

**HER 21, East Sussex Brighton and Hove**

**Project Report**

**6005 Main**

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## **Project Report**

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## **HER 21 ESCC 6005 Main**

### **Executive Summary**

The East Sussex and Brighton and Hove HER21 project, managed by East Sussex County Council and funded by English Heritage was undertaken between July 2010 and March 2011. The project explored options for how the East Sussex and Brighton and Hove HER (ESHER) could be developed to enable useful, appropriate and accurate information to be readily available to a range of users, but in particular to professionals in partner Local Planning Authorities and related agencies. The project saw the successful development of a pilot GIS heritage map viewer and the provision of this and the full HBSMR application, from East Sussex County Council, to Conservation Officer colleagues in district and borough authorities. Pilot testing demonstrated that it was technically possible to share the services and that there would be significant benefits to district and borough authority Conservation Officers (and other staff) in having direct access to the HER.

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## GLOSSARY

CI	Common Infrastructure
CRD ICT	Corporate Resources Division Information and Communication Technology
DC	Development Control
DMW	Development, Minerals and Waste
DNS	Domain Name System
EH	English Heritage
ESCC	East Sussex County Council
ESAMP	East Sussex Archaeology and Museums Project
ESRO	East Sussex Record Office
FC	Forestry Commission
FWAG	Farming and Wildlife Advisory Group
HEC	Historic Environment Commissions (English Heritage)
HER	Historic Environment Record
HLC	Historic Landscape Characterisation
HLF	Heritage Lottery Fund
HLS	Higher Level Stewardship
HPR	Heritage Protection Reform
HWAONB	High Weald Area of Outstanding Natural Beauty
ICA	Independent Computer Architecture
IfA	Institute for Archaeologists
KCC	Kent County Council
LB	Listed Buildings
LiDAR	Light Detecting and Ranging
MoRPHE	Managing of Research Projects for the Historic Environment
NAT Address	Network Address Translation
NGN	Next Generation Network
NE	Natural England
NT	National Trust
PO	Project Output
PPS 5	Planning Policy Statement 5: Planning for the historic environment
RSPB	Royal Society for the Protection of Birds
SERF	South East Archaeology Research Framework
SEWAF	South East Woodland Archaeology Forum
SM	Scheduled Ancient Monuments
SSSI	Site of Special Scientific Interest
TCP	Transmission Control Protocol
WFR	Weald Forest Ridge
WFR LPS	Weald Forest Ridge Landscape Partnership Scheme
WSCC	West Sussex County Council
WSRO	West Sussex Record Office
WIRG	Wealden Iron Research Group

## 1 Introduction

- 1.1 This report sets out the results of the East Sussex and Brighton and Hove HER21 project, managed by East Sussex County Council and funded by English Heritage. The project was undertaken between July 2010 and March 2011. The report follows the Project Design (ESCC 2010), which set out the options for exploring how the East Sussex and Brighton and Hove HER could be developed to enable useful, appropriate and accurate information to be readily available to a range of users, but in particular to professionals in partner Local Planning Authorities and related agencies.
- 1.2 This document represents the primary output of the project and represents an example of the issues facing a multi-authority and multi-agency area. English Heritage is seeking to enable HERs to develop in ways that will reflect the evolving programme of Heritage Protection Reform (HPR), including helping them to become more integrated within the planning system. To this end it has been the aim of HER21 to provide funding for HERs to evaluate key aspects of the interplay between them and those who use and operate the planning system within and outside local authorities. The longer term aim is to ensure that HERs are both relevant and sustainable. Achieving this will maximise the benefits to be gained in terms of the development of holistic HERs together with more efficient and effective integration into relevant (and rapidly changing) planning processes and systems. Developing joint working and inter-operability between local planning authorities and other public agencies and partners is a key goal of government and this project provides a case study of the issues faced with regard to heritage records. It is hoped that the results of the project will enable a change in working practices for all those working with the historic environment of the county, making it easier to access information and view that information in context.
- 1.3 This East Sussex HER21 project has focussed on understanding and documenting ICT infrastructure, heritage datasets and methods of current working by heritage professionals. It has developed and tested options for greater access to heritage data for a range of heritage experts and planners within the project area using the HER HBSMR<sup>1</sup> as the central hub. The potential for changes in working practice and the implications, feasibility and costs for the options identified have been recorded and reported.
- 1.4 In East Sussex and Brighton and Hove the HER (ESHER) consists of a database (HBSMR) linked to a Geographic Information System (GIS), together with associated reference collections and is managed by the Archaeology Section (two full time staff), which is part of the Environmental Advice Team, Transport and Environment Department and supported by staff in ICT Services, Corporate Resources Directorate at East Sussex County Council.
- 1.5 With funding from English Heritage the ESHER went through a programme of auditing and benchmarking in 2008/9 with selected records becoming accessible online through the Heritage Gateway in May 2010. ESCC Archaeology Section has a programme of volunteer HER checking in place to reduce the backlog and

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<sup>1</sup> Historic Buildings Sites and Monuments Record – developed by ExeGesIS SDM Ltd

update and amend records. Before this project there were no heritage experts outside ESCC who directly used the key components of the HER on a regular basis.

## **2 Policy Background**

- 2.1 The aims of heritage protection reform (HPR) in the absence of a Bill are being taken forward in a range of ways by government. Central to delivering the changes to a modern heritage protection system that have been set out in the HPR programme is the recent publication of PPS 5: Planning for the Historic Environment (DCLG, 2010).
- 2.2 Amongst other things, PPS 5 sets out policy on the need for an evidence base for plan making and decision-making. This clearly signifies a need for HERs. By defining what is meant by the historic environment, by defining the concept of heritage assets, the significance of those assets in terms of their heritage interest (archaeological, architectural, artistic and historic interest) PPS 5 enshrines much of the holistic thinking of HPR. The PPS5 policy document is supported by Practice Guidance (DCLG and English Heritage, 2010). PPS 5 provides a clear link between a contemporary way of thinking about the historic environment, as set out for example in English Heritage's Conservation Principles (English Heritage, 2008) and HERs and how these are central to the planning process.
- 2.3 Policy HE 2.1 states 'Regional and local planning authorities should ensure that they have evidence about the historic environment and heritage assets in their area and that this is publicly documented.' To achieve this Policy HE 2.1 states that 'Local planning authorities should either maintain or have access to a historic environment record'.
- 2.4 PPS5 sets out policy on regional and local planning approaches including for Local Development Frameworks. In order to achieve the goals of ensuring that the historic environment is at the core of plan-making it is made clear that the variations in type and distributions of heritage assets must be understood and this can only be achieved by a well maintained and more widely accessible and better understood HER.
- 2.5 PPS 5 sets out important policy on development management where it is made clear that applicants and developers and then development control officers and heritage experts must have access to accurate and up to date information about the historic environment.
- 2.6 Policy HE7.1 states that in decision-making local planning authorities should seek to identify and assess the particular significance of any element of the historic environment that may be affected by the relevant proposal, taking account of amongst other things the HER.
- 2.7 The importance and relevance of modern HERs is also clearly set out in the recent English Heritage publication Sites and Monuments Record to Historic Environment Record. Local Authority Case Studies (English Heritage, 2010).



