



Lincolnshire
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Babtie



Lincolnshire County Council

North East Quadrant Development Access

Archaeological Desk-Based Assessment


May 2004

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Introduction

- 1.1 Babtie Group have been commissioned by Lincolnshire County Council to prepare a planning application for the proposed North East Quadrant Development Access scheme, a network of access roads and on-line improvements servicing the proposed Lincoln Eastern Growth Corridor and providing links to the proposed Lincoln Eastern Bypass (see Figure 2).
- 1.2 Babtie's commission includes the production of an archaeological desk-based assessment and the procurement and management of intrusive and non-intrusive archaeological evaluation works, to obtain further information about known or potential archaeological sites that may be affected by the advancement of the scheme. The results of these works will be used to inform an Environmental Impact Assessment and in the preparation of an Environmental Statement.
- 1.3 The proposed scheme comprises the following elements:
- Greetwell Road Improvement
This section of the route runs between the B1188 and the proposed Greetwell Link Roundabout. The western end of this section will be at grade. However, a high embankment and culvert will be required where the realigned route crosses a stream at Greetwell Hollow. The western end of this part of the scheme has yet to be finalised and may require the construction of a roundabout at the junction with the Outer Circle Road.
 - Lincoln Eastern Bypass Link
The route follows the existing alignment of Greetwell Road and consists primarily of on-line improvements and road widening. A shallow embankment is proposed for the route between Lincoln Eastern Bypass and Greetwell Link Roundabout.
 - Greetwell Link
This section of the route runs south from the Greetwell Link Roundabout, crossing the Lincoln - Market Rasen Railway, where it turns west, terminating just to the east of the Bifranghi works. The northern section of the Greetwell Link runs predominantly at grade; however, where the route crosses the Lincoln - Market Rasen railway line the approach embankments to the railway are likely to be around 8m high. South of the railway, the land falls away and the embankment height will increase to 11m. The east - west portion of the route returns to run approximately at grade.
 - Other works
The study area is to include all future infrastructure and buildings. The locations of these works are not yet finalized, so the information presented in this desk-based assessment will inform future development
- 1.4 This report sets out the methodology and sources used and the results of a desk-based assessment of the proposed route. It also takes into account the preliminary

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results of ongoing geophysical survey work. This work has been undertaken at the request of the Senior Built Environment Officer of Lincolnshire County Council and conforms to the *Standards and Guidance for Archaeological Desk-Based Assessments* (IFA 1999) and the *Lincolnshire Archaeological Handbook: a manual of archaeological practice* (LCC 1998). Copies of this report will be deposited with the Lincolnshire County Sites and Monuments Record within six months of the submission of a planning application for the scheme.

1.5 Aims and objectives

- 1.5.1 A desk-based assessment is defined as "a programme of assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate" (IFA 1999).
- 1.5.2 The purpose of this desk-based assessment is to collate and assess available information regarding the known and potential archaeological resource of the North East Quadrant Development Access study corridor, including, where possible, "the presence or absence, character and extent, date, integrity, state of preservation and relative quality of the archaeological resource, in order to make an assessment of merit in an appropriate context" (IFA 1999).
- 1.5.3 Furthermore, the objectives of this assessment are to assist in the formulation of a strategy for further archaeological investigation where the character and significance of the archaeological resource is not sufficiently defined or understood to permit a detailed mitigation strategy or other response to be designed. Where the character of the resource is well defined, the assessment will assist in the development of an appropriate mitigation strategy to ensure the recording, preservation or management of the archaeological resource (IFA 1999).

Methodology

2.1 Sources of Information

- 2.1.1 This report is based primarily on a desk-based study undertaken in the winter of 2003-2004, with detailed information obtained for a study area as shown in figure 2. Some additional background information was also gathered from a wider area, particularly with reference to the regional and national archaeological/ historical background.
- 2.1.2 Data was obtained from a number of sources, including:
- Lincolnshire County Sites and Monuments Record;
 - Lincoln Urban Archaeological Database;
 - Lincolnshire archives;
 - English Heritage, National Monuments Record (Air Photos);
 - English Heritage, Scheduled Ancient Monuments Section;
 - English Heritage, East Midlands Regional Office;
 - Historic maps and plans held in the Lincolnshire County Archive;
 - Ordnance Survey maps;
 - Lidar Survey data for the Lower Witham;
 - Published and unpublished archaeological books and journals;
 - Site Inspections.
- 2.1.3 The study also drew on work undertaken in connection with the Lower Witham Flood Defense Improvement Scheme (PCA 2001, Babbie 2002) and the Lincoln Eastern Bypass (Babbie 2003, PCA 2004). Informal discussions with local archaeological contractors have also assisted the preparation of this report.
- 2.1.4 The study has also taken into account the preliminary results of a series of ongoing geophysical surveys commissioned for the scheme. While this work is not yet complete at the time of writing, the interim results are discussed below.
- 2.1.5 In addition to the above data gathering, qualitative comment was invited from English Heritage, the County Archaeological Section at Lincolnshire County Council (CAS) and the City Archaeologist, City of Lincoln Council (CA). A detailed response was received from the Senior Built Environment Officer (CAS) outlining the archaeological potential of study area, including significant archaeological deposits in the Lower Witham Valley. A similar response was received from English Heritage and the City Archaeologist, amplifying the comments made by the County Archaeological Section regarding the significance of the Lower Witham Valley.
- 2.1.6 Individual sites of Cultural Heritage interest identified from any of the above sources are listed in the gazetteer (Appendix A), key sources are given in the bibliography at the end of this report. Figure 3 shows the extent of the study area and the distribution of cultural heritage sites.

2.2 Assessment of Cultural Heritage Value

- 2.2.1 A provisional assessment of the grade of importance of each archaeological site within the study area was made on a three-point scale of National, Regional or Local significance.
- 2.2.2 Limited information was available for most sites in the study area, with relatively few having been archaeologically tested or subject to detailed survey or recording. This initial assessment was therefore based partly on professional experience and discussions with the County Archaeological Service and English Heritage. However, it also took into account the Secretary of State's non-statutory criteria for the designation of Scheduled Ancient Monuments. These criteria are period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity and potential.
- 2.2.3 Buildings of cultural heritage significance were assessed against criteria outlined in Planning Policy Guidance Note 15: Planning and the Historic Environment. The criteria used are Age, Rarity, Architectural Interest, Historic Interest, Close Historical Association and Group Value. All Grade I and Grade II* Listed Buildings were deemed to be of National importance, with all Grade II Listed Buildings deemed to be of Regional significance.

2.3 Assessment of the significance of impact

- 2.3.1 A three-stage process has been applied to assess the significance of potential impacts. The first stage is a purely quantitative assessment, based on the proportion of a site that would be affected. A qualitative element is introduced by taking into account the grade of importance of a site, and this is adjusted by consideration of additional qualitative factors. The final assessment is on a three point scale of Major, Moderate or Minor significance.

Policy Background

- 3.1 Scheduled Ancient Monuments (SAM) are protected by law under the Ancient Monuments and Archaeological Areas Act 1979, and are by definition of National Importance. Any works that would affect a SAM or its setting require Scheduled Monument Consent, obtained from the Department for Culture, Media and Sport (DCMS), who are advised by English Heritage.
- 3.2 Listed Buildings also benefit from statutory protection under the Planning (Listed Buildings and Conservation Areas) Act 1990, and any works that would affect a Listed Building or its setting require Listed Building Consent, obtained through the Local Planning Authority. Central government guidance to planning authorities on dealing with the built historic environment is expressed in *Planning Policy Guidance 15, Planning and the Historic Environment* (PPG15) and expanded in Policies 24 – 27 of the *City of Lincoln Local Plan – Adopted August 1998*. Similar guidance is also contained in the *West Lindsey Local Plan 1993 – 2001*, Policies SA4 – SA6.
- 3.3 Central government guidance on archaeological remains is given in PPG16, “Archaeology and Planning”. The key policy statements in PPG16 are that **“where nationally important archaeological remains, whether Scheduled or not, and their settings, are affected by proposed development there should be a presumption in favour of their physical preservation”**. In relation to less important sites, PPG16 states that **“the desirability of preserving an ancient monument and its setting is a material consideration in determining planning applications whether that monument is scheduled or unscheduled”**.
- 3.4 Guidance given in PPG15 and PPG16 is expanded in the Lincolnshire County Structure Plan (Policies Proposed for Adoption, November 2000), Policies 62 to 65. Similar policies are contained in the earlier Deposit Draft (1998). Policy 63 (Archaeological Heritage) states:

“Development adversely affecting an archaeological site of National importance (whether Scheduled or not) or its setting will not be permitted.

Development proposals which would affect known or suspected archaeological sites will be the subject of an archaeological assessment, and should be considered within this context having regard to other material considerations.

Where development is permitted, satisfactory arrangements for the preservation in situ of archaeology within the development or, as appropriate, the excavation and recording of the archaeological remains will be required. The information recorded should be archived and the results published as appropriate”.

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- 3.5 The study area lies in two administrative districts, West Lindsey and the City of Lincoln. Archaeology and the Built Heritage are covered by Policies SA1 to SA9 of the West Lindsey Local Plan. Policy SA8 includes the Provision that planning permission will not be granted where the proposals are **"located in an area where there is evidence of archaeological interest and the applicant has provided insufficient information needed to determine whether the proposals will adversely affect that interest"**.
- 3.6 Similar policies (Policies 21 to 22) are contained in the City of Lincoln Local Plan – Adopted August 1998. Policy 21 states, **"Where it is considered that development proposals may affect known or suspected archaeological remains, the local planning authority will require the results of an archaeological assessment to be submitted with any planning application. This will take the form of an initial desk-top assessment followed where appropriate by more detailed evaluation, depending on the interest of the site"**.
- 3.7 Policy 22 also states, **"The local planning authority will seek the preservation of important archaeological remains and their settings when considering development proposals. Where the preferred option of preservation "in-situ" is not warranted, taking into account the merit of the remains and other material considerations, planning permission may be granted subject to satisfactory provision being made for excavation, recording and appropriate publication of results"**.
- 3.8 It is important to note at this early stage in the development of the scheme that the Witham Valley has been identified as an archaeological landscape of national significance, with the potential for extremely well preserved archaeological deposits of prehistoric date to survive sealed below surface peat and alluvial deposits.

Baseline Conditions

4.1 Site Description

- 4.1.1 The topography of the study area is dominated by the Lincoln Gap, a natural break where the River Witham flows through the Lincoln Edge, which causes the landform to fall quickly from the higher limestone escarpment to the north and south to the river flood plain, dropping to a low point of 4 metres AOD at the river edge.
- 4.1.2 Greetwell Road, situated at approximately 33m AOD on the south facing slope of the Witham Valley, is a minor road running out of Lincoln, which connects with a number of small villages to the east of the city. The topography rises gently towards the higher areas of the Lincoln Edge, to the north of Greetwell Road, while to the south, a minor stream course has cut down through the valley side to a level of about 15 to 20m AOD, creating the feature known as Greetwell Hollow. South of the railway, the Spa Road Link runs along the northern edge of the flood plain of the River Witham, at circa 10m AOD. With exception of the western end of Greetwell Road, the land use is predominantly agricultural, although historically, the area is known to have been worked for both ironstone and limestone.

