THE MERSEY GATEWAY PROJECT

CULTURAL HERITAGE

CHAPTER 13

CULTURAL HERITAGE

C O N T E N T S

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13. CULTURAL HERITAGE

13.1 Introduction

13.1.1 This chapter seeks to describe the likely significant environmental effects associated with the construction of the Mersey Gateway Project upon physical cultural heritage receptors. The assessment comprises an examination of data related to cultural heritage, together with an assessment of the implications of the Project (on buried and surface heritage sites/features) in terms of known and potential effects.

Overview of the Project

13.1.2 The elements which constitute the Project are described in detail in Chapter 2. These elements extend over an area shown on Figure 13.1

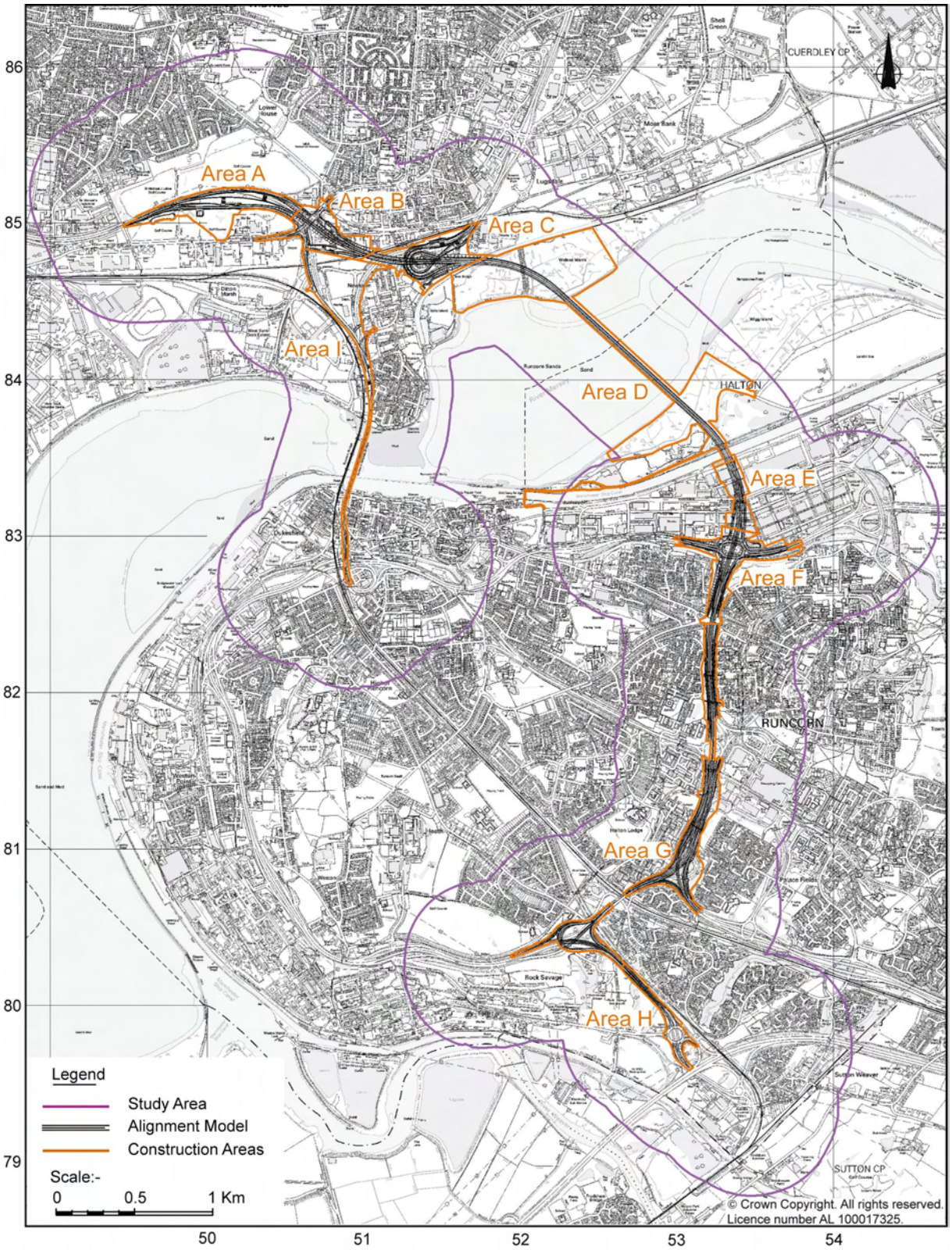
13.2 Purpose of the Study

13.2.1 The purpose of the study is to identify and examine cultural heritage features within the landscape in which the Project construction works would take place and determine any effects on such features as a consequence of the Project. The study also identifies mitigation where necessary and appropriate. Cultural heritage features are recognised as assets to the community and it is appropriate to assess any effects upon such assets. The cultural heritage of the area provides opportunities for appreciation and understanding and it is a requirement for this assessment to consider the current level of these opportunities, how they are expressed in the landscape and how they have been degraded by previous modifications to the landscape by recent and significant change. The assessment then considers how these opportunities are affected by the Project.

13.3 Study Area

13.3.1 In order to assess the effect of the Project on cultural heritage receptors a study area is defined which is defined by the landtake for the permanent works and also extends to an area approximately 500m around the permanent works to take into account those cultural heritage features which are not directly affected by the permanent works but for which there may be an indirect effect caused by the Project. Such indirect effects may affect the setting and accessibility of a feature. Additionally, the effect of the Project can be related not only to sites of known cultural heritage importance, but also to other cultural heritage sites which may exist but to date have not yet been identified by investigation and research. This study area is shown on Figure 13.1.

Figure 13.1: Study Area



13.4 Relevant Legislation and Planning Policy

International Legislation and Planning Policy

13.4.1 At an international level there are two principal United Nations agreements concerning the protection of the heritage resource – the UNESCO C*onvention Concerning the Protection of World Cultural and Natural Heritage,* published in 1973 (Ref. 1) and the *European Convention on the Protection of the Archaeological Heritage* issued in 1992 (Ref. 2), commonly known as the Valetta Convention, was agreed by the Member States of the Council of Europe in 1992, and also became law in 1992. It has been ratified by the UK, and responsibility for its implementation rests with Department for Culture Media and Sport. The Valetta Convention applies on land and underwater to the 12 mile limit.

National Legislation and Planning Policy

13.4.2 At a national level the principal legislation governing the protection and enhancement of physical heritage assets is the *Ancient Monuments and Archaeological Areas Act* 1979 (Ref. 3) and the Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref. 4). The 1979 Act provides protection to Scheduled Ancient Monuments. The consent of the Secretary of State for Culture, Media and Sport is required for works of demolition, destruction to or damage to a Scheduled Ancient Monument. This includes works of repair, flooding or tipping. However, the 1979 Act does not provide statutory protection of the setting of Scheduled Ancient Monuments.

13.4.3 The 1990 Act provides protection for buildings of special architectural or historic interest – known as Listed Buildings – as well as their settings. It is a criminal offence to carry out works to a Listed Building without consent under the 1990 Act. All works which affect the building's architectural or historic merit require consent. The 1990 Act also established Conservation Areas where demolition is strictly controlled.

13.4.4 In 1990 the Department of the Environment published Planning Policy Guidance Note 16 (PPG 16) 'Archaeology and Planning' (Ref. 5) which places emphasis on the need for early consultation with the local planning authorities (Paragraphs 12 and 18) and states - 'Where nationally important archaeological remains, whether scheduled or not, and their settings, are affected by proposed development there should be a presumption in favour of their physical preservation.', *(Paragraph 8).* PPG 16 also acknowledges that there may be situations when physical preservation of archaeological remains *in situ* is not feasible and advises that archaeological excavation for the purposes of 'preservation by record' may be an acceptable alternative.

13.4.5 In 1994 the Department of the Environment/Department of National Heritage published *Planning Policy Guidance Note 15 (PPG 15) 'Planning and the Historic Environment'* (Ref. 6), which provides a statement of government policies for the identification and protection of historic buildings, conservation areas and other elements of the historic environment with reference to the contribution these features make to the character and appearance of towns, villages and countryside, and their importance for leisure and recreation. This expresses the Government's commitment to the effective protection of the historic environment. Particular importance is attached to the desirability of preserving and enhancing '*areas of special architectural or historic interest*.' PPG15 also outlines the need for policies which foster positive and controlled management of change and recommends that development proposals should be designed with regard for their wider context.

Emerging National Law/Policies

13.4.6 A White Paper on heritage protection for the twenty-first century (Ref. 7) was presented to parliament by the Secretary of State for Culture, Media and Sport in March 2007. The White

Paper made a series of recommendations associated with the designation of historic environment assets and the treatment of historic environment assts in the planning system.

Regional Planning Guidance for the North West (RPG13)

13.4.7 Regional Planning Guidance for the North West (RPG13) was published by the Office of the Deputy Prime Minister in March 2003 (Ref. 8). It contained two polices relevant to cultural heritage.

13.4.8 Policy ER1 Management of the North West's Natural, Built and Historic Environment states that Planning authorities and other agencies in their plans, policies and proposals should:

a. promote positive management of the Region's natural, built and historic environment and protect it from development likely to cause harm (such as further loss or fragmentation of tranquil areas, including by light or noise pollution) as identified in the Regional Landscape Strategy 32;
b. adopt an integrated approach which protects designated areas while meeting the social and economic needs of local communities;
c. protect, for their own sake, all important aspects of the landscape, including regionally and sub-regionally distinctive features and special sites;
d. conserve and enhance, wherever possible, regional and local distinctiveness and variety, including the South and West Pennine landscapes, by re-assessing local landscape designations in the light of the Countryside Agency's Countryside Character initiative supported by local landscape assessments;
e. integrate a site-based approach for development planning with a more broadly based concern for biodiversity and other environmental issues;
f. seek to restore damaged and lost environmental features wherever possible;
g. take a common approach to landscape and character issues which cross local planning authority boundaries.

13.4.9 Policy ER1 continues and specifies that development plans should give priority to protecting and enhancing areas designated at international or national level. Development likely to significantly affect such sites should be allowed only if there are no alternative solutions and only if there are reasons of overriding public interest. Not all landscapes which contribute to the beauty, diversity and distinctiveness of the Region are covered by national designations, and positive steps should also be taken to enhance and conserve locally designated landscapes. The principles in policy ER1 should apply to the management of internationally, nationally and locally designated landscape areas.

Policy ER3 Built Heritage, states that:

13.4.10 'Planning authorities and other agencies in their plans, policies and proposals will identify, protect, conserve and, where appropriate, enhance the built heritage of the Region, including those features and sites (and their settings) of historic significance to the North West such as listed buildings, historic parks and gardens, conservation areas and battlefields and the wider historic landscape that contributes to the distinctiveness of the Region, taking into account the chronological depth of heritage contained within the North West.'

Regional Spatial Strategy for the North West (RSS13) 2003

13.4.11 As a result of the Planning and Compulsory Purchase Act, the Regional Planning Guidance for the North West (RPG13) became the Regional Spatial Strategy for the North West (Ref. 9). . It contained three polices relevant to cultural heritage.

13.4.12 Policy ER1 Management of the North West's Natural, Built and Historic Environment is a verbatim restatement of ER1 Management of the North West's Natural, Built and Historic Environment from *Regional Planning Guidance for the North West (RPG13) 2003.*

Policy ER3 Built Heritage

13.4.13 Policy ER3 Built Heritage is, again, a verbatim restatement of Policy ER3 Built Heritage from Regional Planning Guidance for the North West (RPG13) 2003. Policy ER3 continues with the following statement:

13.4.14 'The whole landscape can be said to be historic and historic landscapes must evolve and cannot be preserved in aspic, but some landscapes will be exceedingly rich in clear physical evidence of past land use on the surface of the land. Aside from particular sites (castles, forts, abbeys, field walling systems, etc) there will be areas where a series of sites and their settings create an integral whole which provides interest, and which should be regarded as cultural assets in their own right. While the North West's most valued features are already protected by statutory designations, a holistic approach to conservation in the Region, such as the programme of Historic Landscape Characterisation being carried out by English Heritage, involves recognition of the many centuries of heritage to be found in its wider historical landscape.'

Emerging Regional Spatial Strategy for the North West (2006)

13.4.15 A review of RRS 13 began in 2004 and a draft document was published by the North West Regional Assembly in January 2006 (Ref. 10) and is due to be adopted in 2008. One objective of the strategy is to protect and enhance the region's heritage and it requires protection of the most significant heritage assets.

Policy EM1 states that:

13.4.16 'Plans, strategies, proposals and schemes should identify, protect, maintain and where possible enhance historic features that contribute to the character and culture of landscapes'

Local Planning Policy

13.4.17 At a local level the Halton Unitary Development Plan published in 2005 (Ref. 11) is a planning document that provides guidance and policies relating to the treatment of heritage assets. The Plan includes a number of policies relevant to heritage:

13.4.18 Policy BE4 – seeks to ensure the preservation of scheduled ancient monuments and other nationally important monuments and their setting.

13.4.19 'Development proposals that are likely to have an unacceptable affect [sic] on Scheduled Ancient Monuments and other nationally important archaeological sites and monuments or their settings will not be permitted'.

13.4.20 Policy BE5 – seeks to ensure the preservation of other sites of archaeological importance.

13.4.21 'Development proposals that are likely to have an unacceptable affect [sic] on other known sites and monuments of archaeological significance will not be permitted. Permission may be granted if it can be demonstrated that measures of mitigation (such as preservation by design or record) and compensation (such as advances in knowledge or public understanding) can be employed to ensure there is no net loss of heritage or archaeological value'.

13.4.22 Policy BE6 – refers to the need for evaluation of sites of known or suspected archaeological importance prior to determination of any planning application for development which would affect those sites.

13.4.23 Policies BE7 - Policy BE15 – seek to preserve the character, setting and appearance of Listed Buildings, Conservation Areas and buildings and structures of local architectural and historic interest, with any loss of features/structures recorded.

13.5 Assessment Methodology

13.5.1 The study area defines a landscape within which the Project would be built. Although the direct and indirect effects on the landscape as a whole are an important consideration, effects on cultural heritage receptors are usually site-specific and so many of the cultural heritage receptors identified in the study area may not be affected or may only be imperceptibly affected. The study area is defined as the land up to 500m in all directions beyond the physical extent of the Project works. This area is considered appropriate for the identification and assessment of cultural heritage assets as it provides the facility to examine direct effects on cultural heritage receptors which are coincident with Project elements and also indirect affects on the settings of cultural heritage receptors in proximity to the Project. Therefore, the approach adopted aims to determine as accurately as possible only the significant effects. The objective is to provide a realistic effect assessment with reference to cultural heritage receptors and allow for an informed decision-making process.

13.5.2 In order to identify and examine the cultural heritage resources within the study area a preliminary survey of source material (desk study) was undertaken. The heritage data was assessed and considered in accordance with the Institute of Field Archaeologists *Standard and Guidance for Archaeological Desk-Based Assessment* (Ref. 12). The results of the desk study initiated two further elements of work – a walk-over survey and a palaeoenvironmental survey. On the basis of the results of these desk-based and site-based studies a third phase of work was undertaken – a survey of historic industrial buildings. The results of all the elements have been used to prepare this chapter. The assessment took into account detailed guidance as expressed in the Transport Assessment Guidance (TAG) Unit 3.39 - *The Heritage or Historic Resources Sub-Objective* (Ref. 13), which is based on Chapter 4, Section 9 of the *Guidance on the Methodology for Multi-Modal Studies Volume 2* (Ref. 14).

Desk-Study

13.5.3 The Cheshire Historic Environment Record (CHER) was consulted to obtain the latest information on known sites and features of archaeological/heritage interest within the defined study area. The CHER is the recognised regional repository of archaeological and historic data on the landscape of the study area. The CHER data was supplemented and cross-referenced by means of examination of historic mapping of the study area, aerial photographs of the study area and published works such as archaeological/historic journals issued by learned societies and reference books on the archaeology and history of the area.

13.5.4 English Heritage, the Cheshire County Council Historic Environment Planning Officer (Archaeology), the Conservation Officer for Halton Borough Council, the Merseyside Maritime Museum, the Conservation Officer for Warrington Borough Council, the Merseyside Archaeological Officer, and the Director of the Catalyst Museum were consulted to confirm the presence of archaeological/heritage sites/finds of interest within the general area and to discuss the effect of the Project on any heritage remains and possible mitigation measures.

13.5.5 A list of data from the CHER and other sources are provided in Appendices 13.2, 13.3, 13.4 and 13.5.

Walk-Over Survey and Palaeoenvironmental Survey

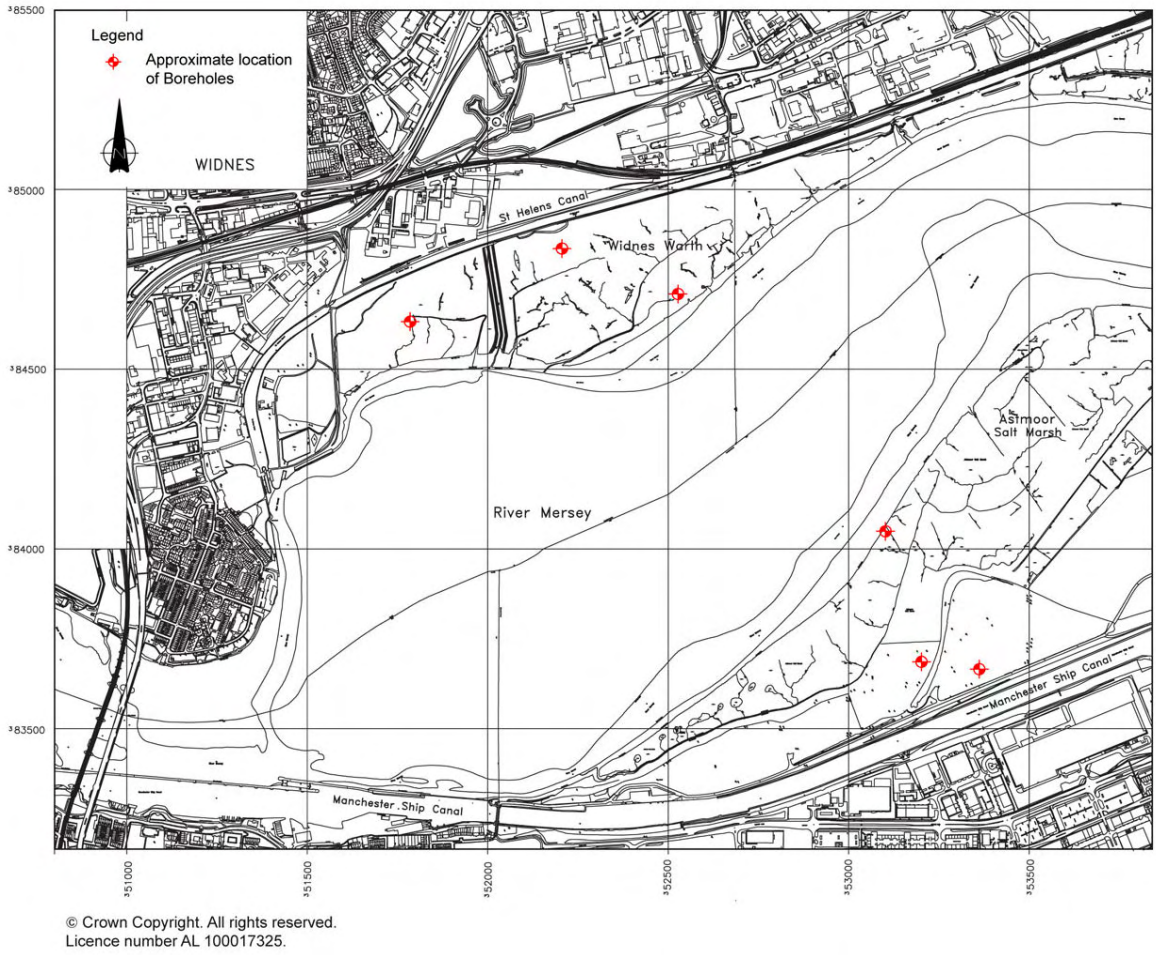
a. The desk study identified a number of further investigations that are required to complete the Environmental Impact Assessment for cultural heritage receptors and produce the relevant chapter for the Environmental Statement. This method statement details the works related to the second stage of cultural heritage assessment – comprising a physical inspection of the study area in the form of a walk-over survey and a programme of palaeoenvironmental sampling of deposits within the study area.

13.5.6 The walk-over survey was undertaken in order to identify the presence of any previously un-recorded material of archaeological significance and so locate any areas of potential human settlement or activity.

13.5.7 The purpose of the palaeoenvironmental programme was to assess the potential of the study area to provide information regarding the physical development of this section of the Mersey Estuary through time and determine the presence/absence of any palaeoenvironmental indicators that may indicate the existence, date and duration of human agency within that development. Archaeological research in other river estuaries, inter-tidal areas, and wetlands - such as the Humber Wetlands Project, The Severn Levels Project, the North West Wetland Survey and the Fenland Survey - have highlighted the potential archaeological significance of such environments. The conditions provided in such areas often lead to the preservation of organic artefacts of materials, such as wood, that do not normally survive on dry land, as well as the preservation of a wealth of environmental evidence from pollen grains to preserved tree stumps. Given the diverse range of food and material resources offered by river estuaries/inter-tidal areas human activity has been found to focus on such areas and so there is a potential for evidence of earlier human populations. The methodologies used in other research projects have been considered during the development of a methodological approach to the palaeoenvironmental survey.

13.5.8 The survey area covered by the walk-over survey is shown in Figure 13.2. The area is bounded by the St Helen's Canal to the north, the Manchester Ship Canal to the south, Runcorn Jubilee Bridge to the West and Hempstones Point to the east. The study area comprises an area of approximately 280 hectares and attains a maximum height of *c.* 6m OD.

Figure 13.2: Area of Walk-Over Survey and Palaeoenvironmental Coring



13.5.9 It should be borne in mind that prior to local government reorganisation in 1974, the north shore of the estuary, including Widnes, was part of Lancashire, whilst the southern shore of Runcorn and Halton was in Cheshire. As a consequence historic mapping and some records consulted refer to the northern shore, and historic resources located therein as 'Lancashire'. This description has been maintained for the purposes of this assessment.

13.5.10 The walk-over survey area consists of a section of the Mersey Estuary, a wide expanse of tidal water, sand banks and mud flats largely flanked by salt marsh. Around the area of the Runcorn Gap, which forms the western extent of the survey area, the estuary is narrowed by a sandstone outcrop. The inter-tidal sand banks and mud flats have developed in areas where the water velocity is reduced, allowing sediment deposition. The sand banks form mainly in the middle of the estuary, while finer sediment particle size mud flats occur mainly around the northern and southern shores. The salt marshes flanking the shores of the estuary are generally 1-2m above the level of the adjacent mud flats.

13.5.11 In order that the walk-over survey caused the minimum impact to the breeding grounds for several species of protected birds a sample of approximately 20% of the total area of salt marsh within the study area was surveyed. The walk-over survey took the form of a visual inspection of the survey area, where accessible and dependent on the tidal reaches during the survey period. The survey was undertaken in a systematic manner using 10m transects as the basic survey unit established on a grid based on OS national grid.

13.5.12 Find-spots were located by means of a GPS system with a spatial accuracy of *c.* 0.5m and logged with an alphanumeric code devised to enable input into the MapInfo geographical information system.

13.5.13 If located any small artefacts - such as metallic objects, ceramics and individual lithics (flint tools, cores and debitage) were to be collected and recorded. Scatters of lithics and any delicate objects (such as wooden wharfs and boats) that would be damaged by removal were left *in situ* and recorded by means of a drawn sketch, photography and a free text record.

13.5.14 The palaeoenvironmental survey for which the survey area was the same proceeded by means of collection of cores obtained with the aid of a 75mm diameter piston corer from 6 locations, as shown in Figure 13.2. Continuous lengths of core *c.* 1m in length were taken from depths, measured from the top of the core, of 1m, 3m and 5m – the maximum depth at which it was possible to operate.

