
Plan Overview

A Data Management Plan created using DMPonline

Title: Project Nivica Archaeology

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Project abstract:

Project Nivica Archaeology, a key component of the broader 100+ Fshatrat initiative in Albania, focuses on archaeological exploration and community development in the Kurvelesh region, specifically around the village of Nivica. This project integrates cutting-edge three-dimensional recording and reconstruction techniques from the planning stage through the entire lifecycle of archaeological investigations.

The project's primary aim is to uncover and understand the influence of coastal Illyrian and Epirote cultures on the material culture of the inland mountain regions, challenging contemporary notions of isolation and connectivity. It seeks to unravel how Nivica's inhabitants have historically shaped their identity in response to various external powers, including the Epirote Republic, the Roman Empire, and the Ottoman Empire. Beyond its archaeological focus, Project Nivica Archaeology aligns with the United Nations Sustainable Development Goals, promoting heritage practice and community engagement.

Another aspect of the project is to study the built landscapes of the upper Kurvelesh region, with a focus on the villages of Nivica and Rexhin with an aim to produce three-dimensional reconstructions centred on a domestic structure damaged in the First Balkan War in the old village of Nivica or 'Kala' site.

Operating since spring 2018, the project is supported by a collaboration of international and local institutions and community leaders. Despite challenges posed by global events, the project continues to contribute significantly to the cultural and historical understanding of the Upper Kurvelesh region, while also fostering community development and sustainable heritage management in line with the United Nations Sustainable Development Goals.

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Project Nivica Archaeology

Project Summary

Provide a brief description of the project and the research being carried out. State if research is part of a larger project, department(s) and funders involved and where data fits in.

Project Nivica Archaeology, a key component of the broader 100+ Fshatrat initiative in Albania, focuses on archaeological exploration and community development in the Kurvelesh region, specifically around the village of Nivica. This project integrates cutting-edge three-dimensional recording and reconstruction techniques from the planning stage through the entire lifecycle of archaeological investigations. The project's primary aim is to uncover and understand the influence of coastal Illyrian and Epirote cultures on the material culture of the inland mountain regions, challenging contemporary notions of isolation and connectivity. It seeks to unravel how Nivica's inhabitants have historically shaped their identity in response to various external powers, including the Epirote Republic, the Roman Empire, and the Ottoman Empire. Beyond its archaeological focus, Project Nivica Archaeology aligns with the United Nations Sustainable Development Goals, promoting heritage practice and community engagement. Another aspect of the project is to study the built landscapes of the upper Kurvelesh region, with a focus on the villages of Nivica and Rexhin with an aim to produce three-dimensional reconstructions centred on a domestic structure damaged in the First Balkan War in the old village of Nivica or 'Kala' site. Operating since spring 2018, the project is supported by a collaboration of international and local institutions and community leaders. Despite challenges posed by global events, the project continues to contribute significantly to the cultural and historical understanding of the Upper Kurvelesh region, while also fostering community development and sustainable heritage management in line with the United Nations Sustainable Development Goals.

Data Types

What types of data will be involved?

The data collected and produced will be the following:

- Geospatial survey data:
 - Total Station and/or GNSS GPS data.
 - UAV data.
 - Find and excavation data.
 - Geophysical survey data.
 - Created geospatial data from plans.
- Vector Drawings:
 - Plans and sections of buildings and trenches where applicable.
 - Harris Matrix for excavations where applicable.
 - Extended Harris Matrix for reconstructions.
 - Drawings of artefacts.
- Raster Images:
 - Photographs from UAV surveys.
 - Photographs from terrestrial surveys and excavations.
 - Photographs of artefacts.
 - Rendered images of reconstructions.
- Documents:
 - Reports from invasive and non-invasive archaeological work.
 - Reports from lighting analysis.
 - Reports from photogrammetry surveys.
 - Reports from structural analysis.
 - Reports from terrestrial and aerial surveys.
 - Reports of reconstruction paradata.
- Tabular data:
 - Database of building and landscape survey data.
 - Database of excavation and find data
 - Results from structural analysis.
 - Results from lighting analysis.
 - Calibration data for Photogrammetry.
 - Metadata for files.
 - File tree data for project folder.
- Three-Dimensional Reconstructions and Records
 - Three-dimensional model files.
 - Texture files for three-dimensional models.