4.2 Geology

- 4.2.1 The sequence of strata beneath the route consists of Upper and Lower Lincolnshire Limestones, separated by the Crossi Beds, overlying Northampton Sand and Ironstone, which in turn overlie Upper Lias Clays. The Lincolnshire Limestone and the Northampton Sand and Ironstone are present beneath the higher ground at the eastern and western ends, respectively, of the Greetwell Road section of the route. Lias Clay is present beneath the lower-lying parts of the route, including Greetwell Hollow and beneath drift deposits in the valley floor.
- 4.2.2 There are historical records of mine working in the Ironstones, with the whole outcrop of ironstone beneath the western section of Greetwell Road having been mined by opencast methods and backfilled. Additionally, underground workings are understood to be present and air shafts are marked on historical maps within the vicinity of the scheme. Nearby boreholes for the Lincoln Eastern Bypass encountered the top of the Ironstone at about 8 to 10m depth.

4.3 Archaeological Background

- 4.3.1 Seventeen sites or extended areas of cultural heritage interest have been identified to date within the NEQDA study area. Three were identified from the County Sites and Monuments Record and five from the Lincoln Urban Archaeological Database (LUAD). Sites of archaeological interest falling within the study area and to a distance of approximately 100m are shown in figure 3.

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- 4.3.2 The distribution of previously known archaeological sites within the study area is fairly even, with most medieval to modern sites around Greetwell road and Allenby industrial estate, and earlier sites in the surrounding fields.
- 4.3.3 The River Witham valley bottom was a major focus of prehistoric and later ritual activity and is famous for numerous finds of high-status metal artifacts deposited as "votive offerings". At Fiskerton, approximately 4km downstream of the study area, a major prehistoric timber causeway dated to c. 456 – 317 BC has recently been excavated, whilst another possible causeway site has been identified at the western end of the study area at Stamp End. Overall, at least ten such sites are known in the Lower Witham Valley, between Stamp End and Dogdyke.
- 4.3.4 Previous archaeological studies including a palaeoenvironmental assessment of the cores from a series of geotechnical boreholes across the valley bottom suggested that there is a high potential for the presence of well-preserved prehistoric deposits underlying surface peat and alluvial deposits within the study area (CLAU 1999). However, geotechnical investigations have shown that the surface peat deposits are actively degrading as a result of continuing agricultural activity and land drainage. On the north side of the river in particular these deposits are thought to survive only in patches, with the best-preserved areas likely to be immediately adjacent to the river. Nevertheless, significant prehistoric remains are present on the underlying old land surface.
- 4.3.5 Within perhaps a decade of the Roman invasion a legionary fortress was established on the Cliff to the north of the Witham, overlooking the existing native settlement situated on the banks of the Brayford Pool. Following the army's advance north in c.77 or 78 AD, the legionary fortress passed out of use and the site was designated a *colonia*, or veterans settlement, probably at a date sometime in the early 90's AD (Whitwell 1970). Lincoln (*Lindum Colonia*) went on to become one of the key towns of Roman Britain, becoming the provincial capital of the province of *Flavia Caesariensis* following administrative reforms in the late 3rd or early 4th century (Frere 1967, Millet 1990). Linked with other major Roman centres by a strategic road network and two artificial or canalized waterways, the town exerted an influence over a substantial rural hinterland containing a number of important villas, rural settlements, farmsteads and field systems (Millet 1990).
- 4.3.6 Although Lincoln ceased to be the center of a large urban population in the post-Roman and early Anglo-Saxon period, some form of occupation continued with the walled enclosure possibly in use as a royal or ecclesiastical center (Jones 2001). Lincoln was once again a town of national importance by the mid-10th century with the Roman roads and the River Witham continuing to function as key strategic routes (Jones, 2001). The Witham remained navigable during the medieval period, forming an important conduit for the transportation of goods, principally grain, cloth and wool, from Lincoln and various monastic holdings along the river to the port at Boston
- 4.3.7 During the medieval period farming developed to the perimeter of the Edge, along the spring line, and to the clay vale to the east. However, much of the upper reaches of the Edge remained largely uncultivated until the Napoleonic Wars. The present

landscape is largely the result of 18th and 19th century Parliamentary Enclosure, characterized by dry stone-walled fields on the Edge, giving way to hedgerows on the dipslope and the clay vale.

- 4.3.8 In 1731 the report of a survey of the River Witham between Lincoln and Boston noted that the river was only navigable by vessels of very shallow draft, the existing channel being described as very crooked and winding (CLAU 1992, Pawley 2001). In 1762 passage of the Witham Drainage Act resulted in some improvements to the watercourse, particularly downstream of Chapel Hill (Robinson 2001). However, works proceeded slowly and work on straightening and embanking the Witham immediately downstream of Lincoln was not carried out until the late 1790's (Wright 2001), with further work undertaken later under the Lincoln & County Drainage Act of 1804 (CLAU 1992). The growth of Lincoln itself and the surrounding villages, coupled with improvements to the existing road network and the construction of the railways have also had an impact upon the pre-existing landscape.

4.4 Hydrology

- 4.4.1 The archaeological significance of the Witham Valley is explicitly linked to the waterlogged anaerobic conditions that prevail in the valley bottom, with previous work highlighting the potential for important paleoenvironmental deposits and waterlogged remains (CLAU 1999, English Heritage 2001). Maintenance of the existing hydrology of the valley bottom is a key objective in ensuring the continuing survival of these deposits. However, only the extreme northern periphery of the Witham Valley, climbing the north slope of the area of the valley bottom, is affected by the scheme. Auger survey has shown that the deposits are already dried out and degraded here due to the topography and as a result of existing development or agricultural activity.

4.5 Aerial Photographs

- 4.5.1 The collections of the National Monuments Record Air Photos Library (including CUCAP collection) were searched as part of the evaluation process for the Lincoln Eastern Bypass, at which time coverage of the NEQDA study area was also examined. Vertical images were sampled, omitting poor quality runs (NMR Quality code C), while there were no specialist oblique images in the NMR collection that were relevant. A list of the aerial photographs (AP's) viewed is included in the bibliography.

- 4.5.2 The APs show a large area of disturbance to the north and south of Greetwell Road which appears to correspond with an area of suggested Roman and Medieval ironstone mining (Site 8)

4.6 Lidar Coverage

- 4.6.1 The Environment Agency, as part of their flood risk management programme, have commissioned a programme of Lidar (Light Detection and Ranging) surveys of the catchment areas of all the main rivers in England. The technique, which uses a laser scanner and differential Global Positioning System (GPS), produces a highly accurate

three-dimensional topographic model of the ground surface. Although the use of Lidar data for archaeological purposes is still in its infancy, the potential for the rapid survey of large areas, whether to record earthwork, landscape or key topographical features is clear.

- 4.6.2 The Lidar survey has clearly identified an area of disturbed ground to the south of Greetwell Road corresponding with the area of suspected ironstone mining of Roman or Medieval date, also identifiable on the aerial photographs (MAL/77033: 112, 1977). Variations in the topography of the valley bottom were also evident on the north side of the river, where a possible sandbar or island is visible however, this lies just outside the study area.

4.7 Geophysical Survey results

- 4.7.1 An ongoing programme of geophysical survey is currently being undertaken by Pre-Construct Geophysics, covering most of the study area. The interim results show some boundaries of the ironstone mining (Site 8) as well as possible field boundaries. The resistivity data shows a possible building (Site 14) with associated field systems (Site 13). A programme of trial trenching for the Lincoln Eastern Bypass uncovered Roman pottery and re-used masonry that may have come from a building at this location (PCA 2004). Linear features appear crossing the survey area running east-by-south-east – west-by-north-west. Trial trenching for the Lincoln Eastern Bypass found that most of these features were ceramic land drains.
- 4.7.2 Further geophysical investigation will be needed to give complete coverage of the study area at Greetwell Hollow/Sheepwash Farm (Site 7) and immediately to the west (Site 8) to establish the survival potential and extents of these sites, and to investigate the extent of the possible Roman settlement (Site 13).

4.8 Geotechnical borehole and test-pit survey

- 4.8.1 Geotechnical investigations carried out by Babbie Group have revealed that the area immediately south of Greetwell Road was opencast in 1938 (see Figure 8), although this activity is not shown on OS mapping. The extent of the area shown may not necessarily correlate to actual exploitation of minerals.
- 4.8.2 Borehole data and test pits in the area of Greetwell Hollow/Sheepwash Farm (Site 7) show that the area consists of made ground to a depth of around 4 metres. Data from the area of geophysical anomalies to the south of the railway shows that the deposits are undisturbed below the plough soil, so sites here may be better preserved. The location of these operations is shown in Figure 8.

4.9 Site list

- 4.9.1 As described above, 17 sites of cultural heritage interest were found within or near the study area. A full descriptive listing of these sites can be found in the gazetteer in appendix A. The importance of the sites was determined on a three-point scale of

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Local, Regional and National importance according to the methodology set out above. The results of this assessment are summarized in the table below:

Table 1: Sites of Cultural Heritage Interest – Assessment of Importance

Site No.	SMR No. or LUAD No.	Type	Period	Importance
1	N/A	Quarry	Post Medieval	Destroyed
2	N/A	Monks tower	Medieval? – Post Medieval	Local
3	N/A	Crofton house	Medieval? – Post medieval	Destroyed
4	Ind Mon 5316	Road Bridge	Modern	Destroyed?
5	Mon1533	Road - Greetwell Road	Medieval - Modern	Local
6	RE 693	Findspot – Pottery, could relate to Greetwell hollow	Medieval – Post-Medieval	Destroyed
7	N/A	Greetwell Hollow/ Sheepwash Farm	Medieval – post Medieval	Destroyed
8	52835	Ironstone mine workings (north)	Roman? - Medieval	Destroyed?
9	N/A	Old Brick Kilns	Post-Medieval	Destroyed
10	Mon 1142	Road – Road to Greetwell	Medieval	Local
11	Ind Mon 5448	Signal Box – Monks Abbey Signal Box	Modern	Local
12	N/A	Building – shown on 1st ed OS map	Post-Medieval	Local
13	N/A	Possible Settlement	Romano-British?	?
14	N/A	Possible Roman Building	Roman	Regional?
15	52841	Barrow cemetery	Bronze age	Regional-National
16	52836	Ironstone mine workings (south)	Roman? – Medieval	?
17	N/A	Witham Valley – Paleoenvironmental deposits	Prehistoric	National

