



**SEVERN ROAD RESOURCE RECOVERY CENTRE**

**CHAPTER 13 CULTURAL HERITAGE**

**Viridor**

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# ARCHAEOLOGY & CULTURAL HERITAGE 13

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## INTRODUCTION

### Purpose

- 13.1 This chapter examines the cultural heritage of the Severn Road Recovery Resource Centre application site (NGR ST538817) in the context of the surrounding area. It presents data gathered from a variety of sources within the baseline survey, synthesizes and interprets this information so that a model for the site's historical development can be constructed, and its potential historic value understood. The second part of the study outlines the proposed design and assesses its impact on known and potential historic assets. Mitigation measures are recommended and residual impact assessed assuming that mitigation is adopted.

### Study area

- 13.2 The study area comprises the application site and a zone of 2km radius from its centre point. In order to assist with a fuller understanding for the context of the cultural heritage, however, a wider area has been less intensively examined and general statements on the archaeology and environmental change of the Severn estuary incorporated as appropriate. This wider study area included identification of any designated sites within a 5km radius.

### Scope

- 13.3 The scope of work defined in March 2009 suggested that a chapter on cultural heritage would be required due to the proposed development leading to potential change through damage to archaeological remains and visual impact. A desk-top study was proposed to form a baseline against which an assessment of potential impacts could be made.

### Methodology

- 13.4 This desktop study has gathered data from a variety of sources in order to establish the baseline context for the natural and social historic environment within and around the application site. The results of the data-gathering exercise have been synthesized into text sections organized chronologically, describing what is known for the historic landscape of the area, and a table produced with brief details of the most relevant sites. There has been no site investigation as part of this study. A series of maps show the distribution of these sites against modern and 19<sup>th</sup> century mapping, together with micro-relief overlain so that the presentation of each period can be compared with the general trend in local relief, an essential tool to understand human exploitation of a low-lying area prone to flooding. Designated sites are shown for a wider area than the 2km study area, and the probable ancient communication system has been reconstructed to assist with comprehension of the historic landscape. Discussion at the end of the baseline has examined

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some main themes and evaluated the potential heritage value of the archaeology.

- 13.5 The impact assessment has been divided into direct and indirect elements, and has involved summarizing the main design elements that will impact on buried archaeological remains. The final detailed design may allow some mitigation of archaeological remains, but the extent and depth of groundworks has been assumed to present a real threat to the continued preservation of any archaeological remains that may exist on site. An assessment has been made of previous disturbance from existing structures, and the amount of remaining land where relatively less disturbance might have occurred in the past, in order to help in assessing the likelihood of archaeological levels surviving within the site. The potential indirect impact on designated sites has been considered in the context of the existing industrialization of the coastal strip, and the degree of change the proposed scheme will make to the status quo.
- 13.6 An outline mitigation strategy has been proposed, to investigate and record any buried archaeological or palaeoenvironmental remains within the application site.

### Sources consulted

- 13.7 Data searches were requested from Bristol City Council's and South Gloucestershire's Historic Environment Records, for 2km radius from the application site. These two datasets were mapped and compared to filter duplication of records. In addition the web-based Archaeological Data Service was interrogated to examine whether further information was available such as those from the National Monuments Record or Defence of Britain Project, which might add to the baseline data supplied by the local authorities. DEFRA's MAGIC website was consulted for the location of designated sites such as scheduled monuments and Registered Parks and Gardens. Further sources such as previous EIAs within the vicinity, and reviews of published books or articles that had been posted on the internet, provided additional information.
- 13.8 A map regression exercise has been undertaken using historic OS mapping. In addition the Cassini map, which is a composite covering the period 1805 – 74, has been examined. Topographic change, particularly important for settlement potential within a coastal location subject to the dynamics of marine and freshwater flooding, has been modelled.
- 13.9 Some archaeological investigation has taken place within the 2km study area as part of the planning process, most notably at Cabot Park and Rockingham Farm to the south and south-west respectively, and at the Seabank Power Station to the northwest; pre-PPG16 rescue excavation was also undertaken at Crooks Marsh Farm to the northeast. A pipeline from Pucklechurch to Seabank (*Masser, Jones & McGill 2005 Trans. Bristol Gloucestershire Arch. Soc. Vol. 123*) has provided a useful transect through the Levels to the north of the application site. There is also some information from other forms of ground investigation such as boreholes, both off-site and from on-site

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investigations. Inferences can therefore be drawn as to historic landuse and potential of the application site to contain archaeological remains.

- 13.10 Modelling of topography from LSS. Although a valuable analytical tool this uses 0.5m contours from modern OS mapping, and so the original relief for the application site and its immediate surroundings, will have been obscured by industrial and other build up.

## POLICY FRAMEWORK

### National legislation

- 13.11 The importance of cultural heritage is clearly recognised at both national and local levels. Certain features that are deemed to be of particular importance are given legal protection through various statutes including the Ancient Monuments and Archaeological Areas Act 1979 (Scheduled Ancient Monuments), the Town and Country Planning Act 1990 (Listed Buildings) and the Hedgerows Regulations 1997. The National Heritage Act (2002) extended previous protection to include maritime archaeology within English coastal waters.
- 13.12 Parks and Gardens and Battlefields, if considered to be of sufficient merit, are included on a National Register maintained by English Heritage, and although not statutorily protected, Local Planning Authorities are expected to take these registered historic assets into material consideration when determining planning applications.

### National planning guidance

- 13.13 Further advice on how cultural heritage should be treated is given in Planning Policy Guidance Notes (PPG) 15 and 16. PPG 15 (1994) deals with the historic environment, including listed buildings, conservation areas and other components of the historic environment whilst PPG 16 covers archaeology. PPG 16 (1990) describes archaeological remains as a 'finite and non-renewable resource' that should not be 'thoughtlessly or needlessly destroyed'. It describes 'preservation in situ' of archaeological remains as being the most favourable outcome where they might be affected by development. However, where this is not possible, then a programme of archaeological excavation and recording in advance of development is an acceptable alternative for features of less than national significance.