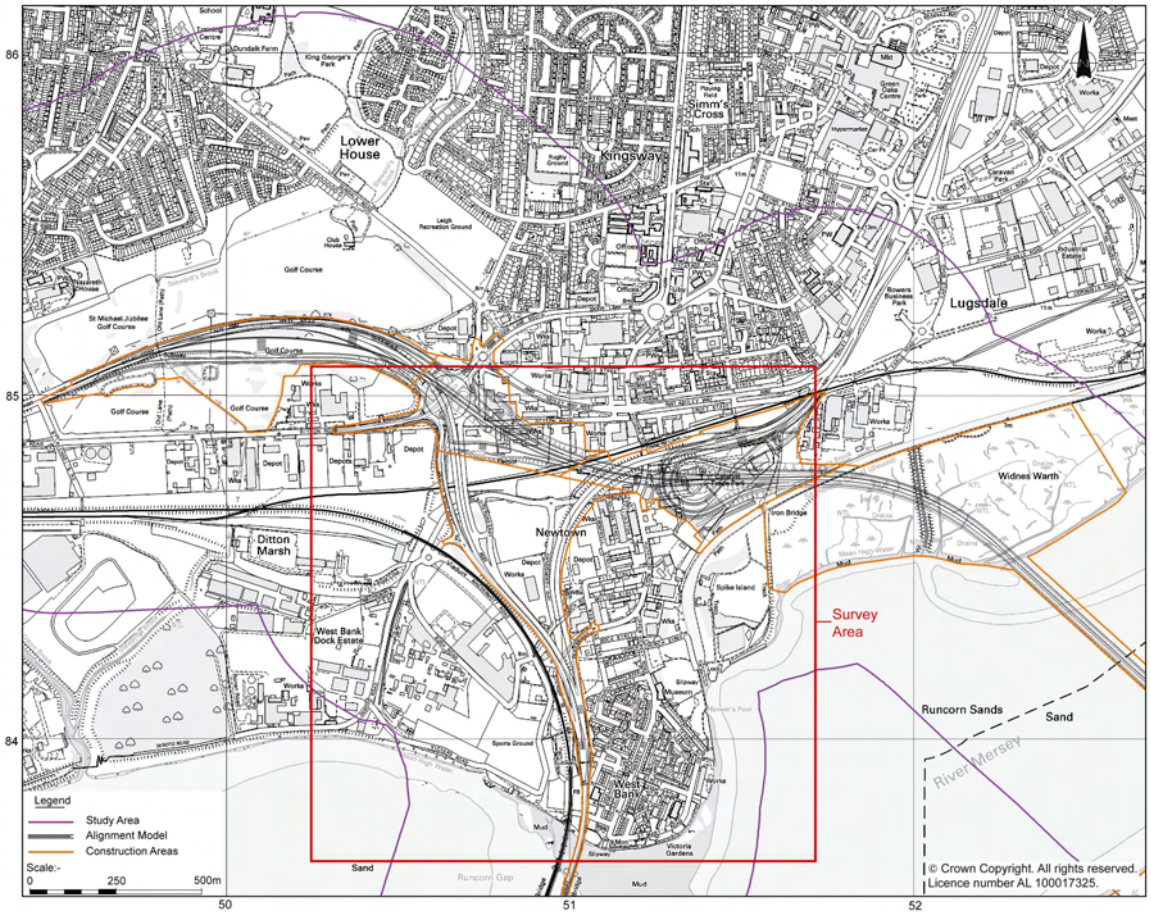
13.5.15 The cores from one location on the Astmoor salt marsh and one location on the Widnes Warth salt marsh were selected for laboratory assessment on the basis of the suitability of the cores to provide the data necessary in order to achieve the stated purposes. The core samples were sub-sampled and subjected to an assessment of potential for pollen and diatom analysis an assessment for the presence/absence of fossil invertebrate remains and plant macrofossils.

Industrial Building Survey

13.5.16 On completion of the walkover and palaeoenvironmental surveys and the initial desk study it was identified and agreed with English Heritage and the Cheshire Historic Environment Planning Officer (Archaeology) - who advise the local planning authority on archaeological issues - that instead of an archaeological evaluation programme (ground testing by way of evaluation trenches) more information on the exact nature of the heritage resource within a test area of one of the industrial zones would assist in determining the potential effect of the Project on the cultural heritage resource.

13.5.17 The location of the survey zone is shown in Figure 13.3 below. The survey study area has been selected to include the industrial historic character areas as defined in the Cheshire County Council and English Heritage document *Cheshire Historic Towns Survey: Widnes Archaeological Assessment* prepared in 2003, (Ref. 15).

Figure 13.3: Industrial building survey area



13.5.18 This phase of survey work has been termed 'extensive' as its purpose is to record rapidly and assess any buildings or structures associated with Widnes historic industrial development, particularly the chemical industry, and identify any that may require a further 'Intensive' phase of survey work. This initial phase of survey work is equivalent to a Level 1 survey as defined by the English Heritage document *Understanding Historic Buildings: A guide to good recording practice* (Ref. 16). The more intensive levels of recording (2, 3 and 4) would be appropriate in order to mitigate any effect on a historic building. Any intensive recording undertaken would be focused on buildings or structures that have been determined to have a level of significance and which would be subject to a negative effect, either direct or indirect as a result of the Project.

13.5.19 Prior to the field survey, available historic maps of the area and plans of some of the complexes of historic industries were scrutinised and potential sites of interest marked onto modern OS maps in order to aid the recognition of buildings and sites of buildings of industrial archaeological interest. Field data was collated using a variety of standard record sheets. A note was made of each building's name, location, date, type or function, materials and techniques used in construction, plan form, exterior form, any alterations or extensions, known historical associations and condition. Photographs of each building were taken, where possible, from a variety of directions and included detailed views any relevant architectural or technical details.

13.5.20 Following the field-based element of the survey each building recorded was given a unique gazetteer number. Following data collation, the significance of each structure was assessed using the English Heritage document *Industrial Buildings Selection Guide* (Ref. 17). Buildings were graded as being of low, moderate or high significance.

Method of Analysis

13.5.21 In assessing the significance of the buildings and structures recorded during the extensive industrial building survey the English Heritage criteria for the selection of industrial buildings for listing (Ref. 17) was used. Whilst one building is already listed, and the others are not of listable quality, it was felt that a nationally recognised set of criteria for these building types should be used in order to provide a meaningful measure of significance. The English Heritage criteria use eight criteria to assess when considering industrial buildings for designation:

The Wider Industrial Context

13.5.22 Industrial structures should be considered in their wider setting. Taking the example of the cotton industry of Greater Manchester, this might extend through all stages: the landing and storage of cotton bales; transporting these via canal or railway to the factory; carding, spinning and weaving on integrated or separate sites; finishing, storing and packing goods; distributing them to the consumer; and recycling waste products. All play their part, and each building needs to be seen within this broader context, in this instance, the chemical and other local industries of Widnes and Runcorn.

Regional Factors

13.5.23 This involves a regional perspective in the consideration of buildings and sites in order to achieve a representative sample for each sector of an industry. It also requires the identification of regional specialisms, and a study of survivals related to these industries, which will often have strong claims to note on a national level.

Integrated Sites

13.5.24 If the process to which a building is related involved numerous components, then the issue of completeness becomes overriding. On an integrated site that is relatively incomplete, a single surviving building is unlikely to justify listing unless it is important in its own right (e.g., it is an innovatory structure or is of architectural quality). On the other hand, an exceptionally complete site (perhaps with water systems and field monuments as well as buildings) may provide such an exceptional context that it raises the importance of buildings that might otherwise not be listable.

Architecture and Process

13.5.25 An industrial building should normally reflect in its design (plan form and appearance) the specific function it was intended to fulfil. Many processes, especially in the twentieth century, are carried out within buildings that simply house plant without illustrating the processes carried on within. In such cases, a building would normally require some special architectural quality to justify listing.

Machinery

13.5.26 The special interest of some sites lies in the machinery. Some structures are effectively machines in their own right and must survive relatively intact. In certain cases, such as the engine houses in the tin mining area of West Cornwall, the housing structures are emblematic of a major national industry and are listed even when structurally incomplete, and without their machinery. Generally speaking, where it is the machinery that makes a building special, the loss of this will reduce its eligibility for listing.

Technological Innovation

13.5.27 Some buildings may have been the site of the early use of important processes, techniques or factory systems. Technological significance may also reside in the building itself rather than the

industrial process it housed. The works of noteworthy wheelwrights or engineers will be of equal importance to major architects.

Historic Interest

13.5.28 Where physical evidence of important elements of industrial history survives well, a high grade may be justified; where survival is less good, there may still be a case for designation, but judgment will be required. In some cases historical association with notable achievements may be sufficient to list, much will depend on the force of the historical claims, and the significance of the persons or products involved at the site in question.

Rebuilding and Repair

13.5.29 In assessments for listing, a high level of reconstruction is sometimes the basis for a decision not to list. With industrial buildings, partial rebuilding and repair is often related to the industrial process and provides evidence for technological change that may be significant enough to warrant protection: alteration can thus have a positive value.

Assessment of Importance of Heritage Receptors

13.5.30 The assessment of the importance of the heritage receptors ('sites' or buildings) has been made using a three-fold scale:

Table 13.1 – Levels of Importance of Cultural Heritage Receptors

Importance	Equivalence
High	World Heritage Sites Sites of National Importance Scheduled Monuments Grade I and II* Listed Buildings English Heritage Registered Park and Garden Conservation Area
Moderate	Known sites and structures of historic/archaeological interest recorded on the Cheshire Historic Environment Record and/or identified during the assessment process Grade II Listed Buildings
Low	Sites or buildings or structures with marginal heritage interest Sites or buildings or structures which are so badly damaged that too little remains to justify inclusion into a higher grade

Assessment of Magnitude of Effects

13.5.31 The assessment of magnitude of effect has been made using a seven-point scale ranging from Low to High, whereby the values at the extremes represent large and small effects, with Neutral representing the mid-point. Considerations on the magnitude of the effect accommodate both direct effects on cultural heritage receptors and indirect effects on the setting of cultural heritage receptors based on the application of professional judgement. The scale used is based on the definitions of Overall Assessment Scores for Heritage of Historic Resources (Department of Transport, Guidance on the Methodology for Multi-Modal Studies), (Ref. 14), whereby:

High Positive

a. makes a major contribution to national policies for the protection or enhancement of the heritage;
b. provides potential, through removal, relocation or substantial mitigation of very damaging or discordant existing effects (direct or indirect) on the heritage, for very extensive restoration or enhancement of characteristic features or their setting;

c. removes or successfully mitigates existing visual intrusion, such that the integrity, understanding and sense of place of a highly valued area, a group of sites or features of national or regional significance is re-established; and
d. Restores or greatly enhances accessibility physically or intellectually.

Moderate Positive

a. contributes to regional or local policies for the protection or enhancement of the heritage;
b. provides potential, through removal, relocation or mitigation of damaging or discordant existing effects on the heritage, for significant restoration of characteristic features or their setting;
c. enhances existing historic landscape/townscape character through beneficial landscaping/mitigation and good design; and
d. Restores or enhances accessibility physically or intellectually.

Low Positive

a. are not in conflict with national, regional or local policies for the protection of the heritage;
b. restores or enhances the form, scale, pattern or sense of place of the heritage resource through good design and mitigation;
c. removes or mitigates visual intrusion into the context of locally or regionally significant heritage features, such that appreciation and understanding of them is improved; and
d. Allows or slightly enhances accessibility physically or intellectually.

Neutral

a. are not in conflict with, and do not contribute to policies for the protection or enhancement of the heritage;
b. maintain existing historic character in a landscape/townscape;
c. have no appreciable effects, positive or negative, on the known or potential heritage assets;
d. are a combination of slight positive and negative effects on the heritage resource;
e. does not result in severance or loss of integrity, context or understanding within a historic landscape; and
f. has no effect upon accessibility.

Low Negative

a. be in conflict with local policies for the protection of the local character of the heritage;
b. have a detrimental effect on the context and setting of heritage assets, such that their integrity is compromised and appreciation and understanding of them is diminished;
c. partially damages heritage features for which adequate mitigation can be specified;
d. does not fit in well with the form, scale, pattern and character of an historic landscape/townscape/area; and
e. Diminishes physical or intellectual accessibility.

Moderate Negative

a. be in conflict with local or regional policies for the protection of the heritage;
b. be intrusive in the context/setting and will adversely affect the appreciation and understanding of the characteristic of heritage resource;
c. be out of scale with, or at odds with the scale, pattern or form of the heritage resource;
d. substantively, but not completely damages heritage assets, resulting in loss of features such that their integrity is compromised but adequate mitigation has been specified;

e. be a major direct effect on heritage assets, resulting in loss of features such that their integrity is substantially compromised, but adequate mitigation can be specified; and
f. Moderate diminution of physical or intellectual accessibility.

High Negative

a. have a major direct effect on heritage assets such that they are lost or their integrity is severely damaged;
b. have a moderate direct effect on or compromise the wider setting of multiple heritage assets, such that the cumulative effect would seriously compromise the integrity of a related group or historic landscape/townscape;
c. be strongly at variance with the form, scale and pattern of an historic landscape/townscape;
d. be in serious conflict with government policy for the protection of the heritage, as set out in PPG 15 and PPG 16;
e. have a major direct effect on heritage assets, such that their integrity is lost and no adequate mitigation can be specified;
f. be highly intrusive and would seriously damage the setting of the heritage resource, such that its context is seriously compromised and can no longer be appreciated or understood; and
g. greatly reduces physical or intellectual accessibility.

Assessing Significance of Effects

13.5.32 The significance of the effect of the Mersey Gateway Project on the heritage resource has been determined by identifying the importance of the receptor (13.6) and the magnitude of the effect on the receptor (13.7) and then comparing these to provide an assessment of the effect based on professional judgement. High magnitude effects on receptors of high importance lead to effects of high significance. High magnitude effects on receptors of moderate importance and moderate magnitude effects on receptors of high importance lead to effects of moderate significance. Moderate magnitude effects on receptors of moderate importance lead to effects of low significance. High magnitude effects on receptors of low importance lead to effects of low significance. Low magnitude effects on receptors of high importance lead to effects of low significance. Moderate magnitude effects on receptors on low importance lead to effects which are not significant. Low magnitude effects on receptors of moderate and low importance lead to effects which are not significant.

13.6 Baseline and Results

13.6.1 This section provides an overview of the historic development of the area surrounding the Project, with specific reference to sites or features within or adjacent the Study Area where they illustrate a more general historical development.

13.6.2 Figure 13.14 (Appendix 13.1) illustrates the location of features or sites of cultural heritage interest within the study area discussed in this section, which are identified using a unique numbering system. Listed Buildings and unlisted buildings identified during the industrial building survey are shown in Figure 13.15 (Appendix 13.1) using a unique numbering series beginning at No. 1, with the reference numbers shown in parentheses thus (21). A gazetteer of these buildings is provided in Appendix 13.3. Archaeological sites are denoted with numbers beginning at No. 101, with the reference numbers shown in parentheses thus (100). A gazetteer of these archaeological sites is provided in Appendix 13.2.

Designations

13.6.3 There is 1 Scheduled Ancient Monument in the study area – Halton Castle (SAM no. 27611). A copy of the schedule, together with the CHER datasheet is provided in Appendix 13.4.

13.6.4 There are 47 Listed Buildings within the study area, the data sheets provided in Appendix 13.6.

13.6.5 There are four Conservation Areas that are within or partially within the study area – in Widnes, the West Bank and Victoria Square and in Halton, Weston Village and Higher Runcorn as shown on Figure 13.15. The Conservation Areas are considered in this chapter in relation to the assessment of the cultural heritage effect of the Project on their settings.

13.6.6 A further 125 sites of heritage interest have been identified within the study area, which have been entered onto the CHER. Copies of the CHER entries are provided in Appendix 13.5.

Prehistoric Period (pre-AD 43)

13.6.7 The geology of the Study Area suggests that the landform has been stable since before the retreat of the last glaciations circa 8-10,000 years ago. The basic geological strata which created the hills upon which Runcorn/Halton (to the south) and Widnes (to the north) are located have constrained the estuary of the Mersey to within a relatively narrow corridor at this point. The retreat of the last glaciation from the study area (as for much of the region) removed all traces of human occupation prior to the Mesolithic period (Ref. 18) and no records of artefacts of these early periods appear in the CHER for the Study Area.

13.6.8 There is little prehistoric evidence for human activity in the Widnes and Halton areas. Approximately 2km west of Widnes worked bog oak of potential prehistoric date was recovered in 1881 when an artesian well was sunk. In the Halton area a possible burial and pygmy cup has been reported at Clifton, a perforated stone axe at Weston Point and a Middle Bronze Age axe during construction of the Manchester Ship Canal. Flint tools as well as Neolithic pottery have been found at Frodsham and struck flint at Halton Hill and Norton village.

13.6.9 The only prehistoric evidence within the study area consists of an Iron Age coin (Figure 13.14 no. 229) recovered at Halton Castle (Figure 13.15 no. 21). This find has led to the suggestion that Halton Hill may be the site of an Iron Age defended settlement (Ref. 19) which if true would be the only settlement for this period known within the Study Area.

13.6.10 Whilst there is very little recovered evidence for prehistoric activity in the study area there is sufficient to indicate that the general area was used by early humans and the presence of a major river would have certainly provided an important focal point and resource. With regard to the evidence from the analysis of the palaeoenvironmental samples (see below) there is little

potential for early human settlement (pre-eighteenth century) evidence to be recovered from the river silts. This would not of course apply to sites on dry land.

Roman Period (AD 43-450)

13.6.11 A crossing point of the Mersey at the Runcorn Gap is documented in the medieval period, but such a crossing point may have been used from the Roman period (Ref. 20). Roman finds have certainly been recovered from the area; with 20 lead ingots (Figure 13.14 no. 230) found on the Mersey foreshore and a bronze coin of Domitian (Figure 13.14 no.106) recovered near the Silver Jubilee Bridge (Figure 13.15 no. 14). In 1884 a Roman road was also found 0.5m below the ground surface at 'Big Pool' in Runcorn (Figure 13.14 no. 228) apparently leading to Weston. The Roman road from Chester to Warrington also crosses the study area at its southern extreme (Figure 13.14 no. 132-133).

13.6.12 A Romano-British camp was recorded in the eighteenth century at Halton Castle (Figure 13.15 no. 21), but there is no evidence to support this other than the elevated position of the site affording a commanding view of the estuary and surrounding area. At Halton Brow (Figure 13.14 no.116), 200m northwest of the castle, archaeological excavations have revealed the presence of a single ditched agricultural enclosure of Romano-British date, which again might suggest the presence of a settlement.

13.6.13 There is enough evidence from the Roman period to record that there was certainly settlement and activity of that date within the general area. Major Roman settlements are known to the south (Chester), north (Wilderspool in Warrington and Manchester) and east (Northwich, Nantwich, and Middlewich) and so it is very likely that there would have been movement of people and supplies through the area, leading to a likelihood of finds.

13.6.14 It is notable that the Study Area has relatively few sites or finds from the prehistoric periods. Whilst this relative paucity of finds represents the presence and intensity of archaeological studies, it may also be an indication that this area was not intensively settled during these periods.

Saxon Period (AD 450-1066)

13.6.15 During this period the River Mersey formed a natural frontier between the English kingdom of Mercia to the south and Danish Northumbria to the north. Aethelflaed established a *burh* (fortified stronghold) at Runcorn in 915 AD (Higham 1993, 11, located approximately on Figure 13.14 no. 107) at a river crossing point, although one possible location at Castle Rock has since been destroyed. In support of the Anglo-Saxon *burh* is the dedication of Runcorn priory to St Bertelin as well as to St Mary (Ref. 18) with the Church of All Saints, Church Street, Runcorn of possible late Saxon origin (Figure 13.14 no. 122 and Figure 13.15 no. 3). From the early tenth century Halton was probably the manorial and administrative centre of an estate, with Runcorn the ecclesiastical centre. Runcorn is recorded at this time as *Rum confan*, meaning 'at the roomy cover' (Ref. 21), referring to a wide lagoon created by the river and tide in the Mersey estuary above the Runcorn Gap. Halton was 'Heletune' – 'a farm at a heathery place' (Ref. 21).

13.6.16 In Widnes there are no finds or historical records to indicate any activity during this period although the dedication to St Wilfrid at the church in Farnworth could suggest an early origin (Ref. 20).

Medieval Period (AD 1066 – 1540)

13.6.17 By the eleventh century there are a number of documentary sources, such as the Domesday Book of 1086, which record landowners within the area and the nature of their holdings. Runcorn is not mentioned in the Domesday Book, but it was probably part of the Halton estate

(Ref. 19), which is shown to increase in value by 1086 under the Norman Earl William Fitz Neil and his tenant Odard (Ref. 22):

13.6.18 'The same William holds Heletune [Halton in Runcorn]. Orme held it and was a free man. There [are] 10 hides. Of these 5 pay geld and the others do not pay geld. The land is for 20 ploughs. In demesne are 2 ploughs and 4 oxmen, and 4 villeins and 2 bordars and 2 priests with 5 ploughs between them all. Two fishermen there render 5s., and [there is] 1 acre of meadoe. Wood 1 league long and ½ league wide. There [are] 2 hays. In Wich [?Northwich] [there is] 1 waste house.

13.6.19 Of this land of this manor Odard holds ½ hide, Geoffrey 2 hides, Aitard 1½ hides, Humphrey 1½ hides, Odard ½ hide, Hardwin ½ hide. There are in demesne 3 ploughs, and 12 villeins and 1 radman and 5 bordars with 5 ploughs between them all, and 6 oxmen and ½ acre of meadow and 18 acres of wood. The whole manor T.R.E was worth 40s and afterwards was waste. Now what William holds is worth 50s and what his knights [hold] is worth 54s.'

13.6.20 After the Norman Conquest of 1066 the Rocksavage family were appointed Barons of Halton and Halton Castle (Figure 13.15 no. 21 and nos. 40), which became the focus for settlement in the medieval period. The court (now a public house called the Castle Hotel) is all that survives of the castle, together with the curtain wall. Halton Castle is a Scheduled Ancient Monument (Monument No. 27611) and a Grade I Listed Building (Listed Building No. 55981). Details of the Schedule entry are provided in Appendix 13.2 and details of the Listed Building description are provided in Appendix 13.4). St Mary's Chapel (Figure 13.15 no. 30) may lies on the site of the medieval chapel (a definitive determination awaits archaeological investigation) and the street plan of this part of Halton still reflects medieval burgage plots – with long narrow tenement plots fronting onto the main street.

13.6.21 The joint barony of Halton and Widnes was created in the twelfth century, administered from Halton Castle, which undoubtedly necessitated a link between the two and led to the first ferry between Halton and Widnes. Whilst Runcorn Gap could be crossed on foot at the lowest tides, at some risk, the significant movement of numbers of people and goods across the river would have required boats and the earliest reference to a ferry dates from *c* 1190 when:

13.6.22 'Wgoon and his heirs shall find the necessaries for the passage of half the ship of Widnesse for ever for all who wish to cross there for the love of god' (Ref. 19).

13.6.23 Norton Priory, adjacent to the study area, was also established in the twelfth century founded in 1133 by William Fitz Nigel, Baron of Halton, as a priory of Augustinian Canons. The Priory was raised to the status of abbey in 1391 and has a well-documented history of development to the Dissolution. The site also includes the Church of St Mary. Furthermore, the adjacent Cuerdley is the site of a medieval manor of Norton Priory, with rights of common in the woods and pastures granted to Norton Priory in a charter of 1115.

13.6.24 The medieval settlements of Widnes, Halton and Runcorn comprised small islands of arable land in areas of waste, marsh and woodland. There would have been an open field system with large unenclosed fields and strip allotments (Ref. 19). Windmills and watermills are recorded in the fifteenth-sixteenth century quarrying has been uncovered at Rock Farm. The River Mersey would have supplemented the agricultural provision with fishing - salmon, trout, eels, herring, sparling and lampries are noted in the Halton estate surveys, together with the presence of fisheries.

13.6.25 The medieval settlements within the study area may have been small, but they have left traces, not only of settlement, but also of various activities related to land and river/estuary use. Evidence from Cuerdley marshes suggests that a linear bank, known as Cromwell's Bank (Figure 13.14 no. 233) is probably a medieval flood defence, built to protect the surrounding low-lying area. The study area contains ridge and furrow, indicative of its former agricultural

usage. A variety of buildings survive – including the stocks in Runcorn market place (Figure 13.15 no. 103) and the Church of St Mary, Castle Road, Halton, which may have a medieval origin (Figure 13.15 no. 30).