Assessment of Impacts

- 5.1 A detailed assessment of the impact of the scheme upon individual sites will be given in the Environmental Statement. However, an outline discussion of impacts is given below.
- 5.2 The NEQDA affects or is in close proximity to a series of archaeological sites identified from numerous sources, including the County Sites and Monuments Record and aerial photographs. Elements of these sites would almost certainly be damaged or destroyed by construction. However, it is likely that any alternative layout, or location within the Lincoln Eastern Growth Corridor, would also affect a similar number of sites or features.
- 5.3 **Potential Impacts**
- 5.3.1 Impacts are likely to occur primarily during construction of the roads, particularly within the immediate footprint of the roads and the adjacent working width. Damage to archaeological remains within the footprint of the roads is likely to be severe and may result in the total loss of any such deposits, while the potential also exists for other features falling outside the immediate footprint, but within the working width of the easement, to be damaged during the course of general construction activities, or as a result of the creation of haul routes, site compounds and borrow-pits. This would include general compaction and tracking damage. In addition, the scheme includes all buildings to be erected on the site. As the exact layout and nature of these structures is unknown, their potential impact cannot accurately be determined at this stage. However, it is likely that all archaeological remains lying within the footprint of a proposed building would be subject to the same impact as for a road, outlined above.
- 5.3.2 Site 1, "Quarry" lies outside the area to be developed, and has been completely destroyed by modern building works, so there would be no impact on this site.
- 5.3.3 Site 2, "Monks Tower" also lies outside the area to be developed, and forms the property boundary to several houses. As such, development close to this site is unlikely to affect the site.
- 5.3.4 Site 3, "Crofton House" lies outside the area to be developed and has been completely destroyed by modern development, so the scheme would have no impact upon this site.
- 5.3.5 Site 4, "Road Bridge" is no-longer visible, and has most likely been destroyed. There may be some survival of foundations adjacent to the road, but this is unlikely. It is therefore unlikely that the site will be affected by the scheme.
- 5.3.6 Site 5, "Greetwell Road" has been modernized and resurfaced. The cultural importance of this site is more to do with the route rather than the structure. The proposed route of the Greetwell Road improvements and Bypass link will follow the existing road, deviating slightly at Greetwell Hollow. The entire road surface is likely to be destroyed within the study area. The road does, however continue for some

distance beyond the study area, so the significance of the impact of the scheme on this site is likely to be minor. Mitigation measures for this may include a watching brief on a section of the road to record older road surfaces.

- 5.3.7 Site 6, "Findspot – Pottery" lies directly in the path of the proposed Greetwell Road improvements, and is likely to be completely destroyed. However, geotechnical test pitting and boreholes in this area suggest that the site consists of made ground to a depth of several metres, and as such, the significance of impact on this site is none.
- 5.3.8 Site 7, "Greetwell Hollow/Sheepwash Farm" also lies partially in the path of the proposed Greetwell Road improvements. The southern half of the site would not be affected by the road improvement, but may be destroyed by subsequent development. Geotechnical investigations show that this area was not quarried in 1938, but was avoided by the activity. The borehole and test pit data suggest that this area consists of made ground to considerable depth, and a site visit agrees with this conclusion. The impact upon this site by the scheme is likely to be none, however, additional geophysics and possible test pitting will be carried out on the site to confirm its condition.
- 5.3.9 Site 8, "Ironstone Mine Workings (north)" lie in the main area of development, where individual structures and their access roads have not been finalized. Within this area, it is assumed that all sites will be destroyed by access road construction or leveling of the site for future development. As described above, this area was partially quarried in the 1930's. The quarrying may have destroyed evidence of ancient mineral extraction in the northern part of the site, but the possibility of survival in the southern portion remains likely. Geophysical survey shows two areas of disturbance within the site boundary, neither one corresponding directly with modern quarrying. At present, too little is known about the nature of these sites to make an assessment of likely impacts. More geophysical survey will be needed, as will trial trenching.
- 5.3.10 Site 9, "Old Brick Kilns" does not lie in an area for development. A site visit records that the site has been completely destroyed by modern development. No impact on the site from the scheme is recognizable
- 5.3.11 Site 10, "Road to Greetwell" lies outside the area to be developed. A site visit records that the northern section of the site has been destroyed by modern development. The southern section of the site could not be accessed at the time of the site visit, so its state cannot be guessed. The impact of the scheme on this site is likely to be none, but future work to the south of the present industrial estate must take possible survival in this area into account.
- 5.3.12 Site 11, "Monks Abbey Signal Box" lies within the railway boundary, and so will not be affected by the scheme.
- 5.3.13 Site 12, "Building", lies in the property boundary of a gravel processing plant. A series of aerial photographs suggests that the site has been destroyed, but sub-surface deposits may still survive. Further work will be required to assess the condition of the site. The significance of the impact of the scheme on this site is likely to be minor, as

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the area may have been leveled during the construction of the industrial estate and is not under threat of development

- 5.3.14 Site 13, "Possible Settlement" lies in the path of the proposed Spa Road Link and in the area of access roads and unconfirmed development. The geophysical anomalies which may represent field systems and buildings in the northern half of the site are likely to be destroyed by the building of the road and leveling for development. As the exact nature of these features remains unknown, further work will be required to be able to assess the significance of the impact of the scheme here.
- 5.3.15 Site 14, "Possible Roman Building" lies partially in the path of the proposed Spa Road Link. Construction of the link is likely to result in the destruction of the northern portion of the site. The nature, and therefore importance of the site has yet to be confirmed, so the significance of the impact of the scheme on this site cannot be assessed until more evaluation work has been done.
- 5.3.16 Site 15, "Barrow Cemetery" lies outside the area to be developed, and the scheme is not likely to affect the site.
- 5.3.17 Site 16, "Ironstone Mine Workings" lies outside the development area and is not likely to be affected by the scheme
- 5.3.18 Site 17, "Witham Valley – Paleoenvironmental Deposits" lies south of the proposed Spa Road Link and is not likely to be directly affected by development. Although the boundary of this site overlaps the study area, archaeological and geotechnical data shows that deposits in the study area have been badly damaged by agricultural land drainage, ploughing and desiccation. This damage is likely to be most severe on the fringe of the site, where it is affected by this scheme.
- 5.3.19 There are no Listed Buildings within the study area and advancement of the scheme is unlikely to result in any adverse impacts on the built environment.
- 5.4 Future Work**
- 5.5.1 The importance of some of the sites that would potentially be affected, and therefore the significance of any impact upon them, has yet to be confirmed. Furthermore, it is not possible to state with any certainty whether any additional, as yet unknown, archaeological deposits would be affected by the development and further information is required in order to finalize these assessments. This information could be obtained through a staged programme of archaeological evaluation works including fieldwalking and trial trenching. The combined results of the desk-top assessment and the evaluation work would enable proper consideration of the planning applications and enable the finalization of proposals for mitigation works which may be required in advance of, or during, construction.

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Mitigation

- 7.1 It is likely that if planning consent is granted it will be subject to a planning condition requiring the implementation of a programme of archaeological recording works in advance of and during construction. It is often possible to minimize or reduce the impact of the scheme and therefore the scope of archaeological mitigation works. This may be done through sensitive design, including localized reroutes and changes to the alignment and/or informed drainage, structures and embankment design.
- 7.2 A further option would be the preservation in-situ of archaeological deposits under any embankment. However, consultation with the County Archaeological Section has determined that this option is unlikely to be satisfactory as the proposed development of the Lincoln Eastern Growth Corridor is likely to result in the loss of much of the existing archaeological record between the city and the proposed Lincoln Eastern Bypass, with the net result that any archaeological deposits sealed beneath the road would survive as an isolated ribbon, largely divorced from its original context. Furthermore, where archaeological deposits are sealed beneath the embankment, access to these deposits for monitoring purposes or further study is unlikely to be feasible and the long-term condition of such features could not be satisfactorily guaranteed.
- 7.3 At this stage it is not possible to define the requirements for mitigation works on a site by site basis, however, the possible range of options may include (without limitation) any of the following, or a combination of them:
- No further action
 - design solutions to avoid or minimize any impact (the preferred option under PPG16);
 - investigation and recording of archaeological remains in advance of development (including where necessary detailed archaeological excavation);
 - investigation and recording of archaeological remains or standing buildings during the course of construction (archaeological watching brief);
 - enhancement measures including, where possible, presentation of the remains and/or interpretative displays to the public as part of the development, or changes in management to ensure the long-term preservation in-situ of other remains in the immediate vicinity (i.e. incorporation in soft-landscaped areas).
- 7.4 While sites listed in the Gazetteer as destroyed should not be viewed as a constraint on scheme design, they may highlight the potential for other archaeological deposits to survive in the area, particularly where the original record refers only to localized intrusions. Other sites may constrain scheme design in order to avoid or reduce the significance of any impact, or the need for potentially costly mitigation works.

- 7.5 Where preservation in situ is not feasible, then the appropriate mitigation strategy would be preservation by record, principally, detailed archaeological excavation in advance of construction. Where significant archaeological deposits are discovered during construction, principally as a result of the archaeological watching brief, time and resources will need to be made available for the excavation and recording of any such deposits prior to their removal/truncation.

Bibliography

- Babtie Group (2003) *Lincoln Eastern Bypass: Archaeological Desk-based assessment*. Unpublished Report.
- City of Lincoln Archaeological Unit. (1992) Lincoln Eastern Bypass: Stage 1, Archaeological & Historical Study. Unpublished report
- City of Lincoln Archaeological Unit. (1998) Lincoln Eastern Bypass: Archaeological Recording in conjunction with Geotechnical Trial Pitting (phase 1). Unpublished report.
- Colin Buchanan and Partners. (2003) *Lincoln Eastern Growth Corridor – Development Framework Report*. Part 3, Physical/Environmental Assessment. Unpublished report.
- DoE. (1990) *Planning Policy Guidance Note 16: Archaeology and Planning*. (PPG16). London: HMSO
- DoE. (1994) *Planning Policy Guidance Note 15: Planning and the Historic Environment*. (PPG15). London: HMSO
- English Heritage. (2001) *English Heritage Strategy For Wetlands*. English Heritage publications
- Frere, S. (1967) *Britannia: A History of Roman Britain*. London, Routledge & Kegan Paul Ltd
- Jones, M.J a (2001) "Roman Lincoln". In S Bennet and N Bennet (eds.) *An Historical Atlas of Lincolnshire*. Chichester, Phillimore. 130 – 131
- Jones, M.J b (2001) "Anglo-Saxon Lincoln, c.450 - 1066". In S Bennet and N Bennet (eds.) *An Historical Atlas of Lincolnshire*. Chichester, Phillimore. 130 – 131
- Millett, M. (1990) *The Romanization of Britain: an essay in Archaeological Interpretation*. Cambridge, CUP.
- Mills, J and Mills, D. (1997) "Prehistoric Barrows in the Witham Valley" in *Lincolnshire Past and Present*. Society for Lincolnshire History and Archaeology, No. 29 – Part 3, 3 – 5.
- Mark Bennet, (1999?) [online] *An Archaeological Resource Assessment of the Roman Period in Lincolnshire*. Available at http://www.le.ac.uk/archaeology/pdf_files/23linrom.pdf [accessed 26/02/2004]
- Pawley, S. (2001) "Maritime Trade and Fishing, 1500 – 1700". In S Bennet and N Bennet (eds.) *An Historical Atlas of Lincolnshire*. Chichester, Phillimore. 58 - 59
- Pre-Construct Archaeology (Lincoln). (2001) *Archaeological Desk-Based Assessment Lower Witham Flood Defense Scheme, Part 1: River Witham and Barling Eau, Lincolnshire*. Unpublished Report
- Pre-Construct Archaeology (Lincoln), (2004) *Report on a programme of Trial excavations; Lincoln Eastern Bypass*. Unpublished Report
- Pre-Construct Geophysics. (Forthcoming) *Geophysical Survey; Proposed Lincoln North East Development Access Scheme*. Unpublished interim plots.
- Robinson, D. (2001) "Drainage and Reclamation", In S Bennet and N Bennet (eds.) *An Historical Atlas of Lincolnshire*. Chichester, Phillimore. 72 - 73

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Whitwell, J.B. (1970) *Roman Lincolnshire*. Lincoln, History of Lincoln Committee Lincolnshire Local History Society.

