

# Preserving the Record – Context Recording in the Digital Age

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## Abstract

Recent trials of "direct to digital" or "born digital" context recording at the Silchester Town Life Project have revealed some of the problems and potential pitfalls of introducing new technologies into existing well developed and long established excavation recording systems, and have highlighted the central role of the "traditional" context recording sheet in such systems. In the light of these issues, this paper proposes a new approach to digital context recording in which a scanned image, or facsimile, of the original context recording sheet is stored along with key metadata such as keywords and stratigraphic relationships, sufficient to support post-excavation searching and indexing of the data.

*Key words:* Context Recording, IADB, Facsimile, Metadata

## 1 Background

The context record, usually in the form of the Context Recording Sheet (CRS), lies at the heart of virtually all current approaches to excavation recording. Over recent years, this has come to be reflected in the importance of the digitised context record in computerized excavation records created in systems such as the Integrated Archaeological Database (IADB).<sup>1</sup> Within the IADB, the format of the context record has remained largely unchanged since the early days

of the system (see Fig. 1) when it was designed as a full digital transcription of all information from the CRS. It is not a replica of any particular CRS but is similar to many in use in the UK which share a common ancestry that can be traced back to the CRS developed by the Museum of London's former Department of Urban Archaeology (DUA)<sup>2</sup>, and others, in the early 1980s. However, transcription of the entire CRS into the IADB context record is a time-consuming and expensive process and tends to add to the delay between the completion of the CRS on site and the availability of context data within the

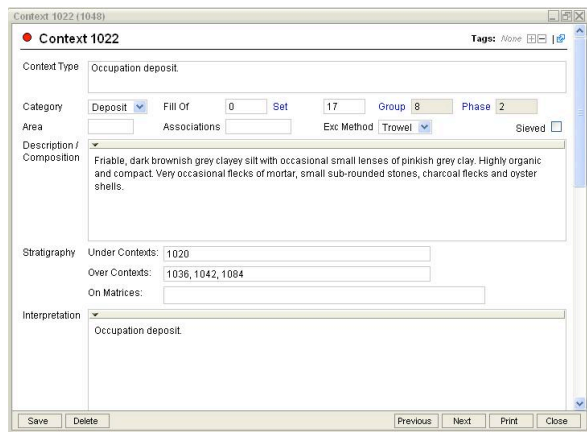
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1. Integrated Archaeological Database, <http://www.iadb.org.uk/index.htm>.

2. The DUA recording manual was revised and expanded in 1990 and is currently available in its third edition, produced by the Museum of London Archaeology Service (MoLAS), which was created in 1991 by the merger of the former DUA and Department of Greater London Archaeology. <http://www.museumoflondonarchaeology.org.uk/NR/rdonlyres/056B4AFD-AB5F-45AF-9097-5A53FFDC1F94/0/MoLASManual94.pdf>.

IADB. When this is combined with the financial and time pressures of modern contract archaeology, or the online access requirements of large research projects, there is an increasing need for the rapid, accurate creation of a digital context record.

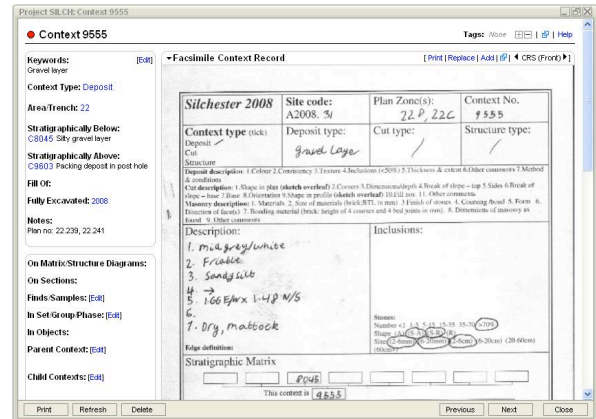
Recent experience in the JISC funded Virtual Environments for Research in Archaeology (VERA)<sup>3</sup> project with trials of “born-digital” context recording using hand-held digital devices, and “hybrid” approaches using digital pens and clipboards<sup>4</sup> have revealed both the shortcomings of some of these technologies and the problems of introducing radical new technologies and procedures into existing working practices. They have also highlighted the central role of the “traditional” CRS in excavation recording to the extent that it would require a brave (or foolhardy) project director to suggest getting rid of it.



