Nantwich Waterlogged Deposits Report No 3

Management Strategy: Supplementary Planning Document

for the Historic Environment and Archaeological Deposits:

Area of Special Archaeological Potential

Revised June 2016

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DRAWING

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1.0 SUMMARY

The town of Nantwich in Cheshire is already protected as a Conservation Area because of its built heritage, but it also contains archaeological deposits of national importance, and this Supplementary Planning Document is designed to help the local planning authority with safeguarding its heritage. The Nantwich Waterlogged Deposits Project was commissioned by English Heritage (now Historic England) to assess these deposits and to produce a management strategy to address their long term preservation. Cheshire East Council is the local planning authority and the details within this document will advise and assist spatial planners, engineers, hydrologists and development control in decision making, as well as providing guidance for infrastructure improvements and utility providers when operating in the historic core of the town.

This SPD is a key resource for all spatial and urban planning decisions within the historic core of Nantwich. Over time implementation of the recommended approaches within this document should provide a holistic solution to prevent continued desiccation of the waterlogged deposits underlying the town, and thus help to counteract the current threat to the continued existence of its buried and built historic environment.

Figure 1
Lifting the salt ship from 2nd Wood Street in 2003

Figure 2
Excavations in 2nd Wood Street 2003

Copyright Earthworks Archaeological Services 2003

2.0 INTRODUCTION

2.1 Nantwich's exceptional archaeological resource

Numerous archaeological investigations within the town of Nantwich over the last forty years have revealed a wealth of archaeological remains dating to the Roman, medieval, and post-medieval periods. Much of this material is preserved beneath or within a deep, often organic, waterlogged deposit which, in places, is more than 3m deep (**Figures 1 and 2**). The quality of these waterlogged remains is exceptional and, nationally, their quality bears comparison with the preservation of archaeological remains in places such as York, London, Bristol, Berwick, Boston, Carlisle and Droitwich. Internationally the waterlogged deposits and archaeological remains within the historic core of Nantwich can be compared to sites such as the World Heritage Site of Bryggen, Bergen, Norway.

2.2 Economic importance of historic environment

Nantwich is renowned as a local centre for tourism and shopping, with a vibrant economic regeneration programme (**Figure 3**). The importance of a sense of identity, quality of life and cultural heritage is integral to the continuing success of the local economy and community, often witnessed by events such as festivals and re-enactments. The historic environment, principally the built heritage (**Figure 4**) but also including archaeological remains, is a fundamental part of our shared cultural heritage and one that is being promoted nationally with increased significance as part of government policies on sustainable development. The National Planning Policy Framework (NPPF) paragraph 132 places a specific responsibility on local planning authorities to include in their local plans a positive strategy for the conservation and enhancement of the historic environment, including "*the wider social,*

cultural, economic and environmental benefits that conservation of the historic environment can bring". These policies emphasize the need to plan holistically for strategic economic development, so that effective dialogue and joined up thinking is undertaken by urban planners, water and highways engineers, statutory undertakers and private developers. Holistic consideration of the sustainability of the historic environment and its contribution to the local economy involves decisions on infrastructure, public realm, and construction projects.

Figure 3
Nantwich town centre

2.3 Local policies

There is no agreed local plan for Cheshire East Council but from the previous planning authority, the *Borough of Crewe and Nantwich Replacement Local Plan 2011* defines an area of *Archaeological Potential* within Nantwich. This is focussed on the historic core of the town, which encompasses areas on both the west and east bank of the River Weaver, and is based on the fieldwork noted above and a synthesis conducted by the *Cheshire Historic Towns Survey* (2002). *The Area of Archaeological Potential* is linked to a specific policy (Policy BE.16) in the 2011 local plan regarding development and its effect on archaeological remains. This policy in turn reflected contemporary regional and national guidance on the treatment of archaeological remains. Cheshire East Local Plan is under consultation and will not be finalized before 2017. In the interim, retained policies from the previous plan continue to be afforded weight in any planning matter.