Wright, N. (2001) "Navigable Waterway and Canals", In S Bennet and N Bennet (eds.) *An Historical Atlas of Lincolnshire*. Chichester, Phillimore. 80 – 81

Cartographic and Primary Sources

Ordnance Survey 1889 1st Edition 6" 70 NE

Ordnance Survey 1911 2nd Edition 6" LXX 8

Lincoln – Greetwell Tithe Map 1818

Aerial Photographs: Verticals

Sortie No.	Library No.	Cam Pos	Frame
OS/66/128	9270	V	351
OS/88176	13299	V	1
OS/88176	13299	V	2
OS/88176	13299	V	3
MAL/77033	7471	V	112
3G/TUD/UK.197	396	V	5430
3G/TUD/UK.197	396	V	5431
3G/TUD/UK.197	396	V	5432
106G/UK/510		V	3034

Appendix A: Gazetteer of Identified Sites of Cultural Heritage Interest

Site No	1	Site Name	Quarry
NGR	SK 99757190	SMR or LUAD NO	N/A
Period	Post-Medieval	Form	Map evidence
Significance	N/A		
Description Shown on 1st and 2nd edition Ordnance Survey mapping adjacent to Greetwell road [1], [2]. The site is now heavily developed, being now the site of "Wickes" Retail premises [3].			
Sources [1] Ordnance Survey 6" Map First Edition 1889-1890 [2] Ordnance Survey 6" Map Second Edition 1911 sheet 70 [3] Site Visit January 2004			

Site No	2	Site Name	Monks Tower
NGR	SK 9973071800	SMR or LUAD NO	N/A
Period	Post-Medieval	Form	Map evidence, Upstanding wall
Significance	N/A		
Description Buildings shown on 1st and 2nd edition Ordnance Survey maps, labeled "monks tower" [1], [2]. The 2nd edition map also states "roman pavements found AD 1893" at this location. The entire area is now covered with housing save for a single upstanding wall. A local resident reported finding only modern builders blocks during the construction of an extension. A red brick wall of unknown date stands approximately 2-3m tall and 60m long at this site, and incorporates a wooden gateway. The wall currently forms the property boundary of several houses parallel to Greetwell road [3]. According to a local source, the wall belonged to a workers residence called "monks manor", serving the nearby works at Crofton House (site 3) [4]. The above may be a confusion with Monks Manor, an area to the West, near the prison [5].			
Sources [1] Ordnance Survey 6" Map First Edition 1889-1890 [2] Ordnance Survey 6" Map Second Edition 1911 sheet 70 [3] Site Visit January 2004 [4] Mrs. P Gibson, local resident (pers comm) 2004 [5] Paul Bennett – Babbie group 2004			

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Site No	3	Site Name Crofton House		
NGR	SK 9983071750		SMR or LUAD NO	N/A
Period	Post-Medieval	Form	Map evidence	Significance N/A
Description Buildings shown on 1st and 2nd edition Ordnance Survey maps, labeled "Crofton House" [1], [2]. The area is now heavily leveled and developed, being the north west corner of Allenby road industrial estate. [3]				
Sources [1] Ordnance Survey 6" Map First Edition 1889-1890 [2] Ordnance Survey 6" Map Second Edition 1911 sheet 70 [3] Site visit January 2004				

Site No	4	Site Name Road Bridge		
NGR	TF 0002071846		SMR or LUAD NO	Ind Mon 5316
Period	Modern	Form	Road bridge	Significance N/A
Description "Carried Greetwell Road over ironstone quarry tramway at Greetwell hollow" [1]. No sign of the tramway or of a bridge was recognized during the site inspection [2].				
Sources [1] Lincoln UAD Industrial monuments [2] Site Visit January 2004				

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Site No	5	Site Name		Greetwell Road	
NGR	SK 9861971914		SMR or LUAD NO	Mon 1533	
Period	Medieval - Modern	Form	Road	Significance	Minor
Description "Greetwell Lane in 1842-1851 at least. Armstrong's 1779 map shows the road leaving the city and making a junction with Monks Road before reaching Greetwell." [1]. Greetwell Road" shown on 1889 1st ed OS map and 2nd ed 1911 [2], [3]. Shown on Armstrong's 1779 map [4]. Greetwell Road is now a modern, single carriageway running along the route described above [5].					
Sources [1] Lincoln UAD monuments [2] Ordnance Survey 6" Map First Edition 1889-1890 [3] Ordnance Survey 6" Map Second Edition 1911 sheet 70 [4] 1779 Armstrong, Andrew Plan of Lincoln, an inset from a map of Lincolnshire [5] Site visit January 2004					

Site No	6	Site Name		Greetwell Road Pottery Findspot	
NGR	TF 0018271849		SMR or LUAD NO	RENO 693	
Period	Medieval – Post Medieval	Form	Findspot	Significance	N/A
Description "Medieval and post – medieval pottery and tile was found on the surface whilst metal detecting"[1]. Geotechnical investigations reveal this area to be made ground to a depth of around 4 metres [2]					
Sources [1] Lincoln UAD RecEvents [2] Geotechnical investigations 2003					

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Site No	7	Site Name	Greetwell Hollow/Sheepwash Farm
NGR	TF 00207185	SMR or LUAD NO	N/A
Period	Form	Building	Significance
Description Group of structures south of Greetwell road drawn and named on 1st Edition OS map [1] Deterioration and destruction of site buildings is shown on aerial photography [2], [3], [4] May now exist as cropmarks [5]. The 1818 tithe map shows these buildings as "Sheepwash Farm", which may represent a link to Sheepwash Grange to the south of the River Witham [6]. A site visit revealed that the area has been leveled, although building material was found eroding out of the edge of the terraced area. It is unlikely that this material is modern and related to the construction of the industrial estate [7]. Geotechnical investigations reveal this area to be made ground to a depth of around 4 metres [8]			
Sources [1] Ordnance Survey 6" Map First Edition approx 1889-1890 (www.old-maps.com) [2] English Heritage, National Monuments Record Aerial photography - 106G/UK/510, Frame 3034 June 1945 [3] English Heritage, National Monuments Record Aerial photography – OS/66.128, Frame 351 June 1966 [4] English Heritage, National Monuments Record Aerial photography – OS/88.176, Frame 2 June 1988 [5] Aerial Photograph, spring 1999. Getmapping PLC available at: www2.getmapping.com , Accessed 27/02/2004 [6] 1818 Tithe map, Lincolnshire archives. [7] Site visit January 2004 [8] Geotechnical investigations 2003			

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Site No	8	Site Name		Ironstone Mine workings (North)	
NGR		TF 00407170		SMR or LUAD NO 52835	
Period	Roman –Medieval?	Form	Earthworks/ Cropmarks	Significance	?
<p>Description "Ironstone mines North and South of Greetwell Road. Possible Roman or Medieval origin." [1]. Extant as clear cropmarks mainly South of Greetwell Road [2]. Encroachment of the portion of the site North of the road can be seen in aerial photography [2], [3]. 2nd edition OS map shows an area of quarrying to the east of the central field boundary however, this is south of the area defined by aerial photography [4]. The area is shown to be part of a large opencast ironstone mining area [5] A map of 1938 shows the area described above [6] The cropmarks do not correspond to the boundary as drawn, and may represent an area which was not exploited by modern mining. [7]</p>					
<p>Sources [1] Lincolnshire County Council: Historic Buildings, Sites and Monuments Record [2] Aerial Photograph, spring 1999. Getmapping PLC available at: www2.getmapping.com, Accessed 27/02/2004 [3] English Heritage, National Monuments Record Aerial photography – OS/88.176, frame 2 1988 [4] Ordnance Survey 2nd ed 1911 sheet 70 [5] Geological survey of Great Britain sheet 114 1978 [6] A. Adlington, 1938 <i>Plan showing land held by the Mid-Lincolnshire Iron Company LTD, Greetwell.</i> [7] Paul A Bennett, 2004 Babbie Group</p>					

Site No	9	Site Name				Old Brick Kilns	
NGR		TF 0000071630		SMR or LUAD NO		N/A	
Period	Post-Medieval	Form	Map evidence	Significance	N/A		
<p>Description Shown on 1st and 2nd edition Ordnance Survey maps [1], [2]. This site has been heavily developed during the construction of Allenby road industrial estate [3].</p>							
<p>Sources [1] Ordnance Survey 6" Map First Edition 1889-1890 [2] Ordnance Survey 6" Map Second Edition 1911 sheet 70 [3] Site Visit January 2004</p>							

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Site No	10	Site Name		Road to Greetwell	
NGR	TF 0006371569		SMR or LUAD NO	MONNO 1142	
Period	Medieval	Form	Road	Significance	N/A
Description "Road to Greetwell as a continuation of Monks road at south end of modern Allenby road Industrial estate" [1]. The 2nd edition OS mapping shows the road as a raised path [2]. The section of the road within the industrial estate consists of made ground and recent development. The section outside the estate proper is also developed [3].					
Sources [1] Lincoln UAD monuments [2] Ordnance Survey 2nd ed 1911 sheet 70 [3] Site visit January 2004					

Site No	11	Site Name		Monks Abbey Signal Box	
NGR	SK 9972771345		SMR or LUAD NO	Ind Mon 5448	
Period	Modern	Form	Signal box	Significance	N/A
Description "Labeled but not drawn on 1887 OS map. Situated on Manchester Sheffield and Lincolnshire Railway" [1].					
Sources [1] Lincoln UAD Industrial monuments					

