



FRODSHAM CUT AND LOCK, RIVER WEAVER, FRODSHAM, CHESHIRE

Heritage Assessment



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SUMMARY

Oxford Archaeology North was commissioned by The Environment Partnership (TEP), acting on behalf of British Waterways, to undertake an heritage assessment of the site of a proposed restoration scheme on the River Weaver and Frodsham Cut, Frodsham, Cheshire (NGR SJ 5283 7865-SJ 5438 7778). The archaeological work, which included a desk-based assessment and walkover survey, was undertaken in January and February 2005 and was required for inclusion in a feasibility study for the proposed restoration.

The desk-based assessment concentrated on the proposed restoration site as outlined, and its immediate vicinity as the main study area. However, data was collected up to 1km from the site to provide a wider historical and archaeological context. The earliest evidence of activity close to or within the study area is in the form of a possible Roman road (Site **34**), which is thought to have crossed the River Weaver close to Frodsham Bridge (Site **14**). During the medieval period a settlement was established on the south side of Frodsham Port, which became known as Newtown. Houses and buildings identified on early cartographic sources (Site **04**) are thought to be associated with the medieval settlement, and it is possible that Sutton Mill (Site **11**) may have had a medieval predecessor.

During the post-medieval period numerous industries grew around the port of Frodsham including a salt works (Site **01**), which was established in Frodsham in the late seventeenth century. However, a bill was passed in 1721, known as the Weaver Navigation Act, to enable the river to be navigable further inland. This was due to pressure from traders and manufacturers as the movement of goods from Frodsham port by packhorse inland was proving to be costly. By 1732 the Weaver was made fully navigable, but it was not until 1780 that Frodsham Lock (Site **22**) and Cut (Site **28**) were constructed as improvements to the navigation. The Wharf and its facilities (Site **10**) encouraged more industry after the construction of the Weaver Navigation in the early eighteenth century. Frodsham Cut (Site **28**) was built in the late eighteenth century as an improvement to the existing navigation, but by the early nineteenth century it had been by-passed by the Weaver Canal to the north, and was used only for local traffic.

The walkover survey identified a number of small sites related to the Weaver Navigation, such as groups of timber posts (Site **26**). Many of the sites identified during the assessment are related directly or indirectly to Frodsham Port and the Weaver Navigation. The former was assessed as being of regional significance due to its role in exporting salt from the Cheshire salt works. The section of the Weaver Navigation which is the subject of the current proposals was assessed as being of local significance, whilst the Weaver Navigation as a whole was deemed to be of regional significance.

No Scheduled Monuments, Conservation Areas, or Registered Parks and Gardens should be affected by the proposed restoration. However, there are six listed buildings (Sites **03**, **11**, **14**, **22**, **24**, and **38**) identified within the list of gazetteer sites that may be affected by the proposals.

The assessed significance of the remains and the likely impact of the proposals contributed to recommendations for archaeological mitigation. However, this is dependent on the exact proposals for restoration and should be in consultation with

the Historic Environment Planning Officer (Archaeology). There are two main areas of significance, with the northern end of the outlined site containing sites associated with the wharfage facilities and corresponding industrial sites, and those sites associated with the Cut and lock towards the southern end. Recommendations currently include evaluation, building recording, site survey, preservation, restoration, environmental sampling, watching brief, and subsequent interpretation panels.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Jon Lovell of The Environment Partnership (TEP) for commissioning the project, and Mark Leah of Cheshire County Council for help and advice. Thanks are also due to Liz Snead at Cheshire Historic Environment Record, all the staff of the Cheshire County Record Office in Chester, and Diane Backhouse at the Boat Museum in Ellesmere Port for their assistance with this project.

The desk-based assessment was undertaken by Jo Dawson, with the drawings produced by Kathryn Blythe and Pete Schofield. The project was managed by Emily Mercer who also edited the report, together with Ian Miller.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 British Waterways proposes to restore to navigation Frodsham Cut and Lock on the canalised section of the River Weaver (NGR SJ 5283 7865-SJ 5438 7778), as a focus of plans to regenerate the Frodsham waterfront (British Waterways 2004). The restoration of Frodsham Cut and Lock complements a number of initiatives in the area including the Weaver Valley Regional Park, the REVIVE programme, Frodsham Town Centre Development and the Sutton Weaver Boat Graveyard project. In order to assess the viability of the proposals, and justify its inclusion within the regeneration frameworks, a feasibility study of the proposed works was deemed essential. Consequently, The Environment Partnership (TEP), acting on behalf of British Waterways, commissioned Oxford Archaeology North (OA North) to undertake an heritage assessment. This followed consultation with Mark Leah, the Historic Environment Planning Officer (Archaeology) at Cheshire County Council (CCC), who requested a desk-based assessment and walkover survey.
- 1.1.2 The heritage assessment will form part of the overall environmental assessment for inclusion in the feasibility study. The desk-based assessment comprised a search of both published and unpublished records held by the Cheshire Historic Environment Record (HER), the Cheshire County Record Office, both in Chester, and the archives and library held at OA North. The walkover survey was carried out on the site of the proposed restoration, in order to relate the landscape and surroundings to the results of the desk-based assessment. The research and walkover survey were undertaken in February 2005.
- 1.1.3 This report sets out the results of the assessment in the form of a short document, outlining the findings, followed by a statement of the archaeological potential and significance, and an assessment of the impact of the proposed restoration. The significance criteria detailed in PPG 16 (DoE 1990) was employed during the assessment.

2. METHODOLOGY

2.1 INTRODUCTION

- 2.1.1 At the request of TEP, OA North adhered to the standard guidance for archaeological desk-based assessments set out by the Historic Environment Planning Officer (Archaeology) at Cheshire County Council Environmental Planning department (CCCEP 2003, Section 3). The standard guidance was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists, which is generally accepted as best practice.

2.2 DESK-BASED ASSESSMENT

- 2.2.1 The principal sources of information consulted were historical and modern maps of the Frodsham area, although published and unpublished secondary sources were also reviewed. The main study area focused on the proposed restoration site, with information from up to 1km around this obtained for the background study. All archaeological sites identified within the main study area have been included in the Site Gazetteer (*Section 4, below*) and plotted onto the corresponding Figure 2. The results were analysed using the Secretary of State's criteria for the scheduling of ancient monuments, outlined in Annex 4 of *Planning Policy Guidance 16: Archaeology and Planning* (DoE 1990).
- 2.2.2 **Cheshire County Historic Environment Record (HER):** the County Historic Environment Record (HER) held in Chester was consulted to establish the sites of archaeological interest already known within the study area, and the extent and number of these. The HER is a database of all archaeological sites in Cheshire, and is maintained by Cheshire County Council. For each entry, a short note was obtained, which was added to the Site Gazetteer (*Section 4*). Aerial photographs, both verticals (CCC 1985; Geonex 1993; Getmapping.com 2002; HSL UK 1973) and specialist obliques, were also consulted.
- 2.2.3 **Cheshire County Record Office (CRO):** the County Record Office in Chester was visited to examine maps relating to the study area. Both published and manuscript maps were consulted, as well as secondary published sources.
- 2.2.4 **The Boat Museum, Ellesmere Port (BM):** Diane Backhouse, archivist at the Boat Museum in Ellesmere Port, was contacted regarding plans of the study area. Most of the plans held at the museum dated to the late nineteenth century and, therefore, there were no plans relating to the construction of the Frodsham Lock and Cut from around 1780. However, a copy of one plan of the study area was obtained (Fig 13; BM D.1250 71.8 B n.d.).
- 2.2.5 **River Weaver Navigation Society:** the River Weaver Navigation Society supplied TEP with a copy of an unpublished report relating to Frodsham Lock (Edmondson 2004), which was then passed on to OA North. This report generally correlated with the work already undertaken for this heritage assessment. However, the sources of most of the information it contained was

not referenced. The report also included a site inspection of the lock, which has been incorporated into this heritage assessment (*see 3.4.6, below*).

- 2.2.6 ***Oxford Archaeology North:*** OA North has an extensive archive of secondary sources, as well as numerous unpublished client reports on work carried out both as OA North and in its former guise of Lancaster University Archaeological Unit (LUAU). These were consulted where relevant.

2.3 WALKOVER SURVEY

- 2.3.1 A walkover survey was conducted of the publicly accessible parts of the study area on 1st February 2005. Its main aim was to record the existence, location, and extent of any previously unrecorded sites. The footpath along the western bank of the River Weaver and Frodsham Cut was walked between the viaduct in the west, and the junction of the eastern end of Frodsham Cut with the River Weaver in the east. Sites were identified and their positions recorded accordingly on a map. A photographic record was made in monochrome print, colour slide, and colour digital formats. *Pro-forma* photographic record sheets were completed giving details of each site identified.

2.4 ARCHIVE

- 2.4.1 A full professional archive has been compiled in accordance with current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited in Cheshire County Record Office in Chester on completion of the project.

3. BACKGROUND

3.1 LOCATION, TOPOGRAPHY AND GEOLOGY

- 3.1.1 The proposed restoration site lies to the north-east of the town of Frodsham, in the Borough of Vale Royal, in Cheshire (Fig 1). The site of the proposed restoration area includes the section of the River Weaver from the viaduct in the north-west (NGR SJ 5283 7865) up to, and including, the whole of Frodsham Cut, until the junction where the Cut rejoins the River Weaver in the south-west (NGR SJ 5438 7778; Fig 2). The site lies within the relatively flat flood plain of the River Weaver, at a height of approximately 6-7m above mean sea level (Ordnance Survey 1988).
- 3.1.2 This section of the River Weaver was tidal prior to the installation of the Ship Canal and, therefore, necessitated the provision of a lock to control water movement southwards into Frodsham Cut (Boughy 1994, 165). However, to prevent tidal influences around the Cut and entering from its south side there is the additional presence of the weir between the two canal deposit tips (Fig 2) and Sutton Locks, further upriver on the Weaver (for example Fig 8). The two locks and the weir ensure that an appropriate water level can be maintained on the Weaver east of Frodsham to allow navigation.
- 3.1.3 The northern end of the proposed restoration area lies on the southern edge of the Mersey Valley, much of which is underlain by estuarine and river alluvium bordered by places of wind-blown sand (Countryside Commission 1998, 142). Other parts of the valley are mantled by glacial boulder clay with pockets of sand and gravel (*ibid*). There are outcrops of Triassic sandstone bedrock in the Frodsham area, and elsewhere to the south and east of Runcorn. In the rest of the valley only the drift geology is visible on the surface (*ibid*).
- 3.1.4 The remainder of the proposed restoration area lies on north corner of the Cheshire plain, which is part of the Shropshire, Cheshire, and Staffordshire Plain character area (*op cit*, 145). This area is formed from Triassic sandstones and marls but these are overlain by glacial deposits, largely consisting of boulder clay, with local deposits of silt, peat, sand and gravels (*ibid*).

3.2 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

- 3.2.1 **Introduction:** the historical and archaeological background is principally compiled through secondary sources and is intended to set the results of the assessment in a wider context.
- 3.2.2 **Prehistoric Period:** prehistoric remains are fairly evenly distributed to the north and south of the study area, with more having been recorded to the north-east (Cheshire HER). Some of the remains could not be closely dated, since they comprised stray finds and unexcavated cropmarks, including a flint scraper found near the towing path on the right bank of the River Weaver (Site 35; Shone 1911, 41), and two flint flakes recovered during work on the North

Western Ethylene Pipeline to the north-east of the study area (Lambert *et al* 1996). Stray finds to have been more closely dated include two Neolithic scrapers found off Townfield Lane in the east of Frodsham (Petch 1975, 59), and a Bronze Age hammerstone found further to the south in a field also near Townfield Lane (Anon 1957, 52). Cropmarks that have yet to be investigated include a ring ditch and possible barrow in a field to the south of the eastern end of the site (Higham 1986), and ring ditches discovered to the east of Sutton Hall Farm (Collens 1994).

- 3.2.3 Evidence of Iron Age activity within the vicinity is known in the form of a promontory fort, approximately 1.25km to the south of Frodsham Cut, which is the closest Scheduled Monument to the main study area (SM 25693; English Heritage 1995). The only excavated prehistoric site in the vicinity is a gully to the east of Frodsham Cut, which had a fill of burnt stones containing charcoal and a struck flint (Lambert *et al* 1996). However, there are no known prehistoric sites within the proposed restoration area.
- 3.2.4 **Roman Period:** a Roman road (Site 34) is known to have run north-east from Chester to connect with the northern road through Warrington at the Roman settlement of Wilderspool. Whilst there are convincing road lines as far as Bridge Trafford, and from Preston on the Hill to Wilderspool, the intervening terrain is not suited to straight alignments and as such the road has not yet been identified (Margary 1957, 304-5). Through Frodsham the road is thought to follow Howey Lane and Church Road (*ibid*), and from there it probably ran along Townfield Lane towards a bridge or ford crossing on the River Weaver (Hawkin n.d.(a), 4-5) north-west of Frodsham Bridge (Site 14). From here, there is a possibility that the road followed a course similar to that of Cheshire Road (Gifford and Partners 1994, fig 5). This has been suggested due to the discovery in 1808 of a portion of an 'old road surface', which was found approximately 2m below the surface (Hawkin n.d.(a), 5).
- 3.2.5 Other Roman remains discovered in the area perhaps also lend some credibility to this possible road line. Two coins were found at the south-west junction of High Street and Chapel Lane, at least one of which was from the reign of Caesar Augustus (Petch 1975, 60). During the construction of the Weaver Canal at Sutton in 1808, at the point where the Chester turnpike road crossed the Weaver Canal, a pavement was uncovered (Hawkin n.d.(a), 5), and a semi-circular arch was found that was thought at the time to be Roman (Watkin 1886, 57). It has also been suggested that there was a Roman civilian settlement at Frodsham (Crosby 1996, 24), but based on what evidence is not clear.
- 3.2.6 **Medieval Period:** Frodsham can be identified as an important area during the early medieval period (Shaw and Clark 2002, 17). It is recorded in the Domesday Survey of 1086 as one of only a small number of settlements in Cheshire to have a priest and a church. Higham (1993, 152-3, quoted in Shaw and Clark 2002, 18) suggests that Frodsham was an ancient mother-church and originated as the administrative centre of a large royal estate. Before the Norman Conquest it had belonged to the Earl of Mercia (*ibid*). The presence of

a carved grave cover of pre-Conquest date suggests the church was of high status (Higham 1993, 152-3).