### **3 Background (HER21)**

- 3.1 SHAPE and HER21: SHAPE is English Heritage's strategic framework for commissioned projects. This project falls under Strand 2 and aligns with SHAPE Sub-Programme 41161.110 (*Systems Research for Historic Environment Records*). Strand 2 covers: Expanding the Content and Coverage of HERs for HPR Coverage.

### **4 Local Planning Authority structure (East Sussex and Brighton and Hove)**

- 4.1 The following key audiences and users of the HER have been identified:
- Heritage 'experts' in Local Planning Authorities and other agencies
  - Planners in Local Planning Authorities
  - The public (including in particular applicants and developers)
- 4.2 East Sussex operates a two-tier planning system with a County Council and three district and two borough authorities. Brighton and Hove City Council is a unitary authority. The ESHER serves all these authorities. The northern and eastern parts of the county fall within the High Weald Area of Outstanding Natural Beauty (AONB) and the southern part of the county within the South Downs National Park, which is being established as a planning authority from 1<sup>st</sup> April 2011.
- 4.3 The following authorities have been involved in this study:
1. East Sussex County Council
  2. Brighton and Hove City Council
  3. Lewes District Council
  4. Wealden District Council
  5. Rother District Council
  6. Eastbourne Borough Council
  7. Hastings Borough Council
  8. High Weald AONB Unit
  9. South Downs National Park Authority (shadow)
- 4.4 As noted above East Sussex County Council's Archaeology Section within Transport and Environment Department manages the HER for East Sussex and Brighton and Hove with support from ESCC CRD ICT and database provider ExeGesIS. The Archaeology Section at ESCC provides an archaeological planning advice service and maintains the HER on behalf of the Local Planning Authorities listed above. The High Weald AONB Unit is not a planning authority and information is exchanged presently on an informal basis. The South Downs National Park Authority will receive archaeological planning advice through delegated responsibility to the county, district, borough and city council areas within its remit. SLAs are in place to define the service provision between ESCC and the local planning authorities. ESCC Archaeology Section employs 2 full time staff but does not presently employ a dedicated Historic Environment Record Officer. Through the English Heritage and HLF funded Historic Environment Awareness project the Archaeology Section employs a part time project officer for

community outreach. ESCC does not employ a Conservation Officer or built form officer. Advice on the archaeology of standing buildings and structures is provided by the two ESCC archaeologists, and where applicable to district and borough planning matters, by working with the relevant Conservation Officers. Thus a key aim of the project has been to explore methods for increasing the capacity for more effective joint working between county archaeologists and district conservation officers.

- 4.5 Each of the districts and boroughs within East Sussex and Brighton and Hove City Council has a conservation team and employs Conservation Officers. The ESCC Archaeology Section has regular contact with the Conservation Officers and attend joint meetings of the Sussex Conservation Officer Group. During 2009 the Archaeology Section ran training days for Conservation Officers on the potential uses of the HER.
- 4.6 East Sussex County Council is also responsible for running the East Sussex Public Record Office (ESRO) and evidence gathered for this project has been passed to staff working on the design for a new record office being developed at Falmer and known as the Keep. The Keep has been designed so that it will include a terminal for public interface to the HER and scope for an HER Officer to provide advice and help with research.

## **5 The East Sussex and Brighton & Hove HER: Existing system**

- 5.1 The core of the ESHER is the database and GIS. HBSMR (Historic Buildings, Sites and Monuments Records) is an Access database application written and supported by ExeGisIS for the management of Historic Environment Records. The data records are uniquely indexed relative to each other. The ESHER database has GIS functionality accessing information such as Tithe maps, OS Maps and other GIS information sources. The present state of the ESHER is set out in a report to English Heritage for an audit and benchmarking exercise in 2008 (ESCC 2008).
- 5.2 The Archaeology Section and ESCC ICT have been looking for some time at options for providing wider access to heritage information through GIS applications both to specialist users and the general public. In 2009 ESCC and Wealden District Council ran a small pilot project to provide access for the Conservation Officers at WDC to see the ESCC GIS map viewer of planning data, which includes some heritage data (designated assets and Archaeological Notification Areas – our HER alert mapping). This proved to be successful but was found to be of limited benefit for Conservation Officers who wanted access to a greater range of heritage data.
- 5.3 At present HBSMR and the GIS functionality are available via Citrix and the system is used by the Archaeology Section. In addition planners at ESCC have access to the web-based map viewer (mentioned above), which includes information on designated assets and is maintained by CRD ICT Services. Planners in the districts and boroughs have their own independent GIS

functionality drawing down data from English Heritage and receiving shape file updates for Archaeological Notification Areas (alert mapping) from ESCC.

## **6 Aims**

- 6.1 This project was set up to look in detail at the fundamental IT infrastructure links and the heritage search and advice roles that are shared between ESCC Archaeology Section and heritage professionals in partner authorities and agencies, in particular with district, borough and unitary authority Conservation Officers as well as staff in the High Weald AONB Unit and emerging South Downs National Park Authority. The project also aimed to provide evidence to ensure that the Keep (new Public Record Office for East Sussex and Brighton and Hove) has the capacity to provide access to the HER for public research.

## **7 Project Objectives**

- 7.1 The following project objectives were set out in the project design:
- To develop and agree with EH and partners a detailed Project Design.
  - To understand and document partner IT infrastructure for heritage data and the use of heritage data for planning and research.
  - To explore options for increasing partner access to the HER (HBSMR) both for 'read only' and for use as database.
  - To set up and test a map-based read only GIS viewer of information (spatial extent and essential text) on heritage assets.
  - To set up appropriate IT connectivity between ESCC and selected external partners to provide access to the HER and GIS map viewer.
  - To run pilot tests for Conservation Officers and other heritage experts in partner organizations to use HBSMR and GIS Map Viewer for their work
  - To produce a report on the outcome and issues of the above

## **8 Project Deliverables**

- 8.1 The following project deliverables have been achieved:
- **Project Design**
  - **IT, heritage data and data use audit** - This section of the report sets out a summary of the IT and heritage data presently used by the partner organisations. The results of two workshops attended by ICT and heritage officers are also collated.

- **HER access options appraisal** - This section of the report outlines the work to explore and document options for achieving the key project deliverables.
- **Set up and establish IT links for pilot tests of a map viewer of heritage data** – This section of the report sets out the results of technical work undertaken by CRD ICT Application Development to pilot a map viewer of heritage data accessible to a range of partner organisations. The report includes a review of the methodologies used, results achieved and lessons learnt.
- **Establish IT links for pilot studies use of HBSMR and Map Viewer** – This section of the report sets out the results of technical work undertaken by CRD ICT Voice and Data team and ICT Server Team to provide access for partner organisations to HBSMR and associated GIS. This section also includes the feedback from Conservation Officer pilot use of the full application at Lewes District Council, Wealden District Council and the High Weald AONB Unit.
- **Reporting of results** – This section of the report sets out the overall results, discussion and conclusions of the project and includes recommendations for further development of the ESHER.

