ENHANCING BAUXITE EXPORT INFRASTRUCTURE IN GUINEA THE BON AMI PROJECT

The Republic of Guinea in West Africa is a critical global supplier of bauxite, the primary ore used in aluminum production. Efficiently mining and exporting this valuable resource is paramount to the nation's economy and the global aluminum supply chain. This white paper examines the Bon Ami Project by Dynamic Mining in Guinea, focusing on the implementation of a high-capacity, robust barge loading system designed to handle the challenging characteristics of bauxite. Telestack, a company known for its high-performance barge loading solutions, provided key equipment for this project.

PROJECT OVERVIEW: DYNAMIC MINING – BON AMI

The Bon Ami Project, undertaken by Dynamic Mining in Guinea, required a sophisticated and reliable system for loading bauxite onto barges for onward transshipment.

MATERIAL CHARACTERISTICS AND HANDLING CHALLENGES

Bauxite presents unique handling challenges due to its material properties. For the Bon Ami Project, the key material and application parameters were identified as follows:

- **Type of Material:** Bauxite
- **Material Bulk Density:** 1.5 Tonne/cubic metre
- **Lump Size (mm % breakdown):** Max 150 mm
- **Nominal Handling Rate:** 2700 Tonne/hour
- **Design Handling Rate:** 3000 Tonne/hour
- **Handling Characteristic:** Sticky / Free flowing
- **Relative Humidity (if known):** High Humidity
- **Ambient Temperature Range:** 21–37°C

The sticky nature of bauxite, especially in high humidity environments, demands specialized handling equipment to prevent blockages and ensure consistent flow rates. Telestack is recognized for its experience in managing such difficult materials, often described as having "Bauxite under our fingernails."

THE TELESTACK SOLUTION: TB 58 X 3000TPH BARGE LOADER

To meet the project's demands, a Telestack TB 58 x 3000tph barge loader was installed. This unit is specifically designed for loading bauxite and has a capacity of 3000 tph at 1.5 T/m^3.

The operational setup involves the barge loader being fed by two Buffalo reclaim feeders via dozers, which move the bauxite onto a 1 km jetty conveyor. This system is engineered to load vessels up to 12,000 DWT with a 30 metre beam and 105 metre LOA (Length Overall), providing complete barge coverage without the need for warping the barge.

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KEY FEATURES OF THE BARGE LOADING SYSTEM:

The installed Telestack barge loader incorporates numerous features designed for performance, durability, and operational efficiency in a challenging marine environment:

- **Structural Integrity:** A 115 Tonne static weight unit designed to rigorous structural engineering standards.
- **Controlled Material Flow:** Variable Speed Drive (VSD) to control belt speed and material flow.
- **Operator Environment and Control:** An air-conditioned local control panel manufactured from stainless steel, featuring a Siemens S7 PLC with Profibus communications to the Central Control Room (CCR).
- **Safety and Maintenance:** Equipped with belt drift/rip switches, Flexco Mineline primary and secondary belt scrapers, and top and return side tracking rollers.
- **Durability in Harsh Conditions:** A marine specification paint system, galvanised dust covers on the outer conveyor, and canvas telescopic dust covers on the inner section. Dual access galvanised walkways are also included.
- **Heavy-Duty Components:** 1400 mm wide X grade belting and 152 mm (6 inch) trough rollers. Wear resistance is enhanced with 12 mm Hardox 400 liners in the feedboot and transfer point.
- **Environmental Considerations:** Dust suppression spray bars are fitted at transfer points.