- 3.2.7 Frodsham's value at the Norman Conquest also identifies it as one of the most valuable manors in Cheshire (Shaw and Clark 2002, 18). After this promising start, Frodsham apparently suffered in the rebellion of 1069-70 which devastated Cheshire, but by 1086 when the next valuation figures are available, it was well on the way to recovery (*ibid*).
- 3.2.8 Frodsham was granted its burgh charter in the early thirteenth century (Dodgson 1971, 227, cited in Shaw and Clark 2002, 18), and, from research, several medieval sites are known within 1km study area of the proposed restoration site. These are mainly residences and include Sutton Hall to the north (Grade I Listed Building, Map 2 item 136; DoE 1986), Aston Old Hall (Grade II Listed Building, Map 3 item 43; DoE 1986) with Aston Park to the east (de Figueirido and Treuherz 1988, 214), and the Bishop of Chester's residence to the south-east (HER 950). Beech Mill (Norris 1965, 62), Aston Mill (*op cit*, 61), and Aston Lower Mill (HER 937/2 - oral communication given as source) are also believed to have medieval origins.
- 3.2.9 Frodsham was operating as a port during the medieval period, using the estuary port on the River Weaver produced by Frodsham Bridge (Site 14), whose low arches did not allow the passage of sea-going ships (Hawkin n.d.(b), 1). The area was said to have been crowded with vessels unloading (Shaw and Clark 2002, 20), and it has been referred to by historians as Frodsham Port (Hawkin n.d.(b)). Salt from the Cheshire wiches came into Frodsham, from where it was exported to Liverpool and beyond (*ibid*). Irish merchants were also known to import grain into Frodsham in the late thirteenth century (*op cit*, 2).
- 3.2.10 Frodsham Port encouraged settlement in the medieval period in the form of a satellite town (called Newtown on twentieth century maps (Fig 12)) to the north of Frodsham, (*op cit*, fig 2). This has since been absorbed into Frodsham (Fig 12). The evidence for this settlement is largely based on the place-name 'Newtown', which was often given to new thirteenth century settlements (Shaw and Clark 2002, 25). The quay formed the northern edge of the Newtown settlement, and lies within the proposed restoration area.
- 3.2.11 To the north, there was a possible medieval mill at Sutton, but the location is unknown (Ormerod 1882). However, this may have been a medieval predecessor to the post-medieval Sutton Mill (Site 11). There was also a bridge over the Weaver immediately down river from the present Frodsham Bridge (Site 14) during the medieval period (Hawkin n.d.(b), 1).
- 3.2.12 **Post-medieval Period:** the port of Frodsham continued to flourish during the post-medieval period, but the wood used as fuel to heat the salt pans in Cheshire became scarce (*ibid*). Consequently, coal began to be imported into Frodsham from the Lancashire pits. However, it was transported from the port to the various salt works by packhorse, which proved to be costly (*ibid*). Salt had formerly been exported to other areas of England, Ireland and abroad but

it was claimed that the high land carriage rates were ruining the salt trade (Willan 1951, 4). Both Ireland and abroad had already turned to France and Spain for their supplies (*ibid*). As a result in the late seventeenth century the tradesmen pushed for efforts to enable the River Weaver to be navigable further inland than Frodsham (*op cit*, 2) to keep the costs to a minimum. The scheme was known as the Weaver Navigation Act (Nicholson 1991, 179).

- 3.2.13 There was strong opposition to the bill from many, due to the knock-on effects such a navigable course would have. In addition to the established brine salt industry, rock salt had been discovered in Cheshire in the late seventeenth century. There was, therefore, considerable competition between these salt manufacturers (Willan 1951, 3). However, the rock salt manufacturers were less able to afford the land carriage (*ibid*) and were in favour of the navigation. Should the bill be passed for the Weaver Navigation this would reduce the transport costs thereby the cost of rock salt. Therefore, the brine salt manufacturers were strongly opposed to the bill (*op cit*, 6).
- 3.2.14 There was further opposition because it was feared that the thousands of families employed in the carrying trade would be made destitute should the bill be passed (*ibid*). This was a common opposition to canals, but in the event some of those employed in carrying trades are thought to have found new employment on the boats. Nevertheless, families were afraid that they would be unable to pay their rent, in turn forcing landowners to lower rents (*ibid*) and reducing their profits. In addition, the poor rates would have to be raised in these affected districts in order to support those families made destitute (*ibid*).
- 3.2.15 Due to the strength of opposition, the Act was not passed until 1721 (Nicholson 1991, 179). By 1732 the Weaver was made fully navigable (*ibid*), but it was not until 1780 that Frodsham Lock and Cut were constructed as improvements to the navigation (British Waterways 2004, Appendix 2). At some time between 1806 (Nicholson 1991, 179) and 1810 (British Waterways 2004, Appendix 2) an artificial cut was created from Sutton Weaver to Weston Point for through traffic, which by-passed Frodsham Lock and Sluice (Site **22**) and Cut (Site **28**) leaving it to mainly local traffic.
- 3.2.16 Integral to the industrial use of the Weaver was Frodsham Wharf (Site **10**), used for the loading or unloading of goods, which probably had warehousing facilities. A wharf typically had several different associated elements (Jones 1996, 429), many of which were present at Frodsham Wharf during the nineteenth century. A crane (Site **08**) sited close to the Bone Works (Site **05**) was presumably used for lifting incoming or outgoing materials from the works onto the weighing machine (Site **07**), and onto and off the Weaver Flats at the wharf on which the crane sits. Frodsham Bridge (Site **14**) allowed both sides of the Weaver to be reached easily, and just to the east there was a landing stage (Site **15**) where more Weaver Flats could be tied up. There was also a dock (Site **02**), two pubs (Ordnance Survey 1899a), and a lime kiln (Site **36**).
- 3.2.17 The Bone Works (Site **05**), Sutton Mills (Site **11**), and the Oilcake Works (Site **09**) ceased to exist in the mid to late twentieth century (see Figs 11 and 12).

They were replaced with buildings that appear to be largely warehouses. However, the wharf is still in use at present (as seen during the walkover survey).

3.3 MAP REGRESSION ANALYSIS

- 3.3.1 **River Weaver, 1721 (Fig 3; CRO D 5514 1721):** as the title suggests, this map concentrates on the area of the River Weaver itself. As a result, it covers that part of the proposed restoration site from the viaduct (Site 03) to Frodsham Lock (Site 22), neither of which had been constructed by 1721. Frodsham Bridge (Site 14) is shown, with three possible passing places built into the bridge parapet seen protruding to either side of the bridge. To the west of Frodsham Bridge lies the quay ('the Key'), apparently on the west bank of the Weaver. Six buildings of varying size are depicted lining the quay, and opposite there are three buildings on the east bank. Three additional buildings also face onto the road running north from Frodsham Bridge. This implies that, by 1721, the area close to Frodsham Bridge was an established settlement of some local significance, presumably representing considerable river trade. Similarly, it has a large quayside.
- 3.3.2 The two township boundaries of most relevance clearly observed on the map are '*Fradsham* (Frodsham) *Township*' (Site 18) on the west bank and Sutton Township on the east bank. Also on the west bank is Bradley Township (Site 29) and further south is the western edge of Kingsley Township.
- 3.3.3 **Sutton tithe map, 1844 (Fig 4; CRO EDT 380/2 1844):** within the proposed restoration area, the east banks of the River Weaver and Frodsham Cut (Site 28) are still within the township of Sutton, and are therefore included in the tithe map. It shows the Dock Yard (Site 02) comprising the dock and associated buildings (also including a smithy (CRO EDT 380/1 1845)) lying immediately to the north-west of the line of the present viaduct. Such a collection of buildings may have represented a dry dock for boat repairs, potentially representing an important diversification of local economic activity. Only the southern portion of the yard lies within the proposed restoration area. Sutton Mills (Site 11), with the Wharf (Site 10) to the north, lies on the eastern side of Frodsham Bridge (Site 14). A mill cut is clearly shown to divert water as a controllable power source to Sutton Mills. Several buildings can be observed clustered to the north of Sutton Mills, and aligning the Chester and Warrington Turnpike Road, including a butcher's shop and a public house (*ibid*).
- 3.3.4 To the east of Frodsham Bridge numerous meadow or pasture fields lead down to the river, and an unenclosed track (Site 16) runs along the east bank of the Weaver. Field 105 is named 'Marsh' and Fields 107 to 110 are referred to as 'Marsh Meadow', but it is unclear whether these refer to fields that have been enclosed from Frodsham Marsh, or fields that were still marshy in the mid nineteenth century and verged on water meadows.
- 3.3.5 **Frodsham tithe map, c1846 (Fig 5; CRO EDT 162/2 c1846):** the west banks of the river and Cut are within the township of Frodsham and its tithe. From

the tithe map Frodsham Bridge (Site **14**) can be seen, although less elaborate than that from 1721 (Fig 3). Buildings associated with the quay can also be observed, although the quay is not specifically marked. Almost all of these buildings (307-9, and 313-20, Fig 5) are houses (Site **04**), the only notable exception (323, Fig 5) being the saltworks (Site **01**). The reference to the field-name Maltkiln Croft (Site **06**, 310 on Fig 5) in the tithe apportionment details (CRO EDT 162/1 1846) indicates the possible presence or former presence of a maltkiln in the area. The alignment of the south bank of the River Weaver at Frodsham Bridge seems curious, since it does not match that shown on the other tithe maps of similar date.

- 3.3.6 ***Frodsham Lordship tithe map, c1846 (Fig 6; CRO EDT 163/2 c1846)***: this map shows the southern section of the proposed restoration area, in particular the Cut. However, Frodsham Lock (Site **22**) has not been depicted despite other detail in the vicinity, adding to the fact that it was also shown on the Sutton tithe map from two years previous (Fig 4). There are, however, four buildings depicted to the south of the lock (Site **23**). Three of them lie within an area of ground named Near Bank South (575, Fig 6), but their functions are not known. The fourth building (574, Fig 6) is owned by the River Weaver Navigation Company, and occupied by Charles Williams as a homestead (CRO EDT 163/1 1846). The field names to the north of Frodsham Cut seem to indicate that at some point an area of Nine Acres (divided into unenclosed strips marked 585 to 593, Fig 6) was enclosed from Frodsham Marsh (581, Fig 6). Four separate enclosed banks lie along Frodsham Cut: Near Bank South, Further Bank South, Near Bank North, and Further Bank North, where 'near' and 'further' is given in relating to their position in relation to Frodsham Lock. No bank or path is shown to the west of Frodsham Cut.
- 3.3.7 ***Ordnance Survey 1st edition maps; 1874, 1:2500; 1881-2, 1:10,560 (Fig 7)***: these Ordnance Survey (OS) 1st edition maps of 1:2500 (1874) and the subsequent 1:10,560 scale (1881-2) are the first available maps to show any real detail for the study area. However, what is obvious is that, since the previous maps (Figs 3-6), the landscape has been altered significantly due to the construction of the Cheshire Junction Railway; the viaduct (Site **03**) runs across the River Weaver at the very northern end of the outlined restoration area. By this time the Salt Works (Site **01**) are shown as disused, and a Bone Works (Site **05**), with a possible weighing machine outside, indicated by the abbreviation 'W.M' (Site **07**), is shown to the south-west of the viaduct. A well (Site **12**) is shown west of Frodsham Bridge, and the dock inlet (Site **02**) is still shown north-east of the viaduct.
- 3.3.8 The function of Sutton Mills (Site **11**) is specified as a flour mill, and the large outlet for the mill cut can be seen issuing into the River Weaver. Many of the buildings between the viaduct and Frodsham Bridge remain the same, although a number of others have been added. The unenclosed path along the north side of the River Weaver that was depicted in the Sutton tithe map (Fig 4) can now be seen to be aligned by an embankment (Site **16**), presumably created to minimise or prevent flood damage across the marshes. Each of the fields is depicted as having access through the embankments to the river via a 'ramp'. The enclosed banks along the Frodsham Cut observed in Figure 6

remain, although the layout of the lock buildings (Site 23) appears to have altered.

- 3.3.9 Two stones (Site 32) are shown at the southern end of Frodsham Cut (Site 28). These were probably used to mark the boundaries of the unenclosed strip fields named Roddy (595 and 600, Fig 6). Similarly, stones are shown close to the boundaries of Nine Acres (Site 24), which was also formerly divided into unenclosed strip fields (585 to 593, Fig 6).
- 3.3.10 *Ordnance Survey 2nd edition maps; 1898, 1:2500; 1899, 1:10,560, (Fig 8):* the former Salt Works (Site 01), beyond the north end of the outlined restoration area, is now in use as the Weaver Chemical Works. Outside of the Bone Works (Site 05) the shape of the bank has altered to include a wharf (Site 08). Since the OS 1st edition maps were issued the dock inlet (Site 02) has been infilled, and a wharf (Site 10) is shown to the south of Sutton Mills (Site 11). The well (Site 12) and possible weighing machine (Site 07) remain on the opposite bank to the Mills. The marker stones at the southern end of Frodsham Cut (Site 32) are no longer shown but those around Nine Acres are still mapped (Site 24). There is also a possible milepost, indicated by the letters 'M.P' (Site 33) shown in the vicinity on the east bank of the east junction of the River Weaver and Frodsham Cut.
- 3.3.11 *Ordnance Survey 1910-11, 1:2500; 1911-12, 1:10,560 (Fig 9):* previously, Frodsham Cut had been very narrow at Frodsham Lock (Site 22) and at the bridge (Site 25). This map shows that the Cut had been widened at these two points, probably as a consequence of improvements to the navigation to cater for larger vessels. The appearance of 'Swing Bridge' for the first time on the bridge crossing the Cut suggests that the widening of the Cut necessitated changing the original bridge to a swing bridge. Swing bridges were cheaper to manufacture than replacing the original bridge with a larger version, and also enabled high vessels to pass through without any restriction. At the wharf (Site 10), an Oilcake Works (Site 09) is shown in a newly constructed building, and a possible crane is shown on the smaller wharf (Site 08) on the opposite bank, marked by a 'C'. The land along the quayside remains built up.
- 3.3.12 *Ordnance Survey, 1938, 1:10,560 (Fig 10):* only the western portion of the study area was available for analysis. Nevertheless, there is very little change to the detail and landscape of the study area since the previous OS maps of 1911-12 (Fig 9), with the exception of the Weaver Chemical Works site which has been completely cleared (Site 01).
- 3.3.13 *Ordnance Survey, 1954, 1:10,560 (Fig 11):* the former Oilcake Works building (Site 09) appears to have either been demolished, or to be in the process of being incorporated into a larger building (see Plate 6 for view of current buildings). No other significant changes have occurred.
- 3.3.14 *Ordnance Survey, 1982, 1:10,000 (Fig 12):* the Sutton Mills building (Site 11) appears to have been demolished or significantly reduced in size. The section of the mill cut immediately to the north has been infilled and labelled Mill Lane, although the section of the mill cut to the north fed from the River Weaver to the north is still in existence. The Bone Works (Site 05), together

with most of the buildings along the quay side (Sites **04** and **13**), are no longer standing. The swing bridge (Site **25**) across Frodsham Cut is no longer mapped, suggesting that it is no longer in use. The buildings to the south of Frodsham Lock have also been demolished (Site **23**), and the furthest east of the boundary stones at Nine Acres has been removed (Site **24**). Two Canal Deposit Tips are also shown, the larger of which lies to the north-west of Frodsham Lock.