What file formats will be used?

Data will be stored, recorded, and organised according to the best practices outlined by the Archaeology Data Service (ADS) for the storage and archiving of digital data, including raster and vector data, geophysical data, geospatial data, three-dimensional data, and alpha-numeric documentary data.

| Data Type | Archival File Types |
|---|--|
| Alpha-numerical data | Plain Text (.txt) Delineated Text (.csv) |
| Documentary data that may consist of just text, or text and pictures. | Plain Text (.txt) Portable Document Format (.pdf/A) |
| Raster imagery data | Tag Image File Format (.tiff) Portable Network Graphics(.png) Adobe Digital Negative(.dng) |
| Vector imagery data | Scalable Vector Graphics (.svg) Portable Document Format (.pdf/A) Drawing Exchange Format (.dxf) Graph Modelling Language (.xgml) |
| Geodatabase | Shapefiles (.shp) [this is accompanied by up to eleven reference files that are equally archival] Delineated Text (.csv) GeoTIFF (.tiff) |
| Three-Dimensional models (Records or Reconstructions) | Wavefront (.obj) Stereolithography (.stl) |
| Code | R Code (.R) |
| Compressed Files | .zip |
| Metadata & Paradata | Delineated Text (.csv) Plain Text (.txt) Portable Document Format (.pdf/A) |

What will be the size of the files?

| Data Type | Estimated File Size (Uncompressed) |
|---|------------------------------------|
| Alpha-numerical data | < 01 GB |
| Documentary data that may consist of just text, or text and pictures. | < 01 GB |
| Raster imagery data | < 40 GB |
| Vector imagery data | < 05 GB |
| Geodatabase | < 05 GB |
| Three-Dimensional models (Records or Reconstructions) | < 40 GB |
| Metadata & Paradata | < 01 GB |
| Total (Uncompressed) | < 90 GB |
| Total (Compressed) | ~ 54 GB |

Data Storage and Preservation

How will the data be stored and kept safe?

Data prior to processing will be stored on University of Bristol SharePoint servers with two off-site backup of all data.

Once archived all data will be stored in The University of Bristol Research Data Storage Facility (RDSF), which provides secure, long-term storage for research data. This major investment provides nightly backup of all data, with further resilience provided by three geographically distinct storage locations. A tape library is used for backup purposes and also for long-term, offline data storage. Only authorised users can access data stored within the RDSF. The RDSF is managed by Bristol's Advanced Computing Research Centre (ACRC) which has a dedicated steering group and a rigorous data storage policy (https://www.acrc.bris.ac.uk/acrc/RDSF_policy.pdf). The RDSF upholds and reinforces Bristol's wider Information Security Policy (www.bris.ac.uk/infosec/policies/docs/isp-01.pdf).

Data Organisation

How will data be organised?

| Primary Folder - Level One | Level Two | Level Three | Level Four | Level Five | Level Six | Contents description |
|----------------------------|----------------|-----------------|------------|------------|-----------|---|
| 3D_MODELLING | | | | | | Three-Dimensional Models |
| | PROJECT FOLDER | | | | | The top-level folder containing all the files relating to a three-dimensional reconstruction model. |
| | | EXPORTED MODELS | | | | Three-dimensional model assets produced for the reconstruction. |
| | | | #0 | | | |
| | | | | CAMERAS | | Cameras used for rendering, lighting analysis, and modelling from georeferenced photos. |
| | | | | LIGHTS | | Light sources (including the sun) for rendering and lighting analysis. |
| | | | REF_DIGI | | | Reference material, specifically digital records (i.e., laser scan models or photogrammetry models). |
| | | | | REF_CAD | | Reference material, a linked CAD file. |
| | | | | REF_DIGI | | Reference material, specifically digital records (i.e., laser scan models or photogrammetry models). |
| | | | | REF_HUMAN | | A folder for a reference human. |
| | | | | REF_GEOREF | | A folder for georeferenced data |
| | | | LANDSCAPE | | | The reconstructed landscape surrounding the model which had previously not been able to be reconstructed. |
| | | | | PHASE01 | | The Phase reconstructed. |

