

# Northwich Town Centre Flood Risk Management Scheme (FRMS), Cheshire

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## Archaeological Monitoring of Ground Works

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2016



Project Code – NFS2

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## SUMMARY

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- Trent & Peak Archaeology (TPA) was commissioned by the Galliford Try/Black & Veatch Joint Venture (GBV JV Ltd), acting on behalf of the Environment Agency, to carry out a watching brief, consisting of archaeological monitoring and recording of the ground works (GW) during the Northwich Town Centre Flood Risk Management Scheme (FRMS) works
- The work was carried out between the 7th April 2015 and the 18<sup>th</sup> March 2016 with archaeological monitoring by staff from TPA.
- The proposed Northwich FRMS affected a number of locations throughout the town centre of Northwich; Reaches One, Two, Three, Seven & Twelve. An environmental statement for the scheme indicated that there is a possibility of encountering stratified archaeological deposits of significance associated with the medieval, post-medieval and industrial periods of Northwich. These include post-medieval to modern made ground deposits (commonly 3-7m deep in Reaches One-Three) identified by Liverpool Museums service during earlier archaeological monitoring of boreholes and Trent & Peak Archaeology during the initial monitoring of hand dug trial holes.
- During the works, structural remains were only observed within Reach Three. These consisted of 2 brick built structures along the bank of the River Weaver and part of the 19<sup>th</sup> century river wall. These structures probably formed part of the 19<sup>th</sup> century quayside, facilitating the loading and unloading of goods, to the nearby town centre.
- Within Reach One, the 19<sup>th</sup> century earthen river bank of the River Dane was observed. This was sealed by 19<sup>th</sup>/20<sup>th</sup> century made ground deposits.
- These made ground deposits were characteristic of the deposits observed during previous archaeological works throughout Northwich (by The Museum of Liverpool, Oxford Archaeology and Trent & Peak Archaeology), and were interpreted to be a deliberate reclamation of the land throughout the 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> centuries. It was suggested by Adams that the made ground throughout the town could be related to the infilling following subsidence, or the deliberate reclamation along the riverbanks, possibly related to the construction of quaysides (Adams 2014).
- These deposits allowed the expansion of the deposit model put forward by Adams up to banks of the River Dane. Due to the limited nature of the intervention, it was not possible to determine whether said deposits were related to either the infilling along the riverbank, or the demolition of the Croft Salt Works to the immediate north of Reach One.
- Within Reaches Two, Seven & Twelve, no archaeological material was observed, due to the heavy truncation by late 20<sup>th</sup> century construction work.

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## 1 Introduction and Site Background

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### 1.1 Introduction

1.1.1 Trent & Peak Archaeology was commissioned by the Galliford Try/Black & Veatch Joint Venture (GBV JV Ltd), acting on behalf of the Environment Agency, to carry out a watching brief, consisting of archaeological monitoring and recording of the ground works (GW) during of the Northwich Town Centre Flood Risk Management Scheme (FRMS), works.

1.1.2 **The development, hereafter ‘the Site’**, comprised a number of locations situated throughout the town centre of Northwich. (See Fig.3)

1.1.3 The archaeological monitoring was conducted as part of the requirement set out by the Cheshire West and Chester Council archaeological officer (Mr. Mark Leah) to observe and record the potential surviving archaeological deposits within the site.

### 1.2 Site Background

1.2.1 Galliford Try/ Black & Veatch Joint Venture Ltd (GBV JV Ltd) undertook an extensive scheme of flood defence construction within the town centre of Northwich, Cheshire (the Northwich Town Centre Flood Risk Management Scheme). The scheme covered a wide area of Northwich, extending from Whalley Road in the east, following the course of the River Dane to the north-west until its confluence with the River Weaver. The flood defence works continued to the immediate north and south along the Weaver Navigation, a canalised section of the River Weaver, connected to the Trent & Mersey Canal.

1.2.2 The potential for archaeological remains on the site had been identified during early consultation between GBV JV Ltd, the archaeological advisors at Cheshire West

and Chester Council (CWaC) and the Environment Agency. The environmental statement for the scheme indicated that there was a possibility of encountering stratified archaeological deposits of significance; associated with the medieval, post-medieval and industrial periods of Northwich. These included post-medieval to modern made ground deposits (commonly 3-7m deep in Reaches 1-3) identified by Liverpool Museums Service during earlier archaeological monitoring of boreholes, as well as by Trent & Peak Archaeology during the monitoring of the initial trial holes.

1.2.3 These early stage works allowed for an assessment of any areas of archaeological interest to be made and to help identify and manage the chances of uncovering significant archaeological materials in advance of construction.

1.2.4 This resulted in the decision to be made to allow for:

- Continuous archaeological monitoring across Reaches 1 and 3
- Intermittent archaeological monitoring across Reaches 2, 7 and 12
- No archaeological monitoring of Reaches 5, 6, 8, and 9

1.2.5 For further details about the rationale behind this, see the attached Written Scheme of Investigation (Appendix 3).

## 2 Aims and Research Objectives

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### 2.1 Aims

2.1.1 The aim of the proposed archaeological mitigation was to discharge the archaeological planning condition by recording and advancing our understanding of the significance of the heritage assets contained within the Northwich Town Centre FRMS development area before they were lost or damaged through the development.

2.1.2 The principle purpose of the proposed archaeological mitigation was to comply with heritage legislation, as outlined in 1.3.1 which stipulates that; 'development proposals which could affect local ancient monuments and sites of archaeological importance, including sites and areas of archaeological potential and those identified in the Cheshire Historic Towns Survey, will not be allowed unless it can be demonstrated, as part of the submitted planning application, that the particular site or monument will be satisfactorily preserved either in situ or where it is not feasible, by record' (VRBLP 1996).

2.1.3 The secondary aim of the proposed scheme of archaeological monitoring and recording was to enrich the Historic Environment Record for Cheshire for the benefit of the local public.

### 2.2 Research Objectives

2.2.1 The research agenda for the proposed archaeological monitoring and recording can be based on priorities set out in the Archaeological Research Framework for the North West Region (Mark Brennand (eds) 2006: Volume 1, & 2007: Volume 2). These include:



- Medieval Period: 5.42 Investigations of urban-based industries, using the full panoply of available scientific techniques to provide information on developing technologies and on the role of towns as centres of production.
- Post Medieval: 6.16 ...attempts should be made to identify the post-medieval elements that may have distinguished the future industrial towns from those that failed to develop early in the Industrial Revolution
- Industrial and Modern: Technology and Production: 7.35 Industry specific studies are needed for those industries that have received little archaeological attention.
- Trade, Exchange and Interaction: 7.43 Excavation and scientific analysis of 18th and 19th century dock deposits.

2.2.2 Having highlighted the above priority initiatives, as set out in the Research Framework for the North West Region, where deposits survive a four point research agenda for the watching brief will was used to prioritise archaeological activities:

- Recover information on medieval (or earlier) activity and industry at the site.
- Identify and characterise post-medieval (pre-1750AD) remains, especially in those areas where later activity is also present.
- Recover information on 18th-19<sup>th</sup> century industrial remains and residues at the site, particularly related to salt production.
- Identify and characterise 18<sup>th</sup>-19<sup>th</sup> century specialised and industrial use of waterfronts.

## 3 Archaeological and Historical Background

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### 3.1 Site Topography and Geology

3.1.1 The site was approximately centred on the OS grid reference of SJ 65922 73577. The Northwich Town centre FRMS represented the construction of a number of raised flood defences in the vicinity of the River Dane and River Weaver in Northwich.

3.1.2 The underlying geology of the majority of the site was defined as Northwich Halite Member; a halite-stone and mudstone sedimentary bedrock, formed approximately 237 to 246 million years ago in the Triassic Period. This represented a local environment previously dominated by hot deserts. Superficial alluvial deposits of clay, silt, sand and gravel were formed up to 2 million years ago in the Quaternary Period in a riverine environment. To the immediate west, superficial glacial deposits of Till (Devensian) and Diamicton, also dating to the Quaternary Period were formed in a local environment previously dominated by ice age conditions outwash sand and gravel deposits from seasonal and post glacial meltwaters.

<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

3.1.3 The overlying superficial soils comprised, to the south-east, of free draining floodplain soils, which were loamy in texture. To the north were free draining floodplain soils with naturally high groundwater and to the west, slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils.

[www.landis.org.uk/soilscapes](http://www.landis.org.uk/soilscapes)

3.1.4 Topographically the site was largely flat, lying consistently at 12m AOD. This fell in the far north-west

of the site to 11m AOD along the River Weaver Navigation, north of the Town Bridge.

## 3.2 Historic Background

3.2.1 Locally recorded non designated heritage assets ranged in date from prehistory to the twentieth century and included a variety of different site types, such as findspots of artefacts; Roman sites; settlement, and ecclesiastic sites; areas of industrial activity, and historic buildings. A complete summary gazetteer of heritage and a full period-by-period summary was provided for the present application as Appendix J to the environmental statement Chapter 9 (Humphreys 2014).

3.2.2 Prehistoric: Prehistoric evidence was scant both within the wider study area and the wider Cheshire County. Limited lithic findspots were noted, indicating a transient presence from the later prehistoric periods, however no settlement or burial archaeology had been identified. The longevity of salt production in the Northwich area could feasibly date to the Iron Age; however, no evidence had been forthcoming with the earliest connected artefacts identified as Roman.

3.2.3 Roman: The known Roman settlement of Condate and its recorded timber fort, which lay west of the River Weaver some distance away from the project, had been the subject of a number of excavations, carried out from 1960-80. These revealed a two phase occupation site, accessed from Chester Road, consisting of timber barracks and a defensive ditch. The site appeared to **have been abandoned during Agricola's push north towards Scotland c. 80AD only to be reoccupied c.120AD during Hadrian's establishment of northern**

rule (Curzon 1993). Across Northwich, further evidence of domestic and settlement activity was present in the form of kilns and salt pans. Findspots of ceramics, coins and metalwork, as well as cremation urns had been recovered across the wider study area.

3.2.4 Medieval: The visibility of Medieval (410-1485 AD) activity across the period was extremely low. The town was mentioned in Domesday; however, Historic Environment Records relating to the period were largely limited to documentary records, rather than findspots or extant remains. The Grade I listed Church of St Helen, containing 14<sup>th</sup> century features, was the only known physical asset within the study area. It was likely that any Medieval settlement lay beneath the later Post-Medieval and modern town centre, to the north of the river confluence, around the Market Street area. On the basis of existing evidence the Northwich Town Centre FRMS works were expected to lie on the periphery of the Medieval settlement areas.

3.2.5 Post Medieval and Modern: Despite documentary evidence for a thriving Post-Medieval town, specialising in salt production, archaeological visibility remained low until the 17<sup>th</sup> century, with the earliest locally listed buildings dating to this time.

3.2.6 The town of Northwich experienced considerable growth across the late 19<sup>th</sup> and 20<sup>th</sup> century. Many locally listed buildings were designated due to their use **of the 'composite' building system; a method** introduced in an 1881 bylaw to combat the effects of town wide subsidence linked to the longevity of salt mining and brine pumping within the town. The bylaw mandated that all new properties should be built with a wooden frame, in filled with brick, and constructed on **timber (later steel) beams so that they could be 'jacked**

**up' and the foundations raised in the event of** subsidence (Lynch 2004). **The 'composite' structures** were most densely concentrated on Chester Way, London Road, Castle Street, Winnington Street, Witton Street, Crown Street and High Street.

3.2.7 From a review of historic mapping from the 18th and 19th centuries it was further evident that industrial remains were present, some as listed buildings and **structures. Many of these are associated with the town's** longevity as a salt production centre.

3.2.8 Of particular interest, was the Croft Salt Works, located on the north bank of the River Dane, less than half a mile to the east of the confluence of the rivers Weaver and Dane. Established by the 1770s, by the Marshall Family, the Croft Salt works operated right up to the end of the 19<sup>th</sup> century, though the exact date of the dissolution remained unclear. Works by Oxford Archaeology North (Mottershead 2013) immediately north of Reach One in 2013, identified that while the remains of the salt works were heavily truncated in some places, there was still a good chance of some structural material surviving intact.

### 3.3 Previous Intrusive Archaeological Investigations

3.3.1 Reach One crossed Memorial Park, adjacent to the site of the former **Magistrate's Court. This area had** been the subject of archaeological trial trenching by OAN (OAN 2013), which identified that the site was occupied by a salt works and associated features during the 18<sup>th</sup> and 19<sup>th</sup> century. Importantly, this work also established that industrial-period archaeological features of interest in this part of Northwich may be shallowly buried and cut into 'made ground' (OAN 2013).

3.3.2 Reaches 6 and 7 were within the boundaries of a borehole survey, carried out in 2011, off Chester Way. Archaeological monitoring of these boreholes suggested that, in places, potential alluvial horizons of archaeological interest may lie at c.3-4m below ground level.

3.3.3 Across the river to the west, at Reach Twelve, a watching brief took place at Castle Street in 1996 (Cheshire HER Event. ECH3676). Undertaken by The University of Manchester Archaeological Unit, the works indicated that the whole of the proposed development area was covered in late 19<sup>th</sup> century and early 20<sup>th</sup> century deposits to depths of between 1.2m and 3.7m, and possibly to considerably deeper levels. This was probably the result of infilling after localised ground subsidence due to local salt extraction. The site of a 19<sup>th</sup> century dock was located, but neither the suspected Roman Road, boundary ditch or brine pit were observed.

## 4 Methodology

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### 4.1 General conditions

4.1.1 Staffing: The work was undertaken by suitably qualified members of TPA according to accepted archaeological **practice and the 'Standard & Guidance for an archaeological watching brief' produced by the Chartered Institute for Archaeologists (2008).**

4.1.2 Notice: The client was requested to give at least one **week's notice** of the commencement of works to TPA who informed Cheshire West and Chester Council (CWaC).

4.1.3 Services: The client was responsible for carrying out service checks prior to groundworks and provided plans of all services within the development area.

- 4.1.4 Base maps: The client was requested to supply copies (preferably digital) of base maps for TPA to use in the report.
- 4.1.5 Fencing: The client was responsible for securing the site from unauthorised public access.
- 4.1.6 Health and Safety: TPA adhered to all relevant health and safety regulations. No archaeological staff was allowed to enter the site until they had undergone a health and safety induction organised by TPA and/or the principal contractor. TPA completed a task specific risk assessment and safe working method statement before the commencement of the watching-brief, and copies of this were approved by the client/principal contractor. This was in compliance with the industry guidelines laid out in FAME Manual, Health & Safety in Field Archaeology (2006). TPA staff wore appropriate personal protective equipment at all times.
- 4.1.7 Welfare, Access and Insurance: The client ensured safe access to the ground-works and if possible made toilet and hand-washing facilities available to archaeological staff.
- 4.1.8 Insurance/compensation: As part of York Archaeological Trust, TPA carried the appropriate public, third party and employee insurances, copies of which were available for inspection if required. Any compensation claims for disruption to the land was directly between the client and landowner.
- 4.1.9 The client was to ensure that the contractor had been made aware of the archaeological constraint on their operations.

## 4.2 Task 1- Continuous Watching Brief (Reaches One & Three)

4.2.1 Strategy: During continuous monitoring, an archaeologist was to make attendance at all groundworks with sub-surface impacts in pre-agreed areas.

4.2.2 Machine Excavation: All soil stripping was conducted with a toothless bucket under archaeological observation, with archaeologically significant areas to be defined for recording or limited hand excavation. Excavation of flood wall construction trenches followed this procedure where possible.

4.2.3 Where sheet piling encountered an obstruction at a depth, and the client decided to undertake a facilitation trench, an archaeologist was on site to record any determinable archaeological remains.

4.2.4 Spoil: Where practical and safe to do so, all spoil heaps were regularly examined for archaeological material.

4.2.5 Recording & Hand Excavation: All recording and excavation reflected the necessity of salvage recording during ongoing groundworks, with disruption to the main contractor kept to a minimum (for recording & excavation details see below).

4.2.6 Wherever possible the principal contractor ensured that a clean surface/section was exposed and that the archaeologist could inspect the deposits revealed. Within Health & Safety constraints, the principal contractor also afforded the archaeologist(s) time to clean surfaces/sections within the construction trenches. There was no vehicular trampling of the exposed surface until the archaeologist had agreed that there were no archaeological deposits of significance.



4.2.7 Where limited excavation was required beyond that covered by the watching brief, this was covered by contingency provision. The mechanism for the agreement of contingency is set out below.

4.2.8 Excavation of features established their form, function and interrelationships subject to site constraints. Priority was accorded to the following:

- features exhibiting optimum preservation
- structural remains
- potential environmental and industrial remains.

4.2.9 All recording & excavation was carried out as set within the minimum standards.

4.2.10 In the absence of features, at a minimum a record (both written & photographic, with scale drawing where necessary) was made to reflect the stratigraphic sequence of deposits present, particularly alluvium and distinctions within made ground.

4.2.11 Reporting: Results of the recording was presented within an integrated report of the findings from all archaeological tasks conducted during the Northwich FRMS groundworks (for details see below). During post excavation, the results were compared with other relevant Cheshire sites, in order to place the findings within their regional context.

4.2.12 Call off procedure: For Reaches 1 and 3, a call off procedure was implemented, whereby if the research opportunities identified were not being realised, following discussions with the client and CWaC, the archaeological monitoring was abandoned. The change management procedure is outlined below.

#### 4.3 Task 2- Intermittent Watching Brief (Reaches Two, Seven and Twelve)

4.3.1 Strategy: During groundworks, it was proposed to carry out an intermittent archaeological watching brief in areas of potential not covered by the continuous watching brief. During intermittent monitoring, an archaeologist made initial attendance at the commencement of groundworks of a reach. If, in liaison with CWaC, it could be demonstrated that there was no adverse impact to archaeological deposits with a reach or part of a reach, attendance was discontinued.

