prior to the Anglo-Saxon period. It has been suggested that a series of forts were constructed at intervals along the Car Dyke. This has not been verified, but in the event that this were true, it is likely that one would have been situated at Washingborough to protect the junction between the Car Dyke and the Witham. It is therefore possible that the burh referred to was originally a Roman fort. Additional support for this hypothesis is provided by the recognition that although *Wassinga* is rendered in an Old English form, it is derived from *Wassa* a British personal name. It is therefore also a possibility that the personal name had been perpetuated by oral tradition and refers to some individual associated with the camp or enclosure prior to the arrival of Anglo-Saxon colonists.

A significant number of post-medieval buildings and other structures are listed in the SMR. However, as these are situated on the southern side of the river and have clearly defined locations within the village it is not anticipated that they will have any direct relevance to the flood defence improvement works occurring along Section (**19**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1907 – Sheet LXXI.NW, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1905.

- Ordnance Survey, 1908 – Sheet LXX.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885-6 (First Edition) and was revised in 1904-5.

There are few significant differences between the Second Edition Ordnance Survey map and modern editions within the area surrounding Section (**19**) (fig. 4b). The fields running alongside the North Delph essentially had the same form as they do today, a few having been further subdivided since 1907. The river turns slightly toward the south at the western end of (**19**), while the North Delph deviates away from the base of the flood bank along the length of the section until there is a space of c. 40m immediately to its north-west. The intervening space is shown to be marshy ground on the Second Edition map. The parish and district boundary also deviates to the north of the present river channel at this point. It then follows the gentle arc of the North Delph before returning to the river c 500m to the west. The form of this boundary deviation suggests that the North Delph defines the natural course of the river immediately prior to the improvement and canalisation of the channel between 1812 and 1830.

The southern bank of the river, the South Delph, and Longstongs Delph already had the form that they have today. The edges of the fields abutting this complex are depicted as marshy ground on the maps of 1907/8. With the exception of the railway station, c. 400m to the south-west, there were no buildings along this stretch of the river at this time. The Second Edition map also indicates that most of the fields to the south of the river have the same dimensions that they had in 1907. Most of these are long narrow plots that run between the river and Main Road/Fen Road. They are noticeably smaller than the large sub-rectangular fields in The Longstongs immediately to the east. This raises the possibility that they have earlier origins, being some of the first land reclaimed from the fen at the northern margin of the medieval/post-medieval village. The long axes of these small fields are orientated from north-north-east to south-south-west and appear to terminate at a meandering boundary located c. 60m to the south of the South Delph. A number of more irregular plots are situated immediately to the north-west of the long, narrow fields. The boundaries of this second group of fields run from north to south, perpendicular to Main Road, suggesting that they result from a second phase of reclamation.

Given the consistent orientation of the surrounding boundaries, it is interesting to note that there is a single drain that runs from north-west to south-east at the western edge of the complex of irregular fields. The south-eastern end of this drain terminates at the rear of properties situated at the junction of Main Road and Oak Hill, while the other end runs up to Longstongs Delph. The most westerly identifiable section of the Car Dyke is situated c. 10m from the south-eastern end of this drain (TF 0203 7084). It is therefore tempting to see the drain as a continuation of this Roman watercourse, turning slightly northward at this point to effect a union with the River Witham less than 100m to the south-west of (**19**). Certainly such a pre-medieval origin would explain why this feature did not conform to the surrounding system of land division. Further support for the theory that this drain represents the western end of the Car Dyke is provided by an examination of the 5m contour. This projects northwards to the edge of Longstongs Delph around 300m to the west of the last known position of the Car Dyke. Consequently, it would have been necessary either to divert the channel northwards before reaching this point, making a convergence with the Witham

inevitable, or a cutting would have had to be made through the spur of higher ground. Ferry Road now bisects this slight prominence and there are paddocks lying to either side. The ground surface of this pastureland undulates gently, but there is no evidence that a substantial cutting ever crossed them.

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified 2 possible round barrows and 2 adjacent circular features to the north-east of Section (**19**) (52855, 52856, 52860). To the south of the river they highlighted the location of elements of the Car Dyke that survive as earthworks, also identifying 3 small sections visible as cropmarks that lay immediately to the west of the last raised component.

An examination of the oblique aerial photographs held by the NMR indicated the location of what appeared to be another round barrow to the north of the river (NMR: *TF0271/3*). This was visible as a small circular parchmark located c. 110m to the west of (52856) and c. 150m due north of (**19**) (at TF 0199 7130). It was also evident that a linear feature ran directly between the two circular features (52855 & 52856) situated at the southern edge of this group.

Another oblique image (*TF0270/6*) confirmed that the Car Dyke was visible as a cropmark until it reached a point immediately to the east of the north-west to south-east aligned drain that runs between Main Road and Longstongs Delph (see B, above).

D: *Site visit*

An examination of the northern riverbank along Section (**19**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

It appears that a Late Neolithic to Early Bronze Age barrow cemetery lies c. 200m to the north-east of Section (**19**). The identification of an additional circular feature on the oblique aerial photographs held by the NMR, c. 150m to the north of this stretch of riverbank, raises the prospect that further barrows or associated funerary deposits lie in close proximity to the proposed works.

The Car Dyke is a large artificial watercourse that can be traced for 90km between Washingborough and the River Nene, to the east of Peterborough. Documentary evidence shows that this channel existed prior to the Norman Conquest, providing a strong indication that it was constructed by Roman engineers (Whitwell, 1992). A 1.9km long section of this feature survives as an earthwork immediately to the north and north-east of Washingborough. Cropmarks interspersed with additional sections of earthwork indicate that it continued a further 300m to the west. The western end of these linear cropmarks terminate at a south-east to north-west aligned section of drain. Cartographic evidence suggests that this feature fossilises and defines the course of the western end of the Car Dyke as it runs to its junction with the River Witham.

A projection of the south-east to north-west aligned drain across the South Delph indicates that it would intercept the river approximately 100m to the west of Section (**19**); the river at this point appears to run 30 or 40m to the south of its course prior to the canalisation and embanking of the channel in the first half of the 19th century. The area surrounding this proposed confluence may contain a range of significant archaeological deposits. As the Car

Dyke is an artificial channel, there may be features relating to its construction and the control of the water level. It is also possible that there may have been adjacent facilities for the transhipment of cargo to and from the river.

The area situated between the Witham and the North Delph is relatively level and does not betray any evidence of such putative activity. However, the excavations undertaken at the foot of the riverbank at Fiskerton in 2001 indicated that the ground surface along this strip of land had been significantly altered during the 19th century (author's data). The uppermost deposits had been scraped up and the earth used to facilitate the construction of the adjacent flood banks. This could mean that later deposits had been removed, while *in-situ* Roman deposits had been truncated. Any surviving components would therefore lie directly beneath the topsoil. In the event that deposits associated with the Car Dyke are present in this area, it is considered likely that they would be exposed by the removal of the topsoil at the onset of the proposed scheme of works to improve the flood defences along Section (**19**).

Assessment of archaeological potential:

Section 19	**LOW-MEDIUM**

6.1.4 Section 20

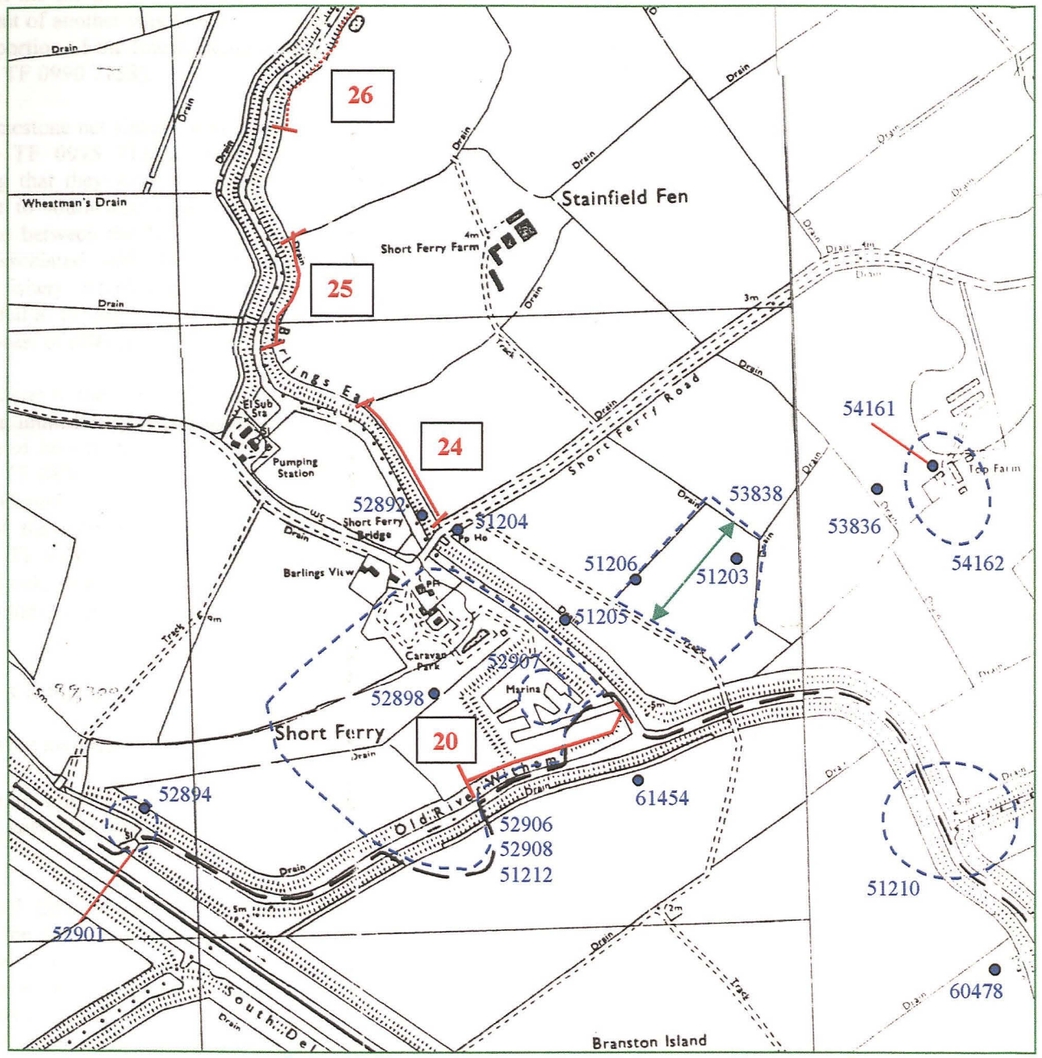
A: *SMR data and documentary sources*

A relatively large amount of archaeological material has been recovered from Short Ferry, indicating that this locality has been a focus for past human activity (fig. 5a). A number of items have been found at Short Ferry Marina, directly adjacent to Section (**20**) at the end of the spur of glacial till that separates the Witham and the Barlings Eau. This material includes a broken leaf shaped 'point', possibly a Neolithic arrowhead, uncovered while digging a drain (52898 – TF 0940 7140), and some Romano-British pottery found during the initial construction of the marina (52907 – TF 0965 7134). A large quantity of medieval and post-medieval pottery was also found at this time (52908 – TF 0965 7134). Most of the sherds were produced in the East Midlands, but there were also fragments of French Polychrome and, German and Flemish stonewares. This relatively high status material was associated with a monastic grange and fishery, likely to be the example known as 'Barling Mouth' or 'Barleymouth', which belonged to Stainfield Priory (52906 – TF 0960 7130). The grange buildings were located in the angle of the confluence of the River Witham and the Barlings Eau and were constructed upon a raised mound. An excavation revealed remains of a stone structure, which was associated with fishing and fish processing equipment, including pieces of a stamped curfew, fish smokers and net sinkers (White, 1977).

A range of other material has also been recovered from the slightly lower ground to the south and east of the confluence between the two original river channels. The earliest components of this group were found immediately to the west of Top Farm, Stainfield, several sherds of Late Neolithic to Early Bronze Age Pottery being recovered from a pit situated c. 600m to the north-east of (**20**) (54161 – TF 1022 7173). A number of other features were also identified during the same watching brief, these including further pits, gullies, ditches and a curvilinear ditch that may have encircled a ploughed out round barrow (Palmer-Brown, 1997; 54162 – TF 1020 7172). Aerial photography has identified a small number of other round barrows in the immediate vicinity, one lying c. 525m to the north-east of (**20**) (53836 – TF 1014 7167).

Of similar antiquity to the barrows was an Early Bronze Age food vessel that was found on Branston Island, c. 1869. It was recovered from relatively deeply stratified deposits adjacent to the old channel of the River Witham, c. 80m south of the eastern end of (**20**) (61454 – TF

A



B

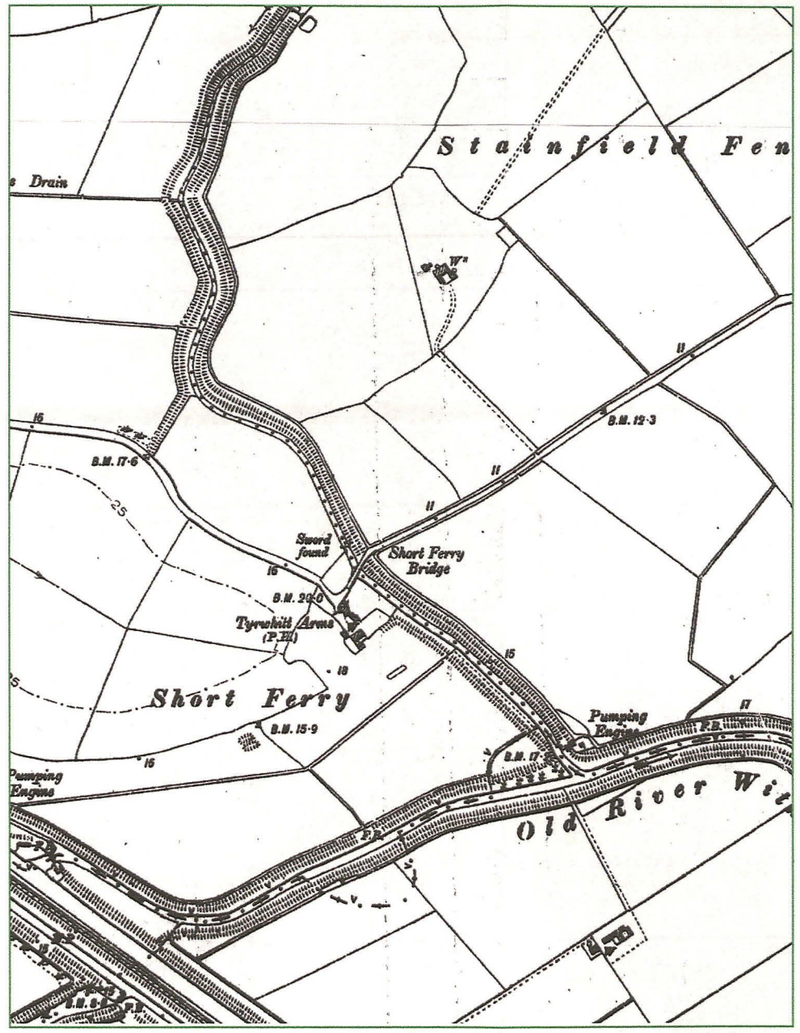


Figure 5: SECTIONS 20, 24 AND 25

A: Position of these sections of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs during the National Mapping Programme are shown in dark green.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXXI.NE, of 1906; reproduced at c. 1: 10,000.

0973 7122). The remains of four log boats are likely to relate to further prehistoric activity around the mouth of the Barlings Eau. Two were found whilst recutting a drain running along the foot of the eastern bank of the Eau, c. 200m to the north of (**20**) (51205 – TF 0962 7150). A fragment of another was found c. 130m further to the east in 1976 (51206 – TF 0974 7157). A small portion of the fourth example was exposed in 1953, c. 300m to the north-east of (**20**) (51203 – TF 0990 7158).

Eleven limestone net sinkers were found on the eastern bank of the Barlings Eau in May 1960 (51207 - TF 0975 7136). These were situated only 40m from the eastern end of (**20**) suggesting that they were almost certainly associated with Barleymouth Grange. A block of north-east to south-west orientated ridge and furrow located 110m to the north-east of the confluence between the Witham and the Barlings River must have formed part of the field system associated with this medieval establishment (53838 – TF 0984 7155). Another monastic fishery, which was known as 'Maidengarth' and also belonged to Stainfield Priory, was situated at the junction between the River Witham and the Snakeholme Drain, c. 550m to the south-east of (**20**) (51210 – TF 103 712).

In comparison to the artefacts described above, there is relatively little archaeological material in the area immediately to the west of Section (**20**). A log boat, 7.3m long by 0.6m wide, was found sealed beneath peat, c. 500m due west of the area of the flood defence improvements (52894 – TF 0896 7120). This vessel was subsequently excavated and deposited with Lincoln City and County Museum. It was found adjacent to Fiskerton Sluice, which was constructed as part of the scheme to raise and embank the river undertaken between 1812 and 1830 (52901 – TF 0890 7120). A new canalised channel was excavated between the sluice and Bardney Lock, thereby creating Branston Island, the sluice then functioning to divert excess water into the old river channel.

B: *Cartographic evidence*

The following map was found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet LXXI.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1904.

The Second Edition map indicates that there have been considerable changes along this section of the river over the last 97 years (fig. 5b). Of particularly relevance to this element of the scheme of works is the creation of Short Ferry Marina during 1974-5, in the eastern half of the field lying immediately to the north of the section of flood bank that will be enhanced. In 1906 this area was depicted as a normal field bounded by flood banks to the south and east, and drains to the north and west. A short section of curving drain is shown to cut across the south-east corner of the field. This latter feature almost certainly represents a relict river channel, as it is followed by the parish boundary dividing Fiskerton from Branston. This deviation of the administrative boundary is still shown on modern maps, although the drain no longer exists. Another loop in the boundary dips southward into Branston Island midway between the new river channel and the Barlings Eau.

Only three groups of buildings are depicted in the immediate environs of Section (**20**) on the Second Edition map. Of these, only the Tyrwhitt Arms public house still survives, standing beside Ferry Road where it turns abruptly to cross the Barlings Eau. The area immediately to the south of the pub was developed into a static caravan park in the latter part of the 20th century, and two dwellings have also been constructed beside Ferry Road to the north-west. A pumping engine was depicted on the eastern side of the angle created by the confluence of the Old River Witham and the Barlings Eau. It appears to have been recessed into the flood bank,

but this indentation has now been filled and there is no evidence that the pump house ever existed. The third group of buildings that existed in 1906 was a small farm complex located at the centre of the northern quarter of Branston Island. Its position can still be determined by reference to existing trackways (and spreads of brick rubble), but there are no surviving elements of the superstructure.

The pattern of the early 20th century field system is still discernable in the modern landscape. However, a number of the smaller fields have been amalgamated, this being particularly apparent on Branston Island.

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified the block of ridge and furrow situated to the north-east of the confluence between the Barlings Eau and the Old River Witham (53838). This has been ploughed flat since the photograph was taken.

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features.

D: *Site visit*

The ground surface along the foot of the flood bank within Section (**20**) has been extensively transformed by the creation of Short Ferry Marina. As a consequence it was not possible to determine whether there were any features within this area that had potential archaeological significance.

E: *Summary and discussion of the evidence*

There have been a significant number of archaeological discoveries focussed around the confluence of the Old River Witham and the Barlings Eau. This material provides indications that there has been some form of human activity here since the Neolithic. Of particular interest are the materials recovered from within Short Ferry Marina, as these provide a strong indication of the range of deposits that are likely to be encountered during the groundworks associated with the flood bank improvements.

A single lithic artefact indicates there was some form of limited activity here in 4th to 2nd millennia BC. On present evidence this cannot be related to any form of permanent occupation or ritual activity comparable to the deposits and features surrounding Top Farm, Stainfield, c. 600m to the north-east. However, a food vessel found on the southern side of the old river channel does provide some indication that there may have been funerary or ritual activity in the immediate vicinity during the Early Bronze Age. It must therefore be acknowledged that comparable material may extend northwards into the area of Short Ferry Marina[1]. Still, it should be noted that this vessel was found at a 'considerable depth', which is likely to mitigate against similar deposits being exposed during the groundworks preceding the enhancement of the flood bank.

[1] Several 'circular stone settings' were observed in a contractor's trench during the construction of the marina, but were submerged beneath water flooding the new basin before they could be properly examined (Stocker & Everson, forthcoming). It is possible that these features may have been barrows or similar monuments.

Elements of five different log boats have been identified within 500m of the area of the scheme of works. This suggests that there is a high probability that further boats or other wooden structures are preserved along the margins of this section of the Witham and Barlings Eau.

The recovery of a small quantity of Romano-British pottery from the marina suggests that there may have been a small farmstead situated at the end of this spur of glacial till. The fact that this raised ground was surrounded by wetland on three sides, abutted the junction between two navigable water courses and coincided with a major reorientation of the main channel of the River Witham, is likely to have made it a prime location for a settlement.

Certainly there was a monastic establishment here in the medieval period. Excavations already conducted along the foot of the present flood bank have identified structures and deposits relating to 11th - late 13th century activity (White, 1977). Foremost amongst these was the northern side of a quay or other raised structure that ran along the edge of the river. A dump of sand and gravel, revetted by pitched limestone slabs, had formed this wharf. The associated material included limestone net sinkers, pottery and kiln props. Subsequent deposits incorporated stone roof tiles and 16th - 18th century pottery. The nature of these deposits suggested that there was an associated medieval to post-medieval dwelling in the immediate vicinity, but this was never located (White, 1984). It is possible that it lies beneath the existing flood defences, or further along the foot of the bank outside the area already subjected to archaeological investigation. This provides a strong indication that further elements of this complex are likely to be exposed during the topsoil stripping that will precede the improvement of this section of riverbank.

Assessment of archaeological potential:

Section 20	**HIGH**

6.1.5 Section 21

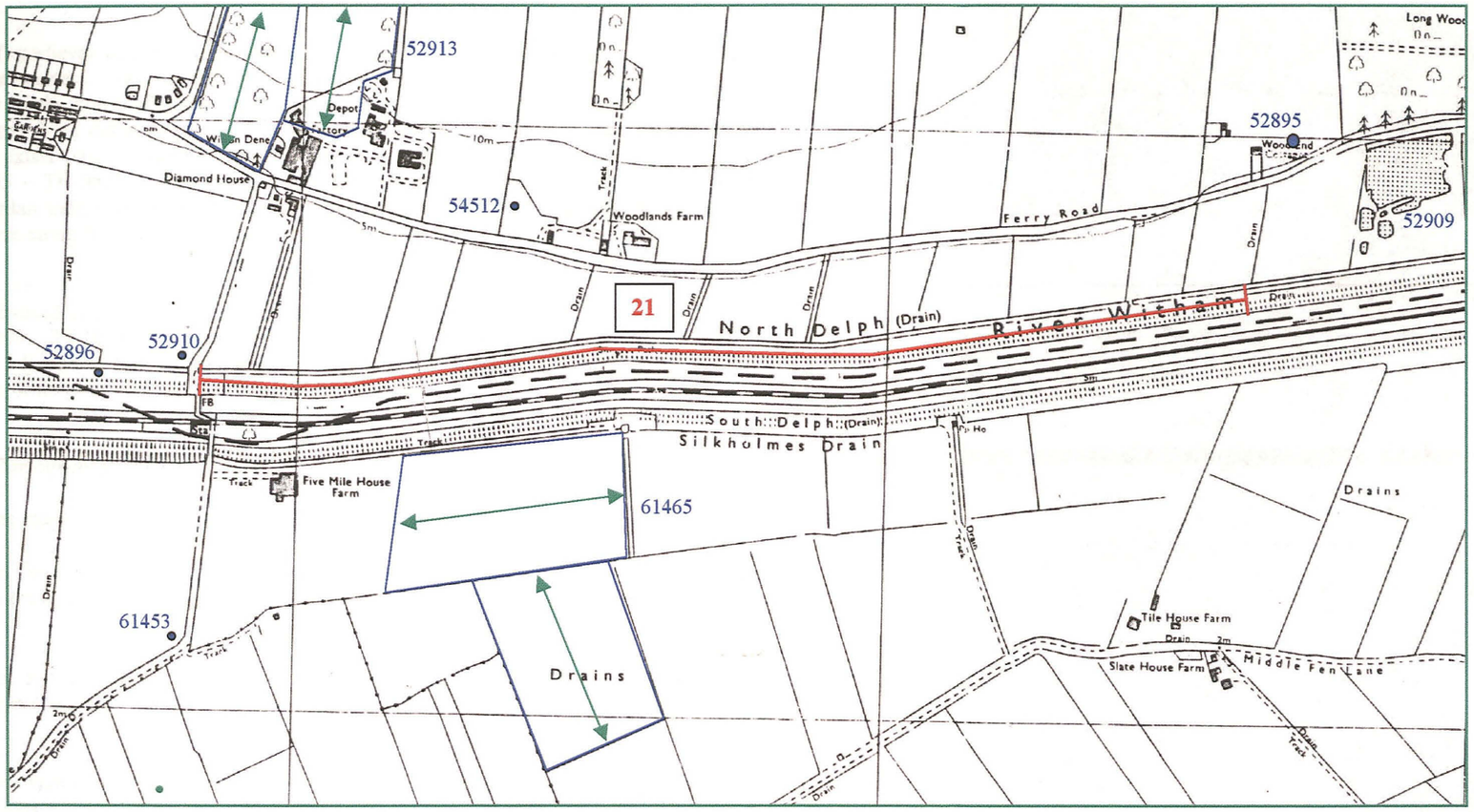
A: *SMR data and documentary sources*

Relatively little archaeological material has been recovered from this stretch of the river between Fiskerton and Short Ferry (fig. 6a). The only artefacts discovered within the environs of the eastern half of Section (**21**) were a hoard of four Bronze Age socketed axes that were found c. 1910 (52895). The precise location of the find spot has not been positively determined, but it is thought to lie between Wood End Cottages and Long Wood, Fiskerton (c. TF 0770 7200), approximately 280m to the north of the works on the flood defences.

An Early Bronze Age axe hammer was found adjacent to the North Delph just 30m beyond the western end of (**21**) (52910 – TF 0580 7160). Another perforated stone axe hammer was found c. 430m to the south of this point, beside Five Mile Lane (61453 – TF 0580 7110). This Late Neolithic to Early Bronze Age artefact was situated only 250m from the most north-easterly round barrow of the large Washingborough Fen barrow cemetery (60327 – TF 0520 7050) and may have been a votive deposit resulting from ritual activity associated with these monuments. Two worked flint flakes found at Woodlands Farm, Ferry Road, Fiskerton (54512 – TF 0636 7187), provide further, albeit limited, evidence of prehistoric activity along the northern bank of this section of the river.

There is also some evidence for the deposition of prestige metalwork along this section of the Witham, as a 9th century Viking sword was found protruding from its northern bank, c. 160m to the west of (**21**) (52896 – TF 0564 7155).

A



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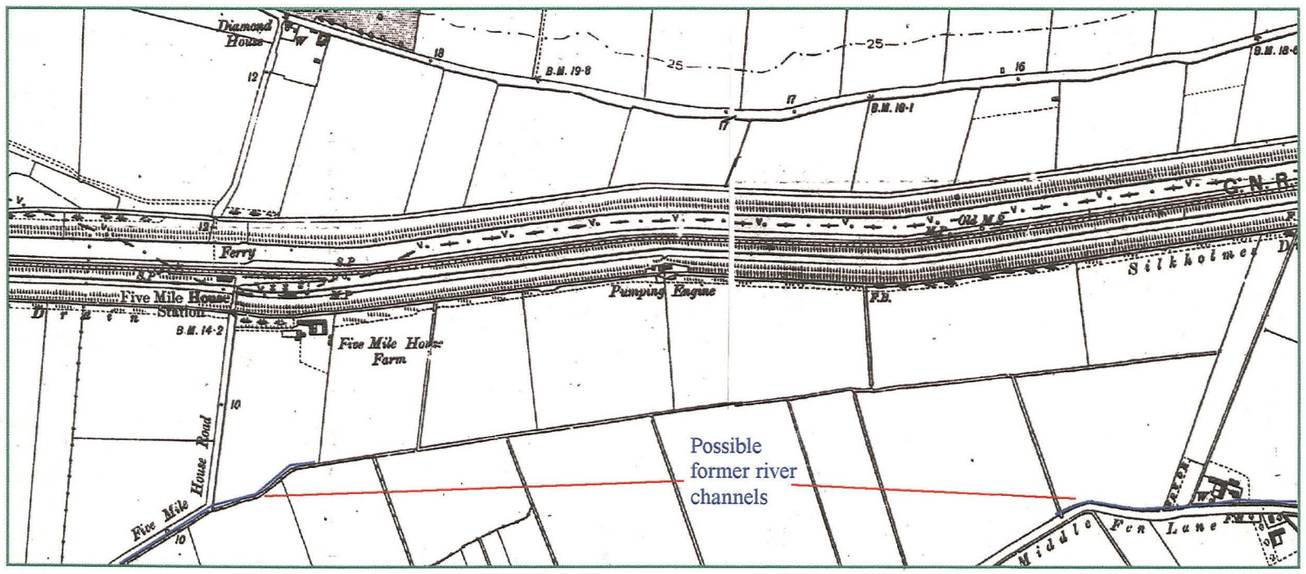


Figure 6: SECTION 21

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record; find spots = blue discs, features = blue polygons. Features identified from aerial photographs are shown in green (see Appendix 12.1 for details).

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXXI.NE, of 1906; reproduced at c. 1: 10,000.

Evidence of medieval activity is restricted to the survival of ridge and furrow earthworks flanking the western third of the section. Three blocks of *selions* survive in the fields immediately to the north of Ferry Road and east of Hall Lane, c. 400m to the north of the element of the flood defences that will be enhanced (52913 – TF 0600 7214). Further ridge and furrow exists on the southern side of the river in a field to the east of Five Mile House Farm (61465 – TF 0636 7135). The furrows run parallel to the river and have the reversed 'S'-shaped plan indicative of medieval ploughing. A second field of ridge and furrow abuts the first block along its southern edge, its *selions* being aligned at 75° to those in the adjacent furlongs.

There is a disused brickyard on the northern edge of the river, which lies c. 400m to the east of (**21**) (52909 – TF 0800 7190). A number of large ponds in the field immediately to its west, and another adjacent to Wood End Farm, are likely to be abandoned clay pits associated with this industry, which started some time after 1830.

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet LXXI.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1904.

- Ordnance Survey, 1907 – Sheet LXXI.NW, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1905.

There are few significant differences between the Second Edition Ordnance Survey maps and modern editions in relation to the area surrounding Section (**21**) (fig. 6b). By 1906/7 the northern bank of the river and the North Delph were essentially as they are today, as were the comparable elements on the southern side of the river.

Fiskerton Brick Yard, situated to the east of (**21**) is already indicated to be 'disused' in 1904, suggesting that it had a relatively short lifespan. The ponds along the northern edge and to the west of the yard were already in existence in 1904 providing further support for the idea that they were clay extraction pits. It is notable that there is an inlet from the Witham at the south-west corner of the field containing the larger ponds (i.e. c. 200m from the end of (**21**)). This inlet is rectangular and surrounded by flood defences indicating that it is likely to have been a quay used to load bricks for transportation along the river. It appears that this feature had already partially silted up by 1904, and the North Delph had been cut across it. It has now been almost entirely backfilled, probably with material from the encircling banks, and a continuation of the northern flood bank of the Witham has been constructed across its southern end.

On the southern side of the river a new pumping station, with an associated drain and track, has been constructed since 1906, c. 500m to the west of the eastern end of (**21**). This was probably built to replace the 'pumping engine' shown on the 1907 map that was situated 570m further to the west. The latter was situated within one of two buildings that had been constructed on a platform recessed into the southern bank of the South Delph. The buildings have now been demolished, but the platform on which they stood still survives, as the bank was not subsequently consolidated.

Five Mile House Farm is also situated on the southern side of the river near the western end of (**21**). A farm is shown at this location on both the 1907 map and modern editions. However, on the Second Edition it is depicted as an 'F'-shaped structure with two associated outbuildings to the south, while the present house is a single large sub-square building. This indicates that the farm has been rebuilt, but its juxtaposition raises the possibility that it incorporates some of the old fabric.

The boundary separating the parishes of Washingborough and Heighington changes direction frequently to the south of Five Mile House Farm. It follows Middle Fen Lane north-eastwards until it reaches a point opposite the blocks of ridge and furrow noted in 6.1.5.A (above). It then turns to the north-west to run up the south-western side of the most southerly block of furlongs. It rotates three more times through 90° before passing c. 200m to the south of the farm to meet Five Mile Lane. After following this road for 350m the parish boundary again turns, this time through 140°, and runs northwards to the Witham. The numerous changes of direction provide strong indications that the boundary follows the edges of the fields that originally belonged to Five Mile House Farm.

The district boundary separating West Lindsey from North Kesteven follows the centre line of the Witham for much of its course, but curves southwards immediately to the north of Five Mile House Farm. This suggests that the South Delph follows the course of the pre-canalised river channel at the western end of Section (**21**), and that the farm was originally constructed on the riverbank.

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified the two areas of ridge and furrow that face each other across this stretch of the River Witham (52913 and 61465). It also indicated the location of the most north-easterly known barrow in the Washingborough Fen barrow cemetery (60327), which lies 550m to the south of Five Mile House Farm.

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features.

D: *Site visit*

An examination of the northern riverbank along Section (**21**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

In relative terms, there appears to have been very little activity along this section of the river valley, in stark contrast to the length passing Fiskerton, c. 700m to the west, or the area around Short Ferry, a little over 1.5km to the south-east. Most significantly, there are no reports of any artefacts having been recovered from the river channel itself. The only finds recovered from the eastern end of the section are a hoard of Bronze Age axes, the relative isolation of which appear to suggest that there was little prehistoric activity in the immediate vicinity.

In 1999 a Middle Palaeolithic handaxe, classified as Mousterian of Aechulean Tradition (MAT – c. 75,000 – 50,000BP), was recovered from the south-west corner of the field situated to the south of Woodlands Farm, near the centre of this section of the scheme of

works (TF 0648 7166) (author's data). Its unabraded condition suggested that it was dragged from a contemporary ground surface that had only recently been subjected to plough damage as a result of peat shrinkage. Its find spot was located only 35m to the north of the works that will take place along the northern flood bank of the river. Consequently, it is possible that Middle Palaeolithic material extends beneath the area of interest. However, during the recent excavation of the Iron Age timber causeway at Fiskerton it was noted that the peat was far better preserved immediately adjacent to the flood bank. As the ground works will be restricted to the removal of topsoil, prior to the deposition of clay, it is extremely unlikely that these pre-Holocene deposits would be exposed or disturbed. Furthermore, as these deposits significantly predate the formation of the fen peats (c. 1000BC) the pre-existing conditions would not have preserved organic materials. Such fragile objects are the most likely to be degraded by the compression of the clay during the construction of the enhanced bank. It is therefore concluded that the improved flood bank is likely to ensure the *in-situ* preservation of any underlying Palaeolithic material.

The recovery of two Late Neolithic to Early Bronze Age stone axe-hammers from the western end of Section (**21**) raises the possibility that there may be a series of votive or funerary deposits along the margins of this stretch of the river. The fact that this material appears to be restricted to the western end of the section suggests that it is associated with the large contemporary barrow cemetery that extends over much of Washingborough Fen, to the south. The closest round barrow that has been identified to date lies c. 680m from the end of (**21**); it is possible that further monuments are situated in the intervening space.

It has been suggested that the Viking period sword recovered from the river around 160m beyond the western end of Section (**21**) may be associated with a timber causeway analogous to the Iron Age example located c. 700m to the west (Field & Parker-Pearson, in press: 102). This theory raises the possibility that there are further 9th and 10th century artefacts in this area. While this hypothesis has yet to be proved, it should be noted that it is unlikely that any metalwork would be exposed or disturbed if the ground works associated with the flood bank improvements are restricted to the removal of topsoil prior to the deposition of clay to reinforce the bank. However, if structural elements of a causeway do lie within the area included in the western end of (**21**) it is likely that any waterlogged timbers would be prone to deformation due to the pressure applied by plant and the bank material.

It has been observed that the boundary between Heighington and Washingborough encircles Five Mile House Farm. This suggests that this isolated farmstead has early origins predating the fixing of the parish boundaries. It was presumably assessed as part of a manor centred on Heighington, which necessitated the adjustment of the boundaries to allow this holding to project into the area belonging to Washingborough. This hypothesis receives support from the fact that at least two of these fields contain ridge and furrow that has morphological traits consistent with medieval activity. The isolated position of this block of land, c. 3.5km from the medieval core of Heighington and over 4km from the older part of Washingborough, indicates that these fields are unlikely to be part of an open field system surrounding either of these communities. Consequently, it would appear that this might have been an isolated outpost of a secular or ecclesiastical estate. The existence of ridge and furrow suggests that it was a medieval grange or a similar secular farm, while its location on the edge of the river raises the possibility that there was an associated fishery. A further implication of its isolated location is that there must have been buildings to house a manager/agent, labourers and equipment. The existence of such structures is conjectural and consequently their position, if any, unknown. However, the most likely location for such dwellings would be adjacent to, or beneath the existing buildings forming Five Mile House Farm. Additionally, the possibility that associated facilities were also located on the northern bank of the Witham cannot be discounted.