### Local policy framework

- 13.14 Local policies to protect archaeology and historic assets are outlined by both Bristol City Council (BCC) and South Gloucestershire Council (SGC), and within the Joint Structure Plan for the four unitary authorities whose borders meet along the Avon (including North Somerset, and Bath and North-East Somerset):

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- Joint Replacement Structure Plan, September 2002, Policy 19 reiterates national policies in the need to “protect that part of the cultural heritage that consists of the built and historic environment... manage development and land use change in a manner that respects local character and distinctiveness... protect nationally important archaeological remains ..... (*and for archaeological sites of local importance*) provide mitigation strategy where necessary and to provide for appropriate prior investigation and recording of the site”
- BCC’s Local Plan contains policies to protect the City’s heritage including B22 (adopted 1997) which forms “the basis for the City Council’s approach to management of its archaeological resource”. These policies are supported by Supplementary Planning Document SPD7 “Archaeology and Development” which includes the need for mitigation and prior investigation and recording of archaeological sites that will be damaged due to development. This document has been prepared in accordance with national guidance (PPS12 Local Development Frameworks 2002) and emphasizes BCCs adoption of English Heritage’s Conservation-Based Research and Analysis (CoBRA) approach.
- SGC Local Plan policies L11 – L15 refer to the protection the council will give to archaeology, historic parks and gardens and battlefields, conservation areas, listed buildings, and locally listed buildings.
- SGC Structure Plan Policy BE4A refers to Archaeology and Development in the North Avon Levels, outlining the special character of this area and the need for a careful approach to archaeological assessment including aspects usually not included such as geotechnical trial pitting and boreholes.

### BASELINE SURVEY

#### Setting: location, geology, topography

- 13.15 The application site is located at NGR ST538817 on the east shore of the Severn Estuary, c.3km to the north of Avonmouth and c.2.5km northwest of the outskirts of Bristol as shown in Drawing 13.1. It comprises a lozenge shape of 8.5ha at an elevation of approximately 6m aOD, bordered by rhines beside Severn Road (formerly Chitting Street) to the south and Ableton Lane to the east, by warehousing to the west and with a field boundary to the north. According to the Ordnance Survey maps the application site changed from agricultural to industrial use between 1969-73. The current buildings were constructed as part of the former Sevalco’s chemical works. These structures and related landscaping have affected the western and southern parts of the application site, but the northeastern part is currently overgrown.
- 13.16 The landscape is part of the Severn and Avon Vales Joint Countryside Character Area (Natural England Landscape Character Assessment). The

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key characteristics of this area are flat, open landscapes with little woodland, united by broad river valleys, and with a variety of land use from small pasture fields to intensive agriculture. South Gloucestershire Landscape Character Assessment, Area 20 Pilning Levels, describes the area as a flat, simple landscape of medium to small, regular and irregular shaped fields divided by rhines (drainage channels): “largely rural, retaining much of its historic pattern, agricultural land use, settlement and character”; the southern (Avonmouth) area, however, is characterised by “major road and rail infrastructure and dispersed large-scale industrial structures at Severnside including towers and chimneys emitting rising smoke clouds and the gas towers of the chemical works”.

- 13.17 The geological background is Triassic Mercian Mudstone with Estuarine alluvium over the top (BGS map sheet 264). The alluvium can extend to 20m in depth and is composed of silty clay and fine sands and incorporates peat layers associated with tree stumps from a submerged forest.

### The specific deposit sequence at the application site

- 13.18 A geotechnical investigation was undertaken in June 2009 which revealed the following site specific characteristics:

- Western part of site has concrete or tarmac and made ground to 0.45m depth;
- Eastern part of site has made ground consisting of gravelly clay, cobbles and sand to 0.45m depth;
- Alluvium was found below the made ground to a depth of 7m bgl;
- The upper alluvial sequence was a silty clay but from 2 -5m bgl the alluvium was comprised by a sandy silt;
- Thin layers of black peat were found within the alluvium;
- Sandy gravel deposits or gavelly silts and clays, formed the base of the alluvium, and are interpreted as braided stream channels; and
- Mercian Mudstone was encountered at 10.5m bgl.

The investigation shows that a deep sequence of intercalated clays, silts, sands, and peat suggests a salt-marsh environment at times vulnerable to marine inundation and at other times subject to freshwater flooding and vegetation growth.

### Archaeological and Historical background

- 13.19 Bristol City Council’s SPD 7, appendix 4.1 summarizes the archaeology and palaeoenvironment of the Avon Vale and this provides a useful overview for the general context of the application site;

“Palaeolithic and Mesolithic activity has been recorded on both sides of the Severn estuary, but the earliest prehistoric evidence near to the application site is for the Bronze Age, with settlement and a burial monument recorded.

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Iron Age settlement is also known from close to the application site, with forts situated on the heights to the east. During the Roman period the area was intensively farmed with rural and urban settlement occurring, and clear evidence for roads and maritime trade. Rural settlement continued with dispersed farmsteads and manorial holdings during the medieval and post-medieval periods. In the 19<sup>th</sup> and 20<sup>th</sup> centuries military and industrial activity developed south of the application site, with batteries and munitions factories and associated structures being built, as well as the construction of Avonmouth as a large port and alteration to the river itself. The nearest scheduled monument to the application site is a WW2 anti-aircraft battery”.

### *Monument and event records*

13.20 There are 63 *Monument* entries in Bristol City Council's Historic Environment Record and 67 *Event* entries. The former relate to sites known when the present digital version of the HER was established, and the latter identifies archaeological investigations and other sources which have discovered fresh evidence. Some duplication and over-lapping of information is inevitable. In summary the Bristol HER consisted of the following categories: 5 Neolithic, 5 Bronze Age, 3 Iron Age, 6 Roman, 1 Saxon, 12 medieval, 6 probable medieval, 8 post-medieval, 15 associated with military activity (19<sup>th</sup> & 20<sup>th</sup> century), 16 undated sites, 2 wrecks, and 4 palaeoenvironmental records (see Drawing 13-1 for distribution of HER sites). South Gloucestershire Council's HER comprised mostly duplicates of the data from BCC, but where additional information was noted, this has been added in the chronological synthesis below and on the associated mapping. The results for the pre-Victorian and later heritage features listed in the HERs are summarised in Table 13-1.

