

CHAPTER 2: PROJECT AIMS AND OBJECTIVES

The project is envisaged as taking place in two phases, over two years. Phase one includes background research, remote sensing, landscape modelling, topographical and geophysical survey and will take place between May 2004 and March 2005. Phase two comprises fieldwork, geochronological and environmental modelling and will take place from April 2005. Detailed aims and objectives for phase one, and broad aims for phase two are provided below.

2.1 Phase 1: (May 2004 – March 2005) Geomorphological modelling

2.1.1 1A: GIS construction and archaeological assessment.

1A1 Design and implementation of a GIS for the study area collating and integrating data from the Ordnance Survey, Geological Survey, sites and monuments records, historic mapping and existing geoarchaeological surveys (such as that undertaken by Trent Valley GeoArchaeology).

1A2 An archaeological assessment of the landscape and cultural archaeology of the study area and its hinterland placing the study area in its regional and national setting.

2.1.2 1B: Detailed investigation and mapping of the floodplain and terrace surface.

1B1 Acquisition, examination and integration into the GIS of IFSAR elevation data (digital surface model - DSM) and orthorectified radar image (ORI) data for the study area.

1B2 Acquisition, examination and integration into the GIS of LiDAR DSM and reflected laser intensity data for the study area.

1B3 Qualitative and quantitative comparison of IFSAR and LiDAR DSM.

1B4 Qualitative examination of LiDAR reflected laser intensity and IFSAR ORI image data.

1B5 Acquisition, examination and integration into the GIS of air-photography and other remotely sensed data for the study area.

1B6 DGPS survey of the study area to calibrate IFSAR and LiDAR DSM, map significant landscape features, generate survey transects of significant features and locate areas of geophysical investigation. Integration into the GIS of DGPS survey data for the study area.

2.1.3 1C: Geophysical investigation of the sub-surface sand and gravel geometry in order to identify major bedforms and channel features.

1C1 Ground penetrating radar (GPR) survey of significant landscape features within the study area.

1C2 Other geophysical survey of selected landscape features in order to allow comparison of a range of techniques (conductivity, resistivity, ERGI, etc.) with GPR.

1C3 Drilling of calibration cores from palaeochannels and intervening areas to characterize model radar reflectance and calibrate other geophysical data.

2.1.4 1D: Three dimensional deposit modelling of the study area.

1D1 Production of three-dimensional and volumetric models of the reach by combining the GPR, IFSAR, LiDAR and other data.

1D2 Production of provisional chronostratigraphic models.

2.1.5 1E: Academic Reporting, Research Seminar and Archiving.

1E1 *Internet Archaeology* paper and demonstration GIS.

1E2 Academic papers.

1E3 Archiving of GIS data.

1E4 Research seminar

2.2 Phase 2: (June 2005 – March 2006) Geochronological and environmental modelling

2.2.1 2A: Establishing a geochronology for the study area.

Cores will be taken from each palaeochannel. Each channel fill will be dated by standard radiocarbon analysis of bulk samples.

2.2.2 2B: Palaeoenvironmental reconstruction.

Multi-disciplinary palaeoecological analyses of representative samples from each palaeochannel core will be undertaken (plant macrofossils, pollen and coleoptera).

2.2.3 2C: Modelling the dynamic development of the landscape.

Computer-generated palaeoenvironmental maps will be developed illustrating channel dynamics and archaeological interaction at the confluence during selected time-periods.