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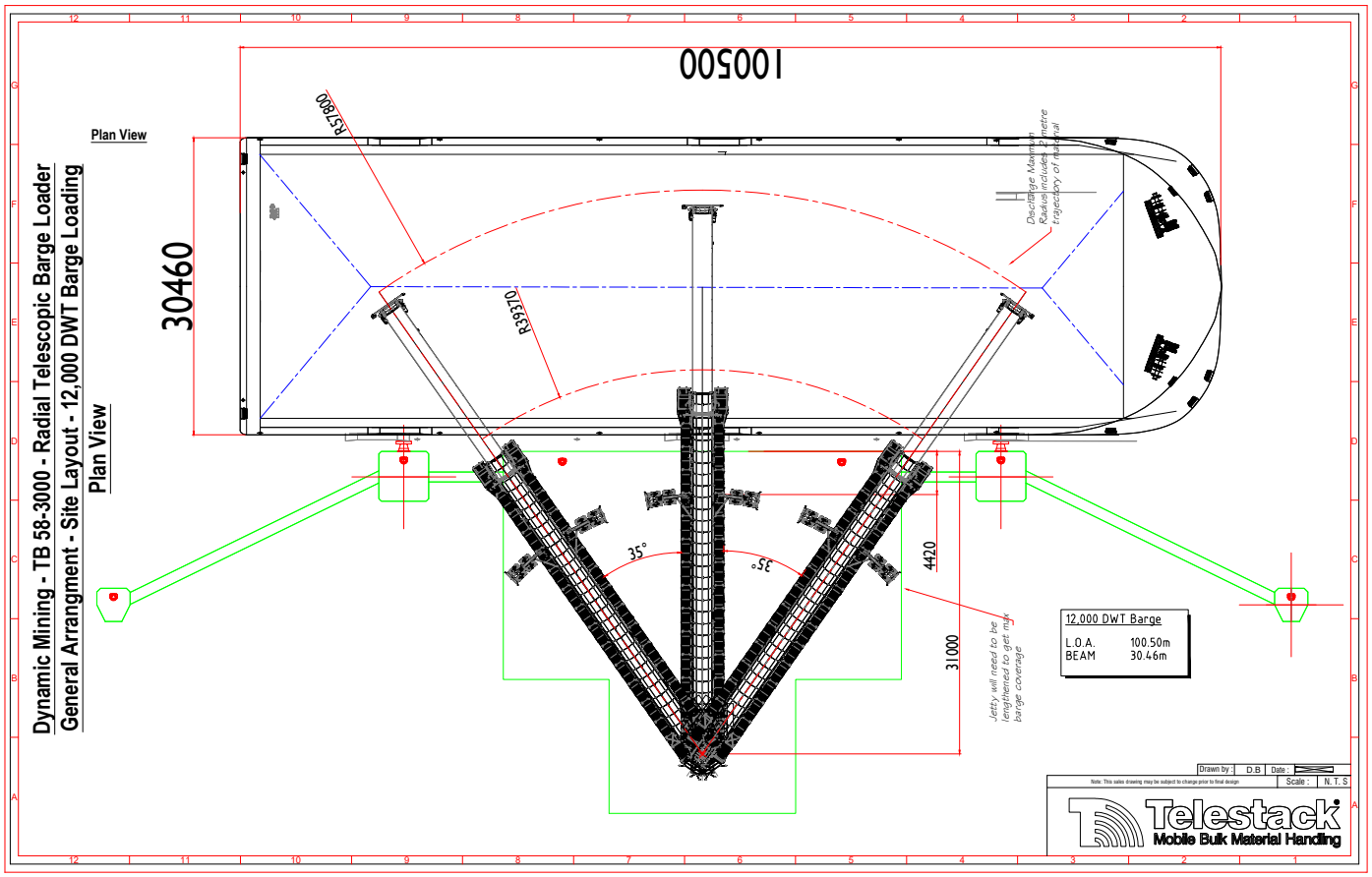