## **9 IT, heritage data and data use audit (PO2)**

- 9.1 The aim of the audit was to gain a full understanding of the way in which heritage data was being managed across the project area and between the partner planning authorities and agencies. With limited resources and pressures for closer working practices, it was essential to understand the ‘base line’ situation before recommending alternatives and developments in working practices.
- 9.2 All nine partners were asked to complete a questionnaire to document the software/hardware and heritage data employed by their heritage professionals, including information on mapping systems, applications, databases and servers being used. The questionnaire was distributed in the form of an EXCEL spreadsheet. On receipt of the completed spreadsheets they were combined to create a single ‘master’ spreadsheet from which summary sheets in Pivot table format indicating the type/format of the data recorded for each Partner was created. This was followed by sorting the results by asset type.
- 9.4 The audit recorded the following key types of asset data being stored and used by partners:
- Registered Heritage Assets (National)
  - Alert Mapping Archaeology (Local)
  - Alert Mapping - Built form/character (Local)
  - Spatial Representation of Local policy
  - Miscellaneous (Air photos, Historic Maps, South Downs NP Area Maps, Tree Preservation Orders etc)

- 9.5 Despite some discrepancy in the way in which partner spreadsheets were completed, due in part to very different working practices in different authorities and to differences in understanding of the processes involved, the audit was successful in capturing data types and media. The project has highlighted some of the differences in working practices between the ten Conservation Officers in the project area and the two archaeological advisors. A weakness of the project, in retrospect, is that it did not include the EH regional office, with whom comparison would have been useful and whose working practices with regard to accessing heritage data are not well understood by others involved in heritage management across the region.
- 9.6 A significant range of storage types for heritage data were found to be in use across the partners. There was found to be very little use of specific heritage databases in the district and borough authorities. Only two were found to have some form of database for Listed Building and Conservation Area data. The ESCC-managed HBSMR was confirmed as the only significant heritage database in operation across the county. The audit recorded that the majority of district and borough Conservation Officers used their own planning databases to store information about historic buildings. More than one district was found to be using hard copy data for development management on a regular basis. At the second workshop it was recorded that the National Trust used the same HBSMR database and it was acknowledged that the NT SMR holds detailed records for NT estates, which effectively form a subset to the ESHER. It is hoped that future joint working will lead to the formation of a set of event records that could be used to link to detailed NT SMR records. Whilst there was not time during this project to explore this idea further, it is understood that NT are looking at this issue nationally.
- 9.7 Map layer media (.Tiff Files, .Shp files, .dbf files, ARCSDE and .mdb files) were found to be by far the most common means to store heritage data amongst the partners. Much of the data held by partners is potentially interchangeable so that map layer data held in one authority would be compatible (or could be made compatible if necessary) with other similar data in other authorities. Anything defined broadly as Map Layer data from partners was found to be essentially compatible with the test map viewer being developed or indeed those held with the HBSMR database. Perhaps the most important finding of the audit was that there was no clear understanding between partners of who was the originator of certain data, despite the fact that some partners were found to have very good GIS data management systems in place. A clear finding of the project was the need for clarity within each partner organisation of their data management systems. Clear and well-promoted guidance on the sources of heritage data would be extremely helpful. The audit also demonstrated that within most authorities, heritage data was seen by planners and ICT staff as simply another set of data that had to be managed, alongside the huge array of other data sets need by an LPA. The great range of data produced in the last ten years by a range of agencies, allied with the increasing complexity of planning and computer system developments, has clearly put a strain on the resources of all authorities and as a result it became clear from the audit that there was some significant variability in the capacity to maintain up to date systems. As a result of these variations no attempt was made during this HER21 project to integrate partner

map layer data into the test map viewer. It became clear during the project that EH were providing improved methods of access to registered/designated heritage asset data, negating in the short term at least the need for ESCC to provide this from a central HER hub to partners, when they could readily access that and update it themselves. At present the EH downloads are national and it is hoped that soon it will be possible to only download data required for a specific area. It became clearer that the key exchange would need to focus on 'local' data. Essentially between districts and boroughs supplying updates on buildings and Conservation Areas to ESCC and the ESCC providing access to its 'local' heritage data (Monument Records, Event Records, Historic Landscape Characterisation, historic mapping etc) to the districts and boroughs. Whilst this project has found ways to provide access to HER data from ESCC to partners, work will need to continue in the coming year to agree revised timetables for data from districts to be made available to the HER at ESCC.

- 9.8 The amount of hard copy data still used is significant and there is a considerable task to convert this into a digital format suitable for use in a database or GIS system. One district authority in particular holds a unique hard copy file for each Listed Building, representing a very important resource. If this material is to be shared then it will have to be digitised or made publicly accessible, through for example the East Sussex Record Office. The option to add district building data to HBSMR was considered and would depend on funding and appropriately trained staff to maintain the data in. It was generally agreed amongst partners that if funding were available a shared HER Officer at ESCC to support partner use and maintain their data on their behalf could be a practical solution.
- 9.9 The storage of documents and pictures, particularly maps, as electronic documents (.pdf, .tiff, .doc etc) was found to be common within the partner organisations. Many of these could be developed into Map Layers and integrated into the HER Map viewer or the Map Layers within HBSMR. The High Weald AONB Unit in particular, was found to have developed a significant range of potentially important heritage data such as geo-referenced estate maps, which comprise a wealth of data about, for example the positions of former buildings, few of which are presently recorded as monument records within HBSMR. As a direct result of this project, access to HBSMR is now available at the High Weald AONB office in East Sussex and a volunteer programme has begun to add heritage data collected for woodlands surveyed under the Plantation on Ancient Woodland (PAWs) surveys. These surveys, though undertaken primarily for ecological recording, have collated a significant number of records of earthworks and related heritage assets, and this data will now be added to the HER as event records and linked scanned record sheets (which included sketch maps and photos).
- 9.10 Two workshops for partners were held at County Hall Lewes on the 8<sup>th</sup> and 29<sup>th</sup> October 2010. The workshops were set up to bring together ICT and heritage officers from the partner organisations to explain the project, exchange information and explore options. The workshops were also used to collate information and clarify aspects of the audit and provide some initial training in the potential of the HER for wider use. The workshops were found to be extremely useful and exposed the need for greater awareness of other working practices,

something it is hoped the HER21 project results will address. One of the key findings of the workshops was that heritage professionals in general across all the authorities were highly reliant on ICT staff for support and many heritage professionals would benefit from basic ICT training. This finding supports the recommendation for the creation of an HER Officer post to support partners.