4.3.2 Where sheet piling encountered an obstruction (Reach Two) at a depth, and the client decided to undertake a facilitation trench, an archaeologist was on site to record any significant archaeological remains.

4.3.3 Machine Excavation: Excavation of flood wall construction trenches was initially conducted, if possible, with a toothless bucket under archaeological observation, with archaeologically significant areas then being defined for recording or limited hand excavation.

4.3.4 Spoil: Where practical and safe to do so, all spoil heaps were regularly examined for archaeological material.

4.3.5 Recording & Hand Excavation: All recording and excavation reflected the necessity of salvage recording during ongoing groundworks, with disruption to the main contractor kept to a minimum (for recording & excavation details see below).

4.3.6 Wherever possible the principal contractor ensured that a clean surface/section could be exposed and that the archaeologist would inspect the deposits revealed. Within Health & Safety constraints, the

principal contractor also afforded the archaeologist(s) time to clean surfaces/sections within construction trenches. There was no trafficking by vehicles on the exposed surface until the archaeologist had agreed that there are no archaeological deposits of significance.

4.3.7 Where limited excavation was required beyond that covered by the watching brief, this was covered by contingency provision.

4.3.8 Excavation of features attempted to establish their form, function and interrelationships. Priority was accorded to the following:

- features exhibiting optimum preservation
- structural remains
- potential environmental and industrial remains.

4.3.9 All recording & excavation was carried out as set within the minimum standards (Section 3.5).

4.3.10 In the absence of features, at a minimum a record (both written & photographic, with scale drawing where necessary) was made to reflect the stratigraphic sequence of deposits present, particularly alluvium and distinctions within made ground.

4.3.11 Reporting: Results of the recording were presented within an integrated report of the findings from all archaeological tasks conducted during the Northwich FRMS groundworks. During post excavation, the results were compared with other relevant Cheshire sites, in order to place the findings within their regional context.

4.3.12 Call off procedure: For Reaches 2, 7 and 12, a call off procedure was implemented, whereby if the

research opportunities identified were not being realised, following discussions with the client and CWaC, the archaeological monitoring was abandoned. The change management procedure is outlined below.

#### 4.4 Staffing

4.4.1 The appointed Archaeological Supplier was a Chartered Institute for Archaeologists (CIfA) Registered Archaeological Organisation (RAO) and the archaeologist responsible for managing the programme was a member of the CIfA preferably at MCIfA level.

4.4.2 For the Northwich Town Centre FRMS project, all archaeological works were undertaken by professional archaeologists employed by Trent and Peak Archaeology (RAO), the appointed Archaeological Contractor.

4.4.3 The watching brief was managed by Dr. Gareth Davies MCIfA, the attending archaeologists were: Thomas Linington & Thomas Hooley.

#### 4.5 Recording Methodology

4.5.1 The investigations were carried out in accordance with the guidelines of the CIfA Chartered Institute for Archaeologists (Standard and Guidance: for an archaeological watching brief published October 1994, revised September 2001 and October 2008).

4.5.2 Within the confines of site safety, contexts (the smallest usefully-definable unit of stratification) were cleaned by hand and recorded.

4.5.3 Investigation were sufficient to securely establish the character and where possible date, and stratigraphic relationship of features.

4.5.4 In the event that important archaeological remains were uncovered, the client's site representative was

informed immediately, with a proposal for the most effective measures for dealing with the remains.

4.5.5 Recording as a minimum included the location and extent of the monitored areas of excavation, their depth, and the deposits exposed, both by scale drawing (section and/or plan where applicable) and photographs.

4.5.6 Plans of all contexts including features were drawn on drafting film in pencil at a scale of 1:20 or 1:50, and showed at least:

- context numbers
- all colour and textural changes
- principal slopes represented as hachures
- levels expressed as O.D. values, or levelled to permanent features if benchmark absent
- sufficient details to locate the subject on a 1:500 plot of the area of ground-works and Ordnance Survey 1:2500 map (i.e. the national grid).

4.5.7 Sections showed the same information, but levelling information was given in the form of a datum line with O.D./arbitrary value; the locations of all sections were shown on the plan.

4.5.8 Photographs of each context were taken, together with general views illustrating the principal features of the excavations.

4.5.9 Written records were maintained as laid down in TPA recording manual (as formally accepted by many regional county archaeologists, copies available upon request).

## 4.6 Ecofact & Artefact Recovery

4.6.1 Artefact Recovery: All finds were assigned an individual finds code. In-situ finds were recorded three dimensionally, while finds from spoil were noted in relation to their location within the trench/stripped area. All finds were hand collected as recommended in "First aid for finds" (by the Archaeology section of the United Kingdom Institute for Conservation), specialist advice to the project archaeologist was provided by Alison Wilson (TPA).

## 4.7 Post Excavation Methodology and Report

4.7.1 Post–excavation Processing: All finds were stored as recommended in "First aid for finds" (by the Archaeology section of the United Kingdom Institute for Conservation), and marked with the site and find codes, and relevant accession numbers. These were deposited with the appropriate museum on completion of the report, subject to the provisions of the brief and the agreement of the client.

4.7.2 All finds were submitted for assessment to a TPA/YAT in-house specialist or specialists as advised by CWaC.

4.7.3 Archive: The archive was fully indexed and contain where relevant:

- copies of correspondence relating to fieldwork
- site notebooks/diaries
- original photographic records
- site drawings (plans, sections, elevations)
- original context records, matrix diagrams showing stratigraphic sequence of all contexts.
- artefacts

- original finds records
- original sample records
- original skeleton records
- computer discs and printout.

4.7.4 Archive and Finds Deposition: Initial contact with the appropriate museum was made before the commencement of fieldwork.

4.7.5 Where necessary the documentary archive was sent to the National Monument Record Office for copying.

4.7.6 Finds remained the property of the client with deposition to the relevant regional museum subject to their approval.

4.7.7 The paper and digital archive generated by TPA remained the property of the Unit until deposited within the appropriate public archive/museum.

4.7.8 CWaC and the museum curator were notified in writing on completion of fieldwork, with a proposed timetable for deposition of the archive. This was confirmed in the project report.

4.7.9 CWaC was informed in writing on final deposition of archive.

4.7.10 Report: A verbal report and where appropriate textual summary was provided to the client on completion of fieldwork.

4.7.11 A report on the results, whether positive or negative, was prepared in the appropriate format and presented to the client and the curator within 6 weeks of the completion of the fieldwork.

4.7.12 A final report on results was completed and copies provided to:

- the client
- the Environment Agency Archaeological Advisor for the EA Library
- CWAC for accession to the HER. This included a copy of the report in PDF format on CD along with indexed copies of all digital on site photography.

4.7.13 The report included:

- Non-technical summary
- Introductory statement
- Aims and purpose of the project
- Methodology
- An objective summary statement of results
- Conclusion
- Illustrations at appropriate scales, all to include levels tied to Ordnance Datum.
- Illustrative site photography, including key features and working shots
- Supporting data - tabulated or in appendices, including as a minimum a basic quantification of all artefacts, ecofacts and structural data including recommendations for retention/discard and proposals for conservation.



- Index to archive and details of archive location; confirmation of archive transfer arrangements including a provisional timetable for deposition.
- References
- A copy of the OASIS form.

4.7.14 Dissemination: In addition to the technical report the results of the archaeological investigations were to be published as a note or an article within the Journal of the Chester Society if warranted (subject to the results of the investigations and in agreement with the archaeological employer, the Environment Agency and the Planning Authority).

4.7.15 Copyright: Trent & Peak Archaeology retained full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved excepting that it hereby provided exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project, with no limitation on the number of times that the client may reproduce any report. The client's contribution was acknowledged in any future use of the work by TPA.

4.7.16 OASIS: Following completion of the fieldwork and permission from the client an OASIS online record was initiated (<http://ads.ahds.ac.uk/project/oasis/>). A copy of this document is included in this report.

## 4.8 Monitoring

The CWaC (namely the Development Control Archaeologist for the Cheshire Archaeology Planning Advisory Service) and the Environment Agency's Archaeological Advisor were given a minimum of one week's notice of the commencement of the watching brief, and TPA continued to liaise closely throughout the period of the works. The CWaC Development Control Archaeologist was free to visit the site to monitor fieldwork subject to access conditions imposed by the client and/or landowner, and adherence to relevant health and safety guidance.

4.8.1 TPA kept the client informed of all material facts of the archaeological investigations (a minimum of weekly updates). Changes to the approved methodology or programme of works, were agreed between the client, the **Environment Agency’s Archaeological Advisor** and CWAC.

#### 4.9 Change Management

4.9.1 Any alteration to the Project Design was undertaken by discussion with the Environment Agency, CWaC, the Client and TPA. Any change was primarily managed through the identified gateways, though at any time any of the above parties could propose ad hoc changes for discussion, acceptance and agreement by the client.

4.9.2 For Reaches 1, 2, 3, 7 and 12, a call off procedure was implemented, whereby if the opportunities identified were not being realised the archaeological monitoring was abandoned. The procedure was as follows:

- The TPA archaeologist on site contacted the TPA Project Manager
- The TPA manager contacted the client to appraise them of the situation
- Following client approval, the TPA Project Manager contacted the CWaC Development Control Archaeologist and, if advised to do so, the Environment Agency Archaeological Advisor.
- The CWaC Development Control Archaeologist and/or the Environment Agency Archaeological Advisor accepted a course of action

- The TPA Project Manager updated the client and the TPA archaeologist on site who followed the recommended course of action.

4.9.3 For Reaches 2, 7 and 12, if shallowly buried archaeological deposits were identified during intermittent attendance, a further change control mechanism was implemented to enable continuous archaeological attendance to commence. The procedure was as follows:

- The TPA archaeologist on site contacted the TPA Project Manager
- The TPA manager contacted the client to appraise them of the situation
- Following client approval, the TPA Project Manager contacted the CWaC Development Control Archaeologist and, if advised to do so, the Environment Agency Archaeological Advisor.
- The CWaC Development Control Archaeologist and/or the Environment Agency Archaeological Advisor approved a course of action
- The TPA Project Manager updated the client and the TPA archaeologist on site who will follow the recommended course of action.

4.9.4 Where significant unexpected archaeological remains were encountered or further archaeological excavation works were required beyond that covered by the watching brief, this was covered by a contingency provision. In such an instance the procedure was as follows:

- No additional works were conducted until a strategy of mitigation had been agreed between all parties.
- The TPA manager firstly contacted the client to appraise them of the situation anticipated
- Following client approval, the TPA Project Manager contacted the CWaC Development Control Archaeologist and, if advised to do so, the Environment Agency Archaeological Advisor.
- The CWaC Development Control Archaeologist and/or the Environment Agency Archaeological Advisor approved a course of action, potentially following a site meeting between all parties

The TPA Project Manager updated the TPA archaeologist on site who followed the recommended course of action and/or made appropriate staffing arrangements

#### 4.10 Reporting

4.10.1 The reporting procedure was as follows:

- Once monitoring had been completed within each reach a Technical Memorandum was prepared by the TPA Project Manager, approved by GBV JV Ltd and submitted to the EA Archaeologist/NEAS and CWaC Archaeologist/Planning for their information.

- Any significant finds were reported to the TPA project manager immediately who informed GBV and then update the EA Archaeologist/NEAS and CWaC Archaeologist/Planning with a view to on-site monitoring.



## 5 Results

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### 5.1 Introduction

5.1.1 An outline narrative of the results of the archaeological monitoring during the ground works is presented below. The locations of all work areas are shown on Figures 4-11 and are accompanied by a full list of contexts within Appendix 1.

### 5.2 Reach One

5.2.1 The initial excavation in Reach One took place in the southernmost tip of the area adjacent to Whalley Road; this comprised a large grassed space next to the River Dane. A full strip was undertaken of the area (Figures 4 & 6) in preparation for a large bund to be constructed.

5.2.2 Previous ground investigations to the north of Reach One by Trent and Peak Archaeology, exposed a brick surface at a depth of 0.5m BGL. This coupled with the land use survey of the 1877 and 1910 OS maps indicating that the Barons Quay Saltworks were within the vicinity, indicated the potential for industrial archaeology to be present in the strip.

5.2.3 The strip consisted of the topsoil being removed to a depth of c.0.1m. For the majority of the strip, this meant that the base of the excavation did not impact beyond the topsoil (1001), consisting of a dark black non friable sandy-silt; this resulted in no archaeological remains being exposed (Plate 1).

5.2.4 Where the strip impacted beyond the topsoil, a made ground deposit (1002) was observed. This was only in a few isolated patches across the entire stripped area. This material consisted of redeposited orange/red clay with inclusions of modern 20th century demolition and objects such as plastics and cans (Plates 2 and 3).

5.2.5 No archaeology was observed during the topsoil strip of Reach One. The small amount of subsoil that was observed, indicated that the area had been built up in the second half of the 20<sup>th</sup> century, to create the large green space present today.

5.2.6 In the northern extent of Reach One, a single linear trench, measuring 65m x 2m x 0.8m and aligned east-west, was excavated for the construction of the floodwall. Below a layer of tarmac (1003) and hardcore (1004), c 0.3m deep, was a layer of late 19<sup>th</sup>/early 20<sup>th</sup> century made ground (1005). This sealed a probably 19th century buried soil, which extended beyond the depth of the excavation (Plate 25). No archaeology was observed within the trench.

5.2.7 This linear trench was then extended to c15m x10m excavation abutting the public footbridge. This was excavated to a depth of 0.8m with no archaeology present. A single deposit (1005) was observed and was unchanged from what was previously seen in the adjacent trench.

### 5.3 Reach Two

5.3.1 Parallel with the River Dane and the A559, the archaeological investigations for Reach Two were split into two sections, spanning 50m in length east from the A553 bridge towards the Watling Street Medical Centre (Figures 5 & 7).

5.3.2 The first section observed was a 20m strip from the A553 Bridge, east along the Dane. The removal of the tarmac and hardcore (2005) down to a depth of c.0.4m exposed the concrete foundations of the existing flood defences (Plate 6).

5.3.3 The second area of Reach Two was a c.30 m section, stretching east towards the Watling Street Medical

Centre. The removal of the footpath revealed several deposits of modern made ground to a depth of 1m. A 0.1m deep black topsoil (2001) sealed a .01m deep deposit of hardcore (2002), to a depth of 0.2m BGL. Underlying this was a layer of orange sand 0.2m thick (2003) sealing an asbestos contaminated jet black layer of rubble and hardcore (2004), which extended to the limit of the excavations at 1m BGL. (Plates 5,7,8,9)

5.3.4 Due to the presence of the asbestos contaminated ground, these layers were not recorded in detail. However it was clear due to the remodelling of the bank with the industrial waste and made ground, that no archaeology was present in the area.

5.3.5 Within the entirety Reach Two no archaeology was observed. The extensive remodelling of the bank of the Dane and construction of previous flood defences, had removed any possible archaeology, to a depth of at least 1m BGL.

#### 5.4 Reach Three

5.4.1 Lying to the north of Town Bridge on the eastern bank of the river Weaver, Reach Three ran for c130m. (Figures 5 & 8)

5.4.2 Following the removal of the overlying concrete and tarmac, which made up the road surface (0001) and underlying angular white stone fragments (0002), a demolition deposit, made up of mid-grey silty-sand with frequent brick fragments was observed (0003). These materials extended to a depth of between 0.30m and 0.65m BGL. Two structures were observed beneath the demolition layer (discussed below), which cut into a black clinker and loose brown gravel layer (3024) (which extended to and beyond the limit of the excavation (up to 1.2m BGL).



### Structure One

(Context Numbers 3004, 3005, 3006, 3007, 3008, 3012, 3013, 3014, 3015 and [3023])

5.4.3 This first structure was observed at the northern end of Reach Three (Figures 9 & 10) and consisted of a north-south aligned brick wall (3015) (Plate 13), fronting onto the River Weaver, which survived 4 courses wide and at least 5 courses high (it extends beyond the excavated depth). Bonded to this wall were 2 east-west aligned walls (3005 and 3007 (same as 3008) (Plates 11 & 14), these walls were 2 courses wide and survived to a height of at least 6 courses (they extended beyond the excavated depth).

5.4.4 These walls were cutting into the clinker and gravel deposit (3024), along with two concrete blocks (3012) and (3013), which were attached to the wall (3015) by steel rods. These probably acted as counterweights to allow boats/barges to moor alongside the structure. The area to the east of (3015) and between (3007) and (3005) was backfilled with a black clinker deposit (3014), over which two distinct brick surfaces were laid (3004) and (3006) (Plate 12).

5.4.5 This group of walls, surfaces and concrete blocks, probably formed a quayside structure, while no dateable material was recovered from the construction backfill (3014), map regression could suggest that this structure could be the northern one of the structures shown on the 1880s and 1910s OS maps (Figures 12 & 13). It was probably contemporary with Structure Two.

### Structure Two

(Context Numbers 3018, 3019, 3020, 3021, [3022], 3025 and 3026)

5.4.6 This second structure was observed ca 2m to the south of structure one within Reach Three (Figures 9 & 10) and consisted of a north-south aligned brick wall

(3020) fronting onto the River Weaver, and three east-west aligned walls bonded to said wall (3018, 3019 and 3021). Wall (3020) was up to three courses wide and survived to a height of at least 5 courses, walls (3018) and (3019) were also 3 courses wide and survived 5 courses high, whereas (3021) was two courses and survived to a height of 5 courses (Plates 71 & 18).

5.4.7 All 4 walls were cut into the underlying clinker deposit (3024). The northern, and southern ends, as well as a central stretch of (3020) extended beyond the formation level of our trench. These deeper sections probably acted as reinforced foundations along the riverside. A further two concrete blocks (3026) were also cut into the clinker and gravel (3024). A backfill deposit of black clinker and brick rubble (3025) was observed sealing the concrete blocks and within the area enclosed by the walls observed, a number of late 19<sup>th</sup>/early 20<sup>th</sup> century finds were recovered from this deposit. No surfaces were observed within this structure.