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Site No	12	Site Name		Building (unidentified)	
NGR		TF 0021271444		SMR or LUAD NO	N/A
Period		? - Modern		Form	Building
				Significance	N/A
<p>Description Identified from 1st and 2nd edition OS maps, adjacent to the Market Rasen Railway line [1], [2]. The structure can be seen in aerial photography from 1945 through 1966 [3], [4]. Demolition and redevelopment of the site is shown in aerial photography from 1977 to the present [5], [6], [7]. The structure is not shown on the 1818 tithe map, suggesting a modern date [8]</p>					
<p>Sources [1] Ordnance Survey 6" Map First Edition 1889-1890 [2] Ordnance Survey 6" Map Second Edition 1911 sheet 70 [3] English Heritage, National Monuments Record Aerial photography – 106G/UK/510, frame 3034 June 1945 [4] English Heritage, National Monuments Record Aerial photography – OS/66128, frame 351 June 1966 [5] English Heritage, National Monuments Record Aerial photography – MAL 77033, frame 112 October 1977 [6] English Heritage, National Monuments Record Aerial photography – OS/88.176, frame 1 June 1998 [7] Aerial Photograph, spring 1999. Getmapping PLC available at: www2.getmapping.com, Accessed 27/02/2004 [8] 1818 tithe map, Lincolnshire Archives</p>					

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Site No	13	Site Name	Possible settlement
NGR	TF 00327126	SMR or LUAD NO	N/A
Period	?Roman?	Form	geophysical feature
Significance		?	
<p>Description Possible structures and associated field systems south of the railway [1]. Faintly visible as cropmarks in aerial photographs [2], [3]. Little is known about the "territorium" of the Roman fortress at Lincoln. Study of these agricultural sites may give insights as to the nature of Roman military-related farming techniques in context with contemporary civilian and Iron Age activity [4]. Some linear features may relate to ceramic land drains found during geophysical survey and trial trenching for the Lincoln Eastern Bypass [5], [6].</p>			
<p>Sources [1] Pre – Construct Geophysics (forthcoming) Geophysical survey [2] English Heritage, National Monuments Record Aerial photography – MAL 77033, frame 112 October 1977 [3] English Heritage, National Monuments Record Aerial photography – 106G/UK/510, frame 3034 June 1945 [4] Paul A Bennett, Babbie Group 2004 [5] Pre – Construct Geophysics (forthcoming) Lincoln Eastern Bypass Geophysical Survey [6] Pre – Construct Archaeology (Lincoln) (forthcoming) Report On A Programme Of Archaeological Trial Trenching: Lincoln Eastern Bypass</p>			

Site No	14	Site Name	Possible Roman Building
NGR	TF 0013071300	SMR or LUAD NO	N/A
Period	Roman	Form	Geophysical Feature
Significance		?	
<p>Description A group of related linear positive features shown by Resistivity survey [1]. Trial trenching for the Lincoln Eastern Bypass to the south and east of this feature revealed a mettaled road surface, where the stone all seemed to come from the same source. Together with pottery evidence, it is a likelihood that a Roman building stood at this site [2].</p>			
<p>Sources [1] Pre – Construct Geophysics (forthcoming) Geophysical survey [2] Pre – Construct Archaeology (Lincoln) (forthcoming) Report On A Programme Of Archaeological Trial Trenching: Lincoln Eastern Bypass</p>			

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Site No	15	Site Name		Barrow Cemetery	
NGR		TF 00707110		SMR or LUAD NO 52841	
Period		Bronze Age		Form cropmarks	
				Significance N/A	
<p>Description</p> <p>"Barrow Cemetery with 11 cropmark barrows some of which are visible on APS" [1]. 1 possible barrow is located inside study area visible on aerial photography [2].</p>					
<p>Sources</p> <p>[1] Lincolnshire County Council Historic Buildings, Sites and Monuments Record. [2] English Heritage, National Monuments Record Aerial photography – MAL 77033, frame 112 October 1977</p>					

Site No	16	Site Name		Ironstone Mine workings (south)	
NGR		TF 00707130		SMR or LUAD NO 52836	
Period		Roman?		Form	
				Significance N/A	
<p>Description</p> <p>"Ironstone mines of possible Roman origin" [1]. Site is situated in light woodland bounded by farmland [2]. All available mapping shows this area as being wooded, so root damage may have confused the archaeology [3], [4]. This site also lies directly on the route of the Lincoln Eastern Bypass. [5]</p>					
<p>Sources</p> <p>[1] Lincolnshire County Council Historic Buildings, Sites and Monuments Record [2] Site visit January 2004 [3] Ordnance Survey 6" Map First Edition 1889-1890 [4] Ordnance Survey 6" Map Second Edition 1911 sheet 70 [5] Site visit January 2004</p>					

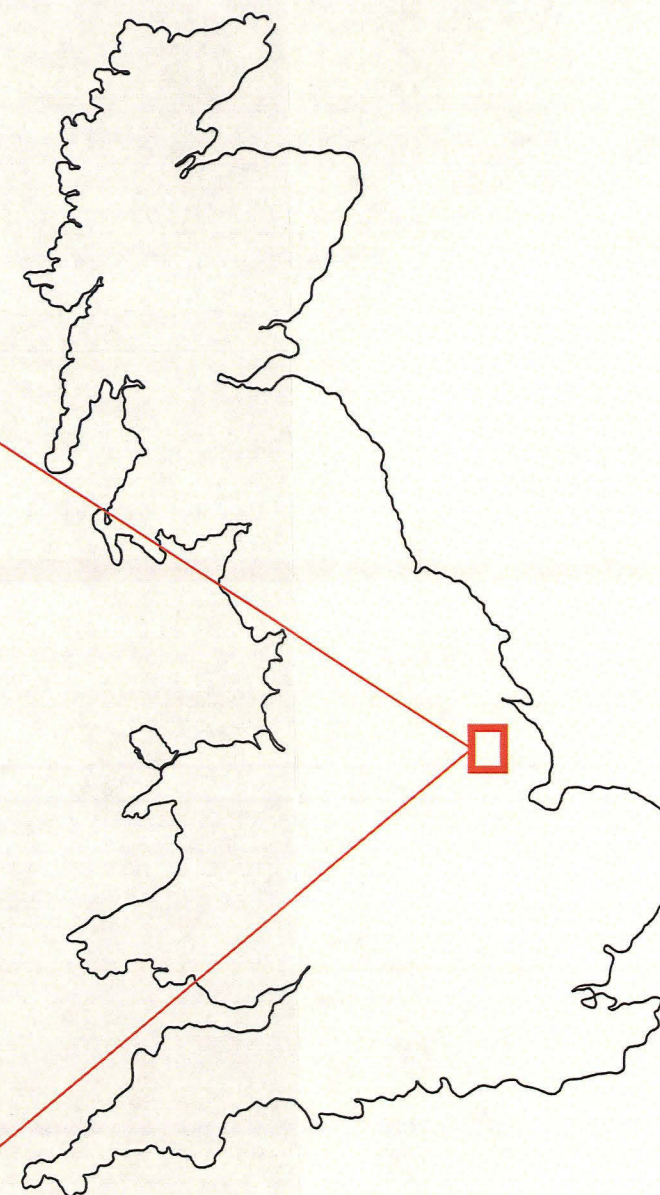
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Site No	17	Site Name	Witham valley
NGR	TF 00007109	SMR or LUAD NO	N/A
Period	Form	Paleoenvironmental deposits	Significance N/A
Description The Witham Valley is a source of great archaeological potential, with environmental and cultural deposits ranging from the Glacial period to the 18th century. Finds of high status across all the major periods of human activity, including the Witham shield and log boats, which appear to have had ritual significance [1]. The boundaries of this area are nominally drawn at the existing 5m contour within the study area. During the Roman military period, the actual boundary between the wetland and permanently dry land fell to around 3.5m OD and has been further reduced by modern land management [2]. Trial trenching for the Lincoln Eastern Bypass detected several peat deposits that had been desiccated and badly degraded by land drainage. The survival of peat deposits improves further towards the modern river location, and deposits which represent a buried ancient landscape survive intact along the entire area [3].			
Sources [1] Catney, S 2003 "Setting the scene", in Catney, S and Start, D (eds) Time and tide: the archaeology of the Witham Valley [2] Lincoln Archaeological Research Assessment (LARA) 2003 [3]] Pre – Construct Archaeology (Lincoln) (forthcoming) Report On A Programme Of Archaeological Trial Trenching: Lincoln Eastern Bypass			



Study Area, See Drg. No. BTI
0008774 Figure 2

Lincoln eastern bypass (proposed)



Date: Description:
AMENDMENT DETAILS

Approved by:



LINCOLNSHIRE - Part of the East Midlands Region
LINCOLNSHIRE COUNTY COUNCIL
HIGHWAYS & PLANNING DIRECTORATE
Y.H.KONG, B.Sc., C.Eng., M.I.C.E., M.I.H.T. Head of Design and Construction

Drawing No. 0008774 Figure 1

Structure No.

Rd No.

Parish:

Scheme: North East Quad Development Access

Drg. Description: Desk Based Assessment

Location Plan

Scale: NTS

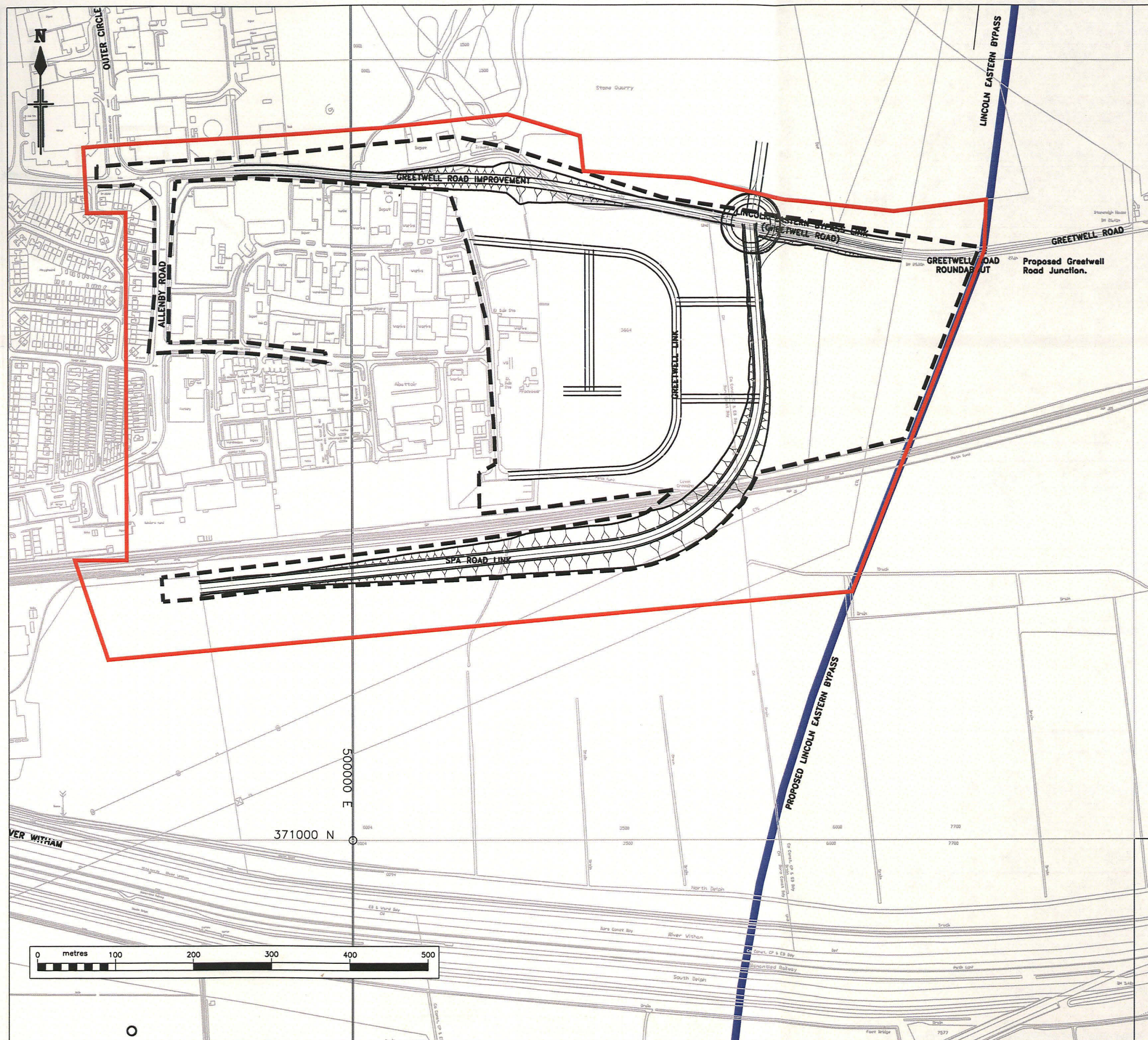
Sheet No: SH.