- 9.11 The first demonstration at each workshop was of the ESCC DMW viewer. This is an East Sussex Intranet system, which uses planning data from the MasterGov systems and is made available via a password-protected link to the Intranet. Attendees were invited to access the link from their offices and test use the GIS. The data displayed on this viewer has been specifically designed for development management use and during an earlier pilot test use of this system to a district authority Conservation Officer it was found to be useful but not sufficiently tailored for heritage use.
- 9.12 The second demonstration was of a prototype heritage map viewer (PO 4) to address the limitations of the DMW Viewer noted above and to allow discussion to inform its development. At the workshop stage it was not available beyond the East Sussex intranet. The demonstration showed how different 'layers' of information could be selected and overlaid onto the map and workshop attendees were able to comment on their preferences during the demonstrations. It was agreed that there was a strong business case for districts and boroughs to share the ESCC product as it proved to be robust and quick, even with LiDAR data for the High Weald that had been added. The speed, in particular was remarked upon. It was also agreed that the existing SLAs could form the basis for agreements between partners to cover future costs of using and sharing such a system if this were to be taken forward. The map viewer developed as a result of the feedback from the workshops is described in the next section. Concern was expressed around the copyright issues of publishing data that is 'owned' by other bodies; historic maps for example have copyright and ownership rights outside the County Council.
- 9.13 At the outset of the project it was hoped that a longer-term aspiration would be for the level of functionality developed for the test viewer to be made available to the general public over the Internet. It was hoped that such a system might help provide important information on key heritage assets to the public, including applicants and developers, particularly with the potential closure of Magic. It was recommended by ICT that the User Interface was a long way from being suitable for use by the general public and would require considerable work to make it a public facing application and it was decided that a functioning Web Interface was not a realistic goal within the scope of the HER 21 project and without a more centralised planning process. It was noted, however, that some LPAs were beginning to provide information, for example on Archaeological Notification Areas, through their planning portals. This de-centralised approach was seen to be the most robust and practical in the short term.
- 9.14 The third demonstration at the workshops was of the HBSMR database application. It was explained to partners how the system had been developed by exeGesIS SDM Ltd and uses an MS Access front end with embedded GIS functionality. It was shown how this application effectively holds the core data for

the East Sussex HER. It was noted that the degree of functionality contained within the application in fact means that 'occasional' users often struggle to make full use of the power of the application. Consideration therefore needed to be given as to how best to employ the system and it was agreed that regular use was important and that would require a significant shift in working practice by Conservation Officers, away from their existing systems if it was to become a regular part of heritage data management across the county. It was noted, however, that ESCC Archaeology Section now have at least three skilled volunteer users of the system and joint use is well known from other authorities, for example Cheshire, as set out in the recent EH publication on HERs (EH, 2010). It was confirmed that in the short term and within the scope of the HER 21 project, the intention was to make the HBSMR database application available to key users in partner authorities. This would be dependent on further configuration work by ICT Service Voice and Data team. It was generally agreed that the longer-term vision for the application would be for heritage data from partner organisations to be held within this database and the application shared by all the authorities. Issues of data governance were discussed with some concerns, particularly data security and the HBSMR system that ESCC ICT staff found to be 'weak' and potentially open to unregulated access. The major obstacle to the long-term vision for use and access of a single database was seen to be staffing levels and different working practices between LPAs rather than technical issues. Attendees expressed the view that the ideal use of the application would be that each authority continued to 'own' its own data with 'update permissions' restricted to the data owners and all other authorities having 'read only' access to others data. ExeGesIS would need to comment on the capacity for the system to allow for these different levels of access depending on the data owners but all agreed that there was again a strong business case for this development. A possible future scenario was seen to comprise a range of options for accessing data via Heritage Gateway (data more limited), use of map viewers and access to the full application. The latter two forming the subject of the remainder of the project.

## **10 HER access options appraisal (PO3)**

- 10.1 The aim of this phase of work was to take the results of the audit of heritage data and systems and explore and document options to achieve Project Outputs 4, 5 & 6. ESCC had already gone some way to preparing the way for rolling out greater access to heritage data. In the spring of 2010, the ESHER went on-line via the Heritage Gateway portal and to achieve this both HBSMR and the linked mapping were moved to a Citrix server. ESCC HBSMR and ArcView have rental licenses that allow flexibility of use by a pool of users to meet the requirements of re-organization of desk space and working practices at the County Council.
- 10.2 The development and appraisal of access options for both a web-based heritage map viewer and the full HBSMR application became intrinsically linked with the need to test options in real life. For this reason the discussion of the results of developing options, appraising and testing them are given in the following two sections.



## 11 Heritage Map Viewer Options (PO4)

11.1 The aim was to develop a map viewer containing spatial information with essential text information on a set of 'unified' heritage assets. By that it was envisaged that a single system would show equally the extent, location and name/grade of both designated assets and locally identified heritage assets, including those identified by local planning authorities and local communities. The following types of heritage asset were to be included:

- Scheduled Monuments
- Listed Buildings
- Registered Park and Gardens
- Registered Battlefields
- Conservation Areas
- Protected Wreck Sites
- Archaeological Notification Areas
- Historic Mapping
- Historic Landscape Characterisation data
- Extensive Urban Survey data
- LiDAR data (collected specifically for heritage projects)

11.2 At the outset of the project it was considered that an option would be to 'collect' all the above data and provide a single combined service through one map-viewer to partners. As discussed during the workshops and subsequently a key constraint to the value of such a system will be the degree to which individual authorities wish to 'manage' their own data and draw down from service providers or to share a service. At the local level, for example, the audit had shown that most district and borough authorities did not have access to geo-referenced historic mapping and provision of this could either be as part of a Viewer or as a service.

11.3 A Map Viewer for heritage data was developed. The options appraisal and development process is set out in the following table:

### HER Map Viewer Deployment Options

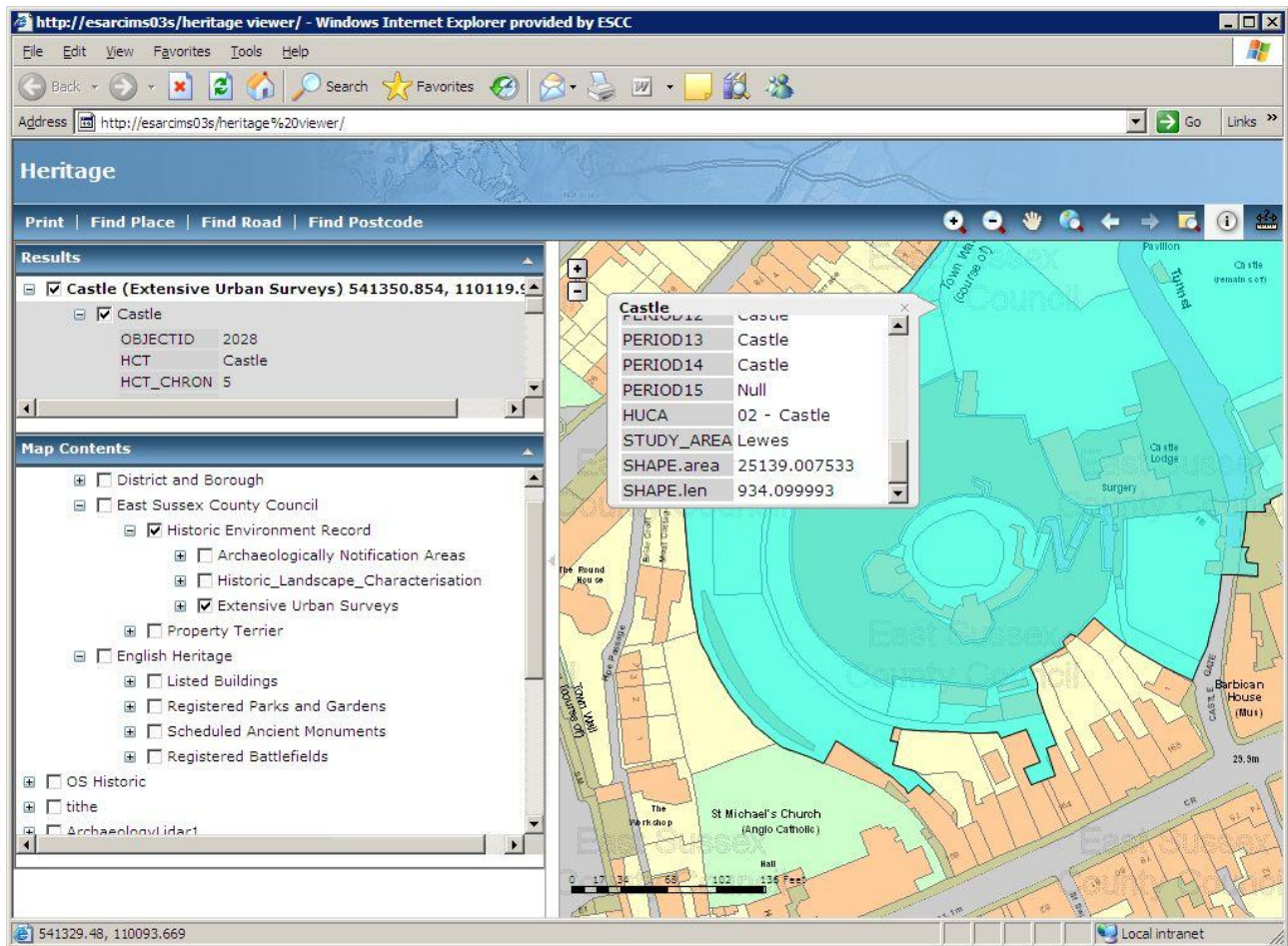
Option	Description / Work Undertaken	Outcome
1	Via Citrix	This option was only briefly considered and then rejected as expensive to establish and high maintenance as all users would require ESCC network logins. Deploying the Viewer over citrix was also quickly rejected as a sustainable long-term solution.
2	Via the internet  A copy of the existing ESCC Planning Viewer was made available via internet and a password access added.	This was a temporary solution, which also proved that running this type of application via the internet performs slower than via the linked intranet approach. It was found to be less cost effective as it uses bandwidth on all parties' internet connections but cost effective for those partners without an existing direct connection to ESCC. This option was considered more closely than Option 1 but was rejected for security and performance reasons. While it is possible to implement password access, this was considered to be higher maintenance than the last option (3)

		This option however could be used as a backup or more likely to provide access to other partners who don't have a direct connection to ESCC
3	<p>Use the "Common Infrastructure" to provide cost effective access to partners</p> <p>Developed 5 map services and a web client to consume them using ESRI's ArcGIS Server technology</p> <p>Then requires configuring CI firewalls and advising partner of connection details and any dns requirements</p> <p>Firewall rules permit tcp port 80 from the partner to the NAT address of the HER map viewer NAT rules hide the real address of HER map viewer within the ESCC network from partners</p> <p>Partner is required to test and add DNS entry. Some partners also need to update their own firewall</p>	<p>The large volumes of data referenced by the five map services performed above expectation. This proved that data sets with high volumes such as LiDAR and tithe maps are best delivered via map services as this reduces the impact on the network. This has now been tested and is working at Wealden District Council and Lewes District Council. Attempts to link to other partners stalled due either to lack of close ICT contact, day-to-day working relationship or in one case because of issues with networks that could not be resolved. It was considered that most partners not tested would not, however, provide any significant different technical issues to those overcome for this project.</p> <p>High Weald Unit is directly connected to the ESCC network via broadband but is limited by the speed of this connection and other traffic already using the link. Despite this, both the map viewer and HBSMR have worked well at the High Weald Unit and the latter is now actively used for inputting records.</p>

11.4 Deploying the HER Viewer via intranet links between partner organisations was considered to be the best solution. This is because it would use the existing high capacity connections and equipment, does not require user management but is still secure as only users with valid logins to partner intranets would have access. It does not require any investment in client software and does not require any user accounts to be established if anonymous access is used. This can therefore be considered a permanent and cost effective solution. There are no known technical issues to resolve but it was found that developing ICT communication lines with some authorities would be necessary. The only issue surrounding this approach is the time taken to expose the intranet web server on the ESCC intranet to users on partner organisation intranets.

11.5 In the project design it was envisaged that capital funding would be required for firewalls. In the event the service was deployed using existing firewalls (2 per authority). They are difficult to administer and maintain and will probably need replacing but were sufficient for this pilot test and new ones were not therefore purchased. Replacement devices will be necessary and for this service provision to be provided in future firewalls will be need to provide access to the HER21 services via the NGN. The NGN approach is completely different to the previous network and only requires one firewall but there will be cost implications if this service is rolled out following this project. Likely future costs are set out at the end of the report.

