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JUNE 2023

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PUBLICATIONS

Construction WORLD



**TSK and Keller join forces for
Kilombero Sugar Company's
Expansion Project**



Ready mix truck delivering concrete to the piling rig.

TSK Group and Keller join forces for Kilombero Sugar Company's Expansion Project

*In a remarkable collaboration, TSK, a renowned global engineering, procurement, and construction (EPC) contractor based in Spain, has been appointed by Illovo Sugar to spearhead the expansion project at Kilombero Sugar Company in Tanzania. Recognising the complexity of the foundation requirements, TSK, in turn, has enlisted the expertise of Keller, a leading specialist geotechnical contractor, to undertake the vital piled foundations. This partnership represents a significant milestone for Kilombero Sugar Company, as TSK and Keller join forces to pave the way for its ambitious growth plans. **By Roger Feldmann, Business Development Manager: Keller***

Kilombero Sugar Company and its vision

Kilombero Sugar Company, a subsidiary of Illovo Sugar Africa, plays a pivotal role in Tanzania's sugar industry. The company's vision encompasses the expansion of its operations to meet the growing demand for sugar in the Tanzanian market. As part of this vision, Kilombero Sugar Company has embarked on a new expansion project, known as K4, which includes the construction of a state-of-the-art 420 t/h raw sugar cane factory. This new facility is specifically designed for the production of direct consumption brown sugar, catering for the discerning Tanzanian market. By investing in this expansion, Kilombero Sugar Company aims to solidify its position as a leading sugar producer and contribute to the economic growth of the region. The collaboration between TSK and Keller on this project is instrumental in turning this vision into a reality.

Site location

Nestled in the picturesque Kilombero region of Kidatu, Tanzania, the new factory site sits adjacent to the existing Kilombero Sugar Company K1 sugar factory. Access to the

site is a scenic journey of approximately 350 km by road from the bustling port city of Dar es Salaam. The road trip, spanning around 9 hours, offers a mesmerising view of abundant wildlife along the way. However, it's worth noting that the challenging road conditions occasionally demand extra caution.

Scope of work

Initially, the scope of work encompassed piling for vital structures, including the drying, process, evaporation, power turbines, tanks, mill building, shredder, boiler, and baggage storage, totalling 1 075 piles. As the project progressed, the scope expanded to include additional structures such as the warehouse. Keller successfully installed a total of 1 900 piles over a span of 12 months, deploying two piling rigs. This notable achievement positions this project as Keller's most significant piling contract in the region.

Geological conditions

At the new K4 site the prevailing soil composition consists mainly of stiff black clayey silt at shallow depths, underlain

The site was the scene of beautiful sunsets.



by loose brown clayey sand. From a depth of 2 m to 30 m, soft to firm greyish black clayey silt dominates, succeeded by dense greyish white coarse sand. These geological conditions presented unique challenges in selecting the appropriate pile type for the project.

Selecting pile type

Given the complex soil conditions, constructing a sugar plant on a deep clayey silt layer necessitated a robust piled foundation solution. The Franki Driven Cast in Situ (DCIS) pile emerged as the optimal choice for this demanding setting. With the ability to be founded around 10 m deep, the Franki DCIS pile penetrates the silty clay layer, anchoring itself at the top of the gravel sand layer. Its distinctive bulbous base enhances both the end-bearing capacity and tension capacity of the piles, effectively addressing the absence of solid strata or rock at greater depths.

Challenges on site

The Kidatu region experiences heavy rainfall, making rain a key factor in the construction programme. Rainfall progressively intensifies from November, reaching its peak in April, with an average of 309 mm during the month. While the rain did pose occasional challenges to the piling operations, delays caused by weather conditions were anticipated and mitigated through meticulous project planning.

Quality standards

Both Keller and TSK are committed to upholding international world-class best practices, governed by the ISO 9001 quality standard. With quality as the cornerstone of their construction activities, Keller's work adheres rigorously to the stringent specifications and requirements set by TSK. Their dedication to meeting world-class standards ensures that the project is built on a foundation of excellence.

Quality assurance

Ensuring the highest level of quality was paramount throughout the project. Keller implemented stringent quality assurance measures, including comprehensive testing of materials during pile casting. Concrete quality was consistently monitored, with rigorous checks conducted on incoming materials at the batch plant and during casting at the pile position.

Furthermore, physical static load tests were performed on representative piles, both in tension and compression, to confirm their load-bearing capacity and integrity. The performance of the Franki DCIS piles underlined their suitability for the project's challenging soil conditions.

The expansion project and its significance

Kilombero Sugar Company's expansion project marks a crucial milestone in its growth strategy. The project aims to enhance the production capacity and efficiency of the existing sugar plant, enabling Kilombero Sugar Company to meet the rising demand for sugar in the region. The expansion project will not only create employment opportunities but also contribute to the local and national economy.

TSK: Leading the transformation

TSK, an internationally renowned EPC contractor, has been entrusted with the responsibility of executing the expansion project. With a rich history and expertise in delivering large-scale engineering projects globally, TSK brings unmatched capabilities to the table. The company's commitment to sustainability and its reputation for delivering high-quality results align perfectly with Kilombero Sugar Company's aspirations.

Keller's geotechnical excellence

TSK recognised the critical role of robust foundations for the project. Keller's extensive experience in geotechnical solutions and ground improvement techniques made Keller the perfect choice for this challenging endeavour. Keller's dedication to quality, safety, and innovative engineering ensures the success and longevity of the project.

Collaboration for success

The collaboration between TSK and Keller represents a prime example of global expertise coming together to achieve a common goal.

By combining TSK's EPC proficiency and Keller's geotechnical excellence, the project is poised to overcome challenges and deliver exceptional results.

This partnership underscores the importance of collaboration and the synergistic effect it has on complex construction projects.

Conclusion

The expansion project at Kilombero Sugar Company, led by TSK as the EPC contractor and supported by Keller's geotechnical expertise, promises to transform the sugar industry landscape in Tanzania.

With a focus on sustainable growth and a commitment to delivering high-quality results, this collaborative effort sets a benchmark for future projects in the region. Kilombero Sugar Company's expansion will not only strengthen its position in the market but also contribute significantly to Tanzania's socio-economic development. ☺



Franki Rig SA 1084 standing proud on the Kilombero site.