3.4 ARCHAEOLOGICAL INVESTIGATIONS

- 3.4.1 Several archaeological investigations have been carried out in the vicinity of the proposed restoration area. The first of these was by the Frodsham and District Local History Group at the site of the former Salt Works in 1990 (FDLHG 1990). Excavations revealed wooden sleepers from the quayside railway, upon which a crane for loading and unloading the flats once ran (*op cit*, 2). In addition, a large brick-paved area, curved brick tunnels lined with pitch, and an area of ash and cinders with a concrete base was uncovered (*ibid*). Some of these features are thought to have been associated with the later use of the site as a Bone Works (Site **05**, *ibid*).
- 3.4.2 The North Western Ethylene Pipeline project, undertaken by OA North in its former guise as LUAU, involved numerous archaeological elements of investigation including desk-based assessment, field-walking, survey, trial-trenching, and watching briefs. The results of the project were published in 1996 (Lambert *et al* 1996). However, despite the course of the pipeline running along the Manchester Ship Canal through Cheshire (*op cit*, 42), no excavation was undertaken in the county (*op cit*, x).
- 3.4.3 A desk-based assessment and a programme of permanent presence watching brief were carried out at Saltworks Farm (Chester Archaeology 1993; Gifford and Partners 1999). This established that although none of the original buildings from the refinery or succeeding factories remained standing, their foundations were revealed during field inspection (Chester Archaeology 1993, 1). The watching brief only identified two archaeological features: a post-medieval boundary ditch, and a possible nineteenth century brick and mortar wall on a sandstone footing (Gifford and Partners 1999, 1).
- 3.4.4 Approximately 1km to the north of the proposed restoration area a desk-based assessment was carried out on land at Sutton Hall Farm (Gifford and Partners 1994). Most of the sites identified during their assessment have little relevance to the study area, since they are situated much further to the north. The exception is the possible course of the Roman road (Site **34**) which they mark as running parallel with and along the south side of Cheshire Road (*op cit*, fig 5). Following this line, its postulated course could be expected to cross the proposed restoration area at, or to the north-west of, Frodsham Bridge.
- 3.4.5 The Frodsham area is currently the subject of considerable regeneration proposals, and that closest to Frodsham Bridge is the REVIVE project (WYGE 2004), which is still in its early stages. The southern boundary of one of the REVIVE areas runs from Frodsham Bridge, along the north bank of the River

Weaver to beyond the point where Frodsham Cut branches off to the east (*op cit*, fig E4169/FRO/09/D).

- 3.4.6 It should also be noted, in relation to the current study site, that a site inspection was carried out at Frodsham Lock following vegetation clearance by the River Weaver Navigation Society (Edmondson 2004, 8-11). Colour digital photographs of many of the lock features identified have been included in an unpublished report (*ibid*). However, it is not clear from the report the exact positions of these features on the lock. It also cannot be ascertained whether the resultant archive generated from this site inspection meets with prescribed English Heritage standards (English Heritage 1991).

3.5 WALKOVER SURVEY

- 3.5.1 The walkover survey was carried out on 1st February 2005, and the weather conditions were good throughout, as it remained overcast but dry. Much of the proposed restoration area was clearly visible from the public footpath along the west bank of the River Weaver and Frodsham Cut. However, to the south-east of Frodsham Bridge there was a stretch where the path deviated away from the river bank, and the intervening area was overgrown with scrub. Visibility in this area was poor, and it was not walked. A selection of the colour digital photographs taken during the survey is presented in Plates 5 to 16.
- 3.5.2 The viaduct (Site **03**), Frodsham Bridge (Site **14**), and the Wharf (Site **10**) and its associated buildings were all observed as being present, as were the embankments noted during the map regression analysis (Sites **16**, **19**, and **30**). The watercourses of the River Weaver (Site **17**) and Frodsham Cut (Site **28**) were observed, with Frodsham Lock (Site **22**) and the cattle bridge (Site **25**) on the latter stretch of water. The wharf and landing stage on the south bank of the Weaver (Sites **08** and **15**) were also present.
- 3.5.3 Five sites were identified that were not known from documentary sources (Sites **20**, **21**, **26**, **27**, and **31**). Three of these were visible as timber posts (Sites **21**, **26**, and **31**), and the remaining two sites were a landing stage west of Frodsham Lock (Site **20**), and the stone canal side (Site **27**) east of the cattle bridge.

4. GAZETTEER OF SITES

Site number	01
Site name	Rocksalt Refinery, River Weaver, Frodsham
NGR	SJ 5272 7879
Site type	Salt Works
Period	Post-medieval
HER No	977/1
Statutory Desig.	-
Sources	FDLHG 1990; OS 1 st edition 1882, 1:10,560
Description	A rock salt refinery was established at Frodsham in 1694 (FDLHG 1990, 1), although it is not clear if it was on this site. However, the saltworks on this site is known by 1778 (<i>ibid</i>), and it was in operation until sometime before 1874 when it can be observed on the OS 1 st edition map of 1882 as disused. This is likely to have played a fundamental role in the Weaver Navigation Act.
Assessment	The site lies outwith the proposed restoration area, and will not be affected.

Site number	02
Site name	Frodsham Dock Yard, River Weaver, Frodsham
NGR	SJ 5289 7869
Site type	Dock Yard, Dock, Smithy
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO EDT 380/2 1844; OS 1 st edition 1882, 1:10,560; OS 2 nd edition 1899a, 1:10,560
Description	A dock yard is shown on the Sutton tithe map (CRO EDT 380/2 1844), with a channel leading north from the River Weaver to a square dock. Five buildings are shown within the yard, including a smithy in the north-west and a house in the north-east. With the construction of the Cheshire Junction Railway, the viaduct (Site 03) was built along the eastern portion of the dock yard (OS 1882), and the dock-inlet was very soon filled in (OS 1899a).
Assessment	It is unlikely that the site will be affected by the proposed restoration due to the construction of the viaduct.

Site number	03
Site name	Frodsham Viaduct, Chester to Warrington Railway, Frodsham
NGR	SJ 5286 7863
Site type	Viaduct
Period	Post-medieval
HER No	-
Statutory Design.	Grade II Listed Building
Sources	DoE 1986, 26 (Map 2, Item 60)
Description	The railway viaduct spans the River Weaver and adjoining land on both banks (Plate 5), and was built between 1848 and 1850 (DoE 1986, 26). Involved in its construction were A Rendel, an engineer, and Thomas Brassey, the contractor for Birkenhead, Lancashire, and Cheshire Junction Railway Co (<i>ibid</i>). The viaduct comprises red sandstone, brown brick, and cast iron, and it has two segmental-arched iron spans of c30m over the river, two round arches on the west bank, and twenty-one on the east bank (<i>ibid</i>). The piers to iron spans are rusticated tooled ashlar, and the other spans have rusticated voussoirs, pier faces, and quoins and rock-faced spandrels (<i>ibid</i>). There are also brick reveals (<i>ibid</i>). The iron-span piers have a cornice, and there are plainer impost to the others (<i>ibid</i>). The top of the central pier in the river has been modified to take a mid twentieth century railway track bed (<i>ibid</i>).

Assessment	The viaduct lies at the northern boundary of the proposed restoration area, and may be affected.
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Site number	04
Site name	Houses; The Quay, River Weaver, Frodsham
NGR	SJ 5283 7856
Site type	Houses
Period	Medieval - Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO D 5514 1721; OS 1 st edition c1874, 1:2500; FDLHG 1995; Barker n.d.; Shaw and Clark 2002
Description	The medieval predecessor of Newtown, to the north of Frodsham, lay immediately to the south of Frodsham Port (Shaw and Clark 2002, fig 2), suggesting that there were presumably houses or other buildings along the quayside at this stage. Furthermore, houses are known in the approximate location to the south of the western side of the viaduct from 1721 onwards (CRO D 5514 1721). The OS 1 st edition (c1874) map allows the location of the houses to be accurately plotted in relation to present landmarks, such as the viaduct. The houses have now been demolished, but details of their front elevations can be seen in photographs taken around 1900 (Plate 3 (FDLHG 1995, 39); Plate 4 (Barker n.d., 72)).
Assessment	The remains of the nineteenth century houses should not be affected, as they appear to lie immediately to the west of the proposed restoration area. However, there may be remains of earlier houses that cannot be accurately positioned due to mapping sources that may be affected.

Site number	05
Site name	Bone Works; The Quay, River Weaver, Frodsham
NGR	SJ 5283 7855
Site type	Bone Works
Period	Post-medieval
HER No	4349
Statutory Design.	-
Sources	OS 1 st edition 1882, 1:10,560; FDLHG 1995; OS 1982, 1:10,000
Description	A Bone Works is marked by the OS 1 st edition map (1882) to the south-west of the viaduct. The buildings with their chimneys are shown in photographs of c1900 (FDLHG 1995, 39). The buildings have now been demolished (OS 1982).
Assessment	The remains of the works should not be affected, as they appear to lie immediately to the west of the proposed restoration area.

Site number	06
Site name	Malkiln Croft; The Quay, River Weaver, Frodsham
NGR	SJ 5284 7852
Site type	Field name, place of a malt kiln?
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO EDT 162/1 1846; CRO EDT 162/2 c1846
Description	The field numbered 310 on the Frodsham tithe map (CRO EDT 162/2 c1846) is named Malkiln Croft in the corresponding apportionment (CRO EDT 162/1 1846), suggesting that it was contained or had associations with a malt kiln.
Assessment	The location of the possible malt kiln within the field is not clear, but it is unlikely to be affected since the field is situated immediately to the west of the proposed restoration area.

Site number	07
Site name	Weighing Machine; The Quay, River Weaver, Frodsham
NGR	SJ 5286 7857
Site type	Weighing Machine
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	OS 1 st edition 1882, 1:10,560; OS 2 nd edition 1898b, 1:2500; OS edition of 1911a, 1:2500
Description	A small rectangle marked W.M is first observed on the OS 1 st edition map (1882) outside of the Bone Works (Site 05) on the quayside at Frodsham, and on subsequent maps (OS 1898b and 1911a), but it is not on any current mapping.
Assessment	The site of the possible weighing machine appears to lie within the proposed restoration area, and may be affected.

Site number	08
Site name	Wharf; The Quay, River Weaver, Frodsham
NGR	SJ 5290 7858
Site type	Wharf, Crane?
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	OS 2 nd edition 1898b, 1:2500; OS edition of 1911a, 1:2500, Walkover survey 2005
Description	A small rectangular wharf area protrudes from the western bank of the River Weaver at the front of the Bone Works (Site 05). It is close to the possible weighing machine (Site 07), and by 1911 it has a possible crane on it, indicated by the letter 'C' (OS 1911a). The wharf was observed during the walkover survey, and its stone-built sides were photographed. The land immediately surrounding it was very overgrown, and it was not possible to obtain a clear view.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	09
Site name	Oilcake Works, Frodsham Wharf
NGR	SJ 5290 7858
Site type	Oilcake Works, Warehouses
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	OS edition of 1911a, 1:2500; OS 1982, 1:10,000
Description	A large building used as an Oilcake Works was constructed at some time around the turn of the twentieth century, and is first shown in 1911 (OS 1911a). The site has since been redeveloped (OS 1982), and the extent of any surviving remains is not known.
Assessment	The site lies adjacent to, and potentially partly within, the proposed restoration area and may be affected.

Site number	10
Site name	Frodsham Wharf
NGR	SJ 5296 7855
Site type	Wharf
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO EDT 380/2 1844, Walkover survey 2005

Description	The wharf to the north of Frodsham Bridge on the east bank of the River Weaver is first named on the Sutton tithe map of 1844 (CRO EDT 380/2 1844), and it was observed in use during the walkover survey (Plate 7).
Assessment	The site lies within the proposed restoration area and will be affected.

Site number	11
Site name	Sutton Mills, Frodsham Wharf
NGR	SJ 5298 7853
Site type	Watermill, Mill, Flour Mill, Mill House
Period	Medieval - Post-medieval
HER No	956/1
Statutory Design.	Grade II Listed Building
Sources	DoE 1986, 60 (Map 2, Item 145)
Description	<p>It is possible that there was a medieval mill at Sutton, but the location is unknown. The present building, however, was described in 1965 as the largest of the Cheshire mills, with four storeys and many additions. It had an internal loading way direct from the River Weaver. The mill was re-equipped during the First World War, but after 1918 some of this equipment was removed to Edinburgh and the rest sold for scrap in around 1940. The mill has been powered by water, with the mill cut evident from cartographic sources, steam and electricity. By 1982 the mill had suffered considerable demolition and was used for storage and warehousing.</p> <p>Little remains of the mill, with the remaining structure being the Mill House, a Grade II Listed Building, which is now used as an industrial estate office. It was built around the year 1820. It is painted brick, the front is pebbledashed, and it has a graded slate roof. It is a two-storey building with an attic, and with three windows arranged symmetrically. It has a slightly projecting pedimented two-storey porch and a four-panelled door in the opening with rusticated quoins, stepped voussoirs and a keystone. It has sixteen-pane flush sash windows, a small attic window below the pediment, and attic windows in the gables, with an eaves cornice to the front. There is a low two-storey one-room wing on the left and a small one-storey twentieth century lean-to on the right.</p>
Assessment	The site lies adjacent to and potentially partly within the proposed restoration area, and may be affected.

Site number	12
Site name	Well, The Quay, River Weaver, Frodsham
NGR	SJ 5291 7847
Site type	Well, Pump
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	OS 1 st edition 1882, 1:10,560; OS edition of 1911a, 1:2500
Description	A well is shown on the OS 1 st edition map (1882) map north-west of Frodsham Bridge, and by 1911 a pump has been installed (OS 1911a).
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	13
Site name	Buildings, north-west of Frodsham Bridge
NGR	SJ 5295 7846
Site type	Buildings
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO EDT 162/2 c1846; OS 1 st edition c1874, 1:2500; OS 1982, 1:10,000
Description	A rectangular building is shown at the water's edge immediately north-west of Frodsham Bridge on the Frodsham tithe map (CRO EDT 162/2 c1846). More

detail can be seen on the OS 1st edition map (c1874), where the feature is divided into four smaller units, possibly indicating a terrace of housing. By 1982 the buildings had been demolished (OS 1982).

Assessment The site lies within the study area and will be affected.

Site number 14
Site name Frodsham Bridge
NGR SJ 5300 7845
Site type Bridge
Period Medieval - Post-medieval
HER No 987
Statutory Design. Grade II Listed Building
Sources DoE 1986 (Map 2, Item 56); Ormerod 1882
Description Frodsham parish bridge at the east end of the town dates from the reign of Henry III (Ormerod 1882, 53). The original bridge was of wood. In the fourth year of Henry V's reign, John Done, forester of Delamere, was requested to give one oak for the repairs of Frodsham bridge (*ibid*). The bridge was rebuilt in brick in the reign of Elizabeth I (*ibid*). In 1625 it was rebuilt in stone with four arches (*ibid*), and the remains of it could be seen on the Frodsham side of the river approximately 30 yards downstream of the present structure (Hawkin n.d.(b)). This was taken down some time before 1816 to make way for the present structure (*ibid*), which is now a Grade II Listed Building (Plate 8).
Assessment The site lies within the proposed restoration area, and will be affected.