Figure 4
Nantwich town centre timber-frame built heritage

2.4 Proposed Area of *Special* Archaeological Potential

The present *Management Strategy* seeks to expand the archaeological policies within those parts of the *Area of Archaeological Potential* where well-preserved, waterlogged archaeological deposits are known to survive, in the light of the detailed results from the Historic England (English Heritage) funded *Nantwich Waterlogged Deposits Project*. This project has allowed the extent, depth, nature, and preservation of these rare and important deposits to be understood more clearly and means that it is now possible to amplify the policy in order to achieve their effective management. That part of the town where this detail is relevant is referred to below as the *Area of Special Archaeological Potential* (**Drawing 1**).

2.5 Groundwater level change and impact on historic buildings

The recent study of waterlogged deposits in Nantwich has shown that much of the present historic town is constructed on, and dependent upon, accumulated levels of archaeological and often organic-rich sediments. The drying out and decay of these deposits could pose a threat to the continued stability of some parts of the town and its historic building stock. Strategic management is required to ensure the reintroduction of permeable surfaces and natural drainage to allow rainwater recharge of these vulnerable deposits and thus prevent any potential damaging impact on the historic town centre due to desiccation of these deposits.

2.6 Intention of proposed Management Strategy

It should be clearly understood that the *Management Strategy* does not seek to prevent all development within the *Area of Special Archaeological Potential.* Rather, it is intended to provide guidance on those construction techniques which will ensure the preservation of sensitive archaeological deposits and avoid the need for large-scale, time-consuming, and expensive archaeological excavation (**Figure 5**). The NPPF identifies in paragraph 132 the fact that heritage assets (including archaeological remains) are irreplaceable, and that they need to be conserved in a manner appropriate to their significance, especially for those that are at risk from neglect, decay or other threats. This is directly relevant for the waterlogged deposits in Nantwich.

The Management Strategy will also seek to establish best practice within the historic town to promote the preservation of the extensive nature of waterlogged deposits. This will be achieved through the inclusion of measures in regard to urban drainage, spatial planning and kindred disciplines so that the underlying deposits within the town do not experience water level loss, change in water quality, or changes in groundwater flow.

Figure 5
Design solution at The Lamb Hotel 2004

Sleeved mini-piling to prevent hydraulic pathways which would have caused drying out of the waterlogged deposits, and the new building at the back of the Lamb Hotel 2005 - 6

3.0 PLANNING CONTEXT

3.1 Legislation

3.1.1 The Ancient Monuments and Archaeological Areas (AMAA) Act 1979

Archaeological sites of national importance are included on a schedule maintained by the Secretary of State for Culture, Media and Sport. Part II of the Act also made provision, for Archaeological Areas to provide enhanced protection to extensive archaeological deposits that are not included within the definition of a monument, in effect the urban centres of historic towns. The protection is against any disturbance to the ground, requiring developers to notify planning authority of any proposals to disturb, tip on, or flood the ground and allow time for the planning authority to implement an archaeological investigation.

The Act also grants local authorities power to designate their own Archaeological Areas, a measure which is of particular relevance in the case of Nantwich.

An alternative mechanism for managing the archaeological implications of development in urban areas may be the production of a management strategy and accompanying supplementary planning document, set within the context of national planning policy guidance. This document has been prepared for Nantwich with the aim of providing an effective framework within which nationally important archaeological deposits can be managed. Its application and effectiveness will be monitored, but the option of designating areas of urban deposits within the town may need to be reconsidered if the effective management of the archaeological resource through the process outlined below proves ineffective.

3.1.2 Planning (Listed Buildings & Conservation Areas) Act 1990: Nantwich Conservation Area designated 1969

Originally designated as a conservation area in 1969 (amended 1973) for its special architectural and historic interest, survival of medieval street pattern, and the traditional character, materials, texture, colours and design of the architecture and its relationship to open space, the conservation area covers 37.97ha including the historic centre and its medieval suburb along Welsh Row. Sections 69, 71 and 72 of the Act places a duty on the Local Planning Authority to “preserve and enhance” the conservation area. The Conservation Area Appraisal (2005-6) formed the first stage in the formulation of a Conservation Area Management Strategy.

The nationally important archaeological deposits in Nantwich enhance the historic interest of the town and their preservation is crucial to protect the physical and cultural character of the built heritage within the conservation area.

3.2 National Planning Guidance

3.2.1 National Planning Policy Framework

Paragraph 137 specifies that LPAs should look for opportunities from new development to better reveal the heritage significance of heritage assets within Conservation Areas. It stresses that development proposals that conserve and make positive contribution, or better reveal the significance of a heritage asset, should be favourably received by the LPA.

