FOR IMMEDIATE RELEASE

AFRISAM AWARDED THE CONTRACT TO SUPPLY BALLAST FOR THE GAUTRAIN PROJECT

AfriSam was selected by Bombela Track to supply ballast for the Gautrain Rapid Rail Link project because of the company's resources and capacity to supply a superior, appropriately specified product. The close proximity of its quarries was also an important factor.

Jan van Tonder, track engineer at Bombela Track, explains that the humble ballast fulfills a critical task on any railway line. "Its primary function is to maintain alignment and keep the railway track stable. The ballast is, in fact, the main medium which allows maintenance actions in future to maintain alignment and provide stability," he says.

"Rails are welded together and fastened to the sleepers in such a way that the rails cannot move and as a result of this, high forces are created within the rails due to rail temperature changes. There has to be sufficient stability within the track structure to counter these forces and prevent kickouts or rail breaks."

The necessary stability in the lateral direction is provided by the lateral resistance of sleepers within the ballast stone, the lateral stiffness of the track

structure and the ballast stone at the head of the sleepers called the shoulder ballast. Additionally, the resistance of sleepers in ballast stone will give stability in the longitudinal direction as well as the total mass of the track structure and resistance of the rail fastening system.

Van Tonder says that the ballast has to comply with stringent specifications to ensure integrity of track construction. Samples of the AfriSam ballast were tested by Bombela Track to verify properties such as abrasion and hardness. "Essentially, the same specification used by Spoornet is used by Gautrain engineers, with the most important characteristic being that the aggregate will not break up into finer particles," van Tonder says. Prior to appointing AfriSam, a team of engineers from Bombela Track visited all its quarries to ensure adherence to these specifications.

"Significantly, AfriSam has already invested in a plant upgrade at its Oliefantsfontein quarry which facilitates a substantial capacity increase," Glenn Johnson, general manager of aggregates Gauteng, says. "This increase in capacity translates into a guarantee of product supply which was important to Bombela Track. Our Rooikraal quarry is also available in relatively close proximity as a back-up supply source."

Delivery of the AfriSam ballast is in line with the Gautrain construction programme, with initial deliveries made to the depot and thereafter as the line progresses deliveries will be made to predetermined positions along the

alignment at Modderfontein, Midrand depot, Midrand station, Centurion station and Pretoria station.

"These are Bombela Track's delivery locations where material is stockpiled to facilitate distribution as and when needed along the track. We anticipate that supply will peak around mid 2009 to meet the programme schedule and we will provide an ongoing supply of ballast with a reserve stockpile maintained to ensure immediate availability," Graham Hannah, contracts manager – multi-products key accounts at AfriSam, says.

"This is a passenger haul line designed for 16 ton axle loads and the dolomite ballast produced at AfriSam's Oliefantsfontein Quarry was considered suitable for the application," Hannah adds.

"We will have supplied 439 000 tons of 73 mm ballast by the target completion date of June 2010," Hannah says, "with the material selected from Oliefantsfontein being dolomite and from Rooikraal being dolerite. The material was selected to meet the particular application specifics in terms of abrasion resistance, good weathering characteristics and good particle distribution within the specification, to create voids which facilitate flushing of accumulated waste on the tracks."

Laying it down

"Following the preparation of the area, which includes the final layer being crusher run, the bottom ballast is laid using a ballast box and then rolled to achieve an even flat top on which to lay the sleepers," van Tonder explains.

The sleepers are laid with 700 mm spacing on the ballast using a hydraulic sleeper layer and the rail pads and gauge plates are placed by hand before the rails are dragged onto the sleepers.

The top ballast is placed using a ballast hopper wagon which ensures an even distribution from the chutes between the bogies. "The discharge of the ballast is controlled to ensure the ballast is not higher than the actual rail top. The ballast depth between sleeper and formation has to be at least 300 mm," van Tonder says.

The track is then aligned horizontally and vertically by a tamping machine to the design parameters. The ballast's purpose is to achieve the correct track alignment and to ensure lateral and vertical stability. Ballast also acts as a damping medium and absorbs the dynamics created by the rolling stock.

"Ballast is easy to maintain, and the schedule for maintenance will depend on the volume and tonnage of traffic," van Tonder says.

Track record

"AfriSam has been a leader in the market for a long time in terms of quality and we recently initiated the move from 19 mm to 22 mm product," Johnson says. "We have improved our quality control out of the quarry and we are able to selectively process better material to allow for a superior end product."

"When comparing our aggregates and ballast products, the crushing and screening process is essentially the same, with the prime differentiator being that most aggregates are continuously graded while ballast is gap graded.

"AfriSam has been involved in the supply of ballast over the past few decades and has supplied product into large Transnet projects in the past, making us a natural choice for customers like Bombela Track to build with confidence," Hannah concludes.

CAPTION FOR BALLAST 01: The ballast stockpile Midrand.

CAPTION FOR BALLAST 02: Ballast being transported for loading.

CAPTION FOR BALLAST 03: Ballast being loaded in the ballast wagon.

CAPTION FOR BALLAST 04: The mainline ballast being compacted with Viaduct three in background.

CAPTION FOR BALLAST 05: Mainline construction of track two.

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