Post-Medieval Period (from AD 1540)

13.6.26 Runcorn remained a small settlement until the opening of the Bridgewater Canal in 1776, when improved transportation provided the economic stimulus for industrial development and maritime trade. Indeed from the late eighteenth century Runcorn was becoming a fashionable spa town, which only diminished as industrialisation increased in the nineteenth century. Halton meanwhile was absorbed in Runcorn's suburbs and Widnes developed a little later, the first chemical factory being built by John Hutchinson in 1849 (Figure 13.14 nos. 188, 189). Rapid industrialisation led to a demand for housing and social infrastructure for the increased population in the area.

13.6.27 A study of the early OS maps for the study area shows the development of settlement, industry and infrastructure within what was a primarily rural landscape. The first edition OS map extract (Figure 13.16 Appendix 13.1) shows the Runcorn settlement largely confined to between the shore and the Bridgewater Canal with a large area of woodland/rough pasture to the east extending almost from the estuary to the village of Halton. The field systems indicate medieval and later enclosure patterns. The 1874-1881 map extract (Figure 13.17 Appendix 13.1) and the 1891-98 map extract (Figure 13.18 Appendix 13.1) show some increase in the number of buildings around Runcorn, related to the industrialisation in the area. It is the 1910 and 1937 maps of Runcorn (Figures 13.19 and 13.20, Appendix 13.1) and the 1891-1896 and 1907 maps of Widnes (Figures 13.21 and 13.22 Appendix 13.1), however that clearly show the effect of the increased industry in the area with a density of building constructed around the estuary, canal, road and rail routes. The later OS maps of 1927 (Figure 13.23 Appendix 13.1) and 1936-39 (Figure 13.24 Appendix 13.1) then show little further development.

13.6.28 Cheshire County Council has undertaken an historic landscape characterisation project that examined Cheshire together with Halton, Warrington and the Wirral. This project was designed to understand and so help to identify effective management of change in the cultural landscape. The landscape was divided into 12 character groups and the study area encompasses the settlement (post medieval and 20th century) industry, communications, post-medieval field systems, military and unimproved land.

13.6.29 Runcorn was situated at the terminus of five canals – St Helens Canal Sankey Navigation (Figure 13.1 no. 128) the Bridgewater Canal (Figure 13.14 no. 237), the Weaver Navigation (Figure 13.14 no. 236), the Runcorn to Latchford Canal (Figure 13.14 no.238) and the Manchester Ship Canal (Figure 13.14 no. 235) - which greatly assisted its economic growth in the eighteenth and nineteenth centuries, together with the development of the road and rail networks. The Runcorn to Latchford Canal, opened in 1803, was subsumed in large part by the later Manchester Ship Canal, but disused lengths of it survive on Wigg Island within the study area. The Mersey was first bridged in 1864-1868, by the Railway Bridge [also known as the Aethflaeda Bridge] which was designed by the engineer William Baker and is listed Grade II* (Appendix E; Figure 13.15 no. 11); by 1905 the Transporter Bridge was opened (Figure 13.15 no. 6) and by 1961 the current road bridge had replaced the Transporter Bridge. Another Listed bridge within the study area is the Waterloo Bridge over the Bridgewater Canal built in 1828 (Figure 13.15 no. 109). The current road bridge, known as the Silver Jubilee Bridge, is listed as Grade II (designed by Mott Hay and Anderson, built 1956-61; Figure 13.15 no. 14) and was at the time of its construction the largest steel arch in Europe. The historic maps and the density of canals and bridges emphasises the importance of transportation as a continuing theme of the study area.

13.6.30 The mid-nineteenth century development of the chemical industry at Widnes and Runcorn arose from the ready supply of water and easy accessibility to the means of transport for raw materials and finished products, as well as from the ability to develop industries that created much waste in sparsely populated areas. Other major industries developed, including soap manufacture and shipbuilding, some as a direct result from the impetus of the chemical industry development. The most notable negative effect however of the major industrialisation of the area was the huge amount of waste produced, particularly by the chemical industry. Indeed this led to the description of Widnes in 1888 as -

'the dirtiest, ugliest and most depressing town in England' (Ref. 23).

13.6.31 A chemical weapons production factory on Wigg Island (Figure 13.14 no. 130) was constructed in 1938 and decontaminated and dismantled in 1961. In 1969 many of the derelict structures were demolished and buried in concrete and today only two buildings remain on the site. As part of the Cheshire Historic Towns Survey, zones of industrial heritage interest for both Widnes and Runcorn have been identified. These zones, an initial step in the understanding of the post-medieval heritage of the area, are reproduced in Figure 13.14 (respectively nos. 231 and 232) and represent the areas of greatest survival of features related to the industrial heritage.

13.6.32 The walkover survey identified a number of scattered sites of heritage interest, which are not recorded as yet in the CHER. These sites all emphasise the continuing prominence of transportation as a recurrent theme of the Study Area, and date from the mid-nineteenth to early-twentieth century and are associated with boat traffic on the estuary, involving the remains of wharfs (Figure 13.14 nos. 220 and 223). They also include the remains of an iron boat (Figure 13.14 no. 222). In particular, the survey identified the remains of numbers of Mersey Flats – a type of boat built in large numbers and indigenous to the north-west designed to transport goods to and from the port of Liverpool, open up the river, and navigate the canals (Figure 13.14 nos. 221 and 225-227). Indeed, one site comprises the deliberate scuppering of at least nine late-nineteenth century Mersey Flats, presumably to control riverbank erosion (Figure 13.14 no. 224). Many have been abandoned and deliberately sunk to infill redundant docks, such as the West Bank Dock in Widnes, which contains c 20 flats in its northern arm, the Old Basin area of Runcorn, where 37 flats were dumped and Big Pool, where 42 flats have been abandoned. Whilst some studies have been undertaken to record these rapidly disappearing features of boating on the Mersey (Ref. 24 and Ref 25) any complete, well - preserved flats uncovered during any ground disturbance works would be of heritage interest.

13.6.33 During this exercise it became apparent that many of the buildings and structures associated with the earlier phases of the historic chemical industry had already been removed during the twentieth century – either during wholesale clearance of sites for regeneration or as part of the ongoing evolution of those plants or complexes still in use.

13.6.34 There are a number of Listed Buildings surviving within the study area that reflect the various elements of settlement and activity in the post-medieval period. These include a windmill (Figure 13.14 no. 101), a watermill (Figure 13.14 no. 104), a horsemill (Figure 13.14 no. 105), almshouses (Figure 13.14 no. 119), the sixteenth century Seneschal's House of 1598 in Halton (Figure 13.15 no. 52), seventeenth century timber-framed cottages, farmhouses (Figure 13.14 nos. 117 and 125), churches (Figure 13.15 nos. 120 and 122), an eighteenth century icehouse and walled garden at Norton Priory and features related to the transport and industrial history of the area (Figure 13.14 nos. 108, 109, 118, and 217).

Results of the Walk-Over Survey and Palaeoenvironmental Survey

Walkover Survey

13.6.35 The walkover survey and palaeoenvironmental survey were undertaken in accordance with the methodology described above

13.6.36 Eight sites were identified during the walkover survey, the locations of which are shown in Figure 13.14 (appendix 13.1) and are also included in the gazetteer provided in Appendix 13.2. A summary of the identified sites is presented below. The surface of the salt marsh itself was relatively unresponsive to the walk over survey due to the dense growth of grasses and other plants. No sites were identified on the surface of the sandbanks and mudflats.

Site 220

13.6.37 Site 220 comprises of two roughly parallel rows of timbers posts within the centre of the southern channel of the river, lying in the direction of the current (i.e. north-east / south-west). The southern row of timber posts is *c.* 50m in length and is only visible during low tides. The northern row of timber posts is *c.* 100m in length and the timbers are set into a deposit of angular stone blocks. The northern row is usually visible during high tides. It is likely that these timber posts form the remains of a late 19th to early 20th century wharf associated with the former boat traffic on the river estuary. Site 220 is considered to be of moderate significance.

Site 22

13.6.38 Site 221 comprises of the remains of a wooden boat hull, partially submerged in mud at the edge of a small drainage channel within the Astmoor salt marsh on the southern shore of the estuary. More of the hull may survive buried within the mud. The hull appears to be too insubstantial to be that of a Mersey flat and is probably that of a smaller river vessel dating to the early 20th century. Site 221 is considered to be of low significance.

Site 222

13.6.39 Site 222 comprises the remains of a steel boat hull *c.* 40m in length partially submerged in mud on the northern shore of the estuary. The hull appears to be that of a mid 20th century commercial barge – probably a 'dumb' (unpowered) barge. Site 222 is considered to be of moderate significance.

Site 223

13.6.40 Site 223 comprises the remains of a steel and timber boat hull *c.* 20m in length resting on the northern shore of the estuary. The hull has been partially covered in concrete. The hull appears to be that of an early to mid 20th century commercial barge. A timber wharf survives adjacent to the hull. Site 223 is considered to be of moderate significance.

Site 224

13.6.41 Site 224 comprises a group of the remains of at least nine timber boat hulls submerged in mud on the northern shore of the estuary and in varying states of preservation. The hulls are known to be those of late 19th to early 20th century Mersey flats scuppered during the 1970's to help prevent erosion along this section of shoreline. Two of the flats have been identified as the 'Eustace Carey' and the 'John and William' and a limited amount of amateur survey work was undertaken during the late 1990's. The survey work identified the presence of 9 hulls, although more may be buried within the mud. Any buried hulls are likely to be in a much better state of preservation that those visible. Limited research has been undertaken on the development of Mersey flats and there are only two complete examples in the U.K. As a result Site 224 is considered to be of moderate significance.

Site 225

13.6.42 Site 225 comprises the remains of a timber boat hull partially submerged in mud on the northern shore of the estuary. The hull appears to be that of a late 19th to early 20th century Mersey flat. Due to its poor condition Site 225 is considered to be of low significance.

Site 226

13.6.43 Site 226 comprises the remains of a timber boat hull, *c.* 10m in length, partially submerged in mud on the southern shore of the estuary. The hull is poorly preserved and only the ribs and keel remain. The hull appears to be that of a Mersey Flat, which may have been placed to control erosion of the shore. Site 226 is considered to be of low significance.

Site 227

13.6.44 Site 227 comprised a single rectangular sectioned timber protruding from the Astmoor salt marsh. The timber was *c.* 150mm by 100mm and 350mm in length. Site 227 may represent a remnant of a buried boat hull which is considered to be of low significance.

Site Summary

13.6.45 The results of the walkover survey are summarised in the table below:

Table 13.2: Summary of the Walk-Over Survey

Site Number	NGR	Description	Importance
220	100m north of SJ 52325 83348	Row of timber posts within estuary channel – *c.* 150-200m in length. Probably remains of 19th/20th C wharf.	Moderate
221	SJ 52370 83376	Remains of boat within small channel at edge of salt marsh on south side of estuary. Probably remains of small 19th C Mersey flat.	Low
222	SJ 51406 84010	Iron / steel boat hull adjacent to Widnes Wharf on north side of estuary. Early to mid 20th century.	Moderate
223	100m north west of SJ 51486 83868	Iron / steel and timber boat hull to rear of RMC depot on north side of estuary. Remains of small timber wharf next to hull. Early to mid 20th century.	Moderate
224	SJ 51600 84378	Group of at least nine late 19th C timber Mersey flats. Known to have been scuppered and placed to prevent bank erosion in 1970's.	Moderate
225	SJ 51840 84532	Portion of timber boat hull partially submerged within mud on north side of estuary. Probably remains of a small 19th C Mersey flat.	Low
226	SJ 52129 83315	Partial boat hull resting on mud adjacent to salt marsh on south side of estuary. Probably remains of a 19th C Mersey flat.	Low
227	SJ 52375 83379	Single timber sticking out of salt marsh on south side of estuary. Possible remnant of boat hull.	Low

13.6.46 All of the sites identified during the walkover survey date from the mid 19th to early 20th century and are associated with boat traffic on the estuary. None of these sites are recorded in the Cheshire or Merseyside SMR. The most significant site is Site 224, the group of at least nine Mersey flats placed to control bank erosion. This site is considered as being of moderate regional importance as there is a lack of understanding in the chronological and typological development of these craft, which means that any new discoveries provide a new data set. If the flats at Site 224 were in a better state of preservation they would be considered as being of high regional, or possibly even low to moderate national, significance.

13.6.47 Recent archaeological work at Chester Basin, undertaken by British Waterways during 1999-2000, recorded a number of partially preserved Mersey flats. However, only two complete examples of this type of craft exist within the U.K. Although some amateur recording work has been already been undertaken on the flats at Site 224, further detailed recording work may be

required if there were to be an effect as a result of the Project. It is also possible that further, better preserved, flats are buried within the mud of the salt marsh in this area.

13.6.48 The seven other sites identified during the walkover survey ranged in significance from low local to low regional and a basic drawn or photographic record of these may be required if there were to be an effect as a result of the Project. It is possible that Sites 221, 226 and 227 represent the remains of flats placed to control bank erosion, in a similar manner to those on the northern shore at Site 224 and it is also possible that further, better preserved, flats are buried within the mud of the salt marsh in this area.

13.6.49 No sites predating the mid 19th century were identified during the walkover survey. Within the Mersey estuary and other river estuaries erosion has uncovered prehistoric land surfaces, which often contain archaeological significant material. No visible indicators of prehistoric land surfaces, such as peat deposits, were noted during the walkover survey and the exposed sediments within the study appear to be of relatively recent origin. The palaeoenvironmental assessment has also suggested that the sediments sampled within the salt marsh are of post-prehistoric date.

Palaeoenvironmental Survey

Diatoms

13.6.50 Three diatom slides were prepared from each of two sediment cores: BH12: 1.15m, 2.02m and 2.14m and BH17: 2.12m, 2.40m and 2.70m. However, diatom preservation was very poor in core BH12, probably as a result of diatom valve fragmentation and dissolution under conditions of relatively high salinity and turbidity. At 2.14m, preservation was restricted to occasional unidentifiable fragments and valves were rare in the uppermost two samples, prohibiting a full diatom count. The rare, identifiable intact valves at 1.15m and 2.02m were dominated by species including *Paralia sulcata* and *Aulacodiscus argus*, marine or marine-brackish shallow-water (tychoplanktonic or benthic) taxa typical of the marine littoral zone.

13.6.51 Preservation was better in core BH17 although there was again evidence for fragmentation and dissolution but a meaningful full count would be possible. There is no evidence in the samples for a significant shift in the relative proportion of planktonic (deep water) to benthic (shallow water) taxa, the only true planktonic diatom, *Actinocyclus normannii* morph. *subsalsus*, being present in all three samples. The tychoplanktonic diatom, *Paralia sulcata*, which is typical of tidal flats (Denys, 1991) was common throughout, but there was also an increased proportion of benthic taxa at 2.4m. This was accompanied by taxa typical of freshwaters but which can tolerate low levels of salinity (*Cymbella sinuata*, *C. silesiaca*, *Navicula clementis*, *Fragilaria ulna*).

Pollen Analysis

BH12: 1.15m

13.6.52 This sample contained a reasonable concentration of moderately preserved grains. A reasonably wide range of taxa were identified including trees *Betula* (birch), *Quercus* (oak) and *Alnus glutinosa* (alder), whilst the shrubs *Corylus avellana*-type and *Calluna vulgaris* are well represented. Herbaceous pollen in the form of Poaceae (grasses) and species of Lactuceae undiff. (dandelion) and *Plantago* spp. (plantain) were also present. *Pteridium* (bracken) and Pteropsida (monolete) indet. (ferns) spores were also recorded. The most abundant palynomorphs, however, were pre-Quaternary spores.

BH12: 2.02m

13.6.53 This sample contained very little pollen, and the preservation of those grains that were present was poor.

BH17: 2.4m

13.6.54 Fairly low concentrations of moderately preserved pollen present. The best represented tree and shrub taxa were *Quercus* (oak), *Corylus avellana*-type (hazel), and Poaceae (grasses). Other grains identified include: Lactuceae undiff. (dandelions), *Plantago lanceolata* (ribwort plantain), and Chenopodiaceae.

BH17: 2.7m

13.6.55 The pollen spectrum for this sample was very similar to that from BH12, 1.15m with *Betula*, *Quercus*, *Corylus avellana*-type and *Calluna vulgaris* the predominant tree and shrub taxa. Herb pollen included Poaceae, *Plantago lanceolata* and Lactuceae undiff. Pre-Quaternary spores were the most frequently recorded palynomorphs.

Macrofossil remains

13.6.56 No invertebrate remains were recovered from the macrofossil subsamples.

BH12: 2.12-2.19m (0.350 kg subsample processed to 300 microns)

13.6.57 Moist, light to mid grey-brown, stiff and slightly sticky (working soft), silty fine sand. There were no obvious inclusions in the sample.

13.6.58 The extremely small residue (much less than 1 cm^3) was mostly of sand grains with a trace of unidentifiable herbaceous detritus.

BH17: 2.39-2.50 m (0.676 kg sub sample processed to 300 microns)

13.6.59 Moist, light to mid grey-brown, stiff (working soft), fine sand (with a little clay). There were no obvious inclusions in the sample.

13.6.60 The extremely small residue (of a few cm^3) amounted to only a little unidentifiable 'grassy' herbaceous detritus and some small mineralised root 'casts' or ‘moulds' - consistent with a natural deposit forming, for example, through alluviation (and subsequent development of grassland vegetation).

Interpretation and statement of potential

13.6.61 The diatom assessment showed that both sequences were dominated by euryhaline taxa, tolerant of wide variations in salinity and typical of an estuarine environment undergoing rapid fluctuations in salinity. The lack of a full marine, planktonic assemblage in either indicates a shallow-water environment throughout. The increased proportion of benthic taxa with depth in core BH17, which was accompanied by the presence of freshwater rather than marine-brackish taxa, indicates a trend above approximately 2.4m towards a shallower, upper estuarine environment with an increased marine influence.

13.6.62 With the possible exception of BH12 (1.15m), the pollen concentrations in the samples were too low to permit anything other than tentative conclusions regarding the possible palaeovegetation. Despite the alluvial depositional context, also reflected in the evidence for fluvial re-working and deposition from secondary contexts in the form of pre-Quaternary spores, many of the pollen grains were well preserved. This might suggest that the pollen derived from vegetation communities proximal to, and contemporary with, sediment deposition at the sampling site,

rather than re-deposited from elsewhere. If this hypothesis is accepted, then the following comments may be cautiously made.

13.6.63 The spectrum from sample BH12 (1.15m) reflects a range of habitats including wood/scrubland with oak, hazel, alder and birch, heath/acid grassland vegetation with heather and perhaps bracken, coastal/salt marsh habitats, and open grassland communities with low growing herbs including dandelions and ribwort plantain. A single grain of cereal pollen indicated arable land. Given the nature of the sampling site, it is not possible to identify the possible location or extent of these vegetation communities in the landscape. In terms of a timeframe, the evidence for more open, possibly anthropogenically modified, habitats and the absence of woodland taxa (such as lime or elm) might suggest this sample dates to a post-prehistoric phase of landscape development.

13.6.64 The lower pollen counts from BH12 (2.7m) and BH17 (2.4m) were characterised by similar spectra to that from BH12 (1.15m). This might imply broadly similar vegetation communities over the period of accumulation of BH12 and possibly also suggests a temporal overlap between the two cores, although this is based on admittedly limited data.

13.6.65 No invertebrate macrofossils were recovered from either of the examined subsamples. The extremely few plant macrofossils were of no great interpretative value; those from BH17 (at 2.39-2.50m) were consistent with the evidence from the diatom and pollen samples at 2.4m, however.

13.6.66 There is no potential for further diatom analyses on core BH17 due to poor preservation. A potentially significant change in the estuarine environment may be inferred for core BH12, however, which appears to relate to increased marine influence (high water levels) in the more recent past.

13.6.67 Given the potential difficulty of deriving a chronology, it seems unlikely that further palynological work would be of value. However, should any further sequences be encountered, especially if of a higher organic content than BH12 or BH17, then an additional assessment should be considered.

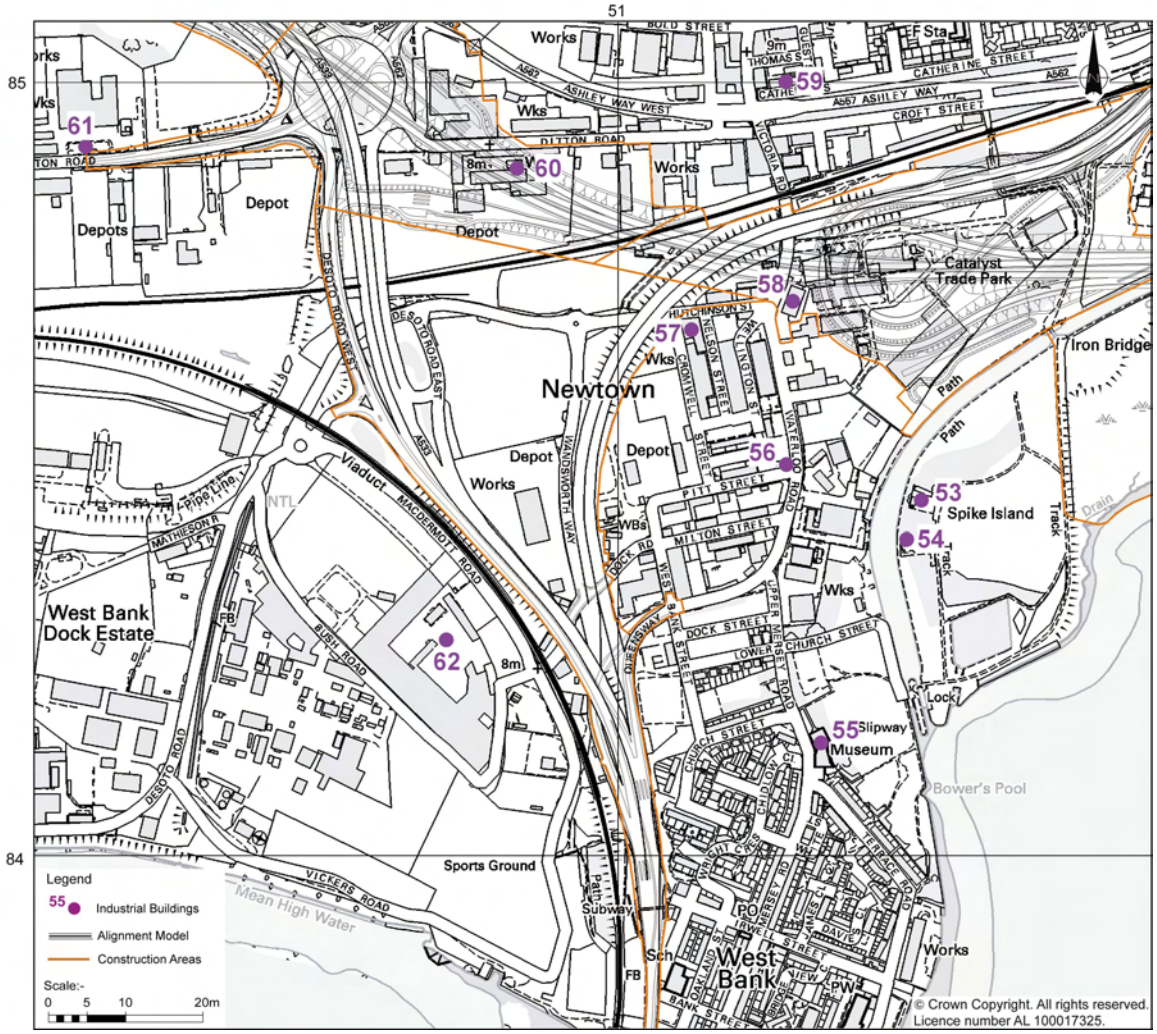
13.6.68 No further investigation of the current material for plant and invertebrate macrofossils is warranted. However, as noted above, if sequences of deposits with higher organic content are encountered by future sampling at the site, then a further assessment should be undertaken.