Paragraph 138 provides more detail on how different elements within a Conservation Area contribute to its significance, and how change within a Conservation Area can lead to substantial harm.

Paragraph 139 explicitly notes that non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be treated in the same way as policies for safeguarding designated heritage assets. The exceptional preservation conditions within the waterlogged deposits at Nantwich would qualify the archaeological remains as of equivalent significance to scheduled monuments, and therefore require the same level of protection within the planning process, even though they do not receive statutory protection.

Paragraph 133 states that where a proposed development would lead to substantial harm to a designated heritage asset (or equivalent as defined in paragraph 139) LPAs should refuse planning consent. Therefore applications for development within the *Area of Special Archaeological Potential* at Nantwich must demonstrate that they will not substantially harm the waterlogged deposits, and would make a positive contribution to the Conservation Area, before they would be eligible for planning permission.

3.3 Local Planning Guidance

3.3.1 Cheshire East Local Plan

The local plan has not yet been adopted and is currently still out to consultation. The most recent document is the *Local Plan Strategy: Proposed Changes "Clean Version" – Consultation Supporting Document March 2016*. This identifies the previous authority's Policy BE16: *Development and Archaeology* as not having been deleted. In addition this draft Local Plan Strategy includes the *Nantwich Town Report* which refers under 3.8 (page 44) to the *Area of Archaeological Potential*, and an *Area of Special Archaeological Potential*. The latter is further referred to on page 81.

3.3.2 Borough of Crewe and Nantwich Replacement Local Plan 2011 (retained policies)

Policy BE.16: Development and Archaeology. This policy highlights the importance of the submission of an appropriate archaeological assessment in support of those applications affecting sites within *Areas of Archaeological Potential*, as defined on the constraint maps included in the Local Plan. The policy also requires that where significant archaeological remains are shown to be present, they should not be destroyed but preserved *in situ*, either through careful design or the avoidance of particularly sensitive areas. Only where it is decided that preservation *in situ* is not warranted will archaeologically damaging development be permitted and, in these instances, a programme of archaeological mitigation will be required to identify, excavate, record, analyse, and report on the remains.

4.0 THE NATURE AND SIGNIFICANCE OF THE WATERLOGGED DEPOSITS

4.1 Nantwich's archaeological resource within the international context

The exceptional preservation of organic and other archaeological remains because of the waterlogged deposits in Nantwich can be compared with only a handful of similarly rich historic sites in Europe. In particular the World Heritage Site of Bryggen, Bergen in Norway, is trying to develop strategies for preventing decay and desiccation so that the timber houses and historic town that give it WHS status can be preserved. In this country York is one of the most famous archaeological resources of waterlogged urban remains, and Nantwich compares favourably in its conditions for preservation. In this context it can be appreciated that the Nantwich deposits can be seen as of national, and potentially international, importance. National guidance on preserving urban waterlogged deposits is available from Historic England (forthcoming 2016) *Preserving archaeological remains: Decision-taking for sites under development* Historic England: Swindon. A series of appendices within this guidance include Nantwich as part of Appendix 1 – *Case studies*, whilst the other appendices include Appendix 2 – *Preservation assessment techniques* Appendix 3 – *Water environment assessment techniques* Appendix 4 – *Water monitoring for archaeological sites* Appendix 5 – *Materials for use in the reburial of sites*.

4.2 Scientific assessment of Nantwich's waterlogged deposits

The English Heritage funded study of Nantwich's waterlogged deposits is a pioneering attempt to systematically characterize burial environments in urban contexts. It has identified a largely pH neutral environment with areas of high sulphide and low nitrate content, conducive to preservation of organic remains, such as wooden artefacts (e.g. timber roadways, salt-ships) and plant material which survives because of the reduced (anoxic) burial environment. A full report is available as SLR Consulting 2016 *Nantwich Waterlogged Deposits Report No. 4, Phase 2: Monitoring Programme Results and Interpretation*.

4.3 Formation processes

Saturated terrace sands overlying impermeable glacial Till provided a water-retentive matrix into which organic and inorganic debris from human activity have accumulated since the 9th century AD. Waterlogged remains from the Iron Age and Roman periods have also been found, and ground-water recharge has preserved these remains over the past 2000 years.