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Draughted by: JAW
Approved by: PAB
Approval Date: May 04



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Archaeological Key:

- Proposed route of Lincoln East Bypass
- Survey boundary
- Area to be developed (proposed)

Notes

1. Junction layouts are indicative only.



Date: Description:
AMENDMENT DETAILS

Approved by:



LINCOLNSHIRE - Part of the East Midlands Region

LINCOLNSHIRE COUNTY COUNCIL
HIGHWAYS & PLANNING DIRECTORATE
Y.H.KONG, B.Sc., C.Eng., M.I.C.E., M.I.H.T Head of Design and Construction

Drawing No. 0008774 Figure 2

Structure No.

Rd No. Parish:
Scheme: North East Quad Development Access
Drg. Description: Desk Based Assessment
Study Area

Scale: NTS

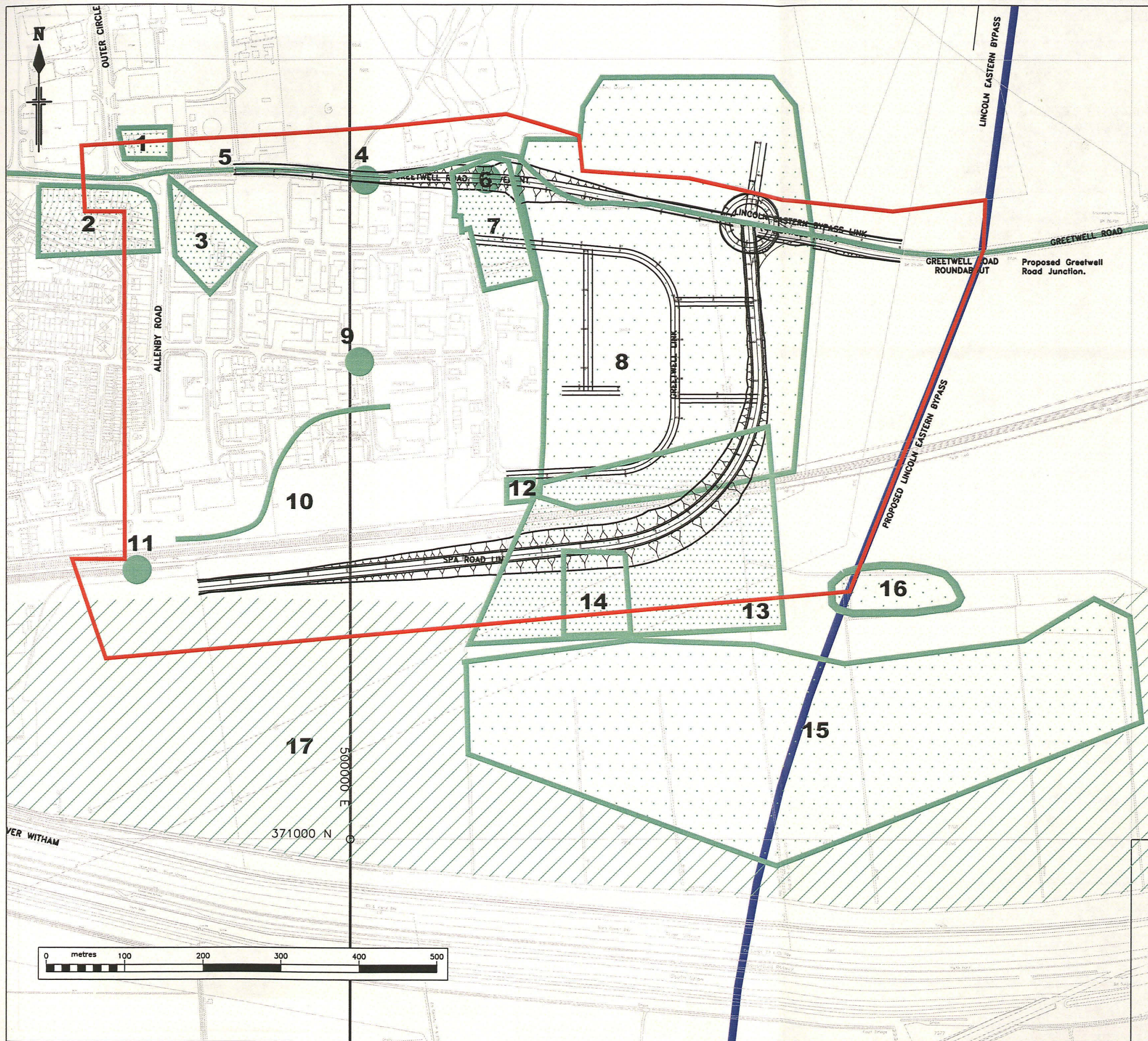
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Archaeological Key:

- Archaeological Site
- Area of international archaeological importance
- Proposed route of Lincoln East Bypass
- Survey boundary

Notes

1. Junction layouts are indicative only.



Date: Description:
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Drawing No. 0008774 Figure 3

Structure No.

Rd No. Parish:
Scheme: North East Quad Development Access
Drg. Description: Desk Based Assessment
Archaeological Base Plan

Scale: NTS

Sheet No: SH.

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Y.H.KONG, B.Sc., C.Eng., M.I.C.E., M.I.H.T. Head of Design and Construction

Drawing No. 0008774 Figure 4

Structure No.

Rd No. Parish:
Scheme: North East Quad Development Access
Drg. Description: Desk Based Assessment
Lower Witham Valley 1977

Scale: NTS

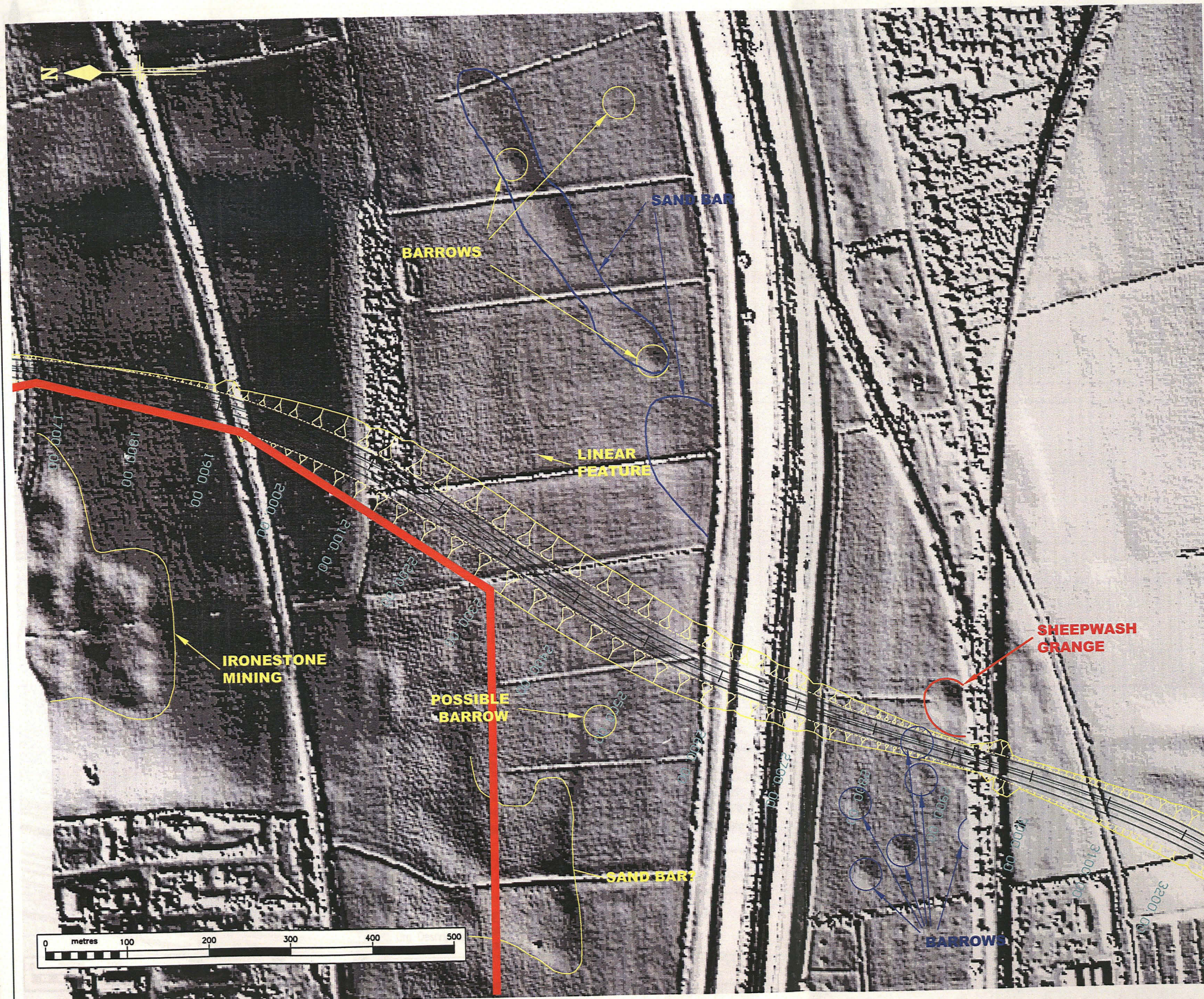
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Archaeological Key:

— Survey boundary

Date: Description: AMENDMENT DETAILS

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Drawing No. 0008774 Figure 5

Structure No.