**Table 13-1**  
**Heritage features of pre-19<sup>th</sup> century date**

PRN	Period/type	Description	NGR location
BCCHER & (SCCHER)			
20647	palaeochannel	Sevalco Philblack site 2000; paleoenvironmental and archaeological remains	ST536818
(SGC 18343)	Neolithic/Bronze Age	Avlon Works, Severnside; peat horizons from Upper and Middle Wentlooge formation	ST 545835
(SGC 18344)	Bronze Age	Enron Works, Severnside; peat horizons and charcoal	ST 537830
2972 24521 24629	BA settlement 1200 BC	Cabot Park 1998; salt-making; Palaeochannel; 3 round houses; pottery, bone charcoal, hearth; 1m depth at 5m aOD, and BA ground surface at 1.6m depth from current surface	ST534800 ST538799 ST538802
22115	BA buried landscape	Avonmouth Refuse Disposal 2004; Palaeoenvironmental potential from boreholes	ST532799

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2095 20129 20131 20132	IA settlement	Palisaded enclosure containing abundant artefacts covered by 1m of red alluvial clay; humic layer with cereals 0.9m below current surface;	ST543804
24521	IA settlement	Cabot Park	ST538799
20025	IA buried soil	Chittening power station old ground surface buried beneath Upper Wentlooge Silt Formation	ST533825
(SGC 18343)	IA/RB	Avlon Works Severnside; butchered animal bone	ST 545835
3002 (SGC4896)	RB settlement	Crooks Marsh; 4 <sup>th</sup> – 5 <sup>th</sup> C; enclosures, artefacts, industrial remains; excavated 1980s for clay extraction; 0.5m below surface	ST539821
20025	RB pottery	Chittening power station; residual sherds	ST534826
20227	RB organic deposits	Rockingham Farm 1997; clay at 5.2maOD interpreted as RB flooding with organic layers above and below	ST527808
20946	RB palaeochannel	Cabot Park 2001	ST534802
20225	RB ditch	Seabank power station 1997	ST536825
24568	RB deposit	Lawrence Weston Road 1998; buried flooding layer	ST526806
2167	Late Saxon/Norman Medieval settlement	Chittening Warth 1997; house remains from 11 <sup>th</sup> C until 1955; 11 <sup>th</sup> – 12 <sup>th</sup> C pottery; cereals and beans	ST534826
10793	Saxo-Norman ditch	Seabank Hydrocarbon Reforming Plant 1995; ditch with sherds of 11 <sup>th</sup> C pot; palaeoenvironmental remains	ST536826
20025	Saxo-Norman ditches	Chittening power station 1996; ditches with 11 <sup>th</sup> and 12 <sup>th</sup> C pottery; palaeoenvironmental remains: salt-marsh & freshwater	ST534826
(SGC 9224 9249)	Med settlement	Stowick Farm, Pilning; “Stonwyk” 1287, potentially very early site	ST 540827
1857	Med enclosure	Redbourn Gout, Stuppill Rhine; circular platform in square enclosure	ST537811
2040 5216 5217	Med enclosure	Salt Rhine; square enclosure with two rectangular enclosure earthworks	ST532807
2093	Med farm	Hallen Marsh; earthworks and building remains; possible fishponds and platform	ST543806
2164	Med farm	Worthy Farm: 1241 documentary record “La Wrthie”	ST536820
(SGC9250)	Med farm	Crooks Marsh Farm, Pilning; recorded from documents since 1496	ST 544819
(SGC9251)	Med farm	Minors Farm, Pilning; Minors Lane recorded since 1690, but farm is probably of medieval origin	ST 543816
(SGC9252)	Med farm	Vimpenny’s Common, Pilning; farmstead of probable medieval origin	ST 548831
(SGC9254)	Med moated site	Hook Farm, Vimpenny’s Common, Pilning; moated farm house of probable medieval origin	ST 547831

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2171	Med site	moated	West House Farm	ST534809
2172	Med site	moated	Washingpool Farm; earthworks of "island" to south; partially damaged by Sevalco reservoir	ST533815
2179 20022	Med farm		Moorend Farm 1997; 12 <sup>th</sup> C pottery 1.2m below ground surface	ST535804
2180	Med farm		Moorhouse Farm: documentary record 1327	ST544799
2182	Med farm & cultivation remains		Hallen Farm; ridge and furrow respects farm location	ST547804
2260	Med? drain		Hallen Marsh; former rhine; earthwork	ST537804
2261	Med cultivation		Hallen Marsh; ridge and furrow	ST543808
2277	Med enclosure		Chittening; Higher land with earthworks and structures in sub-rectangular enclosure	ST535818
(SGC5357)	Med manor		Elmington Manor Compton Greenfield Almondsbury; recorded since 1304 with attached settlement	ST557814
(SGC5797)	Med fishpond		Minors Lane, Almondsbury; 13 <sup>th</sup> century documentary record, and fieldname on Tithe apportionment	ST545816
(SGC5798)	Med mill		Hallen Marsh, Minors Lane, Almondsbury; 13 <sup>th</sup> century documentary record for "the old mill of Peter Croc"; three fields on Tithe apportionment called "Millmoat"	ST548812
(SGC9255)	Med common		Vimpenny's Common, Pilning; former "village green" with houses around it before enclosure in 19 <sup>th</sup> century	ST547830
10533	Med artefacts		Hallen Marsh; metaldetector finds	ST540810
20025	Med settlement		Chittening power station 1996; 12 <sup>th</sup> – 14 <sup>th</sup> C pottery and ditch	ST534826
20226	Med deposit and cultivation		Rockingham Farm Salt Rhine 1997; flooding layers, ridge and furrow	ST534806
22513 24552 24629	Med pottery		Cabot Park 2006, 2003, 2008; 13 <sup>th</sup> – 19 <sup>th</sup> C pottery; Padgate farmhouse timber-framed structure	ST535799
2256	Med/PMed bridge		Stup Pill Rhine, Washingpool Lane; ancient route and bridge over rhine	ST536814
1858	Med? enclosure		Rodbourn Gout; two enclosures	ST539810
2041	Med? enclosure		Salt Rhyne enclosure	ST533806
2042	Med? enclosure		Old House Ground	ST534804
2043	Med? enclosure		Smoke Lane	ST527811
2089 (SGC6162)	Med? enclosure		Severn Crossing route 5A; enclosure	ST54817
(SGC 13509)	Med? enclosure		Severnside, Almondsbury; irregular enclosure	ST 550819
(SGC 15905)	Med enclosure		Hallen Marsh, Almondsbury; Avonmouth pipeline bank and ditched enclosure	ST 546820
(SGC 12780)	Med? gallows		Hallen, Almondsbury; place-name evidence from Tithe map	ST 553817
2169	PMed building		Green Splott Cottages	ST529817
2183	PMed building		Hallen Marsh	ST544810
2184	PMed building		Hallen Marsh	ST543811