4.4 Threat of desiccation and zones of preservation

The investigations and monitoring programme have identified areas of active decay in previously waterlogged deposits, and there is grave concern that this process of desiccation may be accelerating as a result of modern intrusions and management of the town centre. Two zones of preservation have been identified based on the results of the study, a zone of well-preserved organic remains bordering the river (Zone 1), and a zone of more variable preservation with some active decay amongst upper deposits, within the higher parts of the town (Zone 2) (see **Drawing 1**). Together these two zones form the Area of Special Archaeological Potential which has been locally designated to protect the archaeological remains underlying the historic core of Nantwich.

5.0 PLANNING RESPONSE TO DEVELOPMENT FOR PROTECTION OF THE UNIQUE CHARACTER OF NANTWICH'S HISTORIC ENVIRONMENT

5.1 Vulnerability to development

The long-term stability of Nantwich's archaeological deposits remains uncertain in the light of continuing development pressures and improved drainage associated with new developments. Indeed, one of the conclusions of the recent research has been that the upper levels of the organic deposits have been seriously de-watered in some areas and are actively decaying. These deposits require monitoring, as only those deposits at greater depths appear to be stable and unaffected at present within the higher parts of the town.

5.2 Long-term monitoring: a partnership approach

A targeted programme of further data collection over five years has been undertaken as a strategic management tool to monitor the Area of Special Archaeological Potential. The results of this study can now be used to refine the management strategy.

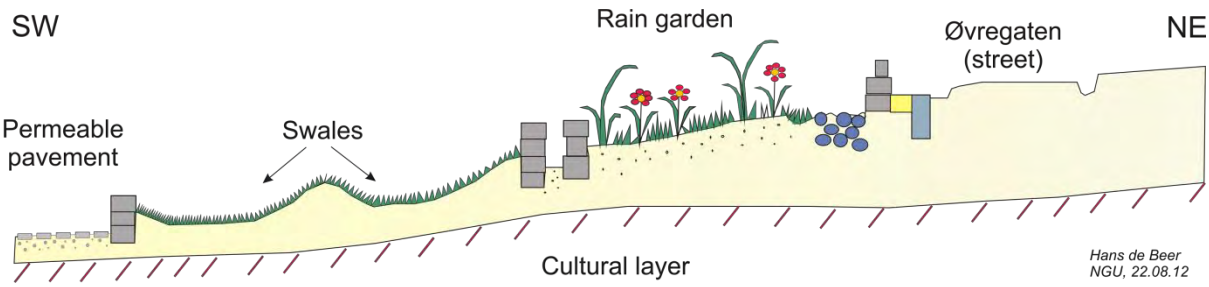
A long-term strategy for the effective management of the deposits, however, requires continuing data collection on water levels and the stability of the deposits. Consequently, the installation of dipwells may be required as a condition of planning permission on large-scale developments in order to allow the continued monitoring of water levels and the state of preservation of the deposits. This will allow the success of preservation *in situ* strategies and the effect of development on adjacent deposits to be gauged, which will allow advice with regard to future developments to be refined. The cost of installation of dipwells and probes and monitoring for a fixed period will be borne by individual developers, as with all other archaeological mitigation.

The information that is gathered by these means will be stored as part of the Historic Environment Record. Periodic analysis and reporting of the data relating to the waterlogged deposits will be commissioned so that independent, specialist scrutiny and advice is available. Transducers and dataloggers have been left in situ at some of the dipwells following completion of the five year monitoring project, and it would be beneficial for a download of the data, and comparison of the results to the existing data, in three – five years time. This would effectively extend the data collection period over more than a decade, and allow an independent check on changes that might have occurred to water-levels since the baseline survey in 2007.

5.3 Infrastructural projects, public realm and sustainable urban drainage (SUDS)

Measures to enhance the conditions for continued preservation of Nantwich's waterlogged deposits must be a major aim within any initiative to improve or change the existing urban landscape within the town centre. Advice must be sought to help design public realm, hard surfaces, drainage and related matters, so that groundwater recharge can be enhanced. In addition the water quality is an important consideration and impacts from development should not compromise the chemical composition of groundwater through the introduction of oxygen and other contaminants or nutrients. **Figure 6** provides a diagram to show how this process can be achieved.