| | | | | | | |
|--|--|--------------------|------------|----------------------|---|--|
| | | | COMPONENTS | | | The folder containing all non-reconstruction related meshes. |
| | | | | PHASE01_STRUCTURE | | Structural meshes named with their BIM name and Extended Matrix name |
| | | | | | STRUCTURE_STRUCTURAL AREA REINFORCEMENT_AREAREIN | |
| | | | | | STRUCTURE_STRUCTURAL BEAM SYSTEMS_STRUCTURALFRAMINGSYSTEM | |
| | | | | | STRUCTURE_STRUCTURAL COLUMNS_STRUCTURALCOLUMNS | |
| | | | | | STRUCTURE_STRUCTURAL CONNECTIONS_STRUCTCONNECTIONS | |
| | | | | | STRUCTURE_STRUCTURAL FABRIC REINFORCEMENT_FABRICREINFORCEMENT | |
| | | | | | STRUCTURE_STRUCTURAL FOUNDATIONS_STRUCTURALFOUNDATION | |
| | | | | | STRUCTURE_STRUCTURAL FRAMING_STRUCTURALFRAMING | |
| | | | | | STRUCTURE_STRUCTURAL PATH REINFORCEMENT_PATHREIN | |
| | | | | | STRUCTURE_STRUCTURAL REBAR_REBAR | |
| | | | | | STRUCTURE_STRUCTURAL STIFFENERS_STRUCTURALSTIFFENER | |
| | | | | | STRUCTURE_STRUCTURAL TRUSSES_STRUCTURALTRUSS | |
| | | | | PHASE01_ARCHITECTURE | | Architectural meshes with their BIM name and Extended Matrix name |
| | | | | | ARCHITECTURE_CASEWORK_CASEWORK | |
| | | | | | ARCHITECTURE_CEILINGS_CEILINGS | |
| | | | | | ARCHITECTURE_COLUMNS_COLUMNS | |
| | | | | | ARCHITECTURE_DOORS_DOORS | |
| | | | | | ARCHITECTURE_FASCIAS_FASCIA | |
| | | | | | ARCHITECTURE_FLOORS_FLOORS | |
| | | | | | ARCHITECTURE_FURNITURE_FURNITURE | |
| | | | | | ARCHITECTURE_GUTTERS_GUTTER | |
| | | | | | ARCHITECTURE_LANDING_STAIRSLANDINGS | |
| | | | | | ARCHITECTURE_RAILINGS_RAILING | |
| | | | | | ARCHITECTURE_RAILINGS_STAIRSRAILING | |
| | | | | | ARCHITECTURE_RAILINGS_RAILINGS | |
| | | | | | ARCHITECTURE_RAMPES_RAMPES | |
| | | | | | ARCHITECTURE_ROADS_ROADS | |
| | | | | | ARCHITECTURE_ROOF SOFFITS_ROOF SOFFIT | |
| | | | | | ARCHITECTURE_ROOFS_ROOFS | |
| | | | | | ARCHITECTURE_ROOMS_ROOMS | |
| | | | | | ARCHITECTURE_STAIRS_STAIRSRUNS | |
| | | | | | ARCHITECTURE_STAIRS_STAIRS | |
| | | | | | ARCHITECTURE_SUPPORT_STAIRSSUPPORTS | |
| | | | | | ARCHITECTURE_SUPPORTS_RAILINGSUPPORT | |
| | | | | | ARCHITECTURE_TERMINATIONS_RAILINGTERMINATION | |
| | | | | | ARCHITECTURE_WALL SWEEPS_CORNICES | |
| | | | | | ARCHITECTURE_WALLS_WALLS | |
| | | | | | ARCHITECTURE_WINDOWS_WINDOWS | |
| | | | | OTHER | | Items that fit outside the Architectural or Structural BIM family, with their BIM name and Extended Matrix name. |
| | | | | | OTHER_PIPE ACCESSORIES_PIPEACCESSORY | |
| | | | | | OTHER_PIPE FITTINGS_PIPEFITTING | |
| | | | | | OTHER_PIPE INSULATIONS_PIPEINSULATIONS | |
| | | | | | OTHER_PIPES_PIPES | |
| | | | | | OTHER_PIPES_PIPECURVES | |
| | | | | | OTHER_PIPING SYSTEMS_PIPINGSYSTEM | |
| | | MATERIAL LIBRARIES | | | | Image files used for materials and textures of meshes within 3Ds Max. |
| | | RENDER OUTPUT | | | | The output location for all rendered images. |
| | | RENDER PRESETS | | | | A folder to store preset settings for render engines within 3Ds Max. |
| | | SCENE ASSETS | | | | Additional assets used for reference or help. |

