

## Derrick® sand production and fines recovery systems provide high quality sand products and reduce need for vast settling ponds

- Produced high quality, clean asphalt sand
- Dewatered to superior dryness levels
- Recovered and converted fine sand waste into a saleable product

### Background

Port Colborne Quarries in Ontario, Canada is one of the longest operating limestone quarries in the country. For decades, the facility was a dry crush and screen plant operation. As both internal and external product demands grew, they were forced to look at adding a wash plant to the existing process to meet the new specification product demands. To meet their needs, PCQ contacted Derrick® Corporation to discuss a process design that could provide a high quality asphalt sand. In addition, they were looking for a solution to reduce the high cost of settling pond operation and convert their waste material into a manageable, saleable product.

### Solution

Upon analysis of the feed materials, Derrick knew that the 18" maximum density separator (MDS) unit, in conjunction with Derrick's new HI-Cap™ dewatering screen, would be ideal to meet the stringent specification for their asphalt sand. With a conventional coarse wet screen up front making various stone products, essentially minus 3/8" materials along with 2000 GPM reported to the Derrick tank package. In this system, slurry was pumped up to two 18" MDS units. These units provided a nominal cut



Derrick tank package

point at the 200 mesh (75 micron) level. The newly recovered material was then fed to the Derrick HI-Cap dewatering screen at 50 to 52 percent solids by weight. The linear motion and high "G" of the screen frame, coupled with 1.4mm urethane screen panels, dewatered this recovered sand to a remarkable 90 percent solids by weight. Dual spray bars on the dewatering screen further cleaned the sand of fines, which increased the value of their end product. Now

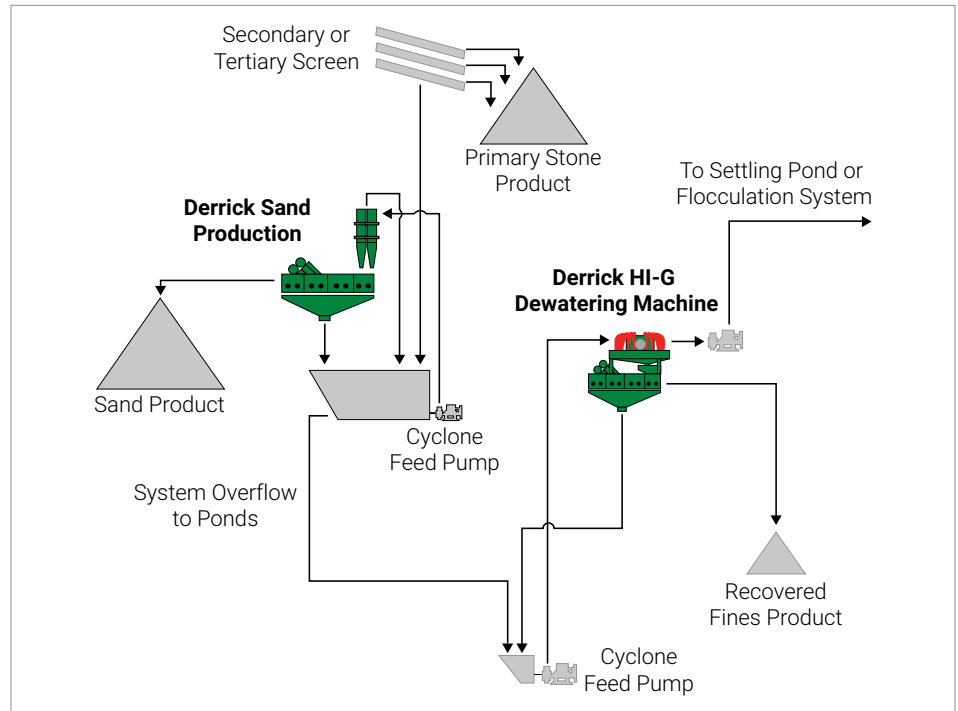
cleaned and in a completely stackable, conveyable form, needing no stockpile residence time to dewater, this product was ready for immediate use both internally and for outside customer demands. The Derrick HI-G® Fines Recovery System was installed to recover many of the fines discharged in the hydrocyclone effluent prior to entering the settling pond.

The primary focus was to alleviate the continuous pond maintenance costs and find a potential market for these materials. The HI-G Dewatering Machine recovered down to the 400/500 mesh level and dewatered this fraction to a very dry and manageable state at 80 percent solids by weight.

### Conclusion

The Derrick system is producing a superior, clean, and dry asphalt sand that contains less than 5 percent minus 200 mesh in the end product at a daily production rate of 150 to 175 t/h. Additionally, this system is saving over \$400,000.00 annually on drying costs (BTUs) at the asphalt plant, as compared to feeding sand from older, outdated equipment and sources. The increased quality of the new sand product has also secured many new external customers, as the sand is considered high quality and high value in the region.

The Derrick HI-G Fines Recovery System is effectively recovering 75 percent of the plant waste material and converting it into highly profitable product. The chemical analysis and gradation of this unit creates a very high demand for this material, both AgLime and Dense Flowable Fill. The return on investment (ROI) of the high performance Derrick equipment has been completed within only 1.5 years.



New Port Colborne Quarries flowsheet with Derrick equipment

**For more information, please contact your local Derrick sales representative.**

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