5.4.8 This structure was most likely a similar structure as Structure One, a small quayside building dating to the late 19<sup>th</sup> century, with the concrete blocks acting as counterweights to mooring points along the riverside.

5.4.9 As the excavation progressed South towards Town Bridge, the width of the excavation narrowed and stepped up to 0.5m BGL, and no archaeology was observed. This was due to a combination of factors of the narrowing of the window of opportunity to view archaeology and that there were large voids present underneath the rubble and hardcore.

5.4.10 During the works, there was potential impact on some of the nationally and locally listed buildings at the

southern extent of Reach Three, namely the Grade II listed post-medieval swing bridge (Town Bridge) and Control Room (SJ 67 & SE 45, respectively) and the locally listed the 1-3 High Street. Following monitoring by the attending archaeologist, no negative impact upon these structures was observed.

5.4.11 An extension to the proposed plan of works directly to the north of Structure One was undertaken to move a manhole (Figure 4) (Plate 24). This was excavated to a depth of 0.5m BGL and consisted of two deposits. Below the tarmac was a layer of hardcore (3028) 0.2m in depth, sealing a rubble layer of red brick 0.3m in depth (3029). No archaeology was present in this area of the strip, however the high levels of demolition show that buildings were present in the area and had demolished in antiquity.

## 5.5 Reach Seven

5.5.1 Reach Seven, was stripped in two distinct phases. The initial phase (Plate 26) consisted of a 1.5m wide and 50m long section of trench aligned east-west along the southern bank of the River Dane. The works comprised the removal of a 0.1m thick topsoil (7001) down onto the existing concrete flood defences (7002).

5.5.2 The second phase of the strip (Plate 27) consisted of a north-south aligned, up to 3m wide trench. Following the removal of the 0.45m deep topsoil (0701), a series of 20<sup>th</sup> century made ground deposits (0703), consisting of brick rubble and builders sand, were observed to the depth of 1.10m BGL.

5.5.3 No archaeology was observed throughout Reach Seven, due to the extensive late 20<sup>th</sup> century truncation relating to earlier flood defence works and the

**construction of an old people's home just to the south of the River Dane.**

## 5.6 Reach Twelve

5.6.1 The area of Reach Twelve, directly to the South of Town Bridge, consisted of only two deposits (Figures 5 & 8). The topsoil (12001) was a loose, black non friable deposit. This extended to a depth of 0.4m BGL and appeared to be imported topsoil due to its highly organic appearance. This material sealed a demolition layer (12002), which extended to a depth of 0.7m BGL and consisted of mixed orange /brown angular stone fragments.

5.6.2 No archaeology was observed in this section of Reach Twelve that met the research priorities/agendas that were agreed to and part of this report delivery. This section was an area of made ground, raised up from the tow path to create a flat grassed area. This can be seen in Plate 23, showing the area re-instated following completion of the work, and may one day be considered a part of the built historic landscape of the C20th and C21st.

## 6 Conclusion

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6.1.1 Over the five monitored reaches of the Northwich Town Centre Flood Risk Management Scheme, only Reach Three revealed any seemingly significant structural archaeological remains.

6.1.2 The structures observed within the northern part Reach Three, were interpreted as late 19<sup>th</sup> century quayside structures, possibility relating to the loading and unloading of goods along the River Weaver. The concrete blocks observed as part of both structures, most likely represented counterweights to allow boats to be moored alongside the structures, thus facilitating

the loading of the boats from the nearby town centre. The size and weight of these counterweights may be able to suggest the size and weight of the goods being loaded and unloaded at this point, thereby providing a better understanding of 19th century trade along the River Weaver.

6.1.3 The material built up around these structures was characteristic of the industrial made ground throughout the town used to reclaim areas previously lost due to subsidence, related to the extensive earlier salt extraction. In this case, the material was most likely also used to realign the River Weaver to facilitate the construction of the quayside structures noted above.

6.1.4 The presence of these remains along the bank of the River Weaver were evidence that some structural elements were still present within the disturbed made ground deposits, observed across Northwich by both Trent & Peak Archaeology and Liverpool Museum Archaeological Services.

6.1.5 The lack of any similar structures surviving to within the southern parts of Reach Three was probably due to a greater truncation during the 20<sup>th</sup> century remodelling of the town centre and quayside, in this part of the Reach.

6.1.6 Within the western part of Reach One, the 19<sup>th</sup> century riverbank was observed, which was sealed by late 19<sup>th</sup>/early 20<sup>th</sup> century deposits.

6.1.7 These made ground deposits were characteristic of the deposits observed during previous archaeological works throughout Northwich (by The Museum of Liverpool, Oxford Archaeology and Trent and Peak Archaeology), and were interpreted to be a deliberate reclamation of the land throughout the 18<sup>th</sup>, 19<sup>th</sup> and

20<sup>th</sup> centuries. It was suggested by Adams that the made ground throughout the town could be related to the infilling following subsistence, or the deliberate reclamation along the riverbanks, possibly related to the construction of quaysides (Adams 2014).

6.1.8 The deposits observed within the northern parts Reach One allowed the expansion of the deposit model put forward by Adams up to the banks of the Rivers Dane. Due to the limited nature of the intervention, it was not possible to determine whether said deposits were related to either the infilling along the riverbank, or the demolition of the Croft Salt Works to the immediate north of Reach One.

6.1.9 During the works by Oxford Archaeology around the site of the former Magistrates Court in 2014 (Mottershead 2013), a number of 19<sup>th</sup> century building relating to the former Croft Sat Works were recorded just to the north of Reach One. Unfortunately no such buildings survived close to the river bank, possibly due to them terminating prior to reaching the close proximity of the River Dane, and as such terminating prior to Reach One.

6.1.10 Within Reaches 2, 12 and 7 late 20<sup>th</sup> century activity had truncated any archaeological horizons, making it impossible to draw any further conclusions on the medieval and post-medieval activity along these parts of the Rivers Weaver and Dane.

6.1.11 The findings of the watching brief continued previous suggestions of the localised survival of fragmentary archaeological remains relating to the 18<sup>th</sup>, 19<sup>th</sup> and early 20<sup>th</sup> century industrial heritage of Northwich.

6.1.12 It was impossible to determine whether earlier remains survived the 19th and 20th century activity, due to the limited depth of the interventions. But it had **been suggested that “any deposits of these dates (medieval or earlier) in the area which may once have existed are likely to have been severely impacted by subsidence resulting from later brine extraction and later infilling” (Adams 2014).**

6.1.13 Overall the watching brief did allow for a greater understanding of the overall 19<sup>th</sup> and 20<sup>th</sup> century deposits along the Rivers Dane and Weaver, and reaffirmed conclusions drawn by the previous archaeological works.

6.1.14 Although the watching brief ultimately only provided new information concerning 18<sup>th</sup>-19<sup>th</sup> century historically mapped features, such as the counterweights, the purpose was to mitigate and report, rather than dig and discover. Because the archaeological record is finite and not unquestionably predictable, the watching brief was an entirely appropriate methodology. Indeed, as this work did not observe natural substrate in many areas (at least within the historic core of Northwich) the watching brief provided valuable insight into the high potential for archaeological monitoring of future deep interventions in Northwich to test the presence of pre-industrial theoretical archaeological (e.g. those assertions made by Adams 2014)





## 7 BIBLIOGRAPHY

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Mottershead, G. (2013) Former Magistrates' Court, Brockhurst Street, Northwich, Cheshire West; Oxford Archaeology North

## Plates

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Plate 1: Topsoil strip, Reach One



Plate 2: Topsoil strip, Reach One



Plate 3: Topsoil strip, Reach One



Plate 4: Representative section, Reach Two



Plate 5: Representative section and location shot, Reach Two



Plate 6: Concrete footings, section 2, Reach Two



Plate 7: Excavated trench, section 2 looking east, Reach Two



Plate 8: Representative section, Reach Two



Plate 9: Excavated trench, section 2 looking west, Reach Two



Plate 10: Feature 3004, Reach Three



Plate 11: Feature 3008, Reach Three



Plate 12: Brick surface, Reach Three



Plate 13: Feature 3015, Reach Three at formation





Plate 14: Feature 3007, Reach Three at formation



Plate 15: Feature 3016, Reach Three



Plate 16: Feature 3019, Reach Three



Plate 17: Brick structure (3018, 3019, 3020, 3021), Reach Three



Plate 18: Footings, Reach Three at formation

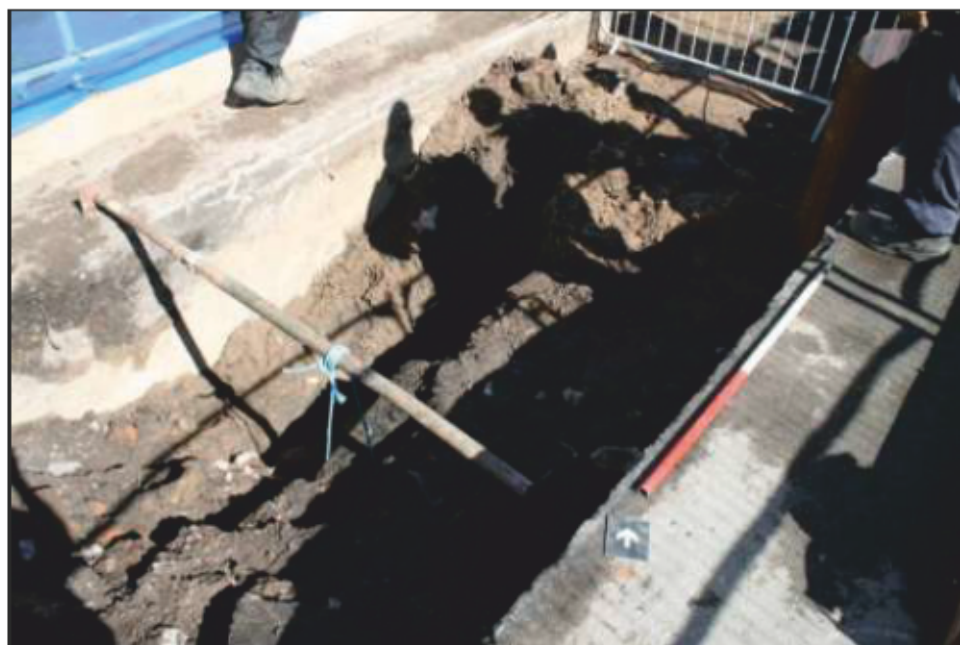


Plate 19: Modern rubble and void, Reach Three



Plate 20: Slabs removed just north of Town Bridge, Reach Three



Plate 21: Representative section of Reach Twelve



Plate 22: Reach Twelve, at formation looking south-east



Plate 23: General shot of Reach Twelve upon reinstatement



Plate 24: Extension of Reach Three for manhole



Plate 25: Section from the northern extent of Reach One



Plate 26: Northern Section of Reach One



Plate 27: First phase of Reach Seven, looking north-west



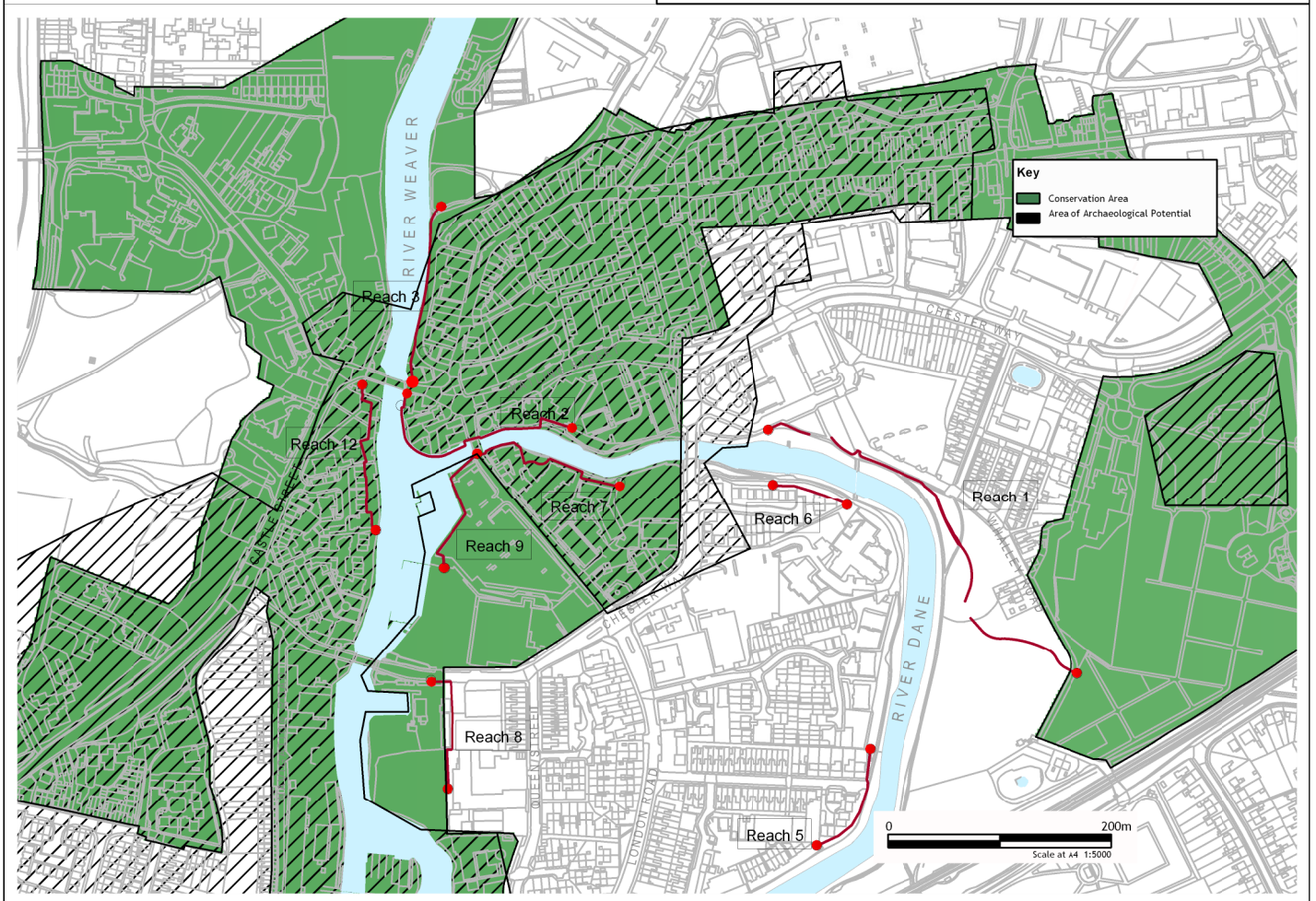
Plate 28: Second phase of Reach Seven, looking north-west