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2092	PMed farm	Rodbourn Farm	ST560806
2163	PMed farm	Bank Farm	ST533821
2170	PMed farm	Greensplot Farm	ST531812
2175	PMed farm	Madam Farm	ST531803
2493	PMed farm	Chittening Farm	ST535819
20025 20080	PMed ditches	Seabank power station 1996; 16 <sup>th</sup> – 18 <sup>th</sup> C pottery and ditches; wall	ST534826

### Prehistoric

- 13.21 A peat deposit at 3.17m aOD was identified during excavations in 1996 at Chittening gas fired power station (20025) 1km to the northwest of the application site. Organic deposits were found above and below it which were sampled. Radiocarbon dating produced a calibrated age range of 2290-2030BC (at 2 sigma).
- 13.22 In 2000 a DBA (20647) was carried out of the Philblack Site, Severn Rd (Avonmouth CHP plant and waste gas treatment facility, and the same as the application site). Logs from boreholes drilled on the site showed evidence of a large palaeochannel beneath most of the site. It was suggested that this would limit the likelihood of surviving pre-medieval archaeology.
- 13.23 Palaeoenvironmental sampling at the Lakeside area Avonmouth (20057) in 1994 identified a possible buried land surface (no date provided) 2km to southwest of the application site.
- 13.24 Geophysical survey 2001 (20937) at Rockingham on undeveloped grassland. The geology comprised Triassic sandstone overlaid by alluvium. 2 possible palaeochannels were identified 1.5km to southwest of the application site. More information on buried soils is recorded from a number of investigations recorded as events (20827) (20832) (24516) but little dating evidence is available.

### Neolithic

- 13.25 In 2001 a flint was found at Cabot Park during evaluation wks (20946). A test pit revealed a sequence of alluvial deposits consisting of a blue-grey gleyed clay with occasional iron staining and an overlying dark grey silty clay with frequent manganese staining, which had been dated to the Neolithic.
- 13.26 In 2003 a watching brief was carried out at Cabot Park (24548) which identified a Neolithic layer in both trenches.
- 13.27 In 2004 two archaeological boreholes (22115) at Avonmouth Refuse Disposal Works identified ephemeral peat horizons and silts of possible Neolithic date 2.1m aOD (5.5-5.8mOD).

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- 13.28 In 2007 an evaluation carried out at Cabot Park (24521) identified animal remains and a retouched flint close to a palaeochannel below layers associated with the Late Bronze Age.
- 13.29 In 2007 a watching brief (24582) at Cabot Park identified a Neolithic layer beneath alluvial layers at a depth of 1.5 -1.6m

### Bronze Age (Drawing 13-2a)

- 13.30 (2972) associated with saltmaking within alluvial clay. 1,200BC. In 1998 an archaeological evaluation was carried out at the proposed Cabot Park development and a Late BA palaeochannel was found. 3 Bronze Age round houses were found at Cabot Park (MAL0151 *Locock et al 1998 and 2002 GGAT report*), the settlement was located close to the edge of a palaeochannel. The deposits occurred 1m (5mOD) below ground surface within a gleyed layer
- 13.31 A watching brief at Cabot Park (21801) noted considerable archaeological deposits during construction of a balancing pond. The deposits were similar to known prehistoric deposits nearby. The deposits were found 1m below ground level within a gleyed layer
- 13.32 In 2004 2 archaeological boreholes (22115) at Avonmouth Refuse Disposal Works (off map?) identified a Bronze Age terrestrial environment of archaeological and palaeoenvironmental potential.
- 13.33 In 2007 an evaluation carried out at Cabot Park (24521) identified late Bronze Age and early Iron Age pottery, bone, charcoal and a hearth.
- 13.34 In 2008 an arch evaluation at Cabot Park (24629) identified a stabilised prehistoric ground surface probably dating to the Bronze Age at a depth of 1.6m below present ground surface.

### Iron Age (Drawing 13-2b)

- 13.35 (2095) SMR 20131 Hallen Marsh. A palisaded enclosure of mid to late Iron Age date with timber post built structures and abundant artefactual evidence. It has been suggested that the site was built at a period when the Avon Levels were relatively dry – unlike the periods immediately before or after.
- 13.36 In 1990 excavation of a geotechnical pit (20129) at a site at Hallen Marsh, noted Iron Age material in a humic layer 0.9m below the ground surface. In winter of 1992/3 this area was excavated (20131) in advance of construction of the M5 link road. The Iron Age site (2095) lay under 1m of red-brown alluvial clay. A further evaluation and auger survey was carried out in 1992 (20132) samples taken for plant macrofossil and sedimentary analysis showed cereal, weed and grass, suggesting cereals processing nearby.

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- 13.37 An IA soil horizon was identified during excavations in 1996 at Chittingen gas-fired power station (20025) it was sealed beneath silts of the Upper Wentlooge Formation.

### Roman (Drawing 13-2c)

- 13.38 Crooks Marsh (3002) (same as (4896) on the SGCC register). Discovered during clay extraction in early 1980s. Consisted of ditches and enclosures, 0.5m below ground surface, with finds suggesting occupation from 4<sup>th</sup> - 5<sup>th</sup>C. There was evidence of silting and re-cutting of ditches associated with small rectangular features. The ditches contained water-worn pebbles and rocks of local stone. Industrial activity was found in the form of increased levels of charcoal and heat-damaged clay and pottery. 3 coins were also found 1 of Gratian ((367-383AD)
- 13.39 Excavations in 1996 at Chittingen gas-fired power station (20025), identified residual RB sherds.
- 13.40 In 1997 an archaeological excavation (20227) at Rockingham Farm recorded a layer of blue-grey clay at a depth of 5.2m aOD (with organic layers above and below) which was assumed to represent intermittent flooding in the Roman period.
- 13.41 In 2001 a Roman palaeochannel was identified at Cabot Park during evaluation works (20946).
- 13.42 In 1997 an archaeological watching brief (20233) was maintained on the construction of overhead power lines serving Seabank Power Station Severnside. The route was chosen to avoid known archaeological sites although the trench cut a Roman ditch.
- 13.43 In 1998 an evaluation near Lawrence Weston Road (24568) noted a possible Roman layer that was similar to one at Rockingham Farm.

