Project Details

Location
Cambridge

Contact Reference

Company	Bam Nuttall
Name	David Milnes
Job Title	Digital Construction Manager
Tel	07775 790795
Email	david.milnes@bamnuttall.co.uk

Contract Date

Start Date	End Date
April 2019	June 2019

Contract Value
£100m (BAS total contract)



Figure 1: PAULEY HoloLens recreation of the Rothera Research Station

The BAS Rothera Research Station located on the Antarctic Peninsula was established in 1975 and replaced the previous Adelaide Station.

In 2017 BAM were chosen to partner with the British Antarctic Survey to assist with a major programme of modernisation at Rothera. This is a long-term partnership lasting up to 10 years and is estimated to be worth around £100m (€120m). The modernisation programme will enable a world-leading capability to ensure that Britain remains at the forefront of climate, biodiversity and ocean research in the Polar regions. One of the first projects to be undertaken is the redevelopment of the wharf. This is part of the enhancement of polar facilities to accommodate the new state-of-the-art polar research vessel the RRS Sir David Attenborough.

The Antarctic construction projects will present unique challenges given the continent is the highest, driest, coldest and windiest on Earth, and most construction work will need to be completed during the four-month window of the Antarctic summer. Construction workers will live and work alongside science teams in harsh and remote environments, sometimes in sub-zero temperatures.
(https://www.baminternational.com/en/news/bam-chosen-as-construction-partner-to-modernise-antarctic-infrastructure)

Scope	Part of BAS Demonstration	PAULEY Expert in field
Virtual Reality (Oculus Rift)	✓	✓
Augmented Reality (Microsoft HoloLens)	✓	✓
MultiLens	✓	✓
Multi-Stakeholder Collaboration	✓	✓
Live stream Data Feeds	✓	✓
Digital Twin	✓	✓
3D Modelling / Animation	✓	✓
Industry Leading	✓	✓

Demonstration

PAULEY are building a digital twin of the Rothera Research Station to illustrate the power of digital technologies in training, maintenance, fault finding etc. Following the demonstration in June 2019 of our technologies we hope to be engaged by BAM/BAS to undertake full project work to deliver a working digital twin for real-time operations.

Innovation

Through the use of Virtual and Augmented Reality (AR) we can provide safe, accurate training to staff before they arrive on site. We are also able to provide solutions to assist with communications, project management and stakeholder engagement which would see savings across the project.

Benefits Potential

The digital solutions provided by PAULEY offer a great number of benefits, from time savings achieved through enhanced working practices to safety assurances offered by training in a completely safe environment.

One area that we will be able to make time and cost savings for BAM/BAS is training. Currently an 18-month system is in place for personnel going out to the Rothera Research Station which is broken down into three parts:

1. 6-months period of training prior to deployment to site.
2. 6-months 'buddy/mentoring' period which an existing team member.
3. 6-months working in the role.

The 18-month cycle repeats with a new incumbent.

By using digital technologies, we believe that this process can be reduced, resulting in significant savings in both time and money.



Figure 2: Working with the PAULEY Rothera Research Station Digital Twin Demonstration

Please click here to see a video of the BAS Rothera Research Station off site construction.