| | | | | | | |
|---------------|----------------------------------|------------|---------|------------|--|---|
| | | | IMAGES | | | Image files used specifically for rendering or to aid in the alignment of cameras for rendering. |
| | | | | ANIMATIONS | | Animations stored as single frames produced from the reconstruction model. |
| | | | | IMAGES | | Images of rendered scenes of the reconstruction model. |
| | STRUCTURAL ANALYSIS STUDY FOLDER | | | | | The top-level folder containing all the files relating to a three-dimensional model. |
| | | EXPORT | | | | Parts and assemblies that are to be exported back into the Technical Model reconstruction. |
| | | IMPORT | | | | Models to be imported into inventor after changes or adaptations to the structure has been made in response to structural analysis. |
| | | PARTS | | | | The parts used to create the assemblies. |
| | | ASSEMBLIES | | | | The assemblies and studies saves. |
| | | REPORTS | | | | Results stored as .csv files and images. |
| | LIGHTING STUDY FOLDER | | | | | |
| | | MODELS | | | | |
| | | RESULTS | | | | |
| | | | DATA | | | |
| | | | FIGURES | | | |
| 3D_RECORDING | | | | | | Three-dimensional representations of archaeological data comprising of vectors, points, and meshes. |
| | POINT-CLOUDS | | | | | Three-dimensional representations of archaeological data as point clouds. |
| | MODELS | | | | | Three-dimensional representations of archaeological data as meshed models. |
| | CONTROL POINTS | | | | | Control points used to georeference and align three-dimensional representations of archaeological data. |
| | CALIBRATIONS | | | | | Calibrations used to align photographs for three-dimensional representations of archaeological data. |
| DATA_DATABASE | | | | | | |
| DATA_GEODATA | | | | | | |
| | DATA_SHAPEFILES | | | | | Data usually imported as tables from |

| | | | | | | |
|-----------------|---------------------|----------------------|---------------------|--|--|--|
| | | EXCAVATION | | | | Point, line, and polygon data relating to or gathered from excavations. This will typically not include features such as masonry walls or building/room points as these are also produced out of the trench. |
| | | GEOGRAPHY | | | | Point, line, and polygon data relating to the local geography including place names, building outlines (unless surveyed), rivers and roads. |
| | | GEOLOGY | | | | Point, line, and polygon data relating to underlying geology, geological features. This does also include soil data. |
| | | SURVEY_PROCESSED | | | | Point, line, and polygon data representing masonry features, building surveys, drawing locations and any measured or measurable data that is created that does not fit in the above categories. |
| | | SURVEY_RAW | | | | Point, line, and polygon data representing the working datasets directly output from survey instruments. The processed data can be considered the 'master' copy used for analysis. |
| | | GRIDS | | | | Point and polygon data relating to the site grid. |
| | DATA_RASTERS | | | | | Raster data from surveys |
| | | RASTER_DTM | | | | Generated DTM data, either as DSM or DEM data |
| | | RASTER_ORTHOPHOTOS | | | | Rectified photography (orthographic aerial) |
| DATA_GEOPHYSICS | | | | | | Geophysics data. |
| | GEOPHYSICS_PROJECT# | | | | | Geophysics project file. |
| | | DATA_GEOPHYSICS | | | | Data of geophysical project. |
| | | | WORKING FILES | | | Working data files for the project, usually processed data. |
| | | | PRESERVATION FILES | | | Raw output data from geophysical survey. |
| | | | IMAGE FILES | | | Images of processed geophysical data. |
| | | DOCUMENTS_GEOPHYSICS | | | | Project documents and reports |
| | | | PROJECT NOTES | | | Notes from fieldsurvey if applicable |
| | | | PROJECT REPORT | | | Report of geophysical survey |
| | | METADATA_GEOPHYSICS | | | | Data to aid in the understanding of the geophysical survey |
| | | | METADATA_GEOPHYSICS | | | Individual Survey metadata |