Rd No. Parish: North East Quad Development Access

Scheme: Desk Based Assessment

Drg. Description: Lidar Survey, Washingborough

Scale: NTS

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APPROVAL:
Draughted by: JAW
Approved by: PAB
Approval Date: May 04

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Key:-

- Possible Archaeological feature.
- Modern ferrous
- Possible ceramic land drain.
- Present/previous electricity pylon
- Geophysical survey Boundary

Notes

1. Interim interpretation by Babbie Group based on data from pre-construct Geophysics (PCG). Full interpretation by PCG will follow in geophysical survey report.



Date: Description:
AMENDMENT DETAILS

Approved by:

LINCOLNSHIRE - Part of the East Midlands Region



LINCOLNSHIRE COUNTY COUNCIL
HIGHWAYS & PLANNING DIRECTORATE
Y.H.KONG, B.Sc., C.Eng., M.I.C.E., M.I.H.T Head of Design and Construction

Drawing No. 0008774 Figure 7

Structure No.

Rd No. Parish:
Scheme: North East Quad Development Access
Drg. Description: Desk Based Assessment
Geophysical Interpretation

Scale: NTS

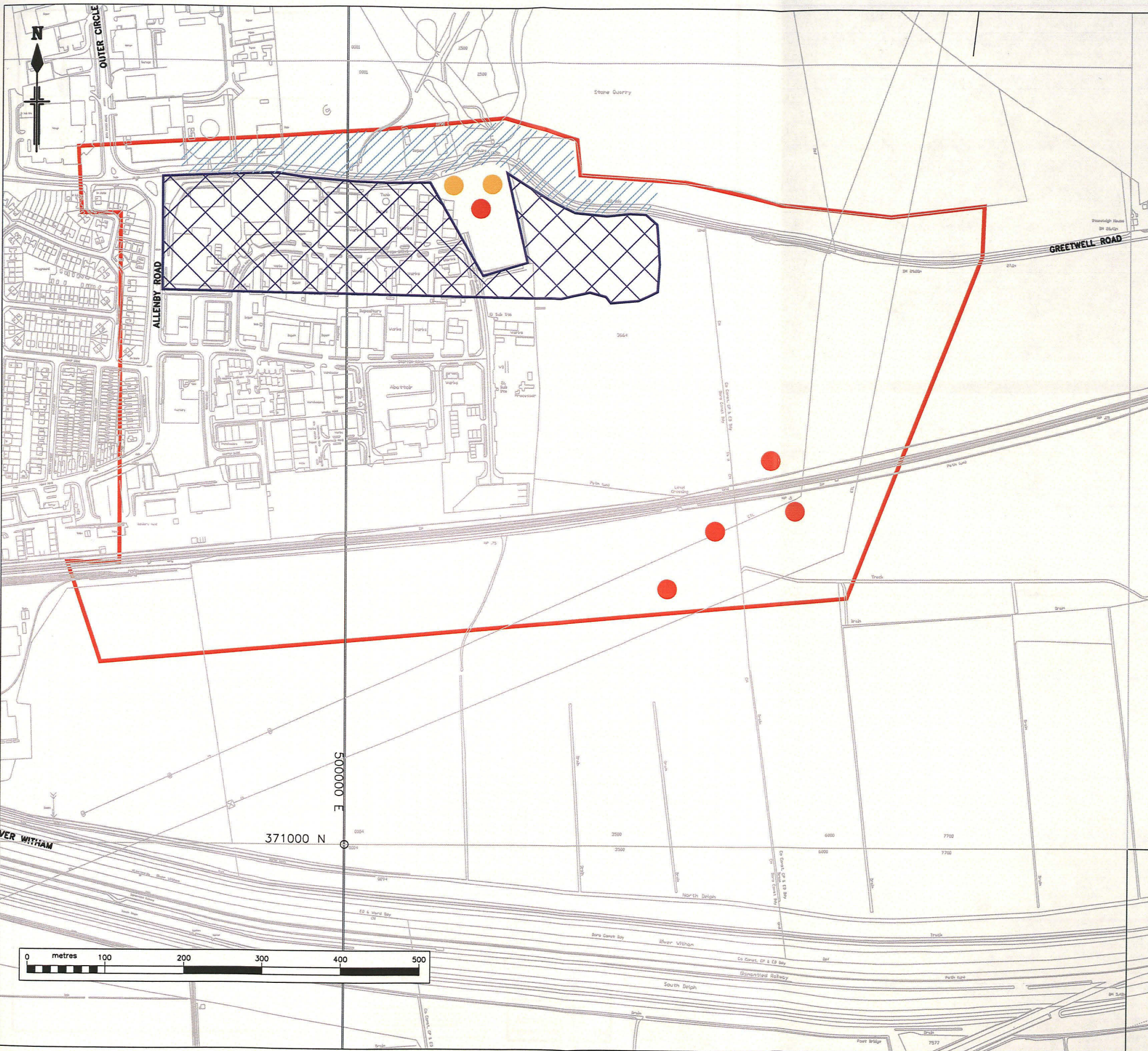
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Archaeological Key:

- Survey boundary
- Open cast area 1938
- Mining area 1938
- Geotechnical bore holes
- Geotechnical test pits

Notes

- Junction layouts are indicative only.

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Drawing No. 0008774 Figure 8

Structure No.

Rd No. Parish:
Scheme: North East Quad Development Access
Drg. Description: Desk Based Assessment
Mining and Geotechnical Operations

Scale: NTS

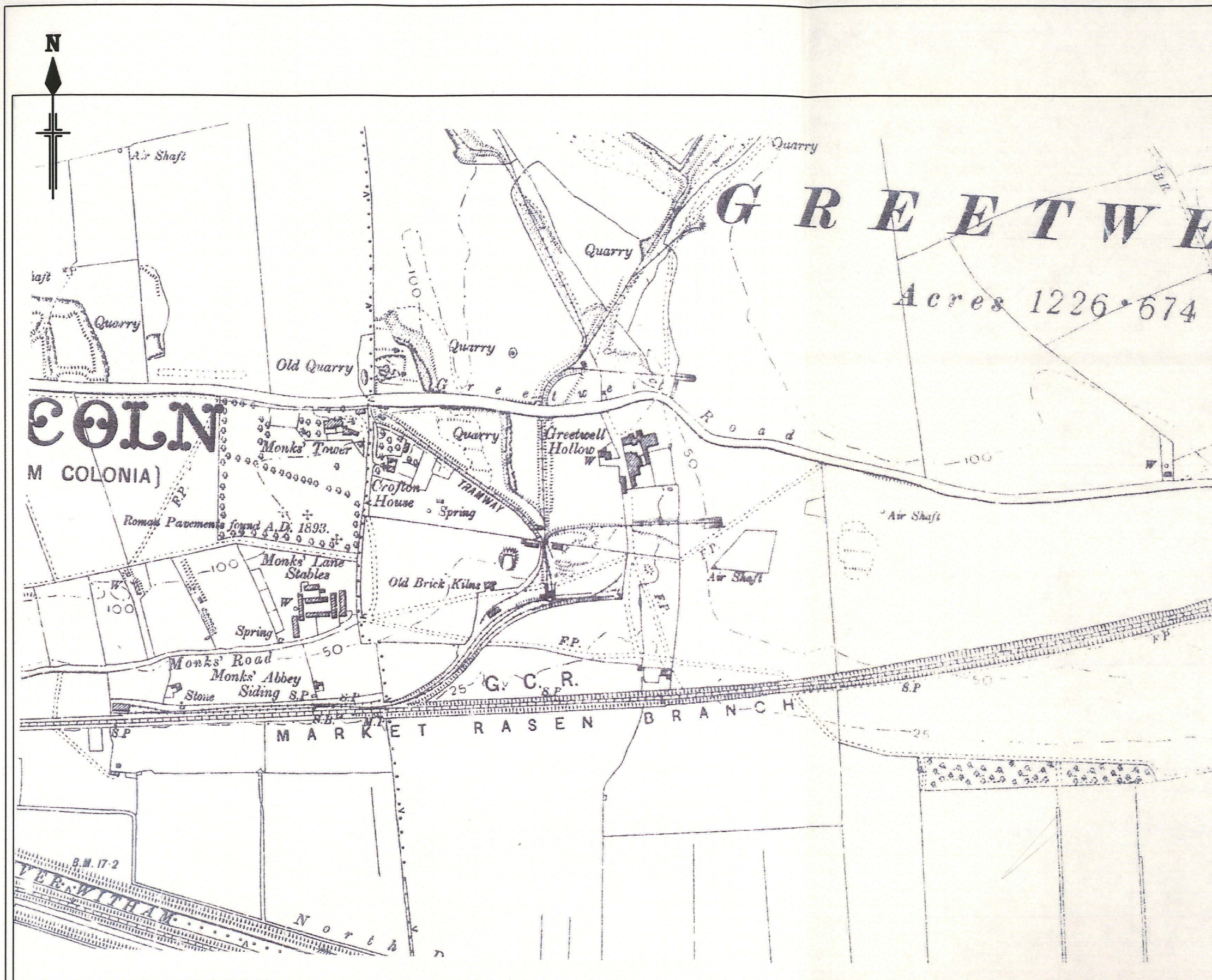
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Witham Park House, Witham Park, Waterside South, Lincoln LN5 7JN

Drawing No. 0008774 Figure 10

Structure No.

Rd No. RD NO Parish:
Scheme: North East Quad Development Access
Drg. Description: Desk Based Assessment
2nd Edition 6"

Scale: NTS

Sheet No: SH.