13.6.69 The palaeoenvironmental assessment has indicated the potential for landscape and estuarine regime changes of the salt marsh sediments, particularly in terms of reconstructing sea level change within the estuary. However the Project will not have a significant effect on this resource. This conclusion is reached as a result of the fact that the salt marsh extends over a considerable area and although the Project may have a direct impact on limited portions of the salt marsh the overwhelming majority of the salt marsh would remain intact and the potential for future recovery of palaeoenvironmental data would not be diminished.

Results of the Widnes Industrial Building Survey

13.6.70 In addition to these known historic buildings, an extensive survey of industrial buildings was undertaken as a part of the environmental impact assessment process. The location of the extensive industrial building survey area is shown in Figure 13.3 above. The survey area was selected to include the industrial historic character areas as defined in the Cheshire County Council and English Heritage document *Cheshire Historic Towns Survey: Widnes Archaeological Assessment* (Ref. 15). The locations of the buildings recorded as part of this extensive industrial building survey are given in Figure 13.4.

Figure 13.4 Buildings identified in the Widnes Industrial Buildings Survey



Site 53 – Kilns and associated remains (Figure 13.4 no. 53)

13.6.71 The two kilns (Plate 6.1) and the associated remains (Plate 13.2) are constructed of blue moulded brick stamped with the trade name 'OBSIDIANITE' and either 'REG TRADE MARK' or 'ACID PROOF' and made from siliceous fireclay. This type of brick has been identified on other industrial sites across the UK, although little evidence relating to their date of manufacture could be traced. The floors of the kilns and the associated former structure are of stone flags. Whilst they are all rectangular in plan, all three kilns are of varying dimensions. The two extant kilns have plain brick exteriors, with an entrance leading into the interior of each, which consists of an undivided space. Carbon build-up on the interior of the kilns supports their interpretation as some type of kiln or heating chamber. The available mapping and plan evidence suggests that they are part of former Hutchinson Works of the United Alkali Company which is known to have occupied this site. The complex was formerly the Hutchinson and Company's No.1 Works and has origins in the mid 19th century when John Hutchinson began alkali manufacture here in the Leblanc Soda Works. The 1908 plan of the United Alkali Works held by Cheshire Record Office shows a number of 'vitriol chambers' of similar dimensions to the kilns in the same location. In addition, the plan also shows structures in the location of HS2 (described below) and it would appear that both these groups are remains of the United Alkali Works and date to the early 20th century. A possible photograph of these vitriol chambers, dating to the late 1940s, appears in a published history of the chemical industry in Widnes (Ref. 26) although in a ruinous state, either after bombing during WWII or during demolition of the works in the post war period. The kilns

appear to have been consolidated as part of the reclamation of this area to create the Spike Island Park during the late 1970s and early 1980's.

Plate 13.1: Kilns

Site 54 – Former structures to the south of kilns (Figure 13.4 no. 54 and Plates 13.2 – 13.4)

13.6.72 These remains of former structures consist of areas of brick and stone flag flooring, remains of brick walling and large stone slabs. The remains would also appear to be remains of the United Alkali Works as shown on the 1908 plan and also appear to have been consolidated during the development of the Spike Island Park. Contemporary photographs of this area show large stone bases in the foreground, apparently to the south of the vitriol chambers and a second photograph shows large stone slabs described as 'acid tower bases'. These acid towers were apparently used for condensing hydrochloric acid and reached a height of over 60 feet (Ref. 26).

Plate 13.2: Remains of a third kiln or associated structure

Plate 13.3: One of the former structures to the south of the kilns

Plate 13.4: Other former structures to the south of the kilns

Site 55 – Catalyst Museum (Gossage's Tower) (Figure 13.4 no. 55)

13.6.73 Gossage's Tower forms part of the Catalyst Museum and is a Grade II Listed building. The listed building description, which was written in 1983 prior to the development of the museum, describes the building as follows:

13.6.74 *'Offices, now Works, built circa 1860 for early chemical manufacturers Hutchinson & Co. Rendered with slate roof, mainly four storeys with two storey wing. Classical features include projecting plinth, rusticated quoins, projecting bands at sill level, curved heads with keystones and architrave to ground floor windows, flat moulded heads elsewhere. There is a moulded string course midway up ground floor windows and a moulded eaves cornice. Sash windows to main buildings, triple at ground floor. Double two panel bolection moulded entrance door, with*

plain fanlight, flanked by flat pilasters. The two storey section and the interiors are not of interest. This is a dominant building in the landscape which was formerly known as the Tower Building.'

13.6.75 The present building largely conforms to the above description, although an additional floor has been added. This element, which is constructed of steel and glass, was added during the development of the museum to form additional display space and to provide an area from which to view the surrounding landscape and the Mersey Estuary. Whilst the description above attributes the building to Hutchinson and Co., the building was actually constructed as the offices of Gossage's Soap Works, which occupied the site from the mid 19th century. Production of Gossage's 'Magical Soap' continued on the site until it's clearance in the 1940s. Gossage's Tower is the only surviving element of these works.

Plate 13.5: Catalyst Museum

Site 56 – Mersey Power Company electricity sub-station (Figure 13.41 no. 56)

13.6.76 This building is constructed of red brick in English garden wall bond, with a low-pitched hipped gable roof covered in bitumen roofing felt. Tall brick vents rise from either end of the roof and are topped with classically-styled concrete caps. Whilst apparently of two-storeys, the interior is almost certainly open from the ground floor to the roof. The ground floor is windowless and has two openings – one arch-headed door opening in the front elevation and a narrower segmental arch-headed door opening in the side. There are segmental arch-headed windows to the first floor. A sandstone plaque bearing the text 'MERSEY POWER COMPANY LTD' sits beneath the central pair of windows on the front elevation. The Mersey Power Company is said to have been set up around 1911 to use high pressure steam output from a vacuum evaporation plant producing salt from brine at Weston Point Runcorn (completed in 1911). The steam produced by the boiler plant at Weston was apparently of too high a pressure for salt production and was first used for electricity generation with the subsequent lower pressure steam being re-used. Although the building is of an early 20th century date, it is uncertain whether this sub-station relates to that particular scheme or distributed power generated on this side of the Mersey.

Plate 13.6: Mersey Power Company substation

Site 57 – Warehouse / former works (Figure 13.4 no. 57)

13.6.77 This building consists of two adjoining rectangular blocks – an earlier eastern portion, which is longer than the later western portion. The earlier portion is of brick in English bond with a flat or low pitch roof with parapet that was not visible during the survey. The windows are square-headed with sandstone sills and there are brick dental heads below gutter. The later western portion is of similar brick stock in English bond to the ground floor with English garden wall bond above. Concrete floors and/or framing is visible at sill level on the first and second floors (painted yellow) which have large window openings. There are smaller windows with sandstone sills to the ground floor. This portion has a flat roof. The later western portion may be a rebuild / extension of the original building – indicated by the ground floor windows and the English bond brickwork that are the same on the eastern portion and the ground floor of the western portion. Later alterations include blocking of windows and the addition of roller shutters over doors and windows. The origin of this building is uncertain, although it may have formed part of the Mersey Copper Works situated immediately to the west. It is likely that the earlier portion dates to the late 19th century and the later portion to the 1920s-30s.

Plate 13.7: Warehouse – possible former works?

Site 58 – Waterloo Centre (former ICI building) (Figure 13.4 no. 58)

13.6.78 The Waterloo Centre originated as the offices of ICI and was constructed in 1934. It is constructed of brick in stretcher bond with concrete detailing and a flat roof. It consists of a central four-storey block with square-headed windows that have concrete sills. This is flanked by two three-storey slightly projecting side wings with square-headed windows with concrete surrounds. There is a raised concrete band at lintel level on third floor and for the floors. A second raised concrete band at sill level on the fourth floor of the central block continues to form the top of the parapet of the side wings. There is a concrete surround to the main entrance and a concrete plaque above the central forth floor windows bearing the text 'ICI (GENERAL CHEMICALS) LTD.' and the date '1934'. The building is modernist in style, although there are cast iron hopper heads on each wing that carry raised floral decoration that is at odds with this style. The building, now in use as a small business centre, was the offices of the ICI Experimental Works (now occupied by the Catalyst Trade Park), also know as the Gaskell Marsh Works. The site has been associated with the chemical manufacturing industry since 1854, when Henry Deacon unsuccessfully attempted the manufacture of soda using the ammonia process. In 1856, in partnership with Holbrook Gaskell, Deacon began to manufacture sodium carbonate using the Le Blanc process, which was in common use across the UK and Europe at this time. In 1890 the Gaskell Deacon Company joined approximately forty other alkali manufacturers in forming the United Alkali Company and in 1891 the Central Laboratory or Hurter Laboratory was founded, which was subsequently purchased by ICI.

Plate 13.8: Waterloo Centre

Site 59 – Victoria Lees Stables (Figure 13.4 no. 59)

13.6.79 These former stables are constructed of hand made brick in English bond with a double-span gable roof. The front span is covered in concrete tiles, whilst the rear span is covered in asbestos concrete sheet. The elevations have blind arches with rubbed brick detailing and tumbled in brick works at their bases. A central projecting gable to the front elevation has a sandstone plaque bearing the text 'VICTORIA LEES STABLES' over 'EST 1873' and sandstone kneelers. There is an extension on the eastern end of the building constructed in similar brickwork containing a large door opening with a heavy timber lintel. A large door opening with roller shutter has also been added to the main structure. Roller shutters have also been added to two smaller doorways in the front elevation – the doorway in the central arch is probably a later addition. Windows have been added to the side elevation, covered by roller shutters on the ground floor. No associations are known, but may have provided horses used for transport in the chemical industry, or for use by coaches transporting people engaged in trade relating to the chemical industry.

Plate 13.9: Former Victoria Lees Stables

Site 60 – Former steel alloy works (Figure 13.4 no. 60)

13.6.80 These buildings on Ditton Road are of one and two-storeys, in Flemish bond and English Garden Wall brickwork with slate gable roofs. The windows are segmental arch-headed and square headed, some of the former with sandstone keystones. Some also have sandstone lintels and/or sills. Some later buildings forming part of the complex to the rear are steel framed with asbestos concrete gable and flat roofs. The interior of the complex also contains a squat circular chimney – possibly associated with a former smelter. The various buildings making up the complex are largely original, with minor alterations and additions such as roller shutter doors, new plant and walkways. These buildings, which are located on the site of a former 'caustic drum works', are first shown on the early 20th century Ordnance Survey maps marked as 'Steel Alloy Works'. It is thought that the site was constructed in 1914 to facilitate the production of tungsten metal powder for use in the manufacture of war munitions. The first six years of operation were centred on the production of tungsten powder. A short term increase in demand between 1919 and 1920 led to the extension of existing departments, erection of new buildings and the installation of additional plant. Demand for tungsten shortly declined and buildings and plant within the works became available for the production of other metals, alloys and chemicals. Urgent demand for alloys, notably ferro-vanadium, not produced in Great Britain on a commercial scale in 1921 led to the manufacture of the principal carbon-free metals and alloys used by steel makers.

Plate 13.10: Former steel alloy works

Site 61 – McKetchnie Brothers building (Figure 13.4 no. 61)

13.6.81 These former offices and laboratory are constructed of red brick in English garden wall bond with terracotta detailing. The segmental arch-headed windows have moulded hoods that continue as a raised band between windows. The (originally) off-centre main door opening has an arched terracotta door surround bearing the company monogram 'MCK BLTD' and the date 1920. A terracotta panel along the parapet bears the text 'MCKETCHNIE BROTHERS LTD'. The parapet has a moulded cornice at the base and moulded coping. An extension has been added to the eastern end of the building in matching brick work, which has put the main door opening in the centre of the front elevation. The McKetchnie Brothers chemical works engaged in the production of copper related chemicals and had a large works on the site of the former Liver Alkali Works, all of which had now been removed.

Plate 13.11: Former offices of McKetchnie Brothers Ltd.

Site 62 – Former chemical works complex by West Bank Dock (Figure 13.4 no. 62)

13.6.82 The complex is made up of a number of one and two-storey former industrial buildings. They largely consist of long warehouse / shed type buildings, built of red brick with slate or asbestos concrete roofs. There are also some steel-framed buildings. Close inspection was not possible at the time of the survey. These buildings first appear on the historic Ordnance Survey maps in the early 20th century, marked as 'Phosphate Works' and were possibly engaged in the manufacture of fertilizers. The complex was constructed adjacent to the now in-filled West Bank Dock, probably for the ease of unloading raw material and/or loading finished product. Some of the buildings are being used and most appear in relatively poor condition.

Plate 13.12: Former chemical works complex, looking north-east

Plate 13.13: Buildings of the former chemical works, looking south-west

Table 13.3: Assessment of Extensive Industrial Building Survey

CRITERIA ➔ / BUILDING ➔	Wider Industrial Context	Regional Factors	Integrated Sites	Architecture and Process	Machinery	Technological Innovation	Historic Interest	Rebuilding and Repair	*Total Score*	*Importance*
	Importance Score	Importance Score	Importance Score	Importance Score	Importance Score	Importance Score	Importance Score	Importance Score		
Site 53 Kilns and Associated Remains	3	3	1	2	0	2	2	1	*14*	Moderate
Site 54 Former Structures to the south of kilns	3	3	1	2	0	2	2	1	*14*	Moderate
Site 55 Catalyst Museum (Gossage's Tower) Listed Grade II	3	3	1	3	0	3	3	2	*18*	High
Site 56 Mersey Power Company Electrical Sub-Station	3	3	1	2	0	2	2	2	*15*	Moderate
Site 57 Warehouse	3	3	1	1	0	1	2	2	*13*	Moderate
Site 58 Waterloo Centre	3	3	1	1	0	2	2	2	*14*	Moderate
Site 59 Victoria Lees stables	3	3	1	2	0	0	2	2	*13*	Moderate
Site 60 Former Steel Alloy Works	3	3	3	2	0	1	2	2	*16*	Moderate
Site 61 McKetchnie Brothers building	3	3	1	2	0	1	2	2	*14*	Moderate
Site 62 Former chemical works complex by West Bank Dock	3	3	3	1	0	1	2	2	*15*	Moderate

13.6.83 Further residential, municipal and industrial-related listed features are detailed on Figure 13.15 and Appendix 13.3. Many of these features lie within Conservation Areas in Widnes (West Bank and Victoria Square) and Halton (Halton Village and Higher Runcorn).

Assessing Potential for Undiscovered Remains

13.6.84 The Mersey has been a focus for human settlement and activity for thousands of years and so it is possible that artefacts could be found along the foreshore related to earlier human activity. A recurrent theme in the history of the Study Area is that it is characterised by transportation – both north-south across the Mersey as well up- and downriver. No prehistoric sites of settlement or activity are known within the study area, the walkover survey identified no artefacts relating to such sites and the palaeoenvironmental study revealed little potential.

13.6.85 Runcorn Gap is recorded as a crossing point since the medieval period, although it is probable that the Romans crossed here too, given the Roman road in the area (at Big Pool – Figure 13.14 no. 228) and the recovery of a Roman coin adjacent to the Silver Jubilee Bridge (Figure 13.14 no. 14). There is therefore a possibility of retrieving evidence in the Runcorn Gap area related to early ferries and riverside/port activities along the foreshore, although such evidence could only be retrieved through ground disturbance works which are not proposed in this location.

13.6.86 The probable site of the Saxon *burh* at Runcorn is located as shown on Figure 13.1 no. 107 and whilst much archaeological evidence of the *burh* will have been removed by later settlement, industrial activity and previous bridge building, some remains could survive below ground.

13.6.87 Whilst much of the pre-industrial landscape is likely to have been removed or heavily affected by the subsequent industrial development and associated residential and social growth, it should be noted that the lack of archaeological investigative work in the area results in a potential for previously undiscovered sites/features of heritage interest to be recovered during any ground disturbance works. However given the few indicators noted of the presence of pre-industrial heritage features this is considered to be of low potential.

13.6.88 The flourishing industrial development in the late-eighteenth and nineteenth centuries within the Runcorn/Widnes area has left a high potential for the recovery of evidence related to a wide range of industrial sites and associated infrastructure (the development of road, rail river/sea and canal transport, together with the development of residential and civic structures for the workforce employed in the industries). Much of this heritage has not been investigated or classified to date (other than the identification of zones of greater survival by Cheshire County Council – Figure 13.1 nos. 231 and 232) and so potential has been assessed simply on the extent of the identified zones and from the results of the extensive survey of industrial buildings undertaken as part of this Project. In the identified zones buildings and features survive above and below the ground that could assist the understanding of the origins and development of the industries in the region and so there is a high potential for buildings and features to be affected by ground disturbance works, particularly in relation to the approach roads for the New Bridge.

13.6.89 Within the estuary there is a potential for uncovering sunken boats, especially Mersey Flats (some of which have been abandoned and subsequently sunk, or have been deliberately sunk to control riverbank erosion). Whilst there are no records of wrecks within the general area, this does not preclude the finding of sunken vessels – particularly given that the Mersey Estuary and its approaches from the Irish Sea is identified as dangerous to sailing ships, with lack of visibility, currents, tides, shifting sandbanks and commercial operations creating difficult conditions. The greater the ground disturbance within the estuary, the higher would be the potential for uncovering a sunken vessel/feature/find, although such a discovery is considered of low potential.

13.7 Effects Assessment

13.7.1 The potential effects upon cultural heritage receptors have been identified with reference to the Project and the proposed construction methods. Effects to cultural heritage receptors have been considered during the construction phase and during the operational phase.

13.7.2 The do-nothing scenario has been considered as one of the alternatives to the Project. It refers to the cultural heritage and archaeological receptors of the project area if the project area were to remain in its present state (as at 2007) and the Project were not to proceed.

13.7.3 The effects for the do nothing scenario have been assessed for each individual construction area and are detailed below.

13.7.4 The do-nothing scenario assumes that normal development control processes based upon the application of Planning Policy Guidance Notes 15 (Ref. 6) and 16 (Ref. 5) would occur to other developments that might occur.

13.7.5 For the purposes of description, the works may be divided into a number of construction work areas (Figures 13.5 to 13.13 inclusive). The potential effects to cultural heritage receptors will be identified and assessed with reference to these construction work areas.

13.7.6 The known and potential heritage receptors including all that could be affected by the Project have been identified and reviewed in 13.10 and 13.11 above. The receptors comprise over 138 separate individual artefact findspots, archaeological or historic sites/areas and 56 historic buildings. These heritage receptors have been entered into a GIS database, and the results are shown in Figures 13.14 (sheets a and b) and 13.15 (sheets a and b). These base-plans have then been overlain onto the individual construction work areas in order to determine where direct and indirect effects, whether positive or negative, permanent or temporary, might occur as a consequence of the Project.

13.7.7 Effects may arise either as a result of construction or from the operation of the Project elements. Such effects may be direct or indirect, temporary or permanent and of varying magnitude. In practice the many permutations of these variables may be considerably simplified. Effects that arise during construction are considered to be direct effects upon heritage receptors, such as the disturbance of potential or expected buried archaeological remains, or effects upon a standing building or a monument. These would all be permanent effects – for once disturbance has occurred it may be partially mitigated by archaeological recording, but the site can not be returned to its pre-disturbance state. Construction activities may also cause indirect effects to the settings of monuments or buildings arsing from such activities as traffic movements – these would be temporary effects. Effects that arise during the operation of the Project works will be indirect, perceptible effects upon the setting of monuments or buildings and may be temporary (if for example, landscape mitigation in the form of planting trees would eventually obscure a visual effect) or permanent (if no such effective mitigation is possible). For the purposes of clarity, with respect to indirect effects on cultural heritage receptors and their settings, it is noted that the cultural heritage value may run counter to the landscape value.

13.7.8 This analysis shows that very few heritage receptors would be affected by the Project. An assessment of the significance of the effect of the Project on the heritage resource, based upon the sensitivity/importance of each receptor, and the Magnitude of Effect, has been made and is presented in a series of tables presented in association with a description of the construction activities for each construction work area.

Construction Work Area A – Main Toll Plaza

13.7.9 There are two known Cultural Heritage receptors that could be affected by construction and operation of the Project elements in Construction Area A. In addition, there is also potential for

as yet undiscovered archaeological remains to be present in Construction Area A which could be affected by the Project.

13.7.10 The do nothing effects for Construction Work Area A are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be neither the positive or negative effects to the setting of the Listed Building arising from the implementation of the Project;
d. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
e. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.11 The effects of the construction phase in Construction Work Area A include the permanent, direct, negative effects of groundworks on known and potentially as yet unknown archaeological remains arsing from the establishment of the haul road and site compound, the installation of vibro-concrete columns and excavation for culvert extensions, drainage and balancing ponds. Ground works may affect archaeological remains on part of the site of the Liver Alkali Works which is a site of low impotence. As the effect would be upon a part of a locally important asset, rather than its entirety, the magnitude is low and therefore the effect is **not significant**. The significance of the effects on archaeological remains which are as yet unknown cannot be quantified.

13.7.12 The operational phase of the project would not create any direct impacts on the cultural heritage receptors in Construction Area A beyond those already assessed for the construction phase.

13.7.13 An indirect effect on the setting of the Church of St Michael would arise during the construction phase in Construction Work Area A. The church is a Grade II* Listed Building and is of high importance, but it would be screened from the majority of the construction works by intervening buildings and existing tree cover on the former St Michael Jubilee Golf Course. The effect on the setting would be short-term and temporary and it would be negative as it arises from the detrimental effect of construction phase activities on the setting of a Listed Building. The magnitude of the effect is therefore low. The significance of the effect is **low**.

13.7.14 An indirect effect on the setting of the Church of St Michael would arise during the operational phase in Construction Work Area A. The effect on the setting arises from the establishment of new elements in the landscape in the form of the Main Toll Plaza, the extended carriageway, and finishing works such as gantries, lighting and signage. The effect is long-term permanent and negative and arises from detrimental effect of the Project on the setting of a Listed Building acknowledged to be a locally important asset. The Church would be screened from the majority of the works by intervening buildings and existing tree cover on the former St Michael Jubilee Golf Course, therefore, the magnitude of the effect is low and the significance of the effect is low.