| | | | | | | |
|---------------------|--------------------|--|--------------------------|--|--|---|
| | | | GEODATA_GEOPHYSICS | | | Geolocation information for the project |
| | | | METADATA_PROJECT | | | Project metadata |
| | | | METADATA_FILEDESCRIPTION | | | Outline of files in project. |
| DATA_SURVEY | | | | | | Structured records of archaeological data often stored as tabular data contained within discrete files or organised within databases, geodatabases. |
| | SURVEY_PROCESSED | | | | | Point, line, and polygon data representing masonry features, building surveys, drawing locations and any measured or measurable data that is created that does not fit in the above categories. |
| | SURVEY_RAW | | | | | Point, line, and polygon data representing the working datasets directly output from survey instruments. The processed data can be considered the 'master' copy used for analysis. |
| DOCUMENTS_FIELDWORK | | | | | | Formalised longform textual content or primary textual records relating to archaeological data either of digital origin or digitised from physical records. |
| | MASONRY | | | | | Formalised longform textual content or primary textual records relating to masonry data either of digital origin or digitised from physical records. |
| | EXCAVATION | | | | | Formalised longform textual content or primary textual records relating to archaeological data either of digital origin or digitised from physical records. |
| | BUILDING | | | | | Formalised longform textual content or primary textual records relating to building survey data either of digital origin or digitised from physical records. |
| DOCUMENTS_REPORTS | | | | | | Reports relating to the project and project data. |
| | REPORTS_SEASONAL | | | | | Seasonal project reports |
| | REPORTS_BUILDING | | | | | Specialist reports on building surveys |
| | REPORTS_ANALYSIS | | | | | Reports of any analysis or studies undertaken on project data |
| | REPORTS_3D | | | | | Reports of three-dimensional records |
| | REPORTS_CATALOGUES | | | | | Catalogues of finds or other collections of data |
| VECTOR_CAD | | | | | | CAD drawings of features. |

| | | | | | | |
|-----------------------|--|--|--|--|--|---|
| VECTOR_TECHNICAL | | | | | | Fomalised drawings exported and produced from CAD or GIS tools of topography, built structures, or excavations. |
| VECTOR_ILLUSTRATIONS | | | | | | Drawings of artefacts or worked stones or other archaeological data. |
| RASTER_ARTEFACTS | | | | | | Photography of artefacts and other recovered archaeological data |
| RASTER_SITEPHOTOS | | | | | | Photography of sites, surveys, and excavations |
| RASTER_UAV | | | | | | Photography from UAV surveys |
| RASTER_PHOTOGRAMMETRY | | | | | | Photography from terrestrial photogrammetry surveys |
| RASTER_RECTIFIED | | | | | | Rectified photography |

Data Documentation and Description

What documentation will you keep?

Data will be stored, recorded, and organised according to the best practices outlined by the Archaeology Data Service (ADS) for the storage and archiving of digital data, including raster and vector data, geophysical data, geospatial data, three-dimensional data, and alpha-numeric documentary data.

