

Low Carbon Concrete Pavement Innovation: Coal Combustion Products, Rigid And Flexible Pavement Application

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Coal Combustion Products (CCPs) are composed of many non-combustible components and the continuous production of these materials for over more than 50 years, has highlighted the long-term management challenges for these growing resources. Increased utilisation of CCPs in road pavements has the potential to provide economic and environmental benefits to communities and power plants alike.

Historically, proponents of CCP use in pavements have engaged State Road Authorities (SRA) or Department of Transport (DoT) with anecdotal claims of CCP performance arising from ad hoc field trials. Majority of these trials occurred in New South Wales during the early 2000s and some uptake occurred within TfNSW (Transport for New South Wales). However, limited pavement trials were conducted in other states, e.g. Queensland resulting in no further investigation being undertaken by SRAs/DOTs and the proponent's product was not considered for use in major road applications.

In mid 2020, Stanwell approached Arcadis for technical advice about establishing a trial with the intent to prove the performance of traditionally non-conforming CCPs. Arcadis developed an SRA/DoT-level trial design which was designed, constructed and progressively monitored similar to a major highway. The goal was to proactively engage SRAs/DoTs in a demonstration trial around which scientific rigour was framed. Subsequent to the trial at Stanwell Power Station, a number of industry workshops were facilitated by the Ash Development Association of Australia (ADAA) where the process and benefits were discussed. This project aimed to increase and demonstrate the beneficial use of CCPs in rigid and flexible pavement applications.