### Heritage map viewer screen showing Extensive Urban Survey data

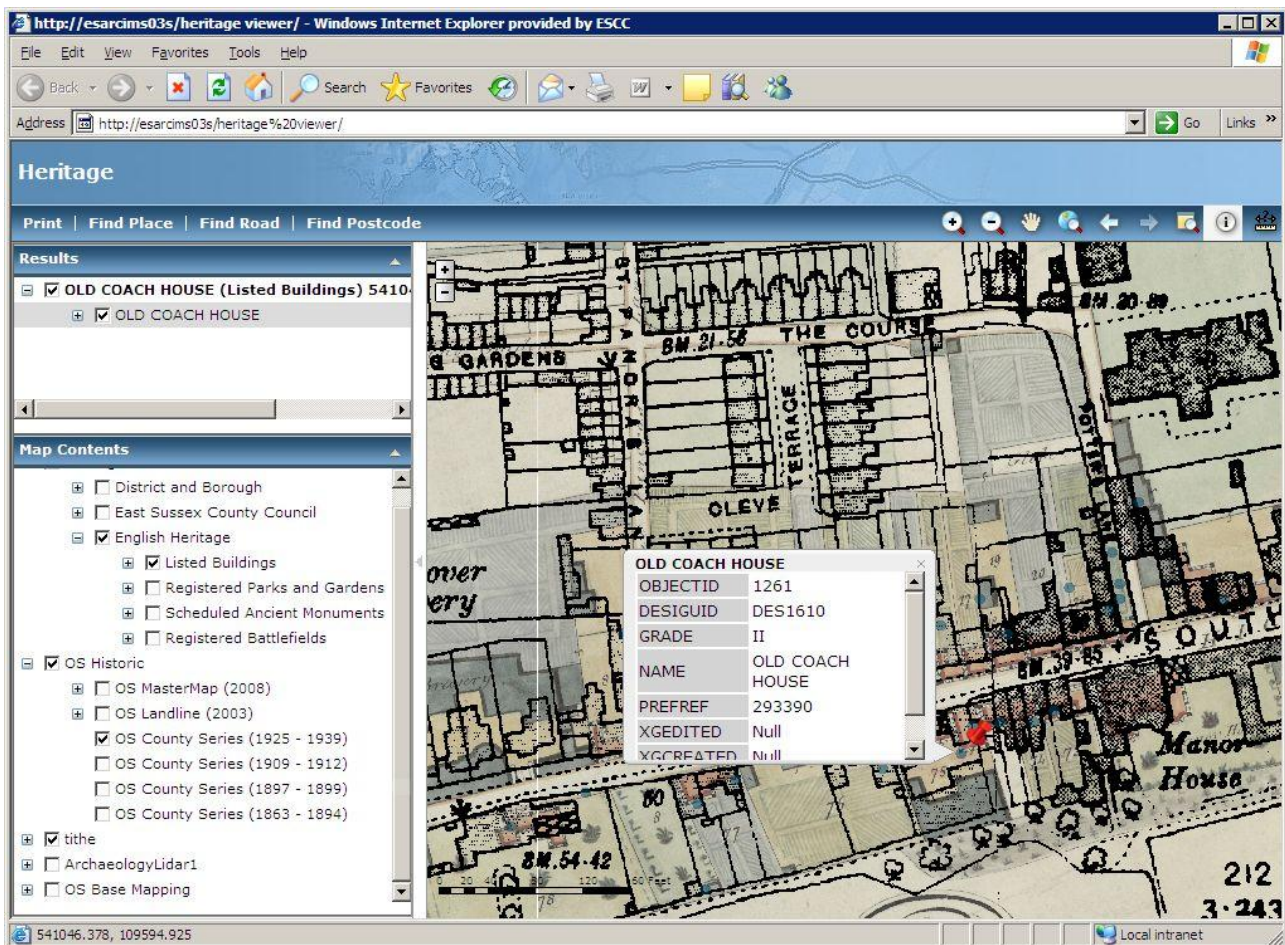


11.6 Feedback from the Conservation Officers and ICT officers was extremely positive. The speed, in particular was considered impressive. The range of historic mapping and characterisation data (in particular Extensive Urban Surveys) was considered to have the potential to significantly change working practices by allowing faster and more in depth research to be undertaken. Requests were made to add locational functionality to allow zoom to postcodes, street or house names. ESCC ICT then added this functionality to the final version shown in the above screen shots.

11.7 The two screen shots illustrate the configuration of layer information available organised by originator or service provider. In the first example the ESCC Archaeology Section data has been expanded to show the Archaeological



Notification Areas (alert mapping), Historic Landscape Characterisation and Extensive Urban Survey data. In this example the EUS layer for Lewes has been chosen to illustrate the view and information box with information on Historic Urban Character Areas (HUCA 2) for the Castle. In the second example below a screen shot has been chosen to show a combination of Tithe map and OS 4<sup>th</sup> Edition with Listed Building record from English Heritage. The East Sussex Record Office provides tithe maps and this service offers an opportunity for ESRO to provide new ways of accessing its map archive. Both these examples have been chosen because they illustrated aspects of the HER 21 project delivery that have been considered by Conservation Officers in districts and boroughs to be potentially the most useful for enhancing their working practices.



## 12 HBSMR Database Access Options (PO5)

12.1 The HBSMR database now operates within a Citrix environment, which allows easy access to the database application for any staff within the authority that requires it. The principle challenge, therefore, was to make the heritage data within HBSMR and associated GIS available to partner authorities. Following the provision of access the High Weald AONB Unit, which was essentially an internal link, work was undertaken to create a link to Lewes District Council and Wealden District Council. The work involved the CRD ICT Voice and Data team to ensure access was provided through secure networks compatible with ESCC policy and standards.

- 12.2 Two key needs were identified by ICT:
- the need for a ‘quick win’ to make the database application quickly available to the selected partners carrying out the evaluation
  - the need to determine the optimum method to deploy the application to all the partner organizations in the future.
- 12.3 At the project development stage, three technical options had been identified which could allow access to the application for staff outside the authority. The first option considered was for the provision of a County PC attached to ESCC network. This option effectively places a ‘county PC’ in a partner organisation and is certainly a technical option, and has been used in the past. This was not considered a viable long-term option, as it would be expensive to provide additional PCs to users that generally already have one. The second option was to use the ESCC Portal or Gateway. It was found that the ESCC Portal would not provide the required level of access to a CITRIX application but this could be achieved through the East Sussex Gateway. However past experience has shown this not to be the easiest route. There are likely to be licensing issues and setup has been complicated by Java configuration issues and the integration with a partner’s network may throw up even more unforeseen problems. Even where the link has been successful, performance has been poor in the past with an unacceptably slow response. The third option was to expose part of the Network to nominated partners. This option makes use of the CITRIX environment and the use of existing links between ESCC and the partner organizations. Effectively the participant in the partner organization will become an authenticated user on the ESCC network while using their own client hardware.
- 12.4 The technical log for the options appraisal and development process for providing HBSMR and related GIS to partner authorities for pilot testing is set out in the following table:

### HBSMR Database Deployment Options

Option	Description / Work Undertaken	Outcome
1	Via ESCC Gateway access to citrix applications. This approach is known to work as the Archaeology staff at ESCC use it from their home PCs	While this is known to work it is also known to be slow Secondly, Users would also need to utilise a Gateway license. For the above reasons this option was not tested. However this remains a workable alternative
2	Access through corporate internet portal	This option is known not to work with Citrix and was therefore not tested. It could be used as a backup to the internal solution or more likely to provide access to partners who don’t have a direct connection to ESCC
3	Use the “Common Infrastructure” to provide cost effective access to partners  This requires configuring CI firewalls and advising partner	After some delay this was shown to work at Lewes DC and Wealden DC and appeared to work as it does for ESCC staff within the ESCC network. Users do require ESCC network logins and specific permissions set with the HBSMR application.  Neither Brighton and Hove nor Eastbourne was connected to