Project Level Metadata

| Human Name | Metadata Name | General Description |
|---------------|---------------------|---|
| Project Title | PROJECT_TITLE | The title (and any alternatives such as site codes) for the dataset. |
| Description | PROJECT_DESCRIPTION | A brief summary of the main aims and objectives of the research project from which the data collection arose together with a brief summary description of the content of the dataset. |
| Subject | PROJECT_SUBJECT | Keywords for the subject content of the dataset (qualified using controlled terms such as those supplied by the Forum on Information Standards in Heritage (FISH)) |

| | | |
|-------------------|----------------------|---|
| Coverage | PROJECT_COVERAGE | This is both spatial and temporal coverage. For spatial coverage it should include the current and contemporary name(s) of the country, region, county, town or village covered by the data collection and, where possible, a standardised reference should be used. If names or administrative units were different during the time period covered by the data they should be recorded separately. Site coordinates can also be entered as a National grid reference in a number of different ways e.g., as a point (useful to describe a small project area via a central coordinate); as a line (e.g., at least two coordinates to represent the linear limits of the site); as a polygon (for a more complex site area, three or more coordinates are used to describe the boundaries). If applicable, the full postal code for the site can be included. For temporal coverage it should include the dates/period covered by the dataset (using existing thesauri where possible such as the Forum on Information Standards in Heritage (FISH) Period List). |
| Projection System | PROJECT_PCS | Projected Coordinate System used. |
| Coordinate System | PROJECT_GCS | Geographic Coordinate System used. |
| Creators | PROJECT_CREATORS | Details of the creator(s), compiler(s), funding agencies, or other bodies or people intellectually responsible for the data collection. Information should include forename, surname, affiliation, address, phone, fax, email, or URL. |
| Publisher | PROJECT_PUBLISHER | Details about any organisation which has published this data. |
| Contributors | PROJECT_CONTRIBUTORS | Other individuals or organisations who have contributed to the resource. |
| Identifiers | PROJECT_PROJECTID | Project or reference numbers or site codes used to identify the dataset. |

| | | |
|---------------|-------------------|---|
| Dates | PROJECT_DATES | Dates indicating when the dataset was created, when the archaeological project was carried out, processing dates, or computerisation dates as appropriate. |
| Copyright | PROJECT_COPYRIGHT | The name of the copyright holder for the dataset. If the collection was created during work by an employee, the copyright holder will normally be the employer. If the material is covered by a specific copyright (e.g., Crown copyright) please indicate this. |
| Relations | PROJECT_RELATIONS | If the data collection was derived in whole or in part from published or unpublished sources, whether printed or machine-readable, this element should include references to the original material, details of where the sources are held and how they are identified there (e.g., by accession number). If the collection is derived from other sources include an indication of whether the data represents a complete or partial transcription/copy and the methodology used for its digitisation. Also include full references to any publications about or based upon the data collection. |
| Language | PROJECT_LANGUAGE | Indication of which language(s) the dataset is in (e.g., English, French, Spanish). |
| Resource Type | PROJECT_TYPE | Whether the dataset is best described as primary data, processed data, an interpretation of data, or a final report. |
| Format | PROJECT_FORMAT | The formats the data within the project is saved in (e.g., WordPerfect 5.1, HTML, AutoCAD). |

General File Level Metadata.

| Human Name | Metadata Name | General Description |
|-----------------------|-----------------|---|
| File Name | FILE_NAME | The name of the file e.g., report.doc |
| File Format | FILE_FORMAT | The file format e.g., PDF/A or Open Office Document |
| File Location | FILE_LOCATION | The file path i.e. directory and filename e.g., /adsdata/cottam_ba/jpg/fwking_plan.jpg |
| Software Name | FILE_SOFTWARE | The software used to create the file e.g., Microsoft Word 2007 |
| Hardware used | FILE_HARDWARE | The hardware used to create the file, this is more significant when files are created directly by survey equipment such as laser scanners or GPS devices. |
| Operating System Used | FILE_OPSYS | The operating system under which the file was made e.g., Windows XP or Mac OS X 10.5. |
| Date of Creation | FILE_CREATED | When the file was made. |
| Date of Last Update | FILE_UPDATED | When the file was updated. |
| Linked Files | FILE_LINKED | This element should be used to highlight relationships between files. |
| Identifiers | FILE_IDENTIFIER | This element should be used to highlight whether a file is a source file or derived from another. |
| Creator | FILE_CREATORS | The file path i.e. directory and filename e.g., /adsdata/cottam_ba/jpg/fwking_plan.jpg |
| Copyright | FILE_COPYRIGHT | Details of copyright or other rights and holder details. |

