



Unloved Heritage: Bringing Fernhill to Digital Life

Project Design and Programme

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Project Design

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Cadw

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Purpose of document

This document has been prepared as a tender for the Unloved Heritage Project, illustrating how DigVentures intends to deliver services to engage young people in digital skills that meet and exceed the quality expectations of Cadw, working in accordance with ClfA Standards and guidance.

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Executive summary

This document is submitted by DigVentures as a Project Design and programme to outline the delivery of an innovative, student-led film, photography and virtual reality archaeological digitisation and research project as part of the HLF supported excavation and investigation of the Fernhill Colliery in the Blaenrhondda Valley, Wales. The project includes a number of key features and benefits, as detailed below:

Delivering a youth-led approach: Proven experience leading 12 Heritage Lottery Funded projects reaching over 1000 participants, delivering exciting and wide-reaching public activities alongside substantial programmes of community-driven archaeological research. From community-based projects at Scheduled Monuments to community-chosen trenches at Coldingham Priory, DigVentures is committed to a participatory archaeology initiated and driven by communities. For the delivery of the Fernhill Colliery project, we will take a fully youth-led approach to designing and delivering the virtual world creation. Participants will work with us to build a reference collection, storyboard interpretive elements, understand and build the layout of the site and build the virtual world with support from the team.

Working with young people: Our extensive experience of working with schools, Young Archaeology Club members and family orientated sessions means we can offer a unique blend of experience collaboratively with young people and utilising digital technology to support heritage learning. We specialise in creating welcoming and engaging experiences designed to reach far beyond the traditional demographic and turnout associated with community archaeology. Through the use of innovative digital platforms such as Minecraft, and the on-going support and contact with young people, we guide and support communities in achieving the highest degree of archaeological research and transferable skills. Through this inclusive approach, we anticipate providing archaeological training for a minimum of 12-participants, focussing on specific target groups including young people, local rural young people, non-school groups, schools, home learners and parish clubs of the Blaenrhondda Valley.

Technological innovation: DigVentures is leading the sector in the innovative use of training and technology for maximised participant benefit. We offer comprehensive training in photogrammetry, 3D modelling, virtual world generation and screen media for archaeology, keeping learning objectives at the heart of the project. Our expertise is demonstrated through the customised data management and engagement platforms, Digital Dig Team and CyberDig (for children and young people); our community archaeologists use them to bridge the gap between traditional methods of archaeological engagement with the 'new generation' of technology-driven archaeological methodologies. We are experienced professionals in the collection of 3D data and its manipulation, having partnered with Adam Stanford on a variety of sites. Adam is part of the extended DV family, and we regularly consult with him on innovative digital training projects. For this project, we are also bringing archaeogaming experts into the project team, to help shape an innovative and engaging programme for young people.



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1 INTRODUCTION

1.1 Project background

1.1.1 Cadw is currently embarking on a project in Blaenrhondda that focuses on the archaeology of the Fernhill Colliery and its surrounding social history. Working alongside the Valleys Kids youth groups, this project is encouraging young people to get a much greater understanding of their valley, and of its role in the wider world.

1.1.2 This document provides an outline programme and methodology for the delivery of skills development workshops and sessions starting early in 2019. Manda Forster (Programme Manager) will manage delivery of the project, with a team of professionally qualified staff from DigVentures. Additional support will be provided by Adam Stanford (Aerial Cam) and Angus Mol and Aris Politopoulos (Value Foundation), bringing specialist expertise in digital aerial survey, 3D modelling and archaeogaming. The Project Team combines sector leading expertise and experience in the delivery of community-led archaeological projects, the use of digital technologies and 3D modelling in heritage, and the creation of virtual landscapes.

1.2 Project requirements

1.2.1 Cadw are keen to support the intersection between archaeological techniques and oral histories aimed at the production of virtual models based on photography, oral histories and archaeological investigation. The Fernhill Colliery Project is nested within a larger project, with the broader scope to inspire, encourage and help develop a huge diversity of activities and skills for young people in Wales. One of the aims of the project is to disseminate the information gathered by the youth group members to increase knowledge and awareness of the colliery site and its former employees and residents, while teaching the young people new and transferrable skills. To support this aim, the project will:

- Guide young people in the creation of a virtual and publicly accessible historic landscape (Fernhill Colliery), including models chosen and developed by the project participants;
- Create a series of youth-led workshops based on Fernhill Colliery aimed at developing transferable skills in photography, photogrammetry and virtual reality modelling with an aim to engaging broad learning styles, improving communication skills and providing a positive participatory experience at each stage of the project;
- Use the digital platform Minecraft to support the development of a virtual reality model of the landscape of the former Fernhill Colliery site at Blaenrhondda in the Rhondda Fawr Valley;
- Train young people in archaeological 3D modelling and processing, using objects and structures which relate to the Fernhill Colliery site to create an online collection of models with tangible links to the industrial heritage of the site;
- Train and guide young people in the creation of a short documentary film using the virtual reality graphics created alongside traditional documentary content;

- Provide on-going digital support for participants through the life of the project as they continue to create virtual models of chosen components of the Fernhill Colliery site;
- Increase participants' and residents' knowledge of the Fernhill Colliery.

1.3 The project team

1.3.1 DigVentures comprises a professional flexible team experienced in delivering complex archaeological recording and virtual world construction, combined with community and young people engagement priorities. With the Fernhill Colliery Project, our primary focus is on training and collaborating with young people towards the creation of an immersive virtual reality landscape, a collection of 3D objects and a short project documentary. Together, we will co-design and co-produce the project, providing young people with the training and skills required to develop a virtual reality model of Fernhill Colliery, supported by a collection of 3D models of artefacts and structures, and a short project documentary produced by participants.

1.3.2 The Fernhill Colliery Project will be managed by Manda Forster, MCIfA and delivered by our professional team at DigVentures working with Adam Stanford, specialist in aerial photography and digital content expert, and archaeogaming experts Angus Mol and Aris Politopoulos of the Value Foundation. Our combined knowledge and extensive experience brings a unique skillset to this project, as well as an opportunity deliver an innovative programme of learning and skills development with tangible outputs. Our proposed key staff and relevant expertise is summarised here:

- Manda Forster is experienced in the management of community archaeology projects and delivering training to all audiences. Manda will develop the programme and strategy for the delivery of the project activities. She worked previously at University of Birmingham's *Institute for Archaeology and Antiquity* and the Chartered Institute for Archaeologists, and recently developed DigVentures' 'How To Do Archaeology' online course. Manda is a specialist in material culture, coordinating our post excavation programme and managing the archaeological archive.
- Maggie Eno, DigVentures' videographer, is a professional archaeologist with a specialism in onscreen media and film. Maggie coordinates all of our film media, producing video content to support archaeological projects and online training. She has also worked extensively with young people and, as one of our Community Archaeologists, is experienced in training volunteers and young people in archaeological skills. She will ensure that our project participants are able to contribute fully to the project, facilitating a fully youth-led approach to the co-design and co-production of the project outcomes.
- Chris Casswell, Head of Fieldwork, will be on hand to provide the landscape GIS and geo-rectified map data, helping support the delivery of the VR and build the site background. A digital archaeology and GIS specialist, Chris will provide practical help and support for the collection, processing and presentation of digital data.

- 1.3.3 DigVentures will be working with Adam Stanford, specialist in detailed aerial photography and digital innovation. Adam has extensive experience of joining state of the art technology and film, creating impressive augmented and virtual reality settings. His experience has taken him around the world to work on prestigious sites such as Stonehenge, Easter Island and Orkney. DigVentures has successfully partnered with Adam on numerous projects, including both Scheduled Monuments and community-based archaeological projects. Adam has undertaken all aspects of drone aerial photography, topographic relief map survey, leading 3D photogrammetry workshops for DV staff, and creation of VR/AR fly-through video footage for sites such as Leiston Abbey, viewable here: <http://ow.ly/pSaP30maFdv>
- 1.3.4 In addition, we have invited archaeogaming experts Angus Mol and Aris Politopoulos of the Value Foundation to join the Project Team. Angus and Aris have worked on multiple projects which aim to develop knowledge activation and disseminate information in an accessible, interactive, and fun way. The team run participatory workshops with young people, collaboratively developing archaeological sites or lost heritage using digital platforms such as Minecraft. They bring a deep experience of working alongside cultural institutions such as the Leiden's National Museum of Antiquities and the Roman Limes project to utilise digital media to activate interest and learning in heritage. Key projects include RomeinCraft and Nineveh: Minecraft.
- <http://romeincraft.nl/> nd
 - <http://value-foundation.org/nineveh-minecraft/>