Figure 6
Diagram of methods for rainwater capture and recharge to waterlogged deposits



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Various designs for sustainable urban drainage (SUDS) have been experimented with successfully in Bryggen and in the Netherlands. The WHS at Bryggen has a strategy[1] which includes re-establishing the natural water balance to create good conditions for preservation. This will be achieved through water storage to ensure high water levels during dry periods, supplied by permeable surfaces and paved surface drainage, and monitoring of the water quality. The design of the SUDS is important to help in removal of pollutants within the water being reintroduced to the archaeological deposits, through their capability of filtration and absorption of dissolved and particle-bound pollutants. These SUDS also help to reduce flooding in urban environments, a topic that has been of great concern to LPAs within the past decade, improve air quality, reduce atmospheric CO2, improve ecological habitats and the aesthetics of the public realm.

Figure 7
SUDS: Rainwater garden in Bryggen to help recharge waterlogged deposits

[1] Boogaard, F.C. 2015 Chapter 10 Stormwater Quality and Sustainable Urban Drainage Management in *Monitoring, Mitigation, Management: The Groundwater Project – Safeguarding the World Heritage Site of Bryggen in Bergen (*eds. Rytter, J. and Schonhowd, I.) published by Riksantikvaren, Norway

Measures adopted at Bryggen and applicable to Nantwich include rainwater gardens (**Figures 7**), permeable pavements (with infiltration rates of 100 – 1000mm/hour), and dry bioretention swales for slow infiltration of rain and flood water from hard surfaces (**Figure 8**). The latter were designed as 20m long, 6m wide and 0.3 – 0.5m deep grassed areas, which would help to remove oxygen and sulphate entering the archaeological deposits, and achieved a mean value for infiltration of 1m/day. A rainfall event of 25-50mm a day would be sufficient to fill up the storage volume of the swale.

The general benefits of SUDS are explored in CIRIA Research Project RP993: *Demonstrating the multiple benefits of SUDS – A business case (Phase 2) 2013*.

Figure 8
SWALE: rainwater garden created in Bryggen

Copyright Rory Dunlop, NIKU, 2014; taken from Figure 10.10 Boogaard 2015 Bryggen report

5.4 Large Developments

5.4.1 Key considerations

Large developments within the sensitive area are likely to require significant archaeological mitigation and in all instances prospective developers are advised to consult with the East Cheshire Council's archaeological advisors at an early stage in the planning process in order to discuss the implications of their scheme for adverse effects on the continued preservation of archaeological deposits, and to identify the nature of any pre-determination assessment and site investigation that may be

required. As the waterlogged deposits within Nantwich have been identified as containing nationally important remains consultation with Historic England is also desirable.

Any intrusive investigation has the potential to introduce harmful changes such as oxidation of the deposits or a change to the chemical composition of the burial environment, and it is therefore necessary for site survey, such as geotechnical ground investigation or land quality assessment, to be integrated into a scheme of archaeological investigation approved by the Local Planning Authority's archaeological advisor (**Figure 9**). Such a measure would be in accordance with the AMAA Act 1979, Part II, which allows planning authorities to designate Archaeological Areas, and provides added protection for Nantwich's *Area of Special Archaeological Potential*.

The key requirement will be to minimise any damage directly or indirectly to archaeological deposits (on or off site) during development. This should be achieved by the avoidance of any process which is likely to result in the wholesale removal of archaeological deposits across some or all of a particular development area, or act as a conduit for groundwater to flow, thus reducing water-levels. Consequently, extensive basements for car parking or retail deliveries are unlikely to be considered suitable for most sites within the *Area of Special Archaeological Potential*.

5.4.2 Foundation design and related development impact

The main element in achieving the successful preservation of archaeological deposits within the *Area of Special Archaeological Potential* will lie in a careful consideration of the foundation design of new buildings and the design of appropriate SUDS. Ideally this would involve no intrusion into waterlogged deposits.