Assessment of archaeological potential:

Section 21	**LOW-MEDIUM**

6.1.6 Section 22

A: *SMR data and documentary sources*

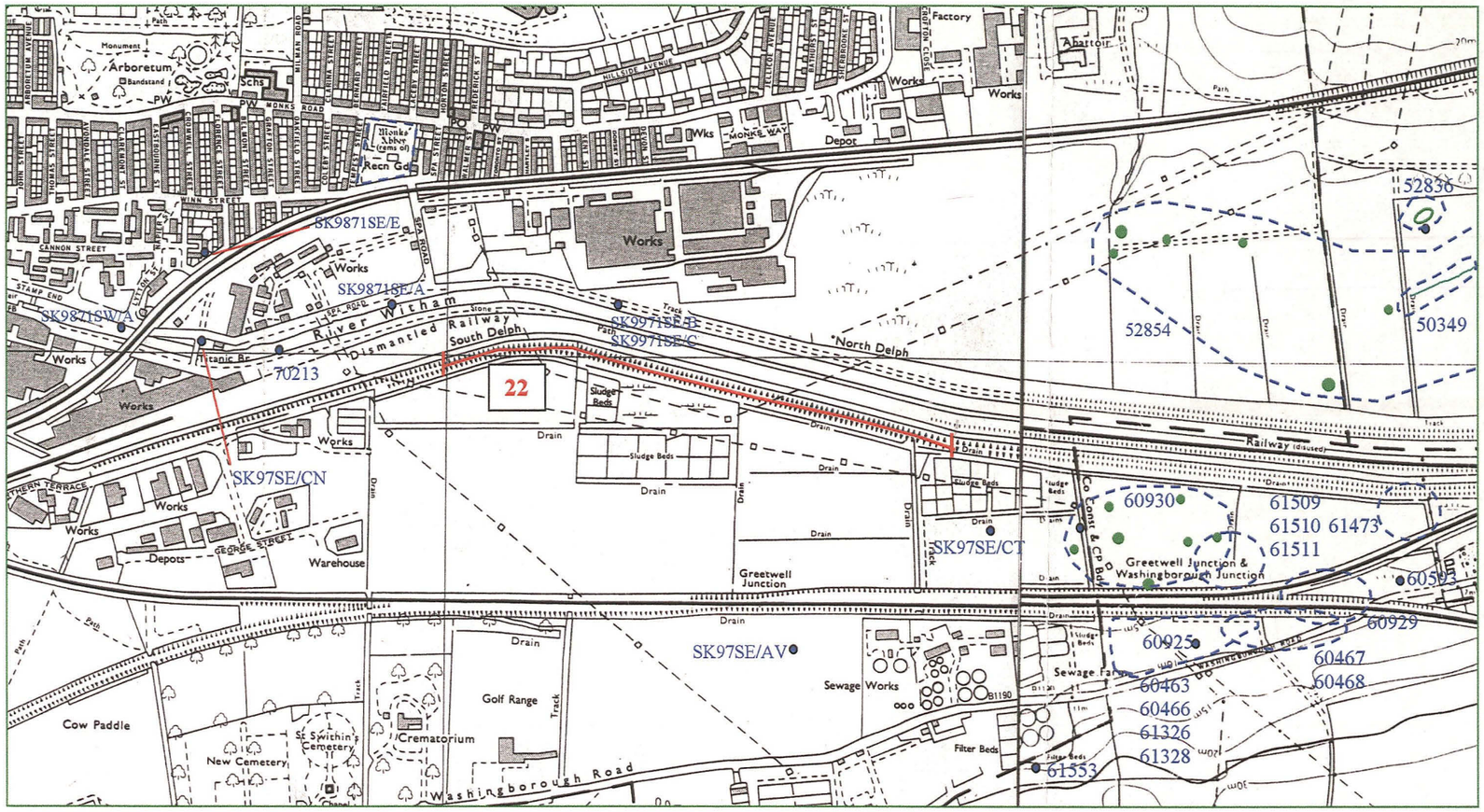
A range of archaeological material recovered both from the river channel and the valley bottom attests to prehistoric activity along this section of the Witham (fig. 7a). A barrow cemetery to the north of the river has been identified from aerial photographs and contains at least eleven or twelve monuments (52841 – TF 0070 7110). This Late Neolithic to Early Bronze Age complex extends along a 900m long stretch of the Witham. The most westerly round barrows identified lie c. 400m to the north-east of Section (**22**), but the large block of land immediately to the west of these monuments is not under cultivation, preventing the identification of any further barrows that may lie closer to the area of the flood bank enhancement.

Another group of seven round barrows has been identified on the southern side of the river (60930 – TF 0020 7070). One of these monuments is still identifiable as a slight mound, and was found to be associated with nine sherds of crude Bronze Age pottery. The most westerly known example is located c. 280m to the south-east of (**22**), the intervening space being covered by the sludge beds of a large sewage works. A Middle Bronze Age cinerary urn found at the edge of the water treatment works, c. 550m to the south of the eastern end of (**22**), suggests that funerary activity extended over a much larger area than currently indicated by the distribution of the monuments identified to date (61503 – TF 0001 7030). Further support for this assertion is provided by the discovery of two Middle Bronze Age palstaves found close to the round barrows, c. 260m to the south-east of (**22**), (61504 – TF 0010 7071). There is also a record that another two palstaves of a comparable age were found c. 160m further to the west (SK97SE/CT – SK 9995 7072). However, the proximity and similarity of these finds raise the possibility that these records duplicate one another.

Scatters of worked flint (61509 – TF 0030 7070; 60466 – TF 0025 7050) and a sherd of Late Bronze Age to Early Iron Age pottery (61328 – TF 0025 7050) have also been discovered in close proximity to the barrows, on the block of land lying to the south of the river, east of the sewage works and north of Washingborough Road. At present this area is divided into three small irregular fields by a railway embankment constructed in the 19th century.

A series of Late Bronze Age artefacts have also been recovered from the riverbed to the west of (**22**). A sword, and part of a second, was recovered during dredging by Titanic Bridge in 1906 (SK97SE/CN – SK 9858 7102). At least two more swords were found opposite the end of Lytton Street, immediately upstream of the railway bridge carrying the line from Lincoln to Grimsby (SK9871SW/A – SK 9842 7104). Other items of Bronze Age metalwork have been found further upstream along Stamp End and Waterside North, indicating that this material is dispersed along a section of the River Witham that probably exceeds 500m in length, with the material found by Titanic Bridge lying only 400m from the end of Section (**22**). Additionally, at least five swords and a bronze shield of Iron Age date have also been retrieved from this stretch of river (Stocker & Everson, forthcoming). As with other concentrations of prestige metalwork recovered from the Witham, it appears likely that this material entered the river during a sequence of ritual activities focussed on the watercourse. Similar cumulative deposits, particularly those examined at Fiskerton, were associated with timber structures assumed to be causeways (Field & Parker-Pearson, in press; author's data). Consequently, it

A



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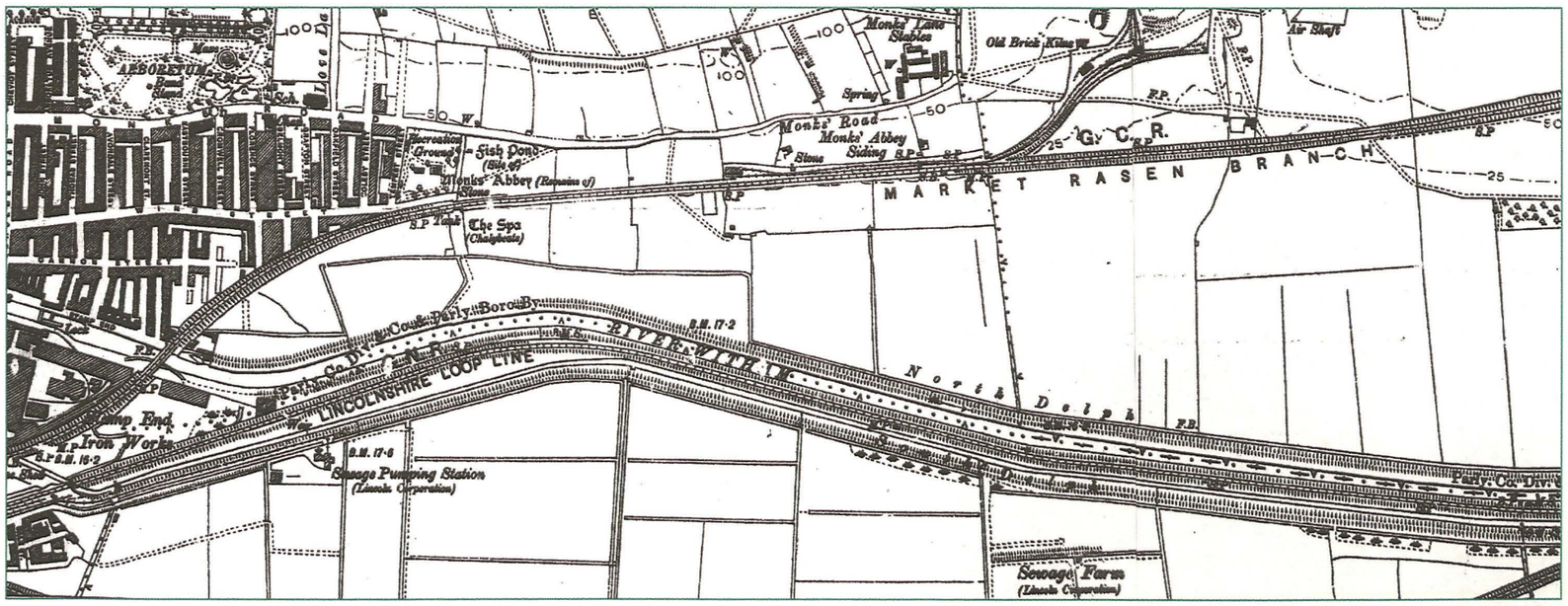


Figure 7: SECTION 22

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs during the National Mapping Programme are shown in dark green.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXX.NE, of 1908; reproduced at c. 1: 10,000.

is reasonable to suppose that a similar depositional focal point existed along this stretch of the river in later prehistory (Stocker & Everson, forthcoming).

Two Roman coins were found on the north bank of river immediately to the north of (**22**). One was an issue of Constantine I, minted in Trier in AD 315-316 (SK9971SE/B), while the other was a *follis* of Maximinus II (SK9971SE/C – both found at SK 9930 7109). Further east, a Romano-British artefact scatter was identified in a field lying immediately to the south of the railway line from Lincoln to Spalding. The range and density of the artefacts suggests that they are associated with the site of a farmstead or small settlement (60463 – TF 0025 7050). Further Roman pottery was recovered from a corresponding location in the field to the north of the railway, c. 500m to the south-east of (**22**) (61510 – TF 0030 7070).

Two Anglo-Saxon coins and a sherd of pottery were also found in association with the spread of Romano-British artefactual material, suggesting that there was a degree of residential continuity or that the site was reoccupied (60925 – TF 0030 7051; 61326 – TF 0025 7050). The only other item from this period that has been recovered in the vicinity of the Section (**22**) is a 9th to 10th century Anglo-Saxon sword that was found at northern edge of the river channel, c. 130m to the north-west of the proposed flood defence enhancements (SK9871SE/A – SK 9890 7108).

It is thought that the original site of Sheepwash Grange, a medieval monastic estate belonging to Kirkstead Abbey, lay c. 650m to the south-east of Section (**22**), in an area now overlain by the junction between two railway embankments (60929 – TF 0052 7058). Substantial scatters of medieval and post-medieval pottery have been recovered from the fields that bracket the embankment to the west of the suspected site of the grange, these being the same fields that also contain the barrow cemetery (60467/60468 – TF 0041 7051; 61511 – TF 0030 7070).

There was also a medieval monastic presence to the north of the river, a small priory known as 'Monks Abbey' being situated c. 300m north of the western end of (**22**). The origins, form and operation of this establishment are poorly understood in comparison to the other monastic houses lining the Witham. However, there is a possibility, perpetuated by oral tradition, that the house was originally founded in the 7th century by St Botolph (Stocker & Everson, forthcoming). The first documentary account dates to the early 12th century, when this area of the city was referred to as *Monks Leys*, the name itself suggesting a well-established ecclesiastical association. At this time the estate belonged to St Mary's Abbey, York, and a satellite monastic cell had been established by the third quarter of that century. The establishment was suppressed in 1539 and the majority of its buildings have subsequently been demolished. However, the remains of the chancel of the priory church still stand at the centre of a recreation ground to the south of Monks Road. The majority of the surviving fabric was erected in the late 12th century, but the eastern end appears to have been remodelled in the early to mid 13th century (Pevsner & Harris, 1989). Later still, windows with elaborate Perpendicular tracery were added, probably at the end of the 14th or beginning of the 15th century.

The priory is known to have owned a causeway or dam crossing the river valley immediately to its south; this structure had existed since at least the 10th century, and probably replaced or overlay a prehistoric precursor that had been the focus for the earlier ritual activity, noted above (Stocker & Everson, forthcoming). Echoes of the causeway are preserved in the name of this section of river, the *stamp* in Stamp End meaning 'weir'.

B: *Cartographic evidence*

The following map was found to contain data relating specifically to the site:

- Ordnance Survey, 1908 – Sheet LXX.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885-6 (First Edition) and was revised in 1904-5.

There are a number of significant differences between the Second Edition Ordnance Survey map and modern editions within the area surrounding Section (**22**) (fig. 7b). The northern and southern banks of the river and the South Delph already had the form that they have today. However, Section (**22**) was still situated in open countryside in 1905. There were no buildings to the east of Stamp End and the railway bridge carrying the line from Lincoln to Grimsby, with the exception of a sewage pumping station built against the South Delph (at what is now the eastern end of Great Northern Terrace - c. 250m to the west of (**22**)). To the east of the pumping station, the land abutting the southern flood bank of the South Delph along (**22**) was divided into five fields, the forms of which can still be discerned in the modern landscape. The long axis of the most westerly field ran from north to south, while the others all ran from east to west.

The most easterly field in this group is labelled as '*Sewage Farm (Lincoln Corporation)*', but other than two trackways and a bank along its southern edge there are no obvious structures within it. This field, which abuts the southern edge of Section (**22**), is now completely covered by a complex of sludge beds and associated facilities. The next field to the west is still undeveloped; the only difference to the Second Edition map being that its northern edge, abutting the flood bank, is depicted as marshy ground on the map of 1908. The field to its west has had further sludge beds constructed within it, but these sit in isolation, as the land to the south and west remains open. The area to the south-west of Section (**22**), and the pumping station shown in 1908, is now covered by the warehouses and industrial units fronting onto Great Northern Terrace and George Street. Both of these roads are also less than one hundred years old.

On the northern side of the river, the strip of land sandwiched between the Witham and the Lincoln to Grimsby railway line was still completely open and divided into a dozen fields in 1905. This area is now almost completely covered by a number of large factories and industrial units. A north-south aligned road bisects this area. Its is named Spa Road, which reflects the fact that it is constructed over the site of '*The Spa*', a feature that appears to have been a chalybeate spring situated at the south-eastern corner of the Monks Abbey precinct, and which was marked as an antiquity on the Second Edition Ordnance Survey map. The recreation ground containing the last remaining building of the priory complex was already in existence at the beginning of the 20th century. However, the area immediately to its east, now covered by the buildings bracketing Spa Street, was a small field that still contained the earthworks of a monastic fishpond.

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified the two barrow cemeteries that face each other across this stretch of the River Witham. The locations of 12 round barrows and the putative long barrow were transcribed for the northern complex (52841). An associated cropmark demonstrated the presence of a linear boundary at the centre of this cluster of monuments (50349). A further 7 parchmarks pinpointed the location of the round barrows constituting the Canwick cemetery (60930).

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features.

D: *Site visit*

An examination of the southern riverbank along Section (**22**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

An impressive range of artefactual material has been recovered from the two fields situated immediately to the south-east of Section (**22**) and the element of the sewage farm at its eastern end. These deposits suggest that here has been episodic or continuous activity in this locality since the Later Neolithic. The small round barrow cemetery represents the earliest identified utilisation, with the recovery of two (or four) Middle Bronze Age palstaves indicating that ritual activity was sustained around this complex for a considerable period. Two of the barrows in this group are situated within 200m of (**22**). It is probable that other barrows were not evident in the aerial photographs examined, particularly if they fall within the uncultivated land inside the sewage works. Consequently, it is possible that other comparable monuments or associated funerary deposits lie in very close proximity to the sector of the flood defences that will be enhanced.

An artefact scatter situated at the southern edge of these fields suggests that there is a small Romano-British settlement in the immediate vicinity. It is possible that a large proportion of any *in-situ* deposits lie beneath the railway embankment of the Lincoln to Spalding line. The distribution of the pottery indicates that it is unlikely that Romano-British deposits extend as far north as the South Delph.

The recovery of significant quantities of prestige metalwork from the Witham between Waterside North and Spa Road suggest that this section of the river was a focus for ritual activity between the Late Bronze Age and the Anglo-Saxon to medieval periods. This assemblage is composed of a limited range of forms, which are analogous to the material placed along the Iron Age timber causeway at Fiskerton and other comparable structures crossing the Witham Fen (Field & Parker-Pearson, in press). The majority, if not all, of the prehistoric metalwork appears to have been recovered from sites located 750 - 400m to the west of Section (**22**). It therefore seems unlikely that further material of this date would be disturbed during the groundworks associated with the flood bank improvements. However, a 9th to 10th century Anglo-Saxon sword was found only 130m from the end of (**22**), raising the possibility that the focus of activity gradually migrated downstream. Such a relocation may also account for the positioning of Monks Abbey to the north of Spa Road, rather than opposite Stamp End Lock, if, as appears, there is a direct spatial relationship between votive sites along the river and later monastic houses (Stocker & Everson, forthcoming).

It is known that the monastery owned a causeway across the river, called *le Stampcause*, which is known to have been in existence between the 10th and later 14th centuries (*ibid.*). The precise location of this structure is unknown. It may have been situated directly to the south of the priory church, passing close to or through the western end of Section (**22**). This would correlate with the position at which the Anglo-Saxon sword was found. However, this piece of post-Roman military equipment is isolated and may be distorting the data, in which case the causeway would probably lie 300 – 400m further upstream, near the site of the prehistoric activity. It is at this point (c. SK 9845 7103) that we find the eastern end of the road known as Stamp End. This position also coincides with a perpendicular southerly diversion of the district boundary from the centre of the (former) course of the river channel, which is

depicted on the Second Edition Ordnance Survey map of 1908. Such a marked deviation of an administrative boundary could follow the alignment of a structure, such as a causeway or weir that clearly defined the area 'inside' the city from its surroundings.

With regard to the metalwork itself, it is extremely unlikely that any such deposits would be exposed or disturbed if the ground works are restricted to the removal of topsoil prior to the deposition of clay to reinforce the bank. However, if elements of a causeway do lie at the western end of Section (**22**) it is likely that any waterlogged timbers within this structure would be prone to deformation due to the pressure applied by plant and the bank material.

Assessment of archaeological potential:

Section 22	**LOW - MEDIUM**

6.1.7 Section 23

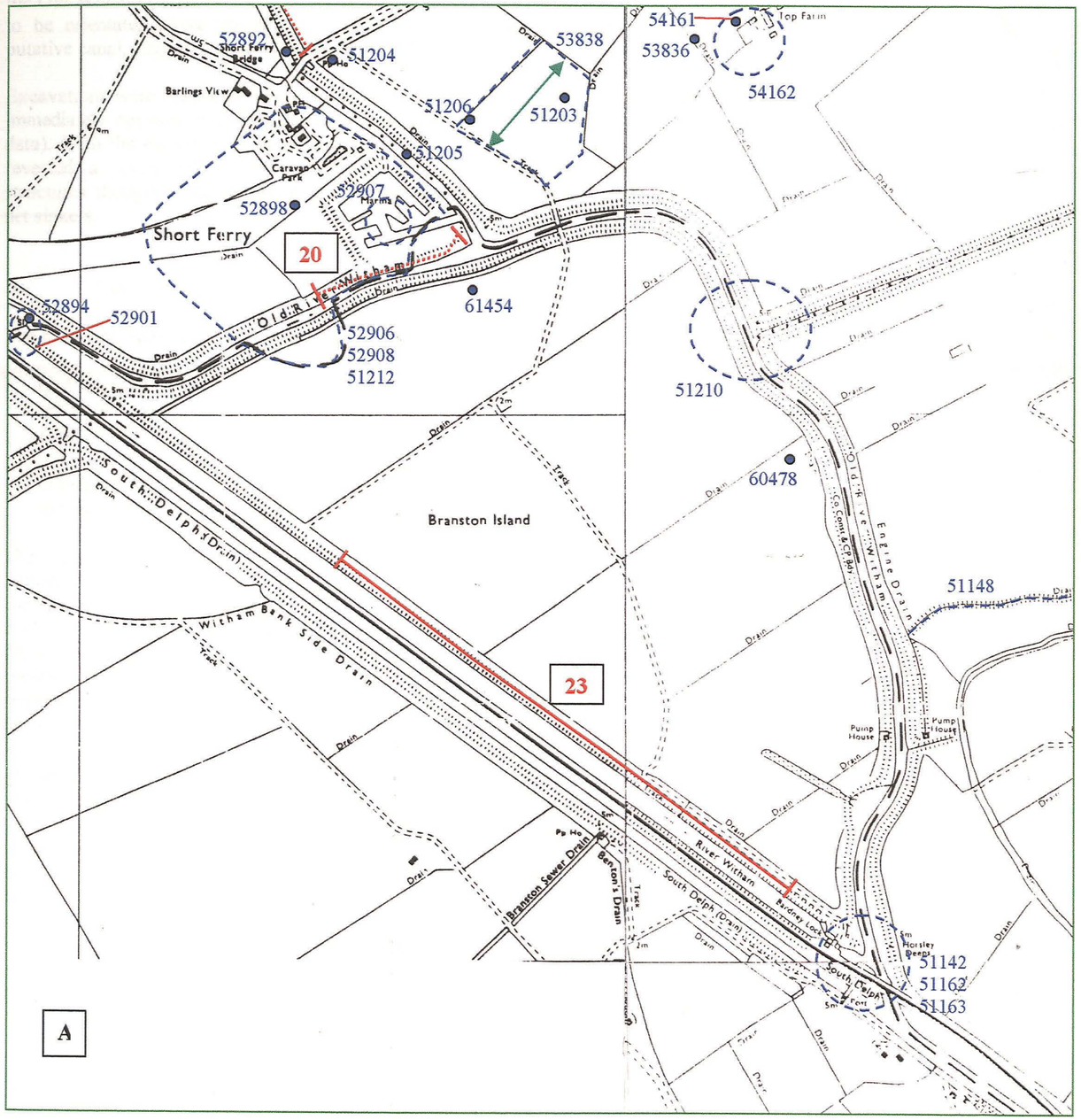
A: *SMR data and documentary sources*

This stretch of flood bank runs alongside the canalised section of river that was created in the second to third decades of the 19th century to straighten out the natural meandering course of the Witham at its confluence with the Barlings Eau (fig. 8a). This artificial origin may therefore account for the absence of finds from its immediate environs, nearby find spots being concentrated along the old river channel or at Horsley Deeps where the two branches recombine at the southern end of Branston Island.

Two log boats have been found at Horsley Deeps. The first was found in 1814, c. 250m south-east of (**23**), during the creation of a drain next to the river (this may have been the South Delph) (51162 – TF 1050 6990). This is potentially the same vessel that was recorded as 'Bardney 1', which was found c. 1815, and was 9.15m long by 1.4m wide. The second log boat was found around 1829 (51142 – TF 1037 7004), during the construction of Horsley Deeps Lock/Bardney Lock, c. 100m upstream from the first example. Known as 'Bardney 2', it was an oak vessel 9.3m long by 0.9m wide, which was found 2.4m below the ground surface. Again its dimensions corresponded to those of another vessel found c. 1816, '2 miles east of Lincoln'. The similarity in the size of these two vessels raises the possibility that were actually the same boat that had been recorded twice. An iron axe head of 10th – 11th century manufacture (51163) was also found in this area at around the same time. This is the most northerly recorded item from a large body of prehistoric and Anglo-Scandinavian to medieval metalwork that has been retrieved from the river between Horsley Deeps and Bardney village (Field & Parker-Pearson, in press; Stocker & Everson, forthcoming).

Part of the bottom and side of a third log boat was ploughed up near the eastern edge of Branston Island in 1976. Referred to as 'Bardney 3', it was another oak vessel, the exposed portion being 2.25m long, 0.6m wide and up to 0.12m thick. It is thought likely that the remainder of this vessel is still *in-situ*, lying some 600m to the north-east of the centre of Section (**23**) (60478 – TF 103 709).

The confluence between the Old River Witham and a large drain known as Bardney Beck lies approximately 500m to the north-east of the southern end of (**23**) (51148 – TF 1087 7069). The beck runs eastward from this junction for c. 650m before reaching the north-west corner of the precinct of Bardney Abbey. The straightness and width of this channel suggest that it was a medieval canal that enabled water borne traffic to ply between the abbey and the Witham. A small sub-rectangular cropmark enclosure has been identified along the boundary of a small field located c. 100m to the south of the convergence between Bardney Beck and



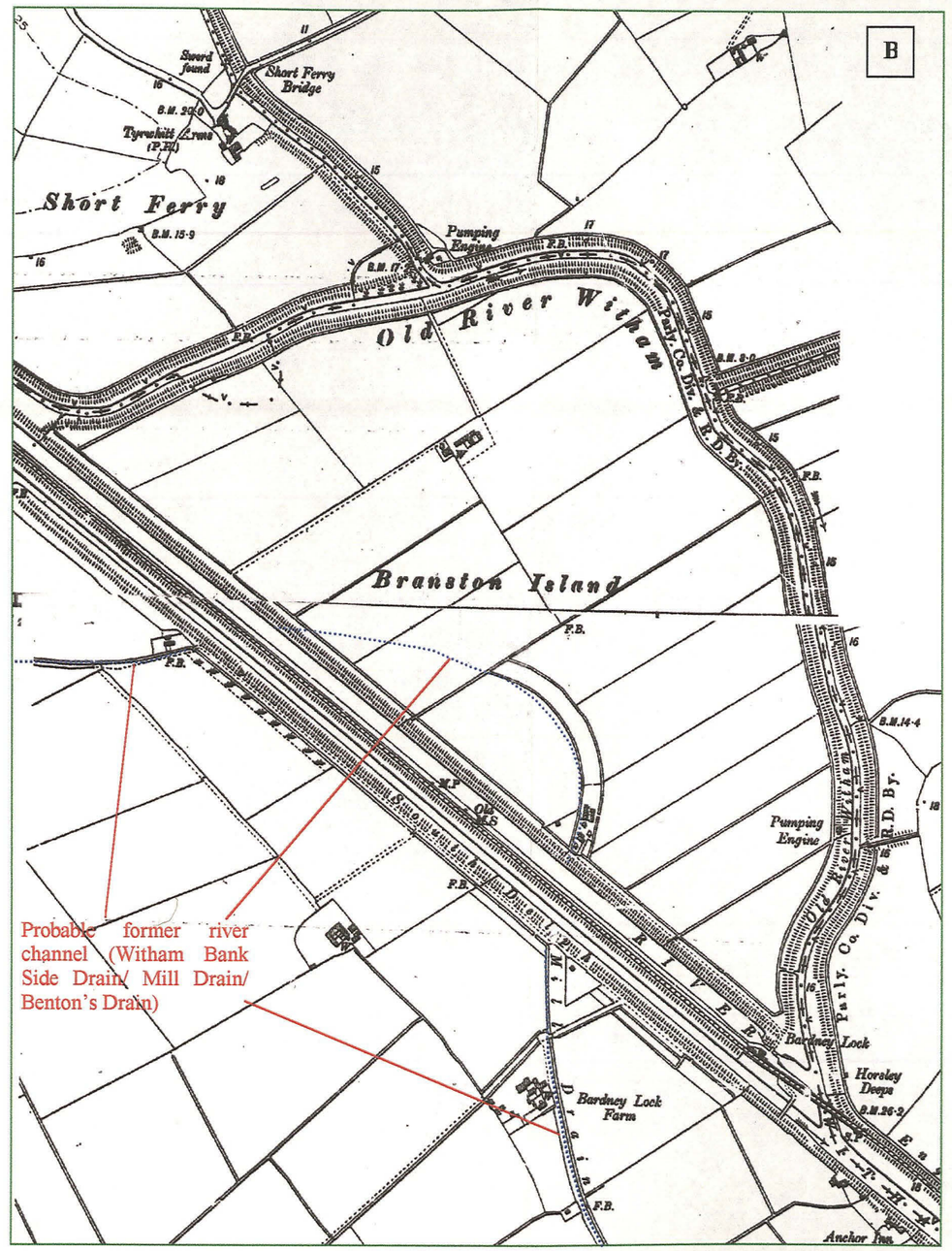


Figure 8: SECTION 23

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs during the National Mapping Programme are shown in dark green.

B: Composite extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXXI.SE and Sheet LXXI.NE, of 1906; reproduced at c. 1: 10,000.

the Old Witham (53839 – TF 1058 7051). This feature remains undated. However, it appears to be orientated along the existing boundary, which combined with its proximity to the putative canal, suggests that it is of medieval or later date.

Excavations were conducted along the western edge of the channel of the Old River Witham, immediately opposite this enclosure, during the summer of 2001 (TF 1044 7050 – author's data). With the exception of a small quantity of Romano-British pottery, these investigations revealed a series of medieval features and deposits, including waterlogged post-built structures thought to be fish weirs, larger amounts of medieval pottery and some limestone net sinkers.

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet LXXI.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1904.

- Ordnance Survey, 1906 – Sheet LXXI.SE, Second Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1904.

The Second Edition maps demonstrate that there have been relatively few changes along this section of the river during the last 97 years (fig. 8b). The flood defences along the main river channel, the old river channel and the South Delph look identical. On the southern side of the river a few of the smaller fields have been amalgamated and a farm complex lying opposite the centre of Section (**23**) has largely been demolished, only one small outbuilding still standing in isolation. Similarly, adjoining pairs of the long, thin north-east to south-west orientated fields on Branston Island have been combined, so that they now form larger sub-rectangular blocks.

The Second Edition map (LXXI.SE) indicates that the 'new' canalised river channel appears to have cut across the course of a sinuous relict channel of the Witham. On the western side of the river this former channel is represented by Witham Bank Side Drain to the north and Mill Drain/Benton's Drain to the south. The course of this former channel is most pronounced on Branston Island itself. While the northern part of its route had been infilled prior to 1904, the southern half was still defined by two parallel curving drains forming the apex of a bend, which mimicked the course of the Old River Witham c. 550m to the north and east. The canalised 19th century channel cut across their southern ends, but it is still evident from the projected alignment that they once joined Mill Drain/Benton's Drain, c. 150m to the south. The latter can be traced as far south as Southrey, and probably represents a former (medieval to post-medieval) channel of the river.

In 1906 there were three or four buildings constructed in the area situated between the two arcing drains immediately to the north-east of their junction with the flood bank of the 'new' river. These buildings were presumably built upon made up ground that had formerly been the bed of the river. Nothing now survives of this small complex, although it is evident that all of the structures lay within the field, just beyond the ditch that defines the north-eastern limit of the works along Section (**23**). Their position can be accurately gauged, because the southern end of the track that currently runs down the centre of Branston Island follows the arc of the drain that once defined the eastern side of both the former channel and the yard containing the buildings, as shown on the Second Edition map. Furthermore, the small track that ran south-eastward along the base of the flood bank from this small farmstead or settlement to Bardney Lock is still in existence.

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified the small sub-rectangular enclosure immediately to the east of the Old River Witham and south of Bardney Beck (53839).

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features.

D: *Site visit*

The site visit demonstrated that this section of flood bank is particularly straight and even, as would be expected along a totally engineered section of the river. There is no evidence of the former river channel arcing across the western half of Branston Island, although the area has been used as washland and is now partly vegetated by coarse grasses and sedges. The southern half of this area is still covered with large pools of standing water, which are interspersed with thick beds of sedge, both of which effectively mask the ground surface. The track along the base of the southern third of the flood bank still exists, providing a strong indication as to the location of the buildings standing in 1906. However, there is no visible evidence of these structures in the field immediately to the north-east.

E: *Summary and discussion of the evidence*

Previous archaeological discoveries from this section of the Witham Valley are associated with the old river channel, being focussed around its confluence with the Barlings Eau at Short Ferry, or with the area at the southern end of Branston Island that is known as Horsley Deeps. The new channel, the adjacent South Delph and the associated flood banks, of which Section (**23**) is a part, were created after 1812. While a large quantity of archaeological material was retrieved from some other sections of the river at this time, it is significant that there are no records of anything being found along this new cut. This suggests that there is little likelihood that such isolated artefacts would be found during works associated with the enhancement of Section (**23**).

The Second Edition Ordnance Survey map of 1906 indicates that there was a small complex of buildings situated at the centre of the south-western edge of Branston Island, immediately adjacent to Section (**23**). It appears likely that these structures were built prior to the creation of the new river cutting, which occurred some time between 1812 and 1830, as it would have been extremely difficult to access this area with bulk materials after that time. The buildings appeared to be situated on made up ground overlying the former bed of the relict channel of the Witham (Witham Bank Side Drain/Benton's Drain/Mill Drain). It is known that a number of drainage windmills were constructed alongside this watercourse following a Drainage Act of 1762. This is likely to provide a *terminus post quem* for the construction of this group of buildings, making them later 18th to early 19th century in date. The map also indicates that it is unlikely that the groundworks will impact upon any part of this complex.

Assessment of archaeological potential:

Section 23	**LOW**

6.1.8 Sections 24 & 25

A: *SMR data and documentary sources*

A relatively high level of past human activity has been identified at and around Short Ferry, although most of the finds and deposits have been discovered in the area to the south of Section (**24**), where the Barlings Eau meets the Old River Witham at Short Ferry Marina (fig. 5a). This material includes a broken leaf shaped 'point', possibly a Neolithic arrowhead, uncovered while digging a drain (52898 – TF 0940 7140), and some Romano-British pottery found during the initial construction of the marina (52907 – TF 0965 7134). A large quantity of medieval and post-medieval pottery was also found at this time (52908 – TF 0965 7134). Most of the sherds were produced in the East Midlands, but there were also fragments of French Polychrome and, German and Flemish stonewares. This relatively high status material was associated with the remains of a monastic grange and fishery belonging to Stainfield Priory, which is likely to be the example known as 'Barling Mouth' or 'Barleymouth', (52906 – TF 0960 7130). Eleven limestone net sinkers were found on the eastern bank of the Barlings Eau, c. 40m to the east of the grange site, with which they were almost certainly associated (51207 - TF 0975 7136). Additionally, a block of north-east to south-west orientated ridge and furrow located 300m to the south-east of (**24**) must have formed part of the field system associated with this medieval establishment (53838 – TF 0984 7155).

The remains of four log boats have been discovered a little further to the north, closer to Sections (**24**) and (**25**). Two were found whilst recutting a drain running along the foot of the eastern bank of the Eau, c. 270m to the south-east of (**24**) (51205 – TF 0962 7150). A fragment of another was found c. 130m further to the east, in 1976 (51206 – TF 0974 7157). A small portion of a fourth example was exposed in 1953, c. 500m to the east-south-east of (**24**) (51203 – TF 0990 7158). Although undated, these vessels are likely to relate to prehistoric activity around the mouth of the Barlings Eau.

Two artefacts have been found in the immediate vicinity of Short Ferry Bridge. The first was a sword discovered at the southern end of (**24**), while cleaning and deepening the Barlings Eau in 1872 (52892 – TF 0937 7166). Described as 'two-edged', this weapon was c. 1.37 to 1.42m long. The other item was a penny of Edward the Confessor found on the riverbank, c. 50m beyond the southern end of (**24**).

B: *Cartographic evidence*

The following map was found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet LXXI.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1904.

The Second Edition map indicates that there have been very few changes along these stretches of the Barlings Eau since the beginning of the 20th century. The pattern of the late 19th century field system is still discernable in the modern landscape, although a number of the smaller fields have been amalgamated (fig. 5b). Similarly, the sections of flood bank upstream of Short Ferry Bridge have the same form as depicted in 1906, being continuous along the eastern side of the river, but branching away from the river on the western side to terminate against Ferry Road. This left the low-lying paddocks opposite Section (**24**) 'undefended', presumably to serve as an area of washland. A pumping station and electricity sub station have been constructed at the north-western end of this small block of land since the Second Edition map was published.

In 1906 only two groups of buildings stood in the immediate environs of Sections (**24**) and (**25**). Of these, the Tyrwhitt Arms public house and its associated structures were the closest, lying c. 100m from (**24**) beside Ferry Road as it turned abruptly to cross the Barlings Eau. The area immediately to the south of the pub was developed into a static caravan park in the latter part of the 20th century, and two dwellings have also been constructed beside Ferry Road to the north-west. The other group of buildings that existed in 1906 was a small farm complex located at the centre of a field to the east of (**25**) and north-east of (**24**). This was Short Ferry Farm, which still exists. There are more buildings now than were depicted at the onset of the 20th century. Furthermore, their form and arrangement is markedly different, suggesting that the earlier structures have been completely supplanted.

Of particular relevance to this study is the fact that the Second Edition Ordnance survey map indicates the precise findspot of the sword (52892) recovered in 1872 from the centre of the river channel, c. 30m from the southern end of (**24**).

C: *Air photographic evidence*

The Lincolnshire component of the National Mapping Programme identified the block of ridge and furrow situated to the north-east of the confluence between the Barlings Eau and the Old River Witham (53838). This has been ploughed flat since the photograph was taken.

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features in the immediate area.

D: *Site visit*

An examination of the northern riverbank along Sections (**24**) and (**25**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

Previous archaeological discoveries from this section of the Witham Valley are concentrated around the confluence of the Barlings Eau and the old river channel. This material provides indications that there has been some form of identifiable human activity in the immediate area since the Neolithic. Not all of this need be directly related to settlement, as elements of five different log boats have been identified within 500m of the area of the scheme of works. The presence of these vessels suggests that there is a high probability that further boats or other wooden structures are preserved along the margins of this stretch of the Barlings Eau and the adjacent channel of the Old River Witham.

The recovery of a small quantity of Romano-British pottery from the marina suggests that there may have been a small farmstead located a few hundred metres to the south of (**24**). Certainly a monastic establishment was situated here in the medieval period. The fact that this spur of glacial till was surrounded by wetland on three sides, abutted the junction between two navigable water courses and coincided with a major reorientation of the main channel of the River Witham, is likely to have made it a prime location for a settlement. What has not been established is whether elements of either the Romano-British or medieval sites extended northwards into the area along (**24**).

A sword was recovered from the Barlings Eau at the southern end of (**24**). Other less well provenance metalwork also seems to have come from the vicinity, an iron knife of 13th – 14th century date being found at the 'mouth of the Barlings Eau' in 1788 (Stocker & Everson, forthcoming). The nature of these finds raise the possibility that there was an associated focus

for ritual activity that was analogous to the timber causeway at Fiskerton and other comparable structures crossing the Witham Fen. Stocker & Everson (*ibid.*) indicate that Short Ferry Road is the most likely location for this activity. This road runs along an embankment that crosses Stainfield Fen between the Barlings Eau at Short Ferry Bridge, and another spur of high ground near The Hermitage, c. 1km to the east. The probability that there was a grange at the western end of this causeway and a site referred to as a hermitage at the other provides further support for the argument that there was a pre-Christian ritual focus if, as appears, there is a direct spatial relationship between votive sites along the river and later monastic establishments.

Short Ferry Bridge is located immediately to the south of Section (**24**). Consequently, it is possible that the scheme of works may impact upon elements of an earlier structure if, as suggested by the point at which sword 52892 was found, the alignment of the present roadway has migrated slightly from the course of a putative predecessor. If such structural elements do survive within the area crossed by Section (**24**), it is possible that they include a component constructed from timber. Although prevailing anaerobic conditions may have preserved this wood, it will have become relatively soft and malleable. Consequently, significant localised pressure of the sort that would be applied by heavy machinery, or by the compaction of bank material, is likely to result in the deformation or destruction of this element of the archaeological resource. Therefore, it would be advisable to establish whether such deposits were present prior to the formulation of an appropriate mitigation strategy. With regard to the metalwork itself, it is necessary to acknowledge that a direct correlation with a causeway has not been established. Consequently, the pattern of deposition also remains unknown. Nonetheless, while it is entirely possible that other artefacts lie within the footprint of Section (**24**), if the ground works are restricted to the removal of topsoil prior to the deposition of clay bank material, it is extremely unlikely that any such deposits would be exposed or disturbed.