<p>of connection details and any dns requirements</p> <p>Firewall rules permit Citrix-ICA, tcp port 1494 from the partner to the NAT address of the HBSMR service NAT rules hide the real address of HBSMR within the ESCC network from partners</p> <p>Create a modified Citrix program file (.ica file) which permits only tcp access to the NAT addresses of the HBSMR service</p> <p>Partner is required to install the client software with supplied ICA file, test and add DNS entry once proven. Some partners also need to update their own firewall to permit their traffic to ESCC</p>	<p>due to the issues previously documented and these problems will need resolving. Rother DC and Hastings BC are not expected to present problems.</p> <p>High Weald Unit is directly connected to the ESCC network via broadband but is limited by the speed of this connection and other traffic already using the link. However, under test conditions HBSMR has worked well at the High Weald Unit and a volunteer is now adding HER records from their one day a week. A DC officer is also using HBSMR at the HWU two days a week.</p> <p>There are no known technical issues to resolve</p>
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- 12.5 It was concluded that Option 3 provides by far the best permanent solution for delivering access to the HBSMR database based on reasons of cost effectiveness and performance. The solution uses existing high capacity connections and equipment. The purchase of HBSMR licences will need to be added to the deployment cost though these costs would remain whatever the technical option chosen. There are no known technical issues to resolve but it will be necessary to establish better communication lines with Brighton and Hove and resolve the known issues with Eastbourne. There needs to be better communication between the relevant technical staff at partner organisations and perhaps a higher priority given to sharing data and applications instead of duplicating them.
- 12.6 Pilot testing at Lewes District Council and Wealden District Council proved extremely positive. The systems performed well and the focus was on the value to heritage professionals rather than concerns over technical functionality. The combination of access to all the mapping available from the map viewer but in conjunction with the database records was recognised to hold considerable potential. Both Conservation teams thought it unlikely that in the short term it would be possible to convert to or use the Consultation Module, which is used by the County Archaeological staff for day to day development management. The Conservation Officers using the district and borough planning databases were committed to existing systems, which were particularly liked because of the links to development-related data. It was agreed, however, that access to a source of data about specific heritage assets, being built up and enhanced day by day, would in the long run be equally if not more important. Feedback from Conservation Officers included quotes like "It's certainly one of the best resources I've come across and I think in both the long and short term it will be of benefit to both district level planning work, as it gives us so much information combined with an invaluable mapping

database, and the long term compilation of an HER that will become a permanent resource for the County - especially if we can link in to other online sources which looks promising”.

- 12.7 Read only access was considered to be essential in the first instance, combined with training and with the option to add records if an HER Officer was available or Conservation Officer staffing at district and borough level improved in future. It was generally agreed that the goal should be the creation of heritage asset records for buildings and structures, which combine archaeological, historic, architectural and other interests
- 12.8 An outcome of the testing is the recommendation that ExeGesIS be encouraged to develop methods of allowing access to planning portal data related to individual points.

### **13 Discussion and Conclusions**

- 13.1 The project aimed to create more direct links between the HER and planners and heritage professionals by making it more accessible. At the outset of this project it was clear that in East Sussex the HER was not widely recognised or understood by planners, applicants/their agents or even some heritage professionals outside the Archaeology Section. One of the key behavioural changes that were hoped for from this project was to follow the provision of access to selected HER records via Heritage Gateway in May 2010 by direct access to key users.
- 13.2 The project has shown that in its present form, components of what might be thought of as the East Sussex Historic Environment Record (ESHER) are spread between a range of agencies, including East Sussex County Council, English Heritage and the Conservation Teams in partner Local Planning Authorities, as well as the High Weald AONB Unit, the emerging South Downs National Park Authority and organisations such as the National Trust. Parts of the HER are therefore effectively invisible to planners, applicants and heritage professionals. A key behavioural change aimed for is wider understanding of the historic environment, greater use of the ESHER and greater scrutiny and pressure to ensure that the ESHER is kept fully up to date. A key benefit of this project has been to gain an understanding of the infrastructure, heritage data sets and methods of working employed by the partners in the East Sussex and Brighton and Hove area. The decision to develop and provide access to heritage assets map viewer and access to the full application HBSRM database and GIS has proved sensible and going forward there would appear to be demand for both options from partner LPAs.
- 13.3 The time available for this project has meant that only ‘pilot’ functional solutions have been developed to meet the requirement for a high level evaluation by selected partners. The evaluation of the products can therefore only give an indication of what may be achievable if there is a credible business case, the political desire and the necessary funding. The project has, however, proved very useful in obtaining the technical knowledge that will be necessary to effect long-term sustainable solutions.

- 13.4 The data audit was undertaken to allow the partners to understand what data was held and the medium that was used to hold the data. The data audit indicated a very wide range of software solutions to hold the relevant data across the partner organisations. Perhaps most importantly the project has illustrated that there are significant differences in approaches, for example between those working primarily with designated assets as compared to those working with mainly undesignated assets and those heritage professionals who work primarily with Listed Buildings and those dealing with a broader range of heritage asset types and the relationships between them. The project has shown that the ESHER will need to adapt to be able to provide scope for the evolving understanding of all heritage assets whether formally designated or not and in order for it to be seen to be useful to a wide range of professionals.
- 13.5 The results of this project suggest that in the present financial climate and for multi-tier areas, the concept of the HER needs to be seen as a shared resource with data held and managed by a range of partners with a medium to long term aim of developing a central HBSMR data base, managed by an HER Officer and accessed by remote users. At the outset of the project it was thought that holding the data in one place and providing access to a range of users would provide a simpler, more robust and cost-effective system. The complexity of developing and maintaining links between relatively autonomous partners has indicated that this will be difficult to achieve in the short term but is certainly achievable.
- 13.6 The project has highlighted the key role that English Heritage has in ensuring access to designated heritage asset data to all authorities and agencies and to help, through projects such as HER21, find ways of ensuring that changes to heritage asset information are always updated by the HER as the core central local database. It is hoped that other HER21 projects, such as that undertaken by KCC will help provide protocols that can be followed to ensure that this is the case. If not there is a risk of a continuation of a range of differing data sets being used by different authorities.
- 13.7 The project has defined some key constraints that currently exist, and that will need further investigation following the completion of this project. They include data governance and copyright. There are likely to be constraints with permissions to Landmark, for example, which will mean in the short term withdrawing the historic mapping element of the viewer for some authorities. It is understood that one off payments per authority for access to Landmark data are going to be in the region of £400, depending on the size of the authority area. This is an issue for use of the viewer but potentially not the case for authenticated ArcView users with HBSMR.
- 13.8 Current working practices/business requirements mean that the county operates as a two-tier system and therefore some local data will always need to remain in the control of the local authority. Political decisions could of course affect how the work is administered in the future but this should not detract from the potential advantages of more widely available HER data in the short term. The approach to maintaining data is currently inconsistent across the different authorities. For example, where one authority may download scheduled monument data from English heritage as a one off exercise and then maintain it themselves, another



authority will just take 'snapshots' of the data on a regular basis. Clarity on protocols should continue to be made through HELM and training sessions.