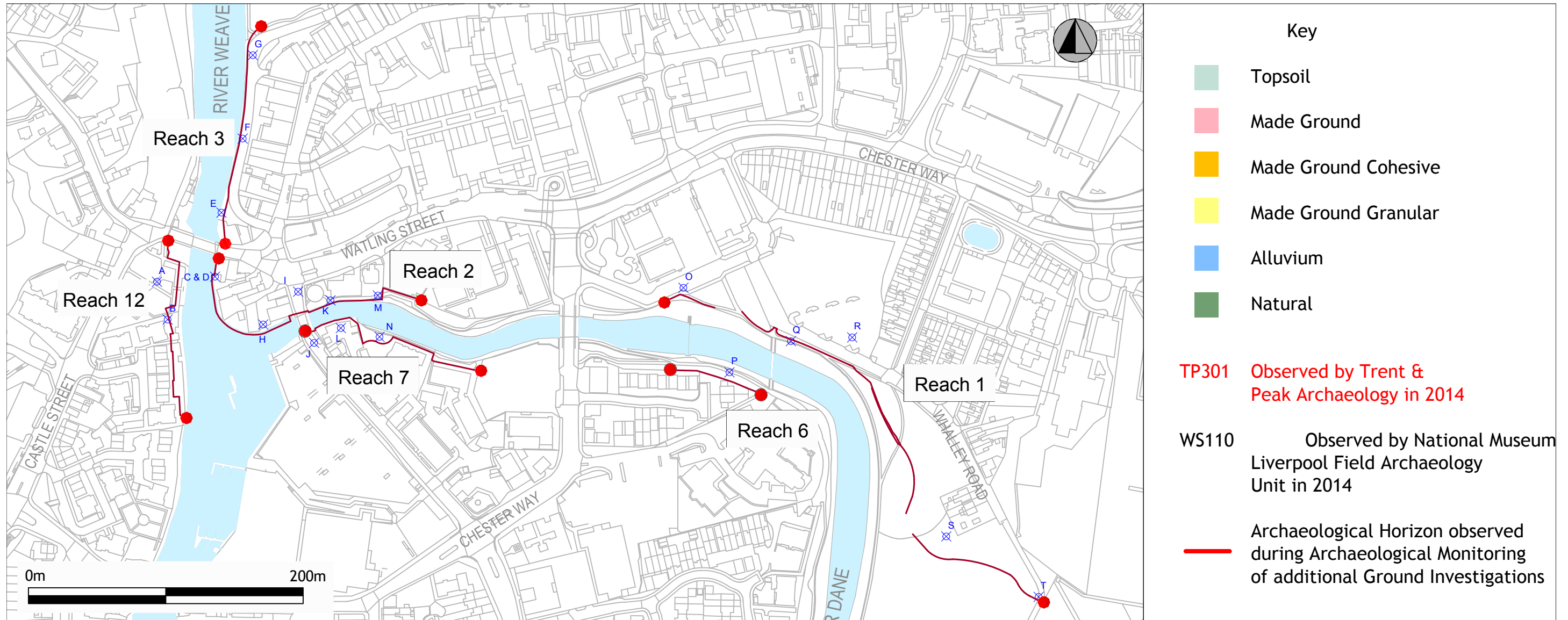
## Figures


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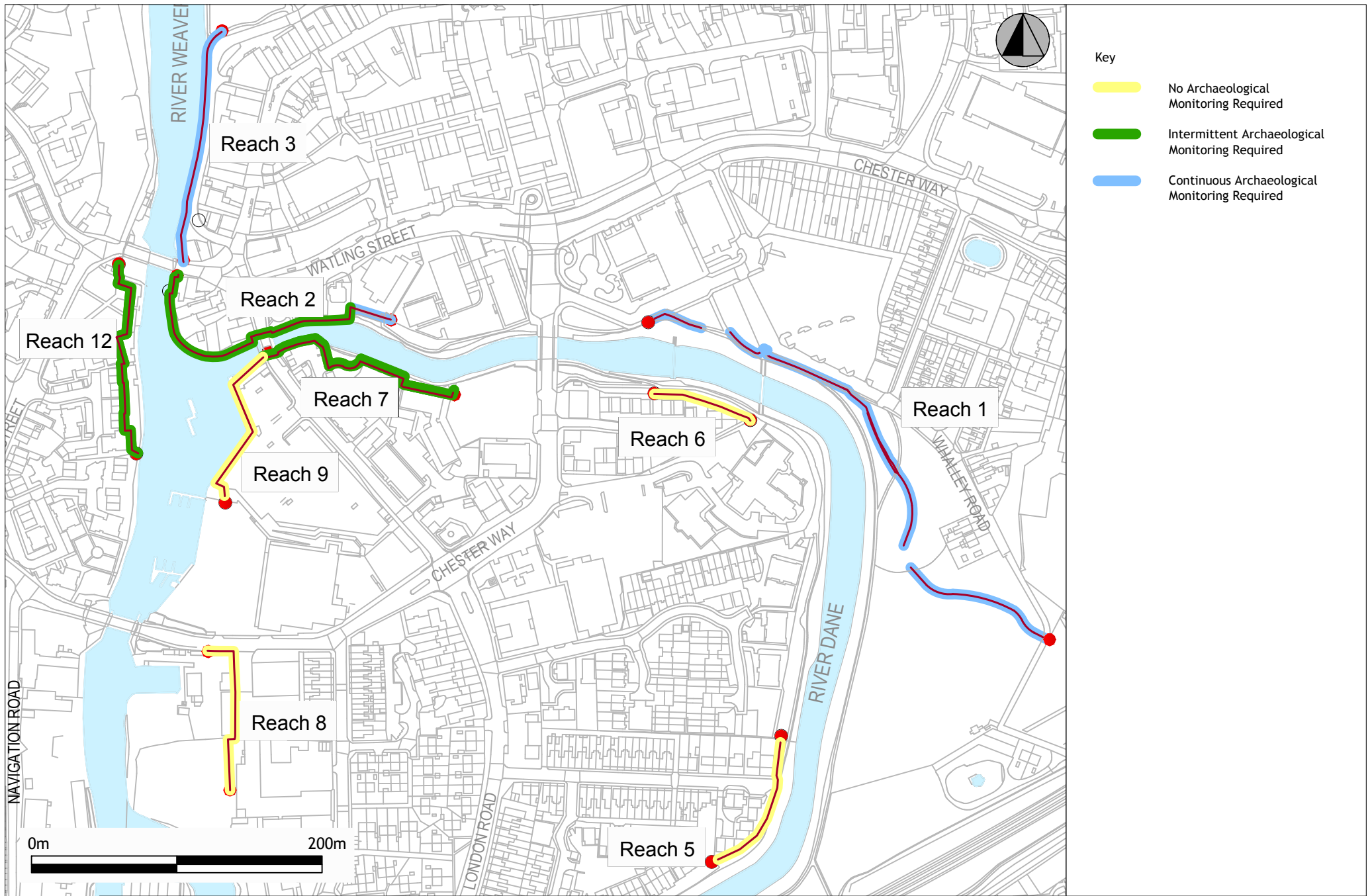


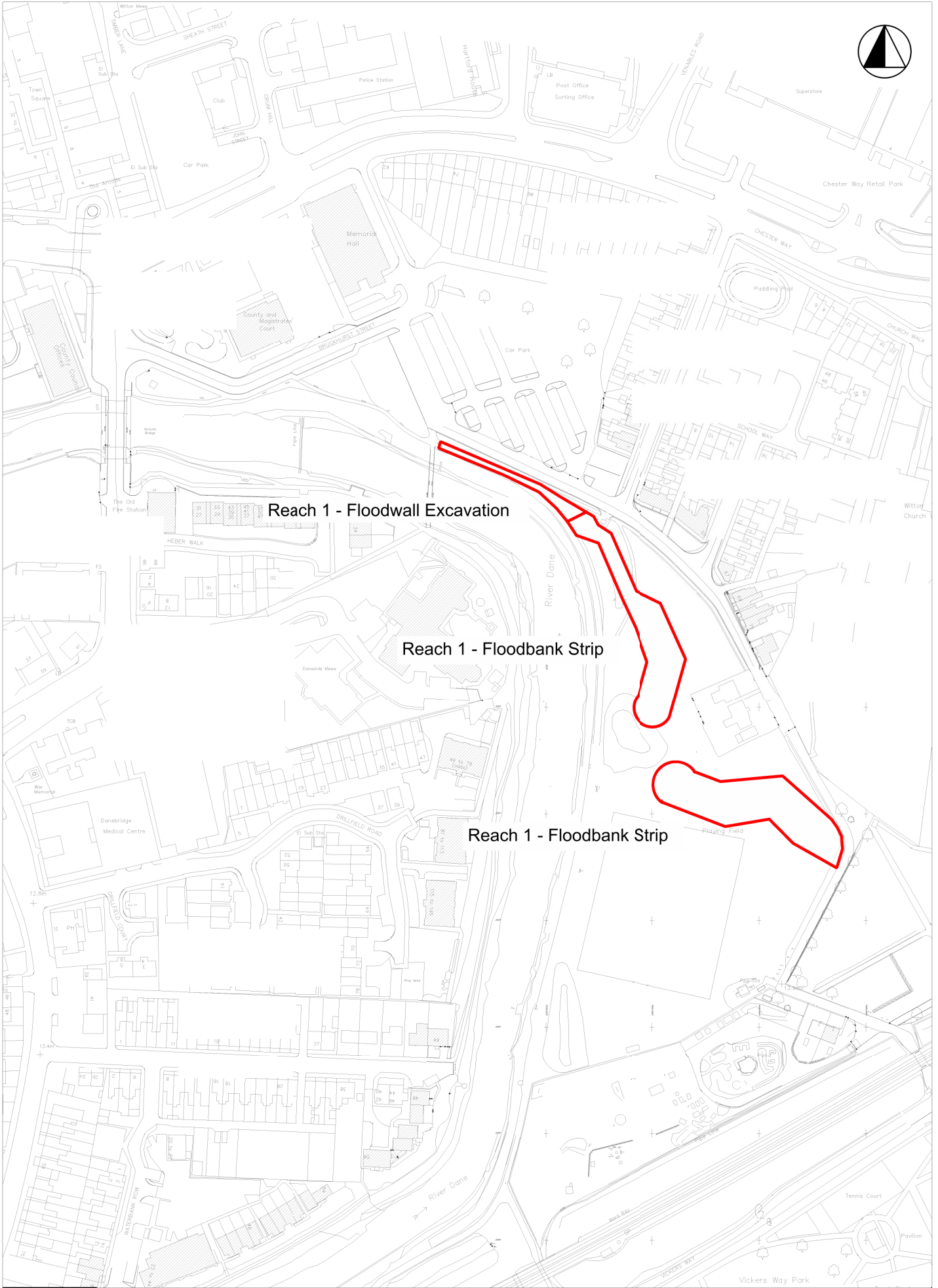


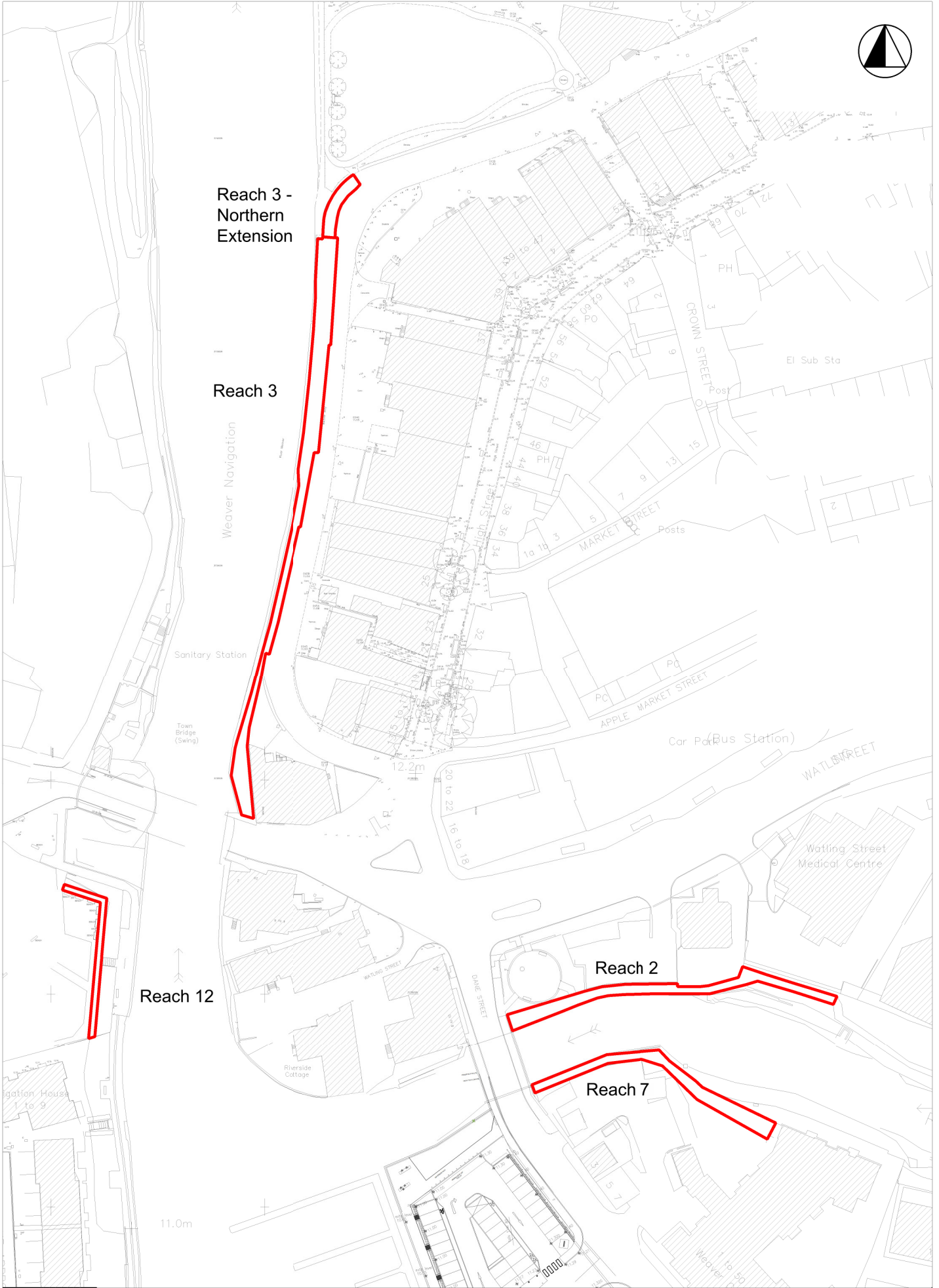
**tp** Figure 1: Northwich Town FRMS, Location Map  
 Scale 1:500 at A4  
 (Ordnance Survey map reproduced with the permission of Her Majesty's Stationery Office © Crown Copyright Licence No. AL 100020618).




**Figure 2: Northwich Town Centre FRMS**  
 Plan showing deposit model of the site (derived from Adams 2014 and Linington 2014)







Reach 3 -  
Northern  
Extension

Reach 3

Sanitary Station

Town  
Bridge  
(Swing)