Assessment of archaeological potential:

Section 24	**LOW – MEDIUM**
Section 25	**LOW**

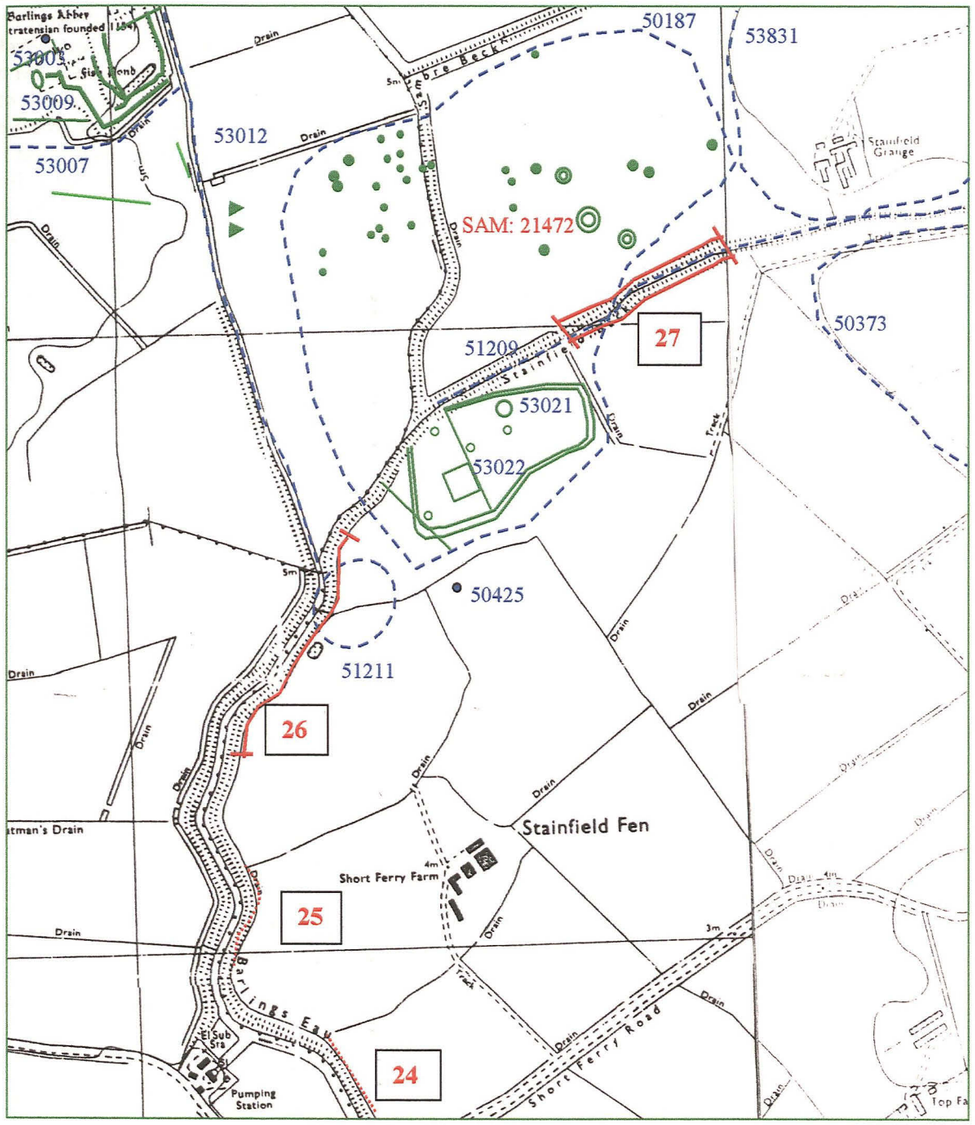
6.1.9 Section 26

A: *SMR data and documentary sources*

There are many archaeological sites and find spots on the eastern side of this section of the Barlings Eau (fig. 9a). The most southerly round barrows of the Barlings barrow cemetery lie approximately 400m to the north of (**26**) (50187 – TF 0939 7324). This cemetery is comprised of at least 4 bowl barrows (SAM 20809), with a many as 16 other small barrows situated to their north and south. The Stainfield barrow cemetery lies immediately to the east, just beyond the Sambre Beck, and contains at least 11 more round barrows of varying form (SAM 21472).

A large complex of cropmarks/soilmarks are situated approximately 100m to the east of the northern end of (**26**) (53021 – TF 0960 7280). The most substantial element of this group appears to be a wide gravel bank, which forms a large sub-oval enclosure of c. 4.5ha. The morphological traits of this enclosure suggest that it is likely to be of prehistoric date. Additional features are visible within it, including a square enclosure (53022) and five pen-annular features, which may represent further barrows or round houses.

A



B

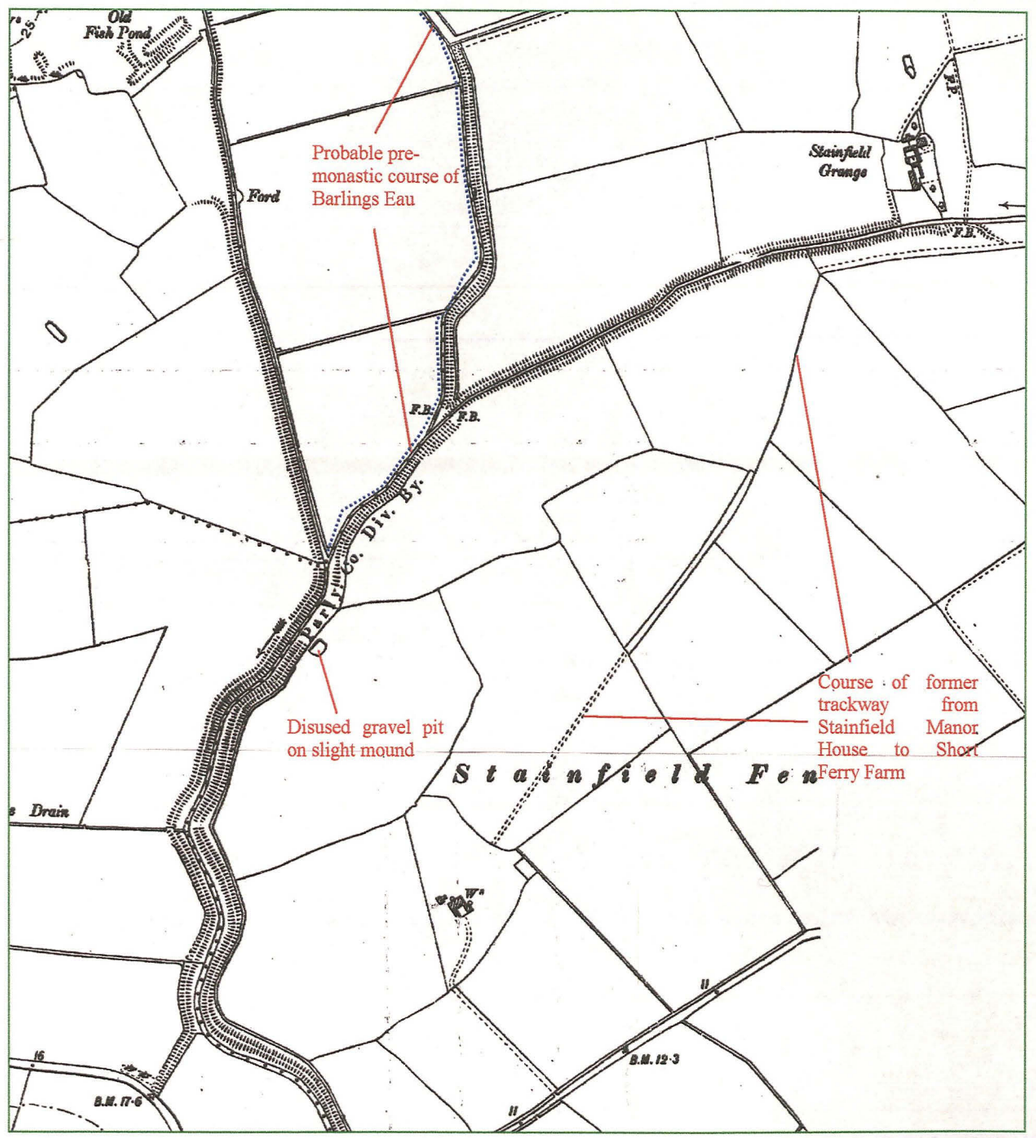


Figure 9: SECTIONS 26 AND 27

A: Position of these sections of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs during the National Mapping Programme are shown in dark green , additional cropmarks light green.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXXI.NE, of 1906; reproduced at c. 1: 10,000.

The remains of Barlings Abbey, a Premonstratensian house founded in 1154 lie c. 800m to the north of (**26**). Only a small portion of the church stands above ground, while the rest of the monastic complex is evident as an extensive area of well defined earthworks (see Everson, *et al.* 1991: 66-70). The present course of the Barlings Eau immediately to the north of (**26**) is particularly straight and runs up to and along the eastern edge of the abbey. Its form and position raise the possibility that it was a canal constructed in the medieval period to link the abbey to the pre-existing channel of the Barlings Eau, thereby integrating the monastic house into the transport and communications system centred upon the Witham (53012 – TF 0915 7320). The northern end of (**26**) is thought to overlie the site of a medieval fishery situated at the junction between Sambre Beck/Stainfield Beck and the canalised section of the Barlings Eau (51211 – TF 0940 7260). It has been suggested that this was the fishery belonging to Stainfield Priory that was referred to as 'The Odds' ('Le Aldra') in a document of 1538.

The natural river channel appears to have continued toward the north-east from the point at which it was intercepted by the putative canal to Barlings Abbey. However, it only progressed another 300m upstream before another straight, deep channel branched off it. This is the Stainfield Beck, which heads eastward to the site of Stainfield Priory. Again it seems likely that this watercourse was also a piece of medieval engineering, another canal that linked the nuns at Stainfield to the commercial activity centred upon the Witham Valley (51209 – TF 1000 7310).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet LXXI.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1904.

The Second Edition map indicates that there have been very few changes along this stretch of the Barlings Eau since the beginning of the 20th century (fig. 9b). The pattern of the late 19th century field system is still discernable in the modern landscape, although one or two of the smaller fields have been amalgamated. Similarly, the flood bank has the same form as depicted in 1906, being continuous along both sides of the Barlings Eau downstream of the point where the Sambre Beck/Stainfield Beck joins it. Upstream of this confluence, the straight section of the Barlings Eau running to the abbey has flood defences along its western edge, but is open along its eastern side. Both early and modern maps also depict a drain running along the foot of the eastern bank. However, the ditch running along the base of the western bank has been added since 1906.

It has been suggested that the section of the Barlings Eau between the abbey and Section (**26**), originated as a monastic canal. This proposal receives some support from an examination of the Ordnance Survey maps. The parish boundary between Fiskerton and Stainfield can be seen to follow the sinuous course of the Barlings Eau northwards from its confluence with the Old River Witham to the northern end of (**26**). At this point the boundary deviates from the modern straight course of the river. It turns north-eastward to follow Stainfield Beck to its junction with Sambre Beck. It then follows the latter northward for c. 550m, until the beck turns to the east. The parish boundary then follows a drain that curves towards the north-west, before rejoining the Barlings Eau at the north-eastern corner of the abbey precinct. The meandering route of this detour from the modern river channel suggests that the boundary follows the original, natural course of the river.

Section (**26**) runs along the edge of two fields, a greater proportion being situated in the more southerly plot. A small gravel pit is depicted on the Second Edition map near the north-west

corner of the southern field, approximately at the centre of (**26**). This feature still exists and is also shown on modern editions.

Throughout the 20th century only one group of buildings has stood within 0.5km of Section (**26**). It appears likely that this was a small farm in 1906, with a detached dwelling to the north-west of a larger group of buildings that appear to have been arranged around a yard. Modern maps indicate that it is now known as Short Ferry Farm, and that there are more buildings than were depicted at the onset of the 20th century. Furthermore, their form and arrangement is markedly different, suggesting that the earlier structures have been completely supplanted. The field in which Short Ferry Farm stands, along with the two fields to the north that are bounded by Section (**26**), have a form that contrasts with those surrounding them. They have relatively irregular shapes, with slightly curving boundaries, which differ from the rectilinear units that abut them to the south and east. This difference may imply that they predate the more regular areas, possibly having developed organically through episodic reclamation from the fen.

C: *Air photographic evidence*

A large number of archaeological features have already been identified from aerial photographs that show the area surrounding Section (**26**). The Lincolnshire component of the National Mapping Programme transcribed elements of the large prehistoric enclosure (53021, 53022) and the two barrow cemeteries (50187) to the east and north-east of (**26**). It also identified two low banks flanking the ford on the eastern side of the river (53016) (see Rylatt, 2001: 6.1.10).

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features in the immediate area of (**26**). However, they did show further cropmarks and earthworks more than 500m to the north, in the immediate environs of Barlings Abbey.

D: *Site visit*

An inspection of this stretch of riverbank revealed that it clips the western edge of a low sub-oval mound located approximately at the central point of the section. This mound was roughly 80m long from north-east to south-west, by c. 40m wide. Its top was relatively level, being roughly 0.5m higher than the surrounding field. The surface of this mound had been ploughed a short time before the visit, the exposed surface indicating that the soil contained a large component of flinty gravel and sand, which differed markedly to the dark, peaty silts surrounding it. The northern half of the mound was covered by a small pond surrounded by coarse grasses, sedges and hawthorn bushes. This pond is marked on both the Second Edition and modern Ordnance Survey maps. The presence of significant quantities of gravel at this point indicates that it probably represents a small, disused gravel pit.

E: *Summary and discussion of the evidence*

Extensive and important prehistoric remains have been detected in the area to the north-east of Section (**26**), these including two groups of round barrows and a large embanked enclosure. While a few of the barrows are still visible as slight mounds, most of these features have been identified from aerial photographs. This latter source of evidence does not provide any indications that comparable deposits extend into area that will be affected by this element of the flood defence improvement scheme. However, it is evident that the south-west corner

of the large enclosure lies only 120m from the northern end of (**26**), so this possibility must be considered.

A number of pen-annular cropmarks have been noted within the large enclosure. These features may represent drip gullies or construction trenches surrounding later prehistoric circular buildings. However, there is no consistent orientation to the break in each circle, the doors in round houses generally being orientated toward the eastern or southern side. This raises the prospect that these circular features may be round barrows rather than houses. One of these features lies only 150m to the east of the northern end of (**26**). It is therefore possible that further barrows or associated funerary deposits lie in close proximity to the proposed works.

It has been suggested that a medieval fishery known as 'le Aldra' was located at the northern end of Section (**26**), immediately to the south-east of the junction between the putative monastic canal from Barlings Abbey and the former course of the Barlings Eau, which is now defined as the southern end of the Sambre Beck. The existence of this establishment has yet to be verified, as artefactual material has not been recovered from this part of the river. However, a site visit has indicated that there is a gravel mound adjacent to the Barlings Eau (at TF 0930 7246), c. 100m to the south-west of the position previously indicated as the location of this fishery. Considering the form of the sites in the Witham Valley that have definitely been identified as fisheries, this gravel mound would appear to be a likely location for 'le Aldra'. It is therefore necessary to acknowledge the possibility that archaeological deposits relating directly to the exploitation of the river may lie adjacent to and extend under the segment of the flood bank being enhanced.

Assessment of archaeological potential:

Section 26	**MEDIUM**

6.1.10 Section 27

A: *SMR data and documentary sources*

This component of the flood defence improvement scheme concerns two opposing sections of flood bank that flank Stainfield Beck.

There is a high density of archaeological sites and find spots surrounding this section of the Barlings Eau and its tributaries (fig. 9a). The Stainfield barrow cemetery lies immediately to the north of Stainfield Beck, and contains at least 11 round barrows of varying form (SAM 21472; 50187 – TF 0939 7324). This latter group includes 3 barrows that have two encircling ditches, the largest of them being around 40m in diameter. One of these large barrows lies within 50m of the northern element of (**27**).

A large complex of cropmarks/soilmarks are situated approximately 70m to the west and south-west of the southern element of (**27**) (53021 – TF 0960 7280). The most substantial component of this group appears to be a wide gravel bank, which forms a large sub-oval enclosure of c. 4.5ha. The morphological traits of this enclosure suggest that it is likely to be of prehistoric date. Additional features are visible within it, including a square enclosure (53022) and five pen-annular features, which may represent further barrows or round houses.

Further extensive cropmark complexes lie to the east of (**27**). To the south of Stainfield Beck there are a group of features situated to the west of Stainfield Manor House, which extend over 10ha, and come to within 150m of the area of the proposed works (50373 – TF 1036

7300). These cropmarks appear to relate to two distinct phases of activity. The earlier elements include a series of linear and curvilinear features, which appear to define a field system and associated trackways. Associated with these are a ring ditch, a number of pits and a rectangular enclosure. Morphologically these features resemble components of the later prehistoric or Romano-British landscape. Later activity appears to be restricted to the northern edge of this complex, where further cropmarks indicate the presence of components of a ridge and furrow field system.

An even more extensive area of ridge and furrow lies to the north of Stainfield Beck in the fields surrounding Stainfield Grange (53831 – TF 1031 7321). These furlongs would appear to indicate that this large farm has medieval origins, possibly as the home farm of the Benedictine nunnery located 700m to the east. Again the more westerly components of this complex extend to within 150m of (**27**).

The section of Stainfield Beck that separates the northern and southern elements of Section (**27**) is quite straight and relatively deep. This channel branches off the slightly more irregular and meandering Sambre Beck c. 250m to the west of (**27**). It then traverses a distance of 1.5km to the site of Stainfield Priory. The straightness and form of this watercourse suggests that it was a piece of medieval engineering, a canal that linked the nunnery at Stainfield to the commercial activity centred upon the Witham Valley (51209 – TF 1000 7310).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet LXXI.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1885 (First Edition) and was revised in 1904.

The Second Edition map indicates that there have been relatively few changes along this stretch of the Barlings Eau since the beginning of the 20th century (fig. 9b). The pattern of the late 19th century field system is still discernable in the modern landscape, although a number of the smaller fields have been amalgamated, particularly those situated to the north of Stainfield Beck. Similarly, the flood bank has the same form as depicted in 1906, being continuous along both sides of Stainfield Beck as far east as Stainfield Grange. There was also a short break in the bank to the south of the junction between the Sambre Beck and Stainfield Beck.

Throughout the 20th century only one group of buildings has stood within 0.5km of Section (**27**). This is Stainfield Grange, which was a sprawling complex even in 1906. Modern maps indicate that it has expanded slightly since that time, but it is still possible to determine that most of the buildings that were standing at the beginning of the 20th century still exist.

The Second Edition map indicates that a trackway ran parallel to the southern bank of the beck between Stainfield Manor House and the eastern end of (**27**). It then turned south-westward to traverse the 1km to Short Ferry Farm. Even by 1906 parts of this track had already become disused and had been ploughed up or otherwise obliterated. However, it was possible to determine that this track had existed, either by projecting the alignment of surviving sections, or in reference to adjoining single or double ditched boundaries.

C: *Air photographic evidence*

A large number of archaeological features have already been identified from aerial photographs showing the area surrounding Section (**27**). The Lincolnshire component of the National Mapping Programme transcribed elements of the large prehistoric enclosure (53021, 53022) and the two barrow cemeteries (50187) to the west and north of (**27**). Additionally, it also identified the two extensive complexes of features that flank the Stainfield Beck a little to the east of these sections of riverbank (53831, 50373). It is likely that both of the latter groups represent field systems, although the more southerly group appears to represent at least two distinct phases of activity.

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features in the immediate area of Section (**27**).

D: *Site visit*

An inspection of this stretch of riverbank revealed that the large cropmark enclosure (53021) was situated on a sizeable sub-oval mound, the eastern edge of which came to with c. 50m of (**27**). This mound was roughly 400m long from north-east to south-west, by c. 200m wide. Its top was relatively level, being roughly 0.5 - 0.7m higher than the surrounding field. The highest point coincided with the point where Sambre Beck and Stainfield Beck intersected; it was sufficiently high to negate the need for a flood bank, explaining the absence of a 140m long stretch at this point. The surface of this mound had been ploughed a short time before the visit, the exposed surface indicating that the soil contained a large component of flinty gravel and sand, which differed markedly to the dark, peaty silts surrounding it. The presence of these free draining sands and gravels helps to explain the clarity of the cropmarks produced at this site.

The fact that the western end of the Stainfield Beck cut through the northern edge of this substantial mound is interesting. The height of the ground surface at this point meant that the channel had to be relatively deep in order to maintain the flow of water. Examination of the surrounding topography indicated that there was lower lying ground both to the north and the south. If this element of Stainfield Beck had been a natural channel it seems likely that it would have flowed round one edge of the mound, following the line of least resistance. In contrast, its present course represents the shortest distance between the priory and Barlings Eau. When considered together, these factors would seem to support the proposal that this section of Stainfield Beck is a monastic canal.

E: *Summary and discussion of the evidence*

A number of important and extensive archaeological sites and deposits surround, and even run between the two elements of Section (**27**). The Stainfield barrow cemetery lies immediately to the north of Stainfield Beck. The monuments in this complex are classified as a Scheduled Ancient Monument (SAM 21472), and the most southerly barrow lies within 50m of the area of the proposed flood defence improvement works (fig. 10). Consequently, it will be an absolute priority to ensure that plant and bank material does not encroach onto the area of the scheduled monument in any way, without first obtaining a scheduled monument class-consent from English Heritage. Consultation with this body prior to the onset of this component of the scheme of works is advisable.

It is also necessary to note that while some of the barrows are still visible as slight mounds, many of these features have been identified from aerial photographs. It is therefore probable that there are other monuments or associated features that were not evident in the aerial

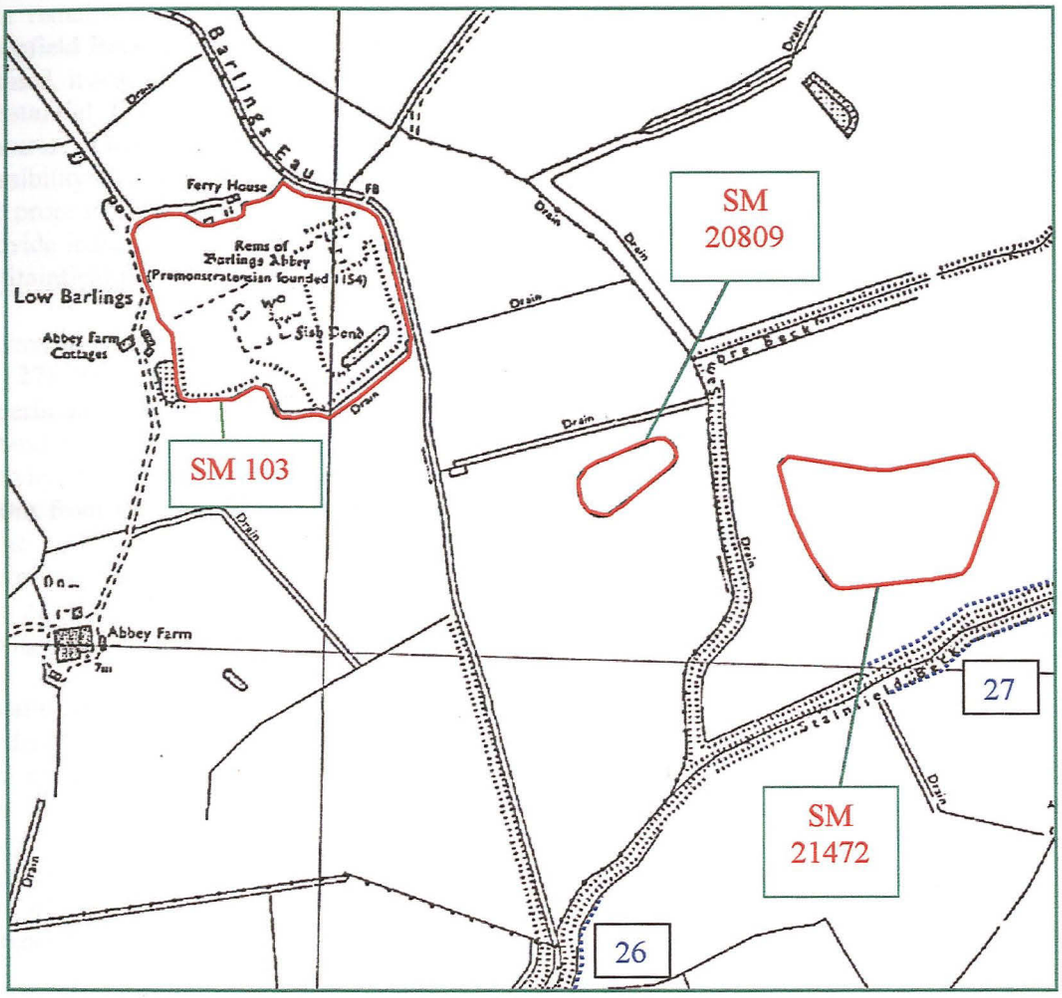


Figure 10: Location of scheduled ancient monuments at Low Barlings and Stainfield Fen, showing their relationship to Sections **(26)** and **(27)** of the flood defence improvement scheme.

photographs examined. The possibility must therefore be considered that other comparable deposits lie in very close proximity to the sector of the flood defences that will be enhanced.

The remains of a large embanked enclosure have been identified on the southern side of Stainfield Beck, close to the western end of (**27**). While the extent of this feature was clearly defined, it was also apparent that there were a series of associated cropmarks representing less substantial features, such as linear boundaries, a square enclosure and five pen-annular features. These elements were not wholly contained within the enclosure, raising the possibility that associated sub-surface remains may extend further eastward into the area of the proposed groundworks. The ring gullies may have a particular significance, as they could provide indications that the Stainfield barrow cemetery extends into the area to the south side of Stainfield Beck.

Extensive cropmark complexes have also been identified on both sides of the beck to the east of (**27**). That to the south appears to be the more interesting, as it appears to incorporate superimposed elements of a later prehistoric and a medieval field system, which together extend over 10ha. In contrast the northern group appears to result from a single phase of activity, again medieval, which covers approximately 14ha. Both clusters appear to terminate 150m from the area of the proposed works. However, as with the barrow cemetery and the large enclosure, these two groups of features were identified from aerial photographs. It is therefore possible that other elements extend further to the west and have not been identified due to factors that are not conducive to the production of cropmarks, such as localised changes in the composition of the soil.

Finally, it appears highly likely that this stretch of the Stainfield Beck represents part of a medieval canal linking Stainfield Priory with the Barlings Eau. Consequently, it is possible that groundworks along Section (**27**) may expose features associated with the construction or use of this waterway. Furthermore, the possibility that the present channel is artificial increases the likelihood that the spatial division between the northern and southern banks was also created during the last one thousand years. In this case it becomes more likely that the size of the Stainfield barrow cemetery was not constrained by the beck, and accordingly it extends further southward.

Assessment of archaeological potential:

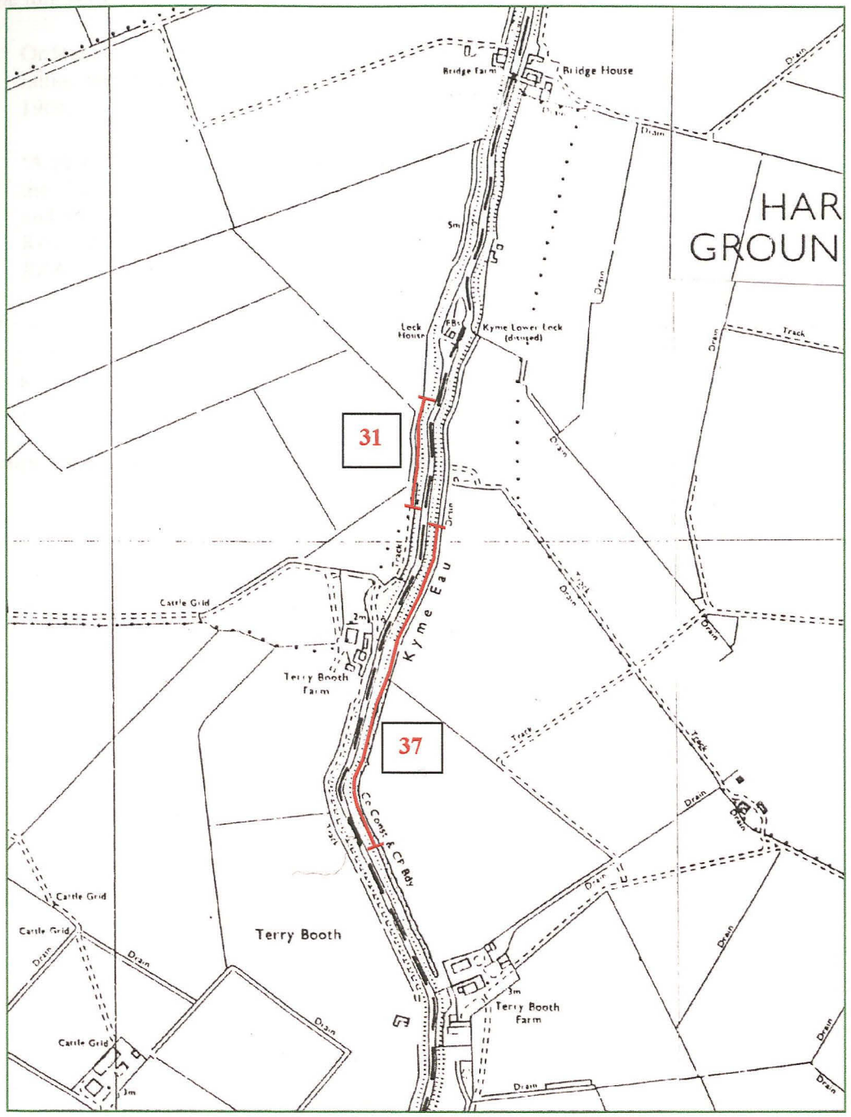
Section 27	**HIGH**

6.1.11 Section 31

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there are no recorded archaeological sites, deposits or finds within 0.5km of any component of this section of flood bank (fig. 11a). Additionally, examination of published and unpublished sources, and records held by the Local Studies Library also failed to provide any indication of the presence of foci of past human activity in the immediate vicinity of (**31**).

A



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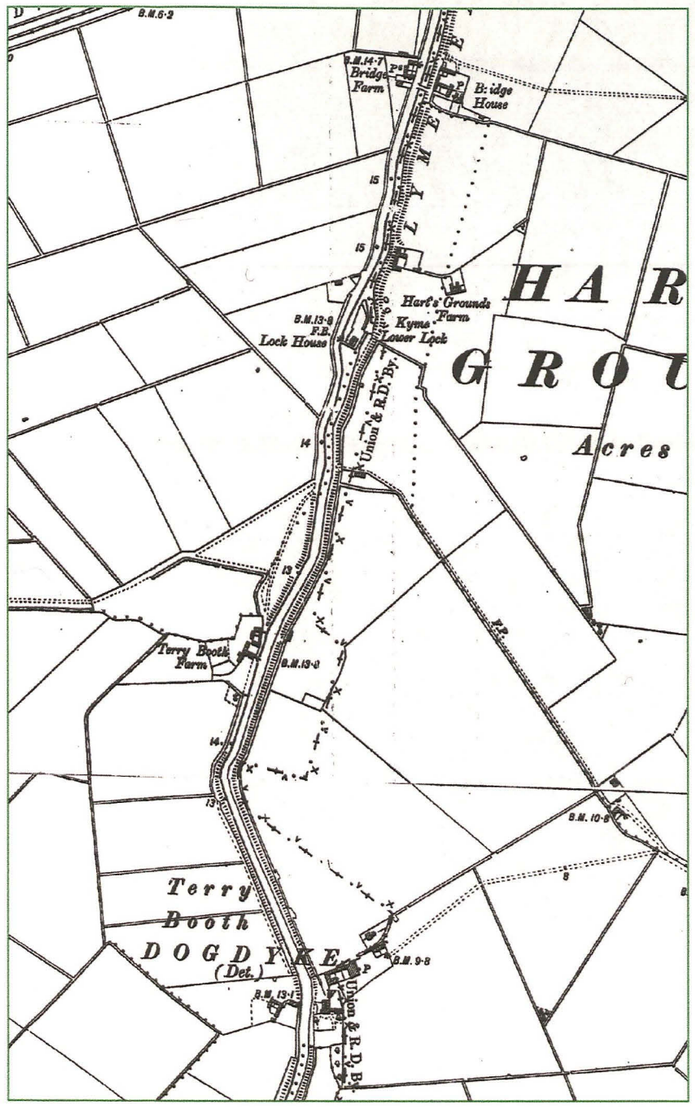

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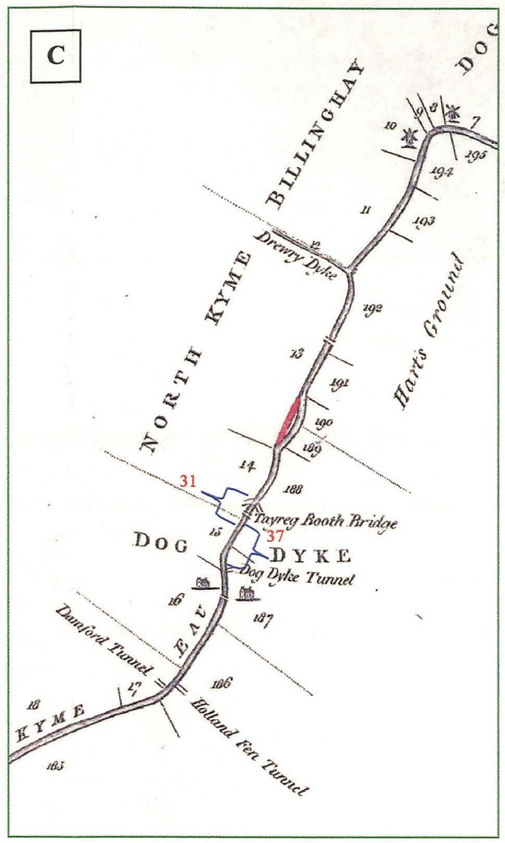


Figure 11: SECTIONS 31 AND 37

A: Position of these sections of the flood defences at a scale of 1: 10,000. The Lincolnshire Sites and Monuments Record does not record the presence of any archaeological ginds or deposits in the immediate environs of this section of the Kyme Eau.

B: Composite extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LCVIII.NE, of 1906 and Sheet LCVIII.SE, of 1906; reproduced at c. 1: 10,000.

C: Extract from a plan of the Kyme Eau 'and the works proposed to be executed thereon for making a navigation from the … River Witham…' produced by John Hudson in 1792 (LAO ref. *BRACE 19/9*). The approximate location of Sections **(31)** and **(37)** are marked in blue.

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet XCVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1888 (First Edition) and was revised in 1904.

- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

The Second Edition Ordnance Survey map demonstrates that this section of river has changed very little since the beginning of the 20th century (fig. 11b). The field system on both sides of the Kyme Eau is essentially the same as today, although a number of the smaller fields have been amalgamated in the intervening period. The map of 1906 appears to indicate that there was no flood bank along the western side of the river between the southern end of (**31**) and Drury Dike, c 1.1km to the north; modern editions show that this section is now embanked. To the south of Section (**31**), the buildings and yards of Terry Booth Farm appear to have had a very similar form to their modern layout. However, the track running northward from the farm no longer passes through the centre of the small triangular field, having been diverted to run along the base of the flood bank. Kyme Lower Lock lies to the north of the section. This structure is now disused, although the Lock House is still marked on modern maps. In 1906 the lock appears to have been surrounded by a small community, which included a small building on the western bank to the north of the lock, Hart's Grounds Farm, and an associated complex of buildings that may have been another farm.

The map of 1792 depicting the planned Sleaford Navigation is produced at a scale of approximately 1: 32980. This small scale results in the map being partially schematic, with none of the field boundaries being shown, thus making it difficult to precisely relate the late 18th century features to the modern landscape. This notwithstanding, the kink in the Kyme Eau to the south of the Terry Booth Farm (the one situated on the eastern bank) allows a certain degree of confidence in interpretation (fig. 11c). The building shown in block *187* is the farmhouse of the 'eastern' Terry Booth Farm, which still stands. This is a late 18th century structure associated with a contemporary enclosed crewyard (Pevsner & Harris, 1989). The building on the opposite bank, in *16*, may relate to the small isolated building shown in that position on modern maps. The Terry Booth Farm on the western bank of the river is shown on the Second Edition map of 1906, but did not exist in 1792; it would be sited in block *15*, which is shown to be empty. However, immediately to the north of this, '*Tayreg Booth Bridge*' spans the river between blocks *14* and *188*, with the lock gates of Kyme Lower Lock immediately downstream. It is difficult to judge the exact position of the late 18th century bridge. However, a bridge would presumably need to be accessed by a road on either side of the watercourse. The Second Edition map depicts a pair of trackways running up to opposing banks of the Kyme Eau approximately halfway between Terry Booth Farm and the lock. This suggests that the bridge was situated within (**31**), approximately 70m north of its southern end.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**31**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

A search of existing sources combined with a site visit indicates that there is very little evidence for past human activity along this section of the Kyme Eau. There are no records of any archaeological finds, and no earthworks or other indications of structures or deposits of archaeological significance. Examination of a map of 1792 provides some indication that there may have been a bridge crossing the river at the southern end of Section (**31**), although its precise location cannot be ascertained from existing sources. The Earl of Lincoln initiated a programme to drain the fen to the east of North Kyme in 1653 (White, 1856). This work was intensified following the passing of an Act of Parliament in 1767, which allowed for the reclamation of 8,910ha of Holland Fen. The bridge cannot predate the initiation of the mid 17th century works and is more likely to be associated with the later 18th century drainage of the fen and the associated canalisation of the Kyme Eau.

The use of '*Tayreg Booth*', in reference to the late 18th century bridge, and its modern equivalent 'Terry Booth', the name of two farms flanking the modern river channel in this area, may have some archaeological implications. '*Booth*' was derived from an Old Danish word, *bōth*, meaning temporary shed, which was introduced to the region during the 9th to 10th centuries (Cameron, 1998). It is thought to refer to transitory camps or seasonally occupied sites, and often has a close spatial relationship to riverside locations. It is therefore likely that it was used in particular in reference to fisheries (Lane & Hayes, 1993). This would therefore appear to imply that there was a medieval fishery somewhere along this section of the Kyme Eau.

