Coal Ash Containment
Drained “Liner”, Pozidrain 7SK250D/NW8[N2,J100],
Morupule A Power Station Ash Dam Rehabilitation, Botswana

Project Description
Botswana Power Corporation needed to rehabilitate an unlined ash dam in order to prevent potentially harmful environmental contamination caused by exposure to rainwater and wind. Water entering the ash could result in potentially harmful leachate entering the groundwater due to the lack of basal lining and erosion would also be an environmental hazard.

The Challenge
A standard liner and drainage solution had been considered but was found to be prohibitively expensive. A priority was to find an affordable low cost solution for lining and draining the cap whilst providing an engineered containment of sufficient integrity. The extensive and shallow 3% cross-fall plateau required a high capacity drainage solution to prevent ponding from the 400mm annual rainfall, mainly during heavy afternoon thunderstorms. Steep 1 in 3 side slopes required stability assurances for the capping layers. In addition, approaching seasonal rains conferred urgency on the project.

The Solution
Initially the impermeable Pozidrain rolls were to be overlapped such that the gradient would prohibit entry of sub-surface water to the containment, however, due to the largely rectangular geometry, ABG’s “J” version Pozidrain was used. This had 100mm flat edges on each impermeable Pozidrain roll allowing sealing by hot air welding.

Project Information

<table>
<thead>
<tr>
<th>Client</th>
<th>Botswana Power Corporation</th>
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<tbody>
<tr>
<td>Contractor</td>
<td>TKM Engineering</td>
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<tr>
<td>Consultant</td>
<td>Multi-Consult in association with Jones &amp; Wagener</td>
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<tr>
<td>Products</td>
<td>Pozidrain 7SK250D/NW8[N2,J100] Pozidrain 7S250D/NW8[N2,J100]</td>
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<tr>
<td>Quantity</td>
<td>199,000m²</td>
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| Benefits
   • By combining liner and drainage layers, significant cost savings were made on product and installation costs
   • 100mm flat edges on each impermeable Pozidrain roll allowed sealing by hot air welding |

ABG Pozidrain
Site specific cover soil permeability tests were made and anticipated water volumes and flow capacities calculated. By comparison with ABG’s flow vs gradient tables Pozidrain 7SK250D/NW8[N2,J100] was subsequently chosen for its long term drainage capacity. Slope stability calculations proved Pozidrain to have sufficient shear strength at both interfaces due to high friction textile on both sides of the drainage core.

The ABG Service
ABG contributed fully in the value engineering of the project by eliminating the need for separate liner and drainage layers, also reducing installation costs, whilst still enabling confidence in long term function and performance of the product. Additional savings were facilitated by the use of two different roll widths, both with 100mm flat edges, which maximised container capacity and reduced the number of containers. ABG’s extensive experience in landfill meant that both consultants and contractors were fully supported from design to installation with test data, calculations, bespoke manufacture, timely delivery and installation advice.

Contact ABG today to discuss your project specific requirements and discover how ABG past experience and innovative products can help on your project.