Raster & Vector File Metadata.

| Human Name | Metadata Name | General Description |
|-------------------------|------------------|--|
| Title | FILE_TITLE | The title of the image or a suitable caption. |
| Description | FILE_DESCRIPTION | Description of the image. |
| Coverage | FILE_COVERAGE | Site location and description. The address, or coordinates for the subject and a description of the subject. Coverage should also include any relevant period terms. |
| Projection System | FILE_PCS | Projected Coordinate System used. |
| Coordinate System | FILE_GCS | Geographic Coordinate System used. |
| Keywords | FILE_KEYWORDS | Keywords e.g., period, site or feature terms. Use suitable thesauri where they exist. |
| File Format and Version | FILE_VERSION | e.g., TIFF 6.0. |
| File Size | FILE_SIZE | Size of the file in bytes. |
| Resolution | FILE_RESOLUTION | The resolution of the image measured in pixels per inch (ppi). |
| Dimensions | FILE_DIMENSIONS | Dimensions of the image in pixels e.g., 400 x 700px. |
| Colour Space | FILE_COLOUR | The colour space used in the image e.g., RGB or grayscale. |
| Bit Depth | FILE_BITDEPTH | e.g., 24bit or 8bit. |

Three-Dimensional Record File Level Metadata.

| Human Name | Metadata Name | General Description |
|-------------------|-----------------|--|
| Subject | FILE_SUBJECT | Keywords for the subject content of the dataset (qualified using e.g., the English Heritage NMR Monument Type Thesaurus or the MDA Object Type Thesaurus). |
| Intended accuracy | FILE_Accuracy | The originally intended accuracy or scale that the survey was to achieve. |
| Coverage | FILE_COVERAGE | Site location and description. The address, or coordinates for the subject and a description of the subject. Coverage should also include any relevant period terms. |
| Projection System | FILE_PCS | Projected Coordinate System used. |
| Coordinate System | FILE_GCS | Geographic Coordinate System used. |
| Keywords | FILE_Keywords | Keywords e.g. period, site or feature terms. Use suitable thesauri where they exist. |
| Dates | FILE_DATES | Dates indicating when the dataset was created, when the archaeological project was carried out, processing dates, or computerisation dates as appropriate. |
| Identifiers | FILE_PROJECTID | Project or reference numbers or site codes used to identify the dataset. |
| Resolution | FILE_RESOLUTION | The resolution of the image measured in pixels per inch (ppi). |
| Dimensions | FILE_DIMENSIONS | Dimensions of the image in pixels e.g., 400 x 700px. |
| Colour Space | FILE_COLOUR | The colour space used in the image e.g., RGB or grayscale. |
| Bit Depth | FILE_BITDEPTH | e.g., 24bit or 8bit. |

Three-Dimensional Record Control Point Metadata.

| Human Name | Metadata Name | General Description |
|-------------------|------------------------------------|---|
| Coordinates | CONTL_X, CONTL_Y, CONTL_Z, | List the three-dimensional coordinates for each control point. |
| Covariance | CONTL_CX, CONTL_CY, CONTL_CZ | Provide full correlation if available (from survey adjustment or GPS baseline solution), otherwise provide estimated standard deviation or variance of each coordinate. |
| Location | CONTL_Location | Textual description of location. |
| Dates | FILE_DATES | Dates indicating when the dataset was created, when the archaeological project was carried out, processing dates, or computerisation dates as appropriate. |
| Identifiers | FILE_PROJECTID | Project or reference numbers or site codes used to identify the dataset. |
| Coverage | FILE_COVERAGE | Site location and description. The address, or coordinates for the subject and a description of the subject. Coverage should also include any relevant period terms. |
| Projection System | FILE_PCS | Projected Coordinate System used. |
| Coordinate System | FILE_GCS | Geographic Coordinate System used. |

