

# CERRO SOMBRERO HIGHWAY, CHILE

## THIN CONCRETE HIGHWAY TECHNOLOGY

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**BarChip fibres were used to completely replace crack control steel in this pioneering road design**

Thin and Ultra Thin Whitetopping road construction has been used extensively for road rehabilitation for many years. Whitetopping technology however uses the existing asphalt or concrete road as the base for the new pavement. The Cerro Sombrero Highway in Chile is using a bold new design that places a thin concrete highway directly over a stabilised granular base.

The short slab design from TCPavements is a derivation from Ultra Thin Whitetopping design and utilised multiple saw cuts and short slabs to ensure the performance of the highway.

The highway consists of a new BarChip fibre reinforced thin concrete pavement. The highway is 14cm thick placed on a 15 cm granular base with a CBR of greater than or equal to 50%. Considering that frost penetration is 50cm, a non frost embankment with a minimum thickness of 22cm was used.

The concrete strength was specified at 5.3 MPa at 90 days, with a defective fraction of 20% and a residual strength of 1.2 MPa L/150 according to ASTM C-1609-07 at 90 days.

Mixed with an EPC auto dosing machine and placed via slip form, over 42 tonnes of BarChip54 fibre was used at 2.5 kg/m<sup>3</sup> without incident. While many fibres were tested, BarChip 54's superior performance at low dose rates ensured it was the first and only choice for the project.



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