2 PROJECT METHODOLOGY

2.1 Skills workshops

- 2.1.1 DigVentures proposes delivering a series of workshops focussed on photogrammetry and 3D modelling training, supported by digital check-in meetings with the specialist team. The approach will put young people at the centre of co-designing and co-producing the project's accessible content, using the workshops both as a focus for both training and evaluating project milestones. As the project progresses, the young participants will help define particular aspects of the model produced, such as which areas should be built and what the different elements should look like.
- 2.1.2 Workshop sessions will include the research, design, and build elements of the Fernhill Colliery in Virtual Reality project. In addition, workshops around documentation, introducing film-making and video documentary techniques to the project participants as part of the project. Each workshop will provide hands-on learning based around a theme or particular group of skills, engaging participants in a wide range of subjects over the course of the year. The particular focus of the workshops will depend on the design choices made by the young people participating but will include a combination of Elements, Build and Document sessions:
- Elements sessions will incorporate research and data gathering, building up a reference collection for the participants about the colliery, what it looked like and how it worked. These workshops would produce the reference materials needed to build the virtual model, including a 2D map of the Fernhill Colliery outlining the



locations of buildings and infrastructure using archive maps and images. In addition, 3D models of relevant buildings or objects will be developed using photogrammetry undertaken with participants. These will include field visits to museums, standing buildings or heritage sites to gather data for the project reference collection.

- **Build** sessions will incorporate the design and modelling aspects of the project, with participants constructing selected elements of the site, such as Caroline Street and colliery buildings, within a realistic and accurate Minecraft landscape. The reference data produced as part of the Elements workshops will inform the development of the 3D landscape, with the locations of the Colliery buildings and infrastructure will be sketched out by participants. The group will be able to choose which buildings they want to work on using the reference materials gathered in Elements workshops. Construction will be cooperative and participant-led, with our team of young people working together on the build.
- **Documentation** sessions will involve the planning and recording of video content in order to document the project and record the part played by the young participants. They will be recording the footage, undertaking interviews with each other, specialists and people they meet, as well as documenting the skills workshops. Particular skills will include storyboarding, digital video capture, video editing and post-editing additions.

2.2 The Minecraft model

2.2.1 To support the young people taking part, professional archaeologists, 3D modelling experts and archaeogaming specialists will create the valley landscape within Minecraft as a starting point. The elements workshops will produce a reference collection to aid participants as they work on building different aspects of the Fernhill colliery site. Check in sessions via Skype will allow participants to talk over progress and iron out issues or concerns. The project team will also provide;

- a visually accurate landscape setting for the model of the Fernhill Colliery site at Blaenrhondda, which will be used as the backdrop for the Minecraft virtual reality model
- support in developing a booklet collated using reference materials which the young participants have selected and packed with top tips for those building the different elements of the virtual reality model.

2.2.2 Sessions will begin in 2019 with the programme of workshops timetabled with the Blaenrhondda project team. Workshop based training sessions will allow participants to learn about how traditional methods of research, such as map regression and local history archives, can be supported by digital techniques such as photogrammetry, 3D object generation and virtual reality. Workshops and sessions will be run by DigVentures specialists in community archaeology, with additional expertise provided by project partners. Workshops will be supported through continuing contact between the project team and participants provided by a series of check-in sessions. Check-ins will be coordinated through a free service such as Skype, underpinned by an online discussion forum, such as a private Facebook page or Google hangout. This approach



ensures the team is able to remain in regular contact with the group as they continue to work on the different aspects of the project.

2.2.3 The combination of workshops, digital check-ins and training days allows young people to develop their interpretation and understanding of the site via a number of different research avenues. The teaching methodology is hands-on, putting student work and priorities at the centre of the learning experience. The project outputs will provide various points of engagement for people outside of the direct project group, including;

- The landscape model and Colliery map of Blaenrhondda can be exported, allowing other users of Minecraft to build their own models of the Colliery using the project tools which have been built.
- The group will be supported in producing a documentary short film about the project and what they learnt about the Fernhill Colliery.
- All the 3D models produced as part of the project will be publicly accessible via Sketchfab and can be embedded on the project website.