Assessment of archaeological potential:

Section 31	**LOW**

6.1.12 Section 32

A: *SMR data and documentary sources*

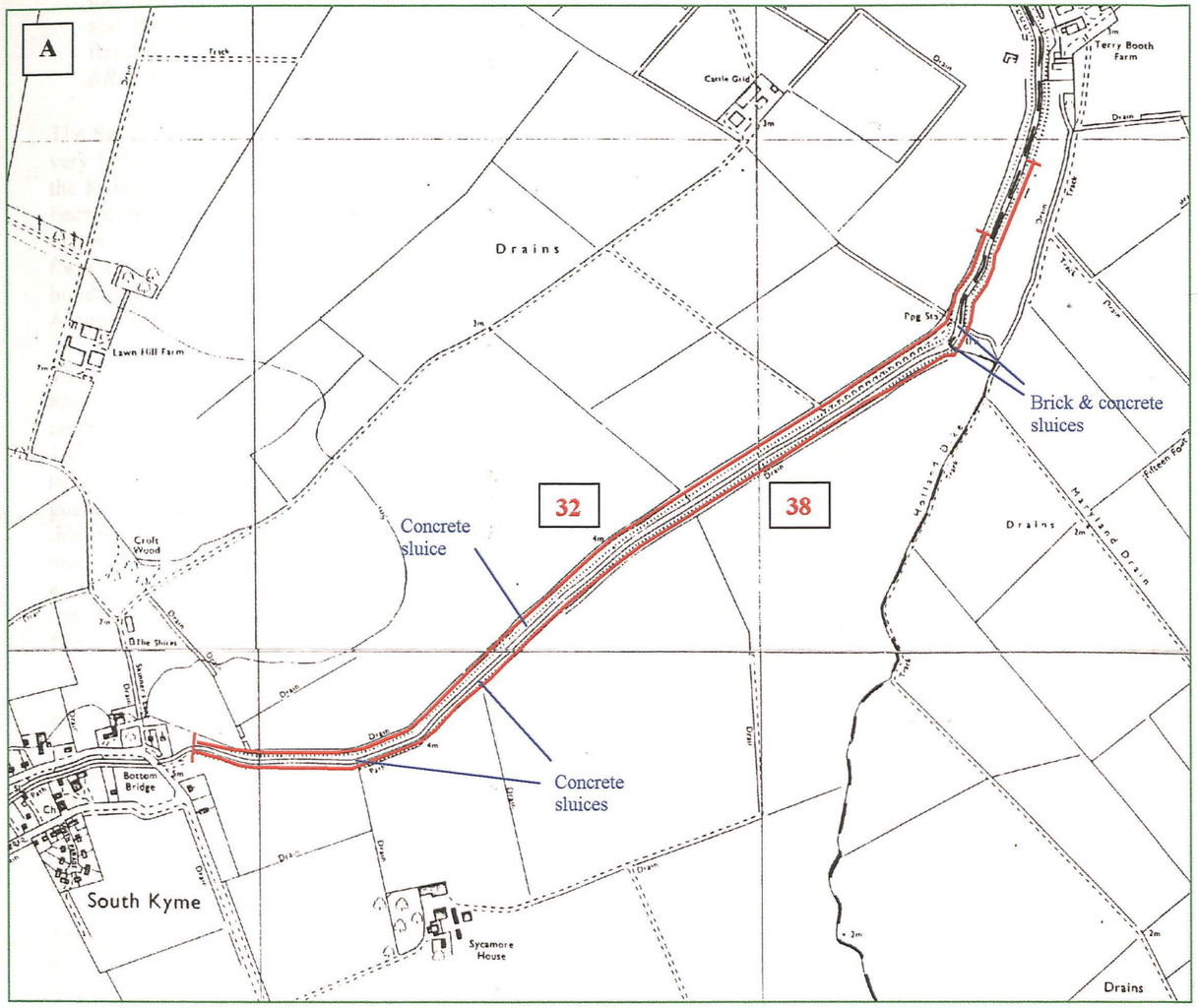
Inspection of the SMR indicated that there are no recorded archaeological sites, deposits or finds within 0.5km of any component of this section of flood bank (fig. 12a). Additionally, examination of published and unpublished sources, and records held by the Local Studies Library also failed to provide any indication of the presence of foci of past human activity in the immediate vicinity of (**32**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet XCVIII.SE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1887 (First Edition) and was revised in 1904.

A



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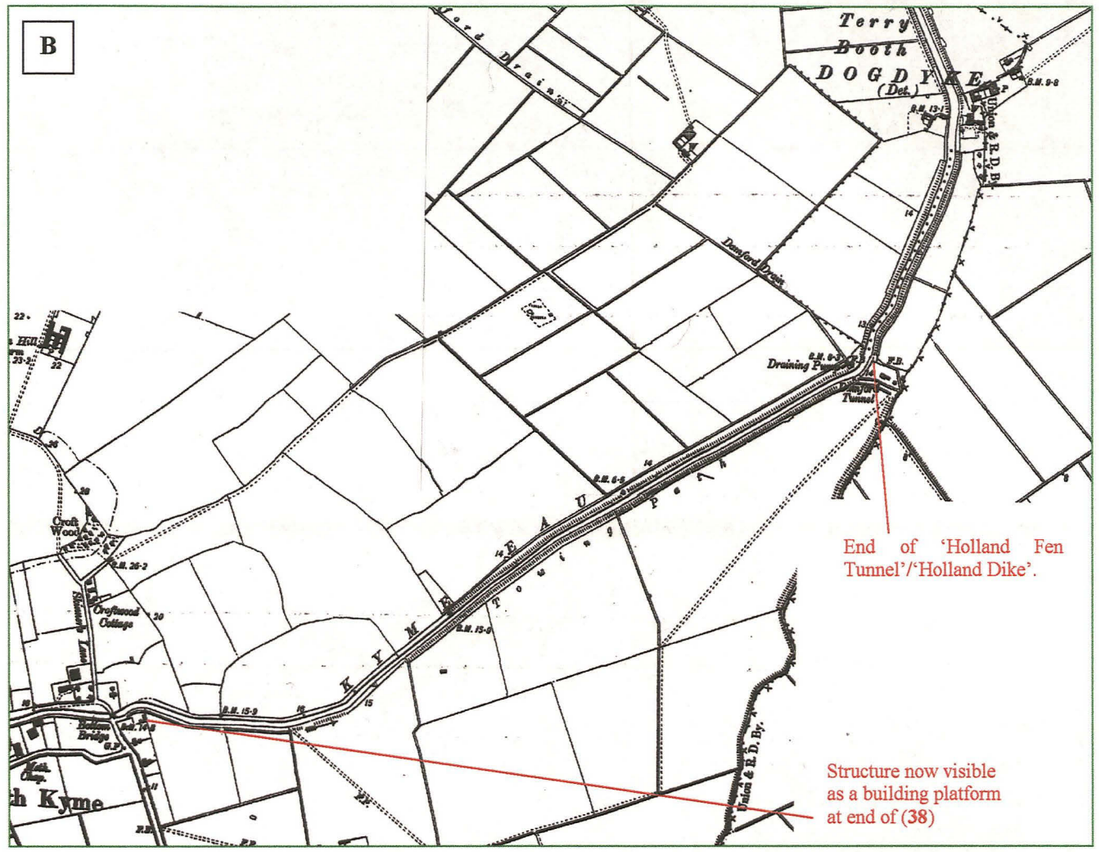

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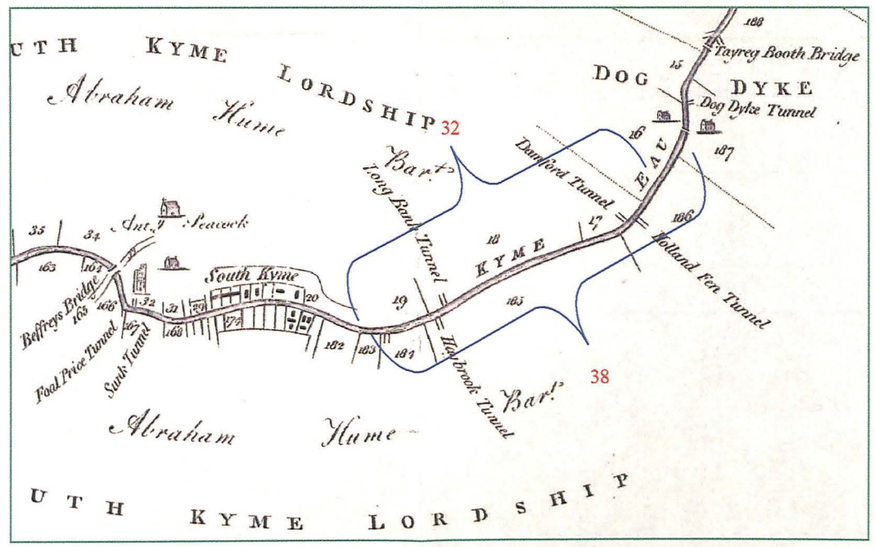


Figure 12: SECTIONS 32 AND 38

A: Position of these sections of the flood defences at a scale of 1: 10,000. The Lincolnshire Sites and Monuments Record does not record the presence of any archaeological finds or deposits in the immediate environs of this section of the Kyme Eau.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LCVIII.SE, of 1906; reproduced at c. 1: 10,000.

C: Extract from a plan of the Kyme Eau 'and the works proposed to be executed thereon for making a navigation from the … River Witham…' produced by John Hudson in 1792 (LAO ref. *BRACE 19/9*). The approximate location of Sections **(32)** and **(38)** are marked in blue.

- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

The Second Edition Ordnance Survey map demonstrates that this section of river has changed very little since the beginning of the 20th century (fig. 12b). The field system on both sides of the Kyme Eau is essentially the same as today, although a number of the smaller fields have been amalgamated in the intervening period. This is particularly apparent on the northern side of the river, where the fields along the western half of Section (**32**) have been combined to form a golf course. The only structure depicted along this section of the river in 1906 was the building at the north-east end that contained the drainage pump at the end of Damford Drain. A pumping station still occupies the site.

The map of 1792 depicting the planned Sleaford Navigation is produced at a scale of approximately 1: 32980. This small scale results in the map being partially schematic, with none of the field boundaries being shown, thus making it difficult to precisely relate the late 18th century features to the modern landscape. Despite this it is evident that there were no structures or other significant features along this section of the Kyme Eau (fig. 12c). The position of the northern end of Section (**32**) can be gauged, as the '*Damford Tunnel*' is shown, this evidently being the 'Damford Drain' depicted on the Second Edition Ordnance Survey map. '*Long Bank Tunnel*' is also depicted in the western half of the (**32**), but this was merely a field boundary by 1906. Later still this ditch was filled in, as it ran from north to south down the centre of the golf course. Sir Abraham Hume owned all of the land along Section (**32**) in 1792.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**32**) did not reveal any features of potential archaeological significance. The building housing the pump at the end of the Damford Drain is a relatively modern structure, probably of 1950s or 1960s construction. It obviously occupies the site of, and replaces, an earlier building, as indicated by the cartographic evidence.

There is a derelict brick and concrete sluice projecting from the face of the riverbank c. 700m to the north-east of the western end of (**32**). Comparison with earlier maps (see B, above) indicates that this sluice sits at the southern end of the now in-filled Long Bank Tunnel.

E: *Summary and discussion of the evidence*

A search of existing sources combined with a site visit indicates that there is very little evidence for past human activity along this section of the Kyme Eau. There are no records of any archaeological finds, and no earthworks or other indications of structures or deposits of archaeological significance.

Assessment of archaeological potential:

Section 32	**LOW**

6.1.13 Section 33

A: *SMR data and documentary sources*

A number of artefacts have been identified in the vicinity of this pronounced bend in the River Slea (fig. 13a). The majority of these are stone axes, which collectively represent one of the largest concentrations of Neolithic material found anywhere along the Lower Witham Valley. One of these axes was dredged from the riverbed at Ferry Bridge, which is situated at the south-eastern end of (**33**) (TF15SE/L – TF 152 502). Another was found a little to the west of the river, c. 200m to the south (TF15SE/R – TF 1515 5004), while two further polished stone axes were discovered in the next field to the west, c. 400m to the south of (**33**) (TF14NW/F – TF 1467 4981).

One other stone axe was found within 0.5km of Section (**33**), this being manufactured in white flint (TF15SE/T – TF 156 503). It was discovered in association with two flat bronze axes, and a range of flint tools, waste flakes and cores, all found to the south of Park House, c. 450m to the east of the Slea.

The pronounced change in the orientation of the river channel at the eastern end of Section (**33**) results from the west to east flowing River Slea being intercepted by the north-south aligned Car Dyke. It is thought that the Car Dyke was created by Roman military engineers as a major drain or canal that followed the eastern edge of the dip slope of the ridge of Lincolnshire Limestone that runs up the western edge of the county, thus dividing the higher ground from the Witham Fen (Whitwell, 1992).

A small Romano-British greyware 'thumb-pot' was found immediately to the south of the junction between the two watercourses, again while cleaning the bed of the Car Dyke at Ferry Bridge (TF15SE/G – TF 152 502). In the third-quarter of the 19th century the stretch of the Car Dyke lying immediately to the north of the junction with the Slea was still visible.

> "A hollow, 50 feet wide, there indicates its line, flanked by detached portions of the banks resembling a range of tumuli" (Trollope, 1872: 77).

At this time the adjacent farmhouse (and bridge) was known as Halfpenny Hatch.

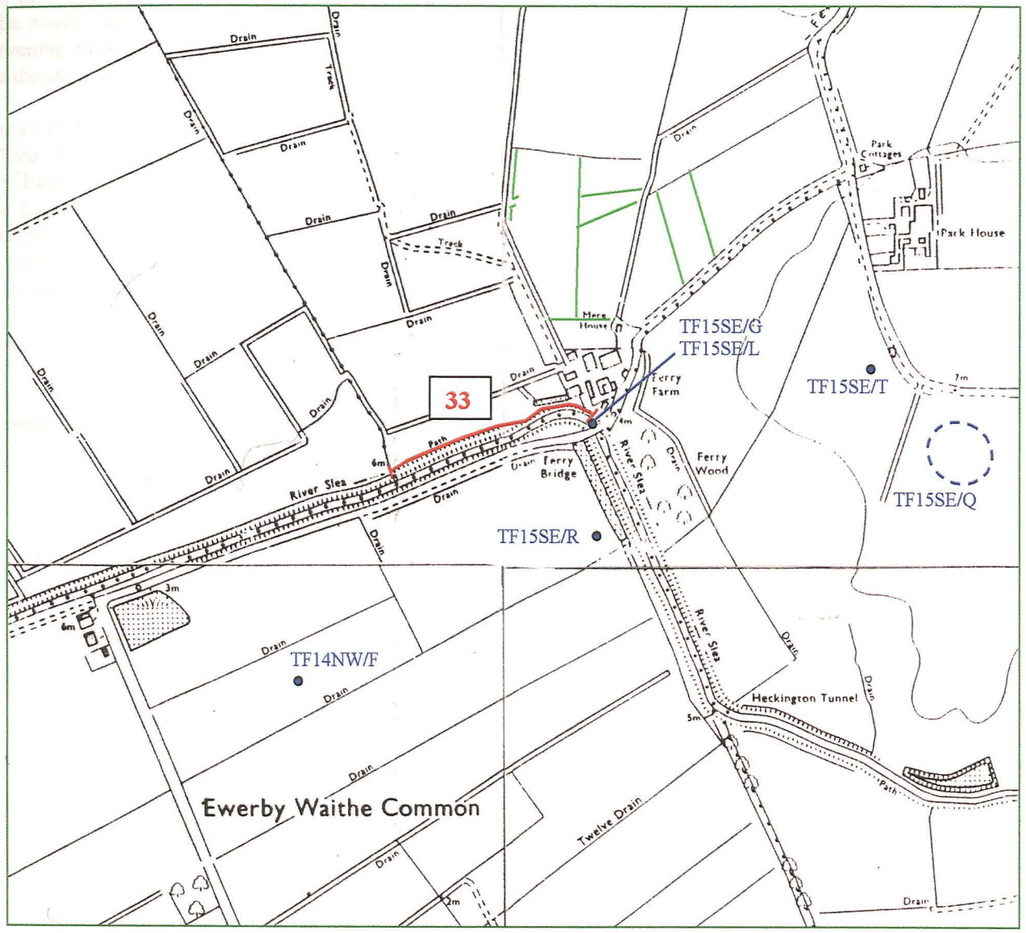
B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet XCVIII.SE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1887 (First Edition) and was revised in 1904.

- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

A



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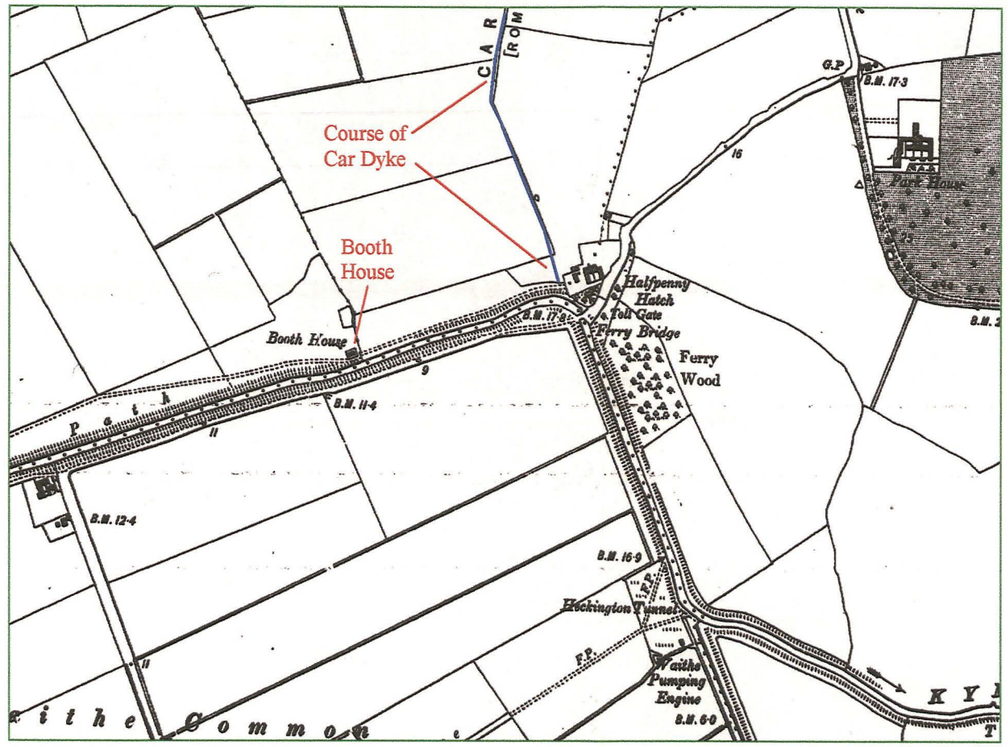

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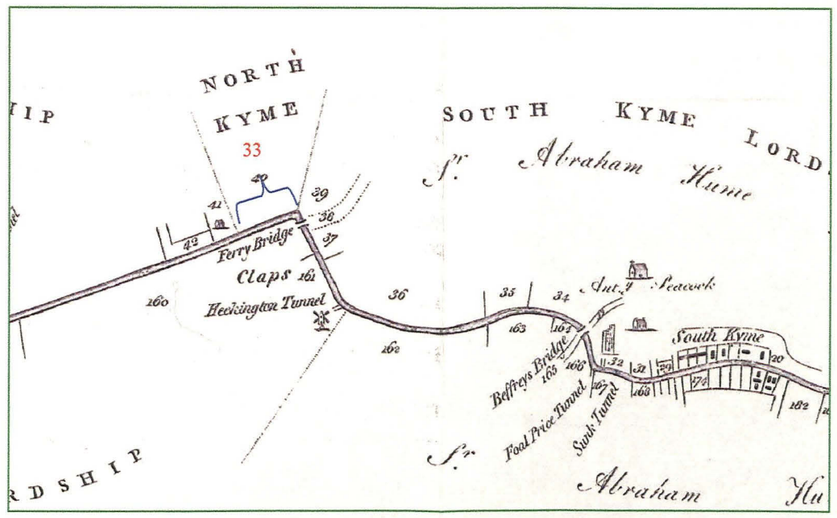


Figure 13: SECTION 33

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs are shown in light green.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LCVIII.SE, of 1906; reproduced at c. 1: 10,000.

C: Extract from a plan of the Kyme Eau 'and the works proposed to be executed thereon for making a navigation from the … River Witham…' produced by John Hudson in 1792 (LAO ref. *BRACE 19/9*). The approximate location of Section **(33)** and **(38)** is marked in blue.

The Second Edition Ordnance Survey map demonstrates that this section of river has changed relatively little since the beginning of the 20th century (fig. 13b). The field system on both sides of the River Slea/Car Dyke is essentially the same as today, being virtually unchanged to the south, west, and north, while a few fields to the east have been amalgamated in the intervening period. Flood banks are shown along both sides of the river, these appearing to have the same form as at present.

A series of buildings stood on the outside of the pronounced bend where the Car Dyke joined the Slea. In 1906 this complex was referred to as Halfpenny Hatch, but it is now known as Ferry Farm. The most southerly structure is the farmhouse, which is shown to have had the same form at both ends of the 20th century. The Second Edition map also depicts a large (inverted) 'U'-shaped range of buildings to the north of the farmhouse, with two smaller structures lying to its west. All three still stand, but five large modern barns and sheds have been added along the northern and western sides of the complex. The two new buildings to the west overlie the in-filled channel of the Car Dyke. The map of 1906 also indicates that there was another building a little to the north of Halfpenny Hatch/Ferry Farm. This still stands and is now known as Mere House.

The map of 1906 depicts a line, which is annotated as a tollgate, crossing the road adjacent to the farmhouse at Ferry Farm. This suggests that that the occupants of the farm also collected tolls from people using the road; the latter connected the 'Kymes' to Ewerby and Howell. A bridge crossed the river c. 40m to the south-west of the tollgate, as it does now. An examination of the map of 1792, which depicted the planned Sleaford Navigation, indicates that there was also a bridge in this position at the end of the 18th century (fig. 13c). However, it does not appear that there were any structures occupying the site of Ferry Farm, which can be confidently equated with plot *39* on that map. It is therefore unlikely that a toll was collected for using this bridge at that time. This raises the possibility that a new bridge was built between 1792 and 1906, the expense of its construction being defrayed by the levying of a toll at a newly constructed roadside dwelling, which was also, or evolved into, a farm. It is possible that the company that owned the Sleaford Navigation constructed this new bridge in order to provide sufficient clearance for barges to pass beneath[2]. This theory may find some support in the Second Edition Ordnance Survey map. It is evident that the towpath ran along the northern bank of the river to the west of Halfpenny Hatch, while it ran along the western/southern bank to the east; the bridge represents the only point at which this crossing could have been made.

The place names at this point of the river are also interesting. The plantation immediately to the south of the road and bridge is known as Ferry Wood. Furthermore, the bridge itself is called Ferry Bridge on the maps of 1792 and 1906. These names evidently allude to the form of crossing that preceded the bridge used in the late 18th century. However, the earliest map does not provide any indication that this area was referred to as Halfpenny Hatch at that time. Consequently, although the initial component of Halfpenny Hatch may refer to the fee paid to use the ferry, it would appear more likely that it reflects the level of the toll paid to cross the later bridge.

The map of 1906 indicates that a building once occupied the south-eastern corner of the field immediately to the west of the end of Section (**33**). This structure was called 'Booth House' and was also depicted on the late 18th century plan, in plot *41*. It was separated from the foot of the flood bank by a track that connected it to the farm at Halfpenny Hatch.

[2] The present bridge has a pronounced 'humped-back'.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR revealed the presence of a number of linear features in the two fields immediately to the north and north-east of Ferry Farm. They represented six boundaries, four of which had direct inter-relationships and were situated in the more westerly field. None of these features could be equated with any of the boundaries depicted on the Second Edition Ordnance Survey map. However, their relationships with existing boundaries indicated that they represented an integral part of an earlier form of the present system of landscape division. It is therefore probable that they are of post-medieval or early modern date.

D: *Site visit*

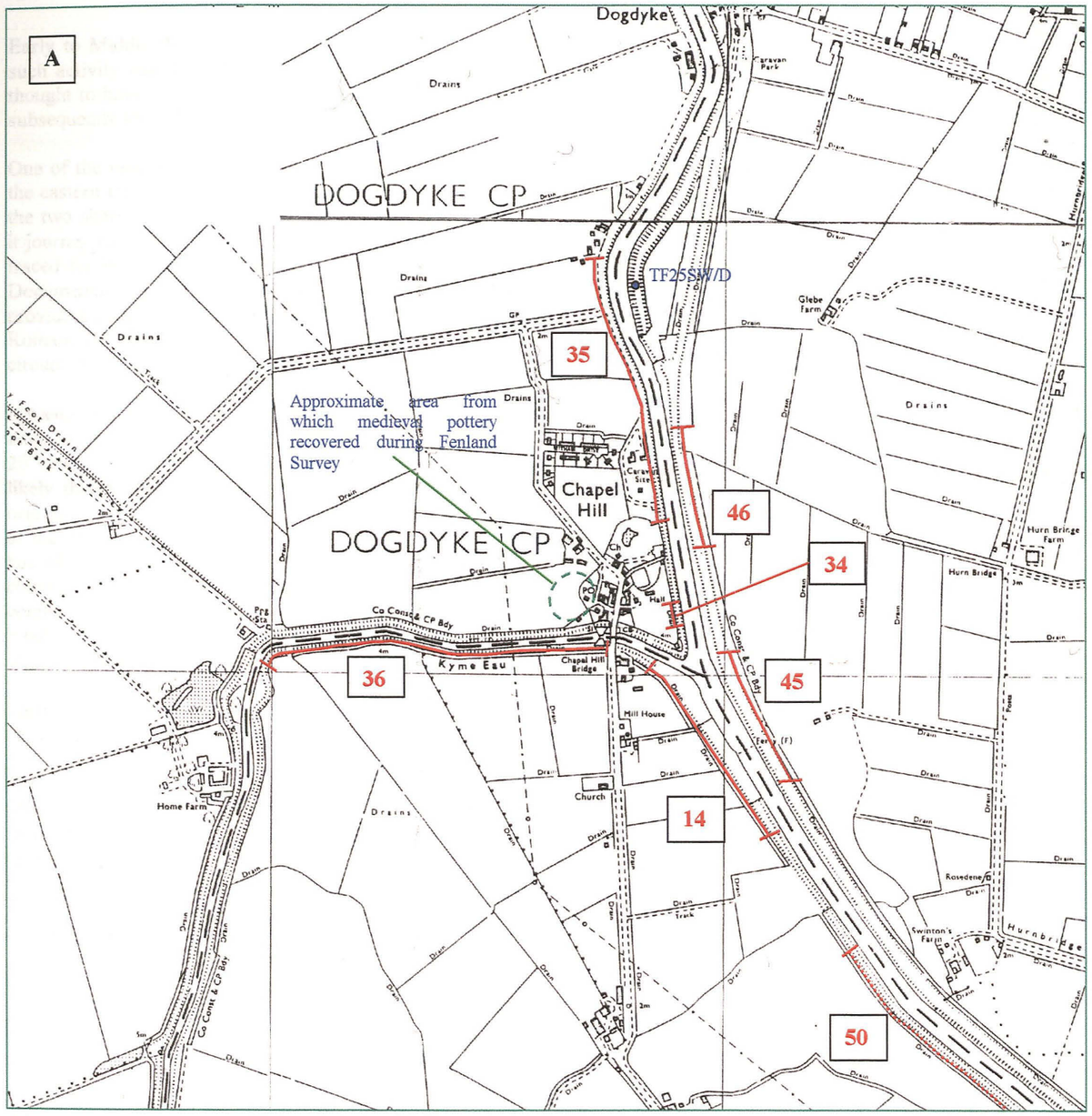
The farmhouse at Ferry Farm appears to sit upon a small mound and thus is not protected by a well-defined flood bank, unlike the rest of Section (**33**). In light of the evidence accumulated from cartographic and documentary sources it appears likely that this mound represents a section of the substantial bank that once flanked the Car Dyke. An examination of the riverbank immediately adjacent to Ferry Farm indicated that the former channel of the Car Dyke has been filled to the extent that it is no longer visible. However, its position could be determined from Ordnance survey maps. It was therefore established that there is a small area of waste ground between the northern bank of the river and the more southerly of the two large farm buildings that have been constructed over the channel.

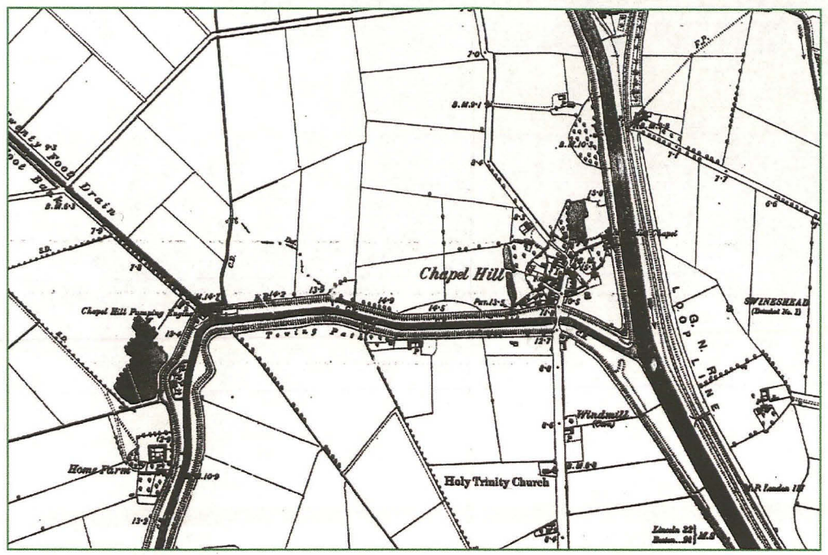
Examination of the western end of (**33**) did not reveal any evidence for the survival of elements of Booth House. However, the remains of the track running between this building and Ferry Farm could still be discerned. A broad ditch had defined the northern edge of the track, but this had silted up. However, there was still a slight depression that supported a band of rough vegetation, including teasels and cow parsley. A line of mature willows and alder ran along the northern edge of the ditch.

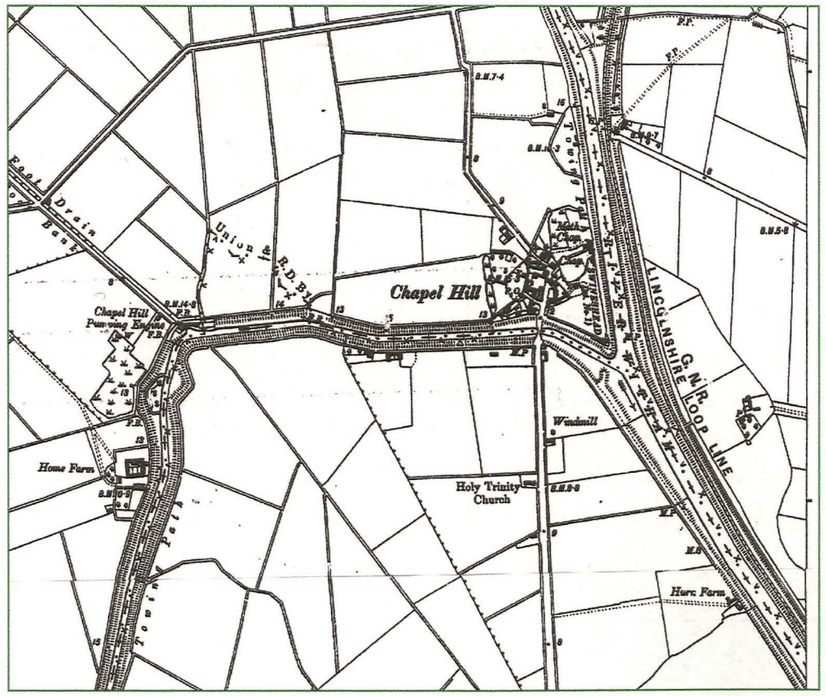
E: *Summary and discussion of the evidence*

Examination of the data held in the SMR indicates that the oldest artefactual material recovered from the area surrounding Section (**33**) comprises a series of isolated discoveries of axes. This group consists of five Neolithic stone axes and two flat bronze axes of slightly later date. The distribution of these artefacts is interesting. They have all been recovered in relatively close proximity to the Car Dyke/River Slea, a pattern mirrored by similar clusters of axes found along the River Witham. The relationship between these artefacts and watercourses is not likely to be entirely fortuitous. Many stone axes are recovered from unstratified deposits, which often results in them being considered to be casual losses. However, the sources of the stone, and later the copper and tin ores, used in their manufacture were generally situated at significant distances from the eventual site of their deposition. This indicates that there must have been non-functional considerations underpinning the acquisition, manufacture, use and disposal of these items, which belie any attempts to dismiss their present distribution as the product of 'casual' discard (*q.v.* Edmonds, 1995).

It seems more likely that the distinctive spatial patterning of these axes can be better explained if they result from deliberate ritual deposition (Bradley, 1990). Such deliberate social processes may have been focussed on particular elements of the local and regional environment, such as rivers. It is possible that these activities prefigured the deposition of metalwork in wetland contexts during subsequent periods. Certainly, the presence of a number of barrows on slightly higher ground c.700m to the north of Section (**33**) suggests that there was an explicitly conceptualised ritual dimension to this area of the landscape during the







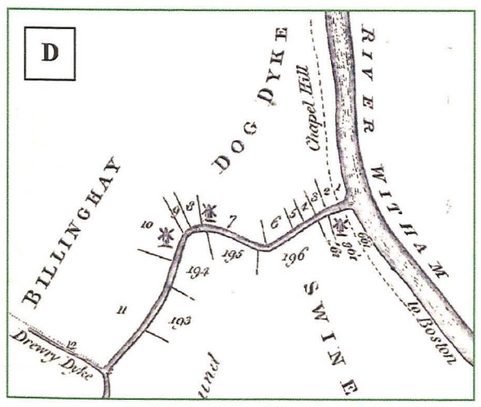


Figure 14: SECTIONS 34, 35, 36, 45, 46 AND 51

A: Position of these sections of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs.

B: Extract from Ordnance Survey First Edition 6": 1 mile (1: 10,560) Sheet XCVIII.NE, of 1891; reproduced at c. 1: 10,000.

C: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet XCVIII.NE, of 1906; reproduced at c. 1: 10,000.

D: Extract from a plan of the Kyme Eau 'and the works proposed to be executed thereon for making a navigation from the … River Witham…' produced by John Hudson in 1792 (LAO ref. *BRACE 19/9*).

Early to Middle Bronze Age. Later, following the inundation of the Lower Witham Valley, such activity may have been associated with another of the prehistoric causeways, which is thought to have run between Anwick and the islands upon which North and South Kyme were subsequently built (Stocker & Everson, forthcoming).

One of the most striking features of this section of the River Slea is the pronounced bend at the eastern end of (**33**). This results from the river merging with the Car Dyke at Ferry Farm, the two sharing a channel for approximately 500m before the River Slea/Kyme Eau resumes it journey eastward to the Witham. The Car Dyke is a large artificial watercourse that can be traced for 90km between Washingborough and the River Nene, to the east of Peterborough. Documentary evidence shows that this channel existed prior to the Norman Conquest, providing a strong indication that it was constructed by Roman engineers (Whitwell, 1992). A Romano-British pot recovered from the riverbed immediately adjacent to (**33**) providing some circumstantial support for this proposal.

It seems that the Car Dyke and its large flanking banks were still visible at Ferry Farm in the later 19th century (Trollope, 1872). However, the farm has expanded significantly during the 20th century, with some buildings being erected over the former channel. Nevertheless, it is likely that a range of sub-surface deposits are still preserved *in-situ*, as the Car Dyke was originally at least 15m wide and must have been several metres deep. Consequently, material at the centre of the channel is still likely to be deeply stratified. In contrast modern activity has almost certainly resulted in the truncation of stratified deposits along the edges of the channel, and especially in the area of the banks. Therefore, it is likely that any surviving components along the margins of the channel will lie directly beneath the topsoil. This would render them liable to exposure during the removal of the topsoil at the onset of the proposed scheme of works to improve the flood defences along Section (**33**).

Early maps indicate that between the late 18th century and the early 20th centuries there was a structure called 'Booth House' situated at the western end of Section (**33**). Its name raises the possibility that the site may have some antiquity, which has possible archaeological implications. '*Booth*' was derived from an Old Danish word, *bōth*, meaning temporary shed, which was introduced to the region during the 9th to 10th centuries (Cameron, 1998). It is thought to refer to transitory camps or seasonally occupied sites, and often has a close spatial relationship to riverside locations. It appears likely that it was used in particular in reference to fisheries (Lane & Hayes, 1993). This would appear to imply that there was a medieval fishery somewhere along this section of the Kyme Eau, presumably in the immediate environs of the structure depicted in 1906.

Assessment of archaeological potential:

Section 33	**MEDIUM - HIGH**

6.1.14 Sections 34 & 35

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there was only one recorded archaeological find within 0.5km of these sections of flood bank (fig. 14a). This was a medieval bronze key found on the eastern bank of the Witham opposite the northern end of Section (**35**) (TF25SW/D – TF 2078 5482).

Examination of published and unpublished sources provided some information regarding early human activity and the origins of the settlement at Chapel Hill. The earliest item that has

been recovered from the village is a single sherd of Romano-British greyware pottery that was found during fieldwork associated with the Fenland Survey (Lane & Hayes, 1993). Other material was collected at this time from the western edge of the village, principally pottery spanning the early to High Medieval periods; this assemblage includes fabrics produced in Boston, Bourne, Lincoln, Nottingham and Toynton.

Chapel Hill was a focus of activity during the medieval period because it is sited upon a small island of sand and gravel, which is likely to have been the only dry ground in Dogdyke Parish prior to the implementation of intensive drainage programmes in the 17th and 18th centuries (*ibid.*). The surrounding land, particularly to the north, west and south, would have been covered by peat fen, which would have posed a major obstacle to inhabitation and related activities. Additionally, the island at Chapel Hill lay immediately adjacent to two navigable watercourses, which ensured that it was easily accessible and consequently would encourage settlement.

Although the two sherds of early medieval pottery provide hints that there may have been late Saxon activity on this island, the development of a sizable settlement appears to be directly related to the migration of the Witham outfall from Bicker Haven to Skirbeck, probably between the 11th and late 12th centuries; this allowed the establishment of the Port of Boston and acted as a catalyst for the expansion of trade along the river (Owen, 1984). This slightly late development appears to be supported by analysis of the place-name evidence. References to 'Chapel Hill' initially appear in the 17th century, the earliest document dating to 1612 (Cameron, 1998). It would therefore appear likely that the settlement at Chapel Hill was known as 'Dogdyke' during the medieval period, this being the only such settlement in the parish that could assume the name. The name Dogdyke derives from two Old English components, *docce* and *dīc* meaning 'the dyke where docks grow'. It is not referred to in the *Domesday Book*, the earliest documentary accounts dating to the first half of the 13th century when it occurs as *Dokedic*. This late 'appearance' postdates the foundation of Boston and the intensification of river traffic.

The increase in trade along the Witham led to the establishment of a tollbooth at Dogdyke to collect taxes payable on goods transported along the river (Hill, 1965). These fees were payable to the king, a percentage also going to the civic body of the City of Lincoln, which initially held the staple for trade at Boston. The city authorities acted as agents for the king, installing two deputy bailiffs in the settlement to intercept ships using the waterway. Dogdyke was the ideal location for this customs house, as two navigable tributaries, the River Bain and the Kyme Eau, joined the Witham in the parish, thereby maximising the amount of river traffic that could be intercepted. Additionally, there appears to have been an embayment at the confluence of the Witham and Kyme Eau that could serve as a small harbour for the transhipment of goods or to help break the journey; this was referred to as '*Dockdyke Haven*' as early as the late 13th century (Thompson, 1856). In 1342 Gilbert de Umfraville, Earl of Angus and, Lord of North and South Kyme, petitioned Edward III for permission to raise an additional toll on traffic using the Kyme Eau, as he had expended a large sum of money on restoring its channel and was willing to ensure that it remained navigable[3] (Newton, 1995). The king granted his request after due consideration.

