CASE STUDY

Matomo Projects leverages Octave Forte 3DWorx to avoid 75% in excess budgeted hours

Key facts:

Company: Matomo Projects

Website: www.basilread.co.za

Industry: Metals & Mining

Country: South Africa

Octave products used: Forte 3DWorx *(CADWorx Plant Professional)*

Key benefits:

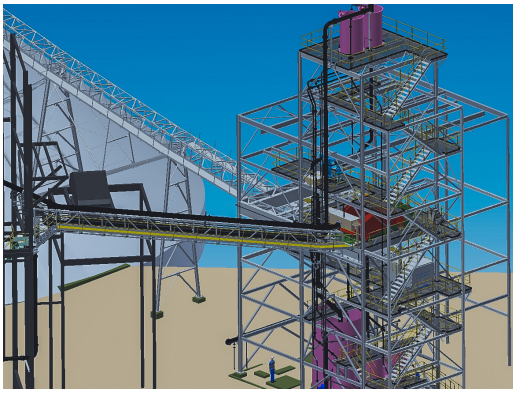
- Designed chromium recovery facility within tight schedule
- Avoided 75% overrun in budgeted hours
- Overcame design and accuracy challenges
- Produced fully accurate fabrication drawings and bills of materials

Backed by more than six decades of construction expertise, Basil Read has become synonymous with excellence in the spheres of construction, mining and property development. The group and its subsidiaries are active in civil engineering projects, road construction, building, mixed integrated housing developments, property development, opencast mining and related services. It has approximately 6,500 employees in six countries.

Identifying goals

Matomo Projects, a Basil Read Group Company, was assigned the design of a chrome tailings recovery plant for Assmang Chrome's Dwarsrivier Mine to recover saleable platinum-group metals (PGM) concentrate from the mine. This Dwarsrivier Dewatering & Tailings Recovery Plant is based on a basic processing circuit that will allow for the upfront thickening, bead milling of float feed, flotation, concentrate dispatch and tailings handling. The plant location was opposite the existing plant and adjacent the quarry.

The plant is to treat 27 kilotons/month (kt/mo) of tailings to produce approximately 0.370 t/mo of final concentrate. Matomo's assignment included engineering and project management through procurement, manufacturing and construction, terminating at cold commissioning. The project would also include the hot commissioning and handover of the completed plant, with feed into plant 30 kt/mo.



The project included more than 18 pieces of equipment and pipe ranging from 50 NB to 300 NB in diameter of carbon steel, and 40 OD to 315 OD high density polyethylene (HDPE). With a fixed budget, Matomo searched for a reliable solution to produce piping designs and ensure that isometrics were created quickly and accurately.

Overcoming challenges

Matomo chose Forte 3DWorx because with its previous software solution, design work for the 38 process pipelines would have exceeded the 85 budgeted hours by 75%. Forte 3DWorx could generate accurate automatic isometrics and allow the team to meet a seemingly impossible constraint. The company could also automatically compile bulk piping bills of quantities and export to Microsoft® Excel® for expediting.

"The specifications for the carbon steel and HDPE pipes were developed in-house by a senior piping design draughtsman with virtually no Forte 3DWorx experience … a task that would have been impossible within the time constraints without no Forte 3DWorx."

Anton Botha
Senior Piping Design Draftsman, Matomo

The team first scanned the existing plant to generate a 3D model and finalized the civil, structural and mechanical 3D models (placement of equipment) in Autodesk Inventor for import into Forte 3DWorx. Using Forte 3DWorx, Matomo routed all of the pipes and produced all the necessary piping design layouts. It was able to automatically generate the isometric drawings with full bill of materials, saving many hours of detailing.

Because Forte 3DWorx was easy to learn and use, Matomo avoided the extensive training delays in becoming productive it would have experienced with less user-friendly methods. As an example, its senior piping designers with virtually no prior Forte 3DWorx experience were able to quickly develop specifications for the carbon steel and HDPE pipes in-house. With the limited number of hours, it would have otherwise been an impossible task.

Without Forte 3DWorx, bills of material would have had errors that required rework, resulting in delays and increased expenses. Forte 3DWorx also helped Matomo avoid an estimated 75% more hours on the piping design and isometric drawings, which would have caused the company to exceed budget.

Realizing results

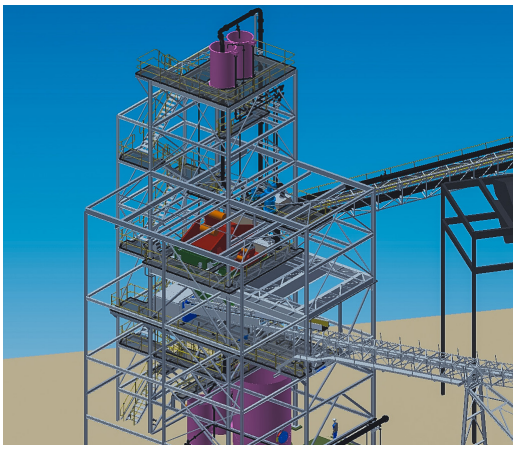
The fabrication drawings were accurate, drastically reducing rework on site.

"The bill of materials generated from the database guaranteed virtually 100% accuracy of material used in the model for project procurement," explained Anton Botha, senior piping design draftsman at Matomo.

The team managed fabrication and erection onsite. With Forte 3DWorx, many hours of detailing were eliminated compared to the conventional software previously used.

It was Matomo's first project using Forte 3DWorx for the piping design and isometrics.

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About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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