Site number 15
Site name Landing stage, East of Frodsham Bridge
NGR SJ 5302 7840
Site type Landing stage
Period Post-medieval
HER No -
Statutory Design. -
Sources OS 1st edition c1874, 1:2500; OS 1982
Description An area protruding into the river can be seen on the OS 1st edition map of c1874 and is believed to be a landing stage. It was still observed on more recent mapping (OS 1982), and its current appearance is shown in Plate 8.
Assessment The site lies within the proposed restoration area, and will be affected.

Site number 16
Site name Embankment, north side of River Weaver, Frodsham
NGR SJ 5230 7845
Site type Earthwork bank
Period Post-medieval
HER No -
Statutory Design. -
Sources OS 1st edition c1874, 1:2500, Walkover survey 2005
Description The embankment, seen running along the north side of the River Weaver east of Frodsham Bridge is observed on the OS 1st edition (c1874) for the first time. A small ramp breaches the embankment in each field to allow access to the river. The embankment was observed during the recent walkover survey, when it was noted that shrubs and small trees were growing from it. It is likely to be part of the flood defences.
Assessment The site lies adjacent to and potentially within the proposed restoration area, and may be affected.

Site number	17
Site name	River Weaver
NGR	SJ 5329 7840
Site type	River
Period	Prehistoric - Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO D 5514 1721; HSL UK 1973, shot 1602; CCC 1985, shot 180
Description	The River Weaver flows within its flood plain to the north-east of Frodsham. It is a natural watercourse, and its path appears from aerial photographs to have altered considerably over time. Abandoned river meanders (Site 37) can be seen north-east of the east end of Frodsham Cut (CCC 1985, shot 180), and crossing the eastern half of Frodsham Cut (HSL UK 1973, shot 1602).
Assessment	The river, including some parts of its abandoned meanders, lies within the proposed restoration area, and will be affected.

Site number	18
Site name	Township boundary, River Weaver, Frodsham
NGR	SJ 5330 7836
Site type	Township boundary
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO D 5514 1721; CRO EDT 162/2 c1846; CRO EDT 163/2 c1846; OS 1 st edition c1874, 1:2500; OS 1982, 1:10,000
Description	The boundary between Frodsham Township in the west and Bradley Township in the east is shown in 1721 where it meets the River Weaver (CRO D 5514 1721). This appears to be the same boundary as that between Frodsham Township and Frodsham Lordship shown on the tithe maps (CRO EDT 162/2 c1846; CRO EDT 163/2 c1846). The OS plotted the boundary on the 1 st edition map (OS c1874), but it is not shown on any more recent mapping (OS 1982).
Assessment	The north end of the boundary lies within the proposed restoration area, and will be affected.

Site number	19
Site name	Embankment, south side of River Weaver, Frodsham
NGR	SJ 5337 7823
Site type	Earthwork bank
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	OS 1 st edition c1874, 1:2500
Description	A bank is shown running along the south side of the River Weaver between the township boundary (Site 18) and the entrance to Frodsham Cut (Site 28) (OS c1874). The path runs parallel to it for much of its length.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	20
Site name	Landing stage, west of Frodsham Lock
NGR	SJ 5359 7823
Site type	Landing stage
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	Walkover survey 2005
Description	An area of land protrudes from the south bank of the River Weaver by 1-2m. It appears to have remains of foundations visible as stones at its base at the water's

	edge, and upright timbers to the south-east. It would have functioned as a landing stage for tying up boats waiting to use Frodsham Lock, as the vessels would otherwise have been swept towards Frodsham Bridge by the current on the River Weaver.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	21
Site name	Semi-submerged posts, east of the western end of Frodsham Cut, River Weaver
NGR	SJ 5369 7826
Site type	Semi-submerged posts
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	Walkover survey 2005
Description	Approximately nineteen ends of timber posts or similar were seen protruding from the surface of the water within a relatively small area (Plate 9). It is unclear what these remains originally belonged to.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	22
Site name	Frodsham Lock and Sluice, west end of Frodsham Cut
NGR	SJ 5369 7822
Site type	Canal lock and sluice
Period	Post-medieval
HER No	-
Statutory Design.	Grade II Listed Building
Sources	DoE 1986 (Map 2, Item 67); OS 1 st edition c1874, 1:2500; British Waterways 2004, Appendix 2; Nicholson 1991; Walkover survey 2005
Description	Frodsham Lock and Sluice was constructed in 1781 at the same time as Frodsham Cut (Site 28 ; British Waterways 2004, Appendix 2) as an improvement to the River Weaver, which had been fully navigable since 1732 (Nicholson 1991, 179). It is depicted on the OS 1 st edition map (c1874), and was observed as present during the walkover survey (Plates 10-12). It is built of brick with squared stone walls below the basin, and has derelict double lock gates of timber (DoE 1986, 29). There are stones below the lower dock gates inscribed XIII:XIV and, in a separate column XI/XII/XIII/XIV (<i>ibid</i>). The lock was modified in 1830 and subsequently, and there is mid twentieth century sluice gear of steel and concrete (<i>ibid</i>).
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	23
Site name	Buildings at Frodsham Lock, west end of Frodsham Cut
NGR	SJ 5367 7819
Site type	Demolished buildings
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO EDT 163/1 1846; CRO EDT 163/2 c1846; OS 1 st edition c1874, 1:2500 and OS 1982, 1:10,000
Description	Four buildings are shown to the south of Frodsham Lock on the Frodsham Lordship tithe map (CRO EDT 163/2 c1846). The functions of three of them were not defined in the apportionment (CRO EDT 163/1 1846). The fourth (marked 574 on Fig 6) was owned by the River Weaver Navigation Company, and occupied by Charles Williams as a homestead (CRO EDT 163/1 1846), presumably as the lock-keeper's house. They are shown on the OS 1 st edition (c1874), but have since been demolished (OS 1982).

Assessment At least one of the buildings may lie within the proposed development area, and may be affected.

Site number 24
Site name Boundary Stones, Nine Acres, Frodsham Cut
NGR SJ 5388 7822
Site type Boundary marker stones
Period Post-medieval
HER No 994/0/2
Statutory Design. Grade II Listed Building
Sources DoE 1986 (Map 2, Item 68); CRO EDT 163/2 c1846; OS 1st edition c1874, 1:2500
Description The OS 1st edition map (c1874) depicts a line of five boundary stones along the south side of the field named Nine Acres on the Frodsham Lordship tithe map (CRO EDT 163/2 c1846). The present listing covers the four remaining sandstone boundary stones on the south bank of the water meadow, which have been dated to c1770. The stones stand about 0.5m above the ground and are rectangular in section, measuring 0.20m-0.25m. The second stone from the west is inscribed JW in bold capitals on the west face. The stones are survivors from a larger number and marked the boundaries of farmers' rights to strips of the water meadow.
Assessment The stones lie adjacent to or within the proposed restoration area, and may be affected.

Site number 25
Site name Swing Bridge/Cattle Bridge, Frodsham Cut
NGR SJ 5393 7816
Site type Swing Bridge
Period Post-medieval
HER No -
Statutory Design. -
Sources CRO EDT 163/2 c1846; OS 1st edition c1874, 1:2500; OS edition of 1911a, 1:2500; British Waterways 2004
Description A bridge across Frodsham Cut is first shown on the Frodsham Lordship tithe map (CRO EDT 163/2 c1846), and subsequently on OS mapping (c1874). However, it is not labelled until 1911, when it is defined as a swing bridge (OS 1911a). British Waterways refer to it as the Accommodation Bridge, which they say was originally designed as a semi-swung bridge (British Waterways 2004, 4). It is no longer in use and hence it is referred to as 'Cattle bridge' on a recent photograph (*op cit*, Appendix 1), which more accurately describes its current fixed function (see also Plate 13).
Assessment The site lies within the proposed restoration area, and will be affected.

Site number 26
Site name Timber posts, east of Swing Bridge, Frodsham Cut
NGR SJ 5397 7814
Site type Timber posts
Period Post-medieval
HER No -
Statutory Design. -
Sources Walkover survey 2005
Description A line of three square-sectioned timber posts was observed east of the former swing bridge over Frodsham Cut. The western post was close to the southern end of the bridge, and the eastern post was adjacent to the north bank of Frodsham Cut. The posts appeared to be equally spaced, with identical iron fittings including a substantial anchor pin on the east side of each one (Plate 15). The posts are likely to be associated with the former swing bridge, and may have held warning lights aimed at stopping barges attempting to go any further.
Assessment The site lies within the proposed restoration area, and will be affected.

Site number	27
Site name	Stone-edged canal side, east of Swing Bridge, Frodsham Cut
NGR	SJ 5394 7812
Site type	Stone area associated with former swing bridge
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	Observations made during walk-over survey
Description	Stone-edging blocks were observed on the south bank of Frodsham Cut to the east of the former swing bridge. Some of these blocks had been defaced by carvings, within which moss had rooted making it very visible (Plate 14).
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	28
Site name	Frodsham Cut
NGR	SJ 5417 7801
Site type	Canal
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	British Waterways 2004; Nicholson 1991
Description	Frodsham Cut was constructed in 1780 at the same time as Frodsham Lock (Site 22; British Waterways 2004, Appendix 2) as an improvement to the River Weaver, which had been fully navigable since 1732 (Nicholson 1991, 179). At some time between 1806 (<i>ibid</i>) and 1810 (British Waterways 2004, Appendix 2) an artificial cut from Sutton Weaver to Weston Point by-passed Frodsham Lock and Cut for through traffic, leaving it to local traffic.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	29
Site name	Township boundary, Frodsham Cut
NGR	SJ 5406 7800
Site type	Township boundary
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO D 5514 1721; CRO EDT 163/2 c1846
Description	The boundary between Bradley Township and Kingsley Township is shown where it meets the River Weaver on a map of 1721 (CRO D 5514 1721). By the time the area was mapped for tithes Bradley Township, and at least the western portion of Kingsley Township were both included under the name of Frodsham Lordship (CRO EDT 163/2 c1846). The boundary does not appear on any subsequent maps.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	30
Site name	Embankment, north side of Frodsham Cut
NGR	SJ 5426 7794
Site type	Earthwork bank
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	OS 1 st edition c1874, 1:2500
Description	An earthwork bank is shown by the OS 1 st edition along the north side of the eastern end of Frodsham Cut (OS c1874), and an embankment was also observed on the south side (Plate 16). These were likely to be associated with the flood defences for farming marshes
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	31
Site name	Timber posts, east end of Frodsham Cut
NGR	SJ 5429 7787
Site type	Timber posts
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	Walkover survey 2005
Description	The remains of the base of a square-sectioned timber post was observed on the south bank of Frodsham Cut at the east end. The base of another timber post was observed opposite from it on the north bank.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	32
Site name	Boundary stones, Roddy, Frodsham Cut
NGR	SJ 5429 7782
Site type	Boundary stones
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	CRO EDT 163/2 c1846; OS 1 st edition c1874, 1:2500
Description	Two boundary stones are marked by the OS 1 st edition (c1874) at the east end of fields named Roddy on the Frodsham Lordship tithe map (CRO EDT 163/2 c1846). They would have functioned in the same way as those at Nine Acres (Site 24), which marked the boundaries between strip fields tenanted by different farmers. The stones do not appear on any subsequent maps.
Assessment	The site lies adjacent to the proposed restoration area, and may be affected.

Site number	33
Site name	Possible mile post, River Weaver
NGR	SJ 5439 7790
Site type	Possible mile post
Period	Post-medieval
HER No	-
Statutory Design.	-
Sources	OS 2 nd edition 1898a, 1:2500; OS 1910 1:2500
Description	A possible mile post is marked by the OS with the abbreviation 'M.P' on the east bank of the River Weaver east of Frodsham Cut (OS 1898a and 1910). It is not shown on any more recent mapping.
Assessment	The site lies within the proposed restoration area, and will be affected.

Site number	34
Site name	Roman Road: Chester to Wilderspool, Frodsham
NGR	SJ 5300 7845
Site type	Road
Period	Roman
HER No	2417/1/0
Statutory Design.	-
Sources	Margary 1957
Description	The road ran north-east from Chester to connect with the northern road through Warrington at the Roman settlement of Wilderspool. Traces of it were found at the junction of Birkenhead Road and Parkside Road in Chester. It is then thought to run via Brook Lane to Hoole Bank, after which it follows the road to Bridge Trafford where the agger can be seen alongside at a few points (Margary 1957, 304-5). It is likely that the road linked the legionary fortress at Wilderspool and the nearby river crossing. While there are convincing road lines as far as Bridge

Assessment	Trafford, and from Preston on the Hill to Wilderspool, the intervening terrain is not suited to straight alignments and as such the road has not been identified (<i>ibid</i>). The site is poorly located and may be affected by the proposed restoration.
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Site number	35
Site name	Prehistoric findspot in Sutton
NGR	SJ 5400 7800
Site type	Flint findspot
Period	Prehistoric
HER No	989
Statutory Design.	-
Sources	Shone 1911
Description	A flint scraper was found near the towing path on the right bank of the River Weaver.
Assessment	The site is poorly located and may be affected by the proposed restoration.

Site number	36
Site name	Lime kiln, Sutton
NGR	SJ 529 786
Site type	Lime kiln
Period	Post-medieval
HER No	4350
Statutory Design.	-
Sources	OS 1 st edition c1874, 1:2500
Description	An old lime kiln is marked by the OS 1 st edition (c1874), but it does not appear on any subsequent mapping.
Assessment	The site lies adjacent to or possibly within the proposed restoration area, and may be affected.

Site number	37
Site name	River Weaver palaeochannel, Frodsham
NGR	SJ 5409 7805
Site type	Palaeochannel
Period	Unknown
HER No	-
Statutory Design.	-
Sources	CCC 1985, shot 180; HSL UK 1973, shot 1602
Description	The path of the River Weaver (Site 17) appears from aerial photographs to have altered considerably over time. Abandoned river meanders can be seen north-east of the east end of Frodsham Cut (Plate 2; CCC 1985, shot 180), and crossing the eastern half of Frodsham Cut (Plate 1; HSL UK 1973, shot 1602).
Assessment	The proposed restoration area covers part of the observed palaeochannels, which will be affected.