3 PROJECT STAGES, TASKS AND PRODUCTS

3.1 Project delivery

- 3.1.1 The project will be delivered over 18 months, from January 2019 to July 2020. A series of workshops will form key moments of training, acting to focus the participants on different aspects of the site at Fernhill Colliery. Participants will continue their research and build up both a reference collection, while modelling aspects of the site at Fernhill. Each stage will be supported by workshops and skype sessions, with Q&As hosted via Google Hangouts and documents shared across the Project Team. The group will record their activities with film, producing content will contribute to a documentary film about the project which they will make with help and support from DigVentures staff.
- 3.1.2 A film premiere held in October 2019 will mark the end to the supported building programme, celebrating the achievements of the participants with a first public showing of their documentary film and the Fernhill Colliery model. The reference collections and booklets developed to support learning can be made available to the public, accessible on the web and via collections housed on Sketchfab. The Minecraft model landscape will be available to download, as will the completed model of the young participants.
- 3.1.3 The project has been divided into seven distinct stages (see Table 1), each involving training, development and products. The content of each stage is subject to change, depending on the choices and needs of the participants. Review points have been built into the stages so that the Project Team can track progress and ensure the project is achieving its aims.



Table 1: Stages, tasks, products, review points and resourcing

Tasks	Stage and Task details	Products / Review Points / Timescale	Team members
Project Initiation			
0.1	Commission and initiation	Review Point 1 - November 2018	MF
Stage 1: Project launch and setup		December 2019	
1.1	Project Start Up, Finalise delivery programme		MF, ME
1.2	Commission specialist contributors	Product 1 - Agreed programme	MF, ME
1.3	Background research and mapping for Minecraft landscape	Review Point 2 - December 2019	MF, ME, CC
Stage 2: The landscape and development of Fernhill Colliery		January - February 2019	
2.1	Workshop 1: Site visit, archive mapping, then & now photos, drone flight	Suggested workshop dates - 26/27 Jan 2019	MF, ME, AS
2.2	Workshop 2: Planning a documentary		ME, MF
2.3	Creation of the Minecraft landscape and map references		AM, AP
2.4	Creation of 3D aerial model of the landscape	Product 2 - Minecraft landscape	AS
2.5	Development of reference booklet (ongoing)	Product 3 - Aerial model on Sketchfab	MF, ME
2.6	Define the IT needs for the youth group	Review Point 3 - February 2019	MF, AM, AP
Stage 3: Life at the Colliery		February - March 2019	
3.1	Workshop 3: Visit to museum collection / chosen site for photogrammetry of large and small artefacts	Suggested workshop dates: 25/26 Feb 2019	AS, (MF)
3.2	Workshop 4: Processing and annotating 3D models		AS, (MF)
3.3	Workshop 5: Building Caroline Street	Product 4 - Documentary Storyboard	ME, (AM, AP)
3.4	Set up Minecraft application for youth group	Product 5 - Sketchfab collection set up	ME, CC (AM, AP)
3.5	Development of reference booklet (ongoing)	Product 6 - Formatted reference booklet	MF, ME
3.6	Skype sessions (ongoing)	Review Point 4 - March 2019	ME
Stage 4: Building Fernhill Colliery		April - June 2019	
4.1	Workshop 6: Developing the model	Suggested workshop dates: 16/17 April 2019	ME

4.2	Workshop 7: Interviews on camera		ME
4.3	Processing small artefact 3D models	Product 7 - Annotated Models on Sketchfab	CC/ ME
4.4	Skype sessions (model and documentary) (ongoing)	Review Point 5 - June 2019	ME
Stage 5: Ongoing modelling workshops		July - August 2019	
5.1	Workshop 8: Editing a documentary film	Suggested workshop date: 12 July 2019	ME, (MF)
5.2	Skype sessions (model and documentary) (ongoing)		ME, MF, (AM, AP)
5.3	Welsh translation (sketchfab collection and booklet)	Review Point 6 - August 2019	
Stage 6: Building Fernhill Colliery - the Documentary		September - November 2019	
6.1	Skype sessions (documentary making) (ongoing)	Product 8 - Fernhill Colliery Model	ME
6.2	Film editing, production	Product 9 - Documentary Film	ME
6.3	Finalise colliery outputs for web	Product 10 – Evaluation data	ME, MF, CC (AM, AP)
6.4	The Film Premiere	Suggested date - 30 October 2019	ME, MF
6.5	Summary of project evaluation data	Review Point 6 - November 2019	ME/MF
Stage 7: Heritage event		Summer 2020	
7.1	Public meeting / event	Summer 2020	ME
		Review Point 7- Summer 2020	

Resource key: MF – Manda Forster, ME – Maggie Eno, CC – Chris Casswell, LWW – Lisa Westcott Wilkins, AS – Adam Stanford, AM – Angus Mol, AP – Aris Politopoulos. When shown in brackets – not in attendance, eg for workshops.