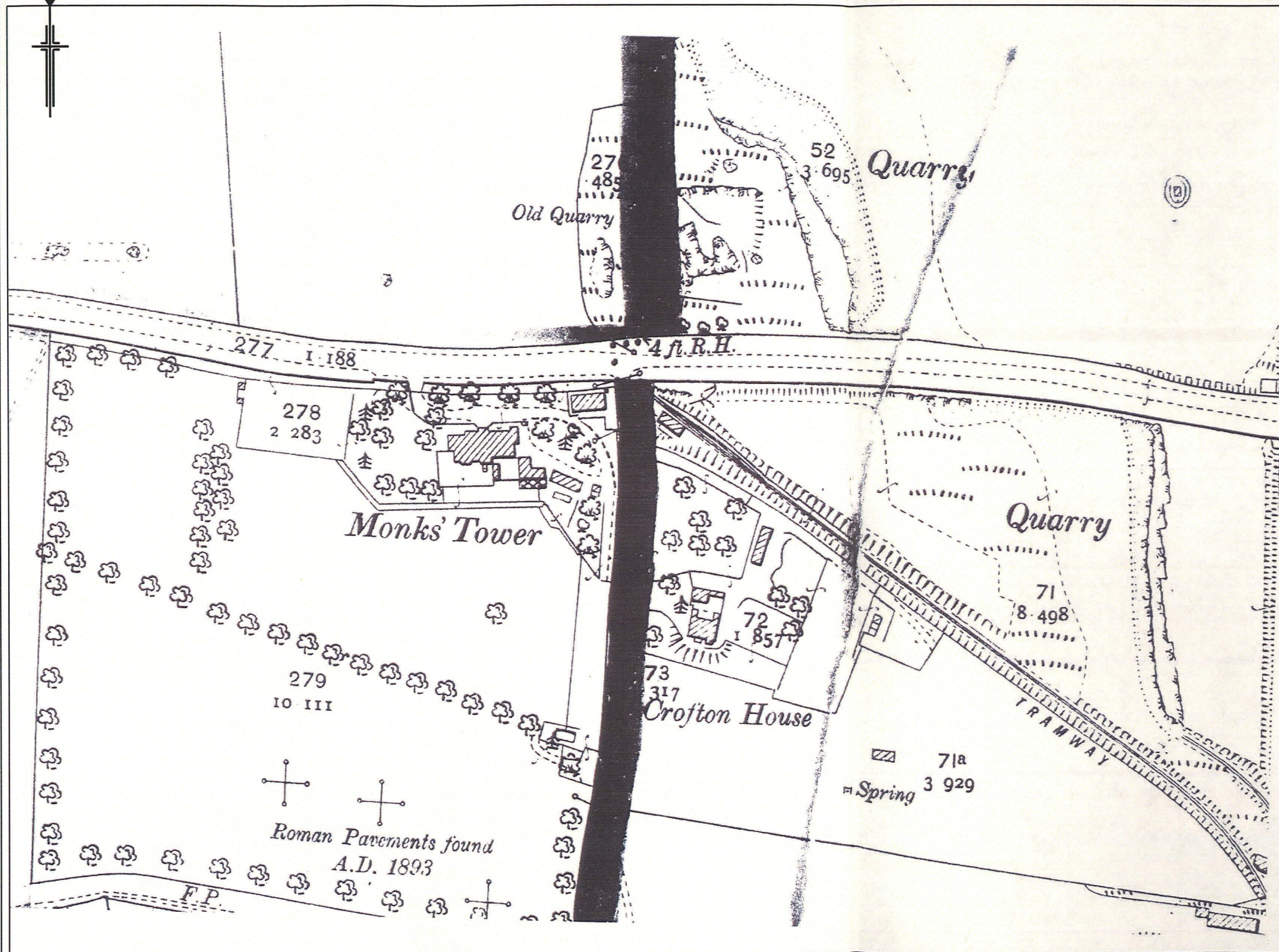
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Drawing No. 0008774 Figure 11

Structure No.

Rd No.

Parish:

Scheme: North East Quad Development Access

Drg. Description: Desk Based Assessment

Ordnance Survey 2nd Edition 25"

Scale: NTS

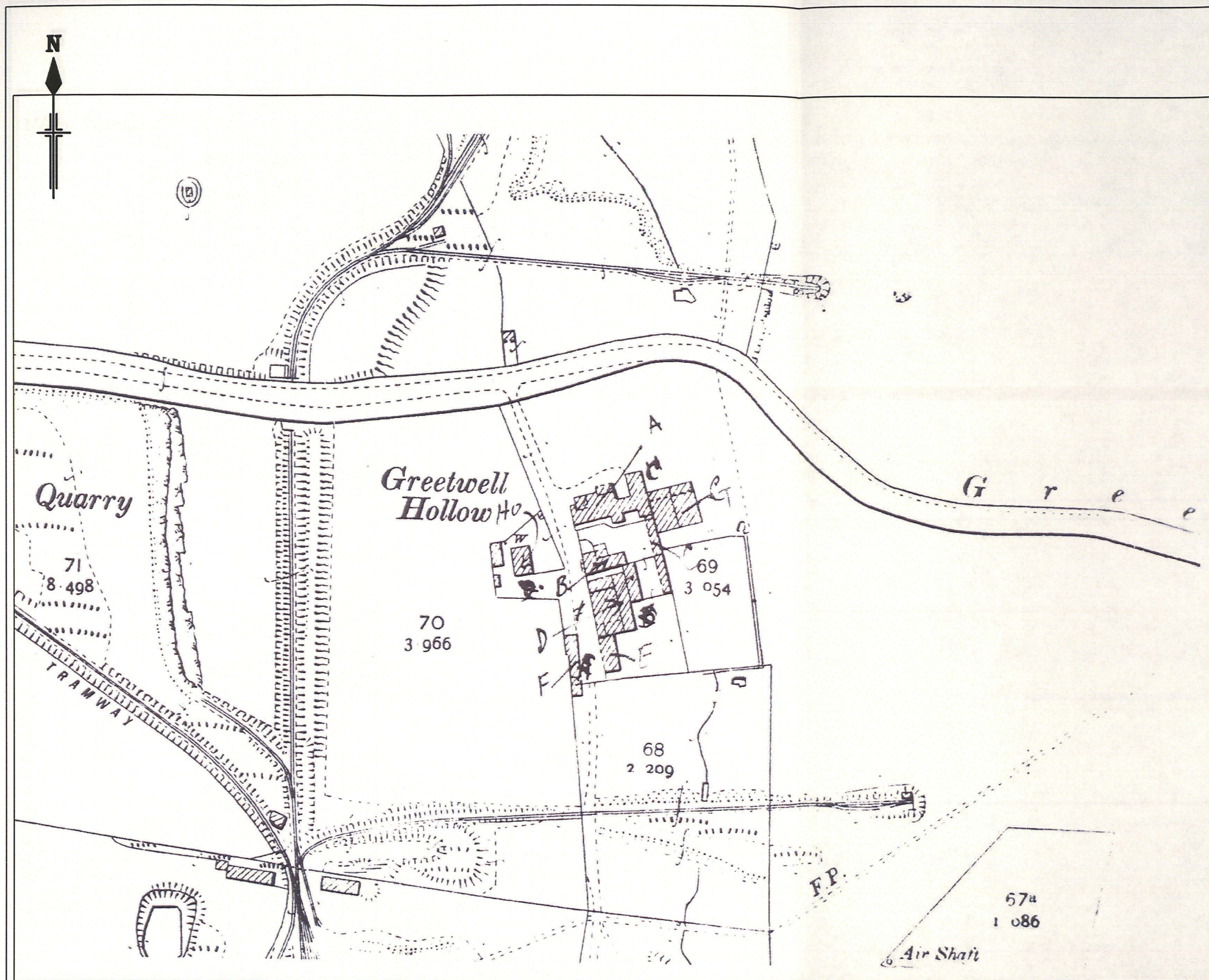
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Drawing No. 0008774 Figure 12

Structure No.

Rd No. Parish: North East Quad Development Access

Scheme: Desk Based Assessment

Drg. Description: Ordnance Survey 2nd Edition 25"

Scale: NTS

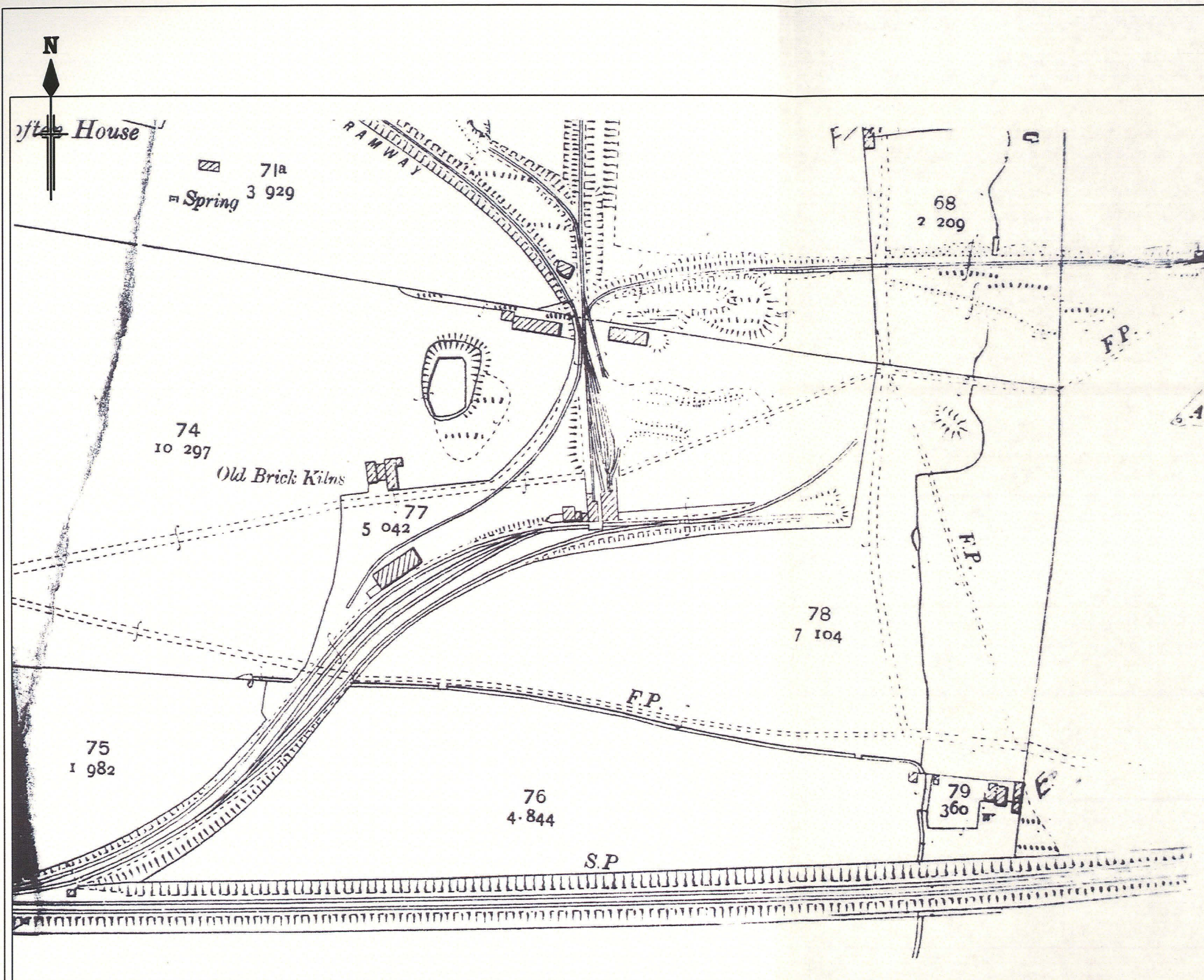
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Y.H.KONG, B.Sc., C.Eng., M.I.C.E., M.I.H.T. Head of Design and Construction

Drawing No. 0008774 Figure 13

Structure No.

Rd No. Parish:

Scheme: North East Quad Development Access

Drg. Description: Desk Based Assessment

Ordnance Survey 2nd Edition 25"

Scale: NTS

Sheet No: SH.

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Approval Date: May 04

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