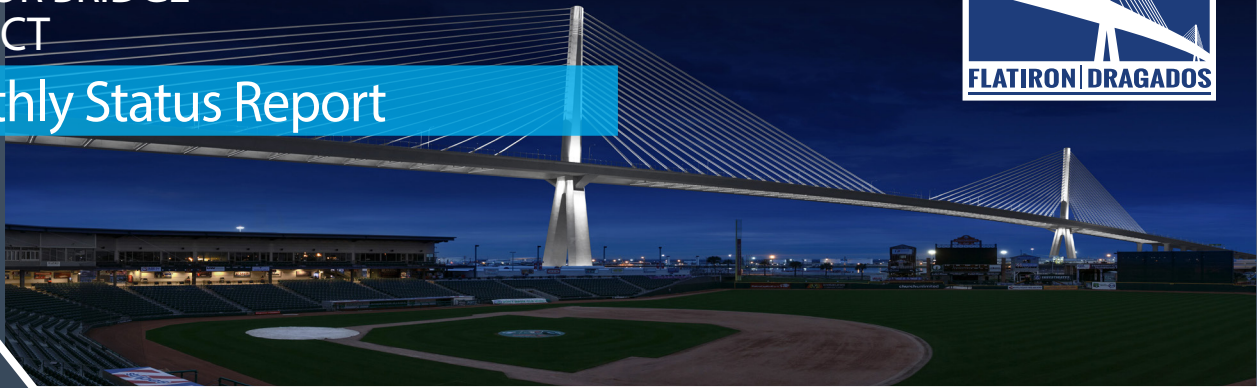


## Monthly Status Report



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July 2020

### ***New Location and Upgrades for the Harbor Bridge Project (HBP) Concrete Production***

The HBP achieved another milestone in July by successfully mobilizing a new concrete batch plant (CBP) operation at our Pre Cast Yard (PCY) in Robstown. The high-tech stationary CBP is designed for large output with efficiency and consistency to meet the extreme concrete quality specifications required for the Project segmental box girders and approach/roadway substructure.

**Process:** HBP concrete mixtures consist of the following primary ingredients: 1) Aggregate (Stone 57 – course rocks, Stone 89 – smaller rocks, Manufactured and Natural Sand – fines). 2) Cement. 3) Slag – a hydraulic cement produced during the reduction of iron ore to iron in a blast furnace. 4) Fly Ash – a coal derivative which adds strength and durability. 5) Water. 6) Up to four different admixtures. Aggregates are loaded into four large bins that sit over a conveyor belt. Appropriate amounts of each aggregate must be carefully weighed. The first conveyor belt is suspended by four load cells or scales. Each aggregate is weighed and released onto the conveyor belt one at a time.

After the aggregates are weighed, they get conveyed to the mixer. The mixer is also connected to four large silos, which add the powdered ingredients to each batch. Silos 1 and 2 contain fly ash and slag. Silos 3 and 4 contain base cement. The water is kept cool in an insulated tank attached to a chiller. Chilled water is critical, so the concrete does not exceed 95 degrees during placement. All ingredients are loaded into a twin shaft mixer system that thoroughly mixes the concrete before being discharged into the mixer truck.

A control room next to the mixer houses elaborate technology and plays an essential role in controlling the process of adding ingredients throughout the mixing cycle. Operation oversight is done from the control room automatically using a digital system that monitors the bins, silos, and water source. Specification details are preprogrammed into a computer, and materials are mixed to the exact quantities defined in the mix design. The finished product is channeled into one of two chutes: Chute I goes directly into a concrete truck for delivery to the nearby PCY or the job site cast-in-place (CIP) operations. Chute II is for dry batch dispensed into the concrete truck for mixing as a backup alternative if there is a problem with the system.

**Quality Control:** Fresh concrete for PCY and CIP operations must pass through a detailed testing and inspection plan to meet quality acceptance guidelines. Everything at the CBP is self-contained, which is better from a noise, environmental, and material waste standpoint. A central dust collection unit is strategically placed next to the mixer for the safety of our personnel and to prevent dust-particle damage to nearby farmland. Wastewater collection and testing are conducted regularly to avoid long-term environmental impacts.

**Precision:** HBP concrete processes set a gold-standard in creating a quality product for this iconic infrastructure. The critical need for accuracy in measuring these superior ingredients and controlling external factors such as temperature and moisture is akin to baking a perfect chocolate soufflé!



### ***Newly Constructed Martin Luther Drive Boulevard Opens***

July ushered in another HBP milestone with the opening of Martin Luther King (MLK) Drive, which serves as the westbound frontage road to IH 37. MLK opening is a key piece of the overall HBP as it serves as a detour route for traffic impacted by the ongoing construction around the South Approach interchange.



**HARBOR BRIDGE**

Corpus Christi, Texas