**Figure 1.** Traditional IADB context record transcribed from a Context Recording Sheet

It can be argued that much of the transcribed CRS data is of questionable utility (at least in

transcribed digital form) in post-excavation analysis and research. Little of it will ever be used to index or search the database; in fact, little of it will ever be referred to again. In practice, the transcribed data is invariably an interpretation of the original CRS record rather than an accurate transcription of it.



**Figure 2.** A facsimile context record. The primary metadata can be seen in the upper left corner.

The IADB does not contain the original CRS record and so the immediate connection between the IADB record and the original CRS is lost. Although it may in theory be possible for post-excavation analysts and researchers to gain access to the original CRS record, this opportunity is rarely used.


In the light of these points, a new approach to the IADB context record has been developed which in simple terms replaces the full transcription of the paper CRS with a scanned image, or “facsimile”, of the original CRS plus some basic transcribed meta data (see Fig. 2).

3. VERA: Virtual Environments for Research in Archaeology, <http://vera.rdg.ac.uk/index.php>.

4. Michael Rains, “Silchester – A Virtual Research Environment for Archaeology” in *Layers of Perception: Proceedings of the 35<sup>th</sup> International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA) Berlin, Germany, April 2-6, 2007*, ed. Axel Posluschny, Karsten Lambers and Irmela Herzog (Bonn: Dr Rudolf Habelt GmbH, 2008), 10.

## 2 Design Considerations

A key consideration in implementing this approach to the digital context record is selecting the appropriate metadata to transcribe (see Fig. 3). In doing this we need to keep in mind the original purpose of the IADB as a post-excavation tool which provides access to the complete integrated excavation record.<sup>5</sup> Therefore, the metadata needs to be sufficient to support the normal post-excavation uses of the IADB. From an access point of view, the metadata needs to include sufficiently detailed keywords to support searching, indexing and classification.

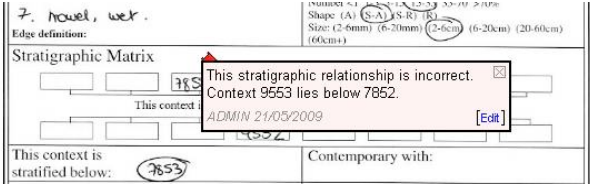


**Figure 3.** Facsimile metadata.

Stratigraphic and other relationships are essential and provide the linkages within the database which define the “integrated” aspect of the IADB. However, long textual descriptions of the composition or interpretation of the context are not required – these can be read from the facsimile image. In certain circumstances, it is possible that, by creating a restricted range of digital metadata, the transcribed text of the detailed context descriptions and interpretations will not be available for later re-use, for example, for copying and pasting into reports, etc.

However, in IADB terms, such re-use of database text is most likely to be at the Set, Group, Phase or Object level rather than at the context level. In fact, it is likely that such a small percentage of text from all context records would ever be used in this way that it would almost certainly be more efficient to transcribe it as and when required.

Consideration needs to be given to the situation in which there is a discrepancy in the IADB database between the facsimile and the metadata. For example, during metadata entry, it might be noticed that one or more of the stratigraphic relationships recorded on the already scanned CRS are wrong. One solution would be to correct the CRS and then re-scan it. However this would be time consuming and could potentially lead to loss of the digital record of the original uncorrected CRS. Another approach would be to allow the discrepancy with the understanding that



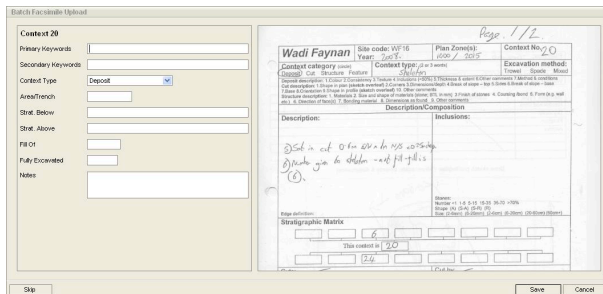
the metadata overrules the facsimile. An alternative solution has been developed which enables the addition of annotations to the scanned facsimile (see Fig. 4).

**Figure 4.** Part of a facsimile record showing an annotation added to correct an error in the stratigraphic relationships.