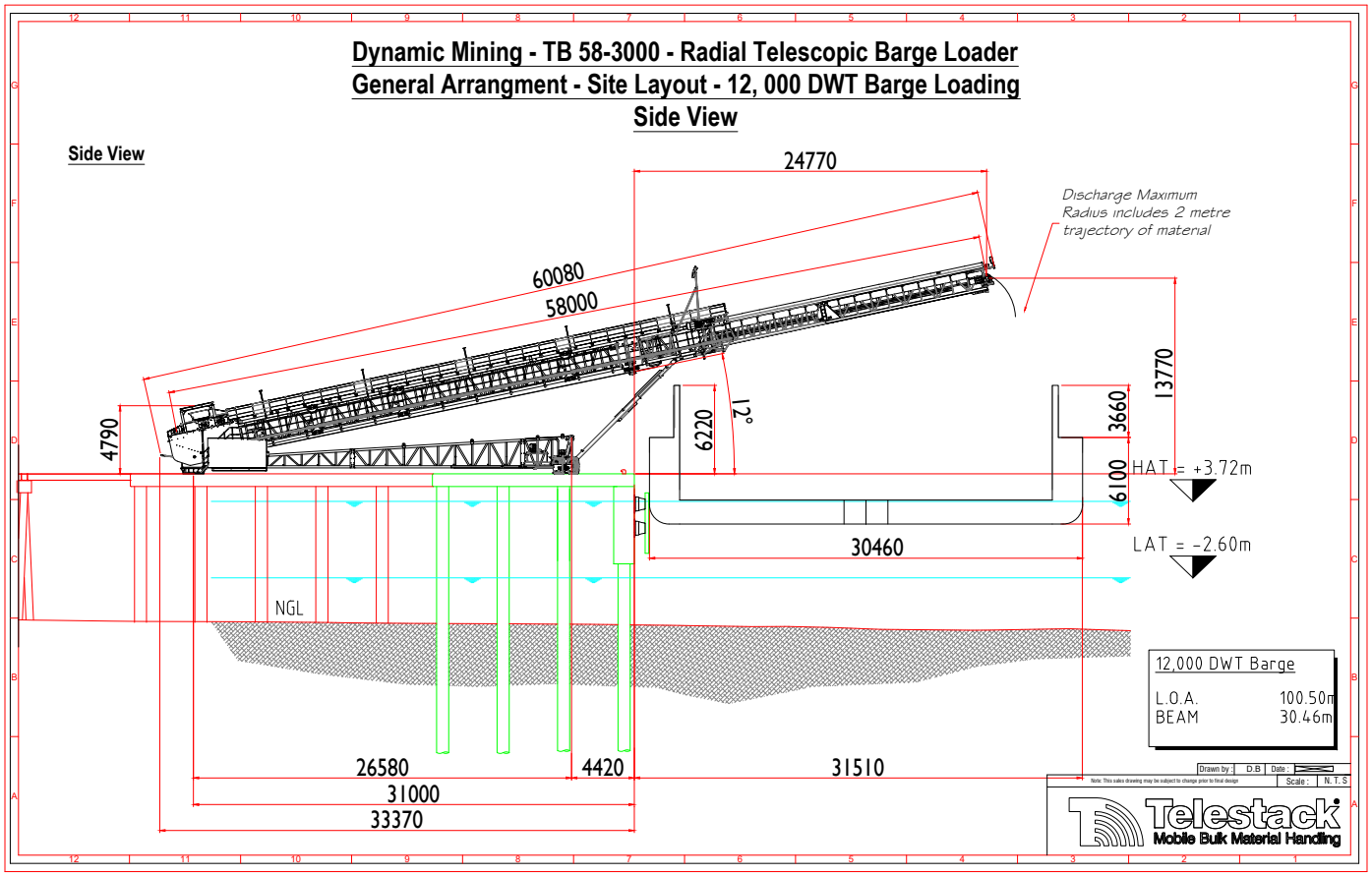
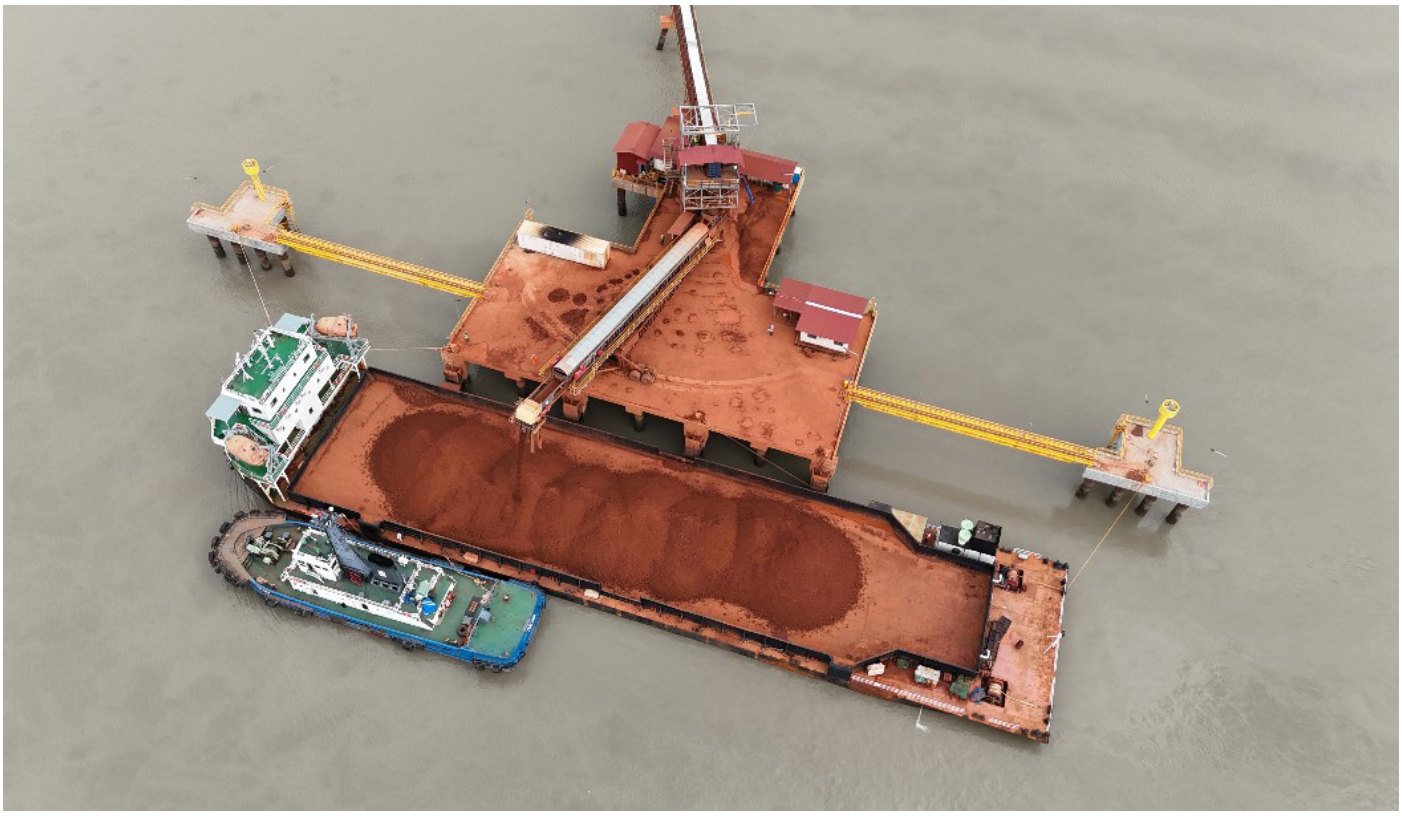