Site number	38
Site name	Boundary Stones, Nine Acres, Frodsham Cut
NGR	SJ 5390 7836
Site type	Boundary marker stones
Period	Post-medieval
HER No	994/0/1
Statutory Design.	Grade II Listed Building
Sources	DoE 1986 (Map 2, Item 69); CRO EDT 163/2 c1846; OS 1 st edition c1874, 1:2500
Description	The OS 1 st edition map (c1874) depicts a line of five boundary stones along the north side of the field named Nine Acres on the Frodsham Lordship tithe map (CRO EDT 163/2 c1846). The present listing covers the four remaining sandstone boundary stones on the north bank of the water meadow, which have been dated to

c1770. The stones stand about 0.5m above the ground and are rectangular in section, measuring 0.20m-0.25m. The second stone from the west is inscribed JW in bold capitals on the west face and 177(?) on top. The stones are survivors from a larger number and marked the boundaries of farmers' rights to strips of the water meadow.

Assessment

The stones lie to the north of the proposed restoration area, and may be affected.

5. SIGNIFICANCE OF THE REMAINS

5.1 INTRODUCTION

- 5.1.1 In total, 38 sites of archaeological potential were identified within the study area. Of these, nine sites were previously recorded by the HER (Sites **01**, **05**, **11**, **14**, **24**, **34-6**, and **38**), two sites were due to be added to the HER (Sites **03** and **22**), one site was identified from aerial photographs (Site **37**), five sites were identified during the walkover survey (Sites **20-1**, **26-7** and **31**), and the remaining 21 sites (Sites **02**, **04**, **06-10**, **12-3**, **15-9**, **23**, **25**, **28-30**, and **32-3**) were identified from cartographic sources.
- 5.1.2 Six of the sites identified were listed buildings (Sites **03**, **11**, **14**, **22**, **24**, and **38**), and there were no Scheduled Monuments or Registered Parks and Gardens. The nearest Scheduled Monuments to the study area were Bradley promontory fort (SM 25693), approximately 1.25km to the south of the proposed restoration area, and the dovecote at the site of Aston Old Hall (SM 30381), approximately 1km to the east of Frodsham Cut. The nearest Conservation Area lies within the town of Frodsham, approximately 0.8km to the south-west of Frodsham viaduct (Shaw and Clark 2002, fig 1). The detailed results of the assessment have been provided in the Site Gazetteer (*Section 4, above*), and an outline is presented in Table 1, below.

Period	No of sites	Sites
Prehistoric	2	River (Site 17), Flint findspot (Site 35)
Roman	2	River (Site 17), Road (Site 34)
Medieval	3	Houses (Site 04), Mill (Site 11), River (Site 17), Frodsham Bridge (Site 14)
Post-medieval	34	Rocksalt Refinery (Site 01), Dock Yard (Site 02), Viaduct (Site 03), Houses (Site 04), Bone Works (Site 05), Malt kiln (?) (Site 06), Weighing Machine (?) (Site 07), Landing stages (Sites 15 and 20), Oilcake Works (Site 09), Wharfs (Sites 08 and 10), Mill (Site 11), Well (Site 12), Buildings (Sites 13 and 23), Frodsham Bridge (Site 14), Earthwork banks (Sites 16 , 19 , and 30), River (Site 17), Township boundaries (Sites 18 and 29), Timber posts (Sites 21 , 26 , and 31), Frodsham Lock and Sluice (Site 22), Boundary stones (Sites 24 , 32 , and 38), Swing Bridge (Site 25), Stone-edged canal side (Site 27), Frodsham Cut (Site 28), Mile post (?) (Site 33), Lime kiln (Site 36)
Unknown	1	Palaeochannel (Site 37)

Table 1: Number of sites by period

5.2 CRITERIA

- 5.2.1 There are a number of different methodologies used to assess the archaeological significance of sites; that to be used here is the 'Secretary of State's criteria for scheduling ancient monuments' which is included as Annex 4 of PPG 16 (DoE 1990). The sites previously listed (*Section 4, above*) were each considered using the criteria, with the results below.
- 5.2.2 **Period:** the Weaver Navigation was very significant during the post-medieval period, with its wider associations for the industry in the area and nearby settlement. However, also of importance is the possibility that this has developed as a result of medieval predecessors. Therefore, all of the sites identified in the assessment are significant for the post-medieval period and some possibly for the medieval period, and should be considered as locally, if not regionally, significant (Dock Yard (Site **02**), the Bone Works (Site **05**), Weighing Machine (?) (Site **07**), Landing Stages (Sites **15** and **20**), Oilcake Works (Site **09**), wharfs (Sites **08** and **10**), Sutton's Mill (Site **11**), the earthwork embankments (Sites **16**, **19**, and **30**), the river itself (Site **17**), remains of timber posts (Sites **21**, **26**, and **31**), Frodsham Lock and Sluice (Site **22**), the swing bridge (Site **25**), the stone-edged canal side (Site **27**), Frodsham Cut (Site **28**), and mile post (Site **33**)).
- 5.2.3 **Rarity:** Frodsham dock (Site **02**) is of local rarity. Frodsham Lock (Site **22**) is of regional rarity due to the Cut having become disused for trading vessels some time ago. Therefore, it is likely to be a fossilised example of an early lock, presumably not modified or enlarged during the twentieth century as was normally the case. Many locks also became electrically operated during modifications and so any evidence for manually operated lock gear would also be of significance. In addition, the likely evolution of the wharfage facilities from the medieval through to the post-medieval period is potentially of national rarity.
- 5.2.4 **Documentation:** the value of the sites associated with the Weaver Navigation (see 5.2.2, above) is greatly enhanced by the body of research in existence, particularly that carried out by Willan (1951). The value of the boundary stones (Sites **24**, **32**, and **38**) is also enhanced by the tithe maps showing the field boundaries that they once marked.
- 5.2.5 **Group Value:** all of the identified sites associated with the Weaver Navigation (see 5.2.2, above), are linked, and therefore have group value. These include sites specifically associated with the wharfage facilities.
- 5.2.6 **Survival/Condition:** Frodsham Lock and Sluice (Site **22**) is listed and is not in working condition. Due to its importance and statutory designation it would benefit from restoration. Similarly, the swing bridge (Site **25**), which is now a static bridge, would benefit from restoration. Many of the timber posts associated with quayside and canal side fixtures and features are in a decayed state, including those associated with the wharf and landing stage (Sites **08**, **20-1** and **31**). Frodsham viaduct (Site **03**) and Frodsham Bridge (Site **14**) are in good condition.
- 5.2.7 **Fragility/Vulnerability:** the timber posts are in a vulnerable state due to their poor condition (Sites **08**, **20-1** and **31**). The projected line of the Roman road (Site **34**) lies within the proposed development area, and any remains that may

be present are vulnerable to development proposals since they are poorly located, and would therefore merit evaluation to establish their presence or absence. The same is true for the remains of the medieval and later predecessors to the current Frodsham Bridge (Site **14**), and the medieval and later building remains at the quay on the north edge of Newtown (Site **04**).

- 5.2.8 **Diversity:** the area of Frodsham Port is diverse in that it has many components, dating potentially from the medieval period onwards. The features associated with the Weaver Navigation are also diverse (*see* 5.2.2, above).
- 5.2.9 **Potential:** the below-ground remains of medieval and post-medieval buildings at the quay (Site **04**) have potential since the area has never been excavated, and has so far received little attention. There is also potential for the discovery of the location of the Roman road (Site **34**) crossing over the River Weaver, and details regarding any predecessors to the current Frodsham Bridge (Site **14**). The potential of land at the quay to contain evidence for the evolution of a riverside settlement connected closely with water-borne trade since the medieval period is of considerable significance. In addition, there is the potential that as the Cut, in particular, became more disused it became a 'boat graveyard'. Any number of wooden flats would be of some significance - only two wooden flats remain afloat today (Mossdale and Oakdale).

5.3 SIGNIFICANCE

- 5.3.1 Frodsham Port and its associated sites within the study area are considered to be regionally significant. This is mainly due to the port's importance in its involvement in the export of salt from all of the salt works in Cheshire, from at least the medieval period onwards. Whilst the section of the Weaver Navigation covered by the proposed restoration is of local significance, it forms part of a larger regionally significant site for Cheshire.
- 5.3.2 Frodsham Cut was an early component of one of the earliest river navigations in the country, and was key to the economic development of the region. In particular, it provided Northwich with a direct link to Liverpool (and therefore the international ports), acting as a catalyst for the expansion of the salt and, more importantly, chemical industries (I Miller pers comm). The significance of these industries ensured the commercial survival of the Weaver Navigation until recent years, which was one of the last in Britain to carry commercial traffic. The longevity of the navigation in commercial terms was also due to the foresight of the Weaver Navigation Company, and their investment in the waterway; in particular, the updating of Frodsham Lock, enabling larger vessels to use the waterway.

6. IMPACT AND RECOMMENDATIONS

6.1 IMPACT

- 6.1.1 The main area of archaeological and historical significance is Frodsham Port at the northern end of the proposed restoration area, where there are numerous sites associated with its industrial use during the medieval and post-medieval periods. The Frodsham Cut and Lock is also of significance and will be directly affected by the proposals (see TEP *et al* 2005, Section 4, 25-33). The restoration of the outlined section of the River Weaver and Frodsham Cut is, therefore, likely to have a significant impact on identified sites. The proposed restoration is considered to have a beneficial impact overall in allowing the reuse of the Cut and lock, and in terms of educational and leisure purposes. Those features of archaeological significance or of a high heritage value that will be restored sympathetically will have a beneficial impact, but should such sites be destroyed this would have a negative impact and will require further work, as addressed below.
- 6.1.2 The heritage assessment has considered the impact for the proposals within the outlined study area. Any further proposals put forward outside of this area need to be considered in addition to his assessment.

6.2 RECOMMENDATIONS

- 6.2.1 **Introduction:** the recommendations for a programme of further archaeological work have been provided according to the proposals for the restoration of the Cut and lock, which should be read in line with Section 4 in TEP *et al* (2005, 25-33), in Table 2, and in accordance with the requirements for individual gazetteer sites in Table 3 should any future proposals impact on sites not included in the current proposals. The current proposals have been discussed where relevant below. The archaeological recommendations should be undertaken in consultation with the Historic Environment Planning Officer (Archaeology) at Cheshire County Council.
- 6.2.2 **Excavation of the fill material from within the chamber:** it is possible that boats were stored within the Cut when it was no longer in use, as was often the case. Therefore, preserved waterlogged features of deposits of archaeological or historical significance may be exposed during draining and excavation of the chamber. It is recommended that the work be undertaken under archaeological supervision and the fill be assessed for its potential. Appropriate mitigation work will result if necessary, depending on the findings. Once the excavation is complete an archaeological photographic survey should be carried out of the chamber and floor.
- 6.2.3 **Disposal of the fill material:** the proposals to dispose of the fill include adding to the existing embankments, which have been outlined as being of historical significance (Site 30). Therefore, the earthworks require an archaeological survey and recording prior to any redevelopment.
- 6.2.4 **Masonry repairs and re-pointing to chamber:** Frodsham Lock (Site 22) has a Grade II listed status. Therefore, it is a requirement to obtain Listed Building

Consent prior to any work. In accordance with this, a photographic record, as a minimum, is likely to be requested along with the use of sympathetic materials.

- 6.2.5 **Provision of new lock gates and pivots:** six options for the replacement of the lock gates have been proposed. The first, option (a) (TEP *et al* 2005, 25), of timber balanced beam mitre gates is the most preferable heritage replacement, in terms of matching the original construction on a Grade II listed structure, and would have a beneficial effect.
- 6.2.6 Option (b) proposes the use of mechanically operated timber mitre gates. However, the installation of the control boxes is likely to have a negative impact on the historic setting. This would also require excavation of the chamber walls in preparation for the installation of rams, which would inflict damage to the historic fabric. Similarly, this negative impact also applies to option (d), which also necessitates modification to the chamber walls. Options (e) and (f) require substantial modification and reconstruction of the chamber walls and, due to the statutory protection of the lock, it is advised that these options are disregarded in terms of the adverse negative effect on the historic fabric. The steel mitre gates considered as option (c) would also have a negative effect on the heritage value as they are unsympathetic to the visual impact.
- 6.2.7 Replacement of the lock gates will require Listed Building Consent. Therefore, many of these options are likely to be unavailable due to the restrictions of its statutory status, although consideration will need to be made for any Health and Safety risks. It is recommended that prior to any restoration a detailed photographic survey and record is undertaken.
- 6.2.8 **Repair work to the Cills:** as previously, any work undertaken on the lock will require Listed Building Consent, and damage to the historic fabric needs to be kept to a minimum. However, should the repairs be seen to prolong the life of the lock it should be considered as a beneficial effect. It is recommended that any work should be carried out under an archaeological watching brief and a detailed photographic record is made prior to and during the work.
- 6.2.9 **Provision of hand railing:** this will have a negative effect on the visual impact of the heritage value. However, as a Health and Safety requirement it is recommended that material sympathetic to the historic fabric of the lock is used. The proposed handrail should be included in the Listed Building Consent application.
- 6.2.10 **Provision of recessed escape ladders:** the ladders, required to be recessed in order to protect impact from the boats, will cause a negative adverse impact to the historic fabric of the chamber walls of a listed structure. Therefore, damage needs to be minimal and sympathetic materials must be used. Prior to the work being undertaken, the proposed ladder sites should be recorded and photographed. It is also recommended that the work be carried out under an archaeological watching brief.
- 6.2.11 **Upstream and Downstream Lock Lay-bys:** the work proposed is likely to have a beneficial effect in terms of repairs and removal of potentially destructive vegetation. The improved tow path and moorings are also beneficial in terms of their provision of access to users. Any work needs to be

undertaken with minimal damage and, where possible, the use of sympathetic materials. It is possible that the statutory protected area of the lock extends as far as the proposed lay-by.

- 6.2.12 **Frodsham Sluice:** the proposals would have a beneficial effect, in terms of restoring the sluice to operation. Nevertheless, the sluice is a heritage asset and is included in the listing for the lock, and Listed Building Consent will be required prior to any improvements and the erection of any proposed signage. A full inspection has been proposed (TEP *et al* 2005, 27) to assess the requirements for work to restore it. Therefore, it is recommended that these should be considered in detail in accordance with the heritage value once completed.
- 6.2.13 **Accommodation Bridge:** the proposals to alter the existing bridge are beneficial to enable the lock and Cut to be navigated. A number of options have been provided (TEP *et al* 2005, 28), and the recommended archaeological mitigation work will need to reflect the chosen option. In any case, a detailed photographic and recording survey will be required prior to the work. However, the proposed lifting type bridge, as one option, requires substantial modification which will have an adverse negative impact on the historic fabric.
- 6.2.14 The proposals do not appear to have provided an alternative, in removing the current bridge, for pedestrian access across the lock. It is presumed that this will either be considered when the choice of bridge is made or that a handrail will be provided to facilitate access across the lock gate, similar to locks on the Rochdale Canal.
- 6.2.15 **Utility diversions:** three options have been provided to divert the Manchester Ship Canal electricity cable. The first two options, to include either a high level cable bridge or through ducts under the canal, will have a negative effect on the historic environment. Therefore the third option is preferable.
- 6.2.16 **Dredging:** proposals to dredge the full length of the Cut may reveal significant archaeological or historical deposits and features. Therefore, it is advised that this be undertaken under a permanent presence archaeological watching brief, and further mitigation work may be required, depending on the findings.
- 6.2.17 Three options have been provided concerning the disposal of the removed silt. The first is to deposit the silt on the adjacent banks to create a higher embankment. However, these are archaeologically sensitive and will require recording and a detailed assessment prior to any groundworks. The second option to mix and spread on adjacent land as topsoil may also have a negative effect. The nearby prehistoric findspot (Site 35) may indicate unrecorded archaeological activity that may be vulnerable to any above ground earth moving activities, and similarly the water meadows north and east of the Cut. Therefore, a sample evaluation of the proposed disposal location is recommended prior to the work. In addition, the boundary stones (Site 24) are of Grade II listed status and, therefore, should any proposed silt disposal be required in this area Listed Building Consent will be necessary.
- 6.2.18 **Car Parking Facilities:** one option for the proposed car parking area is on the north verge of the quay. This area is of particular archaeological sensitivity and therefore it is recommended that further archaeological work is

undertaken. The level of such work will depend on the proposed construction works and maximum depth of impact of any groundworks, which could take the form of a watching brief or evaluation prior to the work.