Table 13.4 – Cultural Heritage Receptors in Area A

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area A			
Construction works affecting the setting of a Listed Building.	Site 38: Church of St Michael High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area.	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown
Operational Phase			
Area A			
Operational works affecting the setting of a Listed Building.	Site 38: Church of St Michael High importance	Negative Long Term Permanent Indirect Low magnitude	Low negative significance

Figure 13.5a: Cultural Heritage Receptors and Construction Effects - Area A

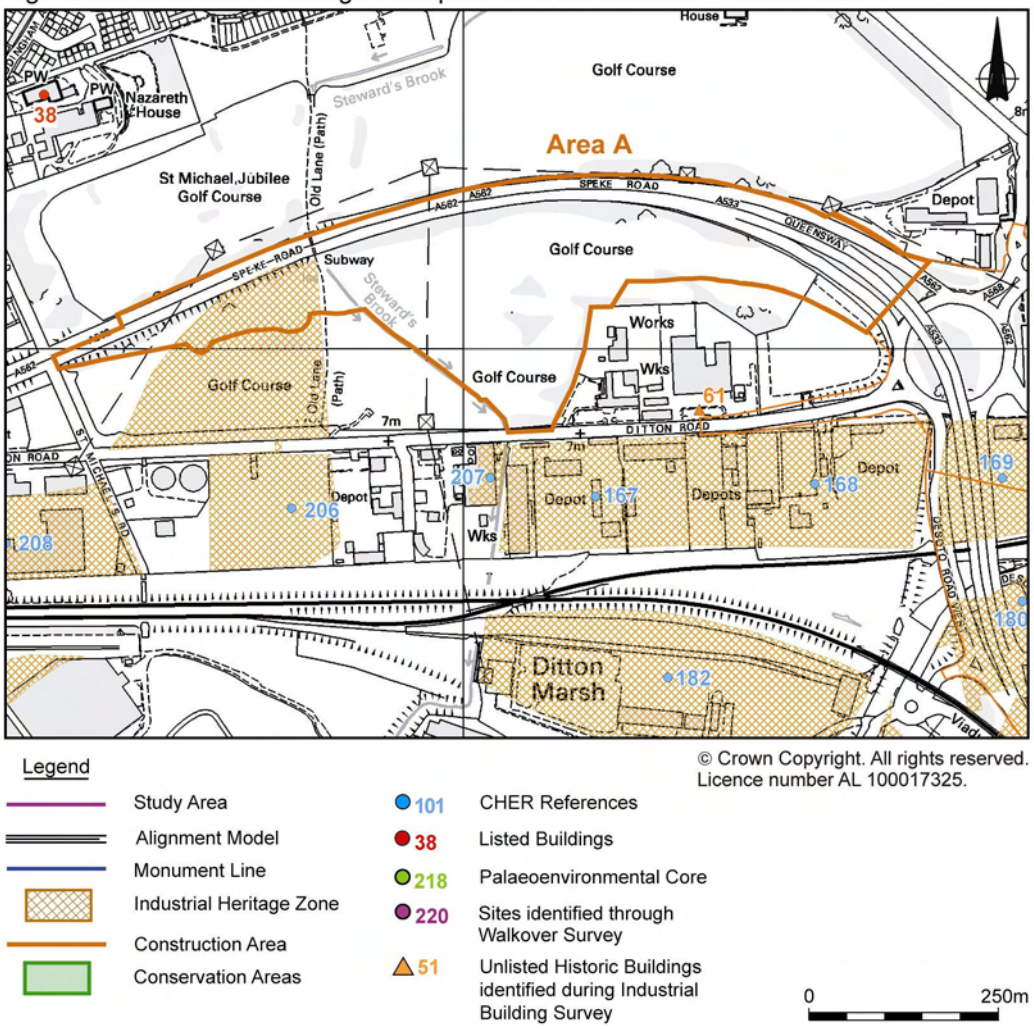
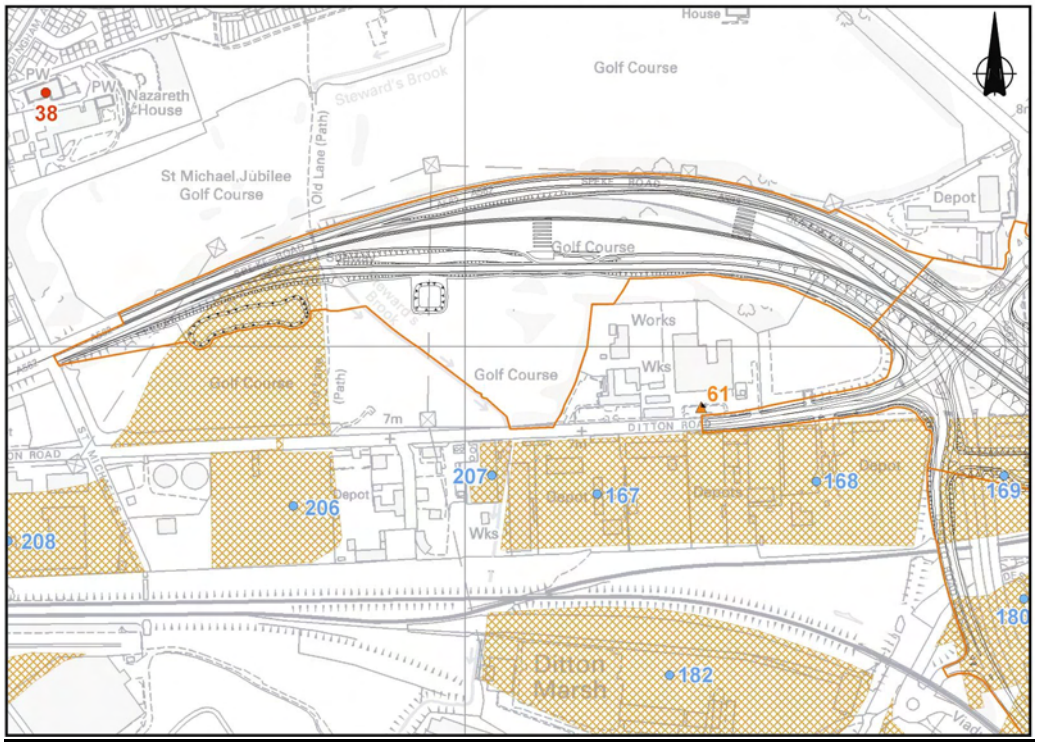


Figure 13.5b: Cultural Heritage Receptors and Operational Effects - Area A



Construction Work Area B – Ditton Junction to Freight Line

13.7.15 There are four known cultural heritage receptors that could be affected by construction of the Project elements in Construction Area B. In addition, there is also potential for as yet undiscovered archaeological remains to be present in Construction Area B, which could be affected by the Project. The known receptors are the sites of the Moorside Chemical Works (Site 168), the DeSoto Alkali works (Site 169), the former Hay Gordon & Co. Chemical Factory (Site 170) and the former Steel Alloy Works (Site 60). Direct effects would arise from groundworks including remediation of contaminated land, the installation of vibro-concrete columns, excavation for culvert drainage, excavation for removal of redundant carriageway surfaces and the roundabout, demolition of buildings, excavation for piles and/or spread foundations, the installation of vibro-concrete columns and ground improvement.

13.7.16 The do nothing effects for Construction Work Area B are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
d. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.17 The effects of the construction phase in Construction Work Area B include the permanent, direct, negative effects of demolition of buildings and groundworks on known and potentially as yet unknown archaeological remains arsing from the establishment of the embankment and site compound, the installation of vibro-concrete columns, excavation for piles or spread foundations and excavation for culvert extensions and drainage. Ground works may affect archaeological remains at the sites of the Moorside Chemical Works (site 168), the DeSoto Alkali works (site 169), the former Hay Gordon & Co. Chemical Factory (site 170) and the former Steel Alloy Works (site 60) which are sites of low importance. Part of site 168, rather than its entirety would be affected and so the magnitude of effect at this site is low and therefore the effect is **not significant**. Substantial parts of sites 169, 170 and 60 would be affected so the magnitude of the effect is high and the significance of the effect is **low**. The significance of the effect on archaeological remains which are as yet unknown cannot be quantified.

13.7.18 The operational phase of the project would not create any direct or indirect effects on the cultural heritage receptors in Construction Area B beyond those already assessed for the construction phase.

Table 13.5 Cultural Heritage Receptors in Area B

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area B			
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 60: Former Steel Alloy Works Moderate	Negative Long Term Permanent Direct High magnitude	Low negative significance
Demolition of a historic (non-Listed) Building	Site 60: Former Steel Alloy Works Moderate	Negative Long Term Permanent Direct High magnitude	Low negative significance
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown

Figure 13.6a: Cultural Heritage Receptors and Construction Effects - Area B

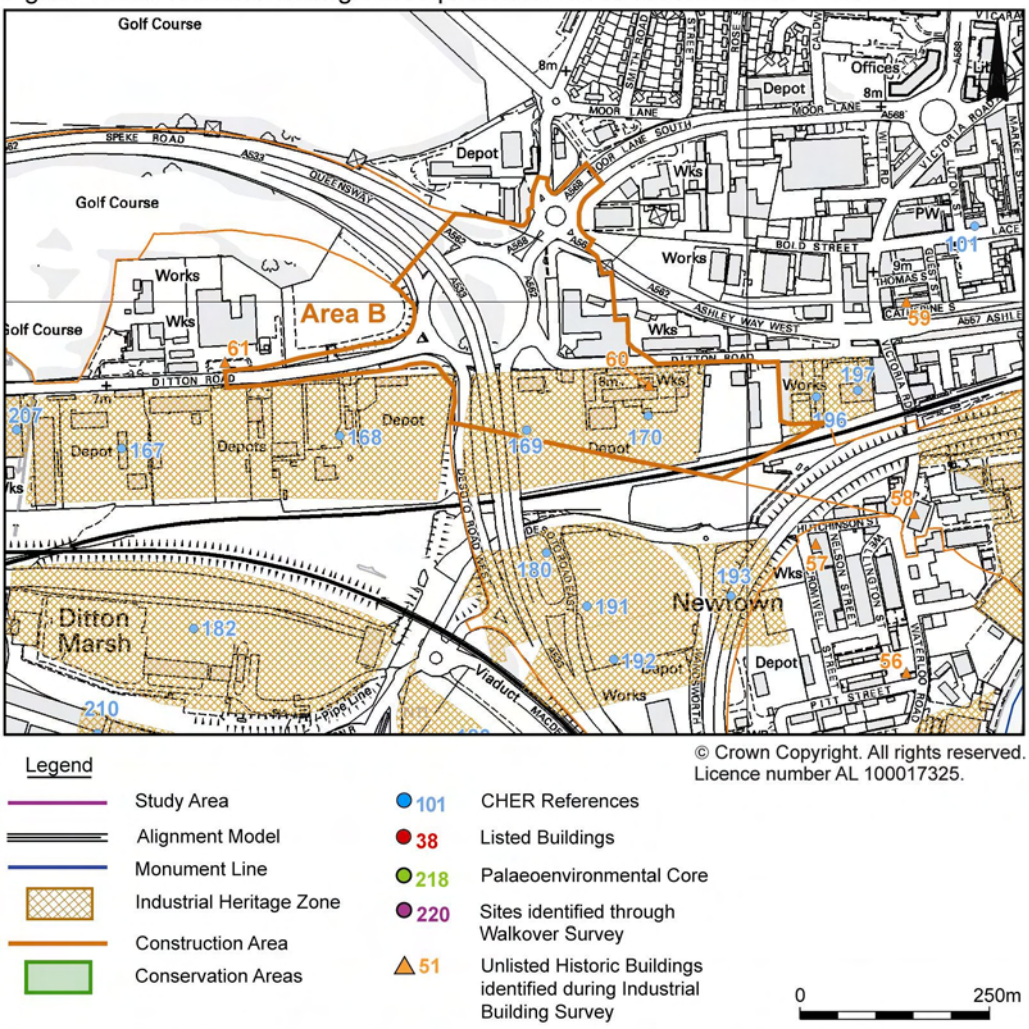
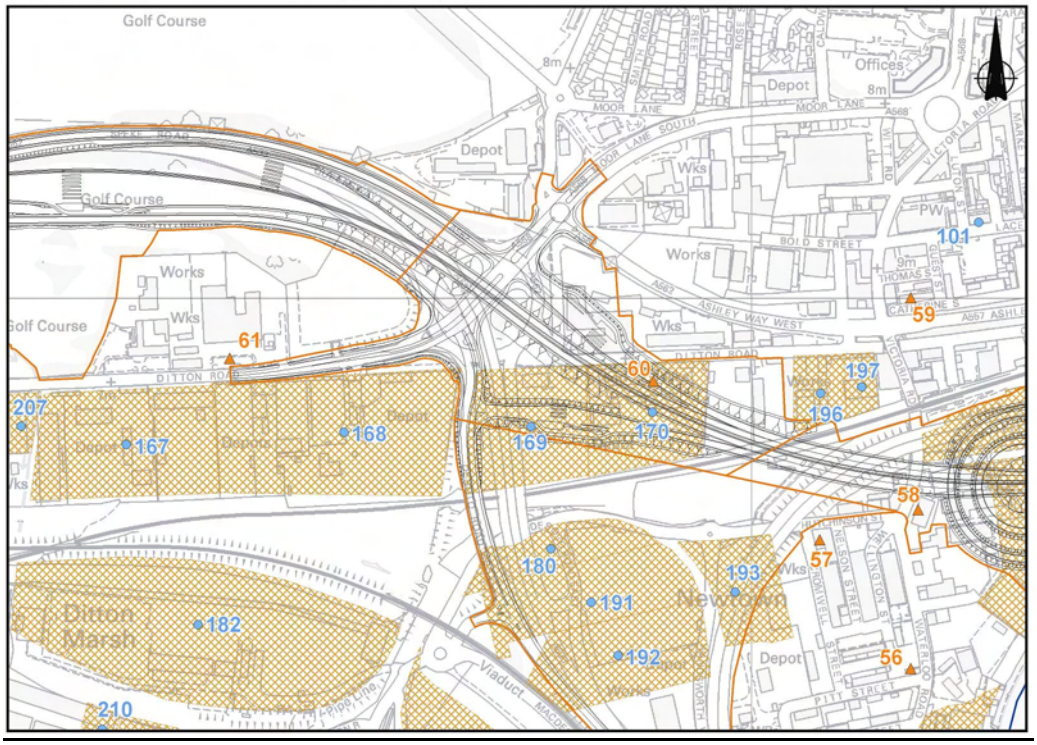


Figure 13.6b: Cultural Heritage Receptors and Operational Effects - Area B



Construction Work Area C – Freight Line to St Helens Canal

13.7.19 There are nine known cultural heritage receptors that could be affected by construction and operation of the Project elements in Construction Area C. In addition, there is also potential for as yet undiscovered archaeological remains to be present in Construction Area C which could be affected by the Project. The known receptors are Widnes Town Hall (a Grade II Listed Building), St Marie Roman Catholic Church (a Grade II Listed Building), Victoria Square Conservation Area, the site of the Gaskell & Deacon Chemical works, the site of a chemical works on Victoria Road, the site of a gasometer near Widens Dock Junction, the site of a chemical works, St Helens Canal and the site of Widnes Oil Works. Direct effects arise from groundworks including those for the establishment of the works compound and embankments, excavations for the balancing pond, the realignment of the St Helens canal (if required), remediation of contaminated land, the installation of vibro-concrete columns, excavation for culvert drainage, excavation for removal of redundant carriageway surfaces and the demolition of buildings, excavation for piles and/or spread foundations, ground improvement. Indirect effects arise from the establishment of new landscape features affecting the settings of cultural heritage receptors.

13.7.20 The do nothing effects for Construction Work Area C are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be neither the positive or negative effects to the setting of the Listed Building arising from the implementation of the Project;
d. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
e. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.21 The effects of the construction phase in Construction Work Area C include the permanent, direct, negative effects of demolition of buildings and groundworks on known and potentially as yet unknown archaeological remains Ground works may affect archaeological remains at the sites of the St Helens Canal (Site 128), the Gaskell & Deacon Chemical Works (Site 172), the Chemical Works on Victoria Road (Site 195), the gasometer near Widnes Dock Junction (Site 201), the chemical works (Site 202), and Widnes Oil Works (Site 203). St Helens Canal is a site of moderate importance and the magnitude of the effect on it is low – as a small portion of the canal will be affected by realignment works. The effect on the St Helens canal is therefore **not significant.** Part of site 168, rather than its entirety would be affected and so the magnitude of impact at this site is low and therefore the effect is **not significant**. Sites 172, 195, 201, 202 and 203 are of low importance. Substantial parts of sites 172, 195, 201, 202 and 203 would be affected so the magnitude of the effect is high and the significance of the effect is **low**. The significance of the effect on archaeological remains which are as yet unknown cannot be quantified.

13.7.22 The operational phase of the project would not create any direct impacts on the cultural heritage receptors in Construction Area C beyond those already assessed for the construction phase.

13.7.23 An effect on the settings of Widnes Town Hall, St Marie Roman Catholic Church and Victoria Square Conservation Area would arise during the construction phase in Construction Work Area C. The town hall and the church are Grade II Listed Buildings and are of moderate importance. The effect on the setting is negative, short-term and temporary as it arises from the detrimental effect of construction phase activities on the setting of buildings of special architectural or historic interest. The Listed Buildings would be screened from the majority of the construction

works by intervening buildings and existing urban fabric, therefore, the magnitude of the effect is low and the effect is **not significant**. The Victoria Square Conservation Area has a high importance and the effect on the setting of this Conservation Area is negative, short-term and temporary as it arises from the detrimental effect of construction phase activities on its setting. Many locations within this Conservation Area are screened from the majority of the construction works by intervening buildings and urban fabric therefore, the magnitude of the effect is low and the significance of the effect is **low**. A further effect on the settings of Widnes Town Hall, St Marie Roman Catholic Church and Victoria Square Conservation Area would arise during the construction phase in Construction Work Area C. The effect on the settings arises from the removal of an existing landscape detractor in the form of the scrap yard. The effect is positive, long-term and permanent. The magnitude of the effect on the town hall and the church is low and the effect is **not significant**. The magnitude of the effect on the Conservation Area is low and the significance of the effect is **low.**

13.7.24 An effect on the settings of Widnes Town Hall, St Marie Roman Catholic Church and Victoria Square Conservation Area would arise during the operational phase in Construction Work Area C. The effect on the settings arises from the establishment of new elements in the landscape in the form of the Freight Line Bridge, the Victoria Road Viaduct, two bridges over the Widnes Loop Junction carriageways, embankments, the Widnes Loop Junction Bridge, toll plazas, the St Helens Canal Bridge and finishing works such as gantries, lighting and signage. The effect is negative, long-term and permanent and arises from detrimental effect of the Project on the setting of buildings of special architectural or historic interest and a Conservation Area. The Listed Buildings and the Conservation Area would be screened from the majority of the works by intervening buildings and existing urban fabric. The magnitude of the effect on the town hall and the church is low and the effect is **not significant**. The magnitude of the effect on the Conservation Area is low and the significance of the effect is **low**.

Table 13.6 Cultural Heritage Receptors in Area C

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area C			
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 128: St Helens Canal Moderate importance	Negative LongTerm Permanent Direct Low magnitude	Not significant
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 172: Site of Gaskell & Deacon Chemical works Low importance	Negative Long Term Permanent Direct High magnitude	Low negative significance
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 195: Site of Chemical works, Victoria Road Low importance	Negative Long Term Permanent Direct High magnitude	Low negative significance
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 201: Site of Gasometer near Widnes Dock Junction Low importance	Negative Long Term Permanent Direct High magnitude	Low negative significance
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 202: Site of Chemical Works Low importance	Negative Long Term Permanent Direct High magnitude	Low negative significance
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 203: Widnes Oil Works Low importance	Negative Long Term Permanent Direct High magnitude	Low negative significance
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown
Construction works affecting the setting of a Conservation Area	Victoria Square Conservation Area High	Negative Short Term Temporary Indirect Low magnitude	Low Negative significance
Removal of a scrap yard affecting the setting of a Conservation Area	Victoria Square Conservation Area High	Positive Long Term Permanent Indirect Low magnitude	Low Positive significance

Operational Phase			
Area C			
Operational works affecting the on setting of a Conservation Area	Victoria Square Conservation Area High	Negative Long Term Permanent Indirect Low Magnitude	Low negative significance

Figure 13.7a: Cultural Heritage Receptors and Construction Effects - Area C

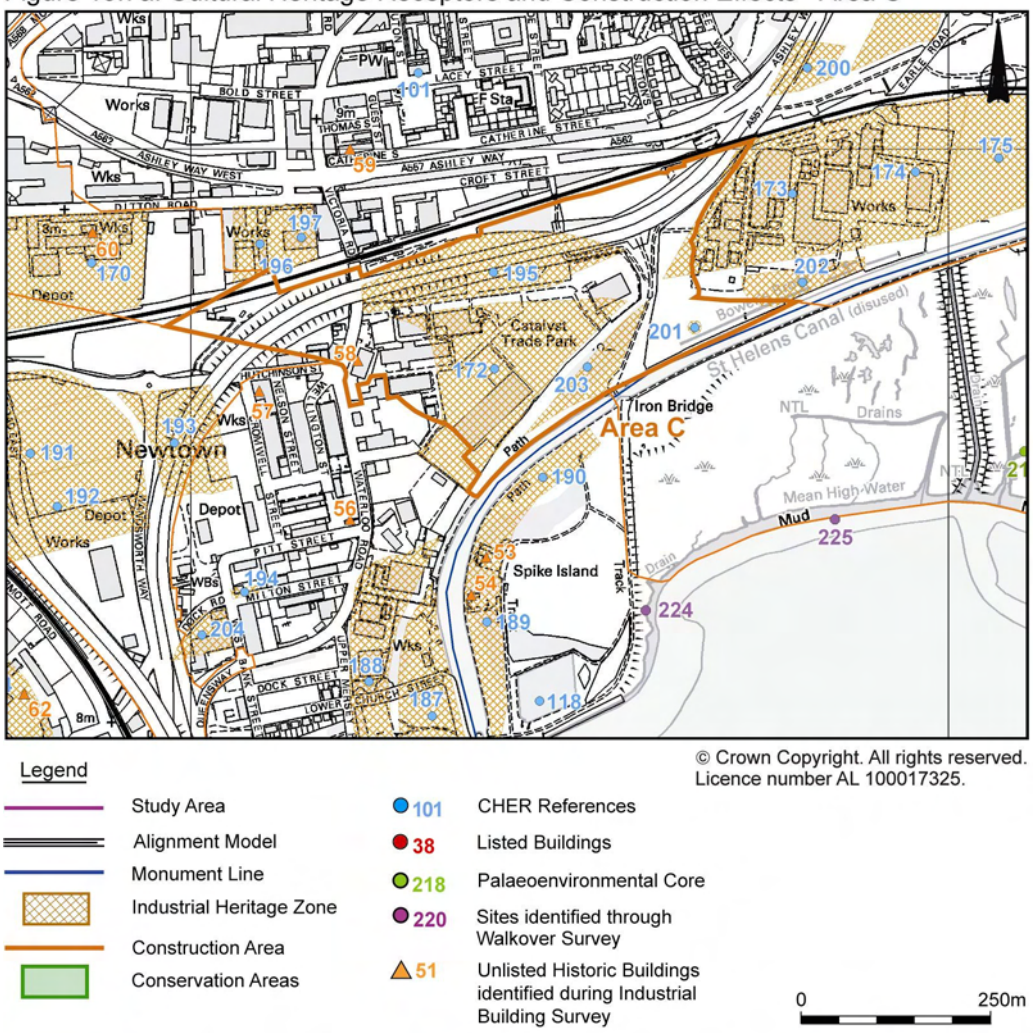
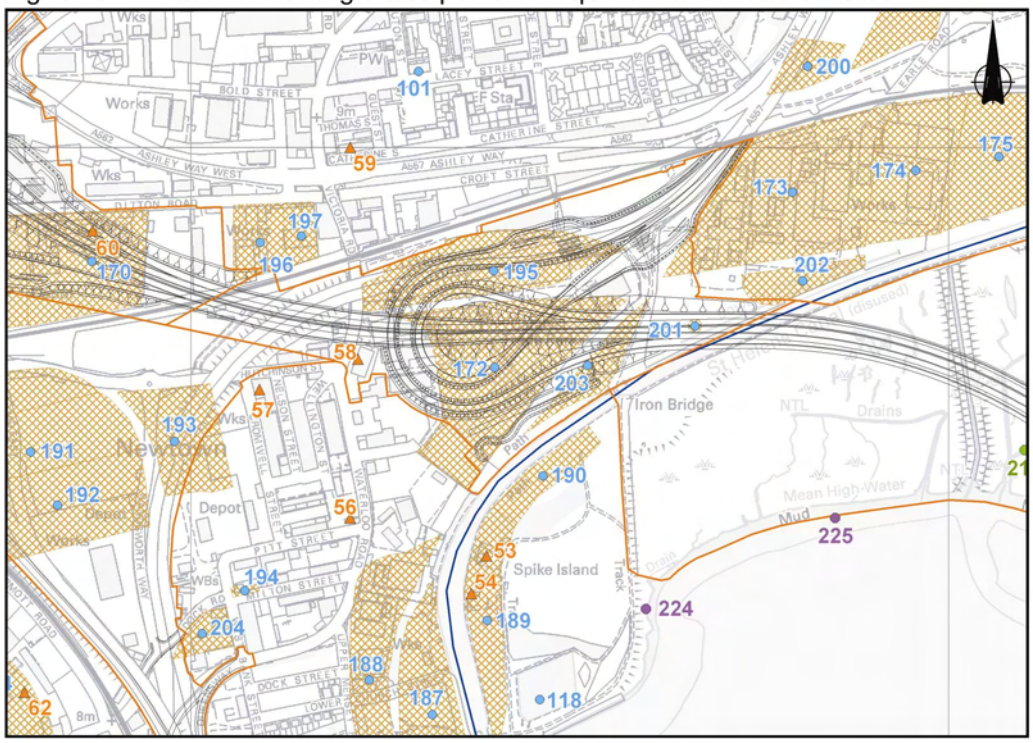


Figure 13.7b: Cultural Heritage Receptors and Operational Effects - Area C



Construction Work Area D – The New Bridge

13.7.25 The New Bridge would have a total length of 2.13km from abutment to abutment. The bridge would consist of approximately 550m of approach spans from the north abutment to the edge of Widnes Warth Salt Marsh, and 580m from the edge of Astmoor Salt Marsh, over part of Wigg Island, over the Manchester Ship Canal and onto the south abutment within the Astmoor Industrial Estate. The estuary crossing itself would consist of 1,000m of cable-stayed bridge consisting of four spans supported by three towers. The towers would be circular with a diameter of about 10m at water level, but would taper towards their completed height of around 120 -140m above the river level. Typical span lengths of the approach viaducts are 70-100m with an overall deck depth of around 6m. There would be a total of 30 piers on the salt marshes. Each pier would be of reinforced concrete of about 2m by 5m and the height would vary between 12m (north) and 23m (south) to suit the vertical profile of the deck.