Reach 12

11.0m

Reach 2

Reach 7







Plate 6



Plate 9



Plate 8



Plate 7



Plate 26



Plate 27



Plate 24

Reach 3 -  
Northern  
Extension



Plate 10



Plate 17



Plate 15



Plate 13



Plate 20

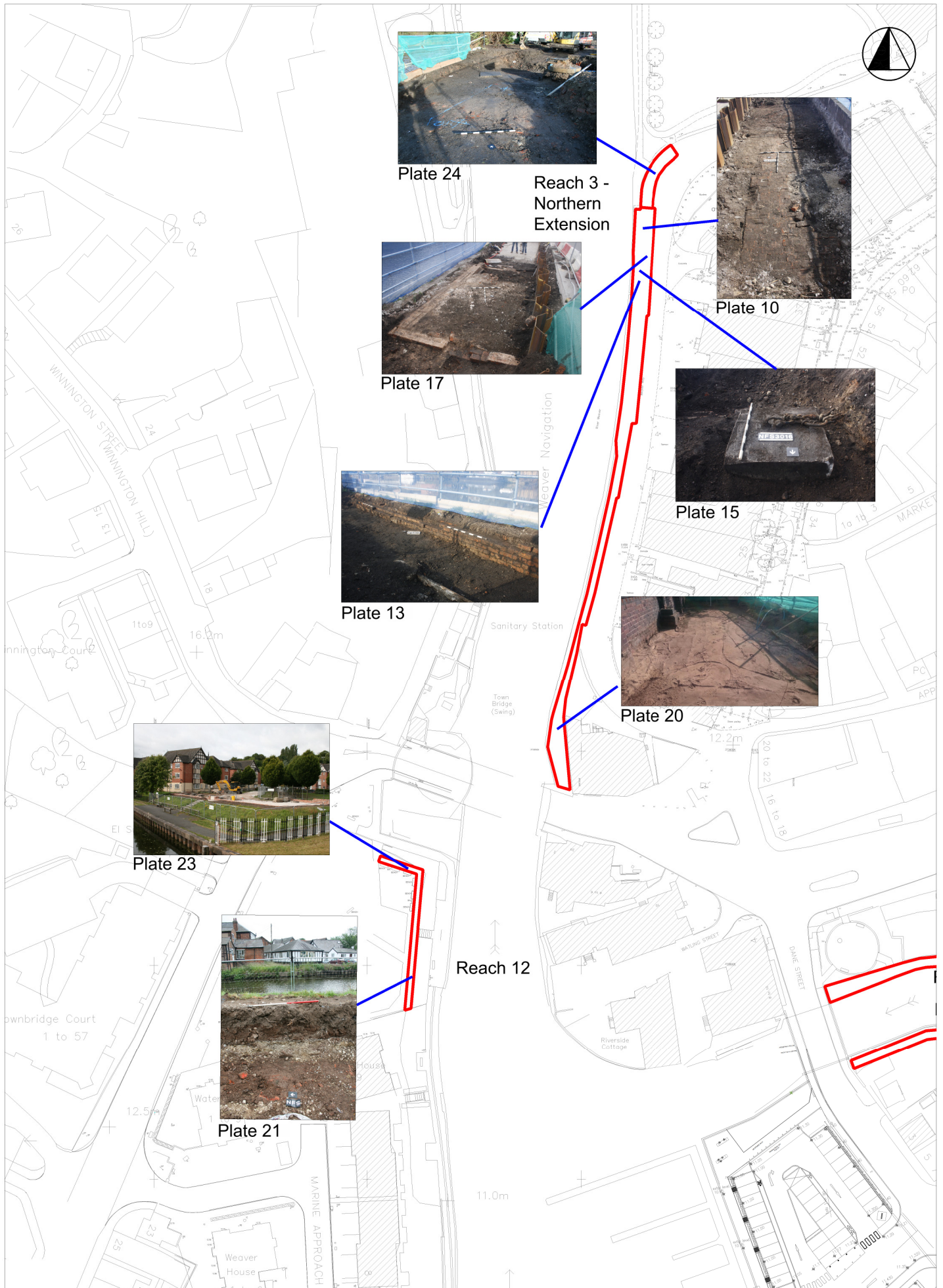


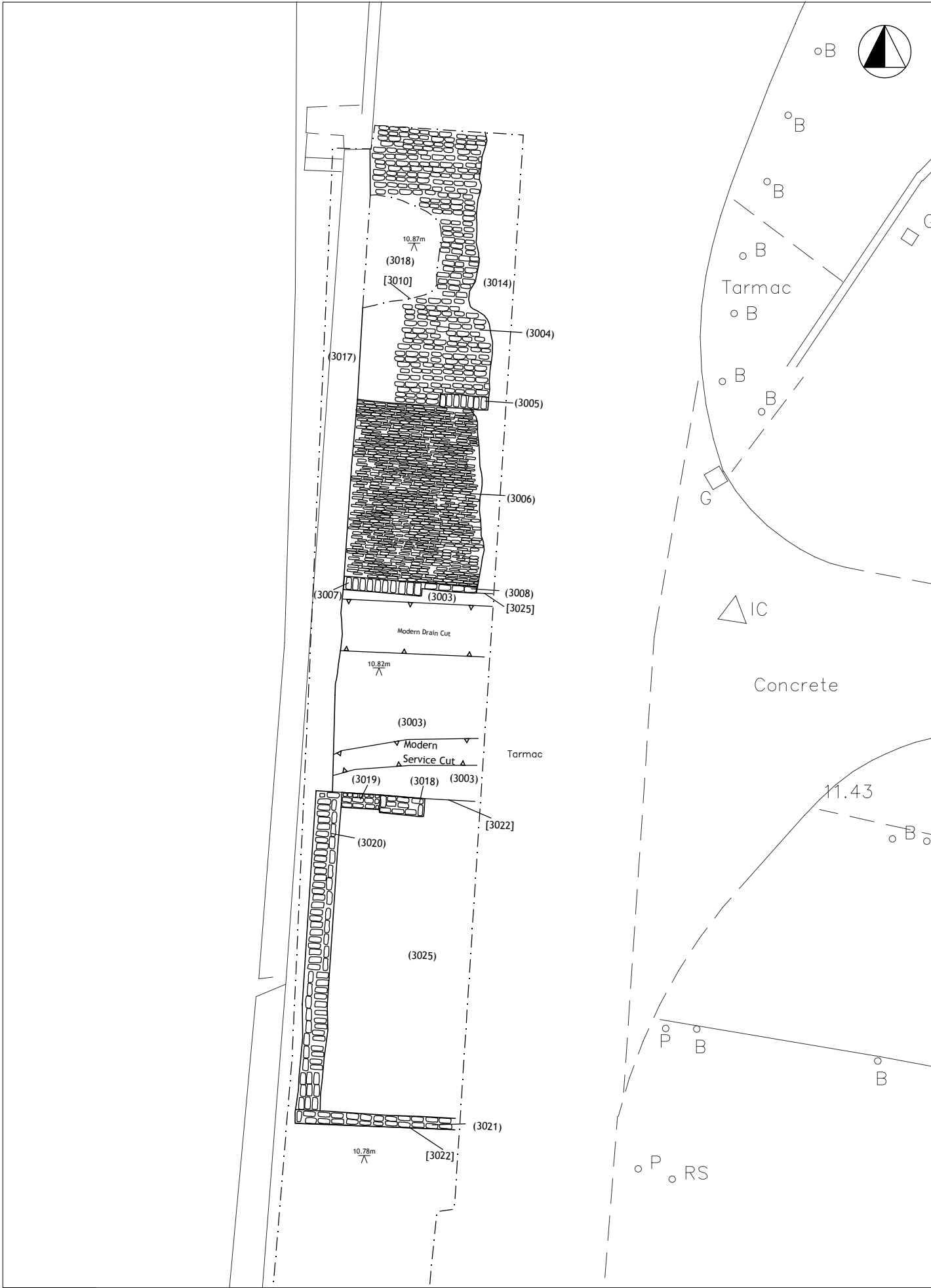
Plate 23

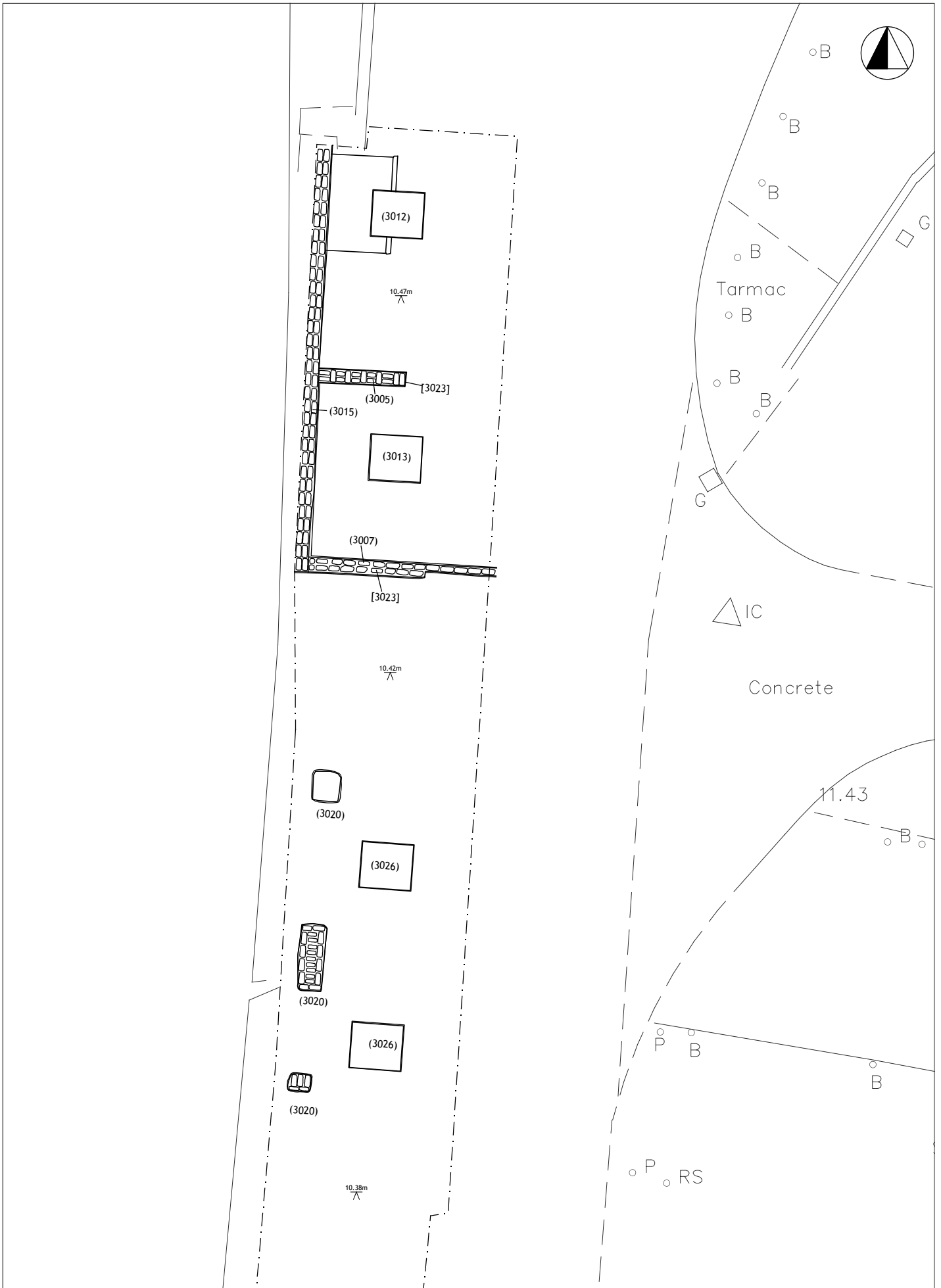


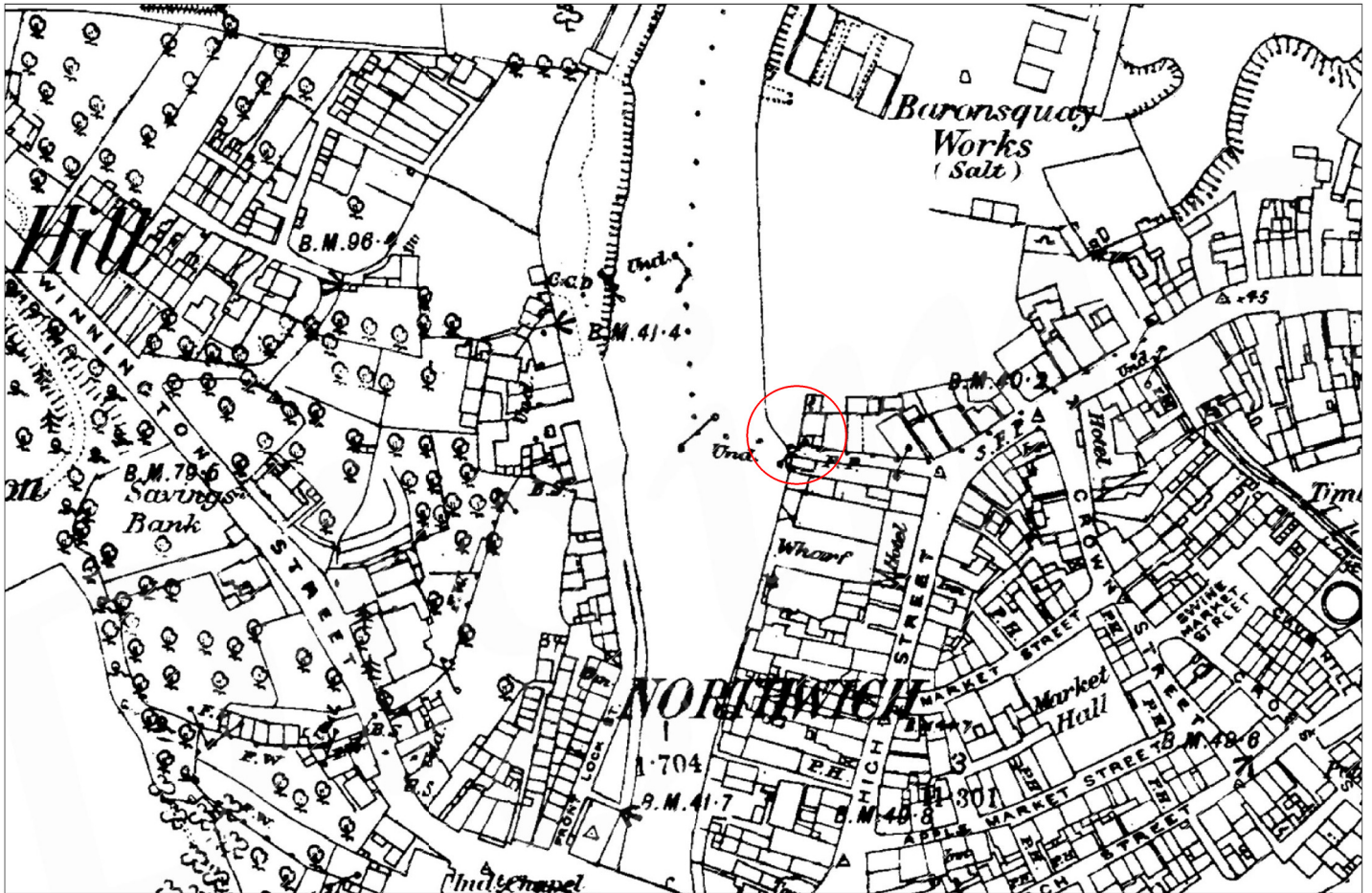
Plate 21


Reach 12

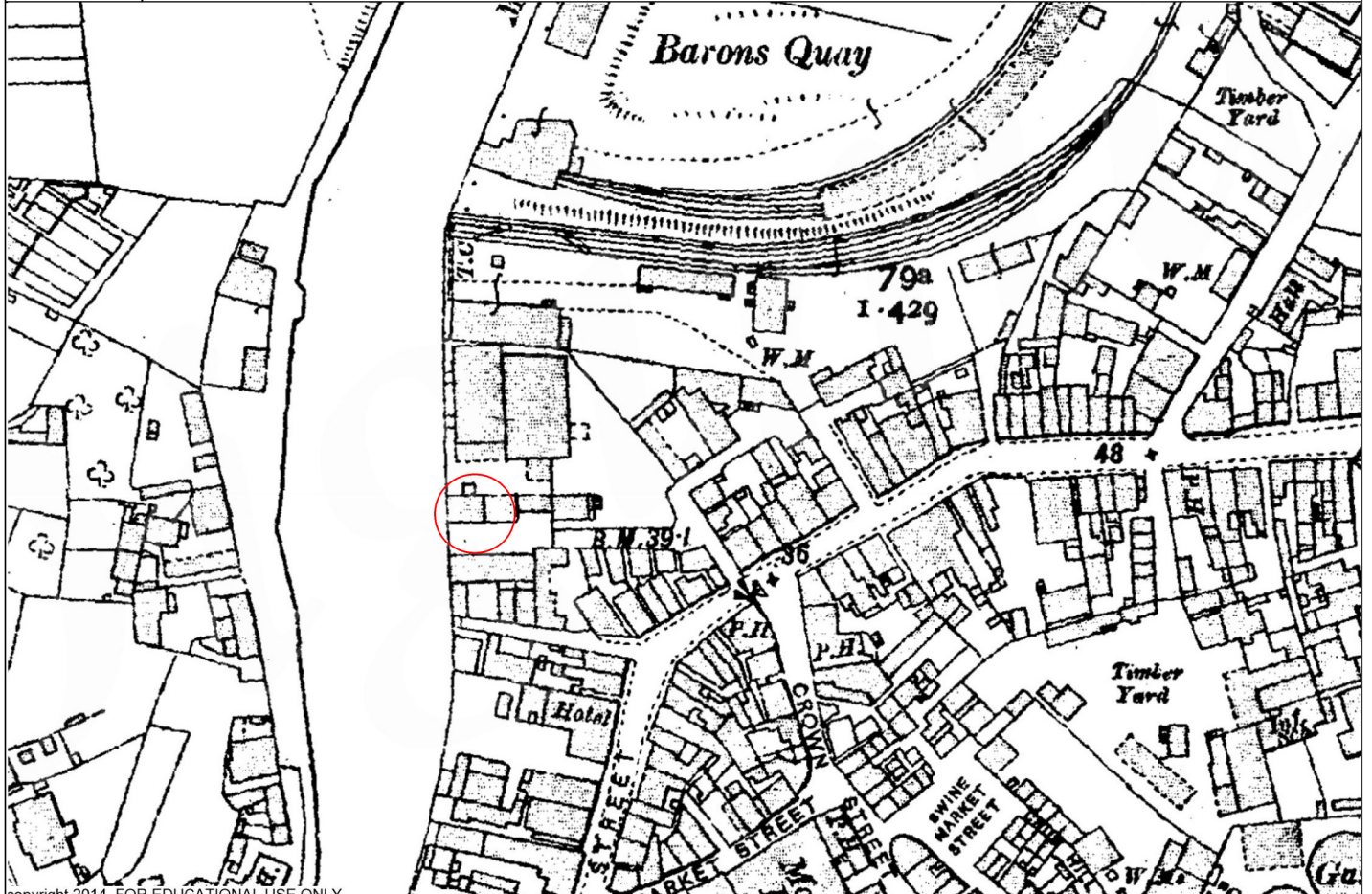










 NFS2  
 Figure 11  
 Northwich Flood Alleviation Scheme  
 1880 OS Map showing approximate location of Structures within Reach 3  
 Initials:TL




 NFS2  
 Figure 12  
 Northwich Flood Alleviation Scheme  
 1910 OS Map showing approximate location of Structures within Reach 3  
 Initials:TL

## Appendix 1- Index of Archive and Arrangements for Deposition

<b>Field Records</b>	<b>Description</b>	<b>Number</b>
Watching Brief Record Sheets	Record of the Watching Brief	27
Context Sheets	Record of Individual Contexts	43
Drawing Sheets	Drawings of Archaeological Features	3
Registers	Registers of Drawings & Photos	3
Digital Photographs	All views	204
<b>Documents</b>		
<b>Documents</b>	<b>Description</b>	<b>Number</b>
Written scheme of investigation	Statement of the aims, objectives and methodology for the project.	1
Health & Safety	Safe working statement & risk assessment	1
Report to client	Report of findings of the watching brief.	1

The archive is currently held in the offices of Trent & Peak Archaeology, Unit 1, Holly Lane, Chilwell, Nottingham, NG9 4AB. It will be deposited at an appropriate museum upon approval of this report.

## Appendix 2 – Context List

Context Number	Context Type	Description
1001	Layer	Topsoil
1002	Layer	Subsoil
1003	Layer	Tarmac
1004	Layer	Hardcore
1005	Layer	Made Ground/Demolition
1006	Layer	Buried Soil
2001	Layer	Topsoil
2002	Layer	Hardcore
2003	Layer	Sand
2004	Layer	Sand
2005	Layer	Concrete/Hardcore
3001	Layer	Tarmac & Concrete
3002	Layer	Hardcore
3003	Layer	Demolition Deposit
3004	Surface	Brick Surface
3005	Wall	Brick Wall
3006	Surface	Brick Surface
3007	Wall	Brick Wall
3008	Wall	Brick Wall
3009	Fill	Trialhole Backfill
3010	Cut	Trialhole Cut
3011	VOID	VOID
3012	Structure	Machine Base
3013	Structure	Machine Base
3014	Layer	Clinker

3015	Wall	Brick Wall
3016	Structure	Concrete Block & Chain
3017	Structure	Concrete River Wall
3018	Wall	Brick Wall
3019	Wall	Brick Wall
3020	Wall	Brick Wall
3021	Wall	Brick Wall
3022	Cut	Construction Cut for Structure
3023	Cut	Construction Cut for Structure
3024	Layer	Clinker & Gravel Layer
3025	Deposit	Made Ground
3026	Deposit	Concrete Block
3027	Structure	Anchor Point
7001	Layer	Topsoil
7002	Structure	Concrete Flood Defences
7003	Layer	Made Ground
12001	Layer	Topsoil
12002	Layer	Made Ground



## Appendix 3 – Written Scheme of Investigation

### 1. PROJECT BACKGROUND

#### Introduction

Trent & Peak Archaeology has been commissioned by Galliford Try/Black & Veatch Joint Venture (GBV JV Ltd) to produce a Project Design and Written Scheme of Investigation which, once agreed to and then adhered to, will mitigate the impact of the Northwich Town Centre Flood Risk Management Scheme (FRMS) on any significant archaeology discovered during excavations. The scheme is situated within Northwich Town Centre in the vicinity of the River Dane and River Weaver and consists of 9 proposed areas of flood defences (reaches) (see Figure 1). The development will involve the construction of flood walls, a flood embankment and minor ground raising, flood gates, demountable defences, structural flood proofing of properties and floating marginal vegetation.

*Location:* The proposed development area can be approximately centred on the OS grid reference of SJ 65922 73577. The corridor of works begins at Whalley Road, following the course of the River Dane to the north-west until its confluence with the River Weaver. The flood defence works continue to the immediate north and south along the River Weaver. Reaches 2, 3, 7 and 12 lie within a defined Area of Archaeological Potential. These, with the addition of Reaches 8 and 9, also lie within a council designated Conservation Area (Figure 1).