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[3] "the Ee of Kyme, betwixt Dockdyke and Brent Fen, which did run through the lands of the said Earl for the space of six miles was so obstructed and stopt by reason of mud and other filth, that ships laden with wine, wool and other merchandise could neither pass through the same in summer or winter, as they had used to do, except it were scoured and cleansed, and the banks so raised that the tops of them might appear to mariners passing that way, whensoever the marshes there should be overflowed. And that as the said Earl had, for the common benefit of those parts, bestowed no small costs towards the repair of the said place, called the Ee, and heightening of those banks; so he intended to be at much more...[requesting the king] to grant unto him and his heirs forever, certain customs of the merchandise passing in ships through the same;... for every sack of wool carried through the channel,

The settlement probably gains its present name from the medieval chapel of St Nicholas, which is first mentioned in 1310 (Trollope, 1872). It is at this time that Gilbert de Umfraville presented his manor at Great Stretton to the Archdeacon of Lincoln Cathedral. In return for this, the chapel at Dogdyke was to be provided with a chantry priest to pray for his soul, and others, in perpetuity. The chapel was endowed from a number of sources by the time of the suppression in the 1530s. One of these was located at Dogdyke, and was described as:

> "[a] mansional house ... with appurtenances, one barn, 2 enclosures containing 20 acres of fenne grounde, 2 little enclosures called the Osier Garthes" (Trollope, 1872: 502).

It is also recorded that the settlement was so frequently isolated by floodwaters that it had become common practice for the local inhabitants to treat the chantry chapel as though it were their parish church, and thus it appears to have survived the Reformation. It was still standing c. 1640 when visited by a Mr Holles, an antiquarian recording the churches surrounding Boston (*ibid.*; Thompson, 1856).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1891 – Sheet XCVIII.NE, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1888.
- Ordnance Survey, 1906 – Sheet XCVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1904.
- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1888. There are virtually no differences between the First and Second Editions – a few of the small fields to the west of Chapel Hill had merged and one or two buildings added to the settlement (fig. 14b & c). The field systems on both sides of the Kyme Eau and the Witham are essentially the same as today, although in many cases, larger fields have been created since 1906 through the amalgamation of two or three smaller units.

In 1888 and 1906 the flood defences flanking the Kyme Eau and the River Witham, including the embankment for the Lincolnshire Loop Line and the side drains, looked almost identical to their present configuration. However, these early maps also depict a 20 – 30m long north-south aligned section of bank spurring off the Witham flood bank immediately to the south of the Kyme Eau. Comparison with the Sleaford Navigation map of 1792 indicates that the Chapel Hill Bridge and the road southward along the North Forty Foot Bank did not exist in the late 18th century. This suggests that the small projecting section of bank is a ramp providing access to a ferry that would have transported people to the northern bank in the vicinity of Section (**34**) (see also 6.1.15.B).

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fourpence; for every pocket of wool, two pence; for every tun of wine, fourpence; for every pipe of wine, twopence, - for every four quarters of corn, a penny; for every thousand of turfs, a penny; for every ship laden with cotton, fourpence; and for every ship laden with other commodities than aforesaid, twopence." (Newton, 1995: 13; Trollope, 1872: 76-7).

The centre of Chapel Hill appears to have changed very little since 1906. There appear to be the same number of buildings, which also have a very similar disposition. The area immediately to the west of (**34**) was a small triangular field in 1888, as it is today; the only major difference is the subsequent addition of a building at its south-western corner, at the foot of Chapel Hill Bridge. Even the small boathouse recessed into the base of the bank in the angle formed by the confluence of the River Witham and the Kyme Eau was in existence at the time the First Edition map was surveyed.

In contrast the immediate environs of this small settlement have changed somewhat over the last 90 years. A small development of council houses has been constructed a few hundred metres to the north of the village, adjacent to the southern end of (**35**). A caravan park occupies the area situated between this row of post-war dwellings and the riverbank. The First Edition map indicates that there were two small buildings located immediately to the north of the point where the northern edge of the small council estate and the caravan park now meet. These buildings no longer exist and the yard in which they once stood has been incorporated into a larger field. However, a slight southerly kink in the boundary indicates its former location, c. 40m to the west of the centre of (**35**).

Another caravan park has been constructed in the most easterly field to the south of the Kyme Eau. The remains of a windmill lie at the south-west corner of the field containing this more southerly park; the adjacent dwelling is called 'Mill House'. The windmill is depicted on the First Edition map compiled in 1888, and it is noted that it was a '*corn*' mill, as many of the others in the area were drainage engines. Additionally, this mill is the building in Chapel Hill that is shown on the plan of 1792 (fig. 14d).

The boundary between the administrative districts of North Kesteven and Boston runs along the centre of the Kyme Eau. However, in the late 19th and early 20th century there were two deviations from the channel at its northern end; the section that runs from west to east to join the Witham. The more easterly of these began at the western edge of the settlement of Chapel Hill. The boundary deviated northwards from the river channel, before following a very circuitous route along the rear of the properties that form this small village. After reaching an apex at the point where it crossed the road that heads northwards out of the settlement, the boundary turned sharply southward, then loope back to the east to intercept the Witham to the south of the Methodist chapel. This localised boundary deviation presumably reflects the course of the Kyme Eau prior to its initial canalisation. The map of 1792 depicting the planned Sleaford Navigation is produced at a scale of approximately 1: 32980. This small scale results in the map being partially schematic, with none of the field boundaries being shown, thus making it difficult to precisely relate the late 18th century features to the modern landscape. However, it is apparent that the sinuous course of the natural channel that ran along the northern edge of Chapel Hill, as defined by the district boundary, had already been straightened prior to this time. This may have occurred in conjunction with the canalisation of the adjacent section of the Witham during the previous decade.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Sections (**34**) and (**35**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

At present there is very little evidence for past human activity within and around the settlement of Chapel Hill. One sherd of Romano-British pottery and a larger quantity of medieval material have been found along the western edge of the village, c. 200m to the west of (**34**). While this is only a relatively small assemblage, it provides an indication that there was some form of activity along this section of the Witham and Kyme Eau. This contrasts with many of the other areas that have been examined in the surrounding area, most of which are archaeologically sterile.

An examination of published and unpublished sources provides some insight into the nature and form of the activity taking place at this location. It seems highly likely that Chapel Hill can be equated with the medieval village of Dogdyke. Contemporary documents suggest that the latter settlement was a small, thriving hub of activity living off, but central to trade along the waterways feeding into the Lower Witham Valley. The form and disposition of the medieval settlement is entirely conjectural, although it seems likely that the buildings were closely packed onto the small gravel island. The First and Second Edition Ordnance survey maps indicate that the district boundary formerly ran around the western and northern sides of this island before joining the River Witham. This would appear to suggest that the Kyme Eau originally followed the same course prior to its straightening and embanking. Consequently, this implies that 'Dogdyke Haven', the small harbour attached to the settlement, lay on the north side of the village, between Sections (**34**) and (**35**).

The low lying nature of the land immediately to the west of Section (**34**) suggests that it is situated beyond the edge of the gravel island, and thus is likely to overlie the former channel of the river, or an area of flanking fen. This also appears to be likely for Section (**35**), the southern end of which may be situated within the area of the 'haven'. However, these proposals cannot be positively ascertained with the information currently available. Therefore, the possibility cannot be ruled out that there may be archaeological features and deposits in this area; these could include waterlogged wooden structures such as staithes that would have been provided for the river traffic that was obliged to call here.

Assessment of archaeological potential:

Section 34	**LOW**
Section 35	**LOW-(MEDIUM?)**

6.1.15 Sections 36 & 51

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there are no recorded archaeological sites, deposits or finds within 0.5km of these sections of flood bank (fig. 14a). Additionally, examination of published and unpublished sources indicated that there had been some activity on the higher ground to the north of the Kyme Eau (see 6.1.14), but there was no indication that there had been any form of sustained human activity along the southern bank in the immediate vicinity of Sections (**36**) and (**51**).

This section of River Witham is entirely artificial and was created following an Act of Parliament obtained in 1762. This Act allowed the construction of a new cut between the Grand Sluice, Boston, and Chapel Hill (Thompson, 1856). The work was conducted in stages, progressing upstream from Boston, with this section forming the end of the final stage, which lay between Langrick Ferry and Chapel Hill. It was completed prior to the cleansing of the section between Lincoln and Chapel Hill, which occurred in 1787 and 1788. The original channel was rejoined immediately to the north of Section (**51**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1891 – Sheet XCVIII.NE, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1888.

- Ordnance Survey, 1906 – Sheet XCVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1904.

- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

- "A plan of the haute hunter or Holland fen MDCCLXIX:X" – the Holland Fen Enclosure map, 1769 (LAO ref. *MISC DEP 112/3*).

The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1888. There are virtually no differences between the First and Second Editions – a few of the small fields to the west of Chapel Hill had merged and one or two buildings added to the settlement (fig. 14b & c). The field systems on both sides of the Kyme Eau and the Witham were essentially the same as they are today, although in many cases, larger fields have been created since 1906 through the amalgamation of two or three smaller units.

In 1888 and 1906 the flood defences flanking the Kyme Eau and the River Witham, including the embankment for the Lincolnshire Loop Line and the side drains, looked almost identical to their present configuration. However, one difference is particularly evident, this is a 20 – 30m long north-south aligned section of bank spurring off the flood bank at the northern end of (**51**). It is depicted on both the First and Second Edition maps, but has subsequently been removed. Its function is not immediately clear; it partially closes off the mouth of the Kyme Eau, but would not prevent floodwaters in the Witham backing up along the smaller channel. Consequently, it does not seem to have been constructed with flood defence in mind.

However, examination of the Sleaford Navigation map of 1792 appears to provide some insight into its possible function. It is evident that the Chapel Hill Bridge and the road southward along the North Forty Foot Bank did not exist in the late 18th century (fig. 14d). The river had been newly canalised at this time and pedestrians used the towpath, which ran along the flood bank on the western side of the river. When this traffic reached the northern end of (**51**) it would have had to cross the end of the Kyme Eau before continuing northward. Such a crossing could have been made via a bridge, a more easterly precursor of Chapel Hill Bridge. However, no such structure is depicted in 1792. It therefore seems more likely that the small section of bank spurring off (**51**) is a ramp providing access to a ferry that would have transported people to the northern bank.

The centre of Chapel Hill appears to have changed very little since 1906. There appear to be the same number of buildings, which also have a very similar disposition. However, the immediate environs of this small settlement have changed somewhat. A small development of council houses has been constructed a few hundred metres to the north of the village. Additionally, there is now a caravan park to the east of this, against the riverbank. Another caravan park has been constructed to the south of the Kyme Eau, in the angle between (**36**) and (**51**). At the south-west corner of the field containing this more southerly park lies the remains of a windmill, the adjacent dwelling being called 'Mill House'. The windmill is depicted on the First Edition map compiled in 1888, and it is noted that it was a '*corn*' mill, as many of the others in the area were drainage engines. This mill is also shown on the plan of 1792, in plot *198*, one of the few structures shown in elevation.

The early Ordnance Survey maps indicate that there were other buildings along the southern edge of the Kyme Eau. A small sub-rectangular structure stood half way along the field immediately to the west of Chapel Hill Bridge. It lay c. 10m to the south of the northern boundary of the field, and thus probably lies outside of the area that will be affected by the groundworks at the eastern end of (**36**). There was another complex of buildings, probably a farm, in the next field to the west. These buildings occupied the western half of this field, butting up against the base of the flood bank immediately below the slight kink in the course of the river channel. There appear to have been two associated groups of buildings. The larger lay further to the east and was an inverted 'U'-shape in plan; this was probably a barn and other farm buildings. The other building lay c. 25m to the west and had a staggered 'L'-shaped plan. The First Edition map indicated that it had a garden or orchard immediately to its west, suggesting that it was a dwelling. The northern edges of these buildings probably lie within the footprint of the widened flood bank. These buildings were not shown on the map of 1792, implying that they are of 19th century construction. However, caution must be exercised in this interpretation as, unlike South Kyme, none of the buildings in Chapel Hill are depicted[4].

The boundary between the administrative districts of North Kesteven and Boston runs along the centre of the Kyme Eau. However, in the late 19th and early 20th century there were two deviations from the channel at its northern end; the section that runs from west to east to join the Witham. The first deviation is immediately by the bend at the western end of (**36**). The boundary continues c. 175m to the north of the channel, before returning south-eastwards, without following field boundaries, to intercept the channel 200m to the east of the site of the initial divergence. The point at which it rejoins the Kyme Eau coincides with the north-western end of a slight kink in the present channel. The second variation begins c. 400m to the east of the first, at the western edge of the settlement of Chapel Hill. The boundary again heads northwards before following a very circuitous route, which runs along the rear of the properties forming this small settlement. After reaching an apex where it crosses the road heading northwards out of the village, the boundary turns sharply southward, then loops back to the east to intercept the Witham to the south of the Methodist chapel. Both of these

[4] Other than the windmill.

localised boundary deviations presumably reflect the course of the Kyme Eau prior to its initial canalisation.

The map of 1792 depicting the planned Sleaford Navigation is produced at a scale of approximately 1: 32980. This small scale results in the map being partially schematic, with none of the field boundaries being shown, thus making it difficult to precisely relate the late 18th century features to the modern landscape. However, it is apparent that the sinuous course of the natural channel to the north of Chapel Hill had already been straightened prior to this time by the creation of the existing cut to the south. This may have occurred in conjunction with the canalisation of the adjacent section of the Witham during the previous decade. The date at which the more westerly meander, to the north of the present marked bend, was removed is more open to debate. The map of 1792 shows a quite pronounced kink at this point. Visually this accords better with the former alignment of district boundary than with the course of the present channel. However, the map does not depict this as one of the areas that would be straightened as part of 'the works proposed to be executed thereon for making a navigation'. It therefore, remains to be proved whether this section of channel was straightened before or after the end of the 18th century. The early map also depicts two windmills on this bend. Unlike the example to the south of Chapel Hill, these are almost certainly drainage engines. The more southerly, set in plot *10*, occupies the same site as the later 'Chapel Hill Pumping Engine', which is marked on the First and Second Edition Ordnance Survey maps. It is possible that the two wind powered engines were installed in such close proximity as an initial step toward removing the acute bend in the river.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Sections (**36**) and (**51**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

A search of existing sources indicates that there is very little evidence for past human activity along the section of the River Witham defined as (**51**). Cartographic evidence indicates that there was a north-south aligned section of bank spurring off the northern end of (**51**). It appears likely that this was merely a ramp providing access to a ferry that allowed later 18th and earlier 19th century pedestrians to cross the Kyme Eau. There is no evidence of this feature at ground level, and any sub-surface component is unlikely to have a specific or immediately discernable archaeological signature.

Documentary sources also suggest that there was very little human activity along this section of the Kyme Eau, (**36**). The First and Second Edition Ordnance Survey maps indicate that there was a small complex of buildings situated at the centre of this section in the late 19th and early 20th centuries. These buildings appear to have been constructed against the base of the flood bank and are likely to have formed a small farmstead, with a dwelling to the west and ancillary buildings to the east. A site visit demonstrated that this area is now part of a large arable field, which had recently been ploughed. However, it is still possible that sub-surface components of these structures survive *in-situ*. These remains are likely to lie within the area that will be affected by the proposed scheme of works. The map of the Kyme Eau that was

created in 1792 does not depict these buildings, which suggests that they were erected during the 19th century. However, none of the other buildings in Chapel Hill are shown either, which raises the possibility that all the structures in this area, with the exception of windmills, were omitted from the plan. It is therefore possible that these buildings may have pre-19th century origins.

Assessment of archaeological potential:

Section 36	**LOW**
Section 51	**LOW**

6.1.16 Section 37

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there are no recorded archaeological sites, deposits or finds within 0.5km of any component of this section of flood bank (fig. 11a). Additionally, examination of published and unpublished sources, and records held by the Local Studies Library also failed to provide any indication of the presence of foci of past human activity in the immediate vicinity of (**37**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet XCVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1888 (First Edition) and was revised in 1904.

- Ordnance Survey, 1906 – Sheet XCVIII.SE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1887 (First Edition) and was revised in 1904.

- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

The Second Edition Ordnance Survey map demonstrates that this section of river has changed very little since the beginning of the 20th century (fig. 11b). The field system on both sides of the Kyme Eau is essentially the same as today, although a number of the smaller fields have been amalgamated in the intervening period. The map of 1906 indicates that the flood bank along the eastern side of the river was well defined along all of Section (**37**). To the south of (**37**), the layout of the buildings and yards of Terry Booth Farm appear to have changed very little between the first decade of the 20th century and the present day. The track running up to the bank c. 80m to the north of (**37**) still exists, but in 1906 there was building at its end, beside the river; this has now been demolished.

The map of 1792 depicting the planned Sleaford Navigation is produced at a scale of approximately 1: 32980. This small scale results in the map being partially schematic, with

none of the field boundaries being shown, thus making it difficult to precisely relate the late 18th century features to the modern landscape. This notwithstanding, the kink in the Kyme Eau to the south of the Terry Booth Farm (the one situated on the eastern bank) allows a certain degree of confidence in interpretation (fig. 11c). The building shown in block *187* appears to be a forerunner of the 'eastern' Terry Booth Farm, which is situated c. 250m to the south of (**37**). The building on the opposite bank, in *16*, may relate to the small isolated building shown in that position on modern maps. The Terry Booth Farm on the western bank of the river is shown on the Second Edition map of 1906, but did not exist in 1792; it would be sited in block *15*, which is shown to be empty. However, immediately to the north of this, '*Tayreg Booth Bridge*' spans the river between blocks *14* and *188*, with the lock gates of Kyme Lower Lock immediately downstream. It is difficult to judge the exact position of the late 18th century bridge. However, a bridge would presumably need to be accessed by a road on either side of the watercourse. The Second Edition map depicts a pair of trackways running up to opposing banks of the Kyme Eau approximately halfway between Terry Booth Farm and the lock. The track on the eastern side is the one associated with building situated c. 80m to the north of (**37**) on the Second Edition map. This suggests that the bridge was situated outside the area that will be affected by groundworks associated with the flood bank enhancement.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**37**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

A search of existing sources combined with a site visit indicates that there is very little evidence for past human activity along this section of the Kyme Eau. There are no records of any archaeological finds, and no earthworks or other indications of structures or deposits of archaeological significance.

Assessment of archaeological potential:

Section 37	**LOW**

6.1.17 Section 38

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there are no recorded archaeological sites, deposits or finds within 0.5km of any component of this section of flood bank (fig. 12a). Additionally, examination of published and unpublished sources, and records held by the Local Studies Library also failed to provide any indication of the presence of foci of past human activity in the immediate vicinity of (**38**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet XCVIII.SE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1887 (First Edition) and was revised in 1904.

- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

The Second Edition Ordnance Survey map demonstrates that this section of river has changed very little since the beginning of the 20th century (fig. 12b). The field system on both sides of the Kyme Eau is essentially the same as today, although a number of the smaller fields have been amalgamated in the intervening period. This is particularly apparent on the northern side of the river, where the fields along the western half of the section have been combined to form a golf course. The map of 1906 indicates that the flood bank along the south-eastern side of the river was well defined along all of Section (**38**), its secondary purpose as a tow path for the Sleaford Navigation also being indicated.

There is a small block of woodland situated c. 400m to the south-west of the northern end of (**38**). In 1906 this was an irregularly shaped enclosure containing three or four small buildings. The edges of this enclosure were defined by a series of large drains branching off the northern end of Holland Dike. The latter follows a sinuous course to the south, suggesting that it was originally a natural watercourse; this hypothesis may be supported by the observation that the district boundary between North Kesteven and Boston also ran along it. The relationship between the drains and the buildings contained within them suggests that they contained pumps, or were the dwellings of people concerned with drainage. It also appears likely that people working at this site were responsible for the pump house at the end of Damford Drain on the western bank immediately opposite (see 6.1.12.B &D). This supposition is based upon the observation that there is no track providing direct access to the Damford pump, while the complex at the end of Holland Dike was approached by a trackway running north-eastward from Sycamore House, a farm on the south-eastern periphery of South Kyme.

The Second Edition map also indicates that there was a building situated at the western end of (**38**). In contrast to the other properties along the eastern edge of this section of road, it was set back from the frontage by c. 40 – 50m and was situated at the rear of its plot. It was a small 'L'-shaped structure, the north-south arm running along the rear boundary and the other arm projecting westward along the southern boundary. Its position appears to have been selected to allow it to occupy the inside of a small, but pronounced bend in the river. A drain ran along the northern edge of the property, presumably separating it from the River and towpath.

The map of 1792 depicting the planned Sleaford Navigation is produced at a scale of approximately 1: 32980. This small scale results in the map being partially schematic, with none of the field boundaries being shown, thus making it difficult to precisely relate the late 18th century features to the modern landscape. It is particularly ambiguous around the eastern end of South Kyme village, as the small bend in the river at the western end of (**38**) is not shown, and the bridge and road to the south does not appear to have existed at this time (fig.

12c). Despite this it appears that these elements would have lain within the parcel of land labelled as *182*, which is shown to be empty. Further to the east, the southern side of the river is intercepted by '*Hagbrock Tunnel*', which can be equated with a north-south drain that still exists a little to the east of Sycamore House. The position of the northern end of Section (**38**) can be gauged by reference to the '*Holland Fen Tunnel*', which evidently equates to the complex of drains depicted on the Second Edition Ordnance Survey map at the northern end of Holland Dike. While the 'tunnel' is shown, there is no indication that there were any associated buildings in 1792. This suggests that the structures occupying this site in 1906 were constructed during the 19th century. As with the northern side of the river, Sir Abraham Hume owned all of the land along Section (**38**) in 1792.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**38**) indicated the presence of a number of features that could be related to the structures depicted on the early maps of the area (see B, above). At the northern end of (**38**) the small enclosure at the end of Holland Dike is now completely covered by a stand of woodland, scrubby vegetation and beds of nettles. There is no evidence that any portion of the buildings that once stood here still survive, although much of this plantation is effectively impassable. The flood bank running along the western edge of this small plot is penetrated by the ends of the different branches of Holland Dike, which discharged into the Kyme Eau through two sluices. The sluices, although derelict, are still evident and occupy a c. 18m long stretch of the riverbank. The actual superstructure of each sluice is constructed in machine made brick, the more northerly also having two flanking concrete walls projecting out into the river channel. Railway sleepers revet the length of bank between and to either side of the sluices. Further to the west, a small, derelict, brick-built sluice also defines the end of Hagbrook Tunnel.

At the western end of (**38**), by Bottom Bridge, South Kyme, there is still a slight earthwork platform indicating the location of the 'L'-shaped structure depicted on the Second Edition Ordnance Survey map of 1906. This platform sits at the eastern edge of a small sub-rectangular block of waste ground covered in short, coarse grasses. The platform itself is approximately 20m long from east to west and 10m wide from north to south. The southern edge is well defined, being c. 0.1 - 0.2m higher than the surrounding ground surface. The northern edge merges into the trackway that runs along the southern side of the river. A line of mature trees lying between this track and the actual channel of the Kyme Eau probably define the former coarse of the drain that was also depicted on the map of 1906. Immediately to the east of the probable building platform is an arable field. This had been ploughed shortly before the site visit. It was evident that there was a spread of brick rubble, tile and 19th to 20th century pottery extending c. 40m eastward from the platform, and c. 10 to 15m southward into the field. It would appear likely that this material relates to the demolition of the building that once occupied the platform.

E: *Summary and discussion of the evidence*

A search of existing sources indicates that there is very little evidence for past human activity along this section of the Kyme Eau. Cartographic evidence and a site visit indicate that the remains of a small building, probably a house, are situated at the western end of (**38**). These

remains lie within the area that will be affected by the proposed scheme of works; a fact seemingly confirmed by a row of pegs that appeared to mark out the extent of the easement. Comparison of the 1792 and 1906 maps suggests that this building was constructed during the 19th century. Pottery and ceramic building materials recovered from its immediate vicinity would appear to confirm this observation.

A series of sluices marking the outfall of the Holland Fen Tunnel/Holland Dike are situated along the line of the proposed works a few hundred metres from the northern end of (**38**). A watercourse discharged into the river at this point in 1792, and it appears likely that this 18th century channel has natural origins. However, it is not possible to determine whether there was any human activity at this point prior to the implementation of an Act of Parliament of 1767, which allowed for the reclamation of 8,910ha of Holland Fen (*q.v.* White, 1856).

Assessment of archaeological potential:

Section 38	**LOW**

6.1.18 Section 39

A: *SMR data and documentary sources*

In comparison to the area to the south of the village, only a few finds or deposits of archaeological significance have been found in North Kyme itself (fig. 15a). Only one prehistoric artefact is recorded, this being a Bronze Age palstave found in a small paddock immediately to the south of the churchyard, in 1922 (TF15SE/E – TF 1531 5269).

A series of related earthworks run along the western edge of North Kyme. These represent the remains of a 500m long section of the Car Dyke (TF15SW/M – TF 1480 5265). It is thought that this channel was created by Roman military engineers as a major drain or canal that followed the eastern edge of the dip slope of the ridge of Lincolnshire Limestone that runs up the western edge of the county, thus dividing the higher ground from the Witham Fen (Whitwell, 1992).

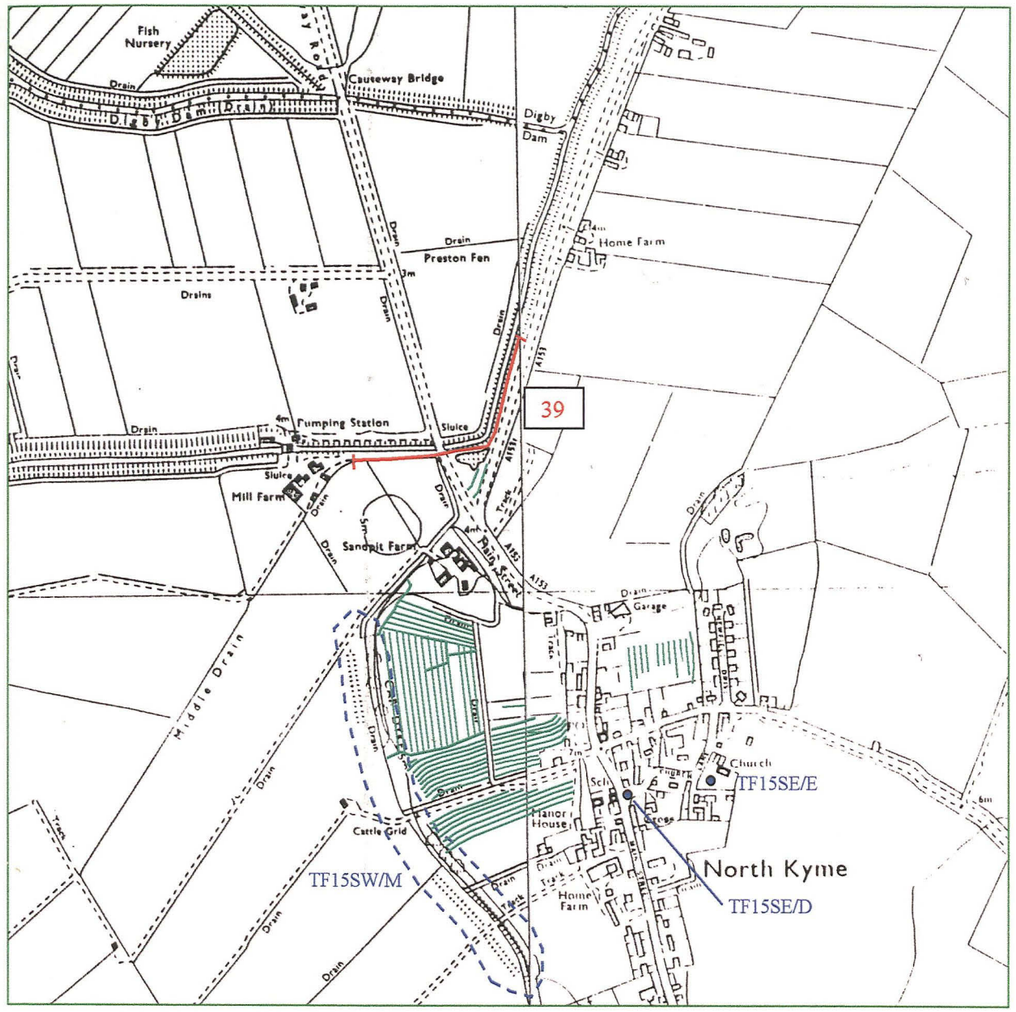
The village of North Kyme was mentioned in the *Domesday Book*, appearing as *Nortchime* (Morgan & Thorn, 1986). The name utilises Old English elements, the '*nort*' being self-explanatory, while the other is thought to be a corruption of '*cymbe*', meaning 'a depression, or hollow' (Cameron, 1998). While this place-name evidence suggests that the settlement has origins in the later Anglo-Saxon period, as with earlier periods, physical residues of post-Roman activity in and around North Kyme are also restricted. Records held by the SMR are effectively limited to the village cross, which is a Scheduled Ancient Monument (SAM No. 22632; TF15SE/D – TF 1516 5266). It is constructed from Lincolnshire Limestone, having two steps, a base and a shaft, the latter being capped by a 15th century finial.

B: *Cartographic evidence*

The following map was found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet XCVIII.NW, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1887 (First Edition) and was revised in 1904.

A



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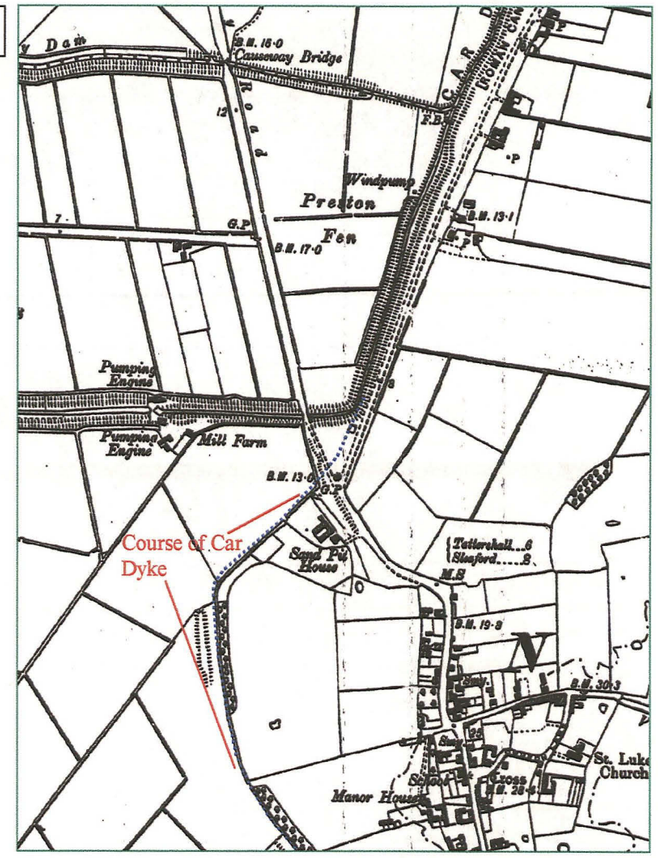


Figure 15: SECTION 39

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons. Features identified from aerial photographs at NMR are shown in green.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LCVIII.NW, of 1906; reproduced at c. 1: 10,000.

The Second Edition Ordnance Survey map demonstrates that the area surrounding Section (**39**) has changed little since the beginning of the 20th century (fig. 15b). The field system on both sides of the Billinghay Skirth is essentially the same as today, although a number of the smaller fields have been amalgamated in the intervening period. This is particularly apparent on the northern side of the channel, where a series of long, narrow fields have been combined to form larger sub-rectangular units.

A group of buildings lay at the western end of (**39**) in 1906. Three of these buildings were situated in a small triangular plot of land located immediately to the south of the flood bank, and were labelled as 'Mill Farm'. The farm still exists, and a number of other structures have been added to it during the course of the 20th century. The Second Edition map also depicts two buildings immediately to the west of Mill Farm. They were situated on the flood banks, lying directly opposite to each other, and were both described as pumping engines. A more modern pumping station that actually straddles the channel has superseded these structures.

The map of 1906 shows another group of buildings situated c. 150m to the south of (**39**). Referred to as 'Sand Pit House', these structures were constructed on a piece of land sandwiched between the road leading from North Kyme to Billinghay (Causeway Road), and the remains of the Car Dyke, which was defined by a drain of moderate proportions. More buildings have been added to the complex since 1906 and the whole group has 'evolved' into Sandpit Farm.

The pronounced bend at the centre of Section (**39**) is one of the most distinctive physical features shown on 19th and 20th century maps. It results from an east-west aligned section of the Farroway Drain intercepting a north to south orientated section of the Car Dyke, collectively forming the Billinghay Skirth. The early Ordnance Survey map depicts a small square feature at the north-eastern corner of the wedge of open ground lying immediately to the south of this bend. It is likely that this was a small pit or pond, which represented an early stage in the development of the larger pond that now extends right along the northern edge of this piece of land.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR indicated that there had been an extensive complex of earthworks to the north and west of the village in the first half of the 20th century (fig. 16). Most of these features occupied the small fields situated between the houses on the western side of Main Street and the remains of the Car Dyke, c. 300m further to the west. They could be resolved into the elements of several adjacent blocks of ridge and furrow (NMR: *TF1453/1*). The reversed 'S'-shaped profile exhibited by many of the furlongs indicated that these fields were probably laid out in the medieval period.

The Car Dyke appears to have defined the western edge of this medieval field system, suggesting that the land to its east was slightly higher and drier. A large segment of the bank that flanked the western side of the Car Dyke is also visible in the aerial photograph. Additionally, there were two slight linear features at the southern end of the triangle of land situated immediately to the south of the bend in (**39**). The course of the Car Dyke can be easily determined both to the north and to the south of this small piece of land, which is sandwiched between Causeway Road and the A1531. It is therefore highly likely that the linear features, which curved slightly at their southern ends, represented the remains of the short section of Car Dyke that is no longer visible.

Figure 16: Section (39) - Oblique aerial photograph of North Kyme, looking north. The Billinghay Skirth runs from left to right across the centre of the image before turning to exit the image at the top right corner. Part of North Kyme village is visible at bottom right. Note the two large areas of ridge and furrow earthworks surrounding the village. Part of a substantial bank is visible to the left of the ridge and furrow. This was the western flanking bank of the Car Dyke. Two faint lines can be seen crossing the triangle of land immediately to the south of the bend in the Billinghay Skirth. These represent the edges of the Car Dyke, where it is crossed by (**39**).
(Source: NMR – TF1453/2, 25 SEP 1932, Crawford Collection - CCC 5246/9328)

D: *Site visit*

An examination of the riverbank and its immediate environs indicated that the slight linear earthworks that had defined the course of the Car Dyke immediately to the south of the pronounced bend in Section (**39**) were no longer extant (see C, above). They had probably been levelled at the time that the large pond was created along the northern edge of this piece of open ground.

The bend is situated at the centre of (**39**). Causeway Road, which is likely to have been constructed in the medieval period to link North Kyme with Billinghay (Stocker & Everson, forthcoming), crosses Billinghay Skirth c. 80m to the west, via a single span bridge. The bridge is constructed from machine-made brick and must therefore be of later 19th or 20th century date. Examination of the edge of the channel indicated that there was a c. 2.5m wide deposit of limestone rubble eroding out of the side of the drain approximately 2m to the east of the bridge. Limestone is not a component of the local geology. It is therefore probable that this deposit represents an element of an earlier crossing of this channel, which could either be the base of a bridge or the metalling of a ford.

E: *Summary and discussion of the evidence*

Both cartographic and aerial photographic evidence indicate that the eastern half of Section (**39**) crosses, and then follows the course of the Car Dyke. The latter is a large artificial watercourse that can be traced for 90km between Washingborough and the River Nene, to the east of Peterborough. Documentary evidence shows that this channel existed prior to the Norman Conquest, providing a strong indication that it was constructed by Roman engineers (Whitwell, 1992). Consequently, it is possible that groundworks associated with the improvement of the flood defences along this stretch of the Billinghay Skirth may uncover artefacts or features relating to the construction or use of this waterway.

It also appears likely that Causeway Road is a route of some antiquity. It certainly appears to have existed during the medieval period, when it formed one of a series of causeways that crossed the Witham Fen to link Sleaford with Horncastle (*ibid.*). However, research has provided strong indications that many of these routes originated during the prehistoric period, probably at the time when water levels rose, thus initiating peat development. The recovery of a Bronze Age palstave c. 650m to the south-east of the point where the causeway crosses Section (**39**) may provide a tentative indication of such early origins.

Assessment of archaeological potential:

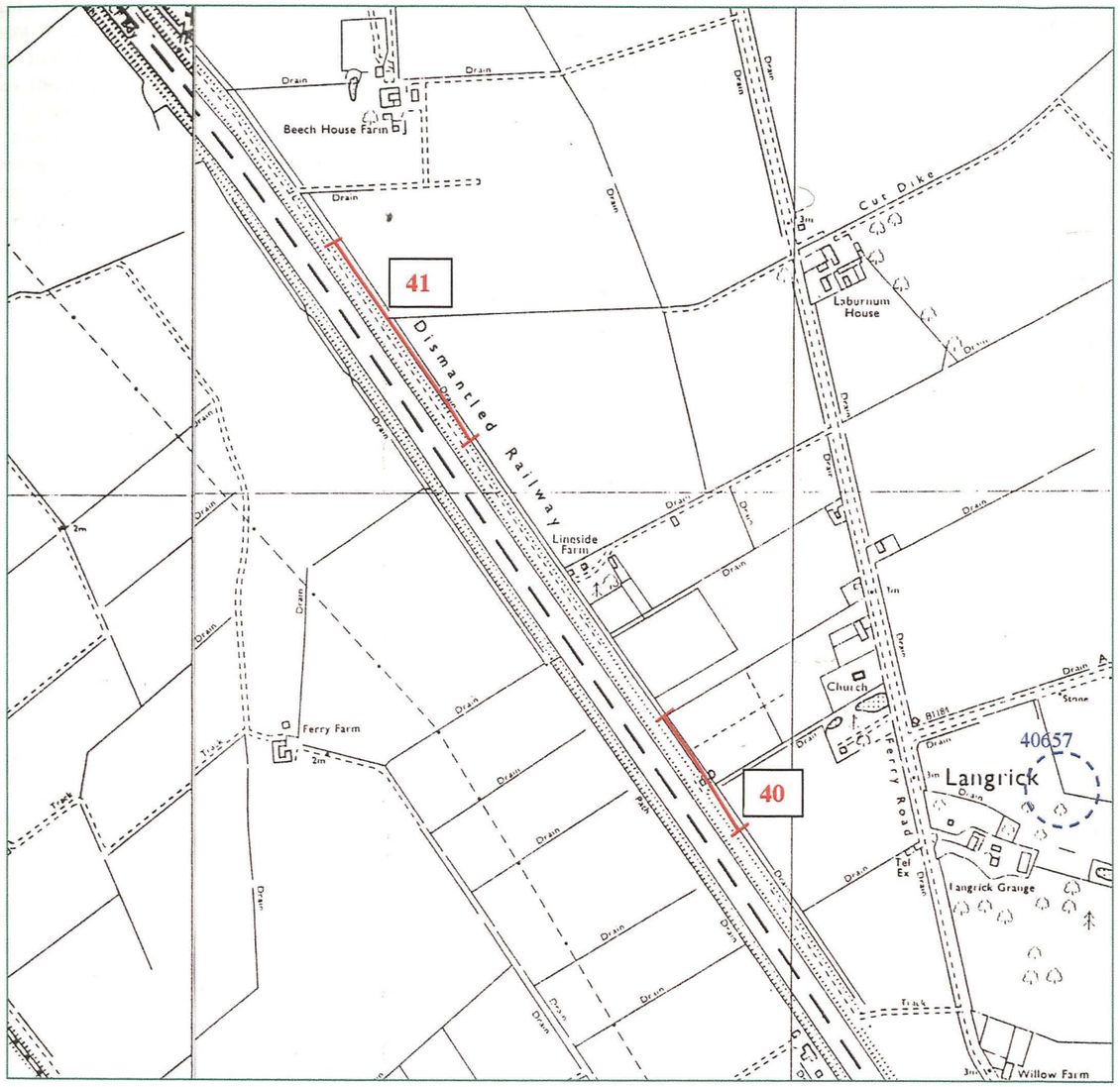
Section 39	**MEDIUM**

6.1.19 Section 40

A: *SMR data and documentary sources*

Inspection of the SMR indicated that Section (**40**) lies approximately 450m to the west of the site of the deserted medieval village of Armtree (40657 - TF 2640 4850) (fig. 17a). A series of slight mounds survive in the grounds of Langrick Grange and the large field to its east. These denuded earthworks are associated with quantities of masonry and tile, together with 13th, 14th, 15th and 18th century pottery.