### Saxon (Drawing 13-2d)

- 13.44 Excavation and auger survey in 1996 found evidence of a Saxon dwelling (2167) with human activity since the 11<sup>th</sup> C when the surrounding area was saltmarsh. The ditches surrounding the site had been repeatedly re-cut during the medieval and post medieval periods and contained food and pottery remains. Food material included wheat, barley and oats from the 11C, and Celtic beans from the 12C. Pottery found was mostly local i.e. from Ham Green and other potteries in South Gloucestershire. The building had been rebuilt over time and was still extant in 1920 but demolished by 1955.
- 13.45 In 1995 an archaeological evaluation (10793) at the former Seabank Hydrocarbon Reforming Plant, Severnside uncovered a ditch which contained sherds of a large vessel of late 11C date which had been placed in

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the ditch. Sampling of the ditch fill showed evidence for rushes, weeds, cereal grains and fish remains.

- 13.46 Further excavations nearby in 1996 at Chittening gas fired power station (20025), found an 11C ditch which contained a single pottery sherd. Analysis of the ditch fills indicated that it existed in a lower to middle salt marsh environment – however the presence of stickleback confirmed that the ditch was part of a freshwater system (in the 12C another ditch nearby experienced regular fluctuations in salinity).

### Medieval (Drawing 13-3)

- 13.47 Medieval entries on the record include 8 enclosures, 9 farms or settlements, 3 moated sites, a manor, a fishpond, a mill, a bridge and a common (see Table 13-1). This implies a well developed pattern of medieval settlement and economic vitality in the area.
- 13.48 An archaeological evaluation in 1997 at Moorend Farm (20022) in advance of an effluent pipeline uncovered a sherd of 12C Ham Green pottery 1.2 m below the surface, some ridge and furrow cultivation and a remnant field boundary/linear depression (2260).
- 13.49 A metal detectorist discovered a number of finds in the Hallen Marsh area (10533), seal matrix, ampulla, belt buckles, strap ends and Edward penny.
- 13.50 Excavations in 1996 at Chittening gas fired power station (20025) found pottery evidence for medieval human activity ranging from the 12-14C (and up to modern times). A 12C ditch indicated that it experienced regular fluctuations in salinity.
- 13.51 The pottery assemblage included mostly local wares but one was from SW France (tangible evidence of goods imported by merchants in the Port of Bristol close by).
- 13.52 An archaeological evaluation (20226) of fields on the north of the Salt Rhine at Rockingham Farm indicated that flooding, which had deposited the sediments found in the trenches, had probably ceased in the late medieval or early post medieval periods.
- 13.53 In 2006 groundworks monitoring at Cabot Park (22513) unstratified ceramics dated from the 13<sup>th</sup> to 19<sup>th</sup> centuries were found. A watching brief at Cabot Park (24552) in 2003 also identified a sherd of medieval pottery.
- 13.54 In 2007 a watching brief (24582) at Cabot Park identified a single sherd of medieval pottery.
- 13.55 In 2008 an arch evaluation at Cabot Park (24629) identified medieval material beneath the site of Padgate Farmhouse with further evidence of an earlier timber framed structure.

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### Probably Medieval:

- 13.56 5 enclosures (1858), (2041) **SMR 5216 & SMR 5217**, (2042) **SMR 20226**, (2043), (2089) which is the same as (6162) on the Gloucester register.
- 13.57 1 Bridge (2256) over Stup Pill Rhine at Washingpool Lane, SW of the site. Although the bridge was post medieval in date, it was noted that it was on an old trackway and thus was probably earlier in origin. This track may have crossed the application site – or at least constitutes the road that rings the site.

### Post Medieval:

- 13.58 3 Buildings (2183), (2169) **SMR 21043** demolished for Filling factory, (2184), 5 farms (2092), (2163), (2170), (2175), (2493)
- 13.59 Excavations in 1996 at Chittening gas fired power station (20025) found evidence of human activity in the form of ditches, and domestic refuse dating to the 16<sup>th</sup> or early 17<sup>th</sup> centuries.
- 13.60 In 1996 excavation of geotechnical pits (20080) on the line of the proposed effluent pipeline serving Seabank Power Station uncovered (in one pit) a possible 18<sup>th</sup> century wall and associated pottery of a similar date.

### Military activity (Drawing 13-4)

- 13.61 HM Henbury and HM Avonmouth were explosives and propellant manufacturing establishments constructed to the southwest of the application area during the First World War (*Severn Estuary RCZAS NMP Nov 2008*).
- 13.62 At Chittening National Filling Factory no.23 (2750) was established in 1917, originally to fill artillery shells with mustard gas mixed with chloropicrin – a vomiting and lachrymatory agent, but later it was used for more conventional ordnance. It now lies beneath the modern industrial estate (*Severn Estuary RCZAS NMP Nov 2008*).
- 13.63 During WW2 the following features are recorded as forming part of the Chittening ordnance works:
- 1941 Coastal battery (2036) which includes remains of a Victorian battery.
  - 1940 Anti-Aircraft battery (2085) (21552). **This is a Scheduled Ancient Monument SAM AV 28885**
  - Searchlight battery (2233) **SMR 5972** within enclosure **SMR5215**
  - Large Magazine (3095)
  - Small Magazine (3096)
  - 2 Army Ordnance Departments (3097) and (3102)
  - 2 Military Hospitals (3098) and (3104)
  - Inspection Offices (3099)
  - Canteen (3100)
  - General Offices (3101)

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Store (3103)  
Chittening train platform (3120)

## Undated sites

13.64 In addition to the sites discussed above the following miscellaneous entries are to be found in the SMR/HERs for the area:

- 2 remnant sea walls (2186 and 2091)
- 1 ring ditch (2094) - possibly agricultural,
- 1 circular platform (2098) – possibly bomb crater/modern
- 1 enclosure (2097)
- 1 farm with enclosure (2102)
- 5 farms (2099), (2501), (2173) Rockingham Farm, (2178), and (2046) Crooks Marsh Farm same as (9250) on Gloucester register
- 2 buildings (2166) and (2168)
- 3 houses 2 with gardens (2257), (2258) and (2259)
- 2 Wrecks (2339) and (2340)

