Recycled Concrete Used for Shoulder Paving on Interstate 16 Near Dublin, Georgia

Halfway between Macon and Savannah, Georgia, lies just under 30 miles of concrete pavement near Dublin that was rehabilitated with new 491,747 SY of 11" thick mainline concrete paving and 626,000 SY of shoulder paving. The project also involved 1,188,466 SY of cement-treated base (CTB) and a pavement interlayer fabric between the CTB and concrete pavement.

The project was initially bid in October 2012 with roller-compact concrete (RCC) shoulders. However, the awarded contractor McCarthy Improvement Company (in 2012 dba APAC Ballenger) proposed changing the shoulders to Portland Cement Concrete Pavement (PCCP) and for the first time in Georgia, the “PCCP shoulder specifications” were modified to allow the use of recycled concrete as the aggregate in the PCCP shoulder. The PCCP shoulders averaged 4,800 psi strength at 28 days and were transverse jointed and sealed every 15 feet.

CTB combined with a fabric interlayer was used for the first time on an interstate in Georgia. The Georgia Department of Transportation (GDOT) chose CTB with cement because they wanted a strong base, but they still wanted a separator between the CTB and concrete pavement. The CTB was installed following a similar method used for FullDepth Reclamation (FDR). Cement was spread on the existing soil base, which included macadam, and then hydrated and mixed together with a reclaiming machine and then compacted with a roller.

“The first phase of the project required rehabilitating the inside high speed lane followed by diamond grinding the surface. Then we replaced the existing inside 4’ asphalt shoulder with a 10’ wide recycled concrete shoulder on top of the CTB. The CTB design, which was supposed to be 8” thick with 55 lbs of cement per square yard using standard methods, had to be changed due to existing base problems underneath. The GDOT materials lab changed the CTB design to 12” deep with 65 lbs per square yard," said McCarthy Improvement Company Project Manager Kevin Crusa. “The outside 9’ shoulder was replaced following the standard method. All paving was completed in January of 2016. Also due to tight work areas, this paving had to be done using a “stringless” Topcon system where we locked into the pavement next to it and ran cross slope based on a robot, not a full GPS system. We had a cable barrier in the way on the inside shoulder and the sides of the paver legs were over the cable on the shoulder.”

This project was uniquely innovative for paving the shoulders with concrete pavement with recycled concrete under a very tight schedule and high traffic area.

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