*Geology and Topography:* The underlying geology of the majority of the proposed development area PDA is defined as Northwich Halite Member; a halite-stone and mudstone sedimentary bedrock. This is overlain in places by superficial alluvial deposits of clay, silt, sand and gravel. The overlying superficial soils comprise free draining floodplain soils to the south-east of the PDA, which are loamy in texture. To the north, free draining floodplain soils with naturally high groundwater and to the west, slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils ([www.landis.org.uk/soilscapes](http://www.landis.org.uk/soilscapes)). The deposits already observed in the scheme area are modelled in Figure 2. This demonstrates that horizons of potential archaeological significance are present within superficial 'made ground' at a depth of less than 0.5m below ground level (BGL) or, alternatively, buried beneath alluvial deposits at a depth of 3-7m BGL. Topographically the development area is largely flat, lying consistently at 12m AoD. This falls to 11m AoD along the River Weaver Navigation, north of the Town Bridge towards the north end of Reach 3.

*Current Land Use:* Currently the site is divided into a mixture of unbuilt private and public grassed areas (e.g. Reach 1, Reach 12, much of Reach 6/6) and metalled areas with pre-existing flood defence (e.g. Reaches 2 and 3).

The proposed programme of mitigation has arisen as a result of an EIA environmental statement (Environment Agency, 2014) and a planning application for the Northwich Town Centre FRMS (14/04154/FUL). The potential for archaeological remains on the site had been identified during early consultation between GBV JV Ltd, the Environment Agency and the archaeological advisors at Cheshire West and Chester Council (CWaC).

As part of the planning application, a Historic Environment Baseline Assessment made a comprehensive assessment of the potential significance of heritage assets at the proposed redevelopment site and a surrounding 1km study area (Humphreys 2014). In advance of the planning submission, earlier archaeological monitoring of boreholes by Liverpool Museums service had also provided information on the deposits likely to be encountered (Adams 2014).

This baseline assessment allowed for an Environment Agency environmental statement for the scheme to be produced. Chapter 9 (Historic Environment) (Davies and Humphreys 2014) indicated that there is a possibility of encountering stratified archaeological deposits associated with heritage assets of medium sensitivity or less, dating to the medieval, post-medieval and industrial periods of Northwich, during construction. These include post-medieval to modern made ground deposits (commonly 3-7m deep in Reaches 1 to 3) identified during the earlier archaeological monitoring of boreholes.

On the above basis, the environmental statement (Chapter 9, pages 13-14) suggested that:

*'The detailed archaeological mitigation approach will be agreed with the relevant authorities... The detail of any mitigation will be developed prior to construction in agreement with the CWaC Development Control Archaeologist*

*More intensive investigation and recording activities will be directed to those areas deemed to be at greatest risk of containing archaeology, which might address regional archaeological research issues or where the setting/fabric of locally listed buildings may be subject to change. These may include watching brief, or possible advance targeted trenching....*

*Watching brief will generally be proposed where the heritage asset is of medium sensitivity or less; where the proposed works are likely to affect part of the heritage asset where remains may not be extensive; or where the degree of surviving remains is likely to be limited. Watching brief conditions would be beneficial where intrusive groundwork has the potential to disturb areas of archaeological activity of uncertain significance.'*

This document only provides a methodology and design for undertaking a scheme of archaeological monitoring and recording on groundworks resulting in sub-surface impact. Where works will directly alter the appearance of locally listed buildings (1-3 Bull Ring, High Street and 2/2a High Street), a separate Construction Method Statement will be prepared by the Contractor (with TPA input) and approved by the CWaC Conservation Officer and Development Control Archaeologist. Adherence to this method statement will mitigate against adverse impact caused by inappropriate alterations to those locally listed buildings.

## Planning and comments

Following submission of the planning application, the Development Control Archaeologist for the Cheshire Archaeology Planning Advisory Service issued comments. These are now reproduced in 1.2.2 to 1.2.5 below.

**SIGNIFICANCE** Section 6.5 of the Design and Access Statement considers the effect of the proposed development on the historic environment and notes that much of the work will occur within Northwich's Area of Archaeological Potential, as defined during research carried out by the Cheshire Historic Towns Survey. In particular, it is noted that development within 'Reaches' 2, 3, 7, and 12 will occur along sections of river bank that were occupied during the medieval and post-medieval periods. At these locations domestic and industrial activity is likely to have occurred and evidence of these past usages may be preserved in the deposits that make up the river banks.

**IMPACT** Paragraph 6.5.9 of the design and Access Statement accepts that intrusive groundworks associated with the flood relief scheme are likely to expose and disturb archaeological deposits associated with the past usage of the river bank. Such remains may include buildings, wharves and other river-side structures, pits, property boundaries and other features, some of which may be waterlogged.

**POSITION** It is advised that the report's conclusion that there is no archaeological objection to the development and that its effects on any archaeological remains may be mitigated by the

maintenance of an archaeological watching brief during relevant aspects of the development is appropriate. Relevant aspects of the development may be defined as significant groundworks within the Area of Archaeological Potential as defined above. Dependant on the precise nature of the groundworks, it may also be appropriate to maintain the watching brief at the western end of 'Reach 1', as recent archaeological work during the Memorial Court re-development exposed traces of an early canal. Evidence of this may be revealed at the point where it discharged in to the River Dane.

The work, which will also require the preparation of a report on the results, may be secured by condition, a suggested wording for which is given below: *No development shall take place within the area indicated until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the local planning authority. The work shall be carried out strictly in accordance with the approved scheme.*

## Relevant Legislation and Policy

The use of such a condition as detailed in 1.2.5 above is in line with the guidance set out in Paragraph 141, Section 12 (Conserving and Enhancing the Historic Environment) of the National Planning Policy Framework (2012), published by the Department for Communities and Local Government and the still current PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide (Department for Communities and Local Government, Department for Culture Media and Sport, English Heritage, 2010).

The Vale Royal Borough Local Plan (1996) represents current local legislation covering Northwich until a revised Cheshire West and Chester local plan consultation is complete. Chapter 4 of the Vale Royal Borough Local Plan details the significance of the historic environment and outlines local policy regarding it (Policies BE5 to BE15). Of particular note here is Policy BE14 which states that:

'Development proposals which could affect local ancient monuments and sites of archaeological importance, including sites and areas of archaeological potential and those identified in the Cheshire Historic Towns Survey, will not be allowed unless it can be demonstrated, as part of the submitted planning application, that the particular site or monument will be satisfactorily preserved either in situ or where it is not feasible, by record.'

## Project Design

The aim of this Project Design is to set out the key activities of the archaeological works as a written scheme of investigation (WSI) required to discharge the applicable planning condition and to meet local government policies. The Project Design has been written in sufficient detail to provide leadership to the Environment Agency's suppliers and for the activities to be quantifiable, implemented and monitored. This document will form the basis of a measurable standard which will be used throughout the duration of the programme of archaeological works, through from onsite activities to post excavation analysis, archiving and publication.

The activities set out within this document have been designed in consultation with Mark Leah of the Cheshire Archaeology Planning Advisory Service and Stephen Kemp of the National Environmental Assessment Service, Environment Agency.

This document has been produced in accordance with the guidelines laid out in the Management of Research Projects in the Historic Environment: The MoRPHE Project Managers Guide (English Heritage: 2006, revised 2009) and the Standard and Guidance: for an archaeological watching brief (English Heritage October 1994, revised September 2001 and October 2008).

## 2. ARCHAEOLOGICAL CONTEXT

### Historical and Archaeological Background

Locally recorded non designated heritage assets range in date from prehistory to the twentieth century and include a variety of different site types, such as findspots of artefacts; Roman sites; settlement, and ecclesiastic sites; areas of industrial activity, and historic buildings. A complete summary gazetteer of heritage and a full period-by-period summary was provided for the present application as Appendix J to the environmental statement Chapter 9 (Humphreys 2014).

*Prehistoric:* Prehistoric evidence is scant both within the wider study area and the wider Cheshire County. Limited lithic findspots are noted, indicating a transient presence from the later prehistoric periods, however no settlement or burial archaeology has been identified. The longevity of salt production in the Northwich area could feasibly date to the Iron Age; however, no evidence has been forthcoming with the earliest connected artefacts identified as Roman.

*Roman:* The known Roman settlement of Condate and its recorded timber fort, which lies west of the River Weaver some distance away from the project, has been the subject of number of excavations, carried out from 1960-80. These revealed a two phase occupation site, accessed from Chester Road, consisting of timber barracks and a defensive ditch. The site appears to have been abandoned during Agricola's push north towards Scotland c. 80AD only to be reoccupied c.120AD during Hadrian's establishment of northern rule (Curzon, 1993). Across Northwich, further evidence of domestic and settlement activity are present in the form of kilns and salt pans. Findspots of ceramics,, coins and metalwork, as well as cremation urns have been recovered across the wider study area.

*Medieval:* The visibility for Medieval (410-1485 AD) activity across the period is extremely low. The town is mentioned in Domesday; however, Historic Environment Records relating to the period are largely limited to documentary records, rather than findspots or extant remains. The Grade I listed Church of St Helen, which contains 14<sup>th</sup> century features, is the only known physical asset within the study area. It is likely that any Medieval settlement lies beneath the later Post-Medieval and modern town centre, to the north of the river confluence, around the Market Street area. On the basis of existing evidence the Northwich Town Centre FRMS works are expected to lie on the periphery of the Medieval settlement areas.

*Post Medieval and Modern:* Despite documentary evidence for a thriving Post-Medieval town, specialising in salt production, archaeological visibility remains low until the 17<sup>th</sup> century, with the earliest locally listed buildings dating to this time.

The town of Northwich experienced considerable growth across the late 19<sup>th</sup> and 20<sup>th</sup> century. Many locally listed buildings are designated due to their use of the 'composite' building system; a method introduced in an 1881 bylaw to combat the effects of town wide subsidence linked to the longevity of salt mining and brine pumping within the town. The bylaw mandated that all new properties should be built with a wooden frame, in filled with brick, and constructed on timber (later steel) beams so that they could be 'jacked up' and the foundations raised in the event of subsidence (Lynch 2004). The 'composite' structures are most densely concentrated on Chester Way, London Road, Castle Street, Winnington Street, Witton Street, Crown Street and High Street.

From a review of historic mapping from the 18th and 19th centuries it is further evident that industrial remains are present, some as listed buildings and structures. Many of these are associated with the town's longevity as a salt production centre.

*Designations:* The project area includes 25 listed buildings, with no other categories of nationally designated monuments present. The listed buildings comprise one Grade I (the Medieval Church

of St Helen) and 24 Grade II buildings and structures, largely confined in date to the 19<sup>th</sup> and 20<sup>th</sup> century.

The study area includes parts of the Northwich Conservation Area, one of 96 designated by Cheshire West and Chester Council (CWaC).

Areas of Archaeological Potential: An AAP has been identified at Northwich, comprising four Archaeological Character Zones (ACZs). Each Zone is identified by its defining archaeological or historical characteristics. The proposed flood defences are located within Zones 2 (Medieval Core of Northwich to the north of the Dane and east of the Weaver) and 4 (area of post-medieval industry next to both the Rivers Dane and Weaver).

## Previous Intrusive Archaeological Investigations

Reach 1 will cross Memorial Park, adjacent to the site of the former Magistrate's Court. This area has been the subject of archaeological trial trenching by OAN (OAN 2013), which identified that the site was occupied by a salt works and associated features during the 18<sup>th</sup> and 19<sup>th</sup> century. Importantly, this work also established that industrial-period archaeological features of interest in this part of Northwich may be shallowly buried and cut into 'made ground' (OAN 2013).

Reaches 6 and 7 are within the boundaries of a borehole survey, carried out in 2011, off Chester Way by the present author for Archaeological Research Services Ltd (no report available). Archaeological monitoring of these boreholes suggested that, in places, potential alluvial horizons of archaeological interest may lie at c.3-4m below ground level.

Across the river to the west, at Reach 12, a watching brief took place at Castle Street in 1996 (Cheshire HER Event. ECH3676). Undertaken by The University of Manchester Archaeological Unit, the works indicated that the whole of the proposed development area was covered in late 19<sup>th</sup> century and early 20<sup>th</sup> century deposits to depths of between 1.2m and 3.7m, and possibly to considerably deeper levels. This is probably the result of infilling after localised ground subsidence due to local salt extraction. The site of a 19<sup>th</sup> century dock was located, but neither the suspected Roman Road, boundary ditch or brine pit were observed.

## Project Context

### *Archaeological Monitoring of Site Investigations:*

Site investigations were carried out along the route of the proposed development works as early stage works by WYG Environment (2014) comprising 38 geological explorations to a maximum depth of 20m below ground level (BGL) using a variety of borehole and sampling techniques. These interventions were attended by an archaeologist and reported upon (Adams 2014). A localised deposit model was provided within the archaeological report on the site investigations. A version of the results, interpreted archaeologically, is represented in this document as Figure 2.

The archaeological monitoring of the site investigations concluded that no *in situ* archaeological deposits were identified and that the majority of the Northwich Town Centre FRMS footprint had little or no archaeological potential. Attempts were made to identify known features from the 1875 Ordnance Survey map; a weir close to Reach 6 and Reach 1 could not be identified as the relevant trial pit (TP115) could only be excavated to 1m BGL; however, a borehole in this area (CP107-14) identified made ground to a depth of 5.7m which could represent 19<sup>th</sup> century fill relating to the demolition of the salt works. East of borehole CP107-14 natural ground levels were observed at a depth of c.2.5m below ground level. Overall, the report concluded that there was potential for identifying remains relating to 18<sup>th</sup> and 19<sup>th</sup> century industrial activity in some areas, in particular the canal, weir and quays of Barons Quay salt works along the north bank of the River Dane (Reach 1). However, the report had not been able to identify or determine the survival of these features.

### ***Archaeological Monitoring of Additional Ground Investigations:***

As part of the design process, further Ground Investigations at the site were carried out in late 2014. Liaison with the Environment Agency Archaeological advisor and the Development Control Archaeologist for the Cheshire Archaeology Planning Advisory Service identified that targeted archaeological monitoring of additional Ground Investigations would take place in Reaches 1, 2 and 3.

A total of 12 hand dug trial holes were monitored archaeologically to a maximum depth of 1.35 m below ground level (BGL) and reported upon (Linington 2014). Archaeological features were observed within two trial holes. Within TP101, a late 19<sup>th</sup>/early 20<sup>th</sup> century brick wall was observed. The trial hole was located off what is now Whalley Road (Reach 1). The wall possibly related to the terrace housing that existed here from the 1870s to at least the 1960s. These houses were probably built for the workers of the nearby Croft and Leftwich Salt Works. Within TP301 (Reach 3), a 19<sup>th</sup> century unfrogged brick surface was observed, which was interpreted as a potential quayside surface relating to the nearby Barons Quay Salt Works. This surface sealed a thick deposit of industrial waste, probably of a similar date.

The archaeological features encountered in TP101 and TP301 indicated that industrial-period structures are clearly built in to previously observed 'made-ground' deposits and may be encountered at depths of 0.2m BGL (Reach 1) and 0.5m BGL (Reach 3). This is consistent with observations made immediately north of Reach 1 at the Magistrates Court site (OAN 2013).

Towards the eastern end of Reach 1, there was an indication that made ground deposits encountered elsewhere were much shallower or absent, increasing the possibility of subsequent works impacting upon the underlying alluvial layers and possible archaeological horizons.

On the evidence of these observations, the possibility was noted that the proposed construction cut for the flood wall construction along Reach 1 will expose further remains relating to the wall within Trial Pit 101. The shallow deposits at the eastern end of Reach 1 also demonstrated that any topsoil and subsoil stripping relating to the construction of an embankment would likely expose the alluvial clay silts of unknown archaeological potential. Within Reach 2 the limited results did not allow any informed conclusions to be drawn on the nature of the deposits beyond 0.9m BGL. Within Reach 3, the evidence for a brick surface within Trial Pit 301 demonstrated that 19<sup>th</sup> and 20<sup>th</sup> century structures may be encountered during the excavation of the proposed construction cut for the flood wall.

The archaeological monitoring of the Site Investigations and additional Ground Investigations has allowed complementary informative observations to be made. The earlier site investigation work identified the base of the stratigraphic sequence in a number of places but could not provide any information concerning archaeological features in plan. In contrast, the additional ground investigations achieve this, but was only able to consider shallowly buried remains. This work has enabled future watching brief areas within the site to be targeted much more effectively (see section 3.3. below).

### **3. AIMS & OBJECTIVES**

This section describes the main aim of the project as being to discharge the Planning condition and describes the products required to do so. It is the intention of this section to provide the focus by which the benefits in delivering the archaeological project might be measured i.e. quality of the product, academic and local education/awareness.

#### **Aims**

The overarching aim of the proposed archaeological mitigation is to discharge the archaeological planning condition by recording and advancing our understanding of the significance of the heritage assets contained within the Northwich Town Centre FRMS development area before they are lost or damaged through the development.

The principle purpose of the proposed archaeological mitigation is to comply with heritage legislation, as outlined in 1.3.1 which stipulates that; 'development proposals which could affect local ancient monuments and sites of archaeological importance, including sites and areas of archaeological potential and those identified in the Cheshire Historic Towns Survey, will not be allowed unless it can be demonstrated, as part of the submitted planning application, that the particular site or monument will be satisfactorily preserved either *in situ* or where it is not feasible, by record (VRBLP 1996).

The secondary aim of the proposed scheme of archaeological monitoring and recording is to enrich the Historic Environment Record for Cheshire for the benefit of the local public.

#### **Objectives**

A general objective of the archaeological monitoring and recording can be stated as:

- to identify the presence of any archaeological remains to be affected by any intrusive aspects of the scheme and to achieve an appropriate level of preservation by record.