Geographical Information System File Metadata.

| Human Name | Metadata Name | General Description |
|-------------------|-----------------|--|
| Scale | FILE_SCALE | Scale/resolution of data capture, e.g., 1:1250 |
| Method | FILE_Method | Method of original data capture, e.g., Total Station Survey, etc. |
| Dates | FILE_DATES | Dates indicating when the dataset was created, when the archaeological project was carried out, processing dates, or computerisation dates as appropriate. |
| Identifiers | FILE_PROJECTID | Project or reference numbers or site codes used to identify the dataset. |
| Coverage | FILE_COVERAGE | Site location and description. The address, or coordinates for the subject and a description of the subject. Coverage should also include any relevant period terms. |
| Projection System | FILE_PCS | Projected Coordinate System used. |
| Coordinate System | FILE_GCS | Geographic Coordinate System used. |
| Identifiers | FILE_PROJECTID | Project or reference numbers or site codes used to identify the dataset. |
| Resolution | FILE_RESOLUTION | The resolution of the image measured in pixels per inch (ppi). |
| Dimensions | FILE_DIMENSIONS | Dimensions of the image in pixels e.g., 400 x 700px. |
| Colour Space | FILE_COLOUR | The colour space used in the image e.g., RGB or grayscale. |
| Bit Depth | FILE_BITDEPTH | e.g., 24bit or 8bit. |

Three-Dimensional Model File Metadata.

| Human Name | Metadata Name | General Description |
|--------------------|----------------|--|
| Number of Vertices | FILE_VERT | The number of vertices (points) in the model |
| Number of Polygons | FILE_POLY | The number of triangles or polygons in the model |
| Geometry Type | FILE_GEOMTYPE | The type of geometry used within the model (wire frame, parametric, etc. if applicable). |
| Scale | FILE_UNITSCALE | What scale is represented by 1 unit. |
| Coverage | FILE_COVERAGE | Site location and description. The address, or coordinates for the subject and a description of the subject. Coverage should also include any relevant period terms. |

| | | |
|-------------------------------|----------------|--|
| Projection System | FILE_PCS | Projected Coordinate System used. |
| Coordinate System | FILE_GCS | Geographic Coordinate System used. |
| Basic, Technical, or Extended | FILE_TYPE | Is the model the master model produced just after raw data processing, or is it a derived model produced from the master (e.g. after hole filling, simplification, smoothing, etc.)? |
| Level of Detail | FILE_LOD | How detailed is the model, what is the resolution of the scan. |
| Layers | FILE_LAYERS | Does the model use layers? How many? |
| Colour and Texture | FILE_TEXTURES | Does the model contain colour or texture information? How is this stored? If raster texture files are used then these have to be archived separately. |
| Material | FILE_MATERIAL | Information about the material properties of the model and whether they match the physical properties of the actual object. |
| Light Source(s) | FILE_LIGHT | Number and accuracy of light sources used in the model. |
| Shader | FILE_SHADER | Have special or extended shaders been used? |
| Animation | FILE_ANIMATION | Whether animation is used in the model along with description of type (keyframe, motion capture). |

Data Sharing

What are your plans for publishing data?

Data will be published through the University of Bristol Research Data Repository (data.bris). The data.bris Repository offers a means for Bristol's researchers to openly share non-confidential research data, without the need for external data users to undergo any form of authentication. Each deposit is accompanied by appropriate metadata and is assigned a unique Digital Object Identifier (DOI) via the DataCite scheme. All data published by the Repository is available under a permissive re-use license.

Are there any ethical, commercial, legal or IPR issues which might apply when publishing your data?

There are no commercial, legal or IPR issues with publishing this data, and no ethical issues relating to human participants or identifiable information of individuals.

The location spots of finds of local and potentially national importance have, however, been provided in two formats. The first is a general location, simplifying the find-spot to 100m, and is available for the public. Precise find-spots have been restricted on a request basis.