A



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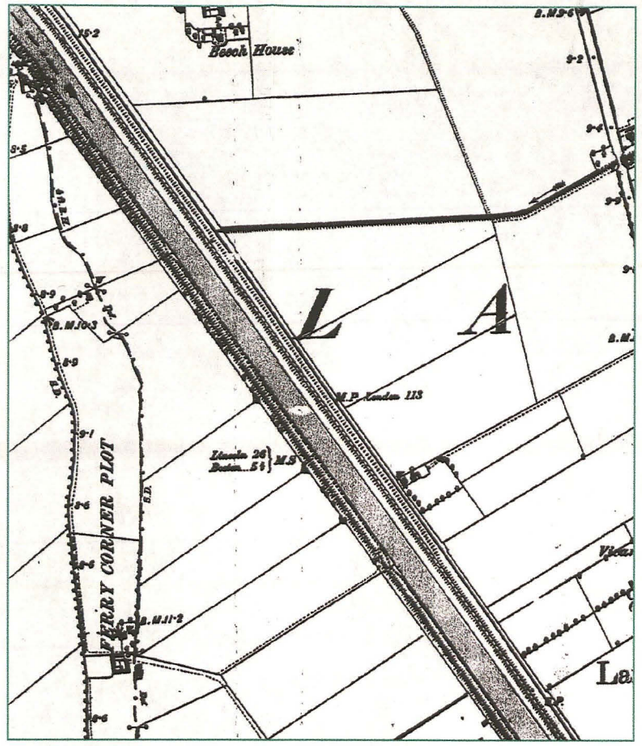


C

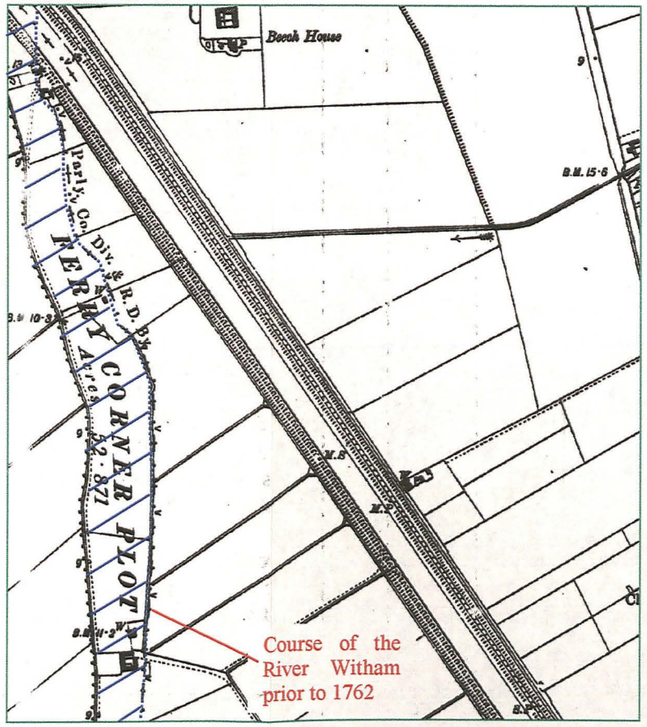


Figure 17: SECTIONS 40 AND 41

A: Position of these sections of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons.

B: Extract from Ordnance Survey First Edition 6": 1 mile (1: 10,560) Sheet LCIX.SW, of 1890; reproduced at c. 1: 10,000.

C: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LCIX.SW, of 1906; reproduced at c. 1: 10,000. The course of the River Witham prior to its canalisation in the second half of the 18th century is marked in blue; the hatched area indicates the approximate width of the channel.

Listed in the 12th century Lindsey Survey, Armtree was a minor settlement in the Parish of Coningsby. However, it had an independent manor, which was referred to in 1572, in the last document to acknowledge the continued existence of the settlement. The manorial rights to Armtree and Wildmore eventually passed to the Earl of Stamford and Warrington, who forfeited them in 1802, in exchange for the allotment of the portion of Holland Fen that became Langrick following drainage (White, 1856). An Act of Parliament made this parcel of land a township, Langreville, in 1812. Although essentially a new foundation following the abandonment of Armtree, the primary settlement in this township assumed an old name. A reference to a place in this area that was known as Langrick is first recorded in 1162, as *langraca* (Cameron, 1998). This means 'the long stretch of water', which evidently refers to the Witham.

This section of river is entirely artificial and was created following an Act of Parliament obtained in 1762. This Act allowed the construction of a new cut between the Grand Sluice, Boston, and Chapel Hill (Thompson, 1856). The work was conducted in stages, progressing upstream from Boston, with this section being situated within the final stage between Langrick Ferry and Chapel Hill. It was completed prior to the cleansing of the section between Lincoln and Chapel Hill, which occurred in 1787 and 1788. The original channel, which was particularly sinuous in the silt fens downstream of Dogdyke, lay between 800 and 950m to the south-west of Section (**40**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1890 – Sheet XCIX.SW, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1888.

- Ordnance Survey, 1906 – Sheet XCIX.SW, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1903/4.

- "A plan of the haute hunter or Holland fen MDCCLXIX:X" – the Holland Fen Enclosure map, 1769 (LAO ref. *MISC DEP 112/3*).

The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1888, and there is virtually no discernable difference between the First and Second Editions. The field systems on both sides of the Witham are essentially the same as today, although many of the smaller fields have been amalgamated since 1906 (fig. 17b & c). The flood defences flanking the river channel, including the embankment for the Lincolnshire Loop Line and the side drains, look identical.

To the north of (**40**), the buildings and yards of Lineside Farm (referring to the railway) already appear to have had a very similar form to their modern layout at the time the surveying was conducted for the First Edition in 1888. The church and the buildings immediately to its north were also in place at this time, as was the system of small fields that run between them and Section (**40**). The modern map indicates that there is a small platform projecting north-eastward from the top of the bank at the centre of the section. This is not depicted on the earlier maps, but its position coincides with that of a point marked 'S.P.' in 1890 and 1906. It appears likely that S.P. indicates a signal on the railway, which suggests that the small platform was added to support more substantial equipment.

Examination of the Holland Fen Enclosure map of 1769 indicates that the sinuous administrative boundary, situated c. 800 and 950m to the south-west of Section (**40**) on the

early Ordnance Survey maps, followed the course of the pre-canalised river, each land owner's holdings lying on both sides of the present channel in reference to their disposition in the earlier part of the 18th century.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**40**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

A search of the SMR indicated that elements of the deserted medieval settlement of Armtree are situated c. 450m to the east of (**40**). However, there is very little evidence for past human activity in the immediate environs of this section of the Witham, in contrast to the stretch of river to the east of Langrick Bridge (see 6.1.24). The buildings situated c. 300m to the north-east all relate to, or postdate, the early 19th century resettlement of the area following the draining of the surrounding fen. Consequently, there is no indication that the works along Section (**40**) will expose any structures or deposits of archaeological significance.

Assessment of archaeological potential:

Section 40	**LOW**

6.1.20 Section 41

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there are no recorded archaeological sites, deposits or finds within 0.5km of any component of this section of flood bank (fig. 17a). Additionally, examination of published and unpublished sources, and records held by the Local Studies Library also failed to provide any indication of the presence of foci of past human activity in the immediate vicinity of (**41**).

This section of river is entirely artificial and was created following an Act of Parliament obtained in 1762. This Act allowed the construction of a new cut between the Grand Sluice, Boston, and Chapel Hill (Thompson, 1856). The work was conducted in stages, progressing upstream from Boston, with this section being situated within the final stage between Langrick Ferry and Chapel Hill. It was completed prior to the cleansing of the section between Lincoln and Chapel Hill, which occurred in 1787 and 1788. The original channel, which was particularly sinuous in the silt fens downstream of Dogdyke, lay c. 250m to the west of Section (**41**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1890 – Sheet XCIX.SW, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1888.
- Ordnance Survey, 1906 – Sheet XCIX.SW, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1903/4.
- "A plan of the haute hunter or Holland fen MDCCLXIX:X" – the Holland Fen Enclosure map, 1769 (LAO ref. *MISC DEP 112/3*).

The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1888 and there is virtually no discernable difference between the First and Second Editions (fig. 17b & c). The field systems on both sides of the Witham are essentially the same as today, although many of the smaller fields have been amalgamated since 1906. The flood defences flanking the river channel, including the embankment for the Lincolnshire Loop Line and the side drains look identical. This even extends to the Cut Dike, which runs westward across the centre of Section (**41**) to join the drain following the base of the railway embankment. To the north of (**41**), the buildings and yard of Beech House farm already appear to have had a very similar form to their modern layout at the time the surveying was conducted for the First Edition in 1888. The buildings of Lineside Farm, to the south, were also in place at this time.

Examination of the Holland Fen Enclosure map of 1769 indicates that the sinuous administrative boundary, situated c. 250m to the west of Section (**41**) on the early Ordnance Survey maps, followed the course of the pre-canalised river, each land owner's holdings lying on both sides of the present channel in reference to their disposition in the earlier part of the 18th century.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**41**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

A search of existing sources combined with a site visit indicates that there is very little evidence for past human activity along this section of the River Witham. There are no records of any archaeological finds, and no earthworks or other indications of structures or deposits of archaeological significance.

Assessment of archaeological potential:

Section 41	**LOW**

6.1.21 Sections 42, 43 & 44

A: *SMR data and documentary sources*

Inspection of the SMR indicated that only one archaeological site had been identified within 0.5km of these sections of flood bank (fig. 18a). This appears to have been the site of a post-medieval pottery kiln, which lay c. 50m to the north of Great Beats Farm (TF25SW/A – TF 2195 5325), c. 280m to the north-east of (**44**). The site had been recognized following the recovery of pottery from amongst a spread of 'sooty' soil. A subsequent excavation recovered a large amount of pottery fragments, some of which were evidently wasters, but the site of the kiln itself was not identified. Subsequent analysis indicated that most of the pottery had been produced during the 16th century.

This section of river is entirely artificial and was created following an Act of Parliament obtained in 1762. This Act allowed the construction of a new cut between the Grand Sluice, Boston, and Chapel Hill (Thompson, 1856). The work was conducted in stages, progressing upstream from Boston, with this section being situated within the final stage between Langrick Ferry and Chapel Hill. It was completed prior to the cleansing of the section between Lincoln and Chapel Hill, which occurred in 1787 and 1788. The original channel was particularly sinuous in the silt fens downstream of Dogdyke. It lay to the north-east of these sections, c. 350 - 600m from (**42**), c. 320m from (**43**), and c. 300 - 30m from (**44**), with the spread of post-medieval pottery (TF25SW/A) lying very close to the northern bank of the latter section.

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

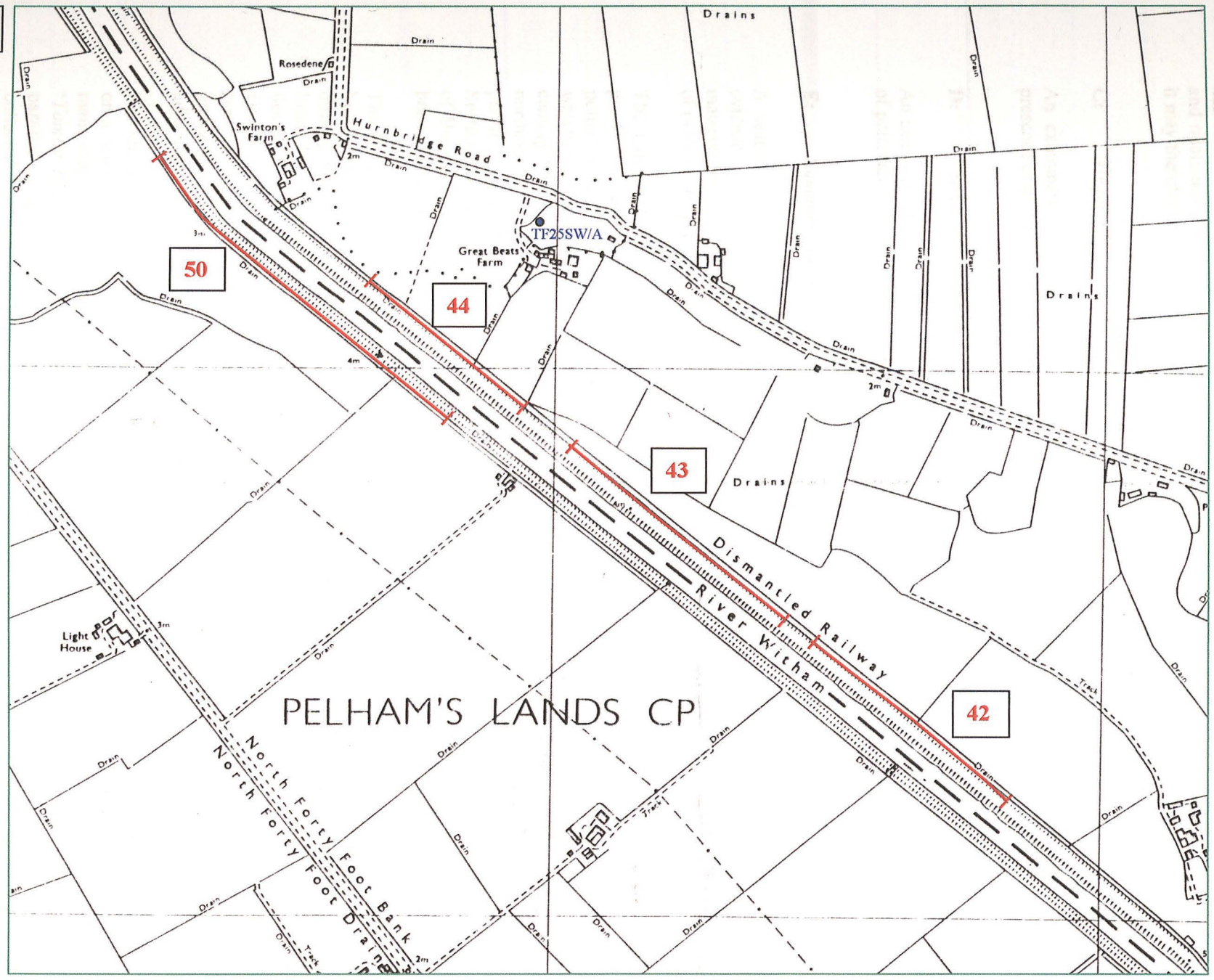
- Ordnance Survey, 1891 – Sheet XCIX.NW, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1887.
- Ordnance Survey, 1906 – Sheet XCIX.NW, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1903.
- "A plan of the haute hunter or Holland fen MDCCLXIX:X" – the Holland Fen Enclosure map, 1769 (LAO ref. *MISC DEP 112/3*).

The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1887 and there is virtually no discernable difference between the First and Second Editions (fig. 18b). The field systems on both sides of the Witham are essentially the same as today. On the southern side a number of the smaller fields have been amalgamated since 1906, but the field pattern is almost identical to the north of the channel along the strip of reclaimed land formerly known as Little Beats and Great Beats.

Examination of the Holland Fen Enclosure map of 1769 indicates that the sinuous administrative boundary between North Kesteven and East Lindsey, that was depicted on the early Ordnance Survey maps, followed the course of the pre-canalised river. It has subsequently been realigned along the present river channel.

The flood defences flanking the Witham, including the embankment for the Lincolnshire Loop Line and the side drains looked identical to their present configuration. Round House Farm, to the south-east of (**42**), is now somewhat larger than it was in 1906. Similarly, Great

A



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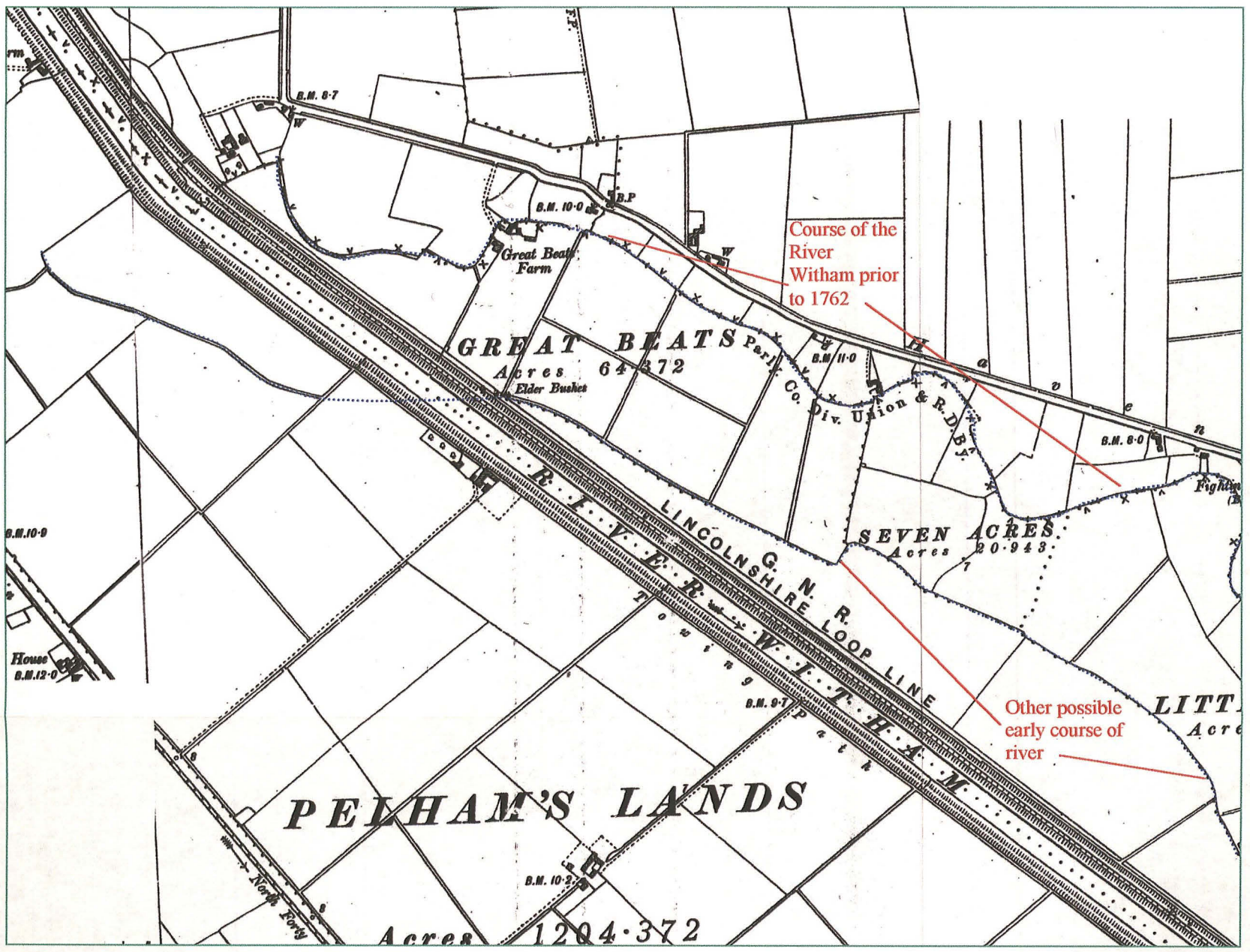


Figure 18: SECTIONS 42, 43, 44 AND 50

A: Position of these sections of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LCIX.NW, of 1906; reproduced at c. 1: 10,000. The course of the River Witham prior to its canalisation in the second half of the 18th century is marked in blue.

settlements, and often has a close spatial relationship to riverside locations. It is therefore likely that it was used particularly in reference to fisheries, which provides an indication of the original nature of these sites.

Assessment of archaeological potential:

Section 42	**LOW**
Section 43	**LOW**
Section 44	**LOW**

6.1.22 Sections 45 & 46

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there was only one recorded archaeological find within 0.5km of these sections of flood bank (fig. 14a). This was a medieval bronze key, probably of 14th century date, that was found on the eastern bank of the Witham c. 300m to the north of Section (**46**) (TF25SW/D – TF 2078 5482).

Examination of a range of documentary sources suggested that the settlement of Chapel Hill, which is situated on the opposite side of the River Witham, has medieval origins (see 6.1.14). However, none of this activity could be directly related to the area now occupied by the stretches of flood bank that constitute (**45**) and (**46**); it seems most likely that this area was peat fen prior to the straightening of the river in the second half of the 18th century.

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1891 – Sheet XCVIII.NE, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1888.
- Ordnance Survey, 1906 – Sheet XCVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1904.
- 'A plan exhibiting the course of Kyme Eau and the two branches of Sleaford River; from the Witham to Castle Causeway, above the town of Sleaford, in the county of Lincoln, and the works proposed to be executed thereon for making a navigation from the said River Witham, to the said Castle Causeway' 1792, produced by John Hudson. (LAO ref. *BRACE 19/9*).

The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1888. There are virtually no differences between the First and Second Editions – a few of the small fields to the west of Chapel Hill had merged and one or two buildings added to the settlement (fig. 14b & c). The field systems on both sides of the Kyme Eau and the Witham were essentially the same as they are today, although in many cases, larger fields have been created since 1906 through the amalgamation of two or three smaller units.

In 1888 and 1904 the flood defences flanking the Kyme Eau and the River Witham, including the embankment for the Lincolnshire Loop Line and the side drains, looked almost identical

to their present configuration. The map of 1792 illustrates this section of riverbank, but does not provide any detail (fig. 14d).

Both of the early Ordnance Survey maps depict a cluster of buildings situated c. 100m to the north-east of the centre point of Section (**45**). This appears to have been a small farmstead situated at the end of a track spurring off the north-south aligned section of Hurnbridge Road. The form of this complex appears to have changed very little between 1888 and 1904. The larger group of buildings lay to the north and was probably a barn and other associated farm buildings. Two other buildings lay c. 10m to the south-west, within a garden or orchard. This relationship suggests that the larger structure was a dwelling. Modern maps indicate that two of these buildings still survive at the end of the track, but the associated yards and gardens have been incorporated into the surrounding field. A line projected from these buildings to the river coincides with the position of a pedestrian ferry that is marked on more recent maps, but not on the older editions. However, there is some indication that this ferry also operated in the 19th century, as close examination of the First Edition map indicates that a narrow tunnel passed through the flood bank/railway embankment at approximately this point.

Another group of buildings are depicted at the northern end of (**46**) on the First and Second Edition Ordnance survey maps. There appear to have been two buildings. The smaller was rectangular and lay to the south-west of the other, which was 'T'-shaped. These structures were constructed within a large sub-rectangular recess, approximately c. 55m long and 25m wide, set into the eastern side of the railway embankment. The southern edge of this indentation contained the terminal of a road that ran from west-north-west to east-south-east, its other end being situated 750m away at Hurn Bridge, where it joined Hurnbridge Road. The First Edition map indicates that both sides of this road were lined with trees and that the buildings against the base of the flood bank respected its orientation rather than that of the river or the railway.

The road to these buildings went nowhere except the railway line, there being no other structures in the immediate vicinity on this side of the river. Consequently, if this had merely been a farmstead comparable with the other (generally larger) groups of buildings in the surrounding area, it is likely that it would have been accessed by a track, in common with these other small settlements. The combined fact that these buildings were accessible by road and were set into the railway embankment raises the possibility that they had a direct association with the railway. The Great Northern Railway constructed this section of the Lincolnshire Loop Line in the second half of the 1840s (White, 1856), and it is possible that these buildings were created as a small halt (something less than a formal station) at which goods and passengers could embark and disembark from the line.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**45**) did not reveal any features of potential archaeological significance. The large indentation in the eastern edge of the railway embankment at the northern end of Section (**46**) is still readily apparent. There are no longer any standing structures within this recess, but there are frequent fragments of brick rubble scattered across the ground surface. Furthermore, the ground undulates noticeably in a number of locations, providing strong indications that sub-surface structural elements still survive.

E: *Summary and discussion of the evidence*

A search of existing sources combined with a site visit indicates that there is very little evidence for past human activity along this section of the River Witham. There is only one record of an archaeological find, a key recovered from the riverbank c. 300m to the north of (**46**).

There is a large sub-rectangular indentation in the eastern side of the railway embankment at the northern end of (**46**). The First and Second Edition Ordnance Survey maps indicate that this feature contained a small complex of buildings in the late 19th and early 20th centuries. The spatial relationships of these buildings, and an associated road, suggest that they were associated with the operation of the railway, in which case they were probably constructed in the middle of the 19th century. A site visit demonstrated that this area is now part of a large arable field, which had recently been ploughed. However, it appears likely that sub-surface components of these structures survive *in-situ*. These remains lie within the area that will be affected by the proposed scheme of works.

Assessment of archaeological potential:

Section 45	**LOW**
Section 46	**LOW**

6.1.23 Section 47

A: *SMR data and documentary sources*

Inspection of the SMR indicated that no archaeological finds have been recorded or recovered within 0.5km of any component of this section of flood bank (fig. 19a). However, three cropmark complexes have been identified in this area, two to the north-east, and a further example to the east-south-east. All of these sub-surface features were recognized from aerial photographs taken by Paul Everson in 1977 and 1979. None of the features visible within these pictures is sufficiently morphologically diagnostic to enable a date to be ascribed to them.

The most northerly complex is c. 850m long, its southern edge coming to within 400m of Section (**47**) (40413 – TF 1885 6080). It is comprises a series of single and double ditched linear features that probably constitute part of a relict field system. The northern end of this complex runs along two sides of Old Abbey Farm, which was probably a monastic farm located on the periphery of Kirkstead Abbey. It is therefore possible that some of these features may be related to medieval activity. The other group of cropmarks lying to the north of (**47**) is contiguous with 40413 and may represent another component of the same field system (40414 – TF 1920 6045). Again, this cluster is primarily composed of linear features, some of which extend to within 200m of the element of flood bank that will be enhanced. The north-eastern edge of this group lies close to an enclosure that has morphological traits comparable to features of Iron Age or Romano-British date.

The third group of cropmarks appear to form a rectangular enclosure, which is abutted by a linear ditch on one edge (40447 – TF 1969 5925). The area immediately to the east of Section (**47**), between 40414 and 40447, has been heavily disturbed by gravel extraction and is now covered by woodland and a series of ponds and small lakes, all of which mitigate against the production of further cropmarks.

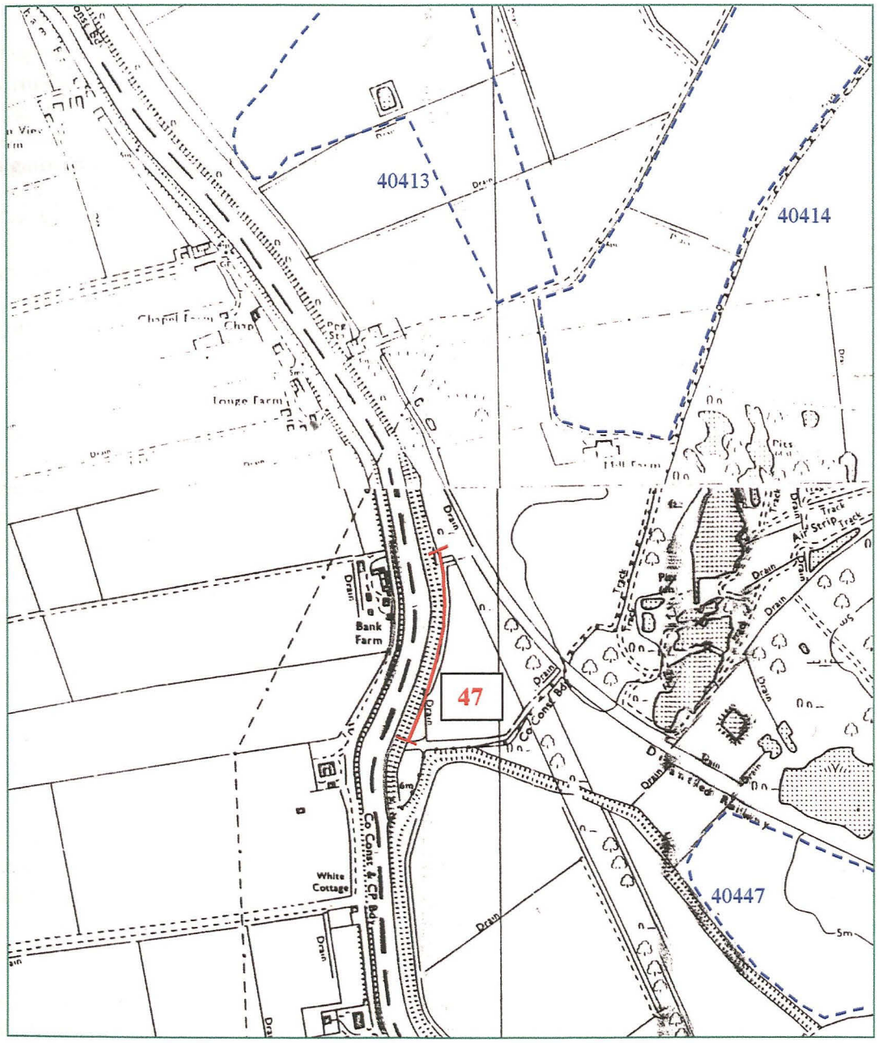
Figure 19: SECTION 47

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons.

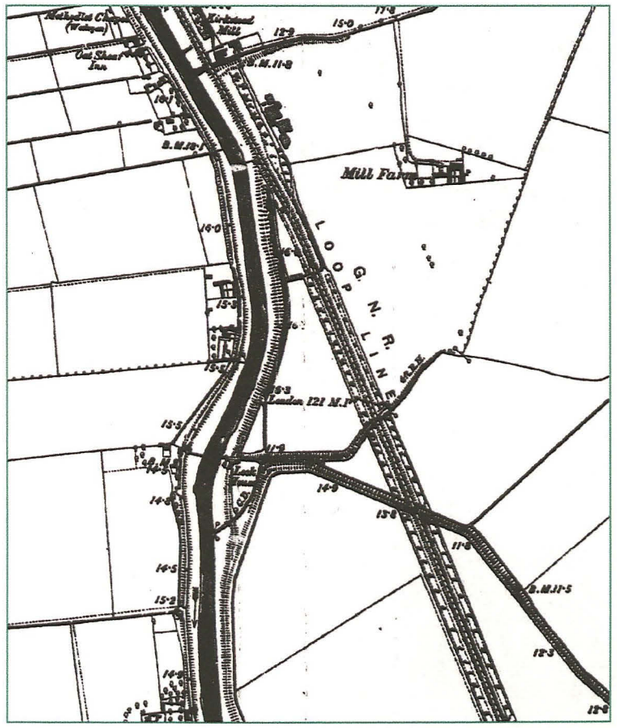
B: Extract from Ordnance Survey First Edition 6": 1 mile (1: 10,560) Sheet LXXXIII.NE, of 1891; reproduced at c. 1: 10,000.

C: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet LXXXIII.NE, of 1906; reproduced at c. 1: 10,000.

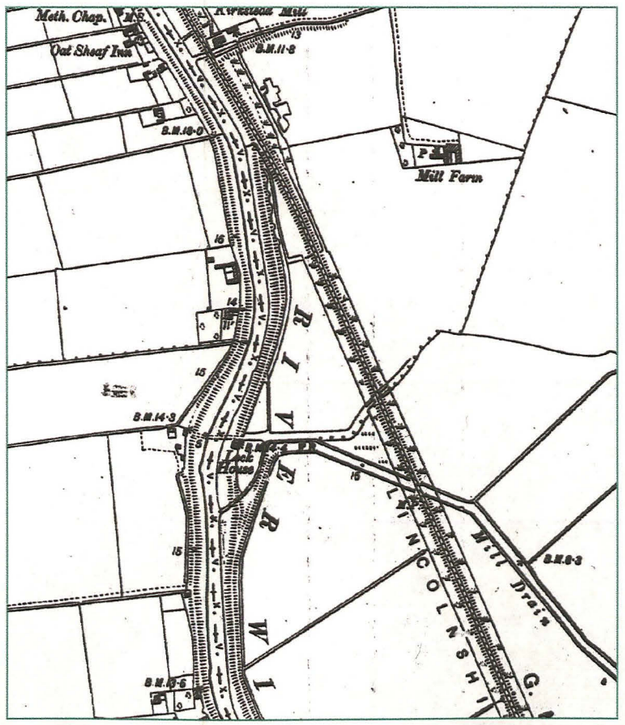
A



B



C



B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1891 – Sheet LXXXVIII.NE, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1887.

- Ordnance Survey, 1906 – Sheet LXXXVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1904.

The early Ordnance Survey maps indicate that while the First and Second Editions are virtually identical, there have been a number of changes along this section of river since 1906 (fig. 17b & c). The field systems on both sides of the Witham were essentially the same then as they are today, except in the area to the east of (**47**). The latter area has changed significantly due to extensive gravel extraction. There are a series of irregular workings of varying size, all of which appear to have been abandoned and have now filled with water. Tracks and drains cross the area between these small lakes and ponds and there is even a small airstrip near the northern edge of this complex. The environs of these derelict quarries are covered by scrubby vegetation and woodland, and in total extend to c. 0.5km^2. A small branch line that was evidently constructed after 1906, ran along the southern edge of the gravel pits, preventing them from progressing any further in this direction. This line has now been dismantled suggesting that it was specifically constructed to service the aggregate industry.

The branch line merged with the Lincolnshire Loop Line at the northern end of (**47**). To the south of this point, the main railway embankment headed south-south-east, roughly parallel to the Witham, but not running along the top of the eastern flood bank, as the river channel is particularly sinuous between Kirkstead and Chapel Hill. The railway is depicted on the maps of 1891 and 1906, hachures indicating that it ran along the top of a purpose built embankment that was flanked by a drain on either side. A stretch of this railway embankment still survives in the area to the south of Marsh Lane, which is situated c. 1.8km to the south-east of (**47**). However, modern maps indicate that the embankment has been flattened between this point and Kirkstead Bridge, c. 2.5km to the north of (**47**). Despite this the course of the line is still apparent as the flanking drains still cut across the landscape.

The northern end of (**47**) is defined by the intersection between the western flood bank of the river and the railway embankment, while the southern end terminates at a large double ditch identified as Mill Drain on the Second Edition Ordnance Survey map. Mill Drain runs north-west, then west, before turning southward sharply to join the river. This created a small wedge of land near the river's edge. Its north-west corner was occupied by a building identified as Lock House on the early maps. There was evidently an operational lock at this time, as a track is shown to cross the river at this point. Both the house and the lock have now gone. Elsewhere, the flood defences flanking the River Witham, including the side drains, looked almost identical to their present configuration.

A whole series of farmsteads and other buildings had been constructed along the edge of the Witham prior to the late 19th century. The majority of these were situated on the western side of the river, in the lea of the flood bank. The distribution and form of this ribbon development appears to have changed very little over the last 111 years. Poplar Farm and White Cottage still lie to the south-west of (**47**), while Bank Farm still exists immediately opposite its northern end.

C: *Air photographic evidence*

Three cropmark complexes have been identified close to Section (**47**), these all appearing on photographs taken by Paul Everson in the late 1970s (40413, 40414 and 40447). An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any additional archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**47**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

A search of existing sources combined with a site visit indicates that there is relatively little evidence for past human activity along this section of the River Witham. A series of cropmarks have been identified to the north-east and east-south-east of Section (**47**). Associated features may extend up to the river's edge, but at present there are no indications to this effect.

The First and Second Edition Ordnance Survey maps indicate that there was a lock and associated lock keeper's dwelling immediately beyond the southern end of (**47**). Consequently, it is possible that other elements of this complex extend into the area that will be affected by groundworks associated with the flood defence improvements. The origins of this small complex of buildings may lie in the late 18th century, the provision of a lock possibly occurring in tandem with cleansing of this section of the river (between Lincoln and Chapel Hill), which occurred in 1787 and 1788.

Assessment of archaeological potential:

Section 47	**LOW**

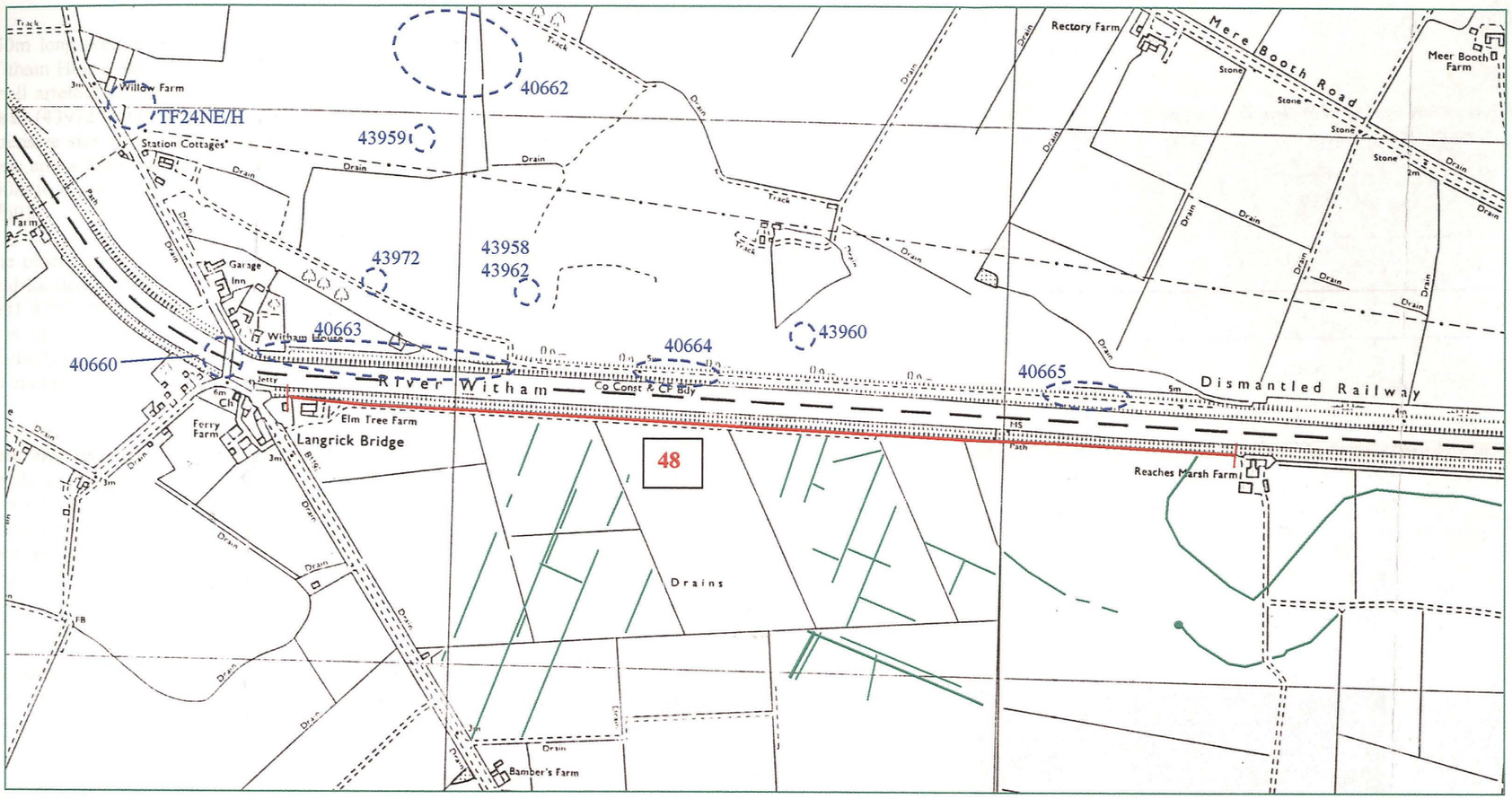
6.1.24 Section 48

A: *SMR data and documentary sources*

A relatively large amount of archaeological material has been recovered from the margins of this section of the river, indicating that this part of Holland Fen was a focus for human activity in the Romano-British and later medieval periods (fig. 20a). This is particularly apparent given the paucity of finds further upstream between Langrick Bridge and Chapel Hill.