Dynamic Mining - TB 58-3000 - Radial Telescopic Barge Loader
General Arrangment - Site Layout - 12,000 DWT Barge Loading
Plan View
Plan View
100500
30460
R57800
R39370
Discharge Maximum Radius includes 2 metre trajectory of material
35°
35°
4420
31000
Jetty will need to be lengthened to get max barge coverage
12,000 DWT Barge
L.O.A. 100.50m
BEAM 30.46m
Drawn by D.B
Date
Scale N. T. S
Telestack
Mobile Bulk Material Handling


Dynamic Mining - TB 58-3000 - Radial Telescopic Barge Loader
General Arrangment - Site Layout - 12, 000 DWT Barge Loading
Side View
Side View
24770
Discharge Maximum Radius includes 2 metre trajectory of material
60080
58000
4790
6220
12°
13770
3660
6100
HAT = +3.72m
LAT = -2.60m
30460
NGL
12,000 DWT Barge
L.O.A. 100.50m
BEAM 30.46m
26580
4420
31510
31000
33370
Drawn by D.B
Date
Scale N. T. S
Telestack
Mobile Bulk Material Handling

CONCLUSION

The Dynamic Mining Bon Ami Project in Guinea successfully implements a robust and high-capacity Telestack barge loading system tailored for the demanding conditions of bauxite export. The thoughtful design, incorporating features to handle sticky material, ensure operator safety and comfort, and withstand a corrosive marine environment, positions the project for efficient and reliable operations. This installation underscores Telestack's expertise in providing advanced solutions for the global mining industry, particularly in handling challenging bulk materials like bauxite.



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