# steel CONSTRUCTION

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The Monorail Bridge was designed to let small boats on the channel through.

# THE MONORAIL BRIDGE

## THESEN ISLANDS

*This bridge is an example of how derelict industrial structures can be sensibly adapted and re-used as an integral part of a new development. It provides a vital pedestrian link and it is a recognisable sculptural element that retains a sense of history of the place.*

Three of the existing portals were moved to the western side of the canals and two bridges were designed to be suspended from the structure. The position of the canals necessitated two separate bridges with spans of 46m each. The brief was to keep the structure of the bridges as thin as possible while allowing enough clearance underneath to allow small boats through.

Each bridge consists of two steel channels with angle ironed horizontal cross bracing in between and the handrail, which is a hollow tubular section, also serves as a structural element. The bridge is supported on a concrete base at each end and the span is suspended from the existing Monorail by steel rods. A timber deck was inserted between the steel channels and all the electrical conduits are hidden within this structure.

This bridge is an example of how derelict industrial structures can be sensibly adapted and re-used as an integral part of a new development. It provides a vital pedestrian link and it is a recognisable sculptural element that retains a sense of history of the place.

## project team

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|---|---|
| Developer: | Thesen Islands Development Company |
| Architect: | CMAI Architecture |
| Structural Engineer: | LSM Structures & Civils |
| Quantity Surveyor: | Steele Consulting |
| Project Manager: | Integrated Projects |
| Main Contractor: | Prokon Services |
| Steelwork Contractor: | Prokon Services |
| Timber Work: | Lomot |

package X Steel, which is used for the three-dimensional shop detailing.

The aesthetic has been kept as similar as possible to the Desmond and Leah Tutu bridge, in keeping with the client's requirements. Smith comments that the local council in Skibbereen has now asked Cosira to cost a 90m extension to the bridge, consisting of three 30m spans over the floodplain of the river to the parking area. There is also the possibility that another two similar bridges will be built further downstream on the Ilen, as the residential facility is extended.

While it is already well established as a leading structural steel fabricator in South Africa, Cosira is proud to have been identified for the Skibbereen project, which could well open further doors for the company into the international market.

## MORE ABOUT THE COSIRA GROUP

The Cosira Group has established itself as is one the largest structural steel fabricators in southern Africa and is the first privately owned group in the structural steel fabrication industry to achieve ISO 9001:2000. The Group operates four well equipped structural steel shops and produces over 2 000t of steel each month, from heavy structural steel and platework to complex conveyors, light warehousing, architectural and finely detailed handrailing.

Following the conclusion of a black empowerment deal with Tshipi Investment Holdings in 2004, the company is the first major black empowered structural steel fabrication and construction firm in South Africa. This BEE initiative complies with the South African Mining Preferential Procurement Forum (SAMPPF).

The Desmond and Leah Tutu Bridge, Houghton.

The Monorail bridge is situated on Thesen Islands in Knysna. This is on the site of the former Thesen Sawmill, which has been developed into a large residential estate with a smaller commercial core. The original island was divided into nineteen smaller islands, which necessitated the construction of various bridges.

A number of the old industrial structures have been retained for adaptive re-use and the Monorail is one of these. The structure was used as a gantry to transport timber to and from the kilns and is approximately 25 years old.

Most of the existing structural framework (which consists mainly of large I section portal frames) was kept in place and has been restored. The Monorail was subsequently bisected by two of the new canals that separate the commercial core from the residential areas, which is part of the reason why it was retained – when the urban planning was being done, the pedestrian routes were planned to coincide with the Monorail's location with the idea of integrating the structure with a bridge.

The new bridge hanging from the existing portal frame.

The gantry when it was still in use.