The Kyle of Tongue Bridge, located in the Scottish Highlands, links the eastern and western side of the Tongue and was built to replace a ferry service which operated until 1971.

Problem

The bridge deck, constructed using prestressed beams, was suffering from corrosion due to exposure to high concentrations of chloride from the sea beneath it and de-icing salts used on the deck. There was also the need to maintain the steel potential above \(-0.9\, \text{V}\) due to the risk of hydrogen embrittlement of the steel strands in such a prestressed structure.

Solution Developed

Overseen by AECOM, CPT applied the DuoGuard Hybrid System to prestressed steel—the first time it was used in this way. Specially designed voltage and current controllers helped to regulate the current passed through the DuoGuard 175 Anodes. Corrosion protection of concrete repairs undertaken to the capping beams on some pre-stressed areas was achieved by addition of PatchGuard anodes.

Benefits

The PatchGuard anodes were very compact and thus simple to install along the periphery of repairs. The adapted Hybrid system protected the prestressed steel.

CPT Products Used:

- DuoGuard™ 175
- PatchGuard™
- DuoCrete SD Mortar
- MN15 Reference Electrodes
- Voltage/Current Controllers

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