- 13.9 The prototype HER Map Viewer was developed and deployed to a number of partner organisations. The project has therefore proved that a shared Map Viewer providing a range of heritage data to a large number of people is technically achievable. The product was enthusiastically received and the potential for further development, particularly in terms of providing web access appears highly desirable. The addition of Map Layer data from partner organisations proved to be possible and points the way to greater sharing of services between. A further potential development for the heritage Map Viewer was for bespoke views, for example for archaeologists, Conservation Officers, district or county planners etc. Each view would default to displaying the map layers most useful to that particular role with the ability to switch on and off optional layers. Following this project ESCC will be looking at discussing how continuation of provision of the Map Viewer can be funded by development of the existing SLAs.
- 13.10 The HBSMR database is a highly functional system that can provide core detailed information to specialist archaeology and conservation staff. Deployment to partners was challenging but has been successfully achieved for two districts. It is possible that different problems might be encountered when providing the service to other LPAs, but this project has shown that the problems can be resolved. In the short term a read only function is considered achievable with a longer-term ambition for each partner authority to have full access (read/write/update) to their own data within the database while everybody can 'view' everyone else's data in the system. To achieve this, it is likely that a dedicated HER Officer will be needed to support the increased number of HBSMR users.
- 13.11 Local data should stay local but there is a need for strategic planning to have overviews. Whilst the HR21 project was running, this was achieved for the South Downs National Park Authority area by providing HER 'snapshots' to allow the creation of a strategic GIS by Hampshire County Council. A draft SLA has been circulated to set out the future process of county HERs updating information to the SDNPA system. For day-to-day planning and advice the SDNPA will go to Conservation Officers at the districts and boroughs and to the county archaeological officers.
- 13.12 Although Conservation Officers do similar work in each LPA the working methods have developed differently and advice resulting from the HER21 projects should be promoted to ensure that outcomes are similar across the region even if working practices remain different for some time.
- 13.13 The audit demonstrated that whilst the partner LPAs used EH designated asset data the age of that data varies and the approach to updating varies. EH should continue to provide clear advice on how LPAs can regularly update designated asset data to their GIS systems. It was understood for example that Scheduled Monument data had been scanned from hard copies in the past and added to a GIS with no recent downloads. In this case checks against EH data and clarity on methods for LPA ICT staff to do this regularly for their heritage professionals will be essential.

- 13.14 HERs require specialists with an understanding of both heritage and data management and computer systems. These are two specialist areas, but the experience of this project has shown that there are difficulties in bridging these two technical areas and it is hoped that the HER21 project to develop a generic JD for an HER Officer will help to set out the core skills required. For ESCC a conclusion of this HER21 project is the need for an HER Officer with a high level of combined skills in heritage and ICT to provide support to a wider range of future users. Equally, this project has benefited from the work of ICT officers with a long-term understanding of heritage data. Conservation Officer responses confirmed that a shared HER Officer post would be useful as both resource and technical pressures would make it difficult to independently maintain a linked HER particularly with regard to software updates and upgrades within LPAs. On a day-to-day basis it should ultimately be possible for LPA staff to link electronic records to the HER quite easily but a dedicated officer was seen as being necessary in co-ordinating the county wide record and also sharing access to relevant records.
- 13.15 The project has shown that for two tier systems there will continue to be a need to manage data locally and provide uploads to the HER for a strategic county level record. The protocols being developed by the KCC HER21 project will be useful in this respect. For East Sussex the SLAs will be updated for 2011-12 (by which ESCC manages and provides access to the HER for LPA district and boroughs) to include detail on the agreement for bi-annual uploads of information on Listed Buildings, Conservation Areas and Local Listing. This project has been enormously helpful in bringing heritage specialists in East Sussex together and helped foster greater understanding. This is now being discussed with regard to the use of the HER for Heritage Statements with increasing numbers of applicants and developers coming to the HER having been directed by Conservation Officers and district planners. This represents a real shift in working practice for which the developments reported here and the systems developed are very timely.
- 13.16 It must be acknowledged, however, that this HER21 project came at a particularly difficult time for LPAs, facing significant cuts in staffing levels. This has influenced the approach to the project, which has seen uncertainty combined with incentives for collaborating but in terms of project delivery, it has simply made it more difficult to achieve. This should be taken into account when considering future developments. Communication between authorities, whilst professional and amicable, has been restricted in some cases by factors such as differences in working practices, lack of previously established working relationships and different organisational structures, with rapidly changing priorities. That said, the achievements of the project in such a short time span have been due in large measure to established relationships and individual desire and awareness of the potential to change and improve the services provided. Training was seen as a particular issue going forward. Both the training of specialist officers in how to use the HBSMR comprehensively was seen by at least one Conservation Officer as a priority. It was also thought work considering wider training for other Planning officers such as Policy and Development Management as there has been considerable interest from these sections. With the increasing pressures on resources Conservation Officers are no longer automatically involved with applications relating to Grade II listed properties so the HBSMR would give

Planning officers access to heritage information that would otherwise not be available to them and would certainly help to inform fully considered decision-making on heritage assets as required by PPS 5.

13.17 Project partners have expressed interest in continuing to have access to both the Map Viewer and full HBSMR/GIS application. Provisional time/cost estimates have been scoped. For the Map Viewer they are considered to be 1 day to connect and 1 day to Configure per partner. There are potential one off Landmark payments for some authorities of approximately £400. With an ICT day rate of £375 this would see potential costs to role out the Map Viewer to each partner at between £750 and £1,000. For the full HBSMR application, costs per partner are considered to be broadly similar, perhaps with some additional Connection costs to some LPAs (2 days rather than 1). More significantly there will be the additional licence and software support costs. Primarily these comprise HBSMR and ArcView costs of c. £1,000 per user per year. Pooling of costs for licences would be necessary and in the present climate will potentially constrain development of the system. In Section 13.9 potential improvements to the Map Viewer were outlined. These included developing bespoke views and optional additional layers. These developments would be beneficial and are estimated, in terms of establishing business requirements and development/deployment to represent approximately ten days work (c. £4,500).

13.18 The HER21 project has helped re-define the concept of the ESHER. At the beginning of the project the ESHER was seen as simply the HBSMR and associated GIS maintained by ESCC. At the completion of the project we are now in a better position to recognise the ESHER as having the HBSMR and GIS at the core and as a hub to related heritage data held by partners (but also to be understood as part of the ESHER). This shared approach to the ESHER is inherent in the wording of the SLAs between ESCC Archaeology Section and partner LPAs and it was noted by one Conservation Officer that to establish a new Historic Environment Record at local level would not be seen as a priority in the present financial climate so that this integrated approach is very timely. Given that planning and List Building Consent applications are all now scanned and held digitally it was considered likely that this project could lead to the development of an automated link between County and District records which will give greater public and professional access in accordance with the requirements of PPS 5. A new model can be seen to be emerging from the HPR process and this HER21 project, comprising a linked system of partners. Also essential to this model will be the links between the ESHER and the NMR/EH. There will be important roles for linked websites and planning portals to provide access to key data as well as continued support for Heritage Gateway to ensue general public access and research.

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