Where practical (within the constraints of the watching brief and the site investigation scheme), this will include an assessment of the overall extent, date and state of preservation of archaeological remains. Any features of geoarchaeological interest will, if possible, be recorded and where there is the potential for palaeoenvironmental data, an appropriate level of sampling will be undertaken. Sampling will be considered appropriate when deposits are encountered with the potential to address key questions highlighted in the regional research agenda (see 3.2.3 below), and will then adhere to the methodology outlined in Section 4.6.

More specifically, the research agenda for the proposed archaeological monitoring and recording can be based on priorities set out in the Archaeological Research Framework for the North West Region (Mark Brennand (eds), 2006: Volume 1 & 2007: Volume 2). These include:

##### *Medieval Period*

*5.42 Investigations of urban-based industries, using the full panoply of available scientific techniques to provide information on developing technologies and on the role of towns as centres of production.*

##### *Post Medieval*

*6.16 ...attempts should be made to identify the post-medieval elements that may have distinguished the future industrial towns from those that failed to develop early in the Industrial Revolution*

*Industrial and Modern**Technology and Production*

7.35 Industry specific studies are needed for those industries that have received little archaeological attention.

*- Trade, Exchange and Interaction*

7.43 Excavation and scientific analysis of 18th and 19th century dock deposits.

Having highlighted the above priority initiatives, as set out in the Research Framework for the North West Region, where deposits survive a four point research agenda for the watching brief will be used to prioritise archaeological activities:

1. Recover information on medieval (or earlier) activity and industry at the site.
2. Identify and characterise post-medieval (pre-1750AD) remains, especially in those areas where later activity is also present.
3. Recover information on 18th-19th century industrial remains and residues at the site, particularly related to salt production.
4. Identify and characterise 18th-19th century specialised and industrial use of waterfronts.

## Watching Brief Areas: Rationale for selection

In advance of detailed final designs, our current knowledge of deposits and their archaeological potential has been reviewed against the scheme proposals and the likely construction methods in order to inform the mitigation proposal presented in section 3.4. Table 1 below, initially presented in the Environmental Statement but now updated following the results of additional Ground Investigations (italicised), summarises the outcomes of this review.

**Table 1: Construction Methods and Deposit Model**

Reach	Construction details	Deposit model outcomes	Mitigation Response
1	<p><u>Flood Walls:</u> These will comprise either clad sheet piles or clad reinforced concrete. Sheetpiling works would require an initial piling trench 1m wide and up to 1.2m deep. Piles would be a maximum 5m in depth. Flood wall construction would require a maximum 1m deep and 3m wide construction cut.</p>	<p>Made ground up to 5.7m BGL in western part of reach, but perhaps with some industrial period archaeological potential (CP107). Natural substrate observed at 2.8m BGL further to east (TP116). <i>Additional GI identified C19th-20th structures at 0.2m BGL (TP101).</i></p>	<p>Continuous Archaeological Attendance</p>



	<p><u>Ground Raising at Memorial Park:</u> Topsoil/subsoil strip over approximately 1,360m<sup>2</sup>. Dig back into ground at topsoil/subsoil level only around flood wall tie-ins.</p>	As above	Continuous Archaeological Attendance
	<p><u>Embankment:</u> Topsoil/subsoil strip of embankment area up to 20m wide (including working space). Dig back into ground at topsoil/subsoil level only at cemetery/shrub border over 2-3m length.</p>	<p>Natural substrate at 0.3m BGL in this area (TP101), but no archaeological evidence observed during SI works. <i>Additional GI identified alluvial horizons of uncertain potential and natural substrate at 0.6m BGL.</i></p>	Continuous Archaeological Attendance
2	<p>Sheetpiling works in river (in front of Bull Ring) will require no piling trench. Push piles in from pontoon. Pile depth 10-20m.</p>	River bed	No archaeological monitoring
	<p>Flood wall construction will require a maximum 1m deep and 3m wide construction cut. Screw piles may be needed along Day Nursery boundary.</p>	<p>Modern made ground up to a depth of 7m BGL, C.7-10m BGL contained bone fragments (CP108). Archaeological potential at 7m BGL only.</p>	Intermittent Archaeological Attendance
3	<p>Defence comprises RC flood wall with sheet pile along landward edge of L-shape RC foundation. Flood wall construction will require a maximum 1m deep and 4-5m wide construction cut. Sheet pile will be driven from within RC wall trench. Pile depth approx. 2m.</p>	<p>C19th-20th made ground up to a depth of 8.6m BGL. SI suggested little or no archaeological potential. <i>Additional GI identified C18th-19th structures at 0.5m BGL (TP301).</i></p>	Continuous Archaeological Attendance
5	<p>Flood wall will comprise clad sheet piles. Sheetpiling works will require an initial piling trench 1m wide and up to 1.2m deep. Piles would be a maximum 5m in depth</p>	<p>Minimum of 0.7m made ground (uncertain potential) overlying alluvium (WS106-14). Not interpreted archaeologically during SI.</p>	<p>No archaeological monitoring. If suspected archaeological remains are found, stop work and contact site supervisor and TPA manager.</p>
6	<p>Works will involve topsoil strip across the footprint of ground raising at the east end of the Reach. Works to strengthen and raise existing, boundary wall will not need excavations.</p>	<p>Little data for this area, but TP110 identified modern rubble to a depth of 0.5m BGL.</p>	<p>No archaeological monitoring. If suspected archaeological remains are found, stop work and contact site supervisor and TPA manager.</p>

7	<p><u>Theatre Court:</u> Defence will comprise clad sheet piles. Sheetpiling works will require an initial piling trench 1m wide and up to 1.2m deep. Piles would be a maximum 10m in depth.</p>	Made ground up to 3m BGL in central part of reach (WS111), but maybe up to 20m depth of made ground in western part of reach (CP109) indicated varied impacts of subsidence. Uncertain level of industrial period archaeological potential.	Intermittent Archaeological Attendance
	<p><u>Weaver Court:</u> Defence will comprise clad RC flood wall. Flood wall construction will require a maximum 1m deep and 3m wide construction cut. Screw piles may be needed in some locations.</p>	As above	Intermittent Archaeological Attendance
8	Flood wall construction will require a maximum 1m deep and 3m wide construction cut.	No SI work undertaken. Uncertain level of archaeological potential.	No archaeological monitoring. If suspected archaeological remains are found, stop work and contact site supervisor and TPA manager.
9	Flood defence will comprise clad sheet pile along line of existing gabion baskets. Sheetpiling works will require an initial piling trench 1m wide and up to 1.2m deep. Piles would be a maximum 15m in depth.	Made ground up to a depth of 12.5m BGL in places. SI suggested little or no archaeological potential.	No archaeological monitoring. If suspected archaeological remains are found, stop work and contact site supervisor and TPA manager.
12	Flood wall construction will require a maximum 1m deep and 3m wide construction cut.	C19th-C20th made ground up to a depth of 5.45m BGL in places (WS108). SI suggested little or no archaeological potential.	Intermittent Archaeological Attendance

## Watching Brief Areas: Mitigation Proposal

Taking into account the aims and objectives (priorities) outlined in sections 3.1 and 3.2 above and matching these to the results of recent archaeological observations (opportunities) made during previous site/ground investigations, a proposal for mitigation areas can now be made.

The below mitigation proposal is consistent with that suggested by the Environment Agency Archaeological advisor who has highlighted parts of Reaches 1 and 3 as targets for archaeological research (depending on impact), and the Development Control Archaeologist for the Cheshire Archaeology Planning Advisory Service, who has highlighted Reaches 2, 3, 7 and 12. Details about the methods to be used (based on existing evidence and taking into account all stakeholder opinions) are provided in Section 4.

**No archaeological monitoring and recording:** For Reaches 5, 6, 8 and 9 no archaeological monitoring is needed, as explained below. If construction workers find suspected archaeological remains then they will stop work and inform their site supervisor, who will contact the TPA manager for advice and attendance if necessary. Change control procedures are set out in Section 4.10.

*Reach 5* – This reach is outside the historic core of Northwich and the Area of Archaeological Potential. The maximum depth of construction is 1.2m (excluding pile depth) and the depth of made ground is 0.7m, overlying alluvium. The evidence suggests that this Reach lies in a channel margin environment and that there will be little or no cultural material.

*Reach 6* – This reach is outside the historic core of Northwich and the Area of Archaeological Potential. Impact is minor in this area, comprising topsoil strip across embankment footprint. Site Investigations demonstrate that modern rubble is present to a depth of at least 0.5m BGL and the likelihood is that archaeologically significant horizons will therefore not be impacted upon

*Reach 8* - This reach is outside the historic core of Northwich and the Area of Archaeological Potential. The maximum depth of construction is 1m and the likelihood is that archaeologically significant horizons will therefore not be impacted upon.

*Reach 9* – This reach is outside the historic core of Northwich and the Area of Archaeological Potential. Floodwall is augmenting an existing redeveloped car park and marina site. No impact.

**Intermittent archaeological monitoring and recording:** For Reaches 2, 7 and 12 intermittent archaeological monitoring and recording is proposed. During intermittent monitoring, an archaeologist will make initial attendance at the commencement of groundworks in a reach. If, in liaison with CWaC, it can be demonstrated that there is no adverse impact to archaeological deposits within a reach or part of a reach, attendance will be discontinued. The rationale for this approach is now outlined:

*Reach 2* - This reach is within the historic core of Northwich and the Area of Archaeological Potential. Impact in Reach 2 is a mixture of flood wall and in-river sheet piling. However, site investigations suggested that archaeological potential may only be at 7m BGL. At least half of the area has been heavily disturbed by 20th century activity, consisting of jacking-up buildings and existing canalisation of the River Dane. This means that shallowly-buried structures within made ground deposits (as in Reaches 1 and 3) are less likely. On this basis, flood wall construction (1m deep) may have no significant impact. An activity based approach will occur.

Sheetpiling: Where sheet piling is used, this may constitute acceptable loss of archaeological deposits (after English Heritage, 2007, 20-21). Where sheet piling encounters an obstruction at a depth and the client decides to undertake a facilitation trench; however, an archaeologist must be on site to record and significant archaeological remains.

Trenched Flood walls: The eastern most end of Reach 2 comprises a relatively undisturbed river bank, however, and this will initially be put under permanent monitoring during excavation of flood wall trenches.

*Reach 7* – This reach is within the historic core of Northwich and the Area of Archaeological Potential. Impact in Reach 7 is flood wall with a construction depth of 1m BGL. Site investigations suggested that made ground deposits are at least 3m deep in Reach 7. However, there is an uncertain level of potential for shallowly-buried industrial

structures within made ground deposits which might provide data to address points 3 and 4 of the research agenda, as set out in section 3.2.3.

*Reach 12* - This reach is within the historic core of Northwich and the Area of Archaeological Potential. Impact in Reach 12 is flood wall with a construction depth of 1m BGL. Site investigations suggested that recent made ground deposits are at least 5.4m deep in Reach 12, and earlier watching brief (GMAU 1996) identified no archaeological interest. A single visit from an archaeologist at the start of construction in this reach should confirm whether further attendance is warranted.

For Reaches 2, 7 and 12, a call off procedure will be implemented, whereby if the opportunities identified in 3.2 above are not being realised, following discussions with the client and CWaC, the archaeological monitoring will be abandoned. If, in contrast, shallowly buried archaeological deposits are identified, a further change control mechanism (detailed at the end of this project design) will be implemented to enable continuous archaeological attendance to commence.

**Continuous archaeological monitoring and recording:** For Reaches 1 and 3, our knowledge of likely deposits to be encountered means that continuous archaeological monitoring and recording is proposed. During continuous monitoring, an archaeologist will make attendance at all groundworks with sub-surface impacts. If, in liaison with CWaC, it can be demonstrated that there is no adverse impact to archaeological deposits, attendance will be discontinued. The rationale for this approach is now outlined:

*Reach 1* – This reach is outside the historic core of Northwich and the Area of Archaeological Potential. Impact in Reach 1 is a mixture of sheetpiling (west), flood wall (central portion) and topsoil strip across embankment footprint and across ground raising at Memorial Park. Archaeological work at the Magistrates Court (OAN 2013), as well as monitoring of additional ground investigations and consultation of historic maps (Linington 2014) have identified subsurface archaeological remains relating to 18th-19th century saltworks buildings and possibly associated workers housing at a depth of 0.3m BGL in the western half of the reach. Thus, although construction of flood walls may not impact upon deeply buried archaeological deposits, they may impact on shallowly buried industrial remains associated with the salt working and the wealth, design and innovation it brought with it. Works in the western part of Reach 1 offer an opportunity to address points 3, 4 and possibly point 2, of the research agenda outlined in 3.2.3 above.

#### *Activity based approach*

**Sheetpiling:** Where sheet piling is used, this may constitute acceptable loss of archaeological deposits (after English Heritage, 2007, 20-21). Where sheet piling encounters an obstruction at a depth and the client decides to undertake a facilitation trench; however, an archaeologist must be on site to record and significant archaeological remains.

**Embankment:** The eastern part Reach 1 will be subject to a topsoil and subsoil strip across the embankment footprint and potentially a compound/material stockpile area to an expected depth of c.0.5-0.6m. However, monitoring of additional ground investigations identified alluvial horizons of uncertain potential and natural substrate at only 0.6m BGL. Works in the eastern part of Reach 1 could offer an opportunity to address points 1 and 2 of the research agenda outlined in 3.2.3 above, although a single visit from an archaeologist in this part of the Reach should confirm whether further attendance is warranted.

In 1890 an expansion cemetery to Northwich Cemetery was founded and the eastern extent Reach of 1 ties-in with the western boundary of this. The extension to the municipal cemetery is not recorded on the Cheshire HER as a non-designated heritage asset, but it may be considered equivalent to a non-designated heritage asset of local

interest. At the eastern extent of Reach 1 archaeological monitoring and recording will therefore be required. A Ministry of Justice Licence permitting the excavation of human remains will be pre-obtained as a precautionary measure.

*Reach 3* – This reach is within the historic core of Northwich and the Area of Archaeological Potential. Impact in Reach 3 is flood wall with a construction depth of 1m BGL. Additional ground investigations identified existing subsurface archaeological remains of a probable 18th-19th century quayside at a depth of 0.5m BGL. Construction of flood walls may therefore not impact upon deeply buried archaeological deposits, but we expect that they will impact on shallowly buried industrial remains associated with salt working and the wealth, design and innovation it brought with it. Works in Reach 3 offer an opportunity to address points 3 and 4 of the research agenda outlined in 3.2.3 above.

For Reaches 1 and 3, a call off procedure will be implemented, whereby if the opportunities identified in 3.2 above are not being realised, following discussions with the client and CWaC, the archaeological monitoring will be abandoned.

## Outcomes

*Identified Products:* The outcomes of the proposed scheme will be to produce specified items (products) which will deliver the aforementioned objectives. The methodology outlining how to undertake these products is outlined in Section 4. The specific products are defined below.

*Technical Report and Archive:* The primary product of the proposed scheme of archaeological mitigation will be to produce a written report detailing the results of the archaeological work, which will be added to the site archive and issued to the Local Authority Archaeological Curator. This document will be used to sign off the appropriate planning conditions attached to the Northwich Town Centre FRMS, and there will remain an expectation that the results of the study will be published to a level proportionate to their interest. This technical report, will as a minimum requirement contain the sections as described in 4.7.13.

*Publication:* In addition to the technical report the results of the archaeological investigations will be published as a note or an article within the *Journal of the Chester Society*. This will be subject to the results of the investigations and be made in agreement with the archaeological employer, the Environment Agency and the Planning Authority.

All recording will result in 'the preparation of a report and ordered archive', in line with the guidelines of the IfA Institute for Archaeologists (Standard and Guidance: for an archaeological watching brief published October 1994, revised September 2001 and October 2008).

## 4. METHODOLOGY

### General conditions

**Staffing:** The work will be undertaken by suitably qualified members of TPA according to accepted archaeological practice and the 'Standard & Guidance for an archaeological watching brief' produced by the Institute for Archaeologists (2008).

**Notice:** The client is requested to give at least one week's notice of the commencement of works to TPA who will inform CWaC.

**Services:** The client will be responsible for carrying out service checks prior to groundworks and will provide plans of all services within the development area.

**Base maps:** The client is requested to supply copies (preferably digital) of base maps for TPA to use in the report.

**Fencing:** The client will be responsible for securing the site from unauthorised public access.

**Health and Safety:** TPA will adhere to all relevant health and safety regulations. No archaeological staff will be allowed to enter the site until they have undergone a health and safety induction organised by TPA and/or the principal contractor. TPA will complete a task specific risk assessment and safe working method statement before the commencement of the watching-brief, and copies of this will be approved by the client/principal contractor. This will be in compliance with the industry guidelines laid out in FAME Manual, Health & Safety in Field Archaeology (2006). TPA staff will wear appropriate personal protective equipment at all times.

**Welfare, Access and Insurance:** The client will ensure safe access to the ground-works and if possible make toilet and hand-washing facilities available to archaeological staff.

**Insurance/compensation:** As part of York Archaeological Trust, TPA carries the appropriate public, third party and employee insurances, copies of which are available for inspection if required. Any compensation claims for disruption to the land should be directly between the client and landowner.

The client must ensure that the contractor has been made aware of the archaeological constraint on their operations.

### Task 1- Continuous Watching Brief (Reaches 1 & 3)

**Strategy:** During continuous monitoring, an archaeologist will make attendance at all groundworks with sub-surface impacts.

**Machine Excavation:** All soil stripping will be conducted with a toothless bucket under archaeological observation, with archaeologically significant areas to be defined for recording or limited hand excavation. Excavation of flood wall construction trenches will follow this procedure where possible.

Where sheet piling encounters an obstruction at a depth, and the client decides to undertake a facilitation trench, an archaeologist must be on site to record and significant archaeological remains.