- 6.2.19 **Construction methodology:** in order to undertake the restoration work and access route for the construction plant and traffic has been proposed along a track which would require upgrading. Once the exact details are known as to the requirements to improve the surface and drainage it may be necessary to undertake the work under archaeological watching brief. The proposed access route lies within an area of archaeological potential and extensive regrading works may disturb unknown below-ground archaeological remains. Similarly, the use of heavy plant may threaten any vulnerable and fragile unknown archaeological remains.

Proposal	Sites affected	Comments	Recommendations
Excavation of the fill material from within the chamber	22	Possibility of archaeologically significant deposits within chamber	Watching brief, assessment of fill, further mitigation as necessary, photographic record of chamber and floor
Disposal of fill material	30		Earthwork survey
Masonry repairs and re-pointing to chamber	22	Legal requirement to apply for Listed Building Consent first	Photographic record and use of sympathetic materials, survey of sluice mechanism, ground and gate paddles
Provision of new lock gates and pivots	22	Legal requirement to apply for Listed Building Consent first. The most preferable option is the use of timber balanced mitre gates (a)	Photographic survey and record of existing gates and pivots prior to replacement
Repair work to the Cills	22	Legal requirement to apply for Listed Building Consent first. Inflicting damage on historic fabric	Photographic record prior to repairs, watching brief during repairs, repairs using sympathetic materials
Reinstatement of chamber floor	22	Legal requirement to apply for Listed Building Consent first.	Photographic record prior to repairs, repairs using sympathetic materials
Provision of hand railing	22	Legal requirement to apply for Listed Building Consent first. Negative impact on heritage value	Use sympathetic materials, watching brief during construction

Proposal	Sites affected	Comments	Recommendations
Provision of recessed escape ladders	22	Legal requirement to apply for Listed Building Consent first. Inflicting damage on historic fabric	Photographic record prior to repairs, repairs using sympathetic materials
Upstream Lock Lay-by	22	Possible legal requirement to apply for Listed Building Consent first.	Photographic record prior to repairs, repairs using sympathetic materials
Downstream Lock Lay-by	20	Possible legal requirement to apply for Listed Building Consent first.	Photographic and survey record prior to repairs, watching brief during any alterations and repairs
Frodsham Sluice	22	Legal requirement to apply for Listed Building Consent first. The sluice is included in the listed, and is a heritage asset. Plethora of warning signs detract from historic environment	To be confirmed in accordance with proposals; photographic survey prior to removals and repairs, watching brief during repairs, repairs using sympathetic materials
Accommodation Bridge	25	Negative impact to historic fabric and environment	Photographic record prior to modification, watching brief during modification, repairs using sympathetic materials where possible
Guide piles	26		Photographic record of current timber posts (Site 26) in their current location, reinstatement of originals and sympathetic replicas in new positions
Bridge Lay-bys	27	Repairs and removal of vegetation of beneficial effect, although proposals to rebuild the wall and excavate the channel may have a negative impact on the historic fabric/ environment	Photographic record of current masonry, sympathetic materials for repair and construction work, watching brief during excavation
Utility Diversions	30		Survey of earthworks prior to construction, watching brief during any earthmoving
Dredging	28, 37		Watching brief during dredging

Proposal	Sites affected	Comments	Recommendations
Spreading of silt on farmland	32, 24, 37, 38	Any archaeologically sensitive deposits or features could be destroyed by the disposal of silt or the associated earth moving activities. Legal requirement to apply for Listed Building Consent should the boundary stones be within the proposed areas for disposal	Evaluation of Site 37 in order to recover environmental samples for processing and analysis; avoid water meadow and Sites 24 and 38 , or if this is not possible survey earthworks and carry out evaluation of sluice entrance / exit; sample evaluation of other areas on which dumping is proposed
Depositing of dredging silt on banks adjacent to Cut	30, 24	Possible legal requirement to apply for Listed Building Consent. Care must be taken not to impact upon the Listed structure (Site 24), which would require listed building consent. Care should also be taken not to impact upon the setting of Site 24	Earthwork survey should be carried out first along all stretches of bank to be added to
Nicospan banks along Cut	27, 28, 30		Photographic and earthwork survey before work is carried out, sympathetic materials to be used for banks
Signage (i)	30		Care should be taken not to damage Site 30
Signage (ii)	25, 27		Care should be taken not to damage Sites 25 and 27
Signage (iii)	22	Legal requirement to apply for Listed Building Consent. Inflicting damage on historic fabric	Photographic record should be made of affected areas first, care should be taken not to damage historic fabric
Signage (iv)	16, 20, 21?		Care should be taken not to inflict damage on Sites 16, 20, and 21
Signage (v)	14	Legal requirement to apply for Listed Building Consent. Inflicting damage on historic fabric	Photographic record should be made of affected areas first, care should be taken not to damage historic fabric

Proposal	Sites affected	Comments	Recommendations
Signage (vi)	04	Important quayside area which probably dates back to medieval period	Archaeological excavation or watching brief of mounting hole(s) required for sign(s)
Frodsham Weir Booms	22	Possible legal requirement to apply for Listed Building Consent. Possible negative impact on heritage value	Sympathetic materials should be used, and affected areas photographically recorded beforehand. Installation should be under watching brief
Sutton Weir Boom	Outwith study area	Consultation with Historic Environment Planning Officer (Archaeology) and Conservation Officer	Unknown. Further desk-based study may be required before mitigation can be suggested
Towpath Improvements (i)-(iii)	18, 19, 23, 27	Improved access to visitors would be of beneficial effect to the heritage value in terms of education.	Survey and evaluate Site 18 , earthwork survey of Site 19 , evaluate Site 23 , photographic survey of Site 27
Towpath Improvements (iv)	18	Improved access to visitors would be of beneficial effect to the heritage value in terms of education.	Survey and evaluate Site 18 , watching brief if necessary to follow
Towpath Improvements (v)		Improved access to visitors would be of beneficial effect to the heritage value in terms of education.	Vegetation clearance with minimal damage to any upstanding remains, followed by earthwork/detailed walkover survey
Frodsham Moorings	Frodsham Port area, 12-16	Possible legal requirement to apply for Listed Building Consent first , since proposals may affect Frodsham Bridge (Site 14)	Evaluate all areas where earthworks are required, use sympathetic materials for moorings
Interpretation at Frodsham Lock	23	Of beneficial historical value given the heritage assets	Watching brief for mounting hole(s) for interpretation panel(s), include historical information in interpretation panels, with appropriate illustrations
Orchard Improvements	23		Evaluate building remains (Site 23)
Car Parking Facilities	Frodsham Port area		Evaluate car park area, or consider under watching brief

Proposal	Sites affected	Comments	Recommendations
Car Parking Facilities (4.65)	16 , sites outwith study area		Earthwork survey of Site 16 , evaluation of part of proposed car park area
Access	24, 38 , and unidentified sites outwith study area,	Consultation with Historic Environment Planning Officer (Archaeology) and Conservation Officer. Possible requirement to apply for Listed Building Consent; risk of impact on Listed structures (Sites 24 and 38). Care should also be taken not to impact upon the setting of Sites 24 and 38	Unknown. Further assessment may be required before mitigation can be suggested. If impacts upon water meadow area can not be avoided, carry out earthwork survey first
Construction Plant	Most sites	Could be affected by vibration, noise, compaction and ground disturbance during operation	To be carried out in consultation with archaeological contractor and Historic Environment Planning Officer (Archaeology) so that appropriate mitigation may be put in place
Access to the island	24, 25	Care should be taken to avoid any impact on Site 24 , as this would then involve a legal requirement to apply for Listed Building Consent first	Photographic record of Site 25 prior to investigative work, evaluation or watching brief on any areas of ground disturbance necessary for construction of temporary bridge

Table 2: Recommendations for detailed restoration proposals

Site No	Site Type	Period	Recommendations
02	Dock Yard	Post-medieval	Watching brief/evaluation
03	Viaduct	Post-medieval	Protect from negative effects
04	Remains of Houses	Medieval - Post-medieval	Evaluate
07	Weighing Machine	Post-medieval	Evaluate
08, 15, and 20	Small wharfs	Post-medieval	Record by survey

Site No	Site Type	Period	Recommendations
09	Oilcake Works	Post-medieval	Evaluate (?), depending on proposals
10	Wharf	Post-medieval	Record and restore
11	Sutton Mills	Medieval - Post-medieval	Protect listed building from negative effects, buildings record, evaluate the rest of the mill depending on proposals
13	Building remains	Post-medieval	Evaluate
14	Frodsham Bridge	Medieval - Post-medieval	Protect existing bridge from negative effects, evaluate to find previous structures
16, 19, and 30	Earthwork banks	Post-medieval	Record by survey and preserve
17	River Weaver	Prehistoric - Post-medieval	Evaluate river bed within Frodsham Port and next to small wharfs, watching brief during dredging
18	Township boundary	Post-medieval	Survey and evaluation
21, 26, and 31	Timber posts	Post-medieval	Survey and evaluation of area immediately surrounding
23	Buildings at Frodsham Lock	Post-medieval	Evaluate (depending on future proposals)
24 and 38	Boundary stones on water meadows	Post-medieval	Protect from negative effects during operation phases
27	Stone-edged canal side	Post-medieval	Survey
29	Township boundary	Post-medieval	Survey and watching brief (depending on future proposals)
32	Boundary stones	Post-medieval	Watching brief (depending on future proposals)
34	Road	Roman	Evaluate (depending on future proposals)
36	Lime kiln	Post-medieval	Evaluate (depending on future proposals)
37	Palaeochannel	Unknown	Evaluate and sample for environmental remains

Table 3: Recommendations to be considered for gazetteer sites not included in the current proposals in Table 2, which may be impacted by future proposals

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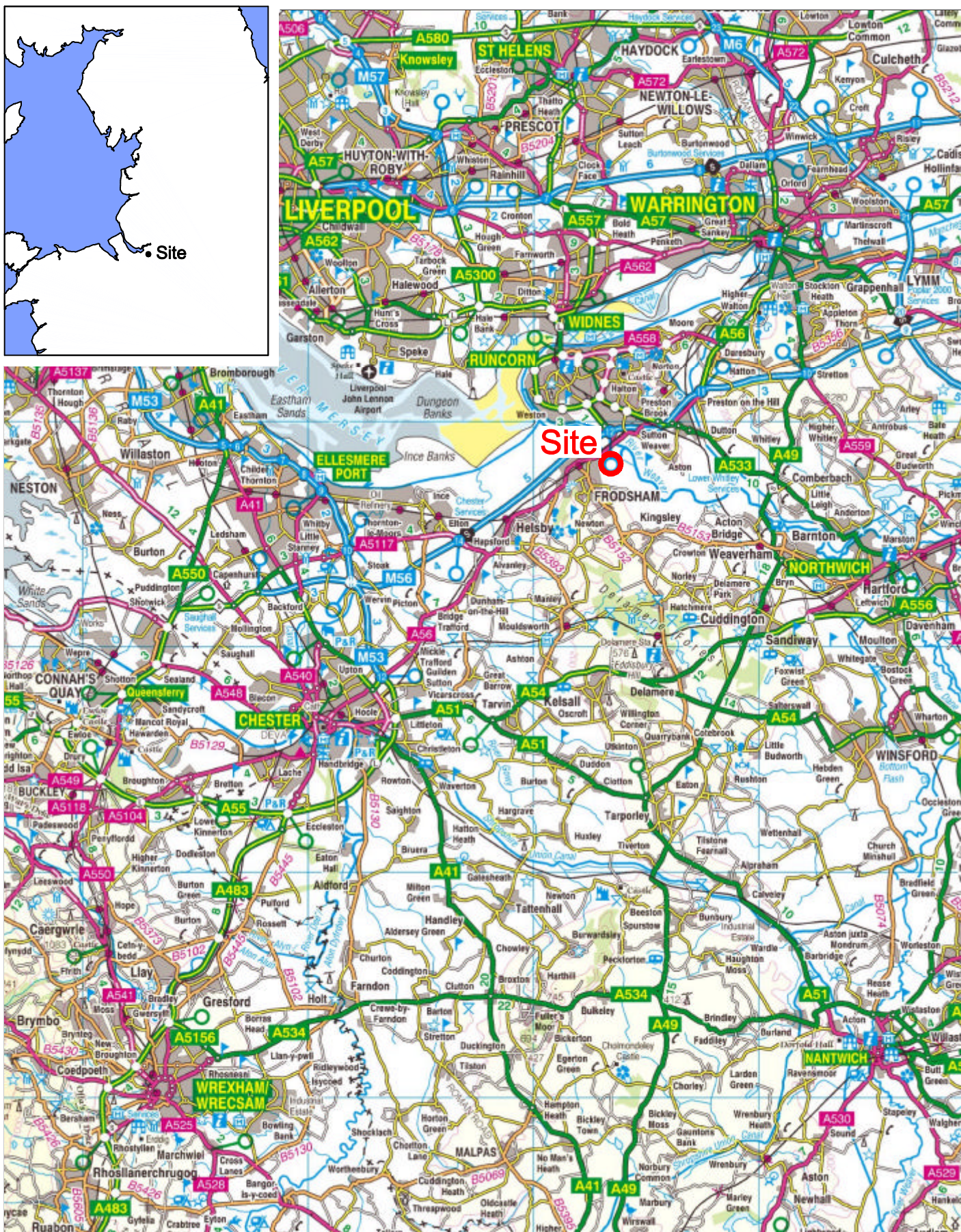
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Figure 1: Location Map



— Approximate Location of
Study Area

Not to Scale



Figure 3 : Extract from River Weaver Map of 1721



— Approximate Location of Study Area

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— Approximate Location of Study Area