13.7.26 There are nineteen cultural heritage receptors that would be affected by the Project works in Area D. These are Astmoor Salt March, the Manchester Ship Canal, the site of the Ministry of Supply Factory, the Runcorn-Latchford Canal, the Church of All Saints, the Old Police Station, the Electricity Sub-Station, The Royal Hotel, the Catalyst Museum, the Mersey Locks on the St Helens Canal, Halton Castle, the Church of St Mary, the Wayside Pulpit of the Church of St Mary, Runcorn Railway Bridge, the former Transporter Bridge Power Station and the Silver Jubilee Bridge, the West Bank Conservation Area, Victoria Square Conservation Area and Halton Village Conservation Area. Direct effects arise from groundworks including those for the piled foundations to the New Bridge, the establishment of stone haul road across Astmoor Salt Marsh, the creation of working areas at each pier location, ploughing of the salt marsh to minimise local compaction, the establishment of piled jetties and cofferdams, the establishment of approach viaduct piers, the establishment of a casting yard, and compound. Indirect effects arise from the establishment of new landscape features, in the form of the New Bridge and approach viaducts, affecting the settings of cultural heritage receptors.

13.7.27 The do nothing effects for Construction Work Area D are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be neither the positive or negative effects to the setting of the Listed Building arising from the implementation of the Project;
d. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
e. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.28 The effects of the construction phase in Construction Work Area D include the permanent, direct, negative effects of groundworks on known and potentially as yet unknown archaeological remains. Ground works may affect archaeological remains at the Astwood Salt Marsh (Site 218), the Manchester Ship Canal (Site 235), the Ministry of Supply Factory (Site 130), and the Runcorn-Latchford Canal (Site 238). The Manchester Ship Canal and the Runcorn-Latchford canal are of moderate importance and the magnitude of the effect on these receptors would be low. This conclusion is reached as a result of the fact that the canals extend over considerable distances and although the Project may have a direct impact on limited portions of the length of each canal the overwhelming majority of the canal fabric as existing would remain intact. The effects of the construction phase in Area D on the Manchester Ship Canal and the Runcorn-Latchford canal are therefore **not significant**. The Astmoor Salt March is of low importance and the magnitude of effect is low. This conclusion is reached as a result of the fact that the salt marsh extends over a considerable area and although the Project may have a direct impact on

limited portions of the salt marsh the overwhelming majority of the salt marsh would remain intact and the potential for future recovery of palaeoenvironmental data would not be diminished. The effect of the construction phase in Area D on the Astmoor Salt March is therefore **not significant**. Part of the Ministry of Supply Factory, a low importance receptor, rather than its entirety would be affected and so the magnitude of impact at this site is low and therefore the effect is **not significant**. The significance of the effect on archaeological remains which are as yet unknown cannot be quantified.

13.7.29 The operational phase of the project would not create any direct impacts on the cultural heritage receptors in Construction Area D beyond those already assessed for the construction phase.

13.7.30 Effects on the settings of the Church of All Saints, the Old Police Station, The Royal Hotel, the Catalyst Museum, the Mersey Locks on the St Helens Canal, the southern margins of the Victoria Square Conservation Area, the Church of St Mary, the Wayside Pulpit of the Church of St Mary, the West Bank Conservation Area, Halton Castle, Halton Village Conservation Area, Runcorn Railway Bridge, the former Transporter Bridge Power Station and the Silver Jubilee Bridge would arise during the construction phase. The effect on the settings is negative, short-term and temporary as it arises from the detrimental effect of construction phase activities on the settings of the Conservation Areas and the Listed Buildings. The Old Police Station, the Church of the Holy Trinity, the Royal Hotel, the Catalyst Museum, the Mersey Locks on the St Helens Canal, the wayside pulpit to the Church of St Mary and the Silver Jubilee Bridge are all Grade II Listed Buildings and therefore are identified as receptors of moderate importance. The magnitude of the effect on the settings of the Old Police Station, the Church of the Holy Trinity, the Royal Hotel and the wayside pulpit to the Church of St Mary is low as these buildings are within in an urban context within which there are restricted opportunities to perceive construction phase activities, but the effects is detrimental. Therefore, the effect is **not significant**. The magnitude of the effect on the Mersey Locks on the St Helens Canal, the Church of St Mary, the Catalyst Museum and the Silver Jubilee Bridge is moderate as the construction phase activities intrude into the settings in clearly perceptible manner. Therefore, the significance of the effect is **low**. The Church of All Saints, the Runcorn Railway Bridge and the Church of St Mary are Grade II* Listed Buildings and are of high importance. Halton Castle is a Grade I Listed Building, and is of high importance. The Victoria Square Conservation Area, the West Bank Conservation Area and the Halton Village Conservation Area are of high importance. The magnitude of the effect on the settings of these high importance cultural heritage receptors is low as a combination of distance, existing landscape detractors and urban development restricting perception of the new bridge has a detrimental but not overwhelmingly intrusive effect and the significance of the effect is **low**.

13.7.31 Effects on the settings of the Church of All Saints, the Old Police Station, The Royal Hotel, the Catalyst Museum, the Mersey Locks on the St Helens Canal, the southern margins of the Victoria Square Conservation Area, the Church of St Mary, the Wayside Pulpit of the Church of St Mary, the West Bank Conservation Area, Halton Castle, Halton Village Conservation Area, Runcorn Railway Bridge, the former Transporter Bridge Power Station and the Silver Jubilee Bridge would arise during the operational phase. The effect on the settings is negative, short-term and temporary as it arises from the detrimental effect of the establishment of new elements in the landscape in the form of the Freight Line Bridge, the Victoria Road Viaduct, two bridges over the Widnes Loop Junction carriageways, embankments, the Widnes Loop Junction Bridge, toll plazas, the St Helens Canal Bridge and finishing works such as gantries, lighting and signage on the settings of the Conservation Areas and the Listed Buildings. The Old Police Station, the Church of the Holy Trinity, the Royal Hotel, the Catalyst Museum, the Mersey Locks on the St Helens Canal, the wayside pulpit to the Church of St Mary and the Silver Jubilee Bridge are all Grade II Listed Buildings and therefore are identified as receptors of moderate importance. The magnitude of the effect on the settings of the Old Police Station, the Church of the Holy Trinity, the Royal Hotel and the wayside pulpit to the Church of St Mary is low as these buildings are within in an urban context within which there are restricted opportunities to

perceive construction phase activities, but the effects is detrimental. Therefore the effect is **not significant**. The magnitude of the effect on the Mersey Locks on the St Helens Canal, the Church of St Mary, the Catalyst Museum and the Silver Jubilee Bridge is moderate as the construction phase activities intrude into the settings in clearly perceptible manner. Therefore, the significance of the effect is **low**. The Church of All Saints, the Runcorn Railway Bridge and the Church of St Mary are Grade II* Listed Buildings and are of high importance. Halton Castle is a Grade I Listed Building, and is of high importance. The Victoria Square Conservation Area, the West Bank Conservation Area and the Halton Village Conservation Area are of high importance. . The magnitude of the effect on the settings of these high importance cultural heritage receptors is low as a combination of distance, existing landscape detractors and urban development restricting perception of the new bridge has a detrimental but not overwhelmingly intrusive effect and the significance of the effect is **low**.

Table 13.7 - Cultural Heritage Receptors in Area D

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area D			
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown
Construction works affecting the setting of a Listed Building	Site 3: Church of All Saints High Importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative significance
Construction works affecting the setting of a Listed Building	Site 11: Runcorn Railway Bridge High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 13: Church of St Mary High importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative significance
Construction works affecting the setting of a Listed Building	Site 14: Silver Jubilee Bridge Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 31: Mersey Locks on the St Helens Canal Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 55: The Catalyst Museum (Gossage's Tower) Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 21: Halton Castle High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Construction works affecting the setting of a Conservation Area	West Bank Conservation Area High importance	Negative Short Term Temporary Indirect Moderate	Moderate negative significance

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
		magnitude	
Construction works affecting the setting of a Conservation Area	Victoria Square Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low Negative significance
Construction works affecting the setting of a Conservation Area	Halton Village Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Operational Phase			
Area D			
Operation works affecting the setting of a Listed Building	Site 3: Church of All Saints High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Operation works affecting the setting of a Listed Building	Site 11: Runcorn Railway Bridge High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Operation works affecting the setting of a Listed Building	Site 13: Church of St Mary High importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative significance
Operation works affecting the setting of a Listed Building	Site 14: Silver Jubilee Bridge Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative significance
Operation works affecting the setting of a Listed Building	Site 31: Mersey Locks on the St Helens Canal Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative significance
Operation works affecting the setting of a Listed Building	Site 55: The Catalyst Museum (Gossage's Tower) Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative significance
Operation works affecting the setting of a Listed Building	Site 21: Halton Castle High Importance	Negative Short Term Temporary	Low negative significance

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
		Indirect Low magnitude	
Operation works affecting the setting of a Conservation Area	West Bank Conservation Area High importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative significance
Operation works affecting the setting of a Conservation Area	Victoria Square Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low Negative significance
Operation works affecting the setting of a Conservation Area	Halton Village Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance

Figure 13.8a: Cultural Heritage Receptors and Construction Effects - Area D

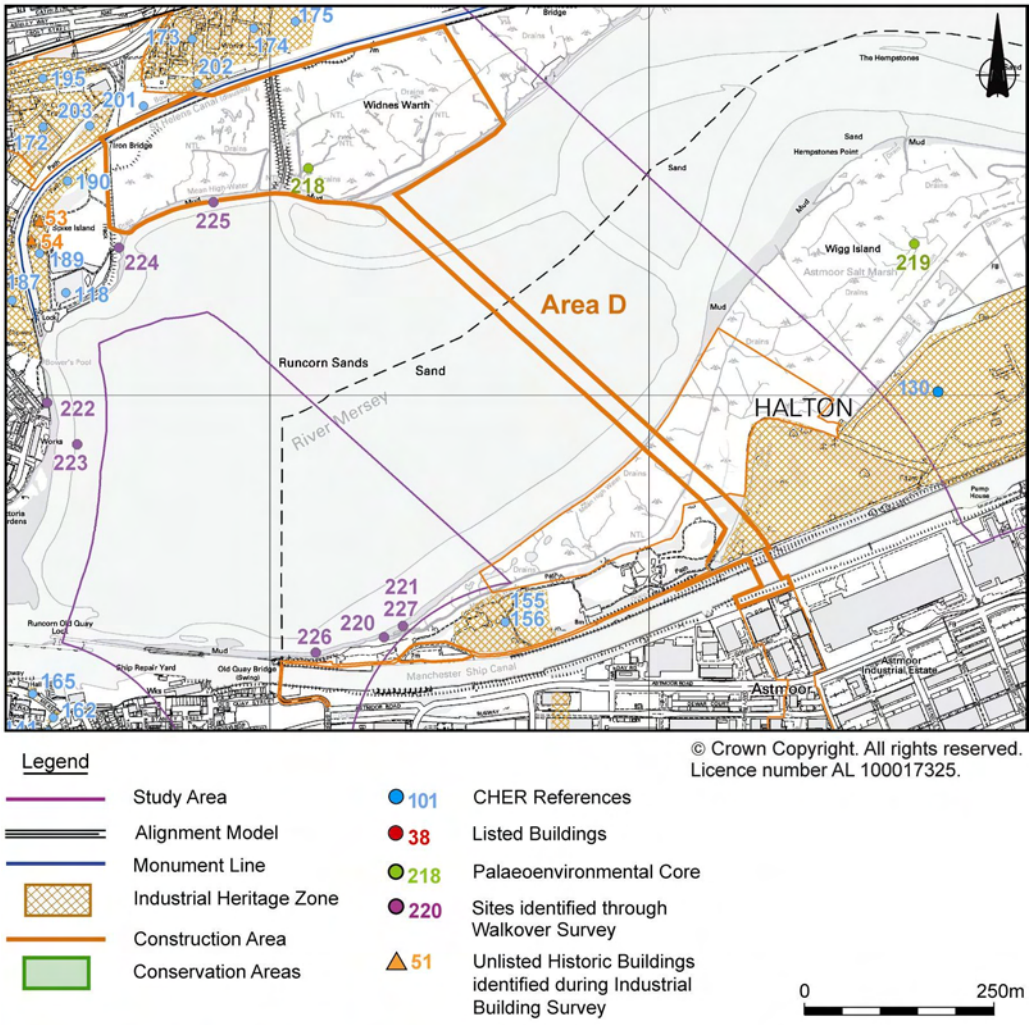
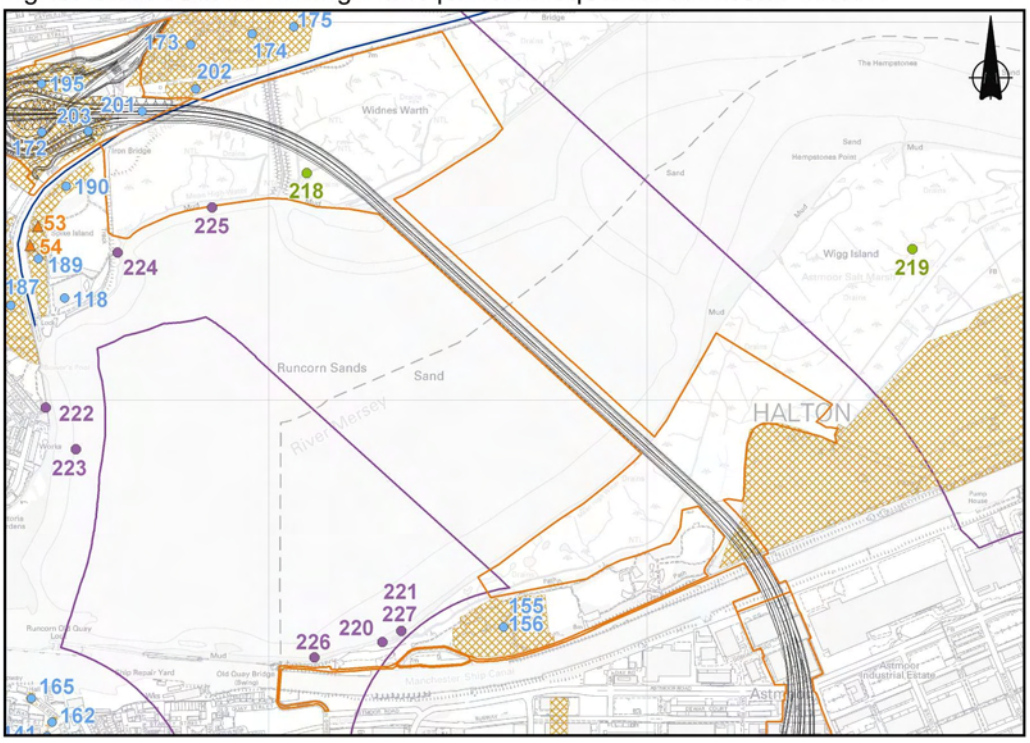


Figure 13.8b: Cultural Heritage Receptors and Operational Effects - Area D



Construction Work Area E – Astmoor Viaduct

13.7.32 There is one identified cultural heritage receptors that would be affected by the Project in Area E. There is also a potential for as yet undiscovered archaeological remains to be present which could be affected by groundworks including the establishment of the haul road and site compound.

13.7.33 The do nothing effects for Construction Work Area E are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
d. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.34 The effects of the construction phase in Construction Work Area E include the permanent, direct, negative effects of groundworks on potentially as yet unknown archaeological remains arsing from the construction of piles and pile caps or spread foundations for the Astmoor Viaduct and the establishment of a site compound. The significance of the effects on archaeological remains which are as yet unknown cannot be quantified.

13.7.35 The operational phase of the project would not create any direct impacts on potentially as yet unknown cultural heritage receptors in Construction Area E beyond those already assessed for the construction phase.

13.7.36 An indirect effect on the setting of Ivy House would arise during the construction phase in Construction Work Area E. The building is a Grade II Listed Building and is of moderate importance, but it would be screened from the majority of the construction works by intervening buildings and existing urban fabric. The effect on the setting would be short-term and temporary and it would be negative as it arises from the detrimental effect of construction phase activities on the setting of a Listed Building. The magnitude of the effect is therefore low and the effect is **not significant**.

13.7.37 An indirect effect on the setting of Ivy House would arise during the operational phase in Construction Work Area E. The effect on the setting arises from the establishment of new elements in the landscape in the form of the elevated Astmoor Viaduct, and finishing works such as gantries, lighting and signage. The effect is long-term and permanent and arises from detrimental effect of the Project on the setting of a Listed Building. Ivy House would be screened from the works to a degree by intervening buildings and urban fabric, and this fabric, in the form of the Astmoor Industrial Estate and the A558 Daresbury Expressway, impoverishes any sense of setting for Ivy House, therefore, the magnitude of the effect is low and the effect is **not significant**.

Table 13.8 - Cultural Heritage Receptors in Area E

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area E			
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area.	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown

Figure 13.9a: Cultural Heritage Receptors and Construction Effects - Area E

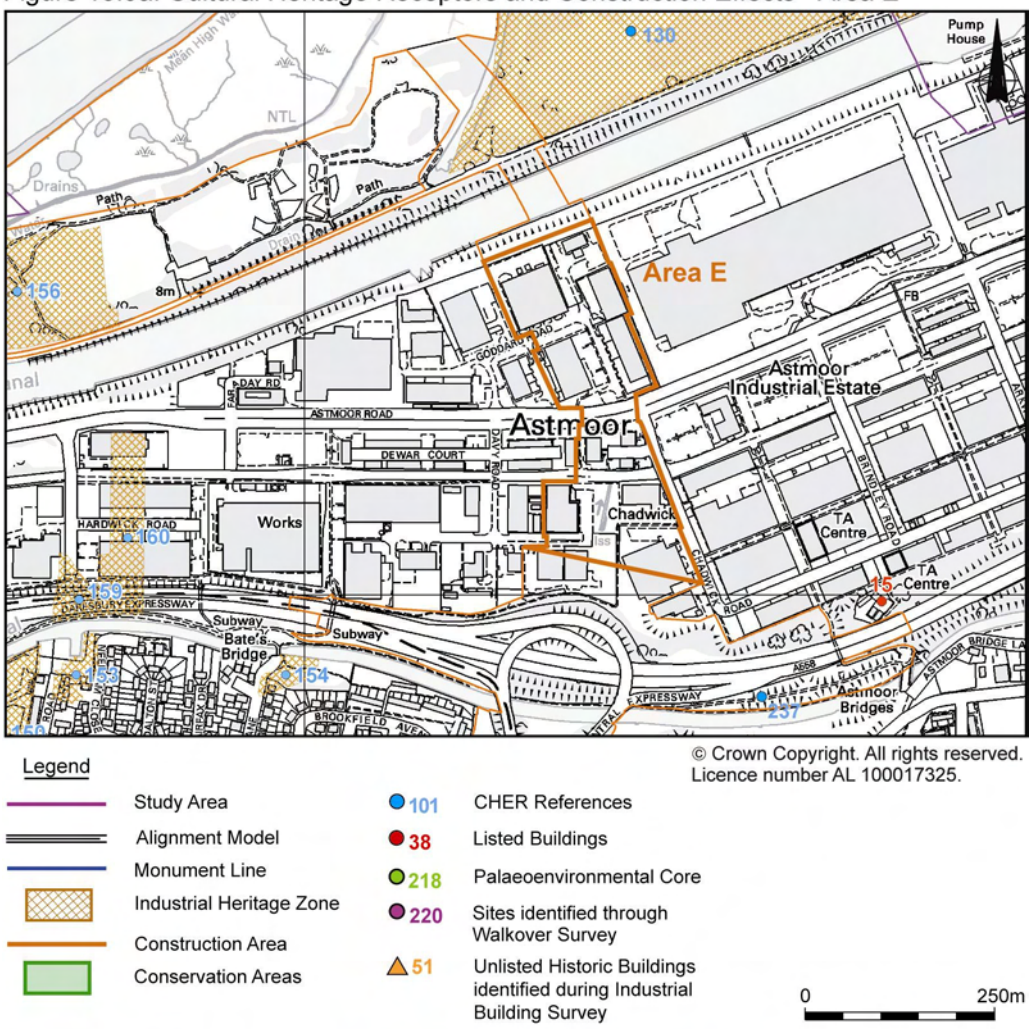
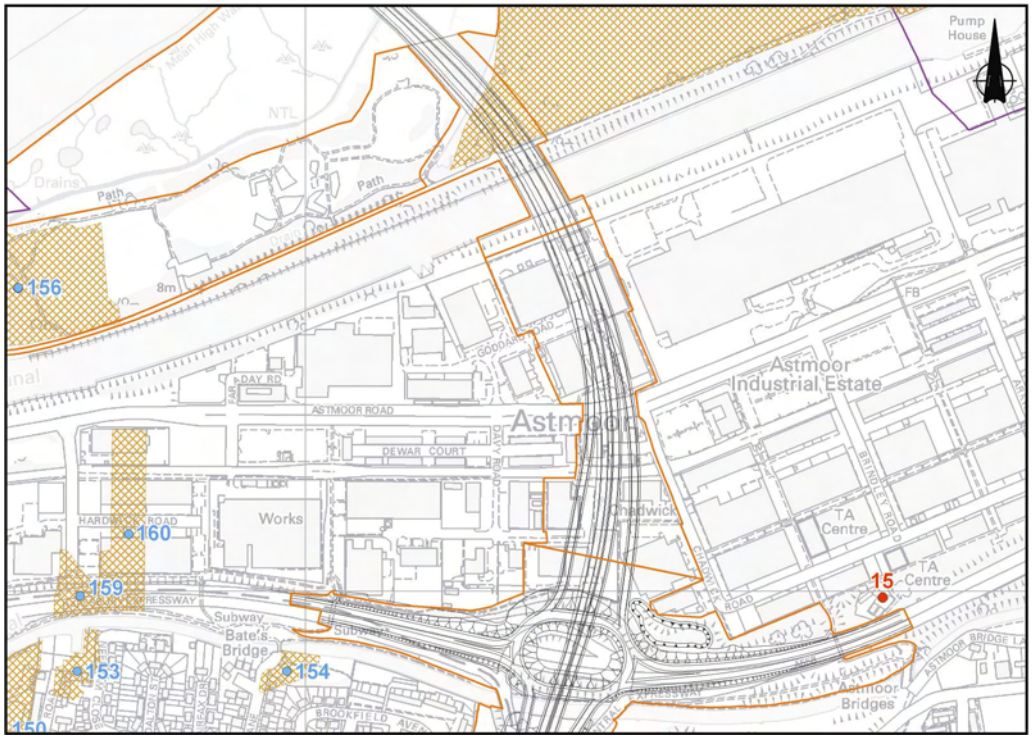


Figure 13.9b: Cultural Heritage Receptors and Operational Effects - Area E



Construction Area F –Bridgewater Junction

13.7.38 There are two known Cultural Heritage receptors that could be affected by construction and operation of the Project elements in Construction Area F. In addition, there is also potential for as yet undiscovered archaeological remains to be present in Construction Area F which could be affected by the Project.

13.7.39 The do nothing effects for Construction Work Area F are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be neither the positive or negative effects to the setting of the Listed Building arising from the implementation of the Project;
d. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
e. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.40 The effects of the construction phase in Construction Work Area F include the permanent, direct, negative effects of groundworks on known and potentially as yet unknown archaeological remains arsing from the ground works to establish foundations for the Bridgewater Junction slip road and bridges, ground preparation works for new roads and the establishment of the haul road and site compound. Ground works may affect the fabric of the Bridgewater Canal which is a site of moderate impotence. As the effect would be upon a part of a moderately important asset, rather than its entirety, the magnitude is low and therefore the effect is **not significant**. The significance of the effects on archaeological remains which are as yet unknown cannot be quantified.