## Place-name evidence

13.65 The place-names shown on the Cassini mapping describe a pattern of post-medieval names for farms, lanes and commons. There are also local names for water management works and topographic features such as rhine or rhen (drain), pill (freshwater outlets at the coast), and gout. More ancient names relate to residual Celtic words such as *Hallen* and *Hen-* as well as Anglo-Saxon and old English elements such as Shirehampton, Weston (Kings Weston, Lawrence Weston), Ableton, Elinghurst. The survival of some Welsh place-name elements is particularly interesting and demonstrates a surprising amount of continuity for one or two locations in the landscape such as *Hallen* (*Halen*=salt *Lewis D.G. Welsh-English Dictionary*) and *Henbury* (*Hen* = old), one of the Iron Age forts that commanded the Severn Ridge and became a focus for later settlement and communications. The origins for Chittening and Stuppill (Rhine) have not been traced, but the Cassini map shows the coastal strip as Chittening Wharf, whereas OS mapping has apparently transcribed this incorrectly as “Warth”. The wharf name would imply maritime activity, and the fact that the major roads in the area (Chittening Street and Minor’s Lane (Monk’s Well Lane)) run to the wharf zone gives support to an interpretation for the concentration of Roman and medieval finds concentrated in the same area.

## Map regression

### 1881 1:2500

13.66 The application site boundary is shown within a rural setting surrounded by fields and drainage ditches (Drawing 13-5a). The boundary is determined by a series of early route ways which form/enclose a distinctive lozenge shaped

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parcel of land orientated NW/SE and is very noticeable on maps. At the NW end of this land lies Chittening and Worthy Farms. The site boundary itself does not extend to the NW boundary of the 'lozenge'. One of the bounding route ways includes Chittening Street which forms the south westerly boundary of the site. The name *Street* has often been linked to ancient route ways dating back to Roman and prehistoric periods and may in this instance be linked to the known Roman settlement close by, its origins may be earlier. Chittening Street runs directly from the coast, passed Chittening Farm (which is undated on the SMR record but like other farms in the area, could be medieval or earlier in origin), inland to Hallen and on to the once prehistoric settlement of Henbury.

A number of field drainage ditches cross the site dividing it into five fields. To the east of the map Minor's Lane is just visible. To the SW of the map Stuppill Rhine can be seen.

### 1888-9 1:10560

- 13.67 This places the application site in context to the coastal strip west of it, and in relation to the character of the rural landscape consisting of small irregular fields and dispersed farmsteads (Drawing 13-5b). The pattern is dominated by drainage channels for former marshland, now converted to agricultural use, and lanes (shown as double-ditched linear features) on a main northwest – southeast axis, and with a secondary and more irregular southwest – northeast orientation.

### 1903 1:2500

- 13.68 Few discernable changes can be seen between this and the previous map, with the exception that Chittening Farm has grown in size and a new farm has been built on the site of previous buildings adjacent to Chittening Farm, called Worthy Farm (probably the same as the medieval farm HER 2164) (Drawing 13-5c). A small structure has been built within the site boundary close to Chittening Street adjacent to the drainage ditch which runs out from the site to Stuppill Rhine. A footbridge and footpath are shown running from the SE corner of the 'lozenge' heading towards Minor's Lane.

### 1903-4 1:10560

- 13.69 This map shows the lozenge as a distinctive feature in a wider rural landscape consisting primarily of fields, drainage ditches, scattered farms and route ways (Drawing 13-5d). The lozenge abuts Chittening Street another distinctive feature being a linear route running NW/SE from the coast at Chittening Warth (Warf) inland towards Hallen. Another distinctive feature is Minor's Lane, which runs NW/SE almost parallel to the inland stretch of Chittening Street, c300m (check) to the N. adjacent to Minor's Lane is the interestingly named Monk's Well Rhine. When Minor's Lane meets the footpath mentioned in the previous map, it deviates from its course to the coast and bends or crooks rounds to the NE at 'Crooks' marsh. However, the

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parallel route with Chittening Street can still be picked up further along by a drainage ditch which continues NW to Chittening Warth. Where the lozenge is located between these linear routes, it is met by another route running almost perpendicular to the others, running on a NE/SW axis. It does not run through the lozenge but its course would strongly suggest that it did at one time – perhaps adjacent to the route of one of the drainage ditches shown.

### 1915 1:2000

- 13.70 Chittening Street is now called Severn Road (Drawing 13-6a). The road has lost its place-name association with the area. The small structure within the boundary has increased slightly in size and an additional small structure built next to it. A footbridge is labelled allowing access to/from this structure over a drainage ditch to/from Severn Road.

### 1920-24 1:10560

- 13.71 No apparent changes to the application site. The Avonmouth Branch of the GWR is shown running along the coast and at Rockingham Farm there is the GWR Avonmouth and Filton line (presumably to access Filton Aerodrome and Rolls Royce works where plane engines were built). The National Filling Factory was built nearby (just off the map on the coast) in 1919 to fill artillery shells with mustard gas.

### 1935-38 1:10560

- 13.72 No apparent changes to the application site. A very large regular complex of buildings has been built between Rockingham Farm and Stuppill Rhine. It is not labelled but must represent the military complex consisting of magazines, inspection offices, hospitals, battery, general stores and canteen.

### 1955 1:10560

- 13.73 Severn Road is shown as a county (check) boundary from Chittening Warth to the SW corner of the lozenge along the southern boundary of the application site and along the footpath mentioned earlier, placing the application site in Gloucestershire (Drawing 15-6b). The layout of the buildings at the military complex mentioned above has changed and it has become Chittening Trading Estate. Indication of the continuing importance of the local place-name, even though *Severn* Road has lost its original place-name association and Chittening Farm is now in Gloucestershire. Monks Well Rhine is now just Monks Well.

### 1965-69 1:10560

- 13.74 A series of small buildings have been built in the application site along Severn Road (Drawing 13-6c). The land between Severn Road and Stuppill Rhine has been developed with a Depot and Works from the coast as far as the southern boundary of the lozenge. Many drainage ditches are no longer

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visible. Chittening and Worthy Farms still exist but land to the north and NW has been developed and drainage ditches no longer visible.

