



Case Study

Polar Expedition for Sandvik Mobile Crushing and Screening in the Antarctic

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UK engineering contractor BAM have been working with the Antarctic Infrastructure Modernization Programme (AIMP) for a large infrastructure project in the Antarctic. In this programme, Sandvik was proud to be selected as the partner of choice to supply three mobile crushers and screens for a runway resurfacing project to enable further exploration in the Antarctic.



(Pictures: ©Sandvik AB)

BAM Ritchies is the ground engineering division of BAM UK and Ireland, who provide fully integrated services for a wide range of customers, both public and private sector, from small local projects to national critical infrastructure. Over 60 years, they have built a reputation as the go-to ground engineering team for complex problem solving and best-value, sustainable delivery. The UK's largest drill and blaster, they are responsible for over 40% of the UK's contracts.

It was back in 2017 when BAM were selected by the British Antarctic Survey (BAS) ¹⁾ to partner for the Antarctic Infrastructure Modernization Programme (AIMP). This modernization project represents one of the largest UK Government investments in polar science infrastructure since the 1980s. It will transform how the British Antarctic Survey enables and supports frontier science and ensures that Britain remains at the forefront of climate, biodiversity and ocean research in the Polar regions.*

Joined by BAS technical advisors, Ramboll and their designers Sweco, BAM were chosen by UK Research Innovation (UKRI) and National Environment Research Council (NERC), to partner with British Antarctic Survey for the £300m infrastructure programme which will span over a seven-year framework.

A part of the project was the modernization of Rothera Research Station, BAS' largest facility and a center for biological research and hub for supporting deep-field and air operations. This redevelopment includes a new science and operations facility, the Discovery Building, rebuild and update of the wharf together with the introduction of carbon reducing technology.

BAM were in need of a processing train to crush and screen the abrasive gneiss material so it could be recycled and reused for construction purposes at the research station. Already familiar with Sandvik mobile equipment and experience using Sandvik Hydrocone crushing technology, Jan Cordon, Contracts Manager Drill and Blast at BAM Ritchies, and Harry McMullan Quarry Manager for the project, contacted Sandvik Mobile crushing and screening.

Versatile Operation

For this particular application and job at hand, a Sandvik QH332 Hydrocone crusher and QA335 Doublescreen were selected due to their versatility and performance capacity. The equipment is being used to crush the material down to make resurfacing material for an 800m unpaved gravel runway. The sub 80mm feed, which was crushed by a QJ341 jaw crusher previously on site, is processed to produce the following fractions; surface course 0-16mm, base course 0-25mm, levelling course 0-75mm and sub-base <100mm.



The Sandvik QH332 is a tracked, self-propelled cone crusher designed for versatility, safety and high performance. Featuring the Sandvik Hydrocone crusher, it comes with a choice of six different crushing chambers and a variety of different bush settings. This is one of the great advantages of the Sandvik cone and its ability to adapt to suit the needs of the specific application. It is one of the traits which Harry comments as to the reasons why they decided to invest in Sandvik. “The cone crushers have a wide choice of set-up with different concave and mantle configurations plus different throws, which allows the machine to be adjusted and configured to a wide range of products.”

In order to screen the material down and remove the fines so it can be reused for resurfacing the runway, a mobile screener was required. The QA335 was selected due to its flexibility and ability to accurately screen the products to the required sizes. The Doublescreen technology features two high velocity, angle adjustable screens, where both the primary and secondary screening angles can be adjusted to optimize screening performance and accuracy. With two independent double deck screens this provides a single machine capable of performing two screening processes.

Working in one of the World’s most harsh Climates



Living and working in the Antarctic is no mean feat and with temperatures ranging from 5°C to -40°C, it poses many environmental challenges. BAM say that

working with the whole AIMP partnership, extending from client to supply chain, has been key in this uniquely challenging environment.

To ensure the Sandvik mobile units were able to operate in this extreme climate, all units were fitted with an arctic package.

Harry says they have had no issues with the operation and they have been pleased with the performance: "Both machines have performed exceptionally well considering the harsh environment they are working in."

Due to the remote location and nature of the application, aftermarket support has been crucial in ensuring the success of this project. This has been vital both in terms of having technical service available when required and also the right spare parts and consumables on the ground when the need arises by placing a large stock order in advance.

"Support from Sandvik service engineers has been excellent and they have been available on the phone when required. I would not hesitate to recommend Sandvik as a supplier."

Building a more sustainable Future

Climate change is an important topic and one of the biggest challenges which faces our planet today. As a supplier of construction and mining equipment, Sandvik is committed to reducing its impact on the climate and is striving to be a leading sustainability partner for our customers. We share the same vision and goals, as our customer BAM, and are proud to play our part in this project, working together to build a more sustainable future.