Romano-British activity appears to have been particularly intensive, as there are eight sites situated within 0.5km of Section (**48**) from which artefactual material has been collected. Three of these are located along the northern bank of the river, within 100m of the zone that will be influenced by the proposed scheme of works. Sherds of greyware and samian pottery were exposed at two locations during works on the north bank in 1931, one near the eastern end of (**48**) (40665 – TF 2310 4750), the other near its centre (40664 – TF 2730 4750). It is reported that the material was found c. 1.5m below the ground surface, but it is not clear whether this datum relates to the bank itself or the lower lying land immediately to the north. The third scatter, comprised of more sherds of greyware, was exposed by erosion along a

A



B

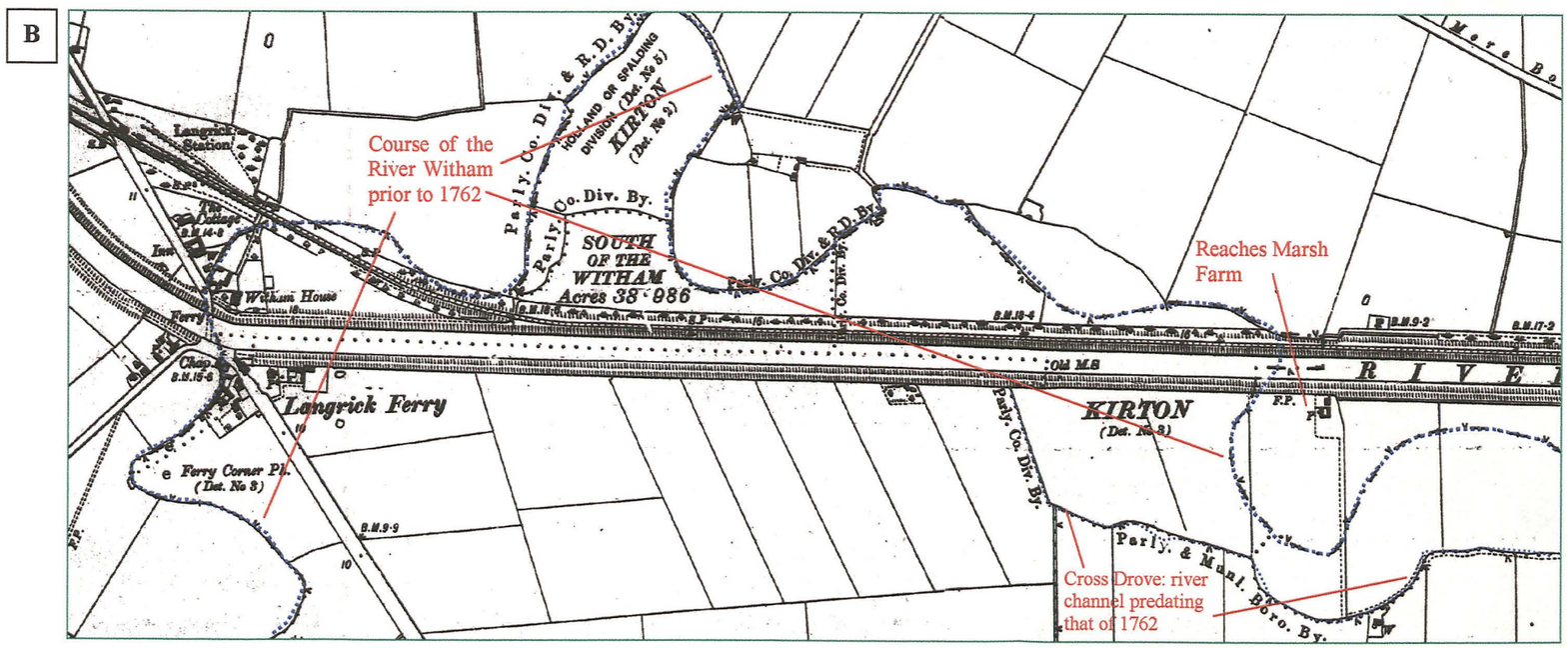


Figure 20: SECTION 48

A: Position of this section of the flood defences at a scale of 1: 10,000. Also shown are the locations of archaeological features and materials recorded in the Lincolnshire Sites and Monuments Record (see Appendix 12.1 for details); find spots = blue discs, features = blue polygons, features identified from aerial photographs held at the NMR are shown in green.

B: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet CVIII.NE, of 1906; reproduced at c. 1: 10,000. The course of the River Witham prior to its canalisation in the second half of the 18th century is marked in blue.

350m long section of the southern face of the riverbank situated immediately to the east of Witham House; this lying opposite the western end of (**48**) (40663 – TF 2620 4750). Another small artefact scatter has been identified in close proximity to 40663, situated c. 150m to the north (43972 – TF 2683 4770), and it is possible that both represent elements of the same extensive site. Similarly an area of blackened soil associated with greyware, samian, animal bone and a little roof tile has been identified to the north of disused railway embankment, c. 150m to the north-east of 40664, the scatter located near the centre of (**48**) (43960 – TF 2765 4760).

The other two Romano-British artefact scatters are situated close to each other in the large field located to the west of Willow Farm and south of Manor Farm, Langrick (43959 – TF 2681 4797; 40662 – TF 2690 4820). Greyware and samian have been found on both sites, and it is also recorded that metal detectorists have retrieved a number of coins. The more southerly site, 43959, lies close to the former sinuous course of the Witham, c. 450m to the north of (**48**).

In addition to the Romano-British material, quantities of medieval and post-medieval pottery were also recovered from the area to the south of Manor Farm (40662). It would appear significant that this piece of land is known as Hill Field, raised ground of any sort being unusual in Holland and Wildmore Fens. It is possible that the 'hill' referred to is a topographical feature, but equally it may allude to earthworks. Further medieval material has been recovered from the area immediately to the south of Willow Farm, c. 500m to the north-west of (**48**) (TF24NE/H – TF 264 480). A slight mound in this field was found to be associated with fragments of 13th – 18th century pottery. These two sites were presumably outlying elements of the deserted medieval settlement of Armtree (see 6.1.19).

Another small mound, extending over 300m^2, has been identified c. 200m to the north of (**48**) on the southern bank of the former river channel. Associated finds include a few fragments of roof tile and sherds of 15th – 16th century pottery (43958 & 43962 – TF 2713 4770).

A large hoard of silver coins minted during the reigns of Charles II, James II, William & Mary, Anne, and George I were recovered from a garden at 'Langret Ferry' in 1830 (40660 – TF 2650 4750). They were contained in a pot, deposited after 1727, that was dug up by a Mr Ward. 'Langret Ferry' is now Langrick Bridge, and it is assumed the find spot lies close to this structure, placing it near to the western end of Section (**48**).

This section of river is entirely artificial and was created following an Act of Parliament obtained in 1762. This Act allowed the construction of a new cut between the Grand Sluice, Boston, and Chapel Hill (Thompson, 1856). The work was conducted in stages, progressing upstream from Boston, with this section being part of the second stage that ran between Anton's Gowt and Langrick Ferry. It was completed prior to the cleansing of the section between Lincoln and Chapel Hill, which occurred in 1787 and 1788. The original channel, which was particularly sinuous in the silt fens downstream of Dogdyke, was crossed by the new cut at the point where the bridge now stands at the western end of Section (**48**). To the north-east of this point it had meandered eastward before deviating south of the canalised channel at the eastern end of (**48**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1906 – Sheet CVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The initial surveying for this map was conducted in 1887 (First Edition) and was revised in 1904.

- "A plan of the haute hunter or Holland fen MDCCLXIX:X" – the Holland Fen Enclosure map, 1769 (LAO ref. *MISC DEP 112/3*).

The early Ordnance Survey map demonstrates that this section of river has changed relatively little since 1906 (fig. 20b). The field systems on both sides of the Witham are essentially the same as today, although many of the smaller fields have been amalgamated during the 20th century. The flood defences flanking the river channel, including the embankment for the Lincolnshire Loop Line and the side drains, look identical.

At the western end of (**48**), Langrick Ferry has been transformed into Langrick Bridge since 1906, due to the erection of this eponymous structure. However, the form of this small settlement remains essentially unchanged. The chapel and other buildings on the western side of Langrick Road were already in place at this time, as were elements of the ribbon development along the northern edge of Ferry Lane. Elm Tree Farm was also present at the end of (**48**), although the Second Edition map indicates that the form and disposition of its buildings used to be a little different.

The field pattern along the southern edge of (**48**) has barely changed, but the map of 1906 appears to indicate that there was a small sub-rectangular gravel pit abutting the railway embankment at the centre of the section. This already appears to have been abandoned by the beginning of the 20th century, as it is depicted as being wooded. Reaches Marsh Farm lies at the eastern end of (**48**) and is slightly recessed into the foot of the flood bank. Although the main building appears to have much the same form as it did in 1906, it is apparent that two other buildings have been added at the eastern and southern edges of the farmyard.

One of the most striking features of the Second Edition Ordnance Survey map are the administrative boundaries, which wander across it in a seemingly random fashion. Situated to the south of Langrick Ferry at the western end of (**48**), the district boundary crosses the Witham where the channel turns north-westward. It then loops from north to south three times before crossing the river again at Reaches Marsh Farm. Examination of the Holland Fen Enclosure map of 1769 indicates that this boundary follows the course of the pre-canalised river, with the late 18th century holdings lying on both sides of the present channel in reference to their disposition in the earlier part of the century. However, it is also apparent that a second meandering boundary runs a little to the south of the first[5] along the eastern half of (48). This is likely to represent an even earlier channel of the river that had become redundant prior to the mid 18th century; a track following it to Reaches Bank Farm is called Cross Drove.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR indicated that there was an extensive complex of cropmarks extending along the southern side of the Witham between Reaches Marsh Farm and Langrick Bridge. Most of these were linear features and could be resolved into the elements of two adjacent blocks of rectilinear field system that were separated by an interval of c. 200m. The more westerly block, centred on TF 2715 4720, was the better defined of the two (NMR: *TF2747/4/22, -/23, -/24*). Parts of at least four long, narrow sub-rectangular fields could be discerned. Each plot was approximately 85 to 100m

[5] The two boundaries are differentiated in a relatively ambiguous way. The first, running along the channel shown on the Enclosure map of 1769, is described as 'Parly. Co. Div. & R.D. By (parliamentary county (or constituency) divisional and rural district boundary). The other, which appears to define the earlier channel, is described variously as 'Parly. Co. Div. By.' and 'Parly & Munl. Boro. By.' (parliamentary and municipal borough boundary – the latter element referring to Boston).

wide, and seemingly in excess of 350m long, with the long axis orientated from north-north-east to south-south-west. This is significantly different to the alignment of the modern field system (by c. 35°). These field ditches could be traced as far south as Bamber's Farm on Langrick Road, while their northern ends terminated at the modern river channel, extending at least to the edge of Section (**48**), if not beneath.

The second, more easterly block shared the same primary orientation as the first group of features, suggesting that they had once coexisted in the same landscape (NMR: *TF2747/4/1, -/16, -/17, -/18; TF2747/2/19, -/20, -/21*). However, while sharing some characteristics, it was evident that there were also differences between the two areas. Firstly, the fields in this second block were somewhat smaller, being approximately 50m wide and around 200m long. Additionally, the long axes of the elements along the eastern edge of this block appeared to run perpendicular to their neighbours. It was also apparent that there was a small sub-rectangular compound located toward the northern edge of this complex of linear features (at TF 2775 4732). This enclosure was situated just to the south of the small disused gravel pit depicted on the Second Edition Ordnance Survey map; a short linear cropmark with a different orientation to the others in this area probably defined the southern edge of these quarry workings.

A third group of cropmarks were situated to the south of Reaches Marsh Farm, adjacent to the linear boundaries of the second block of rectilinear fields. These features were entirely different in character to the elements lying to the west, in that they were large, curvilinear and irregular (fig. 21). They could be resolved into two sets of features. The northern set was better defined, essentially describing a slightly flattened 'U'-shaped arc, c. 250m across, which emerged from beneath the flood bank, c. 100m to the west of the farm. After crossing the track to the farm it turned back toward the river before turning again c. 150m to the east of the farm to run alongside the bank. The second cluster was comprised of a series of cropmarks that evidently represented discontinuous sections of the same feature. This was a flattened arc located c. 300m to the south of Reaches Marsh Farm, which could be traced for c. 650m.

By comparing these two sets of curvilinear features with the evidence obtained from the early maps of the area, it was possible to confirm that they represented relict channels of the Witham. The more northerly 'U'-shaped feature was part of the later 18th century channel that had been truncated by the canalisation of the river between Anton's Gowt and Langrick Ferry. The less well defined feature to the south evidently represented part of the pre-18th century channel depicted as the 'Parly & Munl. Boro. By.' on the Second Edition Ordnance survey map (see B, above).

D: *Site visit*

An examination of the riverbank along Section (**48**) did not reveal any features of potential archaeological significance. However, there was a shallow north-south orientated depression, c. 50m wide, situated approximately 100m to the west of Reaches Marsh Farm. This feature almost certainly represents the partially filled channel of the pre-canalised River Witham.

E: *Summary and discussion of the evidence*

The number of sites at which Romano-British remains have been recovered along this stretch of the river suggests that this area was intensively occupied during the early part of the 1st millennium AD. In some respects this is rather surprising, given the absence of evidence for human activity across large areas of Holland Fen prior to the post-medieval period; there are virtually no archaeological deposits between Langrick and, Chapel Hill to the north, or South

Figure 21: Section (48) – Oblique aerial photograph of the eastern end of Section (**48**), looking west. The modern canalised channel of the River Witham runs down the right hand edge of the image, with Reaches Marsh Farm visible against the foot of the bank in the bottom half of the picture. A series of curvilinear cropmarks are visible to the south of the farm (i.e. to the left). These equate to relict channels of the Witham, which are marked on the Second Edition Ordnance Survey map.
(Source: NMR – TF2847/1, 4-AUG-1977, NMR 1146/416)

Kyme to the west, and those that have been identified can usually be related to activities specifically linked to fenland exploitation, such as fisheries. Consequently, it is necessary to contemplate why this area was so extensive utilised during the period of Roman influence.

In part, this activity is likely be linked to a lowering of sea level toward the end of the Iron Age, which lasted throughout most of the Roman period (Simmons, 1980). This marine regression dramatically altered the coastline of the Wash, numerous islands appearing right across this basin. Simmons (*ibid.*) has suggested that the extent of these islands can be equated to land that is currently situated above 3m O.D. It would therefore appear that the area between Langrick and Anton's Gowt would have formed the southern edge of a relatively large island of about 4km diameter. Additionally, the fact that a series of cropmarks have been identified along the southern edge of the river may provide a further insight into the intensity of Romano-British occupation. The alluvium, the silty clays of the Barroway Drove Beds, and the peat beds that cover much of the Fen Basin are not conducive to cropmark production (*q.v.* B.G.S., 1995), as they do not induce moisture stress. It would therefore appear that the section of river channel between Langrick and Anton's Gowt runs through a free draining medium, probably sand and gravel. Such land is well suited to arable production, while nearby wetlands, which would still have existed even in the 2nd - 3rd centuries AD, would have provided a rich and diverse subsistence base and large areas of seasonal grazing. These factors would have attracted settlers to the area.

Romano-British cultural material has been found along the full length of the riverbank opposite Section (**48**). Some of these artefact scatters are extensive. At the western end of this area there is a spread that appears to stretch 350m along the river and 180m northwards (40663/43972). It is therefore entirely possible that similar or associated material could also be found along the southern bank, within the footprint of the groundworks to be conducted along Section (**48**), especially when it is considered that the river channel that now divides these two areas was only created in the second half of the 18th century.

There also appears to have been a relatively large amount of settlement in this area during the medieval period, although the current evidence suggests that it had a more restricted distribution than during the Romano-British period. This latter factor could again be related to fluctuations in sea level, with rather less dry land being available in the first two-thirds of the 2nd millennium AD. Although there is as yet no direct physical relationship between medieval artefacts and this section of the Witham, it is entirely possible that sites of this period may be situated in the immediate environs of Section (**48**). Of particular interest in this respect is Reaches Marsh Farm. The cropmark and cartographic evidence indicate that prior to the late 18th century this isolated settlement was situated on the northern side of the river, on a promontory enclosed by water on three sides. A series of similarly situated sites that are located a few kilometres further upstream were found to have been medieval foundations (Lane & Hayes, 1993). They appear to have originated as fisheries, many having the suffix '*booth*', which is thought to refer to temporary camps or seasonally occupied sites.

There were two other important cropmark complexes in this area, these being the two adjacent areas of field system. Although the regularity of these long thin fields suggests that they might be relatively late in date, the orientation of their primary axis does not respect any element of the existing landscape. They are not aligned upon the river channel or the roads, and they evidently predate the field system created in the second half of the 18th century, after the canalisation of the river and the Enclosure of Holland Fen. It seems most likely that they were originally laid out in respect to one of the earlier, relict river channels.

It is difficult to determine the age of these linear features. They are pre-19th century, yet it is evident that they do not exhibit the reverse 'S'-shaped plan of medieval ridge and furrow. Similarly, they are very regular, and therefore unlike most prehistoric field systems, which generally appear to have grown organically. The small enclosure within eastern block of

fields may provide some indication as to their date, as it has parallels with compounds in some of the Romano-British field systems seen elsewhere in Lincolnshire (Winton, 1998). However, this is a very tentative indication and should not be accepted without further investigation.

Assessment of archaeological potential:

Section 48	**MEDIUM - HIGH**

6.1.25 Section 49

A: *SMR data and documentary sources*

Inspection of the SMR indicated that there are no recorded archaeological sites, deposits or finds within 0.5km of any component of this section of flood bank (fig. 22a). Additionally, examination of published and unpublished sources, and records held by the Local Studies Library also failed to provide any indication of the presence of foci of past human activity in the immediate vicinity of (**49**).

This section of river is entirely artificial and was created following an Act of Parliament obtained in 1762. This Act allowed the construction of a new cut between the Grand Sluice, Boston, and Chapel Hill (Thompson, 1856). The work was conducted in stages, progressing upstream from Boston, with this section being situated within the final stage between Langrick Ferry and Chapel Hill. It was completed prior to the cleansing of the section between Lincoln and Chapel Hill, which occurred in 1787 and 1788. The original channel, which was particularly sinuous in the silt fens downstream of Dogdyke, lay c. 525m to the north-east of Section (**49**).

B: *Cartographic evidence*

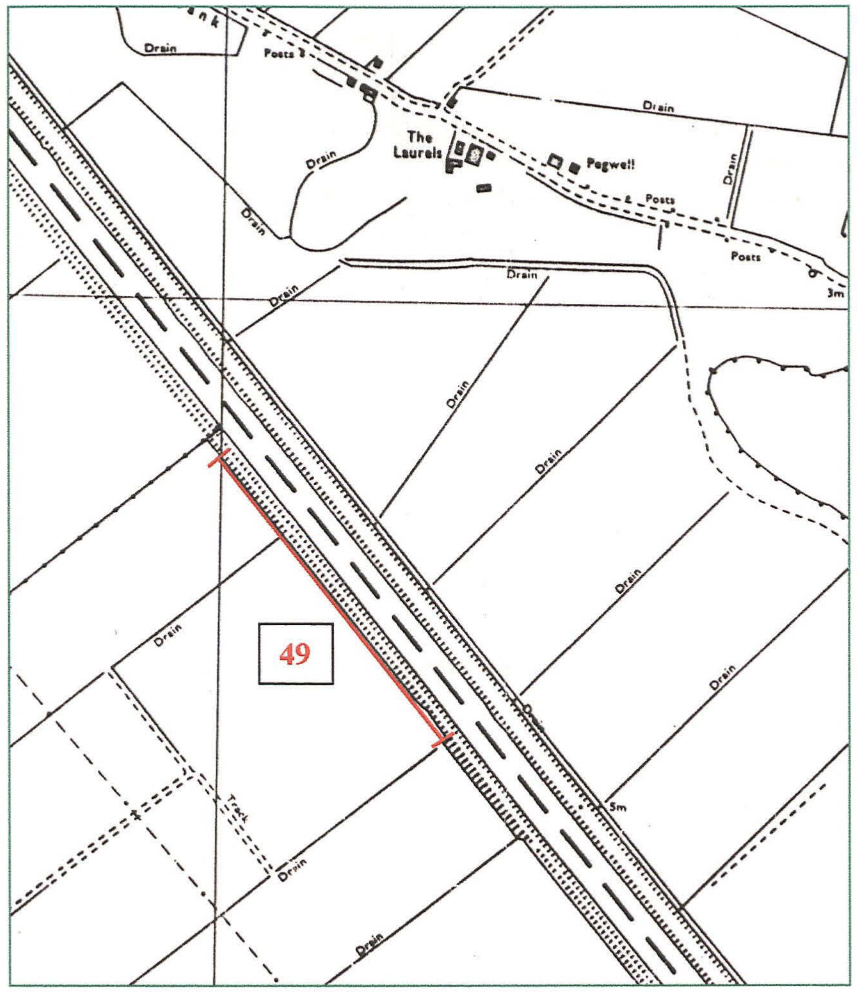
The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1890 – Sheet XCIX.SW, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1888.
- Ordnance Survey, 1906 – Sheet XCIX.SW, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1903/4.
- "A plan of the haute hunter or Holland fen MDCCLXIX:X" – the Holland Fen Enclosure map, 1769 (LAO ref. *MISC DEP 112/3*).

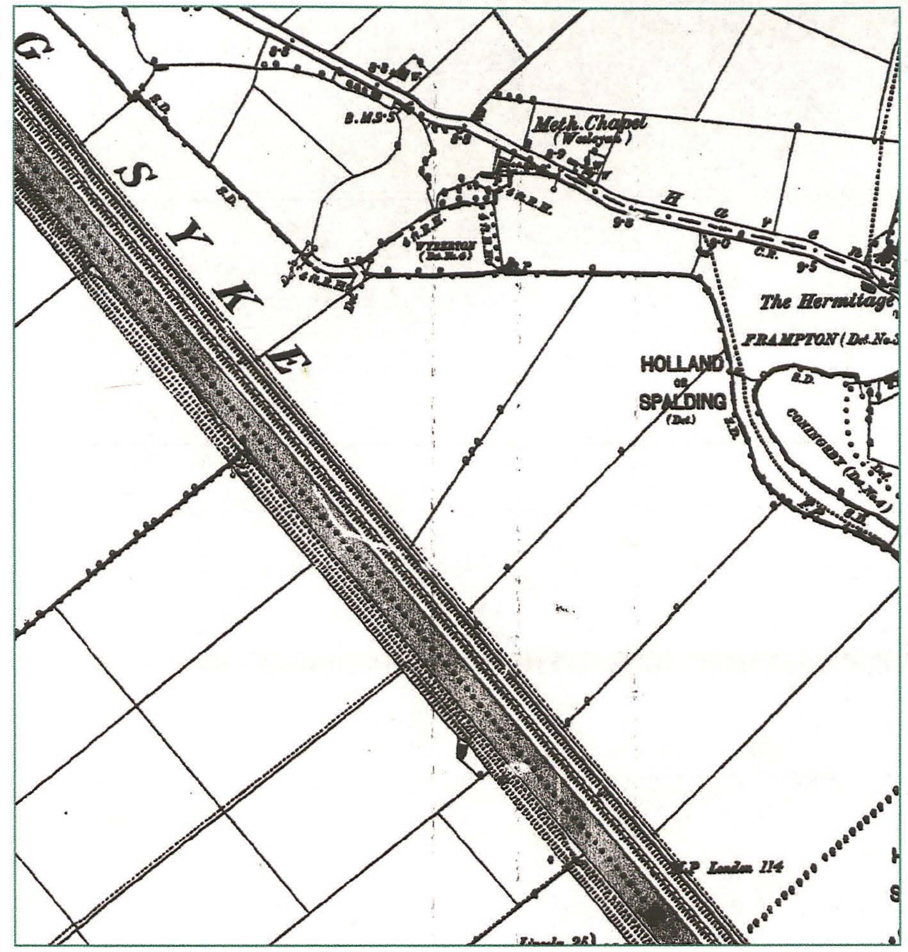
The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1888 and there is no discernable difference between the First and Second Editions. The field systems on both sides of the Witham are essentially the same as today, although a few of the smaller fields have been amalgamated since 1906 (fig. 22b & c). The flood defences flanking the river channel, including the embankment for the Lincolnshire Loop Line and the side drains look identical.

There are two primary differences relating to Section (**49**). Firstly, there is currently a track running along the south-western edge of the field containing the southern two-thirds of this stretch of flood bank. This track did not bifurcate along southern boundary in either 1890 or 1906. Instead it continued north-eastward to the foot of the flood bank, connecting the river

A



B



C

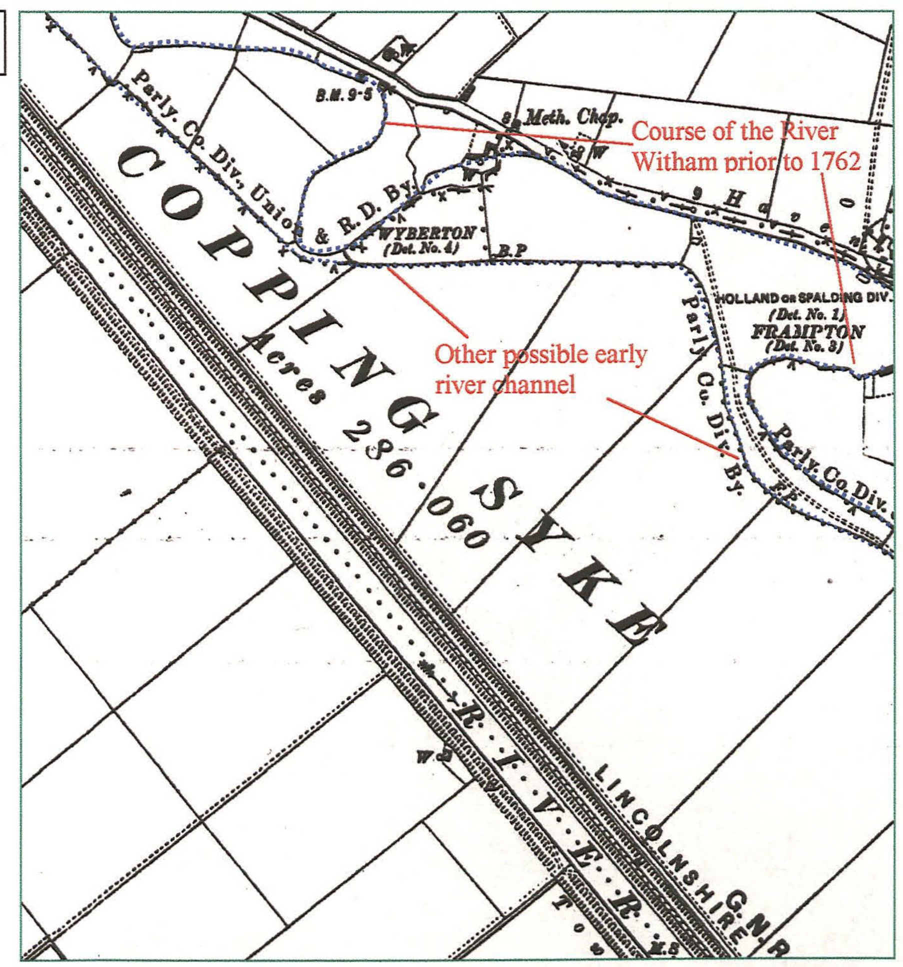


Figure 22: SECTION 49

A: Position of this section of the flood defences at a scale of 1: 10,000. The Lincolnshire Sites and Monuments Record does not record the presence of any archaeological finds or deposits in the immediate environs of this section of the River Witham.

B: Extract from Ordnance Survey First Edition 6": 1 mile (1: 10,560) Sheet XCIX.SW, of 1890; reproduced at c. 1: 10,000.

C: Extract from Ordnance Survey Second Edition 6": 1 mile (1: 10,560) Sheet XCIX.SW, of 1906; reproduced at c. 1: 10,000. The course of the River Witham prior to its canalisation in the second half of the 18th century is marked in blue.

with North Forty Foot Bank as it ran through the settlement of Holland Fen. Secondly, there is a small sub-rectangular building situated at the southern end of (**49**). The long axis of this structure is aligned approximately from north to south, an orientation that is roughly 45° different to the riverbank and channel than butts up against its north-east corner. Furthermore the small yard in which this building sits is slightly recessed into the foot of the bank. These two factors seem to suggest that this building was constructed prior to the canalisation of this stretch of the Witham, which occurred between 1762 and 1787. This building and its yard no longer exist, but the slight recess along the outer edge of the bank is still depicted on modern editions of the Ordnance Survey map.

Examination of the Holland Fen Enclosure map of 1769 indicates that the sinuous administrative boundary, situated c. 525m to the north-east of Section (**49**) on the early Ordnance Survey maps, followed the course of the pre-canalised river, each land owner's holdings lying on both sides of the present channel in reference to their disposition in the earlier part of the 18th century.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the flood bank revealed that the slight recess along the base of the bank at the southern end of Section (**49**) was still evident. There was no evidence of the associated building that had been depicted on the First Edition map of 1890 (see B, above), but a few small fragments of brick were noted on the ground surface. Other features of potential archaeological significance were not detected.

E: *Summary and discussion of the evidence*

A search of existing sources indicates that there is very little evidence for past human activity along this section of the River Witham. Cartographic evidence indicates that a small building was situated at the southern end of (**49**) in the late 19th and early 20th centuries. A site visit demonstrated that its approximate location could still be determined and it is possible that sub-surface components of this structure still survive *in-situ*. These remains would lie within the area that will be affected by the proposed scheme of works. The orientation and relationships of this structure, as depicted on the First Edition map of 1890, suggests that its construction predated the creation of the adjacent river channel. This implies that the building was already standing by the beginning of the fourth quarter of the 18th century.

Assessment of archaeological potential:

Section 49	**LOW**

6.1.26 Section 50

A: *SMR data and documentary sources*

Inspection of the SMR indicated that only one archaeological site had been identified within 0.5km of this section of flood bank (fig. 18a). This was probably the site of a small post-medieval pottery industry, which was situated on the opposite side of the river, c. 400m to the north-east of (**50**), near Great Beats Farm (TF25SW/A – TF 2195 5325). Pottery recovered from the site suggested that production had taken place during the 16th century.

This section of river is entirely artificial and was created following an Act of Parliament obtained in 1762. This Act allowed the construction of a new cut between the Grand Sluice, Boston, and Chapel Hill (Thompson, 1856). The work was conducted in stages, progressing upstream from Boston, with this section being situated within the final stage between Langrick Ferry and Chapel Hill. It was completed prior to the cleansing of the section between Lincoln and Chapel Hill, which occurred in 1787 and 1788. The original channel, which was particularly sinuous in the silt fens downstream of Dogdyke, lay c. 120m – 250m to the north-east of Section (**50**).

B: *Cartographic evidence*

The following maps were found to contain data relating specifically to the site:

- Ordnance Survey, 1891 – Sheet XCIX.NW, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1887.
- Ordnance Survey, 1891 – Sheet XCVIII.NE, First Edition, 6": 1 mile (1: 10,560). The surveying for this map was conducted in 1888.
- Ordnance Survey, 1906 – Sheet XCIX.NW, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1903.
- Ordnance Survey, 1906 – Sheet XCVIII.NE, Second Edition, 6": 1 mile (1: 10,560). The revised surveying was conducted in 1904.
- "A plan of the haute hunter or Holland fen MDCCLXIX:X" – the Holland Fen Enclosure map, 1769 (LAO ref. *MISC DEP 112/3*).

The early Ordnance Survey maps demonstrate that this section of river has changed very little since 1887 and there is virtually no discernable difference between the First and Second Editions (fig. 18b). The field systems on both sides of the Witham are essentially the same as today. On the south-western side a number of the smaller fields have been amalgamated since 1906, but the field pattern is almost identical to the north of the channel along the strip of reclaimed land formerly known as Great Beats.

Examination of the Holland Fen Enclosure map of 1769 indicates that the sinuous administrative boundary between North Kesteven and East Lindsey, that was depicted on the early Ordnance Survey maps, followed the course of the pre-canalised river. It has subsequently been realigned along the present river channel.

The flood defences flanking the Witham, including the embankment for the Lincolnshire Loop Line and the side drains looked identical in 1891 and 1906 to their present configuration. There was a farm complex in the lea of the flood bank c. 150m to the south-

east of the end of (**50**). The main buildings still survive, but some of the outbuildings and an orchard, which lay further to the north-west - closer to the flood bank improvement works, have now been levelled and incorporated into the surrounding field. In the late 19th and early 20th centuries there was also a farm at the south-eastern corner of the next field to the north of (**50**). This complex, Hurn Farm, has now completely disappeared.

C: *Air photographic evidence*

An examination of the oblique aerial photographs held by the NMR did not reveal the presence of any archaeological features.

D: *Site visit*

An examination of the riverbank along Section (**50**) did not reveal any features of potential archaeological significance.

E: *Summary and discussion of the evidence*

A search of existing sources combined with a site visit indicates that there is very little evidence for past human activity along this section of the River Witham. Archaeological material has only been identified at one location, this being situated c. 400m to the north-east of (**50**), on the other side of the modern river channel.

A map of 1734 indicates that there was a small settlement occupying approximately the same location as Swinton's Farm, which is situated on the north-east bank of the river opposite the northern end of (**50**) (Pitchford's map - not examined during this desk-based assessment, but the main elements are transcribed in Lane & Hayes, 1993: as fig. 13). This site was known as '*Pierson's Booth*' and was situated on the northern edge of the pre-canalised river channel. Artefactual evidence collected from comparable sites further to the south-east suggested that it is likely to have been a medieval foundation. '*Booth*' was a Scandinavian word introduced to the region during the 9th and 10th centuries. It is thought to refer to temporary camps or seasonally occupied settlements, and often has a close spatial relationship to riverside locations. It is therefore likely that it was used particularly in reference to fisheries, which provides an indication of the original nature of this site.

Assessment of archaeological potential:

Section 50	**LOW**

6.2 Archaeo-environmental potential

Previous archaeological finds made along the margins of the River Witham indicate that the archaeo-environmental potential within the valley is very high. The opportunity was taken to examine exposed topsoil/ploughsoil during visits to the different sections of flood bank considered in this document. Where it was possible to see exposed sediments it was noted that the uppermost deposits in all of these areas was a dark grey to black humic soil. In each case at least 20% of these deposits was degraded peaty material, despite it having been aerated by plough action. In the conditions under which peat forms, organic macro- and micro-fossils, wood, leather and pollen are all likely to survive. Additionally, such environments are so deoxygenated that the ferrous components of composite artefacts are also often extremely well preserved.

The proximity of the sections of flood bank examined to a river or other channel suggests that there has always been a continuous, adjacent source of groundwater in each area. Furthermore, the underlying alluvium, silty clays and clay rich glacial till will have acted as an impermeable membrane, helping to ensure that the soils remained waterlogged. In such anaerobic conditions buried organic remains are unlikely to have degraded, and some of this material may have been constantly saturated since the later 2nd or early 1st millennium BC. These observations have been borne out by a recent excavation undertaken between the bank of the Witham and the North Delph at Fiskerton. The archaeological deposits lay between two watercourses, seepage from which ensured that they were generally in a better state of preservation than comparable material examined in the field to the north (*q.v.* Field & Parker-Pearson, in press). Organic material exposed included a log boat and the partial remains of another, wooden posts, stakes and pegs, the hafts and handles of composite tools and, worked and unworked bone. In addition there were a range of macroscopic plant fragments, including seeds and twigs, and microscopic remains including pollen.

7.0 Impacts to the archaeological resource

In many areas of Lincolnshire plough damage represents the most significant threat to the integrity of the archaeological resource. This is not the case with respect to most of the sections of riverbank considered in this document. Many lie within a narrow strip of pasture or rough ground following the river, which was almost certainly created at the time the channel was canalised. Therefore, plough degradation and homogenisation along the base of the flood bank is only likely to have occurred along Sections (**27**) and the western part of (**38**).

The most significant impact upon *in-situ* deposits will have resulted from the effects of the systematic and sustained drainage of the surrounding landscape. The scouring and straightening of the river, between 1762 and 1788, will have initiated this process, along with the installation of wind-powered pumps. However, the raising of the channel upstream of Chapel Hill, between 1812 and 1830, will have exacerbated this, as would the installation of steam powered pumps during the first half of the 19th century. Prolonged dewatering will have exposed buried organic materials to aerobic bacteria, thereby reinitiating the decay process. Desiccated organics will have completely decomposed, while those that periodically dry out will have become fragmentary.

It is also likely that the actual process of constructing the present flood embankments will have had some physical effects upon archaeological deposits. Much of the bank material is likely to have been generated as a by-product of the scouring of the river channel and the creation of adjacent drains. However, the recent excavation at Fiskerton suggested that this material had been supplemented by collecting sediment from the adjacent area. Removal of the topsoil revealed a mixed deposit containing 19th century brick and tile, which was

deposited directly upon stratified Roman deposits. The latter had a significant organic component, but the larger pieces of wood were fragmentary, suggesting temporary or periodic desiccation. If this process has been extensively applied along the edge of the present river channel, it is possible that medieval and post-medieval deposits have been either truncated or removed, and that underlying stratified organic material has been degraded.

8.0 Conclusions

Analysis and synthesis of existing sources has indicated that there is varying archaeological potential among the thirty-two sections of riverbank that were examined in this study. This potential has been ranked as high, medium or low according to its perceived significance and the degree to which it is considered that archaeological deposits could be disturbed by works associated with the flood bank improvements (see, Table 3).

