

Cornubia access into industrial and business estate enhanced with opening of JG Champion Drive

Durban, 16 March 2016. Access into the Cornubia Industrial and Business Estate (CIBE) has been greatly improved with the opening of MR 458 road-over-rail bridge which leads motorists directly to the main entrance of the estate.

Previously, access into the CIBE was via a single lane from the R102, which had to be upgraded to accommodate the increasing traffic volumes. To ensure smooth flow of traffic, this road will remain open, and be the primary access to eThekweni's housing development, while the MR 458, or JG Champion Drive, entrance is now the main entrance into the estate.

“The opening of JG Champion Drive will go a long way in easing traffic congestion by greatly increasing access to the ever-expanding CIBE,” explained Mtura Matshini, Development Executive of Tongaat Hulett Developments (THD). “This long-awaited gateway to the CIBE comprises of two, dual lane road bridges. The location of the railway line, as well as wetland, necessitated the structures which presented an opportunity to construct aesthetically interesting feature bridges and entrance to the estate.

With this in mind, THD assembled a professional team comprising of both a consulting engineer and urban design architect, with the view of developing a unique and aesthetically pleasing entrance to the estate. The main design theme encompasses 14 masts along the outside of each structure, leaning in both the transverse and longitudinal directions. Each mast is illuminated creating an impressive night-time effect, directing traffic towards the CIBE.

The 88.50 m long structures comprise of four spans, integral at the abutments and intermediate piers. An expansion joint is

placed over the central pier, allowing for movement of the bridge decks. The bridge decks are 10.4 m wide, carry two lanes of traffic and a sidewalk each, with a clear gap of 7.8 m separating the bridge decks. The structures are at a 5° angle. The uniqueness of the structures is in the abutments leaning. A unique aspect of the structures is that the abutments and intermediate piers lean towards the approaches, while the central pier is vertical. This layout is mirrored by the light masts.

Each bridge deck comprises of six u-shaped, reinforced concrete, precast beams with lengths of approximately 21.0 m. A precast beam solution was necessary as the rail line that the structures span over needed to remain open with minimal disruptions during the construction period. This was achieved by lifting and placing the beams with cranes during temporary, short duration closures of the rail line. Diaphragms at each support create the monolithic structural system and a 200 mm thick cast in-situ deck slab, cast on permanent formwork, creates the riding surface of the bridges.

The bridge abutments are buttressed walls, leaning back at a 1 in 4 slope. The abutments are integral with the bridge deck. The piers comprise of leaning columns with a capping beam. The intermediate piers are integral with the bridge deck, while elastomeric bearings at the central piers support the bridge deck. All substructure elements are supported on 1.05 m diameter piles, raked where required.

The approaches to the structures are retained by mechanically stabilised earth walls. The southern approach passes through a wetland which required an unusual solution to stop the approach fill settling over the life of the structure. Stone columns were installed in this area to support the approach fill, with careful monitoring of the settlement taking place to ensure settlement limits were achieved, prior to finishing off the approaches.

Construction of the MR 458 started in April 2014, with FCE (Fountain Civil Engineering) as the main contractor. The official opening of the route took place at the end of February 2016. The R140 million access route was co-funded by eThekweni Municipality (60%) and Tongaat Hulett Developments (40%).

Access to the MR458 or JG Champion Drive is off the R102 and Northern Drive intersection near Phoenix and Ottawa.

Currently several organisations are operating in the CIBE including Bidvest Food services, Digistics, ID Logistics, Blinds Mart, Cargo Compass, and MacNeil with other purchasers including listed property funds as well as other large companies like TechnoVaa South Africa having acquired land in the estate. The Estate, which permits light industrial and business uses, is almost sold out, except for 1 large site.