The facsimile mechanism needs to cater for both single and double sided CRS in both portrait and landscape format, all of which are in widespread use, as well as for the uploading and display of scanned “continuation sheets”. Uploading of individual scanned images will be required in certain situations but this approach is very slow and inefficient where a large number of context records need to be processed. A batch upload

5. Michael Rains. "Towards a Computerised Desktop: the Integrated Archaeological Database System" in *Computer Applications and Quantitative Methods in Archaeology. CAA Conference, Glasgow, UK, March 1994. BAR International Series 600*, ed. Jeremy Huggett and Nick Ryan (Oxford 1995), 207–210.

facility, linked to the use of a high speed scanner with a sheet feeder, is highly desirable but is technically problematic as a result of the security constraints of a web environment. To surmount these problems, a facility has been developed within the IADB which allows for the use of zipped archive files for the batch uploading of scanned facsimile images. Within the archive file, individual file names indicate the context number and whether it is the front or back of the CRS. As each facsimile image is unpacked from the uploaded archive, it is displayed to the user alongside fields for entering the required metadata for that context (see Fig. 5). This has proved a quick and easy to learn method of uploading large numbers of context records into the IADB and the same technique has now been extended to the batch uploading of photos to the IADB.



**Figure 5.** Facsimile image displayed alongside fields for metadata input during an interactive batch upload operation.

Many IADB databases will contain some projects which use the old context record format while others will use the new facsimile approach. It is also possible that some larger or longer running projects will contain both facsimile and non-facsimile context records within a single project. This has required the mapping of the existing IADB context data structure to the new facsimile metadata structure to preserve compatibility with non-facsimile records. The use of server generated “virtual” facsimiles which use existing

data from non-facsimile context records over-printed on to a scanned blank CRS has also been explored. This provides a consistent “look” for all context records in a project but is not a substitute for the proper scanned facsimile.

As part of the process of designing and implementing the facsimile based approach to context recording, the opportunity has been taken to re-think and hopefully improve the layout of the IADB context record. In particular, the introduction of more hyperlinks to enable the launching of keyword searches directly from within a context record, provides for improved data integration which is something that has always been at the heart of the IADB. The opportunity has also been taken to extend some of the new design features to other core IADB records including Finds, Sets, Groups, Phases and Objects.

### 3 User Needs Analysis

From its outset, the development of the facsimile approach has been driven by user needs and feedback. User needs analysis carried out as part of the VERA project highlighted the central role the context recording sheet plays in modern archaeological excavations. The smooth running of any archaeological excavation depends on a system where data recorded on the context recording sheet can be effectively managed and manipulated. The facsimile approach appears to offer a streamlined solution to the issue. In order to evaluate how successfully the new system fitted the needs of its users responses were gathered from some of the people using it.

The facsimile approach is being used by some of the Silchester field school team, York Archaeological Trust (YAT)<sup>6</sup> and Canterbury Archaeological Trust (CAT).<sup>7</sup> The Silchester team have only tested the approach on a limited basis but both YAT and CAT have begun using it on a much wider scale. YAT have recently started

6. York Archaeological Trust, <http://www.yorkarchaeology.co.uk>.

7. Canterbury Archaeological Trust, <http://www.canterburytrust.co.uk>.

using the facsimile approach on two self-contained areas of a large five year excavation project in the centre of York. This should provide an excellent comparison with other areas of the project which are continuing to use the traditional IADB approach to context recording. At CAT they have adopted the facsimile approach as standard unit practice.

User feedback was gathered in a number of ways; by asking users to note down the pros and cons as they got to grips with the system, through formal written questionnaires and informal discussions. Responses to the facsimile approach have been very positive with users finding it straightforward to use and being enthusiastic about its potential.

The most obvious advantage of the facsimile approach is that it allows direct access to the original context recording sheet and therefore to the primary data. Traditional data entry for CRS typically involves interpretation and filtering of what the excavator has written. Having access to the original CRS preserves the link between the excavator and the archaeology and while there may be mistakes in this primary record it does reflect the recording done in the field at the time of excavation.

“It would be good to be able to look and see exactly what that person thought when they were digging it.”

*Discussion at Canterbury Archaeological Trust*

Many of the people interviewed over the course of the VERA project rely on the paper records when they write their reports because they want to see the data as it was recorded in the field and also because they are afraid of transcription errors.

“I have colleagues who won’t use anything apart from the primary paper archive because they don’t want the chance of it having been copied wrong or not at all or something.”

*Interview at Wessex Archaeology*

Online access to facsimile copies of this primary data makes the task far easier because users do

not need to physically track down the paperwork and then search through endless folders to find what they want.

“I think that the biggest drawback with having to use the primary paper record is the physical awkwardness of having to move stuff around, and ruffling through zillions and zillions of paper.”

*Interview at Wessex Archaeology*

The primary data can be accessed from anywhere with an internet connection and, unlike paper versions, will not be archived in some inaccessible bunker that takes weeks to gain access to.