### 1972-77 1: 2500 (Additional SIMs)

- 13.75 Most of the map is blank but the field adjacent to the eastern side of the application site is labelled as Spoil Heap.

### 1973 1:1250

- 13.76 Chittening and Worthy Farms have been replaced with fuel storage depots, although an orchard adjacent to the Worthy Farm site is still extant (Drawing 13-6d). The northern portion of the lozenge has for the first time lost its original shape and is a brick works. The drainage ditches crossing the application site (which still retains the remaining lozenge shape) are still partially visible, although a new one has been dug on a northeast – southwest axis and partly bisects the site. The application site has been taken over by the Philblack Works which has expanded from its original site on the other side of Severn Road. A compound with two large tanks is situated at the southeast end of the lozenge. The central area is empty and the northern part is built upon with buildings, compounds and a tank.

### 1974-5 1:10000

- 13.77 The county boundary has changed and the application site now lies outside Gloucestershire (and in the county of Avon?) (Drawing 13-7a). The application site has not changed. The map shows that development is still concentrated along the coast and that there are still a number of farms fields and drainage ditches. Crooks Marsh retains its place-name but there is no mention of Chittening.

### 1977-89 1:1250

- 13.78 The application site is unchanged.

### 1975-91 1:10000

- 13.79 The application site and surrounding area is unchanged.

### 1992 1:1250

- 13.80 The application site is unchanged except that one of the small drainage ditches near Severn Road is no longer visible, and the newly cut ditch which nearly bisected the site now appears much shorter (Drawing 13-7b).

### 1992 1:2500 (Additional SIMs)

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- 13.81 Most of the map is blank but the field adjacent to the eastern side of the application site is labelled as Spoil Heap (same as 1972-77).

### 1999 1:10000

- 13.82 The application site is unchanged (Drawing 13-7c). The field adjacent to the eastern side of the application site formerly labelled as spoil heap is now a landfill site. A large area of land adjacent to this field and adjacent to the development area is labelled as a disused landfill site (*adjacent to where there was lots of Roman activity*). The trading estate (old filling factory site) is now labelled Docks Industrial Estate. The surrounding area remains industrial although the landscape has changed in that many of the fuel storage tanks have gone. Seabank Gas Works is labelled to the north of the site near the coast. A gas works and small industrial estate have been built further inland adjacent to Minor's Lane and Severn Road respectively. The M49 has been constructed and the Severn Road altered during the construction of a bridge for it to cross the M49.

### 2007 1:10000

- 13.83 A large building has been added at the centre of the application site (Drawing 13-7d). The brickworks to the north of the lozenge has changed in that the building has become much smaller. The landfill site adjacent to the application site is no longer mentioned. Docks Industrial Estate is Chittinging Industrial Estate.

### Protected and Designated sites within 5km (Drawing 13-8)

- 13.84 There are seven statutorily protected scheduled monuments within 5km of the application site. These include:
- SM28885 WW2 Anti-Aircraft Battery near Rockingham Farm: 1.5km to southwest
  - SM27988 Mere Bank sea defences and flanking ditches: 2 – 4km to south
  - SM BS87 Roman building (villa) at Long Cross (Sea Mills): 4km to south
  - SM BS28 Druid Stoke Neolithic burial chamber: 4km to southeast
  - SM BS53 Kings Weston Hill Iron Age Camp, Henbury: 4km to southeast
  - SM BS183 Blaise Castle Iron Age hill fort, Henbury: 4km to southeast
  - SM BS27 Bronze Age Round Barrow, Henbury: 4.5km to southeast
- 13.85 There are three Registered Parks and Gardens within 5km of the application site. These include:
- Kings Weston House Grade II: 18<sup>th</sup> C park: 4km to south
  - Blaise Castle and hamlet Grade II\* 18<sup>th</sup> C park: 4km to southeast
  - Royal Victoria Park Grade II 19<sup>th</sup> C park for Brentry House: 4.5km to southeast

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- 13.86 There are two Listed Buildings within 2km of the application site identified by the Images of England website. The BCC and SGC HERs have no further Listed Buildings recorded. The two buildings are:
- 35132 Wellinghouse Farmhouse, Moorhouse Lane, Almondbury Grade II
  - 379697 Severn House Lodge, Hallen Road, Bristol Grade II

### Discussion and synthesis of baseline

- 13.87 The evidence from archaeological find spots and investigations combined with analysis of historic mapping allows an interpretation of the historic landscape to be attempted. This process also enables the identification of potential archaeological issues in relation to the application site.
- 13.88 Cabot Park and Chittening Power Station, together with Rockingham Farm and Crooks Marsh Farm, have been key developments in the discovery of fresh evidence through archaeological rescue excavation and investigations. As these sites surround the application site it would strongly suggest that it is also likely to contain archaeological remains. The depth of cultural deposits interleaved with flooding levels has been found to extend to more than c.3m below the existing ground surface.
- 13.89 During the prehistoric period the landscape of the application site and its immediate surroundings would have been dominated by salt-marsh and creeks with episodic marine and freshwater flooding, especially with rising sea levels during the Neolithic. Topographic relief mapping shows a slightly elevated belt of land beside the coast, possibly the result of dune creation. Opportunistic exploitation involved some settlement on the slightly higher pieces of land along the coastal belt, and the production of salt along the banks of a palaeochannel 1.5km to the south at Hallen Marsh. A second salt-making site might be connected with Bronze Age burnt material found in peat to the north of the application site (17668). The salt industry may well have continued into Iron Age and Roman times; in Welsh salt is *Halen*, which suggests that the place-name Hallen comes from a continued association with salt into later periods.
- 13.90 Settlement of Bronze Age and Iron Age date is attested at Hallen Marsh and at Hallen Farm. Iron Age forts are located prominently on the hills to the east, with commanding views over the approaches from the Bristol channel, and on either side of the Avon Gorge. The place-name “Henbury” is an amalgamation of Welsh “*Hen*” for old, and “*bury*” Anglo-Saxon for fortified place. Roman settlement appears to be concentrated immediately north-east of the application site at Crooks Marsh Farm. A Roman road could lie along the southern boundary of the application site, Severn Road once known as Chittening Street (Street place-names often derive from Anglo-Saxon “*stræt*” referring to metalled Roman roads). This route runs from the coast past the application site on its way through Hallen to Henbury, and connects with a network of probable roads servicing the Roman port of *Abona* (Sea Mills) and other important places on the hills overlooking the Severn estuary and the Avon gorge (Drawing 13-8). It also suggests the possibility that local maritime connections across the Severn Estuary to South Wales might have existed to

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the northwest of the application site, where a Roman ditch was found (12758) at the end of Chittening Street on a locally elevated piece of land.

