



Tailing Storage Facilities, Tonkolili Iron Ore Mine

PDLA09

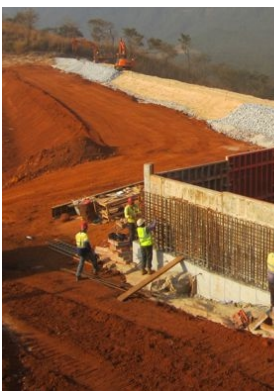
The Management Team now working at DIG IG was appointed to design, construct and provide the monitoring regime for two tailings storage facility dams for the iron ore process plant waste product. These dams were zoned (clay/sand) earth fill tailings dam with filter beds. The dams were constructed as a layered earth structure with an integral filter medium.

The DIG IG team were responsible for the full package of works from ground investigation, design through to construction. A monitoring system was also installed for this structure. Due to an urgent requirement for a storage facility to commence plant commissioning, an initial structure was constructed comprising 500,000m³ of material with the earthmoving completed in 3 months.

To supplement the original storage facility, African Minerals commissioned the DIG IG team to design, construct and provide the monitoring regime for a further tailings storage facility for the iron ore process plant waste product. The design capacity requirement of the storage was 3,500,000m³; this was increased to 4,000,000m³ by excavating dam wall material from within the impounded area.

Site and Geotechnical Investigation commenced in November 2012, with borrow pit exploration commencing in January 2013. Construction of the zone fill dam commenced following completion of design on 1st February 2013. The total construction volume of fill materials is 3,000,000m³. The length of the dam is 1450m, with a maximum height of 45m and maximum width of 200m. The overall works consisted of:

- Clay zone 140,000m³
- Filter layers 120,000 tonnes (80,000m³)
- Supporting rock toe 20,000 tonnes (10,000m³)
- Laterite capping 150,000m³
- Top soil erosion protection 20,000m³
- General fill 2,600,000m³
- Quality Assurance and Control by on site Laboratory and site engineering to support managed by the DIG IG team.
- Filter media and rock toe produced by the quarry and an RC Spillway construction approx. 200m³ concrete.



Client: African Minerals

Value: \$29,000,000

Duration: 62 weeks



Tailings Storage Facility, Marampa Iron Ore Mine

PDLA15

This project involved the construction of a Tailings Storage Facility (TSF) and its associated works, which formed part of the Marampa Iron Ore Project in Sierra Leone. The Management team now working at DIG IG were already appointed as the principal mining contractor on the project and were awarded the TSF project following a successful qualification process.

Under the Marampa Iron Ore Project, mining infrastructure was developed in order to expand and increase production of iron ore to 6.15Mwmt/a by 2014. The TSF is one of a number of infrastructures required to achieve the above target.

The new TSF provides additional storage capacity (28.5million cubic metres) for tailings arising from the mining and processing operations. The works involved:

- Site clearance – 30Ha of bush and vegetation removal.
- Removal of topsoil, tailings and other unsuitable material from the footprint of the TSF
- Construction of a starter embankment – 400,000m of fill
- Supply and installation of drains to starter embankment – 6.7km of pipe to be installed
- Supply and installation of a Decant Penstock - 700m of pipeline fully encased in reinforced concrete and the construction of a 315,000 litre capacity reinforced concrete penstock sump
- Surface water management works
- Supply and installation of 3.0km of HDPE slurry delivery pipeline
- Construction of 3.2km of perimeter access road



Client: London Mining PLC

Value: \$8,500,000

Duration: 20 weeks