Any suspected mistakes in the manually entered data can be checked quickly and easily by referring to the scan. Furthermore, scanning the original CRS means that data which was not previously transcribed or digitised also becomes part of the digital record. In the case of Silchester, section and profile drawings are created in the field but not digitised, so they have not previously been available online. Annotations which are difficult to transcribe are there to be seen in the facsimile version, allowing the user access to the full primary record. Scanning the original context sheet also has the advantage of providing a back-up in case of records going missing or getting damaged.

The reduction in the amount of data being transcribed will obviously have an impact on the amount of time it takes to make data available online. At CAT, where facsimile recording was introduced in late 2008, over 12,000 context records from a single large project have been digitised in less than three months. Timed trials at YAT have indicated a throughput of approximately 30 records per hour. In theory, with on- or near-site access to a scanner, the facsimile approach could allow CRSs to be made available as soon as they are completed and checked. The speed of processing also makes this approach ideal for uploading backlogs of data and its flexibility means that it may be possible to use it for dealing with legacy data.

The quality of the scans used for the IADB did raise a couple of issues. First, unless the records are clear to start with any attempt to scan them is going to run into difficulties. This is an age old problem with field records - how to ensure that excavators fill in their context sheets using the appropriate pen. Secondly, the upload limits that the IADB currently operates under mean that context sheets cannot be scanned at the highest image resolution.

One of the users thought that a downside of the facsimile approach is that shoddy reports would be available for all to see. The question of who is allowed to access the IADB is something that individual organisations control but admittedly there is the potential for scanned records to be readily available for all who want to access them. This could also be an issue for internet publications which link back to the original data.

During the design of the facsimile system the question had arisen of what effect knowing that the CRS would be available online would have on individual excavators. Would it inspire people to put more effort into their recording or would it discourage people from recording their more speculative interpretations? Site supervisors at CAT thought that the facsimile approach might encourage people to fill in their CRS more thoroughly if they knew that their efforts would become part of the site record. They also said that they personally would not be intimidated by the possibility of the public seeing their CRS. There was, however, some concern that management might decide that things would need to be done in a certain way if they were to be seen by the public. It was also suggested that this might have a knock-on effect for the amount of time spent

completing a CRS (for example, if sheets needed to be rewritten because they were deemed too muddy or messy).

“I wonder if people higher up than me might say that I have to do it to a certain format. So I think that there might still be an impact in what people write on their sheet if they’re told that they have to do it in a certain way. And interpretation might be perhaps encouraged or discouraged either way...”

*Discussion at Canterbury Archaeological Trust*

As yet the facsimile approach has not been used throughout the whole life-cycle of a project and so other unforeseen consequences of the change to facsimile context recording may need to be addressed in the future.

## 4 Conclusions

In conclusion, even at this early stage of development and implementation, it can be seen that there are clear benefits to be derived from this new approach to context recording within the IADB. These include less time and effort involved in creating the digital record, closer links between the digital record and the original excavation record, and wider access to the primary data. Future work will examine the use of facsimile context records in the post-excavation research stage of projects, and their subsequent role in online archaeological database and report publication.

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## Bibliography

Canterbury Archaeological Trust. <http://www.canterburytrust.co.uk> (accessed May 28, 2009).

Integrated Archaeological Database. <http://www.iadb.org.uk/index.htm> (accessed May 28, 2009).

Museum of London Archaeology Service "Archaeological Site Manual", Third Edition, 1994. <http://www.museumoflondonarchaeology.org.uk/NR/rdonlyres/056B4AFD-AB5F-45AF-9097-5A53FFDC1F94/0/MoLASManual94.pdf> (accessed May 28, 2009).

Rains, Michael. "Towards a Computerised Desktop: the Integrated Archaeological Database System" in *Computer Applications and Quantitative Methods in Archaeology. CAA Conference, Glasgow, UK, March 1994. BAR International Series 600*, edited by Jeremy Huggett and Nick Ryan, 207-210, Oxford: British Archaeological Reports, 1995.

Rains, Michael. "Silchester – A Virtual research Environment for Archaeology" in *Layers of Perception: Proceedings of the 35th International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA) Berlin, Germany, April 2-6, 2007*, edited by Axel Posluschny, Karsten Lambers and Irmela Herzog, 10, Bonn: Dr Rudolf Habelt GmbH, 2008.

VERA: Virtual Environments for Research in Archaeology. <http://vera.rdg.ac.uk/index.php> (accessed May 28, 2009).

York Archaeological Trust. <http://www.yorkarchaeology.co.uk> (accessed May 28, 2009).