- 13.91 Late Saxon, Norman and medieval evidence from documentary sources and artefacts suggests the presence of a manorial estate with its centre (12778) 1km to the southeast of the application site, which might have been included within it. 11<sup>th</sup> century pottery has also been found 0.5km north of the application site (10793), near a zone identified as Chittening Wharf in 19<sup>th</sup> century mapping, indicating the probable presence of a landing place for access across the estuary to Wales, and for wider maritime trade and fishing. Medieval and post-medieval farms developed to exploit the coastal strip for grazing, and long drainage ditches, or rhines, were constructed to improve the agricultural productivity of the land. A series of ancient sea banks can be seen running northwest – southeast across the coastal strip, and these were part of the management of the area to reclaim and improve it. Ridge and furrow cultivation is recorded 1km north of the application site (17646) indicating that arable and pastoral land-use were practised. The drainage of the Avon Levels and the role of ridge and furrow linking into the rhines, is described by Stephen Rippon (*Rippon S. 1997 The Archaeology in the Severn Estuary*).
- 13.92 Military and industrial impacts on this rural landscape developed during the 19<sup>th</sup> and 20<sup>th</sup> centuries with barracks and batteries, stores, factories and attendant infrastructure being established in a concentration along the coast to the southwest of the application site. During the Second World War anti-aircraft batteries and munitions factories were added to the military sites, and the importance of the area for these types of remains is highlighted by the fact that the nearest scheduled monument, 2km to the southwest, is that of an anti-aircraft battery. The creation and rapid expansion of Avonmouth docks in the late 19<sup>th</sup> and early 20<sup>th</sup> century led to a massive development of the industrial complex along the coastal strip including the application site. Its distinctive shape, defined by roads to south and east (Severn Road and Ableton Lane), and field boundaries to north and west, have however survived from the pre-industrial landscape until today.

### *Issues of potential sensitivity*

- 13.93 The above baseline study has identified a high probability of the application site containing archaeological deposits. In particular these include:
- Palaeochannel and associated peat deposits identified from boreholes
  - Potential Bronze Age and Iron Age settlement and salt-making in connection with palaeochannel
  - Roman remains extending into the application site from the Crooks Marsh area to the northeast, or from proximity to a Roman road along its southern boundary
  - Medieval remains in association with Chittening or Worthy Farms
- 13.94 Previous industrial structures within the boundary of the application site might have had a significant impact on the potential preservation of archaeological remains within the western and southeastern parts of the site.

## IMPACT ASSESSMENT

### Summary of main design elements of proposed scheme

13.95 The proposed development (detailed in Chapter 3 of the Environmental Statement) will consist of a Materials Recycling Facility (MRF) and an Energy from Waste plant including a storage bunker, a waste feed system boiler hall, turbine hall, flue gas treatment hall, twin chimney stack for discharge of gases, and many ancillary buildings. Various parts of the construction will be below ground level e.g. the waste bunker and the foundations for the main structural elements will be piled to c.5m depth. The footprint of the structures, buildings, plant and roadways, cover virtually all the 8.3ha of the application site. In addition water attenuation lagoons will be excavated around the eastern and northeastern boundaries of the site.

### Direct impact

13.96 The impact on any archaeological or palaeoenvironmental remains that might survive buried within the site will therefore be direct, with permanent removal of such deposits during the construction stage.

### Indirect impact

13.97 There are seven scheduled monuments, and three Registered Parks and Gardens within 5km of the application site, and two Listed Buildings at 2km distance, the settings of which in theory could be affected by potential impact, generally of a visual nature.

13.98 Detailed definition of the settings to each of these scheduled monuments has not been undertaken as part of this study, as it is considered unnecessary in the context of the existing landscape, and the minimal change due to the proposed new building and operation from the existing chemical works and surrounding industry.

13.99 The application site has existing chimneys and other large-scale industrial structures as part of the former Sevalco North chemical plant. It is located within a belt of industrial complexes along the coast of the Avon levels.

13.100 Within this existing landscape the substitution of the existing industrial buildings with new ones as part of the proposed Severn Road Resource Recovery Centre will constitute negligible change.

13.101 The conclusion is therefore that there will be no discernible adverse visible impact to the settings of the scheduled monuments.

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## MITIGATION STRATEGY

- 13.102 National guidance (PPG16) and local policy (SPD7) require archaeological remains to be investigated and preserved as a condition on any planning consent.
- 13.103 Due to the potential for the site to have been utilised in the past, such as evidence for a palaeochannel, and especially due to its proximity to Roman remains, a programme of archaeological works prior to the commencement of development is recommended. This could consist of site investigation to establish the degree of truncation that has occurred under the existing building stock once this has been demolished, and within less developed parts of the site where buried remains might survive.

## CONCLUSIONS

- 13.104 There are no designated sites that will be impacted upon by the proposed scheme. There are no known archaeological reasons why the proposed scheme should not be consented.
- 13.105 The proposed location for the SRRRC is, however, in a rich archaeological landscape, and site investigation will be necessary before construction begins. The presence of a palaeochannel within the application site, however, was identified in 2004 from borehole data. Although undated, from dating of comparative deposits in the vicinity, it is likely that this could date from the Bronze Age. Bronze Age saltworking has been found adjacent to a palaeochannel at Cabot Park, 1.5km to the south. To the north and west of the application site a concentration of archaeological evidence shows Roman and medieval settlement and probable activities related to the maritime economy along Chittering “Wharf”. In contrast to the post-medieval and modern landscape the application site has potential for earlier archaeological remains and related palaeoenvironmental deposits.
- 13.106 Mitigation is recommended in the form of a planning condition requiring a watching brief. If archaeological or palaeoenvironmental deposits are found during site investigation, an assessment will need to be made on whether the foundations and groundworks for the proposed SRRRC will impact on these remains. A programme of excavation and recording, followed by analysis, report preparation and publication, might be required to complete the mitigation strategy.