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HBP Roadworks Milestone: Opening of US 181 Southbound Frontage Road

Congratulations to our roadworks construction crew for successfully opening the US 181 southbound frontage road to two-way traffic. Despite Covid-19 and weather-related obstacles, our team members persevered to achieve this milestone, which ushers in the next phase of Project construction around North Beach. The undertaking involved significant ground improvements to create longevity of the roadway. In the coming weeks, we will open the US 181 northbound frontage road as well, and both routes will be available for detours once we close Burseson Street underneath US 181.



HBP Column Pier Cap Construction on the Harbor Bridge Project

The final phase of building the north and south approach substructures involve the intricate process of installing the column pier caps. We construct up to 20 different types of pier caps throughout the HBP, however, four caps are the most commonly built. Type I is 22' 10" wide by 11' deep by 10' tall and requires 76 cubic yards of concrete. Type II is 22' 10" wide by 12' deep by 10' tall and requires 83 cubic yards of concrete. Type III (northbound) is 30' wide by 14' deep by 10' tall and requires 150 cubic yards of concrete. Type III (southbound) is 22' 10" wide by 14' deep by 10' tall and requires 120 cubic yards of concrete. Type IV is for ramps and the smallest of the caps at 10' wide by 12' deep by 10' tall and requires 34 cubic yards of concrete. Pier caps start smaller at the north and south approach abutment walls, and then they grow larger as they reach the transition pier where the last approach span meets the back span of the main cable-stayed bridge.



'Dancefloors' Create a Safe Place for Column Pier Cap Construction

Once the segment construction is complete for the approach columns, then a pier cap is cast-in-place (CIP) to complete the support base for the superstructure spans. We install a 'dancefloor' on top of a completed column, which is used as a staging area to build the pier cap. Most 'dancefloors' are modified and retrofitted according to the size of the column and installed using a wedge system for stabilization. The caps are created using a mold built with interlaced rebar. Depending on the size of the cap, there can be from 4 to 24, 1-3/4 inch post-tension (PT) bars installed during this complex process of creating the pier cap frame. Once the rebar cage is built into a rhombus shape, then the concrete is poured and cured. After this CIP process is complete, 1-3/4 inch post-tension (PT) bars are stressed using a hydraulic jack and large nuts to tighten from end to end. This compression process gives the cap all of its strength.

Pier cap construction on the HBP involves the expertise of up to 25 skilled craft workers, engineers, and superintendents. We have just surpassed 50% completion of the 101 approach column pier caps.



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