13.7.41 The operational phase of the project would not create any direct impacts on the cultural heritage receptors in Construction Area F beyond those already assessed for the construction phase.

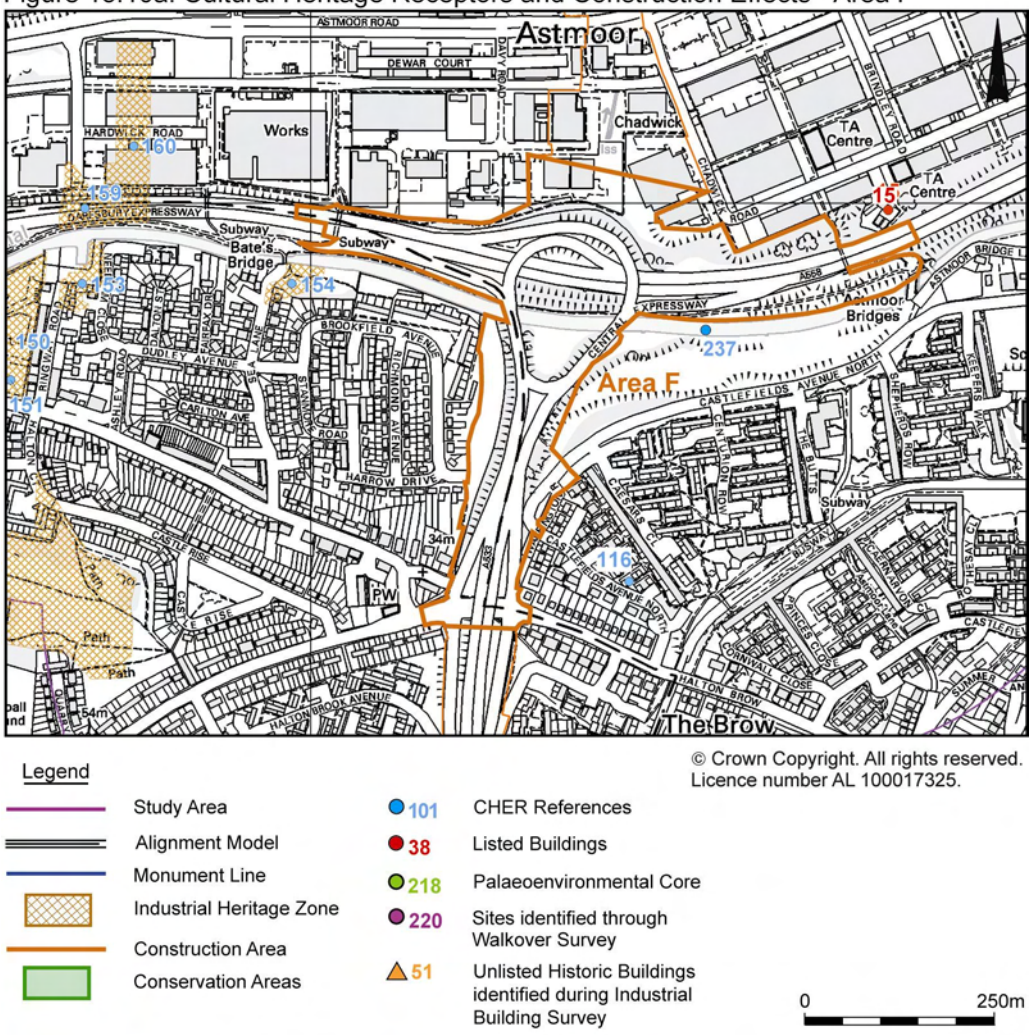
13.7.42 An indirect effect on the setting of Ivy House would arise during the construction phase in Construction Work Area F. Ivy House is a Grade II Listed Building and is of moderate importance. The effect on the setting would be short-term and temporary and it would be negative as it arises from the detrimental effect of construction phase activities on the setting of a Listed Building. The magnitude of the effect is therefore low. The significance of the effect is **not significant**.

13.7.43 An indirect effect on the setting of Ivy House would arise during the operational phase in Construction Work Area F. The effect on the setting arises from the establishment of new elements in the landscape in the form of a 150m long five-span viaduct and two new slip-road bridges on a new alignment of the slip-road off the new roundabout and finishing works such as lighting and signage. Ivy House would be screened from the works to a degree by intervening buildings and urban fabric, and this fabric, in the form of the Astmoor Industrial Estate and the A558 Daresbury Expressway, impoverishes any sense of setting for Ivy House. The effect is negative, long-term and permanent. The magnitude of the effect is low and the effect is **not significant**.

Table 13.9 - Cultural Heritage Receptors in Area F

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area F			
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown

Figure 13.10a: Cultural Heritage Receptors and Construction Effects - Area F

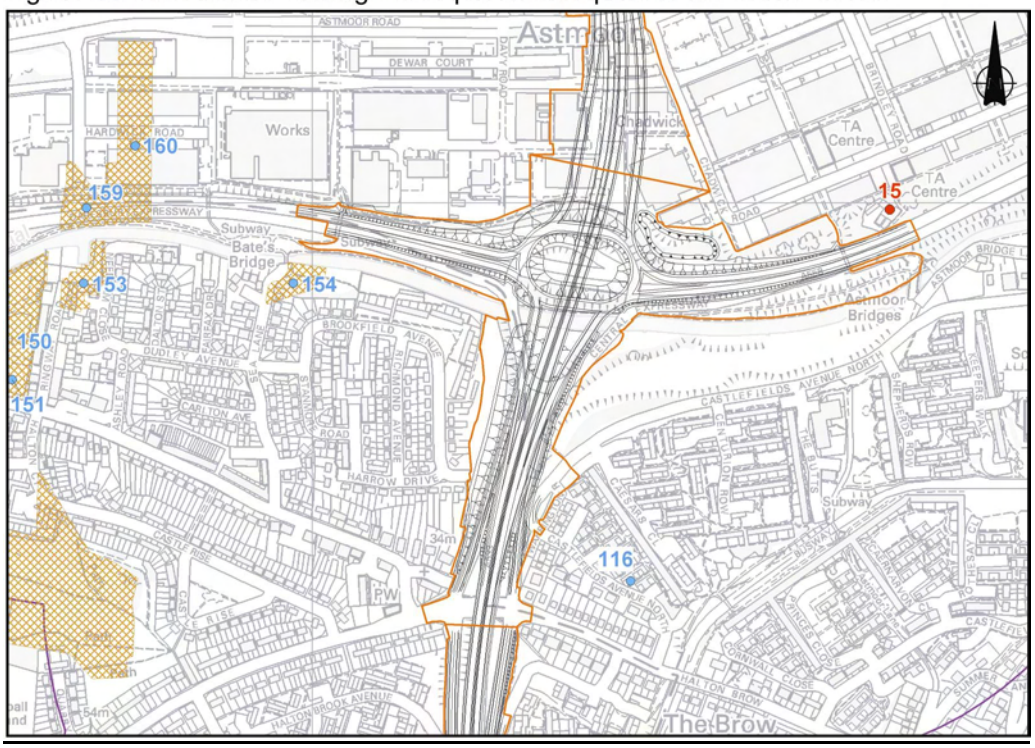


Legend

- Study Area
- Alignment Model
- Monument Line
- Industrial Heritage Zone
- Construction Area
- Conservation Areas
- 101 CHER References
- 38 Listed Buildings
- 218 Palaeoenvironmental Core
- 220 Sites identified through Walkover Survey
- 51 Unlisted Historic Buildings identified during Industrial Building Survey

0 250m

Figure 13.10b: Cultural Heritage Receptors and Operational Effects - Area F



Construction Work Area G - Central Expressway, Lodge Lane Junction and Weston Link Junction

13.7.44 There are no identified cultural heritage receptors that would be affected by the Project in Area G. However, there is a potential for as yet undiscovered archaeological remains to be present which could be affected by groundworks in Area G.

13.7.45 The do nothing effects for Construction Work Area G are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
d. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.46 The effects of the construction phase in Construction Work Area G include the permanent, direct, negative effects of groundworks on potentially as yet unknown archaeological remains arsing from the construction of the new bridge, particularly the establishment of piled or spread foundations; the construction of new slip-roads and retaining walls; and modifications to earthworks and existing highways. The significance of the effects on archaeological remains which are as yet unknown cannot be quantified.

13.7.47 The operational phase of the project would not create any direct impacts on potentially as yet unknown cultural heritage receptors in Construction Area G beyond those already assessed for the construction phase.

13.7.48 The Halton Village Conservation Area which includes Halton Castle (Site 21), a Scheduled Ancient Monument and Grade I Listed Building, is approximately 500m east of the works in Construction Area G. Essentially these works consist of on-line improvements, which would not establish sufficient additional visual effect upon the Conservation Area, its Listed Buildings and the Scheduled Ancient Monument as to be considered significant. There is considered to be no effect requiring assessment because the works are self contained and planting on the upper Runcorn slopes added to mitigate the visual effects of the existing Expressway would continue to be an effective screen with reference to the settings of the cultural heritage receptors in the Halton Village Conservation Area. The remains of Rock Savage (Site 33), a Grade II Listed Building in the form of fragments of sandstone walling indicating the location of a sixteenth century mansion house is located approximately 300m to the south-east of the Weston Link Junction and approximately 180m to the south-west of the southern leg of the Weston Point Expressway. There is considered to be no effect requiring assessment because the works are self contained and comprise modifications to the existing road layout rather than gross changes to the particular landscape compartment.

Table 13.10 - Cultural Heritage Receptors in Area G

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area G			
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown

Figure 13.11a: Cultural Heritage Receptors and Construction Effects - Area G

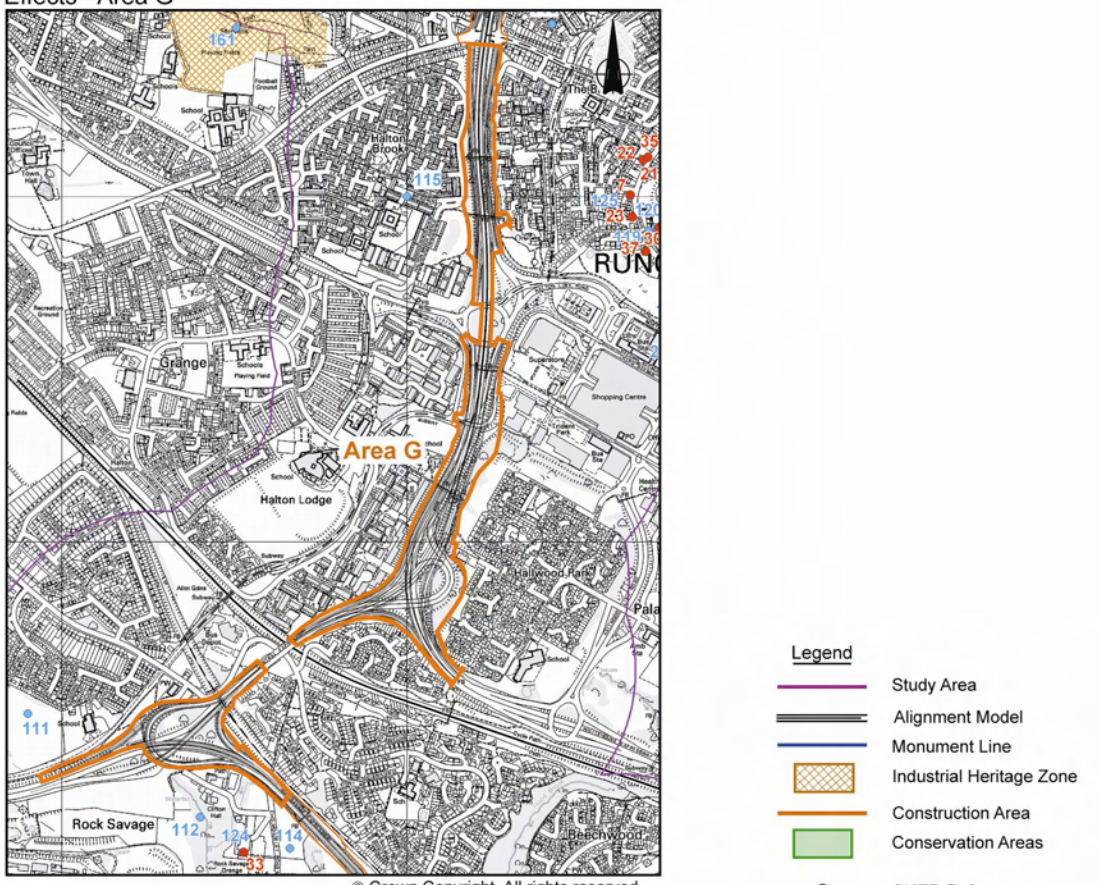
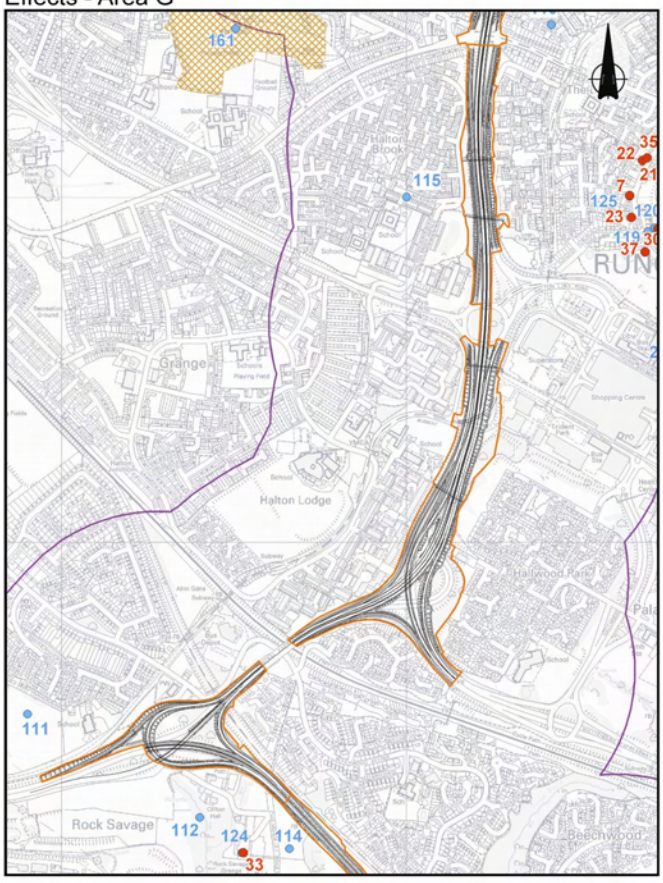


Figure 13.11b: Cultural Heritage Receptors and Operational Effects - Area G



Construction Area H – M56 Junction 12

13.7.49 There is one known cultural heritage receptor that could be affected by construction and operation of the Project elements in Construction Area H. In addition, there is also potential for as yet undiscovered archaeological remains to be present in Construction Area H which could be affected by the Project.

13.7.50 The do nothing effects for Construction Work Area H are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be neither the positive or negative effects to the setting of the Listed Building arising from the implementation of the Project;
d. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
e. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.51 The effects of the construction phase in Construction Work Area F include the permanent, direct, negative effects of groundworks on potentially as yet unknown archaeological remains arsing from the ground works such as those required for general ground preparation, and the establishment of foundations for new retaining walls. The significance of the effects on archaeological remains which are as yet unknown cannot be quantified.

13.7.52 The operational phase of the project would not create any direct impacts on the cultural heritage receptors in Construction Area H beyond those already assessed for the construction phase.

13.7.53 An indirect effect on the setting of Rock Savage (Site 33) would arise during the construction phase in Construction Work Area H. Rock Savage is a Grade II Listed Building and is of moderate importance. The effect on the setting would be short-term and temporary and it would be low as it arises from the detrimental effect of construction phase activities on the setting of a Listed Building acknowledged to be a moderately important asset. The magnitude of the effect is therefore low. The significance of the effect is **not significant**.

13.7.54 An indirect effect on the setting of Rock Savage would arise during the operational phase in Construction Work Area H. The effect on the setting arises from the establishment of new elements in the landscape in the form of a new retaining wall, a realigned highway and finishing works in the form of street lighting, traffic signals, signage, road marking and safety fencing. The effect is long-term and permanent and arises from the detrimental effect of the Project on the setting of a Listed Building acknowledged to be a moderately important asset. The magnitude of the effect is therefore low and the significance of the effect is **not significant**.

13.7.55 Sites 43, 44, 45, and 46 (all listed buildings between 600m and 800 to the south-east of Construction Work area H) have also been considered, however the expressway and M56 junction modification would be contained within the existing highways landtake and are not considered to constitute an effect on the setting of these Listed Buildings.

Table 13.11 - Cultural Heritage Receptors in Area H

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area H			
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown

Figure 13.12a: Cultural Heritage Receptors and Construction Effects - Area H

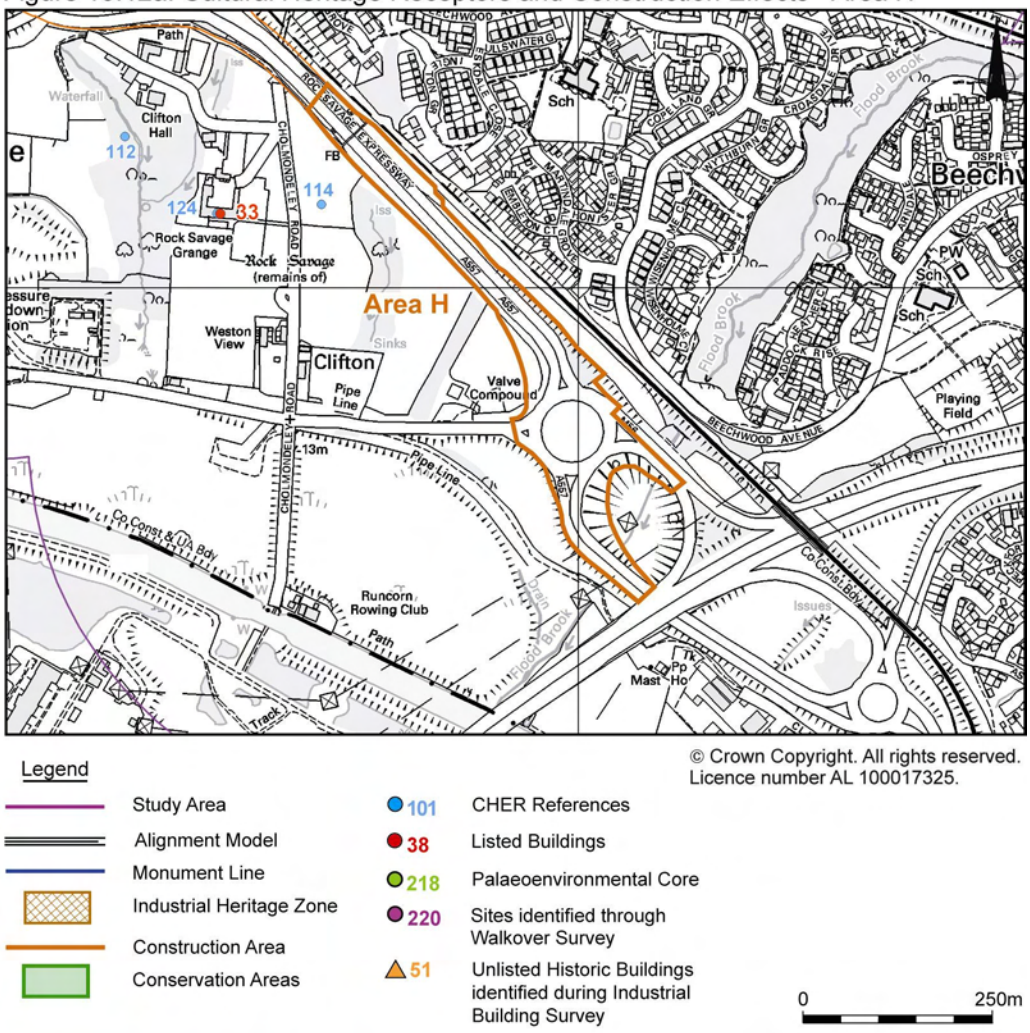
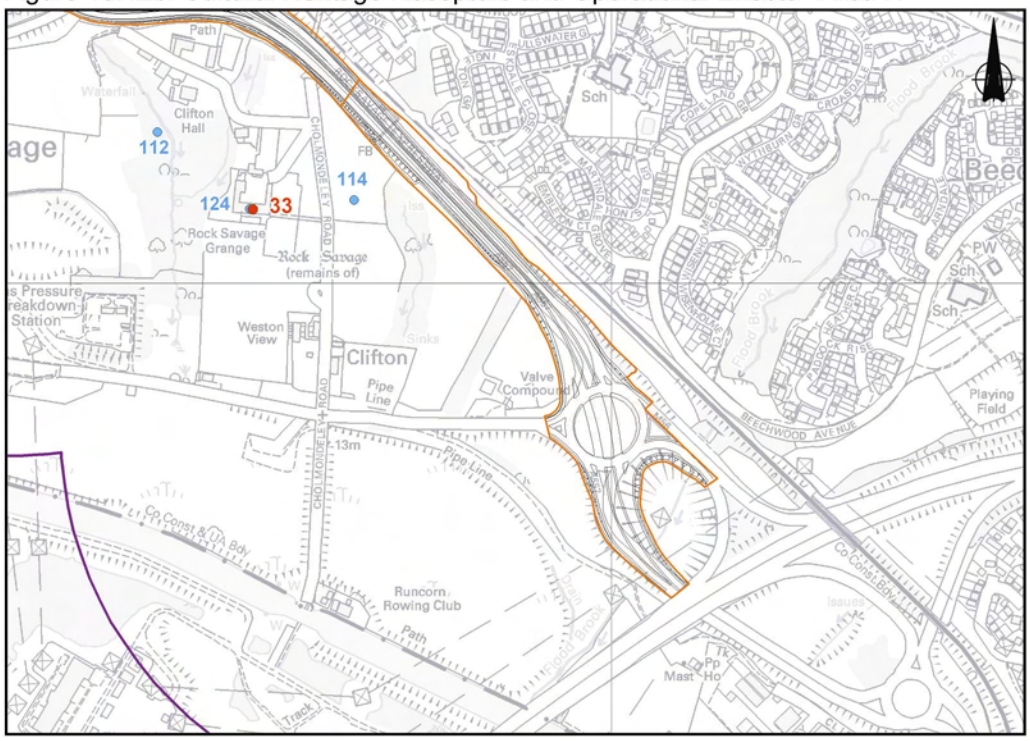


Figure 13.12b: Cultural Heritage Receptors and Operational Effects - Area H



Construction Area I - Silver Jubilee Bridge and Widnes De-linking

13.7.56 There are seven known cultural heritage receptors that could be affected by construction and operation of the Project works in Construction Area I. In addition, there is also potential for as yet undiscovered archaeological remains to be present in Construction Area I which could be affected by the Project. Archaeological remains associated with the Hutchinson Street Timber Yard and Manure Works (Site No. 180), the Viaduct Chemical works (Site No, 191), the Atlas Chemical works (Site N0. 192) and the Mersey Copper Works (Site No. 193) will not be affected by the Project works.

13.7.57 The do nothing effects for Construction Work Area I are as follows:

a. There would be neither the positive or negative effects arising from the implementation of the Project;
b. There would be no direct effects upon buried archaeological remains arising from the implementation of the Project;
c. There would be neither the positive or negative effects to the setting of the Conservation Area and Listed Buildings arising from the implementation of the Project;
d. There would be no effects upon undiscovered buried archaeological remains arising from the implementation of the Project; and
e. There would be no information gain arising from archaeological mitigation recording works which would be undertaken if the project were to be implemented.

13.7.58 The effects of the construction phase in Construction Work Area I include the permanent, direct, negative effects of groundworks on known and potentially as yet unknown archaeological remains arsing from general ground preparation, the construction of a tolling plaza and the excavation of redundant viaducts and embankments. Ground works will not affect archaeological remains associated with Site 107 (the site of the early-medieval burh of Runcorn) Direct effects on the Silver Jubilee Bridge (Site No. 14) take the form of resurfacing the deck pavement and relaying of kerbing, the erection of new signs and the application of new road markings. None of these effects will have a detrimental effect on the fabric of the structure. The effect has no magnitude and is **not significant**. The significance of the effects on archaeological remains which are as yet unknown cannot be quantified.