The most archaeologically sensitive areas are those where the anticipated deposits are generally atypical of routine activity, and are either situated close to the present ground surface, or contain fragile organic materials. The area surrounding Section (**27**) contains a wealth of important deposits, primary among which are the monuments constituting Stainfield barrow cemetery. Some of the barrows are still visible as slight earthworks that project from a mantle of peat, and extend to within 50m of the stretch of Stainfield Beck that will be subject to improvement. They are provided with statutory protection, being listed as Scheduled Ancient Monuments. It is also apparent that there is a large cropmark enclosure situated between (**26**) and (**27**), outlying elements of which may also extend into the areas designated for flood defence improvements.

There is also a strong possibility that there are a number of causeways, of later prehistoric to medieval date, crossing the river valley in close proximity to several of the sections of the flood bank that are due to be enhanced. It is anticipated that these structures are situated in the immediate environs of Sections (**21**), (**22**), (**24**) and (**39**). Any surviving wooden structures within such features are likely to be relatively fragile and susceptible to damage through compression and compaction.

The potential has been identified for further significant archaeological deposits to be encountered along other sections of the river. Of these the most important are expected to be lengths of the Roman Car Dyke in Sections (**33**) and (**39**), further Roman deposits along Section (**48**) and elements of medieval fisheries located in Sections (**20**) and (**26**).

Section no.	Archaeological potential	Archaeological deposits anticipated
17	LOW-MEDIUM	• Possible round barrows or associated funerary deposits. • Late Bronze Age to Early Iron Age cultural deposits.
18	LOW	• Possible funerary deposits associated with nearby barrow cemetery.
19	LOW-MEDIUM	• Possible round barrows or associated funerary deposits. • Possible facilities associated with the convergence of the River Witham and the western end of the Car Dyke.
20	HIGH	• Remains of medieval grange and fishery of 'Barleymouth'. • Possible elements of Romano-British farmstead, or associated deposits. • Possible preserved waterlogged wooden structures or log boats.
21	LOW-MEDIUM	• Possible funerary deposits associated with nearby barrow cemetery. • Deposits or structures associated with a possible Anglo-Saxon to medieval causeway/site of votive deposition. • Outlying elements of a possible medieval farmstead/ grange and/or fishery under or adjacent to Five Mile House Farm.
22	LOW-MEDIUM	• Possible round barrows or associated funerary deposits. • Possible Anglo-Saxon to medieval causeway/site of votive deposition.
23	LOW	-
24	LOW-MEDIUM	• Deposits relating to Short Ferry Road - possibly a late prehistoric to medieval causeway, with associated ritual/votive functions. • Possible outlying elements of Romano-British farmstead and/or medieval fishery and grange located to south at Short Ferry Marina.
25	LOW	-
26	MEDIUM	• Probable site of medieval fishery called 'le Aldra', at centre of section. • Possible features associated with a large (prehistoric?) cropmark enclosure. • Possible round barrows or associated funerary deposits.
27	HIGH	• (*North*) Scheduled barrow cemetery and associated funerary deposits on the northern side of Stainfield Beck. • (*South*) Possible features associated with a large (prehistoric?) cropmark enclosure to west and probable

Section no.	Archaeological potential	Archaeological deposits anticipated
		prehistoric field system to east. • (*North & South*) Medieval canal – channel separating northern and southern elements of scheme. • (*North & South*) Possible elements of medieval field systems.
31	LOW	• Possible remains of a later 17th or 18th century bridge.
32	LOW	-
33	MEDIUM	• Possible Neolithic activity. • Possible funerary deposits associated with a nearby barrow cemetery. • A section of the Car Dyke. • Possible medieval fishery at western end of section.
34	LOW	• Possible medieval remains associated with the settlement of Dogdyke.
35	LOW-(MEDIUM?)	• Possible medieval remains associated with the settlement of Dogdyke; southern end of section may overlie an area of a small harbour.
36	LOW	• Remains of a group of (probably) 19th century buildings situated at the centre of the section.
37	LOW	-
38	LOW	• Remains of a (probable) 19th century building situated at western end of the section. • 18th – 20th century sluices and associated features at the end of Holland Dike.
39	MEDIUM	• A section of the Car Dyke. • Deposits relating to Causeway Road - a medieval causeway, with possible late prehistoric origins. Deposits relating to earlier bridge/ford noted, also possible that it had associated ritual/votive functions.
40	LOW	-
41	LOW	-
42	LOW	-
43	LOW	-
44	LOW	• Possible post-medieval pottery production sites.
45	LOW	-

Section no.	Archaeological potential	Archaeological deposits anticipated
46	LOW	• Remains of a small group of buildings; probably mid 19th century structures associated with the operation of the adjacent railway.
47	LOW	-
48	MEDIUM - HIGH	• Possible Romano-British artefact scatters and remains. • Possible medieval artefact scatters and remains. • Possible medieval fishery at, or adjacent to Reaches Marsh Farm. • Undated field systems.
49	LOW	• Possible remains of 18th century (or earlier) building situated at south-eastern end of the section.
50	LOW	-
51	LOW	-

Table 3: Summary of the archaeological potential of each section of the Phase 2 and Phase 3 works considered in this study (compiled from Section 6.1).

9.0 Mitigation

It has been deduced from the sources assessed that some elements of the study area appear to have little archaeological potential. The current state of knowledge suggests that significant deposits will not be encountered along Sections **18**, **23**, **25**, **31**, **32**, **34**, **36**, **37**, **38**, **40**, **41**, **42**, **43**, **44**, **45**, **46**, **47**, **49**, **50**, and **51**, which together extend 9,705m (50.9% of the total length considered in this document). However, it should be noted that not all of the artefacts either cast into the river or deposited by it would have a close association with structures such as causeways or barrow cemeteries. Consequently, there will always be an element of such assemblages that will effectively be randomly distributed. This limits the value of predictive analysis for determining the location of further buried objects in this class, but it is likely that such objects will be buried sufficiently deeply to minimise any effects relating to the groundworks.

The groundworks will be largely restricted to the removal of the topsoil, followed by the deposition and compaction of clay. Consequently, it is anticipated that they will only have a direct impact on two types of deposit; those that lie directly beneath the topsoil (A) and those that contain waterlogged timbers (B).

A: Excavations already undertaken around Short Ferry Marina, adjacent to Section (**20**), indicate that there are *in-situ* archaeological deposits immediately beneath the topsoil along this stretch of the river (White, 1977; 1984).

Some of the monuments forming of the barrow cemetery situated just to the north of Section (**27**) survive as earthworks. It is therefore possible that associated structures lie just beneath the ground surface in the area of the proposed groundworks and may be affected by the removal of topsoil.

A series of Romano-British deposits have been identified in the area of Section (**48**), both in the ploughsoil of surrounding fields and eroding from the riverbank to the east of Langrick Bridge. This suggests that this material is not deeply stratified, and thus may be exposed during topsoil stripping.

B: At present there is evidence to suggest that there may have been causeways crossing the river to the east of Fiskerton and Stamp End, (**21**) and (**22**), beneath Short Ferry Road, (**24**), and to the north of North Kyme, (**39**). Excavations on an Iron Age causeway at Fiskerton demonstrated that it was constructed from vertical timber posts and associated horizontal planks. It is therefore possible that comparable timbers are buried beneath these other causeways. The existence of these structures is largely conjectural and it seems unlikely that topsoil stripping would expose many of these elements, even if they did survive. However, it is necessary to acknowledge that if present, such timbers would be fragile and susceptible to deformation or destruction during the deposition and compaction of the bank material.

There is a lesser possibility that other wooden structures may be associated with the fisheries that are located in Sections (**20**), and (**26**), elements of the Car Dyke, in (**19**), (**33**) and (**39**), and possibly with 'Dogdyke Haven', which is likely to have been situated in the vicinity of (**34**) and (**35**).

There may be further impacts upon the archaeological resource where it is necessary to construct access roads to the sections of flood bank that will be improved. The effects of such works are likely to be limited except where the access roads spur from roads likely to be of considerable antiquity. This equates to a series of causeways that cross the Witham Fen, all of which are known to have existed during the medieval period, but which may be considerable older. Short Ferry Road would appear to be the only such byway likely to be directly affected by this form of activity, as it will probably be used for the movement of plant and bulk materials during the completion of some elements of the flood defence improvements considered in this report.

While the potential presence of significant archaeological deposits has been identified, their exact position and their form remains unresolved, as these aspects could not be fully addressed by the non-intrusive techniques employed in this study. It is therefore likely that a phase of selective and limited non-intrusive fieldwork and intrusive intervention will be necessary to fully establish the nature of the extant resource. This will be a necessary precursor to the formulation of a mitigation strategy for each of the sections considered to have some archaeological potential.

10.0 Acknowledgements

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11.0 References

B.G.S. 1995 *Horncastle, England and Wales Sheet **115***. Solid and Drift Geology. 1: 50,000 Provisional Series. Keyworth, British Geological Survey.

B.G.S. 1995 *Boston, England and Wales Sheet **128***. Solid and Drift Geology. 1: 50,000 Provisional Series. Keyworth, British Geological Survey.

Bradley, R. 1990 *The Passage of Arms: an Archaeological Analysis of Prehistoric Hoards and Votive Deposits*. Cambridge, Cambridge University Press.

Cameron, K. 1998 *A Dictionary of Lincolnshire Place-Names*. Nottingham, English Place-Name Society, Popular Series, Vol **1**.

Coles, J., Orme, B.J., May, J. & Moore, C.N. 1979 Excavations of Late Bronze Age or Iron Age date at Washingborough Fen. *Lincolnshire History and Archaeology*, **14**: 5-10.

Edmonds, M. 1995 *Stone Tools and Society*. London, Batsford.

Everson, P.L., Taylor, C.C. & Dunn, C.J. 1991 *Change and Continuity: Rural settlement in north-west Lincolnshire*. HMSO, London.

Field, N. & Parker-Pearson, M. In press *Fiskerton: An Iron Age timber causeway with Iron Age and Roman votive offerings*. Oxford, Oxbow.

Hill J.W.F. 1965 *Medieval Lincoln*. Cambridge, Cambridge University Press.

I.G.S. 1973 *Lincoln, Sheet **114***. Solid and drift edition. Southampton, Institute of Geological Sciences.

IFA 1994 *Standard and Guidance for Archaeological Desk-Based Assessments*. Birmingham, Institute for Field Archaeologists.

JBAA 1855 Proceedings of the Association. *Journal of the British Archaeological Association*, 11: 263.

Lane, T. & Hayes, P. 1993 The south-eastern Witham Fens. In Lane, T.W., *The Fenland Project Number 8: The Lincolnshire Survey, the Northern Fen-Edge*. Sleaford, East Anglian Archaeology, **66**: 13 – 23.

LCC, 1998 *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice*. Lincoln, Built Environment Section, Lincolnshire County Council.

Morgan, P. & Thorn, C. (eds.) 1986 *Domesday Book: 31 Lincolnshire*. Chichester, Phillimore.

Newton, M. 1995 *South Kyme: The History of a Fenland Village*. South Kyme, Kyme Publications.

Owen, D.M. 1984 The beginning of the port of Boston. In Field, N. & White, A. (eds.) *A Prospect of Lincolnshire*. Lincoln: 42-45.

Palmer-Brown, C.P.H. 1997 *Archaeological Watching Brief Report: Top Farm, Stainfield, Lincolnshire*. Pre-Construct Archaeology (Lincoln) (Unpublished report).

Pevsner, N. & Harris, J. 1989 *The Buildings of England: Lincolnshire* (2nd Edition revised by N. Antram). London, Penguin.

Rylatt, J.D. 2001 *Archaeological Desk-Based Assessment: Lower Witham Flood Defence Improvement Scheme, Part 1: 19 Sections of Flood Defences (phase 2 and 3 works – 2001/2 to 2002/3), River Witham and Barlings Eau, Lincolnshire*. Pre-Construct Archaeology (Lincoln) (Unpublished report).

Simmons, B.B. 1980 Iron Age and Roman coasts around the Wash. In Thompson, F.H. (ed.) *Archaeology and Coastal Change*. London, The Society of Antiquaries of London, Occasional Papers (New Series), **1**: 56 – 73.

Stocker, D. 1993 The early church in Lincolnshire. In Vince, A. (ed.) *Pre-Viking Lindsey*. Lincoln, City of Lincoln Archaeology Unit: 101-122.

Stocker, D. & Everson, P. forthcoming The straight and narrow way. Fenland causeways and the conversion of the landscape in the Witham Valley, Lincolnshire. In Carver, M. (ed.) *The Archaeology of Conversion in Northern Europe*. Brepols.

Thompson, P. 1856 *The History and Antiquities of Boston and the Hundred of Skirbeck*. Boston, John Noble (Reprinted 1997: Heckington, Heritage Lincolnshire).

Trollope, E. 1872 *Sleaford and the Wapentakes of Flaxwell and Aswardhurn in the County of Lincoln*. Sleaford, William Fawcett (Reprinted 1999: Heckington, Heritage Lincolnshire).

White, A. 1977 Archaeology in Lincolnshire and South Humberside, 1976. *Lincolnshire History and Archaeology*, **12**: 73-4.

White, A. 1978 *Dug-out Boats from Lincolnshire and South Humberside*. Lincoln, Lincolnshire County Council, Lincolnshire Museums Information Sheet, Archaeology Series, **3**.

White, A. 1979 *Antiquities from the River Witham: Part 3 Mediaeval*. Lincoln, Lincolnshire County Council, Lincolnshire Museums Information Sheet, Archaeology Series, **14**.

White, A. 1984 Medieval fisheries in the Witham and its tributaries. *Lincolnshire History and Archaeology*, **19**: 29-35.

White, W. 1856 *History, Gazetteer and Directory of Lincolnshire* (2nd Edition). Sheffield (reprinted 1969 by David & Charles Reprints, Newton Abbot).

Whitwell, J.B. 1992 *Roman Lincolnshire*. Lincoln, Society for Lincolnshire History and Archaeology. History of Lincolnshire, **II**.

Winton, H. 1998 The cropmark evidence for prehistoric and Roman settlement in west Lincolnshire. In Bewley, R.H. (ed.) *Lincolnshire's Archaeology from the Air*. Lincoln, The Society for Lincolnshire History and Archaeology & RCHME. Occasional Papers in Lincolnshire History and Archaeology, **11**: 47-68.

Appendix 12.I: Catalogue of sites and finds derived from the Lincolnshire County Sites and Monuments Record

SMR Code	NGR	Description
		SECTION 17
60613	TF04107140	Mesolithic flint scatter, including tools and debitage, found to the north-west of the pumping station at Washingborough in 1972.
52935	TF03707130	A stone axe of Tremolite Fels
52850	TF03907160	Probable Bronze Age round barrow cemetery, possibly with an associated square barrow.
60327	TF05207050	Round barrow cemetery comprised of approximately 30 barrows dispersed over a large part of Washingborough Fen.
51208	TF03667159	Flint scatter on a rodden to the south of Fiskerton Road East, Cherry Willingham. Eight pieces were exposed in a drainage cutting; these include a barbed and tanged arrowhead.
60461	TF03727087	Two stone tools recovered from surface of field.
61322	TF04167116	Sherd of Late Bronze Age/Early Iron Age pottery recovered during field walking (Washingborough Archaeology Group field 3).
60612	TF04237138	Late Bronze Age and Early Iron Age artefacts from the environs of the pumping station on the South Delph, Washingborough. Surface finds and an excavation in 1973 recovered an antler cheekpiece from a bridle, pottery, animal and human bone, and worked wood. Possibly associated with a causeway crossing Washingborough Fen, a continuation of Mareham Lane.
52854	TF03607160	Undated cropmark trackways and enclosure.
52861	TF03407150	Undated cropmarks forming a rectangular enclosure.
		SECTION 18
52860	TF02307150	Two cropmarks, suggesting presence of round barrows or other mounded features.
61323	TF02887084	Three worked flints found to the north of Fen Road in 1993 (Washingborough Archaeology Group field 12).
61329	TF02757080	Six worked flints found to the north of Fen Road in 1993 (Washingborough Archaeology Group field 19).
61341	TF03207080	One worked flint found to the north of Fen Road in 1995 (Washingborough Archaeology Group field 29).
61295	TF02280791	Three Late Bronze Age swords found during the construction of the railway.
60714	TF02037084 to TF04177055	Car Dyke, a Roman canal or drain running along the northern edge of Washingborough.
61288	TF02507100	Neck of a Romano-British flagon found during cleaning of the

SMR Code	NGR	Description
		Longstongs Delph in 1973.
61287	TF02507100	Base of a medieval baluster jug found during cleaning of the Longstongs Delph in 1973.
52855	TF02257132	Undated cropmark enclosure.
52854	TF03607160	Undated cropmark trackways and enclosure.
52861	TF03407150	Undated cropmarks forming a rectangular enclosure.
		SECTION 19
52860	TF02307150	Two cropmarks, suggesting presence of round barrows or other mounded features.
61295	TF02280791	Three Late Bronze Age swords found during the construction of the railway.
60714	TF02037084 to TF04177055	Car Dyke, a Roman canal or drain running along the northern edge of Washingborough.
61289	TF01957077	Roman coin of Tetricus II found to the south of Main Road.
61285	TF01817060	Two Romano-British coins of the 3rd century found in the grounds of Washingborough Hall.
52827	TF01457140	Two Romano-British fibulae found in the grounds of Greetwell Hall.
61275	TF01847063	The church of St John the Evangelist, Washingborough.
61282	TF01767067	Silver penny of Henry VIII found at The Acorns, Church Hill.
61309	TF02087076	69 Main Road, Washingborough – a late 16th century farmhouse with an attached wall and barn.
61207	TF01807076	Post-medieval culvert at the front of 6 Main Road.
52829	TF01507155	Post-medieval garden remains surrounding Greetwell Hall.
61312	TF02047068	The Old Hall, Washingborough – an 18th century structure.
61276	TF01857059	Washingborough Hall, situated to the south of the church.
61308	TF01917059	The Rectory, High Street, Washingborough – this structure and an attached cottage were constructed in the 18th century.
61286	TF01987069	Two 18th century dessertspoons found at 'Hunter's Leap'.
61310	TF02177076	Wellington House, 83 Main Road, Washingborough – early 19th century structure.
61319	TF01727077	Methodist Church situated on Main Road.
61318	TF01547094	Washingborough railway station, which is situated between the Witham and the South Delph. Built c. 1848 to service the GNR's

SMR Code	NGR	Description
		Lincolnshire Loop Line.
61315	TF02007062	Stone quarry off School Lane.
52855	TF02257132	Undated cropmark enclosure.
52856	TF02107128	Undated cropmark mound and/or ring ditch.
		SECTION 20
52898	TF09407140	Broken leaf shaped 'point' (arrowhead?) found while digging a drain at Short Ferry Marina by Mr and Mrs Shooter. Probably Neolithic.
54161	TF10227173	Late Neolithic to Early Bronze Age Pottery found to west of Top Farm, Stainfield, during an evaluation by PCA.
54162	TF10207172	Late Neolithic to Early Bronze Age features, including pits, gullies, ditches and a possible round barrow ditch, found to west of Top Farm, Stainfield, during an evaluation by PCA.
53836	TF10147167	Cropmark indicating presence of round barrow or other mounded feature.
61454	TF09737122	Food vessel found on Branston Island – 'a curious urn with four feet' found around 1869, at a considerable depth in sand adjacent to the River Witham. Possibly the same item as a food vessel in the Trollope Collection (LM 88.50); 0.15m diameter and 0.13m high. (see *Arch. Jour.* XXVI: 288)
52894	TF08967120	Log boat (Fox type IIB) found sealed beneath peat in March 1952. Excavated and deposited with Lincoln City and County Museum; 7.3m long by 0.6m wide.
51203	TF09907158	Fragment of a log boat found in 1953.
51205	TF09627150	Two log boats found whilst recutting a drain close to the present course of the Witham, south-east of Short Ferry. Broken up and reburied.
51206	TF09747157	Fragment of a log boat found in 1976, south-east of Short Ferry Bridge.
52892	TF09377166	Sword found in 1872 by William Buckle while cleaning and deepening the Barlings Eau; 1.37 to 1.42m long.
52907	TF09657134	Romano-British pottery found during the construction of Short Ferry Marina.
51204	TF09447165	Penny of Edward the Confessor found on the bank of the Barlings Eau by Short Ferry Bridge. A trefoil quadrilateral (BM type 3), *obv.* '+EDP RD REX' *rev.* '+COIGRIM ON LONCOL'.
51210	TF103712	Medieval monastic fishery belonging to Stainfield Priory and known as 'Maidengarth', situated at the junction of the River Witham and the Snakeholme Drain.
52906	TF09607130	Medieval monastic grange and fishery belonging to Stainfield

SMR Code	NGR	Description
		Priory and known as 'Barling Mouth', in the angle of the confluence of the River Witham and the Barlings Eau. Constructed on a raised mound, excavation revealed remains of a stone building, fishing and fish processing equipment. Artefacts included the remains of a stamped curfew, fish smokers and net sinkers. Pottery continued into the post-medieval period.
51207	TF09757136	Eleven medieval limestone net sinkers found south-east of Short Ferry Bridge, in May 1960.
51212	-	Unlocated sites of medieval fisheries belonging to Stainfield Priory, which had a number of such stations on the Witham and Barlings Eau.
52908	TF09657134	Medieval and post-medieval material recovered during the construction of Short Ferry Marina, among which was a considerable quantity of pottery. Latter included Nottingham, Toynton, Bourne, shelly, Tudor-Green, Cistercian, Midlands Yellow, French Polychrome, Lincoln wares and German and Flemish stonewares.
53838	TF09847155	Ridge and furrow earthworks, probably later medieval.
52901	TF08907120	Fiskerton Sluice. Situated one mile upstream of Bardney Lock, this sluice was constructed as part of the scheme to improve the navigation and drainage of the river; the river was raised and embanked between 1812 and 1830 under the supervision of John Rennie. The sluice allowed excess water to be diverted into the old river channel surrounding Branston Island.
		SECTION 21
52895	TF07707200	Probable site of second Bronze Age hoard from Fiskerton. Four socketed axes are recorded, one of which is now lost while the others were in the possession of Market Rasen Grammar School.
52910	TF05807160	Early Bronze Age axe hammer, reported to museum in 1966.
61453	TF05807110	Perforated stone axe hammer found to the south of the Witham on Five Mile House Road.
54512	TF06367187	Two worked flint flakes found at Woodlands Farm, Ferry Road, Fiskerton.
52896	TF05647155	Viking Sword of the 9th century found in 1954 on the northern bank of the Witham at Fiskerton, just upstream of the Five Mile House. The blade is plain, but the pommel and handgrip would have been decorated. Vestiges of a wooden scabbard adhere to the blade.
61465	TF06367135	Ridge and furrow earthworks south of the Witham, probably part of medieval field system.
52913	TF06007214	Ridge and furrow earthworks north of the Witham.
52909	TF08007190	Disused brickyard, not shown on First Edition Ordnance survey or 1830 map, so probably later.
50668	TF08007215	Long Wood, Fiskerton: listed in the Nature Conservancy Council's

SMR Code	NGR	Description
		inventory of ancient woodland. Ancient woodland status considered probable.
52879	TF03007270	RAF Fiskerton and associated buildings – airfield opened in 1943 and closed in 1946.
		SECTION 22
52841	TF00707110	Round barrow cemetery containing at least 11 barrows visible as cropmarks/soilmarks.
60930	TF00207070	Round barrow cemetery to the south of the Witham and visible on aerial photographs. Six lie in Canwick Parish, with a further example within the City of Lincoln. A glebe terrier of 1602 supports the theory that there are barrows at this location. One barrow to the south-west corner of the field was prominent as a slight mound and was found to be associated with nine sherds of crude Bronze Age pottery, probably from a plain bucket urn.
61504	TF00107071	Two bronze palstaves found to the south of the Witham.
SK97SE – CT	SK99957072	Two Middle Bronze Age palstaves, with shield ornament below stop ridges, found on sewage farm, now in British Museum.
61503	TF00017030	Middle Bronze Age cinerary urn found near the water treatment works.
61509	TF00307070	Flint scatter (19 worked pieces) recovered from a field running along the southern edge of the Witham (Washingborough Archaeology Group field C1).
60466	TF00257050	Worked flint recovered from a field running along the southern edge of the railway line (Washingborough Archaeology Group field 18).
SK97SE – CN	SK98587102	Late Bronze Age sword and part of a second recovered in 1906 while dredging river channel immediately opposite Monk's Leys (L.M. 113.08/114.08).
SK9871SW – A	SK98427104	Late Bronze Age swords recovered while dredging river channel immediately upstream of railway bridge.
61328	TF00257050	A sherd of Late Bronze Age/Early Iron Age pottery recovered from a field running along the southern edge of the railway line (Washingborough Archaeology Group field 18).
60463	TF00257050	Romano-British artefact scatter recovered from a field running along the southern edge of the railway line (Washingborough Archaeology Group field 18). Density and range of materials suggests the presence of a farmstead or settlement.
61510	TF00307070	Six sherds of Romano-British pottery recovered from a field running along the southern edge of the Witham (Washingborough Archaeology Group field C1).
SK9971SE – B	SK99307109	Coin of Constantine I: obv. CONSTANTINVS P F AVG, rev. SOLI INVICTO COMITI. Minted Trier AD 315-316 (R.I.C. No. 82), found on north bank of river.

SMR Code	NGR	Description
SK9971SE – C	SK99307109	Coin, *follis* of Maximinus II, found on north bank of river, 1962.
SK9871SE – A	SK98907108	Anglo-Saxon to medieval sword recovered from north edge of the river channel.
61326	TF00257050	One possible sherd of Anglo-Saxon pottery recovered from a field running along the southern edge of the railway line (Washingborough Archaeology Group field 18).
SK9871SE – E	SK98577116	Medieval key with bilateral web and lozenge shaped bow, 13th – 14th century, from rear garden of 9 Bentinck Square.
61511	TF00307070	Seventeen medieval sherds and 667 post-medieval sherds of pottery recovered from a field running along the southern edge of the Witham (Washingborough Archaeology Group field C1).
70213	SK987710	Probable site of clay pipe factory (formerly SK97SE – CB).
SK97SE – AV	SK996705	Undated circular cropmarks seen adjacent to sewage farm in 1966.
	SECTION 23	
61454	TF09737122	Food vessel found on Branston Island – 'a curious urn with four feet' found around 1869, at a considerable depth in sand adjacent to the River Witham. Possibly the same item as a food vessel in the Trollope Collection (LM 88.50); 0.15m diameter and 0.13m high. (see *Arch. Jour.* XXVI: 288)
51162	TF10506990	Log boat found in 1814 when a drain was cut near Horsley Deeps. Possibly the same as 'Bardney 1' found c. 1815, which was 9.15m long by 1.4m wide.
51142	TF10377004	Log boat found c. 1829 during the construction of Horsley Deeps Lock (Bardney Lock). Known as 'Bardney 2', it was an oak vessel 9.3m long by 0.9m wide, which was found 2.4m below the ground surface; dimensions correspond to those of a vessel found c. 1816, '2 miles east of Lincoln' raising possibility that it was the same boat.
60478	TF103709	Part of bottom and side of a log boat found in 1976 during ploughing – remainder may still be *in-situ*. Known as 'Bardney 3', it was an oak vessel, the exposed portion being 2.25m long by 0.6m wide and up to 0.12m thick.
51163	-	Viking period axe head found near Horsley Deeps c. 1815. Now in the Society of Antiquaries collection.
52906	TF09607130	Medieval monastic grange and fishery belonging to Stainfield Priory and known as 'Barling Mouth', in the angle of the confluence of the River Witham and the Barlings Eau. Constructed on a raised mound, excavation revealed remains of a stone building, fishing and fish processing equipment. Artefacts included the remains of a stamped curfew, fish smokers and net sinkers. Pottery continued into the post-medieval period.
51148	TF10877069	Possible monastic canal – the lower part of the Bardney Beck to the west of Bardney Abbey is relatively straight and may have been

SMR Code	NGR	Description
		widened to enable navigation to the Witham.
51212	-	Unlocated sites of medieval fisheries belonging to Stainfield Priory, which had a number of such stations on the Witham and Barlings Eau.
52908	TF09657134	Medieval and post-medieval material recovered during the construction of Short Ferry Marina, among which was a considerable quantity of pottery. Latter included Nottingham, Toynton, Bourne, shelly, Tudor-Green, Cistercian, Midlands Yellow, French Polychrome, Lincoln wares and German and Flemish stonewares.
53839	TF10587051	Undated cropmark enclosure.
		SECTIONS 24 & 25
52898	TF09407140	Broken leaf shaped 'point' (arrowhead?) found while digging a drain at Short Ferry Marina by Mr and Mrs Shooter. Probably Neolithic.
51203	TF09907158	Fragment of a log boat found in 1953.
51205	TF09627150	Two log boats found whilst recutting a drain close to the present course of the Witham, south-east of Short Ferry. Broken up and reburied.
51206	TF09747157	Fragment of a log boat found in 1976, south-east of Short Ferry Bridge.
52892	TF09377166	Sword found in 1872 by William Buckle while cleaning and deepening the Barlings Eau; 1.37 to 1.42m long.
52907	TF09657134	Romano-British pottery found during the construction of Short Ferry Marina.
51204	TF09447165	Penny of Edward the Confessor found on the bank of the Barlings Eau by Short Ferry Bridge. A trefoil quadrilateral (BM type 3), *obv.* '+EDP RD REX' *rev.* '+COIGRIM ON LONCOL'.
52906	TF09607130	Medieval monastic grange and fishery belonging to Stainfield Priory and known as 'Barling Mouth', in the angle of the confluence of the River Witham and the Barlings Eau. Constructed on a raised mound, excavation revealed remains of a stone building, fishing and fish processing equipment. Artefacts included the remains of a stamped curfew, fish smokers and net sinkers. Pottery continued into the post-medieval period.
51207	TF09757136	Eleven medieval limestone net sinkers found south-east of Short Ferry Bridge, in May 1960.
51211	TF09407260	Possible site of a medieval fishery on the Barlings Eau. Possibly the fishery belonging to Stainfield Priory known as 'The Odds' ('Le Aldra) in 1538.
51212	-	Unlocated sites of medieval fisheries belonging to Stainfield Priory, which had a number of such stations on the Witham and Barlings Eau.

SMR Code	NGR	Description
52908	TF09657134	Medieval and post-medieval material recovered during the construction of Short Ferry Marina, among which was a considerable quantity of pottery. Latter included Nottingham, Toynton, Bourne, shelly, Tudor-Green, Cistercian, Midlands Yellow, French Polychrome, Lincoln wares and German and Flemish stonewares.
53838	TF09847155	Ridge and furrow earthworks, probably later medieval.
		SECTION 26
50187	TF09397324	Barlings and Stainfield round barrow cemetery in two groups. Western scheduled area (SAM 20809) contains 4 bowl barrows. The eastern area (SAM 21472) contains at least 11 round barrows of varying form – at least 3 have two encircling ditches.
50425	TF09537359	Flint scraper found by N Field while surveying Stainfield Barrow cemetery.
53021	TF09607280	Cropmarks of possible prehistoric enclosure.
51211	TF09407260	Possible site of a medieval fishery on the Barlings Eau. Possibly the fishery belonging to Stainfield Priory known as 'The Odds' ('Le Aldra) in 1538.
53012	TF09157320	Possible monastic canal – the present course of the Barlings Eau to the south of Barlings Abbey is relatively straight and runs against the eastern edge of the Abbey on Oxney Island. This suggests the possibility that this is a monastic construction to enable navigation to the Witham.
51209	TF10007310	Possible monastic canal – the present course of the Stainfield Beck from the Barlings Eau, east to Stainfield Priory is relatively straight and deep, raising the possibility that this is a monastic construction to enable navigation to the Witham.
53016	TF09177313	Earthwork mounds, possibly of medieval date.
53022	TF09557275	Probable cropmark enclosure.
		SECTION 27
50187	TF09397324	Barlings and Stainfield round barrow cemetery in two groups. Western scheduled area (SAM 20809) contains 4 bowl barrows. The eastern area (SAM 21472) contains at least 11 round barrows of varying form – at least 3 have two encircling ditches.
50425	TF09537359	Flint scraper found by N Field while surveying Stainfield Barrow cemetery.
53021	TF09607280	Cropmarks of possible prehistoric enclosure.
50373	TF10367300	Cropmark complex to south-west of Stainfield Manor House, includes linear and curvilinear features (possible trackways), a ring ditch, pits, a rectangular enclosure, and field boundaries. The northern edge of this complex is overlain by further cropmarks representing ridge and furrow.

SMR Code	NGR	Description
51211	TF09407260	Possible site of a medieval fishery on the Barlings Eau. Possibly the fishery belonging to Stainfield Priory known as 'The Odds' ('Le Aldra) in 1538.
53012	TF09157320	Possible monastic canal – the present course of the Barlings Eau to the south of Barlings Abbey is relatively straight and runs against the eastern edge of the Abbey on Oxney Island. This suggests the possibility that this is a monastic construction to enable navigation to the Witham.
51209	TF10007310	Possible monastic canal – the present course of the Stainfield Beck from the Barlings Eau, east to Stainfield Priory is relatively straight and deep, raising the possibility that this is a monastic construction to enable navigation to the Witham.
53831	TF10317321	Cropmarks relating to the medieval grange and associated ridge and furrow.
53016	TF09177313	Earthwork mounds, possibly of medieval date.
53022	TF09557275	Probable cropmark enclosure.
		SECTION 31
NONE	-	-
		SECTION 32
NONE	-	-
		SECTION 33
TF15SE – L	TF152502	Stone Axe found while cleaning Car Dyke at 'Halfpenny Hatch Toll Bridge' in 1926 (L.M. 21.66).
TF15SE – R	TF15155004	Polished stone axe found at the edge of Ewerby Parish.
TF14NW – F	TF14674981	Two polished stone axes found by Mr R. Melson in 1947, L.M. 34.48
TF15SE – T	TF156503	One white flint axe and two flat bronze axes, plus flint tools, waste flakes and cores, found to west of Wood Lane.
TF15SE – G	TF152502	A small Romano-British greyware 'thumb-pot' found just prior to 1872 while cleaning the bed of the Car Dyke.
		SECTION 34
NONE	-	-
		SECTION 35
TF25SW – D	TF20785482	Medieval bronze key found by Mr P. Lewis in 1980, in mud bank of river immediately below No. 24 fishing stake, probably 14th century.
		SECTION 36
NONE	-	-

SMR Code	NGR	Description
		SECTION 37
NONE	-	-
		SECTION 38
NONE	-	-
		SECTION 39
TF15SE – E	TF15315269	Bronze Age palstave found in 1922 in small paddock immediately to the south of the churchyard, paddock is now incorporated into churchyard.
TF15SW – M	TF14805265	Section of the Car Dyke surviving as earthworks to west of the village of North Kyme.
TF15SE – D	TF15165266	North Kyme village cross, of Lincolnshire Limestone – two steps, base and shaft capped by 15th century finial: SAM No. 22632.
		SECTION 40
40657	TF26404850	Site of Armtree deserted medieval village, Langrick. Slight mounds in fields to west of Langrick associated with 13th, 14th, 15th and 18th century pottery, masonry, tile. Hamlet and manor of Armtree mentioned in document of 1572, a satellite of Coningsby at that time.
		SECTION 41
NONE	-	-
		SECTIONS 42, 43 & 44
TF25SW – A	TF21955325	Site of post-medieval pottery kiln (possibly beginning in late medieval). Concentration of pottery and sooty soil seen just to north of Great Beats Farm by Mrs. Rudkin. Excavation recovered lots of wasters, mainly of 16th century, kiln not found; L.M. 169.79 & 52.73.
		SECTION 45
NONE	-	-
		SECTION 46
TF25SW – D	TF20785482	Medieval bronze key found by Mr P. Lewis in 1980, in mud bank of river immediately below No. 24 fishing stake, probably 14th century.
		SECTION 47
40413	TF18856080	Undated cropmarks – linear features single and double ditched; close to Kirkstead Abbey.
40414	TF19206045	Undated cropmarks – linear features and field system; close to possible Iron Age enclosure.
40447	TF19695925	Undated cropmarks – faint rectangular enclosure abutting linear feature.

SMR Code	NGR	Description
		SECTION 48
40663	TF26204750	Sherds of Romano-British greyware pottery found in the southern side of the north bank of the River Witham.
43972	TF26834770	Small Romano-British artefact scatter, approximately $10m^2$ of blackened soil associated with a few sherds of greyware. Identified and examined in 2001.
43959	TF26814797	Romano-British artefact scatter situated to west of Willow Farm, Ferry Road, Langrick, adjacent to former course of Witham. Area of blackened soil associated with greyware and some samian. Metal detectorists have removed coins from the site. Identified and examined during the 1980s.
40664	TF27304750	Sherds of Romano-British greyware and samian pottery found in the north bank of the River Witham, c. 1.5m below ground level, c. 1981.
40662	TF26904820	Scatter of Romano-British, medieval and post-medieval pottery found in Hill Field, Manor Farm in 1978/9: L.M. 152.79.
43960	TF27654760	Romano-British artefact scatter, approximately $30m^2$, situated to north of disused railway embankment. Area of blackened soil associated with greyware, some samian, animal bone and a little roof tile. Identified and examined between 1995 and 2001.
40665	TF28104750	Sherds of Romano-British greyware and samian pottery found in the north bank of the River Witham, c. 1.5m below ground level, c. 1981.
TF24NE - H	TF264480	Slight mound associated with fragments of 13^{th} – 18^{th} century pottery.
43958	TF27134770	Small mound, 20m by 15m, seen in field to north of river. A few fragments of 15^{th} – 16^{th} century roof tile and pottery (43962) have been found in its immediate vicinity.
43962	TF27134770	A few fragments of 15^{th} – 16^{th} century roof tile and pottery recovered from the immediate vicinity of a small mound (43958) in 2001.
40660	TF26504750	Large hoard of (mainly) silver coins of Charles II, James II, William & Mary, William III, Anne, and George I contained in a pot dug up in a garden at 'Langret Ferry' by a cottager called Ward in 1830. Latest coin was a guinea of George I of c. 1727. Bullion value in 1830 £5/14s/6d.
		SECTION 49
NONE	-	-
		SECTION 50
TF25SW – A	TF21955325	Site of post-medieval pottery kiln (possibly beginning in late medieval). Concentration of pottery and sooty soil seen just to north of Great Beats Farm by Mrs. Rudkin. Excavation recovered lots of wasters, mainly of 16^{th} century, kiln not found; L.M. 169.79 & 52.73.

SMR Code	NGR	Description
		SECTION 51
NONE	-	-

Appendix 12.2: Colour photographs

Plate 1: Section (**25**) - image taken from the top of the flood bank, looking north-west. The high organic content of the ploughsoil is clearly visible.

Plate 2: Section (**38**) – building platform, visible as an area of longer yellowish-brown vegetation at the centre of the image, which is located at the western end of the section, looking west.

Plate 3: Section (39) - image taken from the top of the flood bank, at the pronounced bend in channel of the Billinghay Skirth, looking south-west. The lorry is situated over the in-filled channel of the Car Dyke, which runs directly toward the viewer.

Plate 4: Section (39) – brick bridge carrying Causeway Road over the Billinghay Skirth, looking north-west. Note the concentration of limestone rubble visible at the waterline c. 2m to the east of the bridge.