Currently, the presence of extensive waterlogged deposits in the town means that traditional strip foundations are only used for smaller buildings and the usual procedure involves piling, ring beams, and concrete slabs. Experience has shown that careful consideration of the design of these various elements can help to preserve *in situ* the bulk of the archaeological deposits with only minimal loss of archaeological strata. Such measures have been adopted in York where developers are required to demonstrate how they will preserve at least 95% of the archaeological levels, with no collateral or long-term damage from piling. Developers have also installed groundwater and archaeological deposit monitoring schemes on and around their development sites.

5.4.3 Developers' obligations: site investigation and evaluation

It must be understood, however, that this process of foundation design needs to be informed by a thorough knowledge of the history and archaeology of the particular site that is being developed. This means that all significant developments will require a full programme of pre-determination assessment in order to provide the quality of data necessary to formulate a robust, site-specific preservation *in-situ* strategy. In the context of the *Area of Special Archaeological Potential*, however, standard techniques of investigation, geotechnical or archaeological, may not be appropriate as they could exacerbate the agents of decay within the waterlogged deposits. In addition, sufficient data may already be available from earlier fieldwork, on or around the site, which may establish that further trenching is not necessary.

Figure 9
Use of a window sampler drilling rig for geoarchaeological investigation

The following techniques are some of those that could be adopted:

- Geoarchaeological boreholes with suite of chemical testing, archaeological assessment (descriptions using the Norwegian Standard) and scientific dating to characterize deposits
- Ground Penetrating Radar prospection to detect buried timber structures
- Keyhole investigation, reopening existing or historic intrusions such as service trenches to investigate buried levels & establish deposit sequence

If in addition, more intrusive site investigations are considered necessary such as geotechnical testing, and these are given special permission, the results from these must be used to inform archaeological reports; in particular borehole logs from geotechnical coring and test-pits must be incorporated into archaeological assessment reports so that a permanent repository of this data survives to inform deposit modelling, with detailed recording of the character, sediment matrix, lenses and inclusions, that form “made ground”. Archaeological field evaluation, if required, should be kept to a minimum in order to characterize the type of remains to be preserved, and ordnance datum altitude must be included on all drawn and textual parts of reports. Within written descriptions a concise use of terminology for descriptions of waterlogged deposits is essential, and specialist geoarchaeological advice will be required to fulfil this.

In particular, data from field evaluations will provide information on the location of particularly fragile archaeological deposits within the development area. This will allow individual piles to be positioned in less sensitive areas if piling is permitted at all. In addition, knowledge of the depth at which sensitive archaeological strata occur will mean that the level of the base of the ring beam and any concrete slabs can be calculated in order to ensure that there is no impact on important strata. Favourable consideration would be given by the LPA and their archaeological advisors for designs that involve minimal or no intrusion into underlying deposits, i.e. preferably without piles. If piling is accepted as a necessary method then the following criteria should be imposed:

- the type of pile used (i.e. sleeved, small-bore, in a grid set far apart without large pile caps unless these are raised above archaeological levels are greatly preferred);
- the type of piling rig and other machinery employed in order to minimise damage to surrounding archaeological strata (to minimise vibration and collateral damage);
- no groundwater drainage or pumping of the water table; and
- analysis of the likelihood of compromising the conditions which have ensured the presence of waterlogged conditions on the site.

Historic England advice exists on the different piling methods and the degree of their potential impact on archaeological deposits (*Piling and Archaeology: An English Heritage Guidance Note* 2007)

5.4.4 Developers' obligations: long-term groundwater monitoring as mitigation

Even where an appropriate preservation *in situ* strategy is prepared and approved as a condition of planning permission, it is likely that archaeological monitoring of relevant aspects of the development will still be required. This monitoring will have two purposes: to ensure the successful implementation of the preservation *in situ* strategy and to monitor those aspects of the development where limited disturbance of the archaeological strata is inevitable, for example service trenches and deep intrusions such as lift shafts. In addition, the monitoring process may also require the installation of dipwells and appropriate probes to monitor the long-term effects on groundwater quality and levels (**Figure 10**).

Figure 10
Dipwell with monitoring of water quality and groundwater level in progress

5.4.5 Developers' obligations: archaeological monitoring as mitigation

It is also possible that some developments, where preservation *in situ* of archaeological deposits is not required as a condition of planning permission, will still require an archaeological watching brief or other form of monitoring. These are likely to be sites where existing information or a programme of pre-determination assessment and field evaluation has indicated that preservation *in situ* or more extensive open-area excavation are not justified by the quality of the archaeological remains but that monitoring of the development process and recording of any archaeological deposits present would still be justifiable. In these cases a report on the work will still be required and this may need to include data on the specialist analysis of artefacts or deposits encountered.