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Figure 5 : Extract from Frodsham Tithe Map, c1846

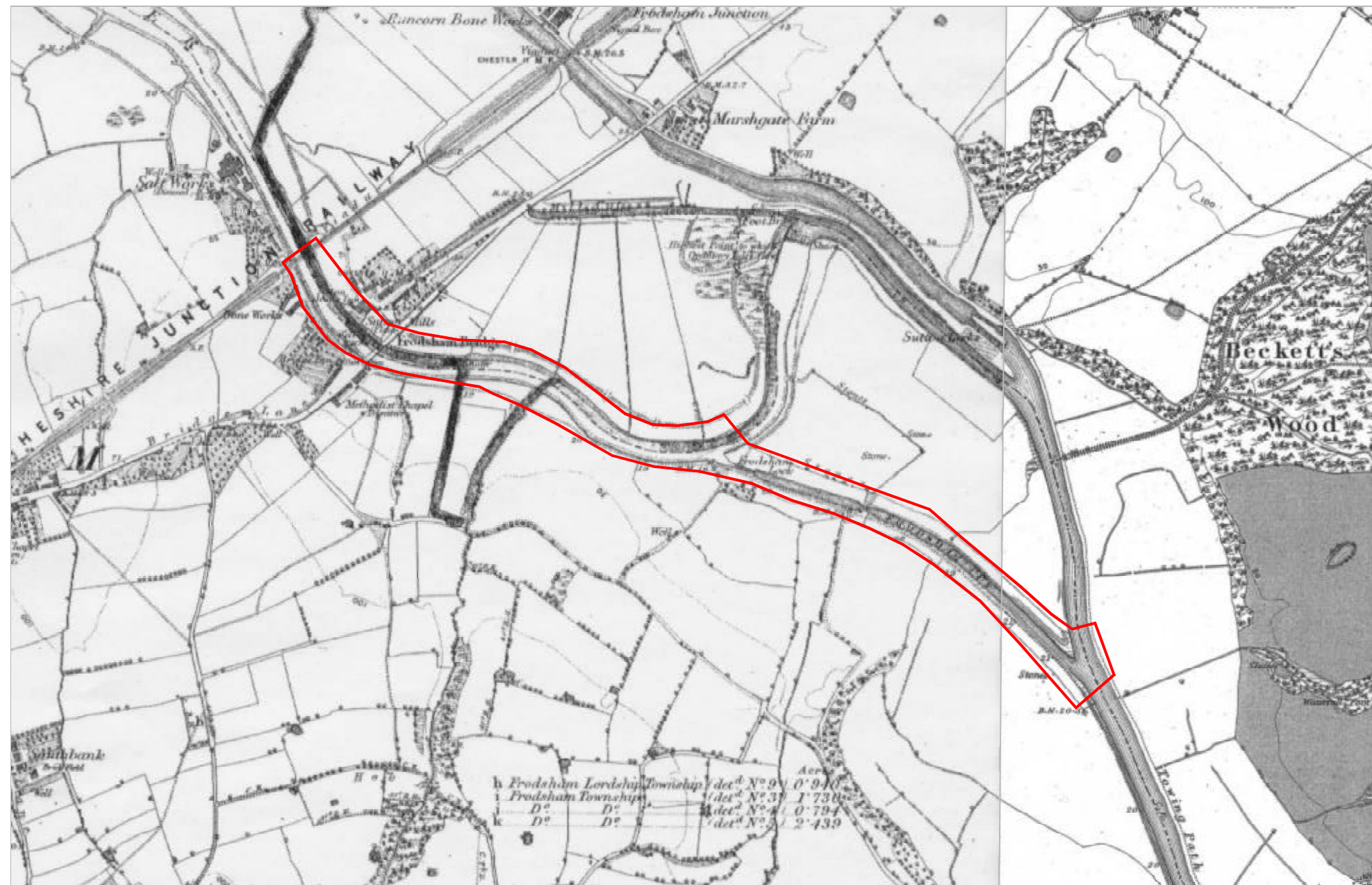


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Figure 6 : Extract from Frodsham Lordship Tithe Map, c1846



— Study area

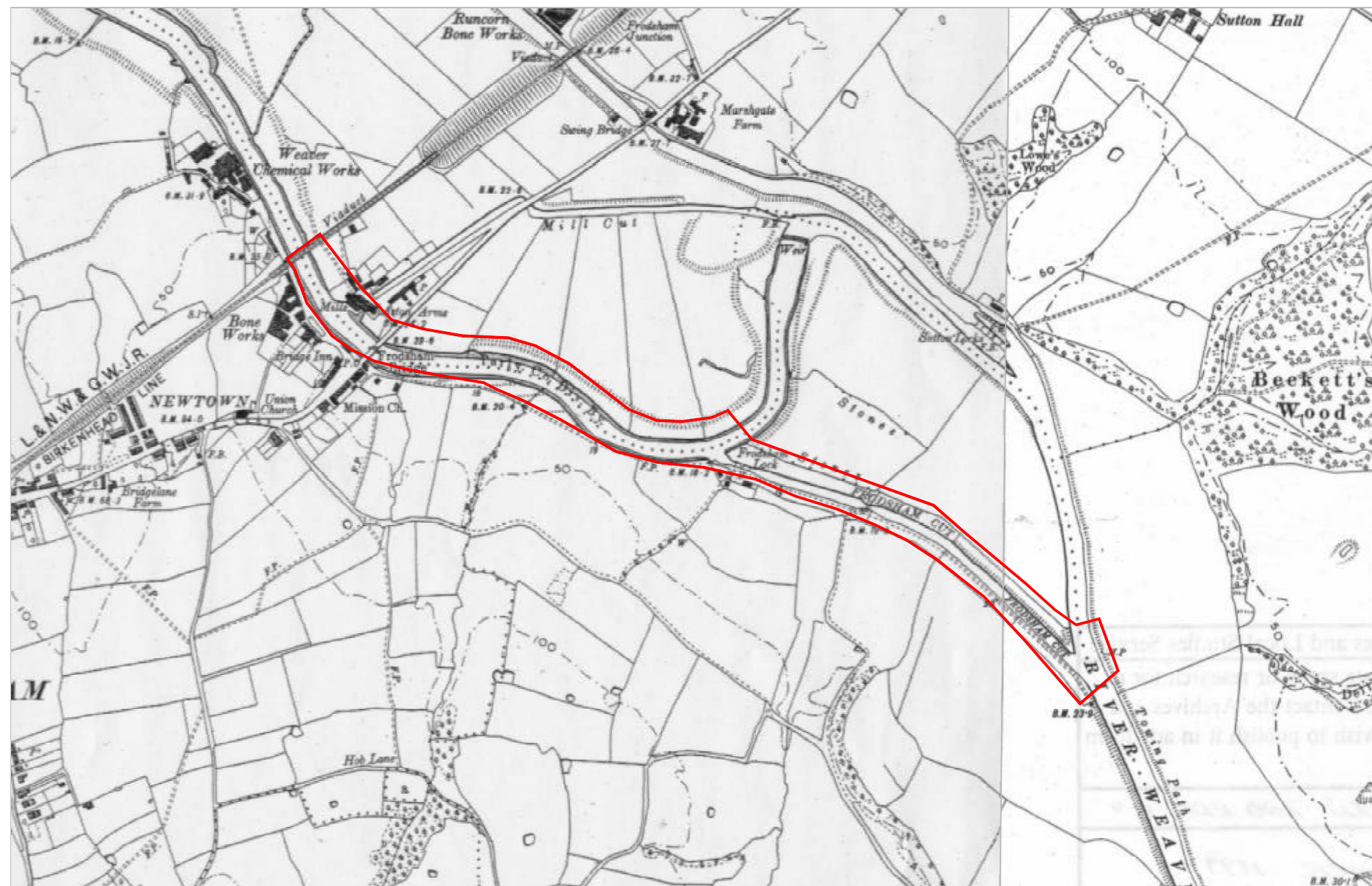


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Figure 7 : Extract from Ordnance Survey first edition 1:10,560 maps, 1881-2

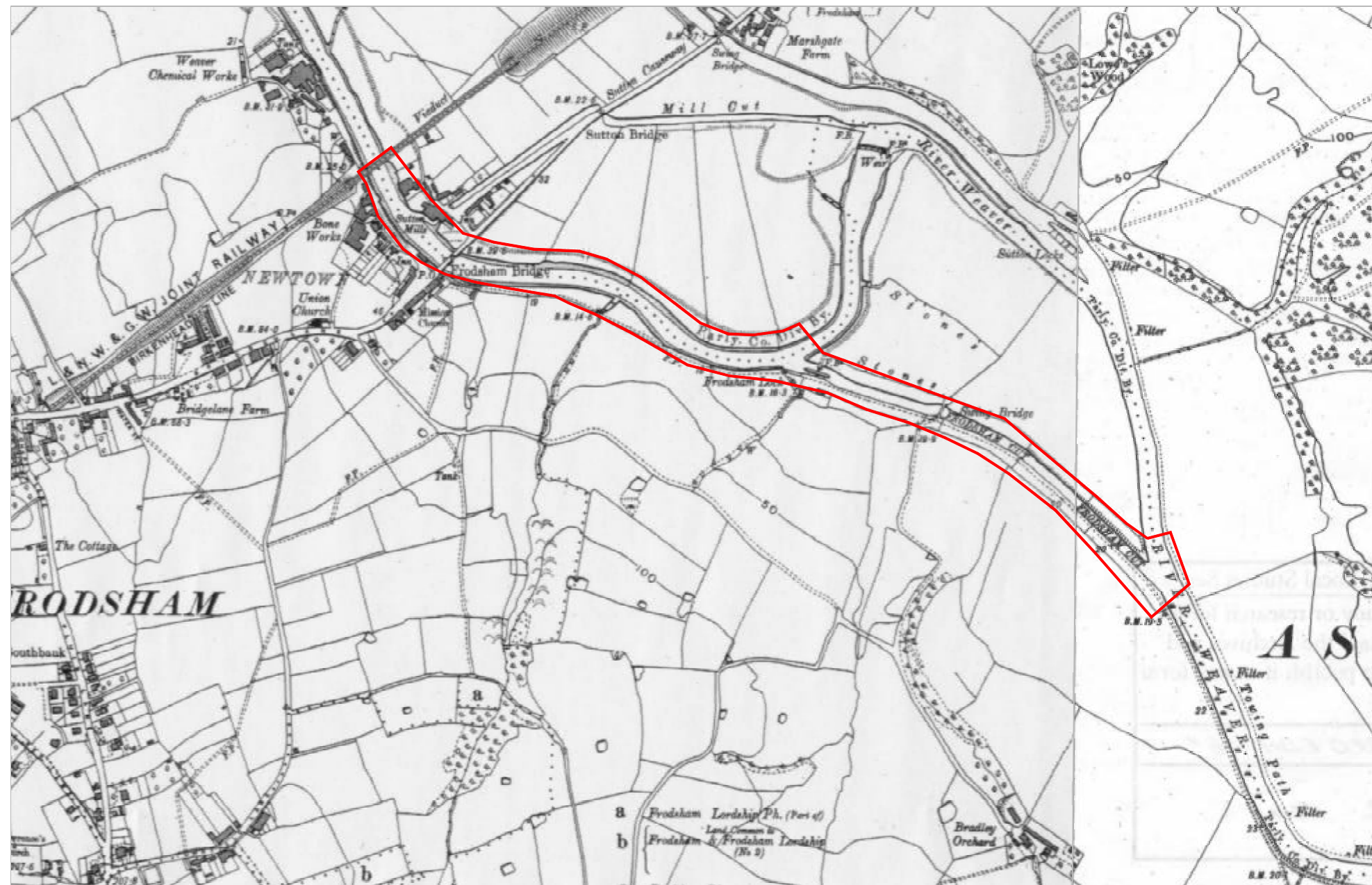


Study area



Scale 1:5000 at A4





— Study area



Scale 1:5000 at A4

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Figure 9 : Extract from Ordnance Survey 1:10,560 maps, 1911-12