*Spoil:* Where practical and safe to do so, all spoil heaps will be regularly examined for archaeological material, this can include the use of a metal-detector.

*Recording & Hand Excavation:* All recording and excavation will reflect the necessity of salvage recording during ongoing groundworks, with disruption to the main contractor kept to a minimum (for recording & excavation details see Section 4.5).

Wherever possible the principal contractor must ensure that a clean surface/section in can be exposed and that the archaeologist can inspect the deposits revealed. Within Health & Safety constraints, the principal contractor should also afford the archaeologist(s) time to clean surfaces/sections within construction trenches. There should be no trafficking by vehicles on the exposed surface until the archaeologist has agreed that there are no archaeological deposits of significance.

Should limited excavation be required beyond that covered by the watching brief, this will be covered by contingency provision. The mechanism for the agreement of contingency is set out below.

Excavation of features will establish their form, function and interrelationships subject to site constraints. Priority will be accorded to the following:

- features exhibiting optimum preservation
- structural remains
- potential environmental and industrial remains.

All recording & excavation will be carried out as set within the minimum standards.

In the absence of features, at a minimum a record (both written & photographic, with scale drawing where necessary) will be made to reflect the stratigraphic sequence of deposits present, particularly alluvium and distinctions within made ground.

*Sampling:* Where suitably dated deposits are encountered, particularly in regard to waterlogged organic deposits possibly sealed by alluvium or made ground, an appropriate level of environmental sampling will occur.

- Sampling will be restricted to securely datable deposits of known archaeological character, with preference for well-preserved or regionally significant deposits.
- Sample points will be suitably dispersed to determine any variation in functional use of remains that may be identified.

- Those deposits exhibiting industrial or domestic functions/activity (including by-products of saltworking or charred plant content) will be sampled appropriately as a priority.
- This may be supplemented by environmental sampling of organic remains (for plant macro, pollen and insects) if present with the aim of further elucidating the contemporary surrounding landscape of the site.

**Reporting:** Results of the recording will be presented within an integrated report of the findings from all archaeological tasks conducted during the Northwich FRMS groundworks (for details see section 7). During post excavation, the results will be compared with other relevant Cheshire sites, in order to place the findings within their regional context

**Call off procedure:** For Reaches 1 and 3, a call off procedure will be implemented, whereby if the research opportunities identified in 3.2 above are not being realised, following discussions with the client and CWaC, the archaeological monitoring will be abandoned. The change management procedure is outlined below.

## Task 2- Intermittent Watching Brief (Reaches 2, 7 and 12)

**Strategy:** During groundworks, it is proposed to carry out an intermittent archaeological watching brief in areas of potential not covered by the continuous watching brief. During intermittent monitoring, an archaeologist will make initial attendance at the commencement of groundworks in a reach. If, in liaison with CWaC, it can be demonstrated that there is no adverse impact to archaeological deposits with a reach or part of a reach, attendance will be discontinued.

Where sheet piling encounters an obstruction (Reach 2) at a depth, and the client decides to undertake a facilitation trench, an archaeologist will be on site to record and significant archaeological remains.

**Machine Excavation:** Excavation of flood wall construction trenches will initially be conducted, if possible, with a toothless bucket under archaeological observation, with archaeologically significant areas to then be defined for recording or limited hand excavation.

**Spoil:** Where practical and safe to do so, all spoil heaps will be regularly examined for archaeological material, this can include the use of a metal-detector.

**Recording & Hand Excavation:** All recording and excavation will reflect the necessity of salvage recording during ongoing groundworks, with disruption to the main contractor kept to a minimum (for recording & excavation details see Section 4.5).

Wherever possible the principal contractor must ensure that a clean surface/section in can be exposed and that the archaeologist will inspect the deposits revealed. Within Health & Safety constraints, the principal contractor should also afford the archaeologist (s) time to clean surfaces/sections within construction trenches. There should be no trafficking by vehicles on the exposed surface until the archaeologist has agreed that there are no archaeological deposits of significance.



Should limited excavation be required beyond that covered by the watching brief, this will be covered by contingency provision.

Excavation of features will attempt to establish their form, function and interrelationships. Priority will be accorded to the following:

- features exhibiting optimum preservation
- structural remains
- potential environmental and industrial remains.

All recording & excavation will be carried out as set within the minimum standards.

In the absence of features, at a minimum a record (both written & photographic, with scale drawing where necessary) will be made to reflect the stratigraphic sequence of deposits present, particularly alluvium and distinctions within made ground.

*Sampling:* Where suitably dated deposits are encountered, particularly in regard to waterlogged organic deposits possibly sealed by alluvium or made ground, an appropriate level of environmental sampling will occur.

Sampling will be restricted to securely datable deposits of known archaeological character, with preference for well-preserved or regionally significant deposits.

- Sample points will be suitably dispersed to determine any variation in functional use of remains that may be identified.
- Those deposits exhibiting industrial or domestic functions/activity (including by-products of saltworking or charred plant content) will be sampled appropriately as a priority.
- This may be supplemented by environmental sampling of organic remains (for plant macro, pollen and insects) if present with the aim of further elucidating the contemporary surrounding landscape of the site.

*Reporting:* Results of the recording will be presented within an integrated report of the findings from all archaeological tasks conducted during the Northwich FRMS groundworks (for details see section 7). During post excavation, the results will be compared with other relevant Cheshire sites, in order to place the findings within their regional context

*Call off procedure:* For Reaches 2, 7 and 12, a call off procedure will be implemented, whereby if the research opportunities identified above are not being realised, following discussions with the client and CWaC, the archaeological monitoring will be abandoned. The change management procedure is outlined below.

## Staffing

The appointed Archaeological Supplier is a Chartered Institute for Archaeologists (CIfA) Registered Archaeological Organisation (RAO) and the archaeologist responsible for project managing the programme of is a member of the CIfA preferably at MCIfA level.

For the Northwich Town Centre FRMS project, all archaeological works will be undertaken by professional archaeologists employed by Trent and Peak Archaeology (RAO), the appointed Archaeological Contractor.

The watching brief will be managed by Dr. Gareth Davies MCIfA, the attending archaeologist will be: Tom Linington (07506920393).

## Recording Methodology

The investigation will be carried out in accordance with the guidelines of the IfA Institute for Archaeologists (Standard and Guidance: for an archaeological watching brief published October 1994, revised September 2001 and October 2008).

Within the confines of site safety, contexts (the smallest usefully-definable unit of stratification) will be cleaned by hand and recorded.

Investigation will be sufficient to securely establish the character and where possible date, and stratigraphic relationship of features.

In the event that important archaeological remains are uncovered, the client's site representative will be informed immediately, with a proposal for the most effective measures for dealing with the remains.

Recording will as a minimum include the location and extent of the monitored areas of excavation, their depth, and the deposits exposed, both by scale drawing (section and/or plan where applicable) and photograph (monochrome prints/digital). For further details of the recording methodology see below (Detailed specification of archaeological recording by Watching Brief).

- Plans of all contexts including features will be drawn on drafting film in pencil at a scale of 1:20 or 1:50, and will show at least:
- context numbers
- all colour and textural changes
- principal slopes represented as hachures
- levels expressed as O.D. values, or levelled to permanent features if benchmark absent
- sufficient details to locate the subject on a 1:500 plot of the area of ground-works and Ordnance Survey 1:2500 map (i.e. the national grid).

Sections will show the same information, but levelling information will be given in the form of a datum line with O.D/arbitrary value; the locations of all sections will be shown on the plan.

Photographs of each context will be taken as monochrome prints and digital images (as per Brown 2007), together with general views illustrating the principal features of the excavations.

Written records will be maintained as laid down in TPA recording manual (as formally accepted by many regional county archaeologists, copies available upon request).

## Ecofact & Artefact Recovery

*Artefact Recovery:* All finds will be assigned an individual finds code. *In-situ* finds will be recorded three dimensionally, while finds from spoil will be noted in relation to their location within the trench/stripped area. All finds will be hand collected as recommended in "First aid for finds" (by the Archaeology section of the United Kingdom Institute for Conservation), specialist advice to the project archaeologist will be provided by Alison Wilson (TPA).

*Human Remains:* Should human remains be uncovered they will initially be left in situ and provided with appropriate protection. CWaC and the Coroner will be informed immediately and a Ministry of Justice burial license obtained to permit removal where necessary.

It is proposed, for the eastern extent of Reach 1 (where construction ties-in with the western boundary of the 1890 a expansion cemetery to Northwich Cemetery) to obtain a Ministry of Justice Licence permitting the excavation of human remains in advance of construction, as a precautionary measure.

Any *in situ* human remains to be removed will be hand excavated in full accordance with recognised guidelines (English Heritage 2005).

*Sampling (Palaeoenvironmental & Industrial residues):* Appropriate sampling of deposits of palaeoenvironmental potential and residues and debris from industrial processes will be conducted in accordance with Table 2 (see below), with appropriate amendments following subsequent specialist advice. Specialist palaeoenvironmental advice will be provided by Alison Wilson (TPA). Samples (both palaeoenvironmental and industrial) will be assessed, followed by full analysis and reporting where appropriate following receipt of specialist advice.

**Table 2 – Preliminary Site Sampling Strategy\***

Feature type	Sediment conditions	Overall scope of sampling	MM	C14	Po/Dm	Ch	BP/BS	Bo	Wd
Sampling method:				A4x1cm (seal)	Film caps or column in gutter + Clingfilm	Min.30L+ Tubs (specialists to advise as to appropriate level of sub sampling of deposit)			Wrap each bit separately
Archaeological Feature/ buried soil	Waterlogged organic (looks 'peaty')	Each occurrence series of samples if thick (>150mm)			x	x	x	x	x
	Dry visible charred material	Each occurrence (C14 selected: best is twigs then layer then flecks)		x		x		x	
	Waterlogged organic	Each occurrence, at thickest point	x	x	x	x	x	x	x
	Dry visible charred material	Each occurrence, at thickest point, series of samples if thick (>150mm)	x	x	x	x		x	
Any	Wood structure	Retain all, keep damp, bag each timber separately		x					x
Industrial residues / debris etc.		All process stages to be represented					x		
<b>Abbreviations</b> MM Micromorphology C14 Radiocarbon Po/Dm Pollen/diatoms Ch Charred material BP Waterlogged Beetles/Plant remains Bo small bone Wd wood. BS –Bulk Sample (industrial waste/residues/processing debris)									

\*Adjustments to be made following specialist advice and liaison with CWAC where appropriate.

# Post Excavation Methodology and Report

*Post-excavation Processing:* All finds will be stored as recommended in "First aid for finds" (by the Archaeology section of the United Kingdom Institute for Conservation), and marked with the site and find codes, and relevant accession numbers. These will be deposited with the appropriate museum on completion of the report, subject to the provisions of the brief and the agreement of the client.

All finds will be submitted for assessment to TPA/YAT in-house specialist or specialists as advised by CWaC.

*Archive:* The archive will be fully indexed and contain where relevant:

- copies of correspondence relating to fieldwork
- site notebooks/diaries
- original photographic records
- site drawings (plans, sections, elevations)
- original context records, matrix diagrams showing stratigraphic sequence of all contexts.
- artefacts
- original finds records
- original sample records
- original skeleton records
- computer discs and printout.

*Archive and Finds Deposition:* Initial contact with the appropriate museum will be made before the commencement of fieldwork.

Where necessary the documentary archive will be sent to the National Monument Record Office for copying.

Finds will remain the property of the client with deposition to the relevant regional museum subject to their approval.

The paper and digital archive generated by TPA will remain the property of the Unit until deposited within the appropriate public archive/museum.

CWaC and the museum curator will be notified in writing on completion of fieldwork, with a proposed timetable for deposition of the archive. This should be confirmed in the project report.

CWaC will be informed in writing on final deposition of archive.

*Report:* A verbal report and where appropriate textual summary will be provided to the client on completion of fieldwork.

A report on the results, whether positive or negative, will be prepared in the appropriate format and presented to the client and the curator within 6 weeks of the completion of the fieldwork.

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A final report on results will be completed and copies provided to:

- the client
- the Environment Agency Archaeological Advisor for the EA Library
- CWAC for accession to the HER. This will include a copy of the report in PDF format on CD along with indexed copies of all digital on site photography.

The report will include:

- Non-technical summary
- Introductory statement
- Aims and purpose of the project
- Methodology
- An objective summary statement of results
- Conclusion
- Illustrations at appropriate scales, all to include levels tied to Ordnance Datum.
- Illustrative site photography, including key features and working shots
- Supporting data - tabulated or in appendices, including as a minimum a basic quantification of all artefacts, ecofacts and structural data including recommendations for retention/discard and proposals for conservation.
- Index to archive and details of archive location; confirmation of archive transfer arrangements including a provisional timetable for deposition.
- References
- A copy of the OASIS form.

**Dissemination:** In addition to the technical report the results of the archaeological investigations will be published as a note or an article within the *Journal of the Chester Society*. This will be subject to the results of the investigations and be made in agreement with the archaeological employer, the Environment Agency and the Planning Authority.

**Copyright:** Trent & Peak Archaeology shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved excepting that it hereby provides exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project, with no limitation on the number of times that the client may reproduce any report. The client's contribution will be acknowledged in any future use of the work by TPA.

**OASIS:** Following completion of the fieldwork and permission from the client an OASIS online record will be initiated (<http://ads.ahds.ac.uk/project/oasis/>). A copy of this document will be included in that report.

## Monitoring

The CWaC (namely the Development Control Archaeologist for the Cheshire Archaeology Planning Advisory Service) and the Environment Agency's Archaeological Advisor will be given a minimum of one week's notice of the commencement of the watching brief, and TPA will continue to liaise closely throughout the period of the works. The CWaC Development Control Archaeologist will be free to visit the site to monitor fieldwork subject to access conditions imposed by the client and/or landowner, and adherence to relevant health and safety guidance.

TPA will keep the client informed of all material facts of the archaeological investigations (a minimum of weekly updates). Changes to the approved methodology or programme of works, will be agreed between the client, the Environment Agency's Archaeological Advisor and CWaC.

## Timetable

A provisional start date of the 2nd of March 2015 has been suggested for the commencement of the main ground works (GBV to confirm). As soon as a project start date is confirmed the CWaC Development Control Archaeologist for the Cheshire Archaeology Planning Advisory Service) and the Environment Agency's Archaeological Advisor will be informed.

The proposed timetable is shown in Table 3, below. The timetable is provisional and is subject to alteration during detailed design and depending on site conditions encountered during works.

**Table 3 – Proposed Timetable for Construction**

Reach no.	Provisional dates for construction in 2015											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
1									Commencing 8th of Sept 10 weeks			
2				Commencing 22nd April for 20 weeks								
3			Commencing 2nd of March for 18 weeks									
5					Commencing 18th of May for 10 weeks							
6							Commencing 27th of July for 6 weeks					
7							Commencing 1st of July for 16 weeks					
8					Commencing 13th of May for 10 weeks							
9								Commencing 1st of September for 12 weeks				
12							Commencing 3rd of July for 14 weeks					

## Change Management

Any alteration to this Project Design will be undertaken by discussion with the Environment Agency, CWaC, the Client and TPA. Any change will primarily be managed through the identified gateways, though at any time any of the above parties might propose ad hoc change for discussion, acceptance and agreement by the client.

For Reaches 1,2, 3, 7 and 12, a call off procedure will be implemented, whereby if the opportunities identified in 3.2 above are not being realised the archaeological monitoring will be abandoned. The procedure will be as follows:

- The TPA archaeologist on site should contact the TPA Project Manager
- The TPA manager will contact the client to appraise them of the situation
- Following client approval, the TPA Project Manager will contact the CWaC Development Control Archaeologist and, if advised to do so, the Environment Agency Archaeological Advisor.
- The CWaC Development Control Archaeologist and/or the Environment Agency Archaeological Advisor will accept a course of action
- The TPA Project Manager will update the client and the TPA archaeologist on site who will follow the recommended course of action.



For Reaches 2, 7 and 12, if shallowly buried archaeological deposits are identified during intermittent attendance, a further change control mechanism will be implemented to enable continuous archaeological attendance to commence. The procedure will be as follows:

- The TPA archaeologist on site should contact the TPA Project Manager
- The TPA manager will contact the client to appraise them of the situation
- Following client approval, the TPA Project Manager will contact the CWaC Development Control Archaeologist and, if advised to do so, the Environment Agency Archaeological Advisor.
- The CWaC Development Control Archaeologist and/or the Environment Agency Archaeological Advisor will approve a course of action
- The TPA Project Manager will update the client and the TPA archaeologist on site who will follow the recommended course of action.

Should significant unexpected archaeological remains be encountered or further archaeological excavation works be required beyond that covered by the watching brief, this will be covered by contingency provision. In such an instance the procedure will be as follows:

- No additional works will be conducted until a strategy of mitigation has been agreed between all parties.
- The TPA manager will firstly contact the client to appraise them of the situation anticipated
- Following client approval, the TPA Project Manager will contact the CWaC Development Control Archaeologist and, if advised to do so, the Environment Agency Archaeological Advisor.
- The CWaC Development Control Archaeologist and/or the Environment Agency Archaeological Advisor will approve a course of action, potentially following a site meeting between all parties
- The TPA Project Manager will update the TPA archaeologist on site who will follow the recommended course of action and/or make appropriate staffing arrangements

## Reporting

The reporting procedure will be as follows:

- Once monitoring has been completed within each reach a Technical Memorandum will be prepared by the TPA Project Manager, approved by GBV and submitted to the EA Archaeologist/NEAS and CWaC Archaeologist/Planning for their information.
- Any significant finds will be reported to the TPA project manager immediately who will inform GBV and then update the EA Archaeologist/NEAS and CWaC Archaeologist/Planning with a view to on-site monitoring.