3.2 Project outputs and products

3.2.1 As a result of the training and mentoring that will take place with the young participants, the project will deliver the following products and outputs (see Table 2):

- a reference collection of materials such as maps, images and objects which provides insight into the Fernhill Colliery;
- an exportable Minecraft map of the area of the landscape which the Fernhill Colliery occupied in Blaenrhondda;
- a digital model of the historic and archaeological landscape of the Fernhill Colliery site using Minecraft, co-designed and co-produced with young people;



- a collection of 3D objects, hosted on Sketchfab and embedded within the project website, providing public access to individual artefacts and structures with additional information provided by the young people taking part in the project.
- a collaborative documentary of the project produced while providing film training for young people, including 5 – 7 minutes of content;
- a student-led documentary produced by the young people taking part and including a tour of the virtual reality model of Fernhill Colliery;
- project evaluation data that can feed into the wider *Unloved Heritage - Exploring Wales* project evaluation.

Table 2: Products

Product No.	1
Product name	Project delivery programme
Purpose	To articulate the final programme for the delivery of the stages, products and tasks.
Composition	Table
Format	Document (PDF)
Allocated to	Project Manager
Quality criteria and method	Project Team sign off / Review Point 2
Person/group responsible for quality assurance	Project Executive
Planned completion date	Jan-19
Product No.	2
Product name	Minecraft landscape
Purpose	Visual representation of the valley in Minecraft
Composition	Minecraft world
Format	Digital
Allocated to	Value Foundation / Project Team
Quality criteria and method	Project Team sign off / Review Point 3
Person/group responsible for quality assurance	Project Executive
Planned completion date	Feb-19
Product No.	3
Product name	Product 3 - Aerial model on Sketchfab
Purpose	Digital aerial model of the valley
Composition	Photogrammetry model on Sketchfab
Format	Digital model
Allocated to	Aerial Cam / Project Team
Quality criteria and method	Project Team sign off / Review Point 4
Person/group responsible for quality assurance	Project Executive
Planned completion date	Feb-19

Product No.	4
Product name	Documentary Storyboard
Purpose	To plan the documentary film elements
Composition	Drawn plan
Format	Paper
Allocated to	Participants and Prooject Team
Quality criteria and method	Project Team sign off / Review Point 4
Person/group responsible for quality assurance	Project Executive
Planned completion date	Mar-19
Product No.	5
Product name	Sketchfab collection set up
Purpose	Create accessible archive of reference models
Composition	Photogrammetry model on Sketchfab
Format	Digital model
Allocated to	Project Team
Quality criteria and method	Project Team sign off / Review Point 5
Person/group responsible for quality assurance	Project Executive
Planned completion date	Mar-19
Product No.	6
Product name	Formatted reference booklet
Purpose	Collate reference materials to support building of minecraft model
Composition	Written report and images
Format	Document (PDF)
Allocated to	Project Team
Quality criteria and method	Project Team sign off / Review Point 6
Person/group responsible for quality assurance	Project Executive
Planned completion date	Mar-19
Product No.	7
Product name	Annotated Models on Sketchfab
Purpose	Provides 'museum labels' for the referecne collection models on sketchfab
Composition	Photogrammetry models on Sketchfab
Format	Digital model
Allocated to	Project Team
Quality criteria and method	Project Team sign off / Review Point 5
Person/group responsible for quality assurance	Project Executive
Planned completion date	Jun-19
Product No.	8

Product name	Fernhill Colliery Model
Purpose	Populated Minecraft model of Fernhill Colliery produced by the participants
Composition	Minecraft model world
Format	Digital
Allocated to	Participants, with support
Quality criteria and method	Project Team sign off / Review Point 6
Person/group responsible for quality assurance	Project Executive
Planned completion date	Oct-19
Product No.	9
Product name	Documentary Film
Purpose	Provide a record of the project development
Composition	Digital video footage
Format	Digital
Allocated to	Project Team
Quality criteria and method	Project Team sign off / Review Point 6
Person/group responsible for quality assurance	Project Executive
Planned completion date	Oct-19
Product No.	10
Product name	Summary evaluation data
Purpose	To provide access to additional evaluation data
Composition	Report
Format	Document PDF
Allocated to	Project Team
Quality criteria and method	Project Team sign off / Review Point 6
Person/group responsible for quality assurance	Project Executive
Planned completion date	Oct-19