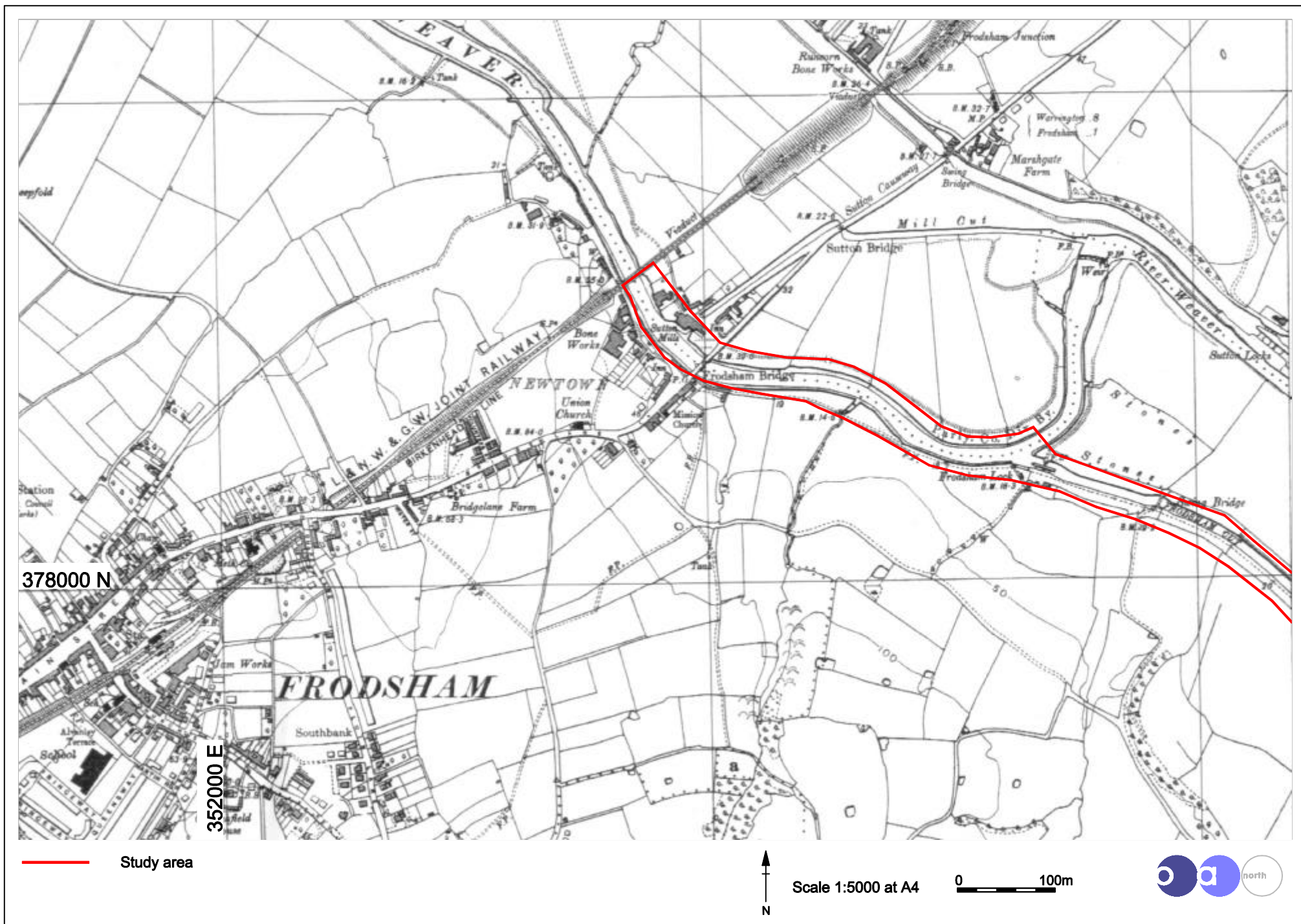


Figure 10 : Extract from Ordnance Survey 1:10,560 map, 1938

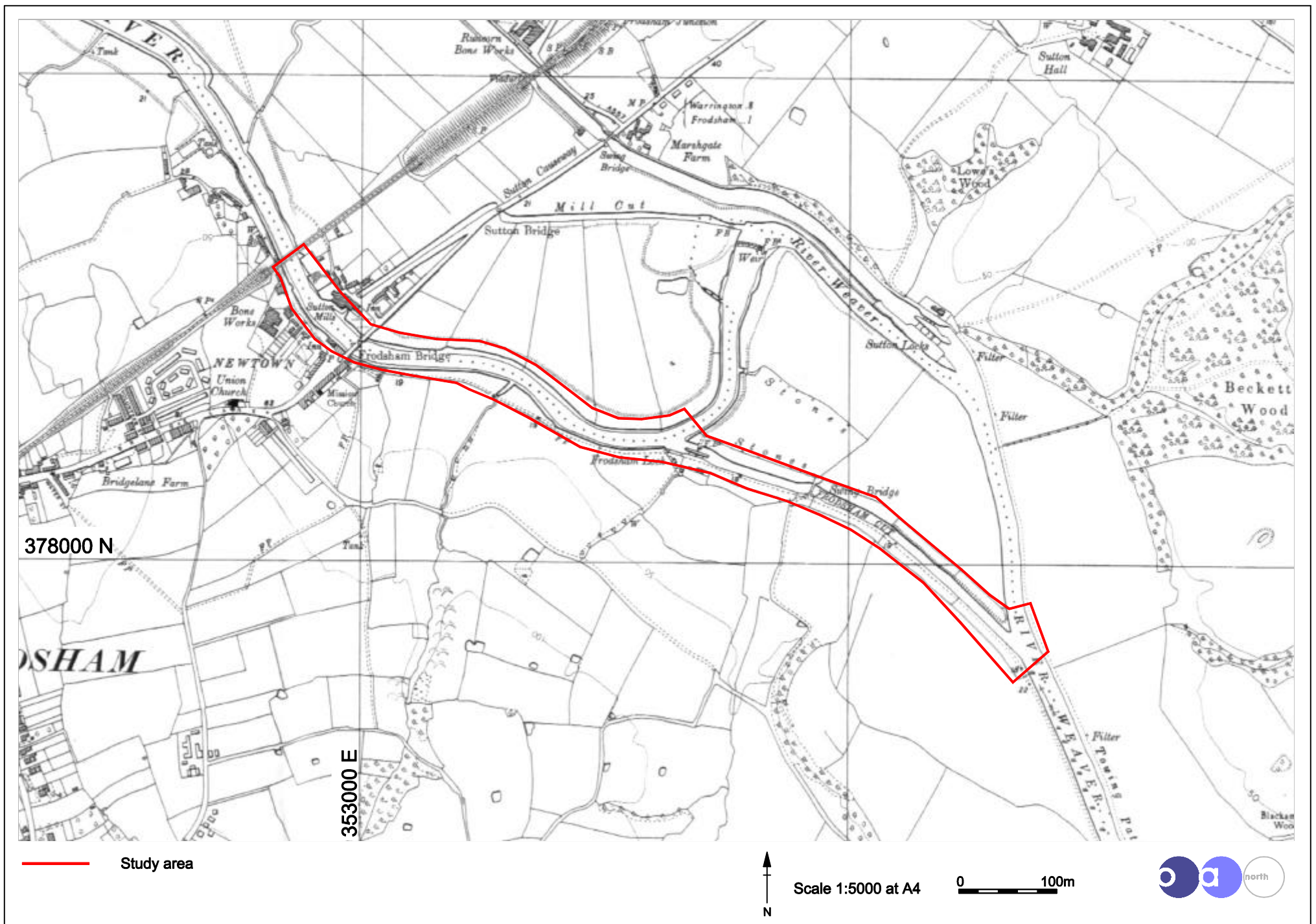


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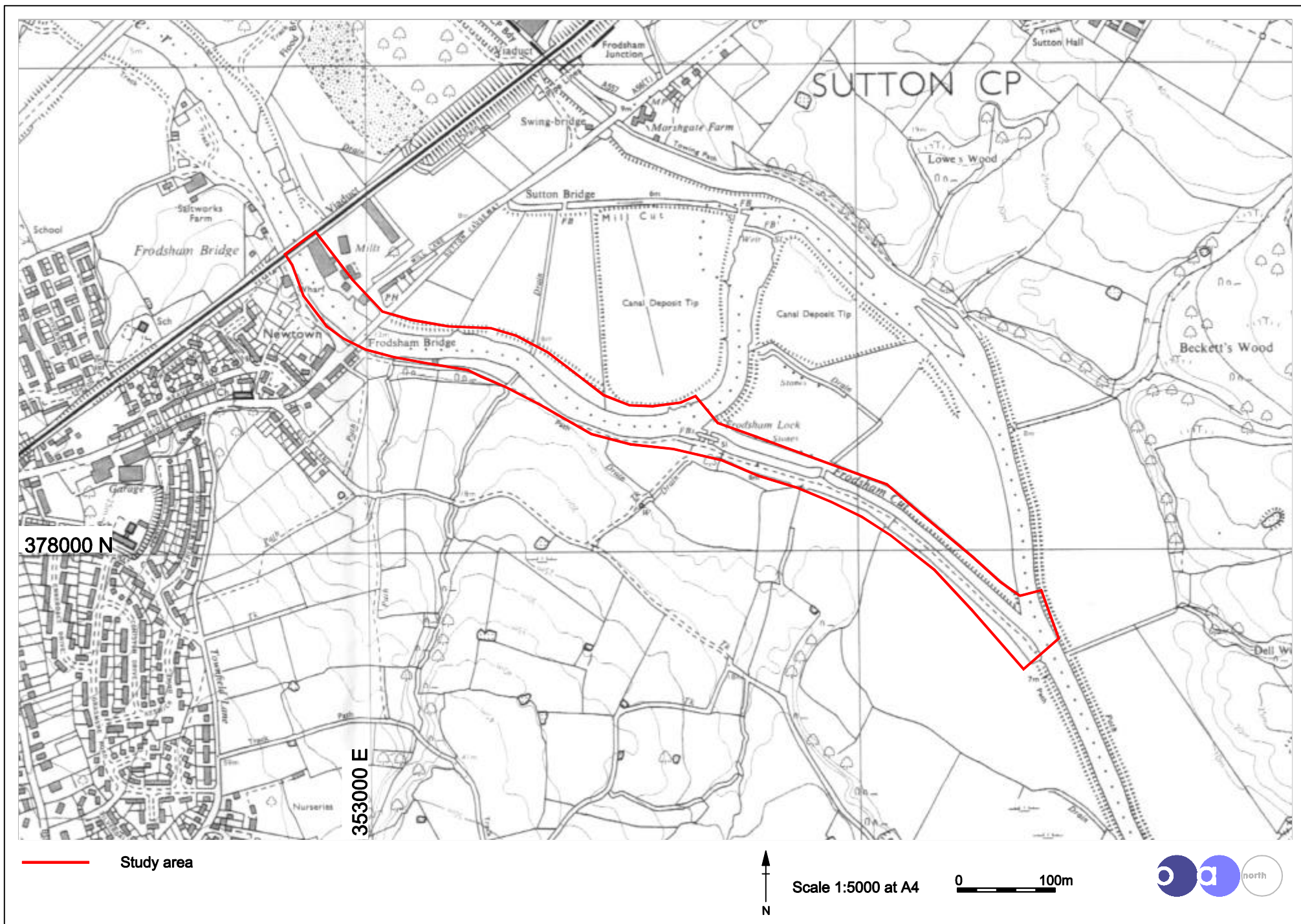


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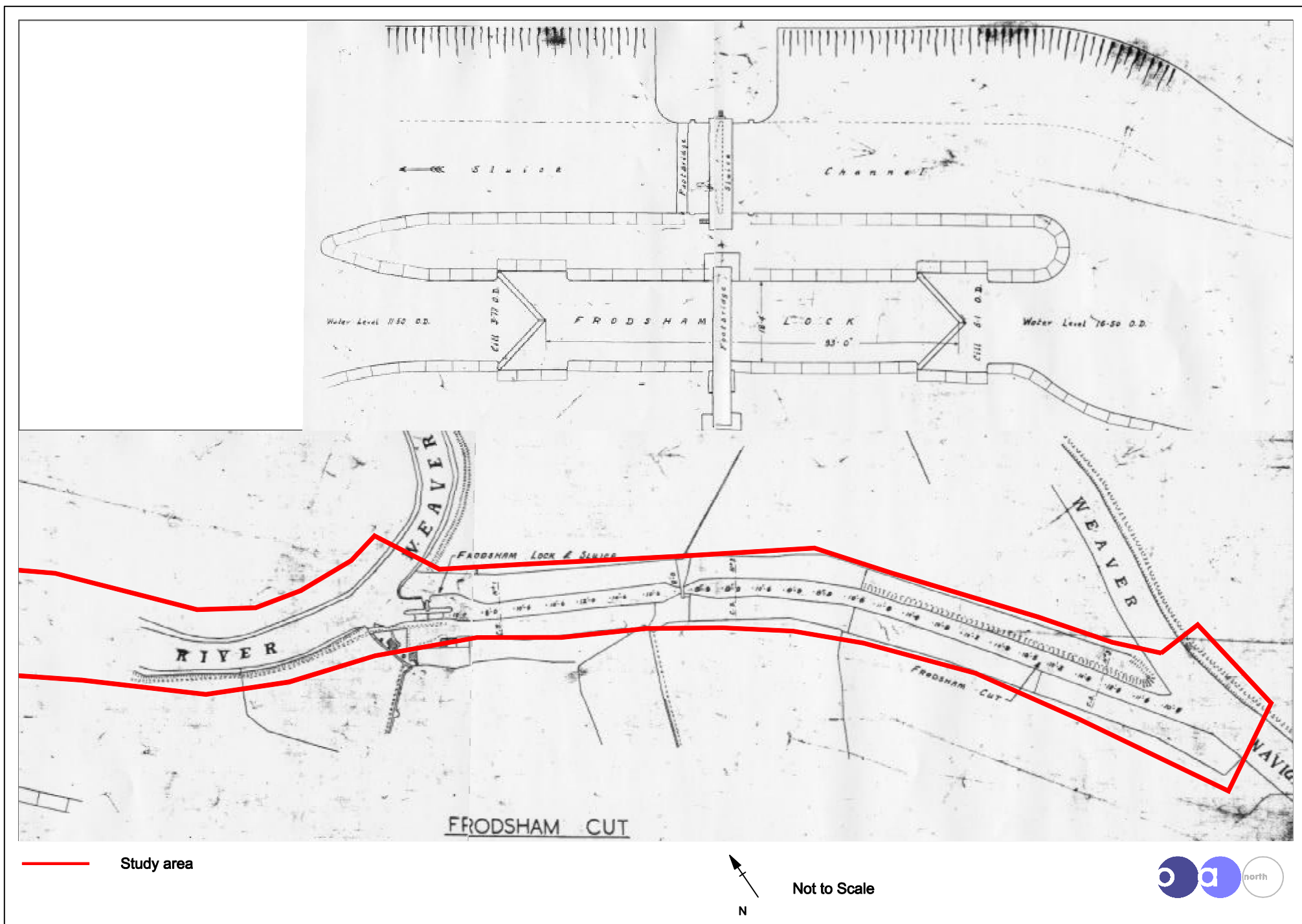


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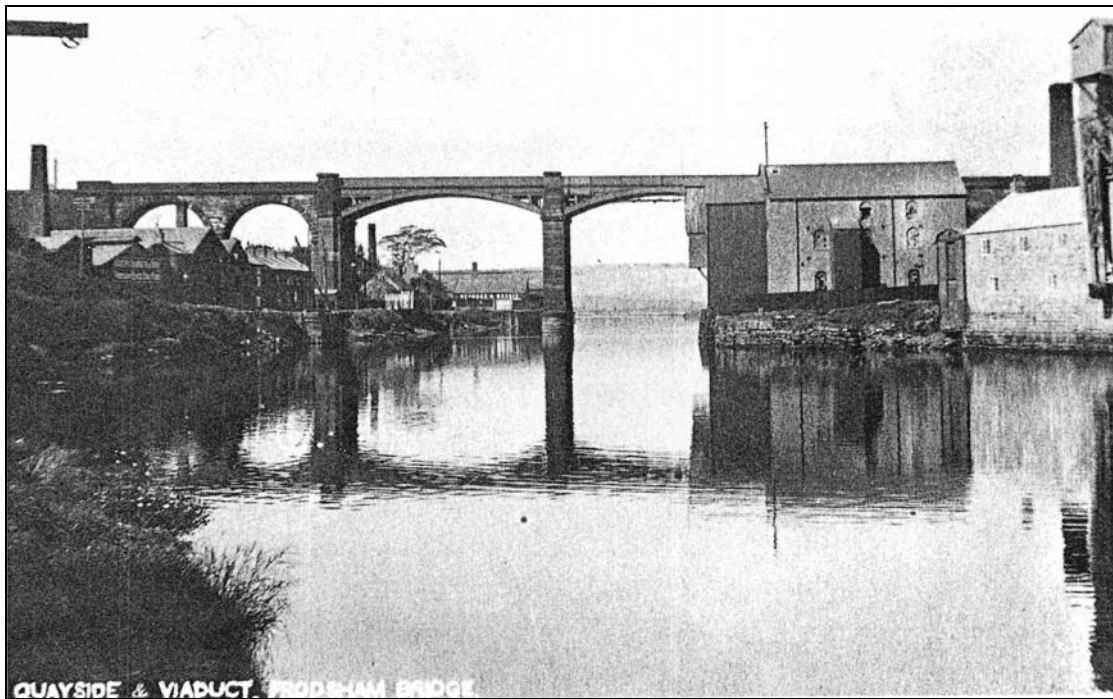


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