Figure 11
Wicker-lined pit at Kingsley Fields 2003

5.4.6 Developers' obligations: archaeological excavation as mitigation

There may be occasional instances where the threat to the continued preservation of archaeological remains is such that, despite the scale of archaeological work involved and the consequent expense to the developer, wholesale removal of archaeological deposits is authorised (**Figure 11**). The extent and depth of these deposits will have been established by archaeological assessment and field evaluation, prior to determination of the application. The resultant project designs for archaeological excavation will need to demonstrate a full understanding of the difficulties of dealing

with complex waterlogged deposits and the necessary specialist input to the recording, analysis, storage, and conservation of large quantities of waterlogged wood and other organic materials. It should also be understood that following the completion of any excavation work and the preparation of an appropriate post-excavation assessment, there is likely to be a need for a significant amount of post-excavation work leading, in many instances, to full publication. The costs of this aspect of the process may be significant and will need to be borne by the developer.

5.4.7 Developers' obligations: reinstatement and prevention of groundwater loss

Where intrusive site investigations or service trenches, lift shafts and related groundworks, have been permitted, these must be reinstated probably with inert materials or lined with impermeable materials, so as to prevent these interventions acting as hydraulic pathways or ingress of chemical change to the burial environment. Advice will be necessary to design the most appropriate methods dependent on the discrete nature of each site and occurrence.

5.5 Smaller Developments

Despite the undoubted sensitivity of the deposits within Nantwich's *Area of Special Archaeological Potential*, it is recognised that there will be many small-scale developments where the impact on the waterlogged archaeological deposits will be limited. Such developments, which might include small extensions to existing dwellings and the erection of garden sheds *etc*, would be unlikely to result in a planning condition for developer-funded archaeological work. The planning authority will still, however, consult with their archaeological advisors on applications of this type as access conditions provide an opportunity to inspect the nature of the strata and refine the understanding of the extent of archaeological deposits.

5.6 Work Undertaken by Utilities

It is essential as part of an integrated management strategy that the Local Planning Authority through its relevant professionals, such as urban planners, drainage, water and highways engineers, raise awareness of the *Area of Special Archaeological Potential* with Utility Providers. The renewal of services by the utility companies requires particular attention as work of this type (gas, water, and electricity) is usually undertaken without the need for planning permission, although many utility companies have policies and protocols referring to the need for safeguarding the historic environment. In addition, the nature of the work, which often involves the digging of trenches, has the potential to do serious damage to archaeological deposits whilst offering only limited opportunities to mitigate the damage by changes to the method of working. Although such works do not require planning permission, they often require a Street Works Licence and East Cheshire Council has the opportunity to impose conditions to help protect the archaeological deposits as part of their role in giving approval for these permits (**Figure 12**).

It is recommended that utilities should always consult with the Council's archaeological advisors at an early stage in the project planning process for projects of this kind which fall within the archaeologically sensitive part of the town, especially within the *Area of Special Archaeological Potential*. This will allow consideration to be given to the avoidance of particularly sensitive areas but will also ensure that a robust archaeological mitigation strategy is recognised as an essential part of a project at an early stage. As a minimum, this is likely to involve a permanent-presence watching brief during all potentially damaging operations.

It should also be recognised that, because there will be limited opportunities to preserve deposits *in situ* once work has started, there may be significant costs involved in investigating and recording complex waterlogged remains in the field and carrying out an appropriate level of post-excavation analysis and reporting, which would fall to the engineering budget of the utility concerned. All such work should be carried out by suitably-experienced archaeological contractors and must be carried out in accordance with project designs that have been approved by the Council's archaeological advisors.

Figure 12
Gas repairs in Welsh Row 2007: Anglo-Saxon brushwood trackway, medieval corduroy timber roadway, post-medieval barrels and lids

6.0 CONCLUSION

The above procedures represent an approach to managing Nantwich's exceptional archaeological remains in a way that conserves as much as possible (in line with local and national guidance) whilst allowing development to proceed. It is recognised that as more work is carried out understanding of the nature, preservation, and extent of these remains will grow and that this will offer further scope to refine the approach to dealing with the town's archaeological deposits. This will ensure that not only is much of the town's archaeological heritage preserved for the future but that the response to individual development proposals is proportionate to the particular threat.