13.7.59 The operational phase of the project would not create any direct impacts on the cultural heritage receptors in Construction Area I beyond those already assessed for the construction phase, except for the Silver Jubilee Bridge.

13.7.60 Direct effects on the Silver Jubilee Bridge (Site No. 14) arsing from the operational phase take the form of positive, long-term, permanent and positive effects resulting in the reduction of the carriageway on the bridge from two lanes in each direction to one in each direction allowing the reintroduction of a footpath onto the deck and the establishment of a dedicated cycle path. None of these effects will have a detrimental effect on the fabric of the structure and the overall effect would be to increase accessibility to the bridge, reduce traffic flow and return its functionality to that originally intended in its design. The magnitude of the impact is low and the significance of the effect is **low**.

13.7.61 An indirect effect on the setting of the Church of All Saints (Site No. 3), Runcorn Railway Bridge (Site No. 11), the former Transporter Bridge Power House (Site No. 12), the Church of St Mary (Site No. 13), Silver Jubilee Bridge (Site No. 14), the wayside pulpit to the Church of St Mary (Site No. 39), and the West Bank Conservation Area would arise during the construction phase in Construction Work Area I. The effect on the setting arises from the presence of construction works in the landscape. The effect is short-term and temporary and arises from detrimental effects on the settings of Listed Buildings and a Conservation Area. The magnitude of the effect on the Silver Jubilee Bridge is moderate and the significance of the effect is **low**. The significance of the effect on the Church of All Saints, Runcorn Railway Bridge, the former

Transporter Bridge Power House, the Church of St Mary and the West Bank Conservation Area is **low**. The effect on the wayside pulpit to the Church of St Mary is **not significant**.

13.7.62 There would be no indirect effect on the setting of the Church of All Saints (Site No. 3), Runcorn Railway Bridge (Site No. 11), the former Transporter Bridge Power House (Site No. 12), the Church of St Mary (Site No. 13), the wayside pulpit to the Church of St Mary (Site No. 39), and the West Bank Conservation Area arising from the operational phase in Construction Work Area I. The proposed works in Construction Area I would be marginally perceptible from the settings of these Listed Buildings and any negative effect resulting from the establishment of the tolling plaza and finishing works such as gantries, lighting and signage would be countered by the positive effects arsing from the reduction in traffic on the Silver Jubilee Bridge and the removal from the landscape of the embankment and viaduct linking to the Widnes Eastern Bypass, the removal of the main carriageway and structures the Queensway Tollbooths and Ditton Junction and the closure and demolition of the redundant dual carriageway to Liverpool resulting from the main link between the Silver Jubilee Bridge and Ditton Junction being established along the existing north-bound slip road as a two-lane single carriageway.

Table 13.12 Cultural Heritage Receptors in Area I

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)
Construction Phase			
Area I			
Construction works affecting the setting of a Listed Building	Site 3: Church of All Saints High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 11: Runcorn Railway Bridge High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 12: Former Transporter Bridge Power House High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 13: Church of St Mary High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Construction works affecting the setting of a Listed Building	Site 14: Silver Jubilee Bridge Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low Negative significance
Construction works affecting the setting of a Conservation Area	West Bank Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative significance
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown
Operational Phase			
Area I			
Operational works affecting the setting of a Listed Building	Site 14: Silver Jubilee Bridge Moderate importance	Positive Long Term Permanent Indirect Moderate magnitude	Low Positive significance

Figure 13.13a: Cultural Heritage Receptors and Construction Effects - Area I

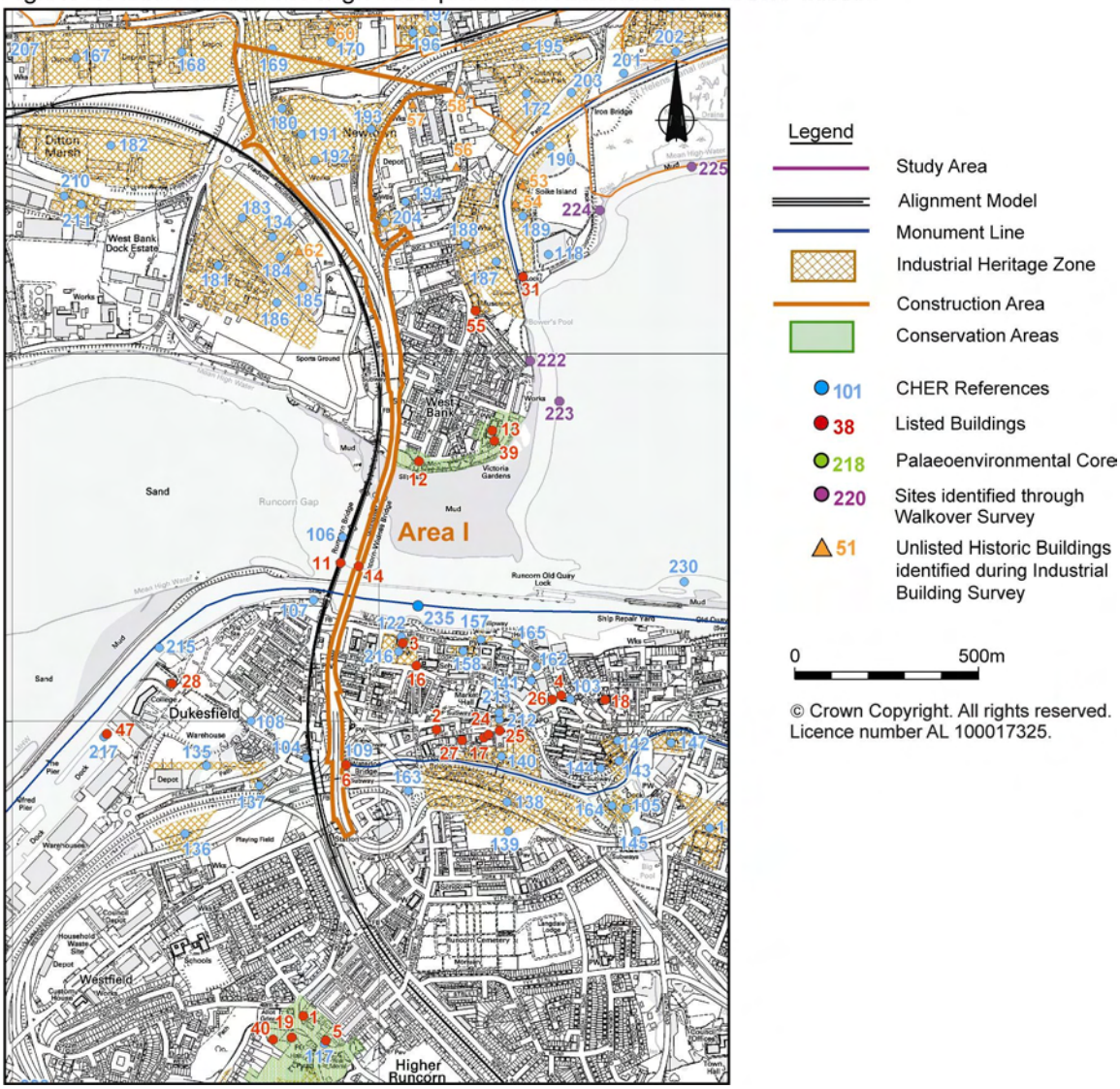
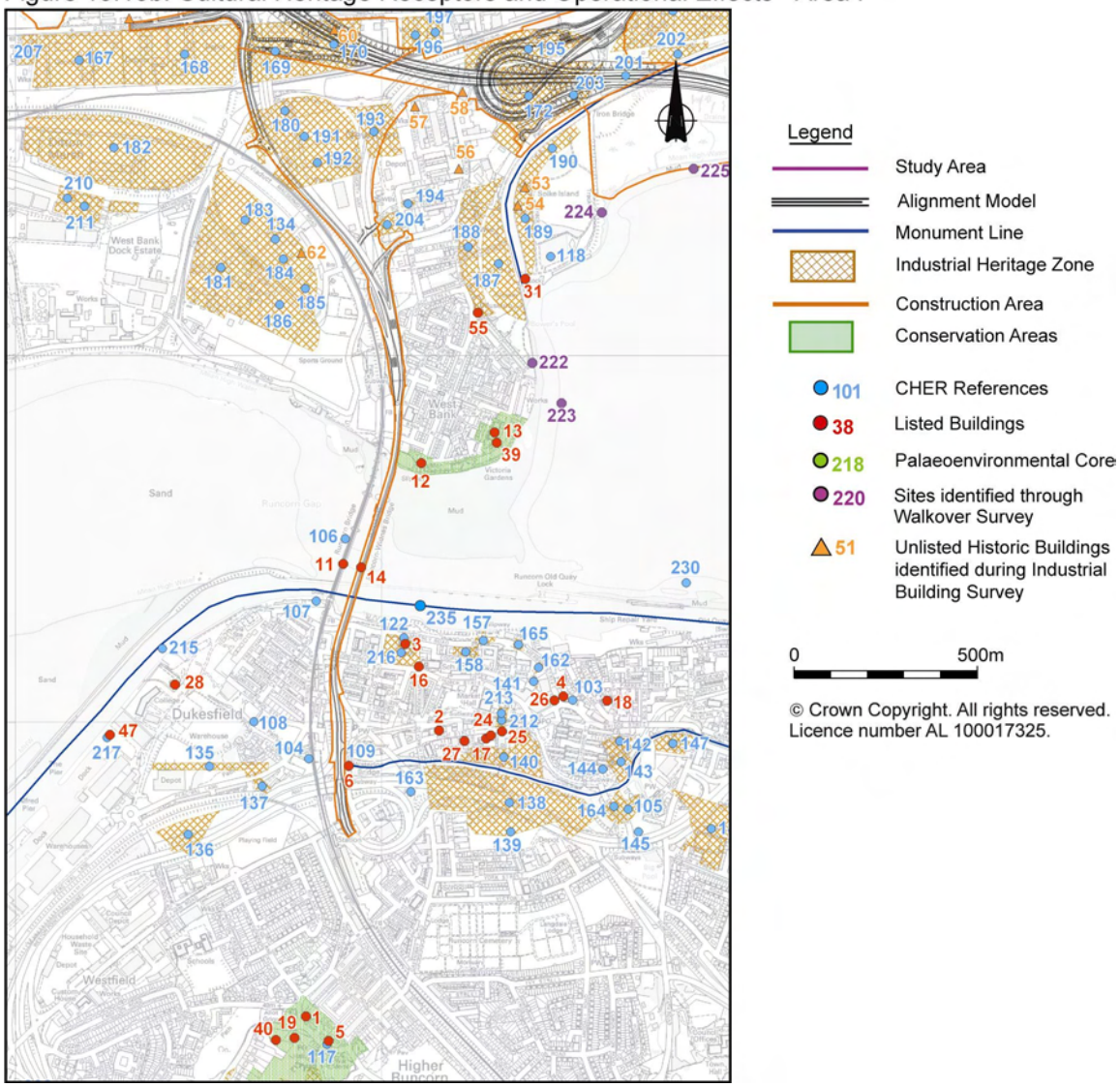


Figure 13.13b: Cultural Heritage Receptors and Operational Effects - Area I



13.8 Mitigation, Compensation, Enhancement and Monitoring

Mitigation of Direct Effects upon Buried Archaeological Remains

13.8.1 There is no ability to mitigate (*sensu stictu*) for the direct loss of archaeological remains, as such remains would not be able to return to their original state once disturbed. However, archaeological recording, publication and archiving may compensate for the loss of archaeological remains where the Project affects them. HBC may also consider implementing a number of policies to ensure that archaeological remains not lost directly to the Project will benefit from initiatives and compensatory programmes introduced as a result of the Project. Such compensatory actions may take the form of interpretation boards, footpath improvements and management schemes at a variety of locations within the landscape such as Spike Island, Wigg Island and Halton Castle.

13.8.2 Groundworks that form part of the Project would be preceded or accompanied by archaeological investigations and recording works where they affect the sites identified in this chapter. These archaeological investigations and recording operations are nonetheless considered mitigation works which would assuage the effect and would be undertaken in accordance with professional best-practice and in consultation with the archaeological advisors to the Local Planning Authority - English Heritage and the Cheshire County Council Historic Environment Officer (Archaeology) - and in accordance with a project design prepared prior to the commencement of any works on site. An archaeological watching brief, with contingency to respond to findings, is the mitigation measure identified as the most appropriate response given the low potential for the construction groundworks to uncover archaeological remains.

13.8.3 Demolition ground works within the Widnes and Runcorn industrial heritage zones, would be accompanied by a watching brief on the areas affected by the Project. The watching brief and recording works would be undertaken in accordance with the Institute of Field Archaeologists document *Standard and Guidance for Archaeological Watching Briefs* (2001) and would be detailed in a Written Scheme of Investigation to be prepared in consultation with the Cheshire County Council Historic Environment Officer (Archaeology) prior to the start of works.

13.8.4 Works within the Widnes and Runcorn industrial heritage zones, works to Listed Buildings, and the industrial heritage zones/Conservation Areas would be preceded by the undertaking of a Building Recording on the structures affected by the Project. The recording works would be undertaken in accordance with the English Heritage standards outlined in Understanding *Historic Buildings. A guide to good recording practice* (2006) and would be detailed in a Written Scheme of Investigation to be prepared in consultation with the Cheshire County Council Historic Environment Officer (Archaeology) and English Heritage prior to the start of works.

13.8.5 All of these mitigation measures, and the Written Schemes of Investigation that would specify works in detail, would be integrated into the Construction Environmental Management Plan. This would ensure that the works are appropriately scheduled and implemented with appropriate reference to and integration with all other demolition, groundworks, construction, and environmental works.

Mitigation of Indirect Effects upon Listed Buildings, Conservation Areas and Scheduled Ancient Monuments

13.8.6 There are no specific measures proposed for the mitigation of effects to the settings of Listed Buildings, Conservation Areas and the Scheduled Ancient Monument associated with the Project. However the proposed landscape treatment detailed in the Reference Design (Chapter 12) incorporates measures to integrate the project into its surroundings, mitigate the effect of its construction and minimise the perception of traffic. These measures would maximise environmental benefit in that they not only provide noise and visual attenuation and landform mitigation but also mitigate the effects to the settings of Listed Buildings, Conservation Areas

and the Scheduled Ancient Monument. The Landscape and Visual Chapter (Chapter 12) further identifies and illustrates proposals for landscape treatment to mitigate effects. The treatment includes a combination of measures comprising, but not necessarily restricted to the following.

a. Earth Mounding – a technique of creating a landform to integrate the structure and geometry of highway design with the surrounding landscape;
b. Screen Bunds – linear, often less natural-looking mounding usually situated parallel and adjacent to the highway to provide visual / noise attenuation;
c. Vertical barriers – usually 2m–3m high and designed to provide visual/noise attenuation in confined areas. Vertical barriers can also be effective where it is desirable to have screening until associated planting matures. Vertical barriers are usually parallel to the highway and frequently used in combination with earth mounding or bunding and, because they can have an intrusive effect in there own right are often themselves screened by planting. The materials from which vertical are constructed should reflect the specific landscape context of the associated section of highway; and
d. Planting - which has a primary objective of mitigation has two distinct functions – to integrate the highway with its surroundings and screen / filter views of the Project elements from receptors.

13.8.7 These mitigation measures have been considered for both the operational and construction phases (during which measures may be temporary) and Chapter 12 should be consulted for detailed applications. For purposes of the cultural heritage assessment these measures have been considered to have been implemented.

Monitoring Requirements

13.8.8 It is recommended that the archaeological advisors in English Heritage and Cheshire County Council monitor the implementation of the cultural heritage works and any mitigation works. Details on how the cultural heritage and mitigation works should be undertaken would be provided in a project design/method statement. The Environmental Manager would also monitor the performance within the Construction Environment Management Plan.

13.9 Residual Effects

13.9.1 Any loss of the heritage resource would be partially mitigated or off-set by the recording works undertaken as part of the mitigation measures and the recovery of any information would add to the overall knowledge and understanding of the history and development of the area.]

13.9.2 Any temporary and/or permanent indirect effect on the setting of cultural heritage receptors would be partially mitigated by actions taken to improve landscape quality.

13.9.3 The cultural heritage mitigation measures and consequent residual effects, are summarised on a site-by-site basis in Tables 13.13 -13.21 below

13.9.4 The mitigation measures and residual effects for Cultural Heritage receptors in Construction Area A.

Table 13.13 – Residual Effects for Cultural Heritage Receptors in Area A

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area A					
Effect of construction works on setting of a Listed Building	Site 38: Church of St Michael High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas. Improvements to landscape quality in the form of intermittent tree, hedgerow and scrub planting which will maintain the existing open character but soften the interface of the project works with the landscape.	Not significant
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant

13.9.5 The mitigation measures and residual effects for Cultural Heritage receptors in Construction Area B.

Table 13.14 Residual Effects for Cultural Heritage Receptors in Area B

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area B					
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 60: Former Steel Alloy Works Moderate	Negative Long Term Permanent Direct High magnitude	Low	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Demolition of a historic (non-Listed) Building	Site 60: Former Steel Alloy Works Moderate	Negative Long Term Permanent Direct High magnitude	Low	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of pre-demolition historic building recording and reporting	Not significant
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	

13.9.6 The mitigation measures and residual effects for Cultural Heritage receptors in Construction Area C.

Table 13.15 – Residual Effects for Cultural Heritage Receptors in Area C

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area C					
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 172: Site of Gaskell & Deacon Chemical works Low importance	Negative Long Term Permanent Direct High magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 195: Site of Chemical works, Victoria Road Low importance	Negative Long Term Permanent Direct High magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 201: Site of Gasometer near Widnes Dock Junction Low importance	Negative Long Term Permanent Direct High magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 202: Site of Chemical Works Low importance	Negative Long Term Permanent Direct High magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Ground disturbance works affecting archaeological remains leading to loss of remains relating to the history and development of the area.	Site 203: Widnes Oil Works Low importance	Negative Long Term Permanent Direct High magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Effect of construction works on setting of a Conservation Area	Victoria Square Conservation Area High	Negative Short Term Temporary Indirect Low magnitude	Low Negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas. Improvement to landscape quality in the form of tree, scrub and grassland planting to provide screening and integrate the Widnes Loop Junction with its surroundings.	Not significant
Effect of removal of scrap yard on setting of a Conservation Area	Victoria Square Conservation Area High	Positive Long Term Permanent Indirect Low magnitude	Low Positive		

Operational Phase					
Area C					
Effect of construction works on setting of a Conservation Area	Victoria Square Conservation Area High	Negative Long Term Permanent Indirect Low Magnitude	Low negative	Maturation of improvements to landscape quality Improvement to landscape quality in the form of tree, scrub and grassland planting to provide screening and integrate the Widnes Loop Junction with its surroundings.	Not significant

13.9.7 The mitigation measures and residual effects for Cultural Heritage receptors in and beyond Construction Area D.

Table 13.16 Residual Effects on Cultural Heritage Receptors in Area D

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area D					
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Effect of construction works on setting of a Listed Building	Site 3: Church of All Saints High Importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Low Negative
Effect of construction works on setting of a Listed Building	Site 11: Runcorn Railway Bridge High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Listed Building	Site 13: Church of St Mary High importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome:	Low negative

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
				Works executed in clearly defined work areas.	
Effect of construction works on setting of a Listed Building	Site 14: Silver Jubilee Bridge Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Listed Building	Site 31: Mersey Locks on the St Helens Canal Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Listed Building	Site 55: The Catalyst Museum (Gossages Tower) Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Listed Building	Site 21: Halton Castle High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome:	Not significant

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
				Works executed in clearly defined work areas.	
Effect of construction works on setting of a Conservation Area	West Bank Conservation Area High importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Low Negative
Effect of construction works on setting of a Conservation Area	Victoria Square Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low Negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Conservation Area	Halton Village Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Operational Phase					
Area D					
Effect of operation works on setting of a Listed Building	Site 3: Church of All Saints High Importance	Negative Short Term Temporary Indirect	Moderate negative	No mitigation possible	Moderate Negative

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
		Moderate magnitude			
Effect of operation works on setting of a Listed Building	Site 11: Runcorn Railway Bridge High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	No mitigation possible	Low negative
Effect of operation works on setting of a Listed Building	Site 13: Church of St Mary High importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative	No mitigation possible	Moderate negative
Effect of operation works on setting of a Listed Building	Site 14: Silver Jubilee Bridge Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative	No mitigation possible.	Low negative
Effect of operation works on setting of a Listed Building	Site 31: Mersey Locks on the St Helens Canal Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative	No mitigation possible.	Low negative
Effect of operation works on setting of a Listed Building	Site 55: The Catalyst Museum (Gossage's Tower) Moderate importance	Negative Short Term Temporary Indirect Moderate magnitude	Low negative	No mitigation possible	Low negative
Effect of operation works on setting of a Listed Building	Site 21: Halton Castle High Importance	Negative Short Term Temporary	Low negative	No mitigation possible	Low negative

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
		Indirect Low magnitude			
Effect of operation works on setting of a Conservation Area	West Bank Conservation Area High importance	Negative Short Term Temporary Indirect Moderate magnitude	Moderate negative	No mitigation possible	Moderate negative
Effect of operation works on setting of a Conservation Area	Victoria Square Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low Negative	No mitigation possible	Low negative
Effect of operation works on setting of a Conservation Area	Halton Village Conservation Area High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	No mitigation possible	Low negative

13.9.8 The mitigation measures and residual effects for Cultural Heritage receptors in Construction Area E.

Table 13.17 Residual Effects on Cultural Heritage Receptors in Area E

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area E					
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	A programme of archaeological field work, recording and reporting. Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome:	Not significant

13.9.9 The mitigation measures for Cultural Heritage receptors in Construction Area F.

Table 13.18 Residual Effects on Cultural Heritage Receptors in Area F

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area F					
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant

13.9.10 The mitigation measures and residual effects for Cultural Heritage receptors in Construction Area G.

Table 13.19 Residual Effects on Cultural Heritage Receptors in Area G

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area G					
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant

13.9.11 The mitigation measures for Cultural Heritage receptors in Construction Area H.

Table 13.20 Residual Effects on Cultural Heritage Receptors in Area H

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area H					
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant

13.9.12 The mitigation measures and residual effects for Cultural Heritage receptors in Construction Area I.

Table 13.21 - Residual Effects on Cultural heritage Receptors in Construction Area I

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Construction Phase					
Area I					
Effect of construction works on setting of a Listed Building	Site 3: Church of All Saints High Importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Listed Building	Site 11: Runcorn Railway Bridge High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Listed Building	Site 12: Former Transporter Bridge Power House High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Listed Building	Site 13: Church of ST Mary High importance	Negative Short Term Temporary Indirect Low magnitude	Low negative	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: Works executed in clearly defined work areas.	Not significant
Effect of construction works on setting of a Conservation	West Bank Conservation Area	Negative Short Term	Low negative	Mitigation of an unavoidable effect by means of	Not significant

Effect	Receptor and Importance	Nature of Effect	Significance (High, Moderate, Low and Positive / Negative)	Mitigation & Enhancement Measures	Residual Significance (High, Moderate, Low and Positive / Negative)
Area	High importance	Temporary Indirect Low magnitude		management measures to limit an adverse outcome: Works executed in clearly defined work areas.	
Ground disturbance works affecting as yet unknown archaeological remains leading to loss of remains related to the history and development of the area	Undiscovered buried remains of heritage interest Low importance	Negative Long Term Permanent Direct Unknown	Unknown	Mitigation of an unavoidable effect by means of management measures to limit an adverse outcome: A programme of archaeological field work, recording and reporting.	Not significant
Operational Phase					
Area I					
Effect of operation works on setting of a Listed Building	Site 14: Silver Jubilee Bridge Moderate importance	Positive Long Term Permanent Indirect Moderate magnitude	Low Positive		

13.9.13 The long-term residual effects of the Project, assuming that all the recommended mitigation measures are applied and that the Project advances in accordance with historic environment and archaeological policies, are considered to range from low positive to not significant to low negative with regard to cultural heritage.

13.10 References

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