7.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

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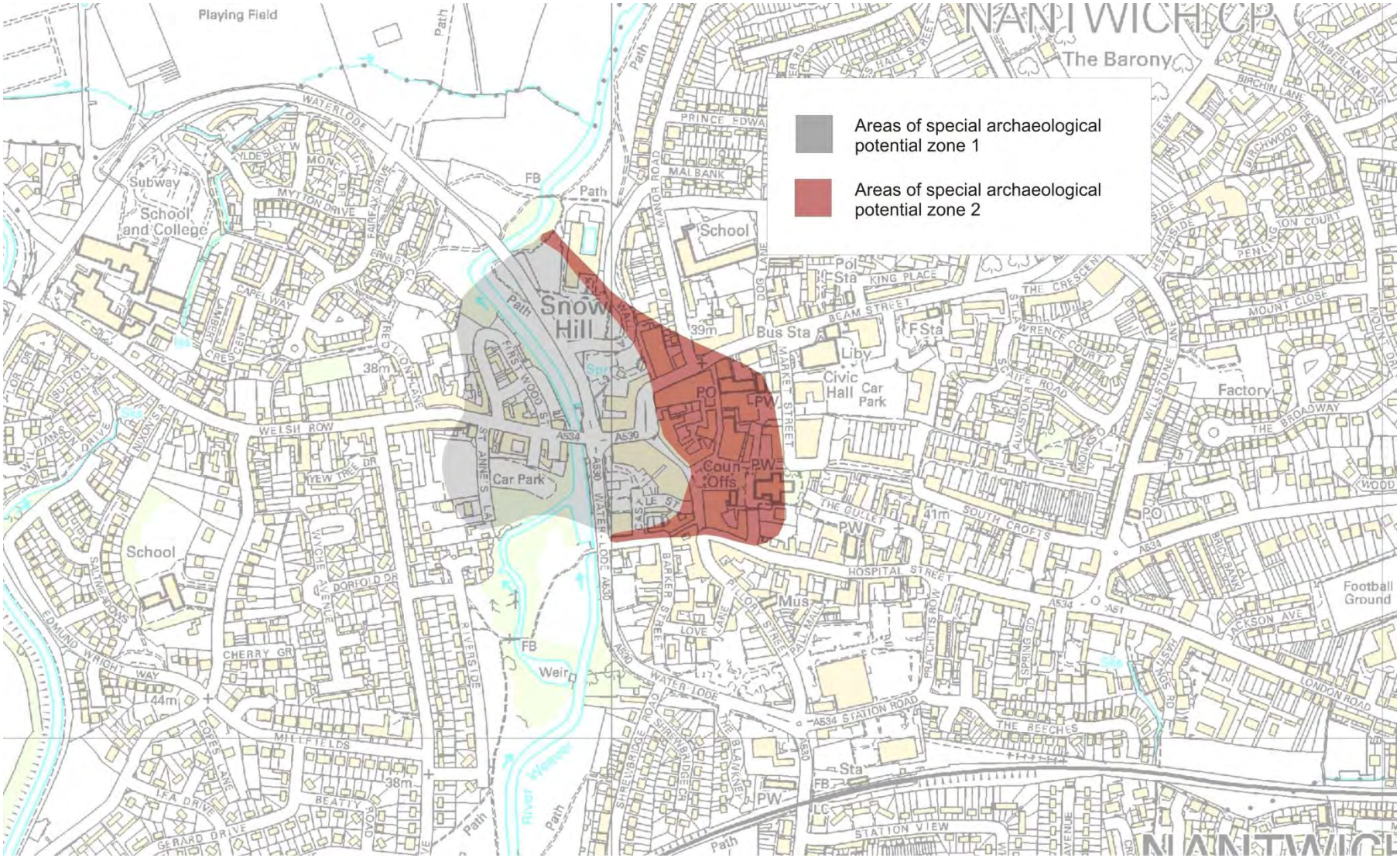
SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Drawing 1: Area of Special Archaeological Potential, divided into Preservation Zones 1 & 2



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